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# Fitting

2023

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Fittings

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## ASTM A 234/ A 234M-2023

Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.

### • Chemical Requirements<sup>A</sup>

| Grade                | C         | Mn        | P         | S         | Si        | Cr        | Mo        | Ni        | Cu        | Others  |
|----------------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|---|
| WPB <sup>B,C,D</sup> | 0.30      | 0.29-1.06 | 0.050     | 0.058     | min 0.10  | 0.40      | 0.15      | 0.40      | 0.40      | V: 0.08 Cr+Mo+Ni+Cu: 1.00                                     |
| WPC <sup>C,D</sup>   | 0.35      | 0.29-1.06 | 0.050     | 0.058     | min 0.10  | 0.40      | 0.15      | 0.40      | 0.40      | V: 0.08 Cr+Mo+Ni+Cu: 1.00                                     |
| WP1                  | 0.28      | 0.30-0.90 | 0.045     | 0.045     | 0.10-0.50 | ...       | 0.44-0.65 | ...       | ...       | ...   |
| WP12 CL1             | 0.05-0.20 | 0.30-0.80 | 0.045     | 0.045     | 0.60      | 0.80-1.25 | 0.44-0.65 | ...       | ...       | ...   |
| WP12 CL2             | 0.05-0.20 | 0.30-0.80 | 0.045     | 0.045     | 0.60      | 0.80-1.25 | 0.44-0.65 | ...       | ...       | ...   |
| WP11 CL1             | 0.05-0.15 | 0.30-0.60 | 0.030     | 0.030     | 0.50-1.00 | 1.00-1.50 | 0.44-0.65 | ...       | ...       | ...   |
| WP11 CL2             | 0.05-0.20 | 0.30-0.80 | 0.040     | 0.040     | 0.50-1.00 | 1.00-1.50 | 0.44-0.65 | ...       | ...       | ...   |
| WP11 CL3             | 0.05-0.20 | 0.30-0.80 | 0.040     | 0.040     | 0.50-1.00 | 1.00-1.50 | 0.44-0.65 | ...       | ...       | ...   |
| WP22 CL1             | 0.05-0.15 | 0.30-0.60 | 0.040     | 0.040     | 0.50      | 1.90-2.60 | 0.87-1.13 | ...       | ...       | ...   |
| WP22 CL3             | 0.05-0.15 | 0.30-0.60 | 0.040     | 0.040     | 0.50      | 1.90-2.60 | 0.87-1.13 | ...       | ...       | ...   |
| WP24                 | 0.05-0.10 | 0.30-0.70 | 0.020     | 0.010     | 0.15-0.45 | 2.20-2.60 | 0.90-1.10 | ...       | 0.75-1.25 | Al: 0.020 B: 0.0015-0.0070 N: 0.12 Ti: 0.06-0.10 V: 0.20-0.30 |
| WP5 CL1              | Max 0.15  | 0.30-0.60 | Max 0.040 | Max 0.030 | Max 0.50  | 4.0-6.0   | 0.44-0.65 | ...       | ...       | ...   |
| WP5 CL3              | 0.15      | 0.30-0.60 | 0.040     | 0.030     | 0.50      | 4.0-6.0   | 0.44-0.65 | ...       | ...       | ...   |
| WP9 CL1              | 0.15      | 0.30-0.60 | 0.030     | 0.030     | 1.00      | 8.0-10.0  | 0.90-1.10 | ...       | ...       | ...   |
| WP9 CL3              | 0.15      | 0.30-0.60 | 0.030     | 0.030     | 1.00      | 8.0-10.0  | 0.90-1.10 | ...       | ...       | ...   |
| WPR                  | 0.20      | 0.40-1.06 | 0.045     | 0.050     | ...       | ...       | ...       | 1.60-2.24 | 0.75-1.25 | ...   |

## ASTM A 234/ A 234M-2023

Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Moderate and High Temperature Service.

### • Chemical Requirements<sup>A</sup>

| Grade       | C         | Mn        | P     | S     | Si        | Cr        | Mo        | Ni   | Cu   | Others  |
|-------------|-----------|-----------|-------|-------|-----------|-----------|-----------|------|------|---|
| WP91 Type 1 | 0.08-0.12 | 0.30-0.60 | 0.020 | 0.010 | 0.20-0.50 | 8.0-9.5   | 0.85-1.05 | 0.40 | ...  | V: 0.18-0.25 Nb: 0.06-0.10 N: 0.03-0.07 Al: 0.02 Ti: 0.01 Zr: 0.01  |
| WP91 Type 2 | 0.08-0.12 | 0.30-0.50 | 0.020 | 0.005 | 0.20-0.40 | 8.0-9.5   | 0.85-1.05 | 0.20 | 0.10 | V: 0.18-0.25 Nb: 0.02-0.06 N: 0.030-0.070 Al: 0.02 N/Al: min 4.0 B: 0.001 Ti: 0.01 Zr: 0.01 As: 0.010 Sn: 0.010 Sb: 0.003 W: 0.05 CNB: 10.5 |
| WP115       | 0.08-0.13 | 0.20-0.50 | 0.020 | 0.005 | 0.15-0.45 | 10.0-11.0 | 0.40-0.60 | 0.25 | 0.10 | V: 0.18-0.25 Nb: 0.06-0.10 N: 0.030-0.070 Al: 0.02 N/Al: min 4.0 B: 0.001 Ti: 0.01 Zr: 0.01 As: 0.010 Sn: 0.010 Sb: 0.003 W: 0.05 CNB: 10.5 |
| WP911       | 0.09-0.13 | 0.30-0.60 | 0.020 | 0.010 | 0.10-0.50 | 8.5-9.5   | 0.90-1.10 | 0.40 | ...  | V: 0.18-0.25 Nb: 0.06-0.10 N: 0.04-0.09 Al: 0.02 B: 0.0003-0.006 W: 0.90-1.10 Ti: 0.01 Zr: 0.01   |
| WP92        | 0.07-0.13 | 0.30-0.60 | 0.020 | 0.010 | 0.50      | 8.50-9.50 | 0.30-0.60 | 0.40 | ...  | Al: 0.02 B: 0.001-0.006 Nb: 0.04-0.09 N: 0.030-0.070 Ti: 0.01 W: 1.50-2.00 V: 0.15-0.25 Zr: 0.01  |

<sup>A</sup> All requirements are maximum unless otherwise indicated

<sup>B</sup> Fittings made from bar or plate may have 0.35 max carbon.

<sup>C</sup> Fittings made from forgings may have 0.35 max carbon and 0.35 max silicon with no minimum

<sup>D</sup> For each reduction of 0.01% below the specified carbon max, an increase of 0.06% manganese above the specified max will be permitted, up to a maximum of 1.65%

### • Tensile and hardness requirements

| Grade    | Tensile Requirements     |                            | Elongation Requirements |             |            |             | Hardness Requirements |
|----------|--------------------------|----------------------------|-------------------------|-------------|------------|-------------|-----------------------|
|          | Yield strength ksi [MPa] | Tensile strength ksi [MPa] | Longitudinal            |             | Transverse |             |                       |
|          |                          |                            | Round                   | Rectangular | Round      | Rectangular | HBW                   |
| WPB      | min 35 [240]             | min 60 [415]               | min 22                  | min 30      | min 14     | min 20      | Max 197               |
| WPC      | min 40 [275]             | min 70 [485]               | min 22                  | min 30      | min 14     | min 20      | Max 197               |
| WP1      | min 30 [205]             | 55-80 [380-550]            | min 22                  | min 30      | min 14     | min 20      | Max 197               |
| WP12 CL1 | min 32 [220]             | min 60 [415]               | min 22                  | min 30      | min 14     | min 20      | Max 197               |
| WP12 CL2 | min 40 [275]             | min 70 [485]               | min 22                  | min 30      | min 14     | min 20      | Max 197               |
| WP11 CL1 | min 30 [205]             | min 60 [415]               | min 22                  | min 30      | min 14     | min 20      | Max 197               |
| WP11 CL2 | min 40 [275]             | min 70 [485]               | min 22                  | min 30      | min 14     | min 20      | Max 197               |
| WP11 CL3 | min 45 [310]             | min 75 [520]               | min 22                  | min 30      | min 14     | min 20      | Max 197               |
| WP22 CL1 | min 30 [205]             | min 60 [415]               | min 22                  | min 30      | min 14     | min 20      | Max 197               |

**Tensile and hardness requirements**

| Grade       | Tensile Requirements     |                            | Elongation Requirements |             |            |             | Hardness Requirements |
|-------------|--------------------------|----------------------------|-------------------------|-------------|------------|-------------|-----------------------|
|             | Yield strength ksi [MPa] | Tensile strength ksi [MPa] | Longitudinal            |             | Transverse |             |                       |
|             |                          |                            | Round                   | Rectangular | Round      | Rectangular | HBW                   |
| WP22 CL3    | min 45 [310]             | min 75 [520]               | min 22                  | min 30      | min 14     | min 20      | Max 197               |
| WP24        | min 60 [415]             | min 85 [585]               | min 20                  | min 28      | ...        | ...         | Max 248               |
| WP5 CL1     | min 30 [205]             | min 60 [415]               | min 22                  | min 30      | min 14     | min 20      | Max 217               |
| WP5 CL3     | min 45 [310]             | min 75 [520]               | min 22                  | min 30      | min 14     | min 20      | Max 217               |
| WP9 CL1     | min 30 [205]             | min 60 [415]               | min 22                  | min 30      | min 14     | min 20      | Max 217               |
| WP9 CL3     | min 45 [310]             | min 75 [520]               | min 22                  | min 30      | min 14     | min 20      | Max 217               |
| WPR         | min 46 [315]             | 63-88 [435-605]            | min 20                  | min 28      | ...        | ...         | Max 217               |
| WP91 Type 1 | min 60 [415]             | min 90 [620]               | min 20                  | ...         | min 13     | ...         | 190-250               |
| WP91 Type 2 | min 60 [415]             | min 90 [620]               | min 20                  | ...         | min 13     | ...         | 190-250               |
| WP115       | min 65 [450]             | min 90 [620]               | min 20                  | ...         | min 13     | ...         | 190-250               |
| WP911       | min 64 [440]             | 90-120 [620-840]           | min 20                  | ...         | min 13     | ...         | Max 248               |
| WP92        | min 64 [440]             | 90-120 [620-840]           | min 20                  | ...         | min 13     | ...         | Max 269               |

**ASTM A420-2020**

Standard Specification for Piping Fittings of Wrought Carbon Steel and Alloy Steel for Low-Temperature Service

**Chemical Requirements**

| Grade             | C        | Mn        | P         | S         | Si        | Ni        | Cr       | Mo       | Cu        | Nb       | V        |
|-------------------|----------|-----------|-----------|-----------|-----------|-----------|----------|----------|-----------|----------|----------|
| WPL6              | Max 0.30 | 0.50-1.35 | Max 0.035 | Max 0.040 | 0.15-0.40 | Max 0.40  | Max 0.30 | Max 0.12 | Max 0.40  | Max 0.02 | Max 0.08 |
| WPL9              | Max 0.20 | 0.40-1.06 | Max 0.030 | Max 0.030 | ...       | 1.60-2.24 | ...      | ...      | 0.75-1.25 | ...      | ...      |
| WPL3 <sup>A</sup> | Max 0.20 | 0.31-0.64 | Max 0.05  | Max 0.05  | 0.13-0.37 | 3.2-3.8   | ...      | ...      | ...       | ...      | ...      |
| WPL8 <sup>B</sup> | Max 0.13 | Max 0.90  | Max 0.030 | Max 0.030 | 0.13-0.37 | 8.4-9.6   | ...      | ...      | ...       | ...      | ...      |

<sup>A</sup> Fittings made from plate or forgings may have 0.90% max manganese.

<sup>B</sup> Fittings made from plate may have 0.98% max manganese

**Tensile Requirements**

| Grade | Tensile Requirements     |                            | Elongation Requirements |             |            |             |
|-------|--------------------------|----------------------------|-------------------------|-------------|------------|-------------|
|       | Yield strength ksi [MPa] | Tensile strength ksi [MPa] | Longitudinal            |             | Transverse |             |
|       |                          |                            | Round                   | Rectangular | Round      | Rectangular |
| WPL6  | min 35 [240]             | 60 [415] – 95 [655]        | min 22                  | min 30      | min 12     | min 16.5    |
| WPL9  | min 46 [315]             | 63 [435] – 88 [610]        | min 20                  | min 28      | ...        | min 18      |
| WPL3  | min 35 [240]             | 65 [450] – 90 [620]        | min 22                  | min 30      | min 14     | min 20      |
| WPL8  | min 75 [515]             | 100 [690] – 125 [865]      | min 16                  | min 22      | ...        | ...         |

**Charpy Impact Requirements**

| Grade | Temperature | Average of Three Specimens |    | One Specimen Only |    |
|-------|-------------|----------------------------|----|-------------------|----|
|       | °F [°C]     | ft-lbf                     | J  | ft-lbf            | J  |
| WPL6  | -50 [-45]   | 13                         | 18 | 10                | 14 |
| WPL9  | -100 [-75]  | 13                         | 18 | 10                | 14 |
| WPL3  | -150 [-100] | 13                         | 18 | 10                | 14 |
| WPL8  | -320 [-195] | 25                         | 34 | 20                | 27 |

**ASTM A403/403M- 2022**

Specification for Wrought Austenitic Stainless Steel Piping Fittings

**Chemical Requirements<sup>A</sup>**

| Grade   | UNS    | C         | Mn   | P     | S     | Si   | Ni        | Cr        | Mo        | Ti        | N         | Others  |
|---------|--------|-----------|------|-------|-------|------|-----------|-----------|-----------|-----------|-----------|---|
| WP20CB  | N08020 | 0.07      | 2.00 | 0.045 | 0.035 | 1.00 | 32.0-38.0 | 19.0-21.0 | 2.00-3.00 | ...       | ...       | Cu: 3.0-4.0<br>Nb: 8xC-1.00                                       |
| WP6XN   | N08367 | 0.030     | 2.00 | 0.040 | 0.030 | 1.00 | 23.5-25.5 | 20.0-22.0 | 6.0-7.0   | ...       | 0.18-0.25 | Cu: Max 0.75  |
| WP700   | N08700 | 0.04      | 2.00 | 0.040 | 0.030 | 1.00 | 24.0-26.0 | 19.0-23.0 | 4.3-5.0   | ...       | ...       | Cu: Max 0.50<br>Nb: 8xC min                                       |
| WPNIC   | N08800 | 0.10      | 1.50 | 0.045 | 0.015 | 1.00 | 30.0-35.0 | 19.0-23.0 | ...       | 0.15-0.60 | ...       | Al: 0.15-0.60<br>Cu: Max 0.75<br>Fe: 39.5 min<br>Al+Ti: 0.85-1.20 |
| WPNIC10 | N08810 | 0.05-0.10 | 1.50 | 0.045 | 0.015 | 1.00 | 30.0-35.0 | 19.0-23.0 | ...       | 0.15-0.60 | ...       | Al: 0.15-0.60<br>Cu: Max 0.75<br>Fe: 39.5 min                     |

**• Chemical Requirements<sup>A</sup>**

| Grade    | UNS    | C                  | Mn   | P     | S     | Si   | Ni        | Cr        | Mo        | Ti          | N         | Others   |
|----------|--------|--------------------|------|-------|-------|------|-----------|-----------|-----------|-------------|-----------|--|
| WPNIC11  | N08811 | 0.06-0.10          | 1.50 | 0.040 | 0.015 | 1.00 | 30.0-35.0 | 19.0-23.0 | ...       | 0.25-0.60   | ...       | Al: 0.25-0.60 <sup>C</sup><br>Cu: Max 0.75<br>Fe: 39.5 min<br>Al+Ti: 0.85-1.20 |
| WP304    | S30400 | 0.08               | 2.00 | 0.045 | 0.030 | 1.00 | 8.0-11.0  | 18.0-20.0 | ...       | ...         | ...       | ...  |
| WP304L   | S30403 | 0.030 <sup>B</sup> | 2.00 | 0.045 | 0.030 | 1.00 | 8.0-12.0  | 18.0-20.0 | ...       | ...         | ...       | ...  |
| WP304H   | S30409 | 0.04-0.10          | 2.00 | 0.045 | 0.030 | 1.00 | 8.0-11.0  | 18.0-20.0 | ...       | ...         | ...       | ...  |
| WP309    | S30900 | 0.20               | 2.00 | 0.045 | 0.030 | 1.00 | 12.0-15.0 | 22.0-24.0 | ...       | ...         | ...       | ...  |
| WP310S   | S31008 | 0.08               | 2.00 | 0.045 | 0.030 | 1.00 | 19.0-22.0 | 24.0-26.0 | ...       | ...         | ...       | ...  |
| WP310H   | S31009 | 0.04-0.10          | 2.00 | 0.045 | 0.030 | 1.00 | 19.0-22.0 | 24.0-26.0 | ...       | ...         | ...       | ...  |
| WPS31254 | S31254 | 0.020              | 1.00 | 0.030 | 0.010 | 0.80 | 17.5-18.5 | 19.5-20.5 | 6.0-6.5   | ...         | 0.18-0.25 | Cu: 0.50-1.00  |
| WP316    | S31600 | 0.08               | 2.00 | 0.045 | 0.030 | 1.00 | 10.0-14.0 | 16.0-18.0 | 2.00-3.00 | ...         | ...       | ...  |
| WP316L   | S31603 | 0.030 <sup>B</sup> | 2.00 | 0.045 | 0.030 | 1.00 | 10.0-14.0 | 16.0-18.0 | 2.00-3.00 | ...         | ...       | ...  |
| WP316H   | S31609 | 0.04-0.10          | 2.00 | 0.045 | 0.030 | 1.00 | 10.0-14.0 | 16.0-18.0 | 2.00-3.00 | ...         | ...       | ...  |
| WPS32053 | S32053 | 0.030              | 1.00 | 0.030 | 0.010 | 1.00 | 24.0-26.0 | 22.0-24.0 | 5.0-6.0   | ...         | 0.17-0.22 | ...  |
| WP321    | S32100 | 0.08               | 2.00 | 0.045 | 0.030 | 1.00 | 9.0-12.0  | 17.0-19.0 | ...       | 5(C+N)-0.70 | ...       | ...  |
| WP321H   | S32109 | 0.04-0.10          | 2.00 | 0.045 | 0.030 | 1.00 | 9.0-12.0  | 17.0-19.0 | ...       | 4(C+N)-0.70 | ...       | ...  |
| WP348    | S34800 | 0.08               | 2.00 | 0.045 | 0.030 | 1.00 | 9.0-12.0  | 17.0-19.0 | ...       | ...         | ...       | Nb + Ta: 10C-1.10<br>Ta: Max 0.10<br>Co: Max 0.20                              |
| WP348H   | S34809 | 0.04-0.10          | 2.00 | 0.045 | 0.030 | 1.00 | 9.0-12.0  | 17.0-19.0 | ...       | ...         | ...       | Nb + Ta: 8C-1.10<br>Ta: Max 0.10<br>Co: Max 0.20                               |

<sup>A</sup> Maximum, unless otherwise indicated

<sup>B</sup> For small diameter or thin walls, or both, where many drawing passes are required, a carbon maximum of 0.040% is necessary in grades TP304L and TP316L. Small outside diameter tubes are defined as those less than 0.500 in. [12.7 mm] in outside diameter and light wall tubes as those less than 0.049 in. [1.24 mm] in average wall thickness

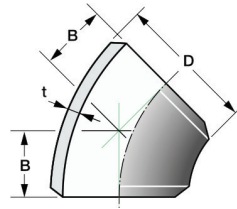
**• Tensile Requirements**

| Grade    | Tensile Requirements        |                               | Elongation Requirements |             |            |             |
|----------|-----------------------------|-------------------------------|-------------------------|-------------|------------|-------------|
|          | Yield strength<br>ksi [MPa] | Tensile strength<br>ksi [MPa] | Longitudinal            |             | Transverse |             |
|          |                             |                               | Round                   | Rectangular | Round      | Rectangular |
| WP20CB   | min 35 [240]                | min 80 [550]                  | min 28                  |             | min 20     |             |
| WP6XN    | min 45 [310]                | min 95 [655]                  | min 28                  |             | min 20     |             |
| WP700    | min 35[240]                 | min 80[550]                   | min 28                  |             | min 20     |             |
| WPNIC    | min 25 [205]                | min 65 [520]                  | min 28                  |             | min 20     |             |
| WPNIC10  | min 25 [170]                | min 65 [450]                  | min 28                  |             | min 20     |             |
| WPNIC11  | min 25 [170]                | min 65 [450]                  | min 28                  |             | min 20     |             |
| WP304    | min 30 [205]                | min 75 [515]                  | min 28                  |             | min 20     |             |
| WP304L   | min 25 [170]                | min 70 [485]                  | min 28                  |             | min 20     |             |
| WP304H   | min 30 [205]                | min 75 [515]                  | min 28                  |             | min 20     |             |
| WP309    | min 30 [205]                | min 75 [515]                  | min 28                  |             | min 20     |             |
| WP310S   | min 30 [205]                | min 75 [515]                  | min 28                  |             | min 20     |             |
| WP310H   | min 30 [205]                | min 75 [515]                  | min 28                  |             | min 20     |             |
| WPS31254 | min 44 [300]                | 94 [650] to 119 [820]         | min 28                  |             | min 20     |             |
| WP316    | min 30 [205]                | min 75 [515]                  | min 28                  |             | min 20     |             |
| WP316L   | min 25 [170]                | min 70 [485]                  | min 28                  |             | min 20     |             |
| WP316H   | min 30 [205]                | min 75 [515]                  | min 28                  |             | min 20     |             |
| WPS32053 | min 43 [295]                | min 93 [640]                  | min 28                  |             | min 20     |             |
| WP321    | min 30 [205]                | min 75 [515]                  | min 28                  |             | min 20     |             |
| WP321H   | min 30 [205]                | min 75 [515]                  | min 28                  |             | min 20     |             |
| WP348    | min 30 [205]                | min 75 [515]                  | min 28                  |             | min 20     |             |
| WP348H   | min 30 [205]                | min 75 [515]                  | min 28                  |             | min 20     |             |



**ASME B 16.9-2018**

• 45° Elbow (Long) radius



| Nominal Pipe Size (NPS) | Outside Diameter at Bevel<br>D-mm(in) | Center to End<br>B – mm(in) | STD       | XS    | XXS   | Sch10 | Sch20 |  |  |
|-------------------------|---------------------------------------|-----------------------------|-----------|-------|-------|-------|-------|--|--|
|                         |                                       |                             | W.T. mm   |       |       |       |       |  |  |
|                         |                                       |                             | weight Kg |       |       |       |       |  |  |
| 1/2                     | 21.3(0.84)                            | 16(0.62)                    | 2,77      | 3,73  | 7,47  |       |       |  |  |
|                         |                                       |                             | 0,04      | 0,08  | **    |       |       |  |  |
| 3/4                     | 26.7(1.05)                            | 19(0.75)                    | 2,87      | 3,91  | 7,82  |       |       |  |  |
|                         |                                       |                             | 0,04      | 0,08  | **    |       |       |  |  |
| 1                       | 33.4(1.32)                            | 22(0.88)                    | 3,38      | 4,55  | 9,09  |       |       |  |  |
|                         |                                       |                             | 0,08      | 0,10  | 0,19  |       |       |  |  |
| 1 1/4                   | 42.2(1.66)                            | 25(1.00)                    | 3,56      | 4,85  | 9,70  |       |       |  |  |
|                         |                                       |                             | 0,12      | 0,18  | 0,30  |       |       |  |  |
| 1 1/2                   | 48.3(1.90)                            | 29(1.12)                    | 3,68      | 5,08  | 10,16 |       |       |  |  |
|                         |                                       |                             | 0,18      | 0,25  | 0,45  |       |       |  |  |
| 2                       | 60.3(2.38)                            | 35(1.38)                    | 3,91      | 5,54  | 11,07 |       |       |  |  |
|                         |                                       |                             | 0,32      | 0,47  | 0,84  |       |       |  |  |
| 2 1/2                   | 73.0(2.88)                            | 44(1.75)                    | 5,16      | 7,01  | 14,02 |       |       |  |  |
|                         |                                       |                             | 0,64      | 0,85  | 1,60  |       |       |  |  |
| 3                       | 88.9(3.50)                            | 51(2.00)                    | 5,49      | 7,62  | 15,24 |       |       |  |  |
|                         |                                       |                             | 1,02      | 1,37  | 2,60  |       |       |  |  |
| 3 1/2                   | 101.6(4.00)                           | 57(2.25)                    | 5,74      | 8,08  |       |       |       |  |  |
|                         |                                       |                             | 1,43      | 1,97  |       |       |       |  |  |
| 4                       | 114.3(4.50)                           | 64(2.50)                    | 6,02      | 8,56  | 17,12 |       |       |  |  |
|                         |                                       |                             | 1,95      | 2,70  | 5,20  |       |       |  |  |
| 5                       | 141.3(5.56)                           | 79(3.12)                    | 6,55      | 9,52  | 19,05 |       |       |  |  |
|                         |                                       |                             | 3,25      | 4,42  | 9,08  |       |       |  |  |
| 6                       | 168.3(6.62)                           | 95(3.75)                    | 7,11      | 10,97 | 21,95 |       |       |  |  |
|                         |                                       |                             | 5,10      | 7,67  | 15,00 |       |       |  |  |
| 8                       | 219.1(8.62)                           | 127(5.00)                   | 8,18      | 12,70 | 22,23 |       | 6,35  |  |  |
|                         |                                       |                             | 11,15     | 14,95 | 27,00 |       | 9,00  |  |  |
| 10                      | 273.0(10.75)                          | 159(6.25)                   | 9,27      | 12,70 | 25,40 |       | 6,35  |  |  |
|                         |                                       |                             | 20,50     | 24,30 | 48,50 |       | 18,50 |  |  |
| 12                      | 323.8(12.75)                          | 190(7.50)                   | 9,52      | 12,70 | 25,40 |       | 6,35  |  |  |
|                         |                                       |                             | 27,00     | 35,00 | 70,80 |       | 24,75 |  |  |
| 14                      | 355.6(14.00)                          | 222(8.75)                   | 9,52      | 12,70 |       | 6,35  | 7,92  |  |  |
|                         |                                       |                             | 34,00     | 47,17 |       | 25,00 | 32,00 |  |  |
| 16                      | 406.4(16.00)                          | 254(10.00)                  | 9,52      | 12,70 |       | 6,35  | 7,92  |  |  |
|                         |                                       |                             | 48,00     | 62,37 |       | 32,00 | 46,50 |  |  |

\*\* Weights on application  
Weights are approximate

**ASME B 16.9-2018**

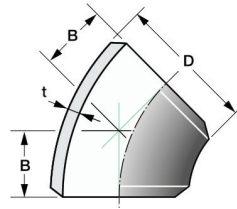
• 45° Elbow (Long) radius

| Nominal Pipe Size (NPS) | Sch30        | Sch40         | Sch60         | Sch80  | Sch100 | Sch120 | Sch140 | Sch160 |
|-------------------------|--------------|---------------|---------------|--------|--------|--------|--------|--------|
|                         | W.T. mm      |               |               |        |        |        |        |        |
|                         | weight Kg    |               |               |        |        |        |        |        |
| 1/2                     | 2.41         |               |               |        |        |        |        | 4.78   |
| 3/4                     | **           |               |               |        |        |        |        | 0.12   |
| 1                       | 2.41         |               |               |        |        |        |        | 5.56   |
| 1 1/4                   | **           |               |               |        |        |        |        | 0.12   |
| 1 1/2                   | 2.90         |               |               |        |        |        |        | 6.35   |
| 2                       | **           |               |               |        |        |        |        | 0.14   |
| 2 1/2                   | 2.97         |               |               |        |        |        |        | 6.35   |
| 3                       | **           |               |               |        |        |        |        | 0.22   |
| 3 1/2                   | 3.18         |               |               |        |        |        |        | 7.13   |
| 4                       | **           |               |               |        |        |        |        | 0.33   |
| 4 1/2                   | 3.18         |               |               |        |        |        |        | 8.74   |
| 5                       | **           |               |               |        |        |        |        | 0.70   |
| 5 1/2                   | 4.78         |               |               |        |        |        |        | 9.52   |
| 6                       | **           |               |               |        |        |        |        | 1.20   |
| 6 1/2                   | 4.78         |               |               |        |        |        |        | 11.13  |
| 7                       | **           |               |               |        |        |        |        | 2.00   |
| 7 1/2                   | 4.78         |               |               |        |        |        |        |        |
| 8                       | **           |               |               |        |        |        |        |        |
| 8 1/2                   | 4.78         |               |               |        |        | 11.13  |        | 13.50  |
| 9                       | **           |               |               |        |        | 3.47   |        | 4.00   |
| 9 1/2                   |              |               |               |        |        | 12.70  |        | 15.87  |
| 10                      |              |               |               |        |        | 6.31   |        | 7.50   |
| 10 1/2                  |              |               |               |        |        | 14.27  |        | 18.26  |
| 11                      |              |               |               |        |        | 9.81   |        | 14.00  |
| 11 1/2                  | 7.03         |               | 10.31         |        | 15.09  | 18.26  | 20.62  | 23.01  |
| 12                      | 10.35        |               | 13.34         |        | 19.07  | 21.59  | 26.00  | 29.00  |
| 12 1/2                  | 7.80         |               | Refer to X.S. | 15.09  | 18.26  | 21.44  | 25.40  | 28.57  |
| 13                      | 19.65        |               |               | 30.00  | 37.55  | 41.77  | 48.50  | 61.00  |
| 13 1/2                  | 8.38         | 10.31         | 14.27         | 17.48  | 21.44  | 25.40  | 28.57  | 33.32  |
| 14                      | 26.03        | 29.57         | 41.31         | 49.94  | 61.50  | 70.82  | 79.00  | 90.34  |
| 14 1/2                  | refer to STD | 11.13         | 15.09         | 19.05  | 23.83  | 27.79  | 31.75  | 35.71  |
| 15                      | refer to STD | 39.98         | 55.84         | 69.92  | 94.00  | 95.00  | 112.00 | 123.94 |
| 15 1/2                  | refer to STD | Refer to X.S. | 16.66         | 21.44  | 26.19  | 30.96  | 36.53  | 40.49  |
| 16                      | refer to STD | Refer to X.S. | 80.81         | 102.15 | 130.00 | 137.00 | 161.50 | 183.00 |

\*\* Weights on application  
Weights are approximate

**ASME B 16.9-2018**

• 45° Elbow (Long) radius



**ASME B 16.9-2018**

• 45° Elbow (Long) radius

| Nominal Pipe Size (NPS) | Outside Diameter at Bevel<br>D-mm(in) | Center to End<br>B – mm(in) | STD       | XS     | XXS | Sch10  | Sch20        | Nominal Pipe Size (NPS) |
|-------------------------|---------------------------------------|-----------------------------|-----------|--------|-----|--------|--------------|-------------------------|
|                         |                                       |                             | W.T. mm   |        |     |        | weight Kg    |                         |
|                         |                                       |                             | weight Kg |        |     |        |              |                         |
| 18                      | 457.0 (18.00)                         | 286(11.25)                  | 9.52      | 12.70  |     | 6.35   | 7.92         | 18                      |
|                         |                                       |                             | 60.00     | 79.00  |     | 41.00  | 56.00        |                         |
| 20                      | 508.0(20.00)                          | 318(12.50)                  | 9.52      | 12.70  |     | 6.35   | Refer to STD | 20                      |
|                         |                                       |                             | 71.20     | 97.16  |     | 50.00  |              |                         |
| 22                      | 559.0(22.00)                          | 343(13.50)                  | 9.52      | 12.70  |     | 6.35   | Refer to STD | 22                      |
|                         |                                       |                             | 89.00     | 118.00 |     | 60.00  |              |                         |
| 24                      | 610.0(24.0)                           | 381(15.00)                  | 9.52      | 12.70  |     | 6.35   | Refer to XS  | 24                      |
|                         |                                       |                             | 102.95    | 141.20 |     | 73.00  |              |                         |
| 26                      | 660.0(26.00)                          | 406(16.00)                  | 9.52      | 12.70  |     | 7.92   | Refer to XS  | 26                      |
|                         |                                       |                             | 124.90    | 165.71 |     | 104.00 |              |                         |
| 28                      | 711.0(28.00)                          | 438(17.25)                  | 9.52      | 12.70  |     | 7.92   | Refer to XS  | 28                      |
|                         |                                       |                             | 150.00    | 202.00 |     | 121.00 |              |                         |
| 30                      | 762.0(30.00)                          | 470(18.50)                  | 9.52      | 12.70  |     | 7.92   | Refer to XS  | 30                      |
|                         |                                       |                             | 167.00    | 220.00 |     | 139.00 |              |                         |
| 32                      | 813.0(32.00)                          | 502(19.75)                  | 9.52      | 12.70  |     | 7.92   | Refer to XS  | 32                      |
|                         |                                       |                             | 193.00    | 255.00 |     | 158.00 |              |                         |
| 34                      | 864.0(34.00)                          | 533(21.00)                  | 9.52      | 12.70  |     | 7.92   | Refer to XS  | 34                      |
|                         |                                       |                             | 215.00    | 280.00 |     | 178.00 |              |                         |
| 36                      | 914.0(36.00)                          | 565(22.25)                  | 9.52      | 12.70  |     | 7.92   | Refer to XS  | 36                      |
|                         |                                       |                             | 241.00    | 312.00 |     | 200.00 |              |                         |
| 38                      | 965.0(38.00)                          | 600(23.62)                  | 9.52      | 12.70  |     |        | Refer to XS  | 38                      |
|                         |                                       |                             | 272.00    | 354.00 |     |        |              |                         |
| 40                      | 1016.0(40.00)                         | 632(24.88)                  | 9.52      | 12.70  |     |        | Refer to XS  | 40                      |
|                         |                                       |                             | 290.00    | 372.00 |     |        |              |                         |
| 42                      | 1067.0(42.00)                         | 660(26.00)                  | 9.52      | 12.70  |     |        | Refer to XS  | 42                      |
|                         |                                       |                             | 327.00    | 420.00 |     |        |              |                         |
| 44                      | 1118.0(44.00)                         | 695(27.38)                  | 9.52      | 12.70  |     |        | Refer to XS  | 44                      |
|                         |                                       |                             | 363.00    | 488.00 |     |        |              |                         |
| 46                      | 1168.0(46.00)                         | 727(28.62)                  | 9.52      | 12.70  |     |        | Refer to XS  | 46                      |
|                         |                                       |                             | 408.00    | 350.00 |     |        |              |                         |
| 48                      | 1219.0(48.00)                         | 759(29.88)                  | 9.52      | 12.70  |     |        | Refer to XS  | 48                      |
|                         |                                       |                             | 443.00    | 567.00 |     |        |              |                         |

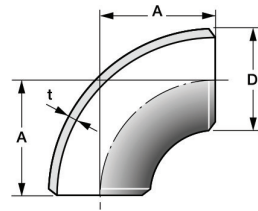
Weights are approximate

| Sch30     | Sch40  | Sch60  | Sch80  | Sch100 | Sch120 | Sch140 | Sch160 | Nominal Pipe Size (NPS) |
|-----------|--------|--------|--------|--------|--------|--------|--------|-------------------------|
| W.T. mm   |        |        |        |        |        |        |        |                         |
| weight Kg |        |        |        |        |        |        |        |                         |
| 11.13     | 14.27  | 19.05  | 23.83  | 29.36  | 34.93  | 39.67  | 45.24  | 18                      |
| 69.91     | 88.53  | 115.77 | 143.92 | 195.00 | 202.50 | 211.00 | 272.00 |                         |
| 12.70     | 15.09  | 20.62  | 26.18  | 32.54  | 38.10  | 44.45  | 50.01  | 20                      |
| 97.16     | 114.00 | 155.72 | 195.67 | 238.00 | 254.00 | 303.50 | 385.00 |                         |
| 12.70     |        | 22.22  | 28.58  | 34.92  | 41.27  | 47.62  | 53.97  | 22                      |
| 128.10    |        | 205.35 | 256.70 | 329.00 | 365.00 | 425.00 | 510.00 |                         |
| 14.27     | 17.48  | 24.61  | 30.96  | 38.89  | 46.02  | 52.37  | 59.54  | 24                      |
| 159.35    | 192.04 | 266.95 | 333.70 | 410.00 | 477.00 | 545.00 | 635.00 |                         |
|           |        |        |        |        |        |        |        | 26                      |
|           |        |        |        |        |        |        |        |                         |
| 15.88     |        |        |        |        |        |        |        | 28                      |
| 239.00    |        |        |        |        |        |        |        |                         |
| 15.88     |        |        |        |        |        |        |        | 30                      |
| 275.00    |        |        |        |        |        |        |        |                         |
| 15.88     | 17.48  |        |        |        |        |        |        | 32                      |
| 313.00    | 344.00 |        |        |        |        |        |        |                         |
| 15.88     | 17.48  |        |        |        |        |        |        | 34                      |
| 354.00    | 389.00 |        |        |        |        |        |        |                         |
| 15.88     | 19.05  |        |        |        |        |        |        | 36                      |
| 398.00    | 476.00 |        |        |        |        |        |        |                         |
|           |        |        |        |        |        |        |        | 38                      |
|           |        |        |        |        |        |        |        |                         |
|           |        |        |        |        |        |        |        | 40                      |
|           |        |        |        |        |        |        |        |                         |
|           |        |        |        |        |        |        |        | 42                      |
|           |        |        |        |        |        |        |        |                         |
|           |        |        |        |        |        |        |        | 44                      |
|           |        |        |        |        |        |        |        |                         |
|           |        |        |        |        |        |        |        | 46                      |
|           |        |        |        |        |        |        |        |                         |
|           |        |        |        |        |        |        |        | 48                      |
|           |        |        |        |        |        |        |        |                         |

Weights are approximate

**ASME B 16.9-2018**

- 90° long radius elbows



**ASME B 16.9-2018**

- 90° long radius elbows

| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Center to End | STD       | XS     | XXS    | Sch10 | Sch20 |                   |
|-------------------------|---------------------------|---------------|-----------|--------|--------|-------|-------|-------------------|
|                         |                           |               | W.T. mm   |        |        |       |       | nominal pipe size |
|                         |                           |               | weight Kg |        |        |       |       |                   |
| 1/2                     | 21.3(0.84)                | 38(1.50)      | 2,77      | 3,73   | 7,47   |       |       |                   |
|                         |                           |               | 0,08      | 0,18   | **     |       |       |                   |
| 3/4                     | 26.7(1.05)                | 38(1.50)      | 2,87      | 3,91   | 7,82   |       |       |                   |
|                         |                           |               | 0,08      | 0,20   | **     |       |       |                   |
| 1                       | 33.4(1.32)                | 38(1.50)      | 3,38      | 4,55   | 9,09   |       |       |                   |
|                         |                           |               | 0,15      | 0,20   | 0,40   |       |       |                   |
| 1 1/4                   | 42.2(1.66)                | 48(1.88)      | 3,56      | 4,85   | 9,70   |       |       |                   |
|                         |                           |               | 0,25      | 0,35   | 0,61   |       |       |                   |
| 1 1/2                   | 48.3(1.90)                | 57(2.25)      | 3,68      | 5,08   | 10,16  |       |       |                   |
|                         |                           |               | 0,36      | 0,60   | 0,90   |       |       |                   |
| 2                       | 60.3(2.38)                | 76(3.00)      | 3,91      | 5,54   | 11,07  |       |       |                   |
|                         |                           |               | 0,65      | 0,94   | 1,80   |       |       |                   |
| 2 1/2                   | 73.0(2.88)                | 95(3.75)      | 5,16      | 7,01   | 14,02  |       |       |                   |
|                         |                           |               | 1,28      | 1,70   | 3,21   |       |       |                   |
| 3                       | 88.9(3.50)                | 114(4.50)     | 5,49      | 7,62   | 15,24  |       |       |                   |
|                         |                           |               | 2,03      | 2,75   | 5,20   |       |       |                   |
| 3 1/2                   | 101.6(4.00)               | 133(5.25)     | 5,74      | 8,08   |        |       |       |                   |
|                         |                           |               | 2,87      | 3,95   |        |       |       |                   |
| 4                       | 114.3(4.50)               | 152(6.00)     | 6,02      | 8,56   | 17,12  |       |       |                   |
|                         |                           |               | 3,90      | 5,40   | 10,30  |       |       |                   |
| 5                       | 141.3(5.56)               | 190(7.50)     | 6,55      | 9,52   | 19,05  |       |       |                   |
|                         |                           |               | 6,50      | 8,85   | 18,11  |       |       |                   |
| 6                       | 168.3(6.62)               | 229(9.00)     | 7,11      | 10,97  | 21,95  |       |       |                   |
|                         |                           |               | 10,20     | 15,35  | 30,00  |       |       |                   |
| 8                       | 219.1(8.62)               | 305(12.00)    | 8,18      | 12,70  | 22,23  |       | 6.35  |                   |
|                         |                           |               | 20,30     | 29,90  | 54,50  |       | 16.57 |                   |
| 10                      | 273.0(10.75)              | 381(15.00)    | 9,27      | 12,70  | 25,40  |       | 6.35  |                   |
|                         |                           |               | 37,00     | 48,60  | 97,00  |       | 25.79 |                   |
| 12                      | 323.8(12.75)              | 457(18.00)    | 9,52      | 12,70  | 25,40  |       | 6.35  |                   |
|                         |                           |               | 54,00     | 70,00  | 140,00 |       | 37.23 |                   |
| 14                      | 355.6(14.00)              | 533(21.00)    | 9,52      | 12,70  |        | 6.35  | 7.92  |                   |
|                         |                           |               | 68,00     | 94,35  |        | 57.47 | 59.93 |                   |
| 16                      | 406.4(16.00)              | 610(24.00)    | 9,52      | 12,70  |        | 6.35  | 7.92  |                   |
|                         |                           |               | 89,20     | 124,75 |        | 63.20 | 78.09 |                   |

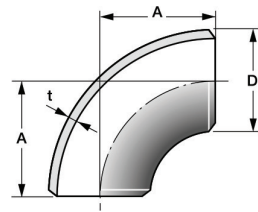
\*\* Weights on application  
Weights are approximate

| Sch30        | Sch40        | Sch60         | Sch80  | Sch100 | Sch120 | Sch140 | Sch160            | nominal pipe size |        |
|--------------|--------------|---------------|--------|--------|--------|--------|-------------------|-------------------|--------|
| W.T. mm      |              |               |        |        |        |        | nominal pipe size |                   |        |
| weight Kg    |              |               |        |        |        |        |                   |                   |        |
| 2,41         | Refer to STD | Refer to X.S. |        |        |        |        | 4,78              | 1/2               |        |
| **           |              |               |        |        |        |        | 0,22              |                   |        |
| 2,41         |              |               |        |        |        |        |                   | 5,56              | 3/4    |
| **           |              |               |        |        |        |        | 0,25              |                   |        |
| 2,90         |              |               |        |        |        |        |                   | 6,35              | 1      |
| **           |              |               |        |        |        |        | 0,30              |                   |        |
| 2,97         |              |               |        |        |        |        |                   | 6,35              | 1 1/4  |
| **           |              |               |        |        |        |        | 0,44              |                   |        |
| 3,18         |              |               |        |        |        |        |                   | 7,13              | 1 1/2  |
| **           |              |               |        |        |        |        | 0,80              |                   |        |
| 3,18         |              |               |        |        |        |        |                   | 8,74              | 2      |
| **           |              |               |        |        |        |        | 1,50              |                   |        |
| 4,78         |              |               |        |        |        |        |                   | 9,52              | 2 1/2  |
| **           |              |               |        |        |        |        | 2,35              |                   |        |
| 4,78         |              |               |        |        |        |        |                   | 11,13             | 3      |
| **           |              |               |        |        |        |        | 4,00              |                   |        |
| 4,78         |              |               |        |        |        |        |                   |                   | 3 1/2  |
| **           |              |               |        |        |        |        |                   |                   |        |
| 4,78         |              |               |        |        |        |        | 11,13             | 13,50             | 4      |
| **           |              |               |        |        |        |        | 6,95              | 9,00              |        |
|              |              |               |        |        | 12,70  | 15,87  | 5                 |                   |        |
|              |              |               |        |        | 12,62  | 15,44  |                   |                   |        |
|              |              |               |        |        | 14,27  | 18,26  | 6                 |                   |        |
|              |              |               |        |        | 23,00  | 27,00  |                   |                   |        |
| 7,03         |              | 10,31         |        | 15,09  | 18,26  | 20,62  | 23,01             | 8                 |        |
| 17,50        |              | 26,30         |        | 38,00  | 40,50  | 52,00  | 58,00             |                   |        |
| 7,80         |              | Refer to XS   | 15,09  | 18,26  | 21,44  | 25,40  | 28,57             | 10                |        |
| 31,30        |              |               | 57,11  | 75,00  | 85,00  | 97,00  | 123,00            |                   |        |
| 8,38         | 10,31        | 14,27         | 17,48  | 21,44  | 25,40  | 28,57  | 33,32             | 12                |        |
| 46,06        | 58,15        | 82,62         | 94,82  | 123,00 | 140,00 | 157,00 | 180,00            |                   |        |
| Refer to STD |              | 11,13         | 15,09  | 19,05  | 23,83  | 27,79  | 31,75             | 14                |        |
|              |              | 79,96         | 111,26 | 132,16 | 188,00 | 190,00 | 224,00            |                   | 247,50 |
|              | Refer to XS  | 16,66         | 21,44  | 26,19  | 30,96  | 36,53  | 40,49             | 16                |        |
|              |              | 161,17        | 204,30 | 260,00 | 274,00 | 323,00 | 367,00            |                   |        |

\*\* Weights on application  
Weights are approximate

### ASME B 16.9-2018

- 90° long radius elbows



| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Center to End | STD       | XS      | XXS | Sch10 | Sch20  | nominal pipe size |  |
|-------------------------|---------------------------|---------------|-----------|---------|-----|-------|--------|-------------------|--|
|                         |                           |               | W.T. mm   |         |     |       |        |                   |  |
|                         |                           |               | weight Kg |         |     |       |        |                   |  |
| 18                      | 457.0(18.00)              | 686(27.00)    | 9,52      | 12,70   |     | 6,35  | 7,92   | 18                |  |
|                         |                           |               | 112,90    | 157,50  |     | 82,00 | 99,43  |                   |  |
| 20                      | 508.0(20.00)              | 762(30.00)    | 9,52      | 12,70   |     | 6,35  | 100,00 | 20                |  |
|                         |                           |               | 142,40    | 194,30  |     |       |        |                   |  |
| 22                      | 559.0(22.00)              | 838(33.00)    | 9,52      | 12,70   |     | 6,35  | 120,00 | 22                |  |
|                         |                           |               | 178,00    | 236,00  |     |       |        |                   |  |
| 24                      | 610.0(24.00)              | 914(36.00)    | 9,52      | 12,70   |     | 6,35  | 146,00 | 24                |  |
|                         |                           |               | 202,00    | 268,50  |     |       |        |                   |  |
| 26                      | 660.0(26.00)              | 991(39.00)    | 9,52      | 12,70   |     | 7,92  | 208,00 | 26                |  |
|                         |                           |               | 270,00    | 348,00  |     |       |        |                   |  |
| 28                      | 711.0(28.00)              | 1 067(42.00)  | 9,52      | 12,70   |     | 7,92  | 242,00 | 28                |  |
|                         |                           |               | 300,00    | 404,00  |     |       |        |                   |  |
| 30                      | 762.0(30.00)              | 1 143(45.00)  | 9,52      | 12,70   |     | 7,92  | 278,00 | 30                |  |
|                         |                           |               | 333,00    | 441,00  |     |       |        |                   |  |
| 32                      | 813.0(32.00)              | 1 219(48.00)  | 9,52      | 12,70   |     | 7,92  | 316,00 | 32                |  |
|                         |                           |               | 390,00    | 510,00  |     |       |        |                   |  |
| 34                      | 864.0(34.00)              | 1 295(51.00)  | 9,52      | 12,70   |     | 7,92  | 357,00 | 34                |  |
|                         |                           |               | 430,00    | 560,00  |     |       |        |                   |  |
| 36                      | 914.0(36.00)              | 1 372(54.00)  | 9,52      | 12,70   |     | 7,92  | 400,00 | 36                |  |
|                         |                           |               | 482,00    | 625,00  |     |       |        |                   |  |
| 38                      | 965.0(38.00)              | 1 448(57.00)  | 9,53      | 12,70   |     |       |        | 38                |  |
|                         |                           |               | 540,00    | 710,00  |     |       |        |                   |  |
| 40                      | 1 016.0(40.00)            | 1 524(60.00)  | 9,52      | 12,70   |     |       |        | 40                |  |
|                         |                           |               | 580,00    | 745,00  |     |       |        |                   |  |
| 42                      | 1 067.0(42.00)            | 1 600(63.00)  | 9,52      | 12,70   |     |       |        | 42                |  |
|                         |                           |               | 655,00    | 840,00  |     |       |        |                   |  |
| 44                      | 1 118.0(44.00)            | 1 676(66.00)  | 9,53      | 12,70   |     |       |        | 44                |  |
|                         |                           |               | 726,00    | 970,00  |     |       |        |                   |  |
| 46                      | 1 168.0(46.00)            | 1 753(69.00)  | 9,53      | 12,70   |     |       |        | 46                |  |
|                         |                           |               | 816,00    | 1055,00 |     |       |        |                   |  |
| 48                      | 1 219.0(48.00)            | 1 829(72.00)  | 9,52      | 12,70   |     |       |        | 48                |  |
|                         |                           |               | 885,00    | 1134,00 |     |       |        |                   |  |

Weights are approximate

### ASME B 16.9-2018

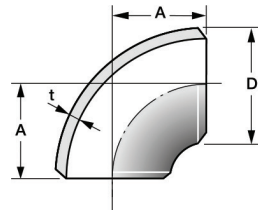
- 90° long radius elbows

| Sch30     | Sch40  | Sch60  | Sch80  | Sch100 | Sch120 | Sch140  | Sch160  | nominal pipe size |
|-----------|--------|--------|--------|--------|--------|---------|---------|-------------------|
| W.T. mm   |        |        |        |        |        |         |         |                   |
| weight Kg |        |        |        |        |        |         |         |                   |
| 11,13     | 14,27  | 19,05  | 23,83  | 29,36  | 34,93  | 39,67   | 45,24   | 18                |
| 139,83    | 177,06 | 231,54 | 287,84 | 390,00 | 405,00 | 422,00  | 545,00  |                   |
| 12,70     | 15,09  | 20,62  | 26,18  | 32,54  | 38,10  | 44,45   | 50,01   | 20                |
| 194,30    | 230,00 | 311,44 | 390,90 | 476,00 | 508,00 | 607,00  | 770,00  |                   |
| 12,70     |        | 22,22  | 28,58  | 34,92  | 41,27  | 47,62   | 53,97   | 22                |
| 250,20    |        | 412,70 | 523,40 | 638,00 | 700,00 | 850,00  | 1020,00 |                   |
| 14,27     | 17,48  | 24,61  | 30,96  | 38,89  | 46,02  | 52,37   | 59,54   | 24                |
| 318,70    | 384,00 | 533,90 | 667,40 | 820,00 | 954,00 | 1100,00 | 1270,00 |                   |
|           |        |        |        |        |        |         |         | 26                |
|           |        |        |        |        |        |         |         |                   |
| 15,88     |        |        |        |        |        |         |         | 28                |
| 478,00    |        |        |        |        |        |         |         |                   |
| 15,88     |        |        |        |        |        |         |         | 30                |
| 550,00    |        |        |        |        |        |         |         |                   |
| 15,88     | 17,48  |        |        |        |        |         |         | 32                |
| 627,00    | 689,00 |        |        |        |        |         |         |                   |
| 15,88     | 17,48  |        |        |        |        |         |         | 34                |
| 708,00    | 778,00 |        |        |        |        |         |         |                   |
| 15,88     | 19,05  |        |        |        |        |         |         | 36                |
| 795,00    | 951,00 |        |        |        |        |         |         |                   |
|           |        |        |        |        |        |         |         | 38                |
|           |        |        |        |        |        |         |         |                   |
|           |        |        |        |        |        |         |         | 40                |
|           |        |        |        |        |        |         |         |                   |
|           |        |        |        |        |        |         |         | 42                |
|           |        |        |        |        |        |         |         |                   |
|           |        |        |        |        |        |         |         | 44                |
|           |        |        |        |        |        |         |         |                   |
|           |        |        |        |        |        |         |         | 46                |
|           |        |        |        |        |        |         |         |                   |
|           |        |        |        |        |        |         |         | 48                |
|           |        |        |        |        |        |         |         |                   |

Weights are approximate

**ASME B 16.9-2018**

• 90° short radius elbows



**ASME B 16.9-2018**

• 90° short radius elbows

| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Center to End | STD       | XS     | XXS   | Sch10 | Sch20        |       |       |
|-------------------------|---------------------------|---------------|-----------|--------|-------|-------|--------------|-------|-------|
|                         |                           |               | W.T. mm   |        |       |       |              | Sch10 | Sch20 |
|                         |                           |               | weight Kg |        |       |       |              |       |       |
| 1                       | 33.4(1.32)                | 25(1.00)      | 3.38      | 4.55   | 9.09  |       |              |       |       |
|                         |                           |               | 0.10      | 0.13   | 0.23  |       |              |       |       |
| 1 1/4                   | 42.2(1.66)                | 32(1.25)      | 3.56      | 4.85   | 9.70  |       |              |       |       |
|                         |                           |               | 0.16      | 0.23   | 0.41  |       |              |       |       |
| 1 1/2                   | 48.3(1.90)                | 38(1.50)      | 3.68      | 5.08   | 10.16 |       |              |       |       |
|                         |                           |               | 0.24      | 0.30   | 0.60  |       |              |       |       |
| 2                       | 60.3(2.38)                | 51(2.00)      | 3.91      | 5.54   | 11.07 |       |              |       |       |
|                         |                           |               | 0.43      | 0.60   | 1.13  |       |              |       |       |
| 2 1/2                   | 73.0(2.88)                | 64(2.50)      | 5.16      | 7.01   | 14.02 |       |              |       |       |
|                         |                           |               | 0.82      | 1.15   | 2.03  |       |              |       |       |
| 3                       | 88.9(3.50)                | 76(3.00)      | 5.49      | 7.62   | 15.24 |       |              |       |       |
|                         |                           |               | 1.35      | 1.85   | 3.47  |       |              |       |       |
| 3 1/2                   | 101.6(4.00)               | 89(3.50)      | 5.74      | 8.08   |       |       |              |       |       |
|                         |                           |               | 1.90      | 2.60   |       |       |              |       |       |
| 4                       | 114.3(4.50)               | 102(4.00)     | 6.02      | 8.56   | 17.12 |       |              |       |       |
|                         |                           |               | 2.60      | 3.55   | 6.86  |       |              |       |       |
| 5                       | 141.3(5.56)               | 127(5.00)     | 6.55      | 9.52   | 19.05 |       |              |       |       |
|                         |                           |               | 4.35      | 6.20   | 12.02 |       |              |       |       |
| 6                       | 168.3(6.62)               | 152(6.00)     | 7.11      | 10.97  | 21.95 |       |              |       |       |
|                         |                           |               | 6.45      | 10.20  | 19.90 |       |              |       |       |
| 8                       | 219.1(8.62)               | 203(8.00)     | 8.18      | 12.70  | 22.23 |       | 6.35         |       |       |
|                         |                           |               | 16.50     | 22.50  | 36.12 |       | 11.10        |       |       |
| 10                      | 273.0(10.75)              | 254(10.00)    | 9.27      | 12.70  | 25.40 |       | 6.35         |       |       |
|                         |                           |               | 31.15     | 31.15  | 64.94 |       | 17.35        |       |       |
| 12                      | 323.8(12.75)              | 305(12.00)    | 9.52      | 12.70  | 25.40 |       | 6.35         |       |       |
|                         |                           |               | 45.00     | 49.03  | 93.91 |       | 25.00        |       |       |
| 14                      | 355.6(14.00)              | 356(14.00)    | 9.52      | 12.70  |       | 6.35  | 7.92         |       |       |
|                         |                           |               | 52.50     | 63.11  |       | 30.50 | 39.50        |       |       |
| 16                      | 406.4(16.00)              | 406(16.00)    | 9.52      | 12.70  |       | 6.35  | 7.92         |       |       |
|                         |                           |               | 71.25     | 82.63  |       | 39.00 | 52.20        |       |       |
| 18                      | 457.0(18.00)              | 457(18.00)    | 9.52      | 12.70  |       | 6.35  | 7.92         |       |       |
|                         |                           |               | 90.00     | 104.87 |       | 48.50 | 65.35        |       |       |
| 20                      | 508.0(20.00)              | 508(20.00)    | 9.52      | 12.70  |       | 6.35  | Refer to STD |       |       |
|                         |                           |               | 110.00    | 129.54 |       | 67.50 |              |       |       |
| 22                      | 559.0(22.00)              | 559(22.00)    | 9.52      | 12.70  |       | 6.35  | Refer to STD |       |       |
|                         |                           |               | 132.00    | 157.00 |       | 84.50 |              |       |       |
| 24                      | 610.0(24.00)              | 610(24.00)    | 9.52      | 12.70  |       | 6.35  | Refer to STD |       |       |
|                         |                           |               | 165.00    | 188.41 |       | 96.50 |              |       |       |

Weights are approximate

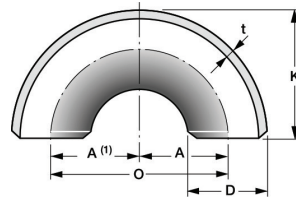
| Sch30        | Sch40        | Sch60       | Sch80  | Sch100 | Sch120 | Sch140 | Sch160 | nominal pipe size |       |
|--------------|--------------|-------------|--------|--------|--------|--------|--------|-------------------|-------|
| W.T. mm      |              |             |        |        |        |        |        |                   |       |
| weight Kg    |              |             |        |        |        |        |        |                   |       |
| 2.90         | Refer to STD | Refer to XS |        |        |        |        | 6.35   | 1                 |       |
| **           |              |             |        |        |        |        |        |                   | 0.18  |
| 2.97         |              |             |        |        |        |        |        | 6.35              | 1 1/4 |
| **           |              |             |        |        |        |        |        | 0.29              |       |
| 3.18         |              |             |        |        |        |        |        | 7.13              | 1 1/2 |
| **           |              |             |        |        |        |        |        | 0.45              |       |
| 3.18         |              |             |        |        |        |        |        | 8.74              | 2     |
| **           |              |             |        |        |        |        |        | 0.93              |       |
| 4.78         |              |             |        |        |        |        |        | 9.52              | 2 1/2 |
| **           |              |             |        |        |        |        |        | 1.56              |       |
| 4.78         |              |             |        |        |        |        |        | 11.13             | 3     |
| **           |              |             |        |        |        |        |        | 2.68              |       |
| 4.78         |              |             |        |        |        |        | 3 1/2  |                   |       |
| **           |              |             |        |        |        |        |        |                   |       |
| 4.78         |              |             |        |        | 11.13  | 13.50  | 4      |                   |       |
| **           |              |             |        |        | 4.72   | 5.62   |        |                   |       |
|              |              |             |        |        | 12.70  | 15.87  | 5      |                   |       |
|              |              |             |        |        | 8.44   | 10.28  |        |                   |       |
|              |              |             |        |        | 14.27  | 18.26  | 6      |                   |       |
|              |              |             |        |        | 13.62  | 16.97  |        |                   |       |
| 7.03         |              | 10.31       |        | 15.09  | 18.26  | 20.62  | 23.01  | 8                 |       |
| 12.26        |              | 17.75       |        | 26.40  | 30.00  | 32.00  | 37.00  |                   |       |
| 7.80         |              | Refer to XS | 15.09  | 18.26  | 21.44  | 25.40  | 28.57  | 10                |       |
| 21.25        |              |             | 40.00  | 50.00  | 53.00  | 62.00  | 72.00  |                   |       |
| 8.38         | 10.31        | 14.22       | 17.48  | 21.44  | 25.40  | 28.57  | 33.32  | 12                |       |
| 32.78        | 40.00        | 54.93       | 66.28  | 81.00  | 92.00  | 99.00  | 120.00 |                   |       |
| Refer to STD | 11.12        | 15.09       | 19.05  | 23.83  | 27.79  | 31.75  | 35.71  | 14                |       |
|              | 55.39        | 74.00       | 93.07  | 120.00 | 124.00 | 139.00 | 165.00 |                   |       |
| Refer to XS  | 16.66        | 21.44       | 26.19  | 30.96  | 36.53  | 40.49  | 16     |                   |       |
|              | 107.14       | 136.20      | 166.00 | 171.50 | 198.00 | 245.00 |        |                   |       |
| 11.13        | 14.27        | 19.05       | 23.83  | 29.36  | 34.92  | 39.67  | 45.24  | 18                |       |
| 93.07        | 117.59       | 154.36      | 191.60 | 257.00 | 283.00 | 387.00 | 346.00 |                   |       |
| 12.70        | 15.09        | 20.62       | 26.18  | 32.54  | 38.10  | 44.45  | 50.01  | 20                |       |
| 129.84       | 153.45       | 207.48      | 260.14 | 332.00 | 376.00 | 430.00 | 478.00 |                   |       |
| 12.70        |              | 22.22       | 28.58  | 34.92  | 41.27  | 47.62  | 53.97  | 22                |       |
| 171.50       |              | 281.50      | 350.50 | 430.00 | 497.00 | 555.00 | 627.00 |                   |       |
| 14.27        | 17.48        | 24.61       | 30.96  | 38.89  | 46.02  | 52.37  | 59.54  | 24                |       |
| 213.38       | 256.00       | 355.48      | 443.55 | 530.00 | 621.00 | 680.00 | 835.00 |                   |       |

\*\* Weights on application  
Weights are approximate



**ASME B 16.9-2018**

- 180° long radius returne



| nominal pipe size | outside Diameter at Bevel | Center to center, O- mm(in) | Back to Face, K-mm(in.) | W.T. mm   |        |         |        |              | nominal pipe size |
|-------------------|---------------------------|-----------------------------|-------------------------|-----------|--------|---------|--------|--------------|-------------------|
|                   |                           |                             |                         | STD       | SCH XS | SCH XXS | SCH 10 | SCH 20       |                   |
|                   |                           |                             |                         | weight Kg |        |         |        |              |                   |
| 1/2               | 21.3(0.84)                | 76(3.00)                    | 48(1.88)                | 2.77      | 3.73   | 7.47    |        |              | 1/2               |
|                   |                           |                             |                         | 0.16      | 0.35   | **      |        |              |                   |
| 3/4               | 26.7(1.05)                | 76(3.00)                    | 51(2.00)                | 2.87      | 3.91   | 7.82    |        |              | 3/4               |
|                   |                           |                             |                         | 0.16      | 0.35   | **      |        |              |                   |
| 1                 | 33.4(1.32)                | 76(3.00)                    | 56(2.19)                | 3.38      | 4.55   | 9.09    |        |              | 1                 |
|                   |                           |                             |                         | 0.31      | 0.40   | 0.69    |        |              |                   |
| 1 1/4             | 42.2(1.66)                | 95(3.75)                    | 70(2.75)                | 3.56      | 4.85   | 9.70    |        |              | 1 1/4             |
|                   |                           |                             |                         | 0.50      | 0.70   | 1.22    |        |              |                   |
| 1 1/2             | 48.3(1.90)                | 114(4.50)                   | 83(3.25)                | 3.68      | 5.08   | 10.16   |        |              | 1 1/2             |
|                   |                           |                             |                         | 0.73      | 1.20   | 1.80    |        |              |                   |
| 2                 | 60.3(2.38)                | 152(6.00)                   | 106(4.19)               | 3.91      | 5.54   | 11.07   |        |              | 2                 |
|                   |                           |                             |                         | 1.30      | 1.88   | 3.40    |        |              |                   |
| 2 1/2             | 73.0(2.88)                | 190(7.50)                   | 132(5.19)               | 5.16      | 7.01   | 14.02   |        |              | 2 1/2             |
|                   |                           |                             |                         | 2.57      | 3.40   | 6.40    |        |              |                   |
| 3                 | 88.9(3.50)                | 229(9.00)                   | 159(6.25)               | 5.49      | 7.62   | 15.24   |        |              | 3                 |
|                   |                           |                             |                         | 4.07      | 5.50   | 10.35   |        |              |                   |
| 3 1/2             | 101.6(4.00)               | 267(10.50)                  | 184(7.25)               | 5.74      | 8.08   |         |        |              | 3 1/2             |
|                   |                           |                             |                         | 5.74      | 7.90   |         |        |              |                   |
| 4                 | 114.3(4.50)               | 305(12.00)                  | 210(8.25)               | 6.02      | 8.56   | 17.12   |        |              | 4                 |
|                   |                           |                             |                         | 7.80      | 10.80  | 20.60   |        |              |                   |
| 5                 | 141.3(5.56)               | 381(15.00)                  | 262(10.31)              | 6.55      | 9.52   | 19.05   |        |              | 5                 |
|                   |                           |                             |                         | 13.00     | 17.70  | 36.23   |        |              |                   |
| 6                 | 168.3(6.62)               | 457(18.00)                  | 313(12.31)              | 7.11      | 10.97  | 21.95   |        |              | 6                 |
|                   |                           |                             |                         | 20.40     | 30.70  | 59.50   |        |              |                   |
| 8                 | 219.1(8.62)               | 610(24.00)                  | 414(16.31)              | 8.18      | 12.70  | 22.23   |        | 6.35         | 8                 |
|                   |                           |                             |                         | 40.60     | 59.80  | 109.00  |        | 33.14        |                   |
| 10                | 273.0(10.75)              | 762(30.00)                  | 518(20.38)              | 9.27      | 12.70  | 25.40   |        | 6.35         | 10                |
|                   |                           |                             |                         | 74.00     | 97.20  | 194.00  |        | 51.58        |                   |
| 12                | 323.8(12.75)              | 914(36.00)                  | 619(24.38)              | 9.52      | 12.70  | 25.00   |        | 6.35         | 12                |
|                   |                           |                             |                         | 108.00    | 140.00 | 280.00  |        | 74.46        |                   |
| 14                | 355.6(14.00)              | 1067(42.00)                 | 711(28.00)              | 9.52      | 12.70  |         | 6.35   | 7.92         | 14                |
|                   |                           |                             |                         | 136.00    | 188.70 |         | 114.94 | 119.86       |                   |
| 16                | 406.4(16.0)               | 1219(48.00)                 | 813(32.00)              | 9.52      | 12.70  |         | 6.35   | 7.92         | 16                |
|                   |                           |                             |                         | 178.40    | 249.50 |         | 165.24 | 156.18       |                   |
| 18                | 457.0(18.00)              | 1372(54.00)                 | 914(36.00)              | 9.52      | 12.70  |         | 6.35   | 7.92         | 18                |
|                   |                           |                             |                         | 225.80    | 315.08 |         | 164.00 | 198.86       |                   |
| 20                | 508.0(20.00)              | 1524(60.00)                 | 1016(40.00)             | 9.52      | 12.70  |         | 6.35   | Refer to STD | 20                |
|                   |                           |                             |                         | 284.80    | 388.62 |         | 200.00 |              |                   |
| 22                | 559.0(22.00)              | 1676(66.00)                 | 1118(44.00)             | 9.52      | 12.70  |         | 6.35   | Refer to STD | 22                |
|                   |                           |                             |                         | 346.00    | 466.00 |         | 240.00 |              |                   |
| 24                | 610.0(24.00)              | 1829(72.00)                 | 1219(48.00)             | 9.52      | 12.70  |         | 6.35   | Refer to STD | 24                |
|                   |                           |                             |                         | 411.80    | 564.78 |         | 292.00 |              |                   |

\*\* Weights on application  
Weights are approximate

**ASME B 16.9-2018**

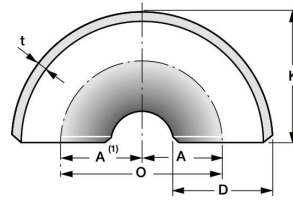
- 180° long radius returne

| SCH 30       | SCH 40       | SCH 60      | SCH 80      | SCH 100     | SCH 120     | SCH 140     | SCH 160 | nominal pipe size |           |  |  |  |  |  |  |  |
|--------------|--------------|-------------|-------------|-------------|-------------|-------------|---------|-------------------|-----------|--|--|--|--|--|--|--|
|              |              |             |             |             |             |             |         |                   | W.T. mm   |  |  |  |  |  |  |  |
|              |              |             |             |             |             |             |         |                   | weight Kg |  |  |  |  |  |  |  |
| 2.41         |              |             |             |             |             |             | 4.78    | 1/2               |           |  |  |  |  |  |  |  |
| **           |              |             |             |             |             |             | 0.43    |                   |           |  |  |  |  |  |  |  |
| 2.41         |              |             |             |             |             |             | 5.56    | 3/4               |           |  |  |  |  |  |  |  |
| ..           |              |             |             |             |             |             | 0.43    |                   |           |  |  |  |  |  |  |  |
| 2.90         |              |             |             |             |             |             | 6.35    | 1                 |           |  |  |  |  |  |  |  |
| **           |              |             |             |             |             |             | 0.53    |                   |           |  |  |  |  |  |  |  |
| 2.97         |              |             |             |             |             |             | 6.35    | 1 1/4             |           |  |  |  |  |  |  |  |
| **           |              |             |             |             |             |             | 0.88    |                   |           |  |  |  |  |  |  |  |
| 3.18         |              |             |             |             |             |             | 7.13    | 1 1/2             |           |  |  |  |  |  |  |  |
| **           |              |             |             |             |             |             | 1.36    |                   |           |  |  |  |  |  |  |  |
| 3.18         |              |             |             |             |             |             | 8.74    | 2                 |           |  |  |  |  |  |  |  |
| **           |              |             |             |             |             |             | 3.00    |                   |           |  |  |  |  |  |  |  |
| 4.78         | Refer to STD | Refer to XS | Refer to XS | Refer to XS | Refer to XS | Refer to XS | 9.52    | 2 1/2             |           |  |  |  |  |  |  |  |
| **           |              |             |             |             |             |             | 4.67    |                   |           |  |  |  |  |  |  |  |
| 4.78         | Refer to STD | Refer to XS | Refer to XS | Refer to XS | Refer to XS | Refer to XS | 11.13   | 3                 |           |  |  |  |  |  |  |  |
| **           |              |             |             |             |             |             | 8.03    |                   |           |  |  |  |  |  |  |  |
| 4.78         | Refer to STD | Refer to XS | Refer to XS | Refer to XS | Refer to XS | Refer to XS |         | 3 1/2             |           |  |  |  |  |  |  |  |
| **           |              |             |             |             |             |             |         |                   |           |  |  |  |  |  |  |  |
| 4.78         | Refer to STD | Refer to XS | Refer to XS | Refer to XS | Refer to XS | Refer to XS | 11.13   | 4                 |           |  |  |  |  |  |  |  |
| **           |              |             |             |             |             |             | 13.50   |                   |           |  |  |  |  |  |  |  |
|              | Refer to STD | Refer to XS | Refer to XS | Refer to XS | Refer to XS | Refer to XS | 13.90   | 5                 |           |  |  |  |  |  |  |  |
|              |              |             |             |             |             |             | 17.00   |                   |           |  |  |  |  |  |  |  |
|              | Refer to STD | Refer to XS | Refer to XS | Refer to XS | Refer to XS | Refer to XS | 12.70   | 6                 |           |  |  |  |  |  |  |  |
|              |              |             |             |             |             |             | 15.87   |                   |           |  |  |  |  |  |  |  |
|              | Refer to STD | Refer to XS | Refer to XS | Refer to XS | Refer to XS | Refer to XS | 25.24   | 8                 |           |  |  |  |  |  |  |  |
|              |              |             |             |             |             |             | 30.87   |                   |           |  |  |  |  |  |  |  |
|              | Refer to STD | Refer to XS | Refer to XS | Refer to XS | Refer to XS | Refer to XS | 14.27   | 10                |           |  |  |  |  |  |  |  |
|              |              |             |             |             |             |             | 18.26   |                   |           |  |  |  |  |  |  |  |
|              | Refer to STD | Refer to XS | Refer to XS | Refer to XS | Refer to XS | Refer to XS | 39.26   | 12                |           |  |  |  |  |  |  |  |
|              |              |             |             |             |             |             | 54.00   |                   |           |  |  |  |  |  |  |  |
| 7.03         |              | 10.31       |             | 15.09       | 18.26       | 20.62       | 23.01   | 14                |           |  |  |  |  |  |  |  |
| 34.98        |              | 53.12       |             | 76.00       | 81.00       | 104.00      | 110.00  |                   |           |  |  |  |  |  |  |  |
| 7.80         |              | Refer to XS | 15.09       | 18.26       | 21.44       | 25.40       | 28.57   | 16                |           |  |  |  |  |  |  |  |
| 62.62        |              | Refer to XS | 119.86      | 150.00      | 190.00      | 194.00      | 218.00  |                   |           |  |  |  |  |  |  |  |
| 8.38         | 10.31        | 14.27       | 17.48       | 21.44       | 25.40       | 28.57       | 33.32   | 18                |           |  |  |  |  |  |  |  |
| 92.12        | 116.30       | 165.25      | 198.85      | 246.00      | 280.00      | 314.00      | 360.00  |                   |           |  |  |  |  |  |  |  |
| Refer to STD | 11.13        | 15.09       | 19.05       | 23.83       | 27.79       | 31.75       | 35.71   | 20                |           |  |  |  |  |  |  |  |
|              | 159.93       | 222.46      | 270.00      | 376.00      | 380.00      | 448.00      | 495.00  |                   |           |  |  |  |  |  |  |  |
| Refer to STD | Refer to XS  | 16.66       | 21.44       | 26.19       | 30.96       | 36.53       | 40.49   | 22                |           |  |  |  |  |  |  |  |
|              |              | 322.34      | 404.00      | 520.00      | 548.00      | 646.00      | 734.00  |                   |           |  |  |  |  |  |  |  |
| 11.13        | 14.27        | 19.05       | 23.83       | 29.36       | 34.93       | 39.67       | 45.24   | 24                |           |  |  |  |  |  |  |  |
| 279.66       | 354.12       | 463.08      | 581.00      | 780.00      | 810.00      | 844.00      | 1090.00 |                   |           |  |  |  |  |  |  |  |
| 12.70        | 15.09        | 20.62       | 26.18       | 32.54       | 38.10       | 44.45       | 50.01   | 26                |           |  |  |  |  |  |  |  |
| 388.62       | 460.00       | 622.89      | 781.00      | 952.00      | 1016.00     | 1214.00     | 1540.00 |                   |           |  |  |  |  |  |  |  |
| 12.70        |              | 22.22       | 28.58       | 34.92       | 41.27       | 47.62       | 53.97   | 28                |           |  |  |  |  |  |  |  |
| 510.40       |              | 825.40      | 1046.00     | 1316.00     | 1400.00     | 1700.00     | 2040.00 |                   |           |  |  |  |  |  |  |  |
| 14.27        | 17.48        | 24.61       | 30.96       | 38.89       | 46.02       | 52.37       | 59.54   | 30                |           |  |  |  |  |  |  |  |
| 637.42       | 768.17       | 1067.80     | 1335.00     | 1640.00     | 1908.00     | 2170.00     | 2540.00 |                   |           |  |  |  |  |  |  |  |

\*\* Weights on application  
Weights are approximate

### B 16.9-2018

- 180° short radius returns



### ASME B 16.9-2018

- 180° short radius returns

| nominal pipe size | outside Diameter at Bevel | Center to center, O- mm(in) | Back to Face, K-mm(in.) | W.T. mm   |        |         |        |        | SCH 20       |
|-------------------|---------------------------|-----------------------------|-------------------------|-----------|--------|---------|--------|--------|--------------|
|                   |                           |                             |                         | STD       | SCH XS | SCH XXS | SCH 10 |        |              |
|                   |                           |                             |                         | weight Kg |        |         |        |        |              |
| 1                 | 33.4(1.32)                | 51(2.00)                    | 41(1.62)                | 3.38      | 4.55   | 9.09    |        |        |              |
|                   |                           |                             |                         | 0.20      | 0.27   | 0.46    |        |        |              |
| 1 1/4             | 42.2(1.66)                | 64(2.50)                    | 52(2.06)                | 3.56      | 4.85   | 9.70    |        |        |              |
|                   |                           |                             |                         | 0.33      | 0.50   | 0.82    |        |        |              |
| 1 1/2             | 48.3(1.90)                | 76(3.00)                    | 62(2.44)                | 3.68      | 5.08   | 10.16   |        |        |              |
|                   |                           |                             |                         | 0.48      | 0.60   | 1.20    |        |        |              |
| 2                 | 60.3(2.38)                | 102(4.00)                   | 81(3.19)                | 3.91      | 5.54   | 11.07   |        |        |              |
|                   |                           |                             |                         | 0.86      | 1.20   | 2.26    |        |        |              |
| 2 1/2             | 73.0(2.88)                | 127(5.00)                   | 100(3.94)               | 5.16      | 7.01   | 14.02   |        |        |              |
|                   |                           |                             |                         | 1.64      | 2.30   | 4.06    |        |        |              |
| 3                 | 88.9(3.50)                | 152(6.00)                   | 121(4.75)               | 5.49      | 7.62   | 15.24   |        |        |              |
|                   |                           |                             |                         | 2.70      | 3.70   | 6.94    |        |        |              |
| 3 1/2             | 101.6(4.00)               | 178(7.00)                   | 140(5.50)               | 5.74      | 8.08   |         |        |        |              |
|                   |                           |                             |                         | 3.80      | 5.20   |         |        |        |              |
| 4                 | 114.3(4.50)               | 203(8.00)                   | 159(6.25)               | 6.02      | 8.56   | 17.12   |        |        |              |
|                   |                           |                             |                         | 5.20      | 7.10   | 13.72   |        |        |              |
| 5                 | 141.3(5.56)               | 254(10.00)                  | 197(7.75)               | 6.55      | 9.52   | 19.05   |        |        |              |
|                   |                           |                             |                         | 8.70      | 12.40  | 24.00   |        |        |              |
| 6                 | 168.3(6.62)               | 305(12.00)                  | 237(9.31)               | 7.11      | 10.97  | 21.95   |        |        |              |
|                   |                           |                             |                         | 12.90     | 20.40  | 40.00   |        |        |              |
| 8                 | 219.1(8.62)               | 406(16.00)                  | 313(12.31)              | 8.18      | 12.70  | 22.23   |        | 6.35   |              |
|                   |                           |                             |                         | 33.00     | 45.00  | 72.00   |        | 22.25  |              |
| 10                | 273.0(10.75)              | 508(20.00)                  | 391(15.38)              | 9.27      | 12.70  | 25.00   |        | 6.35   |              |
|                   |                           |                             |                         | 62.30     | 62.30  | 130.00  |        | 34.70  |              |
| 12                | 323.8(12.75)              | 610(24.00)                  | 467(18.38)              | 9.52      | 12.70  | 25.40   |        | 6.35   |              |
|                   |                           |                             |                         | 90.00     | 98.06  | 188.00  |        | 50.00  |              |
| 14                | 355.6(14.00)              | 711(28.00)                  | 533(21.00)              | 9.52      | 12.70  |         | 6.35   | 7.92   |              |
|                   |                           |                             |                         | 106.00    | 126.21 |         | 60.00  | 79.00  |              |
| 16                | 406.4(16.00)              | 813(32.00)                  | 610(24.00)              | 9.52      | 12.70  |         | 6.35   | 7.92   |              |
|                   |                           |                             |                         | 142.50    | 165.26 |         | 79.35  | 104.45 |              |
| 18                | 457.00(18.00)             | 914(36.00)                  | 686(27.00)              | 9.52      | 12.70  |         | 6.35   | 7.92   |              |
|                   |                           |                             |                         | 180.00    | 209.75 |         | 97.50  | 130.75 |              |
| 20                | 508.00(20.00)             | 1016(40.00)                 | 762(30.00)              | 9.52      | 12.70  |         | 6.35   |        | Refer to STD |
|                   |                           |                             |                         | 219.00    | 259.70 |         | 130.00 |        |              |
| 22                | 559.0(22.00)              | 1118(44.00)                 | 838(33.00)              | 9.52      | 12.70  |         | 6.35   |        | Refer to STD |
|                   |                           |                             |                         | 264.00    | 314.00 |         | 160.00 |        |              |
| 24                | 610.0(24.00)              | 1219(48.00)                 | 914(36.00)              | 9.52      | 12.70  |         | 6.35   |        | Refer to STD |
|                   |                           |                             |                         | 330.00    | 376.82 |         | 192.00 |        |              |

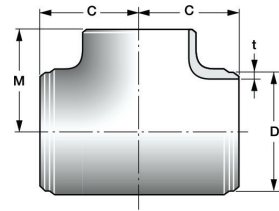
Weights are approximate

| nominal pipe size | Sch30        | Sch40       | Sch60       | Sch80  | Sch100  | Sch120  | Sch140  | Sch160  | W.T. mm   |       |  |  |  |  |
|-------------------|--------------|-------------|-------------|--------|---------|---------|---------|---------|-----------|-------|--|--|--|--|
|                   |              |             |             |        |         |         |         |         | weight Kg |       |  |  |  |  |
|                   |              |             |             |        |         |         |         |         | weight Kg |       |  |  |  |  |
| 1                 | 2.90         |             |             |        |         |         |         | 6.35    |           |       |  |  |  |  |
|                   | **           |             |             |        |         |         |         | 0.36    |           |       |  |  |  |  |
| 1 1/4             | 2.97         |             |             |        |         |         |         | 6.35    |           |       |  |  |  |  |
|                   | **           |             |             |        |         |         |         | 0.58    |           |       |  |  |  |  |
| 1 1/2             | 3.18         |             |             |        |         |         |         | 7.13    |           |       |  |  |  |  |
|                   | **           |             |             |        |         |         |         | 0.90    |           |       |  |  |  |  |
| 2                 | 3.18         |             |             |        |         |         |         | 8.74    |           |       |  |  |  |  |
|                   | **           |             |             |        |         |         |         | 1.86    |           |       |  |  |  |  |
| 2 1/2             | 4.78         |             |             |        |         |         |         | 9.52    |           |       |  |  |  |  |
|                   | **           |             |             |        |         |         |         | 3.12    |           |       |  |  |  |  |
| 3                 | 4.78         |             |             |        |         |         |         | 11.13   |           |       |  |  |  |  |
|                   | **           |             |             |        |         |         |         | 5.36    |           |       |  |  |  |  |
| 3 1/2             | 4.78         |             |             |        |         |         |         |         |           |       |  |  |  |  |
|                   | **           |             |             |        |         |         |         |         |           |       |  |  |  |  |
| 4                 | 4.78         |             |             |        |         |         |         | 11.13   |           | 13.50 |  |  |  |  |
|                   | **           |             |             |        |         |         |         | 9.45    |           | 11.24 |  |  |  |  |
| 5                 |              |             |             |        |         |         |         | 12.70   |           | 15.87 |  |  |  |  |
|                   |              |             |             |        |         |         |         | 18.00   |           | 20.56 |  |  |  |  |
| 6                 |              |             |             |        |         |         |         | 14.27   |           | 18.26 |  |  |  |  |
|                   |              |             |             |        |         |         |         | 27.00   |           | 33.94 |  |  |  |  |
| 8                 | 7.03         |             | 10.31       |        | 15.09   | 18.26   | 20.62   | 23.01   |           |       |  |  |  |  |
|                   | 24.51        |             | 35.10       |        | 52.65   | 58.00   | 64.00   | 75.00   |           |       |  |  |  |  |
| 10                | 7.80         |             | Refer to XS | 15.09  | 18.26   | 21.44   | 25.40   | 28.57   |           |       |  |  |  |  |
|                   | 42.38        |             |             | 81.00  | 100.00  | 106.00  | 124.00  | 144.00  |           |       |  |  |  |  |
| 12                | 8.38         | 10.31       | 14.27       | 17.48  | 21.44   | 25.40   | 28.57   | 33.32   |           |       |  |  |  |  |
|                   | 65.83        | 79.20       | 108.90      | 136.00 | 162.00  | 184.00  | 198.00  | 240.00  |           |       |  |  |  |  |
| 14                | 11.12        | 15.09       | 19.05       | 23.83  | 27.79   | 31.75   | 35.71   |         |           |       |  |  |  |  |
|                   | 109.80       | 146.70      | 187.00      | 240.00 | 248.00  | 276.00  | 330.00  |         |           |       |  |  |  |  |
| 16                | Refer to STD | Refer to XS | 16.66       | 21.44  | 26.19   | 30.96   | 36.53   | 40.49   |           |       |  |  |  |  |
|                   |              |             | 212.40      | 276.00 | 332.00  | 343.00  | 396.00  | 490.00  |           |       |  |  |  |  |
| 18                | 11.13        | 14.27       | 19.05       | 23.83  | 29.36   | 34.92   | 39.67   | 45.24   |           |       |  |  |  |  |
|                   | 186.14       | 233.10      | 306.00      | 386.00 | 515.00  | 566.00  | 774.00  | 693.00  |           |       |  |  |  |  |
| 20                | 12.70        | 15.09       | 20.62       | 26.18  | 32.54   | 38.10   | 44.45   | 50.01   |           |       |  |  |  |  |
|                   | 259.68       | 304.20      | 411.30      | 522.00 | 664.00  | 752.00  | 860.00  | 957.00  |           |       |  |  |  |  |
| 22                | 12.70        |             | 22.22       | 28.58  | 34.92   | 41.27   | 47.62   | 53.97   |           |       |  |  |  |  |
|                   | 348.00       |             | 563.00      | 676.00 | 840.00  | 984.00  | 1110.00 | 12.55   |           |       |  |  |  |  |
| 24                | 14.27        | 17.48       | 24.60       | 30.96  | 38.89   | 46.02   | 52.37   | 59.54   |           |       |  |  |  |  |
|                   | 426.76       | 507.60      | 704.70      | 887.00 | 1060.00 | 1242.00 | 1360.00 | 1669.00 |           |       |  |  |  |  |

\*\* Weights on application  
Weights are approximate

# ASME B16.9-2018

- Straight tees



# ASME B16.9-2018

- Straight tees

| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Center-to-end |            | STD       | XS     | XXS    | SCH 10 | SCH 20 |                   |
|-------------------------|---------------------------|---------------|------------|-----------|--------|--------|--------|--------|-------------------|
|                         |                           |               |            | W.T. mm   |        |        |        |        | nominal pipe size |
|                         |                           |               |            | weight Kg |        |        |        |        |                   |
| pouces/inches           | D – mm                    | C – mm        | M – mm     |           |        |        |        |        |                   |
| 1/2                     | 21.3(0.84)                | 25(1.00)      | 25(1.00)   | 2,77      | 3,73   | 7,47   |        |        |                   |
|                         |                           |               |            | 0,16      | 0,25   | **     |        |        |                   |
| 3/4                     | 26.7(1.05)                | 29(1.12)      | 29(1.12)   | 2,87      | 3,91   | 7,82   |        |        |                   |
|                         |                           |               |            | 0,20      | 0,27   | 0,38   |        |        |                   |
| 1                       | 33.4(1.32)                | 38(1.50)      | 38(1.50)   | 3,38      | 4,55   | 9,09   |        |        |                   |
|                         |                           |               |            | 0,29      | 0,35   | 0,58   |        |        |                   |
| 1 1/4                   | 42.2(1.66)                | 48(1.88)      | 48(1.88)   | 3,56      | 4,85   | 9,70   |        |        |                   |
|                         |                           |               |            | 0,53      | 0,65   | 1,05   |        |        |                   |
| 1 1/2                   | 48.3(1.90)                | 57(2.25)      | 57(2.25)   | 3,68      | 5,08   | 10,16  |        |        |                   |
|                         |                           |               |            | 0,77      | 0,96   | 1,56   |        |        |                   |
| 2                       | 60.3(2.38)                | 64(2.50)      | 64(2.50)   | 3,91      | 5,54   | 11,07  |        |        |                   |
|                         |                           |               |            | 1,88      | 1,90   | 2,69   |        |        |                   |
| 2 1/2                   | 73.0(2.88)                | 76(3.00)      | 76(3.00)   | 5,16      | 7,01   | 14,02  |        |        |                   |
|                         |                           |               |            | 2,69      | 3,07   | 4,54   |        |        |                   |
| 3                       | 88.9(3.50)                | 86(3.38)      | 86(3.38)   | 5,49      | 7,62   | 15,24  |        |        |                   |
|                         |                           |               |            | 3,82      | 4,50   | 7,63   |        |        |                   |
| 3 1/2                   | 101.6(4.00)               | 95(3.75)      | 95(3.75)   | 5,74      | 8,08   |        |        |        |                   |
|                         |                           |               |            | 5,18      | 6,17   |        |        |        |                   |
| 4                       | 114.3(4.50)               | 105(4.12)     | 105(4.12)  | 6,02      | 8,56   | 17,12  |        |        |                   |
|                         |                           |               |            | 6,00      | 8,44   | 17,00  |        |        |                   |
| 5                       | 141.3(5.56)               | 124(4.88)     | 124(4.88)  | 6,55      | 9,52   | 19,05  |        |        |                   |
|                         |                           |               |            | 9,94      | 12,94  | 25,00  |        |        |                   |
| 6                       | 168.3(6.62)               | 143(5.62)     | 143(5.62)  | 7,11      | 10,97  | 21,95  |        |        |                   |
|                         |                           |               |            | 16,48     | 19,30  | 39,00  |        |        |                   |
| 8                       | 219.1(8.62)               | 178(7.00)     | 178(7.00)  | 8,18      | 12,70  | 22,23  |        | 6,35   |                   |
|                         |                           |               |            | 33,00     | 34,50  | 69,00  |        | 29,00  |                   |
| 10                      | 273.0(10.75)              | 216(8.50)     | 216(8.50)  | 9,27      | 12,70  | 25,40  |        | 6,35   |                   |
|                         |                           |               |            | 49,35     | 58,57  | 98,00  |        | 34,70  |                   |
| 12                      | 323.8(12.75)              | 254(10.00)    | 254(10.00) | 9,52      | 12,70  | 25,40  |        | 6,35   |                   |
|                         |                           |               |            | 65,00     | 84,90  | 150,00 |        | 59,00  |                   |
| 14                      | 355.6(14.00)              | 279(11.00)    | 279(11.00) | 9,52      | 12,70  |        | 6,35   | 7,92   |                   |
|                         |                           |               |            | 93,00     | 127,12 |        | 87,16  | 90,00  |                   |
| 16                      | 406.4(16.00)              | 305(12.00)    | 305(12.00) | 9,52      | 12,70  |        | 6,35   | 7,92   |                   |
|                         |                           |               |            | 115,00    | 167,52 |        | 90,80  | 100,00 |                   |

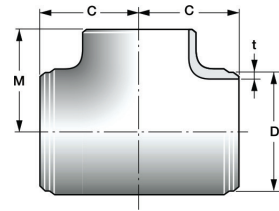
\*\* Weights on application  
Weights are approximate

| SCH 30       | SCH 40      | SCH 60 | SCH 80 | SCH 100 | SCH 120 | SCH 140 | SCH 160           | nominal pipe size |
|--------------|-------------|--------|--------|---------|---------|---------|-------------------|-------------------|
| W.T. mm      |             |        |        |         |         |         | nominal pipe size |                   |
| weight Kg    |             |        |        |         |         |         |                   |                   |
| 2,41         |             |        |        |         |         |         | 4,78              | 1/2               |
| **           |             |        |        |         |         |         | 0,28              |                   |
| 2,41         |             |        |        |         |         |         | 5,56              | 3/4               |
| **           |             |        |        |         |         |         | 0,29              |                   |
| 2,90         |             |        |        |         |         |         | 6,35              | 1                 |
| **           |             |        |        |         |         |         | 0,45              |                   |
| 2,97         |             |        |        |         |         |         | 6,35              | 1 1/4             |
| **           |             |        |        |         |         |         | 0,77              |                   |
| 3,18         |             |        |        |         |         |         | 7,13              | 1 1/2             |
| **           |             |        |        |         |         |         | 1,21              |                   |
| 3,18         |             |        |        |         |         |         | 8,74              | 2                 |
| **           |             |        |        |         |         |         | 2,25              |                   |
| 4,78         |             |        |        |         |         |         | 9,52              | 2 1/2             |
| **           |             |        |        |         |         |         | 3,42              |                   |
| 4,78         |             |        |        |         |         |         | 11,13             | 3                 |
| **           |             |        |        |         |         |         | 6,21              |                   |
| 4,78         |             |        |        |         |         |         |                   | 3 1/2             |
| **           |             |        |        |         |         |         |                   |                   |
| 4,78         |             |        |        |         |         |         | 11,13             | 4                 |
| **           |             |        |        |         |         |         | 13,50             |                   |
|              |             |        |        |         |         |         | 9,00              | 4                 |
|              |             |        |        |         |         |         | 15,53             |                   |
|              |             |        |        |         |         |         | 12,70             | 5                 |
|              |             |        |        |         |         |         | 15,87             |                   |
|              |             |        |        |         |         |         | 18,00             | 5                 |
|              |             |        |        |         |         |         | 23,93             |                   |
|              |             |        |        |         |         |         | 14,27             | 6                 |
|              |             |        |        |         |         |         | 18,26             |                   |
|              |             |        |        |         |         |         | 24,00             | 6                 |
|              |             |        |        |         |         |         | 38,59             |                   |
| 7,03         |             | 10,31  |        | 15,09   | 18,26   | 20,62   | 23,01             | 8                 |
| 31,00        |             | 34,50  |        | 43,65   | 50,00   | 54,00   | 71,00             |                   |
| 7,80         |             | 12,70  | 15,09  | 18,26   | 21,44   | 25,40   | 28,57             | 10                |
| 36,77        |             | 58,57  | 68,00  | 74,00   | 93,00   | 99,00   | 120,00            |                   |
| 8,38         | 10,31       | 14,27  | 17,48  | 21,44   | 25,40   | 28,57   | 33,32             | 12                |
| 61,74        | 70,50       | 102,60 | 115,00 | 136,00  | 150,00  | 177,00  | 184,00            |                   |
| Refer to STD | 11,13       | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71             | 14                |
|              | 114,41      | 141,20 | 165,00 | 206,00  | 240,00  | 275,00  | 300,00            |                   |
| Refer to STD | Refer to XS | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49             | 16                |
|              |             | 207,93 | 249,00 | 305,00  | 330,00  | 385,00  | 425,00            |                   |

\*\* Weights on application  
Weights are approximate

# ASME B16.9-2018

- Straight tees



# ASME B16.9-2018

- Straight tees

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD       | XS      | XXS | SCH 10 | SCH 20 | Nominal Pipe Size (NPS) |
|-------------------------|----------------------|---------------|------------|-----------|---------|-----|--------|--------|-------------------------|
|                         |                      |               |            | W.T. mm   |         |     |        |        |                         |
|                         |                      |               |            | weight Kg |         |     |        |        |                         |
| 18                      | 457.0(18.00)         | 343(13.50)    | 343(13.50) | 9,52      | 12,70   |     | 6,35   | 7,92   | 18                      |
|                         |                      |               |            | 135,00    | 190,00  |     | 94,50  | 127,12 |                         |
| 20                      | 508.0(20.00)         | 381(15.00)    | 381(15.00) | 9,52      | 12,70   |     | 6,35   |        | 20                      |
|                         |                      |               |            | 168,00    | 245,00  |     | 120,00 |        |                         |
| 22                      | 559.0(22.00)         | 419(16.50)    | 419(16.50) | 9,52      | 12,70   |     | 6,35   |        | 22                      |
|                         |                      |               |            | 200,00    | 280,00  |     | 143,00 |        |                         |
| 24                      | 610.0(24.00)         | 432(17.00)    | 432(17.00) | 9,52      | 12,70   |     | 6,35   |        | 24                      |
|                         |                      |               |            | 240,00    | 350,00  |     | 170,00 |        |                         |
| 26                      | 660.0(26.00)         | 495(19.50)    | 495(19.50) | 9,52      | 12,70   |     | 7,92   |        | 26                      |
|                         |                      |               |            | 288,00    | 360,50  |     | 240,00 |        |                         |
| 28                      | 711.0(28.00)         | 521(20.50)    | 521(20.50) | 9,52      | 12,70   |     | 7,92   |        | 28                      |
|                         |                      |               |            | 337,00    | 421,00  |     | 280,00 |        |                         |
| 30                      | 762.0(30.00)         | 559(22.00)    | 559(22.00) | 9,52      | 12,70   |     | 7,92   |        | 30                      |
|                         |                      |               |            | 388,50    | 483,50  |     | 322,00 |        |                         |
| 32                      | 813.0(32.00)         | 597(23.50)    | 597(23.50) | 9,52      | 12,70   |     | 7,92   |        | 32                      |
|                         |                      |               |            | 451,00    | 559,00  |     | 375,00 |        |                         |
| 34                      | 864.0(34.00)         | 635(25.00)    | 635(25.00) | 9,52      | 12,70   |     | 7,92   |        | 34                      |
|                         |                      |               |            | 516,00    | 645,00  |     | 429,00 |        |                         |
| 36                      | 914.0(36.00)         | 673(26.50)    | 673(26.50) | 9,52      | 12,70   |     | 7,92   |        | 36                      |
|                         |                      |               |            | 587,50    | 731,00  |     | 488,00 |        |                         |
| 38                      | 965.0(38.00)         | 711(28.00)    | 711(28.00) | 9,52      | 12,70   |     |        |        | 38                      |
|                         |                      |               |            | 638,00    | 812,00  |     |        |        |                         |
| 40                      | 1 016.0(40.00)       | 749(29.50)    | 749(29.50) | 9,52      | 12,70   |     |        |        | 40                      |
|                         |                      |               |            | 690,00    | 894,50  |     |        |        |                         |
| 42                      | 1 067.0(42.00)       | 762(30.00)    | 711(28.00) | 9,52      | 12,70   |     |        |        | 42                      |
|                         |                      |               |            | 831,00    | 1045,00 |     |        |        |                         |
| 44                      | 1 118.0(44.00)       | 813(32.00)    | 762(30.00) | 9,52      | 12,70   |     |        |        | 44                      |
|                         |                      |               |            | 899,00    | 1194,00 |     |        |        |                         |
| 46                      | 1 168.0(46.00)       | 851(33.50)    | 800(31.50) | 9,52      | 12,70   |     |        |        | 46                      |
|                         |                      |               |            | 1007,00   | 1346,00 |     |        |        |                         |
| 48                      | 1 219.0(48.00)       | 889(35.00)    | 838(33.00) | 9,52      | 12,70   |     |        |        | 48                      |
|                         |                      |               |            | 1112,50   | 1498,50 |     |        |        |                         |

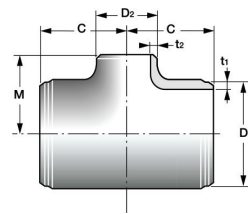
Weights are approximate

| SCH 30    | SCH 40  | SCH 60 | SCH 80 | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-----------|---------|--------|--------|---------|---------|---------|---------|-------------------------|
| W.T. Mm   |         |        |        |         |         |         |         |                         |
| weight Kg |         |        |        |         |         |         |         |                         |
| 11,13     | 14,27   | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   | 18                      |
| 181,14    | 238,35  | 277,85 | 322,00 | 380,00  | 450,00  | 500,00  | 590,00  |                         |
| 12,70     | 15,09   | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   | 20                      |
| 265,00    | 320,52  | 378,64 | 459,05 | 540,00  | 590,00  | 720,00  | 790,00  |                         |
| 12,70     |         | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   | 22                      |
| 355,00    |         | 510,00 | 600,00 | 725,00  | 840,00  | 950,00  | 1100,00 |                         |
| 14,27     | 17,48   | 24,61  | 30,96  | 38,89   | 46,02   | 52,37   | 59,54   | 24                      |
| 443,55    | 570,68  | 656,48 | 748,00 | 910,00  | 1100,00 | 1180,00 | 1310,00 |                         |
|           |         |        |        |         |         |         |         | 26                      |
|           |         |        |        |         |         |         |         |                         |
| 15,88     |         |        |        |         |         |         |         | 28                      |
| 526,00    |         |        |        |         |         |         |         |                         |
| 15,88     |         |        |        |         |         |         |         | 30                      |
| 604,00    |         |        |        |         |         |         |         |                         |
| 15,88     | 17,48   |        |        |         |         |         |         | 32                      |
| 699,00    | 769,00  |        |        |         |         |         |         |                         |
| 15,88     | 17,48   |        |        |         |         |         |         | 34                      |
| 805,00    | 886,00  |        |        |         |         |         |         |                         |
| 15,88     | 19,05   |        |        |         |         |         |         | 36                      |
| 913,00    | 1004,00 |        |        |         |         |         |         |                         |
|           |         |        |        |         |         |         |         | 38                      |
|           |         |        |        |         |         |         |         |                         |
|           |         |        |        |         |         |         |         | 40                      |
|           |         |        |        |         |         |         |         |                         |
|           |         |        |        |         |         |         |         | 42                      |
|           |         |        |        |         |         |         |         |                         |
|           |         |        |        |         |         |         |         | 44                      |
|           |         |        |        |         |         |         |         |                         |
|           |         |        |        |         |         |         |         | 46                      |
|           |         |        |        |         |         |         |         |                         |
|           |         |        |        |         |         |         |         | 48                      |
|           |         |        |        |         |         |         |         |                         |

Weights are approximate

**ASME B16.9-2018**

• Reducing outlet tees



**ASME B16.9-2018**

• Reducing outlet tees

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD                     | XS   | XXS   | SCH 10 | SCH 20 |
|-------------------------|----------------------|---------------|------------|-------------------------|------|-------|--------|--------|
|                         |                      |               |            | t <sub>1</sub> /W.T. mm |      |       |        |        |
|                         |                      |               |            | t <sub>2</sub> /W.T. mm |      |       |        |        |
|                         |                      |               |            | weight Kg               |      |       |        |        |
|                         | D – mm(in)           | C – mm(in)    | M – mm(in) |                         |      |       |        |        |
| 1/2 x 3/8               | 21.3(0.84)           | 25(1.00)      | 25(1.00)   | 2,77                    | 3,73 |       |        |        |
|                         | 17.3(0.68)           |               |            | 2,31                    | 3,20 |       |        |        |
|                         |                      |               |            | 0,16                    | 0,25 |       |        |        |
| 1/2 x 1/4               | 21.3(0.84)           | 25(1.00)      | 25(1.00)   | 2,77                    | 3,73 |       |        |        |
|                         | 13.7(0.54)           |               |            | 2,24                    | 3,03 |       |        |        |
|                         |                      |               |            | 0,16                    | 0,25 |       |        |        |
| 3/4 x 1/2               | 26.7(1.05)           | 29(1.12)      | 29(1.12)   | 2,87                    | 3,91 | 7,82  |        |        |
|                         | 21.3(0.84)           |               |            | 2,77                    | 3,73 | 7,47  |        |        |
|                         |                      |               |            | 0,25                    | 0,34 | 0,40  |        |        |
| 3/4 x 3/8               | 26.7(1.05)           | 29(1.12)      | 29(1.12)   | 2,87                    | 3,91 |       |        |        |
|                         | 17.3(0.68)           |               |            | 2,31                    | 3,20 |       |        |        |
|                         |                      |               |            | 0,25                    | 0,34 |       |        |        |
| 1 x 3/4                 | 33.4(1.32)           | 38(1.50)      | 38(1.50)   | 3,38                    | 4,55 | 9,09  |        |        |
|                         | 26.7(1.05)           |               |            | 2,87                    | 3,91 | 7,82  |        |        |
|                         |                      |               |            | 0,35                    | 0,40 | 0,57  |        |        |
| 1 x 1/2                 | 33.4(1.32)           | 38(1.50)      | 38(1.50)   | 3,38                    | 4,55 | 9,09  |        |        |
|                         | 21.3(0.84)           |               |            | 2,77                    | 3,73 | 7,47  |        |        |
|                         |                      |               |            | 0,34                    | 0,40 | 0,55  |        |        |
| 1 1/4 x 1               | 42.2(1.66)           | 48(1.88)      | 48(1.88)   | 3,56                    | 4,85 | 9,70  |        |        |
|                         | 33.4(1.32)           |               |            | 3,38                    | 4,55 | 9,09  |        |        |
|                         |                      |               |            | 0,60                    | 0,60 | 1,09  |        |        |
| 1 1/4 x 3/4             | 42.2(1.66)           | 48(1.88)      | 48(1.88)   | 3,56                    | 4,85 | 9,70  |        |        |
|                         | 26.7(1.05)           |               |            | 2,87                    | 3,91 | 7,82  |        |        |
|                         |                      |               |            | 0,60                    | 0,59 | 1,02  |        |        |
| 1 1/4 x 1/2             | 42.2(1.66)           | 48(1.88)      | 48(1.88)   | 3,56                    | 4,85 | 9,70  |        |        |
|                         | 21.3(0.84)           |               |            | 2,77                    | 3,73 | 7,47  |        |        |
|                         |                      |               |            | 0,60                    | 0,58 | 1,00  |        |        |
| 1 1/2 x 1 1/4           | 48.3(1.90)           | 57(2.25)      | 57(2.25)   | 3,68                    | 5,08 | 10,16 |        |        |
|                         | 42.2(1.66)           |               |            | 3,56                    | 4,85 | 9,70  |        |        |
|                         |                      |               |            | 0,80                    | 0,99 | 1,62  |        |        |
| 1 1/2 x 1               | 48.3(1.90)           | 57(2.25)      | 57(2.25)   | 3,68                    | 5,08 | 10,16 |        |        |
|                         | 33.4(1.32)           |               |            | 3,38                    | 4,55 | 9,09  |        |        |
|                         |                      |               |            | 0,73                    | 0,96 | 1,55  |        |        |

Weights are approximate

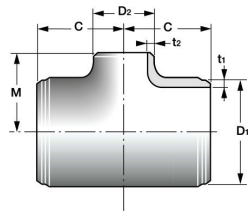
| SCH 30                  | SCH 40       | SCH 60 | SCH 80      | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------------|--------|-------------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |              |        |             |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |              |        |             |         |         |         |         |                         |
| weight Kg               |              |        |             |         |         |         |         |                         |
| 2,41                    |              |        |             |         |         |         |         | 1/2 x 3/8               |
| 1,85                    |              |        |             |         |         |         |         |                         |
| **                      |              |        |             |         |         |         |         |                         |
| 2,41                    |              |        |             |         |         |         |         | 1/2 x 1/4               |
| 1,85                    |              |        |             |         |         |         |         |                         |
| **                      |              |        |             |         |         |         |         |                         |
| 2,41                    |              |        |             |         |         |         | 5,56    | 3/4 x 1/2               |
| 2,41                    |              |        |             |         |         |         | 4,78    |                         |
| **                      |              |        |             |         |         |         | 0,27    |                         |
| 2,41                    |              |        |             |         |         |         |         | 3/4 x 3/8               |
| 1,85                    |              |        |             |         |         |         |         |                         |
| **                      |              |        |             |         |         |         |         |                         |
| 2,90                    |              |        |             |         |         |         | 6,35    | 1 x 3/4                 |
| 2,41                    |              |        |             |         |         |         | 5,56    |                         |
| **                      |              |        |             |         |         |         | 0,46    |                         |
| 2,90                    | Refer to STD |        | Refer to XS |         |         |         | 6,35    | 1 x 1 1/4               |
| 2,41                    |              |        |             |         |         | 4,78    |         |                         |
| **                      |              |        |             |         |         | 0,44    |         |                         |
| 2,97                    |              |        |             |         |         |         | 6,35    | 1 1/4 x 1               |
| 2,90                    |              |        |             |         |         |         | 6,35    |                         |
| **                      |              |        |             |         |         |         | 0,80    |                         |
| 2,97                    |              |        |             |         |         |         | 6,35    | 1 1/4 x 3/4             |
| 2,41                    |              |        |             |         |         |         | 5,56    |                         |
| **                      |              |        |             |         |         |         | 0,78    |                         |
| 2,97                    |              |        |             |         |         |         | 6,35    | 1 1/4 x 1/2             |
| 2,41                    |              |        |             |         |         |         | 4,78    |                         |
| **                      |              |        |             |         |         |         | 0,76    |                         |
| 3,18                    |              |        |             |         |         |         | 7,13    | 1 1/2 x 1 1/4           |
| 2,97                    |              |        |             |         |         |         | 6,35    |                         |
| **                      |              |        |             |         |         |         | 1,25    |                         |
| 3,18                    |              |        |             |         |         |         | 7,13    | 1 1/2 x 1               |
| 2,90                    |              |        |             |         |         |         | 6,35    |                         |
| **                      |              |        |             |         |         |         | 1,25    |                         |

Weights are approximate



**ASME B16.9-2018**

• Reducing outlet tees



**ASME B16.9-2018**

• Reducing outlet tees

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD                     | XS   | XXS   | SCH 10 | SCH 20 |
|-------------------------|----------------------|---------------|------------|-------------------------|------|-------|--------|--------|
|                         |                      |               |            | t <sub>1</sub> /W.T. mm |      |       |        |        |
|                         |                      |               |            | t <sub>2</sub> /W.T. mm |      |       |        |        |
|                         |                      |               |            | weight Kg               |      |       |        |        |
|                         | D – mm(in)           | C – mm(in)    | M – mm(in) |                         |      |       |        |        |
| 1 1/2 x 3/4             | 48.3(1.90)           | 57(2.25)      | 57(2.25)   | 3,68                    | 5,08 | 10,16 |        |        |
|                         | 26.7(1.05)           |               |            | 2,87                    | 3,91 | 7,82  |        |        |
|                         |                      |               |            | 0,73                    | 0,94 | 1,50  |        |        |
| 1 1/2 x 1/2             | 48.3(1.90)           | 57(2.25)      | 57(2.25)   | 3,68                    | 5,08 | 10,16 |        |        |
|                         | 21.3(0.84)           |               |            | 2,77                    | 3,73 | 7,47  |        |        |
|                         |                      |               |            | 1,35                    | 1,50 | 2,54  |        |        |
| 2 x 1 1/2               | 60.3(2.38)           | 64(2.50)      | 60(2.38)   | 3,91                    | 5,54 | 11,07 |        |        |
|                         | 48.3(1.90)           |               |            | 3,68                    | 5,08 | 10,16 |        |        |
|                         |                      |               |            | 1,50                    | 2,05 | 2,73  |        |        |
| 2 x 1 1/4               | 60.3(2.38)           | 64(2.50)      | 57(2.25)   | 3,91                    | 5,54 | 11,07 |        |        |
|                         | 42.2(1.66)           |               |            | 3,56                    | 4,85 | 9,70  |        |        |
|                         |                      |               |            | 1,46                    | 2,05 | 2,71  |        |        |
| 2 x 1                   | 60.3(2.38)           | 64(2.50)      | 51(2.00)   | 3,91                    | 5,54 | 11,07 |        |        |
|                         | 33.4(1.32)           |               |            | 3,38                    | 4,55 | 9,09  |        |        |
|                         |                      |               |            | 1,31                    | 2,05 | 2,65  |        |        |
| 2 x 3/4                 | 60.3(2.38)           | 64(2.50)      | 44(1.75)   | 3,91                    | 5,54 | 11,07 |        |        |
|                         | 26.7(1.05)           |               |            | 2,87                    | 3,91 | 7,82  |        |        |
|                         |                      |               |            | 1,29                    | 2,05 | 2,52  |        |        |
| 2 1/2 x 2               | 73.0(2.88)           | 76(3.00)      | 70(2.75)   | 5,16                    | 7,01 | 14,02 |        |        |
|                         | 60.3(2.38)           |               |            | 3,91                    | 5,54 | 11,07 |        |        |
|                         |                      |               |            | 2,08                    | 3,37 | 4,58  |        |        |
| 2 1/2 x 1 1/2           | 73.0(2.88)           | 76(3.00)      | 67(2.62)   | 5,16                    | 7,01 | 14,02 |        |        |
|                         | 48.3(1.90)           |               |            | 3,68                    | 5,08 | 10,16 |        |        |
|                         |                      |               |            | 2,04                    | 3,37 | 4,49  |        |        |
| 2 1/2 x 1 1/4           | 73.0(2.88)           | 76(3.00)      | 64(2.50)   | 5,16                    | 7,01 | 14,02 |        |        |
|                         | 42.2(1.66)           |               |            | 3,56                    | 4,85 | 9,70  |        |        |
|                         |                      |               |            | 1,99                    | 3,37 | 4,46  |        |        |
| 2 1/2 x 1               | 73.0(2.88)           | 76(3.00)      | 57(2.25)   | 5,16                    | 7,01 | 14,02 |        |        |
|                         | 33.4(1.32)           |               |            | 3,38                    | 4,55 | 9,09  |        |        |
|                         |                      |               |            | 1,96                    | 3,37 | 4,27  |        |        |

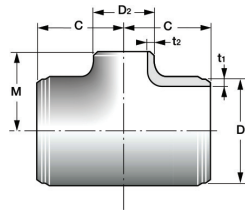
Weights are approximate

| SCH 30                  | SCH 40       | SCH 60      | SCH 80 | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |               |
|-------------------------|--------------|-------------|--------|---------|---------|---------|---------|-------------------------|---------------|
| t <sub>1</sub> /W.T. mm |              |             |        |         |         |         |         |                         |               |
| t <sub>2</sub> /W.T. mm |              |             |        |         |         |         |         |                         |               |
| weight Kg               |              |             |        |         |         |         |         |                         |               |
| 3,18                    | Refer to STD | Refer to XS |        |         |         |         | 7,13    | 1 1/2 x 3/4             |               |
| 2,41                    |              |             |        |         |         |         | 5,56    |                         |               |
| **                      |              |             |        |         |         |         | 1,19    |                         |               |
| 3,18                    |              |             |        |         |         |         |         | 7,13                    | 1 1/2 x 1/2   |
| 2,41                    |              |             |        |         |         |         | 4,78    |                         |               |
| **                      |              |             |        |         |         |         | 1,25    |                         |               |
| 3,18                    |              |             |        |         |         |         |         | 8,74                    | 2 x 1 1/2     |
| 3,18                    |              |             |        |         |         |         | 7,13    |                         |               |
| **                      |              |             |        |         |         |         | 2,27    |                         |               |
| 3,18                    |              |             |        |         |         |         |         | 8,74                    | 2 x 1 1/4     |
| 2,97                    |              |             |        |         |         |         | 6,35    |                         |               |
| **                      |              |             |        |         |         |         | 2,23    |                         |               |
| 3,18                    |              |             |        |         |         |         |         | 8,74                    | 2 x 1         |
| 2,90                    |              |             |        |         |         |         | 6,35    |                         |               |
| **                      |              |             |        |         |         |         | 2,19    |                         |               |
| 3,18                    |              |             |        |         |         |         |         | 8,74                    | 2 x 3/4       |
| 2,41                    |              |             |        |         |         |         | 5,56    |                         |               |
| **                      |              |             |        |         |         |         | 2,16    |                         |               |
| 4,78                    |              |             |        |         |         |         |         | 9,52                    | 2 1/2 x 2     |
| 3,18                    |              |             |        |         |         |         | 8,74    |                         |               |
| **                      |              |             |        |         |         |         | 3,45    |                         |               |
| 4,78                    |              |             |        |         |         |         |         | 9,52                    | 2 1/2 x 1 1/2 |
| 3,18                    |              |             |        |         |         |         | 7,13    |                         |               |
| **                      |              |             |        |         |         |         | 3,35    |                         |               |
| 4,78                    |              |             |        |         |         |         |         | 9,52                    | 2 1/2 x 1 1/4 |
| 2,97                    |              |             |        |         |         |         | 6,35    |                         |               |
| **                      |              |             |        |         |         |         | 3,30    |                         |               |
| 4,78                    |              |             |        |         |         |         |         | 9,52                    | 2 x 1/2 1     |
| 2,90                    |              |             |        |         | 6,35    |         |         |                         |               |
| **                      |              |             |        |         | 3,27    |         |         |                         |               |

\*\* Weights on application  
Weights are approximate

**ASME B16.9-2018**

- Reducing outlet tees



**ASME B16.9-2018**

- Reducing outlet tees

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD                     | XS   | XXS   | SCH 10 | SCH 20 |
|-------------------------|----------------------|---------------|------------|-------------------------|------|-------|--------|--------|
|                         |                      |               |            | t <sub>1</sub> /W.T. mm |      |       |        |        |
|                         |                      |               |            | t <sub>2</sub> /W.T. mm |      |       |        |        |
|                         |                      |               |            | weight Kg               |      |       |        |        |
|                         | D – mm(in)           | C – mm(in)    | M – mm(in) |                         |      |       |        |        |
| 3 x 2 1/2               | 88.9(3.50)           | 86(3.38)      | 83(3.25)   | 5,49                    | 7,62 | 15,24 |        |        |
|                         | 73.0(2.88)           |               |            | 5,16                    | 7,01 | 14,02 |        |        |
|                         |                      |               |            | 3,00                    | 4,25 | 7,70  |        |        |
| 3 x 2                   | 88.9(3.50)           | 86(3.38)      | 76(3.00)   | 5,49                    | 7,62 | 15,24 |        |        |
|                         | 60.3(2.38)           |               |            | 3,91                    | 5,54 | 11,07 |        |        |
|                         |                      |               |            | 2,90                    | 4,25 | 7,50  |        |        |
| 3 x 1 1/2               | 88.9(3.50)           | 86(3.38)      | 73(2.88)   | 5,49                    | 7,62 | 15,24 |        |        |
|                         | 48.3(1.90)           |               |            | 3,68                    | 5,08 | 10,16 |        |        |
|                         |                      |               |            | 2,88                    | 4,25 | 7,50  |        |        |
| 3 x 1 1/4               | 88.9(3.50)           | 86(3.38)      | 70(2.75)   | 5,49                    | 7,62 | 15,24 |        |        |
|                         | 42.2(1.66)           |               |            | 3,56                    | 4,85 | 9,70  |        |        |
|                         |                      |               |            | 2,88                    | 4,25 | 7,40  |        |        |
| 3 1/2 x 3               | 101.6(4.00)          | 95(3.75)      | 92(3.62)   | 5,74                    | 8,08 |       |        |        |
|                         | 88.9(3.50)           |               |            | 5,49                    | 7,62 |       |        |        |
|                         |                      |               |            | 4,09                    | 6,52 |       |        |        |
| 3 1/2 x 2 1/2           | 101.6(4.00)          | 95(3.75)      | 89(3.50)   | 5,74                    | 8,08 |       |        |        |
|                         | 73.0(2.88)           |               |            | 5,16                    | 7,01 |       |        |        |
|                         |                      |               |            | 3,99                    | 6,52 |       |        |        |
| 3 1/2 x 2               | 101.6(4.00)          | 95(3.75)      | 83(3.25)   | 5,74                    | 8,08 |       |        |        |
|                         | 60.3(2.38)           |               |            | 3,91                    | 5,54 |       |        |        |
|                         |                      |               |            | 3,85                    | 6,52 |       |        |        |
| 3 1/2 x 1 1/2           | 101.6(4.00)          | 95(3.75)      | 79(3.12)   | 5,74                    | 8,08 |       |        |        |
|                         | 48.3(1.90)           |               |            | 3,68                    | 5,08 |       |        |        |
|                         |                      |               |            | 3,85                    | 6,52 |       |        |        |
| 4 x 3 1/2               | 114.3(4.50)          | 105(4.12)     | 102(4.00)  | 6,02                    | 8,56 |       |        |        |
|                         | 101.6(4.00)          |               |            | 5,74                    | 8,08 |       |        |        |
|                         |                      |               |            | 5,27                    | 7,50 |       |        |        |
| 4 x 3                   | 114.3(4.50)          | 105(4.12)     | 98(3.88)   | 6,02                    | 8,56 | 17,12 |        |        |
|                         | 88.9(3.50)           |               |            | 5,49                    | 7,62 | 15,24 |        |        |
|                         |                      |               |            | 5,18                    | 7,50 | 17,00 |        |        |

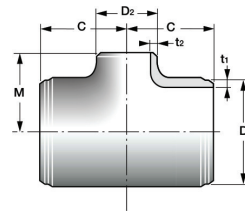
Weights are approximate

| SCH 30                  | SCH 40       | SCH 60 | SCH 80      | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------------|--------|-------------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |              |        |             |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |              |        |             |         |         |         |         |                         |
| weight Kg               |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         |         |         | 11,13   | 3 x 2 1/2               |
|                         |              |        |             |         |         |         | 9,52    |                         |
|                         |              |        |             |         |         |         | 5,60    |                         |
|                         |              |        |             |         |         |         | 11,13   | 3 x 2                   |
|                         |              |        |             |         |         |         | 8,74    |                         |
|                         |              |        |             |         |         |         | 5,50    |                         |
|                         |              |        |             |         |         |         | 11,13   | 3 x 1 1/2               |
|                         |              |        |             |         |         |         | 7,13    |                         |
|                         |              |        |             |         |         |         | 5,50    |                         |
|                         |              |        |             |         |         |         | 11,13   | 3 x 1 1/4               |
|                         |              |        |             |         |         |         | 6,35    |                         |
|                         |              |        |             |         |         |         | 5,40    |                         |
|                         | Refer to STD |        | Refer to XS |         |         |         |         | 3 1/2 x 3               |
|                         |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         |         |         |         | 3 1/2 x 2 1/2           |
|                         |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         |         |         |         | 3 1/2 x 2               |
|                         |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         |         |         |         | 3 1/2 x 1 1/2           |
|                         |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         |         |         | 13,50   | 4 x 3 1/2               |
|                         |              |        |             |         |         |         | 11,13   |                         |
|                         |              |        |             |         |         |         | 15,90   |                         |

Weights are approximate

**ASME B16.9-2018**

• Reducing outlet tees



**ASME B16.9-2018**

• Reducing outlet tees

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD                     | XS    | XXS   | SCH 10 | SCH 20 |
|-------------------------|----------------------|---------------|------------|-------------------------|-------|-------|--------|--------|
|                         |                      |               |            | t <sub>1</sub> /W.T. mm |       |       |        |        |
|                         |                      |               |            | t <sub>2</sub> /W.T. mm |       |       |        |        |
|                         |                      |               |            | weight Kg               |       |       |        |        |
|                         | D – mm(in)           | C – mm(in)    | M – mm(in) |                         |       |       |        |        |
| 4 x 2 1/2               | 114.3(4.50)          | 105(4.12)     | 95(3.75)   | 6,02                    | 8,56  | 17,12 |        |        |
|                         | 73.0(2.88)           |               |            | 5,16                    | 7,01  | 14,02 |        |        |
|                         |                      |               |            | 5,13                    | 7,50  | 17,00 |        |        |
| 4 x 2                   | 114.3(4.50)          | 105(4.12)     | 89(3.50)   | 6,02                    | 8,56  | 17,12 |        |        |
|                         | 60.3(2.38)           |               |            | 3,91                    | 5,54  | 11,07 |        |        |
|                         |                      |               |            | 4,99                    | 7,50  | 17,00 |        |        |
| 4 x 1 1/2               | 114.3(4.50)          | 105(4.12)     | 86(3.38)   | 6,02                    | 8,56  | 17,12 |        |        |
|                         | 48.3(1.90)           |               |            | 3,68                    | 5,08  | 10,16 |        |        |
|                         |                      |               |            | 4,95                    | 7,50  | 17,00 |        |        |
| 5 x 4                   | 141.3(5.56)          | 124(4.88)     | 117(4.62)  | 6,55                    | 9,52  | 19,05 |        |        |
|                         | 114.3(4.50)          |               |            | 6,02                    | 8,56  | 17,12 |        |        |
|                         |                      |               |            | 8,22                    | 12,10 | 26,20 |        |        |
| 5 x 3 1/2               | 141.3(5.56)          | 124(4.88)     | 114(4.50)  | 6,55                    | 9,52  |       |        |        |
|                         | 101.6(4.00)          |               |            | 5,74                    | 8,08  |       |        |        |
|                         |                      |               |            | 8,08                    | 12,10 |       |        |        |
| 5 x 3                   | 141.3(5.56)          | 124(4.88)     | 111(4.38)  | 6,55                    | 9,52  | 19,05 |        |        |
|                         | 88.9(3.50)           |               |            | 5,49                    | 7,62  | 15,24 |        |        |
|                         |                      |               |            | 7,99                    | 12,10 | 26,20 |        |        |
| 5 x 2 1/2               | 141.3(5.56)          | 124(4.88)     | 108(4.25)  | 6,55                    | 9,52  | 19,05 |        |        |
|                         | 73.0(2.88)           |               |            | 5,16                    | 7,01  | 14,02 |        |        |
|                         |                      |               |            | 7,90                    | 12,10 | 22,20 |        |        |
| 5 x 2                   | 141.3(5.56)          | 124(4.88)     | 105(4.12)  | 6,55                    | 9,52  | 19,05 |        |        |
|                         | 60.3(2.38)           |               |            | 3,91                    | 5,54  | 11,07 |        |        |
|                         |                      |               |            | 7,81                    | 12,10 | 22,20 |        |        |
| 6 x 5                   | 168.3(6.62)          | 143(5.62)     | 137(5.38)  | 7,11                    | 10,97 | 21,95 |        |        |
|                         | 141.3(5.56)          |               |            | 6,55                    | 9,52  | 19,05 |        |        |
|                         |                      |               |            | 16,00                   | 18,00 | 38,00 |        |        |
| 6 x 4                   |                      | 143(5.62)     | 130(5.12)  | 7,11                    | 10,97 | 21,95 |        |        |
|                         | 168.3(6.62)          |               |            | 6,02                    | 8,56  | 17,12 |        |        |
|                         | 114.3(4.50)          |               |            | 16,00                   | 18,00 | 29,00 |        |        |

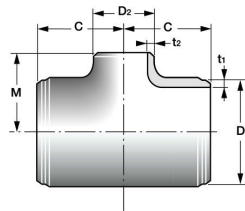
Weights are approximate

| SCH 30                  | SCH 40 | SCH 60 | SCH 80 | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------|--------|--------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| weight Kg               |        |        |        |         |         |         |         |                         |
|                         |        |        |        |         |         |         | 13,50   | 4 x 2 1/2               |
|                         |        |        |        |         |         |         | 9,52    |                         |
|                         |        |        |        |         |         |         | 15,50   |                         |
|                         |        |        |        |         |         |         | 13,50   | 4 x 2                   |
|                         |        |        |        |         |         |         | 8,74    |                         |
|                         |        |        |        |         |         |         | 15,50   |                         |
|                         |        |        |        |         |         |         | 13,50   | 4 x 1 1/2               |
|                         |        |        |        |         |         |         | 7,13    |                         |
|                         |        |        |        |         |         |         | 15,50   |                         |
|                         |        |        |        |         | 12,70   |         | 15,87   | 5 x 4                   |
|                         |        |        |        |         | 11,13   |         | 13,50   |                         |
|                         |        |        |        |         | 18,10   |         | 23,00   |                         |
|                         |        |        |        |         |         |         |         | 5 x 3 1/2               |
|                         |        |        |        |         |         |         |         |                         |
|                         |        |        |        |         |         |         |         |                         |
|                         |        |        |        |         |         |         | 15,87   | 5 x 3                   |
|                         |        |        |        |         |         |         | 11,13   |                         |
|                         |        |        |        |         |         |         | 23,00   |                         |
|                         |        |        |        |         |         |         | 15,87   | 5 x 2 1/2               |
|                         |        |        |        |         |         |         | 9,52    |                         |
|                         |        |        |        |         |         |         | 23,00   |                         |
|                         |        |        |        |         |         |         | 15,87   | 5 x 2                   |
|                         |        |        |        |         |         |         | 8,74    |                         |
|                         |        |        |        |         |         |         | 23,00   |                         |
|                         |        |        |        |         | 14,27   |         | 18,26   | 6 x 5                   |
|                         |        |        |        |         | 12,70   |         | 15,87   |                         |
|                         |        |        |        |         | 29,00   |         | 30,00   |                         |
|                         |        |        |        |         |         |         | 14,27   | 6 x 4                   |
|                         |        |        |        |         |         |         | 11,13   |                         |
|                         |        |        |        |         |         |         | 29,00   |                         |

Weights are approximate

**ASME B16.9-2018**

- Reducing outlet tees



**ASME B16.9-2018**

- Reducing outlet tees

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD                     | XS    | XXS   | SCH 10 | SCH 20 |
|-------------------------|----------------------|---------------|------------|-------------------------|-------|-------|--------|--------|
|                         |                      |               |            | t <sub>1</sub> /W.T. mm |       |       |        |        |
|                         |                      |               |            | t <sub>2</sub> /W.T. mm |       |       |        |        |
|                         |                      |               |            | weight Kg               |       |       |        |        |
|                         | D – mm(in)           | C – mm(in)    | M – mm(in) |                         |       |       |        |        |
| 6 x 3 1/2               | 168.3(6.62)          | 143(5.62)     | 127(5.00)  | 7,11                    | 10,97 | 21,95 |        |        |
|                         | 101.6(4.00)          |               |            | 5,74                    | 8,08  | 16,15 |        |        |
|                         |                      |               |            | 16,00                   | 18,00 | 29,00 |        |        |
| 6 x 3                   | 168.3(6.62)          | 143(5.62)     | 124(4.88)  | 7,11                    | 10,97 | 21,95 |        |        |
|                         | 88.9(3.50)           |               |            | 5,49                    | 7,62  | 15,24 |        |        |
|                         |                      |               |            | 16,00                   | 18,00 | 29,00 |        |        |
| 6 x 2 1/2               | 168.3(6.62)          | 143(5.62)     | 121(4.75)  | 7,11                    | 10,97 | 21,95 |        |        |
|                         | 73.0(2.88)           |               |            | 5,16                    | 7,01  | 14,02 |        |        |
|                         |                      |               |            | 16,00                   | 18,00 | 29,00 |        |        |
| 8 x 6                   | 219.1(8.62)          | 178(7.00)     | 168(6.62)  | 8,18                    | 12,70 | 22,23 |        |        |
|                         | 168.3(6.62)          |               |            | 7,11                    | 10,97 | 21,95 |        |        |
|                         |                      |               |            | 28,00                   | 34,00 | 51,00 |        |        |
| 8 x 5                   | 219.1(8.62)          | 178(7.00)     | 162(6.38)  | 8,18                    | 12,70 | 22,23 |        |        |
|                         | 141.3(5.56)          |               |            | 6,55                    | 9,52  | 19,05 |        |        |
|                         |                      |               |            | 28,00                   | 34,00 | 51,00 |        |        |
| 8 x 4                   | 219.1(8.62)          | 178(7.00)     | 156(6.12)  | 8,18                    | 12,70 | 22,23 |        |        |
|                         | 114.3(4.50)          |               |            | 6,02                    | 8,56  | 17,12 |        |        |
|                         |                      |               |            | 28,00                   | 34,00 | 51,00 |        |        |
| 8 x 3 1/2               | 219.1(8.62)          | 178(7.00)     | 152(6.00)  | 8,18                    | 12,70 |       |        |        |
|                         | 101.6(4.00)          |               |            | 5,74                    | 8,08  |       |        |        |
|                         |                      |               |            | 28,00                   | 34,00 |       |        |        |
| 10 x 8                  | 273.0(10.75)         | 216(8.50)     | 203(8.00)  | 9,27                    | 12,70 | 25,40 |        | 6,35   |
|                         | 219.1(8.62)          |               |            | 8,18                    | 12,70 | 22,23 |        | 6,35   |
|                         |                      |               |            | 41,00                   | 58,00 | 99,00 |        | 29,00  |
| 10 x 6                  | 273.0(10.75)         | 216(8.50)     | 194(7.62)  | 9,27                    | 12,70 | 25,40 |        |        |
|                         | 168.3(6.62)          |               |            | 7,11                    | 10,97 | 21,95 |        |        |
|                         |                      |               |            | 41,00                   | 52,00 | 91,00 |        |        |
| 10 x 5                  | 273.0(10.75)         | 216(8.50)     | 191(7.50)  | 9,27                    | 12,70 | 25,40 |        |        |
|                         | 141.3(5.56)          |               |            | 6,55                    | 9,52  | 19,05 |        |        |
|                         |                      |               |            | 41,00                   | 52,00 | 80,00 |        |        |
| 10 x 4                  | 273.0(10.75)         | 216(8.50)     | 184(7.25)  | 9,27                    | 12,70 | 25,40 |        |        |
|                         | 114.3(4.50)          |               |            | 6,02                    | 8,56  | 17,12 |        |        |
|                         |                      |               |            | 41,00                   | 52,00 | 80,00 |        |        |

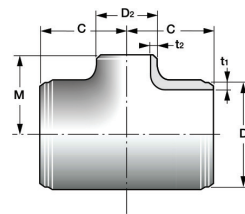
Weights are approximate

| SCH 30                  | SCH 40 | SCH 60 | SCH 80      | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------|--------|-------------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |        |        |             |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |        |        |             |         |         |         |         |                         |
| weight Kg               |        |        |             |         |         |         |         |                         |
|                         |        |        |             |         |         |         |         | 6 x 3 1/2               |
|                         |        |        |             |         |         |         | 18,26   | 6 x 3                   |
|                         |        |        |             |         |         |         | 11,13   |                         |
|                         |        |        |             |         |         |         | 30,00   |                         |
|                         |        |        |             |         |         |         | 18,26   | 6 x 2 1/2               |
|                         |        |        |             |         |         |         | 9,52    |                         |
|                         |        |        |             |         |         |         | 29,00   |                         |
|                         |        |        | Refer to XS |         | 18,23   |         | 23,01   | 8 x 6                   |
|                         |        |        |             | 14,27   |         | 18,26   |         |                         |
|                         |        |        |             | 52,00   |         | 52,00   |         |                         |
|                         |        |        |             |         | 18,26   |         | 23,01   | 8 x 5                   |
|                         |        |        |             |         | 12,70   |         | 25,87   |                         |
|                         |        |        |             |         | 44,00   |         | 52,00   |                         |
|                         |        |        |             |         | 18,26   |         | 23,01   | 8 x 4                   |
|                         |        |        |             |         | 11,13   |         | 13,50   |                         |
|                         |        |        |             |         | 44,00   |         | 49,00   |                         |
|                         |        |        |             |         |         |         |         | 8 x 3 1/2               |
|                         |        |        |             |         |         |         |         | 10 x 8                  |
| 6,35                    |        | 12,70  | 15,09       | 18,26   | 21,44   | 25,40   | 28,57   |                         |
| 6,35                    |        | 10,31  | 12,70       | 15,09   | 18,26   | 20,62   | 23,01   |                         |
| 29,00                   |        | 53,00  | 71,00       | 73,00   | 89,00   | 99,00   | 109,00  |                         |
|                         |        |        | 15,09       |         | 21,44   |         | 28,57   | 10 x 6                  |
|                         |        |        | 10,97       |         | 14,27   |         | 18,26   |                         |
|                         |        |        | 54,00       |         | 82,00   |         | 101,00  |                         |
|                         |        |        | 15,09       |         | 21,44   |         | 28,57   | 10 x 5                  |
|                         |        |        | 9,52        |         | 12,70   |         | 15,87   |                         |
|                         |        |        | 53,00       |         | 71,00   |         | 89,00   |                         |
|                         |        |        | 15,09       |         | 21,44   |         | 28,57   | 10 x 4                  |
|                         |        |        | 8,56        |         | 11,13   |         | 13,50   |                         |
|                         |        |        | 53,00       |         | 71,00   |         | 85,00   |                         |

Weights are approximate

**ASME B16.9-2018**

• Reducing outlet tees



**ASME B16.9-2018**

• Reducing outlet tees

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD                     | XS         | XXS        | SCH 10 | SCH 20 |           |
|-------------------------|----------------------|---------------|------------|-------------------------|------------|------------|--------|--------|-----------|
|                         |                      |               |            | t <sub>1</sub> /W.T. mm |            |            |        |        | weight Kg |
|                         |                      |               |            | t <sub>2</sub> /W.T. mm |            |            |        |        |           |
|                         |                      |               |            | D – mm(in)              | C – mm(in) | M – mm(in) |        |        |           |
| 12 x 10                 | 323.8(12.75)         | 254(10.00)    | 241(9.50)  | 9,52                    | 12,70      | 25,40      |        | 6,35   |           |
|                         | 273.0(10.75)         |               |            | 9,27                    | 12,70      | 25,40      |        | 6,35   |           |
|                         |                      |               |            | 63,00                   | 85,00      | 150,00     |        | 43,00  |           |
| 12 x 8                  | 323.8(12.75)         | 254(10.00)    | 229(9.00)  | 9,52                    | 12,70      | 25,40      |        | 6,35   |           |
|                         | 219.1(8.62)          |               |            | 8,18                    | 12,70      | 22,23      |        | 6,35   |           |
|                         |                      |               |            | 63,00                   | 82,00      | 129,00     |        | 41,00  |           |
| 12 x 6                  | 323.8(12.75)         | 254(10.00)    | 219(8.62)  | 9,52                    | 12,70      | 25,40      |        |        |           |
|                         | 168.3(6.62)          |               |            | 7,11                    | 10,97      | 21,95      |        |        |           |
|                         |                      |               |            | 63,00                   | 82,00      | 120,00     |        |        |           |
| 12 x 5                  | 323.8(12.75)         | 254(10.00)    | 216(8.50)  | 9,52                    | 12,70      | 25,40      |        |        |           |
|                         | 141.3(5.56)          |               |            | 6,55                    | 9,52       | 19,05      |        |        |           |
|                         |                      |               |            | 63,00                   | 82,00      | 120,00     |        |        |           |
| 14 x 12                 | 355.6(14.00)         | 279(11.00)    | 270(10.62) | 9,52                    | 12,70      |            |        | 7,92   |           |
|                         | 323.8(12.75)         |               |            | 9,52                    | 12,70      |            |        | 6,35   |           |
|                         |                      |               |            | 111,00                  | 127,00     |            |        | 95,00  |           |
| 14 x 10                 | 355.6(14.00)         | 279(11.0)     | 257(10.12) | 9,52                    | 12,70      |            |        | 7,92   |           |
|                         | 273(10.75)           |               |            | 9,27                    | 12,70      |            |        | 6,35   |           |
|                         |                      |               |            | 107,00                  | 127,00     |            |        | 90,00  |           |
| 14 x 8                  | 355.6(14.00)         | 279(11.00)    | 248(9.75)  | 9,52                    | 12,70      |            |        | 7,92   |           |
|                         | 219.1(8.62)          |               |            | 8,18                    | 12,70      |            |        | 6,35   |           |
|                         |                      |               |            | 107,00                  | 122,00     |            |        | 90,00  |           |
| 14 x 6                  | 355.6(14.00)         | 279(11.00)    | 238(9.38)  | 9,52                    | 12,70      |            |        |        |           |
|                         | 168.3(6.62)          |               |            | 7,11                    | 10,97      |            |        |        |           |
|                         |                      |               |            | 107,00                  | 122,00     |            |        |        |           |
| 16 x 14                 | 406.4(16.00)         | 305(12.00)    | 305(12.00) | 9,52                    | 12,70      |            | 6,35   |        |           |
|                         | 355.6(14.00)         |               |            | 9,52                    | 12,70      |            | 6,35   |        |           |
|                         |                      |               |            | 119,00                  | 167,00     |            | 84,00  |        |           |
| 16 x 12                 | 406.4(16.00)         | 305(12.00)    | 295(11.62) | 9,52                    | 12,70      |            |        | 7,92   |           |
|                         | 323.8(12.75)         |               |            | 9,52                    | 12,70      |            |        | 6,35   |           |
|                         |                      |               |            | 119,00                  | 167,00     |            |        | 100,00 |           |

Weights are approximate

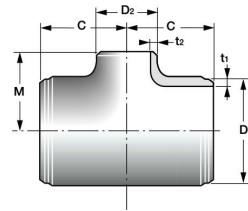
| SCH 30                  | SCH 40 | SCH 60 | SCH 80 | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------|--------|--------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| weight Kg               |        |        |        |         |         |         |         |                         |
| 8,38                    | 10,31  | 14,27  | 17,48  | 21,44   | 25,40   | 28,57   | 33,32   | 12 x 10                 |
| 7,80                    | 9,27   | 12,70  | 15,09  | 18,26   | 21,44   | 25,40   | 28,57   |                         |
| 62,00                   | 67,00  | 103,00 | 103,00 | 126,00  | 149,00  | 160,00  | 171,00  |                         |
| 8,38                    | 10,31  | 14,27  | 17,48  | 21,44   | 25,40   | 28,57   | 33,32   | 12 x 8                  |
| 7,03                    | 8,18   | 10,31  | 12,70  | 15,09   | 18,26   | 20,62   | 23,01   |                         |
| 60,00                   | 64,00  | 82,00  | 82,00  | 122,00  | 133,00  | 144,00  | 155,00  |                         |
|                         | 10,31  |        | 17,48  |         | 25,40   |         | 33,32   | 12 x 6                  |
|                         | 7,11   |        | 10,97  |         | 14,27   |         | 18,26   |                         |
|                         | 64,00  |        | 82,00  |         | 111,00  |         | 144,00  |                         |
|                         | 10,31  |        | 17,48  |         | 25,40   |         | 33,32   | 12 x 5                  |
|                         | 6,55   |        | 9,52   |         | 12,70   |         | 15,87   |                         |
|                         | 64,00  |        | 82,00  |         | 103,00  |         | 144,00  |                         |
| 9,52                    | 11,12  | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   | 14 x 12                 |
| 8,38                    | 10,31  | 14,27  | 17,48  | 21,44   | 25,40   | 28,57   | 33,32   |                         |
| 103,00                  | 114,00 | 141,00 | 143,00 | 206,00  | 235,00  | 275,00  | 300,00  |                         |
| 9,52                    | 11,12  | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   | 14 x 10                 |
| 7,80                    | 9,27   | 12,70  | 15,09  | 18,26   | 21,44   | 25,40   | 28,57   |                         |
| 99,00                   | 109,00 | 136,00 | 141,00 | 195,00  | 230,00  | 265,00  | 285,00  |                         |
| 9,52                    | 11,12  | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   | 14 x 8                  |
| 7,03                    | 8,18   | 10,31  | 12,70  | 15,09   | 18,26   | 20,62   | 23,01   |                         |
| 99,00                   | 109,00 | 136,00 | 122,00 | 195,00  | 220,00  | 250,00  | 270,00  |                         |
|                         | 11,12  |        | 19,05  |         | 27,79   |         | 35,71   | 14 x 6                  |
|                         | 7,11   |        | 10,97  |         | 14,27   |         | 18,26   |                         |
|                         | 109,00 |        | 122,00 |         | 205,00  |         | 270,00  |                         |
| 9,52                    | 12,70  | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   | 16 x 14                 |
| 9,52                    | 11,12  | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   |                         |
| 119,00                  | 167,00 | 208,00 | 200,00 | 260,00  | 320,00  | 360,00  | 410,00  |                         |
| 9,52                    | 12,70  | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   | 16 x 12                 |
| 8,38                    | 10,31  | 14,27  | 17,48  | 21,44   | 25,40   | 28,57   | 33,32   |                         |
| 110,00                  | 161,00 | 181,00 | 181,00 | 250,00  | 310,00  | 340,00  | 385,00  |                         |

Weights are approximate



### ASME B16.9-2018

• Reducing outlet tees



| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD                     | XS     | XXS | SCH 10 | SCH 20 |
|-------------------------|----------------------|---------------|------------|-------------------------|--------|-----|--------|--------|
|                         |                      |               |            | t <sub>1</sub> /W.T. mm |        |     |        |        |
|                         |                      |               |            | t <sub>2</sub> /W.T. mm |        |     |        |        |
|                         |                      |               |            | weight Kg               |        |     |        |        |
|                         | D – mm(in)           | C – mm(in)    | M – mm(in) |                         |        |     |        |        |
| 16 x 10                 | 406.4(16.00)         | 305(12.00)    | 283(11.12) | 9,52                    | 12,70  |     |        | 7,92   |
|                         | 273.0(10.75)         |               |            | 9,27                    | 12,70  |     |        | 6,35   |
|                         |                      |               |            | 116,00                  | 160,00 |     |        | 98,00  |
| 16 x 8                  | 406.4(16.00)         | 305(12.00)    | 273(10.75) | 9,52                    | 12,70  |     |        | 7,92   |
|                         | 219.1(8.62)          |               |            | 8,18                    | 12,70  |     |        | 6,35   |
|                         |                      |               |            | 116,00                  | 160    |     |        | 98,00  |
| 16 x 6                  | 406.4(16.00)         | 305(12.00)    | 264(10.38) | 9,52                    | 12,70  |     |        |        |
|                         | 168.3(6.62)          |               |            | 7,11                    | 10,97  |     |        |        |
|                         |                      |               |            | 116,00                  | 160    |     |        |        |
| 18 x 16                 | 457(18.00)           | 343(13.50)    | 330(13.00) | 9,52                    | 12,70  |     | 6,35   | 7,92   |
|                         | 406.4(16.00)         |               |            | 9,52                    | 12,70  |     | 6,35   | 7,92   |
|                         |                      |               |            | 135,00                  | 190,00 |     | 105,00 | 127,00 |
| 18 x 14                 | 457(18.00)           | 343(13.50)    | 330(13.00) | 9,52                    | 12,70  |     | 6,35   | 7,92   |
|                         | 355.6(14.00)         |               |            | 9,52                    | 12,70  |     | 6,35   | 7,92   |
|                         |                      |               |            | 135,00                  | 190,00 |     | 105,00 | 127,00 |
| 18 x 12                 | 457(18.00)           | 343(13.50)    | 321(12.62) | 9,52                    | 12,70  |     |        | 7,92   |
|                         | 323.8(12.75)         |               |            | 9,52                    | 12,70  |     |        | 6,35   |
|                         |                      |               |            | 135,00                  | 164,00 |     |        | 127,00 |
| 18 x 10                 | 457(18.00)           | 343(13.50)    | 308(12.12) | 9,52                    | 12,70  |     |        | 7,92   |
|                         | 273.0(10.75)         |               |            | 9,27                    | 12,70  |     |        | 6,35   |
|                         |                      |               |            | 129,00                  | 164,00 |     |        | 123,00 |
| 18 x 8                  | 457(18.00)           | 343(13.50)    | 298(11.75) | 9,52                    | 12,70  |     |        | 7,92   |
|                         | 219.1(8.62)          |               |            | 8,18                    | 12,70  |     |        | 6,35   |
|                         |                      |               |            | 129,00                  | 154,00 |     |        | 123,00 |
| 20 x 18                 | 508(20.00)           | 381(15.00)    | 368(14.50) | 9,52                    | 12,70  |     | 6,35   | 9,52   |
|                         | 457.0(18.00)         |               |            | 9,52                    | 12,70  |     | 6,35   | 7,92   |
|                         |                      |               |            | 168,00                  | 218,00 |     | 112,00 | 168,00 |
| 20 x 16                 | 508(20.00)           | 381(15.00)    | 356(14.00) | 9,52                    | 12,70  |     | 6,35   | 9,52   |
|                         | 406.4(16.00)         |               |            | 9,52                    | 12,70  |     | 6,35   | 7,92   |
|                         |                      |               |            | 168,00                  | 218,00 |     | 112,00 | 168,00 |

Weights are approximate

### ASME B16.9-2018

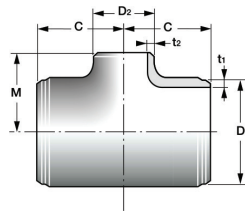
• Reducing outlet tees

| SCH 30                  | SCH 40 | SCH 60 | SCH 80 | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------|--------|--------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| weight Kg               |        |        |        |         |         |         |         |                         |
| 9,52                    | 12,70  | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   | 16 x 10                 |
| 7,80                    | 9,27   | 12,70  | 15,09  | 18,26   | 21,44   | 25,40   | 28,57   |                         |
| 107,00                  | 160,00 | 163,00 | 163,00 | 210,00  | 295,00  | 310,00  | 360,00  |                         |
|                         |        |        |        |         |         |         |         | 16 x 8                  |
| 9,52                    | 12,70  | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   |                         |
| 7,03                    | 8,18   | 10,31  | 12,70  | 15,09   | 18,26   | 20,62   | 23,01   |                         |
| 107,00                  | 160,00 | 161,00 | 163,00 | 210,00  | 280,00  | 295,00  | 295,00  | 16 x 6                  |
|                         | 12,70  |        | 21,44  |         | 30,96   |         | 40,49   |                         |
|                         | 7,11   |        | 10,97  |         | 14,27   |         | 18,26   |                         |
|                         | 160,00 |        | 163,00 |         | 250,00  |         | 295,00  | 18 x 16                 |
| 11,12                   | 14,27  | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   |                         |
| 9,52                    | 12,70  | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   |                         |
| 164,00                  | 238,00 | 257,00 | 279,00 | 380,00  | 440,00  | 475,00  | 550,00  | 18 x 14                 |
| 11,12                   | 14,27  | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   |                         |
| 9,52                    | 11,12  | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   |                         |
| 164,00                  | 194,00 | 212,00 | 258,00 | 370,00  | 420,00  | 455,00  | 520,00  | 18 x 12                 |
| 11,12                   | 14,27  | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   |                         |
| 8,38                    | 10,31  | 14,27  | 17,48  | 21,44   | 25,40   | 28,57   | 33,32   |                         |
| 154,00                  | 194,00 | 212,00 | 234,00 | 325,00  | 410,00  | 410,00  | 500,00  | 18 x 10                 |
| 11,12                   | 14,27  | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   |                         |
| 7,80                    | 9,27   | 12,70  | 15,09  | 18,26   | 21,44   | 25,40   | 28,57   |                         |
| 140,00                  | 150,00 | 188,00 | 225,00 | 325,00  | 385,00  | 385,00  | 475,00  | 18 x 8                  |
| 11,12                   | 14,27  | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   |                         |
| 7,03                    | 8,18   | 10,31  | 12,70  | 15,09   | 18,26   | 20,62   | 23,01   |                         |
| 140,00                  | 150,00 | 188,00 | 205,00 | 310,00  | 360,00  | 360,00  | 455,00  | 20 x 18                 |
| 12,70                   | 15,09  | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   |                         |
| 11,12                   | 14,27  | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   |                         |
| 218,00                  | 265,00 | 351,00 | 410,00 | 540,00  | 570,00  | 680,00  | 770,00  | 20 x 16                 |
| 12,70                   | 15,09  | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   |                         |
| 9,52                    | 12,70  | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   |                         |
| 218,00                  | 230,00 | 324,00 | 355,00 | 470,00  | 550,00  | 630,00  | 750,00  |                         |

Weights are approximate

ASME B16.9-2018

• Reducing outlet tees



| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD                     | XS         | XXS        | SCH 10 | SCH 20 |           |
|-------------------------|----------------------|---------------|------------|-------------------------|------------|------------|--------|--------|-----------|
|                         |                      |               |            | t <sub>1</sub> /W.T. mm |            |            |        |        | weight Kg |
|                         |                      |               |            | t <sub>2</sub> /W.T. mm |            |            |        |        |           |
|                         |                      |               |            | D – mm(in)              | C – mm(in) | M – mm(in) |        |        |           |
| 20 x 14                 | 508(20.00)           | 381(15.00)    | 356(14.00) | 9,52                    | 12,70      |            | 6,35   | 9,52   |           |
|                         | 355.6(14.00)         |               |            | 9,52                    | 12,70      |            | 6,35   | 7,92   |           |
|                         |                      |               |            | 163,00                  | 214,00     |            | 110,00 | 164,00 |           |
| 20 x 12                 | 508(20.00)           | 381(15.00)    | 346(13.62) | 9,52                    | 12,70      |            |        | 9,52   |           |
|                         | 323.8(12.75)         |               |            | 9,52                    | 12,70      |            |        | 6,35   |           |
|                         |                      |               |            | 163,00                  | 214,00     |            |        | 164,00 |           |
| 20 x 10                 | 508(20.00)           | 381(15.00)    | 333(13.12) | 9,52                    | 12,70      |            |        | 9,52   |           |
|                         | 273.0(10.75)         |               |            | 9,27                    | 12,70      |            |        | 6,35   |           |
|                         |                      |               |            | 163,00                  | 214,00     |            |        | 164,00 |           |
| 20 x 8                  | 508(20.00)           | 381(15.00)    | 324(12.75) | 9,52                    | 12,70      |            |        | 9,52   |           |
|                         | 219.1(8.62)          |               |            | 8,18                    | 12,70      |            |        | 6,35   |           |
|                         |                      |               |            | 163,00                  | 214,00     |            |        | 164,00 |           |
| 22 x 20                 | 559(22.00)           | 419(16.50)    | 406(16.00) | 9,52                    | 12,70      |            | 6,35   | 9,52   |           |
|                         | 508.0(20.00)         |               |            | 9,52                    | 12,70      |            | 6,35   | 9,52   |           |
|                         |                      |               |            | 220,00                  | 280,00     |            | 210,00 | 220,00 |           |
| 22 x 18                 | 559(22.00)           | 419(16.50)    | 394(15.50) | 9,52                    | 12,70      |            | 6,35   | 9,52   |           |
|                         | 457.0(18.00)         |               |            | 9,52                    | 12,70      |            | 6,35   | 7,92   |           |
|                         |                      |               |            | 209,00                  | 260,00     |            | 190,00 | 209,00 |           |
| 22 x 16                 | 559(22.00)           | 419(16.50)    | 381(15.00) | 9,52                    | 12,70      |            | 6,35   | 9,52   |           |
|                         | 406.4(16.00)         |               |            | 9,52                    | 12,70      |            | 6,35   | 7,92   |           |
|                         |                      |               |            | 209,00                  | 260,00     |            | 190,00 | 209,00 |           |
| 22 x 14                 | 559(22.00)           | 419(16.50)    | 381(15.00) | 9,52                    | 12,70      |            | 6,35   | 9,52   |           |
|                         | 355.6(14.00)         |               |            | 9,52                    | 12,70      |            | 6,35   | 7,92   |           |
|                         |                      |               |            | 172,00                  | 245,00     |            | 160,00 | 173,00 |           |
| 22 x 12                 | 559(22.00)           | 419(16.50)    | 371(14.62) | 9,52                    | 12,70      |            |        | 9,52   |           |
|                         | 323.8(12.75)         |               |            | 9,52                    | 12,70      |            |        | 6,35   |           |
|                         |                      |               |            | 172,00                  | 245,00     |            |        | 173,00 |           |
| 22 x 10                 | 559(22.00)           | 419(16.50)    | 359(14.12) | 9,52                    | 12,70      |            |        | 9,52   |           |
|                         | 273.0(10.75)         |               |            | 9,27                    | 12,70      |            |        | 6,35   |           |
|                         |                      |               |            | 172,00                  | 245,00     |            |        | 173,00 |           |

Weights are approximate

ASME B16.9-2018

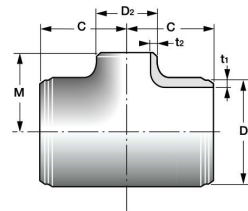
• Reducing outlet tees

| SCH 30                  | SCH 40 | SCH 60 | SCH 80 | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------|--------|--------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| weight Kg               |        |        |        |         |         |         |         |                         |
| 12,70                   | 15,09  | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   | 20 x 14                 |
| 9,52                    | 11,12  | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   |                         |
| 214,00                  | 224,00 | 293,00 | 324,00 | 470,00  | 530,00  | 590,00  | 725,00  |                         |
| 12,70                   | 15,09  | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   | 20 x 12                 |
| 8,38                    | 10,31  | 14,27  | 17,48  | 21,44   | 25,40   | 28,57   | 33,32   |                         |
| 214,00                  | 224,00 | 293,00 | 324,00 | 450,00  | 500,00  | 540,00  | 700,00  |                         |
| 12,70                   | 15,09  | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   | 20 x 10                 |
| 7,80                    | 9,27   | 12,70  | 15,09  | 18,26   | 21,44   | 25,40   | 28,57   |                         |
| 214,00                  | 220,00 | 286,00 | 293,00 | 420,00  | 475,00  | 500,00  | 680,00  |                         |
| 12,70                   | 15,09  | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   | 20 x 8                  |
| 7,03                    | 8,18   | 10,31  | 12,70  | 15,09   | 18,26   | 20,62   | 23,01   |                         |
| 214,00                  | 220,00 | 224,00 | 228,00 | 390,00  | 430,00  | 450,00  | 660,00  |                         |
| 12,70                   |        | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   | 22 x 20                 |
| 12,70                   |        | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   |                         |
| 280,00                  |        | 445,00 | 513,00 | 725,00  | 820,00  | 910,00  | 1020,00 |                         |
| 12,70                   |        | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   | 22 x 18                 |
| 11,12                   |        | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   |                         |
| 260,00                  |        | 390,00 | 415,00 | 642,00  | 780,00  | 840,00  | 965,00  |                         |
| 12,70                   |        | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   | 22 x 16                 |
| 9,52                    |        | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   |                         |
| 260,00                  |        | 390,00 | 415,00 | 642,00  | 780,00  | 840,00  | 965,00  |                         |
| 12,70                   |        | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   | 22 x 14                 |
| 9,52                    |        | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   |                         |
| 245,00                  |        | 337,00 | 374,00 | 525,00  | 695,00  | 725,00  | 860,00  |                         |
| 12,70                   |        | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   | 22 x 12                 |
| 8,38                    |        | 14,27  | 17,48  | 21,44   | 25,40   | 28,57   | 33,32   |                         |
| 245,00                  |        | 337,00 | 374,00 | 525,00  | 695,00  | 725,00  | 860,00  |                         |
| 12,70                   |        | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   | 22 x 10                 |
| 7,80                    |        | 12,70  | 15,09  | 18,26   | 21,44   | 25,40   | 28,57   |                         |
| 245,00                  |        | 337,00 | 374,00 | 525,00  | 695,00  | 725,00  | 860,00  |                         |

Weights are approximate

**ASME B16.9-2018**

- Reducing outlet tees



**ASME B16.9-2018**

- Reducing outlet tees

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD                     | XS         | XXS        | SCH 10 | SCH 20       |           |
|-------------------------|----------------------|---------------|------------|-------------------------|------------|------------|--------|--------------|-----------|
|                         |                      |               |            | t <sub>1</sub> /W.T. mm |            |            |        |              | weight Kg |
|                         |                      |               |            | t <sub>2</sub> /W.T. mm |            |            |        |              |           |
|                         |                      |               |            | D – mm(in)              | C – mm(in) | M – mm(in) |        |              |           |
| 24 x 22                 | 610(24.00)           | 432(17.00)    | 432(17.00) | 9,52                    | 12,70      |            | 6,35   | Refer to STD |           |
|                         | 559.0(22.00)         |               |            | 9,52                    | 12,70      |            | 6,35   |              |           |
|                         |                      |               |            | 227,00                  | 350,00     |            | 151,00 |              |           |
| 24 x 20                 | 610(24.00)           | 432(17.00)    | 432(17.00) | 9,52                    | 12,70      |            | 6,35   | Refer to STD |           |
|                         | 508.0(20.00)         |               |            | 9,52                    | 12,70      |            | 6,35   |              |           |
|                         |                      |               |            | 227,00                  | 350,00     |            | 151,00 |              |           |
| 24 x 18                 | 610(24.00)           | 432(17.00)    | 419(16.50) | 9,52                    | 12,70      |            | 6,35   | 9,52         |           |
|                         | 457.0(18.00)         |               |            | 9,52                    | 12,70      |            | 6,35   | 7,92         |           |
|                         |                      |               |            | 227,00                  | 320,00     |            | 151,00 | 227,00       |           |
| 24 x 16                 | 610(24.00)           | 432(17.00)    | 406(16.00) | 9,52                    | 12,70      |            | 6,35   | 9,52         |           |
|                         | 406.4(16.00)         |               |            | 9,52                    | 12,70      |            | 6,35   | 7,92         |           |
|                         |                      |               |            | 222,00                  | 320,00     |            | 150,00 | 222,00       |           |
| 24 x 14                 | 610(24.00)           | 432(17.00)    | 406(16.00) | 9,52                    | 12,70      |            | 6,35   | 9,52         |           |
|                         | 355.6(14.00)         |               |            | 9,52                    | 12,70      |            | 6,35   | 7,92         |           |
|                         |                      |               |            | 222,00                  | 300,00     |            | 150,00 | 222,00       |           |
| 24 x 12                 | 610(24.00)           | 432(17.00)    | 397(15.62) | 9,52                    | 12,70      |            |        | 9,52         |           |
|                         | 323.8(12.75)         |               |            | 9,52                    | 12,70      |            |        | 6,35         |           |
|                         |                      |               |            | 218,00                  | 300,00     |            |        | 218,00       |           |
| 24 x 10                 | 610(24.00)           | 432(17.00)    | 384(15.12) | 9,52                    | 12,70      |            |        | 9,52         |           |
|                         | 273.0(10.75)         |               |            | 9,27                    | 12,70      |            |        | 6,35         |           |
|                         |                      |               |            | 204,00                  | 300,00     |            |        | 204,00       |           |
|                         |                      |               |            |                         |            |            |        |              |           |
|                         |                      |               |            |                         |            |            |        |              |           |
|                         |                      |               |            |                         |            |            |        |              |           |
|                         |                      |               |            |                         |            |            |        |              |           |
|                         |                      |               |            |                         |            |            |        |              |           |
|                         |                      |               |            |                         |            |            |        |              |           |
|                         |                      |               |            |                         |            |            |        |              |           |

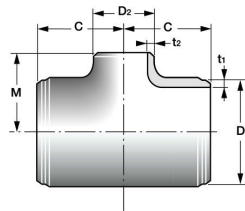
Weights are approximate

| SCH 30                  | SCH 40 | SCH 60 | SCH 80 | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------|--------|--------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| weight Kg               |        |        |        |         |         |         |         |                         |
| 14,27                   |        | 24,61  | 30,96  | 38,89   | 46,02   | 52,37   | 59,54   | 24 x 22                 |
| 12,70                   |        | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   |                         |
| 373,00                  |        | 595,00 | 675,00 | 910,00  | 1080,00 | 1160,00 | 1290,00 |                         |
| 14,27                   | 17,48  | 24,61  | 30,96  | 38,89   | 46,02   | 52,37   | 59,54   | 24 x 20                 |
| 12,70                   | 15,09  | 20,62  | 26,19  | 33,54   | 38,10   | 44,45   | 50,01   |                         |
| 373,00                  | 390,00 | 545,00 | 606,00 | 910,00  | 1060,00 | 1140,00 | 1270,00 |                         |
| 14,27                   | 17,48  | 24,61  | 30,96  | 38,89   | 46,02   | 52,37   | 59,54   | 24 x 18                 |
| 11,12                   | 14,27  | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   |                         |
| 340,00                  | 390,00 | 472,00 | 533,00 | 815,00  | 1040,00 | 1090,00 | 1210,00 |                         |
| 14,27                   | 17,48  | 24,61  | 30,96  | 38,89   | 46,02   | 52,37   | 59,54   | 24 x 16                 |
| 9,52                    | 12,70  | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   |                         |
| 340,00                  | 309,00 | 427,00 | 490,00 | 815,00  | 1010,00 | 1040,00 | 1180,00 |                         |
| 14,27                   | 17,48  | 24,61  | 30,96  | 38,89   | 46,02   | 52,37   | 59,54   | 24 x 14                 |
| 9,52                    | 11,13  | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   |                         |
| 320,00                  | 309,00 | 427,00 | 490,00 | 770,00  | 1000,00 | 1050,00 | 1140,00 |                         |
| 14,27                   | 17,48  | 24,61  | 30,96  | 38,89   | 46,02   | 52,37   | 59,54   | 24 x 12                 |
| 8,38                    | 10,31  | 14,27  | 17,48  | 21,44   | 25,40   | 28,57   | 33,32   |                         |
| 320,00                  | 308,00 | 389,00 | 452,00 | 770,00  | 950,00  | 980,00  | 1090,00 |                         |
| 14,27                   | 17,48  | 24,61  | 30,96  | 38,89   | 46,02   | 52,37   | 59,54   | 24 x 10                 |
| 7,80                    | 9,27   | 12,70  | 15,09  | 18,26   | 21,44   | 25,40   | 28,57   |                         |
| 320,00                  | 308,00 | 389,00 | 452,00 | 635,00  | 920,00  | 950,00  | 1040,00 |                         |
|                         |        |        |        |         |         |         |         |                         |
|                         |        |        |        |         |         |         |         |                         |
|                         |        |        |        |         |         |         |         |                         |
|                         |        |        |        |         |         |         |         |                         |
|                         |        |        |        |         |         |         |         |                         |
|                         |        |        |        |         |         |         |         |                         |
|                         |        |        |        |         |         |         |         |                         |

Weights are approximate

ASME B16.9-2018

• Reducing outlet tees



ASME B16.9-2018

• Reducing outlet tees

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD                     | XS     | XXS    | SCH 10 | SCH 20 |
|-------------------------|----------------------|---------------|------------|-------------------------|--------|--------|--------|--------|
|                         |                      |               |            | t <sub>1</sub> /W.T. mm |        |        |        |        |
|                         |                      |               |            | t <sub>2</sub> /W.T. mm |        |        |        |        |
|                         |                      |               |            | weight Kg               |        |        |        |        |
|                         | D – mm(in)           | C – mm(in)    | M – mm(in) |                         |        |        |        |        |
| 26 x 24                 | 660(26.00)           | 495(19.50)    | 483(19.00) | 9,52                    | 12,70  | 7,92   | 12,70  |        |
|                         | 610.0(24.00)         |               |            | 9,52                    | 12,70  | 6,35   | 9,52   |        |
|                         |                      |               |            | 280,00                  | 350,00 | 234,00 | 350,00 |        |
| 26 x 22                 | 660(26.00)           | 495(19.50)    | 470(18.50) | 9,52                    | 12,70  | 7,92   | 12,70  |        |
|                         | 559.0(22.00)         |               |            | 9,52                    | 12,70  | 6,35   | 9,52   |        |
|                         |                      |               |            | 272,00                  | 340,00 | 234,00 | 340,00 |        |
| 26 x 20                 | 660(26.00)           | 495(19.50)    | 457(18.00) | 9,52                    | 12,70  | 7,92   | 12,70  |        |
|                         | 508.0(20.00)         |               |            | 9,52                    | 12,70  | 6,35   | 9,52   |        |
|                         |                      |               |            | 264,00                  | 330,00 | 219,00 | 330,00 |        |
| 26 x 18                 | 660(26.00)           | 495(19.50)    | 444(17.50) | 9,52                    | 12,70  | 7,92   | 12,70  |        |
|                         | 457.0(18.00)         |               |            | 9,52                    | 12,70  | 6,35   | 7,92   |        |
|                         |                      |               |            | 255,00                  | 323,00 | 212,00 | 320,00 |        |
| 26 x 16                 | 660(26.00)           | 495(19.50)    | 432(17.00) | 9,52                    | 12,70  | 7,92   | 12,70  |        |
|                         | 406.4(16.00)         |               |            | 9,52                    | 12,70  | 6,35   | 7,92   |        |
|                         |                      |               |            | 247,00                  | 309,00 | 205,00 | 309,00 |        |
| 26 x 14                 | 660(26.00)           | 495(19.50)    | 432(17.00) | 9,52                    | 12,70  | 7,92   | 12,70  |        |
|                         | 355.6(14.00)         |               |            | 9,52                    | 12,70  | 6,35   | 7,92   |        |
|                         |                      |               |            | 239,00                  | 300,00 | 199,00 | 300,00 |        |
| 26 x 12                 | 660(26.00)           | 495(19.50)    | 422(16.62) | 9,52                    | 12,70  |        | 12,70  |        |
|                         | 323.8(12.75)         |               |            | 9,52                    | 12,70  |        | 6,35   |        |
|                         |                      |               |            | 231,00                  | 293,00 |        | 293,00 |        |
| 28 x 26                 | 711(28.00)           | 521(20.50)    | 521(20.50) | 9,52                    | 12,70  | 7,92   | 12,70  |        |
|                         | 660.0(26.00)         |               |            | 9,52                    | 12,70  | 7,92   | 12,70  |        |
|                         |                      |               |            | 325,00                  | 410,00 | 271,00 | 410,00 |        |
| 28 x 24                 | 711(28.00)           | 521(20.50)    | 508(20.00) | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 610.0(24.00)         |               |            | 9,52                    | 12,70  | 6,35   | 9,52   | 14,27  |
|                         |                      |               |            | 320,00                  | 400,00 | 266,00 | 400,00 | 480,00 |
| 28 x 22                 | 711(28.00)           | 521(20.50)    | 495(19.50) | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 559.0(22.00)         |               |            | 9,52                    | 12,70  | 6,35   | 9,52   | 12,70  |
|                         |                      |               |            | 311,00                  | 390,00 | 258,00 | 390,00 | 461,00 |
| 28 x 20                 | 711(28.00)           | 521(20.50)    | 483(19.00) | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 508.0(20.00)         |               |            | 9,52                    | 12,70  | 6,35   | 9,52   | 12,70  |
|                         |                      |               |            | 302,00                  | 380,00 | 251,00 | 380,00 | 461,00 |
| 28 x 18                 | 711(28.00)           | 521(20.50)    | 470(18.50) | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 457.0(18.00)         |               |            | 9,52                    | 12,70  | 6,35   | 7,92   | 11,13  |
|                         |                      |               |            | 292,00                  | 369,00 | 243,00 | 369,00 | 461,00 |

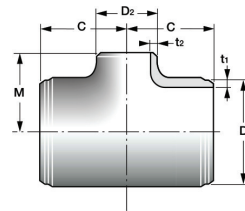
Weights are approximate

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD                     | XS     | XXS    | SCH 10 | SCH 20 |
|-------------------------|----------------------|---------------|------------|-------------------------|--------|--------|--------|--------|
|                         |                      |               |            | t <sub>1</sub> /W.T. mm |        |        |        |        |
|                         |                      |               |            | t <sub>2</sub> /W.T. mm |        |        |        |        |
|                         |                      |               |            | weight Kg               |        |        |        |        |
|                         | D – mm(in)           | C – mm(in)    | M – mm(in) |                         |        |        |        |        |
| 28 x 16                 | 711(28.00)           | 521(20.50)    | 457(18.00) | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 406.4(16.00)         |               |            | 9,52                    | 12,70  | 6,35   | 7,92   | 9,52   |
|                         |                      |               |            | 283,00                  | 357,00 | 235,00 | 357,00 | 450,00 |
| 28 x 14                 | 711(28.00)           | 521(20.50)    | 457(18.00) | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 355.6(14.00)         |               |            | 9,52                    | 12,70  | 6,35   | 7,92   | 9,52   |
|                         |                      |               |            | 274,00                  | 346,00 | 228,00 | 346,00 | 450,00 |
| 28 x 12                 | 711(28.00)           | 521(20.50)    | 448(17.62) | 9,52                    | 12,70  |        | 12,70  | 15,88  |
|                         | 323.8(12.75)         |               |            | 9,52                    | 12,70  |        | 6,35   | 8,38   |
|                         |                      |               |            | **                      | **     |        | **     | **     |
| 30 x 28                 | 762(30.00)           | 559(22.00)    | 546(21.50) | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 711.0(28.00)         |               |            | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         |                      |               |            | 380,00                  | 475,00 | 315,00 | 475,00 | 566,00 |
| 30 x 26                 | 762(30.00)           | 559(22.00)    | 546(21.50) | 9,52                    | 12,70  | 7,92   | 12,70  |        |
|                         | 660.0(26.00)         |               |            | 9,52                    | 12,70  | 7,92   | 12,70  |        |
|                         |                      |               |            | 372,00                  | 463,00 | 308,00 | 463,00 |        |
| 30 x 24                 | 762(30.00)           | 559(22.00)    | 533(21.00) | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 610.0(24.00)         |               |            | 9,52                    | 12,70  | 6,35   | 9,52   | 14,27  |
|                         |                      |               |            | 361,00                  | 452,00 | 300,00 | 451,00 | 541,00 |
| 30 x 22                 | 762(30.00)           | 559(22.00)    | 521(20.50) | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 559.0(22.00)         |               |            | 9,52                    | 12,70  | 6,35   | 9,52   | 12,70  |
|                         |                      |               |            | 351,00                  | 441,00 | 291,00 | 440,00 | 500,00 |
| 30 x 20                 | 762(30.00)           | 559(22.00)    | 508(20.00) | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 508.0(20.00)         |               |            | 9,52                    | 12,70  | 6,35   | 9,52   | 12,70  |
|                         |                      |               |            | 340,00                  | 429,00 | 283,00 | 428,00 | 500,00 |
| 30 x 18                 | 762(30.00)           | 559(22.00)    | 495(19.50) | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 457.0(18.00)         |               |            | 9,52                    | 12,70  | 6,35   | 7,92   | 11,13  |
|                         |                      |               |            | 330,00                  | 417,00 | 274,00 | 417,00 | 500,00 |
| 30 x 16                 | 762(30.00)           | 559(22.00)    | 483(19.00) | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 406.4(16.00)         |               |            | 9,52                    | 12,70  | 6,35   | 7,92   | 9,52   |
|                         |                      |               |            | 321,00                  | 405,00 | 266,00 | 404,00 | 470,00 |
| 30 x 14                 | 762(30.00)           | 559(22.00)    | 483(19.00) | 9,52                    | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 355.6(14.00)         |               |            | 9,52                    | 12,70  | 6,35   | 7,92   | 9,52   |
|                         |                      |               |            | 312,00                  | 395,00 | 257,00 | 392,00 | 470,00 |

\*\* Weights on application  
Weights are approximate

**ASME B16.9-2018**

• Reducing outlet tees



**ASME B16.9-2018**

• Reducing outlet tees

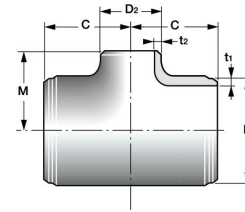
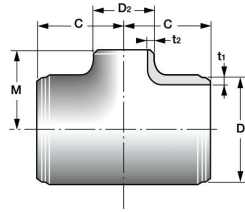
| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD         | XS         | SCH 10     | SCH 20 | SCH 30 | SCH 40 |  |  |
|-------------------------|----------------------|---------------|------------|-------------|------------|------------|--------|--------|--------|--|--|
|                         |                      |               |            | t1 /W.T. mm |            |            |        |        |        |  |  |
|                         |                      |               |            | t2 /W.T. mm |            |            |        |        |        |  |  |
|                         |                      |               |            | D – mm(in)  | C – mm(in) | M – mm(in) | weight |        | Kg     |  |  |
| 30 x 12                 | 762(30.00)           | 559(22.00)    | 473(18.62) | 9,52        | 12,70      |            | 12,70  | 15,88  |        |  |  |
|                         | 323.8(12.75)         |               |            | 9,52        | 12,70      |            | 6,35   | 8,38   |        |  |  |
|                         |                      |               |            | 304,00      | 385,00     |            | **     | **     |        |  |  |
| 30 x 10                 | 762(30.00)           | 559(22.00)    | 460(18.12) | 9,52        | 12,70      |            | 12,70  | 15,88  |        |  |  |
|                         | 273.0(10.75)         |               |            | 9,52        | 12,70      |            | 6,35   | 7,80   |        |  |  |
|                         |                      |               |            | 296,00      | 377,00     |            | **     | **     |        |  |  |
| 32 x 30                 | 813(32.00)           | 597(23.50)    | 584(23.00) | 9,52        | 12,70      | 7,92       | 12,70  | 15,88  |        |  |  |
|                         | 762.0(30.00)         |               |            | 9,52        | 12,70      | 7,92       | 12,70  | 15,88  |        |  |  |
|                         |                      |               |            | 506,00      | 628,00     | 452,00     | 543,00 | 652,00 |        |  |  |
| 32 x 28                 | 813(32.00)           | 597(23.50)    | 572(22.5)  | 9,52        | 12,70      | 7,92       | 12,70  | 15,88  |        |  |  |
|                         | 711.0(28.00)         |               |            | 9,52        | 12,70      | 7,92       | 12,70  | 15,88  |        |  |  |
|                         |                      |               |            | 493,00      | 616,00     | 357,00     | 536,00 | 643,00 |        |  |  |
| 32 x 26                 | 813(32.00)           | 597(23.50)    | 572(22.50) | 9,52        | 12,70      | 7,92       | 12,70  |        |        |  |  |
|                         | 660.0(26.00)         |               |            | 9,52        | 12,70      | 7,92       | 12,70  |        |        |  |  |
|                         |                      |               |            | 482,00      | 605,00     | 350,00     | 526,00 |        |        |  |  |
| 32 x 24                 | 813(32.00)           | 597(23.50)    | 559(22.00) | 9,52        | 12,70      | 7,92       | 12,70  | 15,88  | 17,48  |  |  |
|                         | 610.0(24.00)         |               |            | 9,52        | 12,70      | 6,35       | 9,52   | 14,27  | 17,48  |  |  |
|                         |                      |               |            | 472,00      | 591,00     | 341,00     | 513,00 | 616,00 | **     |  |  |
| 32 x 22                 | 813(32.00)           | 597(23.50)    | 546(21.50) | 9,52        | 12,70      | 7,92       | 12,70  | 15,88  |        |  |  |
|                         | 559.0(22.00)         |               |            | 9,52        | 12,70      | 6,35       | 9,52   | 12,70  |        |  |  |
|                         |                      |               |            | 460,00      | 577,00     | **         | **     | **     |        |  |  |
| 32 x 20                 | 813(32.00)           | 597(23.50)    | 533(21.00) | 9,52        | 12,70      | 7,92       | 12,70  | 15,88  | 17,48  |  |  |
|                         | 508.0(20.00)         |               |            | 9,52        | 12,70      | 6,35       | 9,52   | 12,70  | 15,09  |  |  |
|                         |                      |               |            | 448,00      | 562,00     | 338,00     | 488,00 | 585,00 | **     |  |  |
| 32 x 18                 | 813(32.00)           | 597(23.50)    | 521(20.50) | 9,52        | 12,70      | 7,92       | 12,70  | 15,88  | 17,48  |  |  |
|                         | 457.0(18.00)         |               |            | 9,52        | 12,70      | 6,35       | 7,92   | 11,13  | 14,27  |  |  |
|                         |                      |               |            | 436,00      | 547,00     | 325,00     | 475,00 | 570,00 | **     |  |  |
| 32 x 16                 | 813(32.00)           | 597(23.50)    | 508(20.00) | 9,52        | 12,70      | 7,92       | 12,70  | 15,88  | 17,48  |  |  |
|                         | 406.4(16.00)         |               |            | 9,52        | 12,70      | 6,35       | 7,92   | 9,52   | 12,70  |  |  |
|                         |                      |               |            | 425,00      | 535,00     | 317,00     | 461,00 | 553,00 | **     |  |  |
| 32 x 14                 | 813(32.00)           | 597(23.50)    | 508(20.00) | 9,52        | 12,70      | 7,92       | 12,70  | 15,88  | 17,48  |  |  |
|                         | 355.6(14.00)         |               |            | 9,52        | 12,70      | 6,35       | 7,92   | 9,52   | 11,13  |  |  |
|                         |                      |               |            | 415,00      | 523,00     | **         | **     | **     | **     |  |  |

\*\* Weights on application  
Weights are approximate

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD         | XS          | SCH 10      | SCH 20 | SCH 30 |    |  |
|-------------------------|----------------------|---------------|------------|-------------|-------------|-------------|--------|--------|----|--|
|                         |                      |               |            | t1 /W.T. mm |             |             |        |        |    |  |
|                         |                      |               |            | t2 /W.T. mm |             |             |        |        |    |  |
|                         |                      |               |            | D – mm(in)  | C – mm (in) | M – mm (in) | weight |        | Kg |  |
| 34 x 32                 | 864(34.00)           | 635(25.00)    | 622(24.50) | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         | 813.0(32.00)         |               |            | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         |                      |               |            | 506,00      | 628,00      | 419,00      | 628,00 | 788,00 |    |  |
| 34 x 30                 | 864(34.00)           | 635(25.00)    | 610(24.00) | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         | 762.0(30.00)         |               |            | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         |                      |               |            | 493,00      | 616,00      | 409,00      | 616,00 | 768,00 |    |  |
| 34 x 28                 | 864(34.00)           | 635(25.00)    | 597(23.50) | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         | 711.0(28.00)         |               |            | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         |                      |               |            | 482,00      | 605,00      | 400,00      | 605,00 | 751,00 |    |  |
| 34 x 26                 | 864(34.00)           | 635(25.00)    | 597(23.50) | 9,52        | 12,70       | 7,92        | 12,70  |        |    |  |
|                         | 660.0(26.00)         |               |            | 9,52        | 12,70       | 7,92        | 12,70  |        |    |  |
|                         |                      |               |            | 472,00      | 591,00      | 392,00      | 591,00 |        |    |  |
| 34 x 24                 | 864(34.00)           | 635(25.00)    | 584(23.00) | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         | 610.0(24.00)         |               |            | 9,52        | 12,70       | 6,35        | 9,52   | 14,27  |    |  |
|                         |                      |               |            | 460,00      | 577,00      | 382,00      | 576,00 | 720,00 |    |  |
| 34 x 22                 | 864(34.00)           | 635(25.00)    | 572(22.50) | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         | 559.0(22.00)         |               |            | 9,52        | 12,70       | 6,35        | 9,52   | 12,70  |    |  |
|                         |                      |               |            | 448,00      | 562,00      | 372,00      | 562,00 | 666,00 |    |  |
| 34 x 20                 | 864(34.00)           | 635(25.00)    | 559(22.00) | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         | 508.0(20.00)         |               |            | 9,52        | 12,70       | 6,35        | 9,52   | 12,70  |    |  |
|                         |                      |               |            | 436,00      | 547,00      | 362,00      | 547,00 | 666,00 |    |  |
| 34 x 18                 | 864(34.00)           | 635(25.00)    | 546(21.50) | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         | 457.0(18.00)         |               |            | 9,52        | 12,70       | 6,35        | 7,92   | 11,13  |    |  |
|                         |                      |               |            | 425,00      | 535,00      | 354,00      | 533,00 | 666,00 |    |  |
| 34 x 16                 | 864(34.00)           | 635(25.00)    | 533(21.00) | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         | 406.4(16.00)         |               |            | 9,52        | 12,70       | 6,35        | 7,92   | 9,52   |    |  |
|                         |                      |               |            | 415,00      | 523,00      | 343,00      | 519,00 | 650,00 |    |  |
| 36 x 34                 | 914(36.00)           | 673(26.50)    | 660(26.00) | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         | 864.0(34.00)         |               |            | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         |                      |               |            | 574,00      | 715,00      | 477,00      | 715,00 | 893,00 |    |  |
| 36 x 32                 | 914(36.00)           | 673(26.50)    | 648(25.50) | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         | 813.0(32.00)         |               |            | 9,52        | 12,70       | 7,92        | 12,70  | 15,88  |    |  |
|                         |                      |               |            | 561,00      | 700,00      | 467,00      | 700,00 | 873,00 |    |  |

Weights are approximate



**ASME B16.9-2018**
**ASME B16.9-2018**

**Reducing outlet tees**

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD         | XS     | SCH 10 | SCH 20 | SCH 30 |
|-------------------------|----------------------|---------------|------------|-------------|--------|--------|--------|--------|
|                         |                      |               |            | t1 /W.T. mm |        |        |        |        |
|                         |                      |               |            | t2 /W.T. mm |        |        |        |        |
|                         |                      |               |            | weight Kg   |        |        |        |        |
| D – mm(in)              | C – mm (in)          | M – mm (in)   |            |             |        |        |        |        |
| 36 x 30                 | 914(36.00)           | 673(26.50)    | 635(25.00) | 9,52        | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 762.0(30.00)         |               |            | 9,52        | 12,70  | 7,92   | 12,70  | 15,88  |
|                         |                      |               |            | 548,00      | 685,00 | 455,00 | 685,00 | 856,00 |
| 36 x 28                 | 914(36.00)           | 673(26.50)    | 622(24.50) | 9,52        | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 711.0(28.00)         |               |            | 9,52        | 12,70  | 7,92   | 12,70  | 15,88  |
|                         |                      |               |            | 537,00      | 670,00 | 446,00 | 670,00 | 836,00 |
| 36 x 26                 | 914(36.00)           | 673(26.50)    | 622(24.50) | 9,52        | 12,70  | 7,92   | 12,70  |        |
|                         | 660.0(26.00)         |               |            | 9,52        | 12,70  | 7,92   | 12,70  |        |
|                         |                      |               |            | 526,00      | 654,00 | 437,00 | 654,00 |        |
| 36 x 24                 | 914(36.00)           | 673(26.50)    | 610(24.00) | 9,52        | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 610.0(24.00)         |               |            | 9,52        | 12,70  | 6,35   | 9,52   | 14,27  |
|                         |                      |               |            | 513,00      | 643,00 | 426,00 | 642,00 | 803,00 |
| 36 x 22                 | 914(36.00)           | 673(26.50)    | 597(23.50) | 9,52        | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 559.0(22.00)         |               |            | 9,52        | 12,70  | 6,35   | 9,52   | 12,70  |
|                         |                      |               |            | 502,00      | 622,00 | 415,00 | 622,00 | 782,00 |
| 36 x 20                 | 914(36.00)           | 673(26.50)    | 584(23.00) | 9,52        | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 508.0(20.00)         |               |            | 9,52        | 12,70  | 6,35   | 9,52   | 12,70  |
|                         |                      |               |            | 493,00      | 621,00 | 405,00 | 610,00 | 763,00 |
| 36 x 18                 | 914(36.00)           | 673(26.50)    | 572(22.50) | 9,52        | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 457.0(18.00)         |               |            | 9,52        | 12,70  | 6,35   | 7,92   | 11,13  |
|                         |                      |               |            | 483,00      | 611,00 | 394,00 | 596,00 | 746,00 |
| 36 x 16                 | 914(36.00)           | 673(26.50)    | 559(22.00) | 9,52        | 12,70  | 7,92   | 12,70  | 15,88  |
|                         | 406.4(16.00)         |               |            | 9,52        | 12,70  | 6,35   | 7,92   | 9,52   |
|                         |                      |               |            | 472,00      | 602,00 | 383,00 | 581,00 | 726,00 |
| 38 x 36                 | 965(38.00)           | 711(28.00)    | 711(28.00) | 9,52        | 12,70  |        |        |        |
|                         | 914.0(36.00)         |               |            | 9,52        | 12,70  |        |        |        |
|                         |                      |               |            | **          | **     |        |        |        |
| 38 x 34                 | 965(38.00)           | 711(28.00)    | 698(27.50) | 9,52        | 12,70  |        |        |        |
|                         | 864.0(34.00)         |               |            | 9,52        | 12,70  |        |        |        |
|                         |                      |               |            | **          | **     |        |        |        |
| 38 x 32                 | 965(38.00)           | 711(28.00)    | 686(27.00) | 9,52        | 12,70  |        |        |        |
|                         | 813.0(32.00)         |               |            | 9,52        | 12,70  |        |        |        |
|                         |                      |               |            | **          | **     |        |        |        |

\*\* Weights on application  
Weights are approximate

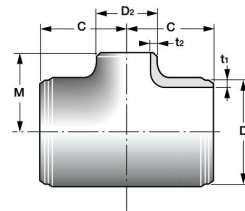
**Reducing outlet tee**

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD         | XS     |
|-------------------------|----------------------|---------------|------------|-------------|--------|
|                         |                      |               |            | t1 /W.T. mm |        |
|                         |                      |               |            | t2 /W.T. mm |        |
|                         |                      |               |            | weight      | Kg     |
| D – mm(in)              | C – mm (in)          | M – mm (in)   |            |             |        |
| 38 x 30                 | 965(38.00)           | 711(28.00)    | 673(26.50) | 9,52        | 12,70  |
|                         | 762.0(30.00)         |               |            | 9,52        | 12,70  |
|                         |                      |               |            | **          | **     |
| 38 x 28                 | 965(38.00)           | 711(28.00)    | 648(25.50) | 9,52        | 12,70  |
|                         | 711.0(28.00)         |               |            | 9,52        | 12,70  |
|                         |                      |               |            | **          | **     |
| 38 x 26                 | 965(38.00)           | 711(28.00)    | 648(25.50) | 9,52        | 12,70  |
|                         | 660.0(26.00)         |               |            | 9,52        | 12,70  |
|                         |                      |               |            | **          | **     |
| 38 x 24                 | 965(38.00)           | 711(28.00)    | 635(25.00) | 9,52        | 12,70  |
|                         | 610.0(24.00)         |               |            | 9,52        | 12,70  |
|                         |                      |               |            | **          | **     |
| 38 x 22                 | 965(38.00)           | 711(28.00)    | 622(24.50) | 9,52        | 12,70  |
|                         | 559.0(22.00)         |               |            | 9,52        | 12,70  |
|                         |                      |               |            | **          | **     |
| 38 x 20                 | 965(38.00)           | 711(28.00)    | 610(24.00) | 9,52        | 12,70  |
|                         | 508.0(20.00)         |               |            | 9,52        | 12,70  |
|                         |                      |               |            | **          | **     |
| 38 x 18                 | 965(38.00)           | 711(28.00)    | 597(23.50) | 9,52        | 12,70  |
|                         | 457.0(18.00)         |               |            | 9,52        | 12,70  |
|                         |                      |               |            | **          | **     |
| 40 x 38                 | 1 016(40.00)         | 749(29.50)    | 749(29.50) | 9,52        | 12,70  |
|                         | 965.0(38.00)         |               |            | 9,52        | 12,70  |
|                         |                      |               |            | 664,00      | 875,00 |
| 40 x 36                 | 1 016(40.00)         | 749(29.50)    | 737(29.00) | 9,52        | 12,70  |
|                         | 914.0(36.00)         |               |            | 9,52        | 12,70  |
|                         |                      |               |            | 659,00      | 840,00 |
| 40 x 34                 | 1 016(40.00)         | 749(29.50)    | 724(28.50) | 9,52        | 12,70  |
|                         | 864.0(34.00)         |               |            | 9,52        | 12,70  |
|                         |                      |               |            | 659,00      | 840,00 |
| 40 x 32                 | 1 016(40.00)         | 749(29.50)    | 711(28.00) | 9,52        | 12,70  |
|                         | 813.0(32.00)         |               |            | 9,52        | 12,70  |
|                         |                      |               |            | 643,00      | 802,00 |

\*\* Weights on application  
Weights are approximate

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• Reducing outlet tees



| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD                     |             | XS                      |  |
|-------------------------|----------------------|---------------|------------|-------------------------|-------------|-------------------------|--|
|                         |                      |               |            | t <sub>1</sub> /W.T. mm |             | t <sub>1</sub> /W.T. mm |  |
|                         |                      |               |            | weight                  |             | Kg                      |  |
|                         |                      |               |            | D – mm(in)              | C – mm (in) | M – mm (in)             |  |
| 40 x 30                 | 1 016(40.00)         | 749(29.50)    | 698(27.50) | 9,52                    | 12,70       |                         |  |
|                         | 762.0(30.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 627,00                  | 763,00      |                         |  |
| 40 x 28                 | 1 016(40.00)         | 749(29.50)    | 673(26.50) | 9,52                    | 12,70       |                         |  |
|                         | 711.0(28.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 611,00                  | 740,00      |                         |  |
| 40 x 26                 | 1 016(40.00)         | 749(29.50)    | 673(26.50) | 9,52                    | 12,70       |                         |  |
|                         | 660.0(26.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 595,00                  | 723,00      |                         |  |
| 40 x 24                 | 1 016(40.00)         | 749(29.50)    | 660(26.00) | 9,52                    | 12,70       |                         |  |
|                         | 610.0(24.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 580,00                  | 700,00      |                         |  |
| 40 x 22                 | 1 016(40.00)         | 749(29.50)    | 648(25.50) | 9,52                    | 12,70       |                         |  |
|                         | 559.0(22.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 565,00                  | 682,00      |                         |  |
| 40 x 20                 | 1 016(40.00)         | 749(29.50)    | 635(25.00) | 9,52                    | 12,70       |                         |  |
|                         | 508.0(20.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 552,00                  | 665,00      |                         |  |
| 40 x 18                 | 1 016(40.00)         | 749(29.50)    | 622(24.50) | 9,52                    | 12,70       |                         |  |
|                         | 457.0(18.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 540,00                  | 650,00      |                         |  |
| 42 x 40                 | 1 067(42.00)         | 762(30.00)    | 711(28.00) | 9,52                    | 12,70       |                         |  |
|                         | 1 016(40.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | **                      | **          |                         |  |
| 42 x 38                 | 1 067(42.00)         | 762(30.00)    | 711(28.00) | 9,52                    | 12,70       |                         |  |
|                         | 965.0(38.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | **                      | **          |                         |  |
| 42 x 36                 | 1 067(42.00)         | 762(30.00)    | 711(28.00) | 9,52                    | 12,70       |                         |  |
|                         | 914.0(36.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 818,00                  | 1045,00     |                         |  |
| 42 x 34                 | 1 067(42.00)         | 762(30.00)    | 711(28.00) | 9,52                    | 12,70       |                         |  |
|                         | 864.0(34.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 772,00                  | 999,00      |                         |  |

\*\* Weights on application  
Weights are approximate

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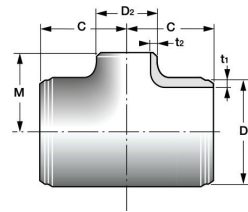
• Reducing outlet tees

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |            | STD                     |             | XS                      |  |
|-------------------------|----------------------|---------------|------------|-------------------------|-------------|-------------------------|--|
|                         |                      |               |            | t <sub>1</sub> /W.T. mm |             | t <sub>1</sub> /W.T. mm |  |
|                         |                      |               |            | weight                  |             | Kg                      |  |
|                         |                      |               |            | D – mm(in)              | C – mm (in) | M – mm (in)             |  |
| 42 x 32                 | 1 067(42.00)         | 762(30.00)    | 711(28.00) | 9,52                    | 12,70       |                         |  |
|                         | 813.0(32.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 772,00                  | 999,00      |                         |  |
| 42 x 30                 | 1 067(42.00)         | 762(30.00)    | 711(28.00) | 9,52                    | 12,70       |                         |  |
|                         | 762.0(30.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 772,00                  | 999,00      |                         |  |
| 42 x 28                 | 1 067(42.00)         | 762(30.00)    | 698(27.50) | 9,52                    | 12,70       |                         |  |
|                         | 711.0(28.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 750,00                  | 955,00      |                         |  |
| 42 x 26                 | 1 067(42.00)         | 762(30.00)    | 698(27.50) | 9,52                    | 12,70       |                         |  |
|                         | 660.0(26.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 750,00                  | 955,00      |                         |  |
| 42 x 24                 | 1 067(42.00)         | 762(30.00)    | 660(26.00) | 9,52                    | 12,70       |                         |  |
|                         | 610.0(24.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 728,00                  | 915,00      |                         |  |
| 42 x 22                 | 1 067(42.00)         | 762(30.00)    | 660(26.00) | 9,52                    | 12,70       |                         |  |
|                         | 559.0(22.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 728,00                  | 915,00      |                         |  |
| 42 x 20                 | 1 067(42.00)         | 762(30.00)    | 660(26.00) | 9,52                    | 12,70       |                         |  |
|                         | 508.0(20.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 708,00                  | 875,00      |                         |  |
| 42 x 18                 | 1 067(42.00)         | 762(30.00)    | 648(25.50) | 9,52                    | 12,70       |                         |  |
|                         | 457.0(18.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 708,00                  | 875,00      |                         |  |
| 42 x 16                 | 1 067(42.00)         | 762(30.00)    | 635(25.00) | 9,52                    | 12,70       |                         |  |
|                         | 406.4(16.00)         |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | 700,00                  | 847,00      |                         |  |
| 44 x 42                 | 1 118(44.00)         | 813(32.00)    | 762(30.00) | 9,52                    | 12,70       |                         |  |
|                         | 1 067.0(42.00)       |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | **                      | **          |                         |  |
| 44 x 40                 | 1 118(44.00)         | 813(32.00)    | 749(29.50) | 9,52                    | 12,70       |                         |  |
|                         | 1 016.0(40.00)       |               |            | 9,52                    | 12,70       |                         |  |
|                         |                      |               |            | **                      | **          |                         |  |

\*\* Weights on application  
Weights are approximate

ASME B16.9-2018

• Reducing outlet tees



ASME B16.9-2018

• Reducing outlet tees

| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |             | STD                     |       | XS                      |    |
|-------------------------|----------------------|---------------|-------------|-------------------------|-------|-------------------------|----|
|                         |                      |               |             | t <sub>1</sub> /W.T. mm |       | t <sub>2</sub> /W.T. mm |    |
|                         |                      |               |             | weight                  | Kg    | weight                  | Kg |
|                         | D – mm(in)           | C – mm (in)   | M – mm (in) |                         |       |                         |    |
| 44 x 38                 | 1 118(44.00)         | 813(32.00)    | 737(29.00)  | 9,52                    | 12,70 |                         |    |
|                         | 965.0(38.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 44 x 36                 | 1 118(44.00)         | 813(32.00)    | 724(28.50)  | 9,52                    | 12,70 |                         |    |
|                         | 914.0(36.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 44 x 34                 | 1 118(44.00)         | 813(32.00)    | 724(28.50)  | 9,52                    | 12,70 |                         |    |
|                         | 864.0(34.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 44 x 32                 | 1 118(44.00)         | 813(32.00)    | 711(28.00)  | 9,52                    | 12,70 |                         |    |
|                         | 813.0(32.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 44 x 30                 | 1 118(44.00)         | 813(32.00)    | 711(28.00)  | 9,52                    | 12,70 |                         |    |
|                         | 762.0(30.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 44 x 28                 | 1 118(44.00)         | 813(32.00)    | 698(27.50)  | 9,52                    | 12,70 |                         |    |
|                         | 711.0(28.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 44 x 26                 | 1 118(44.00)         | 813(32.00)    | 698(27.50)  | 9,52                    | 12,70 |                         |    |
|                         | 660.0(26.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 44 x 24                 | 1 118(44.00)         | 813(32.00)    | 698(27.50)  | 9,52                    | 12,70 |                         |    |
|                         | 610.0(24.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 44 x 22                 | 1 118(44.00)         | 813(32.00)    | 686(27.00)  | 9,52                    | 12,70 |                         |    |
|                         | 559.0(22.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 44 x 20                 | 1 118(44.00)         | 813(32.00)    | 686(27.00)  | 9,52                    | 12,70 |                         |    |
|                         | 508.0(20.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |

\*\* Weights on application  
Weights are approximate

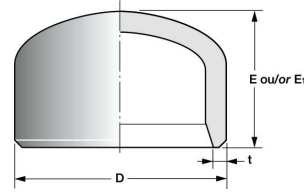
| Nominal Pipe Size (NPS) | outside Diameter O.D | Center-to-end |             | STD                     |       | XS                      |    |
|-------------------------|----------------------|---------------|-------------|-------------------------|-------|-------------------------|----|
|                         |                      |               |             | t <sub>1</sub> /W.T. mm |       | t <sub>2</sub> /W.T. mm |    |
|                         |                      |               |             | weight                  | Kg    | weight                  | Kg |
|                         | D – mm(in)           | C – mm (in)   | M – mm (in) |                         |       |                         |    |
| 46 x 44                 | 1 168(46.00)         | 851(33.50)    | 800(31.50)  | 9,52                    | 12,70 |                         |    |
|                         | 1 118.0(44.00)       |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 46 x 42                 | 1 168(46.00)         | 851(33.50)    | 787(31.00)  | 9,52                    | 12,70 |                         |    |
|                         | 1 067.0(42.00)       |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 46 x 40                 | 1 168(46.00)         | 851(33.50)    | 775(30.50)  | 9,52                    | 12,70 |                         |    |
|                         | 1 016.0(40.00)       |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 46 x 38                 | 1 168(46.00)         | 851(33.50)    | 762(30.00)  | 9,52                    | 12,70 |                         |    |
|                         | 965.0(38.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 46 x 36                 | 1 168(46.00)         | 851(33.50)    | 762(30.00)  | 9,52                    | 12,70 |                         |    |
|                         | 914.0(36.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 46 x 34                 | 1 168(46.00)         | 851(33.50)    | 749(29.50)  | 9,52                    | 12,70 |                         |    |
|                         | 864.0(34.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 46 x 32                 | 1 168(46.00)         | 851(33.50)    | 749(29.50)  | 9,52                    | 12,70 |                         |    |
|                         | 813.0(32.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 46 x 30                 | 1 168(46.00)         | 851(33.50)    | 737(29.00)  | 9,52                    | 12,70 |                         |    |
|                         | 762.0(30.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 46 x 28                 | 1 168(46.00)         | 851(33.50)    | 737(29.00)  | 9,52                    | 12,70 |                         |    |
|                         | 711.0(28.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |
| 46 x 26                 | 1 168(46.00)         | 851(33.50)    | 737(29.00)  | 9,52                    | 12,70 |                         |    |
|                         | 660.0(26.00)         |               |             | 9,52                    | 12,70 |                         |    |
|                         |                      |               |             | **                      | **    |                         |    |

\*\* Weights on application  
Weights are approximate



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• Caps



| Nominal Pipe Size (NPS) | Outside diameter | Length    | Limiting W.T. for length E <sup>A</sup> | Length, E1 <sup>B</sup> | STD                     | XS    | XXS   | SCH 10 | SCH 20 |
|-------------------------|------------------|-----------|---|-------------------------|-------------------------|-------|-------|--------|--------|
|                         |                  |           |   |                         | t <sub>1</sub> /W.T. mm |       |       |        |        |
|                         |                  |           |   |                         | t <sub>2</sub> /W.T. mm |       |       |        |        |
| D – mm(in)              | E – mm(in)       | mm(in)    | E1 – mm(in)                             | weight Kg               |                         |       |       |        |        |
| 1/2                     | 21.3(0.84)       | 25(1.00)  | 4.57(0.18)                              | 25(1.00)                | 2,77                    | 3,73  | 7,47  |        |        |
|                         |                  |           |   |                         | 0,03                    | 0,05  | **    |        |        |
| 3/4                     | 26.7(1.05)       | 25(1.00)  | 3.81(0.15)                              | 25(1.00)                | 2,87                    | 3,91  | 7,82  |        |        |
|                         |                  |           |   |                         | 0,06                    | 0,10  | **    |        |        |
| 1                       | 33.4(1.32)       | 38(1.50)  | 4.57(0.18)                              | 38(1.50)                | 3,38                    | 4,55  | 9,09  |        |        |
|                         |                  |           |   |                         | 0,10                    | 0,13  | 0,20  |        |        |
| 1 1/4                   | 42.2(1.66)       | 38(1.50)  | 4.83(0.19)                              | 38(1.50)                | 3,56                    | 4,85  | 9,70  |        |        |
|                         |                  |           |   |                         | 0,14                    | 0,20  | 0,28  |        |        |
| 1 1/2                   | 48.3(1.90)       | 38(1.50)  | 5.08(0.20)                              | 38(1.50)                | 3,68                    | 5,08  | 10,16 |        |        |
|                         |                  |           |   |                         | 0,20                    | 0,23  | 0,36  |        |        |
| 2                       | 60.3(2.38)       | 38(1.50)  | 5.59(0.22)                              | 44(1.75)                | 3,91                    | 5,54  | 11,07 |        |        |
|                         |                  |           |   |                         | 0,30                    | 0,30  | 0,59  |        |        |
| 2 1/2                   | 73.0(2.88)       | 38(1.50)  | 7.11(0.28)                              | 51(2.00)                | 5,16                    | 7,01  | 14,02 |        |        |
|                         |                  |           |   |                         | 0,50                    | 0,50  | 1,00  |        |        |
| 3                       | 88.9(3.50)       | 51(2.00)  | 7.62(0.30)                              | 64(2.50)                | 5,49                    | 7,62  | 15,24 |        |        |
|                         |                  |           |   |                         | 0,70                    | 0,90  | 1,78  |        |        |
| 3 1/2                   | 101.6(4.00)      | 64(2.50)  | 8.13(0.32)                              | 76(3.00)                | 5,74                    | 8,08  |       |        |        |
|                         |                  |           |   |                         | 1,40                    | 1,70  |       |        |        |
| 4                       | 114.3(4.50)      | 64(2.50)  | 8.64(0.34)                              | 76(3.00)                | 6,02                    | 8,56  | 17,12 |        |        |
|                         |                  |           |   |                         | 1,60                    | 2,00  | 3,17  |        |        |
| 5                       | 141.3(5.56)      | 76(3.00)  | 9.65(0.38)                              | 89(3.50)                | 6,55                    | 9,52  | 19,05 |        |        |
|                         |                  |           |   |                         | 2,30                    | 3,00  | 5,50  |        |        |
| 6                       | 168.3(6.62)      | 89(3.50)  | 10.92(0.43)                             | 102(4.00)               | 7,11                    | 10,97 | 21,95 |        |        |
|                         |                  |           |   |                         | 3,60                    | 4,00  | 8,10  |        |        |
| 8                       | 219.1(8.62)      | 102(4.00) | 12.70(0.50)                             | 127(5.00)               | 8,18                    | 12,70 | 22,23 |        | 6,35   |
|                         |                  |           |   |                         | 5,50                    | 8,40  | 19,50 |        | 4,50   |
| 10                      | 273.0(10.75)     | 127(5.00) | 12.70(0.50)                             | 152(6.00)               | 9,27                    | 12,70 | 25,40 |        | 6,35   |
|                         |                  |           |   |                         | 10,00                   | 13,60 | 29,30 |        | 7,00   |
| 12                      | 323.8(12.75)     | 152(6.00) | 12.70(0.50)                             | 178(7.00)               | 9,52                    | 12,70 | 25,40 |        | 6,35   |
|                         |                  |           |   |                         | 15,00                   | 22,00 | 41,00 |        | 9,00   |
| 14                      | 355.6(14.00)     | 165(6.50) | 12.70(0.50)                             | 191(7.50)               | 9,52                    | 12,70 |       | 6,35   | 7,92   |
|                         |                  |           |   |                         | 17,00                   | 27,00 |       | 14,00  | 15,50  |

<sup>A</sup> Length E applies for thickness not exceeding that given in column «Limiting wall thickness for length E».  
<sup>B</sup> Length E1 applies for thickness greater than that given in column «Limiting wall thickness» for sizes NPS 24 and smaller.  
 For sizes NPS 26 and larger, length E1 shall be by agreement between manufacturer and purchaser

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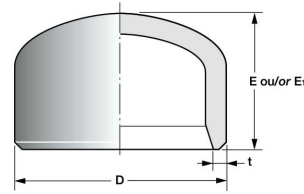
• Caps

| SCH 30                  | SCH 40 | SCH 60 | SCH 80      | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------|--------|-------------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |        |        |             |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |        |        |             |         |         |         |         |                         |
| weight Kg               |        |        |             |         |         |         |         |                         |
| 2,41                    |        |        |             |         |         |         | 4,78    | 1/2                     |
| **                      |        |        |             |         |         |         | **      |                         |
| 2,41                    |        |        |             |         |         |         | 5,56    | 3/4                     |
| **                      |        |        |             |         |         |         | **      |                         |
| 2,90                    |        |        |             |         |         |         | 6,35    | 1                       |
| **                      |        |        |             |         |         |         | 0,15    |                         |
| 2,97                    |        |        |             |         |         |         | 6,35    | 1 1/4                   |
| **                      |        |        |             |         |         |         | 0,23    |                         |
| 3,18                    |        |        |             |         |         |         | 7,13    | 1 1/2                   |
| **                      |        |        |             |         |         |         | 0,30    |                         |
| 3,18                    |        |        |             |         |         |         | 8,74    | 2                       |
| **                      |        |        |             |         |         |         | 0,55    |                         |
| 4,78                    |        |        | Refer to XS |         |         |         | 9,52    | 2 1/2                   |
| **                      |        |        |             |         |         |         | 0,90    |                         |
| 4,78                    |        |        |             |         |         |         | 11,13   | 3                       |
| **                      |        |        |             |         |         |         | 1,40    |                         |
| 4,78                    |        |        |             |         |         |         |         | 3 1/2                   |
| **                      |        |        |             |         |         |         |         |                         |
| 4,78                    |        |        |             |         | 11,13   |         | 13,50   | 4                       |
| **                      |        |        |             |         | 2,31    |         | 2,75    |                         |
|                         |        |        |             |         | 12,70   |         | 15,87   | 5                       |
|                         |        |        |             |         | 3,89    |         | 5,00    |                         |
|                         |        |        |             |         | 14,27   |         | 18,26   | 6                       |
|                         |        |        |             |         | 6,02    |         | 7,50    |                         |
| 7,03                    |        | 10,31  |             | 15,09   | 18,26   | 20,62   | 23,01   | 8                       |
| 5,00                    |        | 7,00   |             | 11,00   | 15,50   | 18,50   | 20,00   |                         |
| 7,80                    |        | 12,70  | 15,09       | 18,26   | 21,44   | 25,40   | 28,57   | 10                      |
| 7,63                    |        | 13,60  | 16,20       | 21,00   | 24,00   | 27,00   | 30,00   |                         |
| 8,38                    | 10,31  | 14,27  | 17,48       | 21,44   | 25,40   | 28,57   | 33,32   | 12                      |
| 13,00                   | 19,00  | 22,00  | 26,90       | 32,50   | 41,00   | 42,00   | 44,50   |                         |
| Refer to STD            | 11,13  | 15,09  | 19,05       | 23,83   | 27,79   | 31,75   | 35,71   | 14                      |
|                         | 23,00  | 32,00  | 34,70       | 42,00   | 47,00   | 52,00   | 60,00   |                         |

<sup>A</sup> Length E applies for thickness not exceeding that given in column «Limiting wall thickness for length E».  
<sup>B</sup> Length E1 applies for thickness greater than that given in column «Limiting wall thickness» for sizes NPS 24 and smaller.  
 For sizes NPS 26 and larger, length E1 shall be by agreement between manufacturer and purchaser

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## • Caps



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## • Caps

| Nominal Pipe Size (NPS) | Outside diameter | Length     | Limiting W.T. for length E <sup>A</sup> | Length, E1 <sup>B</sup> | STD                     | XS     | XXS | SCH 10 | SCH 20 |
|-------------------------|------------------|------------|---|-------------------------|-------------------------|--------|-----|--------|--------|
|                         |                  |            |   |                         | t <sub>1</sub> /W.T. mm |        |     |        |        |
|                         |                  |            |   |                         | t <sub>2</sub> /W.T. mm |        |     |        |        |
| D – mm(in)              | E – mm(in)       | mm(in)     | E1 – mm(in)                             | weight Kg               |                         |        |     |        |        |
| 16                      | 406.4(16.00)     | 178(7.00)  | 12.70(0.50)                             | 203(8.00)               | 9,52                    | 12,70  |     | 6,35   | 7,92   |
|                         |                  |            |   |                         | 23,00                   | 30,00  |     | 18,00  | 20,00  |
| 18                      | 457.0(18.00)     | 203(8.00)  | 12.70(0.50)                             | 229(9.00)               | 9,52                    | 12,70  |     | 6,35   | 7,92   |
|                         |                  |            |   |                         | 29,00                   | 32,00  |     | 22,00  | 25,00  |
| 20                      | 508.0(20.00)     | 229(9.00)  | 12.70(0.50)                             | 254(10.00)              | 9,52                    | 12,70  |     | 6,35   |        |
|                         |                  |            |   |                         | 36,00                   | 49,00  |     | 31,00  |        |
| 22                      | 559.0(22.00)     | 254(10.00) | 12.70(0.50)                             | 254(10.00)              | 9,52                    | 12,70  |     | 6,35   |        |
|                         |                  |            |   |                         | 42,00                   | 51,00  |     | 35,50  |        |
| 24                      | 610.0(24.00)     | 267(10.50) | 12.70(0.50)                             | 305(12.00)              | 9,52                    | 12,70  |     | 6,35   |        |
|                         |                  |            |   |                         | 52,00                   | 60,00  |     | 40,00  |        |
| 26                      | 660.0(26.00)     | 267(10.50) |   |                         | 9,52                    | 12,70  |     | 7,92   |        |
|                         |                  |            |   |                         | 46,50                   | 66,00  |     | 42,00  |        |
| 28                      | 711.0(28.00)     | 267(10.50) |   |                         | 9,52                    | 12,70  |     | 7,92   |        |
|                         |                  |            |   |                         | 56,00                   | 75,00  |     | 47,00  |        |
| 30                      | 762.0(30.00)     | 267(10.50) |   |                         | 9,52                    | 12,70  |     | 7,92   |        |
|                         |                  |            |   |                         | 62,00                   | 83,00  |     | 51,00  |        |
| 32                      | 813.0(32.00)     | 267(10.50) |   |                         | 9,52                    | 12,70  |     | 7,92   |        |
|                         |                  |            |   |                         | 68,00                   | 93,00  |     | 57,00  |        |
| 34                      | 864.0(34.00)     | 267(10.50) |   |                         | 9,52                    | 12,70  |     | 7,92   |        |
|                         |                  |            |   |                         | 73,00                   | 97,00  |     | 60,00  |        |
| 36                      | 914.0(36.00)     | 267(10.50) |   |                         | 9,52                    | 12,70  |     | 7,92   |        |
|                         |                  |            |   |                         | 79,50                   | 107,00 |     | 66,00  |        |
| 38                      | 965.0(38.00)     | 305(12.00) |   |                         | 9,52                    | 12,70  |     |        |        |
|                         |                  |            |   |                         | 86,00                   | 125,00 |     |        |        |
| 40                      | 1016.0(40.00)    | 305(12.00) |   |                         | 9,52                    | 12,70  |     |        |        |
|                         |                  |            |   |                         | 95,00                   | 129,00 |     |        |        |
| 42                      | 1067.0(42.00)    | 305(12.00) |   |                         | 9,52                    | 12,70  |     |        |        |
|                         |                  |            |   |                         | 104,50                  | 136,50 |     |        |        |
| 44                      | 1118.0(44.00)    | 343(13.50) |   |                         | 9,52                    | 12,70  |     |        |        |
|                         |                  |            |   |                         | 120,00                  | 168,00 |     |        |        |
| 46                      | 1168.0(46.00)    | 343(13.50) |   |                         | 9,52                    | 12,70  |     |        |        |
|                         |                  |            |   |                         | 136,00                  | 186,00 |     |        |        |
| 48                      | 1219.0(48.00)    | 343(13.50) |   |                         | 9,52                    | 12,70  |     |        |        |
|                         |                  |            |   |                         | 159,00                  | 215,00 |     |        |        |

<sup>A</sup> Length E applies for thickness not exceeding that given in column «Limiting wall thickness for length E».

<sup>B</sup> Length E1 applies for thickness greater than that given in column «Limiting wall thickness» for sizes NPS 24 and smaller.

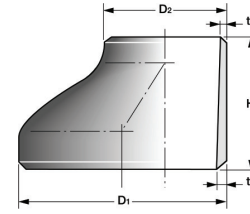
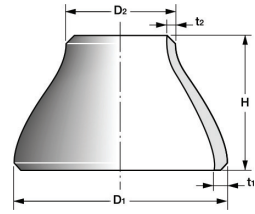
For sizes NPS 26 and larger, length E1 shall be by agreement between manufacturer and purchaser

| SCH 30                  | SCH 40        | SCH 60 | SCH 80 | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|---------------|--------|--------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |               |        |        |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |               |        |        |         |         |         |         |                         |
| weight Kg               |               |        |        |         |         |         |         |                         |
| Refer to STD            | Refer to X.S. | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   | 16                      |
|                         |               | 37,00  | 43,50  | 54,00   | 64,00   | 73,00   | 79,00   |                         |
| 11,13                   | 14,27         | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   | 18                      |
| 30,30                   | 39,00         | 66,00  | 72,50  | 75,00   | 88,00   | 93,00   | 104,00  |                         |
| 12,70                   | 15,09         | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   | 20                      |
| 49,00                   | 66,70         | 94,50  | 98,50  | 100,00  | 105,00  | 153,00  | 170,00  |                         |
| 12,70                   |               | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   | 22                      |
| 59,00                   |               | 107,00 | 120,00 | 135,00  | 150,00  | 198,00  | 220,00  |                         |
| 14,27                   | 17,48         | 24,61  | 30,96  | 38,89   | 46,02   | 52,37   | 59,54   | 24                      |
| 74,50                   | 93,00         | 120,00 | 150,00 | 180,00  | 200,00  | 250,00  | 285,00  |                         |
|                         |               |        |        |         |         |         |         | 26                      |
| 15,88                   |               |        |        |         |         |         |         | 28                      |
| 93,00                   |               |        |        |         |         |         |         |                         |
| 15,88                   |               |        |        |         |         |         |         | 30                      |
| 103,00                  |               |        |        |         |         |         |         |                         |
| 15,88                   | 17,48         |        |        |         |         |         |         | 32                      |
| 117,00                  | 129,00        |        |        |         |         |         |         |                         |
| 15,88                   | 17,48         |        |        |         |         |         |         | 34                      |
| 121,00                  | 133,00        |        |        |         |         |         |         |                         |
| 15,88                   | 19,05         |        |        |         |         |         |         | 36                      |
| 134,00                  | 147,00        |        |        |         |         |         |         |                         |
|                         |               |        |        |         |         |         |         | 38                      |
|                         |               |        |        |         |         |         |         |                         |
|                         |               |        |        |         |         |         |         | 40                      |
|                         |               |        |        |         |         |         |         |                         |
|                         |               |        |        |         |         |         |         | 42                      |
|                         |               |        |        |         |         |         |         |                         |
|                         |               |        |        |         |         |         |         | 44                      |
|                         |               |        |        |         |         |         |         |                         |
|                         |               |        |        |         |         |         |         | 46                      |
|                         |               |        |        |         |         |         |         |                         |
|                         |               |        |        |         |         |         |         | 48                      |

<sup>A</sup> Length E applies for thickness not exceeding that given in column «Limiting wall thickness for length E».

<sup>B</sup> Length E1 applies for thickness greater than that given in column «Limiting wall thickness» for sizes NPS 24 and smaller.

For sizes NPS 26 and larger, length E1 shall be by agreement between manufacturer and purchaser

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**Concentric and eccentric reducers**
**Concentric and eccentric reducers**

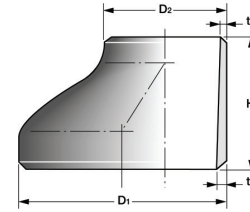
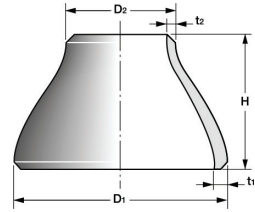
| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Longueur End-to-End length | STD                     | XS         | XXS       | SCH 10 | SCH 20 |  |  |
|-------------------------|---------------------------|----------------------------|-------------------------|------------|-----------|--------|--------|--|--|
|                         |                           |                            | t <sub>1</sub> /W.T. mm |            |           |        |        |  |  |
|                         |                           |                            | t <sub>2</sub> /W.T. mm |            |           |        |        |  |  |
|                         |                           |                            | D – mm(in)              | H – mm(in) | weight Kg |        |        |  |  |
| 3/4 x 1/2               | 26.7(1.05)                | 38(1.50)                   | 2,87                    | 3,91       | 7,82      |        |        |  |  |
|                         | 21.3(0.84)                |                            | 2,77                    | 3,73       | 7,47      |        |        |  |  |
|                         |                           |                            | 0,07                    | 0,10       | 0,19      |        |        |  |  |
| 3/4 x 3/8               | 26.7(1.05)                | 38(1.50)                   | 2,87                    | 3,91       |           |        |        |  |  |
|                         | 17.3(0.68)                |                            | 2,31                    | 3,20       |           |        |        |  |  |
|                         |                           |                            | 0,07                    | 0,10       |           |        |        |  |  |
| 1 x 3/4                 | 33.4(1.32)                | 51(2.00)                   | 3,38                    | 4,55       | 9,09      |        |        |  |  |
|                         | 26.7(1.05)                |                            | 2,87                    | 3,91       | 7,82      |        |        |  |  |
|                         |                           |                            | 0,13                    | 0,16       | 0,28      |        |        |  |  |
| 1 x 1/2                 | 33.4(1.32)                | 51(2.00)                   | 3,38                    | 4,55       | 9,09      |        |        |  |  |
|                         | 21.3(0.84)                |                            | 2,77                    | 3,73       | 7,47      |        |        |  |  |
|                         |                           |                            | 0,13                    | 0,16       | 0,28      |        |        |  |  |
| 1 1/4 x 1               | 42.2(1.66)                | 51(2.00)                   | 3,56                    | 4,85       | 9,70      |        |        |  |  |
|                         | 33.4(1.32)                |                            | 3,38                    | 4,55       | 9,09      |        |        |  |  |
|                         |                           |                            | 0,17                    | 0,23       | 0,39      |        |        |  |  |
| 1 1/4 x 3/4             | 42.2(1.66)                | 51(2.00)                   | 3,56                    | 4,85       | 9,70      |        |        |  |  |
|                         | 26.7(1.05)                |                            | 2,87                    | 3,91       | 7,82      |        |        |  |  |
|                         |                           |                            | 0,17                    | 0,23       | 0,39      |        |        |  |  |
| 1 1/4 x 1/2             | 42.2(1.66)                | 51(2.00)                   | 3,56                    | 4,85       | 9,70      |        |        |  |  |
|                         | 21.3(0.84)                |                            | 2,77                    | 3,73       | 7,47      |        |        |  |  |
|                         |                           |                            | 0,17                    | 0,23       | 0,39      |        |        |  |  |
| 1 1/2 x 1 1/4           | 48.3(1.90)                | 64(2.50)                   | 3,68                    | 5,08       | 10,16     |        |        |  |  |
|                         | 42.2(1.66)                |                            | 3,56                    | 4,85       | 9,70      |        |        |  |  |
|                         |                           |                            | 0,26                    | 0,35       | 0,61      |        |        |  |  |
| 1 1/2 x 1               | 48.3(1.90)                | 64(2.50)                   | 3,68                    | 5,08       | 10,16     |        |        |  |  |
|                         | 33.4(1.32)                |                            | 3,38                    | 4,55       | 9,09      |        |        |  |  |
|                         |                           |                            | 0,26                    | 0,35       | 0,61      |        |        |  |  |
| 1 1/2 x 3/4             | 48.3(1.90)                | 64(2.50)                   | 3,68                    | 5,08       | 10,16     |        |        |  |  |
|                         | 26.7(1.05)                |                            | 2,87                    | 3,91       | 7,82      |        |        |  |  |
|                         |                           |                            | 0,26                    | 0,35       | 0,61      |        |        |  |  |
| 1 1/2 x 1/2             | 48.3(1.90)                | 64(2.50)                   | 3,68                    | 5,08       | 10,16     |        |        |  |  |
|                         | 21.3(0.84)                |                            | 2,77                    | 3,73       | 7,47      |        |        |  |  |
|                         |                           |                            | 0,26                    | 0,35       | 0,61      |        |        |  |  |

Weights are approximate

| SCH 30                  | SCH 40       | SCH 60 | SCH 80       | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------------|--------|--------------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |              |        |              |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |              |        |              |         |         |         |         |                         |
| weight Kg               |              |        |              |         |         |         |         |                         |
| 2,41                    |              |        |              |         |         |         | 5,56    | 3/4 x 1/2               |
| 2,41                    |              |        |              |         |         |         | 4,78    |                         |
| **                      |              |        |              |         |         |         | 0,14    |                         |
| 2,41                    |              |        |              |         |         |         |         | 3/4 x 3/8               |
| 1,85                    |              |        |              |         |         |         |         |                         |
| **                      |              |        |              |         |         |         |         |                         |
| 2,90                    |              |        |              |         |         |         | 6,35    | 1 x 3/4                 |
| 2,41                    |              |        |              |         |         |         | 5,56    |                         |
| **                      |              |        |              |         |         |         | 0,21    |                         |
| 2,90                    |              |        |              |         |         |         | 6,35    | 1 x 1/2                 |
| 2,41                    |              |        |              |         |         |         | 4,78    |                         |
| **                      |              |        |              |         |         |         | 0,21    |                         |
| 2,97                    |              |        |              |         |         |         | 6,35    | 1 1/4 x 1               |
| 2,90                    |              |        |              |         |         |         | 6,35    |                         |
| **                      |              |        |              |         |         |         | 0,29    |                         |
| 2,97                    | Refer to STD |        | Refer to X.S |         |         |         | 6,35    | 1 1/4 x 3/4             |
| 2,41                    |              |        |              |         |         |         | 5,56    |                         |
| **                      |              |        |              |         |         |         | 0,29    |                         |
| 2,97                    |              |        |              |         |         |         | 6,35    | 1 1/4 x 1/2             |
| 2,41                    |              |        |              |         |         |         | 4,78    |                         |
| **                      |              |        |              |         |         |         | 0,29    |                         |
| 3,18                    |              |        |              |         |         |         | 7,13    | 1 1/2 x 1 1/4           |
| 2,97                    |              |        |              |         |         |         | 6,35    |                         |
| **                      |              |        |              |         |         |         | 0,46    |                         |
| 3,18                    |              |        |              |         |         |         | 7,13    | 1 1/2 x 1               |
| 2,90                    |              |        |              |         |         |         | 6,35    |                         |
| **                      |              |        |              |         |         |         | 0,46    |                         |
| 3,18                    |              |        |              |         |         |         | 7,13    | 1 1/2 x 3/4             |
| 2,41                    |              |        |              |         |         |         | 5,56    |                         |
| **                      |              |        |              |         |         |         | 0,46    |                         |
| 3,18                    |              |        |              |         |         |         | 7,13    | 1 1/2 x 1/2             |
| 2,41                    |              |        |              |         |         |         | 4,78    |                         |
| **                      |              |        |              |         |         |         | 0,46    |                         |

 \*\* Weights on application  
 Weights are approximate



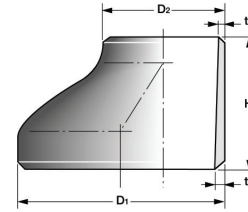
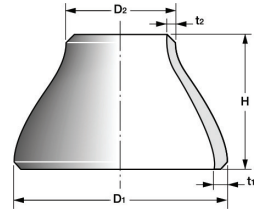
**ASME B16.9-2018**
**ASME B16.9-2018**

**Concentric and eccentric reducers**
**Concentric and eccentric reducers**

| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Longueur End-to-End length | STD                     | XS         | XXS       | SCH 10 | SCH 20 |  |  |
|-------------------------|---------------------------|----------------------------|-------------------------|------------|-----------|--------|--------|--|--|
|                         |                           |                            | t <sub>1</sub> /W.T. mm |            |           |        |        |  |  |
|                         |                           |                            | t <sub>2</sub> /W.T. mm |            |           |        |        |  |  |
|                         |                           |                            | D – mm(in)              | H – mm(in) | weight Kg |        |        |  |  |
| 2 x 1 1/2               | 60.3(2.38)                | 76(3.00)                   | 3,91                    | 5,54       | 11,07     |        |        |  |  |
|                         | 48.3(1.90)                |                            | 3,68                    | 5,08       | 10,16     |        |        |  |  |
|                         |                           |                            | 0,41                    | 0,57       | 1,03      |        |        |  |  |
| 2 x 1 1/4               | 60.3(2.38)                | 76(3.00)                   | 3,91                    | 5,54       | 11,07     |        |        |  |  |
|                         | 42.2(1.66)                |                            | 3,56                    | 4,85       | 9,70      |        |        |  |  |
|                         |                           |                            | 0,41                    | 0,57       | 1,03      |        |        |  |  |
| 2 x 1                   | 60.3(2.38)                | 76(3.00)                   | 3,91                    | 5,54       | 11,07     |        |        |  |  |
|                         | 33.4(1.32)                |                            | 3,38                    | 4,55       | 9,09      |        |        |  |  |
|                         |                           |                            | 0,41                    | 0,57       | 1,03      |        |        |  |  |
| 2 x 3/4                 | 60.3(2.38)                | 76(3.00)                   | 3,91                    | 5,54       | 11,07     |        |        |  |  |
|                         | 26.7(1.05)                |                            | 2,87                    | 3,91       | 7,82      |        |        |  |  |
|                         |                           |                            | 0,41                    | 0,57       | 1,03      |        |        |  |  |
| 2 1/2 x 2               | 73.0(2.88)                | 89(3.50)                   | 5,16                    | 7,01       | 14,02     |        |        |  |  |
|                         | 60.3(2.38)                |                            | 3,91                    | 5,54       | 11,07     |        |        |  |  |
|                         |                           |                            | 0,77                    | 1,01       | 1,81      |        |        |  |  |
| 2 1/2 x 1 1/2           | 73.0(2.88)                | 89(3.50)                   | 5,16                    | 7,01       | 14,02     |        |        |  |  |
|                         | 48.3(1.90)                |                            | 3,68                    | 5,08       | 10,16     |        |        |  |  |
|                         |                           |                            | 0,77                    | 1,01       | 1,81      |        |        |  |  |
| 2 1/2 x 1 1/4           | 73.0(2.88)                | 89(3.50)                   | 5,16                    | 7,01       | 14,02     |        |        |  |  |
|                         | 42.2(1.66)                |                            | 3,56                    | 4,85       | 9,70      |        |        |  |  |
|                         |                           |                            | 0,77                    | 1,01       | 1,81      |        |        |  |  |
| 2 1/2 x 1               | 73.0(2.88)                | 89(3.50)                   | 5,16                    | 7,01       | 14,02     |        |        |  |  |
|                         | 33.4(1.32)                |                            | 3,38                    | 4,55       | 9,09      |        |        |  |  |
|                         |                           |                            | 0,77                    | 1,01       | 1,81      |        |        |  |  |
| 3 x 2 1/2               | 88.9(3.50)                | 89(3.50)                   | 5,49                    | 7,62       | 15,24     |        |        |  |  |
|                         | 73.0(2.88)                |                            | 5,16                    | 7,01       | 14,02     |        |        |  |  |
|                         |                           |                            | 1,00                    | 4,36       | 2,47      |        |        |  |  |
| 3x2                     | 88.9(3.50)                | 89(3.50)                   | 5,49                    | 7,62       | 15,24     |        |        |  |  |
|                         | 60.3(2.38)                |                            | 3,91                    | 5,54       | 11,07     |        |        |  |  |
|                         |                           |                            | 1,00                    | 1,36       | 2,47      |        |        |  |  |
| 3x1 1/4                 | 88.9(3.50)                | 89(3.50)                   | 5,49                    | 7,62       | 15,24     |        |        |  |  |
|                         | 48.3(1.90)                |                            | 3,68                    | 5,08       | 10,16     |        |        |  |  |
|                         |                           |                            | 1,00                    | 1,36       | 2,47      |        |        |  |  |

Weights are approximate

| SCH 30                  | SCH 40       | SCH 60 | SCH 80      | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------------|--------|-------------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |              |        |             |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |              |        |             |         |         |         |         |                         |
| weight Kg               |              |        |             |         |         |         |         |                         |
| 3,18                    |              |        |             |         |         |         | 8,74    | 2 x 1 1/2               |
| 3,18                    |              |        |             |         |         |         | 7,13    |                         |
| **                      |              |        |             |         |         |         | 0,84    |                         |
| 3,18                    |              |        |             |         |         |         | 8,74    | 2 x 1 1/4               |
| 2,97                    |              |        |             |         |         |         | 6,35    |                         |
| **                      |              |        |             |         |         |         | 0,84    |                         |
| 3,18                    |              |        |             |         |         |         | 8,74    | 2 x 1                   |
| 2,90                    |              |        |             |         |         |         | 6,35    |                         |
| **                      |              |        |             |         |         |         | 0,84    |                         |
| 3,18                    |              |        |             |         |         |         | 8,74    | 2 x 3/4                 |
| 2,41                    |              |        |             |         |         |         | 5,56    |                         |
| **                      |              |        |             |         |         |         | 0,84    |                         |
| 4,78                    |              |        |             |         |         |         | 9,52    | 2 1/2 x 2               |
| 3,18                    |              |        |             |         |         |         | 8,74    |                         |
| **                      |              |        |             |         |         |         | 1,33    |                         |
| 4,78                    | Refer to STD |        | Refer to XS |         |         |         | 9,52    | 2 1/2 x 1 1/2           |
| 3,18                    |              |        |             |         |         |         | 7,13    |                         |
| **                      |              |        |             |         |         |         | 1,33    |                         |
| 4,78                    |              |        |             |         |         |         | 9,52    | 2 1/2 x 1 1/4           |
| 2,97                    |              |        |             |         |         |         | 6,35    |                         |
| **                      |              |        |             |         |         |         | 1,33    |                         |
| 4,78                    |              |        |             |         |         |         | 9,52    | 2 1/2 x 1               |
| 2,90                    |              |        |             |         |         |         | 6,35    |                         |
| **                      |              |        |             |         |         |         | 1,33    |                         |
| 4,78                    |              |        |             |         |         |         | 11,13   | 3 x 2 1/2               |
| 4,78                    |              |        |             |         |         |         | 9,52    |                         |
| **                      |              |        |             |         |         |         | 1,89    |                         |
| 4,78                    |              |        |             |         |         |         | 11,13   | 3x2                     |
| 3,18                    |              |        |             |         |         |         | 8,74    |                         |
| **                      |              |        |             |         |         |         | 1,89    |                         |
| 4,78                    |              |        |             |         |         |         | 11,13   | 3x1 1/4                 |
| 3,18                    |              |        |             |         |         |         | 7,13    |                         |
| **                      |              |        |             |         |         |         | 1,89    |                         |

 \*\* Weights on application  
 Weights are approximate

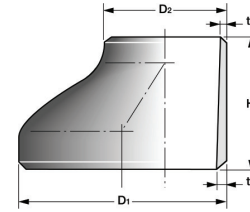
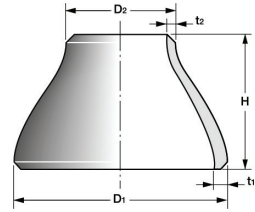
**ASME B16.9-2018**
**ASME B16.9-2018**

**Concentric and eccentric reducers**
**Concentric and eccentric reducers**

| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Longueur End-to-End length | STD                     | XS         | XXS       | SCH 10 | SCH 20 |  |  |
|-------------------------|---------------------------|----------------------------|-------------------------|------------|-----------|--------|--------|--|--|
|                         |                           |                            | t <sub>1</sub> /W.T. mm |            |           |        |        |  |  |
|                         |                           |                            | t <sub>2</sub> /W.T. mm |            |           |        |        |  |  |
|                         |                           |                            | D – mm(in)              | H – mm(in) | weight Kg |        |        |  |  |
| 3 x 1 1/4               | 88.9(3.50)                | 89(3.50)                   | 5,49                    | 7,62       | 15,24     |        |        |  |  |
|                         | 42.2(1.66)                |                            | 3,56                    | 4,85       | 9,70      |        |        |  |  |
|                         |                           |                            | 1,00                    | 1,36       | 2,47      |        |        |  |  |
| 3 1/2 x 3               | 101.6(4.00)               | 102(4.00)                  | 5,74                    | 8,08       |           |        |        |  |  |
|                         | 88.9(3.50)                |                            | 5,49                    | 7,62       |           |        |        |  |  |
|                         |                           |                            | 1,40                    | 1,89       |           |        |        |  |  |
| 3 1/2 x 2 1/2           | 101.6(4.00)               | 102(4.00)                  | 5,74                    | 8,08       |           |        |        |  |  |
|                         | 73.0(2.88)                |                            | 5,16                    | 7,01       |           |        |        |  |  |
|                         |                           |                            | 1,40                    | 1,89       |           |        |        |  |  |
| 3 1/2 x 2               | 101.6(4.00)               | 102(4.00)                  | 5,74                    | 8,08       |           |        |        |  |  |
|                         | 60.3(2.38)                |                            | 3,91                    | 5,54       |           |        |        |  |  |
|                         |                           |                            | 1,40                    | 1,89       |           |        |        |  |  |
| 3 1/2 x 1 1/2           | 101.6(4.00)               | 102(4.00)                  | 5,74                    | 8,08       |           |        |        |  |  |
|                         | 48.3(1.90)                |                            | 3,68                    | 5,08       |           |        |        |  |  |
|                         |                           |                            | 1,40                    | 1,89       |           |        |        |  |  |
| 3 1/2 x 1 1/4           | 101.6(4.00)               | 102(4.00)                  | 5,74                    | 8,08       |           |        |        |  |  |
|                         | 42.2(1.66)                |                            | 3,56                    | 4,85       |           |        |        |  |  |
|                         |                           |                            | 1,40                    | 1,89       |           |        |        |  |  |
| 4 x 3 1/2               | 114.3(4.50)               | 102(4.00)                  | 6,02                    | 8,56       |           |        |        |  |  |
|                         | 101.6(4.00)               |                            | 5,74                    | 8,08       |           |        |        |  |  |
|                         |                           |                            | 1,60                    | 2,27       |           |        |        |  |  |
| 4 x 3                   | 114.3(4.50)               | 102(4.00)                  | 6,02                    | 8,56       | 17,12     |        |        |  |  |
|                         | 88.9(3.50)                |                            | 5,49                    | 7,62       | 15,24     |        |        |  |  |
|                         |                           |                            | 1,60                    | 2,27       | 4,18      |        |        |  |  |
| 4 x 2 1/2               | 114.3(4.50)               | 102(4.00)                  | 6,02                    | 8,56       | 17,12     |        |        |  |  |
|                         | 73.0(2.88)                |                            | 5,16                    | 7,01       | 14,02     |        |        |  |  |
|                         |                           |                            | 1,60                    | 2,27       | 4,18      |        |        |  |  |
| 4 x 2                   | 114.3(4.50)               | 102(4.00)                  | 6,02                    | 8,56       | 17,12     |        |        |  |  |
|                         | 60.3(2.38)                |                            | 3,91                    | 5,54       | 11,07     |        |        |  |  |
|                         |                           |                            | 1,60                    | 2,27       | 4,18      |        |        |  |  |
| 4 x 1 1/2               | 114.3(4.50)               | 102(4.00)                  | 6,02                    | 8,56       | 17,12     |        |        |  |  |
|                         | 48.3(1.90)                |                            | 3,68                    | 5,08       | 10,16     |        |        |  |  |
|                         |                           |                            | 1,60                    | 2,27       | 4,18      |        |        |  |  |

\*\* Weights on application  
Weights are approximate

| SCH 30                  | SCH 40       | SCH 60 | SCH 80      | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------------|--------|-------------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |              |        |             |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |              |        |             |         |         |         |         |                         |
| weight Kg               |              |        |             |         |         |         |         |                         |
| 4,78                    |              |        |             |         |         |         | 11,13   | 3 x 1 1/4               |
| 2,97                    |              |        |             |         |         |         | 6,35    |                         |
| **                      |              |        |             |         |         |         | 1,89    |                         |
| 4,78                    |              |        |             |         |         |         |         | 3 1/2 x 3               |
| 4,78                    |              |        |             |         |         |         |         |                         |
| **                      |              |        |             |         |         |         |         |                         |
| 4,78                    |              |        |             |         |         |         |         | 3 1/2 x 2 1/2           |
| 4,78                    |              |        |             |         |         |         |         |                         |
| **                      |              |        |             |         |         |         |         |                         |
| 4,78                    |              |        |             |         |         |         |         | 3 1/2 x 2               |
| 3,18                    |              |        |             |         |         |         |         |                         |
| **                      |              |        |             |         |         |         |         |                         |
| 4,78                    |              |        |             |         |         |         |         | 3 1/2 x 1 1/2           |
| 3,18                    |              |        |             |         |         |         |         |                         |
| **                      |              |        |             |         |         |         |         |                         |
| 4,78                    | Refer to STD |        | Refer to XS |         |         |         |         | 3 1/2 x 1 1/4           |
| 2,97                    |              |        |             |         |         |         |         |                         |
| **                      |              |        |             |         |         |         |         |                         |
| 4,78                    |              |        |             |         |         |         |         | 4 x 3 1/2               |
| 4,78                    |              |        |             |         |         |         |         |                         |
| **                      |              |        |             |         |         |         |         |                         |
| 4,78                    |              |        |             |         |         |         | 13,50   | 4 x 3                   |
| 4,78                    |              |        |             |         |         |         | 11,13   |                         |
| **                      |              |        |             |         |         |         | 3,41    |                         |
| 4,78                    |              |        |             |         |         |         | 13,50   | 4 x 2 1/2               |
| 4,78                    |              |        |             |         |         |         | 9,52    |                         |
| **                      |              |        |             |         |         |         | 3,41    |                         |
| 4,78                    |              |        |             |         |         |         | 13,50   | 4 x 2                   |
| 3,18                    |              |        |             |         |         |         | 8,74    |                         |
| **                      |              |        |             |         |         |         | 3,41    |                         |
| 4,78                    |              |        |             |         |         |         | 13,50   | 4 x 1 1/2               |
| 3,18                    |              |        |             |         |         |         | 7,13    |                         |
| **                      |              |        |             |         |         |         | 3,41    |                         |

\*\* Weights on application  
Weights are approximate

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**Concentric and eccentric reducers**

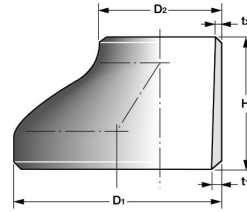
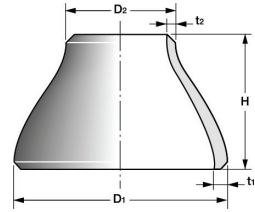
| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Longueur End-to-End length | STD                     | XS         | XXS       | SCH 10 | SCH 20 |  |  |
|-------------------------|---------------------------|----------------------------|-------------------------|------------|-----------|--------|--------|--|--|
|                         |                           |                            | t <sub>1</sub> /W.T. mm |            |           |        |        |  |  |
|                         |                           |                            | t <sub>2</sub> /W.T. mm |            |           |        |        |  |  |
|                         |                           |                            | D – mm(in)              | H – mm(in) | weight Kg |        |        |  |  |
| 5 x 4                   | 141.3(5.56)               | 127(5.00)                  | 6,55                    | 9,52       | 19,05     |        |        |  |  |
|                         | 114.3(4.50)               |                            | 6,02                    | 8,56       | 17,12     |        |        |  |  |
|                         |                           |                            | 2,80                    | 3,93       | 7,31      |        |        |  |  |
| 5 x 3 1/2               | 141.3(5.56)               | 127(5.00)                  | 6,55                    | 9,52       |           |        |        |  |  |
|                         | 101.6(4.00)               |                            | 5,74                    | 8,08       |           |        |        |  |  |
|                         |                           |                            | 2,80                    | 3,93       |           |        |        |  |  |
| 5 x 3                   | 141.3(5.56)               | 127(5.00)                  | 6,55                    | 9,52       | 19,05     |        |        |  |  |
|                         | 88.9(3.50)                |                            | 5,49                    | 7,62       | 15,24     |        |        |  |  |
|                         |                           |                            | 2,80                    | 3,93       | 7,31      |        |        |  |  |
| 5 x 2 1/2               | 141.3(5.56)               | 127(5.00)                  | 6,35                    | 9,52       | 19,05     |        |        |  |  |
|                         | 73.0(2.88)                |                            | 5,16                    | 7,01       | 14,02     |        |        |  |  |
|                         |                           |                            | 2,80                    | 3,93       | 7,31      |        |        |  |  |
| 5 x 2                   | 141.3(5.56)               | 127(5.00)                  | 6,55                    | 9,52       | 19,05     |        |        |  |  |
|                         | 60.3(2.38)                |                            | 3,91                    | 5,54       | 11,07     |        |        |  |  |
|                         |                           |                            | 2,80                    | 3,93       | 7,31      |        |        |  |  |
| 6 x 5                   | 168.3(6.62)               | 140(5.50)                  | 7,11                    | 10,97      | 21,95     |        |        |  |  |
|                         | 141.3(5.56)               |                            | 6,55                    | 9,52       | 19,05     |        |        |  |  |
|                         |                           |                            | 3,90                    | 5,95       | 11,08     |        |        |  |  |
| 6 x 4                   | 168.3(6.62)               | 140(5.50)                  | 7,11                    | 10,97      | 21,95     |        |        |  |  |
|                         | 114.3(4.50)               |                            | 6,02                    | 8,56       | 17,12     |        |        |  |  |
|                         |                           |                            | 3,90                    | 5,95       | 11,08     |        |        |  |  |
| 6 x 3 1/2               | 168.3(6.62)               | 140(5.50)                  | 7,11                    | 10,97      |           |        |        |  |  |
|                         | 101.6(4.00)               |                            | 5,74                    | 8,08       |           |        |        |  |  |
|                         |                           |                            | 3,90                    | 5,95       |           |        |        |  |  |
| 6 x 3                   | 168.3(6.62)               | 140(5.50)                  | 7,11                    | 10,97      | 21,95     |        |        |  |  |
|                         | 88.9(3.50)                |                            | 5,49                    | 7,62       | 15,24     |        |        |  |  |
|                         |                           |                            | 3,90                    | 5,95       | 11,08     |        |        |  |  |
| 6 x 2 1/2               | 168.3(6.62)               | 140(5.50)                  | 7,11                    | 10,97      | 21,95     |        |        |  |  |
|                         | 73.0(2.88)                |                            | 5,16                    | 7,01       | 14,02     |        |        |  |  |
|                         |                           |                            | 3,90                    | 5,95       | 11,08     |        |        |  |  |

Weights are approximate

**Concentric and eccentric reducers**

| SCH 30                  | SCH 40       | SCH 60 | SCH 80      | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------------|--------|-------------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |              |        |             |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |              |        |             |         |         |         |         |                         |
| weight Kg               |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         | 12,70   |         | 15,87   | 5 x 4                   |
|                         |              |        |             |         | 11,13   |         | 13,50   |                         |
|                         |              |        |             |         | 5,68    |         | 6,26    |                         |
|                         |              |        |             |         |         |         |         | 5 x 3 1/2               |
|                         |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         |         |         | 15,87   | 5 x 3                   |
|                         |              |        |             |         |         |         | 11,13   |                         |
|                         |              |        |             |         |         |         | 6,26    |                         |
|                         |              |        |             |         |         |         | 15,87   | 5 x 2 1/2               |
|                         |              |        |             |         |         |         | 9,52    |                         |
|                         |              |        |             |         |         |         | 6,26    |                         |
|                         |              |        |             |         |         |         | 15,87   | 5 x 2                   |
|                         |              |        |             |         |         |         | 8,74    |                         |
|                         |              |        |             |         |         |         | 6,26    |                         |
|                         | Refer to STD |        | Refer to XS |         | 14,27   |         | 18,26   | 6 x 5                   |
|                         |              |        |             |         | 12,70   |         | 15,87   |                         |
|                         |              |        |             |         | 7,58    |         | 9,40    |                         |
|                         |              |        |             |         | 14,27   |         | 18,26   | 6 x 4                   |
|                         |              |        |             |         | 11,13   |         | 13,50   |                         |
|                         |              |        |             |         | 7,58    |         | 9,40    |                         |
|                         |              |        |             |         |         |         |         | 6 x 3 1/2               |
|                         |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         |         |         |         |                         |
|                         |              |        |             |         |         |         | 18,26   | 6 x 3                   |
|                         |              |        |             |         |         |         | 11,13   |                         |
|                         |              |        |             |         |         |         | 9,40    |                         |
|                         |              |        |             |         |         |         | 18,26   | 6 x 2 1/2               |
|                         |              |        |             |         |         |         | 9,52    |                         |
|                         |              |        |             |         |         |         | 9,40    |                         |

Weights are approximate

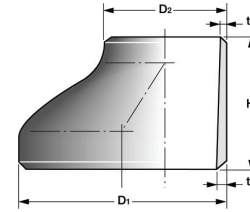
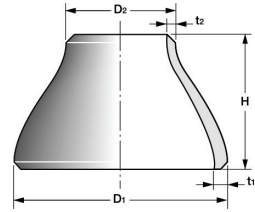
**ASME B16.9-2018**
**ASME B16.9-2018**

**Concentric and eccentric reducers**
**Concentric and eccentric reducers**

| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Longueur End-to-End length | STD                     | XS         | XXS   | SCH 10 | SCH 20 |           |
|-------------------------|---------------------------|----------------------------|-------------------------|------------|-------|--------|--------|-----------|
|                         |                           |                            | t <sub>1</sub> /W.T. mm |            |       |        |        | weight Kg |
|                         |                           |                            | t <sub>2</sub> /W.T. mm |            |       |        |        |           |
|                         |                           |                            | D – mm(in)              | H – mm(in) |       |        |        |           |
| 8 x 6                   | 219.1(8.62)               | 152(6.00)                  | 8,18                    | 12,70      | 22,23 |        |        |           |
|                         | 168.3(6.62)               |                            | 7,11                    | 10,97      | 21,95 |        |        |           |
|                         |                           |                            | 6,50                    | 9,86       | 18,00 |        |        |           |
| 8 x 5                   | 219.1(8.62)               | 152(6.00)                  | 8,18                    | 12,70      | 22,23 |        |        |           |
|                         | 141.3(5.56)               |                            | 6,55                    | 9,52       | 19,05 |        |        |           |
|                         |                           |                            | 6,50                    | 9,86       | 17,00 |        |        |           |
| 8 x 4                   | 219.1(8.62)               | 152(6.00)                  | 8,18                    | 12,70      | 22,23 |        |        |           |
|                         | 114.3(4.50)               |                            | 6,02                    | 8,56       | 17,12 |        |        |           |
|                         |                           |                            | 6,50                    | 9,86       | 16,43 |        |        |           |
| 8 x 3 1/2               | 219.1(8.62)               | 152(6.00)                  | 8,18                    | 12,70      |       |        |        |           |
|                         | 101.6(4.00)               |                            | 5,74                    | 8,08       |       |        |        |           |
|                         |                           |                            | 6,50                    | 9,86       |       |        |        |           |
| 10 x 8                  | 273.0(10.75)              | 178(7.00)                  | 9,27                    | 12,70      | 25,40 |        | 6,35   |           |
|                         | 219.1(8.62)               |                            | 8,18                    | 12,70      | 22,23 |        | 6,35   |           |
|                         |                           |                            | 10,70                   | 14,50      | 29,00 |        | 7,50   |           |
| 10 x 6                  | 273.0(10.75)              | 178(7.00)                  | 9,27                    | 12,70      | 25,40 |        |        |           |
|                         | 168.3(6.62)               |                            | 7,11                    | 10,97      | 21,95 |        |        |           |
|                         |                           |                            | 10,70                   | 14,50      | 29,00 |        |        |           |
| 10 x 5                  | 273.0(10.75)              | 178(7.00)                  | 9,27                    | 12,70      | 25,40 |        |        |           |
|                         | 141.3(5.56)               |                            | 6,55                    | 9,52       | 19,05 |        |        |           |
|                         |                           |                            | 10,70                   | 14,50      | 28,00 |        |        |           |
| 10 x 4                  | 273.0(10.75)              | 178(7.00)                  | 9,27                    | 12,70      | 25,40 |        |        |           |
|                         | 114.3(4.50)               |                            | 6,02                    | 8,56       | 17,12 |        |        |           |
|                         |                           |                            | 10,70                   | 14,50      | 28,00 |        |        |           |
| 12 x 10                 | 323.8(12.75)              | 203(8.00)                  | 9,52                    | 12,70      | 25,40 |        | 6,35   |           |
|                         | 273.0(10.75)              |                            | 9,27                    | 12,70      | 25,40 |        | 6,35   |           |
|                         |                           |                            | 15,00                   | 19,80      | 42,00 |        | 10,16  |           |
| 12 x 8                  | 323.8(12.75)              | 203(8.00)                  | 9,52                    | 12,70      | 25,40 |        | 6,35   |           |
|                         | 219.1(8.62)               |                            | 8,18                    | 12,70      | 22,23 |        | 6,35   |           |
|                         |                           |                            | 15,00                   | 19,80      | 40,00 |        | 10,16  |           |

Weights are approximate

| SCH 30                  | SCH 40       | SCH 60 | SCH 80      | SCH 100 | SCH 120 | SCH 140 | SCH 160   | Nominal Pipe Size (NPS) |       |
|-------------------------|--------------|--------|-------------|---------|---------|---------|-----------|-------------------------|-------|
| t <sub>1</sub> /W.T. mm |              |        |             |         |         |         | weight Kg |                         |       |
| t <sub>2</sub> /W.T. mm |              |        |             |         |         |         |           |                         |       |
| weight Kg               |              |        |             |         |         |         |           |                         |       |
|                         |              |        |             |         | 18,26   |         | 23,01     | 8 x 6                   |       |
|                         |              |        |             |         | 14,27   |         | 18,26     |                         |       |
|                         |              |        |             |         | 13,70   |         | 16,90     |                         |       |
|                         |              |        | Refer to XS |         | 18,26   |         | 23,01     | 8 x 5                   |       |
|                         |              |        |             |         | 12,70   |         | 15,87     |                         |       |
|                         |              |        |             |         | 13,70   |         | 16,90     |                         |       |
|                         |              |        |             |         | 18,26   |         | 23,01     | 8 x 4                   |       |
|                         |              |        |             |         | 11,13   |         | 13,50     |                         |       |
|                         |              |        |             |         | 13,70   |         | 16,90     |                         |       |
|                         |              |        |             |         |         |         |           | 8 x 3 1/2               |       |
|                         |              |        |             |         |         |         |           |                         |       |
|                         |              |        |             |         |         |         |           |                         |       |
|                         | Refer to STD |        |             |         |         |         |           | 10 x 8                  |       |
| 7,80                    |              |        | 12,70       |         | 18,26   | 21,44   | 25,40     |                         | 28,57 |
| 7,03                    |              |        | 10,31       |         | 15,09   | 18,26   | 20,62     |                         | 23,01 |
| 9,00                    |              |        | 14,50       |         | 20,40   | 23,60   | 27,50     |                         | 30,60 |
|                         |              |        |             | 15,09   |         | 21,44   |           |                         | 28,57 |
|                         |              |        |             | 12,70   |         | 14,27   |           |                         | 18,26 |
|                         |              |        |             | 17,00   |         | 23,60   |           |                         | 30,60 |
|                         |              |        |             | 15,09   |         | 21,44   |           |                         | 28,57 |
|                         |              |        |             | 10,97   |         | 12,70   |           |                         | 15,87 |
|                         |              |        |             | 17,00   |         | 23,60   |           |                         | 30,60 |
|                         |              |        | 15,09       |         | 21,44   |         | 28,57     | 10 x 5                  |       |
|                         |              |        | 9,52        |         | 11,13   |         | 13,50     |                         |       |
|                         |              |        | 17,00       |         | 23,60   |         | 30,60     |                         |       |
|                         |              |        | 15,09       |         | 21,44   |         | 28,57     | 10 x 4                  |       |
|                         |              |        | 9,52        |         | 11,13   |         | 13,50     |                         |       |
|                         |              |        | 17,00       |         | 23,60   |         | 30,60     |                         |       |
| 8,38                    | 10,31        | 14,27  | 15,09       | 21,44   | 25,40   | 28,57   | 33,32     | 12 x 10                 |       |
| 7,80                    | 9,27         | 12,70  | 8,56        | 18,26   | 21,44   | 25,40   | 28,57     |                         |       |
| 13,20                   | 16,30        | 22,20  | 17,00       | 32,40   | 38,00   | 42,30   | 48,60     |                         |       |
| 8,38                    | 10,31        | 14,27  | 17,48       | 21,44   | 25,40   | 28,57   | 33,32     | 12 x 8                  |       |
| 7,03                    | 8,18         | 10,31  | 15,09       | 15,09   | 18,26   | 20,62   | 23,01     |                         |       |
| 13,20                   | 16,30        | 22,20  | 26,80       | 32,40   | 38,00   | 42,30   | 48,60     |                         |       |

Weights are approximate

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**Concentric and eccentric reducers**

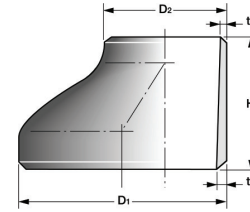
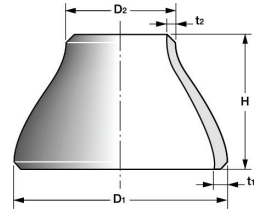
| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Longueur End-to-End length | STD                     | XS         | XXS   | SCH 10 | SCH 20 |           |
|-------------------------|---------------------------|----------------------------|-------------------------|------------|-------|--------|--------|-----------|
|                         |                           |                            | t <sub>1</sub> /W.T. mm |            |       |        |        | weight Kg |
|                         |                           |                            | t <sub>2</sub> /W.T. mm |            |       |        |        |           |
|                         |                           |                            | D – mm(in)              | H – mm(in) |       |        |        |           |
| 12 x 6                  | 323.8(12.75)              | 203(8.00)                  | 9,52                    | 12,70      | 25,40 |        |        |           |
|                         | 168.3(6.62)               |                            | 7,11                    | 10,97      | 21,95 |        |        |           |
|                         |                           |                            | 15,00                   | 19,80      | 39,00 |        |        |           |
| 12 x 5                  | 323.8(12.75)              | 203(8.00)                  | 9,52                    | 12,70      | 25,40 |        |        |           |
|                         | 141.3(5.56)               |                            | 6,55                    | 9,52       | 19,05 |        |        |           |
|                         |                           |                            | 15,00                   | 19,80      | 38,00 |        |        |           |
| 14 x 12                 | 355.6(14.00)              | 330(13.00)                 | 9,52                    | 12,70      |       |        | 7,92   |           |
|                         | 323.8(12.75)              |                            | 9,52                    | 12,70      |       |        | 6,35   |           |
|                         |                           |                            | 26,90                   | 35,50      |       |        | 22,60  |           |
| 14 x 10                 | 355.6(14.00)              | 330(13.00)                 | 9,52                    | 12,70      |       |        | 7,92   |           |
|                         | 273.0(10.75)              |                            | 9,27                    | 12,70      |       |        | 6,35   |           |
|                         |                           |                            | 26,90                   | 35,50      |       |        | 22,60  |           |
| 14 x 8                  | 355.6(14.00)              | 330(13.00)                 | 9,52                    | 12,70      |       |        | 7,92   |           |
|                         | 219.1(8.62)               |                            | 8,18                    | 12,70      |       |        | 6,35   |           |
|                         |                           |                            | 26,90                   | 35,50      |       |        | 22,60  |           |
| 14 x 6                  | 355.6(14.00)              | 330(13.00)                 | 9,52                    | 12,70      |       |        |        |           |
|                         | 168.3(6.62)               |                            | 7,11                    | 10,97      |       |        |        |           |
|                         |                           |                            | 26,90                   | 35,50      |       |        |        |           |
| 16 x 14                 | 406.4(16.00)              | 356(14.00)                 | 9,52                    | 12,70      |       | 6,35   | 7,92   |           |
|                         | 355.6(14.00)              |                            | 9,52                    | 12,70      |       | 6,35   | 7,92   |           |
|                         |                           |                            | 33,00                   | 44,00      |       | 28,00  | 27,90  |           |
| 16 x 12                 | 406.4(16.00)              | 356(14.00)                 | 9,52                    | 12,70      |       |        | 7,92   |           |
|                         | 323.8(12.75)              |                            | 9,52                    | 12,70      |       |        | 6,35   |           |
|                         |                           |                            | 33,00                   | 44,00      |       |        | 27,90  |           |
| 16 x 10                 | 406.4(16.00)              | 356(14.00)                 | 9,52                    | 12,70      |       |        | 7,92   |           |
|                         | 273.0(10.75)              |                            | 9,27                    | 12,70      |       |        | 6,35   |           |
|                         |                           |                            | 33,00                   | 44,00      |       |        | 27,90  |           |
| 16 x 8                  | 406.4(16.00)              | 356(14.00)                 | 9,52                    | 12,70      |       |        | 7,92   |           |
|                         | 219.1(8.62)               |                            | 8,18                    | 12,70      |       |        | 6,35   |           |
|                         |                           |                            | 33,00                   | 44,00      |       |        | 27,90  |           |

Weights are approximate

**Concentric and eccentric reducers**

| SCH 30                  | SCH 40 | SCH 60 | SCH 80 | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------|--------|--------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| weight Kg               |        |        |        |         |         |         |         |                         |
|                         | 10,31  |        | 17,48  |         | 25,40   |         | 33,32   | 12 x 6                  |
|                         | 7,11   |        | 10,97  |         | 14,27   |         | 18,26   |                         |
|                         | 16,30  |        | 26,80  |         | 38,00   |         | 48,60   |                         |
|                         | 10,31  |        | 17,48  |         | 25,40   |         | 33,32   | 12 x 5                  |
|                         | 6,55   |        | 9,52   |         | 12,70   |         | 15,87   |                         |
|                         | 16,30  |        | 26,80  |         | 38,00   |         | 48,60   |                         |
| 9,52                    | 11,13  | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   | 14 x 12                 |
| 8,38                    | 10,31  | 14,27  | 17,48  | 21,44   | 25,40   | 28,57   | 33,32   |                         |
| 26,80                   | 31,10  | 42,00  | 52,20  | 64,00   | 73,00   | 78,00   | 86,00   |                         |
| 9,52                    | 11,13  | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   | 14 x 10                 |
| 7,80                    | 9,27   | 12,70  | 15,09  | 18,26   | 21,44   | 25,40   | 28,57   |                         |
| 26,80                   | 31,10  | 42,00  | 52,20  | 64,00   | 73,00   | 78,00   | 86,00   |                         |
| 9,52                    | 11,13  | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   | 14 x 8                  |
| 7,03                    | 8,18   | 10,31  | 12,70  | 15,09   | 18,26   | 20,62   | 23,01   |                         |
| 26,80                   | 31,10  | 42,00  | 52,20  | 64,00   | 73,00   | 78,00   | 86,00   |                         |
|                         | 11,13  |        | 19,05  |         | 27,79   |         | 35,71   | 14 x 6                  |
|                         | 7,11   |        | 10,97  |         | 14,27   |         | 18,26   |                         |
|                         | 31,10  |        | 52,20  |         | 73,00   |         | 86,00   |                         |
| 9,52                    | 12,70  | 16,66  | 21,44  | 26,19   | 30,90   | 36,53   | 40,49   | 16 x 14                 |
| 9,52                    | 11,13  | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   |                         |
| 33,10                   | 43,80  | 57,00  | 72,20  | 83,00   | 97,00   | 112,00  | 121,00  |                         |
| 9,52                    | 12,70  | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   | 16 x 12                 |
| 8,38                    | 10,31  | 14,27  | 17,48  | 21,44   | 25,40   | 28,57   | 33,32   |                         |
| 33,10                   | 43,80  | 57,00  | 72,20  | 83,00   | 97,00   | 112,00  | 121,00  |                         |
| 9,52                    | 12,70  | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   | 16 x 10                 |
| 7,80                    | 9,27   | 12,70  | 15,09  | 18,26   | 21,44   | 25,40   | 28,57   |                         |
| 33,10                   | 43,80  | 57,00  | 72,20  | 83,00   | 97,00   | 112,00  | 121,00  |                         |
| 9,52                    | 12,70  | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   | 16 x 8                  |
| 7,03                    | 8,18   | 10,31  | 12,70  | 15,09   | 18,26   | 20,62   | 23,01   |                         |
| 33,10                   | 43,80  | 57,00  | 72,20  | 83,00   | 97,00   | 112,00  | 121,00  |                         |

Weights are approximate

**ASME B16.9-2018**
**ASME B16.9-2018**

**Concentric and eccentric reducers**

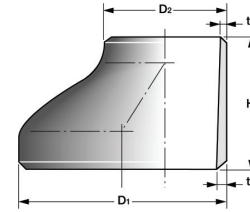
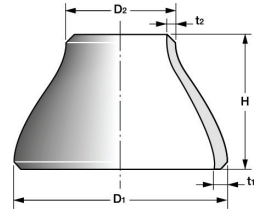
| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Longueur End-to-End length | STD                     | XS         | XXS | SCH 10 | SCH 20 |        |    |
|-------------------------|---------------------------|----------------------------|-------------------------|------------|-----|--------|--------|--------|----|
|                         |                           |                            | t <sub>1</sub> /W.T. mm |            |     |        |        | weight | Kg |
|                         |                           |                            | t <sub>2</sub> /W.T. mm |            |     |        |        |        |    |
|                         |                           |                            | D – mm(in)              | H – mm(in) |     |        |        |        |    |
| 18 x 16                 | 457(18.00)                | 381(15.00)                 | 9,52                    | 12,70      |     | 6,35   | 7,92   |        |    |
|                         | 406.4(16.00)              |                            | 9,52                    | 12,70      |     | 6,35   | 7,92   |        |    |
|                         |                           |                            | 40,00                   | 53,00      |     | 34,00  | 33,30  |        |    |
| 18 x 14                 | 457(18.00)                | 381(15.00)                 | 9,52                    | 12,70      |     | 6,35   | 7,92   |        |    |
|                         | 355.6(14.00)              |                            | 9,52                    | 12,70      |     | 6,35   | 7,92   |        |    |
|                         |                           |                            | 40,00                   | 53,00      |     | 34,00  | 33,30  |        |    |
| 18 x 12                 | 457(18.00)                | 381(15.00)                 | 9,52                    | 12,70      |     |        | 7,92   |        |    |
|                         | 323.8(12.75)              |                            | 9,52                    | 12,70      |     |        | 6,35   |        |    |
|                         |                           |                            | 40,00                   | 53,00      |     |        | 33,30  |        |    |
| 18 x 10                 | 457(18.00)                | 381(15.00)                 | 9,52                    | 12,70      |     |        | 7,92   |        |    |
|                         | 273.0(10.75)              |                            | 9,27                    | 12,70      |     |        | 6,35   |        |    |
|                         |                           |                            | 40,00                   | 53,00      |     |        | 33,30  |        |    |
| 20 x 18                 | 508(20.00)                | 508(20.00)                 | 9,52                    | 12,70      |     | 6,35   | 9,52   |        |    |
|                         | 457.0(18.00)              |                            | 9,52                    | 12,70      |     | 6,35   | 7,92   |        |    |
|                         |                           |                            | 59,00                   | 79,00      |     | 50,00  | 58,00  |        |    |
| 20 x 16                 | 508(20.00)                | 508(20.00)                 | 9,52                    | 12,70      |     | 6,35   | 9,52   |        |    |
|                         | 406.4(16.00)              |                            | 9,52                    | 12,70      |     | 6,35   | 7,92   |        |    |
|                         |                           |                            | 59,00                   | 79,00      |     | 50,00  | 58,00  |        |    |
| 20 x 14                 | 508(20.00)                | 508(20.00)                 | 9,52                    | 12,70      |     | 6,35   | 9,52   |        |    |
|                         | 355.6(14.00)              |                            | 9,52                    | 12,70      |     | 6,35   | 7,92   |        |    |
|                         |                           |                            | 59,00                   | 79,00      |     | 50,00  | 58,00  |        |    |
| 20 x 12                 | 508(20.00)                | 508(20.00)                 | 9,52                    | 12,70      |     |        | 9,52   |        |    |
|                         | 323.8(12.75)              |                            | 9,52                    | 12,70      |     |        | 6,35   |        |    |
|                         |                           |                            | 59,00                   | 79,00      |     |        | 58,00  |        |    |
| 22 x 20                 | 559(22.00)                | 508(20.00)                 | 9,52                    | 12,70      |     | 6,35   | 9,52   |        |    |
|                         | 508.0(20.00)              |                            | 9,52                    | 12,70      |     | 6,35   | 9,52   |        |    |
|                         |                           |                            | 65,00                   | 87,00      |     | 57,00  | 61,00  |        |    |
| 22 x 18                 | 559(22.00)                | 508(20.00)                 | 9,52                    | 12,70      |     | 6,35   | 9,52   |        |    |
|                         | 457.0(18.00)              |                            | 9,52                    | 12,70      |     | 6,35   | 7,92   |        |    |
|                         |                           |                            | 65,00                   | 87,00      |     | 57,00  | 61,00  |        |    |

Weights are approximate

**Concentric and eccentric reducers**

| SCH 30                  | SCH 40 | SCH 60 | SCH 80 | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|-------------------------|--------|--------|--------|---------|---------|---------|---------|-------------------------|
| t <sub>1</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| t <sub>2</sub> /W.T. mm |        |        |        |         |         |         |         |                         |
| weight Kg               |        |        |        |         |         |         |         |                         |
| 11,13                   | 14,27  | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   | 18 x 16                 |
| 9,52                    | 12,70  | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   |                         |
| 48,00                   | 59,00  | 79,00  | 96,70  | 116,00  | 136,00  | 145,00  | 159,00  |                         |
| 11,13                   | 14,27  | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   | 18 x 14                 |
| 9,52                    | 11,13  | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   |                         |
| 48,00                   | 59,00  | 79,00  | 96,70  | 116,00  | 136,00  | 145,00  | 159,00  |                         |
| 11,13                   | 14,27  | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   | 18 x 12                 |
| 8,38                    | 10,31  | 14,27  | 17,48  | 21,44   | 25,40   | 28,57   | 33,32   |                         |
| 48,00                   | 59,00  | 79,00  | 96,70  | 116,00  | 136,00  | 145,00  | 159,00  |                         |
| 11,13                   | 14,27  | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   | 18 x 10                 |
| 7,80                    | 9,27   | 12,70  | 15,09  | 18,26   | 21,44   | 25,40   | 28,57   |                         |
| 48,00                   | 59,00  | 79,00  | 96,70  | 116,00  | 136,00  | 145,00  | 159,00  |                         |
| 12,70                   | 15,09  | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   | 20 x 18                 |
| 11,13                   | 14,27  | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   |                         |
| 79,00                   | 93,00  | 126,00 | 158,00 | 163,00  | 178,00  | 305,00  | 340,00  |                         |
| 12,70                   | 15,09  | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   | 20 x 16                 |
| 9,52                    | 12,70  | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   |                         |
| 79,00                   | 93,00  | 126,00 | 158,00 | 163,00  | 178,00  | 305,00  | 340,00  |                         |
| 12,70                   | 15,09  | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   | 20 x 14                 |
| 9,52                    | 11,13  | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   |                         |
| 79,00                   | 93,00  | 126,00 | 158,00 | 163,00  | 178,00  | 305,00  | 340,00  |                         |
| 12,70                   | 15,09  | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   | 20 x 12                 |
| 8,38                    | 10,31  | 14,27  | 17,48  | 21,44   | 25,40   | 28,57   | 33,32   |                         |
| 79,00                   | 93,00  | 126,00 | 158,00 | 163,00  | 178,00  | 305,00  | 340,00  |                         |
| 12,70                   |        | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   | 22 x 20                 |
| 12,70                   |        | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   |                         |
| 92,00                   |        | 150,00 | 188,00 | 201,00  | 233,00  | 415,00  | 460,00  |                         |
| 12,70                   |        | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   | 22 x 18                 |
| 11,13                   |        | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   |                         |
| 92,00                   |        | 150,00 | 188,00 | 201,00  | 233,00  | 415,00  | 460,00  |                         |

Weights are approximate

**ASME B16.9-2018**
**ASME B16.9-2018**

**Concentric and eccentric reducers**

| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Longueur End-to-End length | STD            | XS     | XXS        | SCH 10 | SCH 20       | Nominal Pipe Size (NPS) |  |  |
|-------------------------|---------------------------|----------------------------|----------------|--------|------------|--------|--------------|-------------------------|--|--|
|                         |                           |                            | $t_1$ /W.T. mm |        |            |        |              |                         |  |  |
|                         |                           |                            | $t_2$ /W.T. mm |        |            |        |              |                         |  |  |
|                         |                           |                            | D – mm(in)     |        | H – mm(in) |        | weight Kg    |                         |  |  |
| 22 x 16                 | 559(22.00)                | 508(20.00)                 | 9,52           | 12,70  |            | 6,35   | 9,52         | 22 x 16                 |  |  |
|                         | 406.4(16.00)              |                            | 9,52           | 12,70  |            | 6,35   | 7,92         |                         |  |  |
|                         |                           |                            | 65,00          | 87,00  |            | 57,00  | 61,00        |                         |  |  |
| 22 x 14                 | 559(22.00)                | 508(20.00)                 | 9,52           | 12,70  |            | 6,35   | 9,52         | 22 x 14                 |  |  |
|                         | 355.4(14.00)              |                            | 9,52           | 12,70  |            | 6,35   | 7,92         |                         |  |  |
|                         |                           |                            | 65,00          | 87,00  |            | 57,00  | 61,00        |                         |  |  |
| 24 x 22                 | 610(24.00)                | 508(20.00)                 | 9,52           | 12,70  |            | 6,35   | 9,52         | 24 x 22                 |  |  |
|                         | 559(22.00)                |                            | 9,52           | 12,70  |            | 6,35   | 9,52         |                         |  |  |
|                         |                           |                            | 72,00          | 95,00  |            | 63,00  | 72,00        |                         |  |  |
| 24 x 20                 | 610(24.00)                | 508(20.00)                 | 9,52           | 12,70  |            | 6,35   | Refer to STD | 24 x 20                 |  |  |
|                         | 508.0(20.00)              |                            | 9,52           | 12,70  |            | 6,35   |              |                         |  |  |
|                         |                           |                            | 72,00          | 95,00  |            | 63,00  |              |                         |  |  |
| 24 x 18                 | 610(24.00)                | 508(20.00)                 | 9,52           | 12,70  |            | 6,35   | 9,52         | 24 x 18                 |  |  |
|                         | 457.0(18.00)              |                            | 9,52           | 12,70  |            | 6,35   | 7,92         |                         |  |  |
|                         |                           |                            | 72,00          | 95,00  |            | 63,00  | 72,00        |                         |  |  |
| 24 x 16                 | 610(24.00)                | 508(20.00)                 | 9,52           | 12,70  |            | 6,35   | 9,52         | 24 x 16                 |  |  |
|                         | 406.4(16.00)              |                            | 9,52           | 12,70  |            | 6,35   | 7,92         |                         |  |  |
|                         |                           |                            | 72,00          | 95,00  |            | 63,00  | 72,00        |                         |  |  |
| 26 x 24                 | 660(26.00)                | 610(24.00)                 | 9,52           | 12,70  |            | 7,92   | 12,70        | 26 x 24                 |  |  |
|                         | 610.0(24.00)              |                            | 9,52           | 12,70  |            | 6,35   | 9,52         |                         |  |  |
|                         |                           |                            | 91,00          | 125,00 |            | 75,00  | 123,00       |                         |  |  |
| 26 x 22                 | 660(26.00)                | 610(24.00)                 | 9,52           | 12,70  |            | 7,92   | 12,70        | 26 x 22                 |  |  |
|                         | 559.0(22.00)              |                            | 9,52           | 12,70  |            | 6,35   | 9,52         |                         |  |  |
|                         |                           |                            | 91,00          | 125,00 |            | 75,00  | 123,00       |                         |  |  |
| 26 x 20                 | 660(26.00)                | 610(24.00)                 | 9,52           | 12,70  |            | 7,92   | 12,70        | 26 x 20                 |  |  |
|                         | 508.0(20.00)              |                            | 9,52           | 12,70  |            | 6,35   | 9,52         |                         |  |  |
|                         |                           |                            | 91,00          | 115,00 |            | 75,00  | 123,00       |                         |  |  |
| 26 x 18                 | 660(26.00)                | 610(24.00)                 | 9,52           | 12,70  |            | 7,92   | 12,70        | 26 x 18                 |  |  |
|                         | 457.0(18.00)              |                            | 9,52           | 12,70  |            | 6,35   | 9,52         |                         |  |  |
|                         |                           |                            | 91,00          | 115,00 |            | 75,00  | 123,00       |                         |  |  |

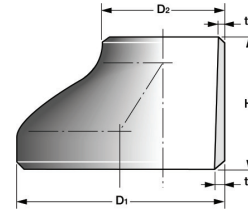
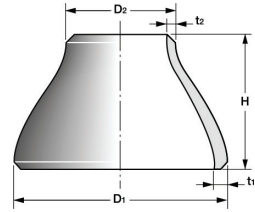
Weights are approximate

**Concentric and eccentric reducers**

| SCH 30         | SCH 40 | SCH 60 | SCH 80 | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|----------------|--------|--------|--------|---------|---------|---------|---------|-------------------------|
| $t_1$ /W.T. mm |        |        |        |         |         |         |         |                         |
| $t_2$ /W.T. mm |        |        |        |         |         |         |         |                         |
| weight Kg      |        |        |        |         |         |         |         |                         |
| 12,70          |        | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   | 22 x 16                 |
| 9,52           |        | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   |                         |
| 92,00          |        | 150,00 | 188,00 | 201,00  | 233,00  | 415,00  | 460,00  |                         |
| 12,70          |        | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   | 22 x 14                 |
| 9,52           |        | 15,09  | 19,05  | 23,83   | 27,79   | 31,75   | 35,71   |                         |
| 92,00          |        | 150,00 | 188,00 | 201,00  | 233,00  | 415,00  | 460,00  |                         |
| 14,27          |        | 24,61  | 30,96  | 38,89   | 46,02   | 52,37   | 59,54   | 24 x 22                 |
| 12,70          |        | 22,22  | 28,58  | 34,92   | 41,27   | 47,62   | 53,97   |                         |
| 107,00         |        | 180,00 | 228,00 | 241,00  | 295,00  | 540,00  | 610,00  |                         |
| 14,27          | 17,48  | 24,61  | 30,96  | 38,89   | 46,02   | 52,37   | 59,54   | 24 x 20                 |
| 12,70          | 15,09  | 20,62  | 26,18  | 32,54   | 38,10   | 44,45   | 50,01   |                         |
| 107,00         | 129,00 | 180,00 | 228,00 | 241,00  | 295,00  | 540,00  | 610,00  |                         |
| 14,27          | 17,48  | 24,61  | 30,96  | 38,89   | 46,02   | 52,37   | 59,54   | 24 x 18                 |
| 11,13          | 14,27  | 19,05  | 23,83  | 29,36   | 34,93   | 39,67   | 45,24   |                         |
| 107,00         | 129,00 | 180,00 | 228,00 | 241,00  | 295,00  | 540,00  | 610,00  |                         |
| 14,27          | 17,48  | 24,61  | 30,96  | 38,89   | 46,02   | 52,37   | 59,54   | 24 x 16                 |
| 9,52           | 12,70  | 16,66  | 21,44  | 26,19   | 30,96   | 36,53   | 40,49   |                         |
| 107,00         | 129,00 | 180,00 | 228,00 | 241,00  | 295,00  | 540,00  | 610,00  |                         |
|                |        |        |        |         |         |         |         | 26 x 24                 |
|                |        |        |        |         |         |         |         |                         |
|                |        |        |        |         |         |         |         |                         |
|                |        |        |        |         |         |         |         | 26 x 22                 |
|                |        |        |        |         |         |         |         |                         |
|                |        |        |        |         |         |         |         |                         |
|                |        |        |        |         |         |         |         | 26 x 20                 |
|                |        |        |        |         |         |         |         |                         |
|                |        |        |        |         |         |         |         |                         |
|                |        |        |        |         |         |         |         | 26 x 18                 |
|                |        |        |        |         |         |         |         |                         |
|                |        |        |        |         |         |         |         |                         |

Weights are approximate



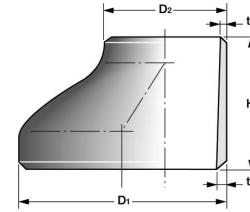
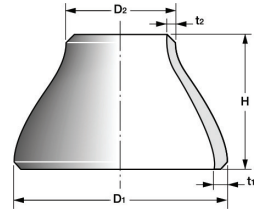
**ASME B16.9-2018**
**ASME B16.9-2018**

**Concentric and eccentric reducers**
**Concentric and eccentric reducers**

| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Longueur End-to-End length | STD            | XS     | XXS | SCH 10 | SCH 20 | Nominal Pipe Size (NPS) |  |  |
|-------------------------|---------------------------|----------------------------|----------------|--------|-----|--------|--------|-------------------------|--|--|
|                         |                           |                            | $t_1$ /W.T. mm |        |     |        |        |                         |  |  |
|                         |                           |                            | $t_2$ /W.T. mm |        |     |        |        |                         |  |  |
|                         |                           |                            | weight Kg      |        |     |        |        |                         |  |  |
| D – mm(in)              | H – mm(in)                | weight Kg                  |                |        |     |        |        |                         |  |  |
| 28 x 26                 | 711(28.00)                | 610(24.00)                 | 9,52           | 12,70  |     | 7,92   | 12,70  | 28 x 26                 |  |  |
|                         | 660.0(26.00)              |                            | 9,52           | 12,70  |     | 7,92   | 12,70  |                         |  |  |
|                         |                           |                            | 95,00          | 132,00 |     | 79,00  | 131,00 |                         |  |  |
| 28 x 24                 | 711(28.00)                | 610(24.00)                 | 9,52           | 12,70  |     | 7,92   | 12,70  | 28 x 24                 |  |  |
|                         | 610.0(24.00)              |                            | 9,52           | 12,70  |     | 6,35   | 9,52   |                         |  |  |
|                         |                           |                            | 95,00          | 132,00 |     | 79,00  | 131,00 |                         |  |  |
| 28 x 20                 | 711(28.00)                | 610(24.00)                 | 9,52           | 12,70  |     | 7,92   | 12,70  | 28 x 20                 |  |  |
|                         | 508.0(20.00)              |                            | 9,52           | 12,70  |     | 6,35   | 9,52   |                         |  |  |
|                         |                           |                            | 95,00          | 132,00 |     | 79,00  | 131,00 |                         |  |  |
| 28 x 18                 | 711(28.00)                | 610(24.00)                 | 9,52           | 12,70  |     | 7,92   | 12,70  | 28 x 18                 |  |  |
|                         | 457.0(18.00)              |                            | 9,52           | 12,70  |     | 6,35   | 7,92   |                         |  |  |
|                         |                           |                            | 95,00          | 132,00 |     | 79,00  | 131,00 |                         |  |  |
| 30 x 28                 | 762(30.00)                | 610(24.00)                 | 9,52           | 12,70  |     | 7,92   | 12,70  | 30 x 28                 |  |  |
|                         | 711.0(28.00)              |                            | 9,52           | 12,70  |     | 7,92   | 12,70  |                         |  |  |
|                         |                           |                            | 100,00         | 143,00 |     | 83,00  | 142,00 |                         |  |  |
| 30 x 26                 | 762(30.00)                | 610(24.00)                 | 9,52           | 12,70  |     | 7,92   | 12,70  | 30 x 26                 |  |  |
|                         | 660.0(26.00)              |                            | 9,52           | 12,70  |     | 7,92   | 12,70  |                         |  |  |
|                         |                           |                            | 100,00         | 143,00 |     | 83,00  | 142,00 |                         |  |  |
| 30 x 24                 | 762(30.00)                | 610(24.00)                 | 9,52           | 12,70  |     | 7,92   | 12,70  | 30 x 24                 |  |  |
|                         | 610.0(24.00)              |                            | 9,52           | 12,70  |     | 6,35   | 9,52   |                         |  |  |
|                         |                           |                            | 100,00         | 143,00 |     | 83,00  | 142,00 |                         |  |  |
| 30 x 20                 | 762(30.00)                | 610(24.00)                 | 9,52           | 12,70  |     | 7,92   | 12,70  | 30 x 20                 |  |  |
|                         | 508.0(20.00)              |                            | 9,52           | 12,70  |     | 6,35   | 9,52   |                         |  |  |
|                         |                           |                            | 100,00         | 143,00 |     | 83,00  | 142,00 |                         |  |  |
| 32 x 30                 | 813(32.00)                | 610(24.00)                 | 9,52           | 12,70  |     | 7,92   | 12,70  | 32 x 30                 |  |  |
|                         | 762.0(30.00)              |                            | 9,52           | 12,70  |     | 7,92   | 12,70  |                         |  |  |
|                         |                           |                            | 115,00         | 150,00 |     | 96,00  | 150,00 |                         |  |  |
| 32 x 28                 | 813(32.00)                | 610(24.00)                 | 9,52           | 12,70  |     | 7,92   | 12,70  | 32 x 28                 |  |  |
|                         | 711.0(28.00)              |                            | 9,52           | 12,70  |     | 7,92   | 12,70  |                         |  |  |
|                         |                           |                            | 115,00         | 150,00 |     | 96,00  | 150,00 |                         |  |  |
| 32 x 26                 | 813(32.00)                | 610(24.00)                 | 9,52           | 12,70  |     | 7,92   | 12,70  | 32 x 26                 |  |  |
|                         | 660.0(26.00)              |                            | 9,52           | 12,70  |     | 7,92   | 12,70  |                         |  |  |
|                         |                           |                            | 115,00         | 150,00 |     | 96,00  | 150,00 |                         |  |  |
| 32 x 24                 | 813(32.00)                | 610(24.00)                 | 9,52           | 12,70  |     | 7,92   | 12,70  | 32 x 24                 |  |  |
|                         | 610.0(24.00)              |                            | 9,52           | 12,70  |     | 6,35   | 9,52   |                         |  |  |
|                         |                           |                            | 115,00         | 150,00 |     | 96,00  | 150,00 |                         |  |  |

Weights are approximate

| SCH 30         | SCH 40 | SCH 60 | SCH 80 | SCH 100 | SCH 120 | SCH 140 | SCH 160 | Nominal Pipe Size (NPS) |
|----------------|--------|--------|--------|---------|---------|---------|---------|-------------------------|
| $t_1$ /W.T. mm |        |        |        |         |         |         |         |                         |
| $t_2$ /W.T. mm |        |        |        |         |         |         |         |                         |
| weight Kg      |        |        |        |         |         |         |         |                         |
|                |        |        |        |         |         |         |         | 28 x 26                 |
| 15,88          |        |        |        |         |         |         |         |                         |
| 14,27          |        |        |        |         |         |         |         |                         |
| 166,00         |        |        |        |         |         |         |         | 28 x 24                 |
| 15,88          |        |        |        |         |         |         |         |                         |
| 12,70          |        |        |        |         |         |         |         |                         |
| 166,00         |        |        |        |         |         |         |         | 28 x 20                 |
| 15,88          |        |        |        |         |         |         |         |                         |
| 11,13          |        |        |        |         |         |         |         |                         |
| 166,00         |        |        |        |         |         |         |         | 28 x 18                 |
| 15,88          |        |        |        |         |         |         |         |                         |
| 15,88          |        |        |        |         |         |         |         |                         |
| 178,00         |        |        |        |         |         |         |         | 30 x 28                 |
| 15,88          |        |        |        |         |         |         |         |                         |
| 15,88          |        |        |        |         |         |         |         |                         |
|                |        |        |        |         |         |         |         | 30 x 26                 |
| 15,88          |        |        |        |         |         |         |         |                         |
| 14,27          |        |        |        |         |         |         |         |                         |
| 178,00         |        |        |        |         |         |         |         | 30 x 24                 |
| 15,88          |        |        |        |         |         |         |         |                         |
| 12,70          |        |        |        |         |         |         |         |                         |
| 178,00         |        |        |        |         |         |         |         | 30 x 20                 |
| 15,88          |        |        |        |         |         |         |         |                         |
| 15,88          |        |        |        |         |         |         |         |                         |
| 190,00         |        |        |        |         |         |         |         | 32 x 30                 |
| 15,88          |        |        |        |         |         |         |         |                         |
| 15,88          |        |        |        |         |         |         |         |                         |
| 190,00         |        |        |        |         |         |         |         | 32 x 28                 |
| 15,88          |        |        |        |         |         |         |         |                         |
| 15,88          |        |        |        |         |         |         |         |                         |
|                |        |        |        |         |         |         |         | 32 x 26                 |
|                |        |        |        |         |         |         |         |                         |
|                |        |        |        |         |         |         |         |                         |
| 15,88          | 17,48  |        |        |         |         |         |         | 32 x 24                 |
| 14,27          | 17,48  |        |        |         |         |         |         |                         |
| 190,00         | **     |        |        |         |         |         |         |                         |

 \*\* Weights on application  
 Weights are approximate

**ASME B16.9-2018**
**ASME B16.9-2018**

**• Concentric and eccentric reducers**

| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Longueur End-to-End length | STD                     | XS     | XXS        | SCH 10 | SCH 20    |  |  |
|-------------------------|---------------------------|----------------------------|-------------------------|--------|------------|--------|-----------|--|--|
|                         |                           |                            | t <sub>1</sub> /W.T. mm |        |            |        |           |  |  |
|                         |                           |                            | t <sub>2</sub> /W.T. mm |        |            |        |           |  |  |
|                         |                           |                            | D – mm(in)              |        | H – mm(in) |        | weight Kg |  |  |
| 34 x 32                 | 864(34.00)                | 610(24.00)                 | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         | 813.0(32.00)              |                            | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         |                           |                            | 123,00                  | 162,00 | 112,00     | 157,00 | 202,00    |  |  |
| 34 x 30                 | 864(34.00)                | 610(24.00)                 | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         | 762.0(30.00)              |                            | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         |                           |                            | 123,00                  | 162,00 | 112,00     | 157,00 | 202,00    |  |  |
| 34 x 26                 | 864(34.00)                | 610(24.00)                 | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         | 660.0(26.00)              |                            | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         |                           |                            | 123,00                  | 162,00 | 112,00     | 157,00 | 202,00    |  |  |
| 34 x 24                 | 864(34.00)                | 610(24.00)                 | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         | 610.0(24.00)              |                            | 9,52                    | 12,70  | 6,35       | 9,52   | 14,27     |  |  |
|                         |                           |                            | 123,00                  | 162,00 | 112,00     | 157,00 | 202,00    |  |  |
| 36 x 34                 | 914(36.00)                | 610(24.00)                 | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         | 864(34.00)                |                            | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         |                           |                            | 129,00                  | 172,00 | 123,00     | 172,00 | 221,00    |  |  |
| 36 x 32                 | 914(36.00)                | 610(24.00)                 | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         | 813(32.00)                |                            | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         |                           |                            | 129,00                  | 172,00 | 123,00     | 172,00 | 221,00    |  |  |
| 36 x 30                 | 914(36.00)                | 610(24.00)                 | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         | 762(30.00)                |                            | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         |                           |                            | 129,00                  | 172,00 | 123,00     | 172,00 | 221,00    |  |  |
| 36 x 26                 | 914(36.00)                | 610(24.00)                 | 9,52                    | 12,70  | 7,92       | 12,70  |           |  |  |
|                         | 660(26.00)                |                            | 9,52                    | 12,70  | 7,92       | 12,70  |           |  |  |
|                         |                           |                            | 129,00                  | 172,00 | 123,00     | 172,00 |           |  |  |
| 36 x 24                 | 914(36.00)                | 610(24.00)                 | 9,52                    | 12,70  | 7,92       | 12,70  | 15,88     |  |  |
|                         | 610(24.00)                |                            | 9,52                    | 12,70  | 6,35       | 9,52   | 14,27     |  |  |
|                         |                           |                            | 129,00                  | 172,00 | 123,00     | 172,00 | 221,00    |  |  |
| 38 x 36                 | 965(38.00)                | 610(24.00)                 | 9,52                    | 12,70  |            |        |           |  |  |
|                         | 914(36.00)                |                            | 9,52                    | 12,70  |            |        |           |  |  |
|                         |                           |                            | 136,00                  | 186,00 |            |        |           |  |  |
| 38 x 34                 | 965(38.00)                | 610(24.00)                 | 9,52                    | 12,70  |            |        |           |  |  |
|                         | 864(34.00)                |                            | 9,52                    | 12,70  |            |        |           |  |  |
|                         |                           |                            | 136,00                  | 186,00 |            |        |           |  |  |

Weights are approximate

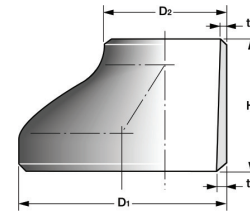
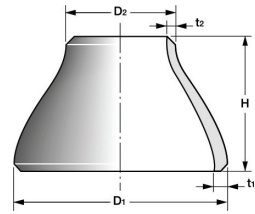
**• Concentric and eccentric reducers**

| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Longueur End-to-End length | STD                     | XS     |
|-------------------------|---------------------------|----------------------------|-------------------------|--------|
|                         |                           |                            | t <sub>1</sub> /W.T. mm |        |
|                         |                           |                            | t <sub>2</sub> /W.T. mm |        |
|                         |                           |                            | weight Kg               |        |
| 38 x 32                 | 965(38.00)                | 610(24.00)                 | 9,52                    | 12,70  |
|                         | 813(32.00)                |                            | 9,52                    | 12,70  |
|                         |                           |                            | 136,00                  | 186,00 |
| 38 x 30                 | 965(38.00)                | 610(24.00)                 | 9,52                    | 12,70  |
|                         | 762(30.00)                |                            | 9,52                    | 12,70  |
|                         |                           |                            | 136,00                  | 186,00 |
| 38 x 28                 | 965(38.00)                | 610(24.00)                 | 9,52                    | 12,70  |
|                         | 711(28.00)                |                            | 9,52                    | 12,70  |
|                         |                           |                            | 136,00                  | 186,00 |
| 38 x 26                 | 965(38.00)                | 610(24.00)                 | 9,52                    | 12,70  |
|                         | 660(26.00)                |                            | 9,52                    | 12,70  |
|                         |                           |                            | 136,00                  | 186,00 |
| 40 x 38                 | 1 016(40.00)              | 610(24.00)                 | 9,52                    | 12,70  |
|                         | 965(38.00)                |                            | 9,52                    | 12,70  |
|                         |                           |                            | 143,00                  | 193,00 |
| 40 x 36                 | 1 016(40.00)              | 610(24.00)                 | 9,52                    | 12,70  |
|                         | 914(36.00)                |                            | 9,52                    | 12,70  |
|                         |                           |                            | 143,00                  | 193,00 |
| 40 x 34                 | 1 016(40.00)              | 610(24.00)                 | 9,52                    | 12,70  |
|                         | 864(34.00)                |                            | 9,52                    | 12,70  |
|                         |                           |                            | 143,00                  | 193,00 |
| 40 x 32                 | 1 016(40.00)              | 610(24.00)                 | 9,52                    | 12,70  |
|                         | 813(32.00)                |                            | 9,52                    | 12,70  |
|                         |                           |                            | 143,00                  | 193,00 |
| 40 x 30                 | 1 016(40.00)              | 610(24.00)                 | 9,52                    | 12,70  |
|                         | 762(30.00)                |                            | 9,52                    | 12,70  |
|                         |                           |                            | 143,00                  | 193,00 |
| 42 x 40                 | 1 067(42.00)              | 610(24.00)                 | 9,52                    | 12,70  |
|                         | 1 016(40.00)              |                            | 9,52                    | 12,70  |
|                         |                           |                            | 152,00                  | 201,00 |
| 42 x 38                 | 1 067(42.00)              | 610(24.00)                 | 9,52                    | 12,70  |
|                         | 965(38.00)                |                            | 9,52                    | 12,70  |
|                         |                           |                            | 152,00                  | 201,00 |

Weights are approximate

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• Concentric and eccentric reducers

• Concentric and eccentric reducers

| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Longueur End-to-End length | STD                     |        | XS         |  |
|-------------------------|---------------------------|----------------------------|-------------------------|--------|------------|--|
|                         |                           |                            | t <sub>1</sub> /W.T. mm |        |            |  |
|                         |                           |                            | t <sub>2</sub> /W.T. mm |        |            |  |
|                         |                           |                            | D – mm(in)              |        | H – mm(in) |  |
| 42 x 36                 | 1 067(42.00)              | 610(24.00)                 | 9,52                    | 12,70  |            |  |
|                         | 914(36.00)                |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 152,00                  | 201,00 |            |  |
| 42 x 34                 | 1 067(42.00)              | 610(24.00)                 | 9,52                    | 12,70  |            |  |
|                         | 864(34.00)                |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 152,00                  | 201,00 |            |  |
| 42 x 32                 | 1 067(42.00)              | 610(24.00)                 | 9,52                    | 12,70  |            |  |
|                         | 813(32.00)                |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 152,00                  | 201,00 |            |  |
| 42 x 30                 | 1 067(42.00)              | 610(24.00)                 | 9,52                    | 12,70  |            |  |
|                         | 762(30.00)                |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 152,00                  | 201,00 |            |  |
| 44 x 42                 | 1 118(44.00)              | 610(24.00)                 | 9,52                    | 12,70  |            |  |
|                         | 1 067(42.00)              |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 159,00                  | 211,00 |            |  |
| 44 x 40                 | 1 118(44.00)              | 610(24.00)                 | 9,52                    | 12,70  |            |  |
|                         | 1 016(40.00)              |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 159,00                  | 211,00 |            |  |
| 44 x 38                 | 1 118(44.00)              | 610(24.00)                 | 9,52                    | 12,70  |            |  |
|                         | 965(38.00)                |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 159,00                  | 211,00 |            |  |
| 44 x 36                 | 1 118(44.00)              | 610(24.00)                 | 9,52                    | 12,70  |            |  |
|                         | 914(36.00)                |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 159,00                  | 211,00 |            |  |
| 46 x 44                 | 1 168(46.00)              | 711(28.00)                 | 9,52                    | 12,70  |            |  |
|                         | 1 118(44.00)              |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 170,00                  | 225,00 |            |  |
| 46 x 42                 | 1 168(46.00)              | 711(28.00)                 | 9,52                    | 12,70  |            |  |
|                         | 1 067(42.00)              |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 170,00                  | 225,00 |            |  |

Weights are approximate

| Nominal Pipe Size (NPS) | Outside Diameter at Bevel | Longueur End-to-End length | STD                     |        | XS         |  |
|-------------------------|---------------------------|----------------------------|-------------------------|--------|------------|--|
|                         |                           |                            | t <sub>1</sub> /W.T. mm |        |            |  |
|                         |                           |                            | t <sub>2</sub> /W.T. mm |        |            |  |
|                         |                           |                            | D – mm(in)              |        | H – mm(in) |  |
| 46 x 40                 | 1 168(46.00)              | 711(28.00)                 | 9,52                    | 12,70  |            |  |
|                         | 1 016(40.00)              |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 170,00                  | 225,00 |            |  |
| 46 x 38                 | 1 168(46.00)              | 711(28.00)                 | 9,52                    | 12,70  |            |  |
|                         | 965(38.00)                |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 170,00                  | 225,00 |            |  |
| 48 x 46                 | 1 219(48.00)              | 711(28.00)                 | 9,52                    | 12,70  |            |  |
|                         | 1 168(46.00)              |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 181,00                  | 238,00 |            |  |
| 48 x 44                 | 1 219(48.00)              | 711(28.00)                 | 9,52                    | 12,70  |            |  |
|                         | 1 118(44.00)              |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 181,00                  | 238,00 |            |  |
| 48 x 42                 | 1 219(48.00)              | 711(28.00)                 | 9,52                    | 12,70  |            |  |
|                         | 1 067(42.00)              |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 181,00                  | 238,00 |            |  |
| 48 x 40                 | 1 219(48.00)              | 711(28.00)                 | 9,52                    | 12,70  |            |  |
|                         | 1 016(40.00)              |                            | 9,52                    | 12,70  |            |  |
|                         |                           |                            | 181,00                  | 238,00 |            |  |
|                         |                           |                            |                         |        |            |  |
|                         |                           |                            |                         |        |            |  |
|                         |                           |                            |                         |        |            |  |
|                         |                           |                            |                         |        |            |  |

Weights are approximate



# STAINLESS STEEL FITTINGS

## ASTM A403/403M-2022

Specification for Wrought Austenitic Stainless Steel Piping Fittings

### • Chemical Requirements <sup>A</sup>

| Grade WP/CR | UNS    | C         | Mn   | P     | S     | Si   | Ni        | Cr        | Mo        | Ti                     | N         | Others   |
|-------------|--------|-----------|------|-------|-------|------|-----------|-----------|-----------|------------------------|-----------|--|
| 20CB        | N08020 | 0.07      | 2.00 | 0.045 | 0.035 | 1.00 | 32.0-38.0 | 19.0-21.0 | 2.00-3.00 | ...                    | ...       | Cu: 3.0-4.0<br>Nb: 8xC-1.00  |
| 6XN         | N08367 | 0.030     | 2.00 | 0.040 | 0.030 | 1.00 | 23.5-25.5 | 20.0-22.0 | 6.0-7.0   | ...                    | 0.18-0.25 | Cu: Max 0.75   |
| 700         | N08700 | 0.04      | 2.00 | 0.040 | 0.030 | 1.00 | 24.0-26.0 | 19.0-23.0 | 4.3-5.0   | ...                    | ...       | Cu: 0.50<br>Nb: 8xC min  |
| NIC         | N08800 | 0.10      | 1.50 | 0.045 | 0.015 | 1.00 | 30.0-35.0 | 19.0-23.0 | ...       | 0.15-0.60              | ...       | Al: 0.15-0.60<br>Cu: 0.75<br>Fe: 39.5 min                                  |
| NIC10       | N08810 | 0.05-0.10 | 1.50 | 0.045 | 0.015 | 1.00 | 30.0-35.0 | 19.0-23.0 | ...       | 0.15-0.60              | ...       | Al: 0.15-0.60<br>Cu: 0.75<br>Fe: 39.5 min                                  |
| NIC11       | N08811 | 0.06-0.10 | 1.50 | 0.040 | 0.015 | 1.00 | 30.0-35.0 | 19.0-23.0 | ...       | 0.25-0.60 <sup>B</sup> | ...       | Al: 0.25-0.60 <sup>B</sup><br>Cu: 0.75<br>Fe: 39.5 min<br>Al+Ti: 0.85-1.20 |
| 304         | S30400 | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 8.0-11.0  | 18.0-20.0 | ...       | ...                    | ...       | ...  |
| 304L        | S30403 | 0.030     | 2.00 | 0.045 | 0.030 | 1.00 | 8.0-12.0  | 18.0-20.0 | ...       | ...                    | ...       | ...  |
| 304H        | S30409 | 0.04-0.10 | 2.00 | 0.045 | 0.030 | 1.00 | 8.0-11.0  | 18.0-20.0 | ...       | ...                    | ...       | ...  |
| 309         | S30900 | 0.20      | 2.00 | 0.045 | 0.030 | 1.00 | 12.0-15.0 | 22.0-24.0 | ...       | ...                    | ...       | ...  |
| 310S        | S31008 | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 19.0-22.0 | 24.0-26.0 | ...       | ...                    | ...       | ...  |
| 310H        | S31009 | 0.04-0.10 | 2.00 | 0.045 | 0.030 | 1.00 | 19.0-22.0 | 24.0-26.0 | ...       | ...                    | ...       | ...  |
| S31254      | S31254 | 0.020     | 1.00 | 0.030 | 0.010 | 0.80 | 17.5-18.5 | 19.5-20.5 | 6.0-6.5   | ...                    | 0.18-0.25 | Cu: 0.50-1.00  |
| 316         | S31600 | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 10.0-14.0 | 16.0-18.0 | 2.00-3.00 | ...                    | ...       | ...  |
| 316L        | S31603 | 0.030     | 2.00 | 0.045 | 0.030 | 1.00 | 10.0-14.0 | 16.0-18.0 | 2.00-3.00 | ...                    | ...       | ...  |
| 316H        | S31609 | 0.04-0.10 | 2.00 | 0.045 | 0.030 | 1.00 | 10.0-14.0 | 16.0-18.0 | 2.00-3.00 | ...                    | ...       | ...  |
| S32053      | S32053 | 0.030     | 1.00 | 0.030 | 0.010 | 1.00 | 24.0-26.0 | 22.0-24.0 | 5.0-6.0   | ...                    | 0.17-0.22 | ...  |
| 321         | S32100 | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 9.0-12.0  | 17.0-19.0 | ...       | 5(C+N)-0.70            | ...       | ...  |
| 321H        | S32109 | 0.04-0.10 | 2.00 | 0.045 | 0.030 | 1.00 | 9.0-12.0  | 17.0-19.0 | ...       | 4(C+N)-0.70            | ...       | ...  |
| 348         | S34800 | 0.08      | 2.00 | 0.045 | 0.030 | 1.00 | 9.0-12.0  | 17.0-19.0 | ...       | ...                    | ...       | Nb + Ta: 10C-1.10<br>Ta: 0.10<br>Co: 0.20                                  |
| 348H        | S34809 | 0.04-0.10 | 2.00 | 0.045 | 0.030 | 1.00 | 9.0-12.0  | 17.0-19.0 | ...       | ...                    | ...       | Nb + Ta: 8C-1.10<br>Ta: 0.10<br>Co: 0.20                                   |

<sup>A</sup> Maximum, unless otherwise indicated

<sup>B</sup> The method of analysis for nitrogen shall be a matter of agreement between the purchaser and manufacturer

**• Tensile Requirements**

| Grade WP/CR | Tensile Requirements        |                               | Elongation Requirements(1)<br>% in 4D |            |
|-------------|-----------------------------|-------------------------------|---------------------------------------|------------|
|             | Yield strength<br>ksi [MPa] | Tensile strength<br>ksi [MPa] | Longitudinal                          | Transverse |
| 20CB        | min 35 [240]                | min 80 [550]                  | min 28                                | min 20     |
| 6XN         | min 45 [310]                | min 95 [655]                  | min 28                                | min 20     |
| 700         | min 35[240]                 | min 80[550]                   | min 28                                | min 20     |
| NIC         | min 25 [205]                | min 65 [520]                  | min 28                                | min 20     |
| NIC10       | min 25 [170]                | min 65 [450]                  | min 28                                | min 20     |
| NIC11       | min 25 [170]                | min 65 [450]                  | min 28                                | min 20     |
| 304         | min 30 [205]                | min 75 [515]                  | min 28                                | min 20     |
| 304L        | min 25 [170]                | min 70 [485]                  | min 28                                | min 20     |
| 304H        | min 30 [205]                | min 75 [515]                  | min 28                                | min 20     |
| 309         | min 30 [205]                | min 75 [515]                  | min 28                                | min 20     |
| 310S        | min 30 [205]                | min 75 [515]                  | min 28                                | min 20     |
| 310H        | min 30 [205]                | min 75 [515]                  | min 28                                | min 20     |
| S31254      | min 44 [300]                | 94 [650] to 119 [820]         | min 28                                | min 20     |
| 316         | min 30 [205]                | min 75 [515]                  | min 28                                | min 20     |
| 316L        | min 25 [170]                | min 70 [485]                  | min 28                                | min 20     |
| 316H        | min 30 [205]                | min 75 [515]                  | min 28                                | min 20     |
| S32053      | min 43 [295]                | min 93 [640]                  | min 28                                | min 20     |
| 321         | min 30 [205]                | min 75 [515]                  | min 28                                | min 20     |
| 321H        | min 30 [205]                | min 75 [515]                  | min 28                                | min 20     |
| 348         | min 30 [205]                | min 75 [515]                  | min 28                                | min 20     |
| 348H        | min 30 [205]                | min 75 [515]                  | min 28                                | min 20     |

(1) Standard round specimen, or small proportional specimen- or strip- type specimen

**A815/A815M-2021**

for Wrought Ferritic, Ferritic/Austenitic, and Martensitic Stainless Steel Piping Fittings

**• Chemical Requirements<sup>A</sup>**

| Grade WP/CR | Grade  |       |           |       |       |      |         |                        |                      |           |                        |            |                 |  |
|-------------|--------|-------|-----------|-------|-------|------|---------|------------------------|----------------------|-----------|------------------------|------------|-----------------|--|
|             | UNS    | C     | Mn        | P     | S     | Si   | Ni      | Cr                     | Mo                   | Cu        | N                      | Ti         | Other           |  |
| 430         | S43000 | 0.12  | 1.00      | 0.040 | 0.030 | 1.00 | 0.50    | 16.0-18.0              | ...                  | ...       | ...                    | ...        | ...             |  |
| 430Ti       | S43036 | 0.10  | 1.00      | 0.040 | 0.030 | 1.00 | 0.75    | 16.0-19.5              |                      |           |                        | (5xC)-0.75 |                 |  |
| S31803      | S31803 | 0.030 | 2.00      | 0.030 | 0.020 | 1.0  | 4.5-6.5 | 21.0-23.0              | 2.5-3.5              | ...       | 0.08-0.20              | ...        | ...             |  |
| S32750      | S32750 | 0.030 | 1.20      | 0.035 | 0.020 | 0.8  | 6.0-8.0 | 24.0-26.0              | 3.0-5.0              | 0.5       | 0.24-0.32              | ....       | ...             |  |
| S32760      | S32760 | 0.030 | 1.00      | 0.030 | 0.010 | 1.00 | 6.0-8.0 | 24.0-26.0 <sup>B</sup> | 3.0-4.0 <sup>B</sup> | 0.50-1.00 | 0.20-0.30 <sup>B</sup> | ....       | W<br>0.50-1.00  |  |
| S32205      | S32205 | 0.030 | 2.00      | 0.030 | 0.020 | 1.00 | 4.5-6.5 | 22.0-23.0              | 3.0-3.5              | ...       | 0.14-0.20              | ....       | ...             |  |
| 410         | S41000 | 0.15  | 1.00      | 0.040 | 0.030 | 1.00 | 0.50    | 11.5-13.5              | ...                  | ...       | ...                    | ....       | ...             |  |
| S41008      | S41008 | 0.08  | 1.00      | 0.040 | 0.030 | 1.00 | 0.60    | 11.5-13.5              | ...                  | ...       | ...                    | ....       | ...             |  |
| S41500      | S41500 | 0.05  | 0.50-1.00 | 0.030 | 0.030 | 0.60 | 3.5-5.5 | 11.5-14.0              | 0.50-1.00            | ...       | ...                    | ....       | W:<br>0.50-1.00 |  |

<sup>A</sup> Maximum, unless otherwise indicated

<sup>B</sup> % Cr + 3.3 × % Mo + 16 × % N = 40 min.

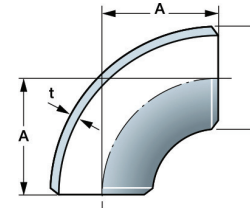
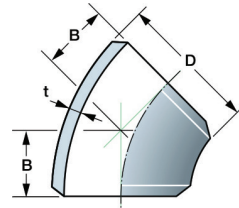
**• Tensile and Hardness Requirements**

| All WP and CR Grades | Yield Strength, min, ksi [MPa] | Tensile Strength, <sup>A</sup> min ksi [MPa] | Elongation in 2 in. [50 mm] or 4D, min, % | HBW max |
|----------------------|--------------------------------|--|---|---------|
| 430                  | 35(240)                        | 65(450)-90(620)                              | 20.0                                      | 190     |
| 430Ti                | 35(240)                        | 60(415)-85(585)                              | 20.0                                      | 190     |
| S31803               | 65(450)                        | 90(620)                                      | 20.0                                      | 290     |
| S32205               | 65(450)                        | 95(655)                                      | 20.0                                      | 290     |
| S32750               | 80(550)                        | 116(800)                                     | 15.0                                      | 310     |
| S32760               | 80(550)                        | 109(750)                                     | 25.0                                      | 270     |
| S410                 | 30(205)                        | 70(485)-95(655)                              | 20.0                                      | 207     |
| S41008               | 30[205]                        | 60(415)                                      | 22.0                                      | 183     |
| S41500               | 90(620)                        | 110(760)-135(930)                            | 15.0                                      | 295     |



ASME B 16.9-2018

ASME B 16.9-2018



• 45° Elbow Long radius

• 90° long radius elbows

| Nominal Pipe Size | Outside Diameter at Bevel<br>D-mm(in) | Center to End<br>B – mm(in) | SCH 5S    | SCH 10S | SCH 40S             | SCH 80S |
|-------------------|---------------------------------------|-----------------------------|-----------|---------|---------------------|---------|
|                   |                                       |                             | W.T. mm   |         |                     |         |
|                   |                                       |                             | weight Kg |         |                     |         |
| 1/2               | 21.3(0.84)                            | 16(0.62)                    | 1.65      | 2.11    | 2.77                | 3.73    |
|                   |                                       |                             | 0.02      | 0.03    | 0.04                | 0.05    |
| 3/4               | 26.7(1.05)                            | 19(0.75)                    | 1.65      | 2.11    | 2.87                | 3.91    |
|                   |                                       |                             | 0.03      | 0.03    | 0.04                | 0.05    |
| 1                 | 33.4(1.32)                            | 22(0.88)                    | 1.65      | 2.77    | 3.38                | 4.55    |
|                   |                                       |                             | 0.05      | 0.09    | 0.12                | 0.15    |
| 1 1/4             | 42.2(1.66)                            | 25(1.00)                    | 1.65      | 2.77    | 3.56                | 4.85    |
|                   |                                       |                             | 0.09      | 0.12    | 0.15                | 0.25    |
| 1 1/2             | 48.3(1.90)                            | 29(1.12)                    | 1.65      | 2.77    | 3.68                | 5.08    |
|                   |                                       |                             | 0.11      | 0.17    | 0.22                | 0.30    |
| 2                 | 60.3(2.38)                            | 35(1.38)                    | 1.65      | 2.77    | 3.91                | 5.54    |
|                   |                                       |                             | 0.14      | 0.25    | 0.35                | 0.50    |
| 2 1/2             | 73.0(2.88)                            | 44(1.75)                    | 2.11      | 3.05    | 5.16                | 7.01    |
|                   |                                       |                             | 0.34      | 0.48    | 0.75                | 1.00    |
| 3                 | 88.9(3.50)                            | 51(2.00)                    | 2.11      | 3.05    | 5.49                | 7.62    |
|                   |                                       |                             | 0.48      | 0.62    | 1.05                | 1.50    |
| 3 1/2             | 101.6(4.00)                           | 57(2.25)                    | 2.11      | 3.05    | 5.74                | 8.08    |
|                   |                                       |                             | 0.55      | 0.76    | 1.45                | 2.00    |
| 4                 | 114.3(4.50)                           | 64(2.50)                    | 2.11      | 3.05    | 6.02                | 8.56    |
|                   |                                       |                             | 0.75      | 1.10    | 2.10                | 3.10    |
| 5                 | 141.3(5.56)                           | 79(3.12)                    | 2.77      | 3.40    | 6.55                | 9.35    |
|                   |                                       |                             | 1.50      | 1.80    | 3.40                | 4.80    |
| 6                 | 168.3(6.62)                           | 95(3.75)                    | 2.77      | 3.40    | 7.11                | 10.97   |
|                   |                                       |                             | 2.25      | 2.75    | 5.40                | 8.20    |
| 8                 | 219.1(8.62)                           | 127(5.00)                   | 2.77      | 3.76    | 8.18                | 12.70   |
|                   |                                       |                             | 4.00      | 5.30    | 10.70               | 16.50   |
| 10                | 273.0(10.75)                          | 159(6.25)                   | 3.40      | 4.19    | 9.27                | 12.70   |
|                   |                                       |                             | 7.25      | 9.80    | 19.30               | 26.00   |
| 12                | 323.8(12.75)                          | 190(7.50)                   | 3.96      | 4.57    | 9.53                | 12.70   |
|                   |                                       |                             | 11.60     | 13.60   | 29.70               | 40.00   |
| 14                | 355.6(14.00)                          | 222(8.75)                   | 3.96      | 4.78    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | 15.40     | 18.10   | 35.40 <sup>1</sup>  |         |
| 16                | 406.4(16.00)                          | 254(10.00)                  | 4.19      | 4.78    | 9.35 <sup>1</sup>   |         |
|                   |                                       |                             | 22.60     | 23.80   | 46.20 <sup>1</sup>  |         |
| 18                | 457.0 (18.00)                         | 286(11.25)                  | 4.19      | 4.78    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | 28.40     | 30.0    | 59.80 <sup>1</sup>  |         |
| 20                | 508.0(20.00)                          | 318(12.50)                  | 4.78      | 5.54    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | 37.40     | 50.00   | 74.00 <sup>1</sup>  |         |
| 22                | 559.0(22.00)                          | 343(13.50)                  | 4.78      | 5.54    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | **        | **      | **                  |         |
| 24                | 610.0(24.0)                           | 381(15.00)                  | 5.54      | 6.35    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | 63.50     | 71.00   | 105.00 <sup>1</sup> |         |

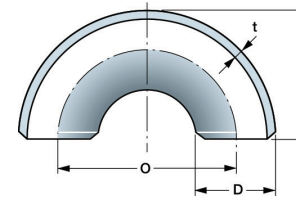
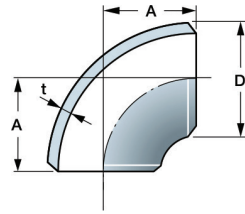
\*\* weight on application  
Weights are approximate  
<sup>1</sup>Those do not conform to ASME B36.19M (Pipe dimensions)

| Nominal Pipe Size | Outside Diameter at Bevel<br>D-mm(in) | Center to End<br>A – mm(in) | SCH 5S    | SCH 10S | SCH 40S             | SCH 80S |
|-------------------|---------------------------------------|-----------------------------|-----------|---------|---------------------|---------|
|                   |                                       |                             | W.T. mm   |         |                     |         |
|                   |                                       |                             | weight Kg |         |                     |         |
| 1/2               | 21.3(0.84)                            | 38(1.50)                    | 1.65      | 2.11    | 2.77                | 3.73    |
|                   |                                       |                             | 0.06      | 0.06    | 0.08                | 0.10    |
| 3/4               | 26.7(1.05)                            | 38(1.50t)                   | 1.65      | 2.11    | 2.87                | 3.91    |
|                   |                                       |                             | 0.06      | 0.07    | 0.09                | 0.12    |
| 1                 | 33.4(1.32)                            | 38(1.50)                    | 1.65      | 2.77    | 3.38                | 4.55    |
|                   |                                       |                             | 0.09      | 0.15    | 0.16                | 0.22    |
| 1 1/4             | 42.2(1.66)                            | 48(1.88)                    | 1.65      | 2.77    | 3.56                | 4.85    |
|                   |                                       |                             | 0.14      | 0.25    | 0.25                | 0.40    |
| 1 1/2             | 48.3(1.90)                            | 57(2.25)                    | 1.65      | 2.77    | 3.68                | 5.08    |
|                   |                                       |                             | 0.17      | 0.30    | 0.40                | 0.50    |
| 2                 | 60.3(2.38)                            | 76(3.00)                    | 1.65      | 2.77    | 3.91                | 5.54    |
|                   |                                       |                             | 0.30      | 0.50    | 0.70                | 0.90    |
| 2 1/2             | 73.0(2.88)                            | 95(3.75)                    | 2.11      | 3.05    | 5.16                | 7.01    |
|                   |                                       |                             | 0.70      | 0.85    | 1.40                | 1.80    |
| 3                 | 88.9(3.50)                            | 114(4.50)                   | 2.11      | 3.05    | 5.49                | 7.62    |
|                   |                                       |                             | 0.90      | 1.20    | 2.20                | 3.00    |
| 3 1/2             | 101.6(4.00)                           | 133(5.25)                   | 2.11      | 3.05    | 5.74                | 8.08    |
|                   |                                       |                             | 1.20      | 1.70    | 2.90                | 4.00    |
| 4                 | 114.3(4.50)                           | 152(6.00)                   | 2.11      | 3.05    | 6.02                | 8.56    |
|                   |                                       |                             | 1.50      | 2.20    | 4.20                | 6.20    |
| 5                 | 141.3(5.56)                           | 190(7.50)                   | 2.77      | 3.40    | 6.55                | 9.53    |
|                   |                                       |                             | 3.00      | 3.60    | 6.90                | 9.60    |
| 6                 | 168.3(6.62)                           | 229(9.00)                   | 2.77      | 3.40    | 7.11                | 10.97   |
|                   |                                       |                             | 4.50      | 5.40    | 11.00               | 16.30   |
| 8                 | 219.1(8.26)                           | 305(12.00)                  | 2.77      | 3.76    | 8.18                | 12.70   |
|                   |                                       |                             | 7.80      | 10.60   | 21.50               | 33.10   |
| 10                | 273.0(10.75)                          | 381(15.00)                  | 3.40      | 4.19    | 9.27                | 12.70   |
|                   |                                       |                             | 14.50     | 19.50   | 38.50               | 52.00   |
| 12                | 323.8(12.75)                          | 457(18.00)                  | 3.96      | 4.57    | 9.53                | 12.70   |
|                   |                                       |                             | 23.10     | 27.50   | 60.00               | 80.00   |
| 14                | 355.6(14.00)                          | 533(21.00)                  | 3.96      | 4.78    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | 30.80     | 36.00   | 70.00 <sup>1</sup>  |         |
| 16                | 406.4(16.00)                          | 610(24.00)                  | 4.19      | 4.78    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | 45.30     | 47.50   | 92.00 <sup>1</sup>  |         |
| 18                | 457.0(18.00)                          | 686(27.00)                  | 4.19      | 4.78    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | 56.60     | 60.00   | 122.0 <sup>1</sup>  |         |
| 20                | 508.0(20.00)                          | 762(30.00)                  | 4.78      | 5.54    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | 75.00     | 100.00  | 150.00 <sup>1</sup> |         |
| 22                | 559.0(22.00)                          | 838(33.00)                  | 4.78      | 5.54    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | **        | **      | **                  |         |
| 24                | 610.0(24.00)                          | 914(36.00)                  | 5.54      | 6.35    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | 130.00    | 140.00  | 210.00 <sup>1</sup> |         |

\*\* weight on application  
Weights are approximate  
<sup>1</sup>Those do not conform to ASME B36.19M (Pipe dimensions)

ASME B 16.9-2018

ASME B 16.9-2018



• 90° short radius elbows

• 180° long radius returns

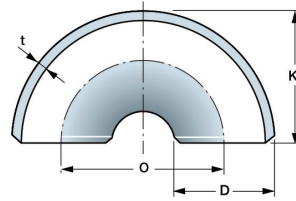
| Nominal Pipe Size | Outside Diameter at Bevel<br>D-mm(in) | Center to End<br>A – mm(in) | SCH 5S    | SCH 10S | SCH 40S             | SCH 80S |
|-------------------|---------------------------------------|-----------------------------|-----------|---------|---------------------|---------|
|                   |                                       |                             | W.T. mm   |         |                     |         |
|                   |                                       |                             | weight Kg |         |                     |         |
| 1                 | 33.4(1.32)                            | 25(1.00)                    | 1.65      | 2.77    | 3.38                | 4.55    |
|                   |                                       |                             | 0.08      | 0.10    | 0.12                | 0.18    |
| 1 1/4             | 42.2(1.66)                            | 32(1.25)                    | 1.65      | 2.77    | 3.56                | 4.85    |
|                   |                                       |                             | 0.14      | 0.17    | 0.20                | 0.30    |
| 1 1/2             | 48.3(1.90)                            | 38(1.50)                    | 1.65      | 2.77    | 3.68                | 5.08    |
|                   |                                       |                             | 0.19      | 0.22    | 0.30                | 0.40    |
| 2                 | 60.3(2.38)                            | 51(2.00)                    | 1.65      | 2.77    | 3.91                | 5.54    |
|                   |                                       |                             | 0.30      | 0.37    | 0.50                | 0.70    |
| 2 1/2             | 73.0(2.88)                            | 64(2.50)                    | 2.11      | 3.05    | 5.16                | 7.01    |
|                   |                                       |                             | 0.60      | 0.75    | 1.05                | 1.30    |
| 3                 | 88.9(3.50)                            | 76(3.00)                    | 2.11      | 3.05    | 5.49                | 7.62    |
|                   |                                       |                             | 0.80      | 1.00    | 1.50                | 1.90    |
| 3 1/2             | 101.6(4.00)                           | 89(3.50)                    | 2.11      | 3.05    | 5.74                | 8.08    |
|                   |                                       |                             | 1.05      | 1.40    | 2.05                | 2.40    |
| 4                 | 114.3(4.50)                           | 102(4.00)                   | 2.11      | 3.05    | 6.02                | 8.56    |
|                   |                                       |                             | 1.40      | 1.70    | 3.10                | 4.10    |
| 5                 | 141.3(5.56)                           | 127(5.00)                   | 2.77      | 3.40    | 6.55                | 9.53    |
|                   |                                       |                             | 2.25      | 2.80    | 5.30                | 7.30    |
| 6                 | 168.3(6.62)                           | 152(6.00)                   | 2.77      | 3.40    | 7.11                | 10.97   |
|                   |                                       |                             | 3.50      | 4.20    | 7.90                | 11.80   |
| 8                 | 219.1(8.62)                           | 203(8.00)                   | 2.77      | 3.76    | 8.18                | 12.70   |
|                   |                                       |                             | 7.00      | 8.00    | 17.00               | 25.00   |
| 10                | 273.0(10.75)                          | 254(10.00)                  | 3.40      | 4.19    | 9.27                | 12.70   |
|                   |                                       |                             | 12.40     | 15.90   | 28.50               | 45.00   |
| 12                | 323.8(12.75)                          | 305(12.00)                  | 3.96      | 4.57    | 9.53                | 12.70   |
|                   |                                       |                             | 15.90     | 18.10   | 36.00               | 57.00   |
| 14                | 355.6(14.00)                          | 356(14.00)                  | 3.96      | 4.78    | 9.53                |         |
|                   |                                       |                             | 20.00     | 23.50   | 46.00               |         |
| 16                | 406.4(16.00)                          | 406(16.00)                  | 4.19      | 4.78    | 9.53                |         |
|                   |                                       |                             | 29.50     | 31.00   | 60.00               |         |
| 18                | 457.0(18.00)                          | 457(18.00)                  | 4.19      | 4.78    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | 36.70     | 39.50   | 79.00 <sup>1</sup>  |         |
| 20                | 508.0(20.00)                          | 508(20.00)                  | 4.78      | 5.54    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | 49.00     | 65.00   | 97.00 <sup>1</sup>  |         |
| 22                | 559.0(22.00)                          | 559(22.00)                  | 4.78      | 5.54    |                     |         |
|                   |                                       |                             | **        | **      |                     |         |
| 24                | 610.0(24.00)                          | 610(24.00)                  | 5.54      | 6.35    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                             | 83.00     | 92.00   | 137.00 <sup>1</sup> |         |

\*\* weight on application  
Weights are approximate  
<sup>1</sup>Those do not conform to ASME B36.19M (Pipe dimensions)

| Nominal pipe size | Outside Diameter at Bevel<br>D-mm(in) | Center to center<br>O-mm(in) | Back to Face<br>K-mm(in) | SCH 5S    | SCH 10S | SCH 40S             | SCH 80S |
|-------------------|---------------------------------------|------------------------------|--------------------------|-----------|---------|---------------------|---------|
|                   |                                       |                              |                          | W.T. mm   |         |                     |         |
|                   |                                       |                              |                          | weight Kg |         |                     |         |
| 1/2               | 21.3(0.84)                            | 76(3.00)                     | 48(1.88)                 | 1.65      | 2.11    | 2.77                | 3.73    |
|                   |                                       |                              |                          | 0.10      | 0.12    | 0.16                | 0.20    |
| 3/4               | 26.7(1.05)                            | 76(3.00)                     | 51(2.00)                 | 1.65      | 2.11    | 2.87                | 3.91    |
|                   |                                       |                              |                          | 0.14      | 0.19    | 0.23                | 0.32    |
| 1                 | 33.4(1.32)                            | 76(3.00)                     | 56(2.19)                 | 1.65      | 2.77    | 3.38                | 4.55    |
|                   |                                       |                              |                          | 0.24      | 0.34    | 0.35                | 0.65    |
| 1 1/4             | 42.2(1.66)                            | 95(3.75)                     | 70(2.75)                 | 1.65      | 2.77    | 3.56                | 4.85    |
|                   |                                       |                              |                          | 0.45      | 0.57    | 0.75                | 1.10    |
| 1 1/2             | 48.3(1.90)                            | 114(4.50)                    | 83(3.25)                 | 1.65      | 2.77    | 3.68                | 5.08    |
|                   |                                       |                              |                          | 0.60      | 0.80    | 1.05                | 1.40    |
| 2                 | 60.3(2.38)                            | 152(6.00)                    | 106(4.19)                | 1.65      | 2.77    | 3.91                | 5.54    |
|                   |                                       |                              |                          | 0.95      | 1.40    | 2.00                | 2.80    |
| 2 1/2             | 73.0(2.88)                            | 190(7.50)                    | 132(5.19)                | 2.11      | 3.05    | 5.16                | 7.01    |
|                   |                                       |                              |                          | 1.60      | 2.70    | 3.50                | 4.40    |
| 3                 | 88.9(3.50)                            | 229(9.00)                    | 159(6.25)                | 2.11      | 3.05    | 5.49                | 7.62    |
|                   |                                       |                              |                          | 2.40      | 4.50    | 5.80                | 7.80    |
| 3 1/2             | 101.6(4.00)                           | 267(10.50)                   | 184(7.25)                | 2.11      | 3.05    | 5.74                | 8.08    |
|                   |                                       |                              |                          | 3.00      | 4.80    | 7.10                | 10.00   |
| 4                 | 114.3(4.50)                           | 305(12.00)                   | 210(8.25)                | 2.11      | 3.05    | 6.02                | 8.56    |
|                   |                                       |                              |                          | 5.40      | 6.20    | 11.10               | 15.50   |
| 5                 | 141.3(5.56)                           | 381(15.00)                   | 262(10.31)               | 2.77      | 3.40    | 6.55                | 9.53    |
|                   |                                       |                              |                          | 5.90      | 7.30    | 14.10               | 19.50   |
| 6                 | 168.3(6.62)                           | 457(18.00)                   | 313(12.31)               | 2.77      | 3.40    | 7.11                | 10.97   |
|                   |                                       |                              |                          | 9.10      | 10.90   | 21.70               | 32.50   |
| 8                 | 219.1(8.62)                           | 610(24.00)                   | 414(16.31)               | 2.77      | 3.76    | 8.18                | 12.70   |
|                   |                                       |                              |                          | 15.90     | 21.50   | 43.00               | 66.00   |
| 10                | 273.0(10.75)                          | 762(30.00)                   | 518(20.38)               | 3.40      | 4.19    | 9.27                | 12.70   |
|                   |                                       |                              |                          | 29.00     | 39.00   | 77.00               | 103.00  |
| 12                | 323.8(12.75)                          | 914(36.00)                   | 619(24.38)               | 3.96      | 4.57    | 9.53                | 12.70   |
|                   |                                       |                              |                          | 46.20     | 54.50   | 120.00              | 160.00  |
| 14                | 355.6(14.00)                          | 1067(42.00)                  | 711(28.00)               | 3.96      | 4.78    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                              |                          | 62.00     | 72.50   | 140.00 <sup>1</sup> |         |
| 16                | 406.4(16.00)                          | 1219(47.00)                  | 813(32.00)               | 4.19      | 4.78    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                              |                          | 91.00     | 96.00   | 185.00 <sup>1</sup> |         |
| 18                | 457.0(18.00)                          | 1372(54.00)                  | 914(36.00)               | 4.19      | 4.78    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                              |                          | 113.00    | 120     | 254.00 <sup>1</sup> |         |
| 20                | 508.0(20.00)                          | 1524(60.00)                  | 1016(40.00)              | 4.78      | 5.54    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                              |                          | 150.00    | 200.00  | 300.00 <sup>1</sup> |         |
| 22                | 559.0(22.00)                          | 1676(66.00)                  | 1118(44.00)              | 4.78      | 5.54    |                     |         |
|                   |                                       |                              |                          | **        | **      |                     |         |
| 24                | 610.0(24.00)                          | 1829(72.00)                  | 1219(48.00)              | 5.54      | 6.35    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                              |                          | 255.00    | 280.00  | 420.00 <sup>1</sup> |         |

\*\* weight on application  
Weights are approximate  
<sup>1</sup>Those do not conform to ASME B36.19M (Pipe dimensions)

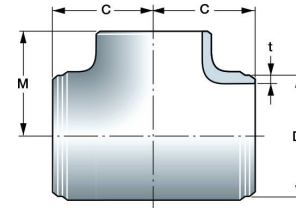


**ASME B 16.9-2018**

**• 180° long radius returns**

| Nominal pipe size | Outside Diameter at Bevel<br>D-mm(in) | Center to center<br>O-mm(in) | Back to Face<br>K-mm(in) | SCH 5S | SCH 10S | SCH 40S             | SCH 80S |
|-------------------|---------------------------------------|------------------------------|--------------------------|--------|---------|---------------------|---------|
|                   |                                       |                              |                          | W.T.   |         | mm                  |         |
|                   |                                       |                              |                          | weight |         | Kg                  |         |
| 1                 | 33.4(1.32)                            | 51(2.00)                     | 41(1.62)                 | 1.65   | 2.77    | 3.38                | 4.55    |
|                   |                                       |                              |                          | 0.16   | 0.20    | 0.24                | 0.35    |
| 1 1/4             | 42.2(1.66)                            | 64(2.50)                     | 52(2.06)                 | 1.65   | 2.77    | 3.56                | 4.85    |
|                   |                                       |                              |                          | 0.30   | 0.35    | 0.40                | 0.60    |
| 1 1/2             | 48.3(1.90)                            | 76(3.00)                     | 62(2.44)                 | 1.65   | 2.77    | 3.68                | 5.08    |
|                   |                                       |                              |                          | 0.40   | 0.45    | 0.60                | 0.80    |
| 2                 | 60.3(2.38)                            | 102(4.00)                    | 81(3.19)                 | 1.65   | 2.77    | 3.91                | 5.54    |
|                   |                                       |                              |                          | 0.55   | 0.75    | 1.05                | 1.40    |
| 2 1/2             | 73.0(2.88)                            | 127(5.00)                    | 100(3.94)                | 2.11   | 3.05    | 5.16                | 7.01    |
|                   |                                       |                              |                          | 1.15   | 1.25    | 2.05                | 2.60    |
| 3                 | 88.9(3.50)                            | 152(6.00)                    | 121(4.75)                | 2.11   | 3.05    | 5.49                | 7.62    |
|                   |                                       |                              |                          | 1.60   | 2.00    | 3.00                | 3.80    |
| 3 1/2             | 101.6(4.00)                           | 178(7.00)                    | 140(5.50)                | 2.11   | 3.05    | 5.74                | 8.08    |
|                   |                                       |                              |                          | 2.15   | 2.75    | 4.10                | 4.80    |
| 4                 | 114.3(4.50)                           | 203(8.00)                    | 159(6.25)                | 2.11   | 3.05    | 6.02                | 8.56    |
|                   |                                       |                              |                          | 2.80   | 3.50    | 6.25                | 8.20    |
| 5                 | 141.3(5.56)                           | 254(10.00)                   | 197(7.75)                | 2.77   | 3.40    | 6.55                | 9.53    |
|                   |                                       |                              |                          | 4.50   | 5.60    | 10.50               | 15.00   |
| 6                 | 168.3(6.62)                           | 305(12.00)                   | 237(9.31)                | 2.77   | 3.40    | 7.11                | 10.97   |
|                   |                                       |                              |                          | 7.00   | 8.30    | 16.00               | 24.00   |
| 8                 | 219.1(8.62)                           | 406(16.00)                   | 313(12.31)               | 2.77   | 3.76    | 8.18                | 12.70   |
|                   |                                       |                              |                          | 14.00  | 16.00   | 34.00               | 50.00   |
| 10                | 273.0(10.75)                          | 508(20.00)                   | 391(15.38)               | 3.40   | 4.19    | 9.27                | 12.70   |
|                   |                                       |                              |                          | 25.00  | 32.00   | 57.00               | 90.00   |
| 12                | 323.8(12.75)                          | 610(24.00)                   | 467(18.38)               | 3.96   | 4.57    | 9.53                | 12.70   |
|                   |                                       |                              |                          | 32.00  | 36.00   | 73.00               | 113.00  |
| 14                | 355.6(14.00)                          | 711(28.00)                   | 533(21.00)               | 3.96   | 4.78    | 9.53                |         |
|                   |                                       |                              |                          | 40.00  | 47.00   | 92.00               |         |
| 16                | 406.4(16.00)                          | 813(32.00)                   | 610(24.00)               | 4.19   | 4.78    | 9.53                |         |
|                   |                                       |                              |                          | 60.00  | 62.00   | 120.00              |         |
| 18                | 457.0(18.00)                          | 914(36.00)                   | 686(27.00)               | 4.19   | 4.78    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                              |                          | 74.00  | 78.00   | 160.00 <sup>1</sup> |         |
| 20                | 508.0(20.00)                          | 1016(40.00)                  | 762(30.00)               | 4.78   | 5.54    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                              |                          | 97.00  | 130.00  | 195.00 <sup>1</sup> |         |
| 22                | 559.0(22.00)                          | 1118(44.00)                  | 838(33.00)               | 4.78   | 5.54    |                     |         |
|                   |                                       |                              |                          | **     | **      |                     |         |
| 24                | 610.0(24.00)                          | 1219(48.00)                  | 914(36.00)               | 5.54   | 6.35    | 9.53 <sup>1</sup>   |         |
|                   |                                       |                              |                          | 165.00 | 185.00  | 275.00 <sup>1</sup> |         |

\*\* weight on application

Weights are approximate

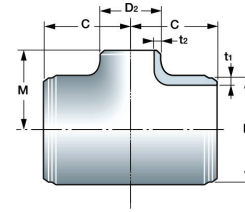
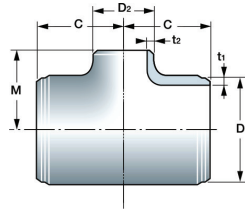
<sup>1</sup>Those do not conform to ASME B36.19M (Pipe dimensions)

**• Straight tees**

| nominal pipe size | Outside Diameter at Bevel<br>D – mm | Center-to-end |            | SCH 5S | SCH 10S | SCH 40S             | SCH 80S |
|-------------------|-------------------------------------|---------------|------------|--------|---------|---------------------|---------|
|                   |                                     | C – mm        | M – mm     | W.T.   |         | mm                  |         |
|                   |                                     |               |            | weight |         | Kg                  |         |
| 1/2               | 21.3(0.84)                          | 25(1.00)      | 25(1.00)   | 1.65   | 2.11    | 2.77                | 3.73    |
|                   |                                     |               |            | 0.09   | 0.10    | 0.12                | 0.14    |
| 3/4               | 26.7(1.05)                          | 29(1.12)      | 29(1.12)   | 1.65   | 2.11    | 2.87                | 3.91    |
|                   |                                     |               |            | 0.10   | 0.13    | 0.17                | 0.20    |
| 1                 | 33.4(1.32)                          | 38(1.50)      | 38(1.50)   | 1.65   | 2.77    | 3.38                | 4.55    |
|                   |                                     |               |            | 0.18   | 0.28    | 0.30                | 0.40    |
| 1 1/4             | 42.2(1.66)                          | 48(1.88)      | 48(1.88)   | 1.65   | 2.77    | 3.56                | 4.85    |
|                   |                                     |               |            | 0.35   | 0.50    | 0.60                | 0.70    |
| 1 1/2             | 48.3(1.90)                          | 57(2.25)      | 57(2.25)   | 1.65   | 2.77    | 3.68                | 5.08    |
|                   |                                     |               |            | 0.45   | 0.70    | 0.90                | 1.05    |
| 2                 | 60.3(2.38)                          | 64(2.50)      | 64(2.50)   | 1.65   | 2.77    | 3.91                | 5.54    |
|                   |                                     |               |            | 0.55   | 0.85    | 1.30                | 1.60    |
| 2 1/2             | 73.0(2.88)                          | 76(3.00)      | 76(3.00)   | 2.11   | 3.05    | 5.16                | 7.01    |
|                   |                                     |               |            | 1.00   | 1.40    | 2.20                | 3.10    |
| 3                 | 88.9(3.50)                          | 86(3.38)      | 86(3.38)   | 2.11   | 3.05    | 5.49                | 7.62    |
|                   |                                     |               |            | 1.55   | 1.80    | 3.30                | 4.40    |
| 3 1/2             | 101.6(4.00)                         | 95(3.75)      | 95(3.75)   | 2.11   | 3.05    | 5.74                | 8.08    |
|                   |                                     |               |            | 2.50   | 2.70    | 4.10                | 5.40    |
| 4                 | 114.3(4.50)                         | 105(4.12)     | 105(4.12)  | 2.11   | 3.05    | 6.02                | 8.56    |
|                   |                                     |               |            | 3.30   | 3.50    | 5.30                | 7.70    |
| 5                 | 141.3(5.56)                         | 124(4.88)     | 124(4.88)  | 2.77   | 3.40    | 6.55                | 9.53    |
|                   |                                     |               |            | 5.90   | 6.10    | 9.40                | 11.50   |
| 6                 | 168.3(6.62)                         | 143(5.62)     | 143(5.62)  | 2.77   | 3.40    | 7.11                | 10.97   |
|                   |                                     |               |            | 7.80   | 8.10    | 11.00               | 13.60   |
| 8                 | 219.1(8.62)                         | 178(7.00)     | 178(7.00)  | 2.77   | 3.76    | 8.18                | 12.70   |
|                   |                                     |               |            | 14.00  | 15.60   | 21.00               | 28.00   |
| 10                | 273.0(10.75)                        | 216(8.50)     | 216(8.50)  | 3.40   | 4.19    | 9.27                | 12.70   |
|                   |                                     |               |            | 25.00  | 27.00   | 36.00               | 50.00   |
| 12                | 323.8(12.75)                        | 254(10.00)    | 254(10.00) | 3.96   | 4.57    | 9.53                | 12.70   |
|                   |                                     |               |            | 38.00  | 40.00   | 62.00               | 84.00   |
| 14                | 355.6(14.00)                        | 279(11.00)    | 279(11.00) | 3.96   | 4.78    | 9.53 <sup>1</sup>   |         |
|                   |                                     |               |            | 40.00  | 48.00   | 79.00 <sup>1</sup>  |         |
| 16                | 406.4(16.00)                        | 305(12.00)    | 305(12.00) | 4.19   | 4.78    | 9.53 <sup>1</sup>   |         |
|                   |                                     |               |            | 52.00  | 59.00   | 100.00 <sup>1</sup> |         |
| 18                | 457.0(18.00)                        | 343(13.50)    | 343(13.50) | 4.19   | 4.78    | 9.53 <sup>1</sup>   |         |
|                   |                                     |               |            | 68.00  | 77.00   | 130.00 <sup>1</sup> |         |
| 20                | 508.0(20.00)                        | 381(15.00)    | 381(15.00) | 4.78   | 5.54    | 9.53 <sup>1</sup>   |         |
|                   |                                     |               |            | 78.00  | 103.00  | 162.00 <sup>1</sup> |         |
| 22                | 559.0(22.00)                        | 419(16.50)    | 419(16.50) | 4.78   | 5.54    |                     |         |
|                   |                                     |               |            | **     | **      |                     |         |
| 24                | 610.0(24.00)                        | 432(17.00)    | 432(17.00) | 5.54   | 6.35    | 9.53 <sup>1</sup>   |         |
|                   |                                     |               |            | 90.00  | 155.00  | 225.00 <sup>1</sup> |         |

\*\* weight on application

Weights are approximate

<sup>1</sup>Those do not conform to ASME B36.19M (Pipe dimensions)

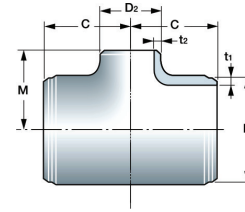
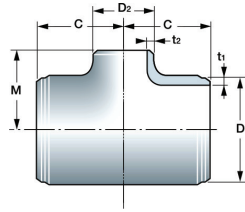
**ASME B16.9-2018**
**ASME B16.9-2018**

**• Reducing outlet tees**
**• Reducing outlet tees**

| Nominal pipe size | outside Diameter O.D | Center-to-end |          | SCH 5S                  | SCH 10S | SCH 40S | SCH 80S |
|-------------------|----------------------|---------------|----------|-------------------------|---------|---------|---------|
|                   |                      |               |          | t <sub>1</sub> /W.T. mm |         |         |         |
|                   |                      |               |          | t <sub>2</sub> /W.T. mm |         |         |         |
|                   |                      |               |          | weight Kg               |         |         |         |
| D – mm(in)        | C – mm(in)           | M – mm(in)    |          |                         |         |         |         |
| 1/2 x 3/8         | 21.3(0.84)           | 25(1.00)      | 25(1.00) |                         | 2.11    | 2.77    | 3.73    |
|                   | 17.3(0.68)           |               |          |                         | 1.65    | 2.31    | 3.20    |
|                   |                      |               |          |                         | 0.09    | 0.10    | 0.13    |
| 1/2 x 1/4         | 21.3(0.84)           | 25(1.00)      | 25(1.00) |                         | 2.11    | 2.77    | 3.73    |
|                   | 13.7(0.54)           |               |          |                         | 1.65    | 2.24    | 3.02    |
|                   |                      |               |          |                         | 0.08    | 0.09    | 0.11    |
| 1/2 x 1/4         | 26.7(1.05)           | 29(1.12)      | 29(1.12) | 1.65                    | 2.11    | 2.87    | 3.91    |
|                   | 21.3(0.84)           |               |          | 1.65                    | 2.11    | 2.77    | 3.73    |
|                   |                      |               |          | 0.11                    | 0.13    | 0.15    | 0.19    |
| 3/4 x 3/8         | 26.7(1.05)           | 29(1.12)      | 29(1.12) |                         | 2.11    | 2.87    | 3.91    |
|                   | 17.3(0.68)           |               |          |                         | 1.65    | 2.31    | 3.20    |
|                   |                      |               |          |                         | 0.11    | 0.14    | 0.17    |
| 1 x 3/4           | 33.4(1.32)           | 38(1.50)      | 38(1.50) | 1.65                    | 2.77    | 3.38    | 4.55    |
|                   | 26.7(1.05)           |               |          | 1.65                    | 2.11    | 2.87    | 3.91    |
|                   |                      |               |          | 0.17                    | 0.27    | 0.28    | 0.36    |
| 1 x 1/2           | 33.4(1.32)           | 38(1.50)      | 38(1.50) | 1.65                    | 2.77    | 3.38    | 4.55    |
|                   | 21.3(0.84)           |               |          | 1.65                    | 2.11    | 2.77    | 3.73    |
|                   |                      |               |          | 0.16                    | 0.26    | 0.27    | 0.35    |
| 1 1/4 x 1         | 42.2(1.66)           | 48(1.88)      | 48(1.88) | 1.65                    | 2.77    | 3.56    | 4.85    |
|                   | 33.4(1.32)           |               |          | 1.65                    | 2.77    | 3.38    | 4.55    |
|                   |                      |               |          | 0.31                    | 0.46    | 0.53    | 0.34    |
| 1 1/4 x 3/4       | 42.2(1.66)           | 48(1.88)      | 48(1.88) | 1.65                    | 2.77    | 3.56    | 4.85    |
|                   | 26.7(1.05)           |               |          | 1.65                    | 2.11    | 2.87    | 3.91    |
|                   |                      |               |          | 0.30                    | 0.44    | 0.52    | 0.64    |
| 1 1/4 x 1/2       | 42.2(1.66)           | 48(1.88)      | 48(1.88) | 1.65                    | 2.77    | 3.56    | 4.85    |
|                   | 21.3(0.84)           |               |          | 1.65                    | 2.11    | 2.77    | 3.73    |
|                   |                      |               |          | 0.29                    | 0.43    | 0.51    | 0.61    |
| 1 1/2 x 1 1/4     | 48.3(1.90)           | 57(2.25)      | 57(2.25) | 1.65                    | 2.77    | 3.68    | 5.08    |
|                   | 42.2(1.66)           |               |          | 1.65                    | 2.77    | 3.56    | 4.85    |
|                   |                      |               |          | 0.39                    | 0.67    | 0.78    | 0.92    |
| 1 1/2 x 1         | 48.3(1.90)           | 57(2.25)      | 57(2.55) | 1.65                    | 2.77    | 3.68    | 5.08    |
|                   | 33.4(1.32)           |               |          | 1.65                    | 2.77    | 3.38    | 4.55    |
|                   |                      |               |          | 0.38                    | 0.64    | 0.76    | 0.90    |

Weights are approximate

| Nominal pipe size | outside Diameter O.D | Center-to-end        |                      | SCH 5S                  | SCH 10S | SCH 40S | SCH 80S |
|-------------------|----------------------|----------------------|----------------------|-------------------------|---------|---------|---------|
|                   |                      |                      |                      | t <sub>1</sub> /W.T. mm |         |         |         |
|                   |                      |                      |                      | t <sub>2</sub> /W.T. mm |         |         |         |
|                   |                      |                      |                      | weight Kg               |         |         |         |
| D – mm(in)        | C – mm(in)           | M – mm(in)           |                      |                         |         |         |         |
| 1 1/2 x 3/4       | 48.3(1.90)           | 57(2.25)             | 57(2.25)             | 1.65                    | 2.77    | 3.68    | 5.08    |
|                   | 26.7(1.05)           |                      |                      | 1.65                    | 2.11    | 2.87    | 3.91    |
|                   |                      |                      |                      | 0.37                    | 0.62    | 0.74    | 0.88    |
| 1 1/2 x 1/2       | 48.3(1.90)           | 57(2.25)             | 57(2.25)             | 1.65                    | 2.77    | 3.68    | 5.08    |
|                   | 21.3(0.84)           |                      |                      | 1.65                    | 2.11    | 2.77    | 3.73    |
|                   |                      |                      |                      | 0.36                    | 0.61    | 0.73    | 0.86    |
| 2 x 1 1/2         | 60.3(2.38)           | 64(2.50)             | 60(2.38)             | 1.65                    | 2.77    | 3.91    | 5.54    |
|                   | 48.3(1.90)           |                      |                      | 1.65                    | 2.77    | 3.68    | 5.08    |
|                   |                      |                      |                      | 0.49                    | 0.77    | 1.15    | 1.43    |
| 2 x 1 1/4         | 60.3(2.38)           | 64(2.50)             | 57(2.25)             | 1.65                    | 2.77    | 3.91    | 5.54    |
|                   | 42.2(1.66)           |                      |                      | 1.65                    | 2.77    | 3.56    | 4.85    |
|                   |                      |                      |                      | 0.48                    | 0.75    | 1.13    | 1.40    |
| 2 x 1             | 60.3(2.38)           | 64(2.50)             | 51(2.00)             | 1.65                    | 2.77    | 3.91    | 5.54    |
|                   | 33.4(1.32)           |                      |                      | 1.65                    | 2.77    | 3.38    | 4.55    |
|                   |                      |                      |                      | 0.47                    | 0.73    | 1.10    | 1.37    |
| 2 x 3/4           | 60.3(2.38)           | 64(2.50)             | 44(1.75)             | 1.65                    | 2.77    | 3.91    | 5.54    |
|                   | 26.7(1.05)           |                      |                      | 1.65                    | 2.11    | 2.87    | 3.91    |
|                   |                      |                      |                      | 0.46                    | 0.71    | 1.08    | 1.35    |
| 2 1/2 x 2         | 73.0(2.88)           | 76(3.00)             | 70(2.75)             | 2.11                    | 3.05    | 5.16    | 7.01    |
|                   | 60.3(2.38)           |                      |                      | 1.65                    | 2.77    | 3.91    | 5.54    |
|                   |                      |                      |                      | 0.88                    | 1.21    | 1.98    | 2.80    |
| 2 1/2 x 1 1/2     | 73.0(2.88)           | 76(3.00)             | 67(2.62)             | 2.11                    | 3.05    | 5.16    | 7.01    |
|                   | 48.3(1.90)           |                      |                      | 1.65                    | 2.77    | 3.68    | 5.08    |
|                   |                      |                      |                      | 0.86                    | 1.19    | 1.93    | 2.75    |
| 2 1/2 x 1 1/4     | 73.0(2.88)           | 76(3.00)             | 64(2.50)             | 2.11                    | 3.05    | 5.16    | 7.01    |
|                   | 42.2(1.66)           |                      |                      | 1.65                    | 2.77    | 3.56    | 4.85    |
|                   |                      |                      |                      | 0.84                    | 1.17    | 1.89    | 2.70    |
| 2 1/2 x 1         | 73.0(2.88)           | 76(3.00)<br>57(2.25) | 57(2.25)<br>57(2.25) | 2.11                    | 3.05    | 5.16    | 7.01    |
|                   | 48.3(1.90)           |                      |                      | 1.65                    | 2.77    | 3.38    | 4.55    |
|                   | 26.7(1.05)           |                      |                      | 0.83                    | 1.15    | 1.87    | 2.65    |

Weights are approximate

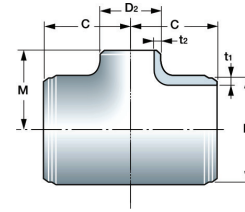
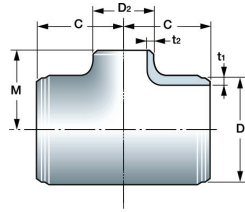
**ASME B16.9-2018**
**ASME B16.9-2018**

**• Reducing outlet tees**
**• Reducing outlet tees**

| Nominal pipe size | outside Diameter O.D | Center-to-end |           | SCH 5S                  | SCH 10S | SCH 40S | SCH 80S |
|-------------------|----------------------|---------------|-----------|-------------------------|---------|---------|---------|
|                   |                      |               |           | t <sub>1</sub> /W.T. mm |         |         |         |
|                   |                      |               |           | t <sub>2</sub> /W.T. mm |         |         |         |
|                   |                      |               |           | weight Kg               |         |         |         |
| D – mm(in)        | C – mm(in)           | M – mm(in)    |           |                         |         |         |         |
| 3 x 2 1/2         | 88.9(3.50)           | 86(3.38)      | 83(3.25)  | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   | 73.0(2.88)           |               |           | 2.11                    | 3.05    | 5.16    | 7.01    |
|                   |                      |               |           | 1.39                    | 1.70    | 3.00    | 4.00    |
| 3 x 2             | 88.9(3.50)           | 86(3.38)      | 76(3.00)  | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   | 60.3(2.38)           |               |           | 1.65                    | 2.77    | 3.91    | 5.54    |
|                   |                      |               |           | 1.35                    | 1.65    | 2.90    | 3.90    |
| 3 x 1 1/2         | 88.9(3.50)           | 86(3.38)      | 73(2.88)  | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   | 48.3(1.90)           |               |           | 1.65                    | 2.77    | 3.68    | 5.08    |
|                   |                      |               |           | 1.33                    | 1.60    | 2.85    | 3.85    |
| 3 x 1 1/4         | 88.9(3.50)           | 86(3.38)      | 70(2.75)  | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   | 42.2(1.66)           |               |           | 1.65                    | 2.77    | 3.56    | 4.85    |
|                   |                      |               |           | 1.31                    | 1.57    | 2.80    | 3.80    |
| 3 1/2 x 3         | 101.6(4.00)          | 75(3.75)      | 72(3.62)  | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   | 88.9(3.50)           |               |           | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   |                      |               |           | 2.24                    | 2.15    | 4.15    | 4.90    |
| 3 1/2 x 2 1/2     | 101.6(4.00)          | 75(3.75)      | 89(3.50)  | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   | 73.0(2.88)           |               |           | 2.11                    | 3.05    | 5.16    | 7.01    |
|                   |                      |               |           | 2.19                    | 2.10    | 4.05    | 4.80    |
| 3 1/2 x 2         | 101.6(4.00)          | 75(3.75)      | 83(3.25)  | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   | 60.3(2.38)           |               |           | 1.65                    | 2.77    | 3.91    | 5.54    |
|                   |                      |               |           | 2.14                    | 2.05    | 3.50    | 4.70    |
| 3 1/2 x 1 1/2     | 101.6(4.00)          | 75(3.75)      | 79(3.12)  | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   | 48.3(1.90)           |               |           | 1.65                    | 2.77    | 3.68    | 5.08    |
|                   |                      |               |           | 2.12                    | 2.00    | 3.45    | 4.60    |
| 4 x 3 1/2         | 114.3(4.50)          | 105(4.12)     | 102(4.00) | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   | 101.6(4.00)          |               |           | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   |                      |               |           | 2.94                    | 3.10    | 4.70    | 6.95    |
| 4 x 3             | 114.3(4.50)          | 105(4.12)     | 98(3.88)  | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   | 88.9(3.50)           |               |           | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   |                      |               |           | 2.87                    | 3.05    | 4.65    | 6.80    |
| 4 x 2 1/2         | 114.3(4.50)          | 105(4.12)     | 95(3.75)  | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   | 73.0(2.88)           |               |           | 2.11                    | 3.05    | 5.16    | 7.01    |
|                   |                      |               |           | 2.80                    | 2.97    | 4.55    | 6.60    |

Weights are approximate

| Nominal pipe size | outside Diameter O.D | Center-to-end |           | SCH 5S                  | SCH 10S | SCH 40S | SCH 80S |
|-------------------|----------------------|---------------|-----------|-------------------------|---------|---------|---------|
|                   |                      |               |           | t <sub>1</sub> /W.T. mm |         |         |         |
|                   |                      |               |           | t <sub>2</sub> /W.T. mm |         |         |         |
|                   |                      |               |           | weight Kg               |         |         |         |
| D – mm(in)        | C – mm(in)           | M – mm(in)    |           |                         |         |         |         |
| 4 x 2             | 114.3(4.50)          | 105(4.12)     | 89(3.50)  | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   | 60.3(2.38)           |               |           | 1.65                    | 2.77    | 3.91    | 5.54    |
|                   |                      |               |           | 2.77                    | 2.93    | 4.50    | 6.55    |
| 4 x 1 1/2         | 114.3(4.50)          | 105(4.12)     | 86(3.38)  | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   | 48.3(1.90)           |               |           | 1.65                    | 2.77    | 3.68    | 5.08    |
|                   |                      |               |           | 2.74                    | 2.90    | 4.45    | 6.50    |
| 5 x 4             | 141.3(5.56)          | 124(4.88)     | 117(4.62) | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   | 114.3(4.50)          |               |           | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   |                      |               |           | 5.30                    | 5.50    | 8.50    | 10.20   |
| 5 x 3 1/2         | 141.3(5.56)          | 124(4.88)     | 114(4.50) | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   | 101.6(4.00)          |               |           | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   |                      |               |           | 5.18                    | 5.35    | 8.30    | 10.00   |
| 5 x 3             | 141.3(5.56)          | 124(4.88)     | 111(4.38) | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   | 88.9(3.50)           |               |           | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   |                      |               |           | 5.10                    | 5.25    | 8.10    | 9.75    |
| 5 x 2 1/2         | 141.3(5.56)          | 124(4.88)     | 108(4.25) | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   | 73.0(2.88)           |               |           | 2.11                    | 3.05    | 5.16    | 7.01    |
|                   |                      |               |           | 5.00                    | 5.20    | 8.00    | 9.65    |
| 5 x 2             | 141.3(5.56)          | 124(4.88)     | 105(4.12) | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   | 60.3(2.38)           |               |           | 1.65                    | 2.77    | 3.91    | 5.54    |
|                   |                      |               |           | 4.95                    | 5.10    | 7.90    | 9.50    |
| 6 x 5             | 168.3(6.62)          | 143(5.62)     | 137(5.38) | 2.77                    | 3.40    | 7.11    | 10.97   |
|                   | 141.3(5.56)          |               |           | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   |                      |               |           | 7.00                    | 7.25    | 12.30   | 12.20   |
| 6 x 4             | 168.3(6.62)          | 143(5.62)     | 130(5.12) | 2.77                    | 3.40    | 7.11    | 10.97   |
|                   | 114.3(4.50)          |               |           | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   |                      |               |           | 6.85                    | 7.10    | 12.10   | 12.00   |
| 6 x 3 1/2         | 168.3(6.62)          | 143(5.62)     | 127(5.00) | 2.77                    | 3.40    | 7.11    | 10.97   |
|                   | 101.6(4.00)          |               |           | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   |                      |               |           | 6.70                    | 6.95    | 12.00   | 11.70   |

Weights are approximate

**ASME B16.9-2018**
**ASME B16.9-2018**

**• Reducing outlet tees**
**• Reducing outlet tees**

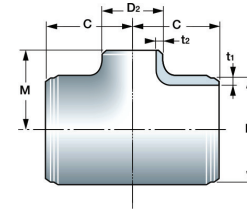
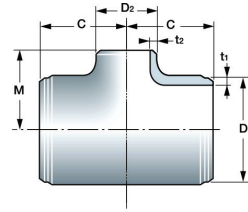
| Nominal pipe size | outside Diameter O.D | Center-to-end |           | SCH 5S                  | SCH 10S | SCH 40S | SCH 80S |
|-------------------|----------------------|---------------|-----------|-------------------------|---------|---------|---------|
|                   |                      |               |           | t <sub>1</sub> /W.T. mm |         |         |         |
|                   |                      |               |           | t <sub>2</sub> /W.T. mm |         |         |         |
|                   |                      |               |           | weight Kg               |         |         |         |
| D – mm(in)        | C – mm(in)           | M – mm(in)    |           |                         |         |         |         |
| 6 x 3             | 168.3(6.62)          | 143(5.62)     | 124(4.88) | 2.77                    | 3.40    | 7.11    | 10.97   |
|                   | 88.9(6.62)           |               |           | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   |                      |               |           | 6.65                    | 6.85    | 11.90   | 11.50   |
| 6 x 2 1/2         | 168.3(6.62)          | 143(5.62)     | 121(4.75) | 2.77                    | 3.40    | 7.11    | 10.97   |
|                   | 73.0(2.88)           |               |           | 2.11                    | 3.05    | 5.16    | 7.01    |
|                   |                      |               |           | 6.60                    | 6.75    | 11.70   | 11.40   |
| 8 x 6             | 219.1(8.62)          | 178(7.00)     | 168(6.62) | 2.77                    | 3.76    | 8.18    | 12.70   |
|                   | 168.3(6.62)          |               |           | 2.77                    | 3.40    | 7.11    | 10.97   |
|                   |                      |               |           | 12.60                   | 14.00   | 18.80   | 25.30   |
| 8 x 5             | 219.1(8.62)          | 178(7.00)     | 162(6.38) | 2.77                    | 3.76    | 8.18    | 12.70   |
|                   | 141.3(5.56)          |               |           | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   |                      |               |           | 12.40                   | 13.70   | 18.40   | 24.70   |
| 8 x 4             | 219.1(8.62)          | 178(7.00)     | 156(6.12) | 2.77                    | 3.76    | 8.18    | 12.70   |
|                   | 114.3(4.50)          |               |           | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   |                      |               |           | 12.10                   | 13.40   | 18.00   | 24.20   |
| 8 x 3 1/2         | 219.1(8.62)          | 178(7.00)     | 152(6.00) | 2.77                    | 3.76    | 8.18    | 12.70   |
|                   | 101.6(4.00)          |               |           | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   |                      |               |           | 11.90                   | 13.30   | 17.80   | 23.90   |
| 10 x 8            | 273.0(10.75)         | 216(8.50)     | 203(8.00) | 3.40                    | 4.19    | 9.27    | 12.70   |
|                   | 219.1(8.62)          |               |           | 2.77                    | 3.76    | 8.18    | 12.70   |
|                   |                      |               |           | 22.40                   | 24.10   | 31.80   | 44.80   |
| 10 x 6            | 273.0(10.75)         | 216(8.50)     | 194(7.62) | 3.40                    | 4.19    | 9.27    | 12.70   |
|                   | 168.3(6.62)          |               |           | 2.77                    | 3.40    | 7.11    | 10.97   |
|                   |                      |               |           | 21.90                   | 23.50   | 31.10   | 43.90   |
| 10 x 5            | 273.0(10.75)         | 216(8.50)     | 191(7.50) | 3.40                    | 4.19    | 9.27    | 12.70   |
|                   | 141.3(5.56)          |               |           | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   |                      |               |           | 21.40                   | 23.00   | 30.40   | 42.90   |
| 10 x 4            | 273.0(10.75)         | 216(8.50)     | 184(7.25) | 3.40                    | 4.19    | 9.27    | 12.70   |
|                   | 114.3(4.50)          |               |           | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   |                      |               |           | 21.20                   | 22.70   | 30.00   | 42.40   |

Weights are approximate

| Nominal pipe size | outside Diameter O.D | Center-to-end |            | SCH 5S                  | SCH 10S | SCH 40S <sup>1</sup> | SCH 80S |
|-------------------|----------------------|---------------|------------|-------------------------|---------|----------------------|---------|
|                   |                      |               |            | t <sub>1</sub> /W.T. mm |         |                      |         |
|                   |                      |               |            | t <sub>2</sub> /W.T. mm |         |                      |         |
|                   |                      |               |            | weight Kg               |         |                      |         |
| D – mm(in)        | C – mm(in)           | M – mm(in)    |            |                         |         |                      |         |
| 12 x 10           | 323.8(12.75)         | 254(10.00)    | 241(9.50)  | 3.96                    | 4.57    | 9.53                 | 12.70   |
|                   | 273.0(10.75)         |               |            | 3.40                    | 4.19    | 9.27                 | 12.70   |
|                   |                      |               |            | 33.80                   | 35.50   | 55.70                | 75.20   |
| 12 x 8            | 323.8(12.75)         | 254(10.00)    | 229(9.00)  | 3.96                    | 4.57    | 9.53                 | 12.70   |
|                   | 219.1(8.62)          |               |            | 2.77                    | 3.76    | 8.18                 | 12.70   |
|                   |                      |               |            | 33.10                   | 34.70   | 54.40                | 73.80   |
| 12 x 6            | 323.8(12.75)         | 254(10.00)    | 219(8.62)  | 3.96                    | 4.57    | 9.53                 | 12.70   |
|                   | 168.3(6.62)          |               |            | 2.77                    | 3.40    | 7.11                 | 10.97   |
|                   |                      |               |            | 32.30                   | 33.90   | 53.50                | 72.00   |
| 12 x 5            | 323.8(12.75)         | 254(10.00)    | 216(8.50)  | 3.96                    | 4.57    | 9.53                 | 12.70   |
|                   | 141.3(5.56)          |               |            | 2.77                    | 3.40    | 6.55                 | 9.53    |
|                   |                      |               |            | 32.00                   | 33.50   | 52.50                | 71.10   |
| 14 x 12           | 355.6(14.00)         | 279(11.00)    | 270(10.62) | 3.96                    | 4.78    | 9.53                 |         |
|                   | 323.8(12.75)         |               |            | 3.96                    | 4.57    | 9.53                 |         |
|                   |                      |               |            | 36.30                   | 43.60   | 71.10                |         |
| 14 x 10           | 355.6(14.00)         | 279(11.0)     | 257(10.12) | 3.96                    | 4.78    | 9.53                 |         |
|                   | 273(10.75)           |               |            | 3.40                    | 4.19    | 9.27                 |         |
|                   |                      |               |            | 35.50                   | 42.70   | 69.80                |         |
| 14 x 8            | 355.6(14.00)         | 279(11.00)    | 248(9.75)  | 3.96                    | 4.78    | 9.53                 |         |
|                   | 219.1(8.62)          |               |            | 2.77                    | 3.76    | 8.18                 |         |
|                   |                      |               |            | 34.70                   | 41.70   | 68.00                |         |
| 14 x 6            | 355.6(14.00)         | 279(11.00)    | 238(9.38)  | 3.96                    | 4.78    | 9.53                 |         |
|                   | 168.3(6.62)          |               |            | 2.77                    | 3.40    | 7.11                 |         |
|                   |                      |               |            | 34.30                   | 41.20   | 67.00                |         |
| 16 x 14           | 406.4(16.00)         | 305(12.00)    | 305(12.00) | 4.19                    | 4.78    | 9.53                 |         |
|                   | 355.6(14.00)         |               |            | 3.96                    | 4.78    | 9.53                 |         |
|                   |                      |               |            | 46.70                   | 53.00   | 90.00                |         |
| 16 x 12           | 406.4(16.00)         | 305(12.00)    | 295(11.62) | 4.19                    | 4.78    | 9.53                 |         |
|                   | 323.8(12.75)         |               |            | 3.96                    | 4.57    | 9.53                 |         |
|                   |                      |               |            | 45.80                   | 51.60   | 87.50                |         |

Weights are approximate

<sup>1</sup>Those do not conform to ASME B36.19M (Pipe dimensions)

**ASME B16.9-2018**
**ASME B16.9-2018**

**• Reducing outlet tees**
**• Reducing outlet tees**

| Nominal pipe size | outside Diameter O.D | Center-to-end |            | SCH 5S                  | SCH 10S | SCH 40S <sup>1</sup> | SCH 80S |
|-------------------|----------------------|---------------|------------|-------------------------|---------|----------------------|---------|
|                   |                      |               |            | t <sub>1</sub> /W.T. mm |         |                      |         |
|                   |                      |               |            | t <sub>2</sub> /W.T. mm |         |                      |         |
|                   |                      |               |            | weight Kg               |         |                      |         |
|                   | D – mm(in)           | C – mm(in)    | M – mm(in) |                         |         |                      |         |
| 16 x 10           | 406.4(16.00)         | 305(12.00)    | 283(11.12) | 4.19                    | 4.78    | 9.53                 |         |
|                   | 273.0(10.75)         |               |            | 3.40                    | 4.19    | 9.27                 |         |
|                   |                      |               |            | 44.80                   | 50.70   | 85.50                |         |
| 16 x 8            | 406.4(16.00)         | 305(12.00)    | 273(10.75) | 4.19                    | 4.78    | 9.53                 |         |
|                   | 219.1(8.62)          |               |            | 2.77                    | 3.76    | 8.18                 |         |
|                   |                      |               |            | 44.30                   | 49.80   | 84.50                |         |
| 16 x 6            | 406.4(16.00)         | 305(12.00)    | 264(10.38) | 4.19                    | 4.78    | 9.53                 |         |
|                   | 168.3(6.62)          |               |            | 2.77                    | 3.40    | 7.11                 |         |
|                   |                      |               |            | 43.80                   | 49.40   | 83.50                |         |
| 18 x 16           | 457(18.00)           | 343(13.50)    | 330(13.00) | 4.19                    | 4.78    | 9.53                 |         |
|                   | 406.4(16.00)         |               |            | 4.19                    | 4.78    | 9.53                 |         |
|                   |                      |               |            | 60.70                   | 68.90   | 116.00               |         |
| 18 x 14           | 457(18.00)           | 343(13.50)    | 330(13.00) | 4.19                    | 4.78    | 9.53                 |         |
|                   | 355.6(14.00)         |               |            | 3.96                    | 4.78    | 9.53                 |         |
|                   |                      |               |            | 59.30                   | 67.00   | 114.00               |         |
| 18 x 12           | 457(18.00)           | 343(13.50)    | 321(12.62) | 4.19                    | 4.78    | 9.53                 |         |
|                   | 323.8(12.75)         |               |            | 3.96                    | 4.57    | 9.53                 |         |
|                   |                      |               |            | 58.00                   | 65.70   | 111.00               |         |
| 18 x 10           | 457(18.00)           | 343(13.50)    | 308(12.12) | 4.19                    | 4.78    | 9.53                 |         |
|                   | 273.0(10.75)         |               |            | 3.40                    | 4.19    | 9.27                 |         |
|                   |                      |               |            | 57.00                   | 64.80   | 110.00               |         |
| 18 x 8            | 457(18.00)           | 343(13.50)    | 298(11.75) | 4.19                    | 4.78    | 9.53                 |         |
|                   | 219.1(8.62)          |               |            | 2.77                    | 3.76    | 8.18                 |         |
|                   |                      |               |            | 56.00                   | 64.30   | 109.00               |         |
| 20 x 18           | 508(20.00)           | 381(15.00)    | 368(14.50) | 4.78                    | 5.54    | 9.53                 |         |
|                   | 457.0(18.00)         |               |            | 4.19                    | 4.78    | 9.53                 |         |
|                   |                      |               |            | 69.80                   | 93.00   | 146.00               |         |
| 20 x 16           | 508(20.00)           | 381(15.00)    | 356(14.00) | 4.78                    | 5.54    | 9.53                 |         |
|                   | 406.4(16.00)         |               |            | 7.19                    | 4.78    | 9.53                 |         |
|                   |                      |               |            | 68.80                   | 90.50   | 143.00               |         |

Weights are approximate

<sup>1</sup>Those do not conform to ASME B36.19M (Pipe dimensions)

| Nominal pipe size | outside Diameter O.D | Center-to-end |            | SCH 5S                  | SCH 10S | SCH 40S <sup>1</sup> | SCH 80S |
|-------------------|----------------------|---------------|------------|-------------------------|---------|----------------------|---------|
|                   |                      |               |            | t <sub>1</sub> /W.T. mm |         |                      |         |
|                   |                      |               |            | t <sub>2</sub> /W.T. mm |         |                      |         |
|                   |                      |               |            | weight Kg               |         |                      |         |
|                   | D – mm(in)           | C – mm(in)    | M – mm(in) |                         |         |                      |         |
| 20 x 14           | 508(20.00)           | 381(15.00)    | 356(14.00) | 4.78                    | 5.54    | 9.53                 |         |
|                   | 355.6(14.00)         |               |            | 3.96                    | 4.78    | 9.53                 |         |
|                   |                      |               |            | 66.60                   | 89.00   | 140.00               |         |
| 20 x 12           | 508(20.00)           | 381(15.00)    | 346(13.62) | 4.78                    | 5.54    | 9.53                 |         |
|                   | 323.8(12.75)         |               |            | 3.96                    | 4.57    | 9.53                 |         |
|                   |                      |               |            | 65.70                   | 87.50   | 138.00               |         |
| 20 x 10           | 508(20.00)           | 381(15.00)    | 333(13.12) | 4.78                    | 5.54    | 9.53                 |         |
|                   | 273.0(10.75)         |               |            | 3.40                    | 4.19    | 9.27                 |         |
|                   |                      |               |            | 64.80                   | 86.50   | 136.00               |         |
| 20 x 8            | 508(20.00)           | 381(15.00)    | 324(12.75) | 4.78                    | 5.54    | 9.53                 |         |
|                   | 219.1(8.62)          |               |            | 2.77                    | 3.76    | 8.18                 |         |
|                   |                      |               |            | 63.90                   | 85.50   | 135.00               |         |
| 22 x 20           | 559(22.00)           | 419(16.50)    | 406(16.00) | 4.78                    | 5.54    |                      |         |
|                   | 508.0(20.00)         |               |            | 4.78                    | 5.54    |                      |         |
|                   |                      |               |            | **                      | **      |                      |         |
| 22 x 18           | 559(22.00)           | 419(16.50)    | 394(15.50) | 4.78                    | 5.54    |                      |         |
|                   | 457.0(18.00)         |               |            | 4.19                    | 4.78    |                      |         |
|                   |                      |               |            | **                      | **      |                      |         |
| 22 x 16           | 559(22.00)           | 419(16.50)    | 381(15.00) | 4.78                    | 5.54    |                      |         |
|                   | 406.4(16.00)         |               |            | 4.19                    | 4.78    |                      |         |
|                   |                      |               |            | **                      | **      |                      |         |
| 22 x 14           | 559(22.00)           | 419(16.50)    | 381(15.00) | 4.78                    | 5.54    |                      |         |
|                   | 355.6(14.00)         |               |            | 3.96                    | 4.78    |                      |         |
|                   |                      |               |            | **                      | **      |                      |         |
| 22 x 12           | 559(22.00)           | 419(16.50)    | 371(14.62) | 4.78                    | 5.54    |                      |         |
|                   | 323.8(12.75)         |               |            | 3.96                    | 4.57    |                      |         |
|                   |                      |               |            | **                      | **      |                      |         |
| 22 x 10           | 559(22.00)           | 419(16.50)    | 359(14.12) | 4.78                    | 5.54    |                      |         |
|                   | 273.0(10.75)         |               |            | 3.40                    | 4.19    |                      |         |
|                   |                      |               |            | **                      | **      |                      |         |

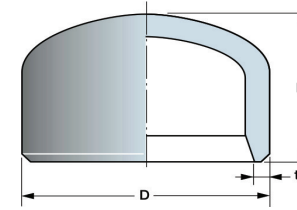
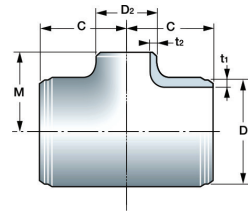
\*\* weight on application

Weights are approximate

<sup>1</sup>Those do not conform to ASME B36.19M (Pipe dimensions)

ASME B16.9-2018

ASME B16.9-2018



• Reducing outlet tees

| Nominal pipe size | outside Diameter O.D | Center-to-end |            | SCH 5S                  | SCH 10S | SCH 40S <sup>1</sup> | SCH 80S |
|-------------------|----------------------|---------------|------------|-------------------------|---------|----------------------|---------|
|                   |                      |               |            | t <sub>1</sub> /W.T. mm |         |                      |         |
|                   |                      |               |            | t <sub>2</sub> /W.T. mm |         |                      |         |
|                   |                      |               |            | weight Kg               |         |                      |         |
| D – mm(in)        | C – mm(in)           | M – mm(in)    |            |                         |         |                      |         |
| 24 x 22           | 610(24.00)           | 432(17.00)    | 432(17.00) | 5.54                    | 6.35    |                      |         |
|                   | 559.0(22.00)         |               |            | 4.78                    | 5.54    |                      |         |
|                   |                      |               |            | **                      | **      |                      |         |
| 24 x 20           | 610(24.00)           | 432(17.00)    | 432(17.00) | 5.54                    | 6.35    | 9.53                 |         |
|                   | 508.0(20.00)         |               |            | 4.78                    | 5.54    | 9.53                 |         |
|                   |                      |               |            | 121.00                  | 140.00  | 207.00               |         |
| 24 x 18           | 610(24.00)           | 432(17.00)    | 419(16.50) | 5.54                    | 6.35    | 9.53                 |         |
|                   | 457.0(18.00)         |               |            | 4.19                    | 4.78    | 9.53                 |         |
|                   |                      |               |            | 119.00                  | 137.00  | 198.00               |         |
| 24 x 16           | 610(24.00)           | 432(17.00)    | 406(16.00) | 5.54                    | 6.35    | 9.53                 |         |
|                   | 406.4(16.00)         |               |            | 4.19                    | 4.78    | 9.53                 |         |
|                   |                      |               |            | 116.00                  | 134.00  | 194.00               |         |
| 24 x 14           | 610(24.00)           | 432(17.00)    | 406(16.00) | 5.54                    | 6.35    | 9.53                 |         |
|                   | 355.6(14.00)         |               |            | 3.96                    | 4.78    | 9.53                 |         |
|                   |                      |               |            | 115.00                  | 132.00  | 191.00               |         |
| 24 x 12           | 610(24.00)           | 432(17.00)    | 397(15.62) | 5.54                    | 6.35    | 9.53                 |         |
|                   | 323.8(12.75)         |               |            | 3.96                    | 4.57    | 9.53                 |         |
|                   |                      |               |            | 113.00                  | 130.00  | 189.00               |         |
| 24 x 10           | 610(24.00)           | 432(17.00)    | 384(15.12) | 5.54                    | 6.35    | 9.53                 |         |
|                   | 273.0(10.75)         |               |            | 3.40                    | 4.19    | 9.27                 |         |
|                   |                      |               |            | 112.00                  | 129.00  | 187.00               |         |

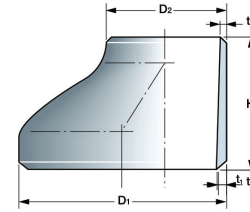
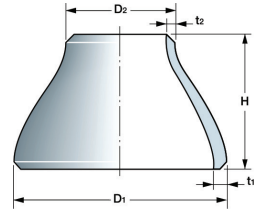
\*\* weight on application  
Weights are approximate  
<sup>1</sup>Those do not conform to ASME B36.19M (Pipe dimensions)

• Caps

| Nominal pipe size | Outside diameter | Length     | SCH 5S     | SCH 10S    | SCH 40S            | SCH 80S |
|-------------------|------------------|------------|------------|------------|--------------------|---------|
|                   |                  |            | W.T. mm    |            |                    |         |
|                   |                  |            | weight Kg  |            |                    |         |
|                   |                  |            | D – mm(in) | E – mm(in) |                    |         |
| 1/2               | 21.3(0.84)       | 25(1.00)   | 1.65       | 2.11       | 2.77               | 3.73    |
|                   |                  |            | 0.04       | 0.04       | 0.05               | 0.06    |
| 3/4               | 26.7(1.05)       | 25(1.00)   | 1.65       | 2.11       | 2.87               | 3.91    |
|                   |                  |            | 0.05       | 0.06       | 0.06               | 0.07    |
| 1                 | 33.4(1.32)       | 38(1.50)   | 1.65       | 2.77       | 3.38               | 4.55    |
|                   |                  |            | 0.08       | 0.09       | 0.13               | 0.14    |
| 1 1/4             | 42.2(1.66)       | 38(1.50)   | 1.65       | 2.77       | 3.56               | 4.85    |
|                   |                  |            | 0.09       | 0.13       | 0.17               | 0.18    |
| 1 1/2             | 48.3(1.90)       | 38(1.50)   | 1.65       | 2.77       | 3.68               | 5.08    |
|                   |                  |            | 0.10       | 0.14       | 0.23               | 0.25    |
| 2                 | 60.3(2.38)       | 38(1.50)   | 1.65       | 2.77       | 3.91               | 5.54    |
|                   |                  |            | 0.16       | 0.20       | 0.27               | 0.35    |
| 2 1/2             | 73.0(2.88)       | 38(1.50)   | 2.11       | 3.05       | 5.16               | 7.01    |
|                   |                  |            | 0.25       | 0.30       | 0.45               | 0.50    |
| 3                 | 88.9(3.50)       | 51(2.00)   | 2.11       | 3.05       | 5.49               | 7.62    |
|                   |                  |            | 0.40       | 0.45       | 0.70               | 0.85    |
| 3 1/2             | 101.6(4.00)      | 64(2.50)   | 2.11       | 3.05       | 5.74               | 8.08    |
|                   |                  |            | 0.55       | 0.60       | 1.05               | 1.15    |
| 4                 | 114.3(4.50)      | 64(2.50)   | 2.11       | 3.05       | 6.02               | 8.56    |
|                   |                  |            | 0.60       | 0.65       | 1.20               | 1.60    |
| 5                 | 141.3(5.56)      | 76(3.00)   | 2.77       | 3.40       | 6.55               | 9.53    |
|                   |                  |            | 0.90       | 1.05       | 1.90               | 2.60    |
| 6                 | 168.3(6.62)      | 89(3.50)   | 2.77       | 3.40       | 7.11               | 10.97   |
|                   |                  |            | 1.25       | 1.40       | 3.20               | 4.50    |
| 8                 | 219.1(8.62)      | 102(4.00)  | 2.77       | 3.76       | 8.18               | 12.70   |
|                   |                  |            | 2.10       | 2.50       | 5.70               | 7.40    |
| 10                | 273.0(10.75)     | 127(5.00)  | 3.40       | 4.19       | 9.27               | 12.70   |
|                   |                  |            | 4.30       | 4.90       | 9.20               | 12.40   |
| 12                | 323.8(12.75)     | 152(6.00)  | 3.96       | 4.57       | 9.53               | 12.70   |
|                   |                  |            | 6.40       | 7.00       | 13.00              | 16.60   |
| 14                | 355.6(14.00)     | 165(6.50)  | 3.96       | 4.78       | 9.53 <sup>1</sup>  |         |
|                   |                  |            | 7.80       | 8.50       | 16.50 <sup>1</sup> |         |
| 16                | 406.4(16.00)     | 178(7.00)  | 4.19       | 4.78       | 9.53 <sup>1</sup>  |         |
|                   |                  |            | 13.50      | 14.50      | 22.00 <sup>1</sup> |         |
| 18                | 457.0(18.00)     | 203(8.00)  | 4.19       | 4.78       | 9.53 <sup>1</sup>  |         |
|                   |                  |            | 17.20      | 18.00      | 27.00 <sup>1</sup> |         |
| 20                | 508.0(20.00)     | 229(9.00)  | 4.78       | 5.54       | 9.53 <sup>1</sup>  |         |
|                   |                  |            | 25.00      | 27.50      | 34.00 <sup>1</sup> |         |
| 22                | 559.0(22.00)     | 254(10.00) | 4.78       | 5.54       |                    |         |
|                   |                  |            | **         | **         |                    |         |
| 24                | 610.0(24.00)     | 267(10.50) | 5.54       | 6.35       | 9.53 <sup>1</sup>  |         |
|                   |                  |            | 34.00      | 35.00      | 45.00 <sup>1</sup> |         |

Weights are approximate  
\*\* weight on application  
<sup>1</sup>Those do not conform to ASME B36.19M (Pipe dimensions)



**ASME B16.9-2018**
**ASME B16.9-2018**

**• Concentric and eccentric reducers**
**• Concentric and eccentric reducers**

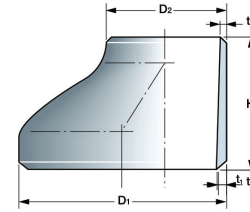
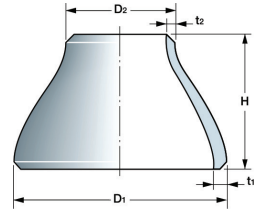
| Nominal pipe size | Outside Diameter at Bevel | Longueur End-to-End length | SCH 5S         | SCH 10S | SCH 40S | SCH 80S |
|-------------------|---------------------------|----------------------------|----------------|---------|---------|---------|
|                   |                           |                            | $t_1$ /W.T. mm |         |         |         |
|                   |                           |                            | $t_2$ /W.T. mm |         |         |         |
|                   |                           |                            | weight Kg      |         |         |         |
| D – mm(in)        | H – mm(in)                |                            |                |         |         |         |
| 3/4 x 1/2         | 26.7(1.05)                | 38(1.50)                   | 1.65           | 2.11    | 2.87    | 3.91    |
|                   | 21.3(0.84)                |                            | 1.65           | 2.11    | 2.77    | 3.73    |
|                   |                           |                            | 0.08           | 0.10    | 0.13    | 0.18    |
| 3/4 x 3/8         | 26.7(1.05)                | 38(1.50)                   |                | 2.11    | 2.87    | 3.91    |
|                   | 17.3(0.68)                |                            |                | 1.65    | 2.31    | 3.20    |
|                   |                           |                            |                | 0.09    | 0.12    | 0.17    |
| 1 x 3/4           | 33.4(1.32)                | 51(2.00)                   | 1.65           | 2.77    | 3.38    | 4.55    |
|                   | 26.7(1.05)                |                            | 1.65           | 2.11    | 2.87    | 3.91    |
|                   |                           |                            | 0.08           | 0.13    | 0.16    | 0.21    |
| 1 x 1/2           | 33.4(1.32)                | 51(2.00)                   | 1.65           | 2.77    | 3.38    | 4.55    |
|                   | 21.3(0.84)                |                            | 1.65           | 2.11    | 2.77    | 3.73    |
|                   |                           |                            | 0.07           | 0.12    | 0.15    | 0.19    |
| 1 1/4 x 1         | 42.2(1.66)                | 51(2.00)                   | 1.65           | 2.77    | 3.56    | 4.85    |
|                   | 33.4(1.32)                |                            | 1.65           | 2.77    | 3.38    | 4.55    |
|                   |                           |                            | 0.10           | 0.18    | 0.22    | 0.27    |
| 1 1/4 x 3/4       | 42.2(1.66)                | 51(2.00)                   | 1.65           | 2.77    | 3.56    | 4.85    |
|                   | 26.7(1.05)                |                            | 1.65           | 2.77    | 2.87    | 3.91    |
|                   |                           |                            | 0.10           | 0.17    | 0.21    | 0.25    |
| 1 1/4 x 1/2       | 42.2(1.66)                | 51(2.00)                   | 1.65           | 2.77    | 3.56    | 4.85    |
|                   | 21.3(0.84)                |                            | 1.65           | 2.11    | 2.77    | 3.73    |
|                   |                           |                            | 0.09           | 0.16    | 0.20    | 0.23    |
| 1 1/2 x 1 1/4     | 48.3(1.90)                | 64(2.50)                   | 1.65           | 2.77    | 3.68    | 5.08    |
|                   | 42.2(1.66)                |                            | 1.65           | 2.77    | 3.56    | 4.85    |
|                   |                           |                            | 0.12           | 0.21    | 0.28    | 0.36    |
| 1 1/2 x 1         | 48.3(1.90)                | 64(2.50)                   | 1.65           | 2.77    | 3.68    | 5.08    |
|                   | 33.4(1.32)                |                            | 1.65           | 2.77    | 3.56    | 4.55    |
|                   |                           |                            | 0.11           | 0.20    | 0.26    | 0.33    |
| 1 1/2 x 3/4       | 48.3(1.90)                | 64(2.50)                   | 1.65           | 2.77    | 3.68    | 5.08    |
|                   | 26.7(1.05)                |                            | 1.65           | 2.11    | 2.87    | 3.91    |
|                   |                           |                            | 0.11           | 0.18    | 0.24    | 0.32    |

Weights are approximate

| Nominal pipe size | Outside Diameter at Bevel | Longueur End-to-End length | SCH 5S         | SCH 10S | SCH 40S | SCH 80S |
|-------------------|---------------------------|----------------------------|----------------|---------|---------|---------|
|                   |                           |                            | $t_1$ /W.T. mm |         |         |         |
|                   |                           |                            | $t_2$ /W.T. mm |         |         |         |
|                   |                           |                            | weight Kg      |         |         |         |
| D – mm(in)        | H – mm(in)                |                            |                |         |         |         |
| 1 1/2 x 1/2       | 48.3(1.90)                | 64(2.50)                   | 1.65           | 2.77    | 3.68    | 5.08    |
|                   | 21.3(0.84)                |                            | 1.65           | 2.11    | 2.77    | 3.73    |
|                   |                           |                            | 0.10           | 0.17    | 0.22    | 0.31    |
| 2 x 1 1/2         | 60.3(2.38)                | 76(3.00)                   | 1.65           | 2.77    | 3.91    | 5.54    |
|                   | 48.3(1.90)                |                            | 1.65           | 2.77    | 3.68    | 5.08    |
|                   |                           |                            | 0.19           | 0.31    | 0.45    | 0.59    |
| 2 x 1 1/4         | 60.3(2.38)                | 76(3.00)                   | 1.65           | 2.77    | 3.91    | 5.54    |
|                   | 42.2(1.66)                |                            | 1.65           | 2.77    | 3.56    | 4.85    |
|                   |                           |                            | 0.18           | 0.30    | 0.43    | 0.57    |
| 2 x 1             | 60.3(2.38)                | 76(3.00)                   | 1.65           | 2.77    | 3.91    | 5.54    |
|                   | 33.4(1.32)                |                            | 1.65           | 2.77    | 3.38    | 4.55    |
|                   |                           |                            | 0.17           | 0.28    | 0.40    | 0.53    |
| 2 x 3/4           | 60.3(2.38)                | 76(3.00)                   | 1.65           | 2.77    | 3.91    | 5.54    |
|                   | 26.7(1.05)                |                            | 1.65           | 2.11    | 2.87    | 3.91    |
|                   |                           |                            | 0.15           | 0.25    | 0.36    | 0.50    |
| 2 1/2 x 2         | 73.0(2.88)                | 89(3.50)                   | 2.11           | 3.05    | 5.16    | 7.01    |
|                   | 60.3(2.38)                |                            | 1.65           | 2.77    | 3.91    | 5.54    |
|                   |                           |                            | 0.32           | 0.47    | 0.80    | 1.05    |
| 2 1/2 x 1 1/2     | 73.0(2.88)                | 89(3.50)                   | 2.11           | 3.05    | 5.16    | 7.01    |
|                   | 48.3(1.90)                |                            | 1.65           | 2.77    | 3.68    | 5.08    |
|                   |                           |                            | 0.30           | 0.44    | 0.76    | 0.94    |
| 2 1/2 x 1 1/4     | 73.0(2.88)                | 89(3.50)                   | 2.11           | 3.05    | 5.16    | 7.01    |
|                   | 42.2(1.66)                |                            | 1.65           | 2.77    | 3.56    | 4.85    |
|                   |                           |                            | 0.29           | 0.43    | 0.73    | 0.90    |
| 2 1/2 x 1         | 73.0(2.88)                | 89(3.50)                   | 2.11           | 3.05    | 5.16    | 7.01    |
|                   | 33.4(1.32)                |                            | 1.65           | 2.77    | 3.38    | 4.55    |
|                   |                           |                            | 0.25           | 0.38    | 0.64    | 0.87    |
|                   |                           |                            |                |         |         |         |
|                   |                           |                            |                |         |         |         |
|                   |                           |                            |                |         |         |         |
|                   |                           |                            |                |         |         |         |

Weights are approximate



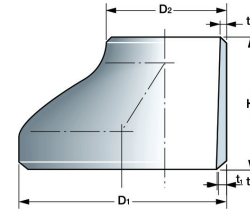
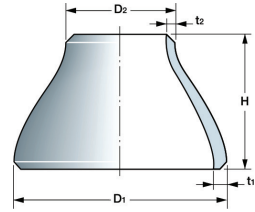
**ASME B16.9-2018**
**ASME B16.9-2018**

**• Concentric and eccentric reducers**
**• Concentric and eccentric reducers**

| Nominal pipe size | Outside Diameter at Bevel | Longueur End-to-End length | SCH 5S                  | SCH 10S | SCH 40S | SCH 80S |
|-------------------|---------------------------|----------------------------|-------------------------|---------|---------|---------|
|                   |                           |                            | t <sub>1</sub> /W.T. mm |         |         |         |
|                   |                           |                            | t <sub>2</sub> /W.T. mm |         |         |         |
|                   |                           |                            | weight Kg               |         |         |         |
| D – mm(in)        | H – mm(in)                |                            |                         |         |         |         |
| 3 x 2 1/2         | 88.9(3.50)                | 89(3.50)                   | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   | 73.0(2.88)                |                            | 2.11                    | 3.05    | 5.16    | 7.01    |
|                   |                           |                            | 0.41                    | 0.59    | 1.10    | 1.49    |
| 3x2               | 88.9(3.50)                | 89(3.50)                   | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   | 60.3(2.38)                |                            | 1.65                    | 2.77    | 3.91    | 5.54    |
|                   |                           |                            | 0.38                    | 0.55    | 1.00    | 1.29    |
| 3x1 1/4           | 88.9(3.50)                | 89(3.50)                   | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   | 48.3(1.90)                |                            | 1.65                    | 2.77    | 3.68    | 5.08    |
|                   |                           |                            | 0.35                    | 0.51    | 0.94    | 1.20    |
| 3 x 1 1/4         | 88.9(3.50)                | 89(3.50)                   | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   | 42.2(1.66)                |                            | 1.65                    | 2.77    | 3.56    | 4.85    |
|                   |                           |                            | 0.32                    | 0.47    | 0.85    | 1.15    |
| 3 1/2 x 3         | 101.6(4.00)               | 102(4.00)                  | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   | 88.9(3.50)                |                            | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   |                           |                            | 0.54                    | 0.80    | 1.50    | 2.00    |
| 3 1/2 x 2 1/2     | 101.6(4.00)               | 102(4.00)                  | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   | 73.0(2.88)                |                            | 2.11                    | 3.05    | 5.16    | 7.01    |
|                   |                           |                            | 0.52                    | 0.77    | 1.46    | 1.90    |
| 3 1/2 x 2         | 101.6(4.00)               | 102(4.00)                  | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   | 60.3(2.38)                |                            | 1.65                    | 2.77    | 3.91    | 5.54    |
|                   |                           |                            | 0.48                    | 0.71    | 1.35    | 1.75    |
| 3 1/2 x 1 1/2     | 101.6(4.00)               | 102(4.00)                  | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   | 48.3(1.90)                |                            | 1.65                    | 2.77    | 3.68    | 5.08    |
|                   |                           |                            | 0.45                    | 0.66    | 1.25    | 1.65    |
| 3 1/2 x 1 1/4     | 101.6(4.00)               | 102(4.00)                  | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   | 42.2(1.66)                |                            | 1.65                    | 2.77    | 3.56    | 4.85    |
|                   |                           |                            | 0.42                    | 0.62    | 1.20    | 1.60    |
| 4 x 3 1/2         | 114.3(4.50)               | 102(4.00)                  | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   | 101.6(4.00)               |                            | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   |                           |                            | 0.63                    | 0.90    | 1.80    | 2.40    |
| 4 x 3             | 114.3(4.50)               | 102(4.00)                  | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   | 88.9(3.50)                |                            | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   |                           |                            | 0.61                    | 0.87    | 1.75    | 2.30    |

Weights are approximate

| Nominal pipe size | Outside Diameter at Bevel | Longueur End-to-End length | SCH 5S                  | SCH 10S | SCH 40S | SCH 80S |
|-------------------|---------------------------|----------------------------|-------------------------|---------|---------|---------|
|                   |                           |                            | t <sub>1</sub> /W.T. mm |         |         |         |
|                   |                           |                            | t <sub>2</sub> /W.T. mm |         |         |         |
|                   |                           |                            | weight Kg               |         |         |         |
| D – mm(in)        | H – mm(in)                |                            |                         |         |         |         |
| 4 x 2 1/2         | 114.3(4.50)               | 102(4.00)                  | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   | 73.0(2.88)                |                            | 2.11                    | 3.05    | 5.16    | 7.01    |
|                   |                           |                            | 0.58                    | 0.83    | 1.65    | 2.20    |
| 4 x 2             | 114.3(4.50)               | 102(4.00)                  | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   | 60.3(2.38)                |                            | 1.65                    | 2.77    | 3.91    | 5.54    |
|                   |                           |                            | 0.55                    | 0.78    | 1.60    | 1.95    |
| 4 x 1 1/2         | 114.3(4.50)               | 102(4.00)                  | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   | 48.3(1.90)                |                            | 1.65                    | 2.77    | 3.68    | 5.08    |
|                   |                           |                            | 0.48                    | 0.68    | 1.35    | 1.90    |
| 5 x 4             | 141.3(5.56)               | 127(5.00)                  | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   | 114.3(4.50)               |                            | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   |                           |                            | 1.25                    | 1.50    | 3.00    | 4.10    |
| 5 x 3 1/2         | 141.3(5.56)               | 127(5.00)                  | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   | 101.6(4.00)               |                            | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   |                           |                            | 1.23                    | 1.48    | 2.90    | 4.00    |
| 5 x 3             | 141.3(5.56)               | 127(5.00)                  | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   | 88.9(3.50)                |                            | 2.11                    | 3.05    | 5.49    | 7.62    |
|                   |                           |                            | 1.20                    | 1.45    | 2.80    | 3.90    |
| 5 x 2 1/2         | 141.3(5.56)               | 127(5.00)                  | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   | 73.0(2.88)                |                            | 2.11                    | 3.05    | 5.16    | 7.01    |
|                   |                           |                            | 1.15                    | 1.40    | 2.70    | 3.60    |
| 5 x 2             | 141.3(5.56)               | 127(5.00)                  | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   | 60.3(2.38)                |                            | 1.65                    | 2.77    | 3.91    | 5.54    |
|                   |                           |                            | 1.10                    | 1.30    | 2.50    | 3.30    |
| 6 x 5             | 168.3(6.62)               | 140(5.50)                  | 2.77                    | 3.40    | 7.11    | 10.97   |
|                   | 141.3(5.56)               |                            | 2.77                    | 3.40    | 6.55    | 9.53    |
|                   |                           |                            | 1.60                    | 2.00    | 4.30    | 6.20    |
| 6 x 4             | 168.3(6.62)               | 140(5.50)                  | 2.77                    | 3.40    | 7.11    | 10.97   |
|                   | 114.3(4.50)               |                            | 2.11                    | 3.05    | 6.02    | 8.56    |
|                   |                           |                            | 1.55                    | 1.95    | 4.10    | 5.95    |
| 6 x 3 1/2         | 168.3(6.62)               | 140(5.50)                  | 2.77                    | 3.40    | 7.11    | 10.97   |
|                   | 101.6(4.00)               |                            | 2.11                    | 3.05    | 5.74    | 8.08    |
|                   |                           |                            | 1.55                    | 1.90    | 4.05    | 5.75    |

Weights are approximate

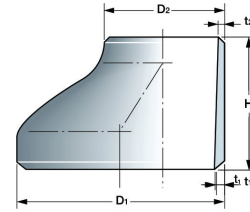
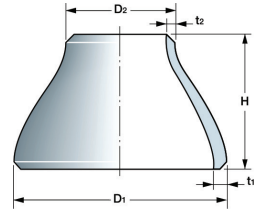
**ASME B16.9-2018**
**ASME B16.9-2018**

**• Concentric and eccentric reducers**
**• Concentric and eccentric reducers**

| Nominal pipe size | Outside Diameter at Bevel | Longueur End-to-End length | SCH 5S         | SCH 10S | SCH 40S | SCH 80S |
|-------------------|---------------------------|----------------------------|----------------|---------|---------|---------|
|                   |                           |                            | $t_1$ /W.T. mm |         |         |         |
|                   |                           |                            | $t_2$ /W.T. mm |         |         |         |
|                   |                           |                            | weight Kg      |         |         |         |
| D – mm(in)        | H – mm(in)                |                            |                |         |         |         |
| 6 x 3             | 168.3(6.62)               | 140(5.50)                  | 2.77           | 3.40    | 7.11    | 10.97   |
|                   | 88.9(3.50)                |                            | 2.11           | 3.05    | 5.49    | 7.62    |
|                   |                           |                            | 1.50           | 1.80    | 4.00    | 5.50    |
| 6 x 2 1/2         | 168.3(6.62)               | 140(5.50)                  | 2.77           | 3.40    | 7.11    | 10.97   |
|                   | 73.0(2.88)                |                            | 2.11           | 3.05    | 5.16    | 7.01    |
|                   |                           |                            | 1.45           | 1.55    | 3.80    | 4.90    |
| 8 x 6             | 219.1(8.62)               | 152(6.00)                  | 2.77           | 3.76    | 8.18    | 12.70   |
|                   | 168.3(6.62)               |                            | 2.77           | 3.40    | 7.11    | 10.97   |
|                   |                           |                            | 2.30           | 3.20    | 6.90    | 10.10   |
| 8 x 5             | 219.1(8.62)               | 152(6.00)                  | 2.77           | 3.76    | 8.18    | 12.70   |
|                   | 141.3(5.56)               |                            | 2.77           | 3.40    | 6.55    | 9.53    |
|                   |                           |                            | 2.20           | 3.10    | 6.70    | 9.70    |
| 8 x 4             | 219.1(8.62)               | 152(6.00)                  | 2.77           | 3.76    | 8.18    | 12.70   |
|                   | 114.3(4.50)               |                            | 2.11           | 3.05    | 6.02    | 8.56    |
|                   |                           |                            | 2.15           | 3.00    | 6.50    | 9.20    |
| 8 x 3 1/2         | 219.1(8.62)               | 152(6.00)                  | 2.77           | 3.76    | 8.18    | 12.70   |
|                   | 101.6(4.00)               |                            | 2.11           | 3.05    | 5.74    | 8.08    |
|                   |                           |                            | 2.10           | 2.95    | 6.40    | 8.00    |
| 10 x 8            | 273.0(10.75)              | 178(7.00)                  | 3.40           | 4.19    | 9.27    | 12.70   |
|                   | 219.1(8.62)               |                            | 2.77           | 3.76    | 8.18    | 12.70   |
|                   |                           |                            | 4.20           | 5.20    | 11.50   | 15.60   |
| 10 x 6            | 273.0(10.75)              | 178(7.00)                  | 3.40           | 4.19    | 9.27    | 12.70   |
|                   | 168.3(6.62)               |                            | 2.77           | 3.40    | 7.11    | 10.97   |
|                   |                           |                            | 4.00           | 5.00    | 11.10   | 14.80   |
| 10 x 5            | 273.0(10.75)              | 178(7.00)                  | 3.40           | 4.19    | 9.27    | 12.70   |
|                   | 141.3(5.56)               |                            | 2.77           | 3.40    | 6.55    | 9.53    |
|                   |                           |                            | 3.90           | 4.90    | 10.80   | 14.20   |
| 10 x 4            | 273.0(10.75)              | 178(7.00)                  | 3.40           | 4.19    | 9.27    | 12.70   |
|                   | 114.3(4.50)               |                            | 2.11           | 3.05    | 6.02    | 8.56    |
|                   |                           |                            | 3.80           | 4.70    | 10.50   | 12.50   |

Weights are approximate

| Nominal pipe size | Outside Diameter at Bevel | Longueur End-to-End length | SCH 5S         | SCH 10S | SCH 40S | SCH 80S | SCH 5S |
|-------------------|---------------------------|----------------------------|----------------|---------|---------|---------|--------|
|                   |                           |                            | $t_1$ /W.T. mm |         |         |         |        |
|                   |                           |                            | $t_2$ /W.T. mm |         |         |         |        |
|                   |                           |                            | weight Kg      |         |         |         |        |
| D – mm            | H – mm                    |                            |                |         |         |         |        |
| 12 x 10           | 323.8(12.75)              | 203(8.00)                  | 3.96           | 4.57    | 9.53    | 12.70   |        |
|                   | 273.0(10.75)              |                            | 3.40           | 4.19    | 9.27    | 12.70   |        |
|                   |                           |                            | 6.80           | 8.00    | 16.60   | 21.60   |        |
| 12 x 8            | 323.8(12.75)              | 203(8.00)                  | 3.96           | 4.57    | 9.53    | 12.70   |        |
|                   |                           |                            | 2.77           | 3.76    | 8.18    | 12.70   |        |
|                   |                           |                            | 6.50           | 7.70    | 16.00   | 20.90   |        |
| 12 x 6            | 323.8(12.75)              | 203(8.00)                  | 3.96           | 4.57    | 9.53    | 12.70   |        |
|                   | 168.3(6.62)               |                            | 2.77           | 3.40    | 7.11    | 10.97   |        |
|                   |                           |                            | 6.30           | 7.40    | 15.50   | 20.10   |        |
| 12 x 5            | 323.8(12.75)              | 203(8.00)                  | 3.96           | 4.57    | 9.53    | 12.70   |        |
|                   | 141.3(5.56)               |                            | 2.77           | 3.40    | 6.55    | 9.53    |        |
|                   |                           |                            | 6.20           | 7.30    | 15.20   | 19.40   |        |
| 14 x 12           | 355.6(14.00)              | 330(13.00)                 | 3.96           | 4.78    | 9.53    |         |        |
|                   | 323.8(12.75)              |                            | 3.96           | 4.57    | 9.53    |         |        |
|                   |                           |                            | 12.50          | 15.30   | 30.50   |         |        |
| 14 x 10           | 355.6(14.00)              | 330(13.00)                 | 3.96           | 4.78    | 9.53    |         |        |
|                   | 273.0(10.75)              |                            | 3.40           | 4.19    | 9.27    |         |        |
|                   |                           |                            | 11.80          | 14.40   | 28.80   |         |        |
| 14 x 8            | 355.6(14.00)              | 330(13.00)                 | 3.96           | 4.78    | 9.53    |         |        |
|                   | 219.1(8.62)               |                            | 2.77           | 3.76    | 8.18    |         |        |
|                   |                           |                            | 11.40          | 13.90   | 27.70   |         |        |
| 14 x 6            | 355.6(14.00)              | 330(13.00)                 | 3.96           | 4.78    | 9.53    |         |        |
|                   | 168.3(6.62)               |                            | 2.77           | 3.40    | 7.11    |         |        |
|                   |                           |                            | 10.70          | 13.10   | 26.30   |         |        |
| 16 x 14           | 406.4(16.00)              | 356(14.00)                 | 4.19           | 4.78    | 9.53    |         |        |
|                   | 355.6(14.00)              |                            | 3.96           | 4.78    | 9.53    |         |        |
|                   |                           |                            | 16.50          | 18.80   | 37.60   |         |        |
| 16 x 12           | 406.4(16.00)              | 356(14.00)                 | 4.19           | 4.78    | 9.53    |         |        |
|                   | 323.8(12.75)              |                            | 3.96           | 4.57    | 9.53    |         |        |
|                   |                           |                            | 16.10          | 18.30   | 36.70   |         |        |

Weights are approximate

**ASME B16.9-2018**
**ASME B16.9-2018**

**Concentric and eccentric reducers**
**Concentric and eccentric reducers**

| Nominal pipe size | Outside Diameter at Bevel | Longueur End-to-End length | SCH 5S                  | SCH 10S | SCH 40S           | SCH 80S |
|-------------------|---------------------------|----------------------------|-------------------------|---------|-------------------|---------|
|                   |                           |                            | t <sub>1</sub> /W.T. mm |         |                   |         |
|                   |                           |                            | t <sub>2</sub> /W.T. mm |         |                   |         |
|                   |                           |                            | weight Kg               |         |                   |         |
| D – mm(in)        | H – mm(in)                |                            |                         |         |                   |         |
| 16 x 10           | 406.4(16.00)              | 356(14.00)                 | 4.19                    | 4.78    | 9.53              |         |
|                   | 273.0(10.75)              |                            | 3.40                    | 4.19    | 9.27 <sup>1</sup> |         |
|                   |                           |                            | 15.60                   | 17.70   | 35.40             |         |
| 16 x 8            | 406.4(16.00)              | 356(14.00)                 | 4.19                    | 4.78    | 9.53              |         |
|                   | 219.1(8.62)               |                            | 2.77                    | 3.76    | 8.18 <sup>1</sup> |         |
| 18 x 16           | 457(18.00)                | 381(15.00)                 | 4.19                    | 4.78    | 9.53              |         |
|                   | 406.4(16.00)              |                            | 4.19                    | 4.78    | 9.53 <sup>1</sup> |         |
|                   |                           |                            | 19.80                   | 22.50   | 44.90             |         |
| 18 x 14           | 457(18.00)                | 381(15.00)                 | 4.19                    | 4.78    | 9.53              |         |
|                   | 355.6(14.00)              |                            | 3.96                    | 4.78    | 9.53 <sup>1</sup> |         |
|                   |                           |                            | 19.20                   | 21.90   | 43.70             |         |
| 18 x 12           | 457(18.00)                | 381(15.00)                 | 4.19                    | 4.78    | 9.53              |         |
|                   | 323.8(12.75)              |                            | 3.96                    | 4.57    | 9.53 <sup>1</sup> |         |
|                   |                           |                            | 18.90                   | 21.40   | 42.90             |         |
| 18 x 10           | 457(18.00)                | 381(15.00)                 | 4.19                    | 4.78    | 9.53              |         |
|                   | 273.0(10.75)              |                            | 3.40                    | 4.19    | 9.27 <sup>1</sup> |         |
|                   |                           |                            | 18.50                   | 21.00   | 42.00             |         |
| 20 x 18           | 508(20.00)                | 508(20.00)                 | 4.78                    | 5.54    | 9.53              |         |
|                   | 457.0(18.00)              |                            | 4.19                    | 4.78    | 9.53 <sup>1</sup> |         |
|                   |                           |                            | 30.00                   | 33.00   | 67.00             |         |
| 20 x 16           | 508(20.00)                | 508(20.00)                 | 4.78                    | 5.54    | 9.53              |         |
|                   | 406.4(16.00)              |                            | 4.19                    | 4.78    | 9.53 <sup>1</sup> |         |
|                   |                           |                            | 29.00                   | 32.00   | 65.00             |         |
| 20 x 14           | 508(20.00)                | 508(20.00)                 | 4.78                    | 5.54    | 9.53              |         |
|                   | 355.6(14.00)              |                            | 3.96                    | 4.78    | 9.53 <sup>1</sup> |         |
|                   |                           |                            | 28.00                   | 31.00   | 61.00             |         |
| 20 x 12           | 508(20.00)                | 508(20.00)                 | 4.78                    | 5.54    | 9.53              |         |
|                   | 323.8(12.75)              |                            | 3.96                    | 4.57    | 9.53              |         |
|                   |                           |                            | 27.00                   | 30.00   | 60.00             |         |

Weights are approximate

<sup>1</sup>Those do not conform to ASME B36.19M (Pipe dimensions)

| Nominal pipe size | Outside Diameter at Bevel | Longueur End-to-End length | SCH 5S                  | SCH 10S | SCH 40S | SCH 80S |
|-------------------|---------------------------|----------------------------|-------------------------|---------|---------|---------|
|                   |                           |                            | t <sub>1</sub> /W.T. mm |         |         |         |
|                   |                           |                            | t <sub>2</sub> /W.T. mm |         |         |         |
|                   |                           |                            | weight Kg               |         |         |         |
| D – mm(in)        | H – mm(in)                |                            |                         |         |         |         |
| 22 x 20           | 559(22.00)                | 508(20.00)                 | 4.78                    | 5.54    |         |         |
|                   | 508.0(20.00)              |                            | 4.78                    | 5.54    |         |         |
|                   |                           |                            | **                      | **      |         |         |
| 22 x 18           | 559(22.00)                | 508(20.00)                 | 4.78                    | 5.54    |         |         |
|                   | 457.0(18.00)              |                            | 4.19                    | 4.78    |         |         |
|                   |                           |                            | **                      | **      |         |         |
| 22 x 16           | 559(22.00)                | 508(20.00)                 | 4.78                    | 5.54    |         |         |
|                   | 406.4(16.00)              |                            | 4.19                    | 4.78    |         |         |
|                   |                           |                            | **                      | **      |         |         |
| 22 x 14           | 559(22.00)                | 508(20.00)                 | 4.78                    | 5.54    |         |         |
|                   | 355.4(14.00)              |                            | 3.96                    | 4.78    |         |         |
|                   |                           |                            | **                      | **      |         |         |
| 24 x 22           | 610(24.00)                | 508(20.00)                 | 5.54                    | 6.35    |         |         |
|                   | 559(22.00)                |                            | 4.78                    | 5.54    |         |         |
|                   |                           |                            | 43.00                   | 49.00   |         |         |
| 24 x 20           | 610(24.00)                | 508(20.00)                 | 5.54                    | 6.35    | 9.53    |         |
|                   | 508.0(20.00)              |                            | 4.78                    | 5.54    | 9.53    |         |
|                   |                           |                            | 41.50                   | 47.00   | 79.00   |         |
| 24 x 18           | 610(24.00)                | 508(20.00)                 | 5.54                    | 6.35    | 9.53    |         |
|                   | 457.0(18.00)              |                            | 4.19                    | 4.78    | 9.53    |         |
|                   |                           |                            | 40.00                   | 45.00   | 76.00   |         |
| 24 x 16           | 610(24.00)                | 508(20.00)                 | 5.54                    | 6.35    | 9.53    |         |
|                   | 406.4(16.00)              |                            | 4.19                    | 4.78    | 9.53    |         |
|                   |                           |                            | 39.00                   | 44.00   | 75.00   |         |

\*\* weight on application

Weights are approximate