

➤ TROUVAY & CAUVIN PIPING SOLUTION

BUILDING & INFRASTRUCTURE DIVISION



since
1881



T&C TROUVAY
GROUP & CAUVIN
Channelling all **energies**



ABOUT US

Throughout its 134-year history, Trouvay & Cauvin Group has been able to overcome every major crisis it has faced, ranging from world wars to its own restructuring in 2002 and the economic crisis of 2009.

ENTREPRENEURIAL BY NATURE

At each critical juncture in our history, we have remained on a clear path. Our secret? Entrepreneurial spirit and unmatched expertise.

The roots of our spirit can be traced back to our long-standing relationship with the energy industry. Meeting the challenges of this fast-moving, cyclical sector has forged our character. Generation after generation, we have sought to combine agile thinking with reliable capabilities.

This has enabled us to become a trusted partner of energy companies around the world, who count on our unique expertise to deliver innovative, reliable solution in challenging conditions. As our reputation has grown, other industries have started calling on this same expertise, which has enabled us to expand into critical sectors, such as offshore and onshore production facilities, major infrastructure projects, water treatment and industrial processes.

Today, our spirit is found in our solutions. Everyone at Trouvay & Cauvin Group is dedicated to doing what we do best: delivering project piping packages that leverage our stocks, logistical capabilities and services. Our international team, which spans the globe from Seoul to Houston, stands ready to meet your global requirements with a local approach.

Channelling energy between you and us – this has been our spirit for over 130 years.

Laurent Marie
Executive Chairman



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PIPING SOLUTIONS YOU CAN COUNT ON

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WHO WE ARE

The roots of Trouvay & Cauvin Group stretch back to 1881, with the founding of Trouvay & Cauvin in Le Havre, France, by Georges Trouvay and César Cauvin. The company began as an industrial supply store providing pipes, valves and gauges to the ocean liners that travelling between the French port city and New York...

1881



César CAUVIN and Albert CAUVIN in 1936

BIRTH

Quite quickly the firm grew to become a recognized specialist in pipes, tubes, valves and other equipment for the oil & gas, water and building sectors – just as it is today – and became a leading manufacturer of valves.

Through the first half of the twentieth century, Trouvay & Cauvin focused on growth in France, becoming one of the country's leading industrial companies with eight branches nationwide.

In the 1970s it became an active participant in the French civil nuclear energy program.

INTERNATIONAL EXPANSION

The next chapter of Trouvay & Cauvin's expansion is closely linked to the growth of the oil & gas industry. 1962 saw the beginning of operations in the Middle East, while in 1967, the firm expanded in Europe.

The 1970s was a period of significant expansion in the Middle East, with the development of facilities in Saudi Arabia and the opening of offices in Qatar, Dubai, Saudi Arabia, Abu Dhabi and Bahrain. In 1978 the Middle East offices were merged to create a single company called Trouvay & Cauvin Gulf, which was incorporated in Bahrain. This entity went on to be known as T&C Gulf.

TURBULENT TIMES

The slowdown in the energy sector between 1998 and 2000, and the subsequent collapse in investments, pushed the French parent company into liquidation in 2002.

During these trying times, Trouvay & Cauvin Gulf remained strong and financially healthy. It was untouched by the parent company's woes, unlike many of the overseas subsidiaries, which were spun off in management buy-outs.

RENAISSANCE

To find the true spirit of César Cauvin and Georges Trouvay today, you have to look no further than Trouvay & Cauvin Group, which was founded after the merger of Trouvay & Cauvin Gulf, Trouvay & Cauvin Asia Pacific, Trouvay & Cauvin USA and Trouvay & Cauvin India.

Today Trouvay & Cauvin Group continues to build on the parent company's original values and expertise. While other companies may sport the Trouvay & Cauvin name, only the "Group" signature gives you access to the strength of over USD40 million in permanent stock in three locations and USD 29 million in capital and retained earnings. Over the years it forged a reputation as being a trusted piping solutions partner for some of the world's most ambitious oil & gas and infrastructure projects.

TOMORROW

The next chapter in the history of Trouvay & Cauvin Group is being written right now, as the company pursues an ambitious strategy of international growth.

2010

- Office opening in Thailand and USA
- Development of agent network in India and South-Korea

2011

- Stock opening in Port Klang, Malaysia
- Office opening in China, Beijing

2012

- Office opening in Oman and Shanghai
- Buy back of TROUVAY & CAUVIN Ltd (UK)

2013

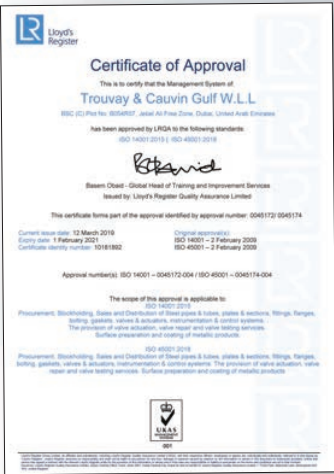
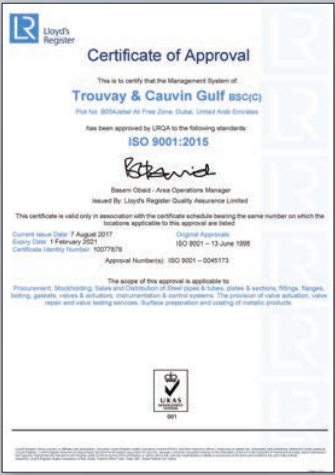
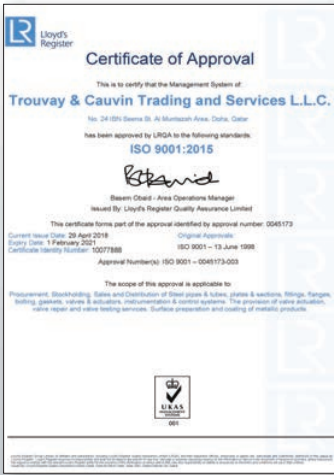
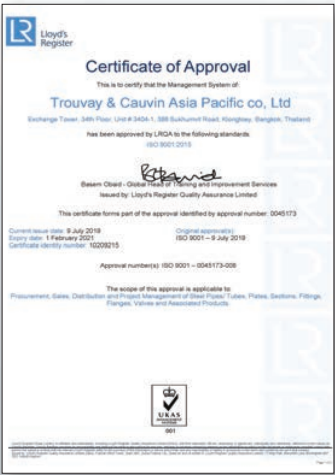
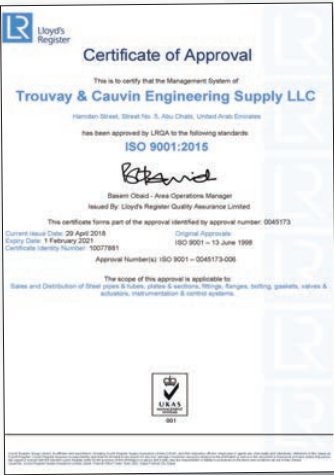
- Construction of our stockyard in Iraq
- Opening of our Kenyan office
- Development of our network in Central Asia

2014

- Creation of a Building & Infrastructure Division at Group level
- Creation of Shutdown & Maintenance Service Division.

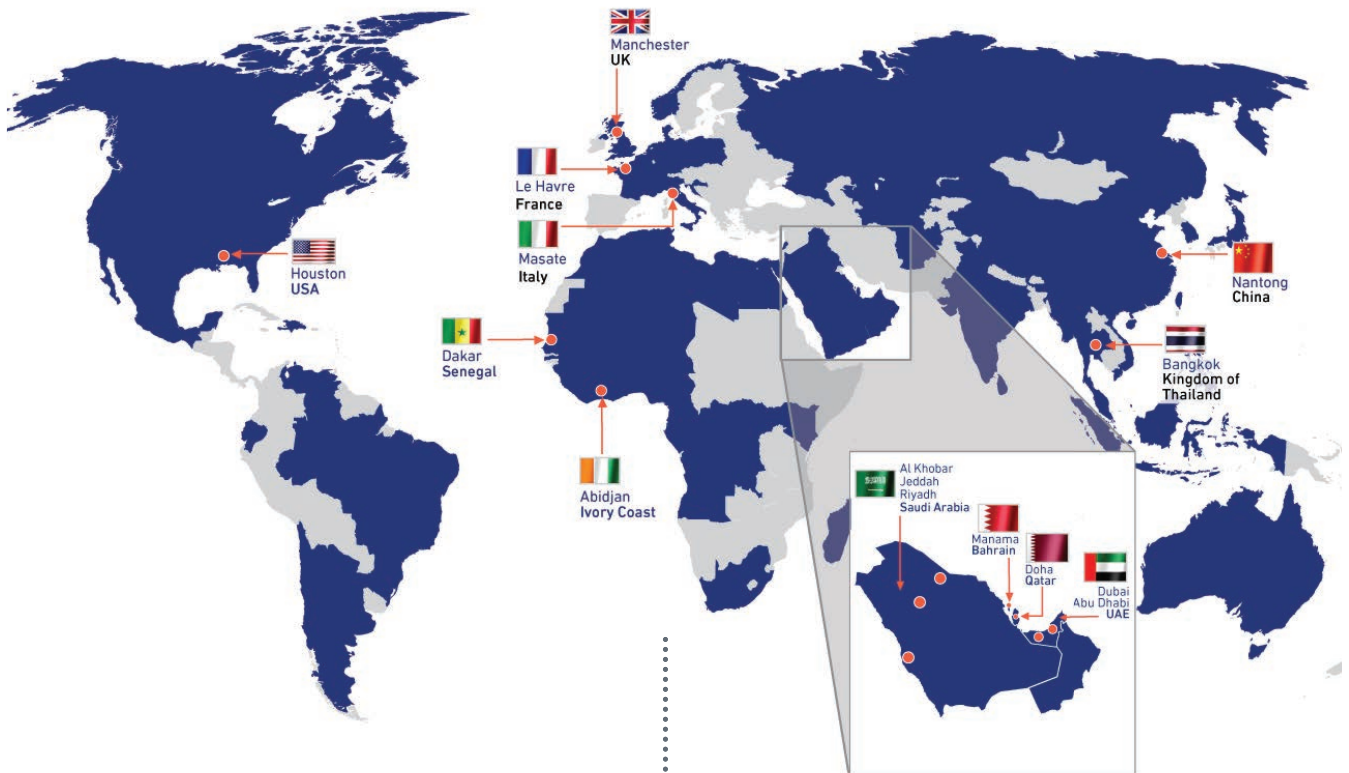


CERTIFICATIONS



OUR LOCATIONS

- Leveraging a global network (16 offices) on strong local presence
- 7 logistic platforms worldwide
- A network of agents
- 45,000 tons of stocks including pipes, structural steel, valves, fittings and flanges
- 280 highly skilled employees



T&C GROUP
TROUVAY & CAUVIN
 Channelling energy



Trouvay & Cauvin Group carries a wide range of Seamless and welded carbon steel pipes and Stainless steel pipes for HVAC, firefighting, drainage and water application.

PIPES

A- Seamless and welded carbon steel pipes API5L-GB/ASTM A53-GA/B

Other grades upon request

1. Standards overview

ASTM A 53 / A 53M-12

This specification covers seamless and welded black and hot-dipped galvanized steel pipe in NPS 1/8 to 26 inclusive with nominal wall thickness as given in tables (see the standard)

Pipe may be furnished in the following types and grades:

Type F : Furnace-butt welded (FBW) – Grade A

Type E : Electric-resistance welded (ERW) – Grades A and B

Type S : Seamless – Grades A and B

CHEMICAL REQUIREMENTS MAXI IN %

Types	Grades	C	Mn	S	P	Cr (a)	Cu (a)	Mo (a)	Ni (a)	V (a)
S	B	0.30	1.20	0.045	0.05	0.40	0.40	0.15	0.40	0.08
E	B	0.30	1.20	0.045	0.05	0.40	0.40	0.15	0.40	0.08
F	A	0.30	1.20	0.045	0.05	0.40	0.40	0.15	0.40	0.08

(a) These five elements combined shall not exceed 1 %

TENSILE REQUIREMENTS

Types	Grades	Manufacture	Minimum tensile strength		Minimum yield strength		Minimum elongation
			ksi	MPa	ksi	MPa	in 2", per cent
F	A	Open hearth or electric furnace or basic oxygen	48.0	330	30.0	205	$e = \frac{625.000 A^{0.2}}{U^{0.9}}$ (See ASTM standard)
E & S	A		48.0	330	30.0	205	
	B		60.0	415	35.0	240	

TOLERANCES

Outside diameter (pipe body)	NPS 1 1/2 (1.900" OD) and under	± 1/64"
	NPS 2 (2.375" OD) and over	± 1 % (0.40 mm)
On thickness		- 12.5 %
On weight		± 10 %

HYDROSTATIC TEST PRESSURE: see standard detailed specification.

ASTM A 106-13

Seamless carbon steel pipe for high temperature service

CHEMICAL REQUIREMENTS IN %

Grades	C	Mn	S	P	Si	Cr	Cu	Mo	Ni	V
	maxi (a)		maxi	maxi	mini	maxi (b)	maxi (b)	maxi (b)	maxi (b)	maxi (b)
A	0.25	0.27 to 0.93	0.035	0.035	0.10	0.40	0.40	0.15	0.40	0.08
B	0.30	0.29 to 1.06	0.035	0.035	0.10	0.40	0.40	0.15	0.40	0.08
C	0.35	0.29 to 1.06	0.035	0.035	0.10	0.40	0.40	0.15	0.40	0.08

[a] For each reduction of 0.01 % below the specified carbon maximum, an increase of 0.06 % manganese above the specified maximum will be permitted, up to a maximum of 1.35 %
[b] These five elements combined shall not exceed 1 %.

TENSILE REQUIREMENTS

Grades	Minimum tensile strength		Minimum yield strength		Minimum elongation(1)	
					Longitudinal	Transverse
	ksi	MPa	ksi	MPa	in 2", per cent	
A	48.0	330	30.0	205	35	25.0
B	60.0	415	35.0	240	30	16.5
C	70.0	485	40.0	275	30	16.5

(1) Basic minimum elongation transverse strip tests, and for all small sizes tested in full section. For longitudinal strip tests the minimum elongation in 2" shall be: e = 625.000 A^{0.2}/U^{0.9} [see ASTM].

TOLERANCES: Outside diameter: as follows

Nominal pipe size NPS	Outside diameter mm	Variations in outside diameter			
		over		under	
		mm	inches	mm	inches
1/8 to 1 1/2	10.3 to 48.3	0.40	1/64 (0.015)	0.40	1/64 (0.015)
2 to 4	60.3 to 114.3	0.79	1/32 (0.031)	0.79	1/32 (0.031)
5 to 8	141.3 to 219.1	1.59	1/16 (0.062)	0.79	1/32 (0.031)
10 to 18	273.0 to 457.2	2.38	3/32 (0.093)	0.79	1/32 (0.031)
20 to 26	508.0 to 660.0	3.18	1/8 (0.125)	0.79	1/32 (0.031)
28 to 34	711.0 to 864.0	3.97	5/32 (0.156)	0.79	1/32 (0.031)
36 to 48	914.0 to 1219.0	4.76	3/16 (0.187)	0.79	1/32 (0.031)

Note: For pipes NPS 10" (273 mm) and over, possibility to obtain if specially required:
outside diameter ± 1 % or inside diameter ± 1 %

On thickness		- 12.5 %
On weight	Per unit length	+ 10 % - 3.5 %
Hydrostatic test pressure (see ASTM A 530 / A 530 M-99)	Given by the formula $p = \frac{2 S T}{D}$ where P: Test pressure in PSI T: Wall thickness in inches S: Pipe wall stress in PSI D: Outside diameter in inches	
Lengths	If definite lengths are not required, pipe may be ordered in single random lengths of 16 to 22 ft (4.8 to 6.7 m) with 5 % 12 to 16 ft (3.7 to 4.8 m), or in double random lengths with a minimum average of 35 ft (10.7 m) with 5 % 16 to 22 ft (4.8 m to 6.7 m).	

API 5L specification

45th edition – DECEMBER 2000

CHEMICAL REQUIREMENTS (in %) FOR HEAT AND PRODUCT ANALYSES (Section 6)

PSL 1

Grades	Carbon	Manganese	Phosphorus	Sulfur	Other
	maxi (a)	maxi (a)	maxi	maxi	
seamless					
A	0.22	0.90	0.030	0.030	
B	0.28	1.20	0.030	0.030	b, d
X42	0.28	1.30	0.030	0.030	c, d
X46, X52, X56	0.28	1.40	0.030	0.030	c, d
X60(e), X65(e)	0.28	1.40	0.030	0.030	c, d
X70(e)					
welded					
A	0.22	0.90	0.030	0.030	
B	0.26	1.20	0.030	0.030	b, d
X42	0.26	1.30	0.030	0.030	c, d
X46, X52, X56	0.26	1.40	0.030	0.030	c, d
X60(e)	0.26	1.40	0.030	0.030	c, d
X65(e)	0.26	1.45	0.030	0.030	c, d
X70(e)	0.26	1.65	0.030	0.030	c, d

PSL 2

Grades	Carbon	Manganese	Phosphorus	Sulfur	Other
	maxi (a)	maxi (a)	maxi	maxi	
seamless					
B	0.24	1.20	0.025	0.015	b, d
X42	0.24	1.30	0.025	0.015	c, d
X46N, X52N, X56N	0.24	1.40	0.025	0.015	c, d
X60N(e)	0.24	1.40	0.025	0.015	c, d
welded					
B	0.22	1.20	0.025	0.015	b, d
X42M, X46M	0.22	1.30	0.025	0.015	c, d
X52M, X56M	0.22	1.40	0.025	0.015	c, d
X60M(e)	0.12	1.60	0.025	0.015	c, d
X65M(e)	0.12	1.60	0.025	0.015	c, d
X70M(e)	0.12	1.70	0.025	0.015	c, d
X80M(e)	0.12	1.85	0.025	0.015	c, d

- a) For each reduction of 0.01 % below the specified maximum carbon content, an increase of 0.05 % above the specified maximum manganese content is permissible, up to a maximum of 1.50 % for grades X42 through X52, up to a maximum of 1.65 % for grades higher than X52 but less than X70, and up to 2.00 % for grades X70 and higher.
- b) Columbium (niobium), vanadium, titanium, or combinations thereof may be used by agreement between the purchaser and manufacturer.
- c) Columbium (niobium), vanadium, titanium, or combinations thereof may be used at the discretion of the manufacturer.
- d) The sum of the columbium (niobium), vanadium, and titanium contents shall not exceed 0.15 %.
- e) Other chemical compositions may be furnished by agreement between purchaser and manufacturer, providing that the limits of footnote d and the tabular limits for phosphorus and sulfur are met.

API 5L specification

45th edition – DECEMBER 2012

TENSILE REQUIREMENTS (Section 6)

PSL 1

Grades	Yield strength minimum		Ultimate tensile strength minimum		Elongation minimum (%), in 2 in. (50.8 mm)
	ksi	MPa	ksi	MPa	
A	30.5	210	48.6	335	a
B	35.5	245	60.2	415	a
X42	42.1	290	60.2	415	a
X46	46.4	320	63.1	435	a
X52	52.2	360	66.7	460	a
X56	56.6	390	71.1	490	a
X60	60.2	415	75.4	520	a
X65	65.3	450	77.6	535	a
X70	70.3	485	82.7	570	a

PSL 2

Grades	Yield strength				Ultimate tensile strength				Elongation minimum (%), in 2 in. (50.8 mm)
	mini		maxi (b)		mini		maxi (c)		
	ksi	MPa	ksi	MPa	ksi	MPa	ksi	MPa	
B	35.5	245	65.3(d)	450	60.2	415	95.0	655	a
X42	42.1	290	71.8	495	60.2	415	95.0	655	a
X46	46.4	320	76.1	525	63.1	435	95.0	655	a
X52	52.2	360	66.7	530	66.7	460	110.2	760	a
X56	56.6	390	79.0	545	71.1	490	110.2	760	a
X60	60.2	415	81.9	565	75.4	520	110.2	760	a
X65	65.3	450	87.0	600	77.6	535	110.2	760	a
X70	70.3	485	92.1	635	82.7	570	110.2	760	a
X80	80.5	555	102.3(e)	705	90.6	65	119.7	825	a

a) The minimum elongation in 2 in. (50.8 mm) shall be that determined by the following equation :

US Customary Unit Equation

$$e = 625,000 \frac{A^{0.2}}{U^{0.9}}$$

where

e = minimum elongation in 2 in. (50.8 mm) in percent rounded to the nearest percent.

A = cross-sectional area of the tensile test specimen in sq. in.

U = specified minimum ultimate tensile strength in psi.

b) Maximum yield strength for an intermediate grade shall be the maximum for the next higher listed grade.

c) All intermediate grades have a maximum ultimate tensile strength of 110,000 psi (758 MPa).

d) Maximum yield strength for grade B pipe in sizes subject to longitudinal testing is 72,000 psi (496 MPa).

e) For wall thickness greater than 0.984 in. (25.0 mm), the maximum yield strength shall be determined by agreement between the purchaser and the manufacturer.



2. Carbon steel pipes weight and dimensions

ASME B 36.10 M-1996

Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
							Specif. API	W.T. Épaisseur	Schedule
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m		STD XS XXS	
1/8	0.405	10,3	0.049	1,24	0.19	0,28	–	–	10
	0.405	10,3	0.057	1,45	0.21	0,32	–	–	30
	0.405	10,3	0.068	1,73	0.24	0,37	5L	STD	40
	0.405	10,3	0.095	2,41	0.31	0,47	5L	XS	80
1/4	0.540	13,7	0.065	1,65	0.33	0,49	–	–	10
	0.540	13,7	0.073	1,85	0.36	0,54	–	–	30
	0.540	13,7	0.088	2,24	0.42	0,63	5L	STD	40
	0.540	13,7	0.119	3,02	0.54	0,80	5L	XS	80
3/8	0.675	17,1	0.065	1,65	0.42	0,63	–	–	10
	0.675	17,1	0.073	1,85	0.47	0,70	–	–	30
	0.675	17,1	0.091	2,31	0.57	0,84	5L	STD	40
	0.675	17,1	0.126	3,20	0.74	1,10	5L	XS	80
1/2	0.840	21,3	0.065	1,65	0.54	0,80	–	–	5
	0.840	21,3	0.083	2,11	0.67	1,00	–	–	10
	0.840	21,3	0.095	2,41	0.76	1,12	–	–	30
	0.840	21,3	0.109	2,77	0.85	1,27	5L	STD	40
	0.840	21,3	0.147	3,73	1.09	1,62	5L	XS	80
	0.840	21,3	0.188	4,78	1.31	1,95	–	–	160
	0.840	21,3	0.294	7,47	1.71	2,55	5L	XXS	–
3/4	1.050	26,7	0.065	1,65	0.69	1,03	–	–	5
	1.050	26,7	0.083	2,11	0.86	1,28	–	–	10
	1.050	26,7	0.095	2,41	0.97	1,44	–	–	30
	1.050	26,7	0.113	2,87	1.13	1,69	5L	STD	40
	1.050	26,7	0.154	3,91	1.47	2,20	5L	XS	80
	1.050	26,7	0.219	5,56	1.94	2,90	–	–	160
	1.050	26,7	0.308	7,82	2.44	3,64	5L	XXS	–
1	1.315	33,4	0.065	1,65	0.87	1,30	–	–	5
	1.315	33,4	0.109	2,77	1.40	2,09	–	–	10
	1.315	33,4	0.114	2,90	1.46	2,18	–	–	30
	1.315	33,4	0.133	3,38	1.68	2,50	5L	STD	40
	1.315	33,4	0.179	4,55	2.17	3,24	5L	XS	80
	1.315	33,4	0.250	6,35	2.84	4,24	–	–	160
	1.315	33,4	0.358	9,09	3.66	5,45	5L	XXS	–
1 1/4	1.660	42,2	0.065	1,65	1.11	1,65	–	–	5
	1.660	42,2	0.109	2,77	1.81	2,70	–	–	10
	1.660	42,2	0.117	2,97	1.93	2,87	–	–	30
	1.660	42,2	0.140	3,56	2.27	3,39	5L	STD	40
	1.660	42,2	0.191	4,85	3.00	4,47	5L	XS	80

ASME B 36.10 M-1996

Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur	Schedule
								STD XS XXS	
1 1/4	1.660	42,2	0.250	6,35	3.76	5,61	–	–	160
	1.660	42,2	0.382	9,70	5.21	7,77	5L	XXS	–
1 1/2	1.900	48,3	0.065	1,65	1.28	1,91	–	–	5
	1.900	48,3	0.109	2,77	2.09	3,11	–	–	10
	1.900	48,3	0.125	3,18	2.37	3,53	–	–	30
	1.900	48,3	0.145	3,68	2.72	4,05	5L	STD	40
	1.900	48,3	0.200	5,08	3.63	5,41	5L	XS	80
	1.900	48,3	0.281	7,14	4.86	7,25	–	–	160
	1.900	48,3	0.400	10,15	6.41	9,56	5L	XXS	–
2	2.375	60,3	0.065	1,65	1.61	2,40	–	–	5
	2.375	60,3	0.083	2,11	2.03	3,03	5L	–	–
	2.375	60,3	0.109	2,77	2.64	3,93	5L	–	10
	2.375	60,3	0.125	3,18	3.00	4,48	5L	–	30
	2.375	60,3	0.141	3,58	3.36	5,01	5L	–	–
	2.375	60,3	0.154	3,91	3.65	5,44	5L	STD	40
	2.375	60,3	0.172	4,37	4.05	6,03	5L	–	–
	2.375	60,3	0.188	4,78	4.39	6,54	5L	–	–
	2.375	60,3	0.218	5,54	5.02	7,48	5L	XS	80
	2.375	60,3	0.250	6,35	5.67	8,45	5L	–	–
	2.375	60,3	0.281	7,14	6.28	9,36	5L	–	–
	2.375	60,3	0.344	8,74	7.46	11,11	–	–	160
	2.375	60,3	0.436	11,07	9.03	13,44	5L	XXS	–
	2.875	73,0	0.083	2,11	2.47	3,69	5L	–	5
	2.875	73,0	0.109	2,77	3.22	4,80	5L	–	–
2 1/2	2.875	73,0	0.120	3,05	3.53	5,26	–	–	10
	2.875	73,0	0.125	3,18	3.67	5,48	5L	–	–
	2.875	73,0	0.141	3,58	4.12	6,13	5L	–	–
	2.875	73,0	0.156	3,96	4.53	6,74	5L	–	–
	2.875	73,0	0.172	4,37	4.97	7,40	5L	–	–
	2.875	73,0	0.188	4,78	5.40	8,04	5L	–	30
	2.875	73,0	0.203	5,16	5.79	8,63	5L	STD	40
	2.875	73,0	0.216	5,49	6.13	9,14	5L	–	–
	2.875	73,0	0.250	6,35	7.01	10,44	5L	–	–
	2.875	73,0	0.276	7,01	7.66	11,41	5L	XS	80
	2.875	73,0	0.375	9,53	10.01	14,92	–	–	160
	2.875	73,0	0.552	14,02	13.69	20,39	5L	XXS	–
3	3.500	88,9	0.083	2,11	3.03	4,52	5L	–	5
	3.500	88,9	0.109	2,77	3.95	5,88	5L	–	–

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
3	3.500	88,9	0.120	3,05	4.33	6,45	–		10
	3.500	88,9	0.125	3,18	4.51	6,72	5L		
	3.500	88,9	0.141	3,58	5.06	7,53	5L		
	3.500	88,9	0.156	3,96	5.57	8,29	5L		
	3.500	88,9	0.172	4,37	6.11	9,11	5L		
	3.500	88,9	0.188	4,78	6.65	9,92	5L		30
	3.500	88,9	0.216	5,49	7.58	11,29	5L	STD	40
	3.500	88,9	0.250	6,35	8.68	12,93	5L		
	3.500	88,9	0.281	7,14	9.66	14,40	5L		
	3.500	88,9	0.300	7,62	10.25	15,27	5L	XS	80
	3.500	88,9	0.438	11,13	14.32	21,35	–		160
	3.500	88,9	0.600	15,24	18.58	27,68	5L	XXS	
3 1/2	4.000	101,6	0.083	2,11	3.47	5,18	5L		5
	4.000	101,6	0.109	2,77	4.53	6,75	5L		
	4.000	101,6	0.120	3,05	4.97	7,40	–		10
	4.000	101,6	0.125	3,18	5.17	7,72	5L		
	4.000	101,6	0.141	3,58	5.81	8,65	5L		
	4.000	101,6	0.156	3,96	6.40	9,53	5L		
	4.000	101,6	0.172	4,37	7.03	10,48	5L		
	4.000	101,6	0.188	4,78	7.65	11,41	5L		30
	4.000	101,6	0.226	5,74	9.11	13,57	5L	STD	40
	4.000	101,6	0.250	6,35	10.01	14,92	5L		
	4.000	101,6	0.281	7,14	11.16	16,63	5L		
	4.000	101,6	0.318	8,08	12.50	18,63	5L	XS	80
4	4.500	114,3	0.083	2,11	3.92	5,84	5L		5
	4.500	114,3	0.109	2,77	5.11	7,62	–		
	4.500	114,3	0.120	3,05	5.61	8,36	–		10
	4.500	114,3	0.125	3,18	5.84	8,71	5L		
	4.500	114,3	0.141	3,58	6.56	9,77	5L		
	4.500	114,3	0.156	3,96	7.24	10,78	5L		
	4.500	114,3	0.172	4,37	7.95	11,85	5L		
	4.500	114,3	0.188	4,78	8.66	12,91	5L		30
	4.500	114,3	0.203	5,16	9.32	13,89	5L		
	4.500	114,3	0.219	5,56	10.01	14,91	5L		
	4.500	114,3	0.237	6,02	10.79	16,07	5L	STD	40
	4.500	114,3	0.250	6,35	11.35	16,90	5L		
	4.500	114,3	0.281	7,14	12.66	18,87	5L		
	4.500	114,3	0.312	7,92	13.96	20,78	5L		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
4	4.500	114,3	0.337	8,56	14.98	22,32	5L	XS	80
	4.500	114,3	0.438	11,13	19.00	28,32	5L		120
	4.500	114,3	0.531	13,49	22.51	33,54	5L		160
	4.500	114,3	0.674	17,12	27.54	41,03	5L	XXS	
5	5.563	141,3	0.083	2,11	4.86	7,24	5L		
	5.563	141,3	0.109	2,77	6.36	9,47	–		5
	5.563	141,3	0.125	3,18	7.26	10,83	5L		
	5.563	141,3	0.134	3,40	7.77	11,57	–		10
	5.563	141,3	0.156	3,96	9.01	13,41	5L		
	5.563	141,3	0.188	4,78	10.79	16,09	5L		
	5.563	141,3	0.219	5,56	12.50	18,61	5L		
	5.563	141,3	0.258	6,55	14.62	21,77	5L	STD	40
	5.563	141,3	0.281	7,14	15.85	23,62	5L		
	5.563	141,3	0.312	7,92	17.50	26,05	5L		
	5.563	141,3	0.344	8,74	19.17	28,57	5L		
	5.563	141,3	0.375	9,53	20.78	30,97	5L	XS	80
	5.563	141,3	0.500	12,70	27.04	40,28	5L		120
	5.563	141,3	0.625	15,88	32.96	49,11	5L		160
	5.563	141,3	0.750	19,05	38.55	57,43	5L	XXS	
6	6.625	168,3	0.083	2,11	5.80	8,65	5L		
	6.625	168,3	0.109	2,77	7.59	11,31	5L		5
	6.625	168,3	0.125	3,18	8.68	12,95	5L		
	6.625	168,3	0.134	3,40	9.29	13,84	–		10
	6.625	168,3	0.141	3,58	9.76	14,54	5L		
	6.625	168,3	0.156	3,96	10.78	16,05	5L		
	6.625	168,3	0.172	4,37	11.85	17,67	5L		
	6.625	168,3	0.188	4,78	12.92	19,27	5L		
	6.625	168,3	0.203	5,16	13.92	20,76	5L		
	6.625	168,3	0.219	5,56	14.98	22,31	5L		
	6.625	168,3	0.250	6,35	17.02	25,36	5L		
	6.625	168,3	0.280	7,11	18.97	28,26	5L	STD	40
	6.625	168,3	0.312	7,92	21.04	31,32	5L		
	6.625	168,3	0.344	8,74	23.08	34,39	5L		
	6.625	168,3	0.375	9,53	25.03	37,31	5L		
	6.625	168,3	0.432	10,97	28.57	42,56	5L	XS	80
	6.625	168,3	0.500	12,70	32.71	48,73	5L		
	6.625	168,3	0.562	14,27	36.39	54,20	5L		120
	6.625	168,3	0.625	15,88	40.05	59,69	5L		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur	Schedule
								STD XS XXS	
6	6.625	168,3	0.719	18,26	45.35	67,56	5L		160
	6.625	168,3	0.750	19,05	47.06	70,11	5L		
	6.625	168,3	0.864	21,95	53.16	79,22	5L	XXS	
	6.625	168,3	0.875	22,23	53.73	80,07	5L		
8	8.625	219,1	0.109	2,77	9.93	14,79	–		5
	8.625	219,1	0.125	3,18	11.35	16,93	5L		
	8.625	219,1	0.148	3,76	13.40	19,96	–		10
	8.625	219,1	0.156	3,96	14.11	21,01	5L		
	8.625	219,1	0.188	4,78	16.94	25,26	5L		
	8.625	219,1	0.203	5,16	18.26	27,22	5L		
	8.625	219,1	0.219	5,56	19.66	29,28	5L		
	8.625	219,1	0.250	6,35	22.36	33,31	5L		20
	8.625	219,1	0.277	7,04	24.70	36,81	5L		30
	8.625	219,1	0.312	7,92	27.70	41,24	5L		
	8.625	219,1	0.322	8,18	28.55	42,55	5L	STD	40
	8.625	219,1	0.344	8,74	30.42	45,34	5L		
	8.625	219,1	0.375	9,53	33.04	49,25	5L		
	8.625	219,1	0.406	10,31	35.64	53,08	–		60
	8.625	219,1	0.438	11,13	38.30	57,08	5L		
	8.625	219,1	0.500	12,70	43.39	64,64	5L	XS	80
	8.625	219,1	0.562	14,27	48.40	72,08	5L		
	8.625	219,1	0.594	15,09	50.95	75,92	–		100
	8.625	219,1	0.625	15,88	53.40	79,58	5L		
	8.625	219,1	0.719	18,26	60.71	90,44	5L		120
	8.625	219,1	0.750	19,05	63.08	93,98	5L		
	8.625	219,1	0.812	20,62	67.76	100,92	5L		140
	8.625	219,1	0.875	22,23	72.42	107,92	5L	XXS	
	8.625	219,1	0.906	23,01	74.69	111,27	–		160
	8.625	219,1	1.000	25,40	81.44	121,33	5L		
10	10.750	273,0	0.134	3,40	15.19	22,63	–		5
	10.750	273,0	0.156	3,96	17.65	26,28	5L		
	10.750	273,0	0.165	4,19	18.65	27,78	–		10
	10.750	273,0	0.188	4,78	21.21	31,63	5L		
	10.750	273,0	0.203	5,16	22.87	34,09	5L		
	10.750	273,0	0.219	5,56	24.63	36,68	5L		
	10.750	273,0	0.250	6,35	28.04	41,77	5L		20
	10.750	273,0	0.279	7,09	31.20	46,51	5L		
	10.750	273,0	0.307	7,80	34.24	51,03	5L		30

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
10	10.750	273,0	0.344	8,74	38.23	56,98	5L		
	10.750	273,0	0.365	9,27	40.48	60,31	5L	STD	40
	10.750	273,0	0.438	11,13	48.24	71,90	5L		
	10.750	273,0	0.500	12,70	54.74	81,55	5L	XS	60
	10.750	273,0	0.562	14,27	61.15	91,08	5L		
	10.750	273,0	0.594	15,09	64.43	96,01	–		80
	10.750	273,0	0.625	15,88	67.58	100,73	5L		
	10.750	273,0	0.719	18,26	77.03	114,75	5L		100
	10.750	273,0	0.812	20,62	86.18	128,38	5L		
	10.750	273,0	0.844	21,44	89.29	133,06	–		120
	10.750	273,0	0.875	22,23	92.28	137,52	5L		
	10.750	273,0	0.938	23,83	98.30	146,48	5L		
	10.750	273,0	1.000	25,40	104.13	155,15	5L	XXS	140
	10.750	273,0	1.125	28,58	115.64	172,33	–		160
	10.750	273,0	1.250	31,75	126.83	188,97	5L		
12	12.750	323,8	0.156	3,96	20.98	31,25	–		5
	12.750	323,8	0.172	4,37	23.11	34,43	5L		
	12.750	323,8	0.180	4,57	24.17	36,00	–		10
	12.750	323,8	0.188	4,78	25.22	37,62	5L		
	12.750	323,8	0.203	5,16	27.20	40,56	5L		
	12.750	323,8	0.219	5,56	29.31	43,65	5L		
	12.750	323,8	0.250	6,35	33.38	49,73	5L		20
	12.750	323,8	0.281	7,14	37.42	55,77	5L		
	12.750	323,8	0.312	7,92	41.45	61,71	5L		
	12.750	323,8	0.330	8,38	43.77	65,20	5L		30
	12.750	323,8	0.344	8,74	45.58	67,93	5L		
	12.750	323,8	0.375	9,53	49.56	73,88	5L	STD	
	12.750	323,8	0.406	10,31	53.52	79,73	5L		40
	12.750	323,8	0.438	11,13	57.59	85,84	5L		
	12.750	323,8	0.500	12,70	65.42	97,46	5L	XS	
	12.750	323,8	0.562	14,27	73.15	108,96	5L		60
	12.750	323,8	0.625	15,88	80.93	120,62	5L		
	12.750	323,8	0.688	17,48	88.63	132,08	5L		80
	12.750	323,8	0.750	19,05	96.12	143,21	5L		
	12.750	323,8	0.812	20,62	103.53	154,21	5L		
	12.750	323,8	0.844	21,44	107.32	159,91	–		100
	12.750	323,8	0.875	22,23	110.97	165,37	5L		
	12.750	323,8	0.938	23,83	118.33	176,33	5L		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur	Schedule
								STD XS XXS	
12	12.750	323,8	1.000	25,40	125.49	186,97	5L	XXS	120
	12.750	323,8	1.062	26,97	132.57	197,48	5L		
	12.750	323,8	1.125	28,58	139.67	208,14	5L		140
	12.750	323,8	1.250	31,75	153.53	228,74	5L		
	12.750	323,8	1.312	33,32	160.27	238,76	–		160
14	14.000	355,6	0.156	3,96	23.07	34,36	–		5
	14.000	355,6	0.188	4,78	27.73	41,35	5L		
	14.000	355,6	0.203	5,16	29.91	44,59	5L		
	14.000	355,6	0.210	5,33	30.93	46,04	5L		
	14.000	355,6	0.219	5,56	32.23	47,99	5L		
	14.000	355,6	0.250	6,35	36.71	54,69	5L		10
	14.000	355,6	0.281	7,14	41.17	61,35	5L		
	14.000	355,6	0.312	7,92	45.61	67,90	5L		20
	14.000	355,6	0.344	8,74	50.17	74,76	5L		
	14.000	355,6	0.375	9,53	54.57	81,33	5L	STD	30
	14.000	355,6	0.406	10,31	58.94	87,79	5L		
	14.000	355,6	0.438	11,13	63.44	94,55	5L		40
	14.000	355,6	0.469	11,91	67.78	100,94	5L		
	14.000	355,6	0.500	12,70	72.09	107,39	5L	XS	
	14.000	355,6	0.562	14,27	80.66	120,11	5L		
	14.000	355,6	0.594	15,09	85.05	126,71	–		60
	14.000	355,6	0.625	15,88	89.28	133,03	5L		
	14.000	355,6	0.688	17,48	97.81	145,75	5L		
	14.000	355,6	0.750	19,05	106.13	158,10	5L		80
	14.000	355,6	0.812	20,62	114.37	170,33	5L		
	14.000	355,6	0.875	22,23	122.65	182,75	5L		
	14.000	355,6	0.938	23,83	130.85	194,96	5L		100
	14.000	355,6	1.000	25,40	138.84	206,83	5L		
	14.000	355,6	1.062	26,97	146.74	218,57	5L		
	14.000	355,6	1.094	27,79	150.79	224,65	–		120
	14.000	355,6	1.125	28,58	154.69	230,48	5L		
	14.000	355,6	1.250	31,75	170.21	253,56	5L		140
	14.000	355,6	1.406	35,71	189.11	281,70	–		160
	14.000	355,6	2.000	50,80	256.32	381,83	–		
	14.000	355,6	2.125	53,98	269.50	401,50	–		
	14.000	355,6	2.200	55,88	277.25	413,01	–		
	14.000	355,6	2.500	63,50	307.05	457,40	–		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
16	16.000	406,4	0.165	4,19	27.90	41,56	–		5
	16.000	406,4	0.188	4,78	31.75	47,34	5L		
	16.000	406,4	0.203	5,16	34.25	51,06	5L		
	16.000	406,4	0.219	5,56	36.91	54,96	5L		
	16.000	406,4	0.250	6,35	42.05	62,64	5L		10
	16.000	406,4	0.281	7,14	47.17	70,30	5L		
	16.000	406,4	0.312	7,92	52.27	77,83	5L		20
	16.000	406,4	0.344	8,74	57.52	85,71	5L		
	16.000	406,4	0.375	9,53	62.58	93,27	5L	STD	30
	16.000	406,4	0.406	10,31	67.62	100,70	5L		
	16.000	406,4	0.438	11,13	72.80	108,49	5L		
	16.000	406,4	0.469	11,91	77.79	115,86	5L		
	16.000	406,4	0.500	12,70	82.77	123,30	5L	XS	40
	16.000	406,4	0.562	14,27	92.66	137,99	5L		
	16.000	406,4	0.625	15,88	102.63	152,93	5L		
	16.000	406,4	0.656	16,66	107.50	160,12	–		60
	16.000	406,4	0.688	17,48	112.51	167,65	5L		
	16.000	406,4	0.750	19,05	122.15	181,97	5L		
	16.000	406,4	0.812	20,62	131.71	196,16	5L		
	16.000	406,4	0.844	21,44	136.61	203,53	–		80
	16.000	406,4	0.875	22,23	141.34	210,60	5L		
	16.000	406,4	0.938	23,83	150.89	224,82	5L		
	16.000	406,4	1.000	25,40	160.20	238,64	5L		
	16.000	406,4	1.031	26,19	164.82	245,56	–		100
	16.000	406,4	1.062	26,97	169.43	252,35	5L		
	16.000	406,4	1.125	28,58	178.72	266,28	5L		
	16.000	406,4	1.188	30,18	187.93	280,00	5L		
	16.000	406,4	1.219	30,96	192.43	286,64	–		120
	16.000	406,4	1.250	31,75	196.91	293,33	5L		
	16.000	406,4	1.438	36,53	223.64	333,19	–		140
	16.000	406,4	1.594	40,49	245.25	365,35	–		160
18	18.000	457,0	0.165	4,19	31.43	46,81	–		5
	18.000	457,0	0.188	4,78	35.76	53,31	5L		
	18.000	457,0	0.219	5,56	41.59	61,90	5L		
	18.000	457,0	0.250	6,35	47.39	70,57	5L		10
	18.000	457,0	0.281	7,14	53.18	79,21	5L		
	18.000	457,0	0.312	7,92	58.94	87,71	5L		20
	18.000	457,0	0.344	8,74	64.87	96,61	5L		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur	Schedule
								STD XS XXS	
18	18.000	457	0.375	9,53	70.59	105,16	5L	STD	
	18.000	457	0.406	10,31	76.29	113,57	5L		
	18.000	457	0.438	11,13	82.15	122,38	5L		30
	18.000	457	0.469	11,91	87.81	130,72	5L		
	18.000	457	0.500	12,70	93.45	139,15	5L	XS	
	18.000	457	0.562	14,27	104.67	155,80	5L		40
	18.000	457	0.625	15,88	115.98	172,74	5L		
	18.000	457	0.688	17,48	127.21	189,46	5L		
	18.000	457	0.750	19,05	138.17	205,74	5L		60
	18.000	457	0.812	20,62	149.06	221,89	5L		
	18.000	457	0.875	22,23	160.03	238,34	5L		
	18.000	457	0.938	23,83	170.92	254,55	5L		80
	18.000	457	1.000	25,40	181.56	270,34	5L		
	18.000	457	1.062	26,97	192.11	286,00	5L		
	18.000	457	1.125	28,58	202.75	301,94	5L		
	18.000	457	1.156	29,36	207.96	309,62	–		100
	18.000	457	1.188	30,18	213.31	317,66	5L		
	18.000	457	1.250	31,75	223.61	332,95	5L		
	18.000	457	1.375	34,93	244.14	363,56	–		120
	18.000	457	1.562	39,67	274.22	408,26	–		140
	18.000	457	1.781	45,24	308.50	459,37	–		160
20	20.000	508	0.188	4,78	39.78	59,25	–		5
	20.000	508	0.219	5,56	46.27	68,89	5L		
	20.000	508	0.250	6,35	52.73	78,55	5L		10
	20.000	508	0.281	7,14	59.18	88,19	5L		
	20.000	508	0.312	7,92	65.60	97,67	5L		
	20.000	508	0.344	8,74	72.21	107,60	5L		
	20.000	508	0.375	9,53	78.60	117,15	5L	STD	20
	20.000	508	0.406	10,31	84.96	126,53	5L		
	20.000	508	0.438	11,13	91.51	136,37	5L		
	20.000	508	0.469	11,91	97.83	145,70	5L		
	20.000	508	0.500	12,70	104.13	155,12	5L	XS	30
	20.000	508	0.562	14,27	116.67	173,74	5L		
	20.000	508	0.594	15,09	123.11	183,42	–		40
	20.000	508	0.625	15,88	129.33	192,71	5L		
	20.000	508	0.688	17,48	141.90	211,44	5L		
	20.000	508	0.750	19,05	154.19	229,70	5L		
	20.000	508	0.812	20,62	166.40	247,83	5L		60

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
20	20.000	508	0.875	22,23	178.72	266,29	5L		
	20.000	508	0.938	23,83	190.96	284,52	5L		
	20.000	508	1.000	25,40	202.92	302,28	5L		
	20.000	508	1.031	26,19	208.87	311,17	–		80
	20.000	508	1.062	26,97	214.80	319,92	5L		
	20.000	508	1.125	28,58	226.78	337,89	5L		
	20.000	508	1.188	30,18	238.68	355,61	5L		
	20.000	508	1.250	31,75	250.31	372,88	5L		
	20.000	508	1.281	32,54	256.10	381,53	–		100
	20.000	508	1.312	33,32	261.86	390,03	5L		
	20.000	508	1.375	34,93	273.51	407,49	5L		
	20.000	508	1.500	38,10	296.37	441,49	–		120
	20.000	508	1.750	44,45	341.09	508,11	–		140
	20.000	508	1.969	50,01	379.17	564,81	–		160
22	22.000	559	0.188	4,78	43.80	65,24	–		5
	22.000	559	0.219	5,56	50.94	75,88	5L		
	22.000	559	0.250	6,35	58.07	86,54	5L		10
	22.000	559	0.281	7,14	65.18	97,17	5L		
	22.000	559	0.312	7,92	72.27	107,63	5L		
	22.000	559	0.344	8,74	79.56	118,60	5L		
	22.000	559	0.375	9,53	86.61	129,13	5L	STD	20
	22.000	559	0.406	10,31	93.63	139,50	5L		
	22.000	559	0.438	11,13	100.86	150,37	5L		
	22.000	559	0.469	11,91	107.85	160,68	5L		
	22.000	559	0.500	12,70	114.81	171,09	5L	XS	30
	22.000	559	0.562	14,27	128.67	191,69	5L		
	22.000	559	0.625	15,88	142.68	212,69	5L		
	22.000	559	0.688	17,48	156.60	233,43	5L		
	22.000	559	0.750	19,05	170.21	253,65	5L		
	22.000	559	0.812	20,62	183.75	273,76	5L		
	22.000	559	0.875	22,23	197.41	294,25	5L		60
	22.000	559	0.938	23,83	211.00	314,49	5L		
	22.000	559	1.000	25,40	224.28	334,23	5L		
	22.000	559	1.062	26,97	237.48	353,84	5L		
	22.000	559	1.125	28,58	250.81	373,83	5L		80
	22.000	559	1.188	30,18	264.06	393,57	5L		
	22.000	559	1.250	31,75	277.01	412,81	5L		
	22.000	559	1.312	33,32	289.88	431,94	5L		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
22	22.000	559	1.375	34,93	302.88	451,42	5L		100
	22.000	559	1.438	36,53	315.79	470,66	5L		
	22.000	559	1.500	38,10	328.41	489,41	5L		
	22.000	559	1.625	41,28	353.61	527,02	–		120
	22.000	559	1.875	47,63	403.00	600,63	–		140
	22.000	559	2.125	53,98	451.06	672,26	–		160
24	24.000	610	0.218	5,54	55.37	82,47	–		5
	24.000	610	0.250	6,35	63.41	94,53	5L		10
	24.000	610	0.281	7,14	71.18	106,15	5L		
	24.000	610	0.312	7,92	78.93	117,59	5L		
	24.000	610	0.344	8,74	86.91	129,59	5L		
	24.000	610	0.375	9,53	94.62	141,12	5L	STD	20
	24.000	610	0.406	10,31	102.31	152,47	5L		
	24.000	610	0.438	11,13	110.22	164,37	5L		
	24.000	610	0.469	11,91	117.86	175,66	5L		
	24.000	610	0.500	12,70	125.49	187,06	5L	XS	
	24.000	610	0.562	14,27	140.68	209,64	5L		30
	24.000	610	0.625	15,88	156.03	232,66	5L		
	24.000	610	0.688	17,48	171.29	255,41	5L		40
	24.000	610	0.750	19,05	186.23	277,61	5L		
	24.000	610	0.812	20,62	201.09	299,69	5L		
	24.000	610	0.875	22,23	216.10	322,21	5L		
	24.000	610	0.938	23,83	231.03	344,46	5L		
	24.000	610	0.969	24,61	238.35	355,26	–		60
	24.000	610	1.000	25,40	245.64	366,17	5L		
	24.000	610	1.062	26,97	260.17	387,76	5L		
	24.000	610	1.125	28,58	274.84	409,77	5L		
	24.000	610	1.188	30,18	289.44	431,52	5L		
	24.000	610	1.219	30,96	296.58	442,08	–		80
	24.000	610	1.250	31,75	303.71	452,74	5L		
	24.000	610	1.312	33,32	317.91	473,84	5L		
	24.000	610	1.375	34,93	332.25	495,35	5L		
	24.000	610	1.438	36,53	346.50	516,80	5L		
	24.000	610	1.500	38,10	360.45	537,33	5L		
	24.000	610	1.531	38,89	367.39	547,71	–		100
	24.000	610	1.562	39,67	374.31	557,43	5L		
	24.000	610	1.812	46,02	429.39	640,03	–		120
	24.000	610	2.062	52,37	483.12	720,15	–		140
	24.000	610	2.344	59,54	542.13	808,22	–		160

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
26	26.000	660	0.250	6,35	68.75	102,36	5L		
	26.000	660	0.281	7,14	77.18	114,95	5L		
	26.000	660	0.312	7,92	85.60	127,36	5L		10
	26.000	660	0.344	8,74	94.26	140,37	5L		
	26.000	660	0.375	9,53	102.63	152,87	5L	STD	
	26.000	660	0.406	10,31	110.98	165,18	5L		
	26.000	660	0.438	11,13	119.57	178,09	5L		
	26.000	660	0.469	11,91	127.88	190,34	5L		
	26.000	660	0.500	12,70	136.17	202,72	5L	XS	20
	26.000	660	0.562	14,27	152.68	227,23	5L		
	26.000	660	0.625	15,88	169.38	252,24	5L		
	26.000	660	0.688	17,48	185.99	276,96	5L		
	26.000	660	0.750	19,05	202.25	301,10	5L		
	26.000	660	0.812	20,62	218.43	325,12	5L		
	26.000	660	0.875	22,23	234.79	349,62	5L		
	26.000	660	0.938	23,83	251.07	373,84	5L		
	26.000	660	1.000	25,40	267.00	397,49	5L		
28	28.000	711	0.250	6,35	74.09	110,34	5L		
	28.000	711	0.281	7,14	83.19	123,93	5L		
	28.000	711	0.312	7,92	92.26	137,32	5L		10
	28.000	711	0.344	8,74	101.61	151,36	5L		
	28.000	711	0.375	9,53	110.64	164,85	5L	STD	
	28.000	711	0.406	10,31	119.65	178,15	5L		
	28.000	711	0.438	11,13	128.93	192,09	5L		
	28.000	711	0.469	11,91	137.90	205,32	5L		
	28.000	711	0.500	12,70	146.85	218,69	5L	XS	20
	28.000	711	0.562	14,27	164.69	245,18	5L		
	28.000	711	0.625	15,88	182.73	271,21	5L		30
	28.000	711	0.688	17,48	200.68	298,95	5L		
	28.000	711	0.750	19,05	218.27	325,06	5L		
	28.000	711	0.812	20,62	235.78	351,05	5L		
	28.000	711	0.875	22,23	253.48	377,58	5L		
	28.000	711	0.938	23,83	271.10	403,81	5L		
	28.000	711	1.000	25,40	288.36	429,44	5L		
30	30.000	762	0.250	6,35	79.43	118,33	5L		
	30.000	762	0.281	7,14	89.19	132,91	5L		
	30.000	762	0.312	7,92	98.93	147,28	5L		10
	30.000	762	0.344	8,74	108.95	162,35	5L		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
30	30.000	762	0.375	9,53	118.65	176,84	5L	STD	
	30.000	762	0.406	10,31	128.32	191,11	5L		
	30.000	762	0.438	11,13	138.29	206,09	5L		
	30.000	762	0.469	11,91	147.92	220,30	5L		
	30.000	762	0.500	12,70	157.53	234,67	5L	XS	20
	30.000	762	0.562	14,27	176.69	263,12	5L		
	30.000	762	0.625	15,88	196.08	292,18	5L		30
	30.000	762	0.688	17,48	215.38	320,93	5L		
	30.000	762	0.750	19,05	234.29	349,02	5L		
	30.000	762	0.812	20,62	253.12	376,98	5L		
	30.000	762	0.875	22,23	272.17	405,54	5L		
	30.000	762	0.938	23,83	291.14	433,78	5L		
	30.000	762	1.000	25,40	309.72	461,38	5L		
	30.000	762	1.062	26,97	328.22	488,85	5L		
	30.000	762	1.125	28,58	346.93	516,90	5L		
	30.000	762	1.188	30,18	365.56	544,65	5L		
	30.000	762	1.250	31,75	383.81	571,75	5L		
32	32.000	813	0.250	6,35	84.77	126,31	5L		
	32.000	813	0.281	7,14	95.19	141,89	5L		
	32.000	813	0.312	7,92	105.59	157,24	5L		10
	32.000	813	0.344	8,74	116.30	173,34	5L		
	32.000	813	0.375	9,53	126.66	188,82	5L	STD	
	32.000	813	0.406	10,31	136.99	204,08	5L		
	32.000	813	0.438	11,13	147.64	220,08	5L		
	32.000	813	0.469	11,91	157.94	235,28	5L		
	32.000	813	0.500	12,70	168.21	250,64	5L	XS	20
	32.000	813	0.562	14,27	188.70	281,07	5L		
	32.000	813	0.625	15,88	209.43	312,15	5L		30
	32.000	813	0.688	17,48	230.08	342,91	5L		40
	32.000	813	0.750	19,05	250.31	372,98	5L		
	32.000	813	0.812	20,62	270.47	402,92	5L		
	32.000	813	0.875	22,23	290.86	433,49	5L		
	32.000	813	0.938	23,83	311.17	463,75	5L		
	32.000	813	1.000	25,40	331.08	493,32	5L		
	32.000	813	1.062	26,97	350.90	522,77	5L		
	32.000	813	1.125	28,58	370.96	552,85	5L		
	32.000	813	1.188	30,18	390.94	582,61	5L		
	32.000	813	1.250	31,75	410.51	611,68	5L		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
34	34.000	864	0.250	6,35	90.11	134,30	5L		
	34.000	864	0.281	7,14	101.19	150,87	5L		
	34.000	864	0.312	7,92	112.25	167,20	5L		10
	34.000	864	0.344	8,74	123.65	184,33	5L		
	34.000	864	0.375	9,53	134.67	200,31	5L	STD	
	34.000	864	0.406	10,31	145.67	217,05	5L		
	34.000	864	0.438	11,13	157.00	234,08	5L		
	34.000	864	0.469	11,91	167.95	250,26	5L		
	34.000	864	0.500	12,70	178.89	266,61	5L	XS	20
	34.000	864	0.562	14,27	200.70	299,02	5L		
	34.000	864	0.625	15,88	222.78	332,12	5L		30
	34.000	864	0.688	17,48	244.77	364,90	5L		40
	34.000	864	0.750	19,05	266.33	396,93	5L		
	34.000	864	0.812	20,62	287.81	428,85	5L		
	34.000	864	0.875	22,23	309.55	461,45	5L		
	34.000	864	0.938	23,83	331.21	493,72	5L		
	34.000	864	1.000	25,40	352.44	525,27	5L		
	34.000	864	1.062	26,97	373.59	556,69	5L		
	34.000	864	1.125	28,58	394.99	588,79	5L		
	34.000	864	1.188	30,18	416.31	620,56	5L		
	34.000	864	1.250	31,75	437.21	651,61	5L		
36	36.000	914	0.250	6,35	95.45	142,13	5L		
	36.000	914	0.281	7,14	107.20	159,67	5L		
	36.000	914	0.312	7,92	118.92	176,96	5L		10
	36.000	914	0.344	8,74	131.00	195,11	5L		
	36.000	914	0.375	9,53	142.68	212,56	5L	STD	
	36.000	914	0.406	10,31	154.34	229,76	5L		
	36.000	914	0.438	11,13	166.35	247,31	5L		
	36.000	914	0.469	11,91	177.97	264,94	5L		
	36.000	914	0.500	12,70	189.57	282,27	5L	XS	20
	36.000	914	0.562	14,27	212.70	316,11	5L		
	36.000	914	0.625	15,88	236.13	351,70	5L		30
	36.000	914	0.688	17,48	259.47	386,45	5L		
	36.000	914	0.750	19,05	282.35	420,42	5L		40
	36.000	914	0.812	20,62	305.16	454,27	5L		
	36.000	914	0.875	22,23	328.24	488,86	5L		
	36.000	914	0.938	23,83	351.25	523,11	5L		
	36.000	914	1.000	25,40	373.80	556,59	5L		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
36	36.000	914	1.062	26,97	396.27	589,95	5L		
	36.000	914	1.125	28,58	419.02	624,03	5L		
	36.000	914	1.188	30,18	441.69	657,77	5L		
	36.000	914	1.250	31,75	463.91	690,76	5L		
38	38.000	965	0.312	7,92	125.58	186,92	5L		
	38.000	965	0.344	8,74	138.35	206,10	5L		
	38.000	965	0.375	9,53	150.69	224,54	5L	STD	
	38.000	965	0.406	10,31	163.01	242,72	5L		
	38.000	965	0.438	11,13	175.71	261,80	5L		
	38.000	965	0.469	11,91	187.99	279,92	5L		
	38.000	965	0.500	12,70	200.25	298,24	5L	XS	
	38.000	965	0.562	14,27	224.71	334,56	5L		
	38.000	965	0.625	15,88	249.48	371,68	5L		
	38.000	965	0.688	17,48	274.16	408,43	5L		
	38.000	965	0.750	19,05	298.37	444,38	5L		
	38.000	965	0.812	20,62	322.50	480,21	5L		
	38.000	965	0.875	22,23	346.93	516,82	5L		
	38.000	965	0.938	23,83	371.28	553,08	5L		
	38.000	965	1.000	25,40	395.16	588,53	5L		
	38.000	965	1.062	26,97	418.96	623,87	5L		
	38.000	965	1.125	28,58	443.05	659,97	5L		
	38.000	965	1.188	30,18	467.06	695,73	5L		
	38.000	965	1.250	31,75	490.61	730,69	5L		
40	40.000	1016	0.312	7,92	132.25	196,89	5L		
	40.000	1016	0.344	8,74	145.69	217,09	5L		
	40.000	1016	0.375	9,53	158.70	236,53	5L	STD	
	40.000	1016	0.406	10,31	171.68	255,69	5L		
	40.000	1016	0.438	11,13	185.06	275,80	5L		
	40.000	1016	0.469	11,91	198.01	294,90	5L		
	40.000	1016	0.500	12,70	210.93	314,22	5L	XS	
	40.000	1016	0.562	14,27	236.71	352,51	5L		
	40.000	1016	0.625	15,88	262.83	391,65	5L		
	40.000	1016	0.688	17,48	288.86	430,42	5L		
	40.000	1016	0.750	19,05	314.39	468,34	5L		
	40.000	1016	0.812	20,62	339.84	506,14	5L		
	40.000	1016	0.875	22,23	365.62	544,78	5L		
	40.000	1016	0.938	23,83	391.32	583,05	5L		
	40.000	1016	1.000	25,40	416.52	620,48	5L		
	40.000	1016	1.062	26,97	441.64	657,78	5L		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
40	40.000	1016	1.125	28,58	467.08	695,92	5L		
	40.000	1016	1.188	30,18	492.44	733,68	5L		
	40.000	1016	1.250	31,75	517.31	770,62	5L		
42	42.000	1067	0.344	8,74	153.04	228,09	5L		
	42.000	1067	0.375	9,53	166.71	248,52	5L	STD	
	42.000	1067	0.406	10,31	180.35	268,66	5L		
	42.000	1067	0.438	11,13	194.42	289,80	5L		
	42.000	1067	0.469	11,91	208.03	309,88	5L		
	42.000	1067	0.500	12,70	221.61	330,19	5L	XS	
	42.000	1067	0.562	14,27	248.72	370,45	5L		
	42.000	1067	0.625	15,88	276.18	411,62	5L		
	42.000	1067	0.688	17,48	303.55	452,40	5L		
	42.000	1067	0.750	19,05	330.41	492,30	5L		
	42.000	1067	0.812	20,62	357.19	532,07	5L		
	42.000	1067	0.875	22,23	384.31	572,73	5L		
	42.000	1067	0.938	23,83	411.35	613,02	5L		
	42.000	1067	1.000	25,40	437.88	652,42	5L		
	42.000	1067	1.062	26,97	464.32	691,70	5L		
	42.000	1067	1.125	28,58	491.11	731,86	5L		
	42.000	1067	1.188	30,18	517.82	771,64	5L		
	42.000	1067	1.250	31,75	544.01	810,55	5L		
44	44.000	1118	0.344	8,74	160.39	239,08	5L		
	44.000	1118	0.375	9,53	174.72	260,50	5L	STD	
	44.000	1118	0.406	10,31	189.03	281,62	5L		
	44.000	1118	0.438	11,13	203.78	303,80	5L		
	44.000	1118	0.469	11,91	218.04	324,80	5L		
	44.000	1118	0.500	12,70	232.29	346,16	5L	XS	
	44.000	1118	0.562	14,27	260.72	388,40	5L		
	44.000	1118	0.625	15,88	289.53	431,59	5L		
	44.000	1118	0.688	17,48	318.25	474,37	5L		
	44.000	1118	0.750	19,05	346.43	516,26	5L		
	44.000	1118	0.812	20,62	374.53	558,00	5L		
	44.000	1118	0.875	22,23	403.00	600,69	5L		
	44.000	1118	0.938	23,83	431.39	642,99	5L		
	44.000	1118	1.000	25,40	459.24	684,37	5L		
	44.000	1118	1.062	26,97	487.01	725,62	5L		
	44.000	1118	1.125	28,58	515.14	767,80	5L		
	44.000	1118	1.188	30,18	543.19	809,60	5L		
	44.000	1118	1.250	31,75	570.71	850,48	5L		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
46	46.000	1168	0.344	8,74	167.74	249,85	5L		
	46.000	1168	0.375	9,53	182.73	272,25	5L	STD	
	46.000	1168	0.406	10,31	197.70	294,34	5L		
	46.000	1168	0.438	11,13	213.13	317,52	5L		
	46.000	1168	0.469	11,91	228.06	339,54	5L		
	46.000	1168	0.500	12,70	242.97	351,82	5L	XS	
	46.000	1168	0.562	14,27	272.73	406,00	5L		
	46.000	1168	0.625	15,88	302.88	451,17	5L		
	46.000	1168	0.688	17,48	332.95	495,94	5L		
	46.000	1168	0.750	19,05	362.45	539,76	5L		
	46.000	1168	0.812	20,62	391.88	583,43	5L		
	46.000	1168	0.875	22,23	421.69	628,10	5L		
	46.000	1168	0.938	23,83	451.42	672,37	5L		
	46.000	1168	1.000	25,40	480.60	715,68	5L		
	46.000	1168	1.062	26,97	509.69	758,88	5L		
	46.000	1168	1.125	28,58	539.17	803,04	5L		
	46.000	1168	1.188	30,18	568.57	846,81	5L		
	46.000	1168	1.250	31,75	597.41	889,63	5L		
48	48.000	1219	0.344	8,74	175.08	260,85	5L		
	48.000	1219	0.375	9,53	190.74	284,24	5L	STD	
	48.000	1219	0.406	10,31	206.37	307,30	5L		
	48.000	1219	0.438	11,13	222.49	331,52	5L		
	48.000	1219	0.469	11,91	238.08	354,52	5L		
	48.000	1219	0.500	12,70	253.65	377,79	5L	XS	
	48.000	1219	0.562	14,27	284.73	423,94	5L		
	48.000	1219	0.625	15,88	316.23	471,14	5L		
	48.000	1219	0.688	17,48	347.64	517,92	5L		
	48.000	1219	0.750	19,05	378.47	563,70	5L		
	48.000	1219	0.812	20,62	409.22	609,36	5L		
	48.000	1219	0.875	22,23	440.38	656,06	5L		
	48.000	1219	0.938	23,83	471.46	702,34	5L		
	48.000	1219	1.000	25,40	501.96	747,63	5L		
	48.000	1219	1.062	26,97	532.38	792,80	5L		
	48.000	1219	1.125	28,58	563.20	838,99	5L		
	48.000	1219	1.188	30,18	593.94	884,77	5L		
	48.000	1219	1.250	31,75	624.11	929,56	5L		
52	52.000	1321	0.375	9,53	206.76	308,21	5L	STD	
	52.000	1321	0.406	10,31	223.72	333,24	5L		
	52.000	1321	0.438	11,13	241.20	359,51	5L		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur	Schedule
								STD XS XXS	
52	52.000	1321	0.469	11,91	258.11	384,48	5L		
	52.000	1321	0.500	12,70	275.01	409,64	5L	XS	
	52.000	1321	0.562	14,27	308.74	459,84	5L		
	52.000	1321	0.625	15,88	342.93	511,09	5L		
	52.000	1321	0.688	17,48	377.03	561,89	5L		
	52.000	1321	0.750	19,05	410.51	611,62	5L		
	52.000	1321	0.812	20,62	443.91	661,23	5L		
	52.000	1321	0.875	22,23	477.76	711,98	5L		
	52.000	1321	0.938	23,83	511.53	762,28	5L		
	52.000	1321	1.000	25,40	544.68	811,52	5L		
	52.000	1321	1.062	26,97	577.75	860,63	5L		
	52.000	1321	1.125	28,58	611.26	910,88	5L		
	52.000	1321	1.188	30,18	644.69	960,68	5L		
	52.000	1321	1.250	31,75	677.51	1009,42	5L		
56	56.000	1422	0.375	9,53	222.78	331,94	5L		
	56.000	1422	0.406	10,31	241.06	358,91	5L		
	56.000	1422	0.438	11,13	259.91	387,24	5L		
	56.000	1422	0.469	11,91	278.15	414,14	5L		
	56.000	1422	0.500	12,70	296.37	441,37	5L		
	56.000	1422	0.562	14,27	332.75	495,38	5L		
	56.000	1422	0.625	15,88	369.63	550,54	5L		
	56.000	1422	0.688	17,48	406.42	605,43	5L		
	56.000	1422	0.750	19,05	442.55	659,07	5L		
	56.000	1422	0.812	20,62	478.60	712,59	5L		
	56.000	1422	0.875	22,23	515.14	767,34	5L		
	56.000	1422	0.938	23,83	551.60	821,63	5L		
	56.000	1422	1.000	25,40	587.40	875,78	5L		
	56.000	1422	1.062	26,97	623.12	927,81	5L		
	56.000	1422	1.125	28,58	659.32	982,06	5L		
60	60.000	1524	0.375	9,53	238.80	355,92	5L		
	60.000	1524	0.406	10,31	258.40	384,85	5L		
	60.000	1524	0.438	11,13	278.62	415,23	5L		
	60.000	1524	0.469	11,91	298.19	444,10	5L		
	60.000	1524	0.500	12,70	317.73	473,31	5L		
	60.000	1524	0.562	14,27	356.76	531,27	5L		
	60.000	1524	0.625	15,88	396.33	590,58	5L		
	60.000	1524	0.688	17,48	435.81	649,40	5L		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
60	60.000	1524	0.750	19,05	474.59	706,98	5L		
	60.000	1524	0.812	20,62	513.29	764,45	5L		
	60.000	1524	0.875	22,23	552.52	823,26	5L		
	60.000	1524	0.938	23,83	591.67	881,57	5L		
	60.000	1524	1.000	25,40	630.12	938,67	5L		
	60.000	1524	1.062	26,97	668.48	995,64	5L		
	60.000	1524	1.125	28,58	707.38	1053,95	5L		
	60.000	1524	1.188	30,18	746.20	1111,76	5L		
64	64.000	1626	0.750	19,05	506.63	754,90	5L		
	64.000	1626	0.812	20,62	547.98	816,32	5L		
	64.000	1626	0.875	22,23	589.90	879,17	5L		
	64.000	1626	0.938	23,83	631.74	941,51	5L		
	64.000	1626	1.000	25,40	672.84	1002,56	5L		
	64.000	1626	1.062	26,97	713.85	1063,48	5L		
	64.000	1626	1.125	28,58	755.44	1125,83	5L		
	64.000	1626	1.188	30,18	796.95	1187,67	5L		
	64.000	1626	1.250	31,75	837.71	1248,23	5L		
	64.000	1626	0.375	9,53	254.82	379,89	5L		
	64.000	1626	0.406	10,31	275.75	410,78	5L		
	64.000	1626	0.438	11,13	297.33	443,23	5L		
	64.000	1626	0.469	11,91	318.22	474,06	5L		
	64.000	1626	0.500	12,70	339.09	505,26	5L		
	64.000	1626	0.562	14,27	380.76	567,16	5L		
	64.000	1626	0.625	15,88	423.03	630,52	5L		
68	68.000	1727	0.750	19,05	538.67	802,35	5L		
	68.000	1727	0.812	20,62	582.66	867,68	5L		
	68.000	1727	0.875	22,23	627.28	934,54	5L		
	68.000	1727	0.938	23,83	671.82	1000,86	5L		
	68.000	1727	1.000	25,40	715.56	1065,82	5L		
	68.000	1727	1.062	26,97	759.22	1130,66	5L		
	68.000	1727	1.125	28,58	803.50	1197,02	5L		
	68.000	1727	1.188	30,18	847.70	1262,84	5L		
	68.000	1727	1.250	31,75	891.11	1327,30	5L		
	68.000	1727	0.469	11,91	338.26	503,72	5L		
	68.000	1727	0.500	12,70	360.45	536,89	5L		
	68.000	1727	0.562	14,27	404.77	602,71	5L		
	68.000	1727	0.625	15,88	449.73	670,08	5L		
	68.000	1727	0.688	17,48	494.60	736,90	5L		

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Nominal size Diamètre nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Identification		
	inches pouces	mm	inches pouces	mm	lb/ft	kg/m	Specif. API	W.T. Épaisseur STD XS XXS	Schedule
72	72.000	1829	0.500	12,70	381.81	568,83	5L		
	72.000	1829	0.562	14,27	428.78	638,60	5L		
	72.000	1829	0.625	15,88	476.43	710,02	5L		
	72.000	1829	0.688	17,48	523.99	780,87	5L		
	72.000	1829	0.750	19,05	570.71	850,29	5L		
	72.000	1829	0.812	20,62	617.35	919,54	5L		
	72.000	1829	0.875	22,23	664.66	990,46	5L		
	72.000	1829	0.938	23,83	711.89	1060,80	5L		
	72.000	1829	1.000	25,40	758.28	1129,71	5L		
	72.000	1829	1.062	26,97	804.59	1198,49	5L		
	72.000	1829	1.125	28,58	851.56	1268,91	5L		
	72.000	1829	1.188	30,18	898.45	1338,75	5L		
	72.000	1829	1.250	31,75	944.51	1407,17	5L		
	72.000	1829	1.250	31,75	944.51	1407,17	5L		
76	76.000	1930	0.500	12,70	403.17	600,46	5L		
	76.000	1930	0.562	14,27	452.79	674,14	5L		
	76.000	1930	0.625	15,88	503.13	749,57	5L		
	76.000	1930	0.688	17,48	553.38	824,40	5L		
	76.000	1930	0.750	19,05	602.75	897,71	5L		
	76.000	1930	0.812	20,62	652.04	970,90	5L		
	76.000	1930	0.875	22,23	702.04	1045,82	5L		
	76.000	1930	0.938	23,83	751.96	1120,16	5L		
	76.000	1930	1.000	25,40	801.00	1192,97	5L		
	76.000	1930	1.062	26,97	849.96	1265,67	5L		
	76.000	1930	1.125	28,58	899.62	1340,09	5L		
	76.000	1930	1.188	30,18	949.20	1413,92	5L		
	76.000	1930	1.250	31,75	997.91	1486,24	5L		
	76.000	1930	1.250	31,75	997.91	1486,24	5L		
80	80.000	2032	0.562	14,27	476.80	710,04	5L		
	80.000	2032	0.625	15,88	529.83	789,51	5L		
	80.000	2032	0.688	17,48	582.77	868,37	5L		
	80.000	2032	0.750	19,05	634.79	945,63	5L		
	80.000	2032	0.812	20,62	686.73	1022,76	5L		
	80.000	2032	0.875	22,23	739.42	1101,74	5L		
	80.000	2032	0.938	23,83	792.03	1180,10	5L		
	80.000	2032	1.000	25,40	843.72	1256,86	5L		
	80.000	2032	1.062	26,97	895.33	1333,50	5L		
	80.000	2032	1.125	28,58	947.68	1411,97	5L		
	80.000	2032	1.188	30,18	999.95	1489,83	5L		
	80.000	2032	1.188	30,18	999.95	1489,83	5L		
	80.000	2032	1.250	31,75	1051.31	1566,11	5L		
	80.000	2032	1.250	31,75	1051.31	1566,11	5L		

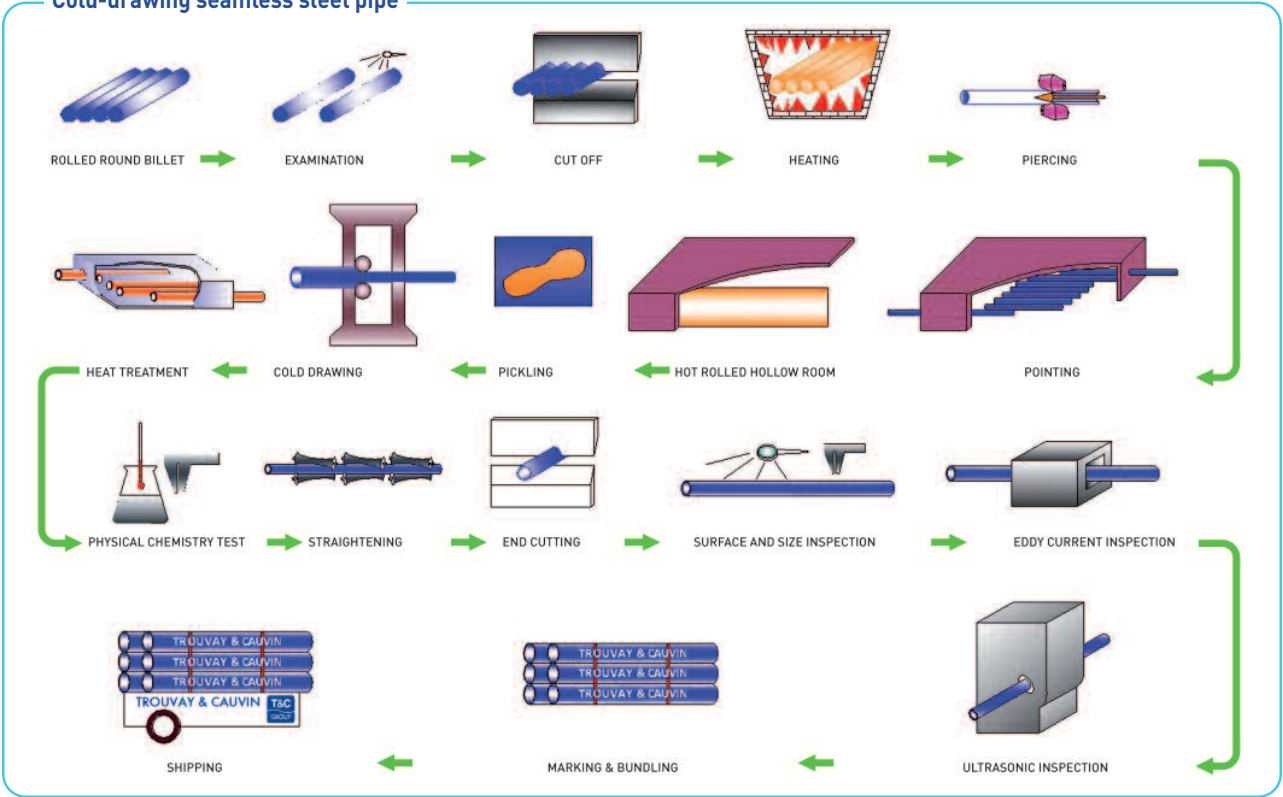
3. Black & hot dip galvanized steel pipes: DIN EN 10255 (earlier BS: 1387)

Nominal size Diamètre nominal		Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight* Masse*
						Black pipes Tubes acier nu
inches pouces	mm	inches pouces	mm	inches pouces	mm	kg/mtr
1/2	15	0.840	21.3	0.309	2.77	1.27
3/4	20	1.050	26.7	0.113	2.87	1.69
1	25	1.315	33.4	0.113	3.38	2.5
1 1/4	32	1.660	42.2	0.113	3.56	3.39
1 1/2	40	1.900	48.3	0.113	3.68	4.05
2	50	2.375	60.3	0.113	3.91	5.44
2 1/2	65	2.875	73.0	0.113	5.16	8.63
3	80	3.500	88.9	0.113	5.49	11.29
4	100	4.500	114.3	0.113	6.02	16.07
5	125	5.560	141.3	0.113	6.55	21.77
6	150	6.625	168.3	0.113	7.11	28.26
8	200	8.625	219.1	0.113	8.18	42.55

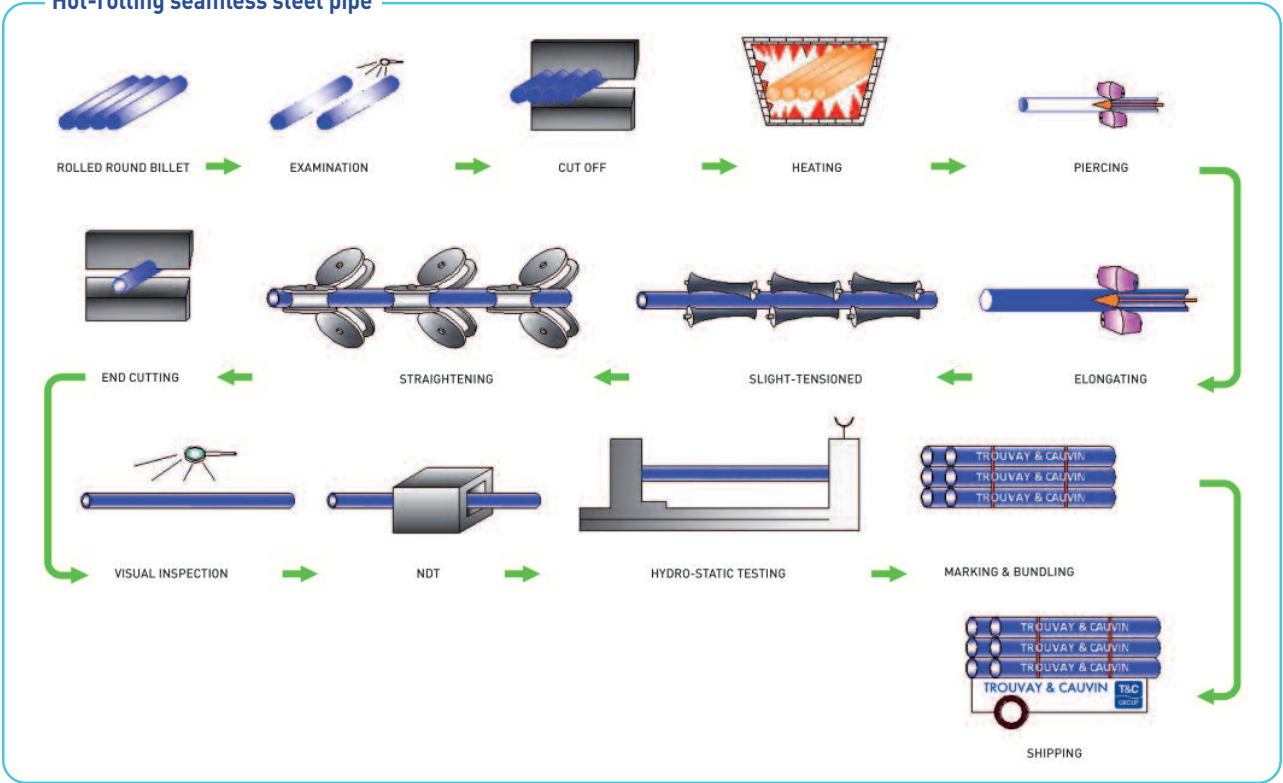
N.B.: All welded galvanized pipes are from UL listed mills.
* For weight of galvanized pipes, add approximately 7 % of black pipes weight.

4. Manufacturing processes

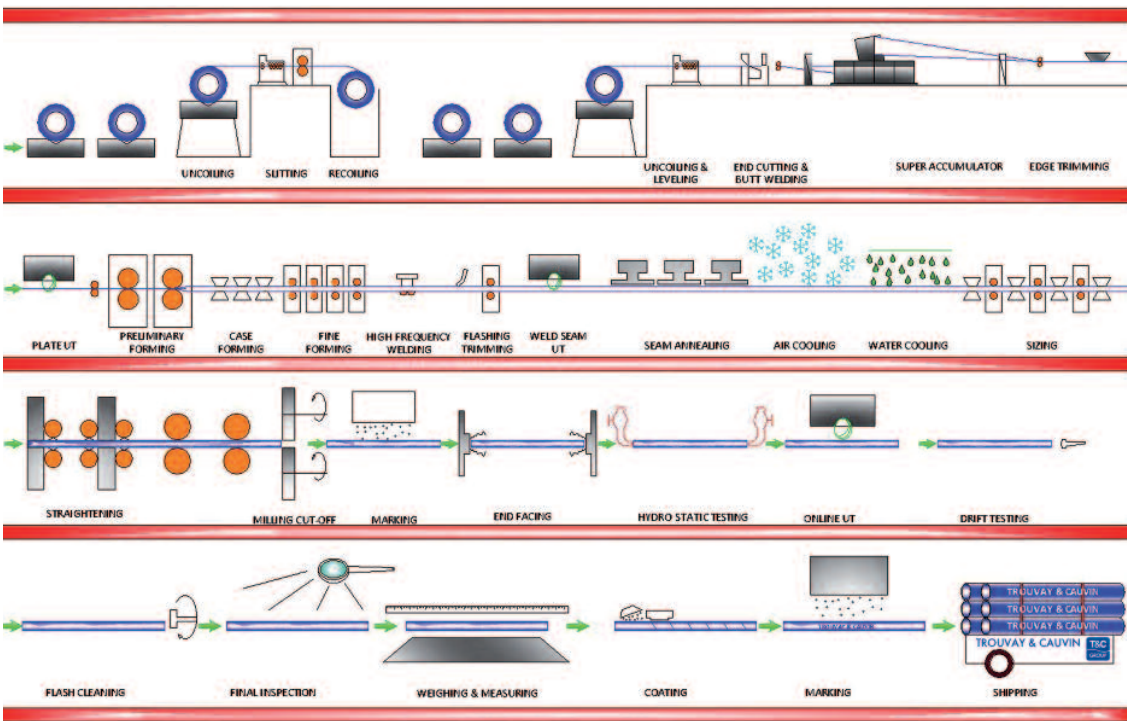
Cold-drawing seamless steel pipe



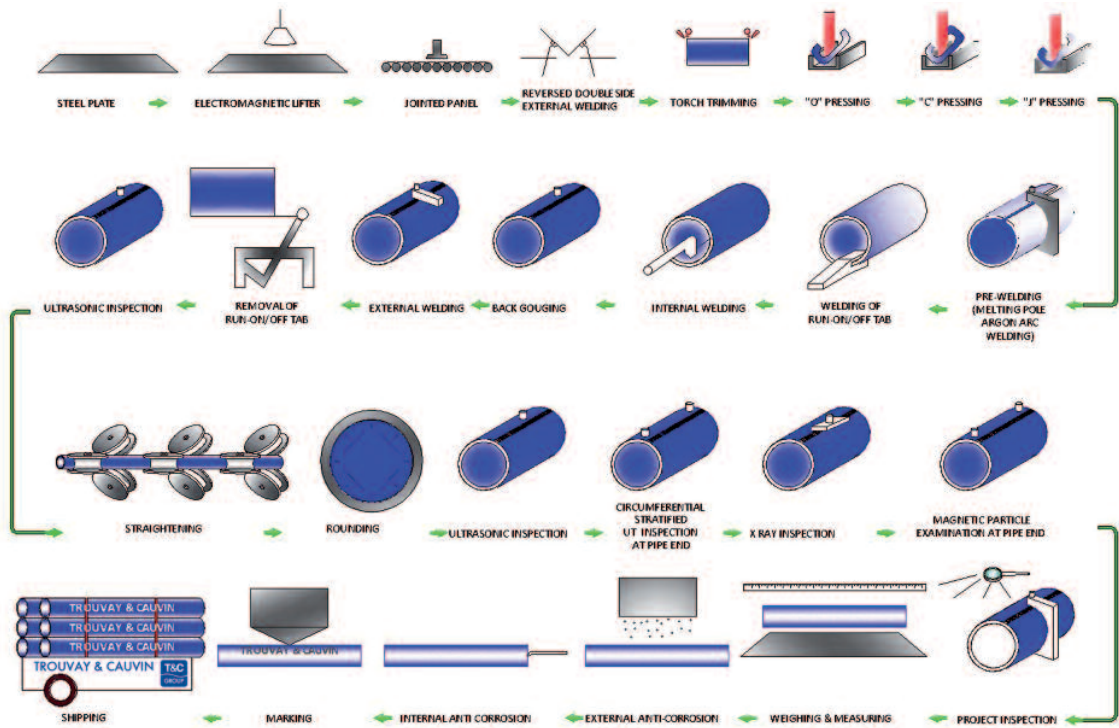
Hot-rolling seamless steel pipe



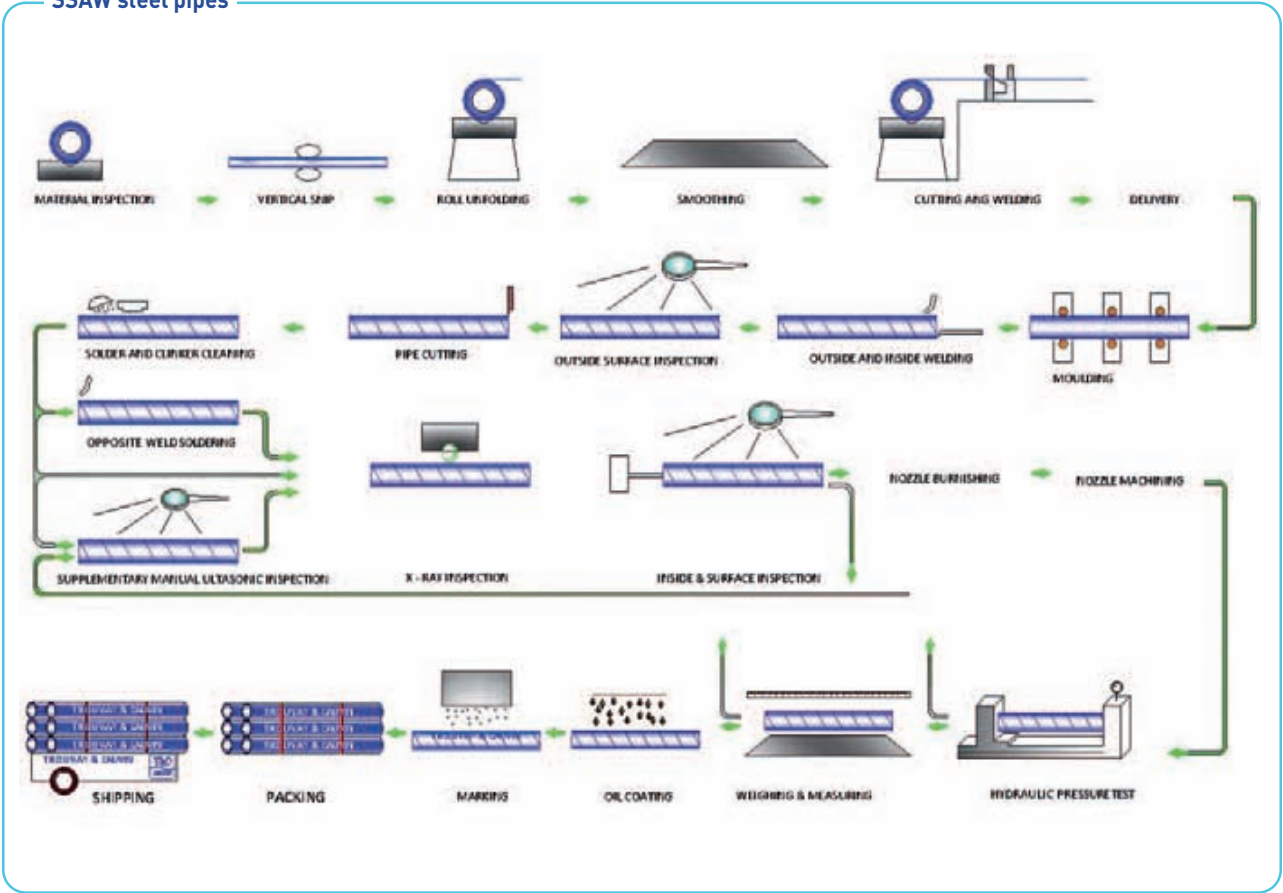
ERW steel pipes



LSAW steel pipes



SSAW steel pipes



B- Stainless steel pipes SS304/L – 316/L

Other grades upon request

1. Standards overview

ASTM A 53 / A 53M-13b

CHEMICAL COMPOSITION

Grades Nuances	UNS	Composition %								
		C maxi	Mn maxi	P maxi	S maxi	Si maxi	Ni maxi	Cr maxi	Mo maxi	Others Autres
TP304	S30400	0.08	2.00	0.045	0.030	1.00	8.0–11.0	18.0–20.0		
TP304H	S30409	0.04–0.10	2.00	0.045	0.030	1.00	8.0–11.0	18.0–20.0		
TP304L	S30403	0.035 ^[2]	2.00	0.045	0.030	1.00	8.0–13.0	18.0–20.0		
TP310S	S31008	0.08	2.00	0.045	0.030	1.00	19.0–22.0	24.0–26.0	0.75 maxi	
TP316	S31600	0.08	2.00	0.045	0.030	1.00	11.0–14.0 ^[1]	16.0–18.0	2.00–3.00	
TP316H	S31609	0.04–0.10	2.00	0.045	0.030	1.00	11.0–14.0 ^[1]	16.0–18.0	2.00–3.00	
TP316L	S31603	0.035 ^[2]	2.00	0.045	0.030	1.00	10.0–14.0	16.0–18.0	2.00–3.00	
TP317	S31700	0.08	2.00	0.045	0.030	1.00	11.0–15.0	18.0–20.0	3.00–4.00	
TP317L	S31703	0.035	2.00	0.045	0.030	1.00	11.0–15.0	18.0–20.0	3.00–4.00	
TP321	S32100	0.08	2.00	0.045	0.030	1.00	9.0–12.0	17.0–19.0		5 x C ≤ Ti ≤ 0.70
TP321H	S32109	0.04–0.10	2.00	0.045	0.030	1.00	9.0–12.0	17.0–19.0		4 x C ≤ Ti ≤ 0.60
TP347	S34700	0.08	2.00	0.045	0.030	1.00	9.0–13.0	17.0–19.0		10 x C ≤ Nb + Ta ≤ 1.00
	S31254	0.02	1.00	0.030	0.010	0.80	17.5–18.5	19.5–20.5	6.00–6.50	N : 0.18–0.22 Cu : 0.50–1.00

[1] For welded TP316 and TP316H pipes, the nickel range shall be: 10.0 – 14.0 %

[2] For OD ≤ 0.500 in. and /or thickness ≤ 0.049 in.:
C maxi = 0.040 %

TENSILE REQUIREMENTS

Grades Nuances	Tensile strength Résistance rupture mini		Yield strength Limite élastique mini		Elongation / Allongement mini % (on/sur 2" or/ou 50 mm)	
	ksi	MPa	ksi	MPa	Length/Long	Transv.
TP304L TP316L	70	485	25	170	35	25
TP310Hcb (S31254) t ≤ 5mm	98	675	45	310	35	25
t ≥ 5mm	95	655	45	310	35	25
t ≥ 5mm	75	515	30	205	35	25

* Seamless, nominal wall > 3/8 in.

TOLERANCES

- To ASTM A 530 / A 530 M
- on thickness: – 12.5 % of nominal wall thickness
 - on diameter: depending on diameter.

GRADE EQUIVALENCE

ASTM	Composition %					Correspondance		
	C (1)	Cr	Ni	Mo	Others Autres	AFNOR	European / Européenne symbolique	numér.
410	0.15	11.5-13.5				Z12C13	X12Cr13	1.4006
430	0.12	16-18				Z8C17	X6Cr17	1.4016
304	0.08	18-20	8-11			Z6CN18.09	X5CrNi18.10	1.4301
304H	0.04-0.10	18-20	8-11			Z6CN18.09	X6CrNi18.10	1.4948
304L	0.035	18-20	8-13			Z2CN18.10	X2CrNi19.11	1.4306
310S	0.08	24-26	19-22			Z8CN25.20	X8CrNi25.21	1.4845
316	0.08	16-18	11-14	2.0-3.0		Z6CND17.11(2)	X5CrNiMo17.12.2	1.4401
						Z6CND17.12(3)	X3CrNi Mo17.13.3	1.4436
316H	0.04-0.10	16-18	11-14	2.0-3.0				
316L	0.035	16-18	10-15	2.0-3.0		Z2CND17.12(2)	X2CrNiMo17.12.2	1.4404
						Z2CND17.13(3)	X2CrNiMo18.14.3	1.4435
316Ti	0.08	16-18	10-14	2.0-2.5	$5 \times (C+N) \leq Ti$ ≤ 0.70	Z8CNDT17.12(2)	X6CrNiMoTi17.12.2	1.4571
						Z8CNDT17.13(3)		
317L	0.035	18-20	11-15	3.0-4.0		Z2CND19.15	X2CrNiMo18.15.4	1.4438
321	0.08	17-20	9-13		$5 \times C \leq Ti$ ≤ 0.70	Z6CNT18.10	X6CrNiTi18.10	1.4541
347	0.08	17-20	9-13		$10 \times C \leq Nb+Ta$ ≤ 1.00	Z6CNNb18.10	X6CrNiNb18.10	1.4550

(1) Maximum, unless otherwise specified.
(2) Molybdenum content: 2.0 % to 2.5 %.
(3) Molybdenum content: 2.5 % to 3.0 %.

2. Stainless steel pipes weight and dimensions

ASME B 36.19 M-1985

Sizes are in accordance with ASME B 36.19 M – 1985
Weights are for stainless steel pipes grade TP 304 L (density 7.9).

Nominal pipe size Dia. nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Schedule
	inches pouces	mm	inches pouces	mm	livre/pied lb/ft	kg/m	
1/8	0.405	10.3	0.049*	1.24	0.19	0.28	10 S
	0.405	10.3	0.068	1.73	0.25	0.37	40 S
	0.405	10.3	0.095	2.41	0.32	0.47	80 S
1/4	0.540	13.7	0.065*	1.65	0.33	0.49	10 S
	0.540	13.7	0.088	2.24	0.43	0.64	40 S
	0.540	13.7	0.119	3.02	0.54	0.80	80 S
3/8	0.675	17.1	0.065*	1.65	0.43	0.64	10 S
	0.675	17.1	0.091	2.31	0.57	0.85	40 S
	0.675	17.1	0.126	3.20	0.74	1.10	80 S
1/2	0.840	21.3	0.065*	1.65	0.54	0.80	5 S
	0.840	21.3	0.083*	2.11	0.68	1.00	10 S
	0.840	21.3	0.109	2.77	0.86	1.27	40 S
	0.840	21.3	0.147	3.73	1.09	1.63	80 S
3/4	1.050	26.7	0.065*	1.65	0.69	1.03	5 S
	1.050	26.7	0.083*	2.11	0.87	1.29	10 S
	1.050	26.7	0.113	2.87	1.14	1.70	40 S
	1.050	26.7	0.154	3.91	1.49	2.21	80 S
1	1.315	33.4	0.065*	1.65	0.87	1.30	5 S
	1.315	33.4	0.109*	2.77	1.41	2.11	10 S
	1.315	33.4	0.133	3.38	1.69	2.52	40 S
	1.315	33.4	0.179	4.55	2.19	3.26	80 S
1 1/4	1.660	42.2	0.065*	1.65	1.12	1.66	5 S
	1.660	42.2	0.109*	2.77	1.82	2.71	10 S
	1.660	42.2	0.140	3.56	2.29	3.41	40 S
	1.660	42.2	0.191	4.85	3.02	4.50	80 S
1 1/2	1.900	48.3	0.065*	1.65	1.28	1.91	5 S
	1.900	48.3	0.109*	2.77	2.10	3.13	10 S
	1.900	48.3	0.145	3.68	2.74	4.08	40 S
	1.900	48.3	0.200	5.08	3.66	5.45	80 S
2	2.375	60.3	0.065*	1.65	1.61	2.40	5 S
	2.375	60.3	0.109*	2.77	2.66	3.96	10 S
	2.375	60.3	0.154	3.91	3.68	5.47	40 S
	2.375	60.3	0.218	5.54	5.06	7.53	80 S
2 1/2	2.875	73.0	0.083*	2.11	2.49	3.71	5 S
	2.875	73.0	0.120*	3.05	3.56	5.29	10 S
	2.875	73.0	0.203	5.16	5.84	8.69	40 S
	2.875	73.0	0.276	7.01	7.71	11.48	80 S
3	3.500	88.9	0.083*	2.11	3.05	4.54	5 S
	3.500	88.9	0.120*	3.05	4.37	6.50	10 S
	3.500	88.9	0.216	5.49	7.64	11.36	40 S
	3.500	88.9	0.300	7.62	10.33	15.37	80 S

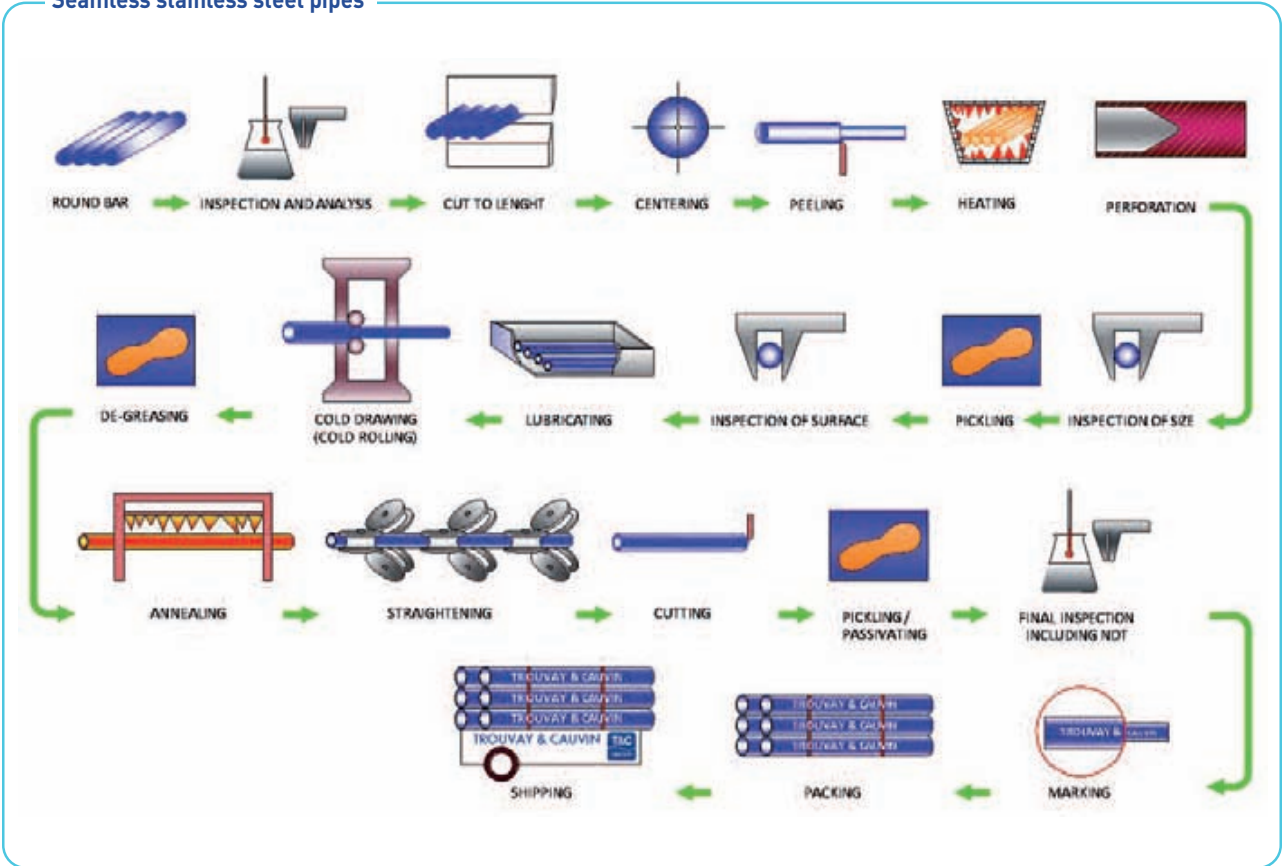
* Schedule 5S and 10S wall thicknesses do not permit threading in accordance with ASME B 1.20.1.

Nominal pipe size Dia. nominal	Outside diameter Diamètre extérieur		Wall thickness Épaisseur		Weight Masse		Schedule
	inches pouces	mm	inches pouces	mm	lb/ft livre/pied	kg/m	
3 1/2	4.000	101.6	0.083*	2.11	3.50	5.21	5S
	4.000	101.6	0.120*	3.05	5.01	7.46	10 S
	4.000	101.6	0.226	5.74	9.18	13.66	40 S
	4.000	101.6	0.318	8.08	12.60	18.75	80 S
4	4.500	114.3	0.083*	2.11	3.95	5.88	5 S
	4.500	114.3	0.120*	3.05	5.66	7.42	10 S
	4.500	114.3	0.237	6.02	10.87	16.18	40 S
	4.500	114.3	0.337	8.56	15.10	22.46	80 S
5	5.563	141.3	0.109*	2.77	6.40	9.52	5 S
	5.563	141.3	0.134*	3.40	7.82	11.64	10 S
	5.563	141.3	0.258	6.55	14.72	21.91	40 S
	5.563	141.3	0.375	9.53	20.92	31.14	80 S
6	6.625	168.3	0.109*	2.77	7.65	11.38	5 S
	6.625	168.3	0.134*	3.40	9.35	13.91	10 S
	6.625	168.3	0.280	7.11	19.11	28.44	40 S
	6.625	168.3	0.432	10.97	28.78	42.83	80 S
8	8.625	219.1	0.109*	2.77	9.99	14.87	5 S
	8.625	219.1	0.148*	3.76	13.50	20.10	10 S
	8.625	219.1	0.322	8.18	28.77	42.82	40 S
	8.625	219.1	0.500	12.70	43.72	65.06	80 S
10	10.750	273.1	0.134*	3.40	15.29	22.76	5 S
	10.750	273.1	0.165*	4.19	18.79	27.96	10 S
	10.750	273.1	0.365	9.27	40.79	60.70	40 S
	10.750	273.1	0.500 ⁽¹⁾	12.70	55.15	82.08	80 S
12	12.750	323.9	0.156*	3.96	21.13	31.44	5 S
	12.750	323.9	0.180*	4.57	24.34	36.22	10 S
	12.750	323.9	0.375 ⁽¹⁾	9.53	49.91	74.28	40 S
	12.750	323.9	0.500 ⁽¹⁾	12.70	65.91	98.09	80 S
14	14.000	355.6	0.156*	3.96	23.22	34.56	5 S
	14.000	355.6	0.188* ⁽¹⁾	4.78	27.97	41.62	10 S
16	16.000	406.4	0.165*	4.19	28.11	41.83	5 S
	16.000	406.4	0.188* ⁽¹⁾	4.78	32.02	47.65	10 S
18	18.000	457.0	0.165*	4.19	31.64	47.09	5 S
	18.000	457.0	0.188* ⁽¹⁾	4.78	36.05	53.65	10 S
20	20.000	508.0	0.188*	4.78	40.12	59.70	5 S
	20.000	508.0	0.218* ⁽¹⁾	5.54	46.42	69.09	10 S
22	22.000	559.0	0.188*	4.78	44.18	65.75	5 S
	22.000	559.0	0.218* ⁽¹⁾	5.54	51.14	76.10	10 S
24	24.000	610.0	0.218*	5.54	55.85	83.11	5 S
	24.000	610.0	0.250*	6.35	63.93	95.13	10 S
30	30.000	762.0	0.250*	6.35	80.02	119.09	5 S
	30.000	762.0	0.312*	7.92	99.60	148.22	10 S

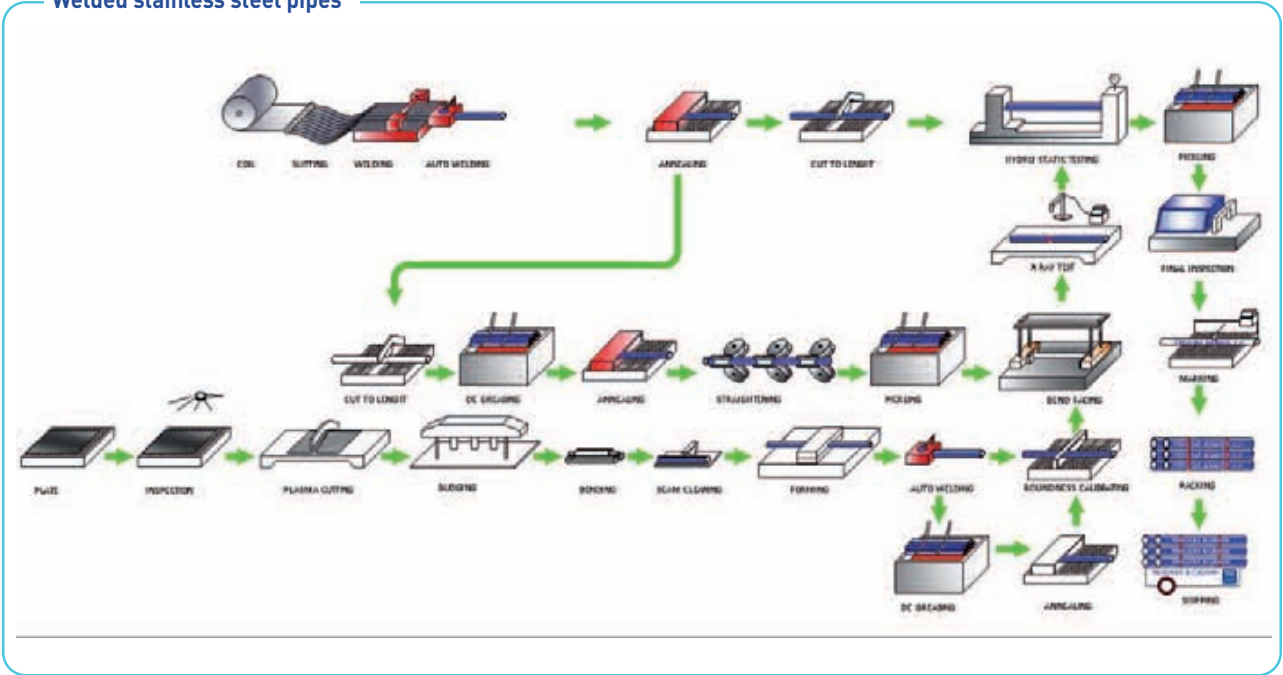
(1) These do not conform to ASME B 36.10 M – 1985.

3. Manufacturing processes

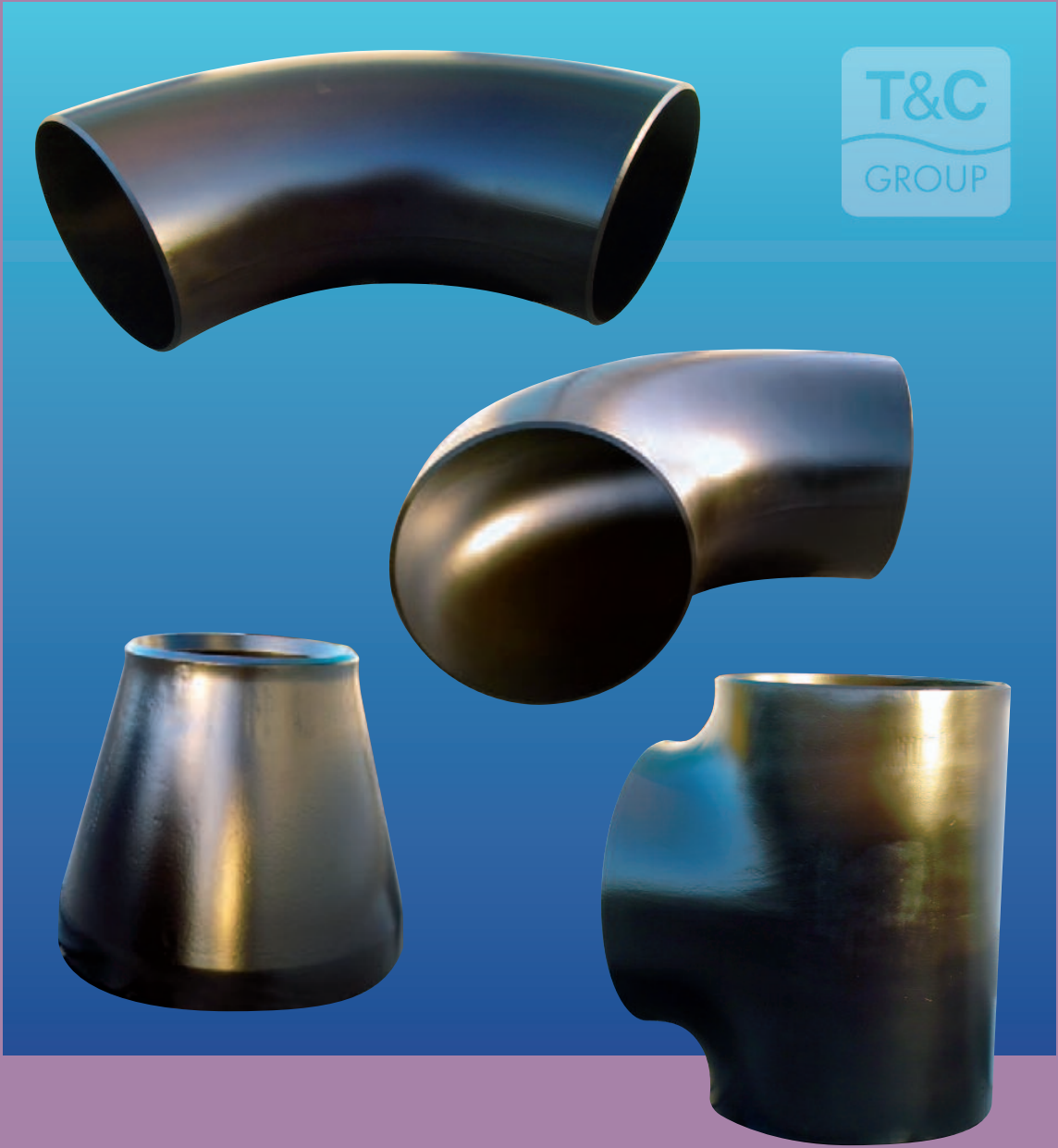
Seamless stainless steel pipes



Welded stainless steel pipes







FITTINGS & FLANGES

A- Carbon steel butt weld fittings

1. Standards overview

- Fittings are in strict accordance / Les raccords répondent :
- FOR DIMENSIONS / POUR LES DIMENSIONS :
with ASME B 16.9 – 1993 and B 16.28 – 1994 requirements / aux exigences des ASME B 16.9 – 1993 et B 16.28 – 1994
 - FOR STEEL / POUR L'ACIER :
with ASTM requirements / aux exigences de l'ASTM

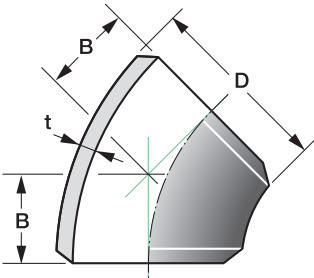
CARBON STEEL

ASTM A 234 / A 234 M – 13			Grade WPB / Nuance WPB (1)	
Chemical requirements % Composition chimique %	C maxi		0,30 (a) (b) (c)	
	Mn		0,29 – 1,06	
	P maxi		0,050	
	S maxi		0,058	
	Si		0,10 mini (b)	
	Cr maxi		0,40 (f) (g)	
	Mo maxi		0,15 (f) (g)	
	Ni maxi		0,40 (f)	
	Cu maxi		0,40 (f)	
	V maxi		0,08	
	Cb maxi		0,02	
Mechanical requirements	Résistance rupture – plage Tensile strength – range	MPa ksi	415 – 585 60 – 85	
	Limite élastique mimimum Minimum yield strength	MPa ksi	240 35	
Caractéristiques mécaniques	Allongement minimum % (sur 2") Elongation (in 2") mini per cent		Long. 30 (2) – Transv. 20 (2) (3)	
	Dureté maximum Maximum hardness		197 HB	

ALLOY STEELS

ASTM A 234 / A 234 M – 13			Grades / Nuances (1)				
			WP 1	WP 11 c l 1	WP 22 c l 1	WP 5	
Chemical requirements % Composition chimique %			C	0,28 maxi	0,05 – 0,15	0,05 – 0,15	0,15 maxi
			Mn	0,30 – 0,90	0,30 – 0,60	0,30 – 0,60	0,30 – 0,60
			P maxi	0,045	0,030	0,040	0,040
			S maxi	0,045	0,030	0,040	0,030
			Si	0,10 – 0,50	0,50 – 1,00	0,50 maxi	0,50 maxi
			Cr	—	1,00 – 1,50	1,90 – 2,60	4,00 – 6,00
			Mo	0,44 – 0,65	0,44 – 0,65	0,87 – 1,13	0,44 – 0,65
Mechanical requirements	Résistance rupture – plage Tensile strength – range	MPa ksi	380 – 555 55 – 80	415 – 585 60 – 85			
	Limite élastique minimum Minimum yield strength	MPa ksi	205 30	205 30			
Caractéristiques mécaniques	Allongement mini % (sur 2") Elongation (in 2") mini per cent		Long. 30 (2) – Transv. 20 (2)				
	Dureté maximum Maximum hardness		197 HB			217 HB	

2. Carbon steel butt weld fittings weight and dimensions



45° long radius elbows

ASME B 16.9-1993

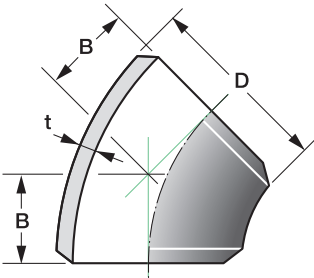
Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Centre-à-extrémité	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
inches / pouces	D – mm	B – mm	t W.T. / ép. mm				
			weight / masse kg				
1/2	21	16	2,77	3,73	7,47		
			0,04	0,08	**		
3/4	27	19 (1)	2,87	3,91	7,82		
			0,04	0,08	**		
1	33	22	3,38	4,55	9,09		
			0,08	0,10	0,19		
1 1/4	42	25	3,56	4,85	9,70		
			0,12	0,18	0,30		
1 1/2	48	29	3,68	5,08	10,16		
			0,18	0,25	0,45		
2	60	35	3,91	5,54	11,07		
			0,32	0,47	0,84		
2 1/2	73	44	5,16	7,01	14,02		
			0,64	0,85	1,60		
3	89	51	5,49	7,62	15,24		
			1,02	1,37	2,60		
3 1/2	102	57	5,74	8,08			
			1,43	1,97			
4	114	64	6,02	8,56	17,12		
			1,95	2,70	5,20		
5	141	79	6,55	9,52	19,05		
			3,25	4,42	9,08		
6	168	95	7,11	10,97	21,95		
			5,10	7,67	15,00		
8	219	127	8,18	12,70	22,23		6,35
			11,15	14,95	27,00		9,00
10	273	159	9,27	12,70	25,40		6,35
			20,50	24,30	48,50		18,50
12	324	190	9,52	12,70	25,40		6,35
			27,00	35,00	70,80		24,75
14	356	222	9,52	12,70		6,35	7,92
			34,00	47,17		25,00	32,00
16	406	254	9,52	12,70		6,35	7,92
			48,00	62,37		32,00	46,50

(1) The dimension may be 11 mm, at manufacturer's option.

** Weight on application.

Weights are approximate.

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Diamètre Nominal Nominal Pipe Size [NPS]	
t W.T. / ép. mm								pouces/inches	
weight / masse kg									
2,41	Voir STD		Voir E.F.				4,78	1/2	
**							0,12		
2,41							5,56	3/4	
**							0,12		
2,90							6,35	1	
**							0,14		
2,97							6,35	1 1/4	
**							0,22		
3,18							7,13	1 1/2	
**							0,33		
3,18	Refer to STD		Refer to X.S.				8,74	2	
**							0,70		
4,78							9,52	2 1/2	
**							1,20		
4,78							11,13	3	
**							2,00		
4,78									3 1/2
**									
4,78						11,13		13,50	4
**						3,47		4,00	
				12,70		15,87	5		
				6,31		7,50			
				14,27		18,26	6		
				9,81		14,00			
7,03		10,31		15,09	18,26	20,62	23,01	8	
10,35		13,34		19,07	21,59	26,00	29,00		
7,80		Voir E.F.	15,09	18,26	21,44	25,40	28,57	10	
19,65		Refer to X.S.	30,00	37,55	41,77	48,50	61,00		
8,38	10,31	14,27	17,48	21,44	25,40	28,57	33,32	12	
26,03	29,57	41,31	49,94	61,50	70,82	79,00	90,34		
Voir STD	11,13	15,09	19,05	23,83	27,79	31,75	35,71	14	
	39,98	55,84	69,92	94,00	95,00	112,00	123,94		
Refer to STD	Voir E.F.	16,66	21,44	26,19	30,96	36,53	40,49	16	
	Refer to X.S.	80,81	102,15	130,00	137,00	161,50	183,00		



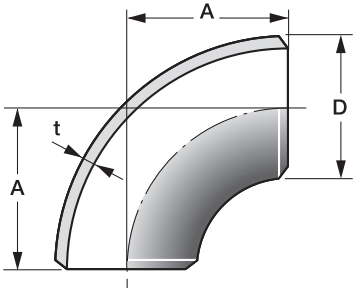
45° long radius elbows

ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Centre-à-extrémité	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
inches / pouces	D – mm	B – mm	t W.T. / ép. mm				
			weight / masse kg				
18	457	286	9,52	12,70		6,35	7,92
			60,00	79,00		41,00	56,00
20	508	318	9,52	12,70		6,35	
			71,20	97,16		50,00	
22	559	343	9,52	12,70		6,35	
			89,00	118,00		60,00	
24	610	381	9,52	12,70		6,35	
			102,95	141,20		73,00	
26	660	406	9,52	12,70		7,92	
			124,90	165,71		104,00	
28	711	438	9,52	12,70		7,92	
			150,00	202,00		121,00	
30	762	470	9,52	12,70		7,92	
			167,00	220,00		139,00	
32	813	502	9,52	12,70		7,92	
			193,00	255,00		158,00	
34	864	533	9,52	12,70		7,92	
			215,00	280,00		178,00	
36	914	565	9,52	12,70		7,92	
			241,00	312,00		200,00	
38	965	600	9,52	12,70			
			272,00	354,00			
40	1016	632	9,52	12,70			
			290,00	372,00			
42	1067	660	9,52	12,70			
			327,00	420,00			
44	1118	695	9,52	12,70			
			363,00	488,00			
46	1168	727	9,52	12,70			
			408,00	530,00			
48	1219	759	9,52	12,70			
			443,00	567,00			

Weights are approximate

[illegible]



90° long radius elbows

ASME B 16.9–1993

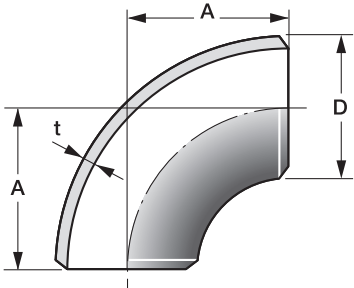
Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Centre-à-extrémité	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
inches / pouces	D – mm	B – mm	t W.T. / ép. mm weight / masse kg				
1/2	21	38	2,77	3,73	7,47		
			0,08	0,18	**		
3/4	27	38 (1)	2,87	3,91	7,82		
			0,08	0,20	**		
1	33	38	3,38	4,55	9,09		
			0,15	0,20	0,40		
1 1/4	42	48	3,56	4,85	9,70		
			0,25	0,35	0,61		
1 1/2	48	57	3,68	5,08	10,16		
			0,36	0,60	0,90		
2	60	76	3,91	5,54	11,07		
			0,65	0,94	1,80		
2 1/2	73	95	5,16	7,01	14,02		
			1,28	1,70	3,21		
3	89	114	5,49	7,62	15,24		
			2,03	2,75	5,20		
3 1/2	102	133	5,74	8,08			
			2,87	3,95			
4	114	152	6,02	8,56	17,12		
			3,90	5,40	10,30		
5	141	190	6,55	9,52	19,05		
			6,50	8,85	18,11		
6	168	229	7,11	10,97	21,95		
			10,20	15,35	30,00		
8	219	305	8,18	12,70	22,23		6,35
			20,30	29,90	54,50		16,57
10	273	381	9,27	12,70	25,40		6,35
			37,00	48,60	97,00		25,79
12	324	457	9,52	12,70	25,40		6,35
			54,00	70,00	140,00		37,23
14	356	533	9,52	12,70		6,35	7,92
			68,00	94,35		57,47	59,93
16	406	610	9,52	12,70		6,35	7,92
			89,20	124,75		63,20	78,09

(1) The dimension may be 29 mm, at manufacturer's option.

** Weight on application.

Weights are approximate

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Diamètre Nominal Nominal Pipe Size [NPS]		
t W.T. / ép. mm								pouces/inches		
weight / masse kg										
2,41	Voir STD		Voir E.F.				4,78	1/2		
**							0,22			
2,41							5,56	3/4		
**							0,25			
2,90							6,35	1		
**							0,30			
2,97							6,35	1 1/4		
**							0,44			
3,18							7,13	1 1/2		
**							0,80			
3,18							8,74	2		
**							1,50			
4,78		Refer to STD			Refer to X.S.			9,52	2 1/2	
**								2,35		
4,78								11,13	3	
**								4,00		
4,78								3 1/2		
**										
4,78						11,13	13,50	4		
**						6,95	9,00			
						12,70	15,87	5		
						12,62	15,44			
						14,27	18,26	6		
						23,00	27,00			
7,03			10,31			15,09	18,26	20,62	23,01	8
17,50			26,30			38,00	40,50	52,00	58,00	
7,80			Voir E.F.	15,09		18,26	21,44	25,40	28,57	10
31,30			Refer to X.S.	57,11		75,00	85,00	97,00	123,00	
8,38	10,31	14,27	17,48	21,44	25,40	28,57	33,32	12		
46,06	58,15	82,62	94,82	123,00	140,00	157,00	180,00			
Voir STD	11,13	15,09	19,05	23,83	27,79	31,75	35,71	14		
Refer to STD	79,96	111,26	132,16	188,00	190,00	224,00	247,50			
	Voir E.F.	16,66	21,44	26,19	30,96	36,53	40,49	16		
	Refer to X.S.	161,17	204,30	260,00	274,00	323,00	367,00			

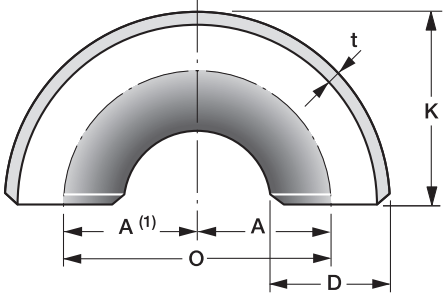


90° long radius elbows
ASME B 16.9–1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Centre-à-extrémité	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
inches / pouces	D – mm	B – mm	t W.T. / ép. mm				
			weight / masse kg				
18	457	686	9,52	12,70		6,35	7,92
			112,90	157,50		82,00	99,43
20	508	762	9,52	12,70		6,35	
			142,40	194,30		100,00	
22	559	838	9,52	12,70		6,35	
			178,00	236,00		120,00	
24	610	914	9,52	12,70		6,35	
			202,00	268,50		146,00	
26	660	991	9,52	12,70		7,92	
			270,00	348,00		208,00	
28	711	1067	9,52	12,70		7,92	
			300,00	404,00		242,00	
30	762	1143	9,52	12,70		7,92	
			333,00	441,00		278,00	
32	813	1219	9,52	12,70		7,92	
			390,00	510,00		316,00	
34	864	1295	9,52	12,70		7,92	
			430,00	560,00		357,00	
36	914	1372	9,52	12,70		7,92	
			482,00	625,00		400,00	
38	965	1448	9,53	12,70			
			540,00	710,00			
40	1016	1524	9,52	12,70			
			580,00	745,00			
42	1067	1600	9,52	12,70			
			655,00	840,00			
44	1118	1676	9,53	12,70			
			726,00	970,00			
46	1168	1753	9,53	12,70			
			816,00	1055,00			
48	1219	1829	9,52	12,70			
			885,00	1134,00			

Weights are approximate

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Diamètre Nominal Nominal Pipe Size (NPS)
t W.T. / ép. mm								pouces/inches
weight / masse kg								
11,13	14,27	19,05	23,83	29,36	34,93	39,67	45,24	18
139,83	177,06	231,54	287,84	390,00	405,00	422,00	545,00	
12,70	15,09	20,62	26,18	32,54	38,10	44,45	50,01	20
194,30	230,00	311,44	390,90	476,00	508,00	607,00	770,00	
12,70		22,22	28,58	34,92	41,27	47,62	53,97	22
250,20		412,70	523,40	638,00	700,00	850,00	1020,00	
14,27	17,48	24,61	30,96	38,89	46,02	52,37	59,54	24
318,70	384,00	533,90	667,40	820,00	954,00	1100,00	1270,00	
								26
15,88								28
478,00								
15,88								30
550,00								
15,88	17,48							32
627,00	689,00							
15,88	17,48							34
708,00	778,00							
15,88	19,05							36
795,00	951,00							
								38
								40
								42
								44
								46
								48



180° long radius returns

ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-center Entraxe	Back-to-face Hauteur	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
inches / pouces	D – mm	O – mm	K – mm	t W.T. / ép. mm				
				weight / masse kg				
1/2	21	76	48	2,77	3,73	7,47		
				0,16	0,35	**		
3/4	27	76 [2]	51 [2]	2,87	3,91	7,82		
				0,16	0,35	**		
1	33	76	56	3,38	4,55	9,09		
				0,31	0,40	0,69		
1 1/4	42	95	70	3,56	4,85	9,70		
				0,50	0,70	1,22		
1 1/2	48	114	83	3,68	5,08	10,16		
				0,73	1,20	1,80		
2	60	152	106	3,91	5,54	11,07		
				1,30	1,88	3,40		
2 1/2	73	191	132	5,16	7,01	14,02		
				2,57	3,40	6,40		
3	89	229	159	5,49	7,62	15,24		
				4,07	5,50	10,35		
3 1/2	102	267	184	5,74	8,08			
				5,74	7,90			
4	114	305	210	6,02	8,56	17,12		
				7,80	10,80	20,60		
5	141	381	262	6,55	9,52	19,05		
				13,00	17,70	36,23		
6	168	457	313	7,11	10,97	21,95		
				20,40	30,70	59,50		
8	219	610	414	8,18	12,70	22,23		6,35
				40,60	59,80	109,00		33,14
10	273	762	518	9,27	12,70	25,40		6,35
				74,00	97,20	194,00		51,58
12	324	914	619	9,52	12,70	25,40		6,35
				108,00	140,00	280,00		74,46
14	356	1067	711	9,52	12,70		6,35	7,92
				136,00	188,70		114,94	119,86

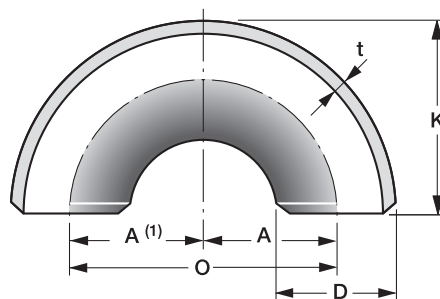
(1) Dimension «A» is equal to 1/2 of dimension «O».

(2) O and K dimensions for size NPS 3/4" may be O = 57 mm and K = 43 mm, at manufacturer's option.

** Weight on application.

Weights are approximate

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS) Diamètre Nominal
t W.T. / ép. mm weight / masse kg								inches / pouces
2,41	Voir STD		Voir E.F.				4,78	1/2
**							0,43	
2,41							5,56	3/4
**							0,43	
2,90							6,35	1
**							0,53	
2,97							6,35	1 1/4
**							0,88	
3,18							7,13	1 1/2
**							1,36	
3,18	Refer to STD		Refer to X.S.				8,74	2
**							3,00	
4,78							9,52	2 1/2
**							4,67	
4,78							11,13	3
**							8,03	
4,78								3 1/2
**								
4,78					11,13		13,50	4
**					13,90		17,00	
					12,70		15,87	5
					25,24		30,87	
					14,27		18,26	6
					39,26		54,00	
7,03		10,31		15,09	18,26	20,62	23,01	8
34,98		53,12		76,00	81,00	104,00	110,00	
7,80		Voir E.F.	15,09	18,26	21,44	25,40	28,57	10
62,62		Refer to X.S.	119,86	150,00	190,00	194,00	218,00	
8,38	10,31	14,27	17,48	21,44	25,40	28,57	33,32	12
92,12	116,30	165,25	198,85	246,00	280,00	314,00	360,00	
Voir STD	11,13	15,09	19,05	23,83	27,79	31,75	35,71	14
Refer to STD	159,93	222,46	270,00	376,00	380,00	448,00	495,00	



180° long radius returns

ASME B 16.9-1993

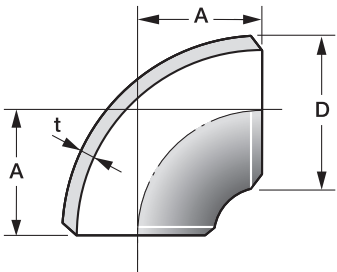
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(1) Dimension «A» is equal to 1/2 of dimension «0».

Weights are approximate

[illegible]

90° short radius elbows
ASME B 16.28-1994

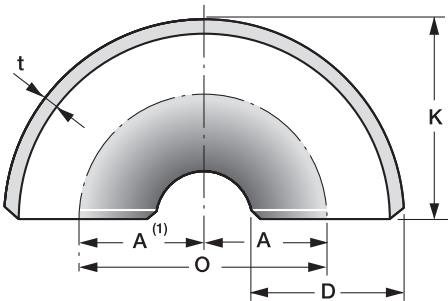


Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Centre-à-extrémité	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
inches / pouces	D – mm	A – mm	t W.T. / ép. mm				
			weight / masse kg				
1	33	25	3,38	4,55	9,09		
			0,10	0,13	0,23		
1 1/4	42	32	3,56	4,85	9,70		
			0,16	0,23	0,41		
1 1/2	48	38	3,68	5,08	10,16		
			0,24	0,30	0,60		
2	60	51	3,91	5,54	11,07		
			0,43	0,60	1,13		
2 1/2	73	64	5,16	7,01	14,02		
			0,82	1,15	2,03		
3	89	76	5,49	7,62	15,24		
			1,35	1,85	3,47		
3 1/2	102	89	5,74	8,08			
			1,90	2,60			
4	114	102	6,02	8,56	17,12		
			2,60	3,55	6,86		
5	141	127	6,55	9,52	19,05		
			4,35	6,20	12,02		
6	168	152	7,11	10,97	21,95		
			6,45	10,20	19,90		
8	219	203	8,18	12,70	22,23		6,35
			16,50	22,50	36,12		11,10
10	273	254	9,27	12,70	25,40		6,35
			31,15	31,15	64,94		17,35
12	324	305	9,52	12,70	25,40		6,35
			45,00	49,03	93,91		25,00
14	356	356	9,52	12,70		6,35	7,92
			52,50	63,11		30,50	39,50
16	406	406	9,52	12,70		6,35	7,92
			71,25	82,63		39,00	52,20
18	457	457	9,52	12,70		6,35	7,92
			90,00	104,87		48,50	65,35
20	508	508	9,52	12,70		6,35	
			110,00	129,54		67,50	
22	559	559	9,52	12,70		6,35	
			132,00	157,00		84,50	
24	610	610	9,52	12,70		6,35	
			165,00	188,41		96,50	

Weights are approximate.
** Weight on application.

Voir
STD
Refer to
STD

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Diamètre Nominal Nominal Pipe Size [NPS]	
t W.T. / ép. mm								pouces/inches	
weight / masse kg									
2,90 **	Voir STD		Voir E.F.				6,35	1	
2,97 **							0,18	1 1/4	
3,18 **							6,35	1 1/2	
3,18 **							0,29	2	
3,18 **							7,13	2 1/2	
4,78 **							0,45	3	
4,78 **							8,74	3 1/2	
4,78 **							0,93	4	
4,78 **							9,52	4 1/2	
4,78 **							1,56	5	
4,78 **	Refer to STD		Refer to X.S.				11,13	6	
4,78 **							2,68	7	
								3 1/2	
						11,13		13,50	4
						4,72		5,62	5
						12,70		15,87	6
						8,44		10,28	7
						14,27		18,26	8
						13,62		16,97	9
7,03		10,31		15,09	18,26	20,62	23,01	10	
12,26		17,75		26,40	30,00	32,00	37,00	12	
7,80		Voir E.F.	15,09	18,26	21,44	25,40	28,57	14	
21,25		Refer to X.S.	40,00	50,00	53,00	62,00	72,00	16	
8,38	10,31	14,22	17,48	21,44	25,40	28,57	33,32	18	
32,78	40,00	54,93	66,28	81,00	92,00	99,00	120,00	20	
Voir STD	11,12	15,09	19,05	23,83	27,79	31,75	35,71	22	
Refer to STD	55,39	74,00	93,07	120,00	124,00	139,00	165,00	24	
	Voir E.F.	16,66	21,44	26,19	30,96	36,53	40,49	26	
	Refer to X.S.	107,14	136,20	166,00	171,50	198,00	245,00	28	
11,13	14,27	19,05	23,83	29,36	34,92	39,67	45,24	30	
93,07	117,59	154,36	191,60	257,00	283,00	387,00	346,00	32	
12,70	15,09	20,62	26,18	32,54	38,10	44,45	50,01	34	
129,84	153,45	207,48	260,14	332,00	376,00	430,00	478,00	36	
12,70		22,22	28,58	34,92	41,27	47,62	53,97	38	
171,50		281,50	350,50	430,00	497,00	555,00	627,00	40	
14,27	17,48	24,61	30,96	38,89	46,02	52,37	59,54	42	
213,38	256,00	355,48	443,55	530,00	621,00	680,00	835,00	44	



180° short radius returns

ASME B 16.28-1994

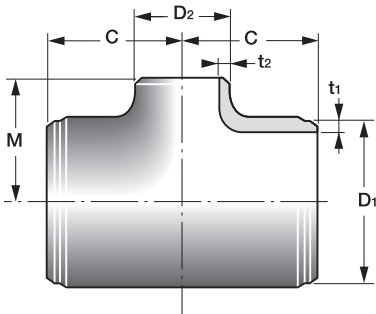
Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-center Entraxe	Back-to-face Hauteur	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
inches / pouces	D – mm	O – mm	K – mm	t W.T. / ép. mm				
				weight / masse kg				
1	33	51	41	3,38	4,55	9,09		
				0,20	0,27	0,46		
1 1/4	42	64	52	3,56	4,85	9,70		
				0,33	0,50	0,82		
1 1/2	48	76	62	3,68	5,08	10,16		
				0,48	0,60	1,20		
2	60	102	81	3,91	5,54	11,07		
				0,86	1,20	2,26		
2 1/2	73	127	100	5,16	7,01	14,02		
				1,64	2,30	4,06		
3	89	152	121	5,49	7,62	15,24		
				2,70	3,70	6,94		
3 1/2	102	178	140	5,74	8,08			
				3,80	5,20			
4	114	203	159	6,02	8,56	17,12		
				5,20	7,10	13,72		
5	141	254	197	6,55	9,52	19,05		
				8,70	12,40	24,00		
6	168	305	237	7,11	10,97	21,95		
				12,90	20,40	40,00		
8	219	406	313	8,18	12,70	22,23		6,35
				33,00	45,00	72,00		22,25
10	273	508	391	9,27	12,70	25,40		6,35
				62,30	62,30	130,00		34,70
12	324	610	467	9,52	12,70	25,40		6,35
				90,00	98,06	188,00		50,00
14	356	711	533	9,52	12,70		6,35	7,92
				106,00	126,21		60,00	79,00
16	406	813	610	9,52	12,70		6,35	7,92
				142,50	165,26		79,35	104,45
18	457	914	686	9,52	12,70		6,35	7,92
				180,00	209,75		97,50	130,75
20	508	1016	762	9,52	12,70		6,35	
				219,00	259,70		130,00	
22	559	1118	838	9,52	12,70		6,35	
				264,00	314,00		160,00	
24	610	1219	914	9,52	12,70		6,35	
				330,00	376,82		192,00	

(1) Dimension «A» is equal to 1/2 of dimension «O».

** Weight on application.

Weights are approximate.

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS) Diamètre Nominal
t W.T. / ép. mm weight / masse kg								inches / pouces
2,90	Voir STD		Voir E.F.				6,35	1
**							0,36	
2,97							6,35	1 1/4
**							0,58	
3,18							7,13	1 1/2
**							0,90	
3,18							8,74	2
**							1,86	
4,78							9,52	2 1/2
**							3,12	
4,78	Refer to STD		Refer to X.S.				11,13	3
**							5,36	
4,78								3 1/2
**								
4,78					11,13		13,50	4
**					9,45		11,24	
					12,70		15,87	5
					18,00		20,56	
					14,27		18,26	6
					27,00		33,94	
7,03		10,31		15,09	18,26	20,62	23,01	8
24,51		35,10		52,65	58,00	64,00	75,00	
7,80		Voir E.F.	15,09	18,26	21,44	25,40	28,57	10
42,38		Refer to X.S.	81,00	100,00	106,00	124,00	144,00	
8,38	10,31	14,27	17,48	21,44	25,40	28,57	33,32	12
65,83	79,20	108,90	136,00	162,00	184,00	198,00	240,00	
Voir STD	11,12	15,09	19,05	23,83	27,79	31,75	35,71	14
	109,80	146,70	187,00	240,00	248,00	276,00	330,00	
Refer to STD	Voir E.F.	16,66	21,44	26,19	30,96	36,53	40,49	16
	Refer to X.S.	212,40	276,00	332,00	343,00	396,00	490,00	
11,13	14,27	19,05	23,83	29,36	34,92	39,67	45,24	18
186,14	233,10	306,00	386,00	515,00	566,00	774,00	693,00	
12,70	15,09	20,62	26,18	32,54	38,10	44,45	50,01	20
259,68	304,20	411,30	522,00	664,00	752,00	860,00	957,00	
12,70		22,22	28,58	34,92	41,27	47,62	53,97	22
348,00		563,00	676,00	840,00	984,00	1110,00	12,55	
14,27	17,48	24,61	30,96	38,89	46,02	52,37	59,54	24
426,76	507,60	704,70	887,00	1060,00	1242,00	1360,00	1669,00	



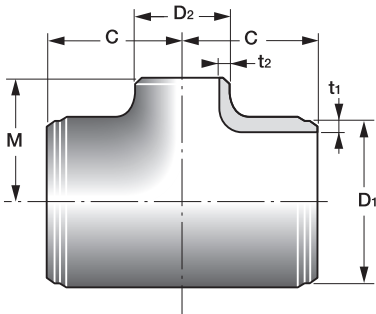
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ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Encombrement		STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
inches / pouces	D – mm	C – mm	M – mm	t W.T. / ép. mm weight / masse kg				
1/2	21	25	25	2,77	3,73	7,47		
				0,16	0,25	**		
3/4	27	29	29	2,87	3,91	7,82		
				0,20	0,27	0,38		
1	33	38	38	3,38	4,55	9,09		
				0,29	0,35	0,58		
1 1/4	42	48	48	3,56	4,85	9,70		
				0,53	0,65	1,05		
1 1/2	48	57	57	3,68	5,08	10,16		
				0,77	0,96	1,56		
2	60	64	64	3,91	5,54	11,07		
				1,88	1,90	2,69		
2 1/2	73	76	76	5,16	7,01	14,02		
				2,69	3,07	4,54		
3	89	86	86	5,49	7,62	15,24		
				3,82	4,50	7,63		
3 1/2	102	95	95	5,74	8,08			
				5,18	6,17			
4	114	105	105	6,02	8,56	17,12		
				6,00	8,44	17,00		
5	141	124	124	6,55	9,52	19,05		
				9,94	12,94	25,00		
6	168	143	143	7,11	10,97	21,95		
				16,48	19,30	39,00		
8	219	178	178	8,18	12,70	22,23		6,35
				33,00	34,50	69,00		29,00
10	273	216	216	9,27	12,70	25,40		6,35
				49,35	58,57	98,00		34,70
12	324	254	254	9,52	12,70	25,40		6,35
				65,00	84,90	150,00		59,00
14	356	279	279	9,52	12,70		6,35	7,92
				93,00	127,12		87,16	90,00
16	406	305	305	9,52	12,70		6,35	7,92
				115,00	167,52		90,80	100,00

Weights are approximate.
** Weight on application.

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS) Diamètre Nominal
t W.T. / ép. mm weight / masse kg								inches / pouces
2,41	Voir STD		Voir E.F.				4,78	1/2
**							0,28	
2,41							5,56	3/4
**							0,29	
2,90							6,35	1
**							0,45	
2,97							6,35	1 1/4
**							0,77	
3,18							7,13	1 1/2
**							1,21	
3,18							8,74	2
**							2,25	
4,78							9,52	2 1/2
**							3,42	
4,78							11,13	3
**							6,21	
4,78	Refer to STD		Refer to X.S.					3 1/2
**								
4,78					11,13		13,50	4
**					9,00		15,53	
					12,70		15,87	5
					18,00		23,93	
					14,27		18,26	6
					24,00		38,59	
7,03		10,31		15,09	18,26	20,62	23,01	8
31,00		34,50		43,65	50,00	54,00	71,00	
7,80		12,70	15,09	18,26	21,44	25,40	28,57	10
36,77		58,57	68,00	74,00	93,00	99,00	120,00	
8,38	10,31	14,27	17,48	21,44	25,40	28,57	33,32	12
61,74	70,50	102,60	115,00	136,00	150,00	177,00	184,00	
Voir STD	11,13	15,09	19,05	23,83	27,79	31,75	35,71	14
Refer to STD	Voir E.F.	16,66	21,44	26,19	30,96	36,53	40,49	
	Refer to X.S.	207,93	249,00	305,00	330,00	385,00	425,00	16

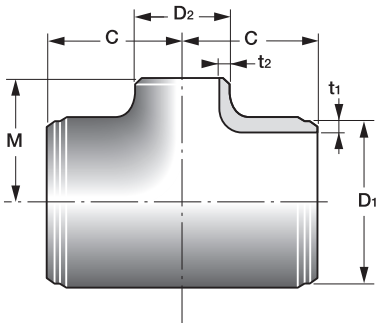


straight tees
ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Encombrement		STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
inches / pouces	D – mm	C – mm	M* – mm	t W.T. / ép. mm weight / masse kg				
18	457	343	343	9,52	12,70		6,35	7,92
				135,00	190,00		94,50	127,12
20	508	381	381	9,52	12,70		6,35	Voir STD Refer to STD
				168,00	245,00		120,00	
22	559	419	419	9,52	12,70		6,35	
				200,00	280,00		143,00	
24	610	432	432	9,52	12,70		6,35	
				240,00	350,00		170,00	
26	660	495	495	9,52	12,70		7,92	Voir E.F. Refer to X.S.
				288,00	360,50		240,00	
28	711	521	521	9,52	12,70		7,92	
				337,00	421,00		280,00	
30	762	559	559	9,52	12,70		7,92	
				388,50	483,50		322,00	
32	813	597	597	9,52	12,70		7,92	
				451,00	559,00		375,00	
34	864	635	635	9,52	12,70		7,92	
				516,00	645,00		429,00	
36	914	673	673	9,52	12,70		7,92	
				587,50	731,00		488,00	
38	965	711	711	9,52	12,70			
				638,00	812,00			
40	1016	749	749	9,52	12,70			
				690,00	894,50			
42	1067	762	711	9,52	12,70			
				831,00	1045,00			
44	1118	813	762	9,52	12,70			
				899,00	1194,00			
46	1168	851	800	9,52	12,70			
				1007,00	1346,00			
48	1219	889	838	9,52	12,70			
				1112,50	1498,50			

* Outlet dimension M for NPS ≥ 26" is recommended, but not required
Weights are approximate.

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS) Diamètre Nominal
t W.T. / ép. mm								inches / pouces
weight / masse kg								
11,13	14,27	19,05	23,83	29,36	34,93	39,67	45,24	18
181,14	238,35	277,85	322,00	380,00	450,00	500,00	590,00	20
12,70	15,09	20,62	26,18	32,54	38,10	44,45	50,01	22
265,00	320,52	378,64	459,05	540,00	590,00	720,00	790,00	24
12,70		22,22	28,58	34,92	41,27	47,62	53,97	26
355,00		510,00	600,00	725,00	840,00	950,00	1100,00	28
14,27	17,48	24,61	30,96	38,89	46,02	52,37	59,54	30
443,55	570,68	656,48	748,00	910,00	1100,00	1180,00	1310,00	32
								34
								36
15,88								38
526,00								40
15,88								42
604,00								44
15,88	17,48							46
699,00	769,00							48
15,88	17,48							50
805,00	886,00							54
15,88	19,05							56
913,00	1004,00							60
								66
								72
								78
								84
								90
								96
								102
								108
								114
								120



reducing outlet tees

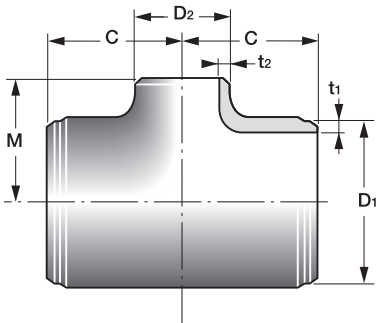
ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M – mm		STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
				t ₁ W.T. / ép. mm				
				t ₂ W.T. / ép. mm				
				weight / masse kg				
1/2 x 3/8	21	25	25	2,77	3,73			
	17			2,31	3,20			
				0,16	0,25			
1/2 x 1/4	21	25	25	2,77	3,73			
	14			2,24	3,03			
				0,16	0,25			
3/4 x 1/2	27	29	29	2,87	3,91	7,82		
	21			2,77	3,73	7,47		
				0,25	0,34	0,40		
3/4 x 3/8	27	29	29	2,87	3,91			
	17			2,31	3,20			
				0,25	0,34			
1 x 3/4	33	38	38	3,38	4,55	9,09		
	27			2,87	3,91	7,82		
				0,35	0,40	0,57		
1 x 1/2	33	38	38	3,38	4,55	9,09		
	21			2,77	3,73	7,47		
				0,34	0,40	0,55		
1 1/4 x 1	42	48	48	3,56	4,85	9,70		
	33			3,38	4,55	9,09		
				0,60	0,60	1,09		
1 1/4 x 3/4	42	48	48	3,56	4,85	9,70		
	27			2,87	3,91	7,82		
				0,60	0,59	1,02		
1 1/4 x 1/2	42	48	48	3,56	4,85	9,70		
	21			2,77	3,73	7,47		
				0,60	0,58	1,00		
1 1/2 x 1 1/4	48	57	57	3,68	5,08	10,16		
	42			3,56	4,85	9,70		
				0,80	0,99	1,62		
1 1/2 x 1	48	57	57	3,68	5,08	10,16		
	33			3,38	4,55	9,09		
				0,73	0,96	1,55		

Weights are approximate.

** Weight on application.

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS)
t ₁ W.T. / ép. mm								Diamètre Nominal
t ₂ W.T. / ép. mm								
weight / masse kg								inches / pouces
2,41	Voir STD Refer to STD		Voir E.F. Refer to X.S.					1/2 x 3/8
1,85								
**								1/2 x 1/4
2,41								
1,85								
**								3/4 x 1/2
2,41							5,56	
2,41							4,78	
**							0,27	
2,41								3/4 x 3/8
1,85								
**								
2,90							6,35	1 x 3/4
2,41							5,56	
**							0,46	
2,90							6,35	1 x 1/2
2,41							4,78	
**							0,44	
2,97							6,35	1 1/4 x 1
2,90							6,35	
**							0,80	
2,97							6,35	1 1/4 x 3/4
2,41							5,56	
**							0,78	
2,97							6,35	1 1/4 x 1/2
2,41							4,78	
**							0,76	
3,18							7,13	1 1/2 x 1 1/4
2,97							6,35	
**							1,25	
3,18							7,13	1 1/2 x 1
2,90							6,35	
**							1,25	



reducing outlet tees

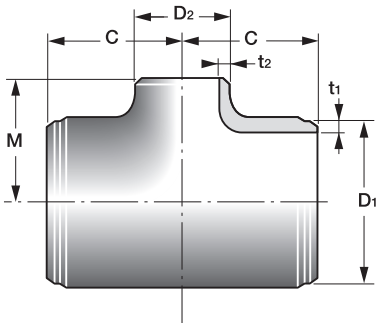
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Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M – mm		STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
				t ₁ W.T. / ép. mm				
				t ₂ W.T. / ép. mm				
				weight / masse kg				
1 1/2 x 3/4	48	57	57	3,68	5,08	10,16		
	27			2,87	3,91	7,82		
				0,73	0,94	1,50		
1 1/2 x 1/2	48	57	57	3,68	5,08	10,16		
	21			2,77	3,73	7,47		
				1,35	1,50	2,54		
2 x 1 1/2	60	64	60	3,91	5,54	11,07		
	48			3,68	5,08	10,16		
				1,50	2,05	2,73		
2 x 1 1/4	60	64	57	3,91	5,54	11,07		
	42			3,56	4,85	9,70		
				1,46	2,05	2,71		
2 x 1	60	64	51	3,91	5,54	11,07		
	33			3,38	4,55	9,09		
				1,31	2,05	2,65		
2 x 3/4	60	64	44	3,91	5,54	11,07		
	27			2,87	3,91	7,82		
				1,29	2,05	2,52		
2 1/2 x 2	73	76	70	5,16	7,01	14,02		
	60			3,91	5,54	11,07		
				2,08	3,37	4,58		
2 1/2 x 1 1/2	73	76	67	5,16	7,01	14,02		
	48			3,68	5,08	10,16		
				2,04	3,37	4,49		
2 1/2 x 1 1/4	73	76	64	5,16	7,01	14,02		
	42			3,56	4,85	9,70		
				1,99	3,37	4,46		
2 1/2 x 1	73	76	57	5,16	7,01	14,02		
	33			3,38	4,55	9,09		
				1,96	3,37	4,27		

Weights are approximate.

** Weight on application.

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS)
t ₁ W.T. / ép. mm								Diamètre Nominal
t ₂ W.T. / ép. mm								
weight / masse kg								inches / pouces
3,18	Refer to STD		Refer to X.S.				7,13	1 1/2 x 3/4
2,41							5,56	
**							1,19	1 1/2 x 1/2
3,18							7,13	
2,41							4,78	
**							1,25	2 x 1 1/2
3,18							8,74	
3,18							7,13	
**							2,27	2 x 1 1/4
3,18							8,74	
2,97							6,35	
**							2,23	2 x 1
3,18							8,74	
2,90							6,35	
**							2,19	2 x 3/4
3,18							8,74	
2,41							5,56	2 1/2 x 2
**							2,16	
4,78							9,52	2 1/2 x 1 1/2
3,18							8,74	
**							3,45	2 1/2 x 1 1/4
4,78							9,52	
3,18							7,13	
**							3,35	2 1/2 x 1
4,78							9,52	
2,97							6,35	
**							3,30	
4,78							9,52	
2,90							6,35	
**							3,27	



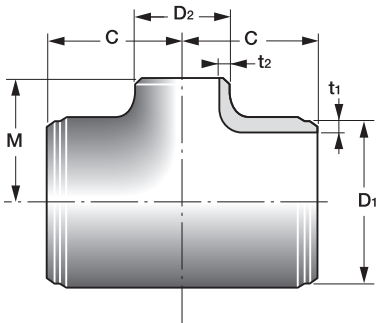
reducing outlet tees

ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M – mm		STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
				t ₁ W.T. / ép. mm				
				t ₂ W.T. / ép. mm				
				weight / masse kg				
3 x 2 1/2	89	86	83	5,49	7,62	15,24		
	73			5,16	7,01	14,02		
				3,00	4,25	7,70		
3 x 2	89	86	76	5,49	7,62	15,24		
	60			3,91	5,54	11,07		
				2,90	4,25	7,50		
3 x 1 1/2	89	86	73	5,49	7,62	15,24		
	48			3,68	5,08	10,16		
				2,88	4,25	7,50		
3 x 1 1/4	89	86	70	5,49	7,62	15,24		
	42			3,56	4,85	9,70		
				2,88	4,25	7,40		
3 1/2 x 3	102	95	92	5,74	8,08			
	89			5,49	7,62			
				4,09	6,52			
3 1/2 x 2 1/2	102	95	89	5,74	8,08			
	73			5,16	7,01			
				3,99	6,52			
3 1/2 x 2	102	95	83	5,74	8,08			
	60			3,91	5,54			
				3,85	6,52			
3 1/2 x 1 1/2	102	95	79	5,74	8,08			
	48			3,68	5,08			
				3,85	6,52			
4 x 3 1/2	114	105	102	6,02	8,56			
	102			5,74	8,08			
				5,27	7,50			
4 x 3	114	105	98	6,02	8,56	17,12		
	89			5,49	7,62	15,24		
				5,18	7,50	17,00		

Weights are approximate.

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS)
t ₁ W.T. / ép. mm								Diamètre Nominal
t ₂ W.T. / ép. mm								
weight / masse kg								inches / pouces
Voir STD Refer to STD			Voir E.F. Refer to X.S.				11,13	3 x 2 1/2
							9,52	
							5,60	
							11,13	3 x 2
							8,74	
							5,50	
							11,13	3 x 1 1/2
							7,13	
							5,50	
							11,13	3 x 1 1/4
							6,35	
							5,40	
								3 1/2 x 3
								3 1/2 x 2 1/2
								3 1/2 x 2
								3 1/2 x 1 1/2
								4 x 3 1/2
							13,50	
							11,13	4 x 3
							15,90	



reducing outlet tees

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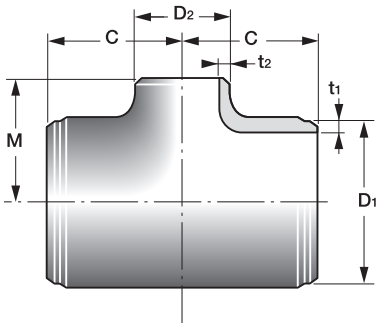
Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M – mm		STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
				t ₁ W.T. / ép. mm				
				t ₂ W.T. / ép. mm				
				weight / masse kg				
4 x 2 1/2	114	105	95	6,02	8,56	17,12		
	73			5,16	7,01	14,02		
				5,13	7,50	17,00		
4 x 2	114	105	89	6,02	8,56	17,12		
	60			3,91	5,54	11,07		
				4,99	7,50	17,00		
4 x 1 1/2	114	105	86	6,02	8,56	17,12		
	48			3,68	5,08	10,16		
				4,95	7,50	17,00		
5 x 4	141	124	117	6,55	9,52	19,05		
	114			6,02	8,56	17,12		
				8,22	12,10	26,20		
5 x 3 1/2	141	124	114	6,55	9,52			
	102			5,74	8,08			
				8,08	12,10			
5 x 3	141	124	111	6,55	9,52	19,05		
	89			5,49	7,62	15,24		
				7,99	12,10	26,20		
5 x 2 1/2	141	124	108	6,55	9,52	19,05		
	73			5,16	7,01	14,02		
				7,90	12,10	22,20		
5 x 2	141	124	105	6,55	9,52	19,05		
	60			3,91	5,54	11,07		
				7,81	12,10	22,20		
6 x 5	168	143	137	7,11	10,97	21,95		
	141			6,55	9,52	19,05		
				16,00	18,00	38,00		
6 x 4	168	143	130	7,11	10,97	21,95		
	114			6,02	8,56	17,12		
				16,00	18,00	29,00		

Weights are approximate.

tés réduits
ASME B 16.9–1993

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS)
t ₁ W.T. / ép. mm								Diamètre Nominal
t ₂ W.T. / ép. mm								
weight / masse kg								inches / pouces
Voir STD Refer to STD			Voir E.F. Refer to X.S.				13,50	4 x 2 1/2
							9,52	
							15,50	
							13,50	4 x 2
							8,74	
							15,50	
							13,50	4 x 1 1/2
							7,13	
							15,50	
					12,70		15,87	5 x 4
					11,13		13,50	
					18,10		23,00	
								5 x 3 1/2
							15,87	5 x 3
							11,13	
							23,00	
							15,87	5 x 2 1/2
							9,52	
							23,00	
							15,87	5 x 2
							8,74	
							23,00	
					14,27		18,26	6 x 5
					12,70		15,87	
					29,00		30,00	
					14,27		18,26	6 x 4
					11,13		13,50	
					29,00		30,00	

Les masses indiquées sont approximatives.



reducing outlet tees

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Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M – mm		STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
				t ₁ W.T. / ép. mm				
				t ₂ W.T. / ép. mm				
				weight / masse kg				
6 x 3 1/2	168	143	127	7,11	10,97	21,95		
	102			5,74	8,08	16,15		
				16,00	18,00	29,00		
6 x 3	168	143	124	7,11	10,97	21,95		
	89			5,49	7,62	15,24		
				16,00	18,00	29,00		
6 x 2 1/2	168	143	121	7,11	10,97	21,95		
	73			5,16	7,01	14,02		
				16,00	18,00	29,00		
8 x 6	219	178	168	8,18	12,70	22,23		
	168			7,11	10,97	21,95		
				28,00	34,00	51,00		
8 x 5	219	178	162	8,18	12,70	22,23		
	141			6,55	9,52	19,05		
				28,00	34,00	51,00		
8 x 4	219	178	156	8,18	12,70	22,23		
	114			6,02	8,56	17,12		
				28,00	34,00	51,00		
8 x 3 1/2	219	178	152	8,18	12,70			
	102			5,74	8,08			
				28,00	34,00			
10 x 8	273	216	203	9,27	12,70	25,40		6,35
	219			8,18	12,70	22,23		6,35
				41,00	58,00	99,00		29,00
10 x 6	273	216	194	9,27	12,70	25,40		
	168			7,11	10,97	21,95		
				41,00	52,00	91,00		
10 x 5	273	216	191	9,27	12,70	25,40		
	141			6,55	9,52	19,05		
				41,00	52,00	80,00		
10 x 4	273	216	184	9,27	12,70	25,40		
	114			6,02	8,56	17,12		
				41,00	52,00	80,00		

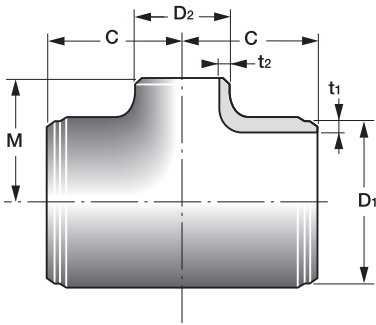
Weights are approximate.

tés réduits

ASME B 16.9–1993

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS)
t ₁ W.T. / ép. mm								Diamètre Nominal
t ₂ W.T. / ép. mm								
weight / masse kg								inches / pouces
Voir STD Refer to STD			Voir E.F. Refer to X.S.					6 x 3 1/2
								6 x 3
							18,26	6 x 2 1/2
							11,13	
							30,00	
							18,26	
							9,52	
							29,00	
					18,23		23,01	8 x 6
					14,27		18,26	
					52,00		52,00	8 x 5
					18,26		23,01	
					12,70		25,87	8 x 4
					44,00		52,00	
					18,26		23,01	8 x 3 1/2
					11,13		13,50	
					44,00		49,00	
6,35		12,70	15,09	18,26	21,44	25,40	28,57	10 x 8
6,35		10,31	12,70	15,09	18,26	20,62	23,01	10 x 6
29,00		53,00	71,00	73,00	89,00	99,00	109,00	10 x 5
			15,09		21,44		28,57	
			10,97		14,27		18,26	
			54,00		82,00		101,00	
			15,09		21,44		28,57	
			9,52		12,70		15,87	
			53,00		71,00		89,00	
			15,09		21,44		28,57	
			8,56		11,13		13,50	
			53,00		71,00		85,00	10 x 4

Les masses indiquées sont approximatives.



reducing outlet tees

ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M* – mm		STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
				t ₁ W.T. / ép. mm				
				t ₂ W.T. / ép. mm				
				weight / masse kg				
12 x 10	324	254	241	9,52	12,70	25,40		6,35
	273			9,27	12,70	25,40		6,35
				63,00	85,00	150,00		43,00
12 x 8	324	254	229	9,52	12,70	25,40		6,35
	219			8,18	12,70	22,23		6,35
				63,00	82,00	129,00		41,00
12 x 6	324	254	219	9,52	12,70	25,40		
	168			7,11	10,97	21,95		
				63,00	82,00	120,00		
12 x 5	324	254	216	9,52	12,70	25,40		
	141			6,55	9,52	19,05		
				63,00	82,00	120,00		
14 x 12	356	279	270	9,52	12,70			7,92
	324			9,52	12,70			6,35
				111,00	127,00			95,00
14 x 10	356	279	257	9,52	12,70			7,92
	273			9,27	12,70			6,35
				107,00	127,00			90,00
14 x 8	356	279	248	9,52	12,70			7,92
	219			8,18	12,70			6,35
				107,00	122,00			90,00
14 x 6	356	279	238	9,52	12,70			
	168			7,11	10,97			
				107,00	122,00			
16 x 14	406	305	305	9,52	12,70		6,35	7,92
	356			9,52	12,70		6,35	7,92
				119,00	167,00		84,00	100,00
16 x 12	406	305	295	9,52	12,70			7,92
	324			9,52	12,70			6,35
				119,00	167,00			100,00

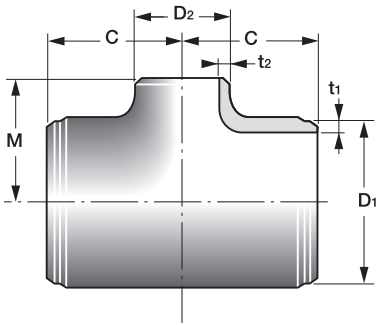
* Outlet dimension M for NPS ≥ 14" is recommended, but not required
Weights are approximate.

tés réduits

ASME B 16.9-1993

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

* L'encombrement M pour NPS ≥ 14" est recommandé, mais non imposé
Les masses indiquées sont approximatives.



reducing outlet tees

ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M* – mm		STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
				t ₁ W.T. / ép. mm				
				t ₂ W.T. / ép. mm				
				weight / masse kg				
16 x 10	406	305	283	9,52	12,70			7,92
	273			9,27	12,70			6,35
				116,00	160,00			98,00
16 x 8	406	305	273	9,52	12,70			7,92
	219			8,18	12,70			6,35
				116,00	160			98,00
16 x 6	406	305	264	9,52	12,70			
	168			7,11	10,97			
				116,00	160			
18 x 16	457	343	330	9,52	12,70		6,35	7,92
	406			9,52	12,70		6,35	7,92
				135,00	190,00		105,00	127,00
18 x 14	457	343	330	9,52	12,70		6,35	7,92
	356			9,52	12,70		6,35	7,92
				135,00	190,00		105,00	127,00
18 x 12	457	343	321	9,52	12,70			7,92
	324			9,52	12,70			6,35
				135,00	164,00			127,00
18 x 10	457	343	308	9,52	12,70			7,92
	273			9,27	12,70			6,35
				129,00	164,00			123,00
18 x 8	457	343	298	9,52	12,70			7,92
	219			8,18	12,70			6,35
				129,00	154,00			123,00
20 x 18	508	381	368	9,52	12,70		6,35	9,52
	457			9,52	12,70		6,35	7,92
				168,00	218,00		112,00	168,00
20 x 16	508	381	356	9,52	12,70		6,35	9,52
	406			9,52	12,70		6,35	7,92
				168,00	218,00		112,00	168,00

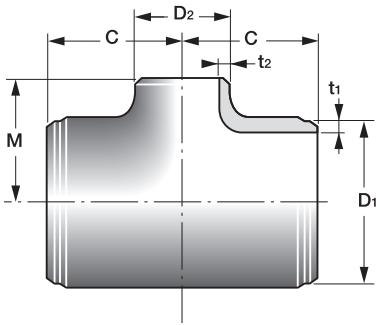
* Outlet dimension M for NPS ≥ 14" is recommended, but not required
Weights are approximate.

tés réduits

ASME B 16.9-1993

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

* L'encombrement M pour NPS ≥ 14" est recommandé, mais non imposé
Les masses indiquées sont approximatives.



reducing outlet tees

ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M* – mm		STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
				t ₁ W.T. / ép. mm				
				t ₂ W.T. / ép. mm				
				weight / masse kg				
20 x 14	508	381	356	9,52	12,70		6,35	9,52
	356			9,52	12,70		6,35	7,92
				163,00	214,00		110,00	164,00
20 x 12	508	381	346	9,52	12,70			9,52
	324			9,52	12,70			6,35
				163,00	214,00			164,00
20 x 10	508	381	333	9,52	12,70			9,52
	273			9,27	12,70			6,35
				163,00	214,00			164,00
20 x 8	508	381	324	9,52	12,70			9,52
	219			8,18	12,70			6,35
				163,00	214,00			164,00
22 x 20	559	419	406	9,52	12,70		6,35	9,52
	508			9,52	12,70		6,35	9,52
				220,00	280,00		210,00	220,00
22 x 18	559	419	394	9,52	12,70		6,35	9,52
	457			9,52	12,70		6,35	7,92
				209,00	260,00		190,00	209,00
22 x 16	559	419	381	9,52	12,70		6,35	9,52
	400			9,52	12,70		6,35	7,92
				209,00	260,00		190,00	209,00
22 x 14	559	419	381	9,52	12,70		6,35	9,52
	356			9,52	12,70		6,35	7,92
				172,00	245,00		160,00	173,00
22 x 12	559	419	371	9,52	12,70			9,52
	324			9,52	12,70			6,35
				172,00	245,00			173,00
22 x 10	559	419	359	9,52	12,70			9,52
	273			9,27	12,70			6,35
				172,00	245,00			173,00

* Outlet dimension M for NPS ≥ 14" is recommended, but not required
Weights are approximate.

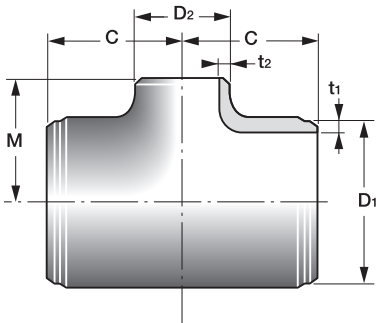
tés réduits

ASME B 16.9-1993

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS)
t ₁ W.T. / ép. mm								Diamètre Nominal
t ₂ W.T. / ép. mm								
weight / masse kg								inches / pouces
12,70	15,09	20,62	26,18	32,54	38,10	44,45	50,01	20 x 14
9,52	11,12	15,09	19,05	23,83	27,79	31,75	35,71	
214,00	224,00	293,00	324,00	470,00	530,00	590,00	725,00	20 x 12
12,70	15,09	20,62	26,18	32,54	38,10	44,45	50,01	
8,38	10,31	14,27	17,48	21,44	25,40	28,57	33,32	20 x 10
214,00	224,00	293,00	324,00	450,00	500,00	540,00	700,00	
12,70	15,09	20,62	26,18	32,54	38,10	44,45	50,01	20 x 8
7,80	9,27	12,70	15,09	18,26	21,44	25,40	28,57	
214,00	220,00	286,00	293,00	420,00	475,00	500,00	680,00	22 x 20
12,70	15,09	20,62	26,18	32,54	38,10	44,45	50,01	
7,03	8,18	10,31	12,70	15,09	18,26	20,62	23,01	22 x 18
214,00	220,00	224,00	228,00	390,00	430,00	450,00	660,00	
12,70		22,22	28,58	34,92	41,27	47,62	53,97	22 x 16
12,70		20,62	26,18	32,54	38,10	44,45	50,01	
280,00		445,00	513,00	725,00	820,00	910,00	1020,00	22 x 14
12,70		22,22	28,58	34,92	41,27	47,62	53,97	
11,12		19,05	23,83	29,36	34,93	39,67	45,24	22 x 12
260,00		390,00	415,00	642,00	780,00	840,00	965,00	
12,70		22,22	28,58	34,92	41,27	47,62	53,97	22 x 10
9,52		16,66	21,44	26,19	30,96	36,53	40,49	
260,00		390,00	415,00	642,00	780,00	840,00	965,00	22 x 8
12,70		22,22	28,58	34,92	41,27	47,62	53,97	
9,52		15,09	19,05	23,83	27,79	31,75	35,71	22 x 6
245,00		337,00	374,00	525,00	695,00	725,00	860,00	
12,70		22,22	28,58	34,92	41,27	47,62	53,97	22 x 4
8,38		14,27	17,48	21,44	25,40	28,57	33,32	
245,00		337,00	374,00	525,00	695,00	725,00	860,00	22 x 2
12,70		22,22	28,58	34,92	41,27	47,62	53,97	
7,80		12,70	15,09	18,26	21,44	25,40	28,57	22 x 1
245,00		337,00	374,00	525,00	695,00	725,00	860,00	

* L'encombrement M pour NPS ≥ 14" est recommandé, mais non imposé

Les masses indiquées sont approximatives.



reducing outlet tees

ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M* – mm		STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
				t ₁ W.T. / ép. mm				
				t ₂ W.T. / ép. mm				
				weight / masse kg				
24 x 22	610	432	432	9,52	12,70		6,35	Voir STD
	559			9,52	12,70		6,35	
				227,00	350,00		151,00	
24 x 20	610	432	432	9,52	12,70		6,35	Refer to STD
	508			9,52	12,70		6,35	
				227,00	350,00		151,00	
24 x 18	610	432	419	9,52	12,70		6,35	9,52
	457			9,52	12,70		6,35	7,92
				227,00	320,00		151,00	227,00
24 x 16	610	432	406	9,52	12,70		6,35	9,52
	406			9,52	12,70		6,35	7,92
				222,00	320,00		150,00	222,00
24 x 14	610	432	406	9,52	12,70		6,35	9,52
	356			9,52	12,70		6,35	7,92
				222,00	300,00		150,00	222,00
24 x 12	610	432	397	9,52	12,70			9,52
	324			9,52	12,70			6,35
				218,00	300,00			218,00
24 x 10	610	432	384	9,52	12,70			9,52
	273			9,27	12,70			6,35
				204,00	300,00			204,00

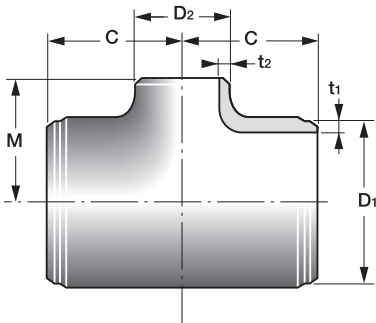
* Outlet dimension M for NPS ≥ 14" is recommended, but not required
Weights are approximate.

tés réduits

ASME B 16.9-1993

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

* L'encombrement M pour NPS ≥ 14" est recommandé, mais non imposé
Les masses indiquées sont approximatives.



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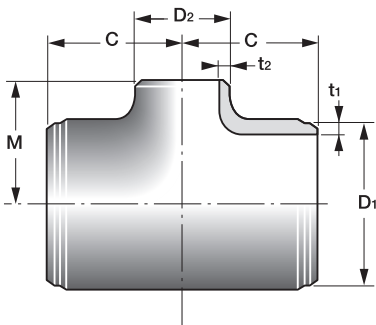
Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Encombrement		STD	E.F. X.S.	SCH 10	SCH 20	SCH 30
				t ₁ W.T. / ép. mm				
				t ₂ W.T. / ép. mm				
				weight / masse kg				
inches / pouces	D – mm	C – mm	M* – mm					
26 x 24	660	495	483	9,52	12,70	7,92	12,70	
	610			9,52	12,70	6,35	9,52	
				280,00	350,00	234,00	350,00	
26 x 22	660	495	470	9,52	12,70	7,92	12,70	
	559			9,52	12,70	6,35	9,52	
				272,00	340,00	234,00	340,00	
26 x 20	660	495	457	9,52	12,70	7,92	12,70	
	508			9,52	12,70	6,35	9,52	
				264,00	330,00	219,00	330,00	
26 x 18	660	495	444	9,52	12,70	7,92	12,70	
	457			9,52	12,70	6,35	7,92	
				255,00	323,00	212,00	320,00	
26 x 16	660	495	432	9,52	12,70	7,92	12,70	
	406			9,52	12,70	6,35	7,92	
				247,00	309,00	205,00	309,00	
26 x 14	660	495	432	9,52	12,70	7,92	12,70	
	356			9,52	12,70	6,35	7,92	
				239,00	300,00	199,00	300,00	
26 x 12	660	495	422	9,52	12,70		12,70	
	324			9,52	12,70		6,35	
				231,00	293,00		293,00	
28 x 26	711	521	521	9,52	12,70	7,92	12,70	
	660			9,52	12,70	7,92	12,70	
				325,00	410,00	271,00	410,00	
28 x 24	711	521	508	9,52	12,70	7,92	12,70	15,88
	610			9,52	12,70	6,35	9,52	14,27
				320,00	400,00	266,00	400,00	480,00
28 x 22	711	521	495	9,52	12,70	7,92	12,70	15,88
	559			9,52	12,70	6,35	9,52	12,70
				311,00	390,00	258,00	390,00	461,00
28 x 20	711	521	483	9,52	12,70	7,92	12,70	15,88
	508			9,52	12,70	6,35	9,52	12,70
				302,00	380,00	251,00	380,00	461,00
28 x 18	711	521	470	9,52	12,70	7,92	12,70	15,88
	457			9,52	12,70	6,35	7,92	11,13
				292,00	369,00	243,00	369,00	461,00

* Outlet dimension M for NPS ≥ 14" is recommended, but not required.

* L'encombrement M pour NPS ≥ 14" est recommandé, mais non imposé.

** Weight on application. Weights are approximate.

** Masse sur demande Les masses indiquées sont approximatives.



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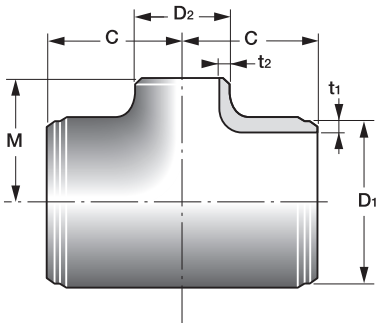
Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M* – mm		STD	E.F. X.S.	SCH 10	SCH 20	SCH 30
				t ₁ W.T. / ép. mm				
				t ₂ W.T. / ép. mm				
				weight / masse kg				
28 x 16	711	521	457	9,52	12,70	7,92	12,70	15,88
	406			9,52	12,70	6,35	7,92	9,52
				283,00	357,00	235,00	357,00	450,00
28 x 14	711	521	457	9,52	12,70	7,92	12,70	15,88
	356			9,52	12,70	6,35	7,92	9,52
				274,00	346,00	228,00	346,00	450,00
28 x 12	711	521	448	9,52	12,70		12,70	15,88
	324			9,52	12,70		6,35	8,38
				**	**		**	**
30 x 28	762	559	546	9,52	12,70	7,92	12,70	15,88
	711			9,52	12,70	7,92	12,70	15,88
				380,00	475,00	315,00	475,00	566,00
30 x 26	762	559	546	9,52	12,70	7,92	12,70	
	660			9,52	12,70	7,92	12,70	
				372,00	463,00	308,00	463,00	
30 x 24	762	559	533	9,52	12,70	7,92	12,70	15,88
	610			9,52	12,70	6,35	9,52	14,27
				361,00	452,00	300,00	451,00	541,00
30 x 22	762	559	521	9,52	12,70	7,92	12,70	15,88
	559			9,52	12,70	6,35	9,52	12,70
				351,00	441,00	291,00	440,00	500,00
30 x 20	762	559	508	9,52	12,70	7,92	12,70	15,88
	508			9,52	12,70	6,35	9,52	12,70
				340,00	429,00	283,00	428,00	500,00
30 x 18	762	559	495	9,52	12,70	7,92	12,70	15,88
	457			9,52	12,70	6,35	7,92	11,13
				330,00	417,00	274,00	417,00	500,00
30 x 16	762	559	483	9,52	12,70	7,92	12,70	15,88
	406			9,52	12,70	6,35	7,92	9,52
				321,00	405,00	266,00	404,00	470,00
30 x 14	762	559	483	9,52	12,70	7,92	12,70	15,88
	356			9,52	12,70	6,35	7,92	9,52
				312,00	395,00	257,00	392,00	470,00

* Outlet dimension M for NPS ≥ 14" is recommended, but not required.

* L'encombrement M pour NPS ≥ 14" est recommandé, mais non imposé.

** Weight on application.
Weights are approximate.

** Masse sur demande
Les masses indiquées sont approximatives.



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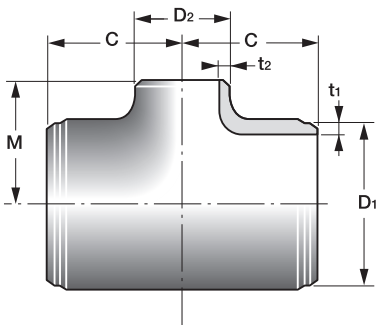
Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Encombrement		STD	E.F. X.S.	SCH 10	SCH 20	SCH 30	SCH 40
				t ₁ W.T. / ép. mm					
				t ₂ W.T. / ép. mm					
				weight / masse kg					
inches / pouces	D – mm	C – mm	M* – mm						
30 x 12	762	559	473	9,52	12,70		12,70	15,88	
	324			9,52	12,70		6,35	8,38	
				304,00	385,00		**	**	
30 x 10	762	559	460	9,52	12,70		12,70	15,88	
	273			9,52	12,70		6,35	7,80	
				296,00	377,00		**	**	
32 x 30	813	597	584	9,52	12,70	7,92	12,70	15,88	
	762			9,52	12,70	7,92	12,70	15,88	
				506,00	628,00	452,00	543,00	652,00	
32 x 28	813	597	572	9,52	12,70	7,92	12,70	15,88	
	711			9,52	12,70	7,92	12,70	15,88	
				493,00	616,00	357,00	536,00	643,00	
32 x 26	813	597	572	9,52	12,70	7,92	12,70		
	660			9,52	12,70	7,92	12,70		
				482,00	605,00	350,00	526,00		
32 x 24	813	597	559	9,52	12,70	7,92	12,70	15,88	17,48
	610			9,52	12,70	6,35	9,52	14,27	17,48
				472,00	591,00	341,00	513,00	616,00	**
32 x 22	813	597	546	9,52	12,70	7,92	12,70	15,88	
	559			9,52	12,70	6,35	9,52	12,70	
				460,00	577,00	**	**	**	
32 x 20	813	597	533	9,52	12,70	7,92	12,70	15,88	17,48
	508			9,52	12,70	6,35	9,52	12,70	15,09
				448,00	562,00	338,00	488,00	585,00	**
32 x 18	813	597	521	9,52	12,70	7,92	12,70	15,88	17,48
	457			9,52	12,70	6,35	7,92	11,13	14,27
				436,00	547,00	325,00	475,00	570,00	**
32 x 16	813	597	508	9,52	12,70	7,92	12,70	15,88	17,48
	406			9,52	12,70	6,35	7,92	9,52	12,70
				425,00	535,00	317,00	461,00	553,00	**
32 x 14	813	597	508	9,52	12,70	7,92	12,70	15,88	17,48
	356			9,52	12,70	6,35	7,92	9,52	11,13
				415,00	523,00	**	**	**	**

* Outlet dimension M for NPS ≥ 14" is recommended, but not required.

* L'encombrement M pour NPS ≥ 14" est recommandé, mais non imposé.

** Weight on application. Weights are approximate.

** Masse sur demande. Les masses indiquées sont approximatives.



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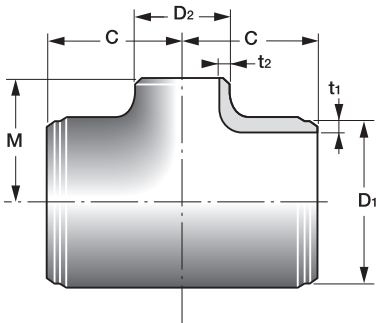
Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Encombrement		STD	E.F. X.S.	SCH 10	SCH 20	SCH 30
				t ₁ W.T. / ép. mm				
				t ₂ W.T. / ép. mm				
inches / pouces	D – mm	C – mm	M* – mm	weight / masse kg				
34 x 32	864	635	622	9,52	12,70	7,92	12,70	15,88
	813			9,52	12,70	7,92	12,70	15,88
				506,00	628,00	419,00	628,00	788,00
34 x 30	864	635	610	9,52	12,70	7,92	12,70	15,88
	762			9,52	12,70	7,92	12,70	15,88
				493,00	616,00	409,00	616,00	768,00
34 x 28	864	635	597	9,52	12,70	7,92	12,70	15,88
	711			9,52	12,70	7,92	12,70	15,88
				482,00	605,00	400,00	605,00	751,00
34 x 26	864	635	597	9,52	12,70	7,92	12,70	
	660			9,52	12,70	7,92	12,70	
				472,00	591,00	392,00	591,00	
34 x 24	864	635	584	9,52	12,70	7,92	12,70	15,88
	610			9,52	12,70	6,35	9,52	14,27
				460,00	577,00	382,00	576,00	720,00
34 x 22	864	635	572	9,52	12,70	7,92	12,70	15,88
	559			9,52	12,70	6,35	9,52	12,70
				448,00	562,00	372,00	562,00	666,00
34 x 20	864	635	559	9,52	12,70	7,92	12,70	15,88
	508			9,52	12,70	6,35	9,52	12,70
				436,00	547,00	362,00	547,00	666,00
34 x 18	864	635	546	9,52	12,70	7,92	12,70	15,88
	457			9,52	12,70	6,35	7,92	11,13
				425,00	535,00	354,00	533,00	666,00
34 x 16	864	635	533	9,52	12,70	7,92	12,70	15,88
	406			9,52	12,70	6,35	7,92	9,52
				415,00	523,00	343,00	519,00	650,00
36 x 34	914	673	660	9,52	12,70	7,92	12,70	15,88
	864			9,52	12,70	7,92	12,70	15,88
				574,00	715,00	477,00	715,00	893,00
36 x 32	914	673	648	9,52	12,70	7,92	12,70	15,88
	813			9,52	12,70	7,92	12,70	15,88
				561,00	700,00	467,00	700,00	873,00

* Outlet dimension M for NPS ≥ 14" is recommended, but not required.

* L'encombrement M pour NPS ≥ 14" est recommandé, mais non imposé.

** Weight on application. Weights are approximate.

** Masse sur demande. Les masses indiquées sont approximatives.



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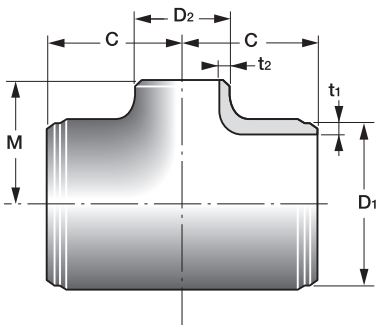
Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Encombrement		STD	E.F. X.S.	SCH 10	SCH 20	SCH 30
				t ₁ W.T. / ép. mm				
				t ₂ W.T. / ép. mm				
				weight / masse kg				
inches / pouces	D – mm	C – mm	M* – mm					
36 x 30	914	673	635	9,52	12,70	7,92	12,70	15,88
	762			9,52	12,70	7,92	12,70	15,88
				548,00	685,00	455,00	685,00	856,00
36 x 28	914	673	622	9,52	12,70	7,92	12,70	15,88
	711			9,52	12,70	7,92	12,70	15,88
				537,00	670,00	446,00	670,00	836,00
36 x 26	914	673	622	9,52	12,70	7,92	12,70	
	660			9,52	12,70	7,92	12,70	
				526,00	654,00	437,00	654,00	
36 x 24	914	673	610	9,52	12,70	7,92	12,70	15,88
	610			9,52	12,70	6,35	9,52	14,27
				513,00	643,00	426,00	642,00	803,00
36 x 22	914	673	597	9,52	12,70	7,92	12,70	15,88
	559			9,52	12,70	6,35	9,52	12,70
				502,00	622,00	415,00	622,00	782,00
36 x 20	914	673	584	9,52	12,70	7,92	12,70	15,88
	508			9,52	12,70	6,35	9,52	12,70
				493,00	621,00	405,00	610,00	763,00
36 x 18	914	673	572	9,52	12,70	7,92	12,70	15,88
	457			9,52	12,70	6,35	7,92	11,13
				483,00	611,00	394,00	596,00	746,00
36 x 16	914	673	559	9,52	12,70	7,92	12,70	15,88
	406			9,52	12,70	6,35	7,92	9,52
				472,00	602,00	383,00	581,00	726,00
38 x 36	965	711	711	9,52	12,70			
	914			9,52	12,70			
				**	**			
38 x 34	965	711	698	9,52	12,70			
	864			9,52	12,70			
				**	**			
38 x 32	965	711	686	9,52	12,70			
	813			9,52	12,70			
				**	**			

* Outlet dimension M for NPS ≥ 14" is recommended, but not required.

* L'encombrement M pour NPS ≥ 14" est recommandé, mais non imposé.

** Weight on application. Weights are approximate.

** Masse sur demande. Les masses indiquées sont approximatives.



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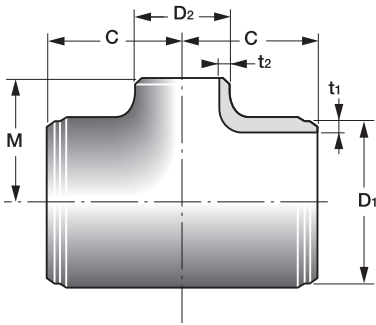
Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M*– mm		STD	E.F. X.S.
				t ₁ W.T. / ép. mm	
				t ₂ W.T. / ép. mm	
				weight / masse kg	
38 x 30	965	711	673	9,52	12,70
	762			9,52	12,70
				**	**
38 x 28	965	711	648	9,52	12,70
	711			9,52	12,70
				**	**
38 x 26	965	711	648	9,52	12,70
	660			9,52	12,70
				**	**
38 x 24	965	711	635	9,52	12,70
	610			9,52	12,70
				**	**
38 x 22	965	711	622	9,52	12,70
	559			9,52	12,70
				**	**
38 x 20	965	711	610	9,52	12,70
	508			9,52	12,70
				**	**
38 x 18	965	711	597	9,52	12,70
	457			9,52	12,70
				**	**
40 x 38	1016	749	749	9,52	12,70
	965			9,52	12,70
				664,00	875,00
40 x 36	1016	749	737	9,52	12,70
	914			9,52	12,70
				659,00	840,00
40 x 34	1016	749	724	9,52	12,70
	864			9,52	12,70
				659,00	840,00
40 x 32	1016	749	711	9,52	12,70
	813			9,52	12,70
				643,00	802,00

* Outlet dimension M for NPS ≥ 14” is recommended, but not required.

** Weight on application. Weights are approximate.

* L'encombrement M pour NPS ≥ 14” est recommandé, mais non imposé.

** Masse sur demande Les masses indiquées sont approximatives.



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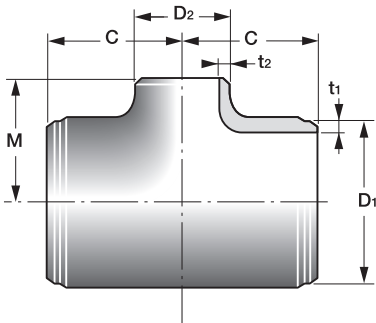
Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M*– mm		STD	E.F. X.S.
				t ₁ W.T. / ép. mm	
				t ₂ W.T. / ép. mm	
				weight / masse kg	
40 x 30	1016	749	698	9,52	12,70
	762			9,52	12,70
				627,00	763,00
40 x 28	1016	749	673	9,52	12,70
	711			9,52	12,70
				611,00	740,00
40 x 26	1016	749	673	9,52	12,70
	660			9,52	12,70
				595,00	723,00
40 x 24	1016	749	660	9,52	12,70
	610			9,52	12,70
				580,00	700,00
40 x 22	1016	749	648	9,52	12,70
	559			9,52	12,70
				565,00	682,00
40 x 20	1016	749	635	9,52	12,70
	508			9,52	12,70
				552,00	665,00
40 x 18	1016	749	622	9,52	12,70
	457			9,52	12,70
				540,00	650,00
42 x 40	1067	762	711	9,52	12,70
	1016			9,52	12,70
				**	**
42 x 38	1067	762	711	9,52	12,70
	965			9,52	12,70
				**	**
42 x 36	1067	762	711	9,52	12,70
	914			9,52	12,70
				818,00	1045,00
42 x 34	1067	762	711	9,52	12,70
	864			9,52	12,70
				772,00	999,00

* Outlet dimension M for NPS ≥ 14” is recommended, but not required.

* L'encombrement M pour NPS ≥ 14” est recommandé, mais non imposé.

** Weight on application. Weights are approximate.

** Masse sur demande Les masses indiquées sont approximatives.



reducing outlet tees / té s réduits

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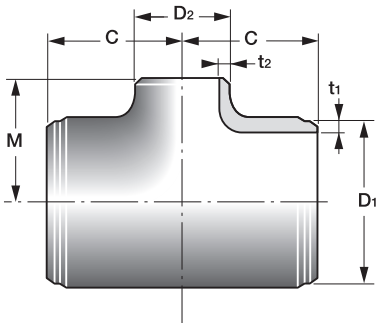
Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M*– mm		STD	E.F. X.S.
				t ₁ W.T. / ép. mm	
				t ₂ W.T. / ép. mm	
				weight / masse kg	
42 x 32	1067	762	711	9,52	12,70
	813			9,52	12,70
				772,00	999,00
42 x 30	1067	762	711	9,52	12,70
	762			9,52	12,70
				772,00	999,00
42 x 28	1067	762	698	9,52	12,70
	711			9,52	12,70
				750,00	955,00
42 x 26	1067	762	698	9,52	12,70
	660			9,52	12,70
				750,00	955,00
42 x 24	1067	762	660	9,52	12,70
	610			9,52	12,70
				728,00	915,00
42 x 22	1067	762	660	9,52	12,70
	559			9,52	12,70
				728,00	915,00
42 x 20	1067	762	660	9,52	12,70
	508			9,52	12,70
				708,00	875,00
42 x 18	1067	762	648	9,52	12,70
	457			9,52	12,70
				708,00	875,00
42 x 16	1067	762	635	9,52	12,70
	406			9,52	12,70
				700,00	847,00
44 x 42	1118	813	762	9,52	12,70
	1067			9,52	12,70
				**	**
44 x 40	1118	813	749	9,52	12,70
	1016			9,52	12,70
				**	**

* Outlet dimension M for NPS ≥ 14” is recommended, but not required.

** Weight on application. Weights are approximate.

* L'encombrement M pour NPS ≥ 14” est recommandé, mais non imposé.

** Masse sur demande Les masses indiquées sont approximatives.



reducing outlet tees / té s réduits

ASME B 16.9-1993

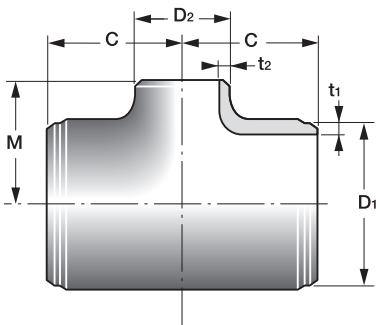
Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M*– mm		STD	E.F. X.S.
				t ₁ W.T. / ép. mm	
				t ₂ W.T. / ép. mm	
				weight / masse kg	
44 x 38	1118	813	737	9,52	12,70
	965			9,52	12,70
				**	**
44 x 36	1118	813	724	9,52	12,70
	914			9,52	12,70
				**	**
44 x 34	1118	813	724	9,52	12,70
	864			9,52	12,70
				**	**
44 x 32	1118	813	711	9,52	12,70
	813			9,52	12,70
				**	**
44 x 30	1118	813	711	9,52	12,70
	762			9,52	12,70
				**	**
44 x 28	1118	813	698	9,52	12,70
	711			9,52	12,70
				**	**
44 x 26	1118	813	698	9,52	12,70
	660			9,52	12,70
				**	**
44 x 24	1118	813	698	9,52	12,70
	610			9,52	12,70
				**	**
44 x 22	1118	813	686	9,52	12,70
	559			9,52	12,70
				**	**
44 x 20	1118	813	686	9,52	12,70
	508			9,52	12,70
				**	**

* Outlet dimension M for NPS ≥ 14” is recommended, but not required.

** Weight on application. Weights are approximate.

* L'encombrement M pour NPS ≥ 14” est recommandé, mais non imposé.

** Masse sur demande Les masses indiquées sont approximatives.



reducing outlet tees / té s réduits

ASME B 16.9-1993

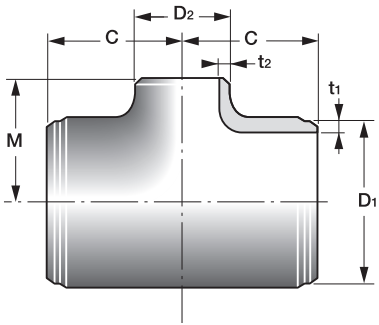
Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M*– mm		STD	E.F. X.S.
				t ₁ W.T. / ép. mm	
				t ₂ W.T. / ép. mm	
				weight / masse kg	
46 x 44	1168	851	800	9,52	12,70
	1118			9,52	12,70
				**	**
46 x 42	1168	851	787	9,52	12,70
	1067			9,52	12,70
				**	**
46 x 40	1168	851	775	9,52	12,70
	1016			9,52	12,70
				**	**
46 x 38	1168	851	762	9,52	12,70
	965			9,52	12,70
				**	**
46 x 36	1168	851	762	9,52	12,70
	914			9,52	12,70
				**	**
46 x 34	1168	851	749	9,52	12,70
	864			9,52	12,70
				**	**
46 x 32	1168	851	749	9,52	12,70
	813			9,52	12,70
				**	**
46 x 30	1168	851	737	9,52	12,70
	762			9,52	12,70
				**	**
46 x 28	1168	851	737	9,52	12,70
	711			9,52	12,70
				**	**
46 x 26	1168	851	737	9,52	12,70
	660			9,52	12,70
				**	**

* Outlet dimension M for NPS ≥ 14” is recommended, but not required.

** Weight on application. Weights are approximate.

* L'encombrement M pour NPS ≥ 14” est recommandé, mais non imposé.

** Masse sur demande Les masses indiquées sont approximatives.



reducing outlet tees / tés réduits

ASME B 16.9-1993

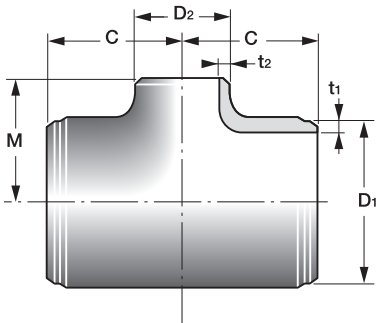
Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M* – mm		STD	E.F. X.S.
				t ₁ W.T. / ép. mm	
				t ₂ W.T. / ép. mm	
				weight / masse kg	
46 x 24	1168	851	724	9,52	12,70
	1168			9,52	12,70
	1168			**	**
46 x 22	1168	851	724	9,52	12,70
	1168			9,52	12,70
	1168			**	**
48 x 46	1219	889	838	9,52	12,70
	1219			9,52	12,70
	1219			1090,00	1307,00
48 x 44	1219	889	838	9,52	12,70
	1219			9,52	12,70
	1219			1090,00	1307,00
48 x 42	1219	889	813	9,52	12,70
	1219			9,52	12,70
	1219			1067,00	1272,00
48 x 40	1219	889	813	9,52	12,70
	1219			9,52	12,70
	1219			1067,00	1272,00
48 x 38	1219	889	813	9,52	12,70
	1219			9,52	12,70
	1219			1044,00	1238,00
48 x 36	1219	889	787	9,52	12,70
	1219			9,52	12,70
	1219			1022,00	1203,00
48 x 34	1219	889	787	9,52	12,70
	1219			9,52	12,70
	1219			1022,00	1203,00
48 x 32	1219	889	787	9,52	12,70
	1219			9,52	12,70
	1219			1000,00	1170,00

* Outlet dimension M for NPS ≥ 14" is recommended, but not required.

* L'encombrement M pour NPS ≥ 14" est recommandé, mais non imposé.

** Weight on application. Weights are approximate.

** Masse sur demande. Les masses indiquées sont approximatives.



reducing outlet tees / té s réduits

ASME B 16.9-1993

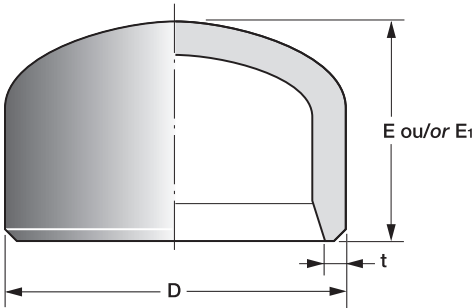
Nominal Pipe Size (NPS) Diamètre Nominal inches / pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M* – mm		STD	E.F. X.S.
				t ₁ W.T. / ép. mm	
				t ₂ W.T. / ép. mm	
				weight / masse kg	
48 x 30	1219	889	762	9,52	12,70
	762			9,52	12,70
				1000,00	1170,00
48 x 28	1219	889	762	9,52	12,70
	711			9,52	12,70
				980,00	1140,00
48 x 26	1219	889	762	9,52	12,70
	660			9,52	12,70
				980,00	1140,00
48 x 24	1219	889	737	9,52	12,70
	610			9,52	12,70
				960,00	1115,00
48 x 22	1219	889	737	9,52	12,70
	559			9,52	12,70
				960,00	1115,00

* Outlet dimension M for NPS ≥ 14” is recommended, but not required.

* L’encombrement M pour NPS ≥ 14” est recommandé, mais non imposé.

** Weight on application. Weights are approximate.

** Masse sur demande. Les masses indiquées sont approximatives.



caps
ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter Diamètre extérieur	Length Hauteur	Limiting W.T. for length E Ep. limite pour hauteur E	Length (*) Hauteur (*)	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
					t W.T. / ép. mm weight / masse kg				
inches / pouces	D – mm	E – mm	mm	E1 – mm					
1/2	21	25	3,73	25	2,77	3,73	7,47		
					0,03	0,05	**		
3/4	27	25	3,91	25	2,87	3,91	7,82		
					0,06	0,10	**		
1	33	38	4,55	38	3,38	4,55	9,09		
					0,10	0,13	0,20		
1 1/4	42	38	4,85	38	3,56	4,85	9,70		
					0,14	0,20	0,28		
1 1/2	48	38	5,08	38	3,68	5,08	10,16		
					0,20	0,23	0,36		
2	60	38	5,54	44	3,91	5,54	11,07		
					0,30	0,30	0,59		
2 1/2	73	38	7,01	51	5,16	7,01	14,02		
					0,50	0,50	1,00		
3	89	51	7,62	64	5,49	7,62	15,24		
					0,70	0,90	1,78		
3 1/2	102	64	8,08	76	5,74	8,08			
					1,40	1,70			
4	114	64	8,56	76	6,02	8,56	17,12		
					1,60	2,00	3,17		
5	141	76	9,53	89	6,55	9,52	19,05		
					2,30	3,00	5,50		
6	168	89	10,97	102	7,11	10,97	21,95		
					3,60	4,00	8,10		
8	219	102	12,70	127	8,18	12,70	22,23		6,35
					5,50	8,40	19,50		4,50
10	273	127	12,70	152	9,27	12,70	25,40		6,35
					10,00	13,60	29,30		7,00
12	324	152	12,70	178	9,52	12,70	25,40		6,35
					15,00	22,00	41,00		9,00
14	356	165	12,70	191	9,52	12,70		6,35	7,92
					17,00	27,00		14,00	15,50

Nota : La forme de ces caps sera ellipsoïdale et conforme aux exigences du code «ASME Boiler and Pressure Vessel». La hauteur E s’applique pour des épaisseurs n’excédant pas celles données par la rubrique «Épaisseur limite pour E».

(*) La hauteur E1 s’applique pour des épaisseurs supérieures à celles données par la rubrique «Épaisseur limite» pour NPS 24 et au-dessous. Pour les caps NPS 26 et au-dessus, la hauteur E1 sera déterminée d’un commun accord entre acheteur et fabricant.

** Masse sur demande.

Les masses indiquées sont approximatives.

caps
ASME B 16.9-1993

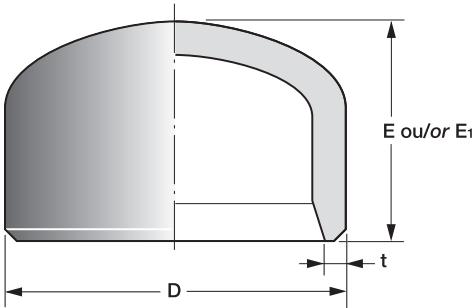
SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS) Diamètre Nominal
t W.T. / ép. mm								
weight / masse kg								inches / pouces
2,41	Voir STD		Voir E.F.				4,78	1/2
**							**	
2,41							5,56	3/4
**							**	
2,90							6,35	1
**							0,15	
2,97							6,35	1 1/4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

Note: The shape of these caps shall be ellipsoidal and shall conform to the shape requirements as given in «ASME Boiler and Pressure Vessel» code.
Length E applies for thickness not exceeding that given in column «Limiting wall thickness for length E».

(*) Length E1 applies for thickness greater than that given in column «Limiting wall thickness» for sizes NPS 24 and smaller.
For sizes NPS 26 and larger, length E1 shall be by agreement between manufacturer and purchaser.

** Weight on application.

Weights are approximate



caps
ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter Diamètre extérieur	Length Hauteur	Limiting W.T. for length E Ep. limite pour hauteur E	Length (*) Hauteur (*)	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
inches / pouces	D – mm	E – mm	mm	E ₁ – mm	t W.T. / ép. mm weight / masse kg				
16	406	178	12,70	203	9,52	12,70		6,35	7,92
					23,00	30,00		18,00	20,00
18	457	203	12,70	229	9,52	12,70		6,35	7,92
					29,00	32,00		22,00	25,00
20	508	229	12,70	254	9,52	12,70		6,35	Voir STD Refer to STD
					36,00	49,00		31,00	
22	559	254	12,70	254	9,52	12,70		6,35	Voir E.F. Refer to X.S.
					42,00	51,00		35,50	
24	610	267	12,70	305	9,52	12,70		6,35	Voir E.F. Refer to X.S.
					52,00	60,00		40,00	
26	660	267			9,52	12,70		7,92	Voir E.F. Refer to X.S.
					46,50	66,00		42,00	
28	711	267			9,52	12,70		7,92	Voir E.F. Refer to X.S.
					56,00	75,00		47,00	
30	762	267			9,52	12,70		7,92	Voir E.F. Refer to X.S.
					62,00	83,00		51,00	
32	813	267			9,52	12,70		7,92	Voir E.F. Refer to X.S.
					68,00	93,00		57,00	
34	864	267			9,52	12,70		7,92	Voir E.F. Refer to X.S.
					73,00	97,00		60,00	
36	914	267			9,52	12,70		7,92	Voir E.F. Refer to X.S.
					79,50	107,00		66,00	
38	965	305			9,52	12,70			
					86,00	125,00			
40	1016	305			9,52	12,70			
					95,00	129,00			
42	1067	305			9,52	12,70			
					104,50	136,50			
44	1118	343			9,52	12,70			
					120,00	168,00			
46	1168	343			9,52	12,70			
					136,00	186,00			
48	1219	343			9,52	12,70			
					159,00	215,00			

Nota : La forme de ces caps sera ellipsoïdale et conforme aux exigences du code «ASME Boiler and Pressure Vessel». La hauteur E s’applique pour des épaisseurs n’excédant pas celles données par la rubrique «Épaisseur limite pour E».

(*) La hauteur E1 s’applique pour des épaisseurs supérieures à celles données par la rubrique «Épaisseur limite» pour NPS 24 et au-dessous. Pour les caps NPS 26 et au-dessus, la hauteur E1 sera déterminée d’un commun accord entre acheteur et fabricant.

Les masses indiquées sont approximatives.

caps

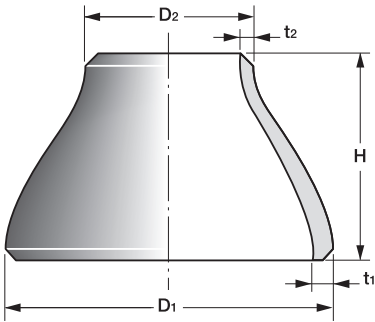
ASME B 16.9-1993

[illegible]

Note: The shape of these caps shall be ellipsoidal and shall conform to the shape requirements as given in «ASME Boiler and Pressure Vessel» code.
Length E applies for thickness not exceeding that given in column «Limiting wall thickness for length E».

(*) Length E1 applies for thickness greater than that given in column «Limiting wall thickness» for sizes NPS 24 and smaller.
For sizes NPS 26 and larger, length E1 shall be by agreement between manufacturer and purchaser.

Weights are approximate

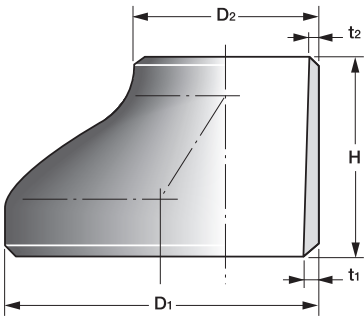


concentric and eccentric reducers
ASME B 16.9–1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	End-to-end length Longueur	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
			t_1 W.T. / ép. mm				
			t_2 W.T. / ép. mm				
			weight / masse kg				
3/4 x 1/2	27	38	2,87	3,91	7,82		
	21		2,77	3,73	7,47		
			0,07	0,10	0,19		
3/4 x 3/8	27	38	2,87	3,91			
	17		2,31	3,20			
			0,07	0,10			
1 x 3/4	33	51	3,38	4,55	9,09		
	27		2,87	3,91	7,82		
			0,13	0,16	0,28		
1 x 1/2	33	51	3,38	4,55	9,09		
	21		2,77	3,73	7,47		
			0,13	0,16	0,28		
1 1/4 x 1	42	51	3,56	4,85	9,70		
	33		3,38	4,55	9,09		
			0,17	0,23	0,39		
1 1/4 x 3/4	42	51	3,56	4,85	9,70		
	27		2,87	3,91	7,82		
			0,17	0,23	0,39		
1 1/4 x 1/2	42	51	3,56	4,85	9,70		
	21		2,77	3,73	7,47		
			0,17	0,23	0,39		
1 1/2 x 1 1/4	48	64	3,68	5,08	10,16		
	42		3,56	4,85	9,70		
			0,26	0,35	0,61		
1 1/2 x 1	48	64	3,68	5,08	10,16		
	33		3,38	4,55	9,09		
			0,26	0,35	0,61		
1 1/2 x 3/4	48	64	3,68	5,08	10,16		
	27		2,87	3,91	7,82		
			0,26	0,35	0,61		
1 1/2 x 1/2	48	64	3,68	5,08	10,16		
	21		2,77	3,73	7,47		
			0,26	0,35	0,61		

** Weight on application.

Weights are approximate.



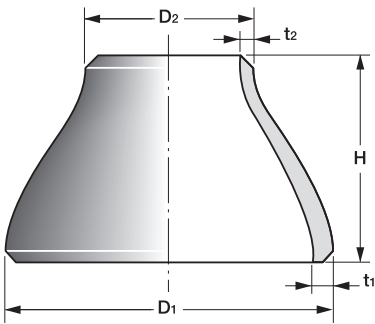
réductions concentriques et excentriques

ASME B 16.9-1993

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS)
t ₁ W.T. / ép. mm								Diamètre Nominal
t ₂ W.T. / ép. mm								
weight / masse kg								inches / pouces
2,41	Voir STD		Voir E.F.				5,56	3/4 x 1/2
2,41							4,78	
**							0,14	
2,41								3/4 x 3/8
1,85								
**								
2,90							6,35	1 x 3/4
2,41							5,56	
**							0,21	
2,90							6,35	1 x 1/2
2,41							4,78	
**							0,21	
2,97							6,35	1 1/4 x 1
2,90							6,35	
**							0,29	
2,97							6,35	1 1/4 x 3/4
2,41							5,56	
**							0,29	
2,97	Refer to STD		Refer to X.S.				6,35	1 1/4 x 1/2
2,41							4,78	
**							0,29	
3,18							7,13	1 1/2 x 1 1/4
2,97							6,35	
**							0,46	
3,18							7,13	1 1/2 x 1
2,90							6,35	
**							0,46	
3,18							7,13	1 1/2 x 3/4
2,41							5,56	
**							0,46	
3,18							7,13	1 1/2 x 1/2
2,41							4,78	
**							0,46	

** Masse sur demande.

Les masses indiquées sont approximatives.

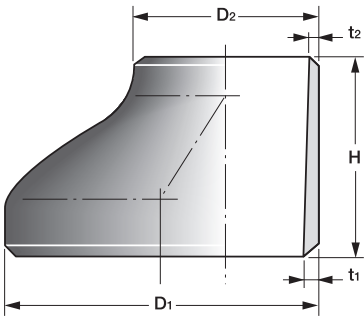


concentric and eccentric reducers
ASME B 16.9–1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	End-to-end length Longueur	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
			t ₁ W.T. / ép. mm				
			t ₂ W.T. / ép. mm				
			weight / masse kg				
2 x 1 1/2	60	76	3,91	5,54	11,07		
	48		3,68	5,08	10,16		
			0,41	0,57	1,03		
2 x 1 1/4	60	76	3,91	5,54	11,07		
	42		3,56	4,85	9,70		
			0,41	0,57	1,03		
2 x 1	60	76	3,91	5,54	11,07		
	33		3,38	4,55	9,09		
			0,41	0,57	1,03		
2 x 3/4	60	76	3,91	5,54	11,07		
	27		2,87	3,91	7,82		
			0,41	0,57	1,03		
2 1/2 x 2	73	89	5,16	7,01	14,02		
	60		3,91	5,54	11,07		
			0,77	1,01	1,81		
2 1/2 x 1 1/2	73	89	5,16	7,01	14,02		
	48		3,68	5,08	10,16		
			0,77	1,01	1,81		
2 1/2 x 1 1/4	73	89	5,16	7,01	14,02		
	42		3,56	4,85	9,70		
			0,77	1,01	1,81		
2 1/2 x 1	73	89	5,16	7,01	14,02		
	33		3,38	4,55	9,09		
			0,77	1,01	1,81		
3 x 2 1/2	89	89	5,49	7,62	15,24		
	73		5,16	7,01	14,02		
			1,00	4,36	2,47		
3 x 2	89	89	5,49	7,62	15,24		
	60		3,91	5,54	11,07		
			1,00	1,36	2,47		
3 x 1 1/2	89	89	5,49	7,62	15,24		
	48		3,68	5,08	10,16		
			1,00	1,36	2,47		

** Weight on application.

Weights are approximate.

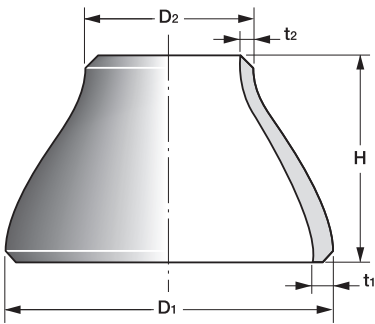


réductions concentriques et excentriques
ASME B 16.9-1993

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS)
t ₁ W.T. / ép. mm								Diamètre Nominal
t ₂ W.T. / ép. mm								
weight / masse kg								inches / pouces
3,18	Voir STD		Voir E.F.				8,74	2 x 1 1/2
3,18							7,13	
**							0,84	
3,18							8,74	2 x 1 1/4
2,97							6,35	
**							0,84	
3,18							8,74	2 x 1
2,90							6,35	
**							0,84	
3,18							8,74	2 x 3/4
2,41							5,56	
**							0,84	
4,78							9,52	2 1/2 x 2
3,18							8,74	
**							1,33	
4,78							9,52	2 1/2 x 1 1/2
3,18							7,13	
**							1,33	
4,78	Refer to STD		Refer to X.S.				9,52	2 1/2 x 1 1/4
2,97							6,35	
**							1,33	
4,78							9,52	2 1/2 x 1
2,90							6,35	
**							1,33	
4,78							11,13	3 x 2 1/2
4,78							9,52	
**							1,89	
4,78							11,13	3 x 2
3,18							8,74	
**							1,89	
4,78							11,13	3 x 1 1/2
3,18							7,13	
**							1,89	

** Masse sur demande.

Les masses indiquées sont approximatives.



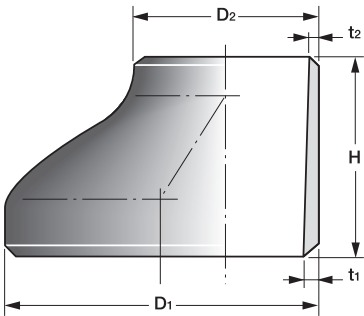
concentric and eccentric reducers

ASME B 16.9–1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	End-to-end length Longueur	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
inches / pouces	D – mm	H – mm	t_1 W.T. / ép. mm t_2 W.T. / ép. mm weight / masse kg				
3 x 1 1/4	89	89	5,49	7,62	15,24		
	42		3,56	4,85	9,70		
			1,00	1,36	2,47		
3 1/2 x 3	102	102	5,74	8,08			
	89		5,49	7,62			
			1,40	1,89			
3 1/2 x 2 1/2	102	102	5,74	8,08			
	73		5,16	7,01			
			1,40	1,89			
3 1/2 x 2	102	102	5,74	8,08			
	60		3,91	5,54			
			1,40	1,89			
3 1/2 x 1 1/2	102	102	5,74	8,08			
	48		3,68	5,08			
			1,40	1,89			
3 1/2 x 1 1/4	102	102	5,74	8,08			
	42		3,56	4,85			
			1,40	1,89			
4 x 3 1/2	114	102	6,02	8,56			
	102		5,74	8,08			
			1,60	2,27			
4 x 3	114	102	6,02	8,56	17,12		
	89		5,49	7,62	15,24		
			1,60	2,27	4,18		
4 x 2 1/2	114	102	6,02	8,56	17,12		
	73		5,16	7,01	14,02		
			1,60	2,27	4,18		
4 x 2	114	102	6,02	8,56	17,12		
	60		3,91	5,54	11,07		
			1,60	2,27	4,18		
4 x 1 1/2	114	102	6,02	8,56	17,12		
	48		3,68	5,08	10,16		
			1,60	2,27	4,18		

** Weight on application.

Weights are approximate.

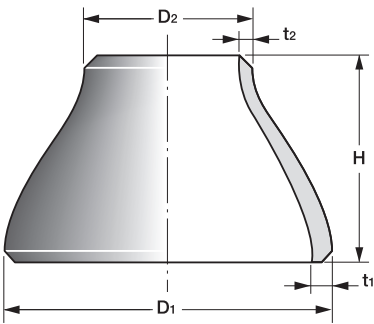


réductions concentriques et excentriques
ASME B 16.9-1993

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS)
t ₁ W.T. / ép. mm								Diamètre Nominal
t ₂ W.T. / ép. mm								
weight / masse kg								inches / pouces
4,78	Voir STD Refer to STD		Voir E.F. Refer to X.S.				11,13	3 x 1 1/4
2,97							6,35	
**							1,89	3 1/2 x 3
4,78								
4,78								3 1/2 x 2 1/2
**								
4,78								3 1/2 x 2
4,78								
**								3 1/2 x 1 1/2
4,78								
3,18								3 1/2 x 1 1/4
**								
4,78								4 x 3 1/2
2,97								
**								4 x 3
4,78							13,50	
4,78							11,13	4 x 2 1/2
**							3,41	
4,78							13,50	
4,78							9,52	4 x 2
**							3,41	
4,78							13,50	4 x 1 1/2
3,18							8,74	
**							3,41	
4,78							13,50	
3,18							7,13	
**							3,41	

** Masse sur demande.

Les masses indiquées sont approximatives.

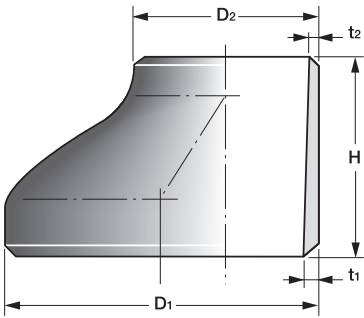


concentric and eccentric reducers

ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	End-to-end length Longueur	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
inches / pouces	D – mm	H – mm	t ₁ W.T. / ép. mm				
			t ₂ W.T. / ép. mm				
			weight / masse kg				
5 x 4	141	127	6,55	9,52	19,05		
	114		6,02	8,56	17,12		
			2,80	3,93	7,31		
5 x 3 1/2	141	127	6,55	9,52			
	102		5,74	8,08			
			2,80	3,93			
5 x 3	141	127	6,55	9,52	19,05		
	89		5,49	7,62	15,24		
			2,80	3,93	7,31		
5 x 2 1/2	141	127	6,35	9,52	19,05		
	73		5,16	7,01	14,02		
			2,80	3,93	7,31		
5 x 2	141	127	6,55	9,52	19,05		
	60		3,91	5,54	11,07		
			2,80	3,93	7,31		
6 x 5	168	140	7,11	10,97	21,95		
	141		6,55	9,52	19,05		
			3,90	5,95	11,08		
6 x 4	168	140	7,11	10,97	21,95		
	114		6,02	8,56	17,12		
			3,90	5,95	11,08		
6 x 3 1/2	168	140	7,11	10,97			
	102		5,74	8,08			
			3,90	5,95			
6 x 3	168	140	7,11	10,97	21,95		
	89		5,49	7,62	15,24		
			3,90	5,95	11,08		
6 x 2 1/2	168	140	7,11	10,97	21,95		
	73		5,16	7,01	14,02		
			3,90	5,95	11,08		

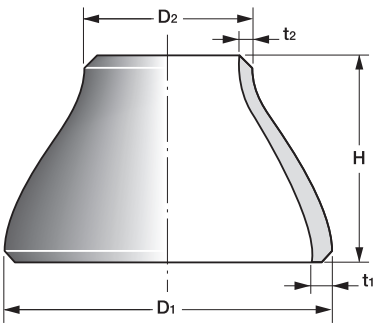
Weights are approximate.



réductions concentriques et excentriques
ASME B 16.9-1993

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS)
t ₁ W.T. / ép. mm								Diamètre Nominal
t ₂ W.T. / ép. mm								
weight / masse kg								inches / pouces
					12,70		15,87	5 x 4
					11,13		13,50	
					5,68		6,26	
								5 x 3 1/2
							15,87	5 x 3
							11,13	
							6,26	
							15,87	5 x 2 1/2
							9,52	
							6,26	
	Voir STD		Voir E.F.				15,87	5 x 2
							8,74	
							6,26	
	Refer to STD		Refer to X.S.		14,27		18,26	6 x 5
					12,70		15,87	
					7,58		9,40	
					14,27		18,26	6 x 4
					11,13		13,50	
					7,58		9,40	
								6 x 3 1/2
							18,26	6 x 3
							11,13	
							9,40	
							18,26	6 x 2 1/2
							9,52	
							9,40	

Les masses indiquées sont approximatives.



concentric and eccentric reducers

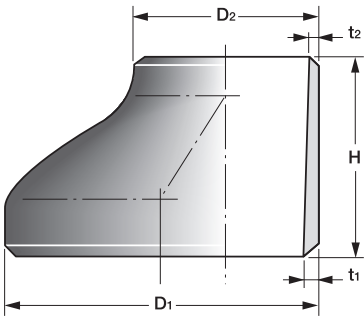
ASME B 16.9–1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	End-to-end length Longueur	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
			t_1 W.T. / ép. mm				
			t_2 W.T. / ép. mm				
			weight / masse kg				
8 x 6	219	152	8,18	12,70	22,23		
	168		7,11	10,97	21,95		
			6,50	9,86	18,00		
8 x 5	219	152	8,18	12,70	22,23		
	141		6,55	9,52	19,05		
			6,50	9,86	17,00		
8 x 4	219	152	8,18	12,70	22,23		
	114		6,02	8,56	17,12		
			6,50	9,86	16,43		
8 x 3 1/2	219	152	8,18	12,70			
	102		5,74	8,08			
			6,50	9,86			
10 x 8	273	178	9,27	12,70	25,40		6,35
	219		8,18	12,70	22,23		6,35
			10,70	14,50	29,00		7,50
10 x 6	273	178	9,27	12,70	25,40		
	168		7,11	10,97	21,95		
			10,70	14,50	29,00		
10 x 5	273	178	9,27	12,70	25,40		
	141		6,55	9,52	19,05		
			10,70	14,50	28,00		
10 x 4	273	178	9,27	12,70	25,40		
	114		6,02	8,56	17,12		
			10,70	14,50	28,00		
12 x 10	324	203	9,52	12,70	25,40		6,35
	273		9,27	12,70	25,40		6,35
			15,00	19,80	42,00		10,16
12 x 8	324	203	9,52	12,70	25,40		6,35
	219		8,18	12,70	22,23		6,35
			15,00	19,80	40,00		10,16

Weights are approximate.

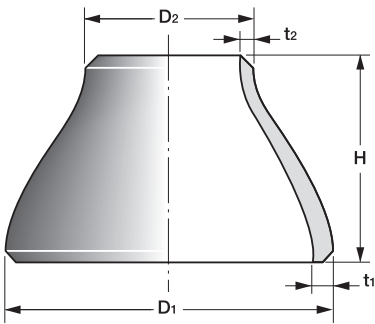
réductions concentriques et excentriques

ASME B 16.9-1993



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

Les masses indiquées sont approximatives.

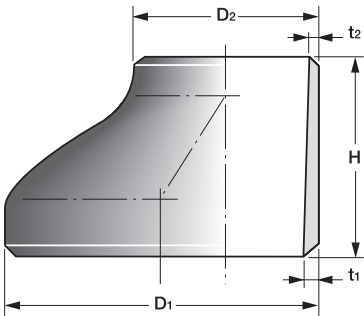


concentric and eccentric reducers
ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	End-to-end length Longueur	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
			t_1 W.T. / ép. mm				
			t_2 W.T. / ép. mm				
			weight / masse kg				
12 x 6	324	203	9,52	12,70			
	168		7,11	10,97	25,40		
			15,00	19,80	21,95		
12 x 5	324	203	9,52	12,70			
	141		6,55	9,52	25,40		
			15,00	19,80	19,05		
14 x 12	356	330	9,52	12,70			7,92
	324		9,52	12,70			6,35
			26,90	35,50			22,60
14 x 10	356	330	9,52	12,70			7,92
	273		9,27	12,70			6,35
			26,90	35,50			22,60
14 x 8	356	330	9,52	12,70			7,92
	219		8,18	12,70			6,35
			26,90	35,50			22,60
14 x 6	356	330	9,52	12,70			
	168		7,11	10,97			
			26,90	35,50			
16 x 14	406	356	9,52	12,70		6,35	7,92
	356		9,52	12,70		6,35	7,92
			33,00	44,00		28,00	27,90
16 x 12	406	356	9,52	12,70			7,92
	324		9,52	12,70			6,35
			33,00	44,00			27,90
16 x 10	406	356	9,52	12,70			7,92
	273		9,27	12,70			6,35
			33,00	44,00			27,90
16 x 8	406	356	9,52	12,70			7,92
	219		8,18	12,70			6,35
			33,00	44,00			27,90

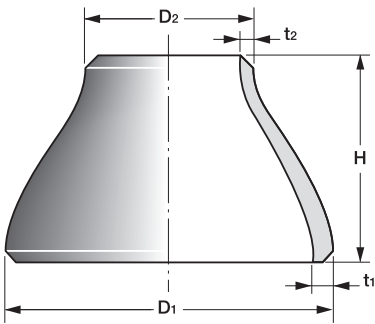
Weights are approximate.

réductions concentriques et excentriques
ASME B 16.9-1993



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

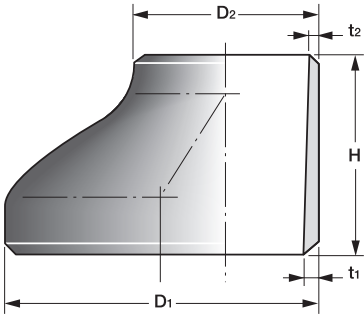
Les masses indiquées sont approximatives.



concentric and eccentric reducers
ASME B 16.9–1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	End-to-end length Longueur	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
			t_1 W.T. / ép. mm				
			t_2 W.T. / ép. mm				
inches / pouces	D – mm	H – mm	weight / masse kg				
18 x 16	457	381	9,52	12,70		6,35	7,92
	406		9,52	12,70		6,35	7,92
			40,00	53,00		34,00	33,30
18 x 14	457	381	9,52	12,70		6,35	7,92
	356		9,52	12,70		6,35	7,92
			40,00	53,00		34,00	33,30
18 x 12	457	381	9,52	12,70			7,92
	324		9,52	12,70			6,35
			40,00	53,00			33,30
18 x 10	457	381	9,52	12,70			7,92
	273		9,27	12,70			6,35
			40,00	53,00			33,30
20 x 18	508	508	9,52	12,70		6,35	9,52
	457		9,52	12,70		6,35	7,92
			59,00	79,00		50,00	58,00
20 x 16	508	508	9,52	12,70		6,35	9,52
	406		9,52	12,70		6,35	7,92
			59,00	79,00		50,00	58,00
20 x 14	508	508	9,52	12,70		6,35	9,52
	356		9,52	12,70		6,35	7,92
			59,00	79,00		50,00	58,00
20 x 12	508	508	9,52	12,70			9,52
	324		9,52	12,70			6,35
			59,00	79,00			58,00
22 x 20	559	508	9,52	12,70		6,35	9,52
	508		9,52	12,70		6,35	9,52
			65,00	87,00		57,00	61,00
22 x 18	559	508	9,52	12,70		6,35	9,52
	457		9,52	12,70		6,35	7,92
			65,00	87,00		57,00	61,00

Weights are approximate.

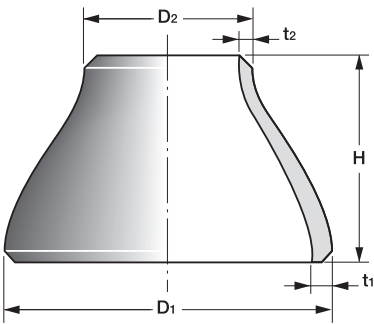


réductions concentriques et excentriques

ASME B 16.9-1993

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

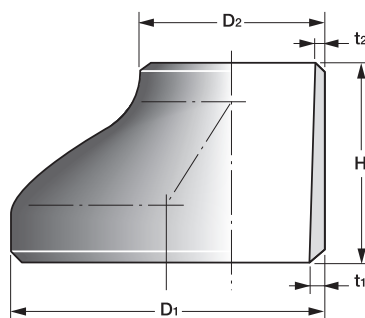
Les masses indiquées sont approximatives.



concentric and eccentric reducers
ASME B 16.9–1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	End-to-end length Longueur	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
			t_1 W.T. / ép. mm				
			t_2 W.T. / ép. mm				
			weight / masse kg				
22 x 16	559	508	9,52	12,70		6,35	9,52
	406		9,52	12,70		6,35	7,92
			65,00	87,00		57,00	61,00
22 x 14	559	508	9,52	12,70		6,35	9,52
	356		9,52	12,70		6,35	7,92
			65,00	87,00		57,00	61,00
24 x 22	610	508	9,52	12,70		6,35	9,52
	559		9,52	12,70		6,35	9,52
			72,00	95,00		63,00	72,00
24 x 20	610	508	9,52	12,70		6,35	Voir STD Refer to STD
	508		9,52	12,70		6,35	
			72,00	95,00		63,00	
24 x 18	610	508	9,52	12,70		6,35	9,52
	457		9,52	12,70		6,35	7,92
			72,00	95,00		63,00	72,00
24 x 16	610	508	9,52	12,70		6,35	9,52
	406		9,52	12,70		6,35	7,92
			72,00	95,00		63,00	72,00
26 x 24	660	610	9,52	12,70		7,92	12,70
	610		9,52	12,70		6,35	9,52
			91,00	125,00		75,00	123,00
26 x 22	660	610	9,52	12,70		7,92	12,70
	559		9,52	12,70		6,35	9,52
			91,00	125,00		75,00	123,00
26 x 20	660	610	9,52	12,70		7,92	12,70
	508		9,52	12,70		6,35	9,52
			91,00	115,00		75,00	123,00
26 x 18	660	610	9,52	12,70		7,92	12,70
	457		9,52	12,70		6,35	9,52
			91,00	115,00		75,00	123,00

Weights are approximate.

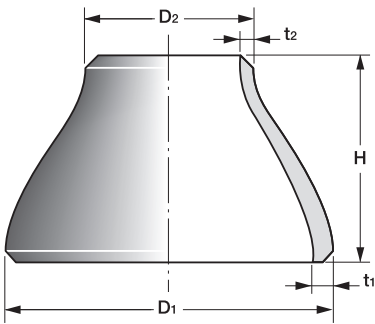


réductions concentriques et excentriques

ASME B 16.9-1993

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

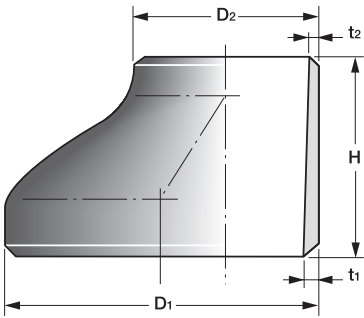
Les masses indiquées sont approximatives.



concentric and eccentric reducers
ASME B 16.9-1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	End-to-end length Longueur	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
inches / pouces	D – mm	H – mm	t_1 W.T. / ép. mm t_2 W.T. / ép. mm weight / masse kg				
28 x 26	711	610	9,52	12,70		7,92	12,70
	660		9,52	12,70		7,92	12,70
			95,00	132,00		79,00	131,00
28 x 24	711	610	9,52	12,70		7,92	12,70
	610		9,52	12,70		6,35	9,52
			95,00	132,00		79,00	131,00
28 x 20	711	610	9,52	12,70		7,92	12,70
	508		9,52	12,70		6,35	9,52
			95,00	132,00		79,00	131,00
28 x 18	711	610	9,52	12,70		7,92	12,70
	457		9,52	12,70		6,35	7,92
			95,00	132,00		79,00	131,00
30 x 28	762	610	9,52	12,70		7,92	12,70
	711		9,52	12,70		7,92	12,70
			100,00	143,00		83,00	142,00
30 x 26	762	610	9,52	12,70		7,92	12,70
	660		9,52	12,70		7,92	12,70
			100,00	143,00		83,00	142,00
30 x 24	762	610	9,52	12,70		7,92	12,70
	610		9,52	12,70		6,35	9,52
			100,00	143,00		83,00	142,00
30 x 20	762	610	9,52	12,70		7,92	12,70
	508		9,52	12,70		6,35	9,52
			100,00	143,00		83,00	142,00
32 x 30	813	610	9,52	12,70		7,92	12,70
	762		9,52	12,70		7,92	12,70
			115,00	150,00		96,00	150,00
32 x 28	813	610	9,52	12,70		7,92	12,70
	711		9,52	12,70		7,92	12,70
			115,00	150,00		96,00	150,00
32 x 26	813	610	9,52	12,70		7,92	12,70
	660		9,52	12,70		7,92	12,70
			115,00	150,00		96,00	150,00
32 x 24	813	610	9,52	12,70		7,92	12,70
	610		9,52	12,70		6,35	9,52
			115,00	150,00		96,00	150,00

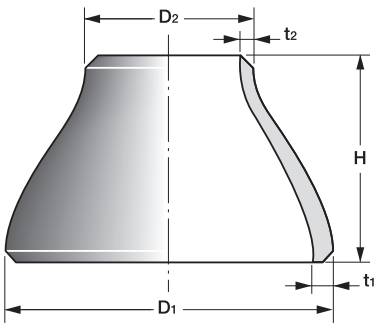
Weights are approximate.



réductions concentriques et excentriques
ASME B 16.9–1993

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS)
t ₁ W.T. / ép. mm								Diamètre Nominal
t ₂ W.T. / ép. mm								
weight / masse kg								inches / pouces
								28 x 26
								28 x 24
15,88								
14,27								
166,00								28 x 20
15,88								
12,70								
166,00								28 x 18
15,88								
11,13								
166,00								30 x 28
15,88								
15,88								
178,00								30 x 26
								30 x 24
15,88								
14,27								
178,00								30 x 20
15,88								
12,70								
178,00								32 x 30
15,88								
15,88								
190,00								32 x 28
15,88								
15,88								
190,00								32 x 26
15,88	17,48							32 x 24
14,27	17,48							
190,00	**							

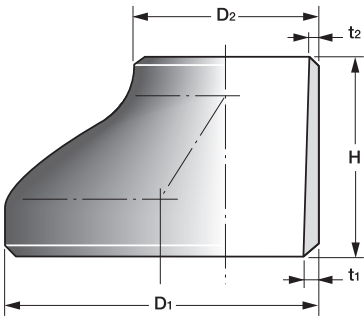
Les masses indiquées sont approximatives.



concentric and eccentric reducers
ASME B 16.9–1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	End-to-end length Longueur	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
			t_1 W.T. / ép. mm				
			t_2 W.T. / ép. mm				
			weight / masse kg				
34 x 32	864	610	9,52	12,70	7,92	12,70	15,88
	813		9,52	12,70	7,92	12,70	15,88
			123,00	162,00	112,00	157,00	202,00
34 x 30	864	610	9,52	12,70	7,92	12,70	15,88
	762		9,52	12,70	7,92	12,70	15,88
			123,00	162,00	112,00	157,00	202,00
34 x 26	864	610	9,52	12,70	7,92	12,70	15,88
	660		9,52	12,70	7,92	12,70	15,88
			123,00	162,00	112,00	157,00	202,00
34 x 24	864	610	9,52	12,70	7,92	12,70	15,88
	610		9,52	12,70	6,35	9,52	14,27
			123,00	162,00	112,00	157,00	202,00
36 x 34	914	610	9,52	12,70	7,92	12,70	15,88
	864		9,52	12,70	7,92	12,70	15,88
			129,00	172,00	123,00	172,00	221,00
36 x 32	914	610	9,52	12,70	7,92	12,70	15,88
	813		9,52	12,70	7,92	12,70	15,88
			129,00	172,00	123,00	172,00	221,00
36 x 30	914	610	9,52	12,70	7,92	12,70	15,88
	762		9,52	12,70	7,92	12,70	15,88
			129,00	172,00	123,00	172,00	221,00
36 x 26	914	610	9,52	12,70	7,92	12,70	
	660		9,52	12,70	7,92	12,70	
			129,00	172,00	123,00	172,00	
36 x 24	914	610	9,52	12,70	7,92	12,70	15,88
	610		9,52	12,70	6,35	9,52	14,27
			129,00	172,00	123,00	172,00	221,00
38 x 36	965	610	9,52	12,70			
	914		9,52	12,70			
			136,00	186,00			
38 x 34	965	610	9,52	12,70			
	864		9,52	12,70			
			136,00	186,00			

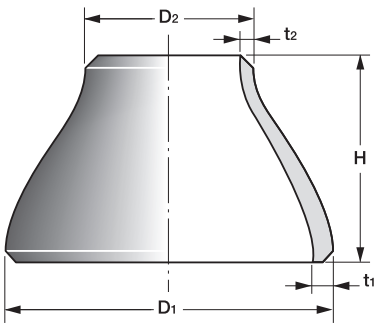
Weights are approximate.



réductions concentriques et excentriques
ASME B 16.9-1993

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS)
t ₁ W.T. / ép. mm								Diamètre Nominal
t ₂ W.T. / ép. mm								
weight / masse kg								inches / pouces
38 x 32	965	610	9,52	12,70				
	813		9,52	12,70				
			136,00	186,00				
38 x 30	965	610	9,52	12,70				
	762		9,52	12,70				
			136,00	186,00				
38 x 28	965	610	9,52	12,70				
	711		9,52	12,70				
			136,00	186,00				
38 x 26	965	610	9,52	12,70				
	660		9,52	12,70				
			136,00	186,00				
40 x 38	1016	610	9,52	12,70				
	965		9,52	12,70				
			143,00	193,00				
40 x 36	1016	610	9,52	12,70				
	914		9,52	12,70				
			143,00	193,00				
40 x 34	1016	610	9,52	12,70				
	864		9,52	12,70				
			143,00	193,00				
40 x 32	1016	610	9,52	12,70				
	813		9,52	12,70				
			143,00	193,00				
40 x 30	1016	610	9,52	12,70				
	762		9,52	12,70				
			143,00	193,00				
42 x 40	1067	610	9,52	12,70				
	1016		9,52	12,70				
			152,00	201,00				
42 x 38	1067	610	9,52	12,70				
	965		9,52	12,70				
			152,00	201,00				

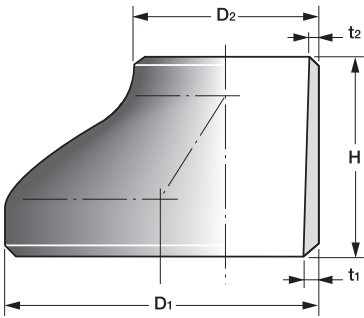
Les masses indiquées sont approximatives.



concentric and eccentric reducers
ASME B 16.9–1993

Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	End-to-end length Longueur	STD	E.F. X.S.	X.E.F. X.X.S.	SCH 10	SCH 20
			t_1 W.T. / ép. mm				
			t_2 W.T. / ép. mm				
			weight / masse kg				
42 x 36	1067	610			9,52		12,70
	811				9,52		12,70
					152,00		201,00
42 x 34	1067	610			9,52		12,70
	811				9,52		12,70
					152,00		201,00
42 x 32	1067	610			9,52		12,70
	812				9,52		12,70
					152,00		201,00
42 x 30	1067	610			9,52		12,70
	762				9,52		12,70
					152,00		201,00
44 x 42	1118	610			9,52		12,70
	1047				9,52		12,70
					159,00		211,00
44 x 40	1118	610			9,52		12,70
	1016				9,52		12,70
					159,00		211,00
44 x 38	1118	610			9,52		12,70
	865				9,52		12,70
					159,00		211,00
44 x 36	1118	610			9,52		12,70
	811				9,52		12,70
					159,00		211,00
46 x 44	1168	711			9,52		12,70
	1118				9,52		12,70
					170,00		225,00
46 x 42	1168	711			9,52		12,70
	1047				9,52		12,70
					170,00		225,00

Weights are approximate.

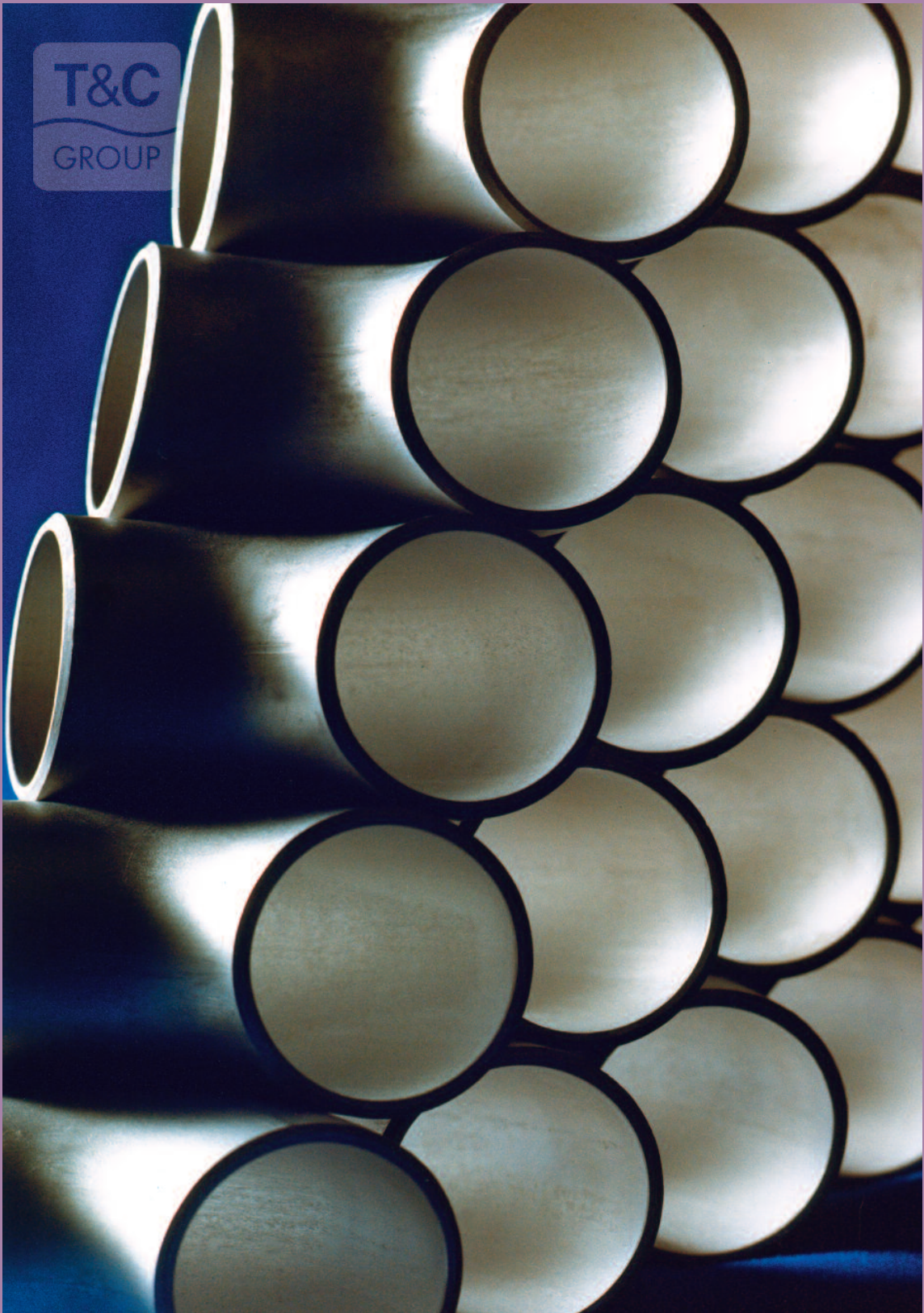


réductions concentriques et excentriques

ASME B 16.9-1993

SCH 30	SCH 40	SCH 60	SCH 80	SCH 100	SCH 120	SCH 140	SCH 160	Nominal Pipe Size (NPS)
t ₁ W.T. / ép. mm								Diamètre Nominal
t ₂ W.T. / ép. mm								
weight / masse kg								inches / pouces
46 x 40	1168		711	9,52		12,70		
	1016			9,52		12,70		
				170,00		225,00		
46 x 38	1168		711	9,52		12,70		
	965			9,52		12,70		
				170,00		225,00		
48 x 46	1219		711	9,52		12,70		
	1168			9,52		12,70		
				181,00		238,00		
48 x 44	1219		711	9,52		12,70		
	1118			9,52		12,70		
				181,00		238,00		
48 x 42	1219		711	9,52		12,70		
	1067			9,52		12,70		
				181,00		238,00		
48 x 40	1219		711	9,52		12,70		
	1016			9,52		12,70		
				181,00		238,00		

Les masses indiquées sont approximatives.



B- Stainless steel butt weld fittings

1. Standards overview

For steel, stainless steel fittings are in strict accordance with ASTM requirements.
Les raccords en acier inoxydable répondent, en ce qui concerne la matière, aux exigences de l'ASTM.

ASTM A 403 / A 403 M – 13a		Grades / Nuances (1) (2)				
		WP 304 CR 304	WP 304 L CR 304 L	WP 316 CR 316	WP 316 L CR 316 L	WP 321 CR 321
Chemical requirements	C maxi	0,08	0,030 (d)	0,08	0,030 (d)	0,08
	Mn maxi	2,00	2,00	2,00	2,00	2,00
	P maxi	0,045	0,045	0,045	0,045	0,045
	S maxi	0,030	0,030	0,030	0,030	0,030
	Si maxi	1,00	1,00	1,00	1,00	1,00
Composition chimique	Ni	8,00 – 11,0	8,00 – 12,0	10,0 – 14,0	10,0 – 14,0 (e)	9,00 – 12,0
	Cr	18,0 – 20,0	18,0 – 20,0	16,0 – 18,0	16,0 – 18,0	17,0 – 19,0
	No	–	–	2,0 – 3,0	2,0 – 3,0	
	Ti	–	–			(f)

- (d) A carbon maximum of 0.040 % is necessary for small outside diameters (less than 0.500 in) or thin walls (less than 0.049 in).
(e) On pierced tubing, the nickel may be 11.0 – 16.0 %.
(f) Ti : 5 x % C minimum – 0.70 % maximum
- (d) Une teneur maxi en carbone de 0,040 % est nécessaire pour les petits diamètres extérieurs (inférieurs à 12,7 mm) ou les faibles épaisseurs (inférieures à 1,24 mm).
(e) Sur les tubes forés, le nickel peut être de 11,0 – 16,0 %.
(f) Ti : 5 x % C minimum – 0,70 % maximum

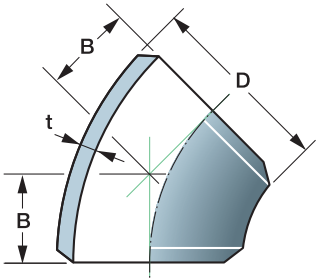
Mechanical requirements Caractéristiques mécaniques	Minimum yield strength Limite élastique minimum	MPa	205	170	205	170	205
		ksi	30	25	30	25	30
	Minimum tensile strength Résistance minimum	MPa	515	485	515	485	515
		ksi	75	70	75	70	75
	Elongation minimum % in 4D [3] Allongement minimum % sur 4D [3]	Long. 28 – Transv. 20					

- (1) Classes WP are manufactured to the requirements of ASME B 16.9 and B 16.28 ; classes CR are those manufactured to MSS-SP 43 requirements.
(2) The WP class designation shall be supplemented by following symbols: «S» for seamless fittings, «W», «WX» or «WU» for fittings of welded construction
(3) Standard round specimen or small proportional specimen, or strip-type specimen.
- (1) Les nuances WP répondent aux conditions de ASME B 16.9 et B 16.28 ; les nuances CR répondent aux conditions de MSS-SP 43
(2) La désignation de la nuance WP sera suivie des symboles suivant : «S» pour les raccords sans soudure, «W», «WX» ou «WU» pour les raccords comportant des soudures
(3) Pour éprouvette cylindrique standard ou éprouvette proportionnelle réduite ou éprouvette sous forme de bande découpée dans le tube.

2. Stainless steel butt weld fittings weight and dimension

45° long radius elbows / coudes long rayon à 45°

ASME B 16.9-1993
MSS-SP 43-1991



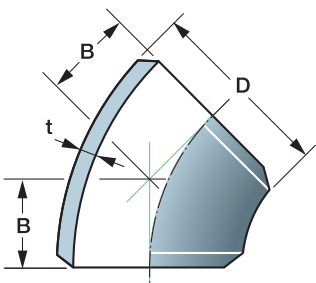
Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Centre-à-extrémité	SCH 5S	SCH 10S	SCH 40S	SCH 80S
inches/pouces	D – mm	B – mm	t W.T. / ép. mm weight / masse kg			
1/2	21	16	1,65	2,11	2,77	3,73
			0,02	0,03	0,04	0,05
3/4	27	19 (1)	1,65	2,11	2,87	3,91
			0,03	0,03	0,04	0,05
1	33	22	1,65	2,77	3,38	4,55
			0,05	0,09	0,12	0,15
1 1/4	42	25	1,65	2,77	3,56	4,85
			0,09	0,12	0,15	0,25
1 1/2	48	29	1,65	2,77	3,68	5,08
			0,11	0,17	0,22	0,30
2	60	35	1,65	2,77	3,91	5,54
			0,14	0,25	0,35	0,50
2 1/2	73	44	2,11	3,05	5,16	7,01
			0,34	0,48	0,75	1,00
3	89	51	2,11	3,05	5,49	7,62
			0,48	0,62	1,05	1,50
3 1/2	102	57	2,11	3,05	5,74	8,08
			0,55	0,76	1,45	2,00
4	114	64	2,11	3,05	6,02	8,56
			0,75	1,10	2,10	3,10

(1) The dimension may be 11 mm, at manufacturer's option.
(2) Those do not conform to ASME B 36.19 M

** Weight on application.
Weights are approximate

45° long radius elbows / coudes long rayon à 45°

ASME B 16.9-1993
MSS-SP 43-1991



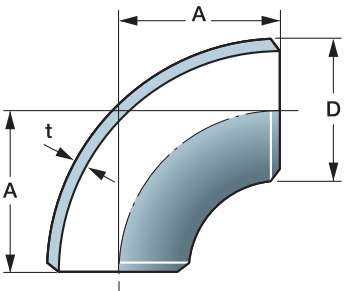
Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Centre-à-extrémité	SCH 5S	SCH 10S	SCH 40S	SCH 80S
inches/pouces	D – mm	B – mm	t W.T. / ép. mm weight / masse kg			
5	141	79	2,77	3,40	6,55	9,53
			1,50	1,80	3,40	4,80
6	168	95	2,77	3,40	7,11	10,97
			2,25	2,75	5,40	8,20
8	219	127	2,77	3,76	8,18	12,70
			4,00	5,30	10,70	16,50
10	273	159	3,40	4,19	9,27	12,70
			7,25	9,80	19,30	26,00
12	324	190	3,96	4,57	9,53	12,70
			11,60	13,60	29,70	40,00
14	356	222	3,96	4,78	9,53	(2)
			15,40	18,10	35,40	
16	406	254	4,19	4,78	9,53	(2)
			22,60	23,80	46,20	
18	457	286	4,19	4,78	9,53	(2)
			28,40	30,0	59,80	
20	508	318	4,78	5,54	9,53	(2)
			37,40	50,00	74,00	
22	559	343	4,78	5,54	9,53	(2)
			**	**	**	
24	610	381	5,54	6,35	9,53	(2)
			63,50	71,00	105,00	

(1) La dimension peut être 11 mm suivant option du fabricant
(2) Ces dimensions ne sont pas reprises dans ASME B 36.19 M

** Masse sur demande.
Les masses indiquées sont approximatives.

90° long radius elbows / coudes long rayon à 90°

ASME B 16.9 – 1993
MSS-SP 43 – 1991



Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Centre-à-extrémité	SCH 5S	SCH 10S	SCH 40S	SCH 80S
inches/pouces	D – mm	A – mm	t W.T. / ép. mm weight / masse kg			
1/2	21	38	1,65	2,11	2,77	3,73
			0,06	0,06	0,08	0,10
3/4	27	38 (1)	1,65	2,11	2,87	3,91
			0,06	0,07	0,09	0,12
1	33	38	1,65	2,77	3,38	4,55
			0,09	0,15	0,16	0,22
1 1/4	42	48	1,65	2,77	3,56	4,85
			0,14	0,25	0,25	0,40
1 1/2	48	57	1,65	2,77	3,68	5,08
			0,17	0,30	0,40	0,50
2	60	76	1,65	2,77	3,91	5,54
			0,30	0,50	0,70	0,90
2 1/2	73	95	2,11	3,05	5,16	7,01
			0,70	0,85	1,40	1,80
3	89	114	2,11	3,05	5,49	7,62
			0,90	1,20	2,20	3,00
3 1/2	102	133	2,11	3,05	5,74	8,08
			1,20	1,70	2,90	4,00
4	114	152	2,11	3,05	6,02	8,56
			1,50	2,20	4,20	6,20

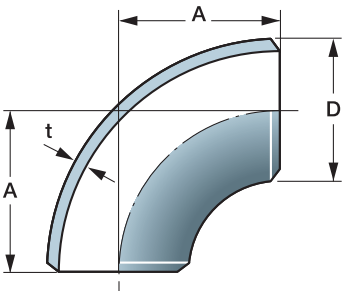
(1) The dimension may be 29 mm, at manufacturer's option

(2) Those do not conform to ASME B 36.19 M

** Weight on application.
Weights are approximate.

90° long radius elbows / coudes long rayon à 90°

ASME B 16.9 – 1993
MSS-SP 43 – 1991



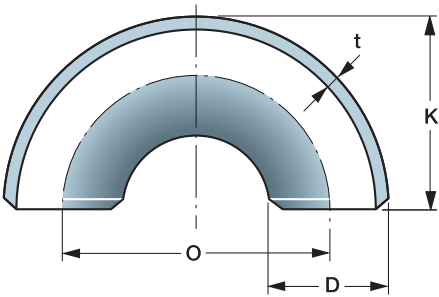
Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Centre-à-extrémité	SCH 5S	SCH 10S	SCH 40S	SCH 80S
inches/pouces	D – mm	A – mm	t W.T. / ép. mm weight / masse kg			
5	141	190	2,77	3,40	6,55	9,53
			3,00	3,60	6,90	9,60
6	168	229	2,77	3,40	7,11	10,97
			4,50	5,40	11,00	16,30
8	219	305	2,77	3,76	8,18	12,70
			7,80	10,60	21,50	33,10
10	273	381	3,40	4,19	9,27	12,70
			14,50	19,50	38,50	52,00
12	324	457	3,96	4,57	9,53	12,70
			23,10	27,50	60,00	80,00
14	356	533	3,96	4,78	9,53	(2)
			30,80	36,00	70,00	
16	406	610	4,19	4,78	9,53	(2)
			45,30	47,50	92,00	
18	457	686	4,19	4,78	9,53	(2)
			56,60	60,00	122,00	
20	508	762	4,78	5,54	9,53	(2)
			75,00	100,00	150,00	
22	559	838	4,78	5,54	9,53	(2)
			**	**	**	
24	610	914	5,54	6,35	9,53	(2)
			130,00	140,00	210,00	

(1) La dimension peut être 29 mm, suivant option du fabricant.
(2) Ces dimensions ne sont pas reprises dans ASME B 36.19 M

** Masse sur demande.
Les masses indiquées sont approximatives.

180° long radius returns
coudes long rayon à 180°

ASME B 16.9 – 1993
MSS-SP43 – 1991



Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-center Entraxe	Back-to-face Hauteur	SCH 5S	SCH 10S	SCH 40S	SCH 80S
inches/pouces	D – mm	O – mm	K – mm	t W.T. / ép. mm weight / masse kg			
1/2	21	76	48	1,65	2,11	2,77	3,73
				0,10	0,12	0,16	0,20
3/4	27	76 (1)	51 (1)	1,65	2,11	2,87	3,91
				0,14	0,19	0,23	0,32
1	33	76	56	1,65	2,77	3,38	4,55
				0,24	0,34	0,35	0,65
1 1/4	42	95	70	1,65	2,77	3,56	4,85
				0,45	0,57	0,75	1,10
1 1/2	48	114	83	1,65	2,77	3,68	5,08
				0,60	0,80	1,05	1,40
2	60	152	106	1,65	2,77	3,91	5,54
				0,95	1,40	2,00	2,80
2 1/2	73	191	132	2,11	3,05	5,16	7,01
				1,60	2,70	3,50	4,40
3	89	229	159	2,11	3,05	5,49	7,62
				2,40	4,50	5,80	7,80
3 1/2	102	267	184	2,11	3,05	5,74	8,08
				3,00	4,80	7,10	10,00
4	114	305	210	2,11	3,05	6,02	8,56
				5,40	6,20	11,10	15,50

[1] O and K dimensions for size NPS 3/4" may be O = 57 mm and K = 43 mm, at manufacturer's option

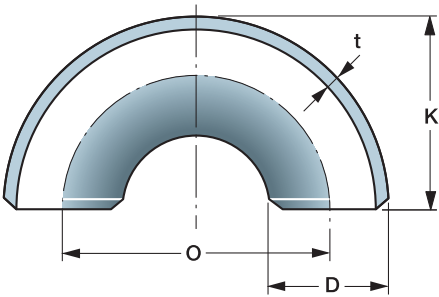
[2] Those do not conform to ASME B 36.19 M

[3] NPS 22" only for ASME B 16.9

** Weight on application.
Weights are approximate

180° long radius returns
coudes long rayon à 180°

ASME B 16.9 – 1993
MSS-SP43 – 1991

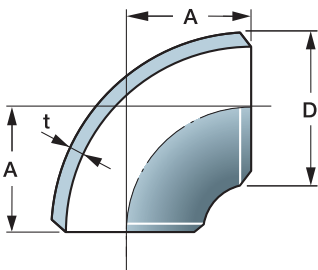


Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-center Entraxe	Back-to-face Hauteur	SCH 5S	SCH 10S	SCH 40S	SCH 80S
inches/pouces	D – mm	O – mm	K – mm	t W.T. / ép. mm weight / masse kg			
5	141	381	262	2,77	3,40	6,55	9,53
				5,90	7,30	14,10	19,50
6	168	457	313	2,77	3,40	7,11	10,97
				9,10	10,90	21,70	32,50
8	219	610	414	2,77	3,76	8,18	12,70
				15,90	21,50	43,00	66,00
10	273	762	518	3,40	4,19	9,27	12,70
				29,00	39,00	77,00	103,00
12	324	914	619	3,96	4,57	9,53	12,70
				46,20	54,50	120,00	160,00
14	356	1067	711	3,96	4,78	9,53	(2)
				62,00	72,50	140,00	
16	406	1219	813	4,19	4,78	9,53	(2)
				91,00	96,00	185,00	
18	457	1372	914	4,19	4,78	9,53	(2)
				113,00	120,00	245,00	
20	508	1524	1016	4,78	5,54	9,53	(2)
				150,00	200,00	300,00	
22 [3]	559	1676	1118	4,78	5,54		
				**	**		
24	610	1829	1219	5,54	6,35	9,53	(2)
				255,00	280,00	420,00	

(1) Les dimensions O et K pour NPS 3/4" peuvent être respectivement 57 et 43 mm, à l'option du fabricant
(2) Ces dimensions ne sont pas reprises dans ASME B 36.19 M
(3) NPS 22" uniquement pour ASME B16.9

** Masse sur demande.
Les masses indiquées sont approximatives

90° short radius elbows
coudes court rayon à 90°
ASME B 16.9 – 1993



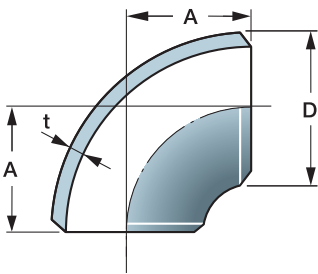
Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Centre-à-extrémité	SCH 5S	SCH 10S	SCH 40S	SCH 80S
inches/pouces	D – mm	A – mm	t W.T. / ép. mm weight / masse kg			
1	33	25	1,65	2,77	3,38	4,55
			0,08	0,10	0,12	0,18
1 1/4	42	32	1,65	2,77	3,56	4,85
			0,14	0,17	0,20	0,30
1 1/2	48	38	1,65	2,77	3,68	5,08
			0,19	0,22	0,30	0,40
2	60	51	1,65	2,77	3,91	5,54
			0,30	0,37	0,50	0,70
2 1/2	73	64	2,11	3,05	5,16	7,01
			0,60	0,75	1,05	1,30
3	89	76	2,11	3,05	5,49	7,62
			0,80	1,00	1,50	1,90
3 1/2	102	89	2,11	3,05	5,74	8,08
			1,05	1,40	2,05	2,40
4	114	102	2,11	3,05	6,02	8,56
			1,40	1,70	3,10	4,10
5	141	127	2,77	3,40	6,55	9,53
			2,25	2,80	5,30	7,30
6	168	152	2,77	3,40	7,11	10,97
			3,50	4,20	7,90	11,80

[2] Those do not conform to ASME B 36.19 M

** Weight on application.
Weights are approximate.

90° short radius elbows
coudes court rayon à 90°

ASME B 16.9 – 1993



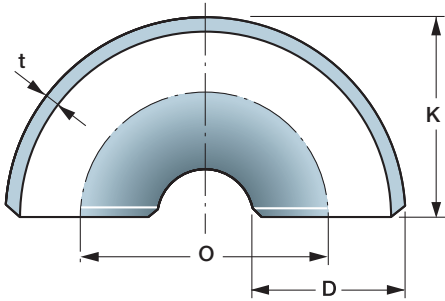
Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-end Centre-à-extrémité	SCH 5S	SCH 10S	SCH 40S	SCH 80S
inches/pouces	D – mm	A – mm	t W.T. / ép. mm weight / masse kg			
8	219	203	2,77	3,76	8,18	12,70
			7,00	8,00	17,00	25,00
10	273	254	3,40	4,19	9,27	12,70
			12,40	15,90	28,50	45,00
12	324	305	3,96	4,57	9,53	12,70
			15,90	18,10	36,00	57,00
14	356	356	3,96	4,78	9,53	
			20,00	23,50	46,00	
16	406	406	4,19	4,78	9,53	
			29,50	31,00	60,00	
18	457	457	4,19	4,78	9,53 ⁽²⁾	
			36,70	39,50	79,00	
20	508	508	4,78	5,54	9,53 ⁽²⁾	
			49,00	65,00	97,00	
22	559	559	4,78	5,54		
			**	**		
24	610	610	5,54	6,35	9,53 ⁽²⁾	
			83,00	92,00	137,00	

[2] Ces dimensions ne sont pas reprises dans ASME B 36.19 M

** Masse sur demande.
Les masses indiquées sont approximatives.

180° short radius returns
coudes court rayon à 180°

ASME B 16.9 – 1993

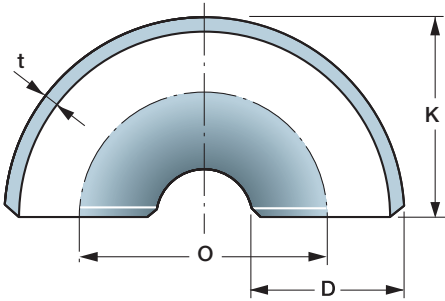


Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-center Entraxe	Back-to-face Hauteur	SCH 5S	SCH 10S	SCH 40S	SCH 80S
inches/pouces	D – mm	O – mm	K – mm	t W.T. / ép. mm weight / masse kg			
1	33	51	41	1,65	2,77	3,38	4,55
				0,16	0,20	0,24	0,35
1 1/4	42	64	52	1,65	2,77	3,56	4,85
				0,30	0,35	0,40	0,60
1 1/2	48	76	62	1,65	2,77	3,68	5,08
				0,40	0,45	0,60	0,80
2	60	102	81	1,65	2,77	3,91	5,54
				0,55	0,75	1,05	1,40
2 1/2	73	127	100	2,11	3,05	5,16	7,01
				1,15	1,25	2,05	2,60
3	89	152	121	2,11	3,05	5,49	7,62
				1,60	2,00	3,00	3,80
3 1/2	102	178	140	2,11	3,05	5,74	8,08
				2,15	2,75	4,10	4,80
4	114	203	159	2,11	3,05	6,02	8,56
				2,80	3,50	6,25	8,20
5	141	254	197	2,77	3,40	6,55	9,53
				4,50	5,60	10,50	15,00
6	168	305	237	2,77	3,40	7,11	10,97
				7,00	8,30	16,00	24,00

[2] Those do not conform to ASME B 36.19 M

** Weight on application.
Weights are approximate.

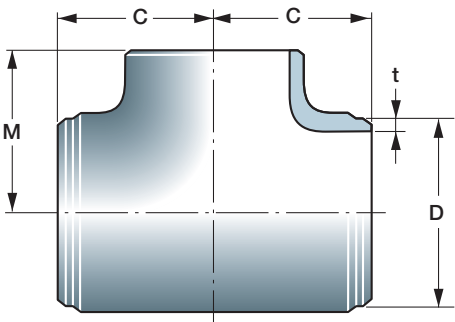
180° short radius returns
coudes court rayon à 180°
ASME B 16.9 – 1993



Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Center-to-center Entraxe	Back-to-face Hauteur	SCH 5S	SCH 10S	SCH 40S	SCH 80S
inches/pouces	D – mm	O – mm	K – mm	t W.T. / ép. mm weight / masse kg			
8	219	406	313	2,77	3,76	8,18	12,70
				14,00	16,00	34,00	50,00
10	273	508	391	3,40	4,19	9,27	12,70
				25,00	32,00	57,00	90,00
12	324	610	467	3,96	4,57	9,53	12,70
				32,00	36,00	73,00	113,00
14	356	711	533	3,96	4,78	9,53	
				40,00	47,00	92,00	
16	406	813	610	4,19	4,78	9,53	
				60,00	62,00	120,00	
18	457	914	686	4,19	4,78	9,53	
				74,00	78,00	160,00	
20	508	1016	762	4,78	5,54	9,53	
				97,00	130,00	195,00	
22	559	1118	838	4,78	5,54		
				**	**		
24	610	1219	914	5,54	6,35	9,53	
				165,00	185,00	275,00	

[2] Ces dimensions ne sont pas reprises dans ASME B 36.19 M

** Masse sur demande.
Les masses indiquées sont approximatives.



straight tees / té s égaux

ASME B 16.9 – 1993

MSS-SP43 – 1991

Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M – mm		SCH 5S	SCH 10S	SCH 40S	SCH 80S
				t W.T. / ép. mm weight / masse kg			
1/2	21	25	25	1,65	2,11	2,77	3,73
				00,9	0,10	0,12	0,14
3/4	27	29	29	1,65	2,11	2,87	3,91
				0,10	0,13	0,17	0,20
1	33	38	38	1,65	2,77	3,38	4,55
				0,18	0,28	0,30	0,40
1 1/4	42	48	48	1,65	2,77	3,56	4,85
				0,35	0,50	0,60	0,70
1 1/2	48	57	57	1,65	2,77	3,68	5,08
				0,45	0,70	0,90	1,05
2	60	64	64	1,65	2,77	3,91	5,54
				0,55	0,85	1,30	1,60
2 1/2	73	76	76	2,11	3,05	5,16	7,01
				1,00	1,40	2,20	3,10
3	89	86	86	2,11	3,05	5,49	7,62
				1,55	1,80	3,30	4,40
3 1/2	102	95	95	2,11	3,05	5,74	8,08
				2,50	2,70	4,10	5,40
4	114	105	105	2,11	3,05	6,02	8,56
				3,30	3,50	5,30	7,70

[2] Those do not conform to ASME B 36.19 M

[3] NPS 22" only for ASME B 16.9

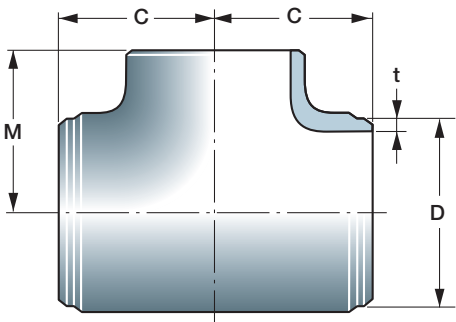
** Weight on application.

Weights are approximate.

straight tees / tésgaux

ASME B 16.9 – 1993

MSS-SP43 – 1991



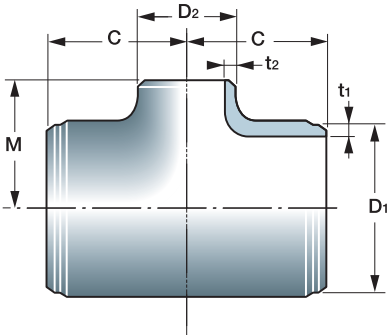
Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm	Center-to-end Encombrement C – mm M – mm		SCH 5S	SCH 10S	SCH 40S	SCH 80S
				t W.T. / ép. mm			
				weight / masse kg			
5	141	124	124	2,77	3,40	6,55	9,53
				5,90	6,10	9,40	11,50
6	168	143	143	2,77	3,40	7,11	10,97
				7,80	8,10	11,00	13,60
8	219	178	178	2,77	3,76	8,18	12,70
				14,00	15,60	21,00	28,00
10	273	216	216	3,40	4,19	9,27	12,70
				25,00	27,00	36,00	50,00
12	324	254	254	3,96	4,57	9,53	12,70
				38,00	40,00	62,00	84,00
14	356	279	279	3,96	4,78	9,53	(2)
				40,00	48,00	79,00	
16	406	305	305	4,19	4,78	9,53	(2)
				52,00	59,00	100,00	
18	457	343	343	4,19	4,78	9,53	(2)
				68,00	77,00	130,00	
20	508	381	381	4,78	5,54	9,53	(2)
				78,00	103,00	162,00	
22 (3)	559	419	419	4,78	5,54		
				**	**		
24	610	432	432	5,54	6,35	9,53	(2)
				90,00	155,00	225,00	

[2] Ces dimensions ne sont pas reprises dans ASME B 36.19 M

[3] NPS 22" uniquement pour ASME B16.9

** Masse sur demande.

Les masses indiquées sont approximatives.

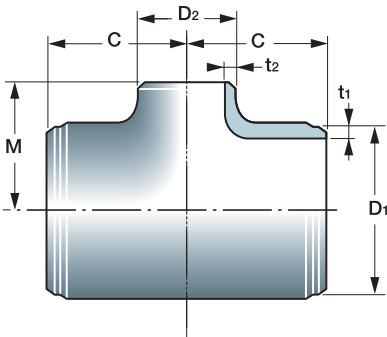


reducing outlet tees / té s réduits

ASME B 16.9 – 1993
MSS-SP43 – 1991

Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm		Center-to-end Encombrement C – mm M – mm		SCH 5S	SCH 10S	SCH 40S	SCH 80S
					t ₁ W.T. /ép. mm			
					t ₂ W.T. /ép. mm			
					weight / masse kg			
1/2 x 3/8 (3)	21	17	25	25		2,11	2,77	3,73
						1,65	2,31	3,20
						0,09	0,10	0,13
1/2 x 1/4 (3)	21	14	25	25		2,11	2,77	3,73
						1,65	2,24	3,02
						0,08	0,09	0,11
3/4 x 1/2	27	21	29	29	1,65	2,11	2,87	3,91
					1,65	2,11	2,77	3,73
					0,11	0,13	0,15	0,19
3/4 x 3/8 (3)	27	17	29	29		2,11	2,87	3,91
						1,65	2,31	3,20
						0,11	0,14	0,17
1 x 3/4	33	27	38	38	1,65	2,77	3,38	4,55
					1,65	2,11	2,87	3,91
					0,17	0,27	0,28	0,36
1 x 1/2	33	21	38	38	1,65	2,77	3,38	4,55
					1,65	2,11	2,77	3,73
					0,16	0,26	0,27	0,35
1 1/4 x 1	42	33	48	48	1,65	2,77	3,56	4,85
					1,65	2,77	3,38	4,55
					0,31	0,46	0,53	0,34
1 1/4 x 3/4	42	27	48	48	1,65	2,77	3,56	4,85
					1,65	2,11	2,87	3,91
					0,30	0,44	0,52	0,64
1 1/4 x 1/2	42	21	48	48	1,65	2,77	3,56	4,85
					1,65	2,11	2,77	3,73
					0,29	0,43	0,51	0,61
1 1/2 x 1 1/4	48	42	57	57	1,65	2,77	3,68	5,08
					1,65	2,77	3,56	4,85
					0,39	0,67	0,78	0,92
1 1/2 x 1	48	33	57	57	1,65	2,77	3,68	5,08
					1,65	2,77	3,38	4,55
					0,38	0,64	0,76	0,90

(3) Only for ASME B 16.9
Weights are approximate.

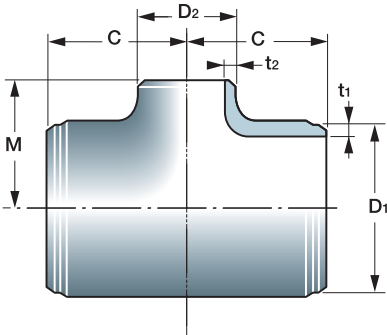


reducing outlet tees / téés réduits

ASME B 16.9 – 1993
MSS-SP43 – 1991

Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm		Center-to-end Encombrement C – mm M – mm		SCH 5S	SCH 10S	SCH 40S	SCH 80S
					t ₁ W.T. /ép. mm			
					t ₂ W.T. /ép. mm			
					weight / masse kg			
1 1/2 x 3/4	48	27	57	57	1,65	2,77	3,68	5,08
					1,65	2,11	2,87	3,91
					0,37	0,62	0,74	0,88
1 1/2 x 1/2 [3]	48	21	57	57	1,65	2,77	3,68	5,08
					1,65	2,11	2,77	3,73
					0,36	0,61	0,73	0,86
2 x 1 1/2	60	48	64	60	1,65	2,77	3,91	5,54
					1,65	2,77	3,68	5,08
					0,49	0,77	1,15	1,43
2 x 1 1/4	60	42	64	57	1,65	2,77	3,91	5,54
					1,65	2,77	3,56	4,85
					0,48	0,75	1,13	1,40
2 x 1	60	33	64	51	1,65	2,77	3,91	5,54
					1,65	2,77	3,38	4,55
					0,47	0,73	1,10	1,37
2 x 3/4	60	27	64	44	1,65	2,77	3,91	5,54
					1,65	2,11	2,87	3,91
					0,46	0,71	1,08	1,35
2 1/2 x 2	73	60	76	70	2,11	3,05	5,16	7,01
					1,65	2,77	3,91	5,54
					0,88	1,21	1,98	2,80
2 1/2 x 1 1/2	73	48	76	67	2,11	3,05	5,16	7,01
					1,65	2,77	3,68	5,08
					0,86	1,19	1,93	2,75
2 1/2 x 1 1/4	73	42	76	64	2,11	3,05	5,16	7,01
					1,65	2,77	3,56	4,85
					0,84	1,17	1,89	2,70
2 1/2 x 1	73	33	76	57	2,11	3,05	5,16	7,01
					1,65	2,77	3,38	4,55
					0,83	1,15	1,87	2,65

[3] Uniquement pour ASME B 16.9
Les masses indiquées sont approximatives.

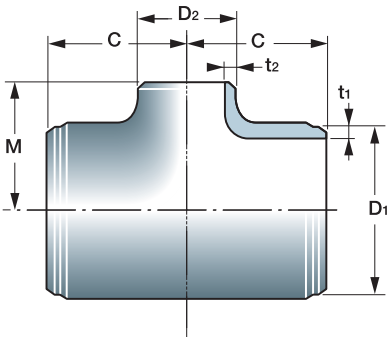


reducing outlet tees / téés réduits

ASME B 16.9 – 1993
MSS-SP43 – 1991

Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm		Center-to-end Encombrement C – mm M – mm		SCH 5S	SCH 10S	SCH 40S	SCH 80S
					t ₁ W.T. /ép. mm			
					t ₂ W.T. /ép. mm			
					weight / masse kg			
3 x 2 1/2	89	73	86	83	2,11	3,05	5,49	7,62
					2,11	3,05	5,16	7,01
					1,39	1,70	3,00	4,00
3 x 2	89	60	86	76	2,11	3,05	5,49	7,62
					1,65	2,77	3,91	5,54
					1,35	1,65	2,90	3,90
3 x 1 1/2	89	48	86	73	2,11	3,05	5,49	7,62
					1,65	2,77	3,68	5,08
					1,33	1,60	2,85	3,85
3 x 1 1/4 (3)	89	42	86	70	2,11	3,05	5,49	7,62
					1,65	2,77	3,56	4,85
					1,31	1,57	2,80	3,80
3 1/2 x 3	102	89	95	92	2,11	3,05	5,74	8,08
					2,11	3,05	5,49	7,62
					2,24	2,15	4,15	4,90
3 1/2 x 2 1/2	102	73	95	89	2,11	3,05	5,74	8,08
					2,11	3,05	5,16	7,01
					2,19	2,10	4,05	4,80
3 1/2 x 2	102	60	95	83	2,11	3,05	5,74	8,08
					1,65	2,77	3,91	5,54
					2,14	2,05	3,50	4,70
3 1/2 x 1 1/2	102	48	95	79	2,11	3,05	5,74	8,08
					1,65	2,77	3,68	5,08
					2,12	2,00	3,45	4,60
4 x 3 1/2	114	102	105	102	2,11	3,05	6,02	8,56
					2,11	3,05	5,74	8,08
					2,94	3,10	4,70	6,95
4 x 3	114	89	105	98	2,11	3,05	6,02	8,56
					2,11	3,05	5,49	7,62
					2,87	3,05	4,65	6,80
4 x 2 1/2	114	73	105	95	2,11	3,05	6,02	8,56
					2,11	3,05	5,16	7,01
					2,80	2,97	4,55	6,60

(3) Only for ASME B 16.9
Weights are approximate.

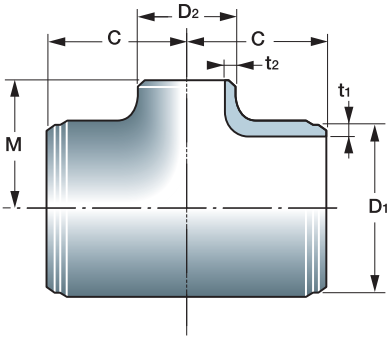


reducing outlet tees / téés réduits

ASME B 16.9 – 1993
MSS-SP43 – 1991

Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm		Center-to-end Encombrement C – mm M – mm		SCH 5S	SCH 10S	SCH 40S	SCH 80S
					t ₁ W.T. /ép. mm			
					t ₂ W.T. /ép. mm			
					weight / masse kg			
4 x 2	114	60	105	89	2,11	3,05	6,02	8,56
					1,65	2,77	3,91	5,54
					2,77	2,93	4,50	6,55
4 x 1 1/2	114	48	105	86	2,11	3,05	6,02	8,56
					1,65	2,77	3,68	5,08
					2,74	2,90	4,45	6,50
5 x 4	141	114	124	117	2,77	3,40	6,55	9,53
					2,11	3,05	6,02	8,56
					5,30	5,50	8,50	10,20
5 x 3 1/2	141	102	124	114	2,77	3,40	6,55	9,53
					2,11	3,05	5,74	8,08
					5,18	5,35	8,30	10,00
5 x 3	141	89	124	111	2,77	3,40	6,55	9,53
					2,11	3,05	5,49	7,62
					5,10	5,25	8,10	9,75
5 x 2 1/2	141	73	124	108	2,77	3,40	6,55	9,53
					2,11	3,05	5,16	7,01
					5,00	5,20	8,00	9,65
5 x 2	141	60	124	105	2,77	3,40	6,55	9,53
					1,65	2,77	3,91	5,54
					4,95	5,10	7,90	9,50
6 x 5	168	141	143	137	2,77	3,40	7,11	10,97
					2,77	3,40	6,55	9,53
					7,00	7,25	12,30	12,20
6 x 4	168	114	143	130	2,77	3,40	7,11	10,97
					2,11	3,05	6,02	8,56
					6,85	7,10	12,10	12,00
6 x 3 1/2	168	102	143	127	2,77	3,40	7,11	10,97
					2,11	3,05	5,74	8,08
					6,70	6,95	12,00	11,70

(3) Uniquement pour ASME B 16.9
Les masses indiquées sont approximatives.

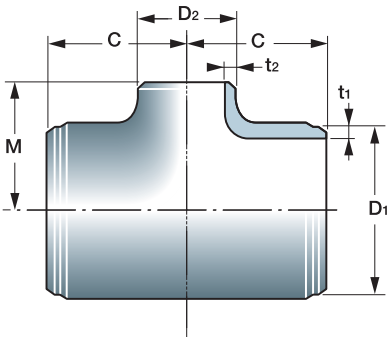


reducing outlet tees / té s réduits

ASME B 16.9 – 1993
MSS-SP43 – 1991

Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein		Center-to-end Encombrement		SCH 5S	SCH 10S	SCH 40S	SCH 80S
					t ₁ W.T. /ép. mm			
					t ₂ W.T. /ép. mm			
					weight / masse kg			
6 x 3	168	89	143	124	2,77	3,40	7,11	10,97
					2,11	3,05	5,49	7,62
					6,65	6,85	11,90	11,50
6 x 2 1/2	168	73	143	121	2,77	3,40	7,11	10,97
					2,11	3,05	5,16	7,01
					6,60	6,75	11,70	11,40
8 x 6	219	168	178	168	2,77	3,76	8,18	12,70
					2,77	3,40	7,11	10,97
					12,60	14,00	18,80	25,30
8 x 5	219	141	178	162	2,77	3,76	8,18	12,70
					2,77	3,40	6,55	9,53
					12,40	13,70	18,40	24,70
8 x 4	219	114	178	156	2,77	3,76	8,18	12,70
					2,11	3,05	6,02	8,56
					12,10	13,40	18,00	24,20
8 x 3 1/2	219	102	178	152	2,77	3,76	8,18	12,70
					2,11	3,05	5,74	8,08
					11,90	13,30	17,80	23,90
10 x 8	273	219	216	203	3,40	4,19	9,27	12,70
					2,77	3,76	8,18	12,70
					22,40	24,10	31,80	44,80
10 x 6	273	168	216	194	3,40	4,19	9,27	12,70
					2,77	3,40	7,11	10,97
					21,90	23,50	31,10	43,90
10 x 5	273	141	216	191	3,40	4,19	9,27	12,70
					2,77	3,40	6,55	9,53
					21,40	23,00	30,40	42,90
10 x 4	273	114	216	184	3,40	4,19	9,27	12,70
					2,11	3,05	6,02	8,56
					21,20	22,70	30,00	42,40

[2] Those do not conform to ASME B 36.19 M
Weights are approximate.

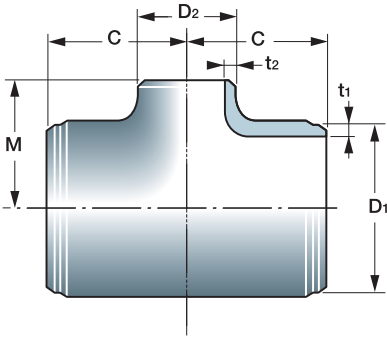


reducing outlet tees / té s réduits

ASME B 16.9 – 1993
MSS-SP43 – 1991

Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm		Center-to-end Encombrement C – mm M – mm		SCH 5S	SCH 10S	SCH 40S	SCH 80S
					t ₁ W.T. /ép. mm			
					t ₂ W.T. /ép. mm			
					weight / masse kg			
12 x 10	324	273	254	241	3,96	4,57	9,53	12,70
					3,40	4,19	9,27	12,70
					33,80	35,50	55,70	75,20
12 x 8	324	219	254	229	3,96	4,57	9,53	12,70
					2,77	3,76	8,18	12,70
					33,10	34,70	54,40	73,80
12 x 6	324	168	254	219	3,96	4,57	9,53	12,70
					2,77	3,40	7,11	10,97
					32,30	33,90	53,50	72,00
12 x 5	324	141	254	216	3,96	4,57	9,53	12,70
					2,77	3,40	6,55	9,53
					32,00	33,50	52,50	71,10
14 x 12	356	324	279	270	3,96	4,78	9,53	
					3,96	4,57	9,53	
					36,30	43,60	71,10	
14 x 10	356	273	279	257	3,96	4,78	9,53	
					3,40	4,19	9,27	
					35,50	42,70	69,80	
14 x 8	356	219	279	248	3,96	4,78	9,53	
					2,77	3,76	8,18	
					34,70	41,70	68,00	
14 x 6	356	168	279	238	3,96	4,78	9,53	
					2,77	3,40	7,11	
					34,30	41,20	67,00	
16 x 14	406	356	305	305	4,19	4,78	9,53	
					3,96	4,78	9,53	
					46,70	53,00	90,00	
16 x 12	406	324	305	295	4,19	4,78	9,53	
					3,96	4,57	9,53	
					45,80	51,60	87,50	

[2] Ces dimensions ne sont pas reprises dans ASME B 36.19 M
Les masses indiquées sont approximatives.



reducing outlet tees / té s réduits

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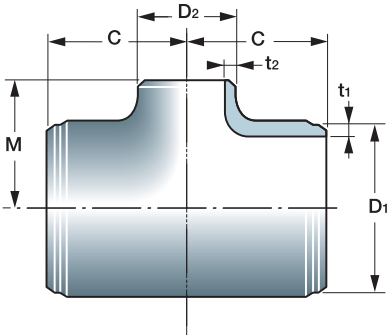
Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein		Center-to-end Encombrement		SCH 5S	SCH 10S	SCH 40S	SCH 80S
					t ₁ W.T. /ép. mm			
					t ₂ W.T. /ép. mm			
					weight / masse kg			
16 x 10	406	273	305	283	4,19	4,78	9,53	
					3,40	4,19	9,27	
					44,80	50,70	85,50	
16 x 8	406	219	305	273	4,19	4,78	9,53	
					2,77	3,76	8,18	
					44,30	49,80	84,50	
16 x 6	406	168	305	264	4,19	4,78	9,53	
					2,77	3,40	7,11	
					43,80	49,40	83,50	
18 x 16	457	406	343	330	4,19	4,78	9,53	
					4,19	4,78	9,53	
					60,70	68,90	116,00	
18 x 14	457	356	343	330	4,19	4,78	9,53	
					3,96	4,78	9,53	
					59,30	67,00	114,00	
18 x 12	457	324	343	321	4,19	4,78	9,53	
					3,96	4,57	9,53	
					58,00	65,70	111,00	
18 x 10	457	273	343	308	4,19	4,78	9,53	
					3,40	4,19	9,27	
					57,00	64,80	110,00	
18 x 8	457	219	343	298	4,19	4,78	9,53	
					2,77	3,76	8,18	
					56,60	64,30	109,00	
20 x 18	508	457	381	368	4,78	5,54	9,53	
					4,19	4,78	9,53	
					69,80	93,00	146,00	
20 x 16	508	406	381	356	4,78	5,54	9,53	
					4,19	4,78	9,53	
					68,80	90,50	143,00	

[2] Those do not conform to ASME B 36.19 M

[3] Only in ASME B 16.9

** Weight on application.

Weights are approximate.



reducing outlet tees / té s réduits

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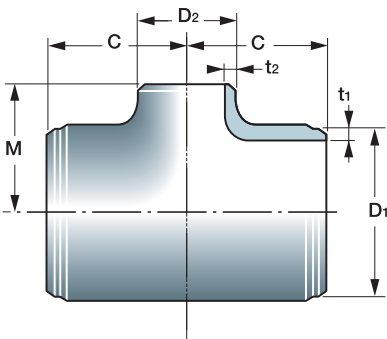
Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm		Center-to-end Encombrement C – mm M – mm		SCH 5S	SCH 10S	SCH 40S	SCH 80S
					t ₁ W.T. /ép. mm			
					t ₂ W.T. /ép. mm			
					weight / masse kg			
20 x 14	508	356	381	356	4,78	5,54	9,53	
					3,96	4,78	9,53	
					66,60	89,00	140,00	
20 x 12	508	324	381	346	4,78	5,54	9,53	
					3,96	4,57	9,53	
					65,70	87,50	138,00	
20 x 10	508	273	381	333	4,78	5,54	9,53	
					3,40	4,19	9,27	
					64,80	86,50	136,00	
20 x 8	508	219	381	324	4,78	5,54	9,53	
					2,77	3,76	8,18	
					63,90	85,50	135,00	
22 x 20 [3]	559	508	419	406	4,78	5,54		
					4,78	5,54		
					**	**		
22 x 18 [3]	559	457	419	394	4,78	5,54		
					4,19	4,78		
					**	**		
22 x 16 [3]	559	406	419	381	4,78	5,54		
					4,19	4,78		
					**	**		
22 x 14 [3]	559	356	419	381	4,78	5,54		
					3,96	4,78		
					**	**		
22 x 12 [3]	559	324	419	371	4,78	5,54		
					3,96	4,57		
					**	**		
22 x 10 [3]	559	273	419	359	4,78	5,54		
					3,40	4,19		
					**	**		

[2] Ces dimensions ne sont pas reprises dans ASME B 36.19 M

[3] Uniquement dans ASME B16.9

** Masse sur demande.

Les masses indiquées sont approximatives.



reducing outlet tees / téés réduits

ASME B 16.9 – 1993
MSS-SP43 – 1991

Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm		Center-to-end Encombrement C – mm M – mm		SCH 5S	SCH 10S	SCH 40S	SCH 80S
					t ₁ W.T. /ép. mm			
					t ₂ W.T. /ép. mm			
					weight / masse kg			
24 x 22 (3)	610	559	432	432	5,54	6,35		
					4,78	5,54		
					**	**		
24 x 20	610	508	432	432	5,54	6,35	9,53	
					4,78	5,54	9,53	
					121,00	140,00	207,00	
24 x 18	610	457	432	419	5,54	6,35	9,53	
					4,19	4,78	9,53	
					119,00	137,00	198,00	
24 x 16	610	406	432	406	5,54	6,35	9,53	
					4,19	4,78	9,53	
					116,00	134,00	194,00	
24 x 14	610	356	432	406	5,54	6,35	9,53	
					3,96	4,78	9,53	
					115,00	132,00	191,00	
24 x 12	610	324	432	397	5,54	6,35	9,53	
					3,96	4,57	9,53	
					113,00	130,00	189,00	
24 x 10	610	273	432	384	5,54	6,35	9,53	
					3,40	4,19	9,27	
					112,00	129,00	187,00	

[2] Ces dimensions ne sont pas reprises dans ASME B 36.19 M

[3] Uniquement dans ASME B 16.9

** Masse sur demande

Les masses indiquées sont approximatives.

[2] Those do not conform to ASME B 36.19 M

[3] Only in ASME B 16.9

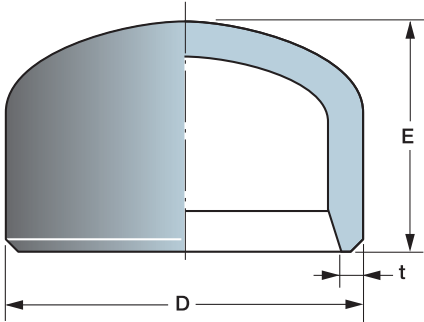
** Weight on application.

Weights are approximate.



caps

ASME B 16.9 – 1993
MSS-SP43 – 1991



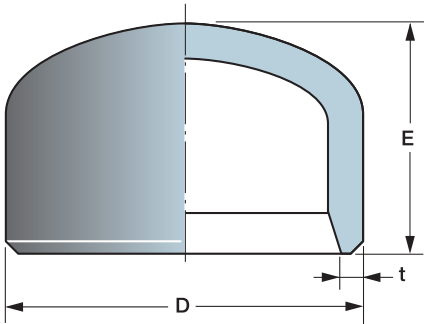
Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Hauteur Length	SCH 5S	SCH 10S	SCH 40S	SCH 80S
inches/pouces	D – mm	E – mm	t W.T. / ép. mm weight / masse kg			
1/2	21	25	1,65	2,11	2,77	3,73
			0,04	0,04	0,05	0,06
3/4	27	25	1,65	2,11	2,87	3,91
			0,05	0,06	0,06	0,07
1	33	38	1,65	2,77	3,38	4,55
			0,08	0,09	0,13	0,14
1 1/4	42	38	1,65	2,77	3,56	4,85
			0,09	0,13	0,17	0,18
1 1/2	48	38	1,65	2,77	3,68	5,08
			0,10	0,14	0,23	0,25
2	60	38	1,65	2,77	3,91	5,54
			0,16	0,20	0,27	0,35
2 1/2	73	38	2,11	3,05	5,16	7,01
			0,25	0,30	0,45	0,50
3	89	51	2,11	3,05	5,49	7,62
			0,40	0,45	0,70	0,85
3 1/2	102	64	2,11	3,05	5,74	8,08
			0,55	0,60	1,05	1,15
4	114	64	2,11	3,05	6,02	8,56
			0,60	0,65	1,20	1,60

Note: The shape of these caps for ASME B 16.9 shall be ellipsoidal and shall conform to the shape requirements as given in the «ASME Boiler and Pressure Vessel» code.
[2] Those do not conform to ASME B 36.19 M
[3] Only in ASME B 16.9

** Weight on application.
Weights are approximate.

caps

ASME B 16.9 – 1993
MSS-SP43 – 1991



Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein	Hauteur Length	SCH 5S	SCH 10S	SCH 40S	SCH 80S
inches/pouces	D – mm	E – mm	t W.T. / ép. mm weight / masse kg			
5	141	76	2,77	3,40	6,55	9,53
			0,90	1,05	1,90	2,60
6	168	89	2,77	3,40	7,11	10,97
			1,25	1,40	3,20	4,50
8	219	102	2,77	3,76	8,18	12,70
			2,10	2,50	5,70	7,40
10	273	127	3,40	4,19	9,27	12,70
			4,30	4,90	9,20	12,40
12	324	152	3,96	4,57	9,53	12,70
			6,40	7,00	13,00	16,60
14	356	165	3,96	4,78	9,53	(2)
			7,80	8,50	16,50	
16	406	178	4,19	4,78	9,53	(2)
			13,50	14,50	22,00	
18	457	203	4,19	4,78	9,53	(2)
			17,20	18,00	27,00	
20	508	229	4,78	5,54	9,53	(2)
			25,00	27,50	34,00	
22 (3)	559	254	4,78	5,54		
			**	**		
24	610	267	5,54	6,35	9,53	(2)
			34,00	35,00	45,00	

Note : La forme de ces caps pour ASME B 16.9 sera ellipsoïdale et conforme aux exigences du code «ASME Boiler and Pressure Vessel»

(2) Ces dimensions ne sont pas reprises dans ASME B 36.19 M

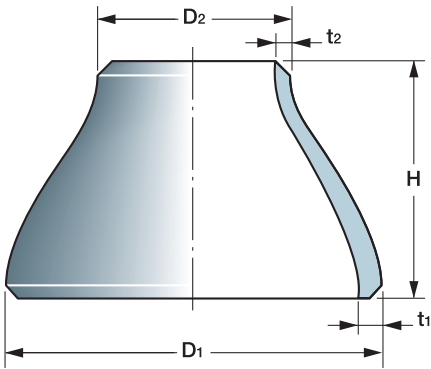
(3) Uniquement dans ASME B16.9

** Masse sur demande.

Les masses indiquées sont approximatives.

concentric and eccentric reducers
réductions concentriques et excentriques

ASME B 16.9 – 1993
MSS-SP43 – 1991



Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein		Longueur End-to-end length	SCH 5S	SCH 10S	SCH 40S	SCH 80S
				t ₁ W.T. / ép. mm			
	D – mm			t ₂ W.T. / ép. mm			
				weight / masse kg			
3/4 x 1/2	27	21	38	1,65	2,11	2,87	3,91
				1,65	2,11	2,77	3,73
				0,08	0,10	0,13	0,18
3/4 x 3/8 (3)	27	17	38		2,11	2,87	3,91
					1,65	2,31	3,20
					0,09	0,12	0,17
1 x 3/4	33	27	51	1,65	2,77	3,38	4,55
				1,65	2,11	2,87	3,91
				0,08	0,13	0,16	0,21
1 x 1/2	33	21	51	1,65	2,77	3,38	4,55
				1,65	2,11	2,77	3,73
				0,07	0,12	0,15	0,19
1 x 3/8 (4)	33	17	51		2,77	3,38	4,55
					1,65	2,31	3,20
					**	**	**
1 1/4 x 1	42	33	51	1,65	2,77	3,56	4,85
				1,65	2,77	3,38	4,55
				0,10	0,18	0,22	0,27
1 1/4 x 3/4	42	27	51	1,65	2,77	3,56	4,85
				1,65	2,11	2,87	3,91
				0,10	0,17	0,21	0,25
1 1/4 x 1/2	42	21	51	1,65	2,77	3,56	4,85
				1,65	2,11	2,77	3,73
				0,09	0,16	0,20	0,23
1 1/2 x 1 1/4	48	42	64	1,65	2,77	3,68	5,08
				1,65	2,77	3,56	4,85
				0,12	0,21	0,28	0,36
1 1/2 x 1	48	33	64	1,65	2,77	3,68	5,08
				1,65	2,77	3,38	4,55
				0,11	0,20	0,26	0,33

(3) Only in ASME B 16.9

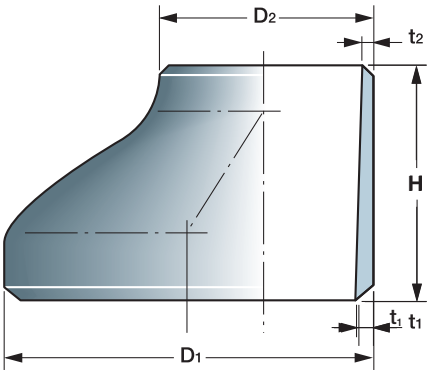
(4) Only in MSS-SP 43

** Weight on application.

Weights are approximate

concentric and eccentric reducers
réductions concentriques et excentriques

ASME B 16.9 – 1993
MSS-SP43 – 1991



Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm		Longueur End-to-end length H – mm	SCH 5S	SCH 10S	SCH 40S	SCH 80S
				t ₁ W.T. / ép.			mm
				t ₂ W.T. / ép.			mm
				weight / masse			kg
1 1/2 x 3/4	48	27	64	1,65	2,77	3,68	5,08
				1,65	2,11	2,87	3,91
				0,11	0,18	0,24	0,32
1 1/2 x 1/2	48	21	64	1,65	2,77	3,68	5,08
				1,65	2,11	2,77	3,73
				0,10	0,17	0,22	0,31
2 x 1 1/2	60	48	76	1,65	2,77	3,91	5,54
				1,65	2,77	3,68	5,08
				0,19	0,31	0,45	0,59
2 x 1 1/4	60	42	76	1,65	2,77	3,91	5,54
				1,65	2,77	3,56	4,85
				0,18	0,30	0,43	0,57
2 x 1	60	33	76	1,65	2,77	3,91	5,54
				1,65	2,77	3,38	4,55
				0,17	0,28	0,40	0,53
2 x 3/4	60	27	76	1,65	2,77	3,91	5,54
				1,65	2,11	2,87	3,91
				0,15	0,25	0,36	0,50
2 1/2 x 2	73	60	89	2,11	3,05	5,16	7,01
				1,65	2,77	3,91	5,54
				0,32	0,47	0,80	1,05
2 1/2 x 1 1/2	73	48	89	2,11	3,05	5,16	7,01
				1,65	2,77	3,68	5,08
				0,30	0,44	0,76	0,94
2 1/2 x 1 1/4	73	42	89	2,11	3,05	5,16	7,01
				1,65	2,77	3,56	4,85
				0,29	0,43	0,73	0,90
2 1/2 x 1	73	33	89	2,11	3,05	5,16	7,01
				1,65	2,77	3,38	4,55
				0,25	0,38	0,64	0,87

[3] Uniquement dans ASME B 16.9

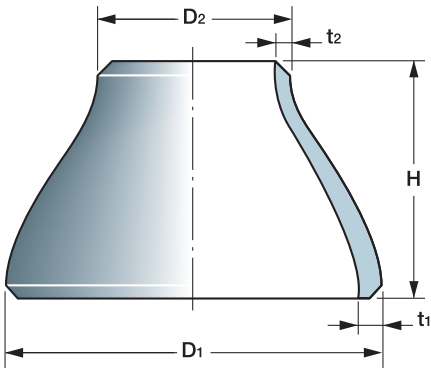
Les masses indiquées sont approximatives.

[4] Uniquement dans MSS-SP 43

** Masse sur demande.

concentric and eccentric reducers
réductions concentriques et excentriques

ASME B 16.9 – 1993
MSS-SP43 – 1991

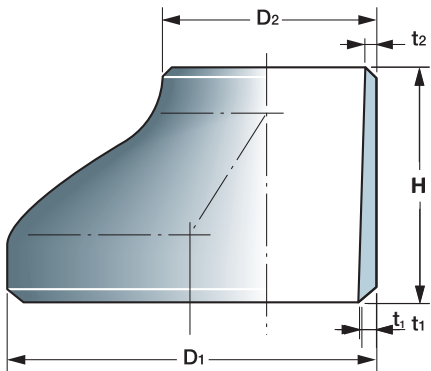


Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein		Longueur End-to-end length H – mm	SCH 5S	SCH 10S	SCH 40S	SCH 80S
				t ₁ W.T. / ép.			

Weights are approximate

concentric and eccentric reducers
réductions concentriques et excentriques

ASME B 16.9 – 1993
MSS-SP43 – 1991

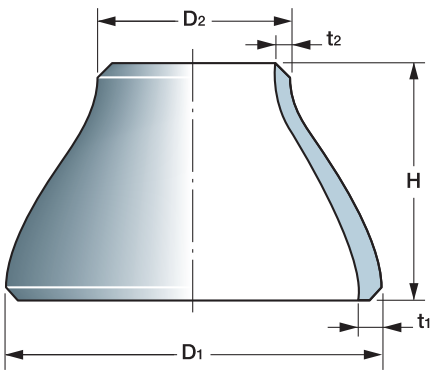


Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein D – mm		Longueur End-to-end length H – mm	SCH 5S	SCH 10S	SCH 40S	SCH 80S
				t ₁ W.T. / ép. mm			
				t ₂ W.T. / ép. mm			
weight / masse kg							
4 x 2 1/2	114	73	102	2,11	3,05	6,02	8,56
				2,11	3,05	5,16	7,01
				0,58	0,83	1,65	2,20
4 x 2	114	60	102	2,11	3,05	6,02	8,56
				1,65	2,77	3,91	5,54
				0,55	0,78	1,60	1,95
4 x 1 1/2	114	48	102	2,11	3,05	6,02	8,56
				1,65	2,77	3,68	5,08
				0,48	0,68	1,35	1,90
5 x 4	141	114	127	2,77	3,40	6,55	9,53
				2,11	3,05	6,02	8,56
				1,25	1,50	3,00	4,10
5 x 3 1/2	141	102	127	2,77	3,40	6,55	9,53
				2,11	3,05	5,74	8,08
				1,23	1,48	2,90	4,00
5 x 3	141	89	127	2,77	3,40	6,55	9,53
				2,11	3,05	5,49	7,62
				1,20	1,45	2,80	3,90
5 x 2 1/2	141	73	127	2,77	3,40	6,55	9,53
				2,11	3,05	5,16	7,01
				1,15	1,40	2,70	3,60
5 x 2	141	60	127	2,77	3,40	6,55	9,53
				1,65	2,77	3,91	5,54
				1,10	1,30	2,50	3,30
6 x 5	168	141	140	2,77	3,40	7,11	10,97
				2,77	3,40	6,55	9,53
				1,60	2,00	4,30	6,20
6 x 4	168	114	140	2,77	3,40	7,11	10,97
				2,11	3,05	6,02	8,56
				1,55	1,95	4,10	5,95
6 x 3 1/2	168	102	140	2,77	3,40	7,11	10,97
				2,11	3,05	5,74	8,08
				1,55	1,90	4,05	5,75

Les masses indiquées sont approximatives.

concentric and eccentric reducers
réductions concentriques et excentriques

ASME B 16.9 – 1993
MSS-SP43 – 1991

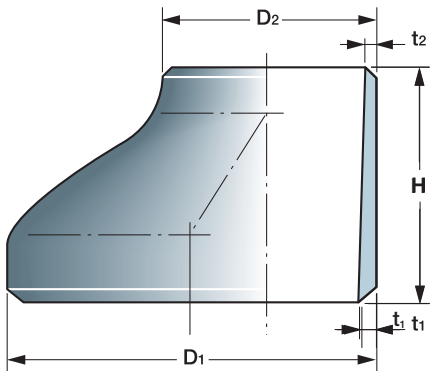


Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein		Longueur End-to-end length	SCH 5S	SCH 10S	SCH 40S	SCH 80S
				t ₁ W.T. / ép. mm			
	D – mm			H – mm	t ₂ W.T. / ép. mm		
inches/pouces				weight / masse kg			
6 x 3	168	89	140	2,77	3,40	7,11	10,97
				2,11	3,05	5,49	7,62
				1,50	1,80	4,00	5,50
6 x 2 1/2	168	73	140	2,77	3,40	7,11	10,97
				2,11	3,05	5,16	7,01
				1,45	1,55	3,80	4,90
8 x 6	219	168	152	2,77	3,76	8,18	12,70
				2,77	3,40	7,11	10,97
				2,30	3,20	6,90	10,10
8 x 5	219	141	152	2,77	3,76	8,18	12,70
				2,77	3,40	6,55	9,53
				2,20	3,10	6,70	9,70
8 x 4	219	114	152	2,77	3,76	8,18	12,70
				2,11	3,05	6,02	8,56
				2,15	3,00	6,50	9,20
8 x 3 1/2	219	102	152	2,77	3,76	8,18	12,70
				2,11	3,05	5,74	8,08
				2,10	2,95	6,40	8,00
10 x 8	273	219	178	3,40	4,19	9,27	12,70
				2,77	3,76	8,18	12,70
				4,20	5,20	11,50	15,60
10 x 6	273	168	178	3,40	4,19	9,27	12,70
				2,77	3,40	7,11	10,97
				4,00	5,00	11,10	14,80
10 x 5	273	141	178	3,40	4,19	9,27	12,70
				2,77	3,40	6,55	9,53
				3,90	4,90	10,80	14,20
10 x 4	273	114	178	3,40	4,19	9,27	12,70
				2,11	3,05	6,02	8,56
				3,80	4,70	10,50	12,50

[2] Those do not conform to ASME B 36.19 M
Weights are approximate.

concentric and eccentric reducers
réductions concentriques et excentriques

ASME B 16.9 – 1993
MSS-SP43 – 1991

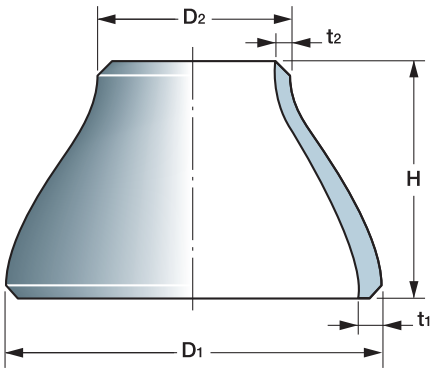


Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein		Longueur End-to-end length	SCH 5S	SCH 10S	SCH 40S	SCH 80S
				t ₁ W.T. / ép.			

[2] Ces dimensions ne sont pas reprises dans ASME B 36.19 M
Les masses indiquées sont approximatives.

concentric and eccentric reducers
réductions concentriques et excentriques

ASME B 16.9 – 1993
MSS-SP43 – 1991



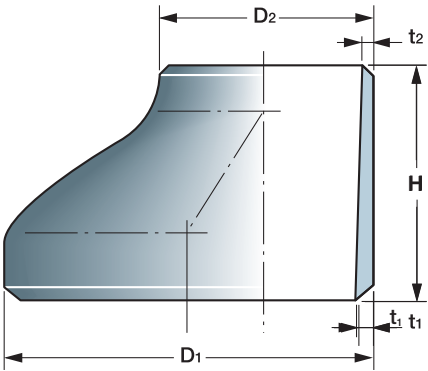
Nominal Pipe Size (NPS) Diamètre Nominal inches/pouces	Outside diameter at bevel Dia. extérieur au chanfrein		Longueur End-to-end length	SCH 5S	SCH 10S	SCH 40S	SCH 80S
				t ₁ W.T. / ép. mm			
	D – mm		H – mm	t ₂ W.T. / ép. mm			
weight / masse kg							
16 x 10	406	273	356	4,19	4,78	9,53	
				3,40	4,19	9,27 (2)	
				15,60	17,70	35,40	
16 x 8	406	219	356	4,19	4,78	9,53	
				2,77	3,76	8,18 (2)	
				14,60	16,70	33,30	
18 x 16	457	406	381	4,19	4,78	9,53	
				4,19	4,78	9,53 (2)	
				19,80	22,50	44,90	
18 x 14	457	356	381	4,19	4,78	9,53	
				3,96	4,78	9,53 (2)	
				19,20	21,90	43,70	
18 x 12	457	324	381	4,19	4,78	9,53	
				3,96	4,57	9,53 (2)	
				18,90	21,40	42,90	
18 x 10	457	273	381	4,19	4,78	9,53	
				3,40	4,19	9,27 (2)	
				18,50	21,00	42,00	
20 x 18	508	457	508	4,78	5,54	9,53	
				4,19	4,78	9,53 (2)	
				30,00	33,00	67,00	
20 x 16	508	406	508	4,78	5,54	9,53	
				4,19	4,78	9,53 (2)	
				29,00	32,00	65,00	
20 x 14	508	356	508	4,78	5,54	9,53	
				3,96	4,78	9,53 (2)	
				28,00	31,00	61,00	
20 x 12	508	324	508	4,78	5,54	9,53	
				3,96	4,57	9,53	
				27,00	30,00	60,00	

(2) Those do not conform to ASME B 36.19 M
(3) Only in ASME B 16.9

** Weight on application.
Weights are approximate.

concentric and eccentric reducers
réductions concentriques et excentriques

ASME B 16.9 – 1993
MSS-SP43 – 1991



Nominal Pipe Size (NPS) Diamètre Nominal	Outside diameter at bevel Dia. extérieur au chanfrein		Longueur End-to-end length	SCH 5S	SCH 10S	SCH 40S	SCH 80S
				t ₁ W.T. / ép.			mm
	D – mm			H – mm	t ₂ W.T. / ép.		
inches/pouces				weight / masse kg			
22 x 20 (3)	559	508	508	4,78	5,54		
				4,78	5,54		
				**	**		
22 x 18 (3)	559	457	508	4,78	5,54		
				4,19	4,78		
				**	**		
22 x 16 (3)	559	406	508	4,78	5,54		
				4,19	4,78		
				**	**		
22 x 14 (3)	559	356	508	4,78	5,54		
				3,96	4,78		
				**	**		
24 x 22 (3)	610	559	508	5,54	6,35		
				4,78	5,54		
				43,00	49,00		
24 x 20	610	508	508	5,54	6,35	9,53	
				4,78	5,54	9,53	
				41,50	47,00	79,00	
24 x 18	610	457	508	5,54	6,35	9,53	
				4,19	4,78	9,53	
				40,00	45,00	76,00	
24 x 16	610	406	508	5,54	6,35	9,53	
				4,19	4,78	9,53	
				39,00	44,00	75,00	

(2) Ces dimensions ne sont pas reprises dans ASME B 36.19 M

(3) Uniquement dans ASME B 16.9

** Masse sur demande.
Les masses indiquées sont approximatives.

C- Forged carbon steel / Stainless steel fittings

1. Standards overview

Type d'acier 		Acier au carbone Carbon steel			Acier allié Alloy steel	
Spécifications	ASTM	A 105 / A 350 M – 13	A 350 / A 350 M – 13 LF1	A 350 / A 350 M – 13 LF 2	A 350 / A 350 M – 13 LF 3	A 182 / A 182 M – 13a F 5
	AISI	1020	1030			501
	Désignation UNS					K 41545
	AFNOR *	A 48 CP	A 42 AP	A 48 FP	12 N 14	Z 10 CD 5-05
	British Standard * BS 1503 – 1989	221 490	224-430 LT 40	224-490 LT 50	503 490	625 590
	DIN *	C 35	A St 41	St 45 N	10 Ni 14	12 Cr Mo 19-05

COMPOSITION CHIMIQUE

Composition chimique / Chemical composition %	Carbone Carbon	≤ 0,35	≤ 0,30	≤ 0,30	≤ 0,20	≤ 0,15
	Manganèse Manganese	0,60 1,05	0,60 1,35	0,60 1,35	≤ 0,90	0,30 0,60
	Soufre Sulfur	≤ 0,040	≤ 0,040	≤ 0,040	≤ 0,040	≤ 0,030
	Phosphore Phosphorus	≤ 0,035	≤ 0,035	≤ 0,035	≤ 0,035	≤ 0,030
	Silicium Silicon	0,10 0,35	0,15 0,30	0,15 0,30	0,20 0,35	≤ 0,50
	Chrome Chromium	≤ 0,30	≤ 0,30	≤ 0,30	≤ 0,30	4,0 6,0
	Nickel Nickel	≤ 0,40	≤ 0,40	≤ 0,40	3,3 3,7	≤ 0,50
	Molybdène Molybdenum	≤ 0,12	≤ 0,12	≤ 0,12	≤ 0,12	0,44 0,65
	Cuivre Copper	≤ 0,40	≤ 0,40	≤ 0,40	≤ 0,40	
	Vanadium Vanadium	≤ 0,03	≤ 0,03	≤ 0,03	≤ 0,03	
	Niobium Columbium	≤ 0,02	≤ 0,02	≤ 0,02	≤ 0,02	
	Titane Titanium					

* Grades corresponding to ASTM grades are given for information only
Les nuances correspondant aux nuances ASTM sont indiquées pour information.

Acier allié Alloy steel		Acier au chrome nickel Stainless steel				 Type of steel		
A 182 / A 182 M-98a F 11 Cl 2	A 182 / A 182 M-13a F 22 Cl 3	A 182 / A 182 M-13a F 304 L	A 182 / A 182 M-13a F 316 L	A 182 / A 182 M-13a F 321	A 182 / A 182 M-13a F 347	ASTM AISI UNS designation AFNOR * British Standard * BS 15032-2 989 DIN *	Spécifications	
		304 L	316 L	321	347			
K 11572	K 21590	S 30403	S 31603	S 32100	S 34700			
15 CD 4-05	10 CD 9-10	Z 2 CN 18-10	Z 2 CND 17-12	Z 6 CNT 18-10	Z 6 CNNb 18-10			
621 460	622 560	304 S 11	316 S 11	321 S 31	347 S 31			
13 Cr Mo 4-4	10 Cr Mo 9-10	X 2 Cr Ni 19-11	X 2 Cr Ni Mo 17-12-2	X 6 Cr Ni Ti 18-10	X 6 Cr Ni Nb 18-10			

CHEMICAL COMPOSITION

0,10 0,20	0,05 0,15	≤ 0,030	≤ 0,030	≤ 0,08	≤ 0,08	Carbone Carbon	Composition chimique / Chemical composition %
0,30 0,80	0,30 0,60	≤ 2,0	≤ 2,0	≤ 2,0	≤ 2,0	Manganèse Manganese	
≤ 0,040	≤ 0,040	≤ 0,030	≤ 0,030	≤ 0,030	≤ 0,030	Soufre Sulfur	
≤ 0,040	≤ 0,040	≤ 0,045	≤ 0,045	≤ 0,045	≤ 0,045	Phosphore Phosphorus	
0,50 1,00	≤ 0,50	≤ 1,00	≤ 1,00	≤ 1,00	≤ 1,00	Silicium Silicon	
1,00 1,50	2,00 2,50	18,00 20,00	16,00 18,00	≥ 17,00	17,00 20,00	Chrome Chromium	
		8,00 13,00	10,00 15,00	9,00 12,00	9,00 13,00	Nickel Nickel	
0,44 0,65	0,87 1,13		2,00 3,00			Molybdène Molybdenum	
						Cuivre Copper	
						Vanadium Vanadium	
					≥ 10 C ≤ 1,10	Niobium Columbium	
				≥ 5 C ≤ 0,70		Titane Titanium	

2. Forged carbon steel/stainless steel fittings weight and dimension

Type d'acier 		Acier au carbone Carbon steel			Acier allié Alloy steel	
Spécifications	ASTM	A 105 / A 105 M – 13	A 350 / A 350 M – 13 LF1	A 350 / A 350 M – 13 LF 2	A 350 / A 350 M – 13 LF 3	A 182 / A 182 M – 13a F 5
	AISI	1020	1030			501
	Désignation UNS					K 41545
	AFNOR *	A 48 CP	A 42 AP	(class 1) A 48 FP (class 2) A 48 AP	12 N 14	Z 10 CD 5-05
	British Standard * BS 1503 – 1989	221 490	224-430 LT 40	224-490 LT 50	503 490	625 590
	DIN *	C 35	A St 41	St 45 N	10 Ni 14	12 Cr Mo 19-05

CARACTÉRISTIQUES MÉCANIQUES

Rm	MPa	≥ 485	415 à 585	485 à 655	485 à 655	≥ 485
Rp 0,2	MPa	≥ 250	≥ 205	≥ 250	≥ 260	≥ 275
A mini (1)	%	22	25	22	22	20
Striction mini	%	30	38	30	35	35
Dur. Brinell maxi	HB	187	197	197	197	143 – 217
Flexion par choc KV (2) (3)						
T° de l'essai	°C		– 28,9	Class 1 : – 45,6 Class 2 : – 18	– 101,1	
Énergie moy.	DaJ		≥ 1,8	Class 1 : ≥ 2,0 Class 2 : ≥ 2,7	≥ 2,0	
Énergie mini	DaJ		≥ 1,4	Class 1 : ≥ 1,6 Class 2 : ≥ 2,0	≥ 1,6	

MECHANICAL PROPERTIES

Tensile strength	ksi	≥ 70	60 to 85	70 to 95	70 to 95	≥ 70
Yield stress mini	ksi	36	30	36	37.5	40
Elongation mini (1)	%	22	25	22	22	20
Reduction of area mini	%	30	38	30	35	35
Hardness maxi	HB	187	197	197	197	143 – 217
Impact test (2) (3)						
T° of test	°F		– 20	Class 1 : – 50 Class 2 : – 0	– 150	
Energy/average	ft. lb		≥ 13	Class 1 : ≥ 15 Class 2 : ≥ 20	≥ 15	
Energy mini	ft. lb		≥ 10	Class 1 : ≥ 12 Class 2 : ≥ 15	≥ 12	

* Grades corresponding to ASTM grades are given for information only
Les nuances correspondant aux nuances ASTM sont indiquées pour information.

Acier allié Alloy steel		Acier au chrome nickel Stainless steel				 Type of steel
A 182 / A 182 M-13a F 11 Cl 2	A 182 / A 182 M-13a F 22 Cl 3	A 182 / A 182 M-13a F 304 L	A 182 / A 182 M-13a F 316 L	A 182 / A 182 M-13a F 321	A 182 / A 182 M-13a F 347	ASTM AISI UNS designation AFNOR * British Standard * BS 1503 - 1989 DIN * Specifications
		304 L	316 L	321	347	
K 11572	K 21590	S 30403	S 31603	S 32100	S 34700	
15 CD 4-05	10 CD 9-10	Z 2 CN 18-10	Z 2 CND 17-12	Z 6 CNT 18-10	Z 6 CNNb 18-10	
621 460	622 560	304 S 11	316 S 11	321 S 31	347 S 31	
13 Cr Mo 4-4	10 Cr Mo 9-10	X 2 Cr Ni 19-11	X 2 Cr Ni Mo 17-12-2	X 6 Cr Ni Ti 18-10	X 6 Cr Ni Nb 18-10	

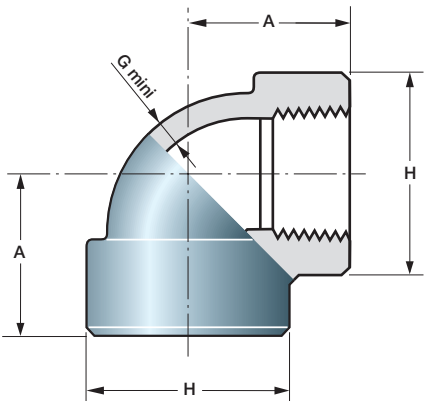
CARACTÉRISTIQUES MÉCANIQUES

≥ 485	≥ 515	≥ 485	≥ 485	≥ 515	≥ 515	MPa	Rm
≥ 275	≥ 310	≥ 170	≥ 170	≥ 205	→ 205	MPa	Rp 0,2
20	20	30	30	30	30	%	A mini (1)
30	30	50	50	50	50	%	Striction mini
143 - 207	156 - 207					HB	Dureté Brinell maxi
						Flexion par choc KV (2)(3)	
						°C	T° de l'essai
						DaJ	Énergie moy.
						DaJ	Énergie mini

MECHANICAL PROPERTIES

≥ 70	≥ 75	≥ 70	≥ 70	≥ 75	≥ 75	ksi	Tensile strength
40	45	25	25	30	30	ksi	Yield stress mini
20	20	30	30	30	30	%	Elongation mini (1)
30	30	50	50	50	50	%	Reduction of area mini
143 - 207	156 - 207					HB	Hardness maxi
						Impact test (2)(3)	
						°F	T° of test
						ft. lb	Energy/average
						ft. lb	Energy mini

(1) Éprouvette cylindrique ASTM 2" / Standard round specimen ASTM 2"
(2) Valeurs pour éprouvettes standard (10 x 10 mm), moyenne de 3, minimum sur 1
Requirements for standard size (10 by 10 mm) specimens, average of 3, minimum for 1
(3) Charpy V



90° elbows
CLASS 3000 – CLASS 6000

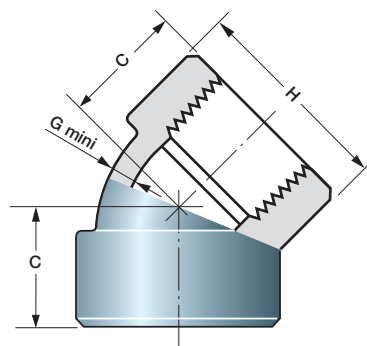
Thread according to:
ASME B 1.20.1 – 1983

Dimensions according to:
ASME B 16.11 – 1996

Nominal pipe size Diamètre nominal	Class 3000						Class 6000					
	A		H		G		A		H		G	
	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches
1/8	21	0.81	22	0.88	3,18	0.125	25	0.97	25	1.00	6,35	0.250
1/4	25	0.97	25	1.00	3,30	0.130	28	1.12	33	1.31	6,60	0.260
3/8	28	1.12	33	1.31	3,51	0.138	33	1.31	38	1.50	6,98	0.275
1/2	33	1.31	38	1.50	4,09	0.161	38	1.50	46	1.81	8,15	0.321
3/4	38	1.50	46	1.81	4,32	0.170	44	1.75	56	2.19	8,53	0.336
1	44	1.75	56	2.19	4,98	0.196	51	2.00	62	2.44	9,93	0.391
1 1/4	51	2.00	62	2.44	5,28	0.208	60	2.38	75	2.97	10,59	0.417
1 1/2	60	2.38	75	2.97	5,56	0.219	64	2.50	84	3.31	11,07	0.436
2	64	2.50	84	3.31	7,14	0.281	83	3.25	102	4.00	12,09	0.476
2 1/2	83	3.25	102	4.00	7,65	0.301	95	3.75	121	4.75	15,29	0.602
3	95	3.75	121	4.75	8,84	0.348	106	4.19	146	5.75	16,64	0.655
4	114	4.50	152	6.00	11,18	0.440	114	4.50	152	6.00	18,67	0.735

90° elbows

CLASS 3000 – CLASS 6000



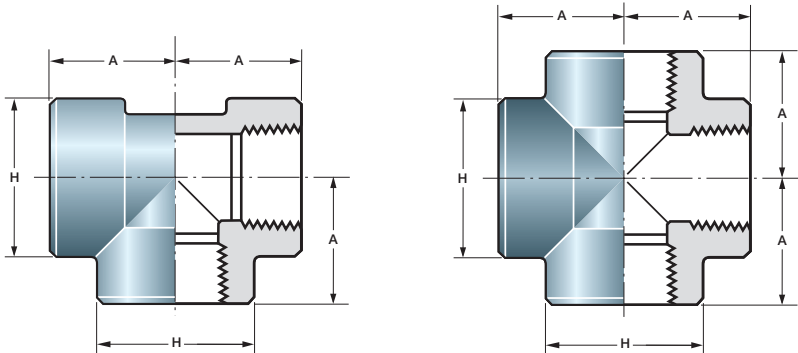
Thread according to:
ASME B 1.20.1 – 1983

Dimensions according to:
ASME B 16.11 – 1996

Diamètre nominal Nominal pipe size	Class 3000						Class 6000					
	C		H		G		C		H		G	
	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches
1/8	17	0.69	22	0.88	3,18	0.125	19	0.75	25	1.00	6,35	0.250
1/4	19	0.75	25	1.00	3,30	0.130	22	0.88	33	1.31	6,60	0.260
3/8	22	0.88	33	1.31	3,51	0.138	25	1.00	38	1.50	6,98	0.275
1/2	25	1.00	38	1.50	4,09	0.161	28	1.12	46	1.81	8,15	0.321
3/4	28	1.12	46	1.81	4,32	0.170	33	1.31	56	2.19	8,53	0.336
1	33	1.31	56	2.19	4,98	0.196	35	1.38	62	2.44	9,93	0.391
1 1/4	35	1.38	62	2.44	5,28	0.208	43	1.69	75	2.97	10,59	0.417
1 1/2	43	1.69	75	2.97	5,56	0.219	44	1.72	84	3.31	11,07	0.436
2	44	1.72	84	3.31	7,14	0.281	52	2.06	102	4.00	12,09	0.476
2 1/2	52	2.06	102	4.00	7,65	0.301	64	2.50	121	4.75	15,29	0.602
3	64	2.50	121	4.75	8,84	0.348	79	3.12	146	5.75	16,64	0.655
4	79	3.12	152	6.00	11,18	0.440	79	3.12	152	6.00	18,67	0.735

tees
crosses

CLASS 3000 – CLASS 6000



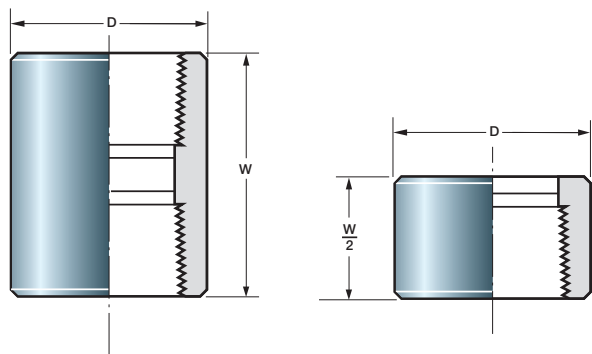
Thread according to:
ASME B 1.20.1 – 1983

Dimensions according to:
ASME B 16.11 – 1996

Diamètre nominal Nominal pipe size	Class 3000						Class 6000					
	A		H		G		A		H		G	
	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches
1/8	21	0.81	22	0.88	3,18	0.125	25	0.97	25	1.00	6,35	0.250
1/4	25	0.97	25	1.00	3,30	0.130	28	1.12	33	1.31	6,60	0.260
3/8	28	1.12	33	1.31	3,51	0.138	33	1.31	38	1.50	6,98	0.275
1/2	33	1.31	38	1.50	4,09	0.161	38	1.50	46	1.81	8,15	0.321
3/4	38	1.50	46	1.81	4,32	0.170	44	1.75	56	2.19	8,53	0.336
1	44	1.75	56	2.19	4,98	0.196	51	2.00	62	2.44	9,93	0.391
1 1/4	51	2.00	62	2.44	5,28	0.208	60	2.38	75	2.97	10,59	0.417
1 1/2	60	2.38	75	2.97	5,56	0.219	64	2.50	84	3.31	11,07	0.436
2	64	2.50	84	3.31	7,14	0.281	83	3.25	102	4.00	12,09	0.476
2 1/2	83	3.25	102	4.00	7,65	0.301	95	3.75	121	4.75	15,29	0.602
3	95	3.75	121	4.75	8,84	0.348	106	4.19	146	5.75	16,64	0.655
4	114	4.50	152	6.00	11,18	0.440	114	4.50	152	6.00	18,67	0.735

couplings
half couplings

CLASS 3000 – CLASS 6000



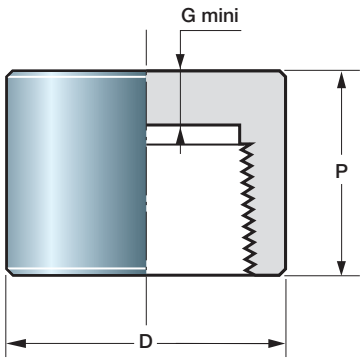
Thread according to:
ASME B 1.20.1 – 1983

Dimensions according to:
ASME B 16.11 – 1996

Diamètre nominal Nominal pipe size	Class 3000				Class 6000			
	W		D		W		D	
	mm	inches	mm	inches	mm	inches	mm	inches
1/8	32	1.25	16	0.62	–	–	–	–
1/4	35	1.38	19	0.75	35	1.38	25	1.00
3/8	38	1.50	22	0.88	38	1.50	32	1.25
1/2	48	1.88	28	1.12	48	1.88	38	1.50
3/4	51	2.00	35	1.38	51	2.00	44	1.75
1	60	2.38	44	1.75	60	2.38	57	2.25
1 1/4	67	2.62	57	2.25	67	2.62	64	2.50
1 1/2	79	3.12	64	2.50	79	3.12	76	3.00
2	86	3.38	76	3.00	86	3.38	92	3.62
2 1/2	92	3.62	92	3.62	92	3.62	108	4.25
3	108	4.25	108	4.25	108	4.25	127	5.00
4	121	4.75	140	5.50	121	4.75	159	6.25

caps

CLASS 3000 – CLASS 6000



Thread according to:
ASME B 1.20.1 – 1983

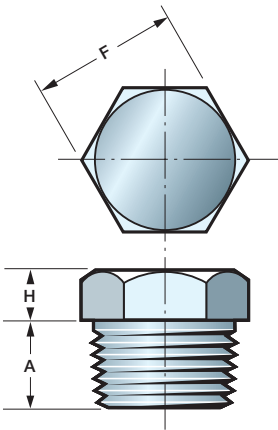
Dimensions according to:
ASME B 16.11 – 1996

Diamètre nominal Nominal pipe size	Class 3000						Class 6000					
	P		D		G		P		D		G	
	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches
1/8	19	0.75	16	0.62	4,8	0.19	–	–	–	–	–	–
1/4	25	1.00	19	0.75	4,8	0.19	27	1.06	25	1.00	6,4	0.25
3/8	25	1.00	22	0.88	4,8	0.19	27	1.06	32	1.25	6,4	0.25
1/2	32	1.25	28	1.12	6,4	0.25	33	1.31	38	1.50	7,9	0.31
3/4	37	1.44	35	1.38	6,4	0.25	38	1.50	44	1.75	7,9	0.31
1	41	1.62	44	1.75	9,7	0.38	43	1.69	57	2.25	11,2	0.44
1 1/4	44	1.75	57	2.25	9,7	0.38	46	1.81	64	2.50	11,2	0.44
1 1/2	44	1.75	64	2.50	11,2	0.44	48	1.88	76	3.00	12,7	0.50
2	48	1.88	76	3.00	12,7	0.50	51	2.00	92	3.62	15,7	0.62
2 1/2	60	2.38	92	3.62	15,7	0.62	64	2.50	108	4.25	19,0	0.75
3	65	2.56	108	4.25	19,0	0.75	68	2.69	127	5.00	22,4	0.88
4	68	2.69	140	5.50	22,4	0.88	75	2.94	159	6.25	28,4	1.12

hex head
plugs

CLASS 3000 – CLASS 6000

Thread according to:
ASME B 1.20.1 – 1983

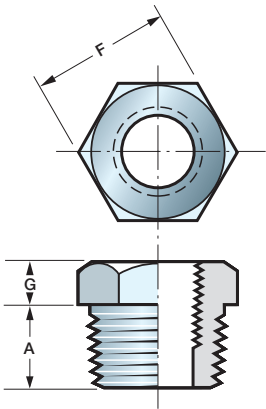


Dimensions according to:
ASME B 16.11 – 1996

Diamètre nominal Nominal pipe size	Class 3000 – Class 6000					
	A mini		F nominal		H mini	
	mm	inches	mm	inches	mm	inches
1/8	10	0.38	11	0.44	6	0.25
1/4	11	0.44	16	0.62	6	0.25
3/8	13	0.50	18	0.69	8	0.31
1/2	14	0.56	22	0.88	8	0.31
3/4	16	0.62	27	1.06	10	0.38
1	19	0.75	36	1.38	10	0.38
1 1/4	21	0.81	46	1.75	14	0.56
1 1/2	21	0.81	50	2.00	16	0.62
2	22	0.88	65	2.50	18	0.69
2 1/2	27	1.06	75	3.00	19	0.75
3	28	1.12	90	3.50	21	0.81
4	32	1.25	115	4.62	25	1.00

hex head
bushings

CLASS 3000 – CLASS 6000



Thread according to:
ASME B 1.20.1 – 1983

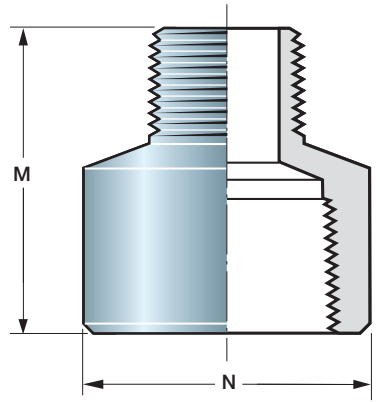
Dimensions according to:
ASME B 16.11 – 1996

Diamètre nominal Nominal pipe sizes	Class 3000 – Class 6000					
	A mini		F nominal		G mini	
	mm	inches	mm	inches	mm	inches
3/8 x 1/4	13	0.50	18	0.69	4	0.16
1/2 x 3/8	14	0.56	22	0.88	5	0.19
1/2 x 1/4	14	0.56	22	0.88	5	0.19
3/4 x 1/2	16	0.62	27	1.06	6	0.22
3/4 x 1/4	16	0.62	27	1.06	6	0.22
1 x 3/4	19	0.75	36	1.38	6	0.25
1 x 1/2	19	0.75	36	1.38	6	0.25
1 x 1/4	19	0.75	36	1.38	6	0.25
1 1/4 x 1	21	0.81	46	1.75	7	0.28
1 1/2 x 1	21	0.81	50	2.00	8	0.31
1 1/2 x 3/4	21	0.81	50	2.00	8	0.31
1 1/2 x 1/2	21	0.81	50	2.00	8	0.31
2 x 1 1/2	22	0.88	65	2.50	9	0.34
2 x 1	22	0.88	65	2.50	9	0.34
2 1/2 x 2	27	1.06	75	3.00	10	0.38
3 x 2	28	1.12	90	3.50	10	0.41
4 x 3	32	1.25	115	4.62	13	0.50
4 x 2	32	1.25	115	4.62	13	0.50

female-male
reducers

CLASS 3000 – CLASS 6000

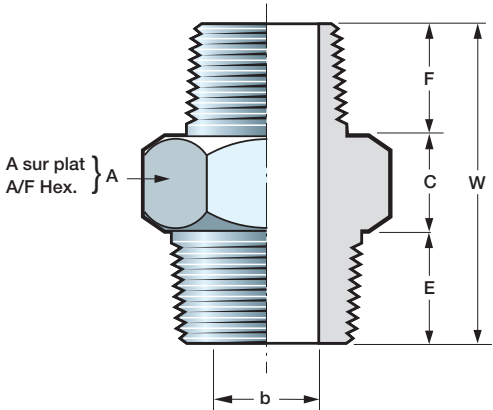
Threads according to:
ASME B 1.20.1 – 1983



Diamètre nominal Nominal pipe sizes	Class 3000			
	M(1)		N(1)	
	mm	inches	mm	inches
3/8 x 1/4	42	1.50	22	0.87
1/2 x 3/8	49	1.81	28	1.10
1/2 x 1/4	49	1.81	28	1.10
3/4 x 1/2	59	2.01	35	1.38
1 x 3/4	63	2.36	45	1.77
1 x 1/2	61	2.36	45	1.77
1 x 1/4	60	2.36	45	1.77
1 1/4 x 1	68	2.68	60	2.24
1 1/2 x 1	72	2.76	65	2.56
1 1/2 x 3/4	67	2.76	65	2.56
1 1/2 x 1/2	67	2.76	65	2.56
2 x 1/2	70	2.95	76	2.99
2 x 1	75	2.95	76	2.99
2 1/2 x 2	92	3.74	95	3.74
3 x 2	95	3.94	110	4.33
4 x 3	113	4.33	140	5.51
4 x 2	100	4.33	140	5.51

(1) Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according to manufacturer.

reducing hexagonal nipples
CLASS 3000 – CLASS 6000



Threads according to:
ASME B 1.20.1 – 1983

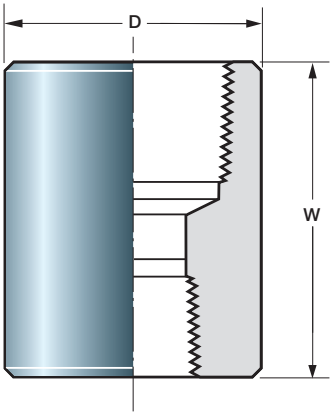
Dimensions according to:
BS 3799 – 1974

Diamètre nominal Nominal size		A mini		E mini		F mini		C mini		W mini		b *			
pouces/inches	mm	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	Class 3000		Class 6000	
1/4 x 1/8	8 x 6	15	0.59	15	0.59	10	0.39	6	0.24	31	1.22	5	0.20	2	0.08
3/8 x 1/4	10 x 8	18	0.71	16	0.63	15	0.59	8	0.31	39	1.54	8	0.31	6	0.24
1/2 x 3/8	15 x 10	22	0.87	20	0.79	16	0.63	8	0.31	44	1.73	11	0.43	8	0.31
1/2 x 1/4	15 x 8	22	0.87	20	0.79	15	0.59	8	0.31	43	1.69	8	0.31	6	0.24
3/4 x 1/2	20 x 15	27	1.06	21	0.83	20	0.79	9	0.35	50	1.97	14	0.55	11	0.43
3/4 x 3/8	20 x 10	27	1.06	21	0.83	16	0.63	9	0.35	46	1.81	11	0.43	8	0.31
1 x 3/4	25 x 20	35	1.38	25	0.98	21	0.83	10	0.39	56	2.20	19	0.75	13	0.51
1 x 1/2	25 x 15	35	1.38	25	0.98	20	0.79	10	0.39	55	2.17	14	0.55	11	0.43
1 1/2 x 1	40 x 25	50	1.97	26	1.02	25	0.98	16	0.63	67	2.64	24	0.94	17	0.67
1 1/2 x 3/4	40 x 20	50	1.97	26	1.02	21	0.83	16	0.63	63	2.48	19	0.75	13	0.51
1 1/2 x 1/2	40 x 15	50	1.97	26	1.02	20	0.79	16	0.63	62	2.44	14	0.55	11	0.43
2 x 1 1/2	50 x 40	62	2.44	27	1.06	26	1.02	17	0.67	70	2.76	38	1.50	30	1.18
2 x 1	50 x 25	62	2.44	27	1.06	25	0.98	18	0.71	70	2.76	24	0.94	17	0.67
2 x 3/4	50 x 20	62	2.44	27	1.06	21	0.83	17	0.67	65	2.60	19	0.75	13	0.51
2 x 1/2	50 x 15	62	2.44	27	1.06	20	0.79	18	0.71	65	2.60	14	0.55	11	0.43

* Dimension "b" is nominal and is subject to normal manufacturing tolerances.

reducing couplings

CLASS 3000 – CLASS 6000

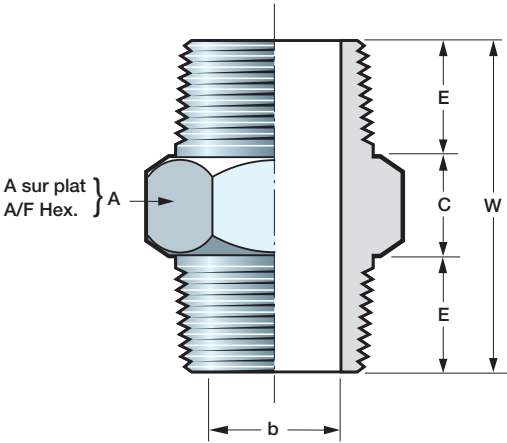


Same dimensions as for
couplings (as shown in page 161)

Thread according to:
ASME B 1.20.1 – 1983

Diamètre nominal Nominal pipe sizes	Class 3000				Class 6000			
	W(1)		D(1)		W(1)		D(1)	
	mm	inches	mm	inches	mm	inches	mm	inches
3/8 x 1/4	38	1.50	22	0.88	38	1.50	32	1.25
1/2 x 3/8	48	1.88	28	1.12	48	1.88	38	1.50
1/2 x 1/4	48	1.88	28	1.12	48	1.88	38	1.50
3/4 x 1/2	51	2.00	35	1.38	51	2.00	44	1.75
3/4 x 1/4	51	2.00	35	1.38	51	2.00	44	1.75
1 x 3/4	60	2.38	44	1.75	60	2.38	57	2.25
1 x 1/2	60	2.38	44	1.75	60	2.38	57	2.25
1 x 1/4	60	2.38	44	1.75	60	2.38	57	2.25
1 1/4 x 1	67	2.62	57	2.25	67	2.62	64	2.50
1 1/2 x 1	79	3.12	64	2.50	79	3.12	76	3.00
1 1/2 x 3/4	79	3.12	64	2.50	79	3.12	76	3.00
1 1/2 x 1/2	79	3.12	64	2.50	79	3.12	76	3.00
2 x 1 1/2	86	3.38	76	3.00	86	3.38	92	3.62
2 x 1	86	3.38	76	3.00	86	3.38	92	3.62
2 1/2 x 2	92	3.62	92	3.62	92	3.62	108	4.25
3 x 2	108	4.25	108	4.25	108	4.25	127	5.00
4 x 3	121	4.75	140	5.50	140	4.75	159	6.25
4 x 2	121	4.75	140	5.50	140	4.75	159	6.25

(1) Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according to manufacturer.



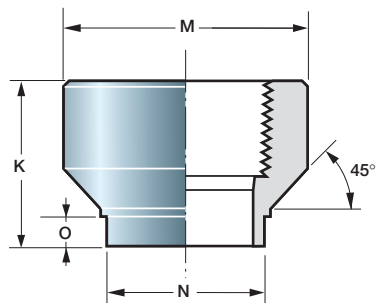
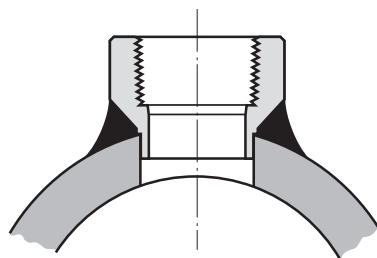
hexagonal nipples
CLASS 3000 – CLASS 6000

Threads according to:
ASME B 1.20.1 – 1983

Dimensions according to:
BS 3799 – 1974

Diamètre nominal Nominal size		A mini		E mini		C mini		W mini		b *			
pouces inches	mm	mm	inches	mm	inches	mm	inches	mm	inches	Class 3000		Class 6000	
										mm	inches	mm	inches
1/8	6	11	0.43	10	0.39	6	0.24	26	1.02	5	0.20	2	0.08
1/4	8	15	0.59	15	0.59	6	0.24	36	1.42	8	0.31	6	0.24
3/8	10	18	0.71	16	0.63	8	0.31	40	1.57	11	0.43	8	0.31
1/2	15	22	0.87	20	0.79	8	0.31	48	1.89	14	0.55	11	0.43
3/4	20	27	1.06	21	0.83	10	0.39	52	2.05	19	0.75	13	0.51
1	25	35	1.38	25	0.98	10	0.39	60	2.36	24	0.94	17	0.67
1 1/2	40	50	1.97	26	1.02	16	0.63	68	2.68	38	1.50	30	1.18
2	50	62	2.44	27	1.06	17	0.67	71	2.80	49	1.93	39	1.54

* Dimension "b" is nominal and is subject to normal manufacturing tolerances.



welding bosses

CLASS 3000 – CLASS 6000

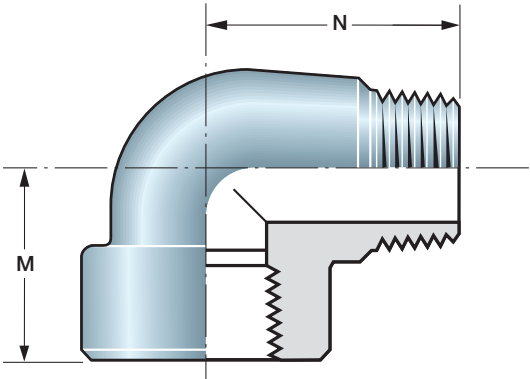
Threads according to: ASME B 1.20.1 – 1983

From 1/4" to 2" : O = 0.375 inches
O = 9.5 mm

Diamètre nominal Nominal pipe sizes	Class 3000 – Class 6000					
	K(1)		M(1)		N(1)	
	mm	inches	mm	inches	mm	inches
1/4	30,5	1.20	28,0	1.10	14,0	0.55
3/8	30,5	1.20	32,0	1.26	17,4	0.69
1/2	33,5	1.32	38,0	1.50	21,6	0.85
3/4	35,0	1.38	44,5	1.75	26,9	1.06
1	43,0	1.69	57,5	2.26	33,6	1.32
1 1/4	48,0	1.89	63,5	2.50	42,4	1.67
1 1/2	51,0	2.00	76,1	3.00	48,5	1.91
2	57,5	2.26	92,0	3.62	60,9	2.40

(1) Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according to manufacturer.

90° street elbows
CLASS 3000 – CLASS 6000



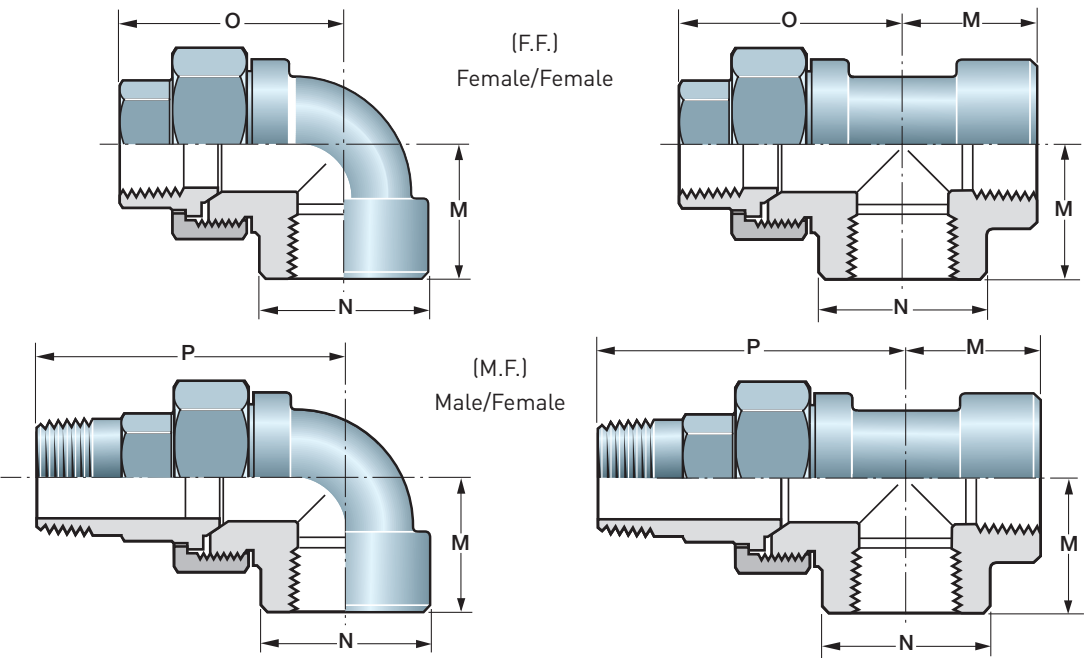
Threads according to:
ASME B 1.20.1 – 1983

Diamètre nominal Nominal pipe sizes	Class 3000				Class 6000			
	M(1)		N(1)		M(1)		N(1)	
	mm	inches	mm	inches	mm	inches	mm	inches
1/4	24,6	0.97	32,0	1.05	30,0	1.12	39,0	1.26
3/8	30,0	1.12	39,0	1.26	33,5	1.31	44,0	1.39
1/2	33,5	1.31	44,0	1.39	38,0	1.50	49,0	1.61
3/4	38,0	1.50	49,0	1.61	46,5	1.75	59,0	1.97
1	46,5	1.75	59,0	1.97	53,0	2.00	65,0	2.40
1 1/4	53,0	2.00	65,0	2.40	62,0	2.27	75,0	2.75
1 1/2	62,0	2.27	75,0	2.75	68,0	2.50	82,5	3.25
2	68,0	2.50	82,5	3.25	82,5	3.25	110,0	4.33

(1) Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according to manufacturer.

union elbows
union tees

CLASS 3000 – CLASS 6000

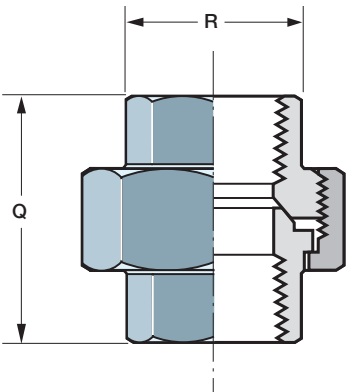


Threads according to:
ASME B 1.20.1 – 1983

Diamètre nominal Nominal pipe sizes	Class 3000				Class 6000			
	M(1)		N(1)		M(1)		N(1)	
	mm	inches	mm	inches	mm	inches	mm	inches
1/4	28,5	1.12	34	1.34	46,5	2.02	62	2.72
3/8	28,5	1.12	34	1.34	54	2.13	72	2.83
1/2	33	1.30	38	1.50	60	2.56	82	3.47
3/4	38	1.50	46,5	1.83	67	2.64	90	3.55
1	44,5	1.75	56,5	2.22	75	3.15	102	4.25
1 1/4	60,5	2.38	76	3.00	85	3.19	115	4.96
1 1/2	60,5	2.38	76	3.00	98	3.97	125	5.20
2	63,5	2.50	92	3.62	109	4.29	140	5.51

(1) Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according manufacturer.

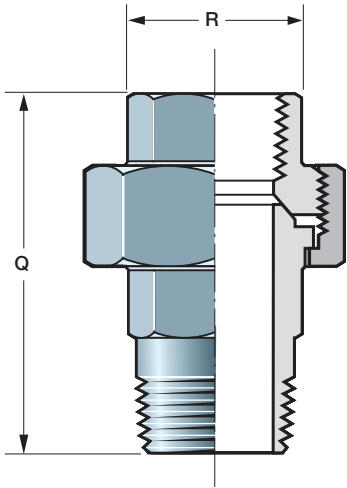
female-female unions
CLASS 3000 – CLASS 6000



Thread according to:
ASME B 1.20.1 – 1983

Diamètre nominal Nominal pipe size	Class 3000				Class 6000			
	Q(1)		R(1)		Q(1)		R(1)	
	mm	inches	mm	inches	mm	inches	mm	inches
1/4	42,5	1.67	36,0	1.42	54,0	2.13	46,0	1.81
3/8	47,5	1.87	41,0	1.62	57,0	2.25	51,0	2.00
1/2	52,0	2.05	46,0	1.81	69,0	2.72	60,0	2.36
3/4	57,0	2.25	56,0	2.20	72,0	2.84	72,0	2.84
1	63,0	2.48	65,0	2.56	80,0	3.15	80,0	3.15
1 1/4	68,0	2.76	80,0	3.07	89,0	3.50	94,0	3.70
1 1/2	78,0	3.07	88,0	3.39	108,0	4.25	100,0	3.94
2	91,0	3.50	105,0	4.06	114,0	4.49	122,0	4.80
2 1/2	120,0	4.49	122,0	4.80	130,0	5.13	144,0	5.67
3	120,0	5.12	144,0	5.67	150,0	5.91	180,0	7.09
4	148,0	5.91	200,0	7.09	–	–	–	–

(1) Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according to manufacturer.



male-female unions

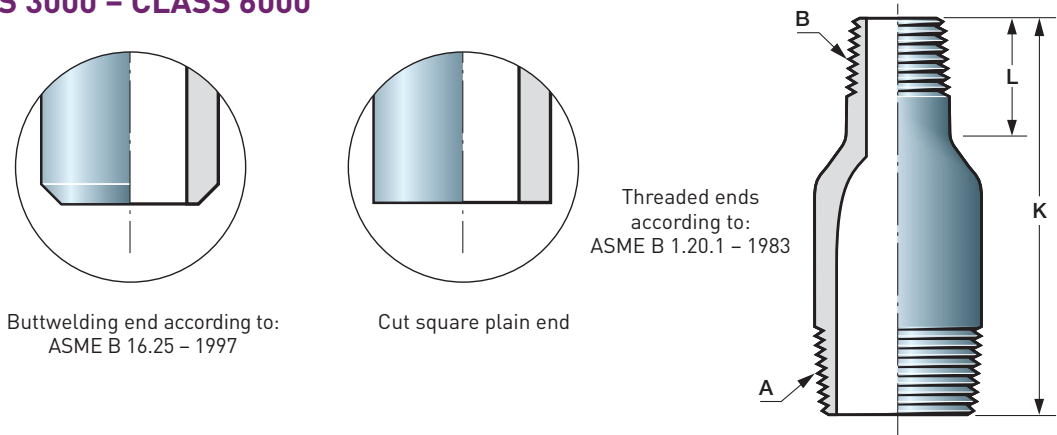
CLASS 3000 – CLASS 6000

Thread according to:
ASME B 1.20.1 – 1983

Diamètre nominal Nominal pipe size	Class 3000				Class 6000			
	Q(1)		R(1)		Q(1)		R(1)	
	mm	inches	mm	inches	mm	inches	mm	inches
1/4	61,0	2.48	32,0	1.26	72,5	2.86	46,0	1.81
3/8	69,0	2.72	38,0	1.50	77,0	3.03	51,0	2.00
1/2	75,0	3.03	46,0	1.81	94,5	3.72	60,0	2.36
3/4	80,0	3.15	56,0	2.00	98,5	3.88	72,0	2.84
1	90,0	3.82	65,0	2.36	108,0	4.25	80,0	3.15
1 1/4	98,0	3.98	80,0	2.84	120,0	4.72	94,0	3.70
1 1/2	105,0	4.33	88,0	3.15	138,0	5.44	100,0	3.94
2	120,0	4.72	105,0	3.70	146,0	5.75	122,0	4.80

(1) Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according to manufacturer.

swedge nipples
CLASS 3000 – CLASS 6000

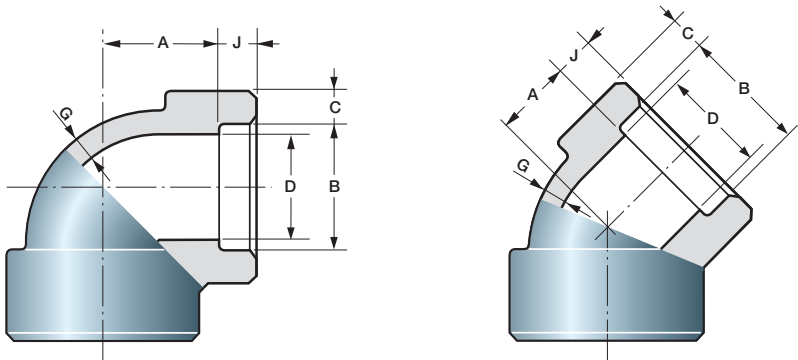


Variations in outside diameter and thickness according to ASTM A 106.

Diamètre nominal Nominal pipe sizes A x B	Class 3000 – Class 6000				Épaisseur suivant / Thickness according to : ASME B 36.10 M – 1996		
	K(1)		L(1)				
	mm	inches	mm	inches			
3/8 x 1/4	76	3.00	20	0.79	Sch 40	Sch 80	–
1/2 x 3/8	89	3.50	20	0.79	Sch 40	Sch 80	–
1/2 x 1/4	89	3.50	20	0.79	Sch 40	Sch 80	–
3/4 x 1/2	95	2.75	21	0.83	Sch 40	Sch 80	Sch 160
3/4 x 3/8	95	2.75	21	0.83	Sch 40	Sch 80	–
1 x 3/4	102	3.55	22	0.87	Sch 40	Sch 80	Sch 160
1 x 1/2	102	3.55	22	0.87	Sch 40	Sch 80	Sch 160
1 1/4 x 1	102	3.55	25	0.98	Sch 40	Sch 80	Sch 160
1 1/2 x 1 1/4	114	4.53	25	0.98	Sch 40	Sch 80	Sch 160
1 1/2 x 1	114	4.53	25	0.98	Sch 40	Sch 80	Sch 160
1 1/2 x 3/4	114	4.53	25	0.98	Sch 40	Sch 80	Sch 160
2 x 1 1/2	165	6.50	30	1.18	Sch 40	Sch 80	Sch 160
2 x 1 1/4	165	6.50	30	1.18	Sch 40	Sch 80	Sch 160
2 x 1	165	6.50	30	1.18	Sch 40	Sch 80	Sch 160
2 1/2 x 2	178	7.01	35	1.38	Sch 40	Sch 80	Sch 160
3 x 2	203	8.00	40	1.57	Sch 40	Sch 80	Sch 160
4 x 3	230	9.06	45	1.77	Sch 40	Sch 80	Sch 160
4 x 2	230	9.06	45	1.77	Sch 40	Sch 80	Sch 160

[1] Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according to manufacturer.

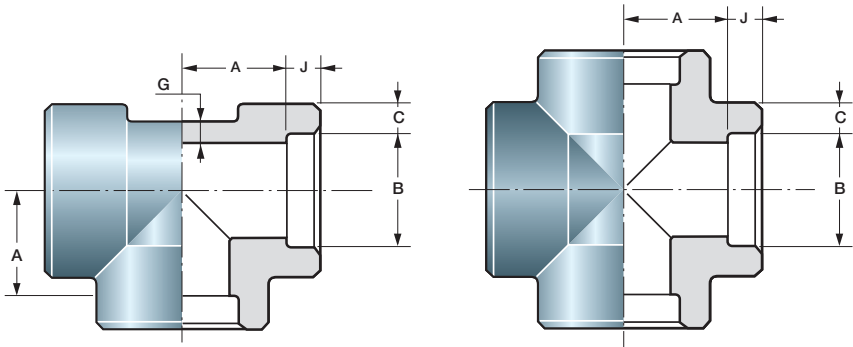
elbows
CLASS 3000 – CLASS 6000



Diamètre nominal Nominal pipe size	Centre au fond de l'emboîtement / Center to bottom of socket – A									
	90°				45°				Tolerances ±	
	Class 3000		Class 6000		Class 3000		Class 6000			
	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches
1/8	11,0	0.44	11,0	0.44	8,0	0.31	8,0	0.31	1,0	0.03
1/4	11,0	0.44	13,5	0.53	8,0	0.31	8,0	0.31	1,0	0.03
3/8	13,5	0.53	15,5	0.62	8,0	0.31	11,0	0.44	1,5	0.06
1/2	15,5	0.62	19,0	0.75	11,0	0.44	12,5	0.50	1,5	0.06
3/4	19,0	0.75	22,5	0.88	13,0	0.50	14,0	0.56	1,5	0.06
1	22,5	0.88	27,0	1.06	14,0	0.56	17,5	0.69	2,0	0.08
1 1/4	27,0	1.06	32,0	1.25	17,5	0.69	20,5	0.81	2,0	0.08
1 1/2	32,0	1.25	38,0	1.50	20,5	0.81	25,5	1.00	2,0	0.08
2	38,0	1.50	41,0	1.62	25,5	1.00	28,5	1.12	2,0	0.08
2 1/2	41,0	1.62	–	–	28,5	1.12	–	–	2,5	0.10
3	57,0	2.25	–	–	32,0	1.25	–	–	2,5	0.10
4	66,5	2.62	–	–	41,0	1.62	–	–	2,5	0.10

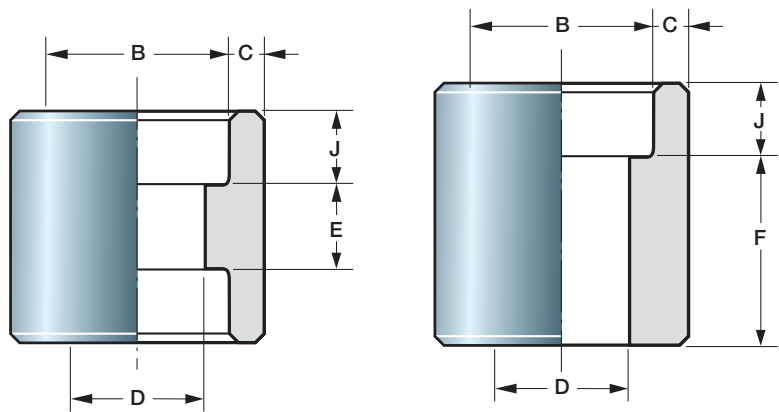
tees – crosses

CLASS 3000 – CLASS 6000



Diamètre nominal Nominal pipe size	Centre au fond de l'emboîtement / Center to bottom of socket – A					
	Class 3000		Class 6000		Tolerances ±	
	mm	inches	mm	inches	mm	inches
1/8	11,0	0.44	11,0	0.44	1,0	0.03
1/4	11,0	0.44	13,5	0.53	1,0	0.03
3/8	13,5	0.53	15,5	0.62	1,5	0.06
1/2	15,5	0.62	19,0	0.75	1,5	0.06
3/4	19,0	0.75	22,5	0.88	1,5	0.06
1	22,5	0.88	27,0	1.06	2,0	0.08
1 1/4	27,0	1.06	32,0	1.25	2,0	0.08
1 1/2	32,0	1.25	38,0	1.50	2,0	0.08
2	38,0	1.50	41,0	1.62	2,0	0.08
2 1/2	41,0	1.62	–	–	2,5	0.10
3	57,0	2.25	–	–	2,5	0.10
4	66,5	2.62	–	–	2,5	0.10

couplings
half-couplings
CLASS 3000 – CLASS 6000

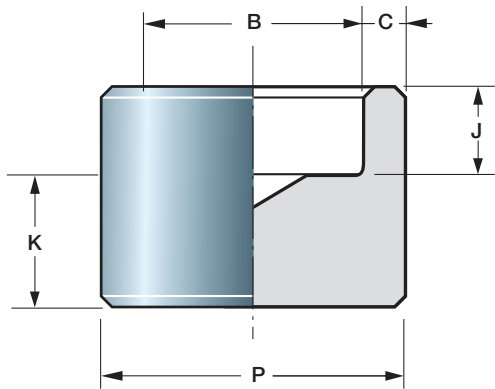


Socket welding end and dimensions according to: ASME B 16.11 – 1996

Diamètre nominal Nominal pipe size	Cotes de montage / Laying lengths											
	Manchons / Couplings – E						Demi - manchons / Half-couplings – F					
	Class 3000		Class 6000		Tolerances ±		Class 3000		Class 6000		Tolerances ±	
	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches	mm	inches
1/8	6,5	0.25	–	–	1,5	0.06	16,0	0.62	–	–	1,0	0.03
1/4	6,5	0.25	6,5	0.25	1,5	0.06	16,0	0.62	16,0	0.62	1,0	0.03
3/8	6,5	0.25	6,5	0.25	3,0	0.12	17,5	0.69	17,5	0.69	1,5	0.06
1/2	9,5	0.38	9,5	0.38	3,0	0.12	22,5	0.88	22,5	0.88	1,5	0.06
3/4	9,5	0.38	9,5	0.38	3,0	0.12	24,0	0.94	24,0	0.94	1,5	0.06
1	12,5	0.50	12,5	0.50	4,0	0.16	28,5	1.12	28,5	1.12	2,0	0.08
1 1/4	12,5	0.50	12,5	0.50	4,0	0.16	30,0	1.19	30,0	1.19	2,0	0.08
1 1/2	12,5	0.50	12,5	0.50	4,0	0.16	32,0	1.25	32,0	1.25	2,0	0.08
2	19,0	0.75	19,0	0.75	4,0	0.16	41,0	1.62	41,0	1.62	2,0	0.08
2 1/2	19,0	0.75	19,0	0.75	5,0	0.20	43,0	1.69	43,0	1.69	2,5	0.10
3	19,0	0.75	19,0	0.75	5,0	0.20	44,5	1.75	44,5	1.75	2,5	0.10
4	19,0	0.75	19,0	0.75	5,0	0.20	48,0	1.88	48,0	1.88	2,5	0.10

caps

CLASS 3000 – CLASS 6000



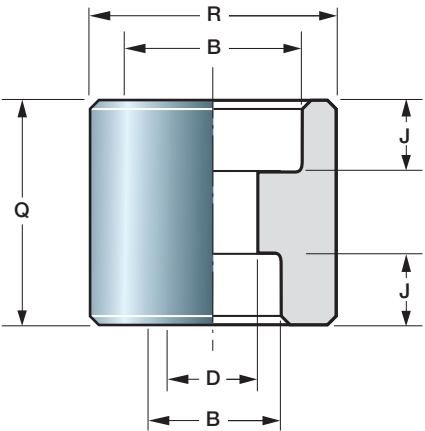
Socket welding end according to: ASME B 16.11 – 1996

Diamètre nominal Nominal pipe size	Class 3000				Class 6000			
	K mini		P(1)		K mini		P(1)	
	mm	inches	mm	inches	mm	inches	mm	inches
1/8	4,8	0.19	18	0.69	6,4	0.25	19	0.75
1/4	4,8	0.19	22	0.87	6,4	0.25	23,1	0.91
3/8	4,8	0.19	26	1.02	6,4	0.25	26,7	1.05
1/2	6,4	0.25	32	1.26	7,9	0.31	34	1.34
3/4	6,4	0.25	38	1.50	7,9	0.31	41	1.61
1	9,6	0.38	45	1.77	11,2	0.44	50	1.97
1 1/4	9,6	0.38	55	2.17	11,2	0.44	58	2.28
1 1/2	11,2	0.44	60	2.56	12,7	0.50	66,5	2.62
2	12,7	0.50	75	2.95	15,7	0.62	85	3.35
2 1/2	15,7	0.62	95	3.62	19,0	0.75	100	3.94
3	19,0	0.75	110	4.33	22,4	0.88	120	4.72
4	22,4	0.88	140	5.51	28,4	1.12	150,0	5.91

[1] Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according to manufacturer.

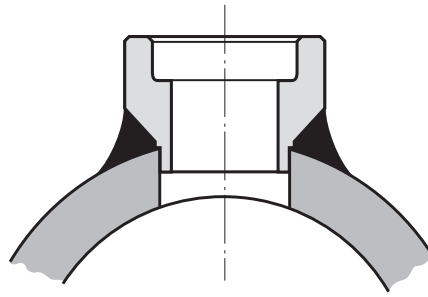
reducing couplings
CLASS 3000 – CLASS 6000

Socket welding end according to ASME B 16.11 – 1996



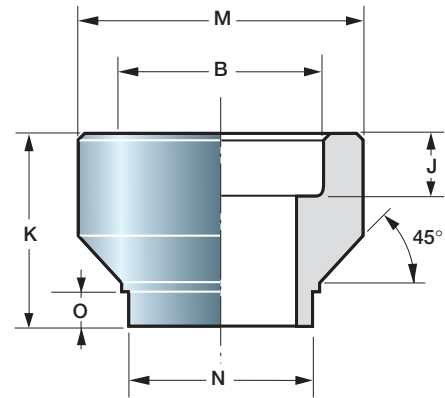
Diamètre nominal Nominal pipe size	Class 3000				Class 6000			
	Q(1)		R(1)		Q(1)		R(1)	
	mm	inches	mm	inches	mm	inches	mm	inches
3/8 x 1/4	25,4	1.00	24,9	0.98	25,4	1.00	26,7	1.05
1/2 x 3/8	28,7	1.13	31,0	1.22	28,7	1.13	33,0	1.30
1/2 x 1/4	28,7	1.13	31,0	1.22	28,7	1.13	33,0	1.30
3/4 x 1/2	35,0	1.38	36,0	1.42	35,0	1.38	40,1	1.58
3/4 x 1/4	35,0	1.38	36,0	1.42	35,0	1.38	40,1	1.58
1 x 3/4	38,1	1.50	45,2	1.78	38,1	1.50	50,0	1.97
1 x 1/2	38,1	1.50	45,2	1.78	38,1	1.50	50,0	1.97
1 x 1/4	38,1	1.50	45,2	1.78	38,1	1.50	50,0	1.97
1 1/4 x 1	38,1	1.50	55,1	2.17	38,1	1.50	57,9	2.28
1 1/2 x 1	38,1	1.50	60,0	2.36	38,1	1.50	65,0	2.56
1 1/2 x 3/4	38,1	1.50	60,0	2.36	38,1	1.50	65,0	2.56
1 1/2 x 1/2	38,1	1.50	60,0	2.36	38,1	1.50	65,0	2.56
2 x 1 1/2	51,3	2.02	74,9	2.95	51,3	2.02	82,0	3.23
2 x 1	51,3	2.02	74,9	2.95	51,3	2.02	82,0	3.23

(1) Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according to manufacturer.



welding bosses

CLASS 3000 – CLASS 6000



Socket welding end and according to: ASME B 16.11 – 1996

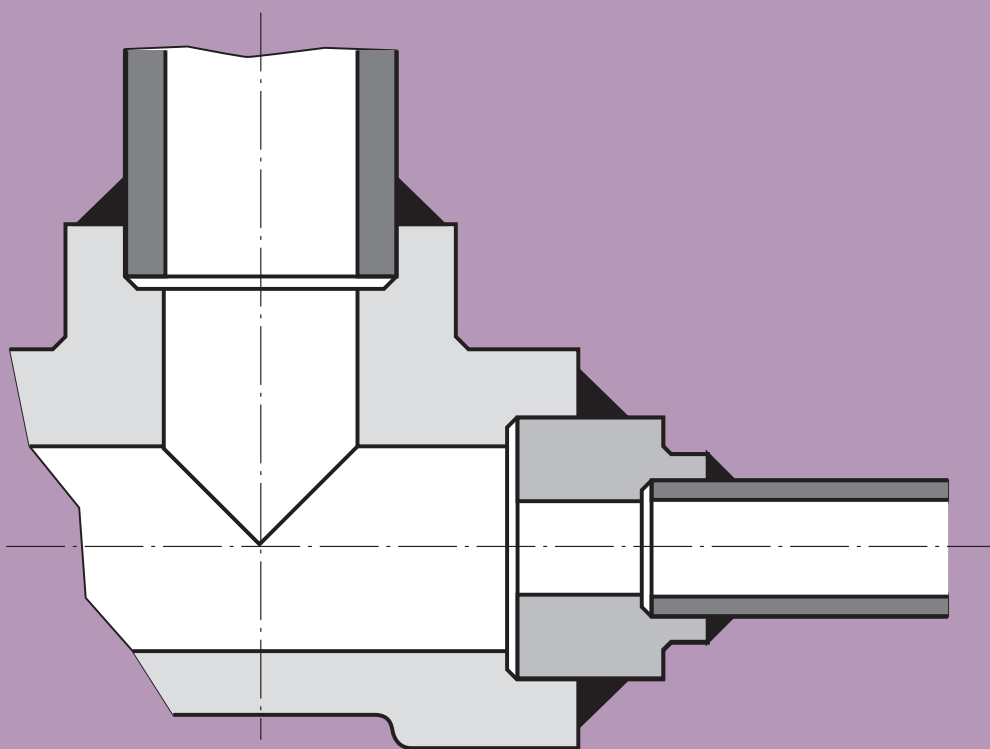
From 1/4" to 2" : 0 = 0.375 in
0 = 9,5 mm

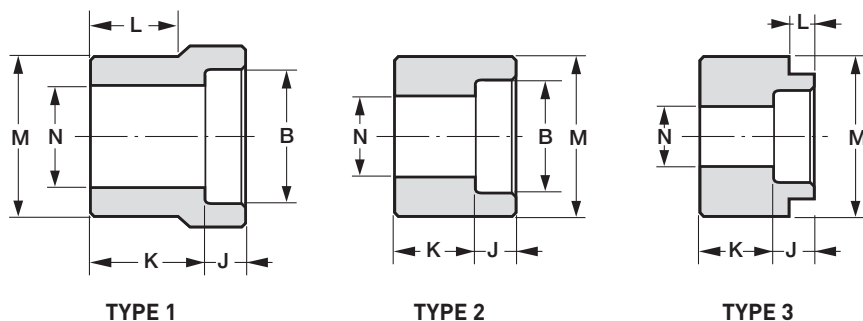
Diamètre nominal Nominal pipe sizes	Class 3000 – Class 6000					
	K(1)		M(1)		N(1)	
	mm	inches	mm	inches	mm	inches
1/4	30,5	1.20	28,0	1.10	14,0	0.55
3/8	30,5	1.20	32,0	1.26	17,4	0.69
1/2	33,5	1.32	38,0	1.50	21,6	0.85
3/4	35,0	1.38	44,5	1.75	36,9	1.06
1	43,0	1.69	57,5	2.26	33,6	1.32
1 1/4	48,0	1.89	63,5	2.50	42,4	1.67
1 1/2	51,0	2.00	76,1	3.00	48,5	1.91
2	57,5	2.26	92,0	3.62	60,9	2.40

(1) Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according to manufacturer.

reducer inserts

APPLICATION





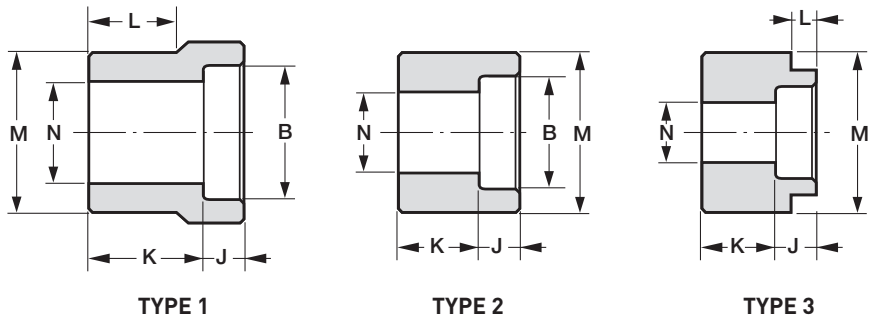
reducer inserts
CLASS 3000

Socket welding end according to: ASME B 16-11 – 1996

Diamètre nominal Nominal pipe sizes	Type	M(1)		N(1)		K(1)		L(1)	
		mm	inches	mm	inches	mm	inches	mm	inches
1/2 x 3/8	1	21,6	0.850	11	0.44	24	0.94	20	0.78
1/2 x 1/4	2	21,6	0.850	7,5	0.30	15,5	0.62		
1/2 x 1/8	3	21,6	0.850	5,5	0.22	15,5	0.62	7	0.28
3/4 x 1/2	1	26,9	1.060	14	0.56	27	1.06	22	0.87
3/4 x 3/8	2	26,9	1.060	11	0.44	15,5	0.62		
3/4 x 1/4	3	26,9	1.060	7,5	0.30	15,5	0.62	7	0.28
3/4 x 1/8	3	26,9	1.060	5,5	0.22	15,5	0.62	7	0.28
1 x 3/4	1	33,6	1.325	19	0.75	28,5	1.12	23	0.91
1 x 1/2	2	33,6	1.325	14	0.56	24	0.94		
1 x 3/8	3	33,6	1.325	11	0.44	23	0.90	7	0.28
1 x 1/4	3	33,6	1.325	7,5	0.30	24	0.94	7	0.28
1 1/4 x 1	1	42,4	1.670	24,5	0.97	31,5	1.25	24,5	0.97
1 1/4 x 3/4	2	42,4	1.670	19	0.75	22	0.87		
1 1/4 x 1/2	3	42,4	1.670	14	0.56	24,5	0.97	7	0.28
1 1/2 x 1 1/4	1	48,5	1.910	32,5	1.28	33,5	1.31	27	1.06
1 1/2 x 1	2	48,5	1.910	24,5	0.97	33,5	1.31		
1 1/2 x 3/4	3	48,5	1.910	19	0.75	22	0.87	8	0.32
1 1/2 x 1/2	3	48,5	1.910	14	0.56	26	1.03	7	0.28
2 x 1 1/2	2	60,9	2.400	38	1.50	27	1.06		
2 x 1 1/4	3	60,9	2.400	32,5	1.28	25,5	1.00	8	0.32
2 x 1	3	60,9	2.400	24,5	0.97	25,5	1.00	8	0.32
2 x 3/4	3	60,9	2.400	19	0.75	25,5	1.00	8	0.32
2 x 1/2	3	60,9	2.400	14	0.56	29,5	1.16	7	0.28
2 1/2 x 2	1	73,6	2.900	49	1.93	41,5	1.63	30	1.19
2 1/2 x 1 1/2	3	73,6	2.900	38	1.50	27,5	1.09	8	0.32
2 1/2 x 1 1/4	3	73,6	2.900	32,5	1.28	29,5	1.16	8	0.32
2 1/2 x 1	3	73,6	2.900	24,5	0.97	29,5	1.16	8	0.32
3 x 2 1/2	1	89,6	3.530	59	2.32	46	1.81	33,5	1.32
3 x 2	3	89,6	3.530	49	1.93	41,5	1.63	10	0.40
3 x 1 1/2	3	89,6	3.530	38	1.50	42	1.66	8	0.32
3 x 1 1/4	3	89,6	3.530	32,5	1.28	42,5	1.67	8	0.32
3 x 1	3	89,6	3.530	24,5	0.97	39	1.53	8	0.32

(1) Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according to manufacturer.

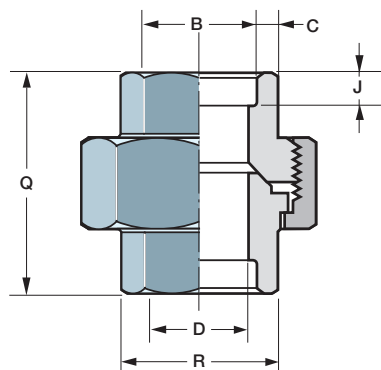
reducer inserts
CLASS 6000



Socket welding end according to: ASME B 16.11 – 1996

Diamètre nominal Nominal pipe sizes	Type	M(1)		N(1)		K(1)		L(1)	
		mm	inches	mm	inches	mm	inches	mm	inches
1/2 x 3/8	1	21,6	0.850	11	0.44	30	1.19	21	0.83
3/4 x 1/2	1	26,9	1.060	12	0.47	33,5	1.31	23	0.90
3/4 x 3/8	2	26,9	1.060	11	0.44	25,5	1.00		
1 x 3/4	1	33,6	1.325	15,5	0.61	42	1.66	26	1.03
1 x 1/2	1	33,6	1.325	12	0.47	40	1.58	24	0.94
1 x 3/8	3	33,6	1.325	11	0.44	28,5	1.12	7	0.28
1 1/4 x 1	1	42,4	1.670	20,5	0.81	43	1.70	28	1.11
1 1/4 x 3/4	1	42,4	1.670	15,5	0.61	43	1.70	28	1.11
1 1/4 x 1/2	2	42,4	1.670	12	0.47	32	1.26		
1 1/4 x 3/8	3	42,4	1.670	11	0.44	32,5	1.28	7	0.28
1 1/2 x 1 1/4	1	48,5	1.910	29,5	1.16	51	2.01	32	1.27
1 1/2 x 1	1	48,5	1.910	20,5	0.81	49	1.93	28	1.11
1 1/2 x 3/4	2	48,5	1.910	15,5	0.61	35	1.38		
1 1/2 x 1/2	3	48,5	1.910	12	0.47	39	1.53	7	0.28
2 x 1 1/2	1	60,9	2.400	34	1.34	46	1.81	34	1.34
2 x 1 1/4	1	60,9	2.400	29,5	1.16	47,5	1.87	34	1.34
2 x 1	3	60,9	2.400	20,5	0.81	36	1.42	8	0.32
2 x 3/4	3	60,9	2.400	15,5	0.61	36	1.42	8	0.32
2 x 1/2	3	60,9	2.400	12	0.47	39	1.53	7	0.28
2 1/2 x 2	1	73,6	2.900	43	1.70	54	2.13	36	1.42
2 1/2 x 1 1/2	2	73,6	2.900	34	1.34	47,5	1.87		
2 1/2 x 1 1/4	3	73,6	2.900	29,5	1.16	42	1.66	8	0.32
2 1/2 x 1	3	73,6	2.900	20,5	0.81	44	1.73	8	0.32
2 1/2 x 3/4	3	73,6	2.900	15,5	0.61	44	1.73	8	0.32
2 1/2 x 1/2	3	73,6	2.900	12	0.47	46,5	1.83	7	0.28
3 x 2 1/2	1	89,6	3.530	54	2.13	63,5	2.50	38	1.50
3 x 2	2	89,6	3.530	43	1.70	54	2.13		
3 x 1 1/2	3	89,6	3.530	34	1.34	47,5	1.87	8	0.32
3 x 1 1/4	3	89,6	3.530	29,5	1.16	49,6	1.95	8	0.32
3 x 1	3	89,6	3.530	20,5	0.81	48,5	1.91	8	0.31

(1) Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according to manufacturer.



reducer inserts

CLASS 3000 – CLASS 6000

Socket welding end according to: ASME B 16.11 – 1996

Diamètre nominal Nominal pipe size	Class 3000				Class 6000			
	Q(1)		R(1)		Q(1)		R(1)	
	mm	inches	mm	inches	mm	inches	mm	inches
1/4	42,5	1.67	36,0	1.42	54,0	2.13	46,0	1.81
3/8	47,5	1.87	41,0	1.62	57,0	2.25	51,0	2.00
1/2	52,0	2.05	46,0	1.81	69,0	2.72	60,0	2.36
3/4	57,0	2.25	56,0	2.20	72,0	2.84	72,0	2.84
1	63,0	2.48	65,0	2.56	80,0	3.15	80,0	3.15
1 1/4	68,0	2.76	80,0	3.07	89,0	3.50	94,0	3.70
1 1/2	78,0	3.07	88,0	3.39	108,0	4.25	100,0	3.94
2	91,0	3.50	105,0	4.06	114,0	4.49	122,0	4.80
2 1/2	120,0	4.49	122,0	4.80	–	–	–	–
3	120,0	5.12	144,0	5.67	–	–	–	–
4	148,0	5.91	200,0	7.09	–	–	–	–

(1) Dimensions not listed in ASME B 16.11 – 1996 and BS 3799 – 1974, may vary according to manufacturer.

reinforced branch fittings

DESCRIPTION

■ general

Material manufactured by forging.

Materials frequently used:

- ASTM A 105 – A 350 – A 182.

These fittings are not standardised and are manufactured in accordance with the recommendations of the ASME B 31.3 code.

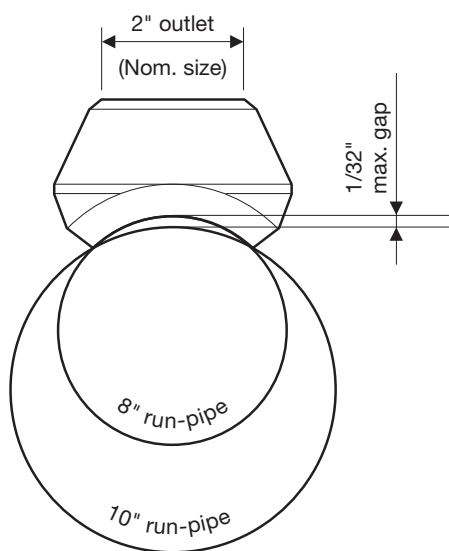
■ description

This type of fittings is installed either straight or at an angle to the main pipe. As the bearing surface fits the shape of the pipe exactly, the outside diameter of the pipe must be known.

Range: NPS 3/8" to 60".

The main pipe and the fitting are connected by means of a fillet weld.

The fitting and the branch pipe can be connected in several different ways.

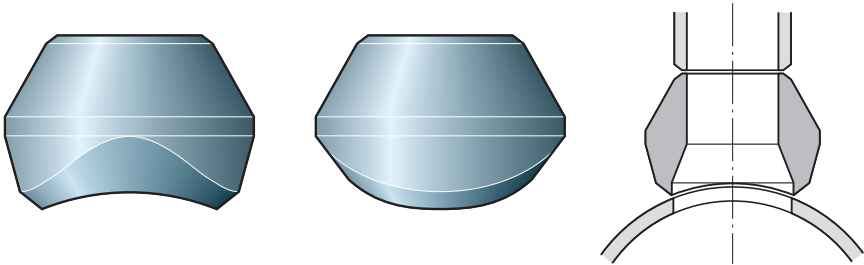


Outlet radius of branch fittings have been unified in order to allow, generally speaking up to size 4", the use of same fitting on different run pipe sizes, with a maximum gap of 1/32" (0,8 mm) between the top of the run pipe and the base of the fitting. For outlet sizes over 4", usually a specific radius is required for each run size.

Each fitting is marked with its nominal size (outlet diameter) and the range of run sizes on which it can be welded.

butt welding fittings

DIMENSIONAL RANGE



The fitting is bevelled according to ASME B 16.25.

Range:
- NPS 1/8" to 24"
Sch 40-80-160 ; STD - XS - XXS
according to ASME B 36.10.

STANDARD - XS

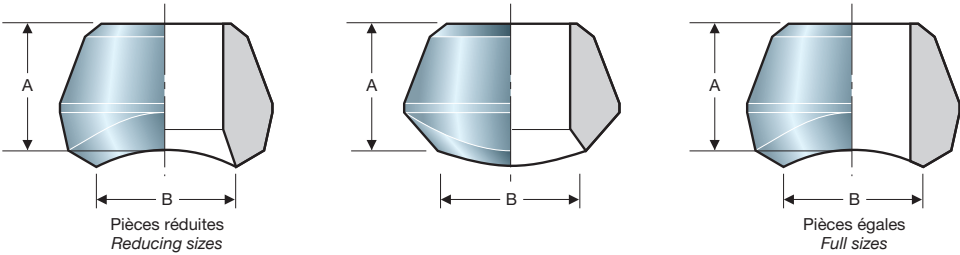
	Diamètre sortie / Outlet size												
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1"1/4	1"1/2	2"	2"1/2	3	3"1/2	4"
Dimensions collecteurs Run sizes	3/8	3/8	1/2	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
	1/2	1/2	1-3/4	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5
	1-3/4	1-3/4	2 1/2-1 1/4	1	1 1/2-1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
	2 1/2-1 1/4	2 1/2-1 1/4	36-3	1 1/2-1 1/4	2 1/2-2	2	2 1/2	3	4	4	5	6	8
	36-3	36-3	-	2 1/2-2	5-3	2 1/2	3 1/2-3	4-3 1/2	5	5	6	8	10
	-	-	-	8-3	12-6	3 1/2-3	5-4	6-5	6	6	8	10	14-12
	-	-	-	36-10	36-14	5-4	8-6	12-8	10-8	8	10	14-12	20-16
	-	-	-	-	-	10-6	18-10	24-14	18-12	12-10	14-12	20-16	36-24
	-	-	-	-	-	36-12	36-20	36-26	36-20	18-14	20-16	36-24	-
	-	-	-	-	-	-	-	-	-	36-20	36-24	-	-

Sch 160 - XXS

	Diamètre sortie / Outlet size					
	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
Dimensions collecteurs Run sizes	1/2	1 - 3/4	1	1 1/2 - 1 1/4	1 1/2	2
	1 1/4 - 3/4	2 - 1 1/4	2 - 1 1/4	2 1/2 - 2	2 1/2 - 2	2 1/2
	36 - 1 1/2	6 - 2 1/2	10 - 3	10 - 3	3 1/2 - 3	3 1/2 - 3
	-	36 - 8	36 - 12	36 - 12	8 - 4	5 - 4 1/2
	-	-	-	-	20 - 10	8 - 6
	-	-	-	-	36 - 24	18 - 10
	-	-	-	-	-	36 - 20
	-	-	-	-	-	-
	-	-	-	-	-	-
	-	-	-	-	-	-

butt welding fittings

ASME B 16.25



OVERALL DIMENSIONS

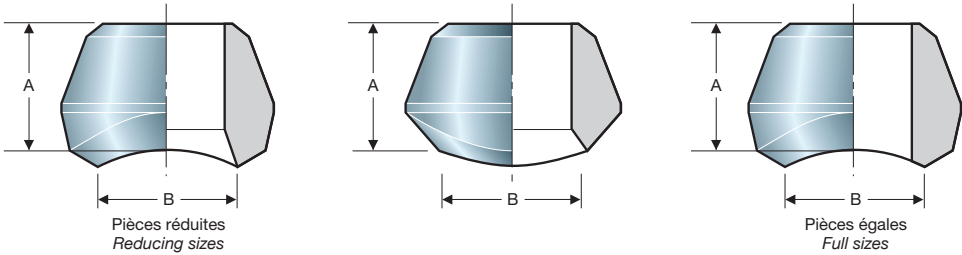
STANDARD

Diamètre nominal de sortie Outlet nominal pipe size	Pièces réduites / Reducing size					Pièces égales / Full size				
	A *		B(1)		Masse Weight (kg)	A *		C		Masse Weight (kg)
	mm	inches	mm	inches		mm	inches	mm	inches	
1/8	16	5/8	16	5/8	0,04	-	-	-	-	-
1/4	16	5/8	16	5/8	0,04	-	-	-	-	-
3/8	19	3/4	19	3/4	0,07	-	-	-	-	-
1/2	19	3/4	24	15/16	0,08	19	3/4	16	5/8	0,07
3/4	22	7/8	30	1 3/16	0,12	22	7/8	20,5	13/16	0,12
1	27	1 1/16	36,5	1 7/16	0,22	27	1 1/16	26	1 1/32	0,18
1 1/4	32	1 1/4	44,5	1 3/4	0,36	32	1 1/4	35	1 3/8	0,32
1 1/2	33	15/16	51	2	0,45	33	1 5/16	41	1 5/8	0,36
2	38	1 1/2	65	2 9/16	0,80	38	1 1/2	52,5	2 1/16	0,70
2 1/2	41	1 5/8	76	3	1,15	41	1 5/8	62	2 7/16	1,10
3	44	1 3/4	93,5	3 11/16	1,80	44	1 3/4	78	3 1/16	1,70
3 1/2	48	1 7/8	101,5	4	2,50	51	2	90,5	3 9/16	2,25
4	51	2	120,5	4 3/4	2,90	51	2	101,5	4	3,05
5	57	2 1/4	141	5 9/16	4,60	57	2 1/4	128,5	5 1/16	4,85
6	60	2 3/8	170	6 11/16	7,0	60	2 3/8	154	6 1/16	7,50
8	70	2 3/4	220,5	8 11/16	12,0	70	2 3/4	201,5	7 15/16	12,7
10	78	3 1/16	274,5	10 13/16	19,5	78	3 1/16	254	10	20,0
12	86	3 3/8	325,5	12 13/16	26,7	86	3 3/8	304,5	12	29,4
14	89	3 1/2	357	14 1/16	29,9	89	3 1/2	336,5	13 1/4	31,8
16	94	3 11/16	408	16 1/16	34,0	94	3 11/16	387,5	15 1/4	41,7
18	97	3 13/16	459	18 1/16	44,0	103	4 1/16	438	17 1/4	56,7
20	102	4	510	20 1/16	53,5	117	4 5/8	489	19 1/4	79,3
24	116	4 9/16	611	24 1/16	99,7	137	5 3/8	590,5	23 1/4	127

* According to MSS SP97 – 1995
(1 Same dimension for full and reducing sizes. For run pipe sizes : see chart on page 187.
Weights are approximate.

butt welding fittings

ASME B 16.25



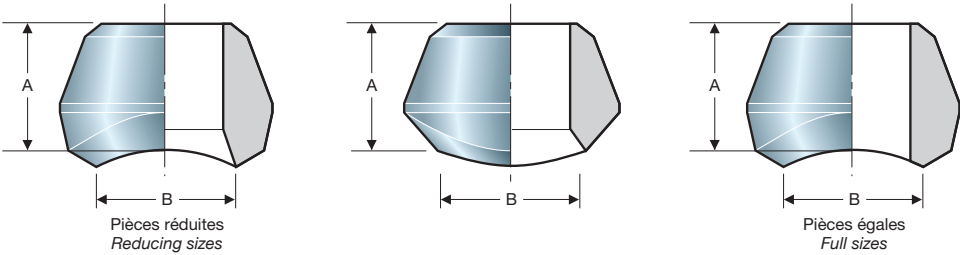
OVERALL DIMENSIONS

■ XS

Diamètre nominal de sortie Outlet nominal pipe size	Pièces réduites / Reducing size					Pièces égales / Full size				
	A *		B(1)		Masse Weight (kg)	A *		C		Masse Weight (kg)
	mm	inches	mm	inches		mm	inches	mm	inches	
1/8	16	5/8	16	5/8	0,04	-	-	-	-	-
1/4	16	5/8	16	5/8	0,04	-	-	-	-	-
3/8	19	3/4	19	3/4	0,07	-	-	-	-	-
1/2	19	3/4	24	15/16	0,09	19	3/4	14	9/16	0,07
3/4	22	7/8	30	1 3/16	0,14	22	7/8	19	3/4	0,12
1	27	1 1/16	36,5	1 7/16	0,21	27	1 1/16	24	15/16	0,18
1 1/4	32	1 1/4	44,5	1 3/4	0,40	30	1 1/4	32	1 1/4	0,32
1 1/2	33	1 5/16	51	2	0,50	32	1 5/16	38	1 1/2	0,40
2	38	1 1/2	65	2 9/16	0,79	38	1 1/2	49	1 15/16	0,72
2 1/2	41	1 5/8	76	3	1,18	41	1 5/8	59	2 5/16	1,13
3	44	1 3/4	93,5	3 11/16	1,85	44	1 3/4	73,5	2 7/8	1,85
3 1/2	48	1 7/8	101,5	4	2,54	51	2	85	3 5/16	2,30
4	51	2	120,5	4 3/4	2,90	51	2	97	3 13/16	3,40
5	57	2 1/4	141	5 9/16	4,70	57	2 1/4	122	4 13/16	5,00
6	78	3 1/16	170	6 11/16	10,4	78	3 1/16	146	5 3/4	10,4
8	99	3 7/8	220,5	8 11/16	20,4	99	3 7/8	193,5	7 5/8	21,0
10	94	3 11/16	265	10 7/16	24,8	89	3 1/2	247,5	9 3/4	25,4
12	103	4 1/16	316	12 7/16	35,0	100	3 15/16	298,5	11 3/4	35,0
14	100	3 15/16	351	13 13/16	37,7	105	4 1/8	330	13	39,0
16	106	4 11/64	402	15 13/16	46,2	113	4 7/16	381	15	52,0
18	111	4 3/8	452	17 13/16	58,9	119	4 11/16	432	17	59,0
20	119	4 11/16	503	19 13/16	71,5	127	5	482,5	19	84,7
24	140	5 1/2	605	23 13/16	141	140	5 1/2	584	23	146

* According to MSS SP97 – 1995
(1 Same dimension for full and reducing sizes. For run pipe sizes : see chart on page 187.
Weights are approximate.

butt welding fittings
ASME B 16.25



OVERALL DIMENSIONS

Sch 160 – XXS

Diamètre nominal de sortie Outlet nominal pipe size	Pièces réduites / Reducing size					Pièces égales / Full size		
	A *		B(1)		Masse Weight (kg)	C(2)		Masse Weight (kg)
	mm	inches	mm	inches		mm	inches	
1/8	28	1 1/8	14	9/16	0,15	11,5	7/16	0,15
3/4	32	1 1/4	19	3/4	0,32	15,5	5/8	0,32
1	38	1 1/2	25,5	1	0,38	21	13/16	0,38
1 1/4	44	1 3/4	33,5	1 5/16	0,55	29,5	1 3/16	0,60
1 1/2	51	2	38	1 1/2	0,80	34	1 5/16	0,85
2	55	2 3/16	43	1 11/16	0,97	43	1 11/16	1,00
2 1/2	62	2 7/16	54	2 1/8	1,55	54	2 1/8	1,70
3	73	2 7/8	73	2 7/8	2,85	66,5	2 5/8	2,95
4	84	3 5/16	98,5	3 7/8	4,75	87	3 7/16	4,95
5	94	3 11/16	122	4 13/16	6,50	109,5	4 5/16	6,80
6	105	4 1/8	146	5 3/4	12,7	132	5 3/16	13,7
8	Dimensions disponibles sur demande Dimensions available on request.							
10								
12								
14								
16								

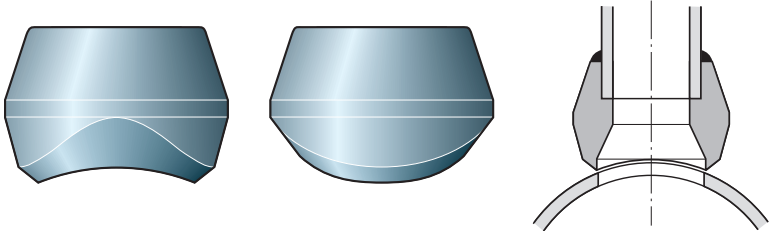
* According to MSS SP97 – 1995
(1 Same dimension for full and reducing sizes.
(2 Suitable dimensions for Sch 160 run pipes.
For run pipe sizes: see chart on page 187.
Weights are approximate.

socket welding fittings

The fitting incorporates a socket end, whose dimensions comply with ASME B 16.11

Range: – Class 3000: NPS 1/8" to 4"

– Class 6000: NPS 1/2" to 2"



threaded fittings

The fitting is threaded NPT according to ASME B 1.20.1

Range: – Class 3000: NPS 1/8" to 4"

– Class 6000: NPS 1/2" to 2"

DIMENSIONAL RANGE

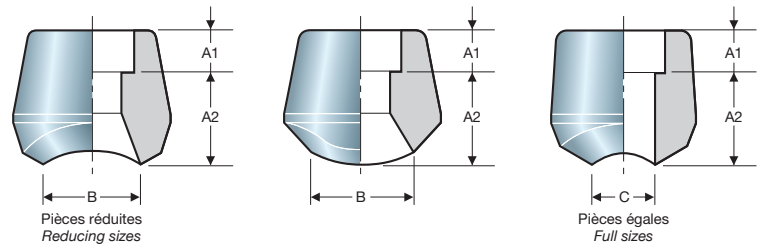
CLASS 3000

	Diamètre sortie / Outlet size												
	1/8"	1/4"	3/8"	1/2"	3/4"	1"	1"1/4	1"1/2	2"	2"1/2	3	3"1/2	4
Dimensions collecteurs Run sizes	3/8	3/8	1/2	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4
	1/2	1/2	1-3/4	3/4	1	1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5
	1-3/4	1-3/4	2 1/2-1 1/4	1	1 1/2-1 1/4	1 1/2	2	2 1/2	3	3 1/2	4	5	6
	2 1/2-1 1/4	2 1/2-1 1/4	36-3	1 1/2-1 1/4	2 1/2-2	2	2 1/2	3	4	4	5	6	8
	36-3	36-3	-	2 1/2-2	5-3	2 1/2	3 1/2-3	4-3 1/2	5	5	6	8	10
	-	-	-	8-3	12-6	3 1/2-3	5-4	6-5	6	6	8	10	14-12
	-	-	-	36-10	36-14	5-4	8-6	12-8	10-8	8	10	14-12	20-16
	-	-	-	-	-	10-6	18-10	24-14	18-12	12-10	14-12	20-16	36-24
	-	-	-	-	-	36-12	36-20	36-26	36-20	18-14	20-16	36-24	-
	-	-	-	-	-	-	-	-	-	36-20	36-24	-	-

CLASS 6000

	Diamètre sortie / Outlet size					
	1/2"	3/4"	1"	1"1/4	1"1/2	2"
Dimensions collecteurs Run sizes	1 - 3/4	1	1 1/2 - 1 1/4	1 1/2	2	2 1/2
	2 - 1 1/4	2 1/2 - 1 1/4	2 1/2 - 2	2 1/2 - 2	2 1/2	3
	6 - 2 1/2	10 - 3	10 - 3	3 1/2 - 3	3 1/2 - 3	4
	36 - 8	36 - 12	36 - 12	8 - 4	5 - 4	5
	-	-	-	20 - 10	8 - 6	6ž
	-	-	-	36 - 24	18 - 10	10 - 8
	-	-	-	-	36 - 20	20 - 12
	-	-	-	-	-	36 - 24

socket welding fittings
ASME B 16.11



OVERALL DIMENSIONS

CLASS 3000

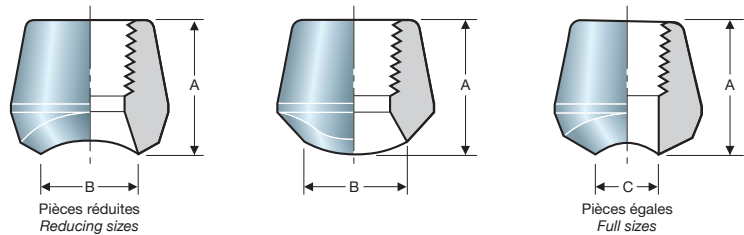
Diamètre nominal de sortie Outlet nominal pipe size	Pièces réduites / Reducing size							Pièces égales / Full size		
	A1 mini		A2 maxi		B(1)		Masse Weight (kg)	C(2)		Masse Weight (kg)
	mm	inches	mm	inches	mm	inches		mm	inches	
1/8	10	3/8	10	3/8	16	5/8	0,06	–	–	–
1/4	10	3/8	10	3/8	16	5/8	0,06	–	–	–
3/8	10	3/8	13	1/2	19	3/4	0,09	–	–	–
1/2	10	3/8	16	5/8	24	15/16	0,11	14	9/16	0,12
3/4	13	1/2	16	5/8	30	1 3/16	0,17	19	3/4	0,19
1	13	1/2	22	7/8	36,5	1 7/16	0,29	24	15/16	0,31
1 1/4	13	1/2	22	7/8	44,5	1 3/4	0,41	32	1 1/4	0,45
1 1/2	13	1/2	24	15/16	51	2	0,46	38	1 1/2	0,50
2	16	5/8	24	15/16	65	2 9/16	0,80	49	1 15/16	0,87
2 1/2	16	5/8	25	1	76	3	1,40	59	2 5/16	1,50
3	16	5/8	30	1 3/16	93,5	3 11/16	2,00	73,5	2 7/8	2,15
3 1/2*	16	5/8	38	1 1/2	101,5	4	2,60	85	3 5/16	2,80
4	19	3/4	30	1 3/16	120,5	4 3/4	3,30	97	3 13/16	3,50

CLASS 6000 (3)

Diamètre nominal de sortie Outlet nominal pipe size	Pièces réduites / Reducing size						
	A1 mini		A2 maxi		B(1)		Masse Weight (kg)
	mm	inch.	mm	inch.	mm	inch.	
1/4*	10	3/8	19	3/4	14	9/16	0,20
3/8*	10	3/8	19	3/4	14	9/16	0,20
1/2	10	3/8	24	15/16	19	3/4	0,30
3/4	13	1/2	25	1	25,5	1	0,50
1	13	1/2	29	1 1/8	33,5	1 5/16	0,90
1 1/4	13	1/2	30	1 3/16	38	1 1/2	0,85
1 1/2	13	1/2	32	1 1/4	49	1 15/16	1,45
2	16	5/8	37	1 7/16	59	2 5/16	2,75

A1 mini according ASME B 16.11 – 1996
A2 maxi according MSS SP97 – 1995
(1) Same dimension for full and reducing sizes.
(2) Suitable dimensions for STD and XS run pipes.
(3) Available only for reducing sizes. Fittings hole for Sch 160 pipes.
* Dimensions not listed in MSS SP97 – 1995
For run pipe sizes : see chart on page 191
Weights are approximate.

threaded fittings
ASME B 1.20.1



OVERALL DIMENSIONS

CLASS 3000

Diamètre nominal de sortie Outlet nominal pipe size	Pièces réduites / Reducing size					Pièces égales / Full size		
	A*		B(1)		Masse Weight (kg)	C(2)		Masse Weight (kg)
	mm	inches	mm	inches		mm	inches	
1/8	19	3/4	16	5/8	0,06	-	-	-
1/4	19	3/4	16	5/8	0,06	-	-	-
3/8	21	13/16	19	3/4	0,09	-	-	-
1/2	25	1	24	15/16	0,11	14	9/16	0,12
3/4	27	1 1/16	30	1 3/16	0,17	19	3/4	0,19
1	33	1 5/16	36,5	1 7/16	0,29	24	15/16	0,31
1 1/4	33	1 5/16	44,5	1 3/4	0,41	32	1 1/4	0,45
1 1/2	35	1 3/8	51	2	0,46	38	1 1/2	0,50
2	38	1 1/2	65	2 9/16	0,80	49	1 15/16	0,87
2 1/2	46	1 13/16	76	3	1,40	59	2 5/16	1,50
3	51	2	93,5	3 11/16	2,00	73,5	2 7/8	2,15
3 1/2 **	54	2 1/8	101,5	4	2,60	85	3 5/16	2,85
4	57	2 1/4	120,5	4 3/4	3,35	97	3 13/16	3,60

CLASS 6000 (3)

Diamètre nominal de sortie Outlet nominal pipe size	Pièces réduites / Reducing size				
	A*		B		Masse Weight (kg)
	mm	inches	mm	inches	
1/4 **	28,5	1 1/8	14	9/16	0,20
3/8 **	28,5	1 1/8	14	9/16	0,20
1/2	32	1 1/4	19	3/4	0,30
3/4	37	1 7/16	25,5	1	0,50
1	40	1 9/16	33,5	1 5/16	0,90
1 1/4	41	1 5/8	38	1 1/2	0,85
1 1/2	43	1 11/16	49	1 15/16	1,45
2	52	2 1/16	59	2 5/16	2,75

* According MSS SP 97.
** Dimensions not listed in MSS SP 97.
(1) Same dimension for full and reducing sizes.
(2) Suitable dimensions for STD and XS run pipes.
(3) Available only for reducing sizes.
For run pipe sizes : see chart on page 191.
Weights are approximate.



D- Carbon steel / Stainless steel flanges

1. Standards overview

ASTM

ASTM Grades	Desig. UNS	Mechanical requirements								
		Tensile strength		Yield strength 0.2 %		Elong.	Reduc. of area	Brinell Hardness	Impact test	
		N/mm ² mini	ksi mini	N/mm ² mini	ksi mini	% mini	% mini	HB maxi	Temperature	
									°C	°F

ASTM

ASTM Grades	Desig. UNS	Chemical requirements in percent					
		Carbon	Manganese	Silicon	Phosphorus	Sulfur	Chromium
		C	Mn	Si	P	S	Cr

CARBON STEELS

A 105 / A 105 M-13		0,35 maxi	0,60 – 1,05	0,10 – 0,35	0,035 maxi	0,040 maxi	0,30 maxi
A 181-A 181 M-13 Class 60		0,35 maxi	1,10 maxi	0,10 – 0,35	0,050 maxi	0,050 maxi	
A 181-A 181 M-13 Class 70		0,35 maxi	1,10 maxi	0,10 – 0,35	0,050 maxi	0,050 maxi	

ALLOY STEELS FOR HIGH TEMPERATURE SERVICE

A 182 / A 182 M-13a	F1	K 12822	0,28 maxi	0,60 – 0,90	0,15 – 0,35	0,045 maxi	0,045 maxi	
	F2	K 12122	0,05 – 0,21	0,30 – 0,80	0,10 – 0,60	0,040 maxi	0,040 maxi	0,50 – 0,81
	F5	K 41545	0,15 maxi	0,30 – 0,60	0,50 maxi	0,030 maxi	0,030 maxi	4,0 – 6,0
	F9	K 90941	0,15 maxi	0,30 – 0,60	0,50 – 1,00	0,030 maxi	0,030 maxi	8,0 – 10,0
	F11 Class 2	K 11572	0,10 – 0,20	0,30 – 0,80	0,50 – 1,00	0,040 maxi	0,040 maxi	1,00 – 1,50
	F12 Class 2	K 11564	0,10 – 0,20	0,30 – 0,80	0,10 – 0,60	0,040 maxi	0,040 maxi	0,80 – 1,25
	F22 Class 3	K 21590	0,05 – 0,15	0,30 – 0,60	0,50 maxi	0,040 maxi	0,040 maxi	2,00 – 2,50
	F304	S 30400	0,08 maxi	2,00 maxi	1,00 maxi	0,045 maxi	0,030 maxi	18,0 – 20,0
	F304 L	S 30403	0,030 maxi	2,00 maxi	1,00 maxi	0,045 maxi	0,030 maxi	18,0 – 20,0
	F316	S 31600	0,08 maxi	2,00 maxi	1,00 maxi	0,045 maxi	0,030 maxi	16,0 – 18,0
	F316 L	S 31603	0,030 maxi	2,00 maxi	1,00 maxi	0,045 maxi	0,030 maxi	16,0 – 18,0
	F321	S 32100	0,08 maxi	2,00 maxi	1,00 maxi	0,045 maxi	0,030 maxi	17,0 mini
	F347	S 34700	0,08 maxi	2,00 maxi	1,00 maxi	0,045 maxi	0,030 maxi	17,0 – 20,0
	F348	S 34800	0,08 maxi	2,00 maxi	1,00 maxi	0,045 maxi	0,030 maxi	17,0 – 20,0
	F310	S 31000	0,25 maxi	2,00 maxi	1,00 maxi	0,045 maxi	0,030 maxi	24,0 – 26,0

STEELS FOR LOW TEMPERATURE SERVICE

A 350/A350 M-13	LF 1		0,30 maxi	0,60 – 1,35	0,15 – 0,30	0,035 maxi	0,040 maxi	0,30 maxi
	LF 2		0,30 maxi	0,60 – 1,35	0,15 – 0,30	0,035 maxi	0,040 maxi	0,30 maxi
	LF 3		0,20 maxi	0,90 maxi	0,20 – 0,35	0,035 maxi	0,040 maxi	0,30 maxi

ASTM

Chemical requirements in percent						Nuances ASTM Grades
Nickel Nickel	Molybdène Molybdenum	Cuivre Copper	Vanadium Vanadium	Niobium Columbium	Autres Others	
Ni	Mo	Cu	V	Nb/Cb		

CARBON STEELS

0,40 maxi	0,12 maxi	0,40 maxi	0,08 maxi	0,02 maxi		A 105 / A 105 M-13
						A 181-A 181 M-13 Class 60
						A 181-A 181 M-13 Class 70

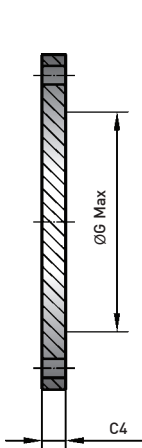
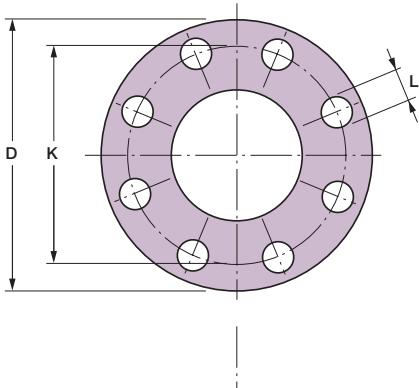
ALLOY STEELS FOR HIGH TEMPERATURE SERVICE

	0,44 – 0,65					F1	A 182 / A 182 M-13a
	0,44 – 0,65					F2	
0,50 maxi	0,44 – 0,65					F5	
	0,90 – 1,10					F9	
	0,44 – 0,65					F11 Class 2	
	0,44 – 0,65					F12 Class 2	
	0,87 – 1,13					F22 Class 3	
8,0 – 11,0						F304	
8,0 – 13,0						F304 L	
10,0 – 14,0	2,00 – 3,00					F316	
10,0 – 15,0	2,00 – 3,00					F316 L	
9,0 – 12,0					5 C ≤ Ti ≤ 0,70 %	F321	
9,0 – 13,0					10 C ≤ Cb ≤ 1,10 %	F347	
9,0 – 13,0					10 C ≤ Cb ≤ 1,10 % Ta ≤ 0,10 %	F348	
19,0 – 22,0						F310	

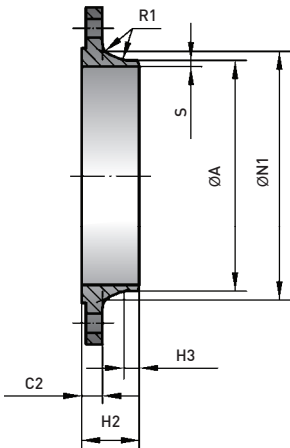
STEELS FOR LOW TEMPERATURE SERVICE

0,40 maxi	0,12 maxi	0,40 maxi	0,08 maxi	0,02 maxi		LF 1	A 350/A350 M-13
0,40 maxi	0,12 maxi	0,40 maxi	0,08 maxi	0,02 maxi		LF 2	
3,3 – 3,7	0,12 maxi	0,40 maxi	0,03 maxi	0,02 maxi		LF 3	

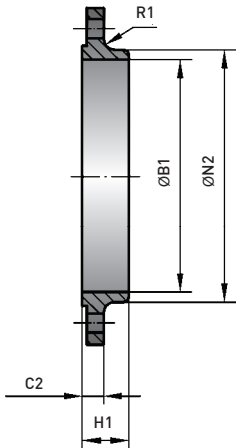
2. Carbon steel/stainless steel flanges weight and dimensions



Type 5



Type 11

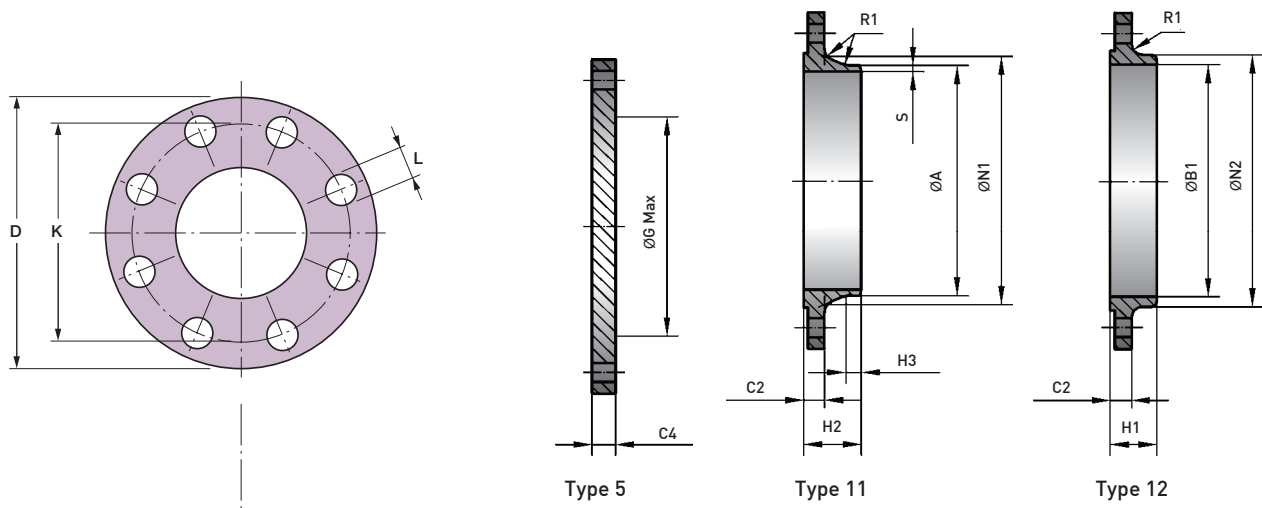


Type 12

PN 10 flanges – DN 10 to 3000

- (1) Dimensions N1 and N2 are measured at the intersection of the hub draft angle and the back face of the flange.
(2) Dimensions are in millimetres
(3) b: To be specified by the purchaser
(4) Figures for Weight and Dimension is based as per BSEN 1092-1:2018
(5) Use is limited up to DN 600

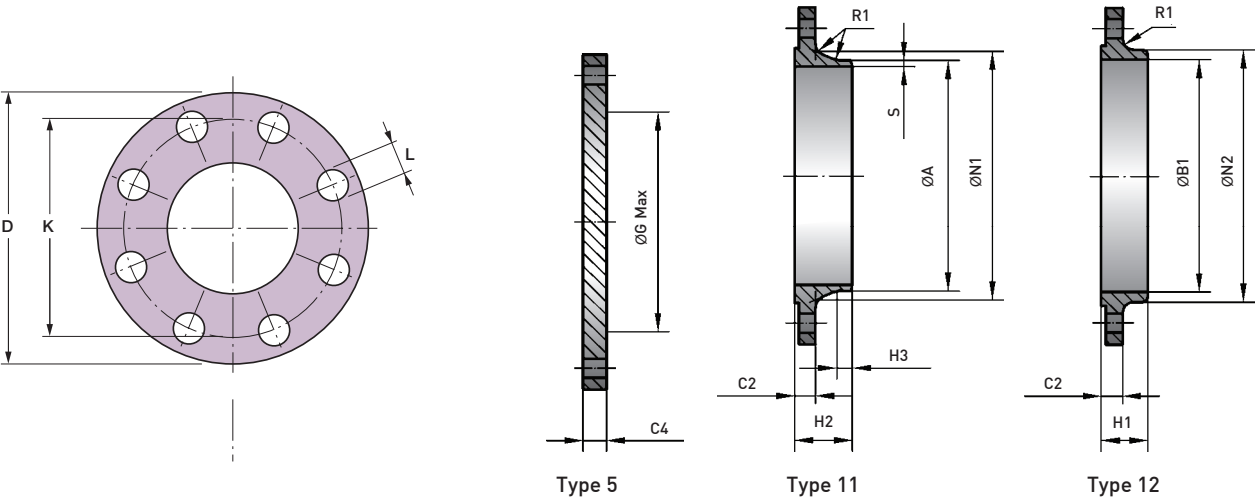
DN	Outside diameter D	Mating dimensions				Outside diameter of neck A	Bore dia B1	Flange thick-ness C2 C4		Diameter of shoulder Gmax	Length H1 H2 H3			Neck Diameters N1 N2		Corner radii R1	Neck Thick-ness S
		Diameter of bolt circle K	Diameter of bolt hole L	Bolting													
				Number	Size												
	Flange type																
Type 05, 11, 12	Type 11	Type 12	Type 11,12	Type 05	Type 05	Type 12	Type 11	Type 11	Type 11	Type 12	Type 11,12	Type 11					
10	90	60	14	4	M12	17,2	18,0	16	16	-	22	35	6	28	30	4	2,0
15	95	65	14	4	M12	21,3	22,0	16	16	-	22	38	6	32	35	4	2,0
20	105	75	14	4	M12	26,9	27,5	18	18	-	26	40	6	40	45	4	2,3
25	115	85	14	4	M12	33,7	34,5	18	18	-	28	40	6	46	52	4	2,6
32	140	100	18	4	M16	42,4	43,5	18	18	-	30	42	6	56	60	6	2,6
40	150	110	18	4	M16	48,3	49,5	18	18	-	32	45	7	64	70	6	2,6
50	165	125	18	4	M16	60,3	61,5	18	18	-	28	45	8	74	84	6	2,9
65	185	145	18	8	M16	76,1	77,5	18	18	55	32	45	10	92	104	6	2,9
80	200	160	18	8	M16	88,9	90,5	20	20	70	34	50	10	105	118	6	3,2
100	220	180	18	8	M16	114,3	116,0	20	20	90	40	52	12	131	140	8	3,6
125	250	210	18	8	M16	139,7	141,5	22	22	115	44	55	12	156	168	8	4,0
150	285	240	22	8	M20	168,3	170,5	22	22	140	44	55	12	184	195	10	4,5
200	340	295	22	8	M20	219,1	221,5	24	24	190	44	62	16	234	246	10	6,3
250	395	350	22	12	M20	273,0	276,5	26	26	235	46	68	16	292	298	12	6,3
300	445	400	22	12	M20	323,9	327,5	26	26	285	46	68	16	342	350	12	7,1
350	505	460	22	16	M20	355,6	359,5	26	26	330	53	68	16	385	400	12	7,1
400	565	515	26	16	M24	406,4	411,0	26	26	380	57	72	16	440	456	12	7,1
450	615	565	26	20	M24	457,0	462,0	28	28	425	63	72	16	488	502	12	7,1
500	670	620	26	20	M24	508,0	513,5	28	28	475	67	75	16	542	559	12	7,1
600	780	725	30	20	M27	610,0	616,5	30	34	575	75	82	18	642	658	12	8,0
700	895	840	30	24	M27	711,0	b	35	38	670	-	85	18	746	-	12	8,8
800	1015	950	33	24	M30	813,0		38	48	770	-	96	18	850	-	12	8,8
900	1115	1050	33	28	M30	914,0		38	50	860	-	99	20	950	-	12	12,5
1000	1230	1160	36	28	M33	1016,0		44	54	960	-	105	20	1052	-	16	12,5
1200	1455	1380	39	32	M36	1219,0		55	66	1160	-	132	25	1256	-	16	12,5
1400	1675	1590	42	36	M39	1422,0	-	65	-	-	-	143	25	1460	-	16	14,2
1600	1915	1820	48	40	M45	1626,0	-	75	-	-	-	159	25	1666	-	16	16,0
1800	2115	2020	48	44	M45	1829,0	-	85	-	-	-	175	30	1868	-	16	17,5
2000	2325	2230	48	48	M45	2032,0	-	90	-	-	-	186	30	2072	-	16	17,5
2200	2550	2440	56	52	M52	2235,0	-	100	-	-	-	202	35	2275	-	18	20,0
2400	2760	2650	56	56	M52	2438,0	-	110	-	-	-	218	35	2478	-	18	22,2
2600	2960	2850	56	60	M52	2620,0	-	110	-	-	-	224	40	2680	-	18	25,0
2800	3180	3070	56	64	M52	2820,0	-	124	-	-	-	244	40	2882	-	18	25,0
3000	3405	3290	62	68	M56	3020,0	-	132	-	-	-	257	45	3085	-	18	32,0



PN 16 flanges – DN 10 to 2000

- (1) Dimensions N1 and N2 are measured at the intersection of the hub draft angle and the back face of the flange.
(2) Dimensions are in millimetres
(3) c: To be specified by the purchaser
(4) Figures for Weight and Dimension is based as per BSEN 1092-1:2018
(5) Use is limited up to DN 600

DN	Outside diameter	Mating dimensions				Outside diameter of neck	Bore dia	Flange thick-ness			Diameter of shoulder	Length			Neck Diameters		Corner radii	Neck Thick-ness
		Diameter of bolt circle K	Diameter of bolt hole L	Bolting														
				Number	Size			A	B1	C2		C4	Gmax	H1	H2	H3		
	Flange type																	
	Type 05, 11, 12						Type 11	Type 12	Type 11,12	Type 05	Type 05	Type 12	Type 11	Type 11	Type 11	Type 12	Type 11,12	Type 11
10	90	60	14	4	M12	17,2	18,0	16	16	-	22	35	6	28	30	4	2,0	
15	95	65	14	4	M12	21,3	22,0	16	16	-	22	38	6	32	35	4	2,0	
20	105	75	14	4	M12	26,9	27,5	18	18	-	26	40	6	40	45	4	2,3	
25	115	85	14	4	M12	33,7	34,5	18	18	-	28	40	6	46	52	4	2,6	
32	140	100	18	4	M16	42,4	43,5	18	18	-	30	42	6	56	60	6	2,6	
40	150	110	18	4	M16	48,3	49,5	18	18	-	32	45	7	64	70	6	2,6	
50	165	125	18	4	M16	60,3	61,5	18	18	-	28	45	8	74	84	6	2,9	
65	185	145	18	8	M16	76,1	77,5	18	18	55	32	45	10	92	104	6	2,9	
80	200	160	18	8	M16	88,9	90,5	20	20	70	34	50	10	105	118	6	3,2	
100	220	180	18	8	M16	114,3	116,0	20	20	90	40	52	12	131	140	8	3,6	
125	250	210	18	8	M16	139,7	141,5	22	22	115	44	55	12	156	168	8	4,0	
150	285	240	22	8	M20	168,3	170,5	22	22	140	44	55	12	184	195	10	4,5	
200	340	295	22	12	M20	219,1	221,5	24	24	190	44	62	16	235	246	10	6,3	
250	405	355	26	12	M24	273,0	276,5	26	26	235	46	70	16	292	298	12	6,3	
300	460	410	26	12	M24	323,9	327,5	28	28	285	46	78	16	344	350	12	7,1	
350	520	470	26	16	M24	355,6	359,0	30	30	330	57	82	16	390	400	12	8,0	
400	580	525	30	16	M27	406,4	411,0	32	32	380	63	85	16	445	456	12	8,0	
450	640	585	30	20	M27	457,0	462,0	34	40	425	68	83	16	490	502	12	8,0	
500	715	650	33	20	M30	508,0	513,5	36	44	475	73	84	16	548	559	12	8,0	
600	840	770	36	20	M33	610,0	616,5	40	54	575	83	88	18	670	658	12	10,0	
700	910	840	36	24	M33	711,0	c	40	58	670	83	104	18	755	760	12	10,0	
800	1025	950	39	24	M36	813,0		41	62	770	90	108	20	855	864	12	12,5	
900	1125	1050	39	28	M36	914,0		48	64	860	94	118	20	955	968	12	12,5	
1000	1255	1170	42	28	M39	1016,0		59	68	960	100	137	22	1058	1072	16	12,5	
1200	1485	1390	48	32	M45	1219,0	-	78	-	1160	-	160	30	1262	-	16	14,2	
1400	1685	1590	48	36	M45	1422,0	-	84	-	1346	-	177	30	1465	-	16	16,0	
1600	1930	1820	56	40	M52	1626,0	-	102	-	1546	-	204	35	1668	-	16	17,5	
1800	2130	2020	56	44	M52	1829,0	-	110	-	1746	-	218	35	1870	-	16	20,0	
2000	2345	2230	62	48	M56	2032,0	-	124	-	1950	-	238	40	2072	-	16	22,0	

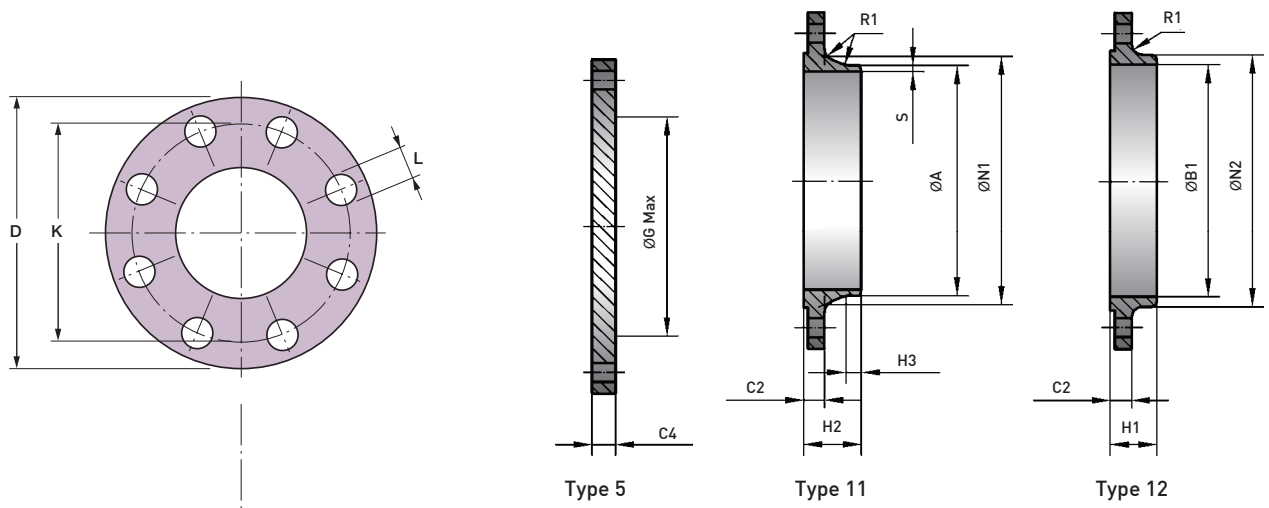


PN 25 flanges – DN 10 to 2000

- (1) Dimensions N1 and N2 are measured at the intersection of the hub draft angle and the back face of the flange.
(2) Dimensions are in millimetres
(3) b: To be specified by the purchaser
(4) Figures for Weight and Dimension is based as per BSEN 1092-1:2018
(5) d: Only mating dimensions fixed

DN	Outside diameter	Mating dimensions				Outside diameter of neck	Bore dia	Flange thick-ness		Diameter of shoulder	Length			Neck Diameters		Corner radii	Neck Thick-ness			
		Diameter of bolt circle	Diameter of bolt hole	Bolting				C2	C4		H1	H2	H3	N1	N2					
	D	K	L	Number	Size	A	B1			Type 05, 11, 12						Type 11	Type 12	Type 11,12	Type 05	Type 05
	Flange type																			
10	90	60	14	4	M12	17,2	18,0	16	16	-	22	35	6	28	30	4	2,0			
15	95	65	14	4	M12	21,3	22,0	16	16	-	22	38	6	32	35	4	2,0			
20	105	75	14	4	M12	26,9	27,5	18	18	-	26	40	6	40	45	4	2,3			
25	115	85	14	4	M12	33,7	34,5	18	18	-	28	40	6	46	52	4	2,6			
32	140	100	18	4	M16	42,4	43,5	18	18	-	30	42	6	56	60	6	2,6			
40	150	110	18	4	M16	48,3	49,5	18	18	-	32	45	7	64	70	6	2,6			
50	165	125	18	4	M16	60,3	61,5	20	20	-	34	48	8	75	84	6	2,9			
65	185	145	18	8	M16	76,1	77,5	22	22	55	38	52	10	90	104	6	2,9			
80	200	160	18	8	M16	88,9	90,5	24	24	70	40	58	12	105	118	8	3,2			
100	235	190	22	8	M20	114,3	116,0	24	24	90	44	65	12	134	145	8	3,6			
125	270	220	26	8	M24	139,7	141,5	26	26	115	48	68	12	162	170	8	4,0			
150	300	250	26	8	M24	168,3	170,5	28	28	140	52	75	12	192	200	10	4,5			
200	360	310	26	12	M24	219,1	221,5	30	30	190	52	80	16	244	256	10	6,3			
250	425	370	30	12	M27	273,0	276,5	32	32	235	60	88	18	298	310	12	7,1			
300	485	430	30	16	M27	323,9	327,5	34	34	285	67	92	18	352	364	12	8,0			
350	555	490	33	16	M30	355,6	359,5	38	38	332	72	100	20	398	418	12	8,0			
400	620	550	36	16	M33	406,4	411,0	40	40	380	78	110	20	452	472	12	8,8			
450	670	600	36	20	M33	457,0	462,0	46	50	425	84	110	20	500	520	12	8,8			
500	730	660	36	20	M33	508,0	513,5	48	51	475	90	125	20	558	580	12	10,0			
600	845	770	39	20	M36	610,0	616,5	48	66	575	100	125	20	660	684	12	11,0			
700	960	875	42	24	M39	711,0	b	50	b	-	-	129	20	760	-	12	14,2			
800	1085	990	48	24	M45	813,0		53		-	-	138	22	864	-	12	16,0			
900	1185	1090	48	28	M45	914,0		57		-	-	148	24	968	-	12	17,5			
1000	1320	1210	56	28	M52	1016,0	-	63		-	-	160	24	1070	-	16	20,0			
1200																				
1400																				
1600	d																			
1800																				
2000																				

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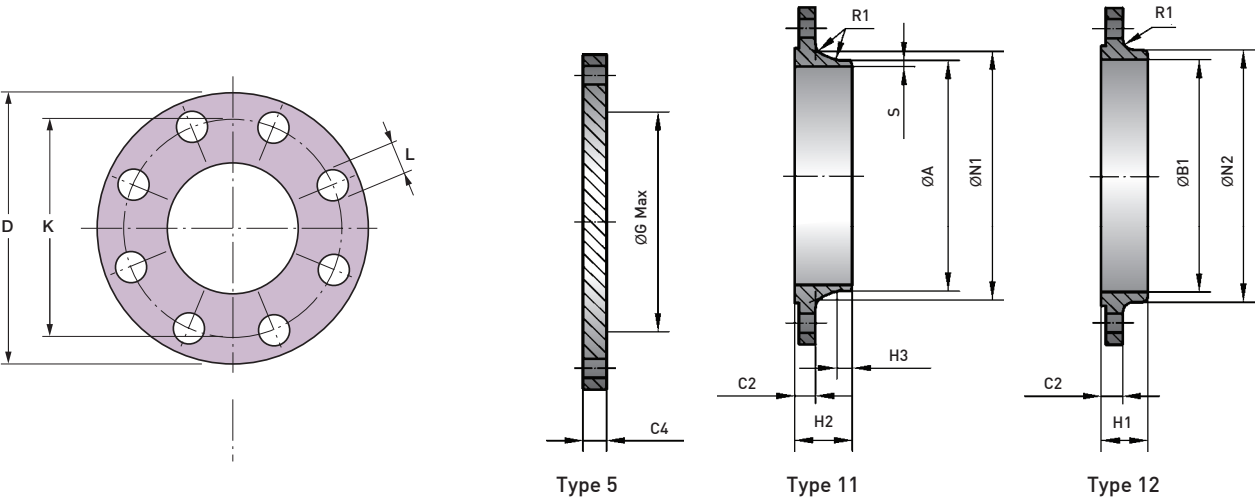


PN 40 flanges – DN 10 to 1600

- (1) Dimensions N1 and N2 are measured at the intersection of the hub draft angle and the back face of the flange.
- (2) Dimensions are in millimetres
- (3) d: Only mating dimensions fixed
- (4) Figures for Weight and Dimension is based as per BSEN 1092-1:2018
- (5) Use is limited up to DN 600

DN	Outside diameter	Mating dimensions				Outside diameter of neck	Bore dia	Flange thick-ness		Diameter of shoulder	Length			Neck Diameters		Corner radii	Neck Thick-ness
		Diameter of bolt circle	Diameter of bolt hole	Bolting				C2	C4		H1	H2	H3	N1	N2		
	D	K	L	Number	Size	A	B1			Gmax							
	Flange type																
	Type 05, 11, 12					Type 11	Type 12	Type 11,12	Type 05	Type 05	Type 12	Type 11	Type 11	Type 11	Type 12	Type 11,12	Type 11
10	90	60	14	4	M12	17,2	18,0	16	16	-	22	35	6	28	30	4	2,0
15	95	65	14	4	M12	21,3	22,0	16	16	-	22	38	6	32	35	4	2,0
20	105	75	14	4	M12	26,9	27,5	18	18	-	26	40	6	40	45	4	2,3
25	115	85	14	4	M12	33,7	34,5	18	18	-	28	40	6	46	52	4	2,6
32	140	100	18	4	M16	42,4	43,5	18	18	-	30	42	6	56	60	6	2,6
40	150	110	18	4	M16	48,3	49,5	18	18	-	32	45	7	64	70	6	2,6
50	165	125	18	4	M16	60,3	61,5	20	20	-	34	48	8	75	84	6	2,9
65	185	145	18	8	M16	76,1	77,5	22	22	55	38	52	10	90	104	6	2,9
80	200	160	18	8	M16	88,9	90,5	24	24	70	40	58	12	105	118	8	3,2
100	235	190	22	8	M20	114,3	116,0	24	24	90	44	65	12	134	145	8	3,6
125	270	220	26	8	M24	139,7	141,5	26	26	115	48	68	12	162	170	8	4,0
150	300	250	26	8	M24	168,3	170,5	28	28	140	52	75	12	192	200	10	4,5
200	375	320	30	12	M27	219,1	221,5	34	36	190	52	88	16	244	260	10	6,3
250	450	385	33	12	M30	273,0	276,5	38	38	235	60	105	18	306	312	12	7,1
300	515	450	33	16	M30	323,9	327,5	42	42	285	67	115	18	362	380	12	8,0
350	580	510	36	16	M33	355,6	359,5	46	46	330	72	125	20	408	424	12	8,8
400	660	585	39	16	M36	406,4	411,0	50	50	380	78	135	20	462	478	12	11,0
450	685	610	39	20	M36	457,0	462,0	57	57	425	84	135	20	500	522	12	12,5
500	755	670	42	20	M39	508,0	513,5	57	57	475	90	140	20	562	576	12	14,2
600	890	795	48	20	M45	610,0	616,5	72	72	575	100	150	20	666	686	12	16,0
700	d																
800																	
900																	
1000																	
1200																	
1400																	
1600																	

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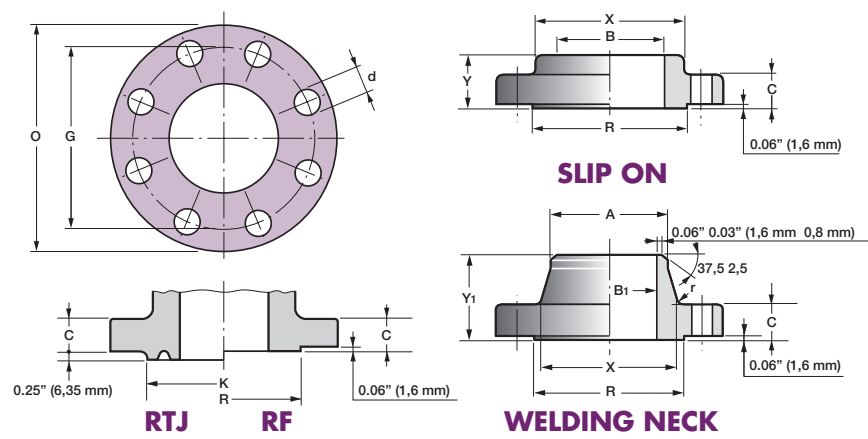


PN 63 flanges – DN 10 to 1200

- (1) Dimensions N1 and N2 are measured at the intersection of the hub draft angle and the back face of the flange.
- (2) Dimensions are in millimetres
- (3) d: Only mating dimensions fixed
- (4) Figures for Weight and Dimension is based as per BSEN 1092-1:2018

DN	Outside diameter	Mating dimensions				Outside diameter of neck	Bore dia	Flange thick-ness		Diameter of shoulder	Length			Neck Diameters		Corner radii	Neck Thick-ness
		Diameter of bolt circle	Diameter of bolt hole	Bolting													
				Number	Size												
	D	K	L	Number	Size	A	B1	C2	C4	Gmax	H1	H2	H3	N1	N2	R1	S
	Flange type																
Type 05, 11, 12						Type 11	Type 12	Type 11,12	Type 05	Type 05	Type 12	Type 11	Type 11	Type 11	Type 12	Type 11,12	Type 11
10	100	70	14	4	M12	17,2	18,0	20	20	-	28	45	6	32	40	4	2,0
15	105	75	14	4	M12	21,3	22,0	20	20	-	28	45	6	34	43	4	2,0
20	130	90	18	4	M16	26,9	27,5	22	22	-	30	48	8	42	52	4	2,6
25	140	100	18	4	M16	33,7	34,5	24	24	-	32	58	8	52	60	4	2,6
32	155	110	22	4	M20	42,4	43,5	24	24	-	32	60	8	62	68	6	2,9
40	170	125	22	4	M20	48,3	49,5	26	26	-	34	62	10	70	80	6	2,9
50	180	135	22	4	M20	60,3	61,5	26	26	-	36	62	10	82	90	6	4,0
65	205	160	22	8	M20	76,1	77,5	26	26	45	40	68	12	98	112	6	4,0
80	215	170	22	8	M20	88,9	90,5	28	28	60	44	72	12	112	125	8	4,5
100	250	200	26	8	M24	114,3	116,0	30	30	80	52	78	12	138	152	8	4,5
125	295	240	30	8	M27	139,7	141,5	34	34	105	56	88	12	168	185	8	5,6
150	345	280	33	8	M30	168,3	170,5	36	36	130	60	95	12	202	215	10	6,3
200	415	345	36	12	M33	219,1	221,5	42	42	180	-	110	16	256	-	10	7,1
250	470	400	36	12	M33	273,0	276,5	46	46	220	-	125	18	316	-	12	8,8
300	530	460	36	16	M33	323,9	327,5	52	52	270	-	140	18	372	-	12	11,0
350	600	525	39	16	M36	355,6	359,5	56	56	310	-	150	20	420	-	12	12,5
400	670	585	42	16	M39	406,4	411,0	60	60	360	-	160	20	475	-	12	14,2
500																	
600																	
700																	
800	d																
900																	
1000																	
1200																	

d



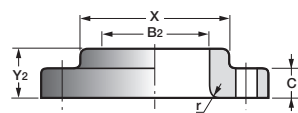
ISO PN 20 flanges – DN 15 to 600

ASME B 16.5 – 1996

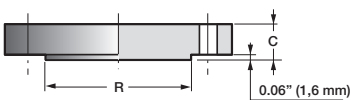
B₁ : to be specified by purchaser T : thread length B₃ : inside diameter of pipe for STD wall pipe idem sch 40

												Slip on	Welding neck
Size		O	C mini	R	K	Perçage / Drilling			B mini	X	Y	Weight	A
DN	NPS	mm	mm	mm	mm	Number	G mm	d mm	mm	mm	mm	kg	mm
15	1/2	89	11,2	34,9	–	4	60,3	15,8	22,4	30	16	0,8	21,3
20	3/4	99	12,7	42,9	–	4	69,8	15,8	27,7	38	16	0,9	26,7
25	1	108	14,3	50,8	63,5	4	79,4	15,8	34,5	49	17	1,0	33,4
32	1 1/4	117	15,7	63,5	73,2	4	88,9	15,8	43,2	59	21	1,3	42,2
40	1 1/2	127	17,5	73,0	82,5	4	98,4	15,8	49,5	65	22	1,5	48,3
50	2	152	19,1	92,1	101,6	4	120,6	19,0	62,0	78	25	2,3	60,3
65	2 1/2	178	22,3	104,8	120,7	4	139,7	19,0	74,7	90	29	3,7	73,0
80	3	190	23,9	127,0	133,4	4	152,4	19,0	90,7	108	30	4,2	88,9
–	3 1/2	216	23,9	139,7	154,0	8	177,8	19,0	103,4	122	32	5,3	101,6
100	4	229	23,9	157,2	171,5	8	190,5	19,0	116,1	135	33	5,9	114,3
125	5	254	23,9	185,7	193,5	8	215,9	22,2	143,8	164	37	7,0	141,3
150	6	279	25,4	215,9	219,0	8	241,3	22,2	170,7	192	40	8,5	168,3
200	8	343	28,5	269,9	273,0	8	298,4	22,2	221,5	246	44	13,5	219,1
250	10	406	30,2	323,8	330,2	12	362,0	25,4	276,4	305	49	19,5	273,0
300	12	483	31,8	381,0	406,4	12	431,8	25,4	327,2	365	56	29,0	323,9
350	14	533	35,0	412,8	425,5	12	476,2	28,5	359,2	400	57	39,0	355,6
400	16	597	36,6	469,9	482,6	16	539,8	28,5	410,5	457	63	47,0	406,4
450	18	635	39,7	533,4	546,1	16	577,8	31,8	461,8	505	68	54,0	457,0
500	20	698	42,9	584,2	596,9	20	635,0	31,8	513,1	559	73	70,0	508,0
600	24	813	47,7	692,2	711,2	20	749,3	35,0	616,0	664	83	95,0	610,0

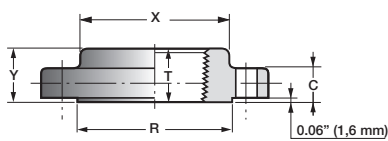
Weights are approximate



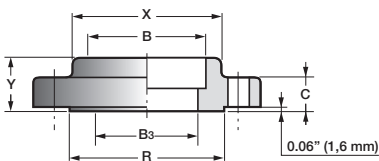
LAPPED



BLIND



THREADED



SOCKET WELDING

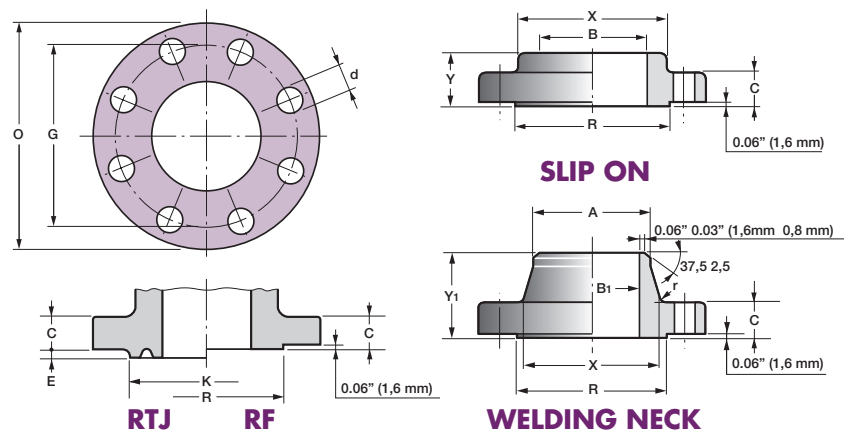
class 150 flanges – NPS 1/2 to 24

ASME B 16.5 – 1996

B₁ : to be specified by purchaser T : thread length B₃ : inside diameter of pipe for STD wall pipe idem sch 40

Welding neck		Lapped				Threaded		Blind	Socket welding			Size	
Y ₁	Weight	B ₂ mini	Y ₂	r	Weight	T mini	Weight	Weight	B ₃	D	Weight		
mm	kg	mm	mm	mm	kg	mm	kg	kg	mm	mm	kg	NPS	DN
48	0,6	22,9	16	3	0,8	16	0,8	1,2	15,8	10	0,8	1/2	15
52	0,8	28,2	16	3	0,9	16	0,9	1,3	20,8	11	0,9	3/4	20
56	1,1	35,0	17	3	1,0	18	1,0	1,4	26,7	13	1,0	1	25
57	1,4	43,7	21	5	1,3	21	1,3	1,8	35,0	14	1,3	1 1/4	32
62	1,8	50,0	22	6	1,5	22	1,5	2,2	40,9	16	1,4	1 1/2	40
63	2,7	62,5	25	8	2,3	25	2,3	2,8	52,6	17	2,3	2	50
70	4,0	75,4	29	8	3,7	29	3,7	4,7	62,7	19	3,0	2 1/2	65
70	4,5	91,4	30	10	4,2	30	4,2	5,5	78,0	21	3,5	3	80
71	6,2	104,1	32	11	5,3	32	5,3	6,8	–	–	–	3 1/2	–
76	7,0	116,8	33	11	5,9	33	5,9	8,0	–	–	–	4	100
89	8,6	144,5	37	11	7,0	37	7,0	9,0	–	–	–	5	125
89	10,8	171,4	40	13	8,5	40	8,5	12,0	–	–	–	6	150
102	18,0	222,2	44	13	13,5	44	13,5	20,0	–	–	–	8	200
102	24,0	277,4	49	13	19,5	49	19,5	32,0	–	–	–	10	250
114	37,0	328,2	56	13	29,0	56	29,0	40,0	–	–	–	12	300
127	47,0	360,2	79	13	45,0	57	39,0	59,0	–	–	–	14	350
127	58,0	411,2	87	13	58,0	64	47,0	77,0	–	–	–	16	400
140	64,0	462,3	97	13	66,0	68	54,0	95,0	–	–	–	18	450
144	77,0	514,4	103	13	84,0	73	70,0	123,0	–	–	–	20	500
152	118,0	616,0	111	13	118,0	83	95,0	186,0	–	–	–	24	600

Weights are approximate



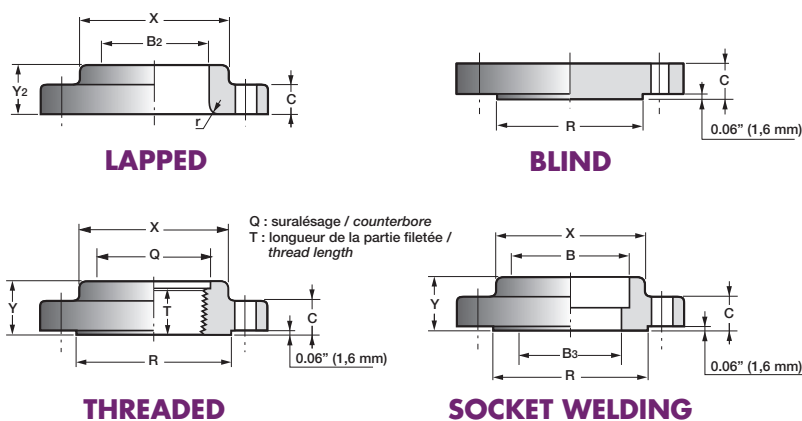
ISO PN 50 flanges – DN 15 to 600

ASME B 16.5 – 1996

B₁ : to be specified by purchaser T : thread length B₃ : inside diameter of pipe for STD wall pipe idem sch 40

												Slip on	
Size		O	C mini	R	K	E	Drilling			B mini	X	Y	Weight
DN	NPS	mm	mm	mm	mm	mm	Number	G mm	d mm	mm	mm	mm	kg
15	1/2	95	14,2	34,9	50,8	5,56	4	66,7	15,8	22,4	38	22	1,2
20	3/4	117	15,7	42,9	63,5	6,35	4	82,6	19,0	27,7	48	25	1,3
25	1	124	17,5	50,8	69,9	6,35	4	88,9	19,0	34,5	54	27	1,4
32	1 1/4	133	19,0	63,5	79,2	6,35	4	98,4	19,0	43,2	63	27	1,8
40	1 1/2	156	20,6	73,0	90,4	6,35	4	114,3	22,2	49,5	70	30	2,5
50	2	165	22,4	92,1	108,0	7,92	8	127,0	19,0	62,0	84	33	3,0
65	2 1/2	190	25,4	104,8	127,0	7,92	8	149,2	22,2	74,7	100	38	4,5
80	3	210	28,4	127,0	146,1	7,92	8	168,3	22,2	90,7	117	43	6,0
-	3 1/2	229	30,2	139,7	158,8	7,92	8	184,1	22,2	103,4	133	44	7,5
100	4	254	31,8	157,2	174,8	7,92	8	200,0	22,2	116,1	146	48	10,1
125	5	279	35,0	185,7	209,6	7,92	8	235,0	22,2	143,8	178	51	12,5
150	6	318	36,6	215,9	241,3	7,92	12	269,9	22,2	170,7	206	52	17,5
200	8	381	41,1	269,9	301,8	7,92	12	330,2	25,4	221,5	260	62	26,0
250	10	444	47,8	323,8	355,6	7,92	16	387,4	28,5	276,4	320	66	38,0
300	12	521	50,8	381,0	412,8	7,92	16	450,8	31,8	327,2	375	73	52,0
350	14	584	53,8	412,8	457,2	7,92	20	514,4	31,8	359,2	425	76	74,0
400	16	648	57,2	469,9	508,0	7,92	20	571,5	35,0	410,5	483	83	100,0
450	18	711	60,5	533,4	574,5	7,92	24	628,6	35,0	461,8	533	89	127,0
500	20	775	63,5	584,2	635,0	9,52	24	685,8	35,0	513,1	587	95	147,0
600	24	914	69,9	692,2	749,3	11,13	24	812,8	41,1	616,0	701	106	208,0

Weights are approximate



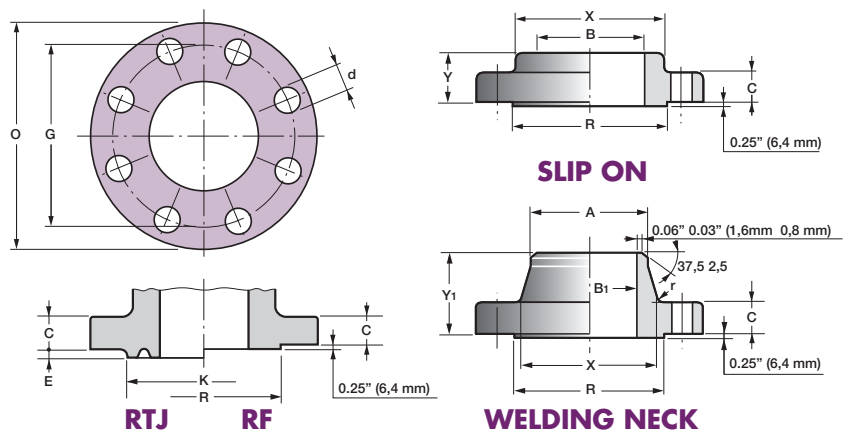
class 300 flanges – NPS 1/2 to 24

ASME B 16.5 – 1996

B₁ : to be specified by purchaser T : thread length B₃ : inside diameter of pipe for STD wall pipe idem sch 40

Welding neck			Lapped				Threaded		Blind	Socket welding			Diamètre Size	
A	Y ₁	Masse Weight	B ₂ mini	Y ₂	r	Masse Weight	T mini	Masse Weight	Masse Weight	B ₃	D	Masse Weight	NPS	DN
mm	mm	kg	mm	mm	mm	kg	mm	kg	kg	mm	mm	kg		
21,3	52	1,5	22,9	22	3	1,2	16	1,2	1,5	15,8	10	1,2	1/2	15
26,7	57	1,8	28,2	25	3	1,3	16	1,3	1,6	20,8	11	1,3	3/4	20
33,5	62	2,0	35,0	27	3	1,4	18	1,4	2,0	26,7	13	1,4	1	25
42,2	65	2,5	43,7	27	5	1,8	21	1,9	2,5	35,0	14	1,8	1 1/4	32
48,3	68	3,5	50,0	30	6	2,5	22	2,8	3,0	40,9	16	2,5	1 1/2	40
60,3	70	4,0	62,5	33	8	3,0	29	3,3	3,5	52,6	17	3,0	2	50
73,0	76	5,0	75,4	38	8	4,5	32	4,6	5,5	62,7	19	4,5	2 1/2	65
88,9	79	7,0	91,4	43	10	6,0	32	6,3	7,0	78,0	21	6,0	3	80
101,6	81	9,2	104,1	44	10	7,5	37	7,8	9,0	–	–	–	3 1/2	–
114,3	86	11,0	116,8	48	11	10,1	37	10,2	12,0	–	–	–	4	100
141,3	98	14,0	144,5	51	11	12,5	43	12,9	15,8	–	–	–	5	125
168,3	98	19,0	171,4	52	13	17,5	46	18,0	23,0	–	–	–	6	150
219,1	111	30,0	222,2	62	13	26,0	51	26,0	37,0	–	–	–	8	200
273,0	117	41,0	277,4	95	13	41,0	56	38,0	58,0	–	–	–	10	250
323,9	130	62,0	328,2	102	13	63,0	61	52,0	83,0	–	–	–	12	300
355,6	143	84,0	360,2	111	13	86,0	64	74,0	107,0	–	–	–	14	350
406,4	146	111,0	411,2	121	13	109,0	68	100,0	139,0	–	–	–	16	400
457,0	159	138,0	462,3	130	13	138,0	70	127,0	177,0	–	–	–	18	450
508,0	162	171,0	514,4	140	13	170,0	73	147,0	223,0	–	–	–	20	500
610,0	168	247,0	616,0	152	13	241,0	83	213,0	342,0	–	–	–	24	600

Weights are approximate



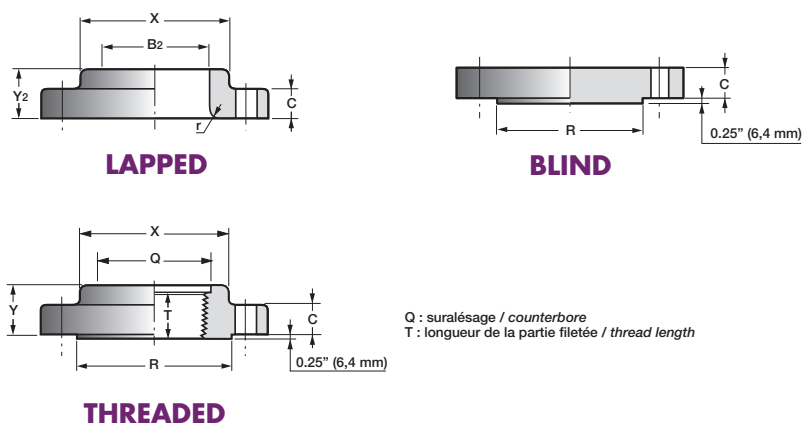
ISO PN 68 flanges – DN 100 to 600

ASME B 16.5 – 1996

B₁ : to be specified by purchaser : thread length

Size		O	C mini	R	K	E	Drilling		B mini	X	Y
DN	NPS	mm	mm	mm	mm	mm	Number	G mm	d mm	mm	mm
15	1/2										
20	3/4										
25	1										
32	1 1/4										
40	1 1/2										
50	2										
65	2 1/2										
80	3										
-	3 1/2										
100	4	254	35,0	157,2	174,8	7,92	8	200,1	25,4	116,1	146
125	5	279	38,1	185,7	209,6	7,92	8	235,0	25,4	143,8	178
150	6	318	41,1	215,9	241,3	7,92	12	269,9	25,4	170,7	206
200	8	381	47,8	269,9	301,8	7,92	12	330,2	28,5	221,5	260
250	10	444	53,8	323,8	355,6	7,92	16	387,4	31,8	276,4	320
300	12	521	57,2	381,0	412,8	7,92	16	450,8	35,0	327,2	375
350	14	584	60,5	412,8	457,2	7,92	20	514,4	35,0	359,2	425
400	16	648	63,5	469,9	508,0	7,92	20	571,5	38,1	410,5	483
450	18	711	66,5	533,4	574,5	7,92	24	628,6	38,1	461,8	533
500	20	775	69,9	584,2	635,0	9,52	24	685,8	41,1	513,1	587
600	24	914	76,2	692,2	749,3	11,13	24	812,8	47,8	616,0	701

Weights are approximate



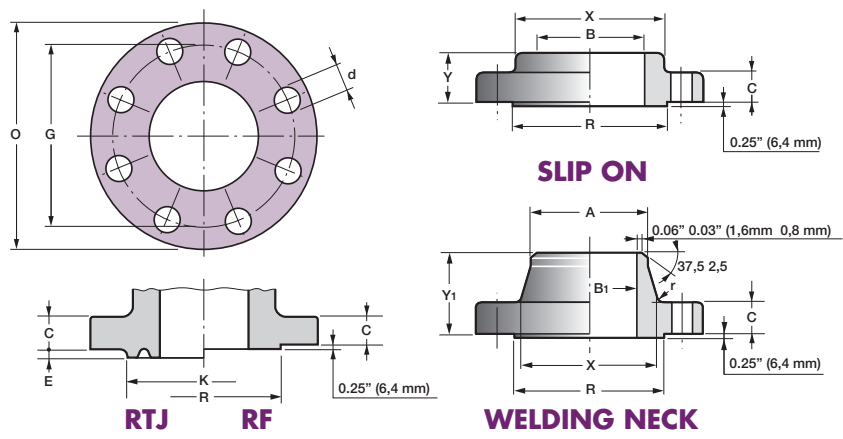
class 400 flanges – NPS 4 to 24

ASME B 16.5 – 1996

B₁ : to be specified by purchaser : thread length

Slip on	Welding neck			Lapped				Threaded		Blind	Size		
Weight	A	Y ₁	Weight	B ₂ mini	Y ₂	r	Weight	T mini	Weight	Weight			
kg	mm	mm	kg	mm	mm	mm	kg	mm	kg	kg	NPS	DN	
Use class 600 dimensions												1/2	15
												3/4	20
												1	25
												1 1/4	32
												1 1/2	40
												2	50
												2 1/2	65
												3	80
												3 1/2	–
												4	100
13,0	114,3	89	16	116,8	51	11	13,0	37	15	15	5	125	
18,5	141,3	102	19	144,5	54	11	18,5	43	20	21	6	150	
25,0	168,3	103	26	171,4	57	13	25,0	46	28	28	8	200	
34,0	219,1	117	40	222,2	68	13	34,0	51	37	43	10	250	
54,0	273,0	124	57	277,4	102	13	51,0	56	60	65	12	300	
70,0	323,9	137	80	328,2	108	13	69,0	60	76	95	14	350	
85,0	355,6	149	105	360,2	117	13	95,0	64	93	126	16	400	
120,0	406,4	152	131	411,2	127	13	127,0	68	132	163	18	450	
150,0	457,0	165	159	462,3	137	13	157,0	70	165	206	20	500	
185,0	508,0	168	190	514,4	146	13	191,0	73	205	256	24	600	
260,0	610,0	175	275	616,0	159	13	279,0	83	285	387			

Weights are approximate



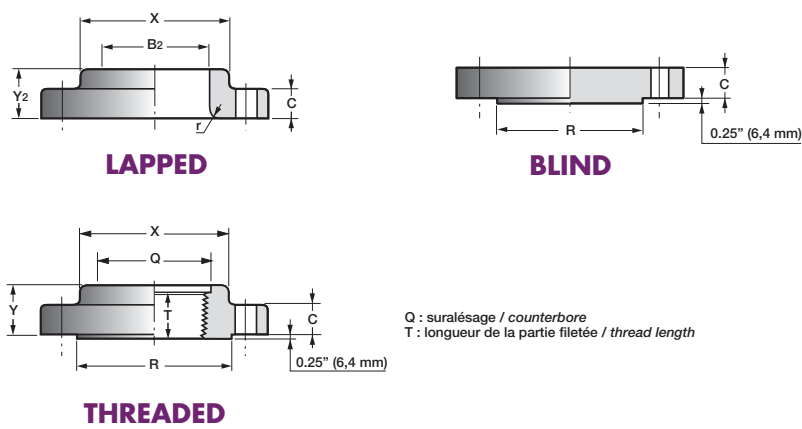
ISO PN 100 flanges – DN 15 to 600

ASME B 16.5 – 1996

B₁ : to be specified by purchaser: thread length

Size		O	C mini	R	K	E	Drilling			B mini	X	Y	Slip on Weight
DN	NPS	mm	mm	mm	mm	mm	Number	G mm	d mm	mm	mm	mm	kg
15	1/2	95	14,2	34,9	50,8	5,56	4	66,7	15,8	22,4	38	22	1,3
20	3/4	117	15,7	42,9	63,5	6,35	4	82,6	19,0	27,7	48	25	1,4
25	1	124	17,5	50,8	69,9	6,35	4	88,9	19,0	34,5	54	27	1,8
32	1 1/4	133	20,6	63,5	79,2	6,35	4	98,4	19,0	43,2	64	29	2,1
40	1 1/2	156	22,4	73,0	90,4	6,35	4	114,3	22,2	49,5	70	32	3,1
50	2	165	25,4	92,1	108,0	7,92	8	127,0	19,0	62,0	84	37	4,0
65	2 1/2	190	28,4	104,8	127,0	7,92	8	149,2	22,2	74,7	100	41	5,4
80	3	210	31,8	127,0	146,1	7,92	8	168,3	22,2	90,7	118	46	7,0
-	3 1/2	229	35,0	139,7	158,8	7,92	8	184,1	25,4	103,4	133	49	8,9
100	4	273	38,1	157,2	174,8	7,92	8	215,9	25,4	116,1	152	54	16,0
125	5	330	44,5	185,7	209,6	7,92	8	266,7	28,5	143,8	189	60	25,0
150	6	356	47,8	215,9	241,3	7,92	12	292,1	28,5	170,7	222	67	30,0
200	8	419	55,6	269,9	301,8	7,92	12	349,2	31,8	221,5	273	76	43,0
250	10	508	63,5	323,8	355,6	7,92	16	431,8	35,0	276,4	343	86	70,0
300	12	559	66,5	381,0	412,8	7,92	20	489,0	35,0	327,2	400	92	86,0
350	14	603	69,9	412,8	457,2	7,92	20	527,0	38,1	359,2	432	94	100,0
400	16	686	76,2	469,9	508,0	7,92	20	603,2	41,1	410,5	495	106	142,0
450	18	743	82,6	533,4	574,5	7,92	20	654,0	44,5	461,8	546	117	175,0
500	20	813	88,9	584,2	635,0	9,52	24	723,9	44,5	513,1	610	127	221,0
600	24	940	101,6	692,2	749,3	11,13	24	838,2	50,8	616,0	718	140	315,0

Weights are approximate



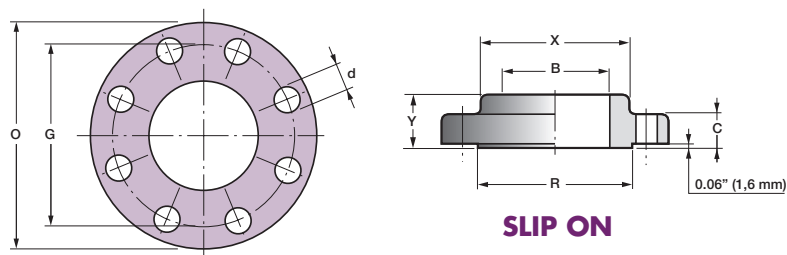
class 600 flanges – NPS 1/2 to 24

ASME B 16.5 – 1996

B₁ : to be specified by purchaser: thread length

Welding neck			Lapped				Threaded		Blind	Socket welding		Size	
A	Y ₁	Weight	B ₂ mini	Y ₂	r	Weight	T mini	Weight	Weight	D	Weight		
mm	mm	kg	mm	mm	mm	kg	mm	kg	kg	mm	kg	NPS	DN
21,3	52	1,5	22,9	22	3	1,3	16	1,4	1,4	10	1,3	1/2	15
26,7	57	2,0	29,2	25	3	1,4	16	1,6	1,6	11	1,4	3/4	20
33,4	62	2,5	35,0	27	3	1,8	18	2,1	2,1	13	1,8	1	25
42,2	67	3,2	43,7	29	5	2,1	21	2,6	2,6	14	2,6	1 1/4	32
48,3	70	4,5	50,0	32	6	3,1	22	3,3	3,3	16	3,1	1 1/2	40
60,3	73	5,5	62,5	37	8	4,0	29	4,4	4,4	17	4,0	2	50
73,0	79	8,0	75,4	41	8	5,4	32	6,0	6,0	19	5,5	2 1/2	65
88,9	83	10,5	91,4	46	10	7,0	35	7,4	7,4	21	7,0	3	80
101,6	86	15,6	104,1	49	10	8,9	40	9,5	9,5	–	–	3 1/2	–
114,3	102	19,0	116,8	54	11	16,0	41	17,0	17,0	–	–	4	100
141,3	114	31,0	144,5	60	11	25,0	48	27,0	27,0	–	–	5	125
168,3	117	37,0	171,4	67	13	30,0	51	32,0	32,0	–	–	6	150
219,1	133	53,0	222,2	76	13	43,0	57	46,0	46,0	–	–	8	200
273,0	152	86,0	277,4	111	13	89,0	65	74,0	74,0	–	–	10	250
323,9	156	102,0	328,2	117	13	109,0	70	90,0	90,0	–	–	12	300
355,6	165	150,0	360,2	127	13	132,0	73	108,0	108,0	–	–	14	350
406,4	178	190,0	411,2	140	13	182,0	78	150,0	150,0	–	–	16	400
457,0	184	240,0	462,3	152	13	213,0	79	188,0	188,0	–	–	18	450
508,0	190	295,0	514,4	165	13	274,0	82	230,0	230,0	–	–	20	500
610,0	203	365,0	616,0	184	13	393,0	92	325,0	325,0	–	–	24	600

Weights are approximate



ISO PN 20 flanges – DN 650 to 1200

BS 3293 – 1960

B(1) : to be specified by purchaser

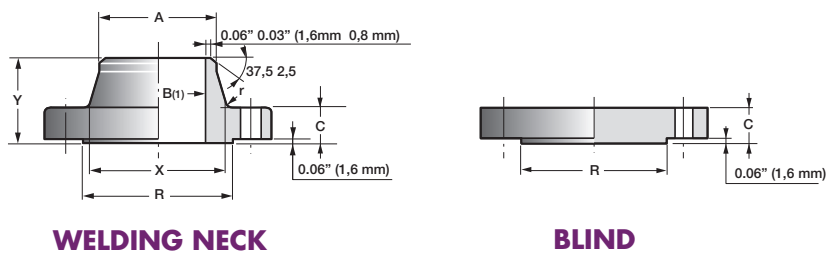
						BS 3293						
								Slip on				
Size		O	Drilling			C mini	R	X	Radius r mini	Y	B mini	Weight
DN	NPS	mm	Number	d mm	G mm	mm	mm	mm	mm	mm	mm	kg
650	26	869,9	24	34,9	806,4	50,8	742,9	723,9	6,4	85,7	666,7	106
700	28	927,1	28	34,9	863,6	52,4	793,7	781,0	6,4	87,3	717,5	126
750	30	984,2	28	34,9	914,4	54,0	857,0	831,8	6,4	88,9	768,3	140
800	32	1060,4	28	41,3	977,9	57,1	908,0	889,0	8,0	92,1	819,1	168
850	34	1111,2	32	41,3	1028,7	58,7	958,8	939,8	8,0	93,7	869,9	179
900	36	1168,4	32	41,3	1085,8	60,3	1022,3	996,9	8,0	95,2	920,7	205
950	38	1238,2	32	41,3	1149,3	60,3	1073,1	1060,4	9,5	95,2	971,5	230
1000	40	1289,0	36	41,3	1200,1	63,5	1123,9	1111,2	9,5	98,4	1022,3	270
1050	42	1346,2	36	41,3	1257,3	66,7	1193,8	1168,4	9,5	101,6	1073,1	310
1100	44	1403,3	40	41,3	1314,4	66,7	1244,6	1219,2	11,1	101,6	1123,9	340
1150	46	1454,1	40	41,3	1365,2	68,3	1295,4	1270,0	11,1	103,2	1174,7	375
1200	48	1511,3	44	41,3	1422,4	69,8	1358,9	1327,1	11,1	104,8	1225,5	426
1250	50	1568,5	44	47,7	1479,5	–	–	–	–	–	–	–
1300	52	1625,6	44	47,7	1536,7	–	–	–	–	–	–	–
1350	54	1682,8	44	47,7	1593,8	–	–	–	–	–	–	–
1400	56	1746,3	48	47,7	1651,0	–	–	–	–	–	–	–
1450	58	1803,4	48	47,7	1708,1	–	–	–	–	–	–	–
1500	60	1854,2	52	47,7	1758,9	–	–	–	–	–	–	–

Weights are approximate

ISO PN 20 flanges – DN 650 to 1500

MSS-SP 44 – 1996

ASME B 16.47 – 1996 – Serie A



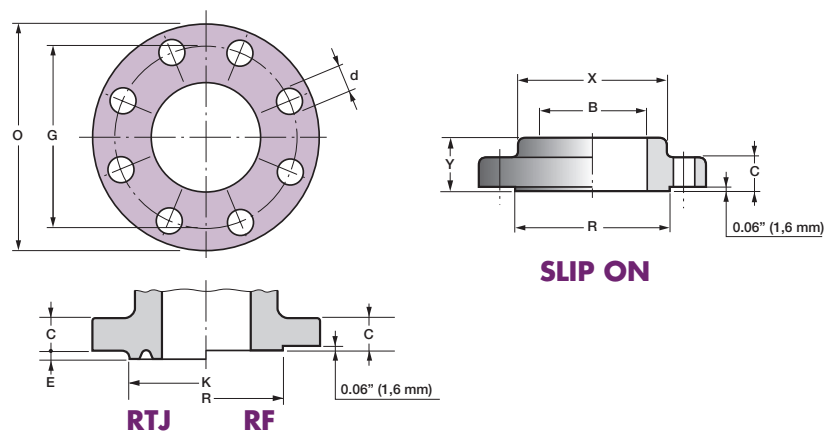
class 150 flanges – NPS 26 to 48
BS 3293 – 1960

class 150 flanges – NPS 26 to 60
MSS-SP 44 – 1996
ASME B 16.47 – 1996 – Serie A

B(1) : to be specified by purchaser

BS 3293			MSS-SP 44 ■ ASME B 16.47 – Serie A								
Welding neck					Welding neck				Blind		
Y	A	Weight	C	R	Y	Radius r mini	X	Weight	Weight	Size	
mm	mm	kg	mm	mm	mm	mm	mm	kg	kg	NPS	DN
127,0	660,4	136	68,3	749,3	120,6	9,6	676,2	143	323	26	650
128,6	711,2	143	71,4	800,1	125,5	11,2	726,9	185	382	28	700
130,2	762,0	163	74,7	857,2	136,6	11,2	781,0	199	450	30	750
133,3	812,8	197	80,8	914,4	144,5	11,2	831,8	255	560	32	800
134,9	863,6	211	82,6	965,2	149,4	12,7	882,6	275	630	34	850
136,5	914,4	236	90,4	1022,3	157,2	12,7	933,4	367	765	36	900
136,5	965,2	270	87,4	1073,1	157,2	12,7	990,6	381	850	38	950
139,7	1016,0	310	90,4	1123,9	163,6	12,7	1041,4	393	955	40	1000
142,9	1066,8	340	96,8	1193,8	171,4	12,7	1092,2	455	1075	42	1050
142,9	1117,4	395	101,6	1244,6	177,8	12,7	1143,0	503	1200	44	1100
144,5	1168,4	470	103,1	1295,4	185,7	12,7	1196,8	529	1380	46	1150
146,0	1219,2	563	108,0	1358,9	192,0	12,7	1247,6	609	1590	48	1200
–	–	–	111,3	1409,7	203,2	12,7	1301,7	663	–	50	1250
–	–	–	115,8	1460,5	209,6	12,7	1382,5	741	–	52	1300
–	–	–	120,7	1511,3	215,9	12,7	1403,3	791	–	54	1350
–	–	–	124,0	1574,8	228,6	12,7	1457,5	898	–	56	1400
–	–	–	128,5	1625,6	235,0	12,7	1508,3	967	–	58	1450
–	–	–	131,8	1676,4	239,8	12,7	1559,1	1047	–	60	1500

Weights are approximate

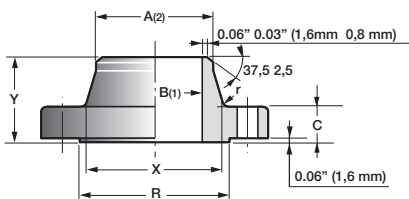


ISO PN 50 flanges – DN 650 to 900
BS 3293 – 1960

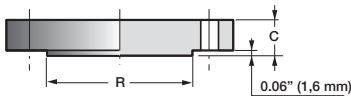
ISO PN 50 flanges – DN 650 to 1500
MSS-SP 44 – 1996
ASME B 16.47 – 1996 – Serie A

						BS 3293								
											Slip on			
Size		O	Drilling			K	E	C	R	X	Radius r mini	Y	B	Weight
DN	NPS	mm	Numb.	d mm	G mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
650	26	971,5	28	44,4	876,3	809,8	12,70	79,4	749,3	720,7	9,5	184,1	666,7	255
700	28	1035,0	28	44,4	939,8	860,5	12,70	85,7	800,1	774,7	11,1	196,8	717,5	321
750	30	1092,2	28	47,8	996,9	917,4	12,70	92,1	857,2	827,1	11,1	209,5	768,3	362
800	32	1149,3	28	50,8	1054,1	984,3	14,27	98,4	914,4	881,1	11,1	222,2	819,1	398
850	34	1206,5	28	50,8	1104,9	1035,0	14,27	101,6	965,2	936,6	12,7	231,8	869,9	480
900	36	1270,0	32	53,8	1168,4	1092,2	14,27	104,8	1022,3	990,6	12,7	241,3	920,7	540
950	38	1168,4	32	41,1	1092,2	–	–	–	–	–	–	–	–	–
1000	40	1238,2	32	44,4	1155,7	–	–	–	–	–	–	–	–	–
1050	42	1289,0	32	44,4	1206,5	–	–	–	–	–	–	–	–	–
1100	44	1352,5	32	47,8	1263,6	–	–	–	–	–	–	–	–	–
1150	46	1416,0	28	50,8	1320,8	–	–	–	–	–	–	–	–	–
1200	48	1466,8	32	50,8	1371,6	–	–	–	–	–	–	–	–	–
1250	50	1530,3	32	53,8	1428,8	–	–	–	–	–	–	–	–	–
1300	52	1581,1	32	53,8	1479,6	–	–	–	–	–	–	–	–	–
1350	54	1657,3	28	60,4	1549,4	–	–	–	–	–	–	–	–	–
1400	56	1708,1	28	60,4	1600,2	–	–	–	–	–	–	–	–	–
1450	58	1758,9	32	60,4	1651,0	–	–	–	–	–	–	–	–	–
1500	60	1809,7	32	60,4	1701,8	–	–	–	–	–	–	–	–	–

Weights are approximate



WELDING NECK



BLIND

class 300 flanges – NPS 26 to 36

BS 3293 – 1960

- (1) Dimensions B to be specified by purchaser.
- (2) Dimension A shall vary according to yield strength of the steel

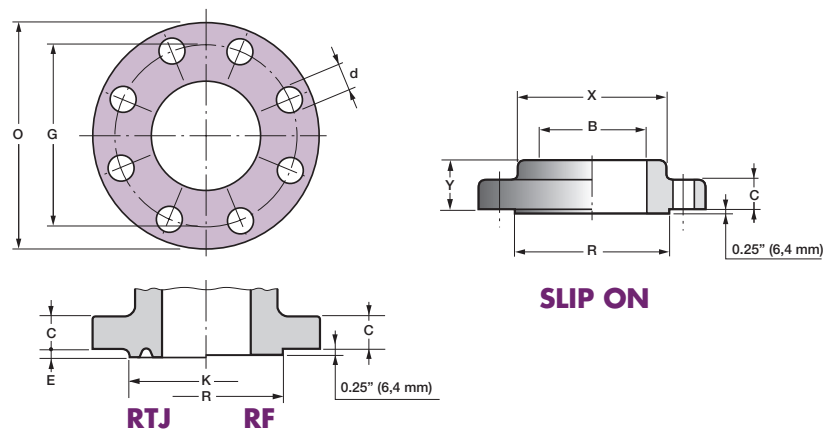
class 300 flanges – NPS 26 to 60

MSS-SP 44 – 1996

ASME B 16.47 – 1996 – Serie A

BS 3293			MSS-SP 44 ■ ASME B 16.47 – Serie A									
Welding neck			Welding neck						Blind			
Y	A	Weight	R	C	Y	Radius r mini	X	Weight	C	Weight	Size	
mm	mm	kg	mm	mm	mm	mm	mm	kg	mm	kg	NPS	DN
184,1	666,7	304	749,3	79,2	184,1	9,6	720,9	288	84,1	505	26	650
196,8	717,5	367	800,1	85,9	196,8	11,2	774,7	340	90,4	615	28	700
209,5	768,3	422	857,2	91,9	209,5	11,2	827,0	406	95,2	705	30	750
222,2	819,1	465	914,4	98,6	222,2	11,2	881,1	468	100,1	820	32	800
231,8	871,6	545	965,2	101,6	231,6	12,7	936,8	524	104,6	950	34	850
241,3	922,4	590	1022,3	104,6	241,3	12,7	990,6	606	111,3	1085	36	900
–	–	–	1028,7	107,9	180,8	12,7	993,6	333	107,9	908	38	950
–	–	–	1085,8	114,3	193,5	12,7	1047,7	399	114,3	1077	40	1000
–	–	–	1136,6	119,1	200,1	12,7	1098,5	444	119,1	1219	42	1050
–	–	–	1193,8	124,0	206,2	12,7	1149,3	508	124,0	1396	44	1100
–	–	–	1244,6	128,5	215,9	12,7	1203,4	581	128,5	1581	46	1150
–	–	–	1301,7	133,3	223,8	12,7	1254,3	620	133,3	1760	48	1200
–	–	–	1358,9	139,7	231,6	12,7	1305,1	733	139,7	2005	50	1250
–	–	–	1409,7	144,5	238,3	12,7	1355,9	773	144,5	2215	52	1300
–	–	–	1466,8	152,4	252,5	12,7	1409,7	928	152,4	2568	54	1350
–	–	–	1517,6	153,9	260,3	12,7	1463,5	986	153,9	2932	56	1400
–	–	–	1574,8	158,7	266,7	12,7	1514,3	1048	158,8	3009	58	1450
–	–	–	1625,6	163,6	273,0	12,7	1565,1	1120	163,6	3283	60	1500

Weights are approximate

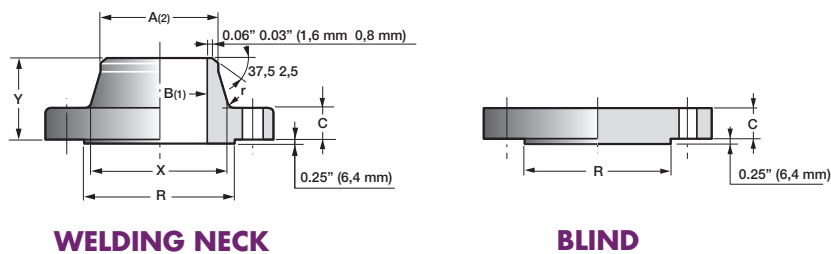


ISO PN 68 flanges – DN 650 to 900
BS 3293 – 1960

ISO PN 68 flanges – DN 650 to 1500
MSS-SP 44 – 1996
ASME B 16.47 – 1996 – Serie A

							BS 3293						
		O	Drilling		K	E	C	R	X	Radius r mini	Y	B	Slip on Weight
DN	NPS	mm	Nomb. Numb.	d mm	G mm	mm	mm	mm	mm	mm	mm	mm	kg
650	26	971,5	28	44,4	876,3	809,8	12,70	88,9	749,3	727,1	11,1	193,7	666,7 295
700	28	1035,0	28	44,4	939,8	860,5	12,70	95,2	800,1	782,6	12,7	206,4	717,5 354
750	30	1092,21	28	47,8	996,9	917,4	12,70	101,6	857,2	836,6	12,7	219,4	768,3 408
800	32	1149,3	28	50,8	1054,1	984,3	14,27	108,0	914,4	889,0	12,7	231,8	819,1 465
850	34	1206,5	28	50,8	1104,9	1035,0	14,27	111,1	965,2	944,6	14,3	241,3	869,9 522
900	36	1270,0	32	53,8	1168,4	1092,2	14,27	114,3	1022,3	1000,2	14,3	250,8	920,7 601
950	38	1168,4	32	41,1	1092,2	-	-	-	-	-	-	-	-
1000	40	1238,2	32	44,4	1155,7	-	-	-	-	-	-	-	-
1050	42	1289,0	32	44,4	1206,5	-	-	-	-	-	-	-	-
1100	44	1352,5	32	47,8	1263,6	-	-	-	-	-	-	-	-
1150	46	1416,0	28	50,8	1320,8	-	-	-	-	-	-	-	-
1200	48	1466,8	32	50,8	1371,6	-	-	-	-	-	-	-	-
1250	50	1530,3	32	53,8	1428,8	-	-	-	-	-	-	-	-
1300	52	1581,1	32	53,8	1479,6	-	-	-	-	-	-	-	-
1350	54	1657,3	28	60,4	1549,4	-	-	-	-	-	-	-	-
1400	56	1708,1	28	60,4	1600,2	-	-	-	-	-	-	-	-
1450	58	1758,9	32	60,4	1651,0	-	-	-	-	-	-	-	-
1500	60	1809,7	32	60,4	1701,8	-	-	-	-	-	-	-	-

Weights are approximate



class 400 flanges – NPS 26 to 36

BS 3293 – 1960

(1) Dimensions B to be specified by purchaser.
(2) Dimension A shall vary according to yield strength of the steel

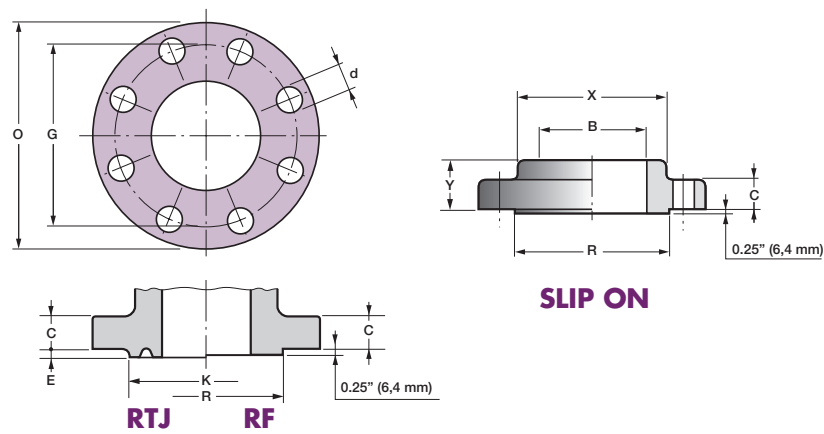
class 400 flanges – NPS 26 to 60

MSS-SP 44 – 1996

ASME B 16.47 – 1996 – Serie A

BS 3293		MSS-SP 44 ■ ASME B 16.47 – Serie A									
Welding neck		Welding neck						Blind			
A	Weight	R	C	Y	Radius r mini	X	Weight	C	Weight	Size	
mm	kg	mm	mm	mm	mm	mm	kg	mm	kg	NPS	DN
668,4	340	749,3	88,9	193,5	11,2	726,9	341	98,6	565	26	650
719,2	400	800,1	95,2	206,2	12,7	782,6	404	104,6	715	28	700
770,0	454	857,2	101,6	218,9	12,7	836,7	474	111,3	830	30	750
822,3	522	914,4	107,9	231,6	12,7	889,0	540	115,8	955	32	800
873,1	590	965,2	111,3	241,3	14,2	944,6	599	122,2	1120	34	850
825,5	670	1022,3	114,3	251,0	14,2	1000,3	683	128,5	1290	36	900
–	–	1035,0	124,0	206,2	14,2	1003,3	530	124,0	1165	38	950
–	–	1092,2	130,0	215,9	14,2	1054,1	549	130,0	1350	40	1000
–	–	1143,0	133,3	223,8	14,2	1107,9	595	133,3	1503	42	1050
–	–	1200,1	139,7	233,4	14,2	1158,7	683	139,7	1723	44	1100
–	–	1257,3	146,0	244,3	14,2	1212,8	759	146,0	1942	46	1150
–	–	1308,1	152,4	257,0	14,2	1267,0	890	152,4	2234	48	1200
–	–	1361,9	157,2	268,2	14,2	1320,8	977	158,8	2499	50	1250
–	–	1412,7	162,1	276,4	14,2	1371,6	1034	163,6	2733	52	1300
–	–	1470,2	169,9	289,1	14,2	1425,4	1262	171,5	3152	54	1350
–	–	1527,0	174,8	298,4	14,2	1479,6	1332	176,3	3460	56	1400
–	–	1577,8	177,8	306,3	14,2	1530,3	1427	180,8	3740	58	1450
–	–	1635,2	185,7	319,0	14,2	1584,4	1680	189,0	4274	60	1500

Weights are approximate

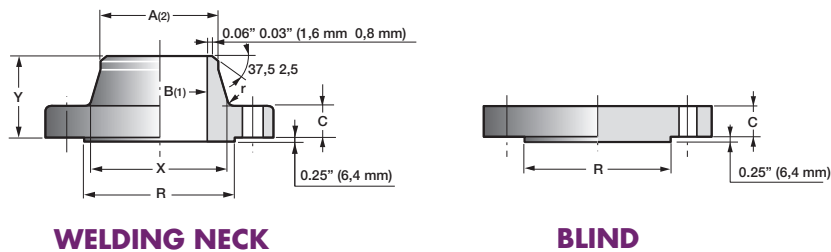


ISO PN 100 flanges – DN 650 to 900
BS 3293 – 1960

ISO PN 100 flanges – DN 650 to 1500
MSS-SP 44 – 1996
ASME B 16.47 – 1996 – Serie A

								BS 3293						
												Slip on		
Size		O	Drilling			K	E	C	R	X	Radius r mini	Y	B	Weight
DN	NPS	mm	Numb.	d mm	G mm	mm	mm	mm	mm	mm	mm	mm	mm	kg
650	26	1016,0	28	50,8	914,4	809,8	12,70	108,0	749,3	747,7	14,3	222,2	666,7	444
700	28	1073,1	28	53,8	965,2	860,5	12,70	111,1	800,1	803,3	15,9	234,9	717,5	480
750	30	1130,3	28	53,8	1022,3	917,4	12,70	114,3	857,2	862,0	17,5	247,6	768,3	560
800	32	1193,8	28	60,5	1079,5	984,3	14,27	117,5	914,4	917,6	17,5	260,3	819,1	680
850	34	1244,6	28	60,5	1130,3	1035,0	14,27	120,7	965,2	973,2	19,0	269,9	869,9	750
900	36	1314,4	28	66,5	1193,8	1092,2	14,27	123,8	1022,3	1031,9	19,0	282,6	920,7	795
950	38	1270,0	28	60,5	1162,0	-	-	-	-	-	-	-	-	-
1000	40	1320,8	32	60,5	1212,8	-	-	-	-	-	-	-	-	-
1050	42	1403,3	28	66,5	1282,7	-	-	-	-	-	-	-	-	-
1100	44	1454,1	32	66,5	1333,5	-	-	-	-	-	-	-	-	-
1150	46	1511,3	32	66,5	1390,6	-	-	-	-	-	-	-	-	-
1200	48	1593,8	32	73,2	1460,5	-	-	-	-	-	-	-	-	-
1250	50	1670,0	28	79,2	1524,0	-	-	-	-	-	-	-	-	-
1300	52	1720,8	32	79,2	1574,8	-	-	-	-	-	-	-	-	-
1350	54	1778,0	32	79,2	1634,9	-	-	-	-	-	-	-	-	-
1400	56	1854,2	32	85,9	1695,4	-	-	-	-	-	-	-	-	-
1450	58	1905,0	32	85,9	1746,2	-	-	-	-	-	-	-	-	-
1500	60	1993,9	28	91,9	1822,4	-	-	-	-	-	-	-	-	-

Weights are approximate



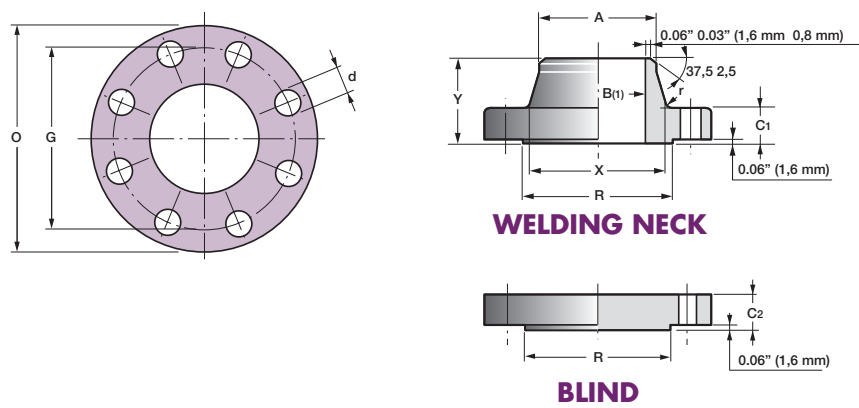
class 600 flanges – NPS 26 to 36
BS 3293 – 1960

(1) Dimensions B to be specified by purchaser.
(2) Dimension A shall vary according to yield strength of the steel

class 600 flanges – NPS 26 to 60
MSS-SP 44 – 1996
ASME B 16.47 – 1996 – Serie A

BS 3293		MSS-SP 44 ■ ASME B 16.47 – Serie A									
Welding neck		Welding neck						Blind			
A	Weight	R	C	Y	Radius r mini	X	Weight	C	Weight	Size	
mm	kg	mm	mm	mm	mm	mm	kg	mm	kg	NPS	DN
671,5	444	749,3	107,9	222,2	12,7	747,8	479	125,5	800	26	650
723,9	480	800,1	111,3	234,9	12,7	803,1	538	131,8	945	28	700
774,7	560	857,2	114,3	247,6	12,7	862,1	608	139,7	1115	30	750
825,5	680	914,4	117,3	260,3	12,7	917,4	689	147,6	1315	32	800
877,9	750	965,2	120,6	269,7	14,2	973,1	756	153,9	1495	34	850
928,7	795	1022,3	124,0	282,4	14,2	1031,7	868	162,1	1750	36	900
–	–	1054,1	152,4	254,0	14,2	1022,3	755	155,5		38	950
–	–	1111,2	158,7	263,7	14,2	1073,1	812	162,1		40	1000
–	–	1168,4	168,1	279,4	14,2	1127,3	1000	171,4		42	1050
–	–	1225,5	173,0	289,1	14,2	1181,1	1074	177,8		44	1100
–	–	1276,3	179,3	300,0	14,2	1234,9	1186	185,7		46	1150
–	–	1333,5	189,0	316,0	14,2	1289,0	1417	195,3		48	1200
–	–	1384,3	196,8	328,7	14,2	1343,2	1596	203,2		50	1250
–	–	1435,1	203,2	336,5	14,2	1394,0	1743	209,6		52	1300
–	–	1492,2	209,5	349,2	14,2	1447,8	1936	217,4		54	1350
–	–	1543,0	217,4	361,9	15,7	1501,6	2188	225,6		56	1400
–	–	1600,2	222,2	369,8	15,7	1552,4	2306	231,6		58	1450
–	–	1657,3	233,4	388,9	17,5	1609,9	2746	242,8		60	1500

Weights are approximate



ISO PN 20 flanges – DN 650 to 1500

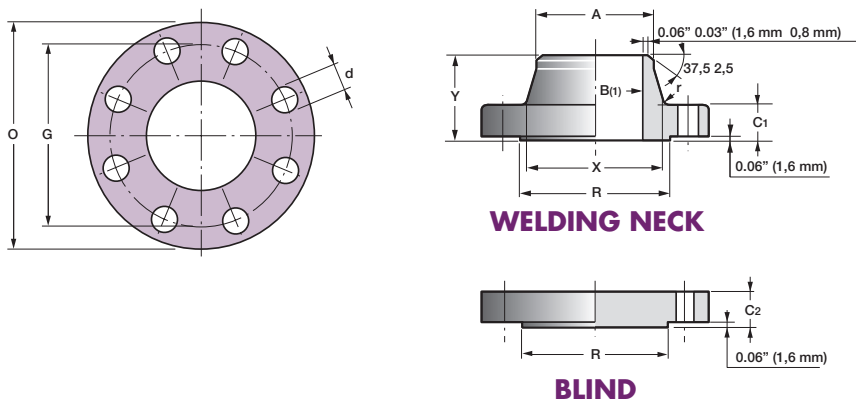
class 150 flanges – NPS 26 to 60

ASME B 16.47 – 1996 – Serie B
(replacing API 605)

(1) Dimension B to be specified by purchaser.

Size		O	C ₁	C ₂	R	Y	Drilling			Radius r mini	X	A
DN	NPS	mm	mm	mm	mm	mm	Number	d mm	G mm	mm	mm	mm
650	26	786	41,1	44,5	711,2	88,9	36	22,2	744,5	9,6	684,2	662,0
700	28	837	44,4	47,8	762,0	95,2	40	22,2	795,3	9,6	735,0	712,8
750	30	887	44,4	50,8	812,8	100,0	44	22,2	846,1	9,6	787,4	763,6
800	32	941	46,0	53,8	863,6	108,0	48	22,2	900,1	9,6	839,8	814,4
850	34	1005	49,3	57,2	920,8	110,2	40	25,4	957,3	9,6	892,0	865,2
900	36	1057	52,3	58,7	971,6	117,3	44	25,4	1009,6	9,6	944,6	916,0
950	38	1124	53,8	63,5	1022,4	124,0	40	28,5	1070,0	9,6	997,0	968,2
1000	40	1175	55,6	66,5	1079,5	128,5	44	28,5	1120,6	9,6	1049,3	1019,0
1050	42	1226	58,7	68,3	1130,3	133,4	48	28,5	1171,4	11,2	1101,9	1069,8
1100	44	1276	60,5	71,4	1181,1	136,7	52	28,5	1222,2	11,2	1152,7	1120,6
1150	46	1341	61,9	74,7	1235,0	144,5	40	31,8	1284,3	11,2	1204,9	1171,4
1200	48	1392	65,0	77,7	1289,0	149,4	44	31,8	1335,1	11,2	1257,3	1222,2
1250	50	1443	68,3	80,8	1339,9	153,9	48	31,8	1385,8	11,2	1308,1	1273,0
1300	52	1494	69,8	84,1	1390,7	157,2	52	31,8	1436,6	11,2	1360,4	1323,8
1350	54	1549	71,4	87,4	1441,5	162,1	56	31,8	1492,3	11,2	1412,7	1374,6
1400	56	1600	73,2	90,4	1492,3	166,6	60	31,8	1543,1	14,2	1465,3	1425,4
1450	58	1675	74,7	93,5	1543,0	174,8	48	35,0	1611,4	14,2	1516,1	1476,2
1500	60	1726	76,2	96,8	1600,2	179,3	52	35,0	1662,2	14,2	1570,0	1527,0

Weights are approximate



ISO PN 50 flanges – DN 650 to 1500

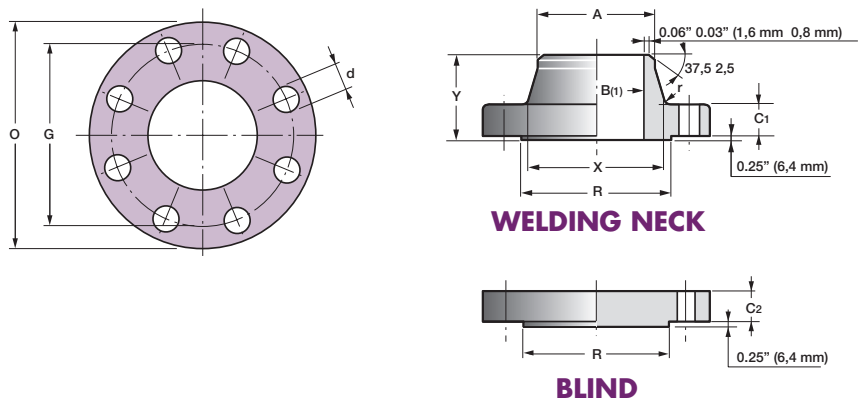
class 300 flanges – NPS 26 to 60

ASME B 16.47 – 1996 – Serie B
(replacing API 605)

(1) Dimension B to be specified by purchaser.

Size		O	C ₁	C ₂	R	Y	Drilling			Radius r mini	X	A
DN	NPS	mm	mm	mm	mm	mm	Number	d mm	G mm	mm	mm	mm
650	26	867	88,9	88,9	736,6	144,5	32	35,0	803,1	14,2	701,5	665,2
700	28	921	88,9	88,9	787,4	149,4	36	35,0	857,2	14,2	755,6	716,0
750	30	991	93,7	93,7	844,6	158,0	36	38,1	920,8	14,2	812,8	768,4
800	32	1054	103,2	103,1	901,7	168,1	32	41,1	977,9	15,7	863,6	819,2
850	34	1108	103,2	103,1	952,5	173,0	36	41,1	1031,7	15,7	917,4	870,0
900	36	1172	103,2	103,1	1009,6	180,8	32	44,4	1089,2	15,7	965,2	920,8
950	38	1222	111,3	111,3	1060,4	192,0	36	44,4	1139,9	15,7	1016,0	971,6
1000	40	1273	115,9	115,8	1114,6	198,4	40	44,4	1190,8	15,7	1066,8	1022,4
1050	42	1334	119,1	119,1	1168,4	204,7	36	47,8	1244,6	15,7	1117,6	1074,7
1100	44	1384	127,0	127,0	1219,2	214,4	40	47,8	1295,4	15,7	1173,2	1125,5
1150	46	1460	128,5	130,0	1270,0	222,2	36	50,8	1365,2	15,7	1228,9	1176,3
1200	48	1511	128,5	134,9	1327,2	223,8	40	50,8	1416,0	15,7	1277,9	1227,1
1250	50	1562	138,2	139,7	1378,0	235,0	44	50,8	1466,9	15,7	1330,5	1277,9
1300	52	1613	142,7	144,3	1428,8	242,8	48	50,8	1517,8	15,7	1382,8	1328,7
1350	54	1673	136,7	149,4	1479,6	239,8	48	50,8	1577,8	15,7	1435,1	1379,5
1400	56	1765	153,9	157,0	1536,7	268,2	36	60,5	1651,0	17,5	1493,8	1430,3
1450	58	1827	153,9	162,1	1593,9	274,6	40	60,5	1713,0	17,5	1547,9	1481,1
1500	60	1878	150,9	166,6	1651,0	271,6	40	60,5	1763,8	17,5	1598,7	1531,9

Weights are approximate



ISO PN 68 flanges – DN 650 to 1500(2)

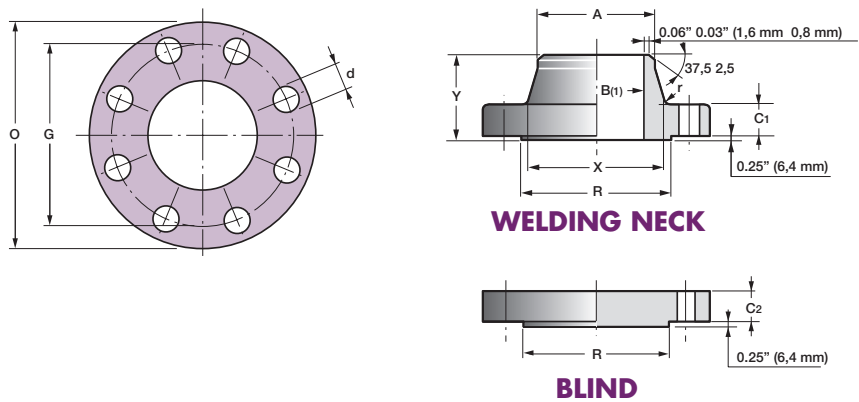
class 400 flanges – NPS 26 to 60(2)

ASME B 16.47 – 1996 – Serie B
(replacing API 605)

- (1) Dimension B to be specified by purchaser.
- (2) Dimensions for NPS ≥ 38 are the same as for the ASME B 16.47 series A flanges (see pages 210-211).

Size		O	C ₁	C ₂	R	Y	Drilling			Radius r mini	X	A
DN	NPS	mm	mm	mm	mm	mm	Number	d mm	G mm	mm	mm	mm
650	26	851	88,9	88,9	711,2	149,4	28	38,1	781,0	11,2	689,0	660,4
700	28	914	95,2	95,2	762,0	158,8	24	41,1	838,2	12,7	739,6	711,2
750	30	972	101,6	101,6	819,2	169,9	28	41,1	895,4	12,7	793,8	762,0
800	32	1035	108,0	108,0	873,3	179,4	28	44,4	952,5	12,7	844,6	812,8
850	34	1086	111,3	111,3	927,1	187,5	32	44,4	1003,3	14,2	898,7	863,6
900	36	1156	119,1	119,1	981,0	200,2	28	47,8	1066,8	14,2	952,5	914,4

Weights are approximate



ISO PN 100 flanges – DN 650 to 1500(2)

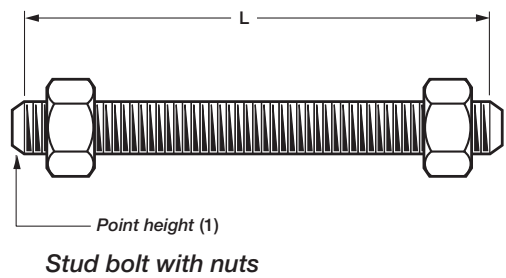
class 600 flanges – NPS 26 to 60(2)

ASME B 16.47 – 1996 – Serie B
(replacing API 605)

- (1) Dimension B to be specified by purchaser.
- (2) Dimensions for NPS ≥ 38 are the same as for the ASME B 16.47 series A flanges (see pages 212-213).

Size		O	C ₁	C ₂	R	Y	Drilling			Radius r mini	X	A
DN	NPS	mm	mm	mm	mm	mm	Number	d mm	G mm	mm	mm	mm
650	26	889	111,3	111,3	726,9	181,0	28	44,4	806,4	12,7	698,5	660,4
700	28	952	115,8	115,8	784,4	190,5	28	47,8	863,6	12,7	752,3	711,2
750	30	1022	125,5	127,0	841,2	204,7	28	50,8	927,1	12,7	806,4	762,0
800	32	1086	130,0	134,9	895,4	215,9	28	53,8	984,2	12,7	860,6	812,8
850	34	1162	141,2	144,3	952,5	233,4	24	60,5	1054,1	14,2	914,4	863,6
900	36	1213	146,0	150,9	1009,6	242,8	28	60,5	1104,9	14,2	968,2	914,4

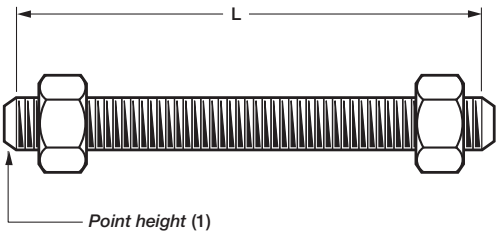
Weights are approximate



stud bolts
for raised face or ring joint flanges
ASME B 16.5 – 1996

Nominal pipe size		Stud bolts									
		For class 150 flanges					For class 300 flanges				
		Number of bolts	Diameter of bolts		Length of bolts (1)		Nomb. de tiges Numb. of bolts	Diameter of bolts		Length of bolts (1)	
			UNC	ISO	1,6 mm RF	Ring joint		UNC	ISO	1,6 mm RF	Ring joint
DN	NPS		inches	mm	mm	mm		inches	mm	mm	mm
15	1/2	4	1/2	M 14	60	–	4	1/2	M 14	65	80
20	3/4	4	1/2	M 14	65	–	4	5/8	M 16	80	90
25	1	4	1/2	M 14	65	80	4	5/8	M 16	80	90
32	1 1/4	4	1/2	M 14	70	85	4	5/8	M 16	85	95
40	1 1/2	4	1/2	M 14	70	85	4	3/4	M 20	90	100
50	2	4	5/8	M 16	85	95	8	5/8	M 16	90	100
65	2 1/2	4	5/8	M 16	90	100	8	3/4	M 20	100	115
80	3	4	5/8	M 16	90	100	8	3/4	M 20	110	120
–	3 1/2	8	5/8	M 16	90	100	8	3/4	M 20	110	130
100	4	8	5/8	M 16	90	100	8	3/4	M 20	115	130
125	5	8	3/4	M 20	95	110	8	3/4	M 20	120	135
150	6	8	3/4	M 20	100	115	12	3/4	M 20	125	140
200	8	8	3/4	M 20	110	120	12	7/8	M 24	140	155
250	10	12	7/8	M 24	115	130	16	1	M 27	160	170
300	12	12	7/8	M 24	120	135	16	1 1/8	M 30	170	185
350	14	12	1	M 27	135	150	20	1 1/8	M 30	175	190
400	16	16	1	M 27	135	150	20	1 1/4	M 33	190	205
450	18	16	1 1/8	M 30	150	160	24	1 1/4	M 33	195	210
500	20	20	1 1/8	M 30	160	170	24	1 1/4	M 33	205	225
600	24	20	1 1/4	M 33	175	185	24	1 1/2	M 39	230	255

(1) Stud bolt length does not include the height of points [part beyond the thread may be chamfered, rounded etc...]



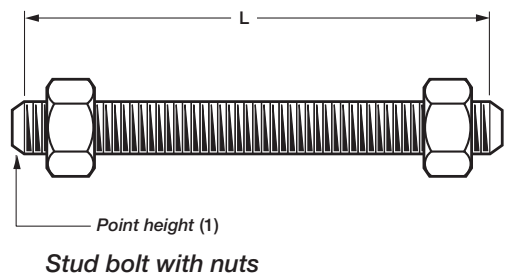
Stud bolt with nuts

stud bolts
for raised face or ring joint flanges

ASME B 16.5 – 1996

Nominal pipe size		Stud bolts									
		For class 400 flanges					For class 600 flanges				
		Number of bolts	Diameter of bolts		Length of bolts (1)		Number of bolts	Diameter of bolts		Length of bolts (1)	
			UNC	ISO	6,4 mm RF	Ring joint		UNC	ISO	6,4 mm RF	Ring joint
DN	NPS		inches	mm	mm	mm		inches	mm	mm	mm
15	1/2	4	1/2	M 14	75	75	4	1/2	M 14	75	75
20	3/4	4	5/8	M 16	90	90	4	5/8	M 16	90	90
25	1	4	5/8	M 16	90	90	4	5/8	M 16	90	90
32	1 1/4	4	5/8	M 16	95	95	4	5/8	M 16	95	95
40	1 1/2	4	3/4	M 20	110	110	4	3/4	M 20	110	110
50	2	8	5/8	M 16	110	110	8	5/8	M 16	110	110
65	2 1/2	8	3/4	M 20	120	120	8	3/4	M 20	120	120
80	3	8	3/4	M 20	125	130	8	3/4	M 20	125	130
–	3 1/2	8	7/8	M 24	140	140	8	7/8	M 24	140	140
100	4	8	7/8	M 24	140	140	8	7/8	M 24	145	145
125	5	8	7/8	M 24	145	150	8	1	M 27	165	165
150	6	12	7/8	M 24	150	155	12	1	M 27	170	175
200	8	12	1	M 27	170	175	12	1 1/8	M 30	190	195
250	10	16	1 1/8	M 30	190	190	16	1 1/4	M 33	215	215
300	12	16	1 1/4	M 33	205	205	20	1 1/4	M 33	225	225
350	14	20	1 1/4	M 33	210	210	20	1 3/8	M 36	235	235
400	16	20	1 3/8	M 36	220	225	20	1 1/2	M 39	255	255
450	18	24	1 3/8	M 36	230	230	20	1 5/8	M 42	275	275
500	20	24	1 1/2	M 39	245	250	24	1 5/8	M 42	290	295
600	24	24	1 3/4	M 45	270	280	24	1 7/8	M 48	330	335

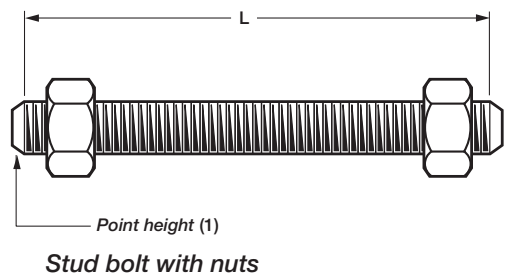
(1) Stud bolt length does not include the height of points [part beyond the thread may be chamfered, rounded etc...]



stud bolts
for raised face or ring joint flanges
ASME B 16.5 – 1996

Nominal pipe size		Stud bolts									
		For class 900 flanges					For class 1500 flanges				
		Number of bolts	Diameter of bolts		Length of bolts (1)		Number of bolts	Diameter of bolts		Length of bolts (1)	
			UNC	ISO	6,4 mm RF	Ring joint		UNC	ISO	6,4 mm RF	Ring joint
DN	NPS		inches	mm	mm	mm		inches	mm	mm	mm
15	1/2	4	3/4	M 20	105	105	4	3/4	M 20	105	105
20	3/4	4	3/4	M 20	115	115	4	3/4	M 20	115	115
25	1	4	7/8	M 24	125	125	4	7/8	M 24	125	125
32	1 1/4	4	7/8	M 24	125	125	4	7/8	M 24	125	125
40	1 1/2	4	1	M 27	140	140	4	1	M 27	140	140
50	2	8	7/8	M 24	145	145	8	7/8	M 24	145	145
65	2 1/2	8	1	M 27	160	160	8	1	M 27	160	160
80	3	8	7/8	M 24	145	145	8	1 1/8	M 30	180	180
100	4	8	1 1/8	M 30	170	170	8	1 1/4	M 33	200	200
125	5	8	1 1/4	M 33	190	190	8	1 1/2	M 39	250	250
150	6	12	1 1/8	M 30	190	195	12	1 3/8	M 36	260	265
200	8	12	1 3/8	M 36	220	220	12	1 5/8	M 42	290	320
250	10	16	1 3/8	M 36	235	235	12	1 7/8	M 48	335	345
300	12	20	1 3/8	M 36	255	255	16	2	M 52	375	390
350	14	20	1 1/2	M 39	275	280	16	2 1/4	M 56	405	425
400	16	20	1 5/8	M 42	285	295	16	2 1/2	M 64	445	470
450	18	20	1 7/8	M 48	325	340	16	2 3/4	M 70	495	530
500	20	20	2	M 52	350	360	16	3	M 76	540	565
600	24	20	2 1/2	M 64	440	455	16	3 1/2	M 90	615	645

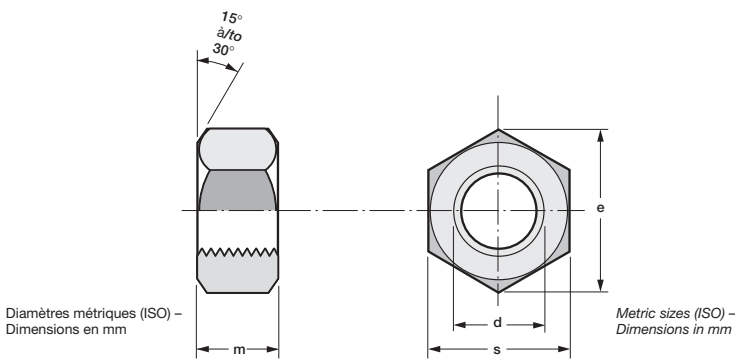
(1) Stud bolt length does not include the height of points (part beyond the thread may be chamfered, rounded etc...)



stud bolts
for raised face or ring joint flanges
ASME B 16.5 – 1996

Nominal pipe size		Stud bolts				
		For class 2500 flanges				
		Number of bolt	Diameter of bolts		Length of bolts (1)	
			UNC	ISO	6,4 mm RF	Ring joint
DN	NPS		inches	mm	mm	mm
15	1/2	4	3/4	M 20	120	120
20	3/4	4	3/4	M 20	125	125
25	1	4	7/8	M 24	140	140
32	1 1/4	4	1	M 27	150	150
40	1 1/2	4	1 1/8	M 30	170	170
50	2	8	1	M 27	180	180
65	2 1/2	8	1 1/8	M 30	195	205
80	3	8	1 1/4	M 33	220	230
100	4	8	1 1/2	M 39	255	260
125	5	8	1 3/4	M 45	300	310
150	6	8	2	M 52	345	355
200	8	12	2	M 52	380	395
250	10	12	2 1/2	M 64	490	510
300	12	12	2 3/4	M 70	540	560

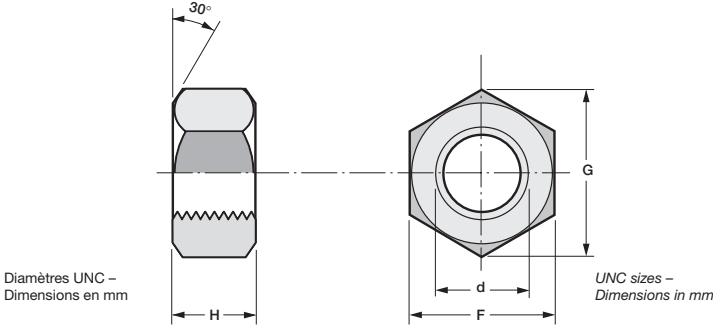
(1) Stud bolt length does not include the height of points (part beyond the thread may be chamfered, rounded etc...)



hex nuts
style 2
NF EN 24033 – June 1992

Nominal size d	e	m		s		Pas ISO	Weight per 100 pieces
	mini	maxi	mini	maxi	mini		kg
M 8	14,38	7,5	7,14	13	12,73	1,25	0,65
M 10	17,77	9,3	8,94	16	15,73	1,50	1,45
M 12	20,03	12,0	11,57	18	17,73	1,75	2,17
M 14	23,35	14,1	13,4	21	20,67	2,00	3,13
M 16	26,75	16,4	15,7	24	23,67	2,00	4,16
M 18	29,56	17,6	16,9	27	26,16	2,50	6,20
M 20	32,95	20,3	19,0	30	29,16	2,50	8,05
M 22	37,29	21,8	20,5	34	33,00	2,50	9,85
M 24	39,55	23,9	22,6	36	35,00	3,00	13,80
M 27	45,20	26,7	25,4	41	40,00	3,00	20,65
M 30	50,85	28,6	27,3	46	45,00	3,50	27,90
M 33	55,37	32,5	30,9	50	49,00	3,50	36,00
M 36	60,79	34,7	33,1	55	53,80	4,00	49,15
M 39	66,44	37,5	35,9	60	58,80	4,00	62,75
M 42	71,30	38,2	36,6	65	63,10	4,50	81,50
M 45	76,95	40,5	38,9	70	68,10	4,50	100,0
M 48	82,60	42,8	41,2	75	73,10	5,00	122,0
M 52	88,25	47,2	45,6	80	78,10	5,00	152,5
M 56	93,56	50,6	48,7	85	82,80	5,50	177,5
M 60	99,21	54,0	52,1	90	87,80	5,50	211,5
M 64	104,86	57,4	55,5	95	92,80	6,00	247,5
M 68	110,51	60,8	58,9	100	97,80	6,00	287,5
M 72 x 6	116,16	65,2	63,3	105	102,80	6,00	334,0
M 76 x 6	121,81	68,6	66,7	110	107,80	6,00	380,0
M 80 x 6	127,46	72,0	70,1	115	112,80	6,00	430,0

Weights are approximate



heavy hex nuts

ASME B 18.2.2 – 1987

Nominal size	G		H		F		Number of threads per inch	Weight per 100 pieces
	maxi	mini	maxi	mini	maxi	mini		kg
d								
3/8	20,2	19,4	9,6	8,7	17,5	17,0	16	1,4
7/16	22,0	21,1	11,2	10,2	19,0	18,5	14	1,9
1/2	25,6	24,6	12,8	11,8	22,2	21,6	13	3,0
9/16	27,5	26,3	14,4	13,4	23,8	23,1	12	3,7
5/8	31,2	29,8	16,0	14,9	27,0	26,2	11	5,4
3/4	36,7	35,1	19,3	18,0	31,8	30,8	10	8,8
7/8	42,2	40,4	22,5	21,2	36,5	35,4	9	13,5
1	47,7	45,6	25,7	24,3	41,3	40,0	8	19,3
1 1/8	53,2	50,8	28,9	27,4	46,0	44,6	8	26,9
1 1/4	58,6	56,1	31,8	30,1	50,8	49,2	8	35,7
1 3/8	64,2	61,4	35,0	33,3	55,6	53,8	8	46,3
1 1/2	69,6	66,6	38,2	36,4	60,3	58,4	8	59,5
1 5/8	75,2	71,8	41,5	39,5	65,1	63,0	8	73,6
1 3/4	80,6	77,1	44,7	42,6	69,9	67,6	8	92,7
1 7/8	86,2	82,3	47,9	45,8	74,6	72,2	8	190,5
2	91,6	87,6	51,1	48,9	79,4	76,8	8	135,8
2 1/4	102,6	98,1	57,2	54,7	88,9	86,1	8	109,3
2 1/2	113,6	108,6	63,6	61,0	98,4	95,2	8	256,0
2 3/4	124,6	119,1	70,1	67,2	108,0	104,4	8	335,0
3	135,6	129,6	76,5	73,5	117,5	113,7	8	432,0

Weights are approximate

Nota: Threads in accordance with ASME B 1.1 – 1989

Serie UNC up to 1"

Serie 8 UN for sizes 1 1/8 and over.

weight of stud bolts with 2 nuts,
in kg per 100 pieces

METRIC SIZES

Length mm	M 10	M 12	M 14	M 16	M 18	M 20	M 22	M 24	M 27	M 30	M 33	M 36	M 39	M 42	M 45	M 48	M 52
60	5,6	8,1	12,0	15,6													
70	6,1	8,9	13,0	16,9	23,7												
80	6,6	9,6	14,0	18,2	25,4	32,5											
90	7,1	10,3	15,0	19,6	27,1	34,5	45,5										
100	7,6	11,0	16,0	21,0	28,8	36,7	47,2	54,2									
110	8,1	11,7	17,0	22,2	30,4	38,7	48,3	58,2	77,4								
120	8,6	12,4	18,0	23,6	32,1	40,7	50,9	60,2	81,2	107,0							
130	9,1	13,2	19,0	24,9	33,7	42,8	53,4	63,2	85,0	111,0	141,0						
140	9,6	14,2	20,0	26,2	35,4	44,9	55,9	66,2	88,9	116,0	147,0	185,0					
150	10,1	14,9	20,8	27,5	36,9	46,9	58,5	69,2	92,7	121,0	153,0	192,0	237,0				
160	10,6	15,6	21,8	29,1	38,6	49,0	61,0	72,2	96,6	126,0	159,0	199,0	245,0	302,0			
170		16,4	22,8	30,4	40,2	51,1	63,5	75,2	101,0	130,0	165,0	206,0	253,0	312,0	378		
180			23,8	31,8	41,9	52,3	66,1	78,1	105,0	135,0	171,0	213,0	261,0	322,0	389	467	
190				33,1	43,5	54,4	68,4	81,1	109,0	140,0	176,0	219,0	269,0	332,0	400	480	566
200				34,5	45,2	56,5	71,0	84,0	113,0	144,0	182,0	226,0	278,0	342,0	411	493	581
210				35,8	46,8	58,5	73,5	88,4	120,0	149,0	188,0	233,0	286,0	352,0	423	506	596
220				37,1	48,4	60,6	76,1	91,4	124,0	154,0	194,0	240,0	294,0	362,0	434	519	612
230				38,5	50,1	62,6	78,6	94,4	127,0	159,0	201,0	247,0	302,0	372,0	446	532	627
240				39,8	51,7	64,7	81,2	97,4	131,0	164,0	208,0	253,0	310,0	382,0	457	545	643
250				41,1	53,4	66,8	83,7	100,0	135,0	172,0	214,0	260,0	319,0	391,0	468	558	658
260					55,0	68,8	86,3	103,0	139,0	177,0	220,0	267,0	327,0	401,0	480	571	674
270					56,6	70,9	88,8	106,0	143,0	182,0	224,0	274,0	335,0	411,0	492	584	689
280					58,3	73,0	91,4	109,0	146,0	187,0	230,0	281,0	343,0	421,0	505	597	705
290						75,0	93,9	112,0	150,0	192,0	236,0	291,0	360,0	431,0	517	610	720
300						77,1	96,5	115,0	154,0	196,0	241,0	298,0	368,0	441,0	530	623	736
320							102,0	121,0	162,0	206,0	253,0	312,0	380,0	461,0	553	649	767
340								127,0	169,0	215,0	265,0	326,0	395,0	480,0	570	676	795
360								133,0	177,0	224,0	276,0	340,0	411,0	495,0	592	702	826
380									185,0	234,0	288,0	353,0	428,0	510,0	615	728	857
400									193,0	243,0	299,0	367,0	444,0	529,0	630	754	888
additional 20 mm	1,0	1,4	2,0	2,6	3,4	4,2	5,0	6,0	7,6	9,5	11,5	13,5	16,5	18,5	20	26	30

weight of stud bolts with 2 nuts,
in kg per 100 pieces

UNC SIZES

Length mm	3/8"	7/16"	1/2"	9/16"	5/8"	3/4"	7/8"	1"	1" 1/8	1" 1/4	1" 3/8	1" 1/2	1" 5/8	1" 3/4	1" 7/8	2"	2" 1/4
60	5,5	7,6	10,8	13,5													
70	5,9	8,2	11,6	14,5	19,8												
80	6,3	8,8	12,4	15,5	21,0	32,4											
90	6,7	9,4	13,2	16,5	22,2	34,3	50,0										
100	7,1	10,0	14,0	17,5	23,4	36,2	52,6	71,8									
110	7,5	10,6	14,8	18,5	24,6	38,1	55,2	75,2	102,0								
120	7,9	11,2	15,6	19,5	25,8	40,0	57,8	78,6	106,0	137							
130	8,5	11,8	16,4	20,5	27,0	41,9	60,4	82,0	111,0	142	179						
140	8,9	12,2	17,2	21,5	28,2	43,8	63,0	85,4	115,0	147	186	234					
150	9,4	12,8	18,0	22,5	29,4	45,7	65,6	88,8	119,0	153	193	242	289				
160		13,4	18,8	23,5	30,6	47,6	68,2	92,2	123,0	158	200	250	298	363			
170		14,0	19,6	24,5	32,3	49,5	70,8	95,6	128,0	164	206	258	308	374	437		
180		14,7	20,4	25,5	33,5	50,8	73,4	99,0	132,0	169	213	266	317	385	449	534,0	
190			21,2	26,5	34,8	52,7	75,5	103,0	136,0	174	220	275	326	396	462	549,0	735,0
200			22,0	27,6	36,1	54,5	78,0	106,0	141,0	180	226	283	336	407	475	564,0	754,0
210				28,6	37,3	56,3	80,5	108,0	145,0	185	233	291	345	418	488	578,0	773,0
220				29,6	38,6	58,1	83,1	112,0	149,0	191	240	299	354	429	500	593,0	792,0
230				30,6	39,8	60,0	85,6	115,0	153,0	196	246	307	364	440	513	607,0	811,0
240					41,1	61,8	88,2	118,0	158,0	201	253	316	373	451	526	622,0	830,0
250						63,7	90,7	122,0	162,0	206	260	324	382	463	538	637,0	849,0
260							93,3	125,0	166,0	212	267	332	391	474	551	651,0	868,0
270								128,0	171,0	217	273	340	401	485	564	666,0	887,0
280								132,0	175,0	223	279	345	410	496	576	680,0	906,0
290								135,0	179,0	228	285	350	419	507	589	695,0	925,0
300								138,0	184,0	233	292	358	429	518	602	710,0	944,0
320									192,0	244	305	374	449	540	627	739,0	982,0
340									201,0	255	319	390	468	562	653	768,0	1020,0
360									210,0	266	332	406	487	583	678	797,0	1058,0
380										277	345	422	506	605	703	826,0	1096,0
400										288	359	437	524	627	731	856,0	1126,0
additional 20 mm	0,8	1,2	1,6	2,0	2,4	3,8	5,2	6,4	8,6	11	13	16	19	22	25	28,5	37,5

PIPING SOLUTIONS YOU CAN COUNT ON

Potable water supply, sewage and drainage network, firefighting and HVAC systems are the most vital piping requirements in any infrastructure or building project. Civil engineering and construction companies, local authorities,



contractors and sub-contractors need a partner with extensive expertise, to provide reliable packages with the right products and services dedicated to their project. Trouvay & Cauvin Group is a leading piping solutions provider able to provide a wide range of products and value-added services for this market.

UNMATCHED SCOPE OF SUPPLY

Trouvay & Cauvin Group's long-standing relationships with the world's leading manufacturers, combined with our sourcing expertise, offer you access to the finest quality piping materials and valves. We know how to meet the demands of high-profile projects thanks to our large stocks of cast iron, ductile, seamless and welded steel pipes, valves, fittings and flanges in our five logistic platforms around the world. To enable you to start construction activities immediately, we can supply initial quantity from our stocks and source the balance from incoming mill orders. You no longer have to wait for the entire quantity to be milled and shipped before your project can begin. We wouldn't be a real packager without value added services. **Trouvay & Cauvin Group** also provides a complete range of pipes and valves services that simplify your project requirements: wrapping, grooving, valve actuation, commissioning and maintenance, are a small selection of what we offer.

QUALITY THAT LASTS A LIFETIME

Many of the world's leading contractors rely on **Trouvay & Cauvin Group** to deliver high-quality piping solutions for their building and infrastructure projects. Not only does our main logistic platform have triple certification (ISO 9001, ISO 14001, OHSAs 18001), but our long-standing relationships with major manufacturing partners, including Vallourec, Saint-Gobain, Cephass Valves and Tyco (Shurjoint/Grinnell), give **Trouvay & Cauvin Group** an edge that sets us apart from the competition.

In order to cover a full range of requirements, from quality to cost-effectiveness, we have also developed our own range of seamless steel pipes (Trouvay & Cauvin Pipes) for HVAC and firefighting applications. Thank to strong partnerships with mills in Europe, USA and Asia we are able to supply products manufactured according to our specifications - but related to international standards - and under our quality control from the beginning to the end of the manufacturing process.



- Airports / Hotels
- Metro tunnels and train stations
- Hospitals and university buildings
- Multi storey car parks and train stations
- Residential and commercial buildings
- Desalination plants / District cooling plants
- Power stations.

HVAC Network/District Cooling

- Seamless and welded carbon steel pipes and fittings
- Butterfly, gate, check, ball and air valves
- Actuators (electric, pneumatic, hydraulic)
- Grooved couplings and fittings, air vent, strainers.

Firefighting Network

- Seamless and welded carbon steel pipes and fittings with galvanized finish
- UL/FM approved butterfly, gate and check valves with grooved and flanges ends
- Ductile iron pipes and fittings
- Grooved couplings and fittings.

Plumbing / Drainage

- Cast iron pipes and fittings
- Design, manufacturing and installation of corrosion-resistant pipe systems, manholes, pumping stations and chambers
- Dual-contained polymer piping for hazardous chemicals.

Potable Water

- Seamless and welded carbon steel pipes and fittings with or without coating
- Stainless steel pipes and fittings
- Ductile iron pipes and fittings
- Butterfly, gate, globe, ball and air/vacuum valves
- Pump strainers
- Air vents.

Steam and Hot Water Systems

- Humidification
- Pressure/temperature regulators
- Hot water products like mixing valves and calorifiers
- Steam tracing equipment
- Steam traps
- Condensate recovery systems.

Desalination / Sea Water Cooling

- Seamless and welded carbon steel pipes and fittings
- Exotic piping, including super duplex, duplex and inconel
- Butterfly, pump discharge, check and gate valves
- Air/vacuum valves
- Steam accessories like steam traps and pressure regulators.

PRODUCTS AND SERVICES

Products

- Range of Trouvay & Cauvin carbon steel pipes
- Stainless steel pipes and tubes
- Flanges
- Fittings
- Grooved couplings
- Gaskets
- Ductile iron pipes and fittings
- Cast iron drainage systems
- Valves
- Actuators (electric, pneumatic or hydraulic)
- Steam products

Trouvay & Cauvin Group has a triple certification, including ISO-9001. Pipes are inspected by our quality department directly at the mills.

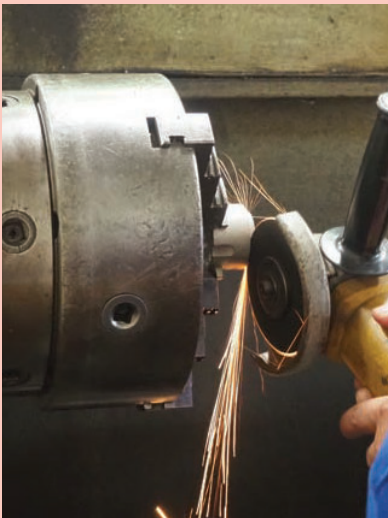
Pipe finishing services

To streamline the turnaround of pipes and valves, a wide range of pipe finishing services are done at site, in the Trouvay & Cauvin Group yards.

These include:

- Sand blasting by automated machine
- Primer coating and painting
- Cutting and beveling
- Color coding and special marking
- Threading and coupling
- Nipple making
- Flange face machining
- Cold applied pipe wrapping
- Grooved on site or in Trouvay & Cauvin Group yards (U.A.E./Jebel Ali, Qatar/Doha, Saudi Arabia/Jubail)
- Pre-galvanization
- Fusion Bonded Epoxy, 3Layer Polyethylene Epoxy lining and coating
- Valve actuation
- Value maintenance, repair and testing
- Steam survey.

A wide range of other services is available through our network of approved suppliers, who are located close to our yards for optimal turnaround. These services include welding, galvanizing and enamelling as well as testing and inspection.



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