



BRASFORGE
CONEXÕES E VÁLVULAS

CONEXÕES TUBULARES E FLANGES

CATÁLOGO DE
PRODUTOS
2026



EMPRESA

BRASFORGE é uma empresa especializada na venda de válvulas e conexões tubulares, que atua em todo território nacional, assim como no exterior.

Qualidade dos produtos comercializados (nacionais e importados), alta tecnologia, excelência logística, bom preço e respeito a prazos são alguns dos pilares da BRASFORGE, que, a cada ano, conquista mais e mais clientes por causa destes seus compromissos.



SOLUÇÕES

As soluções que a BRASFORGE oferece são voltadas principalmente para os setores petroquímico, naval (construção e reparo), da construção civil, refrigeração e do combate a incêndio.

Entre seus clientes, destacam-se importantes companhias offshore e onshore.

Em resumo, a BRASFORGE é sinônimo de experiência em seu ramo de atuação e de conexão com obras que promovem o desenvolvimento para o nosso país e além das nossas fronteiras.

PRODUTOS

A BRASFORGE oferece soluções em diversos tipos de materiais (aço carbono, aço inox, duplex, super duplex, cuproníquel e ligas especiais), classes de pressão e espessura.

Entre os produtos do catálogo da BRASFORGE, podemos mencionar: conexões de ferro, conexões tubulares, conexões forjadas, flange orifício, flange sobreposto, flange lap-joint, flange cego, flange soquete, flange roscado, flange com pescoço, raquete/figura 8 (flange), válvula esfera, válvula gaveta, válvula globo, válvula de retenção, válvula agulha e válvula borboleta.

IMPORTADORA

Os produtos que a BRASFORGE comercializa seguem os padrões e normas técnicas nacionais e internacionais.

A empresa possui o Certificado de Registro Cadastral (CRC), da Petrobras.

ENTRE EM CONTATO

 21 99834-2654



TUBOS ASME B36.10M:2018 PIPE ASME B36.10M:2018

04 Dimensões e Pesos de Tubos Com ou Sem Costura *Dimensions and Weights For Seamless or Welded Pipes*

TOLERÂNCIA TOLERANCE

21 Tolerância para Flanges ANSI B16.5 *Flange Tolerance ANSI B16.5*

22 Tolerância Flange EN1092 *Flange Tolerance Flange EN1092*

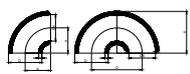


28 Tolerância Conexões Tubulares *Tolerance Pipe Fittings*

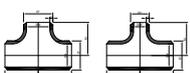
CONEXÕES TUBULARES PIPE FITTINGS



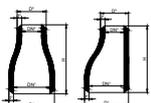
30 Curva Raio Longo ASME/ANSI B16.9 *Elbows Long Radius ASME/ANSI B16.9*



36 Curva Raio Curto ASME/ANSI B16.28 *Elbows Short Radius ASME/ANSI B16.28*



40 TÊS (RETOS E REDUZIDOS) *TEES (STRAIGHT AND REDUCING)*

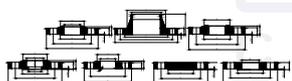


46 REDUÇÕES (CONCÊNTRICOS E EXCÊNTRICOS) *REDUCERS (CONCENTRIC AND ECCENTRIC)*

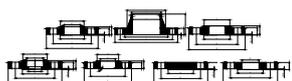


50 CAPs *CAPs*

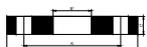
FLANGES



52 FLANGES CLASSE 150 Flanges Forjados ANSI B16.5 *ANSI B16.5 FORGED FLANGES*



54 FLANGES CLASSE 300 Flanges Forjados ANSI B16.5 *ANSI B16.5 FORGED FLANGES*



56 FLANGES PN10 Flanges EN1092-1 PN10 *EN1092-1 PN10 FLANGES*



58 FLANGES PN16 Flanges EN1092-1:2007 *EN1092-1:2007*

Dimensões e Pesos de Tubos Com ou Sem Costura

Dimensions and Weights For Seamless or Welded Pipes

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa _ Peso (massa), lb/pé (kg/m) Plain End _ Weight (Mass), lb/ft (kg/m)
1/8 (6)	—	10	0.405 (10.3)	0.049 (1.24)	0.19 (0.28)
1/8 (6)	—	30	0.405 (10.3)	0.057 (1.45)	0.21 (0.32)
1/8 (6)	STD	40	0.405 (10.3)	0.068 (1.73)	0.24 (0.37)
1/8 (6)	XS	80	0.405 (10.3)	0.095 (2.41)	0.31 (0.47)
1/8 (6)	—	160	0.405 (10.3)	0.124 (3.15)	0.37 (0.56)
1/8 (6)	XXS	—	0.405 (10.3)	0.190 (4.83)	0.44 (0.65)
1/4 (8)	—	10	0.540 (13.7)	0.065 (1.65)	0.33 (0.49)
1/4 (8)	—	30	0.540 (13.7)	0.073 (1.85)	0.36 (0.54)
1/4 (8)	STD	40	0.540 (13.7)	0.088 (2.24)	0.43 (0.63)
1/4 (8)	XS	80	0.540 (13.7)	0.119 (3.02)	0.54 (0.80)
1/4 (8)	—	160	0.540 (13.7)	0.145 (3.68)	0.61 (0.91)
1/4 (8)	XXS	—	0.540 (13.7)	0.238 (6.05)	0.77 (1.41)
3/8 (10)	—	10	0.675 (17.1)	0.065 (1.65)	0.42 (0.63)
3/8 (10)	—	30	0.675 (17.1)	0.073 (1.85)	0.47 (0.70)
3/8 (10)	STD	40	0.675 (17.1)	0.091 (2.31)	0.57 (0.84)
3/8 (10)	XS	80	0.675 (17.1)	0.126 (3.20)	0.74 (1.10)
3/8 (10)	—	160	0.675 (17.1)	0.158 (4.01)	0.87 (1.29)
3/8 (10)	XXS	—	0.675 (17.1)	0.252 (6.40)	1.14 (1.69)
1/2 (15)	—	5	0.840 (21.3)	0.065 (1.65)	0.54 (0.80)
1/2 (15)	—	10	0.840 (21.3)	0.083 (2.11)	0.67 (1.00)
1/2 (15)	—	30	0.840 (21.3)	0.095 (2.41)	0.76 (1.12)
1/2 (15)	STD	40	0.840 (21.3)	0.109 (2.77)	0.85 (1.27)
1/2 (15)	XS	80	0.840 (21.3)	0.147 (3.73)	1.09 (1.62)
1/2 (15)	—	160	0.840 (21.3)	0.188 (4.78)	1.31 (1.95)
1/2 (15)	XXS	—	0.840 (21.3)	0.294 (7.47)	1.72 (2.55)
3/4 (20)	—	5	1.050 (26.7)	0.065 (1.65)	0.68 (1.02)
3/4 (20)	—	10	1.050 (26.7)	0.083 (2.11)	0.86 (1.28)
3/4 (20)	—	30	1.050 (26.7)	0.095 (2.41)	0.97 (1.44)
3/4 (20)	STD	40	1.050 (26.7)	0.113 (2.87)	1.13 (1.69)
3/4 (20)	XS	80	1.050 (26.7)	0.154 (3.91)	1.48 (2.20)
3/4 (20)	—	160	1.050 (26.7)	0.219 (5.56)	1.95 (2.90)
3/4 (20)	XXS	—	1.050 (26.7)	0.308 (7.82)	2.44 (3.64)

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Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa _ Peso (massa), lb/pé (kg/m) Plain End _ Weight (Mass), lb/ft (kg/m)
1 (25)	—	5	1.315 (33.4)	0.065 (1.65)	0.87 (1.29)
1 (25)	—	10	1.315 (33.4)	0.109 (2.77)	1.41 (2.09)
1 (25)	—	30	1.315 (33.4)	0.114 (2.90)	1.46 (2.18)
1 (25)	STD	40	1.315 (33.4)	0.133 (3.38)	1.68 (2.50)
1 (25)	XS	80	1.315 (33.4)	0.179 (4.55)	2.17 (3.24)
1 (25)	—	160	1.315 (33.4)	0.250 (6.35)	2.85 (4.24)
1 (25)	XXS	—	1.315 (33.4)	0.358 (9.09)	3.66 (5.45)
1 1/4 (32)	—	5	1.660 (42.2)	0.065 (1.65)	1.11 (1.65)
1 1/4 (32)	—	10	1.660 (42.2)	0.109 (2.77)	1.81 (2.69)
1 1/4 (32)	—	30	1.660 (42.2)	0.117 (2.97)	1.93 (2.87)
1 1/4 (32)	STD	40	1.660 (42.2)	0.140 (3.56)	2.27 (3.39)
1 1/4 (32)	XS	80	1.660 (42.2)	0.191 (4.85)	3.00 (4.47)
1 1/4 (32)	—	160	1.660 (42.2)	0.250 (6.35)	3.77 (5.61)
1 1/4 (32)	XXS	—	1.660 (42.2)	0.382 (9.70)	5.22 (7.77)
1 1/2 (40)	—	5	1.900 (48.3)	0.065 (1.65)	1.28 (1.90)
1 1/2 (40)	—	10	1.900 (48.3)	0.109 (2.77)	2.09 (3.11)
1 1/2 (40)	—	30	1.900 (48.3)	0.125 (3.18)	2.37 (3.53)
1 1/2 (40)	STD	40	1.900 (48.3)	0.145 (3.68)	2.72 (4.05)
1 1/2 (40)	XS	80	1.900 (48.3)	0.200 (5.08)	3.63 (5.41)
1 1/2 (40)	—	160	1.900 (48.3)	0.281 (7.14)	4.86 (7.25)
1 1/2 (40)	XXS	—	1.900 (48.3)	0.400 (10.15)	6.41 (9.55)
2 (50)	—	5	2.375 (60.3)	0.065 (1.65)	1.61 (2.39)
2 (50)	—	—	2.375 (60.3)	0.083 (2.11)	2.03 (3.03)
2 (50)	—	10	2.375 (60.3)	0.109 (2.77)	2.64 (3.93)
2 (50)	—	30	2.375 (60.3)	0.125 (3.18)	3.01 (4.48)
2 (50)	—	—	2.375 (60.3)	0.141 (3.58)	3.37 (5.01)
2 (50)	STD	40	2.375 (60.3)	0.154 (3.91)	3.66 (5.44)
2 (50)	—	—	2.375 (60.3)	0.172 (4.37)	4.05 (6.03)
2 (50)	—	—	2.375 (60.3)	0.188 (4.78)	4.40 (6.54)
2 (50)	XS	80	2.375 (60.3)	0.218 (5.54)	5.03 (7.48)
2 (50)	—	—	2.375 (60.3)	0.250 (6.35)	5.68 (8.45)
2 (50)	—	—	2.375 (60.3)	0.281 (7.14)	6.29 (9.36)

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Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
2 (50)	-	160	2.375 (60.3)	0.344 (8.74)	7.47 (11.11)
2 (50)	XXS	-	2.375 (60.3)	0.436 (11.07)	9.04 (13.44)
2 1/2 (65)	-	5	2.875 (73.0)	0.083 (2.11)	2.48 (3.69)
2 1/2 (65)	-	-	2.875 (73.0)	0.109 (2.77)	3.22 (4.80)
2 1/2 (65)	-	10	2.875 (73.0)	0.120 (3.05)	3.53 (5.26)
2 1/2 (65)	-	-	2.875 (73.0)	0.125 (3.18)	3.67 (5.48)
2 1/2 (65)	-	-	2.875 (73.0)	0.141 (3.58)	4.12 (6.13)
2 1/2 (65)	-	-	2.875 (73.0)	0.156 (3.96)	4.53 (6.74)
2 1/2 (65)	-	-	2.875 (73.0)	0.172 (4.37)	4.97 (7.40)
2 1/2 (65)	-	30	2.875 (73.0)	0.188 (4.78)	5.40 (8.04)
2 1/2 (65)	STD	40	2.875 (73.0)	0.203 (5.16)	5.80 (8.63)
2 1/2 (65)	-	-	2.875 (73.0)	0.216 (5.49)	6.14 (9.14)
2 1/2 (65)	-	-	2.875 (73.0)	0.250 (6.35)	7.02 (10.44)
2 1/2 (65)	XS	80	2.875 (73.0)	0.276 (7.01)	7.67 (11.41)
2 1/2 (65)	-	160	2.875 (73.0)	0.375 (9.53)	10.02 (14.92)
2 1/2 (65)	XXS	-	2.875 (73.0)	0.552 (14.02)	13.71 (20.39)
3 (80)	-	-	3.500 (88.9)	0.141 (3.58)	5.06 (7.53)
3 (80)	-	-	3.500 (88.9)	0.156 (3.96)	5.58 (8.30)
3 (80)	-	-	3.500 (88.9)	0.172 (4.37)	6.12 (9.11)
3 (80)	-	30	3.500 (88.9)	0.188 (4.78)	6.66 (9.92)
3 (80)	STD	40	3.500 (88.9)	0.216 (5.49)	7.58 (11.29)
3 (80)	-	-	3.500 (88.9)	0.250 (6.35)	8.69 (12.93)
3 (80)	-	-	3.500 (88.9)	0.281 (7.14)	9.67 (14.40)
3 (80)	XS	80	3.500 (88.9)	0.300 (7.62)	10.26 (15.27)
3 (80)	-	160	3.500 (88.9)	0.438 (11.13)	14.34 (21.35)
3 (80)	XXS	-	3.500 (88.9)	0.600 (15.24)	18.60 (27.68)
3 1/2 (90)	-	5	4.000 (101.6)	0.083 (2.11)	3.48 (5.18)
3 1/2 (90)	-	-	4.000 (101.6)	0.109 (2.77)	4.53 (6.75)
3 1/2 (90)	-	10	4.000 (101.6)	0.120 (3.05)	4.98 (7.41)
3 1/2 (90)	-	-	4.000 (101.6)	0.125 (3.18)	5.18 (7.72)
3 1/2 (90)	-	-	4.000 (101.6)	0.141 (3.58)	5.82 (8.65)
3 1/2 (90)	-	-	4.000 (101.6)	0.156 (3.96)	6.41 (9.54)

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
31/2 (90)	-	-	4.000 (101.6)	0.172 (4.37)	7.04 (10.48)
31/2 (90)	-	30	4.000 (101.6)	0.188 (4.78)	7.66 (11.41)
31/2 (90)	STD	40	4.000 (101.6)	0.226 (5.74)	9.12 (13.57)
31/2 (90)	-	-	4.000 (101.6)	0.250 (6.35)	10.02 (14.92)
31/2 (90)	-	-	4.000 (101.6)	0.281 (7.14)	11.17 (16.63)
31/2 (90)	XS	80	4.000 (101.6)	0.318 (8.08)	12.52 (18.64)
4 (100)	-	-	4.500 (114.3)	0.141 (3.58)	6.57 (9.78)
4 (100)	-	-	4.500 (114.3)	0.156 (3.96)	7.24 (10.78)
4 (100)	-	-	4.500 (114.3)	0.172 (4.37)	7.96 (11.85)
4 (100)	-	30	4.500 (114.3)	0.188 (4.78)	8.67 (12.91)
4 (100)	-	-	4.500 (114.3)	0.203 (5.16)	9.32 (13.89)
4 (100)	-	-	4.500 (114.3)	0.219 (5.56)	10.02 (14.91)
4 (100)	STD	40	4.500 (114.3)	0.237 (6.02)	10.80 (16.08)
4 (100)	-	-	4.500 (114.3)	0.250 (6.35)	11.36 (16.91)
4 (100)	-	-	4.500 (114.3)	0.281 (7.14)	12.67 (18.87)
4 (100)	-	-	4.500 (114.3)	0.312 (7.92)	13.97 (20.78)
4 (100)	XS	80	4.500 (114.3)	0.337 (8.56)	15.00 (22.32)
4 (100)	-	120	4.500 (114.3)	0.438 (11.13)	19.02 (28.32)
4 (100)	-	160	4.500 (114.3)	0.531 (13.49)	22.53 (33.54)
4 (100)	XXS	-	4.500 (114.3)	0.674 (17.12)	27.57 (41.03)
5 (125)	-	-	5.563 (141.3)	0.083 (2.11)	4.86 (7.24)
5 (125)	-	5	5.563 (141.3)	0.109 (2.77)	6.36 (9.46)
5 (125)	-	-	5.563 (141.3)	0.125 (3.18)	7.27 (10.83)
5 (125)	-	10	5.563 (141.3)	0.134 (3.40)	7.78 (11.56)
5 (125)	-	-	5.563 (141.3)	0.156 (3.96)	9.02 (13.41)
5 (125)	-	-	5.563 (141.3)	0.188 (4.78)	10.80 (16.09)
5 (125)	-	-	5.563 (141.3)	0.219 (5.56)	12.51 (18.61)
5 (125)	STD	40	5.563 (141.3)	0.258 (6.55)	14.63 (21.77)
5 (125)	-	-	5.563 (141.3)	0.281 (7.14)	15.87 (23.62)
5 (125)	-	-	5.563 (141.3)	0.312 (7.92)	17.51 (26.05)
5 (125)	-	-	5.563 (141.3)	0.344 (8.74)	19.19 (28.57)
5 (125)	XS	80	5.563 (141.3)	0.375 (9.53)	20.80 (30.97)

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
5 (125)	-	120	5.563 (141.3)	0.500 (12.70)	27.06 (40.28)
5 (125)	-	160	5.563 (141.3)	0.625 (15.88)	32.99 (49.12)
5 (125)	XXS	-	5.563 (141.3)	0.750 (19.05)	38.59 (57.43)
6 (150)	-	-	6.625 (168.3)	0.083 (2.11)	5.80 (8.65)
6 (150)	-	5	6.625 (168.3)	0.109 (2.77)	7.59 (11.31)
6 (150)	-	-	6.625 (168.3)	0.125 (3.18)	8.69 (12.95)
6 (150)	-	10	6.625 (168.3)	0.134 (3.40)	9.30 (13.83)
6 (150)	-	-	6.625 (168.3)	0.219 (5.56)	15.00 (22.31)
6 (150)	-	-	6.625 (168.3)	0.250 (6.35)	17.04 (25.36)
6 (150)	STD	40	6.625 (168.3)	0.280 (7.11)	18.99 (28.26)
6 (150)	-	-	6.625 (168.3)	0.312 (7.92)	21.06 (31.33)
6 (150)	-	-	6.625 (168.3)	0.344 (8.74)	23.10 (34.39)
6 (150)	-	-	6.625 (168.3)	0.375 (9.53)	25.05 (37.31)
6 (150)	XS	80	6.625 (168.3)	0.432 (10.97)	28.60 (42.56)
6 (150)	-	-	6.625 (168.3)	0.500 (12.70)	32.74 (48.73)
6 (150)	-	120	6.625 (168.3)	0.562 (14.27)	36.43 (54.21)
6 (150)	-	-	6.625 (168.3)	0.625 (15.88)	40.09 (59.69)
6 (150)	-	-	6.625 (168.3)	0.750 (19.05)	47.10 (70.12)
6 (150)	XXS	-	6.625 (168.3)	0.864 (21.95)	53.21 (79.22)
6 (150)	-	-	6.625 (168.3)	0.875 (22.23)	53.78 (80.08)
8 (200)	-	5	8.625 (219.1)	0.109 (2.77)	9.92 (14.78)
8 (200)	-	-	8.625 (219.1)	0.125 (3.18)	11.36 (16.93)
8 (200)	-	10	8.625 (219.1)	0.148 (3.76)	13.41 (19.97)
8 (200)	-	-	8.625 (219.1)	0.156 (3.96)	14.12 (21.01)
8 (200)	-	-	8.625 (219.1)	0.188 (4.78)	16.96 (25.26)
8 (200)	-	-	8.625 (219.1)	0.203 (5.16)	18.28 (27.22)
8 (200)	-	-	8.625 (219.1)	0.219 (5.56)	19.68 (29.28)
8 (200)	-	20	8.625 (219.1)	0.250 (6.35)	22.38 (33.32)
8 (200)	-	30	8.625 (219.1)	0.277 (7.04)	24.72 (36.82)
8 (200)	-	-	8.625 (219.1)	0.312 (7.92)	27.73 (41.25)
8 (200)	STD	40	8.625 (219.1)	0.322 (8.18)	28.58 (42.55)
8 (200)	-	-	8.625 (219.1)	0.344 (8.74)	30.45 (45.34)

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
8 (200)	-	-	8.625 (219.1)	0.375 (9.53)	33.07 (49.25)
8 (200)	-	60	8.625 (219.1)	0.406 (10.31)	35.67 (53.09)
8 (200)	-	-	8.625 (219.1)	0.438 (11.13)	38.33 (57.08)
8 (200)	XS	80	8.625 (219.1)	0.500 (12.70)	43.43 (64.64)
8 (200)	-	-	8.625 (219.1)	0.562 (14.27)	48.44 (72.08)
8 (200)	-	100	8.625 (219.1)	0.594 (15.09)	51.00 (75.92)
8 (200)	-	-	8.625 (219.1)	0.625 (15.88)	53.45 (79.59)
8 (200)	-	120	8.625 (219.1)	0.719 (18.26)	60.77 (90.44)
8 (200)	-	-	8.625 (219.1)	0.750 (19.05)	63.14 (93.98)
8 (200)	-	140	8.625 (219.1)	0.812 (20.62)	67.82 (100.93)
8 (200)	XXS	-	8.625 (219.1)	0.875 (22.23)	72.49 (107.93)
8 (200)	-	160	8.625 (219.1)	0.906 (23.01)	74.76 (111.27)
8 (200)	-	-	8.625 (219.1)	1.000 (25.40)	81.51 (121.33)
10 (250)	-	5	10.750 (273.0)	0.134 (3.40)	15.21 (22.61)
10 (250)	-	-	10.750 (273.0)	0.156 (3.96)	17.67 (26.27)
10 (250)	-	10	10.750 (273.0)	0.165 (4.19)	18.67 (27.78)
10 (250)	-	-	10.750 (273.0)	0.188 (4.78)	21.23 (31.62)
10 (250)	-	-	10.750 (273.0)	0.203 (5.16)	22.89 (34.08)
10 (250)	-	-	10.750 (273.0)	0.219 (5.56)	24.65 (36.67)
10 (250)	-	20	10.750 (273.0)	0.250 (6.35)	28.06 (41.76)
10 (250)	-	-	10.750 (273.0)	0.279 (7.09)	31.23 (46.49)
10 (250)	-	30	10.750 (273.0)	0.307 (7.80)	34.27 (51.01)
10 (250)	-	-	10.750 (273.0)	0.344 (8.74)	38.27 (56.96)
10 (250)	STD	40	10.750 (273.0)	0.365 (9.27)	40.52 (60.29)
10 (250)	-	-	10.750 (273.0)	0.438 (11.13)	48.28 (71.88)
10 (250)	XS	60	10.750 (273.0)	0.500 (12.70)	54.79 (81.53)
10 (250)	-	-	10.750 (273.0)	0.562 (14.27)	61.21 (91.05)
10 (250)	-	80	10.750 (273.0)	0.594 (15.09)	64.49 (95.98)
10 (250)	-	-	10.750 (273.0)	0.625 (15.88)	67.65 (100.69)
10 (250)	-	100	10.750 (273.0)	0.719 (18.26)	77.10 (114.71)
10 (250)	-	-	10.750 (273.0)	0.812 (20.62)	86.26 (128.34)
10 (250)	-	120	10.750 (273.0)	0.844 (21.44)	89.38 (133.01)
10 (250)	-	-	10.750 (273.0)	0.875 (22.23)	92.37 (137.48)
10 (250)	-	-	10.750 (273.0)	0.938 (23.83)	98.39 (146.43)

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
10 (250)	XXS	140	10.750 (273.0)	1.000 (25.40)	104.23 (155.10)
10 (250)	-	160	10.750 (273.0)	1.125 (28.58)	115.75 (172.27)
10 (250)	-	-	10.750 (273.0)	1.250 (31.75)	126.94 (188.90)
12 (300)	-	5	12.750 (323.8)	0.156 (3.96)	21.00 (31.24)
12 (300)	-	-	12.750 (323.8)	0.172 (4.37)	23.13 (34.43)
12 (300)	-	10	12.750 (323.8)	0.180 (4.57)	24.19 (35.98)
12 (300)	-	-	12.750 (323.8)	0.188 (4.78)	25.25 (37.61)
12 (300)	-	-	12.750 (323.8)	0.203 (5.16)	27.23 (40.55)
12 (300)	-	-	12.750 (323.8)	0.219 (5.56)	29.34 (43.64)
12 (300)	-	20	12.750 (323.8)	0.250 (6.35)	33.41 (49.71)
12 (300)	-	-	12.750 (323.8)	0.281 (7.14)	37.46 (55.76)
12 (300)	-	-	12.750 (323.8)	0.312 (7.92)	41.48 (61.70)
12 (300)	-	30	12.750 (323.8)	0.330 (8.38)	43.81 (65.19)
12 (300)	-	-	12.750 (323.8)	0.344 (8.74)	45.62 (67.91)
12 (300)	STD	-	12.750 (323.8)	0.375 (9.53)	49.61 (73.86)
12 (300)	-	40	12.750 (323.8)	0.406 (10.31)	53.57 (79.71)
12 (300)	-	-	12.750 (323.8)	0.438 (11.13)	57.65 (85.82)
12 (300)	XS	-	12.750 (323.8)	0.500 (12.70)	65.48 (97.44)
12 (300)	-	60	12.750 (323.8)	0.562 (14.27)	73.22 (108.93)
12 (300)	-	-	12.750 (323.8)	0.625 (15.88)	81.01 (120.59)
12 (300)	-	80	12.750 (323.8)	0.688 (17.48)	88.71 (132.05)
12 (300)	-	-	12.750 (323.8)	0.750 (19.05)	96.21 (143.17)
12 (300)	-	-	12.750 (323.8)	0.812 (20.62)	103.63 (154.17)
12 (300)	-	100	12.750 (323.8)	0.844 (21.44)	107.42 (159.87)
12 (300)	-	-	12.750 (323.8)	0.875 (22.23)	111.08 (165.33)
12 (300)	-	-	12.750 (323.8)	0.938 (23.83)	118.44 (176.29)
12 (300)	XXS	120	12.750 (323.8)	1.000 (25.40)	125.61 (186.92)
12 (300)	-	-	12.750 (323.8)	1.062 (26.97)	132.69 (197.43)
12 (300)	-	140	12.750 (323.8)	1.125 (28.58)	139.81 (208.08)
12 (300)	-	-	12.750 (323.8)	1.250 (31.75)	153.67 (228.68)
12 (300)	-	160	12.750 (323.8)	1.312 (33.32)	160.42 (238.69)
14 (350)	-	5	14.000 (355.6)	0.156 (3.96)	23.09 (34.34)
14 (350)	-	-	14.000 (355.6)	0.188 (4.78)	27.76 (41.36)
14 (350)	-	-	14.000 (355.6)	0.203 (5.16)	29.94 (44.59)

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
14 (350)	-	-	14.000 (355.6)	0.210 (5.33)	30.96 (46.04)
14 (350)	-	-	14.000 (355.6)	0.219 (5.56)	32.26 (48.00)
14 (350)	-	10	14.000 (355.6)	0.250 (6.35)	36.75 (54.69)
14 (350)	-	-	14.000 (355.6)	0.281 (7.14)	41.21 (61.36)
14 (350)	-	20	14.000 (355.6)	0.312 (7.92)	45.65 (67.91)
14 (350)	-	-	14.000 (355.6)	0.344 (8.74)	50.22 (74.76)
14 (350)	STD	30	14.000 (355.6)	0.375 (9.53)	54.62 (81.33)
14 (350)	-	-	14.000 (355.6)	0.406 (10.31)	59.00 (87.79)
14 (350)	-	40	14.000 (355.6)	0.438 (11.13)	63.50 (94.55)
14 (350)	-	-	14.000 (355.6)	0.469 (11.91)	67.84 (100.95)
14 (350)	XS	-	14.000 (355.6)	0.500 (12.70)	72.16 (107.40)
14 (350)	-	-	14.000 (355.6)	0.562 (14.27)	80.73 (120.12)
14 (350)	-	60	14.000 (355.6)	0.594 (15.09)	85.13 (126.72)
14 (350)	-	-	14.000 (355.6)	0.625 (15.88)	89.36 (133.04)
14 (350)	-	-	14.000 (355.6)	0.688 (17.48)	97.91 (145.76)
14 (350)	-	80	14.000 (355.6)	0.750 (19.05)	106.23 (158.11)
14 (350)	-	-	14.000 (355.6)	0.812 (20.62)	114.48 (170.34)
14 (350)	-	-	14.000 (355.6)	0.875 (22.23)	122.77 (182.76)
14 (350)	-	100	14.000 (355.6)	0.938 (23.83)	130.98 (194.98)
14 (350)	-	-	14.000 (355.6)	1.000 (25.40)	138.97 (206.84)
14 (350)	-	-	14.000 (355.6)	1.062 (26.97)	146.88 (218.58)
14 (350)	-	120	14.000 (355.6)	1.094 (27.79)	150.93 (224.66)
14 (350)	-	-	14.000 (355.6)	1.125 (28.58)	154.84 (230.49)
14 (350)	-	140	14.000 (355.6)	1.250 (31.75)	170.37 (253.58)
14 (350)	-	160	14.000 (355.6)	1.406 (35.71)	189.29 (281.72)
14 (350)	-	-	14.000 (355.6)	2.000 (50.80)	256.56 (381.85)
14 (350)	-	-	14.000 (355.6)	2.125 (53.98)	269.76 (401.52)
14 (350)	-	-	14.000 (355.6)	2.200 (55.88)	277.51 (413.04)
14 (350)	-	-	14.000 (355.6)	2.500 (63.50)	307.34 (457.43)
16 (400)	-	5	16.000 (406.4)	0.165 (4.19)	27.93 (41.56)
16 (400)	-	-	16.000 (406.4)	0.188 (4.78)	31.78 (47.34)
16 (400)	-	-	16.000 (406.4)	0.203 (5.16)	34.28 (51.06)
16 (400)	-	-	16.000 (406.4)	0.219 (5.56)	36.95 (54.96)
16 (400)	-	10	16.000 (406.4)	0.250 (6.35)	42.09 (62.65)

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
16 (400)	-	-	16.000 (406.4)	0.281 (7.14)	47.22 (70.30)
16 (400)	-	20	16.000 (406.4)	0.312 (7.92)	52.32 (77.83)
16 (400)	-	-	16.000 (406.4)	0.344 (8.74)	57.57 (85.71)
16 (400)	STD	30	16.000 (406.4)	0.375 (9.53)	62.64 (93.27)
16 (400)	-	-	16.000 (406.4)	0.406 (10.31)	67.68 (100.71)
16 (400)	-	-	16.000 (406.4)	0.438 (11.13)	72.86 (108.49)
16 (400)	-	-	16.000 (406.4)	0.469 (11.91)	77.87 (115.87)
16 (400)	XS	40	16.000 (406.4)	0.500 (12.70)	82.85 (123.31)
16 (400)	-	-	16.000 (406.4)	0.562 (14.27)	92.75 (138.00)
16 (400)	-	-	16.000 (406.4)	0.625 (15.88)	102.72 (152.94)
16 (400)	-	60	16.000 (406.4)	0.656 (16.66)	107.60 (160.13)
16 (400)	-	-	16.000 (406.4)	0.688 (17.48)	112.62 (167.66)
16 (400)	-	-	16.000 (406.4)	0.750 (19.05)	122.27 (181.98)
16 (400)	-	-	16.000 (406.4)	0.812 (20.62)	131.84 (196.18)
16 (400)	-	80	16.000 (406.4)	0.844 (21.44)	136.74 (203.54)
16 (400)	-	-	16.000 (406.4)	0.875 (22.23)	141.48 (210.61)
16 (400)	-	-	16.000 (406.4)	0.938 (23.83)	151.03 (224.83)
16 (400)	-	-	16.000 (406.4)	1.000 (25.40)	160.35 (238.66)
16 (400)	-	100	16.000 (406.4)	1.031 (26.19)	164.98 (245.57)
16 (400)	-	-	16.000 (406.4)	1.062 (26.97)	169.59 (252.37)
16 (400)	-	-	16.000 (406.4)	1.125 (28.58)	178.89 (266.30)
16 (400)	-	-	16.000 (406.4)	1.188 (30.18)	188.11 (280.01)
16 (400)	-	120	16.000 (406.4)	1.219 (30.96)	192.61 (286.66)
16 (400)	-	-	16.000 (406.4)	1.250 (31.75)	197.10 (293.35)
16 (400)	-	140	16.000 (406.4)	1.438 (36.53)	223.85 (333.21)
16 (400)	-	160	16.000 (406.4)	1.594 (40.49)	245.48 (365.38)
18 (450)	-	5	18.000 (457)	0.165 (4.19)	31.46 (46.79)
18 (450)	-	-	18.000 (457)	0.188 (4.78)	35.80 (53.31)
18 (450)	-	-	18.000 (457)	0.219 (5.56)	41.63 (61.90)
18 (450)	-	10	18.000 (457)	0.250 (6.35)	47.44 (70.57)
18 (450)	-	-	18.000 (457)	0.281 (7.14)	53.23 (79.21)
18 (450)	-	20	18.000 (457)	0.312 (7.92)	58.99 (87.71)
18 (450)	-	-	18.000 (457)	0.344 (8.74)	64.93 (96.62)
18 (450)	STD	-	18.000 (457)	0.375 (9.53)	70.65 (105.17)

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
18 (450)	-	-	18.000 (457)	0.406 (10.31)	76.36 (113.58)
18 (450)	-	30	18.000 (457)	0.438 (11.13)	82.23 (122.38)
18 (450)	-	-	18.000 (457)	0.469 (11.91)	87.89 (130.73)
18 (450)	XS	-	18.000 (457)	0.500 (12.70)	93.54 (139.16)
18 (450)	-	40	18.000 (457)	0.562 (14.27)	104.76 (155.81)
18 (450)	-	-	18.000 (457)	0.625 (15.88)	116.09 (172.75)
18 (450)	-	-	18.000 (457)	0.688 (17.48)	127.32 (189.47)
18 (450)	-	60	18.000 (457)	0.750 (19.05)	138.30 (205.75)
18 (450)	-	-	18.000 (457)	0.812 (20.62)	149.20 (221.91)
18 (450)	-	-	18.000 (457)	0.875 (22.23)	160.18 (238.35)
18 (450)	-	80	18.000 (457)	0.938 (23.83)	171.08 (254.57)
18 (450)	-	-	18.000 (457)	1.000 (25.40)	181.73 (270.36)
18 (450)	-	-	18.000 (457)	1.062 (26.97)	192.29 (286.02)
18 (450)	-	-	18.000 (457)	1.125 (28.58)	202.94 (301.96)
18 (450)	-	100	18.000 (457)	1.156 (29.36)	208.15 (309.64)
18 (450)	-	-	18.000 (457)	1.188 (30.18)	213.51 (317.68)
18 (450)	-	-	18.000 (457)	1.250 (31.75)	223.82 (332.97)
18 (450)	-	120	18.000 (457)	1.375 (34.93)	244.37 (363.58)
18 (450)	-	140	18.000 (457)	1.562 (39.67)	274.48 (408.28)
18 (450)	-	160	18.000 (457)	1.781 (45.24)	308.79 (459.39)
20 (500)	-	5	20.000 (508)	0.188 (4.78)	39.82 (59.32)
20 (500)	-	-	20.000 (508)	0.219 (5.56)	46.31 (68.89)
20 (500)	-	10	20.000 (508)	-0.250 (6.35)	52.78 (78.56)
20 (500)	-	-	20.000 (508)	0.281 (7.14)	59.23 (88.19)
20 (500)	-	-	20.000 (508)	0.312 (7.92)	65.66 (97.68)
20 (500)	-	-	20.000 (508)	0.344 (8.74)	72.28 (107.61)
20 (500)	STD	20	20.000 (508)	0.375 (9.53)	78.67 (117.15)
20 (500)	-	-	20.000 (508)	0.406 (10.31)	85.04 (126.54)
20 (500)	-	-	20.000 (508)	0.438 (11.13)	91.59 (136.38)
20 (500)	-	-	20.000 (508)	0.469 (11.91)	97.92 (145.71)
20 (500)	XS	30	20.000 (508)	0.500 (12.70)	104.23 (155.13)
20 (500)	-	-	20.000 (508)	0.562 (14.27)	116.78 (173.75)
20 (500)	-	40	20.000 (508)	0.594 (15.09)	123.23 (183.43)
20 (500)	-	-	20.000 (508)	0.625 (15.88)	129.45 (192.73)

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
20 (500)	-	-	20.000 (508)	0.688 (17.48)	142.03 (211.45)
20 (500)	-	-	20.000 (508)	0.750 (19.05)	154.34 (229.71)
20 (500)	-	60	20.000 (508)	0.812 (20.62)	166.56 (247.84)
20 (500)	-	-	20.000 (508)	0.875 (22.23)	178.89 (266.31)
20 (500)	-	-	20.000 (508)	0.938 (23.83)	191.14 (284.54)
20 (500)	-	-	20.000 (508)	1.000 (25.40)	203.11 (302.30)
20 (500)	-	80	20.000 (508)	1.031 (26.19)	209.06 (311.19)
20 (500)	-	-	20.000 (508)	1.062 (26.97)	215.00 (319.94)
20 (500)	-	-	20.000 (508)	1.125 (28.58)	227.00 (337.91)
20 (500)	-	-	20.000 (508)	1.188 (30.18)	238.91 (355.63)
20 (500)	-	-	20.000 (508)	1.250 (31.75)	250.55 (372.91)
20 (500)	-	100	20.000 (508)	1.281 (32.54)	256.34 (381.55)
20 (500)	-	-	20.000 (508)	1.312 (33.32)	262.10 (390.05)
20 (500)	-	-	20.000 (508)	1.375 (34.93)	273.76 (407.51)
20 (500)	-	120	20.000 (508)	1.500 (38.10)	296.65 (441.52)
20 (500)	-	140	20.000 (508)	1.750 (44.45)	341.41 (508.15)
20 (500)	-	160	20.000 (508)	1.969 (50.01)	379.53 (564.85)
22 (550)	-	5	22.000 (559)	0.188 (4.78)	43.84 (65.33)
22 (550)	-	-	22.000 (559)	0.219 (5.56)	50.99 (75.89)
22 (550)	-	10	22.000 (559)	0.250 (6.35)	58.13 (86.55)
22 (550)	-	-	22.000 (559)	0.281 (7.14)	65.24 (97.17)
22 (550)	-	-	22.000 (559)	0.312 (7.92)	72.34 (107.64)
22 (550)	-	-	22.000 (559)	0.344 (8.74)	79.64 (118.60)
22 (550)	STD	20	22.000 (559)	0.375 (9.53)	86.69 (129.14)
22 (550)	-	-	22.000 (559)	0.406 (10.31)	93.72 (139.51)
22 (550)	-	-	22.000 (559)	0.438 (11.13)	100.96 (150.38)
22 (550)	-	-	22.000 (559)	0.469 (11.91)	107.95 (160.69)
22 (550)	XS	30	22.000 (559)	0.500 (12.70)	114.92 (171.10)
22 (550)	-	-	22.000 (559)	0.562 (14.27)	128.79 (191.70)
22 (550)	-	-	22.000 (559)	0.625 (15.88)	142.81 (212.70)
22 (550)	-	-	22.000 (559)	0.688 (17.48)	156.74 (233.44)
22 (550)	-	-	22.000 (559)	0.750 (19.05)	170.37 (253.67)
22 (550)	-	-	22.000 (559)	0.812 (20.62)	183.92 (273.78)
22 (550)	-	60	22.000 (559)	0.875 (22.23)	197.60 (294.27)

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
22 (550)	-	-	22.000 (559)	0.938 (23.83)	211.19 (314.51)
22 (550)	-	-	22.000 (559)	1.000 (25.40)	224.49 (334.25)
22 (550)	-	-	22.000 (559)	1.062 (26.97)	237.70 (353.86)
22 (550)	-	80	22.000 (559)	1.125 (28.58)	251.05 (373.85)
22 (550)	-	-	22.000 (559)	1.188 (30.18)	264.31 (393.59)
22 (550)	-	-	22.000 (559)	1.250 (31.75)	277.27 (412.84)
22 (550)	-	-	22.000 (559)	1.312 (33.32)	290.15 (431.96)
22 (550)	-	100	22.000 (559)	1.375 (34.93)	303.16 (451.45)
22 (550)	-	-	22.000 (559)	1.438 (36.53)	316.08 (470.69)
22 (550)	-	-	22.000 (559)	1.500 (38.10)	328.72 (489.44)
22 (550)	-	120	22.000 (559)	1.625 (41.28)	353.94 (527.05)
22 (550)	-	140	22.000 (559)	1.875 (47.63)	403.38 (600.67)
22 (550)	-	160	22.000 (559)	2.125 (53.98)	451.49 (672.30)
24 (600)	-	5	24.000 (610)	0.218 (5.54)	55.42 (82.58)
24 (600)	-	10	24.000 (610)	0.250 (6.35)	63.47 (94.53)
24 (600)	-	-	24.000 (610)	0.281 (7.14)	71.25 (106.15)
24 (600)	-	-	24.000 (610)	0.312 (7.92)	79.01 (117.60)
24 (600)	-	-	24.000 (610)	0.344 (8.74)	86.99 (129.60)
24 (600)	STD	20	24.000 (610)	0.375 (9.53)	94.71 (141.12)
24 (600)	-	-	24.000 (610)	0.406 (10.31)	102.40 (152.48)
24 (600)	-	-	24.000 (610)	0.438 (11.13)	110.32 (164.38)
24 (600)	-	-	24.000 (610)	0.469 (11.91)	117.98 (175.67)
24 (600)	XS	-	24.000 (610)	0.500 (12.70)	125.61 (187.07)
24 (600)	-	30	24.000 (610)	0.562 (14.27)	140.81 (209.65)
24 (600)	-	-	24.000 (610)	0.625 (15.88)	156.17 (232.67)
24 (600)	-	40	24.000 (610)	0.688 (17.48)	171.45 (255.43)
24 (600)	-	-	24.000 (610)	0.750 (19.05)	186.41 (277.63)
24 (600)	-	-	24.000 (610)	0.812 (20.62)	201.28 (299.71)
24 (600)	-	-	24.000 (610)	0.875 (22.23)	216.31 (322.23)
24 (600)	-	-	24.000 (610)	0.938 (23.83)	231.25 (344.48)
24 (600)	-	60	24.000 (610)	0.969 (24.61)	238.57 (355.28)
24 (600)	-	-	24.000 (610)	1.000 (25.40)	245.87 (366.19)
24 (600)	-	-	24.000 (610)	1.062 (26.97)	260.41 (387.79)
24 (600)	-	-	24.000 (610)	1.125 (28.58)	275.10 (409.80)

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
24 (600)	-	-	24.000 (610)	1.188 (30.18)	289.71 (431.55)
24 (600)	-	80	24.000 (610)	1.219 (30.96)	296.86 (442.11)
24 (600)	-	-	24.000 (610)	1.250 (31.75)	304.00 (452.77)
24 (600)	-	-	24.000 (610)	1.312 (33.32)	318.21 (473.87)
24 (600)	-	-	24.000 (610)	1.375 (34.93)	332.56 (495.38)
24 (600)	-	-	24.000 (610)	1.438 (36.53)	346.83 (516.63)
24 (600)	-	-	24.000 (610)	1.500 (38.10)	360.79 (537.36)
24 (600)	-	100	24.000 (610)	1.531 (38.89)	367.74 (547.74)
24 (600)	-	-	24.000 (610)	1.562 (39.67)	374.66 (557.97)
24 (600)	-	120	24.000 (610)	1.812 (46.02)	429.79 (640.07)
24 (600)	-	140	24.000 (610)	2.062 (52.37)	483.57 (720.19)
24 (600)	-	160	24.000 (610)	2.344 (59.54)	542.64 (808.27)
26 (650)	-	-	26.000 (660)	0.250 (6.35)	68.82 (102.36)
26 (650)	-	-	26.000 (660)	0.281 (7.14)	77.26 (114.96)
26 (650)	-	10	26.000 (660)	0.312 (7.92)	85.68 (127.36)
26 (650)	-	-	26.000 (660)	0.344 (8.74)	94.35 (140.37)
26 (650)	STD	-	26.000 (660)	0.375 (9.53)	102.72 (152.88)
26 (650)	-	-	26.000 (660)	0.406 (10.31)	111.08 (165.19)
26 (650)	-	-	26.000 (660)	0.438 (11.13)	119.69 (178.10)
26 (650)	-	-	26.000 (660)	0.469 (11.91)	128.00 (190.36)
26 (650)	XS	20	26.000 (660)	0.500 (12.70)	136.30 (202.74)
26 (650)	-	-	26.000 (660)	0.562 (14.27)	152.83 (227.25)
26 (650)	-	-	26.000 (660)	0.625 (15.88)	169.54 (252.25)
26 (650)	-	-	26.000 (660)	0.688 (17.48)	186.16 (276.98)
26 (650)	-	-	26.000 (660)	0.750 (19.05)	202.44 (301.12)
26 (650)	-	-	26.000 (660)	0.812 (20.62)	218.64 (325.14)
26 (650)	-	-	26.000 (660)	0.875 (22.23)	235.01 (349.64)
26 (650)	-	-	26.000 (660)	0.938 (23.83)	251.30 (373.87)
26 (650)	-	-	26.000 (660)	1.000 (25.40)	267.25 (397.51)
28 (700)	-	-	28.000 (711)	0.250 (6.35)	74.16 (110.35)
28 (700)	-	-	28.000 (711)	0.281 (7.14)	83.26 (123.94)
28 (700)	-	10	28.000 (711)	0.312 (7.92)	92.35 (137.32)
28 (700)	-	-	28.000 (711)	0.344 (8.74)	101.70 (151.37)
28 (700)	STD	-	28.000 (711)	0.375 (9.53)	110.74 (164.86)

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
28 (700)	-	-	28.000 (711)	0.406 (10.31)	119.76 (178.16)
28 (700)	-	-	28.000 (711)	0.438 (11.13)	129.05 (192.10)
28 (700)	XS	20	28.000 (711)	0.500 (12.70)	146.99 (218.71)
28 (700)	-	-	28.000 (711)	0.562 (14.27)	164.84 (245.19)
28 (700)	-	30	28.000 (711)	0.625 (15.88)	182.90 (272.23)
28 (700)	-	-	28.000 (711)	0.688 (17.48)	200.87 (298.96)
28 (700)	-	-	28.000 (711)	0.750 (19.05)	218.48 (325.08)
28 (700)	-	-	28.000 (711)	0.812 (20.62)	236.00 (351.07)
28 (700)	-	-	28.000 (711)	0.875 (22.23)	253.72 (377.60)
28 (700)	-	-	28.000 (711)	0.938 (23.83)	271.36 (403.84)
28 (700)	-	-	28.000 (711)	1.000 (25.40)	288.63 (429.46)
30 (750)	-	5	30.000 (762)	0.250 (6.35)	79.51 (118.34)
30 (750)	-	-	30.000 (762)	0.281 (7.14)	89.27 (132.92)
30 (750)	-	10	30.000 (762)	0.312 (7.92)	99.02 (147.29)
30 (750)	-	-	30.000 (762)	0.344 (8.74)	109.06 (162.36)
30 (750)	STD	-	30.000 (762)	0.375 (9.53)	118.76 (176.85)
30 (750)	-	-	30.000 (762)	0.406 (10.31)	128.44 (191.12)
30 (750)	-	-	30.000 (762)	0.438 (11.13)	138.42 (206.10)
30 (750)	-	-	30.000 (762)	0.469 (11.91)	148.06 (220.32)
30 (750)	XS	20	30.000 (762)	0.500 (12.70)	157.68 (234.68)
30 (750)	-	-	30.000 (762)	0.562 (14.27)	176.86 (263.14)
30 (750)	-	30	30.000 (762)	0.625 (15.88)	196.26 (292.20)
30 (750)	-	-	30.000 (762)	0.688 (17.48)	215.58 (320.95)
30 (750)	-	-	30.000 (762)	0.750 (19.05)	234.51 (349.04)
30 (750)	-	-	30.000 (762)	0.812 (20.62)	253.36 (377.01)
30 (750)	-	-	30.000 (762)	0.875 (22.23)	272.43 (405.56)
30 (750)	-	-	30.000 (762)	0.938 (23.83)	291.41 (433.81)
30 (750)	-	-	30.000 (762)	1.000 (25.40)	310.01 (461.41)
30 (750)	-	-	30.000 (762)	1.062 (26.97)	328.53 (488.88)
30 (750)	-	-	30.000 (762)	1.125 (28.58)	347.26 (516.93)
30 (750)	-	-	30.000 (762)	1.188 (30.18)	365.90 (544.68)
30 (750)	-	-	30.000 (762)	1.250 (31.75)	384.17 (571.79)

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
32 (800)	-	-	32.000 (813)	0.250 (6.35)	84.85 (126.32)
32 (800)	-	-	32.000 (813)	0.281 (7.14)	95.28 (141.90)
32 (800)	-	10	32.000 (813)	0.312 (7.92)	105.69 (157.25)
32 (800)	-	-	32.000 (813)	0.344 (8.74)	116.41 (173.35)
32 (800)	STD	-	32.000 (813)	0.375 (9.53)	126.78 (188.83)
32 (800)	-	-	32.000 (813)	0.406 (10.31)	137.12 (204.09)
32 (800)	-	-	32.000 (813)	0.438 (11.13)	147.78 (220.10)
32 (800)	-	-	32.000 (813)	0.469 (11.91)	158.08 (235.29)
32 (800)	XS	20	32.000 (813)	0.500 (12.70)	168.37 (250.65)
32 (800)	-	-	32.000 (813)	0.562 (14.27)	188.87 (281.09)
32 (800)	-	30	32.000 (813)	0.625 (15.88)	209.62 (312.17)
32 (800)	-	40	32.000 (813)	0.688 (17.48)	230.29 (342.94)
32 (800)	-	-	32.000 (813)	0.750 (19.05)	250.55 (373.00)
32 (800)	-	-	32.000 (813)	0.812 (20.62)	270.72 (402.94)
32 (800)	-	-	32.000 (813)	0.875 (22.23)	291.14 (433.52)
32 (800)	-	-	32.000 (813)	0.938 (23.83)	311.47 (463.78)
32 (800)	-	-	32.000 (813)	1.000 (25.40)	331.39 (493.35)
32 (800)	-	-	32.000 (813)	1.062 (26.97)	351.23 (522.80)
32 (800)	-	-	32.000 (813)	1.125 (28.58)	371.31 (552.88)
32 (800)	-	_3	2.000 (813)	1.188 (30.18)	391.30 (582.64)
32 (800)	-	-	32.000 (813)	1.250 (31.75)	410.90 (611.72)
34 (850)	-	-	34.000 (864)	0.250 (6.35)	90.20 (134.31)
34 (850)	-	-	34.000 (864)	0.281 (7.14)	101.29 (150.88)
34 (850)	-	10	34.000 (864)	0.312 (7.92)	112.36 (167.21)
34 (850)	-	-	34.000 (864)	0.344 (8.74)	123.77 (184.34)
34 (850)	STD	-	34.000 (864)	0.375 (9.53)	134.79 (200.82)
34 (850)	-	-	34.000 (864)	0.406 (10.31)	145.80 (217.06)
34 (850)	-	-	34.000 (864)	0.438 (11.13)	157.14 (234.10)
34 (850)	-	-	34.000 (864)	0.469 (11.91)	168.11 (250.27)
34 (850)	XS	20	34.000 (864)	0.500 (12.70)	179.06 (266.63)
34 (850)	-	-	34.000 (864)	0.562 (14.27)	200.89 (299.04)
34 (850)	-	30	34.000 (864)	0.625 (15.88)	222.99 (332.14)
34 (850)	-	40	34.000 (864)	0.688 (17.48)	245.00 (364.92)
34 (850)	-	-	34.000 (864)	0.750 (19.05)	266.58 (396.96)

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

> continuação

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
34 (850)	-	-	34.000 (864)	0.812 (20.62)	288.08 (428.88)
34 (850)	-	-	34.000 (864)	0.875 (22.23)	309.84 (461.48)
34 (850)	-	-	34.000 (864)	0.938 (23.83)	331.52 (493.75)
34 (850)	-	-	34.000 (864)	1.000 (25.40)	352.77 (525.30)
34 (850)	-	-	34.000 (864)	1.062 (26.97)	373.94 (556.73)
34 (850)	-	-	34.000 (864)	1.125 (28.58)	395.36 (588.83)
34 (850)	...	...	34.000 (864)	1.188 (30.18)	416.70 (620.60)
34 (850)	...	...	34.000 (864)	1.250 (31.75)	437.62 (651.65)
36 (900)	...	...	36.000 (914)	0.250 (6.35)	95.54 (142.14)
36 (900)	...	...	36.000 (914)	0.281 (7.14)	107.30 (159.68)
36 (900)	...	10	36.000 (914)	0.312 (7.92)	119.03 (176.97)
36 (900)	...	...	36.000 (914)	0.344 (8.74)	131.12 (195.12)
36 (900)	STD	...	36.000 (914)	0.375 (9.53)	142.81 (212.57)
36 (900)	...	...	36.000 (914)	0.406 (10.31)	154.48 (229.77)
36 (900)	...	...	36.000 (914)	0.438 (11.13)	166.51 (247.82)
36 (900)	...	...	36.000 (914)	0.469 (11.91)	178.14 (264.96)
36 (900)	XS	20	36.000 (914)	0.500 (12.70)	189.75 (282.29)
36 (900)	...	...	36.000 (914)	0.562 (14.27)	212.90 (316.63)
36 (900)	...	30	36.000 (914)	0.625 (15.88)	236.35 (351.73)
36 (900)	...	...	36.000 (914)	0.688 (17.48)	259.71 (386.47)
36 (900)	...	40	36.000 (914)	0.750 (19.05)	282.62 (420.45)
36 (900)	...	...	36.000 (914)	0.812 (20.62)	305.44 (454.30)
36 (900)	...	...	36.000 (914)	0.875 (22.23)	328.55 (488.89)
36 (900)	...	...	36.000 (914)	0.938 (23.83)	351.57 (523.14)
36 (900)	...	...	36.000 (914)	1.000 (25.40)	374.15 (556.62)
36 (900)	...	...	36.000 (914)	1.062 (26.97)	396.64 (589.98)
36 (900)	...	...	36.000 (914)	1.125 (28.58)	419.42 (624.07)
36 (900)	...	...	36.000 (914)	1.188 (30.18)	442.10 (657.81)
36 (900)	...	...	36.000 (914)	1.250 (31.75)	464.35 (690.80)

NOTE: (1) STD = Standard; XS = Extra-Strong; and XXS = Double Extra-Strong.

continua >

Dimensões e Pesos de Tubos Com ou Sem Costura (Continuação)

Dimensions and Weights For Seamless or Welded Pipes (Cont'd)

Diâmetro nominal do tubo Identification Nominal Pipe Size pol / inch (mm)	Identificação Identification [Note (1)]	Schedule Nº	Diâmetro Externo Outside Diameter in. (mm)	Espessura da parede: t Wall Thickness: t in. (mm)	Extremidade lisa - Peso (massa), lb/pé (kg/m) Plain End - Weight (Mass), lb/ft (kg/m)
38 (950)	—	—	38.000 (965)	0.312 (7.92)	125.70 (186.94)
38 (950)	—	—	38.000 (965)	0.344 (8.74)	138.47 (206.11)
38 (950)	STD	—	38.000 (965)	0.375 (9.53)	150.83 (224.56)
38 (950)	—	—	38.000 (965)	0.406 (10.31)	163.16 (242.74)
38 (950)	—	—	38.000 (965)	0.438 (11.13)	175.87 (261.82)
38 (950)	—	—	38.000 (965)	0.469 (11.91)	188.17 (279.94)
38 (950)	XS	—	38.000 (965)	0.500 (12.70)	200.44 (298.26)
38 (950)	—	—	38.000 (965)	0.562 (14.27)	224.92 (334.58)
38 (950)	—	—	38.000 (965)	0.625 (15.88)	249.71 (371.70)
38 (950)	—	—	38.000 (965)	0.688 (17.48)	274.42 (408.46)
38 (950)	—	—	38.000 (965)	0.750 (19.05)	298.65 (444.41)
38 (950)	—	—	38.000 (965)	0.812 (20.62)	322.80 (480.24)
38 (950)	—	—	38.000 (965)	0.875 (22.23)	347.26 (516.85)
38 (950)	—	—	38.000 (965)	0.938 (23.83)	371.63 (553.11)
38 (950)	—	—	38.000 (965)	1.000 (25.40)	395.53 (588.57)
38 (950)	—	—	38.000 (965)	1.062 (26.97)	419.35 (623.90)
38 (950)	—	—	38.000 (965)	1.125 (28.58)	443.47 (660.01)
38 (950)	—	—	38.000 (965)	1.188 (30.18)	467.50 (695.77)
38 (950)	—	—	38.000 (965)	1.250 (31.75)	491.07 (730.74)

CONEXÕES E VÁLVULAS

TOLERÂNCIAS

1 Tolerâncias de Centro a Superfície de Contato e de Centro a Extremidade

As tolerâncias exigidas para vários flanges e elementos de conexão flangeados são as seguintes:

(a) Distância do centro às superfícies de contato (exceto juntas de anel)

Tamanho	Tolerância, mm (pol.)
NPS ≤ 10	±1,0 (±0,04)
NPS ≥ 12	±1,5 (±0,06)

(b) Distância do centro à extremidade (junta de anel)

Tamanho	Tolerância, mm (pol.)
NPS ≤ 10	±1,0 (±0,04)
NPS ≥ 12	±1,5 (±0,06)

(c) Distância entre superfícies de contato (exceto juntas de anel)

Tamanho	Tolerância, mm (pol.)
NPS ≤ 10	±2,0 (±0,08)
NPS ≥ 12	±3,0 (±0,12)

(d) Distância entre extremidades (junta de anel)

Tamanho	Tolerância, mm (pol.)
NPS ≤ 10	±2,0 (±0,08)
NPS ≥ 12	±3,0 (±0,12)

2 Faces

2.1 Flanges e Conexões Flangeadas. As tolerâncias que se aplicam tanto às faces de flanges quanto às de conexões flangeadas são as seguintes:

(a) Diâmetro interno e externo de encaixe macho-fêmea grande e pequeno, ±0,5 mm (±0,02 pol.).

(b) Diâmetro externo, face elevada de 1,5 mm (0,06 pol.), ±1,0 mm (±0,04 pol.).

(c) Diâmetro externo, face elevada de 6,4 mm (0,25 pol.), ±0,5 mm (±0,02 pol.).

2.2 Flanges. As tolerâncias aplicáveis às flanges são as seguintes:

Perpendicularidade da face com o furo

Tamanho	Tolerância, graus
NPS ≤ 5	1
NPS ≥ 6	0,5

3 Espessura da Flange

As tolerâncias exigidas para a espessura da flange são as seguintes:

Tamanho	Tolerância, mm (pol.)
NPS ≤ 18	+3,0, -0,0 (+0,12, -0,00)
NPS ≥ 20	+5,0, -0,0 (+0,20, -0,00)

4 Soldagem de extremidades de flange e cubos

4.1 Diâmetro externo.

Tamanho	Tolerância, mm (pol.)
NPS ≤ 5	+2,0, -1,0 (+0,08, -0,04)
NPS ≥ 6	+4,0, -1,0 (+0,16, -0,04)

4.2 Diâmetro interno.

Tamanho	Tolerância, mm (pol.)
NPS ≤ 10	±1,0 (±0,04)
12 ≤ NPS ≤ 18	±1,5 (±0,06)
NPS ≥ 20	+3,0, -1,5 (+0,12, -0,06)

4.3 Espessura do Cubo. Apesar das tolerâncias especificadas para as dimensões A e B, a espessura do cubo na extremidade de soldagem não deve ser inferior a 87 1/2% da espessura nominal do tubo, tendo uma subtolerância de 12,5% para a espessura da parede do tubo à qual o flange será fixado.

5 Comprimento através do cubo em flanges de pescoço de solda

As tolerâncias exigidas para o comprimento através do cubo em flanges de pescoço de solda são as seguintes:

Tamanho	Tolerância, mm (pol.)
NPS ≤ 4	±1,5 (±0,06)
5 ≤ NPS ≤ 10	+1,5, -3,0 (+0,06, -0,12)
NPS ≥ 12	+3,0, -5,0 (+0,12, -0,20)

Dimensões e Tamanhos

Dimensions and Size

Dimensão Dimension	Tipo de Flange Flange Type	Tamanho Size	Tolerância Tolerance (mm)	
Diâmetro externo do pescoço A Outside diameter of neck A	11, 21, 34	≤ DN 125	+ 3,0 0	
		> DN 125 ≤ DN 1200	+ 4,5 0	
		> DN 1200	+ 6,0 0	
	35, 36, 37	≤ DN 150	± 0,75 % ^a , min. ± 0,3 mm	
		> DN 150	± 1 % ^a , max. ± 3,0 mm	
Diâmetro externo do pescoço A Bore diameter B ₁ , B ₂ , B ₃	01, 02, 04, 12, 32	≤ DN 100	+ 0,5 0	
		> DN 100 ≤ DN 400	+ 1,0 0	
		> DN 400 ≤ DN 600	+ 1,5 0	
		> DN 600	+ 3,0 0	
Espessura da parede S ^c Wall thickness S ^c	11, 34 ^b	...	pescoço usinado (ambas as faces) machined neck (both faces)	pescoço com uma face usinada ou não usinada neck one face machined or unmachined
		≤ DN 100	+ 1,0 0	+ 2,0 0
		> DN 100 ≤ DN 400	+ 1,5 0	+ 2,5 0
	35	> DN 400	+ 2,0 0	+ 3,5 0
		S ≤ 8	+ 15% - 10%	
	36, 37	S > 8	+ 15% - 5%	
		≤ DN 600	- 12,5% ^a + 15%	
> DN 600	- 5% ^a + 15%			
Espessura da parede chanfrada S _p Bevelled wall thickness S _p	35, 36, 37	S ≤ 6	+ 1,0 0	
		S > 6	+ 2,0 0	

Dimensões e Tamanhos

Dimensions and Size

Dimensão <i>Dimension</i>	Tipo de Flange <i>Flange Type</i>	Tamanho <i>Size</i>	Tolerância <i>Tolerance (mm)</i>
Diâmetro externo D <i>Outside diameter D</i>	21	≤ DN 250	± 4,0
		> DN 250 ≤ DN 500	± 5,0
		> DN 500 ≤ DN 800	± 6,0
		> DN 800 ≤ DN 1200	± 7,0
		> DN 1200 ≤ DN 1600	± 8,0
		> DN 1600 ≤ DN 2000	± 10,0
	Todos os outros tipos <i>All other types</i>	≤ DN 150	± 2,0
		> DN 150 ≤ DN 500	± 3,0
		> DN 500 ≤ DN 1200	± 5,0
		> DN 1200 ≤ DN 1800	± 7,0
		> DN 1800	± 10,0
Comprimento através do cubo <i>H₁, H₂, H₃, H₄, H₅</i> <i>Length through hub</i> <i>H₁, H₂, H₃, H₄, H₅</i>	11, 12, 13, 34, 35, 36, 37	≤ DN 80	± 1,5
		> DN 80 ≤ DN 250	± 2,0
		> DN 250	± 3,0
Diâmetro do gargalo <i>N₁</i> <i>Neck diameter</i> <i>N₁</i>	11 (superfície de rolamento usinada) <i>11</i> <i>(machined bearing surface)</i>	N1 ≤ 120	0 1,0
		N1 > 120 ≤ 400	0 1,2
		N1 > 400 ≤ 1000	+ 1,6 0
		N1 > 1000 ≤ 2000	+2,5 0
		N1 > 2000	+ 4,0 0
	11 (superfície de apoio não usinada) <i>11</i> <i>(un-machined bearing surface)</i>	N1 ≤ 120	0 1,0
		N1 > 120 ≤ 400	0 2,0
		N1 > 400 ≤ 1000	+ 4,0 0
		N1 > 1000 ≤ 2000	+ 6,0 0
		N1 > 2000	+ 8,0 0

Dimensões e Tamanhos

Dimensions and Size

Dimensão Dimension	Tipo de Flange Flange Type	Tamanho Size	Tolerância Tolerance (mm)
Diâmetro do Pescoço N ₁ , N ₂ , N ₃ Neck diameter N ₁ , N ₂ , N ₃	21, 34 (superfície de apoio não usinada) 21, 34 (un-machined bearing surface)	≤ DN 50	0 - 2,0
		> DN 50 ≤ DN 150	0 - 4,0
		> DN 150 ≤ DN 300	0 - 6,0
		> DN 300 ≤ DN 600	0 - 8,0
		> DN 600 ≤ DN 4000	0 - 10,0
	21, 34 (superfície de apoio usinada) 21, 34 (machined bearing surface)	≤ DN 50	+ 1,0 0
		> DN 50 ≤ DN 150	+ 1,5 0
		> DN 150 ≤ DN 300	+ 2,0 0
		> DN 300 ≤ DN 600	+ 2,5 0
		> DN 600 ≤ DN 4000	+ 3,0 0
Diâmetro do Pescoço N ₂ , N ₃ Neck diameter N ₂ , N ₃	12, 13	≤ DN 50	+ 1,0 0
		> DN 50 ≤ DN 150	+ 2,0 0
		> DN 150 ≤ DN 300	+ 4,0 0
		> DN 300 ≤ DN 600	+ 8,0 0
		> DN 600 ≤ DN 1200	+ 12,0 0
		> DN 1200 ≤ DN 1800	+ 16,0 0
		> DN 1800	+ 20,0 0

Dimensões e Tamanhos

Dimensions and Size

Dimensão Dimension	Tipo de Flange Flange Type	Tamanho Espessura Size Thickness	Tolerância Tolerance (mm)
Espessura do Colarinho F Collar thickness F	35 (usinado em ambas as faces) <i>35 (machined on both facings)</i>	≤ 18 mm	± 1,0
		> 18 mm ≤ 50 mm	± 1,5
	35 (usinado apenas na face frontal ou não usinado) <i>35 (machined on front face, only or unmachined)</i>	≤ 18 mm	+ 2,0 - 1,3
		> 18 mm ≤ 50 mm	+ 4,0 - 1,5
	36 (usinado apenas na face frontal ou não usinado) <i>35 (machined on front face, only or unmachined)</i>	≤ 18 mm	± 10 %
	37 (não usinado) <i>37 (un-machined)</i>	≤ 5 mm	± 0,20
	37 (não usinado) <i>37 (un-machined)</i>	> 5 mm	± 3,20
	32, 34 (usinados em ambas as faces) <i>32, 34 (machined on both faces)</i>	≤ 18 mm	+ 1,0 - 1,3
		> 18 mm	± 1,5
	32, 34 (usinado apenas na face frontal) <i>32, 34 (machined on front side only)</i>	≤ 18 mm	+ 2,0 - 1,3
		> 18 mm ≤ 30 mm	+ 3,0 - 1,5
		> 30 mm	+ 4,0 - 1,3
Espessura do flange C ₁ , C ₂ , C ₃ , C ₄ Flange thickness C ₁ , C ₂ , C ₃ , C ₄	Todos os tipos (usinados em ambas as faces) <i>All types (machined on both faces)</i>	≤ 18 mm	+ 4,0 - 1,3
		> 18 mm ≤ 50 mm	± 1,5
		> 50 mm	± 2,0
	Todos os tipos (usinados apenas na face frontal) Tipos 02 e 04 (não usinados) <i>ll types (machined n front side only)</i> <i>Type 02 and 04 (un-machined)</i>	≤ 18 mm	+ 2,0 - 1,3
		> 18 mm ≤ 50 mm	+ 4,0 - 1,5
		> 50 mm	+ 7,0 - 1,0
Diâmetro do Pescoço N ₂ , N ₃ Neck diameter N ₂ , N ₃	Todos os tipos <i>All types</i>	≤ DN 250	+ 2,0 - 1,0
		> DN 250	+ 3,0 - 1,0



TOLERÂNCIAS FLANGES EN1092-1 / TOLERANCES

Dimensões e Tamanhos

Dimensions and Size

Dimensão Dimension		Tipo de Flange Flange Type	Tamanho Size		Tolerância Tolerance (mm)
Altura de face f_1 Facing height f_1		Todos os tipos (tipos de frente B, D, F e G) All Types (Facing type B, D, F and G)	≤ DN 32	2 mm	0 - 1,0
			> DN 32 to DN 250	3 mm	0 - 2,0
			> DN 250 to DN 500	4 mm	0 - 3,0
			> DN 500	5 mm	0 - 4,0
		Todos os tipos (tipos de frente C, E e G) All types (Facing type C, E and G)	All DN	+ 0,5 0	
Altura de face f_2 Facing height f_2		Todos os tipos (tipos de frente D e F) All types (Facing type D and F)	All DN	0 - 0,5	
Altura de face f_3 Facing height f_3		Todos os tipos (tipos de frente C, E e G) All types (Facing type H)	All DN	0 - 0,5	
Altura de face f_4 Facing height f_4		Todos os tipos (tipos de frente C, E e G) All types (Facing type H)	All DN	+ 0,5 0	
Face Facing	W	Todos os tipos All types	All DN	+ 0,5 0	
	X			+ 0,5 0	
	Y			+ 0,5 0	
	Z			+ 0,5 0	
Diâmetro do círculo dos parafusos K Diameter of bolt circle K		Todos os tipos All types	Tamanho do parafuso M10 a M24 Bolt size M10 to M24	± 1,0	
			Tamanho do parafuso M27 to M45 Bolt size M27 to M45	± 1,5	
			Tamanho do parafuso > M45 Bolt size > M45	± 2,0	
Diâmetro dos furos dos parafusos L Diameter of bolt holes L		Todos os tipos All types	Tamanho do parafuso M10 a M24 Bolt size M10 to M24	+ 1,0 0	
			Tamanho do parafuso M27 to M45 Bolt size M27 to M45	+ 2,5 0	
			Tamanho do parafuso > M45 Bolt size > M45	+ 4,0 0	
Distância entre os centros dos furos de parafusos adjacentes Centre-to-centre of adjacent bolt holes		Todos os tipos All types	Tamanho do parafuso M10 a M24 Bolt size M10 to M24	± 1,0	
			Tamanho do parafuso M27 to M45 Bolt size M27 to M45	± 1,5	
			Tamanho do parafuso > M45 Bolt size > M45	± 2,0	

Dimensões e Tamanhos

Dimensions and Size

Dimensão <i>Dimension</i>	Tipo de Flange <i>Flange Type</i>	Tamanho <i>Size</i>	Tolerância <i>Tolerance (mm)</i>
Excentricidade dos diâmetros de faceamento usinados d <i>Eccentricity of machined facing diameters d</i>	Todos os tipos <i>All types</i>	≤ DN 65	1,0
		≤ DN 65	2,0
Paralelismo entre a superfície de apoio dos parafusos e as faces de junção dos flanges. <i>Parallelism between bolting bearing surface and flange jointing faces</i>	Todos os tipos (superfície de apoio usinada) <i>All types (machined bearing surface)</i>	All DN	1°
			2°

a Tolerância em % em relação ao diâmetro externo ou, respectivamente, à espessura da parede.

b Tolerância do furo não aplicável.

c Preparação das extremidades, consulte o Anexo A.

d Entre o círculo dos parafusos e o revestimento, assim como entre o diâmetro do furo e o revestimento.

a Tolerance in % from the outside diameter or respectively from the wall thickness.

b Bore tolerance not applicable.

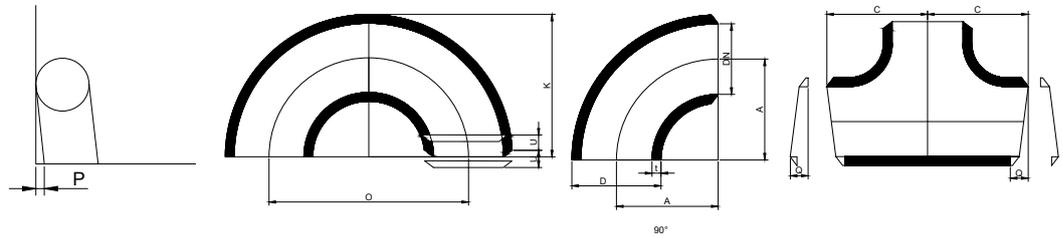
c Preparation of ends, see Annex A.

d Between bolt circle and facing also as between bore diameter and facing.



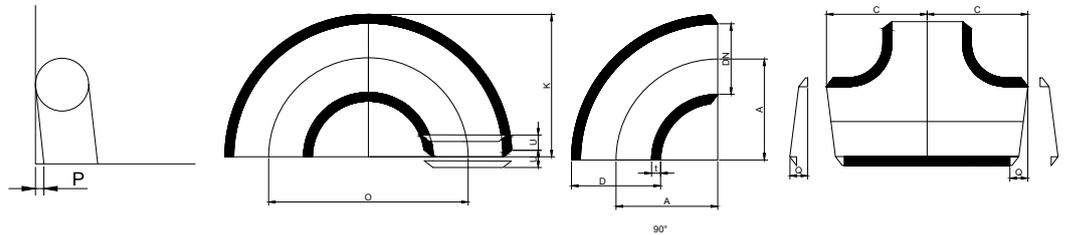
Tolerância Conexões Tubulares

Tolerance Pipe Fittings



Diâmetro Nominal do Tubo Nominal Pipe Size (NPS)	DN	Diâmetro Nominal All Fittings [Notes (1) and (2)]		Centro à Extremidade Center to end., mm (in.)		Comprimento total dos redutores e das extremidades dos encaixes de sobreposição. Overall Length of Reducers and Lap Joint Stub Ends. E. mm (in.)	Dimensões totais das tampas. E. mm (pol.) Overall of Caps. E. mm (in.)	Retornos de 180 graus 180-deg Returns		
		Diâmetro Externo Outside Diameter at Bevel, D. mm (in.) [Notes (3) and (4)]	Diâmetro interno na extremidade, Inside Diameter at End, mm (in.) [Notes (3) and (4)]	Cotovelos e Conexões em T de Raio Longo e Curto de 90° e 45°. A. B. C. M 90-deg abd 45-deg Long and Short Radius Elbows and Tees. A. B. C. M	Cotovelos com raio 3D. A. B 3D Radius Elbows. A. B			Dimensão de centro a centro. O. mm (pol.) Center-to-center Dimension. O. mm (in.)	Dimensão da face posterior. K. mm (pol.) Back-to-Face Dimension. K. mm (in.)	Alinhamento das extremidades. U. mm (pol.) Alignment of Ends. U. mm (in.)
1/2 to 2 1/2	15 to 65	+1.6, -0.8 (+0.06, -0.03)	0.8 (0.03)	2 (0.06)	3 (0.09)	2 (0.06)	3 (0.12)	6 (0.25)	6 (0.25)	1 (0.03)
3 to 3 1/2	80 to 90	1.6 (0.06)	1.6 (0.06)	2 (0.06)	3 (0.09)	2 (0.06)	3 (0.12)	6 (0.25)	6 (0.25)	1 (0.03)
4	100	1.6 (0.06)	1.6 (0.06)	2 (0.06)	3 (0.09)	2 (0.06)	3 (0.12)	6 (0.25)	6 (0.25)	1 (0.03)
5 to 8	125 to 200	+2.4, -1.6 (+0.09, -0.06)	1.6 (0.06)	2 (0.06)	3 (0.09)	2 (0.06)	6 (0.25)	6 (0.25)	6 (0.25)	1 (0.03)
10 to 18	250 to 450	+4.0, -3.2 (+0.16, -0.12)	3.2 (0.12)	2 (0.09)	3 (0.12)	2 (0.09)	6 (0.25)	10 (0.38)	6 (0.25)	2 (0.06)
20 to 24	500 to 600	+6.4, -4.8 (+0.25, -0.19)	4.8 (0.19)	2 (0.09)	3 (0.12)	2 (0.09)	6 (0.25)	10 (0.38)	6 (0.25)	2 (0.06)
26 to 30	650 to 750	+6.4, -4.8 (+0.25, -0.19)	4.8 (0.19)	3 (0.12)	6 (0.25)	5 (0.19)	10 (0.38)	...	...	...
32 to 48	800 to 1 200	+6.4, -4.8 (+0.25, -0.19)	4.8 (0.19)	5 (0.19)	6 (0.38)	21.3 22.7	31.4 33.4	31.4 33.4	42.7 45.4	50.7 54.0





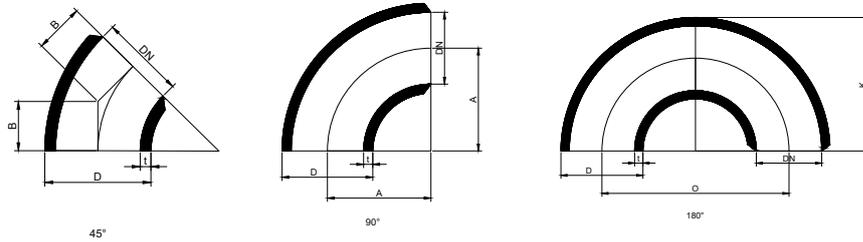
		Encaixe de junta sobreposta [Notas (6)] <i>Laps Joint Stub Ende [Notes (6)]</i>					Tolerância angular, mm (pol.) <i>Angularity Tolerance, mm (in.)</i>	
Diâmetro Nominal do Tubo <i>Nominal Pipe Size (NPS)</i>	DN	Diâmetro da sobreposição, G. mm (pol.) <i>Outside Diameter of Lap, G. mm (in.)</i>	Raio de concordância da sobreposição R. mm (pol.) <i>Fillet Radius of Lap. R. mm (in.)</i>	Espessura da sobreposição, mm (pol.) <i>Lap Thickness, mm (in.)</i>	Diâmetro Nominal do Tubo <i>Nominal Pipe Size (NPS)</i>	DN	Ângulo de fora, Q <i>Off Angle, Q</i>	Fora do plano, P <i>Off Plane, P</i>
1/2 to 2 1/2	15 to 65	+0, -1 (+0, -0.03)	+0, -1 (+0, -0.03)	+1.6, -0 (+0.06, -0)	1/2 to 4	15 to 100	1 (0.03)	2 (0.06)
3 to 3 1/2	80 to 90	+0, -1 (+0, -0.03)	+0, -1 (+0, -0.03)	+1.6, -0 (+0.06, -0)	5 to 8	125 to 200	2 (0.06)	4 (0.12)
4	100	+0, -1 (+0, -0.03)	+0, -2 (+0, -0.06)	+1.6, -0 (+0.06, -0)	10 to 12	250 to 300	3 (0.09)	5 (0.19)
5 to 8	125 to 200	+0, -1 (+0, -0.03)	+0, -2 (+0, -0.06)	+1.6, -0 (+0.06, -0)	14 to 16	350 to 400	3 (0.09)	6 (0.25)
10 to 18	250 to 450	+0, -2 (+0, -0.06)	+0, -2 (+0, -0.06)	+3.2, -0 (+0.12, -0)	18 to 24	450 to 600	4 (0.12)	10 (0.38)
20 to 24	500 to 600	+0, -2 (+0, -0.06)	+0, -2 (+0, -0.06)	+3.2, -0 (+0.12, -0)	26 to 30	650 to 750	5 (0.19)	10 (0.38)
26 to 30	650 to 750	...	...	...	32 to 42	800 to 1 050	5 (0.19)	13 (0.50)
32 to 48	800 to 1 200	...	...	...	44 to 48	1 100 to 1 200	5 (0.19)	19 (0.75)

GENERAL NOTE: Tolerances are equal plus and minus except as noted.

BRASFORGE
CONEXÕES E VÁLVULAS

Curva Raio Longo ASME/ANSI B16.9

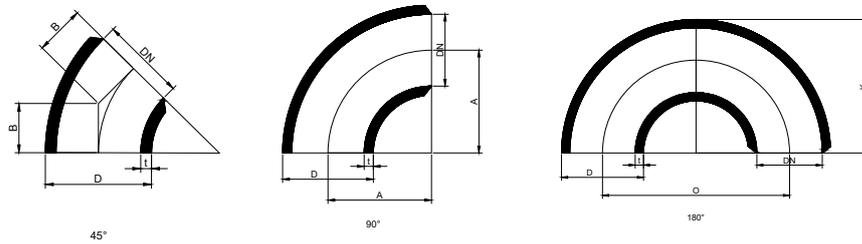
Elbows Long Radius ASME/ANSI B16.9



Diâmetro nominal do tubo Nominal Pipe Size pol / inch	Dimensões / Dimensions		Centro à Extremidade: A/B Center End: A/B Centro a Centro: O Center to Center: O Altura Total: K Back to Face: K	Espessura da parede: t Wall Thickness: t		Peso aproximado Approx. Weight			
	Diâmetro externo no chanfro: D Outside Diameter at Bevel: D			Sch. No.	t	45° kg	90° kg	180° kg	
	pol / inch	mm							pol / inch	mm
1/2	0.840	21.3	A=38.1 B=15.7 O=76.2 K=47.8	Std/40	0.109	2.77	0.04	0.08	0.16
				XS/80	0.147	3.73	0.05	0.10	0.20
3/4	1.050	26.7	A=38.1 B=19.1 O=76.2 K=50.8	Std/40	0.113	2.87	0.04	0.08	0.16
				XS/80	0.154	3.91	0.05	1.10	0.20
1	1.315	33.4	A=38.1 B=22.4 O=76.2 K=55.6	Std/40	0.133	3.38	0.08	0.15	0.30
				XS/80	0.179	4.55	0.10	0.19	0.38
				160	0.250	8.35	0.13	0.25	0.50
1 1/4	1.660	42.2	A=47.8 B=25.4 O=95.3 K=69.9	Std/40	0.140	3.55	0.13	0.25	0.50
				XS/80	0.191	4.85	0.17	0.33	0.66
				160	0.250	6.35	0.21	0.42	0.84
1 1/2	1.900	48.3	A=57.2 B=28.4 O=114.3 K=82.6	Std/40	0.145	6.68	0.18	0.36	0.72
				XS/80	0.200	5.08	0.25	0.49	0.98
				160	0.281	7.14	0.33	0.65	1.30
				XXS	0.400	10.15	0.43	0.86	1.72
2	3.375	60.3	A=76.2 B=35.1 O=152.4 K=106.4	Std/40	0.154	3.91	0.33	0.65	1.30
				XS/80	0.218	5.54	0.45	0.90	1.80
				160	0.344	8.74	0.67	1.33	2.66
				XXS	0.438	11.07	0.81	1.61	3.22
2 1/2	2.875	70.3	A=95.3 B=44.5 O=190.5 K=131.8	Std/40	0.203	5.16	0.65	1.29	2.58
				XS/80	0.276	7.01	0.86	1.71	3.42
				160	0.375	9.58	1.12	2.23	4.46
				XXS	0.552	14.02	1.53	3.05	6.10
3	3500	88.9	A=114.3 B=50.8 O=228.6 K=158.8	Std/40	0.216	5.49	1.02	2,03	4.06
				XS/80	0.300	7.62	1,37	2,74	5.48
				160	0.438	11.13	1,92	3,83	7.66
				XXS	0.600	15.25	2,49	4,97	9.94

Curva Raio Longo ASME/ANSI B16.9

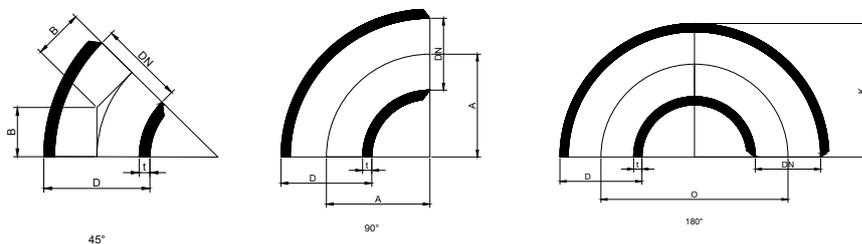
Elbows Long Radius ASME/ANSI B16.9



Diâmetro nominal do tubo Nominal Pipe Size pol / inch	Dimensões / Dimensions		Centro à Extremidade: A/B Center End: A/B Centro a Centro: O Center to Center: O Altura Total: K Back to Face: K	Espessura da parede: t Wall Thickness: t		Peso aproximado Approx. Weight			
	Diâmetro externo no chanfro: D Outside Diameter at Bevel: D			Sch. No.	t		45° kg	90° kg	180° kg
	pol / inch	mm			pol / inch	mm			
4	4.500	114.3	A=152.4 B=63.5 O=304.8 K=209.6	Std/40	0.237	6.02	1.93	3.85	7.7
				XS/80	0.337	8.56	2.67	5.34	10.7
				120	0.438	11.13	3.39	6.78	13.6
				160	0.531	14.49	4.02	8.03	16.1
				XXS	0.674	17.12	4.91	9.82	19.5
5	5.563	141.3	A=190.5 B=79.2 O=381.0 K=261.9	Std/40	0.258	6.55	3.26	6.51	13.0
				XS/80	0.375	9.53	4.64	9.27	18.5
				120	0.500	12.70	6.05	12.1	24.2
				160	0.625	15.88	7.35	14.7	29.4
				XXS	0.750	19.05	8.60	17.2	34.4
6	8.625	168.3	A=238.6 B=95.3 O=475.2 K=312.7	Std/40	0.280	7.11	5.05	10.1	20.2
				XS/80	0.432	10.97	7.65	15.3	30.6
				120	0.562	14.27	9.75	19.5	39.0
				160	0.718	18.26	12.1	24.2	48.4
				XXS	0.864	21.95	14.2	28.4	56.4
8	8.625	219.1	A=304.8 B=127.0 O=609.6 K=312.7	20	0.250	6.35	7.95	15.9	31.5
				30	0.277	7.04	8.80	17.6	35.2
				Std/40	0.322	8.18	10.2	20.4	40.8
				60	0.406	10.31	12.7	25.4	50.8
				XS/80	0.500	12.70	15.5	30.9	61.8
				100	0.594	15.09	18.2	36.3	72.6
				120	0.719	18.26	21.7	43.3	86.6
				140	0.812	20.62	26.7	48.3	96.5
				160	0.906	23.01	26.7	53.3	107
				XXS	0.875	22.23	25.9	51.7	103
10	10.750	273.0	A=381.0 B=158.8 O=762.0 K=517.7	20	0.250	6.35	12.5	25.0	50.0
				30	0.307	7.80	15.3	30.5	61.0
				Std/40	0.365	9.27	18.1	36.1	72.2
				XS/60	0.500	12.70	24.4	48.8	97.6
				80	0.594	15.09	28.7	57.3	115
				100	0.594	18.28	34.3	68.6	137
				120	0.844	21.44	39.8	78.5	169
				XXS/140	1.000	25.40	46.4	92.8	186
				160	1.125	28.58	51.5	103	206

Curva Raio Longo ASME/ANSI B16.9

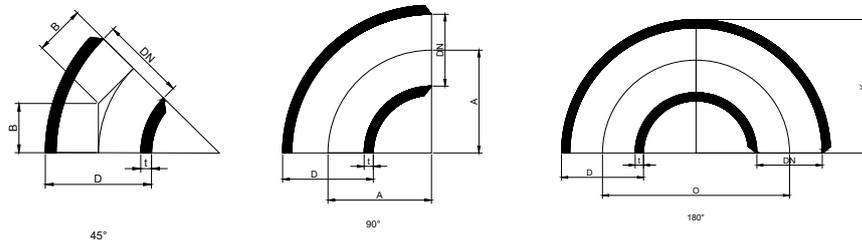
Elbows Long Radius ASME/ANSI B16.9



Diâmetro nominal do tubo Nominal Pipe Size pol / inch	Dimensões / Dimensions		Centro à Extremidade: A/B Center End: A/B Centro a Centro: O Center to Center: O Altura Total: K Back to Face: K	Espessura da parede: t Wall Thickness: t		Peso aproximado Approx. Weight			
	Diâmetro externo no chanfro: D Outside Diameter at Bevel: D			Sch. No.	t		45° kg	90° kg	180° kg
	pol / inch	mm			pol / inch	mm			
12	12.750	323.9	A=457.2 B=190.5 O=914.4 K=619.3	20	0.250	6.35	17.9	35.7	71.4
				30	0.330	8.38	23.4	45.8	93.6
				Std	0.375	9.53	26.6	53.1	106
				40	0.406	10.31	28.7	57.8	115
				XS	0.500	12.70	35.0	70.0	140
				60	0.562	14.27	39.1	78.2	158
				80	0.688	17.48	47.4	94.7	189
				100	0.844	21.44	57.5	115	230
				120/XXS	1.000	25.40	67.0	134	268
				140	1.125	28.58	74.5	149	298
160	1.312	33.32	85.5	174	342				
14	14.000	355.6	A=533.4 B=222.3 O=1066.8 K=711.2	10	0.250	6.35	22.9	45.5	91.6
				20	0.312	7.92	28.5	56.9	114
				Std	0.375	9.53	34.1	68.1	136
				40	0.438	11.13	39.6	79.2	158
				XS	0.500	12.70	45.0	90.0	180
				60	0.594	15.09	53.0	106	212
				80	0.750	19.05	66.0	132	264
				100	0.938	23.83	81.5	163	326
				120	1.094	27.79	94.0	188	376
				140	1.250	31.75	106	212	424
160	1.406	35.72	118	336	472				
16	16.000	406.4	A=609.6 B=254.0 O=1219.2 K=812.8	10	0.250	6.35	30.0	60.0	120
				30	0.312	7.92	37.3	74.5	149
				Std	0.375	9.53	44.7	89.3	179
				40/ XS	0.500	12.70	59.0	118	236
				60	0.656	16.66	76.5	153	306
				80	0.844	21.44	97.5	195	390
				100	1.031	26.19	118	235	470
				120	1.219	30.96	137	274	548
				140	1.438	36.53	160	319	638
				160	1.594	40.49	175	350	700
18	18.000	457.0	A=685.8 B=285.8 O=1371.6 K=914.4	10	0.250	6.35	38.1	76.1	152
				20	0.312	7.92	47.3	94.5	189
				30	0.438	11.13	66.0	132	264
				Std	0.375	9.53	56.5	113	226
				XS	0.500	12.70	75.0	150	300
				40	0.562	14.27	84.0	168	336
				60	0.760	19.05	111	222	444
				80	0.938	23.83	137	274	548
				100	1.156	29.36	167	334	668
				120	1.375	34.93	196	392	784
				140	1.562	39.67	220	440	880
				160	1.781	45.24	246	492	984

Curva Raio Longo ASME/ANSI B16.9

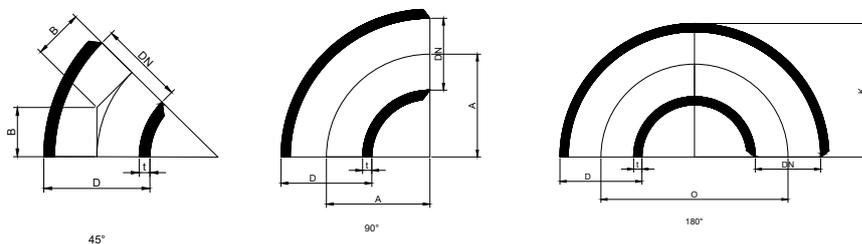
Elbows Long Radius ASME/ANSI B16.9



Diâmetro nominal do tubo Nominal Pipe Size pol / inch	Dimensões / Dimensions		Centro à Extremidade: A/B Center End: A/B Centro a Centro: O Center to Center: O Altura Total: K Back to Face: K	Espessura da parede: t Wall Thickness: t		Peso aproximado Approx. Weight			
	Diâmetro externo no chanfro: D Outside Diameter at Bevel: D			Sch. No.	t		45° kg	90° kg	180° kg
	pol / inch	mm			pol / inch	mm			
20	20.000	508.0	A=762.0 B=315.5 O=1524.0 K=1616.0	10	0.250	6.35	47.0	94.0	188
				Std/20	0.375	9.63	70.0	140	280
				XS/30	0.500	12.70	93.0	186	372
				40	0.594	15.09	110	219	438
				60	0.812	20.62	149	297	594
				80	1.031	26.19	186	372	744
				100	1.281	21.54	229	457	914
				120	1.500	39.10	264	528	1056
				140	1.750	44.45	305	609	1218
160	1.969	50.01	338	676	1352				
22	22.000	559.0	A=838.2 B=342.9 O=1676.4 K=1117.6	10	0.250	6.35	57.0	114	228
				Std/20	0.375	9.53	85.0	170	340
				XS/30	0.500	12.70	113	225	450
				60	0.875	22.23	194	387	774
				80	1.125	28.58	248	492	984
				100	1.375	34.93	297	594	1188
				120	1.625	41.38	347	694	1388
				140	1.875	47.63	395	790	1580
				160	2.125	53.98	443	885	1770
24	24.000	610.0	A=914.4 B=381.0 O=1838.8 K=1219.2	10	0.250	6.35	68	136	272
				Std/20	0.375	9.53	101	202	404
				XS	0.500	12.70	135	269	538
				30	0.562	14.27	151	301	602
				40	0.688	17.48	183	368	732
				60	0.969	24.61	255	510	1020
				80	1.219	30.96	317	634	1268
				100	1.531	38.89	393	786	1572
				120	1.812	46.02	460	919	1838
140	2.062	52.37	515	1033	2060				
160	2.344	59.34	580	1160	2020				
26	26.000	660.0	990.6 B=406.4	10	0.312	7.92	99	198	
				Std	0.375	9.53	119	238	
				XS/20	0.500	12.70	158	316	

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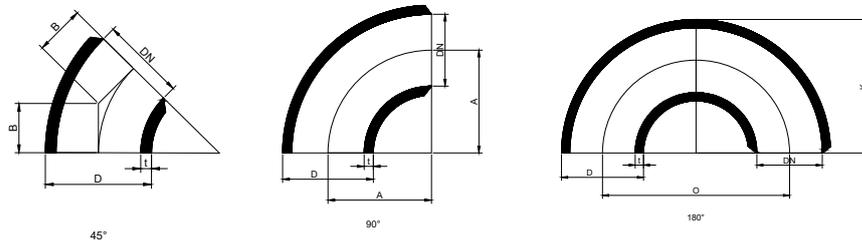
Elbows Long Radius ASME/ANSI B16.9



Diâmetro nominal do tubo Nominal Pipe Size pol / inch	Dimensões / Dimensions		Centro à Extremidade: A/B Center End: A/B Centro a Centro: O Center to Center: O Altura Total: K Back to Face: K	Espessura da parede: t Wall Thickness: t		Peso aproximado Approx. Weight			
	Diâmetro externo no chanfro: D Outside Diameter at Bevel: D			Sch. No.	t		45° kg	90° kg	180° kg
	pol / inch	mm			pol / inch	mm			
28	28.000	711.0	A=1066.8 B=469.9	10	0.312	7.92	115	230	
				Std	0.375	9.53	138	276	
				XS/20	0.500	12.70	174	367	
				30	0.625	15.88	228	456	
30	30.000	762.0	A=1143. B=469.9	10	0.312	7.92	132	264	
				Std	0.375	9.53	159	318	
				XS/20	0.500	12.70	211	421	
				30	0.625	15.88	262	524	
32	32.000	813.0	A=1219.2 B=501.7	10	0.312	7.92	151	301	
				Std	0.375	9.53	181	362	
				XS/20	0.500	12.70	240	480	
				30	0.625	15.88	299	597	
				40	0.688	17.48	328	656	
34	34.000	864.0	A=1295.4 B=533.4	10	0.312	7.92	151	301	
				Std	0.375	9.53	181	362	
				XS/20	0.500	12.70	240	480	
				30	0.625	15.88	299	597	
				40	0.688	17.48	328	656	
36	36.000	914.0	A=1371.6 B=565.4	10	0.312	7.92	191	381	
				Std	0.375	9.53	229	458	
				XS/20	0.500	12.70	304	608	
				30	0.625	15.88	379	758	
				40	0.688	17.46	453	906	
38	38.000	965.0	A=1371.6 B=565.2	Std	0.375	9.53	257	514	1028
				XS	0.500	12.70	341.5	683	1366
40	40.000	1016.0	A=1524.0 B=632.0	Std	0.375	9.53	285	570	1140
				XS	0.500	12.7	374.5	757	1514

Curva Raio Longo ASME/ANSI B16.9

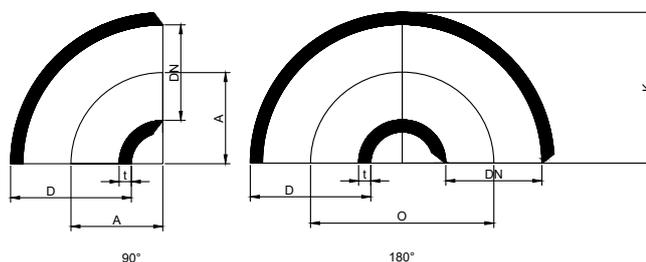
Elbows Long Radius ASME/ANSI B16.9



Diâmetro nominal do tubo Nominal Pipe Size pol / inch	Dimensões / Dimensions		Centro à Extremidade: A/B Center End: A/B Centro a Centro: O Center to Center: O Altura Total: K Back to Face: K	Espessura da parede: t Wall Thickness: t		Peso aproximado Approx. Weight			
	Diâmetro externo no chanfro: D Outside Diameter at Bevel: D			Sch. No.	t		45° kg	90° kg	180° kg
	pol / inch	mm			pol / inch	mm			
42	42.000	1067.0	A=1600.0 B=660.0	Std XS	0.375 0.500	9.53 12.7	314.5 418	625 838	1258 1672
44	44.000	1118.0	A=1676.0 B=695.0	Std XS	0.375 0.500	9.53 12.7	314.5 459	691 918	1382 1836
46	46.000	1168.0	A=1753.0 B=727.0	Std XS	0.375 0.500	9.53 12.7	314.5 501.5	753 1003	1506 2006
48	48.000	1219.0	A=1829.0 B=759.0	Std XS	0.375 0.500	9.53 12.7	411 546	822 1092	1644 2184

Curva Raio Curto ASME/ANSI B16.28

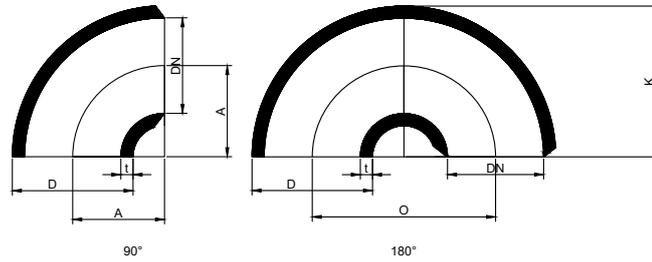
Elbows Short Radius ASME/ANSI B16.28



Diâmetro nominal do tubo Nominal Pipe Size pol / inch	Dimensões / Dimensions		Centro à Extremidade: A/B Center End: A/B Centro a Centro: O Center to Center: O Altura Total: K Back to Face: K	Espessura da parede: t Wall Thickness: t		Peso aproximado Approx. Weight		
	Diâmetro externo no chanfro: D Outside Diameter at Bevel: D			Sch. No.	t		90° kg	180° kg
	pol / inch	mm			pol / inch	mm		
1	1.315	33.4	A=25.4 O=50.8 K=41.1	Std/40 XS/80 160 XXS	0.133 0.179 0.250 0.358	3.38 4.55 6.35 9.09	0.10 0.13 0.17 0.22	230 276 367 456
1 1/4	1.660	42.2	A=31.8 O=63.5 K=52.3	Std/40 XS/80 160 XXS	0.140 0.191 0.250 0.382	3.56 4.58 6.35 9.70	0.17 0.22 0.28 0.39	264 318 421 524
1 1/2	1.900	48.3	A=38.1 O=76.2 K=62.0	Std/40 XS/80 160 XXS	0.145 0.200 0.281 0.400	3.68 5.03 7.14 10.15	0.24 0.32 0.43 0.57	0,48 0,64 0,86 1.14
2	2.375	60.3	A=50.8 O=101.6 K=81.0	Std/40 XS/80 160 XXS	0.154 0.218 0.344 0.436	3.91 3.54 8.74 11.07	0.45 0.60 0.89 1.07	0.86 1.20 1.78 2.14
2 1/2	2.875	73.0	A=63.5 O=127.0 K=100.1	Std/40 XS/80 160 XXS	0.203 0.276 0.375 0.552	5.16 7.01 9.53 14.02	0.86 1.14 1.48 2.03	1.72 2.28 2.98 4.06
3	3.500	88.9	A=76.2 O=152.4 K=120.7	Std/40 XS/80 160 XXS	0.216 0.300 0.438 0.600	5.49 7.62 11.13 15.24	1.35 1.83 2.56 3.31	2.70 3.66 5.12 6.62
4	4.500	114.3	A=101.6 O=203.2 K=158.8	Std/40 XS/80 120 160 XXS	0.237 0.337 0.438 0.531 0.674	6.02 8.56 11.13 13.49 17.12	2.57 3.56 4.52 5.35 6.54	5.14 7.12 9.04 10.70 13.08
5	5.563	141.3	A=127.0 O=254.0 K=196.9	Std/40 XS/80 120 160 XXS	0.258 0.375 0.500 0.625 0.750	6.55 9.53 12.70 15.88 19.05	4.34 6.18 8.04 9.80 11.45	8.68 12.40 16.10 19.60 22.90

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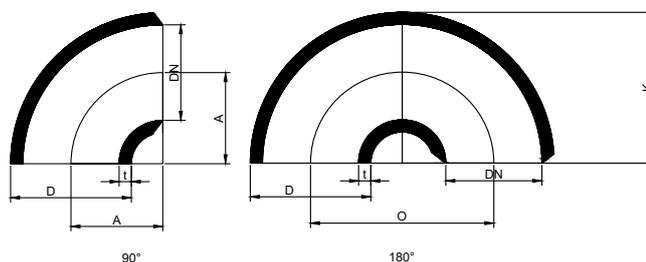
Elbows Long Radius ASME/ANSI B16.28



Diâmetro nominal do tubo Nominal Pipe Size pol / inch	Dimensões / Dimensions		Centro à Extremidade: A/B Center End: A/B Centro a Centro: O Center to Center: O Altura Total: K Back to Face: K	Espessura da parede: t Wall Thickness: t		Peso aproximado Approx. Weight		
	Diâmetro externo no chanfro: D Outside Diameter at Bevel: D			Sch. No.	t		90° kg	180° kg
	pol / inch	mm			pol / inch	mm		
6	6.625	168.3	A=152.4 O=304.8 K=236.5	Std/40	0.280	7.11	6.77	13.5
				XS/80	0.432	10.97	10.2	20.4
				120	0.562	14.27	13.0	26.0
				160	0.719	18.26	16.2	32.4
				XXS	0.884	21.95	19.0	38.0
8	8.625	219.1	A=203.2 O=406.4 K=312.7	20	0.250	6.35	10.6	21.2
				30	0.277	7.04	11.8	23.6
				Std/40	0.322	8.18	13.6	27.2
				60	0.406	10.31	16.9	33.8
				XS/80	0.500	12.70	20.9	41.8
				100	0.594	15.09	24.2	48.4
				120	0.719	18.26	28.8	57.6
				140	0.812	20.62	32.2	64.4
				160	0.906	23.11	35.5	71.0
				XXS	0.875	22.23	34.4	68.8
10	10.750	273.0	A=254.0 O=508.0 K=390.7	20	0.250	6.35	16.7	33.4
				30	0.307	7.80	20.4	40.8
				Std/40	0.365	9.27	24.1	48.2
				XS/60	0.500	12.70	32.5	65.0
				80	0.594	15.09	38.2	76.4
				100	0.719	18.26	45.7	91.4
				120	0.844	21.44	53.0	106.0
				XXS/140	1.000	25.40	61.9	124.0
160	1.125	28.58	68.7	137.0				
12	12.750	323.9	A=304.8 O=609.6 K=466.9	20	0.250	6.35	23.8	47.6
				30	0.330	8.38	31.2	62.4
				Std	0.375	9.53	35.4	70.8
				40	0.406	10.31	38.2	76.4
				XS	0.562	14.27	52.2	104.0
				60	0.500	12.70	46.7	93.4
				80	0.688	17.48	63.1	126.0
				100	0.844	21.44	76.5	153.0
				XXS/120	1.000	24.40	89.5	179.0
				140	1.125	28.58	99.6	199.0
				160	1.312	32.32	114.0	228.0

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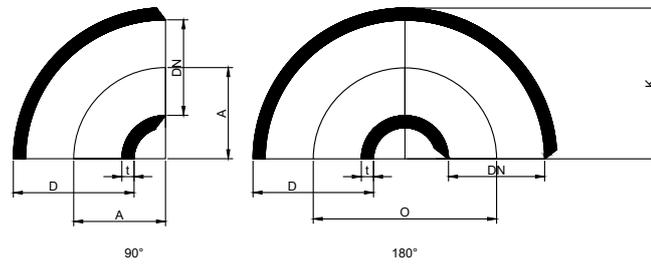
Elbows Short Radius ASME/ANSI B16.28



Diâmetro nominal do tubo Nominal Pipe Size pol / inch	Dimensões / Dimensions		Centro à Extremidade: A/B Center End: A/B Centro a Centro: O Center to Center: O Altura Total: K Back to Face: K	Espessura da parede: t Wall Thickness: t		Peso aproximado Approx. Weight		
	Diâmetro externo no chanfro: D Outside Diameter at Bevel: D			Sch. No.	t		90° kg	180° kg
	pol / inch	mm			pol / inch	mm		
14	14.000	335.6	A=355.6 O=711.2 K=533.4	10	0.250	6.35	36.6	61.2
				20	0.312	7.92	37.9	75.8
				Std/30	0.375	9.53	45.4	90.8
				40	0.438	11.13	52.8	106
				XS	0.500	12.70	60.0	120
				60	0.594	15.09	70.6	141
				80	0.750	19.05	88.3	177
				100	0.938	23.08	109	218
				120	1.094	27.79	125	250
				140	1.250	31.75	142	284
160	1.406	35.71	157	314				
16	16.000	406.4	A=406.4 O=812.8 K=609.6	10	0.250	6.35	40.0	80.0
				20	0.312	7.92	49.7	99.0
				Std/30	0.375	9.53	59.5	119
				XS/40	0.500	12.70	78.7	157
				60	0.656	16.66	102	204
				80	0.844	24.44	130	260
				100	1.031	26.19	157	314
				120	1.219	30.96	183	366
				140	1.438	36.53	213	426
				160	1.594	40.49	233	466
18	18.000	457.0	A=457.0 O=914.4 K=685.8	10	0.250	6.35	50.7	101
				20	0.312	7.92	63.0	126
				Std	0.375	9.53	75.6	151
				30	0.438	11.13	87.9	176
				40	0.562	14.27	112	224
				XS	0.750	19.05	148	296
				60	0.500	12.70	100	200
				80	0.938	33.83	183	366
				100	1.156	29.36	222	444
				120	1.375	34.93	261	522
140	1.562	39.67	293	586				
160	1.781	45.24	330	660				
20	20.000	508.0	A=508.0 O=1.016 K=762.0	10	0.250	6.35	62.7	123
				Std/20	0.375	9.53	93.4	187
				XS/30	0.500	12.70	124	248
				40	0.594	15.09	146	292
				60	0.812	20.62	198	396
				80	1.031	26.19	248	496
				100	1.281	32.54	304	608
				120	1.500	38.10	352	704
				140	1.750	44.45	405	810
				160	1.909	50.01	451	902

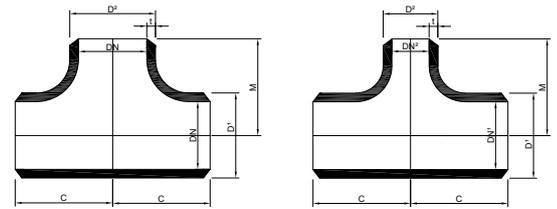
Curva Raio Longo ASME/ANSI B16.28

Elbows Long Radius ASME/ANSI B16.28



Diâmetro nominal do tubo Nominal Pipe Size pol / inch	Dimensões / Dimensions		Centro à Extremidade: A/B Center End: A/B Centro a Centro: O Center to Center: O Altura Total: K Back to Face: K	Espessura da parede: t Wall Thickness: t		Peso aproximado Approx. Weight		
	Diâmetro externo no chanfro: D Outside Diameter at Bevel: D			Sch. No.	t		90° kg	180° kg
	pol / inch	mm			pol / inch	mm		
22	22.000	559	A=558.8 O=1117.6 K=838.3	10	0.250	6.35	75.9	152
				Std/20	0.375	9.53	111	226
				XS/30	0.500	12.70	150	300
				60	0.875	22.23	258	516
				80	1.125	28.58	328	656
				100	1.375	34.93	396	792
				120	1.625	41.28	462	924
				140	1.875	47.63	527	1054
				160	2.125	53.98	590	1180
24	24.000	610	A=609.6 O=1219.2 K=914.4	10	0.250	6.35	90.5	181
				Std/20	0.375	9.53	135	270
				40	0.562	14.27	201	402
				60	0.688	17.48	244	488
				XS	0.969	24.61	340	680
				80	0.500	12.70	179	358
				100	0.719	30.96	423	846
				120	1.219	38.89	524	1048
				140	1.531	46.02	612	1224
				160	2.062	52.37	689	1378
180	2.344	59.54	773	1546				

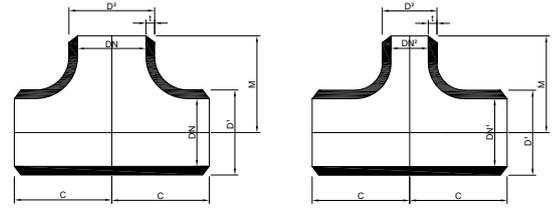
TÊS (RETOS E REDUZIDOS)
TEES (STRAIGHT AND REDUCING)



Diâmetro Nominal Nominal Diameter		Externo Outside	Centro à Extremidade Center to end		Peso aproximado por peça (kg). Kg/pcs approx. weight							
DN	pol / inch	D ₁ x D ₂	C	M	sch5s	sch10s	sch20s	STD	sch40	XS	sch80	sch120
20 x 20	3/4 x 3/4	25 x 25 26.7 x 26.7	29	29	0.07 0.08	0.10 0.11	0.12 0.13	0.13 0.15	0.13 0.15	0.16 0.18	0.16 0.18	—
20 x 15	3/4 x 1/2	25 x 18 26.7 x 21.3	29	29	0.06 0.07	0.09 0.10	0.11 0.12	0.12 0.13	0.12 0.13	0.15 0.16	0.15 0.16	—
25 x 25	1 x 1	32 x 32 33.4 x 33.4	38	38	0.11 0.12	0.19 0.20	0.21 0.22	0.23 0.25	0.23 0.25	0.30 0.32	0.30 0.32	—
25 x 20	1 x 3/4	32 x 35 33.4 x 26.7	38	38	0.10 0.11	0.18 0.19	0.20 0.21	0.22 0.24	0.22 0.24	0.28 0.31	0.28 0.31	—
25 x 15	1 x 1/2	32 x 18 33.4 x 21.3	38	38	0.09 0.10	0.17 0.18	0.19 0.20	0.21 0.23	0.21 0.23	0.27 0.30	0.27 0.30	—
32 x 2	1 1/4 x 1 1/4	38 x 38 42.2 x 42.2	48	48	0.09 0.20	0.36 0.39	0.39 0.45	0.42 0.52	0.42 0.52	0.63 0.73	0.63 0.73	—
32 x 25	1 1/4 x 1	38 x 32 42.2 x 33.4	48	48	0.18 0.19	0.33 0.35	0.37 0.39	0.40 0.42	0.40 0.42	0.58 0.68	0.58 0.68	—
32 x 20	1 1/4 x 1 3/4	38 x 35 42.2 x 26.7	48	48	0.17 0.18	0.30 0.31	0.34 0.36	0.38 0.40	0.38 0.40	0.55 0.65	0.55 0.65	—
32 x 15	1 1/4 x 1 1/2	38 x 18 42.2 x 21.3	48	48	0.16 0.17	0.30 0.31	0.33 0.35	0.36 0.38	0.36 0.38	0.52 0.62	0.52 0.62	—
40 x 40	1 1/2 x 1 1/2	45 x 45 48.3 x 48.3	57	57	0.35 0.45	0.59 0.69	0.65 0.76	0.78 0.88	0.78 0.88	1.08 1.18	1.08 1.18	—
40 x 32	1 1/2 x 1 1/4	45 x 38 48.3 x 42.2	57	57	0.32 0.42	0.54 0.65	0.63 0.75	0.72 0.82	0.72 0.82	0.99 1.09	0.99 1.09	—
40 x 25	1 1/2 x 1	45 x 32 48.3 x 33.4	57	57	0.27 0.37	0.45 0.66	0.52 0.73	0.60 0.80	0.60 0.80	0.39 0.45	0.39 0.45	—
40 x 20	1 1/2 x 3/4	45 x 25 48.3 x 26.7	57	57	0.26 0.36	0.44 0.64	0.51 0.66	0.58 0.68	0.58 0.68	0.12 0.13	0.12 0.13	—
40 x 15	1 1/2 x 1/2	45 x 18 48.3 x 21.3	57	57	0.25 0.35	0.42 0.62	0.48 0.64	0.56 0.66	0.56 0.66	0.11 0.12	0.11 0.12	—
50 x 50	2 x 2	57 x 57 60.3 x 60.3	64	64	0.49 0.50	1.03 1.05	1.11 1.13	1.15 1.18	1.15 1.18	0.21 0.22	0.21 0.22	—
50 x 40	2 x 1 1/2	57 x 57 60.3 x 60.3	64	60	0.44 0.45	0.93 0.95	1.01 1.03	1.04 1.06	1.04 1.06	0.20 0.21	0.20 0.21	—
50 x 32	2 x 1 1/4	57 x 38 60.3 x 42.2	64	57	0.40 0.43	0.81 0.89	0.88 0.94	0.98 1.00	0.98 1.00	0.19 0.20	0.19 0.20	—
50 x 25	2 x 1	57 x 32 60.3 x 33.4	64	51	0.39 0.40	0.72 0.84	0.83 0.88	0.92 0.94	0.92 0.94	0.39 0.45	0.39 0.45	—
50 x 20	2 x 3/4	57 x 25 60.3 x 33.4	64	41	0.37 0.38	0.70 0.80	0.77 0.85	0.87 0.90	0.87 0.90	0.12 0.13	0.12 0.13	—
65 x 65	2 1/2 x 2 1/2	76 x 76 73.0 x 73.0	76	76	0.87 0.86	1.25 1.21	1.73 1.65	2.12 2.10	2.12 2.10	0.11 0.12	0.11 0.12	—
65 x 50	2 1/2 x 2	76 x 57 73.0 x 60.3	76	70	0.82 0.81	1.17 1.16	1.54 1.49	2.00 1.98	2.00 1.98	0.21 0.22	0.21 0.22	—
65 x 40	2 1/2 x 1 1/2	76 x 45 73.0 x 48.3	76	67	0.77 0.76	1.11 1.10	1.41 1.38	1.89 1.88	1.89 1.88	0.20 0.21	0.20 0.21	—
65 x 32	2 1/2 x 1 1/4	76 x 38 73.0 x 42.2	76	64	0.75 0.74	1.10 1.08	1.35 1.30	1.80 1.89	1.80 1.89	0.19 0.20	0.19 0.20	—
65 x 25	2 1/2 x 1	76 x 32 73.0 x 33.4	76	57	0.76 0.70	1.10 1.07	1.34 1.28	1.86 1.81	1.86 1.81	2.53 2.08	2.53 2.08	—

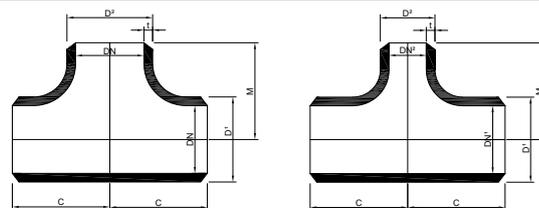


TÊS (RETOS E REDUZIDOS)
TEES (STRAIGHT AND REDUCING)



Diâmetro Nominal Nominal Diameter		Externo Outside	Centro à Extremidade Center to end		Peso aproximado por peça (kg). Kg/pcs approx. weight							
DN	pol / inch	D ₁ x D ₂	C	M	sch5s	sch10s	sch20s	STD	sch40	XS	sch80	sch120
80 x 80	3 x 4	89 x 89	86	86	1.16	1.68	2.21	3.02	3.02	4.19	4.19	—
80 x 65	3 x 2 1/2	89 x 57 89.9 x 73.0	86	83	1.11 1.10	1.62 1.60	2.13 2.08	2.89 2.87	2.89 2.87	4.05 3.98	4.02 3.98	—
80 x 50	3 x 2	89 x 57 89.9 x 60.3	86	76	1.06 1.07	1.53 1.55	2.05 2.10	2.76 2.79	2.76 2.79	3.81 3.85	3.81 3.85	—
80 x 40	3 x 1 1/2	89 x 45 89.9 x 48.3	86	73	1.01 1.03	1.49 1.50	1.98 2.01	2.67 2.69	2.67 2.69	3.70 3.73	3.70 3.73	—
80 x 32	2 x 1 1/4	89 x 38 89.9 x 42.2	86	70	1.00 1.00	1.48 1.45	1.97 1.95	2.65 2.60	2.65 2.60	3.68 3.60	3.68 3.60	—
90 x 90	3 1/1 x 1 1/2	101.6 x 101.6	95	95	1.33	1.92	2.53	3.61	3.61	5.08	5.08	—
90 x 80	3/2 x 3	101.6 x 88.9	95	92	1.26	1.82	2.41	3.43	3.43	4.83	4.83	—
90 x 65	3 1/4 x 3 1/2	101.6 x 73.0	95	89	1.22	1.76	2.34	3.32	3.32	4.67	4.67	—
90 x 50	3 1/2 x 2	101.6 x 60.3	95	83	1.20	1.73	2.31	3.25	3.25	4.57	4.57	—
90 x 40	3 1/2 x 1 1/2	101.6 x 48.3	95	79	1.07	1.70	2.26	3.21	3.21	4.51	4.51	—
100 x 100	4 x 4	108 x 38 114.3 x 114.3	105	105	1.66 1.75	2.41 2.54	3.02 3.26	4.75 5.01	4.75 5.01	0.99 1.09	6.75 7.12	8.78 9.25
100 x 90	4 x 3 1/2	114.3 x 101.6	105	102	1.70	2.46	3.19	4.85	4.85	4.85	6.89	8.96
100 x 80	4 x 3	108 x 89 114.3 x 88.9	105	98	1.55 1.61	2.24 2.33	3.16 3.21	4.42 4.60	4.42 4.60	4.42 4.60	6.27 6.52	8.15 8.48
100 x 65	4 1/2 x 2 1/2	108 x 76 114.3 x 73.0	105	95	1.53 1.60	2.21 2.31	3.09 3.11	4.36 4.56	4.36 4.56	6.50 6.50	6.50 6.50	8.45 8.45
100 x 50	4 x 2	108 x 57 114.3 x 60.3	105	89	1.51 1.57	2.19 2.29	3.08 3.19	3.42 4.41	4.32 4.41	6.13 6.12	6.13 6.12	7.97 9.26
100 x 40	4 x 1 1/2	108 x 45 114.3 x 48.3	105	86	1.50 1.55	2.09 2.24	2.92 3.19	4.22 4.00	6.03 6.02	6.03 6.02	6.03 6.04	7.98 9.11
125 x 125	5 x 5	133 x 133 141.3 x 141.3	124	124	3.18 3.37	3.91 4.14	6.17 6.31	7.53 7.98	7.53 7.98	10.9 11.6	10.9 11.6	16.4 15.4
125 x 100	5 x 4	133 x 108 141.3 x 141.3	124	117	3.03 3.15	3.73 3.90	5.76 5.91	7.20 7.52	7.20 7.52	10.4 10.8	10.4 10.8	13.49 14.5
125 x 90	5 x 3 1/2	114.3 x 101.6	124	114	3.09	3.83	5.83	7.39	7.39	10.6	10.6	14.2
125 x 80	5 x 2 1/2	133 x 89 141.3 x 88.9	124	111	2.90 3.02	3.59 3.74	5.42 5.71	6.92 7.21	6.92 7.21	10.0 10.4	10.0 10.4	13.3 13.8
125 x 65	5 x 2	133 x 76 141.3 x 73.0	124	108	2.85 3.00	1.25 1.21	1.73 1.65	2.12 2.10	2.12 2.10	0.11 0.12	0.11 0.12	—
125 x 50	6 x 6	133 x 57 141.3 x 60.3	124	105	2.80 3.92	3.58 3.73	5.38 5.70	6.92 7.20	6.92 7.20	10.0 10.4	10.0 10.0	13.3 13.3
125 x 40	6 x 5	159 x 159 168.3 x 168.3	143	143	4.09 4.32	5.03 5.31	8.91 9.10	10.5 11.1	16.2 17.1	16.2 17.1	0.20 0.21	21.0 22.2
150 x 150	6 x 4	159 x 133 168.3 x 141.3	143	137	3.84 4.13	4.73 5.08	8.33 9.01	9.88 10.6	9.88 10.6	15.2 16.3	15.2 16.3	19.8 20.3
150 x 100	6 x 3 1/2	159 x 108 168.3 x 114.3	143	130	3.76 3.95	4.64 4.87	8.21 8.55	9.70 10.2	14.9 15.6	14.9 15.6	14.9 15.6	19.3 20.3
150 x 90	6 x 3	168.3 x 101.6	143	127	3.91	4.82	8.46	10.1	10.1	15.55	15.55	20.1
150 x 80	6 x 3	159 x 89 168.3 x 88.9	143	124	3.72 3.93	4.56 4.82	8.09 8.43	9.56 10.0	9.56 10.0	14.7 15.3	14.7 15.3	19.0 20.2
150 x 66	6 x 2 1/2	159 x 76 168.3 x 73.0	143	121	3.70 3.81	4.51 4.72	7.93 8.33	9.51 10.0	9.51 10.0	14.6 15.2	14.6 15.2	19.2 20.2

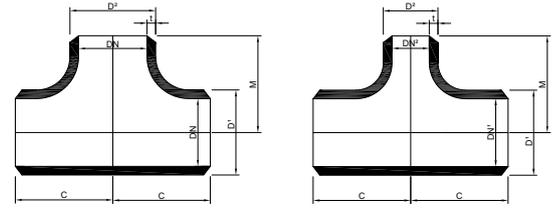
TÊS (RETOS E REDUZIDOS)
TEES (STRAIGHT AND REDUCING)



Diâmetro Nominal Nominal Diameter		Externo Outside	Centro à Extremidade Center to end		Peso aproximado por peça (kg) Kg/pcs approx. weight							
DN	pol / inch	D ₁ x D ₂	C	M	sch5s	sch10s	sch20s	STD	sch40	XS	sch80	sch120
200 x 200	8 x 8	219 x 219	178	178	7.73	10.4	17.7	22.8	22.8	35.4	35.4	50.8
200 x 150	8 x 6	219 x 159 219.1 x 141.3	178	168	6.74 7.17	9.20 9.74	16.4 16.4	19.9 21.1	19.9 21.1	30.9 32.8	30.9 32.8	44.4 47.2
200 x 125	8 x 5	219 x 133 219.1 x 141.3	178	162	6.61 7.03	8.89 9.55	15.1 16.0	19.5 20.7	19.5 20.7	144 118	30.2 32.2	43.5 46.3
200 x 100	8 x 4	219 x 108 219.1 x 114.3	178	156	6.43 6.84	8.73 9.39	14.7 15.6	19.0 19.9	20.5 20.2	29.4 31.3	29.4 31.3	42.2 45.0
250 x 90	8 x 3 3.1/2	219.1 x 101.6	178	152	6.84	9.18	15.5	19.8	20.1	31.1	31.1	44.2
250 x 250	10 x 10	273 x 273	216	216	14.6	18.04	27.39	40.4	40.4	51.1	65.12	95.21
250 x 200	10 x 8	273 x 219	216	208	13.3	16.4	24.9	36.4	36.4	49.8	59.2	84.1
250 x 150	10 x 6	273 x 159 273.1 x 141.3	216	194	11.4 12.1	15.0 15.0	21.3 22.7	31.4 33.4	31.4 33.4	42.7 45.4	50.7 54.0	72.1 76.7
250 x 125	10 x 5	273 x 133 273.1 x 141.3	216	191	11.2 11.9	14.6 14.6	20.9 22.2	30.7 32.7	30.7 32.7	41.8 44.5	49.7 52.9	70.6 75.1
250 x 100	10 x 4	273 x 108 273.1 x 141.3	216	184	11.0 11.7	14.4 14.4	20.6 21.9	30.3 32.2	30.3 32.2	41.2 42.9	49.0 52.1	96.6 74.1
300 x 300	12 x 12	325 x 325 323.9 x 323.9	254	254	21.5 21.5	24.8 24.8	34.5 34.5	51.8 51.8	56.1 56.0	69.0 69.0	95.0 95.0	138 138
300 x 250	12 x 10	325 x 273 323.9 x 273.1	254	241	20.4 20.3	23.6 23.4	32.8 32.1	49.2 49.1	53.3 53.1	65.6 65.2	90.3 90.2	131 130
300 x 200	12 x 8	325 x 219 323.9 x 219.1	254	229	20.2 20.0	23.3 23.1	32.3 32.1	48.4 48.2	52.4 52.2	64.4 64.2	88.6 88.4	128 113
300 x 150	14 x 6	325 x 325 323.9 x 323.9	254	219	18.4 19.5	22.5 22.7	29.5 31.3	44.3 47.1	47.9 51.0	59.0 62.7	81.2 86.4	118 136
300 x 125	12 x 5	325 x 159 323.9 x 141.3	254	216	18.0 19.1	22.5 22.7	29.5 22.7	43.6 46.3	47.1 50.2	57.8 61.5	79.6 84.6	115 126
350 x 350	14 x 14	377 x 377 355.6 x 355.6	279	279	27.4 25.7	33.1 31.1	54.9 51.5	66.1 62.0	77.2 72.5	88.0 82.7	132 124	192 181
350 x 300	14 x 12	377 x 335 355.6 x 329.9	279	270	25.8 24.2	31.1 29.2	51.6 48.5	62.1 58.3	72.5 68.2	82.7 77.7	124 225	181 170
350 x 250	14 x 10	377 x 273 355.6 x 239.9	279	257	25.1 23.7	30.3 28.6	50.3 47.4	60.5 57.0	70.8 66.7	77.1 77.8	121 114	171 161
350 x 200	14 x 8	377 x 219 355.6 x 219.1	279	248	24.6 23.1	29.7 27.9	49.2 46.2	59.2 55.7	69.2 65.2	78.0 74.2	118 111	167 157
350 x 150	14 x 6	377 x 159 355.6 x 168.3	279	238	24.0 22.3	29.0 27.1	48.1 45.6	57.9 54.2	67.8 64.8	77.1 77.8	115 110	163 156
400 x 400	16 x 16	426 x 426 406.4 x 406.4	305	305	33.1 31.4	38.0 36.1	63.0 59.8	75.9 72.3	101 96.1	101 96.1	115 110	246 234
400 x 350	16 x 14	426 x 377 406.4 x 355.6	305	305	32.0 30.4	36.8 34.9	60.9 57.9	73.6 70.1	98.1 93.4	97.8 92.9	179 170	238 226
400 x 300	16 x 12	426 x 325 406.4 x 323.9	305	295	31.0 28.2	35.6 34.4	59.0 57.7	71.4 69.1	95.2 87.8	94.7 89.2	173 168	230 209
400 x 250	16 x 10	426 x 273 406.4 x 273.1	305	283	30.2 28.7	34.7 33.0	57.6 54.7	69.9 66.6	93.1 88.7	95.2 87.8	169 161	225 209
400 x 200	16 x 8	426 x 219 406.4 x 219.1	305	273	29.5 28.1	33.9 23.3	56.2 53.5	68.4 65.1	91.1 86.8	90.2 86	165 157	219 209
400 x 150	16 x 16	426 x 159 406.4 x 168.3	305	264	29.2 27.7	33.5 32.6	65.6 52.8	67.6 64.4	90.1 85.6	89.2 84.8	163 155	217 206
450 x 450	18 x 18	478 x 478 458 x 457	343	343	41.9 39.8	47.8 45.5	79.2 75.4	95.3 88.9	142 136	127 120	233 218	349 332

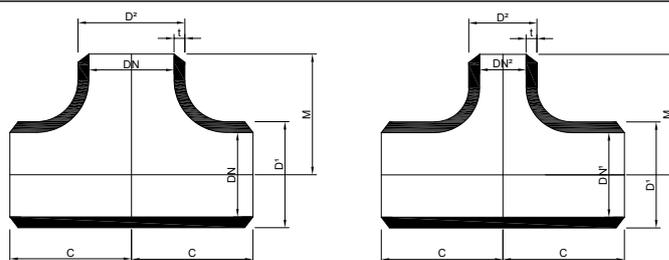


TÊS (RETOS E REDUZIDOS)
TEES (STRAIGHT AND REDUCING)



Diâmetro Nominal <i>Nominal Diameter</i>		Externo <i>Outside</i>	Centro à Extremidade <i>Center to end</i>		Peso aproximado por peça (kg). <i>Kg/pcs approx. weight</i>							
DN	pol / inch	D ₁ x D ₂	C	M	sch5s	sch10s	sch20s	STD	sch40	XS	sch80	sch120
450 x 400	18 x 16	478 x 426 457 x 406.4	343	330	41.9 39.8	46.8 44.5	77.5 73.8	93.3 88.9	140 133	144 118	233 222	349 332
450 x 350	18 x 14	478 x 377 406.4 x 355.6	343	330	40.4 38.3	46.1 43.8	76.3 72.5	91.9 87.3	177 130	142 135	229 228	342 325
450 x 300	18 x 12	478 x 325 457 x 323.9	343	321	39.8 37.3	45.4 42.6	75.2 70.6	90.6 85.0	135 127	140 131	226 212	336 320
450 x 250	18 x 10	478 x 273 457 x 273.1	343	308	39.3 37.3	44.9 42.6	74.4 70.6	89.6 85.0	134 127	138 131	223 212	228 216
450 x 200	18 x 8	478 x 219 457 x 291.1	343	298	38.8 36.9	44.9 42.1	74.4 70.6	89.6 85.0	132 126	138 131	320 209	331 216
500 x 500	20 x 20	529 x 529 509 x 508	381	381	58.9 56.3	68.2 65.3	117 117	117 112	186 178	156 149	322 308	225 213
500 x 450	20 x 18	539 x 478 508 x 457	381	368	57.9 55.4	67.1 64.2	115 110	115 110	183 175	154 147	317 303	469 449
500 x 400	20 x 16	529 x 426 508 x 457	381	356	57.0 54.7	66.0 63.4	113 110	113 110	180 173	151 145	312	452 441
500 x 350	20 x 14	529 x 325 508 x 323.9	381		56.0 54.8	64.9 62.3	111 107	111 107	177 170	148 142	306 294	454 436
500 x 300	20 x 12	529 x 325 508 x 323.9	381	346	55.0 52.8	63.8 61.2	109 109	109 105	174 167	146 174	301 289	438 421
500 x 250	20 x 10	529 x 273 508 x 273.1	381	333	54.4 52.2	63.0 60.5	108 104	108 104	172 165	144 138	298 286	433 416
500 x 200	20 x 8	529 x 219 508 x 219.1	381	324	53.7 51.5	63.3 59.7	107 102	107 102	170 163	142 137	294 282	428 410
550 x 550	22 x 22	559 x 559	419	419	73.5	85.2	146	146	285	195	—	635
550 x 500	22 x 20	559 x 508	419	406	70.7	81.9	141	141	257	187	—	610
550 x 450	22 x 18	559 x 457	419	394	67.7	78.5	135	135	240	180	—	584
550 x 400	22 x 16	559 x 406.4	419	381	66.2	76.7	132	132	235	179	—	571
550 x 350	22 x 14	559 x 355.6	419	381	65.5	75.9	130	130	230	174	—	565
550 x 300	22 x 12	559 x 323.9	419	371	64.0	74.2	127	127	225	170	—	552
550 x 250	22 x 10	559 x 273.1	419	359	62.5	72.5	124	124	220	166	—	540
600 x 600	24 x 24	630 x 630 610 x 610	419	432	96.0 93.9	110 107	165 161	165 161	300 295	220 215	503 496	797 779
600 x 500	24 x 22	610 x 559	432	432	90.1	103	155	155	285	206	—	748
600 x 500	24 x 20	630 x 559 610 x 610	432	432	92.2 86.4	105 99.4	158 148	158 148	290 270	211 198	491 472	765 701
600 x 450	24 x 18	630 x 478 610 x 457	432	432	88.4 84.4	101 96.9	152 145	152 145	280 265	202 193	478 468	734 694
600 x 400	24 x 16	630 x 426 610 x 406.4	432	432	86.4 83.2	99.1 95.7	148 143	148 143	270 260	198 191	472 463	418 690
600 x 350	24 x 14	630 x 377 610 x 355.6	432	419	85.6 81.7	98.0 93.5	147 140	147 140	266 255	195 187	469 457	710 678
600 x 300	24 x 12	630 x 325 610 x 323.9	432	406	83.5 79.8	95.8 91.5	143 137	143 137	255 250	191 182	463 451	678 662
600 x 250	24 x 10	630 x 273 610 x 273.1	432	397	81.6 77.9	96.6 89.3	140 134	140 134	257 245	187 178	457 445	662 647

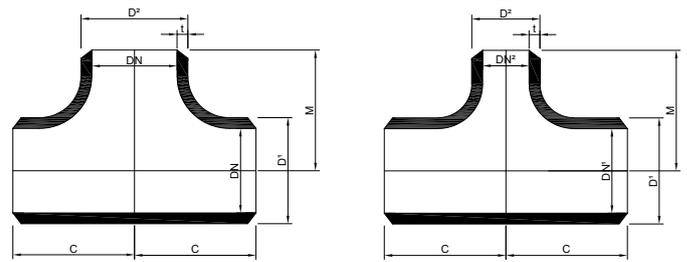
TÊS (RETOS E REDUZIDOS)
TEES (STRAIGHT AND REDUCING)



Diâmetro Nominal Nominal Diameter		Externo Outside	Centro à Extremidade Center to end		Peso aproximado por peça (kg). Kg/pcs approx. weight							
DN	pol / inch	D ₁ x D ₂	C	M	sch5s	sch10s	sch20s	STD	sch40	XS	sch80	sch120
650 x 650	26 x 26	660 x 660	495	495	—	—	274	206	—	—	—	—
650 x 600	26 x 24	660 x 610	495	463	—	—	263	197	—	—	—	—
650 x 550	26 x 22	660 x 559	495	470	—	—	252	189	—	—	—	—
650 x 500	26 x 20	660 x 508.0	495	457	—	—	246	185	—	—	—	—
650 x 450	26 x 18	660 x 547.2	495	444	—	—	244	183	—	—	—	—
650 x 450	26 x 16	660 x 406.4	495	432	—	—	238	179	—	—	—	—
650 x 350	26 x 14	660 x 355.6	495	432	—	—	233	175	—	—	—	—
650 x 300	26 x 12	660 x 323.9	495	422	—	—	227	174	—	—	—	—
700 x 700	28 x 28	720 x 660 711 x 711	521	521	—	—	309 305	232 229	—	—	—	—
700 x 650	28 x 26	711 x 660	521	521	—	—	293	222	—	—	—	—
700 x 600	28 x 24	720 x 630 711 x 610	510	508	—	—	296 284	222 199	—	—	—	—
700 x 550	28 x 22	711 x 559	521	495	—	—	273	204	—	—	—	—
700 x 500	28 x 20	720 x 529 711 x 508	521	483	—	—	296 275	222 199	—	—	—	—
700 x 450	28 x 18	720 x 426	521	470	—	—	278 265	208 195	—	—	—	—
700 x 400	28 x 16	720 x 426 711 x 406.4	521	457	—	—	275 259	206 190	—	—	—	—
700 x 350	28 x 14	720 x 377 711 x 356.6	521	457	—	—	268 253	201 183	—	—	—	—
700 x 300	28 x 12	720 x 377 711 x 356.6	559	448	—	—	262 244	197 179	—	—	—	—
750 x 750	30 x 30	762 x 762	559	548	176	200	352	264	—	352	—	—
750 x 700	30 x 28	762 x 711	559	546	—	—	338	254	—	338	—	—
750 x 650	30 x 26	762 x 660	559	533	—	—	323	243	—	323	—	—
750 x 600	30 x 24	762 x 610	559	533	158	197	317	228	—	317	—	—
750 x 550	30 x 22	762 x 559	559	521	157	195	314	235	—	314	—	—
750 x 500	30 x 20	762 x 508	559	508	153	174	306	230	—	306	—	—
750 x 450	30 x 18	762 x 457	559	495	149	170	299	224	—	299	—	—
750 x 400	30 x 16	762 x 406.4	559	483	146	166	292	219	—	292	—	—
750 x 350	16 x 14	762 x 355.6	559	483	141	166	285	211	—	285	—	—
750 x 250	16 x 12	762 x 323.9	559	4763	137	156	275	206	—	275	—	—
750 x 250	30 x 10	762 x 273	559	460	132	150	264	198	—	264	—	—
800 x 800	32 x 32	813 x 820 813 x 813	597	597	—	—	405 402	303 302	—	405 402	—	—
800 x 750	32 x 30	813 x 762	597	584	—	—	386	290	—	386	—	—

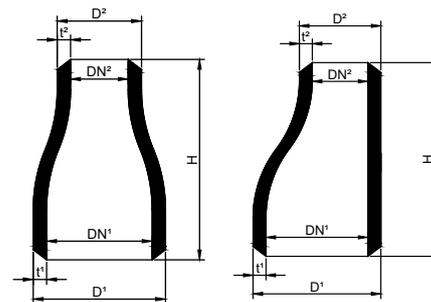
TÊS (RETOS E REDUZIDOS)

TEES (STRAIGHT AND REDUCING)



Diâmetro Nominal Nominal Diameter		Externo Outside	Centro à Extremidade Center to end		Peso aproximado por peça (kg). Kg/pcs approx. weight							
DN	pol / inch	D ₁ x D ₂	C	M	sch5s	sch10s	sch20s	STD	sch40	XS	sch80	sch120
800 x 700	32 x 28	820 x 720 713 x 711	597	572	—	—	388 370	291 277	—	388 370	—	—
800 x 650	32 x 26	813 x 660	597	572	—	—	362	271	—	362	—	—
800 x 600	32 x 24	820 x 630 813 x 610	597	559	—	—	372 358	279 268	—	365 359	—	—
800 x 550	32 x 22	813 x 610	597	546	—	—	350	262	—	350	—	—
800 x 500	32 x 20	820 x 529 813 x 508	597	533	—	—	364 342	273 256	—	364 342	—	—
800 x 450	32 x 18	820 x 478 813 x 508	597	521	—	—	360 334	270 250	—	360 334	—	—
800 x 400	32 x 16	820 x 426 813 x 406.4	597	508	—	—	352 322	264 241	—	352 322	—	—
800 x 350	32 x 14	820 x 377 813 x 355.6	597	508	—	—	344 313	258 235	—	344 314	—	—
850 x 850	34 x 34	864 x 864	635	635	—	—	455	341	625	415	—	—
850 x 800	34 x 32	864 x 813	635	622	—	—	437	328	610	437	—	—
870 x 750	34 x 30	864 x 762	635	610	—	—	419	314	—	419	—	—
870 x 700	34 x 28	864 x 711	635	597	—	—	409	307	—	409	—	—
850 x 650	34 x 26	864 x 660	635	597	—	—	405	304	—	405	—	—
850 x 600	34 x 24	864 x 610	635	584	—	—	396	297	545	396	—	—
850 x 550	34 x 22	864 x 559	635	572	—	—	387	290	532	387	—	—
850 x 500	34 x 20	864 x 508	635	559	—	—	378	290	520	378	—	—
850 x 450	34 x 18	864 x 457	635	546	—	—	364	273	501	364	—	—
850 x 400	34 x 16	864 x 460.4	635	673	—	—	355	266	488	355	—	—
900 x 900	36 x 36	920 x 920 914 x 914	673	673	—	—	514 311	648 639	786 767	543 511	—	—
900 x 850	36 x 34	920 x 920 914 x 813	673	660	—	—	490	619	756	511	—	—
900 x 800	36 x 32	920 x 820 914 x 813	673	648	—	—	494 470	370 353	741 690	494 470	—	—
900 x 750	36 x 30	914 x 762	673	635	—	—	460	348	—	460	—	—
900 x 700	36 x 28	920 x 720 914 x 711	673	622	—	—	473 455	355 341	—	473 455	—	—
900 x 650	36 x 26	914 x 660	673	610	—	—	444	333	667	447	—	—
900 x 600	36 x 24	914 x 610	673	297	—	—	434	326	651	434	—	—
900 x 550	36 x 22	914 x 559	673	584	—	—	424	318	636	424	—	—
900 x 500	36 x 20	920 x 529 914 x 508	673	572	—	—	463 409	347 306	685 598	462 409	—	—
900 x 450	36 x 18	920 x 478 917 x 452	673	559	—	—	458 398	343 299	693 613	457 398	—	—
900 x 400	36 x 16	920 x 426 914 x 406.4	673	559	—	—	447 383	335 287	669 575	447 383	—	—

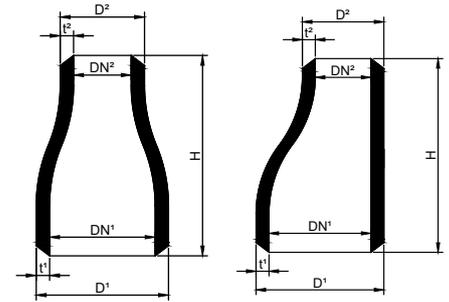
REDUÇÕES (CONCÊNTRICOS E EXCÊNTRICOS)
REDUCERS (CONCENTRIC AND ECCENTRIC)



Diâmetro Nominal Nominal Diameter		Externo Outside	Centro à Extremidade Center to end	Peso aproximado por peça (kg). Kg/pcs aprox. weight							
DN	pol / inch	D ₁ x D ₂	H	sch5s	sch10s	sch20s	STD	sch40s	XS	sch80s	sch120s
20 x 15	3/4 x 1/2	25 x 18 28.7 x 21.3	38	0.03 0.04	0.04 0.04	0.049 0.05	0.05 0.06	0.05 0.06	0.07 0.07	0.07 0.07	—
25 x 20	1 x 3/4	32 x 25 33.4 x 26.7	51	0.06 0.06	0.09 0.10	0.11 0.11	0.11 0.11	0.11 0.11	0.14 0.15	0.14 0.15	—
25 x 15	1 x 1/2	32 x 18 33.4 x 21.3	51	0.05 0.06	0.08 0.60	0.09 0.10	0.09 0.10	0.09 0.10	0.12 0.13	0.12 0.13	—
32 x 25	1.1/4 x 1	38 x 32 42.2 x 33.4	51	0.07 0.08	0.11 0.12	0.125 0.137	0.14 0.15	0.14 0.15	0.18 0.20	0.18 0.20	—
32 x 20	1.1/4 x 3/4	38 x 25 42.2 x 26.7	51	0.06 0.07	0.10 0.11	0.125 0.13	0.11 0.12	0.11 0.153	0.14 0.17	0.14 0.17	—
32 x 15	1.1/4 x 1/2	38 x 18 42.2 x 21.32	51	0.06 0.07	0.09 0.11	0.1 0.125	0.11 0.12	0.11 0.13	0.14 0.17	0.14 0.17	—
40 x 32	1.1/2 x 1.1/4	45 x 38 48.3 x 33.4	64	0.11 0.11	0.17 0.18	0.19 0.22	0.22 0.24	0.22 0.23	0.29 0.32	0.29 0.32	—
40 x 25	1.1/2 x 1	45 x 32 48.3 x 33.4	64	0.10 0.10	0.16 0.17	0.18 0.20	0.20 0.22	0.20 0.22	0.27 0.29	0.27 0.29	—
40 x 20	1.1/2 x 3/4	45 x 45 48.3 x 26.7	64	0.09 0.10	0.15 0.16	0.1 —	0.18 0.20	0.18 0.20	0.24 0.26	0.24 0.26	—
40 x 15	1.1/2 x 1/2	45 x 18 48.3 x 21.3	64	0.08 0.09	0.13 0.14	0.15 0.17	0.16 0.19	0.16 0.19	0.21 0.24	0.21 0.24	—
50 x 40	2 x 1.1/2	57 x 45 60.3 x 48.3	76	0.16 0.17	0.26 0.27	0.33 0.35	0.35 0.37	0.35 0.37	0.47 0.51	0.47 0.51	—
50 x 32	2 x 1.1/4	57 x 38 60.3 x 42.2	76	0.15 0.16	0.24 0.25	0.30 0.33	0.32 0.35	0.32 0.35	0.47 0.48	0.44 0.48	—
50 x 25	2 x 1	67 x 32 60.3 x 33.4	76	0.14 0.14	0.22 0.24	0.27 0.30	0.30 0.32	0.30 0.32	0.44 0.48	0.41 0.44	—
65 x 50	2.1/2 x 2	76 x 57 73.0 x 60.3	89	0.30 0.30	0.43 0.43	0.52 0.53	0.70 0.70	0.70 0.70	0.92 0.92	0.92 0.92	—
65 x 40	2.1/2 x 1.1/2	76 x 46 73.0 x 48.3	89	0.28 0.28	0.40 0.40	0.5 0.5	0.64 0.63	0.64 0.63	0.84 0.83	0.84 0.83	—
65 x 30	2.1/2 x 1.1/4	76 x 38 73.0 x 48.3	89	0.26 0.27	0.38 0.38	0.45 0.45	0.60 0.60	0.60 0.60	0.79 0.79	0.79 0.79	—
65 x 25	2.1/2 x 1	89 x 45 89.9 x 48.3	89	0.25 0.26	0.36 0.35	0.4 0.4	0.57 0.56	0.57 0.56	0.75 0.73	0.75 0.73	—
80 x 65	2 x 2.1/2	89 x 76 89.9 x 73.0	89	0.38 0.37	0.54 0.53	0.72 0.7	0.93 0.91	0.57 0.56	1.26 1.23	1.26 1.23	—
80 x 50	2 x 2	89 x 57 89.9 x 60.3	89	0.34 0.35	0.48 0.49	0.72 0.7	0.93 0.91	0.57 0.56	1.11 1.13	1.11 1.13	—
80 x 40	2 x 1.1/2	89 x 45 89.9 x 48.3	89	0.31 0.32	0.45 0.45	0.6 0.6	0.76 0.78	0.76 0.78	1.02 1.05	1.02 1.05	—

REDUÇÕES (CONCÊNTRICOS E EXCÊNTRICOS)

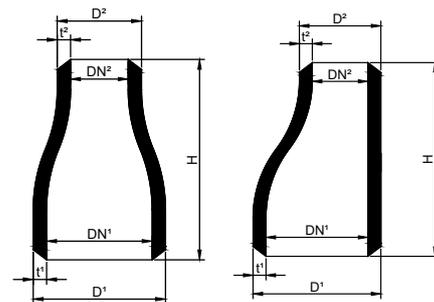
REDUCERS (CONCENTRIC AND ECCENTRIC)



Diâmetro Nominal Nominal Diameter		Externo Outside	Centro à Extremidade Center to end	Peso aproximado por peça (kg). Kg/pcs aprox. weight							
DN	pol / inch	D ₁ x D ₂	H	sch5s	sch10s	sch20s	STD	sch40s	XS	sch80s	sch120s
90 x 80	3.1/2 x 3	101.6 x 88.9	102	0.50	0.72	1.09	1.29	1.77	1.77	—	—
90 x 65	3.1/2 x 2.1/2	101.6 x 73.0	102	0.46	0.66	1.0	1.12	1.12	1.63	1.63	—
90 x 50	3.1/2 x 2	101.6 x 60.3	102	0.43	0.62	0.95	1.10	1.10	1.51	1.51	—
90 x 40	3.1/2 x 1.1/2	101.6 x 48.3	102	0.41	0.58	—	1.03	1.03	1.03	1.03	—
100 x 90	4 x 3.1/2	101.6 x 101.6	102	0.57	0.82	—	1.55	1.55	2.41	2.41	2.38
100 x 80	4 x 3	108 x 89 114.3 x 86.9	102	0.52 0.54	0.75 0.77	—	1.41 1.46	1.41 1.46	1.94 2.02	1.94 2.02	2.18 2.24
100 x 65	4 x 2.1/2	108 x 76 114.3 x 73.0	102	0.49 0.50	0.70 0.72	0.93 0.96	1.32 1.35	1.32 1.35	1.82 1.87	1.82 1.87	2.05 2.1
100 x 50	4 x 2	108 x 57 114.3 x 60.3	102	0.44 0.48	0.64 0.68	0.85 0.90	1.19 1.27	1.19 1.27	1.64 1.75	1.64 1.75	1.87 1.98
125 x 100	5 x 4	133 x 108 141.3 x 114.3	127	1.04 1.11	1.27 1.35	1.89 2.01	2.35 2.30	2.35 2.30	3.33 3.55	3.33 3.55	4.31 4.60
125 x 90	5 x 3.1/2	141.3 x 101.6	127	1.06	1.29	1.92	2.38	2.38	3.38	3.38	4.4
125 x 80	5 x 3	133 x 89 141.3 x 88.9	127	0.97 1.01	1.18 1.23	1.76 1.83	2.17 2.27	2.17 2.27	3.07 3.22	3.07 3.22	4.0 4.19
125 x 65	5 x 2.1/2	133 x 76 141.3 x 73.0	127	0.92 0.95	1.12 1.16	1.67 1.72	2.06 2.14	2.06 2.14	2.91 3.02	2.91 3.02	3.8 3.98
150 x 125	6 x 5	159 x 133 168.3 x 141.3	140	1.40 1.48	1.71 1.81	2.54 2.67	3.42 3.64	3.42 3.64	5.14 5.47	5.14 5.47	6.54 6.95
150 x 100	6 x 4	159 x 108 168.3 x 141.3	140	1.29 1.37	1.58 1.53	2.35 2.48	3.15 3.36	3.15 3.36	4.72 5.03	4.72 5.03	5.97 6.98
150 x 90	6 x 3.1/2	168.3 x 101.6	140	1.32	1.61	2.39	3.23	3.23	4.83	4.83	6.08
150 x 80	6 x 3	159 x 89 168.3 x 88.9	140	1.21 1.26	1.48 1.53	2.20 2.75	2.96 3.07	2.96 3.07	4.41 4.68	4.41 4.68	5.64 5.85
200 x 150	8 x 6	219 x 159 219.1 x 168.3	152	2.00 2.04	2.70 2.75	4.30 4.38	5.65 5.77	5.65 5.77	8.55 8.73	8.55 8.73	11.9 12.2
200 x 125	8 x 5	219 x 133 219.1 x 141.3	152	1.90 1.93	2.56 2.60	4.07 4.14	5.35 5.14	5.35 5.14	8.09 8.23	8.09 8.23	11.2 11.4
200 x 100	8 x 4	219 x 108 219.1 x 114.3	152	1.80 1.83	2.43 2.46	3.86 3.92	5.07 5.14	5.07 5.14	7.64 5.44	7.64 5.44	10.6 10.7
250 x 200	10 x 8	273 x 219	152	3.27	4.56	6.75	9.74	15.5	15.5	15.5	21.4
250 x 150	10 x 6	273 x 159 273.1 x 168.3	152	3.38 3.43	4.16 4.21	6.59 6.69	8.83 8.95	14.0 14.2	14.0 14.2	14.0 14.2	19.2 19.5
250 x 125	10 x 5	273.3 x 133 273.1 x 141.3	152	3.25 3.29	3.99 4.04	6.34 6.42	8.47 9.59	13.4 13.6	13.4 13.6	13.4 13.6	18.4

REDUÇÕES (CONCÊNTRICOS E EXCÊNTRICOS)

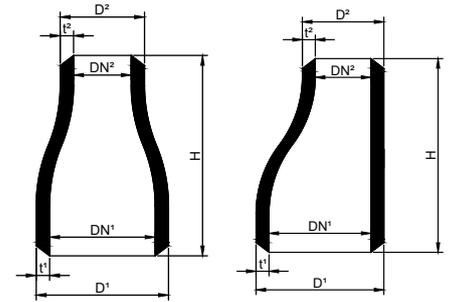
REDUCERS (CONCENTRIC AND ECCENTRIC)



Diâmetro Nominal Nominal Diameter		Externo Outside	Centro à Extremidade Center to end	Peso aproximado por peça (kg). Kg/pcs approx. weight							
DN	pol / inch	D ₁ x D ₂	H	sch5s	sch10s	sch20s	STD	sch40s	XS	sch80s	sch120s
300 x 250	12 x 10	325 x 273 323.9 x 273.1	203	5.98 5.97	6.89 6.88	9.38 9.36	13.9 13.9	15.0 15.0	18.3 18.3	24.8 24.8	35.1 35.0
300 x 200	12 x 8	325 x 219 323.9 x 2219.1	203	5.57 5.56	6.42 6.41	8.73 8.70	12.9 12.9	14.0 13.9	17.0 17.0	23.0 23.0	23.4 32.3
300 x 150	12 x 6	325 x 159 323.9 x 168.3	203	5.17 5.22	5.95 6.00	8.10 8.14	12.0 12.1	12.9 13.0	15.7 15.9	21.2 21.4	29.6 30.0
350 x 300	14 x 12	377 x 325 356.6 x 323.9	330	11.4 11.0	13.7 13.2	22.2 21.4	26.6 25.6	30.9 29.8	35.1 33.8	51.6 49.8	73.3 70.6
350 x 250	14 x 10	377 x 273 356.6 x 273.1	330	10.6 10.	12.8 12.3	20.7 19.9	24.8 33.8	28.8 27.7	33.7 31.4	48.0 46.1	68.0 63.3
350 x 200	14 x 8	377 x 219 356.6 x 219.1	330	9.89 9.46	11.9 11.4	19.2 18.4	23.0 22.0	26.7 26.5	30.3 29.0	44.5 42.5	62.8 59.9
350 x 150	14 x 6	377 x 159 356.6 x 168.3	330	9.63 9.22	11.0 10.5	17.75 16.95	21.1 20.2	24.5 23.5	27.8 26.6	40.7 38.9	57.3 54.7
400 x 350	16 x 14	426 x 377 406.4 x 355.9	356	14.9 14.4	16.9 16.1	27.4 26.0	32.9 31.2	43.5 41.2	43.5 41.2	71.7 67.9	101 95.4
400 x 300	16 x 12	426 x 325 406.4 x 323.9	356	14.0 13.6	16.0 15.4	25.9 25.0	31.0 29.9	40.9 39.5	40.9 39.5	67.4 65.1	94.7 91.3
400 x 250	16 x 10	426 x 273 406.4 x 273.1	356	13.2 12.7	15.0 14.5	24.3 23.5	29.1 28.1	38.4 37.1	38.4 37.1	63.1 60.9	88.5 85.3
400 x 200	16 x 8	426 x 219 406.4 x 219.1	356	12.4 11.9	14.1 13.6	22.8 21.9	27.3 26.2	36.0 34.6	36.0 34.6	59.1 56.7	82.6 79.2
400 x 150	16 x 6	426 x 159 406.4 x 168.3	356	11.5 9.96	13.1 12.7	21.18 20.45	25.3 24.5	33.3 32.3	33.3 32.3	54.5 52.7	75.9 73.4
450 x 400	18 x 16	478 x 426 457 x 406.4	381	17.9 17.1	20.4 19.5	33.1 31.6	39.7 37.9	58.8 53.0	52.6 50.1	96.1 91.6	137 131
450 x 350	18 x 14	478 x 477 457 x 355.6	381	17.1 16.2	19.4 18.5	31.5 29.9	37.7 35.8	55.8 53.0	49.9 47.4	91.1 86.3	130 119
450 x 300	18 x 12	478 x 325 457 x 323.9	381	16.2 15.7	18.5 17.9	29.9 28.9	35.8 34.7	53.0 48.4	45.0 43.3	86.3 83.4	123 119
450 x 250	18 x 10	478 x 273 457 x 273.1	381	15.4 14.8	17.6 16.9	28.4 27.3	34.1 32.8	50.3 48.4	45.0 43.3	81.8 78.6	116 112
450 x 200	18 x 8	478 x 219 457 x 219.1	381	14.5 14.0	16.5 15.9	26.7 25.7	32.0 30.8	47.3 45.5	42.3 40.7	76.7 73.7	109 104
500 x 450	20 x 18	529 x 478 508 x 457	508	30.4 29.1	35.2 33.7	59.1 58.6	59.1 58.6	92.5 88.6	78.2 74.9	156 150	213 213
500 x 400	20 x 16	529 x 426 508 x 406.4	508	28.9 27.7	33.4 32.0	56.2 53.8	56.2 53.8	87.9 84.1	74.4 71.1	149 142	211 201
500 x 350	20 x 14	529 x 377 508 x 355.6	508	27.6 26.3	31.9 30.4	43.6 51.0	43.6 51.0	83.8 79.7	70.9 67.4	142 135	200 190
500 x 300	20 x 12	529 x 325 508 x 323.9	508	26.2 25.4	30.3 29.4	50.8 49.3	50.8 49.3	79.4 77.2	67.2 65.1	134 130	189 183
500 x 250	20 x 10	529 x 273.1 508 x 273.1	508	24.8 24.0	28.7 27.8	48.2 46.7	48.2 46.7	75.2 72.8	63.7 61.7	125 123	179 173
500 x 200	20 x 8	529 x 219 508 x 219.1	508	23.5 22.7	27.1 26.2	45.5 43.9	45.5 43.9	70.9 68.5	60.1 58.0	119 115	168 162
550 x 500	22 x 20	559 x 508	508	32.1	37.3	62.7	62.7	—	83.0	182	255

REDUÇÕES (CONCÊNTRICOS E EXCÊNTRICOS)

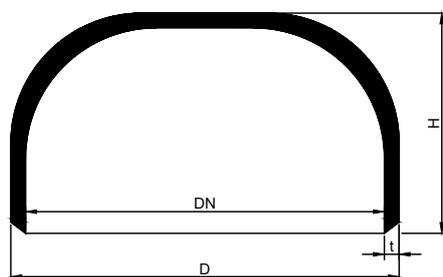
REDUCERS (CONCENTRIC AND ECCENTRIC)



Diâmetro Nominal Nominal Diameter		Externo Outside	Centro à Extremidade Center to end	Peso aproximado por peça (kg). Kg/pcs aprox. weight							
DN	pol / inch	D ₁ x D ₂	H	sch5s	sch10s	sch20s	STD	sch40s	XS	sch80s	sch120s
550 x 450	22 x 18	559 x 467	508	30.8	35	59.9	59.9	—	79.3	174	243
550 x 400	22 x 16	559 x 406.4	508	29.4	34.0	57.2	57.2	—	75.7	165	219
550 x 350	24 x 14	559 x 355.6	508	28.0	32.5	54.5	54.5	—	72.1	157	286
600 x 550	24 x 22	610 x 599	508	28.2	46.8	68.8	68.8	—	91.2	215	311
600 x 500	24 x 20	630 x 529 610 x 508	508	40.4 39.2	46.2 44.9	68.0 66.0	—	123 119	90.1 87.4	212 206	307 298
600 x 450	24 x 18	630 x 478 610 x 457	508	40.4 39.2	46.2 44.9	68.0 66.0	65.8 63.3	119 114	87.1 83.9	205 197	296 284
600 x 400	24 x 16	630 x 426 610 x 406.4	508	37.5 36.1	43.0 41.3	63.1 60.7	63.1 60.7	114 110	83.6 80.4	197 189	283 272
650 x 600	26 x 24	660 x 610	610	—	—	119	89.8	—	119	—	—
650 x 550	26 x 22	660 x 559	610	—	—	114	86.3	—	114	—	—
650 x 500	26 x 20	660 x 508	610	—	—	110	83.0	—	110	—	—
650 x 450	26 x 18	660 x 457	610	—	—	105	79.0	—	105	—	—
700 x 650	28 x 26	711 x 660	610	—	—	129	97.1	—	129	—	—
700 x 600	28 x 24	720 x 630 711 x 610	610	—	—	127 125	95.7 93.6	—	127 124	—	—
700 x 550	28 x 22	711 x 559	610	—	—	120	90.4	—	120	—	—
750 x 700	30 x 28	762 x 711	610	—	—	139	104	—	139	—	—
750 x 650	30 x 26	762 x 660	610	—	—	133	104	—	133	—	—
750 x 600	30 x 24	762 x 610	610	6.4	82.7	130	97.8	—	130	—	—
750 x 550	30 x 22	762 x 559	610	63.9	80.0	125	94.5	—	125	—	—
800 x 750	32 x 30	813 x 762	610	—	—	148	112	—	148	—	—
800 x 700	32 x 28	820 x 720 813 x 711	610	—	—	145 144	109 108	—	145 144	—	—
800 x 650	32 x 26	813 x 660	610	—	—	139	105	—	139	—	—
800 x 600	32 x 24	820 x 720 813 x 610	610	—	—	138 135	104 102	—	138 135	—	—
850 x 800	34 x 32	864 x 813	610	—	—	158	119	—	158	—	—
850 x 750	34 x 30	864 x 762	610	—	—	153	116	—	153	—	—
850 x 700	34 x 28	864 x 711	610	—	—	149	112	—	149	—	—
850 x 650	34 x 26	864 x 660	610	—	—	145	109	—	145	—	—
900 x 850	36 x 34	914 x 864	610	—	—	168	126	—	168	—	—
900 x 800	36 x 32	920 x 820 914 x 813	610	—	—	164 163	124 123	—	164 163	—	—
900 x 750	36 x 30	914 x 762	610	—	—	159	120	—	159	—	—
900 x 700	36 x 28	920 x 720 914 x 711	610	—	—	156 155	118 117	—	158 155	—	—

CAPS

CAPS



Diâmetro Nominal Nominal Diameter		Externo Outside CD	Centro à Extremidade Center to end		Peso aproximado por peça (kg). Kg/pcs aprox. weight							
DN	pol / inch		E (E ₁)	E (E ₂)	sch5s	sch10s	sch20s	STD	sch40s	XS	sch80s	sch120s
15	1/2	18 21.3	25	—	0.019 0.022	0.024 0.028	0.027 0.033	0.031 0.037	0.031 0.037	0.042 0.050	0.042 0.050	0.057 0.063
20	3/4	25 26.7	25	—	0.027 0.029	0.033 0.035	0.038 0.041	0.045 0.048	0.045 0.048	0.060 0.065	0.060 0.065	0.079 0.065
25	1	32 33.7	38	—	0.049 0.052	0.083 0.087	0.091 0.093	0.101 0.106	0.101 0.106	0.136 0.143	0.136 0.143	0.176 0.182
32	1.1/4	38 42.4	38	—	0.058 0.065	0.099 0.110	0.111 0.125	0.126 0.141	0.126 0.141	0.173 0.193	0.173 0.193	0.213 0.237
40	1.1/2	45 48.3	38	—	0.071 0.076	0.118 0.127	0.138 1.148	0.158 0.169	0.158 0.169	0.218 0.234	0.218 0.234	0.294 0.323
50	2	57 60.3	38	44	0.094 0.099	0.156 0.165	0.189 0.200	0.221 0.234	0.221 0.234	0.313 0.331	0.313 0.331	0.387 0.426
65	2.1/2	76 73.0	38	51	0.167 0.61	0.241 0.232	0.391 0.312	0.409 0.393	0.409 0.393	0.555 0.543	0.555 0.543	0.676 0.634
80	3	89	51	64	0.254	0.367	0.490	0.660	0.660	0.917	0.917	1.469
90	3.1/2	101.6	64	76	0.355	0.512	0.739	0.965	1.36	0.965	1.36	1.891
100	4	108 114.3	64	76	0.387 0.410	0.561 0.594	0.810 0.882	1.11 1.17	1.11 1.17	1.58 1.67	1.58 1.57	2.01 2.16
125	5	133 139.7 141.3	76	89	0.769 0.808 0.817	0.945 0.933 1.00	1.339 1.421 1.473	1.82 1.91 1.93	1.82 1.91 1.93	2.65 2.78 2.81	2.65 2.78 2.81	3.52 3.70 3.74
150	6	159 168.3 165.2	89	102	1.07 1.13 1.11	1.31 1.39 1.36	1.843 2.00 1.97	1.843 2.00 1.97	2.74 2.90 2.85	2.74 2.90 2.85	4.22 4.47 4.39	5.50 5.82 5.72
200	8	219 216.1	102	127	1.76 1.74	2.38 2.35	4.03 3.98	4.03 3.98	5.19 5.13	5.19 5.13	8.05 7.95	11.6 11.5
250	10	273 267.4	127	152	3.35 3.29	4.14 4.05	6.27 6.14	9.15 8.96	9.15 8.96	12.5 12.2	16.8 16.4	23.9 23.4

NOTAS / NOTES:

(1) Para NPS 26 e maiores, com uma espessura de parede limite superior a 12,7 mm (0,50 pol.), o comprimento será a critério do fabricante, a menos que seja acordado de outra forma entre o fabricante e o comprador.

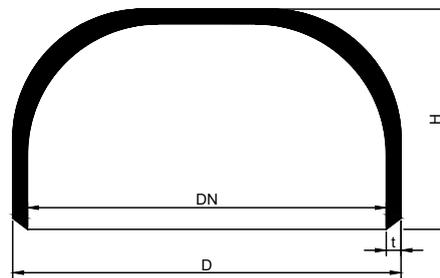
(1) For NPS 26 and larger, with a limiting wall thickness greater than 12.7 mm (0.50 in.), length will be at the manufacturer's option unless otherwise agreed by the manufacturer and purchaser.

(2) Esta coluna aplica-se quando a espessura nominal da parede ou a tabela, conforme marcada na conexão, for menor ou igual à espessura de parede limite.

(2) This column applies when the nominal wall thickness or schedule as it is marked on the fitting is less than or equal to the limiting wall thickness.

(3) Esta coluna aplica-se quando a espessura nominal da parede ou a tabela, conforme marcada na conexão, for maior que a espessura de parede limite.

(3) This column applies when the nominal wall thickness or schedule as it is marked on the fitting is greater than the limiting wall thickness.

CAPS
 CAPS


Diâmetro Nominal Nominal Diameter		Externo Outside CD	Centro à Extremidade Center to end		Peso aproximado por peça (kg). Kg/pcs approx. weight							
DN	pol / inch		F	B	sch5s	sch10s	sch20s	STD	sch40s	XS	sch80s	sch120s
300	12	325	152	178	5.12	6.40	9.90	13.5	14.6	17.9	28.3	94.0
		323.9			5.11	6.39	9.43	13.3	17.7	27.1	91.1	
		318.5			5.02	6.27	9.40	13.2	14.2	17.3	26.6	90.5
350	14	377	165	191	6.00	8.46	14.0	16.9	19.9	22.5	38.5	105
		355.6			5.66	7.98	13.2	15.9	18.8	21.2	35.2	99.0
400	16	426 406.4	178	203	6.93	7.91 7.53	17.4 12.5	21.0 20.0	28.2 26.7	28.0 26.7	520 491	116 111
450	18	478 457.2	203	229	7.90 7.52	9.01 8.58	22.3 21.2	26.9 25.6	43.8 41.4	35.8 34.1	76.1 69.1	131 125
500	20	529 508.0	254	254	10.5 10.1	12.02 11.7	33.2 31.9	33.2 31.9	57.6 54.0	44.2 42.5	103 93.7	141 136
550	22	559	267	—	12.1	22.6	38.8	38.8	78.3	51.7	116	168
600	24	630 610	267	305	14.8 14.3	16.9	47.4 45.1	46.5 45.1	92.3 90.1	61.9 60.1	177 160	172 164
650	26	660	267	—	23.3	26.1	67.3	50.5	103.5	67.3	—	—
700	28	720 711	267	—	27.1 38.7	32.4 49.7	75.9 94.9	55.9 56.2	151.1 121.3	75.6 74.9	—	—
750	30	762	267	—	41.4	51.7	82.8	62.1	117.3	82.8	—	—
800	32	820 813	267	—	43.4 41.1	58.3 57.7	92.0 91.1	70.6 70.0	127 116	92.0 91.0	—	—
850	34	864	267	—	57.2	65.5	105	78.7	144	105	—	—
900	36	267	267	—	60.3 59.1	74.6 72.1	115 114	86.3 85.7	172 171	115 114	—	—

NOTAS / NOTES:

(1) Para NPS 26 e maiores, com uma espessura de parede limite superior a 12,7 mm (0,50 pol.), o comprimento será a critério do fabricante, a menos que seja acordado de outra forma entre o fabricante e o comprador.

(1) For NPS 26 and larger, with a limiting wall thickness greater than 12.7 mm (0.50 in.), length will be at the manufacturer's option unless otherwise agreed by the manufacturer and purchaser.

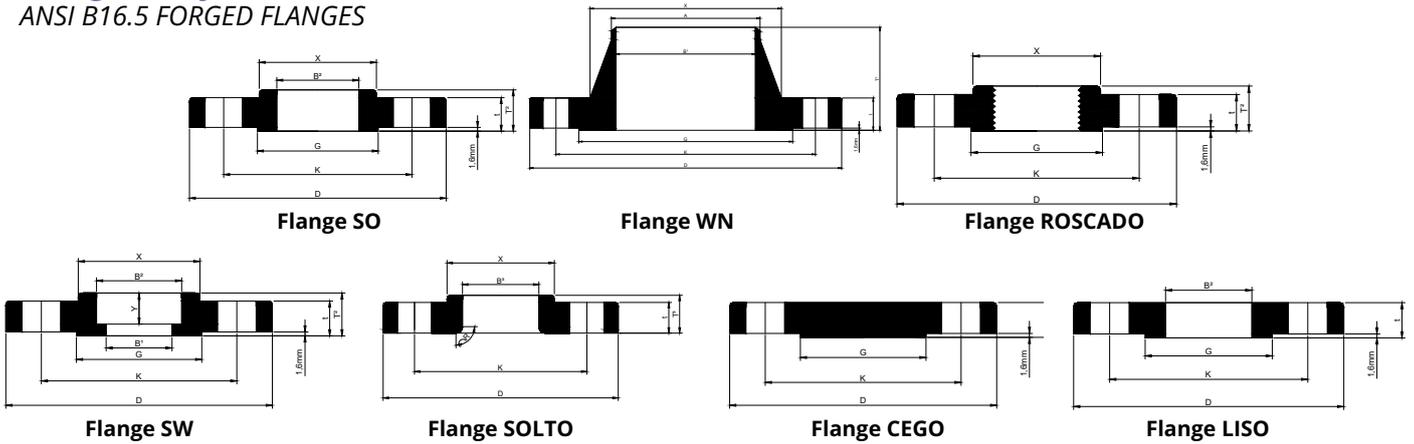
(2) Esta coluna aplica-se quando a espessura nominal da parede ou a tabela, conforme marcada na conexão, for menor ou igual à espessura de parede limite.

(2) This column applies when the nominal wall thickness or schedule as it is marked on the fitting is less than or equal to the limiting wall thickness.

(3) Esta coluna aplica-se quando a espessura nominal da parede ou a tabela, conforme marcada na conexão, for maior que a espessura de parede limite.

(3) This column applies when the nominal wall thickness or schedule as it is marked on the fitting is greater than the limiting wall thickness.

Flanges Forjados ANSI B16.5
ANSI B16.5 FORGED FLANGES

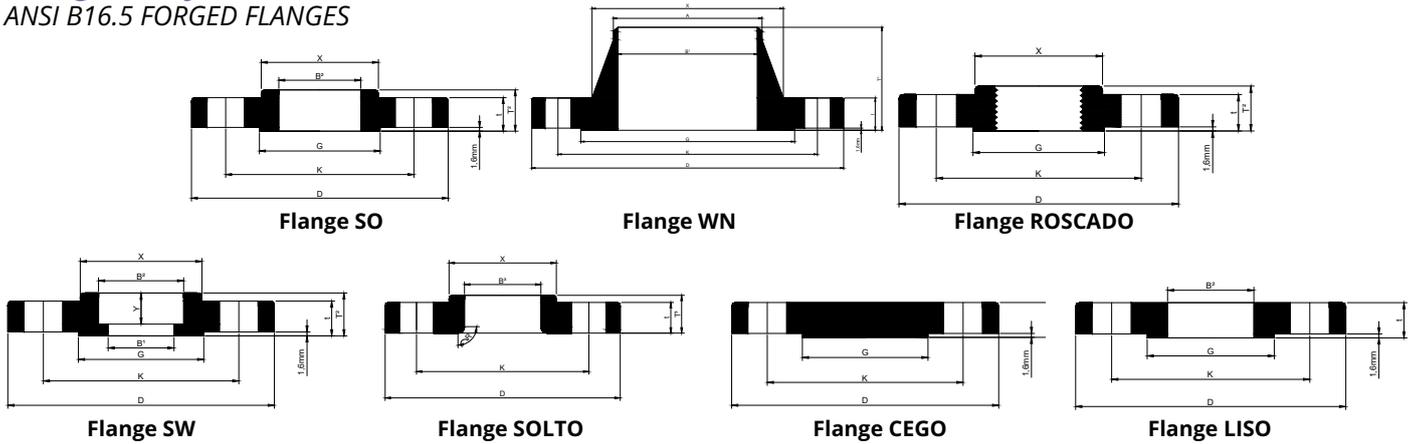


Unidade: mm

Diâmetro Nominal do Tubo Nominal Pipe Diameter	Diâmetro Externo Outside Diameter	Diam. da Base do Cubo Diam. of Base of Hub	Diâmetro Externo do Face Ressalto O. D of Rasised Face	Espesura Thi-ckness	FURO Bore			COMP. ATRAVÉS DO CUBO LENGHT THRU HUB			Diâmetro do Cubo no Chanfro Diam. of Hub at Bevel	Raio do Arredonda-mento Radius of Filet	Compr. da Rosca Thread Lengh
					Pescoço(WN) Encaixe(SW) Welding Neck Socket Welding	Sobreposito (SO) Encaixe (SW) Slip-on So-ckt Welding	Solto Lap Joint	Pes-çoço (WN) Welding Neck	Encai-xe(SW) Socket Welding	Solto Lap Joint			
pol / inch	D	X	G	t	B1	B2	B3	T1	T2	T3	A	R	Q
1/2	89	30.2	35.1	11.2	15.7	22.4	22.9	47.8	15.7	15.7	21.3	3.0	15.7
3/4	99	38.1	42.9	12.7	20.8	27.7	28.2	52.3	15.7	15.7	26.7	3.0	15.7
1	108	49.3	50.8	14.2	26.7	34.5	35.1	55.6	17.5	17.5	33.5	3.0	17.5
1 1/4	117	58.7	63.5	15.7	35.1	43.2	43.7	57.2	20.6	20.6	42.2	4.8	20.6
1 1/2	127	65.0	73.2	17.5	40.9	49.5	50.0	62.0	22.4	22.4	48.3	6.4	6.4
2	152	77.7	91.9	19.1	52.6	62.0	62.5	63.5	25.4	25.4	60.5	7.9	22.4
2 1/2	178	90.4	104.6	22.4	62.7	74.7	75.4	69.9	28.4	28.4	73.2	7.9	28.4
3	191	108.0	127.0	23.9	78.0	90.7	91.4	69.9	30.2	30.2	88.9	9.7	30.2
3 1/2	216	122.2	139.7	23.9	90.2	103.4	104.1	71.4	31.8	31.8	101.6	9.7	31.8
4	229	134.9	157.2	23.9	102.4	116.1	116.8	76.2	33.3	33.3	114.3	11.2	33.3
5	254	163.6	185.7	23.9	128.3	143.8	144.5	88.9	33.6	33.6	141.2	11.2	36.6
6	279	192.0	215.9	25.4	154.2	170.7	171.5	88.9	39.6	39.6	168.4	12.7	39.6
8	343	246.1	269.7	28.4	202.7	221.5	222.3	101.6	44.5	44.5	219.3	12.7	44.5
10	406	304.8	323.9	30.2	254.5	276.4	277.4	101.6	49.3	49.3	273.1	12.7	49.3
12	483	365.3	381.0	31.8	304.8	327.2	328.2	114.3	55.6	55.6	323.9	12.7	56.6
14	533	400.1	412.8	35.1	356.6	359.2	360.2	127.0	57.2	79.2	355.6	12.7	57.2
16	597	457.2	469.9	33.6	387.4	410.5	411.2	127.0	57.2	87.4	406.4	12.7	63.5
18	635	505.0	533.4	33.6	438.2	461.5	462.3	139.7	63.5	96.8	457.2	12.7	68.3
20	699	558.8	584.2	42.9	489.0	513.1	514.4	144.5	73.2	103.1	508.0	12.7	73.2
24	813	663.4	692.2	47.8	590.6	616.0	616.0	152.4	82.6	111.3	609.6	12.7	82.6

Flanges Forjados ANSI B16.5

ANSI B16.5 FORGED FLANGES

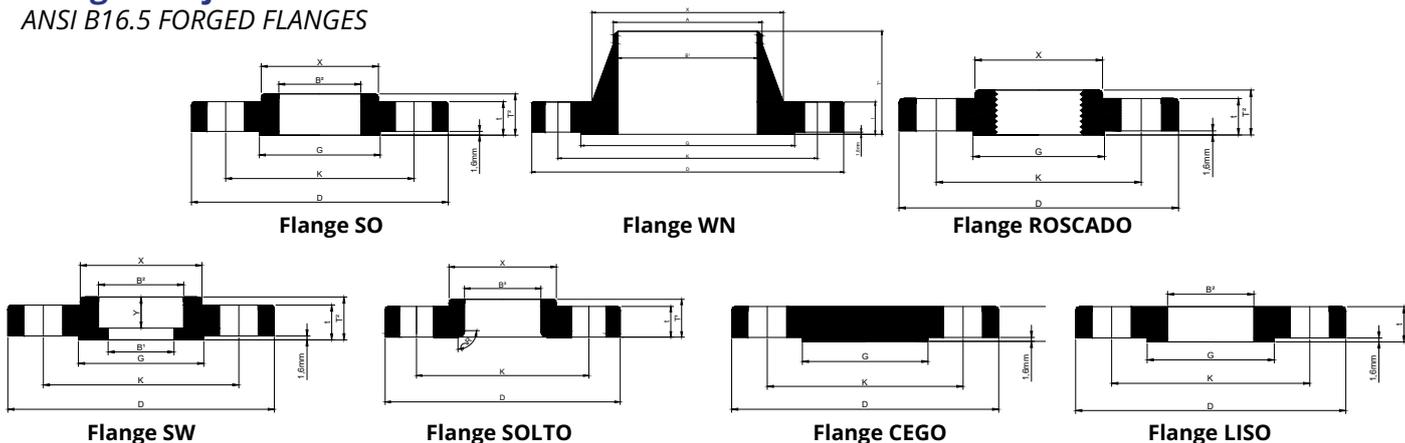


Unidade: mm

Diâmetro Nominal do Tubo <i>Nominal Pipe Diameter (inch)</i>	Profundidade do encaixe <i>Depth of Socket</i>	FURAÇÃO <i>DRILLING</i>			PARAFUSOS <i>BOLTING</i>				PESO APROXIMADO <i>APPROXIMATE WEIGHT</i>							
		Diâmetro do Círculo de Parafusos <i>Bolt Circle Diam</i>	Núm de Furos <i>Number of Holes</i>	Diâmetro dos parafusos (pol.) <i>Diam of Bolts (inch)</i>	Diâm. dos Furos (pol.) <i>Diam of Belts (inch)</i>	Comp. do parafuso <i>Machine Bolt Length</i>	Comprimento do prisioneiro <i>Stud Bolt Length</i>			Pescoço(WN) <i>Welding Neck</i>			Sobreposto (SO) Roscado <i>Slip-on and Threaded A</i>	Solto <i>Lap Joint</i>	Cego <i>Blind</i>	Encaixe (SW) <i>Socket Welding</i>
							Face Elevada <i>Raised Face</i>	Face Resalto(RF) <i>Raised Face</i>	Junta de Anel (RTJ) <i>Ring Joint</i>	SCH40	SCH80	SCH160				
Y	K															
1/2	9.7	60.5	4	15.7	1/2	50.8	57.2	—	0.60	0.60	0.60	0.41	0.40	0.43	0.41	
3/4	11.2	69.5	4	15.7	1/2	50.8	63.5	—	0.90	0.90	0.90	0.58	0.58	0.63	0.58	
1	12.7	79.2	4	15.7	1/2	57.2	63.5	76.2	1.14	1.18	1.24	0.80	0.80	0.89	0.80	
1 1/4	14.2	88.9	4	15.7	1/2	57.2	69.9	82.6	1.41	1.48	1.54	1.07	1.07	1.20	1.07	
1 1/2	15.7	98.6	4	15.7	1/2	63.5	69.9	82.6	1.81	1.90	2.01	1.37	1.37	1.58	1.37	
2	17.5	120.7	4	15.7	5/8	69.9	82.6	92.6	2.72	2.84	3.07	2.21	2.21	2.39	2.21	
2 1/2	19.1	139.7	4	19.1	5/8	76.2	88.9	95.3	4.45	4.70	4.98	3.32	3.34	4.07	3.32	
3	20.6	152.4	4	19.1	5/8	76.2	88.9	101.6	5.22	5.54	5.90	3.83	3.83	4.92	3.83	
3 1/2	22.4	177.8	8	19.1	5/8	76.2	88.9	101.6	6.40	6.76	7.46	5.20	5.20	5.90	5.20	
4	23.9	190.5	8	19.1	5/8	76.2	88.9	101.6	7.49	7.93	8.90	5.40	5.40	7.13	5.90	
5	23.9	215.9	8	22.4	3/4	82.6	95.3	108.0	9.53	10.54	12.04	6.26	6.26	8.72	6.80	
6	26.9	241.3	8	22.4	3/4	82.6	101.6	114.3	11.80	13.12	15.11	7.50	7.50	11.40	8.60	
8	31.8	298.5	8	22.4	3/4	88.9	108.0	120.7	19.10	21.34	25.84	12.30	12.40	20.10	13.60	
10	33.2	262.0	12	25.4	7/8	101.6	114.3	133.4	24.50	28.85	35.74	17.10	17.10	28.70	19.50	
12	39.6	431.8	12	25.4	7/8	101.6	120.7	133.4	39.90	46.80	58.01	26.50	26.50	43.80	29.10	
14	41.4	476.3	12	28.4	1	114.3	133.4	146.1	51.80	62.58	77.60	34.50	38.50	58.20	40.90	
16	44.5	539.8	16	28.4	1	114.3	133.4	146.1	64.50	79.42	98.82	45.50	51.20	77.40	44.50	
18	49.3	577.9	16	31.8	1 1/8	127.0	146.1	158.8	74.90	97.63	124.32	48.50	55.70	94.00	59.00	
20	54.1	635.0	20	31.8	1 1/8	127.0	158.8	171.5	89.40	120.44	154.18	61.80	70.20	122.70	74.90	
24	63.5	749.3	20	35.1	1 1/4	152.4	171.5	184.2	121.70	169.37	223.92	87.70	98.70	187.00	99.90	

Flanges Forjados ANSI B16.5

ANSI B16.5 FORGED FLANGES

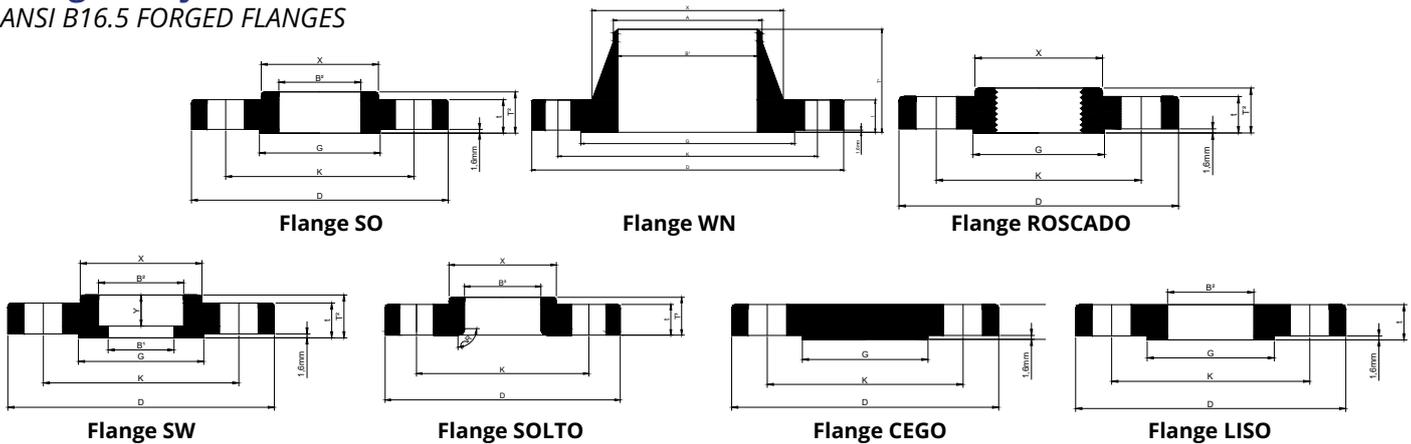


Unidade: mm

Diâmetro Nominal do Tubo <i>Nominal Pipe Diameter</i>	Diâmetro Externo do Cubo <i>Outside Diameter</i>	Diam. da Base do Cubo <i>Diam. of Base of Hub</i>	Diâmetro Externo do Face Ressalto <i>O. D of Rasised Face</i>	Espesura <i>Thickness</i>	FURO <i>Bore</i>			COMP. ATRAVÉS DO CUBO <i>LENGHT THRU HUB</i>			Diâmetro do Dubo no Filete <i>Diam. of Hug at Fillet</i>	Raio do Filete <i>Radius of Fillet</i>	Compr. da Linha Thread <i>Lengh</i>	
					Soldagem de Encaixe do Pesçoço <i>Welding Neck Socket Welding</i>	Soldagem de encaixe deslizante <i>Slip-on Socket Welding</i>	Junta Sobreposta <i>Lap Joint</i>	Diâmetro do furo mínimo. Rosca mínima. <i>Countner Bore Min. Threaded Min.</i>	Pescoço de Soldagem <i>Welding Neck</i>	Soldagem de Encaixe <i>Socket Welding</i>				Junta Sobreposta <i>Lap Joint</i>
pol / inch	D	X	G	t	B1	B2	B3	B	T1	T2	T3	A	R	Q
1/2	95	38.1	35.1	14.2	15.7	22.4	22.9	23.6	52.3	22.4	22.4	21.3	3.0	15.7
3/4	117	47.8	42.9	15.7	20.8	27.7	28.2	29.0	57.2	25.4	25.4	26.7	3.0	15.7
1	124	53.8	50.8	17.5	26.7	34.5	35.1	35.8	62.0	26.9	36.9	33.5	3.0	17.5
1 1/4	133	63.5	63.5	19.1	35.1	43.2	43.7	44.5	65.0	26.9	26.9	42.2	4.8	20.6
1 1/2	155	69.9	73.2	20.6	40.9	49.5	50.0	50.5	68.3	30.2	30.2	48.3	6.4	22.4
2	165	84.1	91.9	22.4	52.6	62.0	62.5	63.5	69.9	33.3	33.3	60.5	7.9	28.4
2 1/2	191	100.1	104.6	25.4	62.7	74.7	75.4	76.2	76.2	38.1	38.1	73.2	7.9	31.8
3	210	117.3	127.0	28.4	78.0	90.7	91.4	92.2	92.2	42.9	42.9	88.9	9.7	31.5
3 1/2	229	133.4	139.7	30.2	90.2	103.4	104.1	104.9	81.0	44.5	44.5	101.6	9.7	36.8
4	254	146.1	157.2	31.8	102.4	116.1	116.9	117.6	85.9	47.8	47.8	114.3	11.2	36.6
5	279	177.8	185.7	35.1	128.3	143.8	144.5	144.5	98.6	50.8	50.8	151.2	11.2	42.9
6	318	206.2	215.9	36.6	154.2	170.7	171.5	171.5	98.6	52.3	52.3	168.4	12.7	46.0
8	381	260.4	269.7	41.1	202.7	221.5	222.3	222.3	111.3	62.0	62.0	219.2	12.7	50.8
10	445	320.5	323.9	47.8	254.5	276.4	277.4	276.4	117.3	66.5	95.3	273.1	12.7	55.6
12	521	374.7	381.0	50.8	304.8	327.2	328.2	328.7	130.0	73.2	101.6	323.9	12.7	60.5
14	584	425.5	412.8	53.8	336.6	359.2	360.2	360.4	142.7	76.2	111.3	355.6	12.7	63.5
16	646	482.6	469.9	57.2	387.4	410.5	411.2	411.2	146.1	82.6	120.7	406.4	12.7	68.3
18	711	533.4	533.4	60.5	438.2	461.8	462.3	462.0	158.8	88.9	130.0	457.2	12.7	69.9
20	775	587.2	584.2	63.5	489.0	513.1	414.4	512.6	162.1	95.3	139.7	508.0	12.7	73.2
24	914	701.5	692.2	69.9	490.6	610.6	610.6	614.4	168.1	106.1	162.4	609.6	12.7	62.6

Flanges Forjados ANSI B16.5

ANSI B16.5 FORGED FLANGES



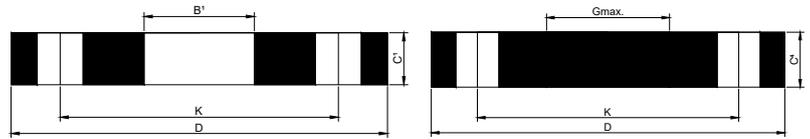
Unidade: mm

Diâmetro Nominal do Tubo Nominal Pipe Diameter	Profundidade do encaixe Depth of Socket γ	FURAÇÃO DRILLING			PARAFUSOS BOLTING				PESO APROXIMADO APPROXIMATE WEIGHT						
		Diâm. do círculo da correia Belt Circle Diam	Número de Furos Number of Holes	Diâm. dos Furos Diam of Bots (inch)	Diâm. dos Furos (pol) Diam of Belts (inch)	Máq. Comp, do parafuso Machine Bolt Lenght	Comprimento do parafuso prisioneiro Stud Bolt Lenght	Pescoço de soldagem Welding Neck			De encaixe e com rosca Slip-on and Thereded A	Junta sobreposta Lap Joint	Cego Blind	Soldagem de sacos Sacket Welding	
								Face Elevada Raised Face	Face Elevada Raised Face	Junta do anel Ring Joint					SCH40	SCH80	SCH160
1/2	9.7	60.5	4	15.7	1/2	57.2	63.5	76.2	0.91	0.91	0.91	0.63	0.63	0.43	0.63
3/4	11.2	69.5	4	19.1	5/8	63.5	76.5	88.9	1.36	1.36	1.36	1.16	1.16	1.15	1.16
1	12.7	79.2	4	19.1	5/8	63.5	76.5	88.9	1.82	1.87	1.93	1.37	1.37	1.40	1.37
1 1/4	14.2	98.6	4	19.1	5/8	69.9	82.6	95.3	2.27	2.36	2.41	1.76	1.85	1.88	1.75
1 1/2	15.7	114.3	4	22.4	3/4	76.2	88.9	101.6	3.18	3.28	3.20	2.47	2.46	2.65	2.47
2	17.5	120.7	8	19.1	5/8	76.2	88.9	101.6	3.36	3.48	3.75	2.90	2.80	3.22	2.90
2 1/2	19.1	149.4	8	22.4	3/4	82.6	101.6	114.3	5.45	5.72	6.02	4.17	4.20	4.80	4.17
3	20.6	168.1	8	22.4	3/4	88.9	108.0	120.7	8.17	8.54	8.94	5.82	5.87	6.89	5.92
3 1/2	22.4	184.2	8	22.4	3/4	3/4	108.0	120.7	8.90	9.31	10.10	7.72	7.72	8.90	—
4	23.9	200.2	8	22.4	3/4	3/4	114.3	120.7	12.10	12.62	13.69	9.73	9.66	11.60	—
5	23.9	235.0	8	22.4	3/4	108.0	120.7	133.4	16.30	17.42	19.08	12.10	12.10	15.60	—
6	26.9	269.7	8	22.4	3/4	108.0	120.7	139.7	20.40	21.86	246.07	16.00	15.90	21.40	—
8	31.8	330.2	12	25.4	7/8	120.7	139.7	152.4	31.30	33.75	38.69	23.90	23.80	34.10	—
10	33.3	387.4	16	28.4	1	139.7	156.8	171.5	45.40	50.43	58.38	34.00	38.20	53.50	—
12	39.6	450.9	16	31.8	1 1/8	146.1	171.5	184.0	64.50	72.35	85.10	49.10	54.90	78.30	—
14	41.4	514.4	20	31.8	1 1/8	158.8	177.8	190.5	93.50	105.61	122.49	69.10	80.10	105.00	—
16	44.5	571.5	20	35.1	1 1/4	165.1	190.5	203.2	113.10	130.25	152.56	88.90	103.90	138.60	—
18	49.3	628.7	24	35.1	1 1/4	171.5	169.9	209.6	138.90	164.74	195.07	107.20	124.60	174.30	—
20	54.1	685.8	24	35.1	1 1/4	184.2	203.2	222.3	167.50	202.32	240.17	132.90	154.40	220.40	—
24	63.5	812.8	24	41.1	1 1/2	203.2	228.6	254.0	235.60	288.15	348.28	198.70	232.60	339.00	—

FLANGES PN10

Flanges EN1092-1 PN10

Dimensions of EN1092-1 PN10 FLANGES

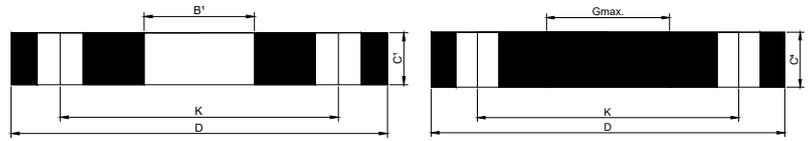


Unidade: mm

Diâmetro Nominal do Tubo Nominal Pipe Diameter	Diâmetro Externo Outside Diameter	Diâmetro do Círculo de Parafusos Diam of Bolt Circle	Diâmetro do furo do Parafuso Diam of bolt hole	Número de Parafusos Bolt number	Diâmetro Externo do Pescoço Outside Diameter of neck	Diâmetros de Furo Bore diameters		Espessura do Flange Flange thickness			Câmara Chambr	Espessura da parede Wall thickness	Espessura do colarinho Collar thickness	Diâmetro do ombro Gmax Diameter of shoulder
	D	K			A	B ₁	B ₂	C ₁	C ₂	C ₃	E	S	F	
	Tipo de Flange Flange type													
	01.02.05.11.12.13					11	01 12	02	01 02	11 12.13	05	02	11	32	05
10	90	60	14	4	17.2	18.0	21	15	16	16	3	2	12	—
15	95	65	14	4	21.3	22.0	25	14	16	16	3	2	12	—
20	105	75	14	4	26.9	27.5	31	16	18	18	4	2.3	14	—
25	115	85	14	4	33.7	34.5	38	16	18	18	4	2.6	14	—
32	140	100	18	4	42.4	43.5	47	18	18	18	5	2.6	14	—
40	150	110	18	4	48.3	49.5	53	18	18	18	5	2.6	14	—
50	165	125	18	4	60.3	61.5	65	20	18	18	5	2.9	16	—
80	200	160	18	8	88.9	90.5	94	20	20	20	6	32.2	15	70
100	220	180	18	8	114.3	116.0	120	22	20	20	6	3.6	18	90
125	250	210	18	8	139.7	141.5	145	22	22	22	6	4.0	18	115
150	285	240	22	8	168.3	170.5	174	24	22	22	6	4.5	20	140
200	340	295	22	8	219.1	221.5	226	24	24	24	6	4.5	20	190
250	395	350	22	12	273.0	276.5	281	26	26	26	8	6.3	22	235
300	445	400	22	16	323.9	375.5	333	26	26	26	8	7.1	22	285
350	505	460	22	16	355.6	395.5	365	30	26	26	8	7.1	22	330
400	565	615	26	20	406.4	411.0	416	32	26	26	8	7.1	24	380
450	615	565	26	20	457.0	462.0	467	36	26	26	8	7.1	24	425
500	670	620	26	20	508.0	513.5	519	38	26	26	8	7.1	28	475

Flanges EN1092-1 PN10

Dimensions of EN1092-1 PN10 FLANGES

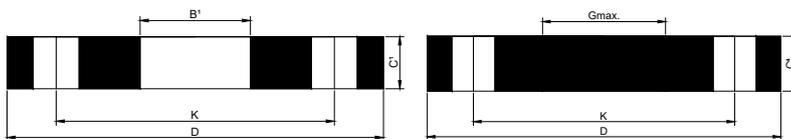


Unidade: mm

Diâmetro Nominal do Tubo Nominal Pipe Diameter (inch)	Face Elevada Raised Face		Comprimento Length			Diâmetros do Pescoço Neck diameters		Raio do canto Corner radii	Peso aproximado Approximate Weight				
	d ₁	f ₁	H ₁	H ₂	H ₃	N ₁	N ₂	R ₁					
	Tipo de Flange Flange type												
	01.05.11.12.13	12 13	11	11	11	12 13	11 12.13	Type01	Type02	Type02	Type11	Type12	
10	40	2	22	35	6	28	30	4	0.604	0.581	0.722	0.678	0.646
15	45	2	22	38	6	32	35	4	0.670	0.654	0.813	0.768	0.722
20	58	2	26	40	6	40	45	4	0.936	0.909	1.14	1.09	1.04
25	68	2	28	40	6	46	52	4	1.11	1.08	1.38	1.30	1.25
32	78	2	30	42	6	56	60	6	1.82	1.77	2.03	1.91	1.81
40	88	3	32	45	7	65	70	6	2.08	2.02	2.35	2.15	2.06
50	102	3	28	45	8	74	84	6	2.73	2.52	2.88	2.53	2.39
65	122	3	32	45	10	92	104	6	3.16	3.05	3.51	3.03	2.97
80	138	3	34	50	10	105	118	6	3.79	3.48	4.61	3.92	3.78
100	158	3	44	55	12	131	140	8	4.39	4.20	5.65	4.62	4.38
125	188	3	44	55	12	156	168	8	5.41	5.21	8.13	6.30	6.07
150	212	3	44	62	16	184	195	10	7.14	6.89	10.5	7.81	7.24
200	268	3	44	62	16	234	246	10	9.27	6.87	16.5	11.6	10.1
250	320	3	46	68	16	292	298	12	116.8	11.2	24.1	15.8	12.8
300	370	4	46	68	16	342	350	12	13.6	12.8	39.6	25.3	22.7
350	430	4	53	68	16	385	400	12	20.4	19.4	39.6	25.3	22.7
400	482	4	57	72	16	440	456	12	33.6	232.2	63	35.1	32.3
450	532	4	63	72	16	488	502	12	64.6	52.2	124	52.9	48.9
500	585	4	67	75	16	542	559	12	40.2	38.5	75.2	40.5	38.7
600	685	5	75	82	18	542	559	12	54.5	52.2	124	52.9	48.9

Flanges EN1092-1:2007

Dimensions of PN16 FLANGES

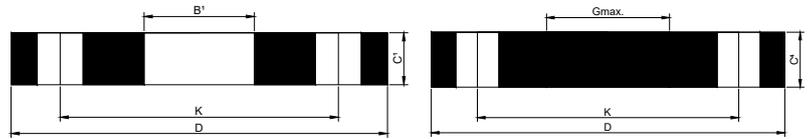


Unidade: mm

Diâmetro Nominal do Tubo Nominal Pipe Diameter	Diâmetro Externo do Círculo de Parafusos Diam of Bolt Circle	Diâmetro do furo do Parafuso Diam of bolt hole	Número de Parafusos Bolt number	Diâmetro Externo do Pescoço Outside Diameter of neck	Diâmetros de Furo Bore diameters		Espessura do Flange Flange thickness			Câmara Chamber	Espessura da parede Wall thickness	Espessura do colarinho Collar thickness	Diâmetro do ombro Gmax Diameter of shoulder	
	D	K		A	B ₁	B ₂	C ₁	C ₂	C ₃	E	S	F		
	Tipo de Flange Flange type													
	01.02.05.11.12.13			11	01 12	02	01 02	11 12.13	05	02	11	32	05	
10	90	60	14	4	17.2	18.0	21	14	16	16	3	2	12	—
15	95	65	14	4	21.3	22.0	25	14	18	18	3	2.3	14	—
20	105	75	14	4	26.9	27.5	31	16	18	18	4	2.3	14	—
25	115	85	14	4	33.7	34.5	38	16	18	18	4	2.6	14	—
32	140	100	18	4	42.4	43.5	47	18	18	18	5	2.6	14	—
40	150	110	18	4	48.3	49.5	53	18	18	18	5	2.6	14	—
50	165	125	18	4	60.3	61.5	65	20	18	18	5	2.9	16	—
65	185	145	18	4	60.3	61.5	65	20	18	18	5	2.9	16	—
80	200	160	18	8	88.9	90.5	94	20	20	20	6	32.2	16	70
100	220	180	18	8	114.3	116.0	120	22	20	20	6	3.6	18	90
125	250	210	18	8	139.7	141.5	145	22	22	22	6	4.0	18	115
150	285	240	22	8	168.3	170.5	174	24	22	22	6	4.5	20	140
200	340	295	22	8	219.1	221.5	226	26	24	24	6	6.3	20	190
250	405	355	26	12	273.0	276.5	281	29	26	26	8	6.3	22	235
300	460	410	26	16	323.9	327.5	333	32	28	28	8	7.1	24	285
350	520	470	26	16	355.6	395.5	365	35	30	30	8	8.0	26	380
400	580	525	30	16	406.4	411.0	416	38	32	32	8	8.0	28	380
450	640	585	30	20	457.0	462.0	467	42	34	44	8	8.8	30	475
500	715	650	33	20	508.0	513.5	519	46	38	44	8	8.81	32	475
600	840	770	36	20	610.0	65.5	622	55	40	54	8	10.0	32	575
700	910	840	36	24	711.0	A ser especificado pelo comprador. A ser especificado pelo comprador.	721	63	40	58	8	10.0		670
800	1025	950	39	24	813.0		824	74	41	62	8	12.5		770
900	1125	1080	39	28	914.0		926	82	48	64	8	12.5		860
1000	1255	1170	42	28	1016.0		1030	90	59	698	8	12.5		960

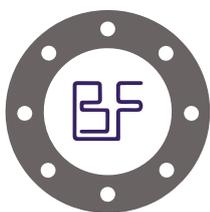
Flanges EN1092-1:2007

Dimensions of PN16 FLANGES



Unidade: mm

Diâmetro Nominal do Tubo Nominal Pipe Diameter (inch)	Face Elevada Raised Face		Comprimento Length			Diâmetros do Pescoço Neck diameters		Raio do canto Corner radil	Peso aproximado Approximate Weight				
	d_1	f_1	H_1	H_2	H_3	N_1	N_2	R_1					
	Tipo de Flange Flange type												
	01.05.11.12.13		12 13	11	11	11	12 13	11 12.13	Type01	Type02	Type02	Type11	Type12
10	40	2	22	35	6	28	30	4	0.604	0.581	0.722	0.678	0.646
15	45	2	22	38	6	32	35	4	0.670	0.654	0.813	0.768	0.722
20	58	2	26	40	6	40	45	4	0.936	0.909	1.14	1.09	1.04
25	68	2	28	40	6	46	52	4	1.11	1.08	1.38	1.30	1.25
32	78	2	30	42	6	56	60	6	1.82	1.77	2.03	1.91	1.81
40	88	3	32	45	7	64	70	6	2.08	2.02	2.35	2.15	2.06
50	102	3	28	45	8	74	84	6	2.73	2.52	2.88	2.53	2.39
65	122	3	32	45	10	92	104	6	3.16	3.05	3.51	3.03	2.97
80	138	3	34	50	10	105	118	6	3.79	3.48	4.61	3.92	3.78
100	158	3	44	55	12	131	140	8	4.39	4.20	5.65	4.62	4.38
125	188	3	44	55	12	156	168	8	5.41	5.21	8.13	6.30	6.07
150	212	3	44	62	16	184	195	10	7.14	6.89	10.5	7.81	7.24
200	268	3	44	62	16	235	246	10	9.73	9.31	16.2	11.5	9.8
250	320	3	46	70	16	292	298	12	14.2	13.5	25.0	16.70	13.6
300	378	4	46	78	16	344	350	12	19	18.0	35.1	22.1	17.2
350	430	4	57	82	16	390	400	12	28.2	27.0	48.0	32.8	27.9
400	490	4	73	85	16	445	456	12	35.9	35.6	63.5	41.1	35.7
450	550	4	68	83	16	490	502	12	46.1	44.6	96.6	50.6	45.0
500	610	4	73	88	16	548	559	12	64.2	62.0	133	66.2	60.4
600	725	5	83	88	18	670	658	12	102	98.8	226	104	94
700	795	5	90	108	20	855	864	12	—	152	388	122	—
800	900	5	90	118	20	955	968	12	—	184	483	155	—
900	1000	5	94	108	20	855	864	12	—	152	388	122	—
1000	1115	5	100	137	22	1058	1072	16	—	257	640	233	—



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CONEXÕES E VÁLVULAS

 21 **99834-2654**

 21 **2501-0454**

 brasforge@brasforge.com.br
vendas@brasforge.com.br

 brasforge.com.br

 Rua Vieira da Silva, 54
Rio de Janeiro (RJ) - Brasil
CEP: 20961-090