

# STAINLESS STEEL



**PIPING SYSTEMS**



**onesteel**

# INTRODUCTION

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OneSteel is perhaps best known as a supplier of carbon steel piping products yet we also provide a comprehensive range of Stainless Steel products from our national distribution network, viz:

**OneSteel Piping Systems** Capital cities and selected regional centres

**OneSteel Metaland** Regional cities and towns in all states

This catalogue presents an overview of our Stainless Steel range and is intended to provide our customers with sufficient information to select and order products from our various sales offices.

Our range comprises:

**Pipe** Welded, Seamless and Spiral.

**Fittings** Buttweld (Seamless/Welded), Stub Ends, High Pressure (Socket-weld/NPT), 150lb, BSP, Roll Grooved

**Flanges** Australian and American Standard, slipon, weldneck, blind, lapjoint.

**Valves** Gate, globe, check, ball, butterfly, diaphragm, knifegate and strainers.

Most piping systems use both carbon steel and stainless steel materials.

OneSteel offers our customers both — a full package of pipes, valves and pipe fittings in stainless steel and carbon steel — from over 80 locations throughout Australia.

## Notes on Metric Conversion:

Many international industry groups have retained imperial measurement as their standard unit of measure. In metricating international standards we have rounded to nearest full units in certain cases. Should dimensional accuracy be critical to your requirements we suggest that reference be made to the appropriate original standards.

OneSteel provides the information contained in this brochure as a guide only for your information. OneSteel has taken reasonable care to ensure the accuracy of the material but you should not rely on the whole or any part of the information. OneSteel expressly disclaims all liability whatsoever for (including any direct or indirect loss or damage, costs or expenses howsoever incurred by any person) or reliance on the whole or any part of the information contained in or omitted from this brochure. OneSteel recommends that you verify any information regarding products with your independent expert adviser and rely solely on that adviser's recommendations.

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Think Stainless Steel,  
Think **OneSteel**!



# WELDED AND SEAMLESS PIPE



OneSteel offers a stock range of seamless and longitudinally welded pipe to American standards, with other specifications (eg: spirally welded) available to order. The specifications applicable to our stock range are:

## MATERIAL SPECIFICATIONS

ASTM A312 (latest edition), Seamless and Welded Austenitic Stainless Steel Pipe. Applicable stock grades are TP304/304L and TP316/316L. Pipe is generally dual certified within each grade. The mechanical and chemical properties applicable to these grades are detailed in the book of ASTM standards. The following chemical analysis chart provides a general comparison between the popular grades.

## CHEMICAL COMPOSITION

SYMBOL	Chemical Composition (%)							
	C	Si	Mn	P	S	Ni	Cr	Mo
TP304	0.080	1.00	2.0	0.045	0.030	8.00-11.00	18.00-20.00	
TP304L	0.035	1.00	2.0	0.045	0.030	8.00-13.00	18.00-20.00	
TP316	0.080	1.00	2.0	0.045	0.030	11.00-14.00	16.00-18.00	2.00-3.00
TP316L	0.035	1.00	2.0	0.045	0.030	10.00-14.00	16.00-18.00	2.00-3.00

## DIMENSIONAL SPECIFICATIONS

ANSI/ASME B36.10 (Welded and Seamless Wrought Steel Pipe) and ANSI/ASME B36.19 (Stainless Steel Pipe). These standards cover the dimensions of seamless and welded pipe in this section. The nominal pipe sizes, wall thicknesses and internal diameters for popular sizes and schedules are shown in the table opposite.

## WEIGHTS

Weights for Stainless Steel pipes vary according to material grade. Austenitic stainless steels are generally slightly heavier than carbon steel, for example:

Pipe Size	Schedule	Kg/m CS A106	Kg/m SS 304L	Kg/m SS 316L
80	40	11.29	11.40	11.50

# WELDED AND SEAMLESS PIPE

Nominal Size DN	OUTSIDE DIAMETER mm	NOMINAL WALL THICKNESS & INSIDE DIAMETER - millimetres							
		SCHEDULE 5S		SCHEDULE 10S		SCHEDULE 40S		SCHEDULE 80S	
		Wall Thickness	Inside Diameter	Wall Thickness	Inside Diameter	Wall Thickness	Inside Diameter	Wall Thickness	Inside Diameter
6	10.29	-	-	1.24	7.81	1.73	6.83	2.41	5.47
8	13.72	-	-	1.65	10.42	2.24	9.24	3.02	7.68
10	17.15	-	-	1.65	13.85	2.31	12.53	3.20	10.75
15	21.34	1.65	18.04	2.11	17.12	2.77	15.80	3.73	13.88
20	26.67	1.65	23.37	2.11	22.45	2.87	20.93	3.91	18.85
25	33.40	1.65	30.10	2.77	27.86	3.38	26.64	4.55	24.30
32	42.16	1.65	38.86	2.77	36.62	3.56	35.04	4.85	32.46
40	48.26	1.65	44.96	2.77	42.72	3.68	40.90	5.08	38.10
50	60.32	1.65	57.03	2.77	54.79	3.91	52.51	5.54	49.25
65	73.02	2.11	68.81	3.05	66.93	5.16	62.71	7.01	59.01
80	88.90	2.11	84.68	3.05	82.80	5.49	77.92	7.62	73.66
100	114.30	2.11	110.08	3.05	108.20	6.02	102.26	8.56	97.18
125	141.30	2.77	135.76	3.40	134.50	6.55	128.19	9.52	122.25
150	168.28	2.77	162.74	3.40	161.47	7.11	154.05	10.97	146.33
200	219.08	2.77	213.54	3.76	211.56	8.18	202.72	12.70	193.68
250	273.05	3.40	266.24	4.19	264.67	9.27	254.51	12.70	247.65
300	323.85	3.96	315.93	4.57	314.71	9.52	304.08	12.70	298.45
350	355.60	3.96	347.68	4.78	346.05				
400	406.40	4.19	398.02	4.78	396.85				
450	457.20	4.19	448.82	4.78	447.65				
500	508.00	4.78	498.45	5.54	496.93				
600	609.60	5.54	598.53	6.35	596.90				
750	762.00	6.35	749.30	7.92	746.16				

# BUTTWELD FITTINGS



OneSteel offers Stainless Steel Butt weld Fittings in a range of Elbows, Tees, Reducers, Caps and Stub Ends. Sizes to 300mm are normally available ex-stock, with larger sizes to order. Standard fittings are manufactured from welded pipe, with seamless fittings also available if required.

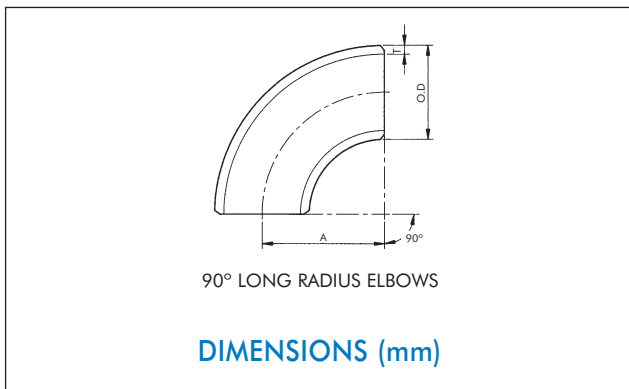
## MATERIAL SPECIFICATIONS

ASTM A403, latest edition. Standard grades for stock fittings are 304/304L and 316/316L. Most fittings are dual grade certified. The chemical and physical requirements of Butt weld fittings are detailed in the Book of ASTM Standards. The material may consist of forgings, bars, plates or seamless or welded tubular products that conform to the chemical requirements specified in ASTM A403.

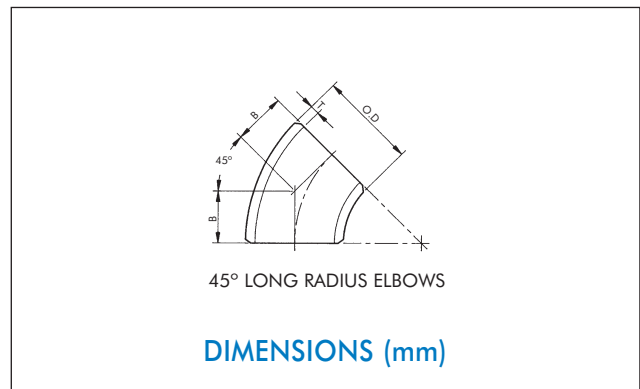
## DIMENSIONAL SPECIFICATIONS

Generally to ANSI B16.9, B16.28 and MSS SP-43. Stub ends to MSS SP-43, type B.

The dimensions of most popular sizes are shown in the following tables:

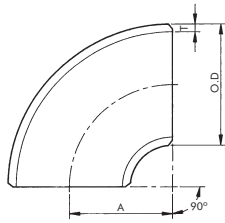


Nom Pipe Size	Outside Diam. (OD)	Wall Thickness (T)				Centre to End A
		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S	
15	21.34	1.65	2.11	2.77	3.73	38.10
20	26.67	1.65	2.11	2.87	3.91	28.45
25	33.40	1.65	2.77	3.38	4.55	38.10
32	42.16	1.65	2.77	3.56	4.85	47.75
40	48.26	1.65	2.77	3.68	5.08	57.15
50	60.32	1.65	2.77	3.91	5.54	76.20
65	73.02	2.11	3.05	5.16	7.01	95.25
80	88.90	2.11	3.05	5.49	7.62	114.30
90	101.60	2.11	3.05	5.74	8.08	133.35
100	114.30	2.11	3.05	6.02	8.56	152.40
125	141.30	2.77	3.40	6.55	9.53	190.50
150	168.27	2.77	3.40	7.11	10.97	228.60
200	219.08	2.77	3.76	8.18	12.70	304.08
250	273.05	3.40	4.19	9.27	12.70	381.00
300	323.85	3.96	4.57	9.53	12.70	457.20



Nom Pipe Size	Outside Diam. (OD)	Wall Thickness (T)				Centre to End B
		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S	
15	21.34	1.65	2.11	2.77	3.73	15.88
20	26.67	1.65	2.11	2.87	3.91	11.13
25	33.40	1.65	2.77	3.38	4.55	22.22
32	42.16	1.65	2.77	3.56	4.85	25.40
40	48.26	1.65	2.77	3.68	5.08	28.45
50	60.32	1.65	2.77	3.91	5.54	35.05
65	73.02	2.11	3.05	5.16	7.01	44.45
80	88.90	2.11	3.05	5.49	7.62	50.80
90	101.60	2.11	3.05	5.74	8.08	57.15
100	114.30	2.11	3.05	6.02	8.56	63.50
125	141.30	2.77	3.40	6.55	9.53	79.25
150	168.27	2.77	3.40	7.11	10.97	95.25
200	219.08	2.77	3.76	8.18	12.70	127.00
250	273.05	3.40	4.19	9.27	12.70	158.75
300	323.85	3.96	4.57	9.53	12.70	190.50

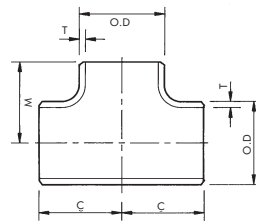
# BUTTWELD FITTINGS



90° SHORT RADIUS ELBOWS

## DIMENSIONS (mm)

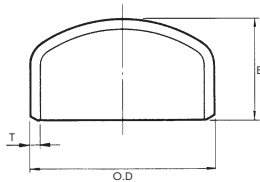
Nom Pipe Size	Outside Diam. (OD)	Wall Thickness (T)				Centre to End A
		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S	
25	33.40	1.65	2.77	3.38	4.55	25.40
32	42.16	1.65	2.77	3.56	4.85	31.75
40	48.26	1.65	2.77	3.68	5.08	38.10
50	60.32	1.65	2.77	3.91	5.54	50.80
65	73.02	2.11	3.05	5.16	7.01	63.50
80	88.90	2.11	3.05	5.49	7.62	76.20
90	101.60	2.11	3.05	5.74	8.08	88.90
100	114.30	2.11	3.05	6.02	8.56	101.60
125	141.30	2.77	3.40	6.55	9.53	127.00
150	168.27	2.77	3.40	7.11	10.97	152.40
200	219.08	2.77	3.76	8.18	12.70	203.20
250	273.05	3.40	4.19	9.27	12.70	254.00
300	323.85	3.96	4.57	9.53	12.70	304.80



EQUAL TEES

## DIMENSIONS (mm)

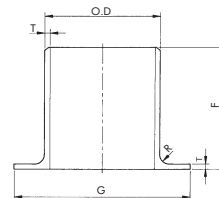
Nom Pipe Size	Outside Diam. (OD)	Wall Thickness (T)				Centre to End C, M
		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S	
15	21.34	1.65	2.11	2.77	3.73	25.40
20	26.67	1.65	2.11	2.87	3.91	28.70
25	33.40	1.65	2.77	3.38	4.55	38.10
32	42.16	1.65	2.77	3.56	4.85	47.75
40	48.26	1.65	2.77	3.68	5.08	57.15
50	60.32	1.65	2.77	3.91	5.54	63.50
65	73.02	2.11	3.05	5.16	7.01	76.20
80	88.90	2.11	3.05	5.49	7.62	85.85
100	114.30	2.11	3.05	6.02	8.56	104.90
125	141.30	2.77	3.40	6.55	9.53	123.95
150	168.27	2.77	3.40	7.11	10.97	143.00
200	219.08	2.77	3.76	8.18	12.70	177.80
250	273.05	3.40	4.19	9.27	12.70	215.90
300	323.85	3.96	4.57	9.53	12.70	254.00



CAPS

## DIMENSIONS (mm)

Nom Pipe Size	Outside Diam. (OD)	Wall Thickness (T)				Centre to End E
		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S	
15	21.34	1.65	2.11	2.77	3.73	25.40
20	26.67	1.65	2.11	2.87	3.91	25.40
25	33.40	1.65	2.77	3.38	4.55	38.10
32	42.16	1.65	2.77	3.56	4.85	38.10
40	48.26	1.65	2.77	3.68	5.08	38.10
50	60.32	1.65	2.77	3.91	5.54	38.10
65	73.02	2.11	3.05	5.16	7.01	50.80
80	88.90	2.11	3.05	5.49	7.62	63.50
100	114.30	2.11	3.05	6.02	8.56	76.20
125	141.30	2.77	3.40	6.55	9.53	88.90
150	168.27	2.77	3.40	7.11	10.97	101.60
200	219.08	2.77	3.76	8.18	12.70	127.00
250	273.00	3.40	4.19	9.53	12.70	152.40
300	323.85	3.96	4.57	9.53	12.70	177.80

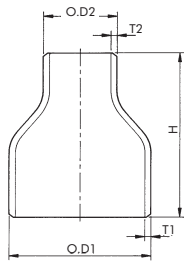


STUB ENDS TYPE A-B

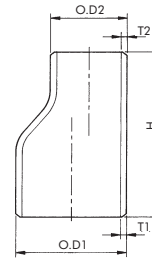
## DIMENSIONS (mm)

Nom Pipe Size	Outside Diam. (OD)	Wall Thickness (T)				Diam. of Lap (G)	Length F		Radius R	
		Sch. 5S	Sch. 10S	Sch. 40S	Sch. 80S		ANSI	MSS	Type A (Max)	Type B (Max)
15	21.34	1.65	2.11	2.77	3.73	34.93	76.20	50.80	3.30	0.76
20	26.67	1.65	2.11	2.87	3.91	42.88	76.20	50.80	3.30	0.76
25	33.40	1.65	2.77	3.38	4.55	50.80	101.60	50.80	3.30	0.76
32	42.16	1.65	2.77	3.56	4.85	63.50	101.60	50.80	4.83	0.76
40	48.26	1.65	2.77	3.68	5.08	73.02	101.60	50.80	6.35	0.76
50	60.32	1.65	2.77	3.91	5.54	92.07	152.40	63.50	7.87	0.76
65	73.02	2.11	3.05	5.16	7.01	104.77	152.40	63.50	7.87	0.76
80	88.90	2.11	3.05	5.49	7.62	127.00	152.40	63.50	9.65	0.76
100	114.30	2.11	3.05	6.02	8.56	157.18	152.40	76.20	11.18	0.76
125	141.30	2.77	3.40	6.55	9.53	185.75	203.20	76.20	11.18	1.52
150	168.27	2.77	3.40	7.11	10.97	215.90	203.20	88.90	12.70	1.52
200	219.08	2.77	3.76	8.18	12.70	269.88	203.20	101.60	12.70	1.52
250	273.05	3.40	4.19	9.27	12.70	323.85	254.00	127.00	12.70	1.52
300	323.85	3.96	4.57	9.53	12.70	381.00	254.00	152.40	12.70	1.52

# BUTTWELD FITTINGS



CONCENTRIC, ECCENTRIC REDUCERS



DIMENSIONS (mm)

Nominal Pipe Size	Outside Diam. OD <sup>1</sup>	Outside Diam. OD <sup>2</sup>	Wall Thickness								Length H
			Sch. 5S		Sch. 10S		Sch. 40S		Sch. 80S		
			T <sup>1</sup>	T <sup>2</sup>	T <sup>1</sup>	T <sup>2</sup>	T <sup>1</sup>	T <sup>2</sup>	T <sup>1</sup>	T <sup>2</sup>	
20 x 15	26.67	21.34	1.65	1.65	2.11	2.11	2.87	2.77	3.91	3.73	38.10
25 x 15	33.40	21.34	1.65	1.65	2.77	2.11	3.38	2.77	4.55	3.73	50.80
25 x 20	33.40	26.67	1.65	1.65	2.77	2.11	3.38	2.87	4.55	3.91	50.80
32 x 25	42.16	33.40	1.65	1.65	2.77	2.77	3.56	3.38	4.85	4.55	50.80
40 x 15	48.26	21.34	1.65	1.65	2.77	2.11	3.68	2.77	5.08	3.73	63.50
40 x 20	48.26	26.67	1.65	1.65	2.77	2.11	3.68	2.87	5.08	3.91	63.50
40 x 25	48.26	33.40	1.65	1.65	2.77	2.77	3.68	3.38	5.08	4.55	63.50
40 x 32	48.26	42.16	1.65	1.65	2.77	2.77	3.68	3.56	5.08	4.85	63.50
50 x 20	60.32	26.67	1.65	1.65	2.77	2.11	3.91	2.87	5.54	3.91	76.20
50 x 25	60.32	33.40	1.65	1.65	2.77	2.77	3.91	3.38	5.54	4.55	76.20
50 x 32	60.32	42.16	1.65	1.65	2.77	2.77	3.91	3.56	5.54	4.85	76.20
50 x 40	60.32	48.26	1.65	1.65	2.77	2.77	3.91	3.68	5.54	5.08	76.20
65 x 25	73.02	33.40	2.11	1.65	3.05	2.77	5.16	3.38	7.01	4.55	88.90
65 x 32	73.02	42.16	2.11	1.65	3.05	2.77	5.16	3.56	7.01	4.85	88.90
65 x 40	73.02	48.26	2.11	1.65	3.05	2.77	5.16	3.68	7.01	5.08	88.90
65 x 50	73.02	60.32	2.11	1.65	3.05	2.77	5.16	3.91	7.01	5.54	88.90
80 x 40	88.90	48.26	2.11	1.65	3.05	2.77	5.49	3.68	7.62	5.08	88.90
80 x 50	88.90	60.32	2.11	1.65	3.05	2.77	5.49	3.91	7.62	5.54	88.90
80 x 65	88.90	73.02	2.11	2.11	3.05	3.05	5.49	5.16	7.62	7.01	88.90
100 x 50	114.30	60.32	2.11	1.65	3.05	2.77	6.02	3.91	8.56	5.54	101.60
100 x 65	114.30	73.02	2.11	2.11	3.05	3.05	6.02	5.16	8.56	7.01	101.60
100 x 80	114.30	88.90	2.11	2.11	3.05	3.05	6.02	5.49	8.56	7.62	101.60
125 x 80	141.30	88.90	2.77	2.11	3.40	3.05	6.55	5.49	9.53	7.62	127.00
125 x 100	141.30	114.30	2.77	2.11	3.40	3.05	6.55	6.02	9.53	8.56	127.00
150 x 80	168.27	88.90	2.77	2.11	3.40	3.05	7.11	5.49	10.97	7.62	139.70
150 x 100	168.27	114.30	2.77	2.11	3.40	3.05	7.11	6.02	10.97	8.56	139.70
150 x 125	168.27	141.30	2.77	2.77	3.40	3.40	7.11	6.55	10.97	9.53	139.70
200 x 100	219.08	114.30	2.77	2.11	3.76	3.05	0.18	6.02	12.70	8.56	152.40
200 x 125	219.08	141.30	2.77	2.77	3.76	3.40	0.18	6.55	12.70	9.53	152.40
200 x 150	219.08	168.27	2.77	2.77	3.76	3.40	0.18	7.11	12.70	10.97	152.40
250 x 150	273.05	168.27	3.40	2.77	4.19	3.40	9.27	7.11	12.70	10.97	177.80
250 x 200	273.05	219.08	3.40	2.77	4.19	3.76	9.27	8.18	12.70	12.70	177.80
300 x 200	323.85	219.08	3.96	2.77	4.57	3.76	9.53	8.18	12.70	12.70	203.20
300 x 250	323.85	273.05	3.96	3.40	4.57	4.19	9.53	9.27	12.70	12.70	203.20

# FLANGES



OneSteel offers a range of Stainless Steel Flanges to both American and Australian standards. Material grades include 304L and 316L.

## MATERIAL SPECIFICATIONS

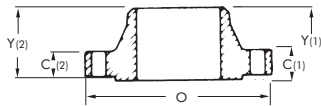
American standard (ANSI) flanges comply with ASTM A182 (latest edition), which is the standard specification for forged or rolled alloy-steel pipe flanges. This standard specifies the chemical and mechanical requirements as well as manufacturing and test procedures.

Australian Standard (AS2129) plate flanges generally comply with ASTM A240.

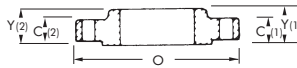
## DIMENSIONAL SPECIFICATIONS

American Standard (ANSI) flanges comply with ASME/ANSI B16.5

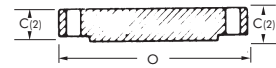
Dimensions for Australian Standard plate flanges are specified in AS 2129. The bore (inside diameter) of stock flanges is sized to suit stainless steel pipe to American Standards. AS 2129 flanges may also be sized to suit OD tube diameters and are available to order.



WELDING NECK FLANGE



SLIP-ON FLANGE



BLIND FLANGES UP TO DN600

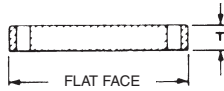
## ANSI FLANGES

Nom Size mm ⊕ DN	PN20 (CLASS 150)							PN50 (CLASS 300)						
	Diam. of Fig 0	Thickness of Fig. Min C(1)*	Length Thru Hub		Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolts	Diam. of Fig 0	Thickness of Fig. Min C(1)*	Length Thru Hub		Diam. of Bolt Circle	Diam. of Bolt Holes	No. of Bolts
			Thrd Slipon Soc/Weld Y(1)*	Weld Neck Y(1)*						Thrd Slipon Soc/Weld Y(1)*	Weld Neck Y(1)*			
15	90	11.5	16	48	60.5	16	4	95	14.5	22	52	66.5	16	4
20	100	13.0	16	52	70.0	16	4	120	16.0	25	57	82.5	20	4
25	110	14.5	17	56	79.5	16	4	125	17.5	27	62	89.0	20	4
32	120	16.0	21	57	89.0	16	4	135	19.5	27	65	98.5	20	4
40	130	17.5	22	62	98.5	16	4	155	21.0	30	68	114.5	22	4
50	150	19.5	25	64	120.5	20	4	165	22.5	33	70	127.0	20	8
65	180	22.5	29	70	139.5	20	4	190	25.5	38	76	149.0	22	8
80	190	24.0	30	70	152.5	20	4	210	29.0	43	79	168.5	22	8
90	215	24.0	32	71	178.0	20	8	230	30.5	44	81	184.0	22	8
100	230	24.0	33	76	190.5	20	8	255	32.0	48	86	200.0	22	8
125	255	24.0	36	89	216.0	22	8	280	35.0	51	98	235.0	22	8
150	280	25.5	40	89	241.5	22	8	320	37.0	52	98	270.0	22	12
200	345	29.0	44	102	298.5	22	8	380	41.5	62	111	330.0	26	12
250	405	30.5	49	102	362.0	26	12	445	48.0	67	117	387.5	30	16
300	485	32.0	56	114	432.0	26	12	520	51.0	73	130	451.0	33	16
350	535	35.0	57	127	476.0	30	12	585	54.0	76	143	514.5	33	20
400	600	37.0	64	127	540.0	30	16	650	57.5	83	146	571.5	36	20
450	635	40.0	68	140	578.0	33	16	710	60.5	89	159	628.5	36	24
500	700	43.0	73	145	635.0	33	20	775	63.5	95	162	686.0	36	24
600	815	48.0	83	152	749.5	36	20	915	70.0	106	168	813.0	42	24

NOTES: 1. The 2mm Raised Face is included in thickness C(1) and length through hub Y(1). This applies to PN20 and PN50 Pressure Ratings.  
2. Always specify bore when ordering weldneck flanges.

# FLANGES

## AS 2129 PLATE FLANGES – DIMENSIONS



BLIND FLANGE

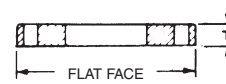


PLATE FLANGE SLIP ON WELD

### DIMENSIONS (mm)

Nominal Size  DN	TABLE D					TABLE E				
	FLANGE		DRILLING			FLANGE		DRILLING		
	OD mm	Thickness	Bolt Circle Diam. mm	No. of Bolts	Diam. of Bolts mm	OD mm	Thickness	Bolt Circle Diam. mm	No. of Bolts	Diam. of Bolts mm
		** T6 mm					** T6 mm			
15	95	5	67	4	M12	95	6	67	4	M12
20	100	5	73	4	M12	100	6	73	4	M12
25	115	5	83	4	M12	115	7	83	4	M12
32	120	6	87	4	M12	120	8	87	4	M12
40	135	6	98	4	M12	135	9	98	4	M12
50	150	8	114	4	M16	150	10	114	4	M16
65	165	8	127	4	M16	165	10	127	4	M16
80	185	10	146	4	M16	185	11	146	4	M16
100	215	10	178	4	M16	215	13	178	8	M16
125	255	13	210	8	M16	255	14	210	8	M16
150	280	13	235	8	M16	280	17	235	8	M20
200	335	13	292	8	M16	335	19	292	8	M20
250	405	16	356	8	M20	405	22	356	12	M20
300	455	19	406	12	M20	455	25	406	12	M24
350	525	22	470	12	M24	525	29	470	12	M24
400	580	22	521	12	M24	580	32	521	12	M24
450	640	25	584	12	M24	640	35	584	16	M24
500	705	29	641	16	M24	705	38	641	16	M24
600	825	32	756	16	M27	825	48	756	16	M30

NOTES: \*\* It is impractical to use flange thickness less than 12mm for Steel Plate Flanges

# SCREWED 150LB FITTINGS – BSP

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OneSteel stocks a comprehensive range of 150LB fittings for commercial and light industrial services.

## SPECIFICATIONS

There is no recognised international standard for this product although the majority of material imported into Australia is generally in accordance with the following:

## MATERIAL SPECIFICATIONS

Castings: Stainless Steel to ASTM A351, Grade 316, investment castings. Note that Grade 316 castings may exhibit slight magnetic properties. This is normal and does not indicate inferior material.

Tubulars: ASTM A312 Grade 316.

## DIMENSIONAL SPECIFICATIONS

Castings generally ANSI/ASME B16.3 (note this specification is for Malleable Iron pipe fittings, but has been adopted as a default standard by many manufacturers of 150LB fittings).

## THREADING

Generally in accordance with AS 1722, taper male threads and parallel female threads.

## PRESSURE

Nominal 1000 kPa working and 2000 kPa test.

## SIZE RANGE

Generally 6-50mm, with larger sizes available to order.

## RANGE

Elbows F&F (90 & 45 deg). Elbows M&F, Hex Nipples (equal and reducing), Plugs, Sockets (equal and reducing), Tees (equal and reducing), Bushes, Unions, Barrel Nipples, Pipe Nipples (male-male or male-plain).



# HIGH PRESSURE FITTINGS



OneSteel offers a range of High Pressure Fittings for both threaded and welded systems.

## MATERIAL SPECIFICATIONS

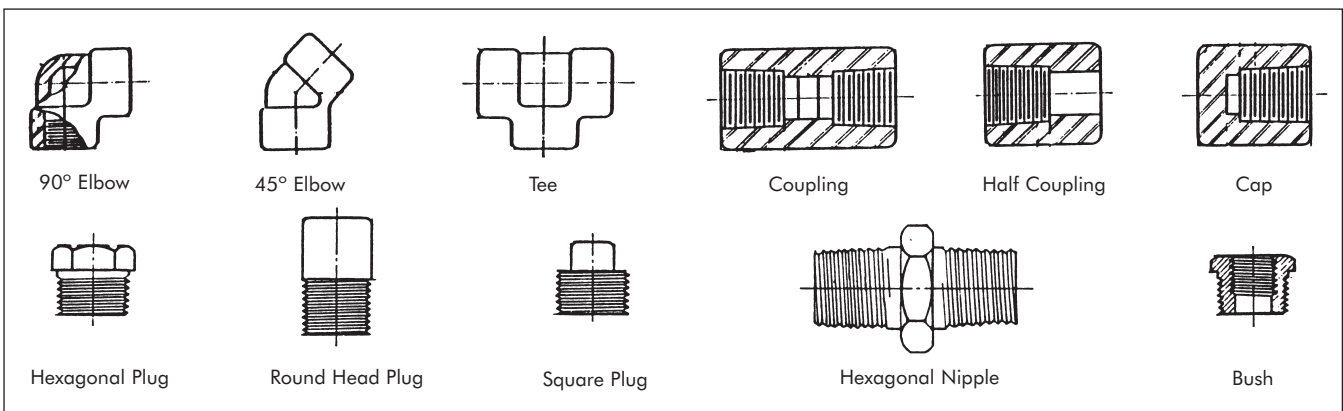
ASTM A182 (latest edition), Grade F316L. This specification covers forged fittings, while tubular fittings will generally conform to ASTM A312.

## DIMENSIONAL SPECIFICATIONS

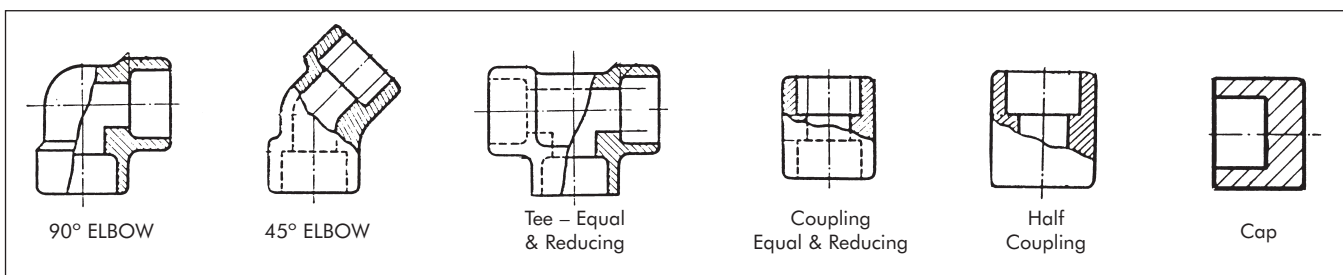
ANSI/ASME B16.11 - Forged Steel Fittings, Socket-weld and Threaded.

## RANGE

Standard Range: Screwed NPT. (BSP available to order).



Standard Range: Socket-weld



## SCREWED AND SOCKET-WELD

Screwed Fittings are taper-threaded in accordance with ASME B 1.20.1, having thread lengths in accordance with applicable tables. The actual and theoretical axes of the threads may diverge by not more than 1.6mm in 300mm.

Fittings can be threaded to British Standard Taper (BS 21) if required. ASME B 1.20.1, the American Standard for pipe threads, determines length of thread engagement.

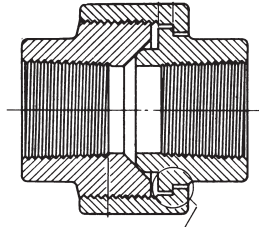
Socket-weld Fittings are designed for welding to American Standard pipes.

# HIGH PRESSURE FITTINGS

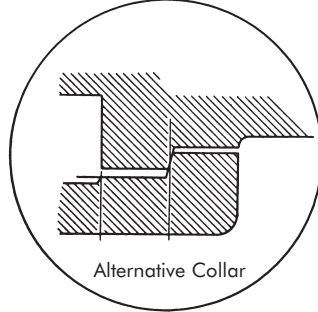
## UNIONS SCREWED & SOCKET-WELD

Dimensions for high pressure unions are listed in BS 3799. Dimensions may vary according to manufacturer's specifications.

### SCREWED UNIONS

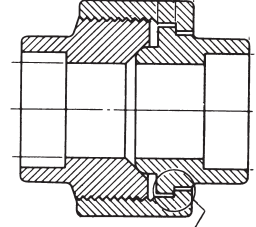


Alternative Collar



Alternative Collar

### SOCKET-WELD UNIONS

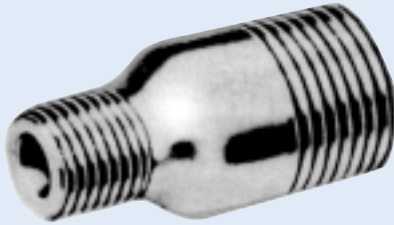


Alternative Collar

## TUBULAR FITTINGS

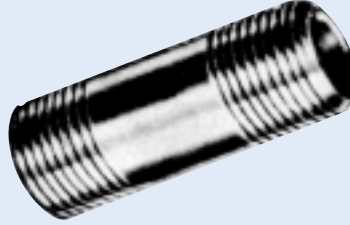
### SWAGE NIPPLES

Ends Screwed, Plain or Bevelled for Welding, Concentric and Eccentric.



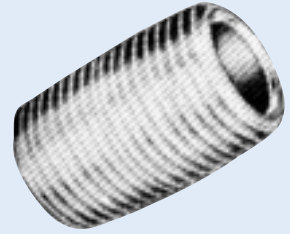
### PIPE NIPPLES

Seamless Tubular, Ends Screwed, Plain or Bevelled.

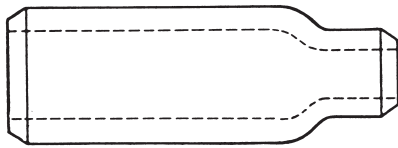


### CLOSE-TAPER NIPPLES

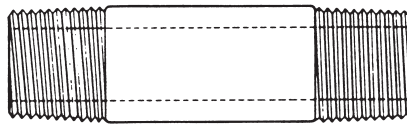
Seamless Tubular, Screwed.



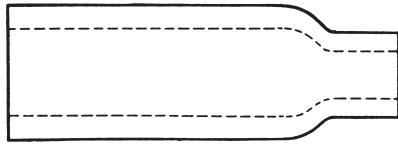
Swage and Pipe Nipples can also be supplied with non-standard end connections — e.g. One End Screwed, One End Bevelled, or One End Sch. 80, One End Sch. 40.



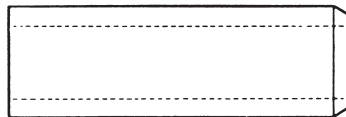
BUTTWELD TYPE



SCREWED TYPE

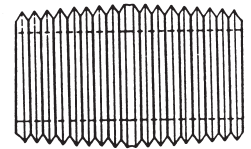


PLAIN END TYPE



PLAIN END

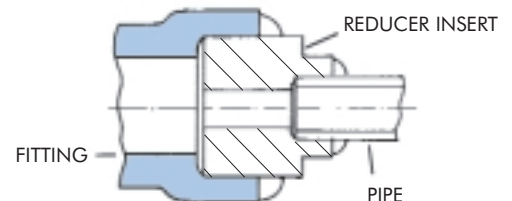
BEVEL END



OneSteel offers a range of Swage and Pipe Nipples in a wide variety of diameters, lengths and wall thicknesses. Please consult us for your individual requirements.

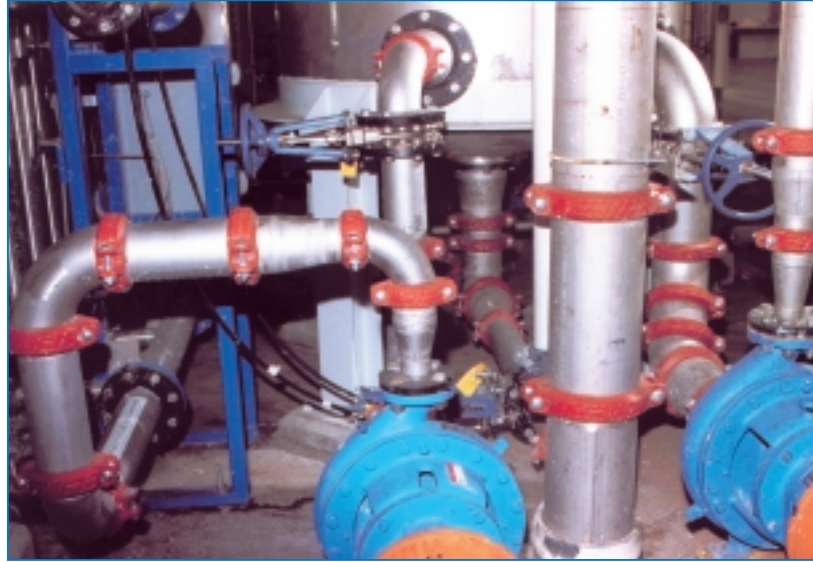
## SOCKET-WELD REDUCER INSERTS

The purpose of socket-weld reducer inserts is to avoid the delays and extra costs that naturally occur in producing regular socket-weld fittings with reduced outlets. Designed for use with straight size fittings, reducer inserts serve the same purpose as threaded bushings used with screwed fittings. The drawing at right illustrates the simplicity of their application.



# ROLL GROOVE STAINLESS SYSTEM

## FEATURES AND BENEFITS OF THE ROLL GROOVE SYSTEM



**Economical and Practical:-** Up to five times faster to install than welding, flanging or threading, the roll grooved system can reduce total installed costs 20 to 40%.

**Alignment Ease:-** The grooved system allows full rotation of pipe, valves, fittings or couplings before tightening for easy alignment. This compensates for some alignment errors.

**Easy System or equipment access:-** Removal of two couplings (just four bolts) provides access for cleaning, maintenance, system expansion or changes.

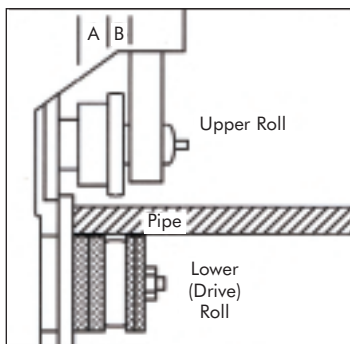
**Proven Joint Reliability:-** Full circumferential engagement of the housing into the groove provides end-pull strength. Couplings are available for working pressures to 2065 kPa.

### THE ROLL GROOVING CONCEPT

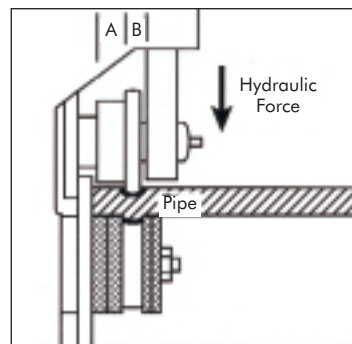
The concept of cold forming (rolling) a groove into pipe was developed in 1955. There are full range of tools that permits roll grooving of lightwall and standard weight stainless steel pipe. Roll grooving removes no metal; the groove is cold formed into the pipe wall.

Roll grooving tools are all designed to rotate the pipe as an upper roll is impressed into the pipe. The lower roll, in addition to driving the pipe, is the female die inside the pipe. The upper roll is the male die. The tools permit roll grooving of Schedule 40 size pipe through 250mm and standard wall up to 900mm wall thickness. Special stainless rolls ensure proper groove depth.

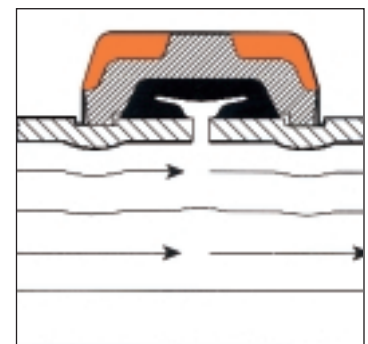
- Fast, clean, easy and removes no metal from the pipe.



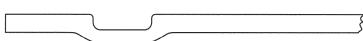
Vic-Easy tools cold form groove into pipe - maintains dimensions.



Roll grooving removes no metal from pipe



Inner dimple has virtually no effect on pressure drop



Standard Roll Groove on light wall pipe (For stainless steel and other IPS pipe)



Standard Roll Groove on Standard Weight (S-40) Pipe. (For stainless steel and other IPS pipe)

# ROLL GROOVE STAINLESS SYSTEM

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The Roll Groove system for stainless steel piping provides fast, easy, economical joining of Schedule 10S (5S and 40S optionally available) austenitic pipe for widely varied services.

Pipe conforming to ANSI B36.10 and B36.19 can be roll grooved. Fittings are supplied grooved to the same standards ready to install. Couplings are available for both rigid and flexible joints.

## The Grooved System

### 1. Housing

The housing fully encases the gasket, engaging into the pipe grooves around the full circumference. Standard material is stainless steel for externally corrosive environments and ductile iron for most services with other materials and various coatings available.

### 2. Gasket

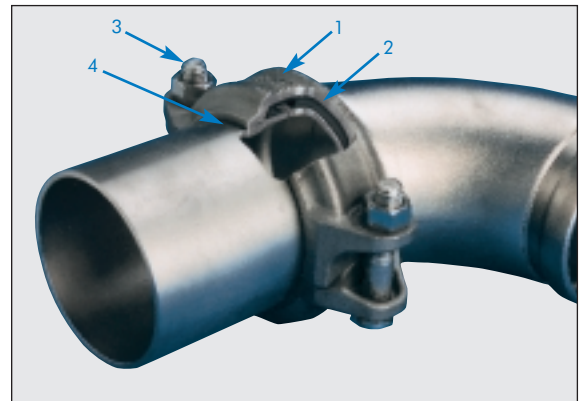
Provides sealing against pressure or vacuum, with varied compounds to handle most process services. Since only the gasket touches the media, many special gaskets can be used with standard couplings for material savings.

### 3. Nuts/Bolts

Only two bolts are required to secure the housings. Stainless steel couplings are provided with Type 316 trackhead bolts and nuts (depending on coupling); ductile couplings with plated ASTM-A183 track head bolts and nuts.

### 4. Groove

Roll grooving removes no metal, providing a formed groove suitable for Schedule 5 through ANSI standard wall thickness stainless steel (and others) field applied with hand, electric or hydraulic tools.



# ROLL GROOVE STAINLESS SYSTEM

## COUPLINGS FOR STAINLESS STEEL SYSTEMS

### Stainless Steel Butterfly Valve



Designed for 300 psi (2065 kPa) service in 50-300mm. The 316 S/S valve has an ISO top flange that will accept mounting of all major manual and power actuators. The series 763 also features a variety of available seat options that include EPDM, nitrile, fluorelastomer, and lubricated nitrile. The valve is bi-directional and is capable of bi-directional dead-end service.

### Stainless Steel Rigid Coupling



Offered 50-300mm sizes in grade 316 S/S, this 300 psi coupling provides rigidity. The housing key is designed to "clamp" the bottom of the groove thereby assuring a rigid joint. The coupling will greatly reduce linear or angular movement and is useful for valve connections and other points where rigidity may be required.

### Galvanized Rigid Coupling



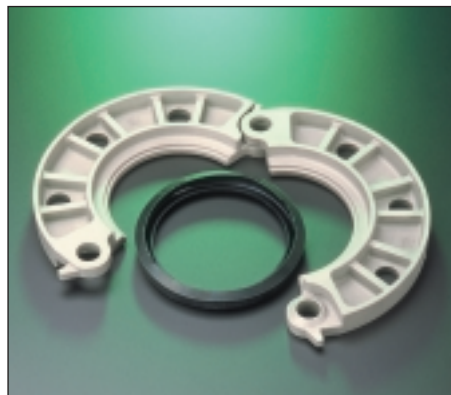
This coupling is made of ductile iron and is specifically designed for 50-300mm stainless systems.

Matching the performance characteristics of the stainless coupling, These couplings can be used where the external environment is not corrosive.

Since only the gasket is exposed to the media this ductile iron coupling can be used without fear of dielectric corrosion. They are available with either painted or galvanised finishes. Carbon or stainless steel bolts are available.

**Note:** Gasket materials are available to meet most service requirements.

### Stainless Steel Flange Adapter



This stainless flange adapter is available in 50-200mm

Designed for connection to ANSI Class 150 raised face flanges, these adapters provide a fast simple transition from flanged equipment and components to the grooved system.



### ASTM A-403 STAINLESS STEEL FITTINGS

Stainless steel fittings are roll grooved Schedule 10S Type 304L and 316L manufactured from materials conforming to ASTM A-403. Offered in sizes from 50-300mm, fittings are optionally available in Schedule 10 and 40. Fittings currently available include:

- 90 and 45 degree elbows
- Straight and reducing tees
- Concentric and eccentric reducers
- Caps with boss
- Laterals wyes and speciality fittings available on request

Fittings are supplied grooved to speed installation. The pressure ratings for stainless steel fittings are dictated by the coupling used to install the fittings.

# STAINLESS STEEL VALVES

OneSteel offers a wide range of Stainless Steel Valves for Isolation, Regulation and Flow Control in Stainless Steel Piping Systems. Our Standard Valve types include Gate, Globe, Check, Ball, Butterfly, Knifegate valves and Line Strainers. Valves may be obtained with manual, pneumatic or electric actuators. The following pages provide a brief overview of our typical stock range.



## Kitz Gate, Globe, Check Valves

- Pressure Classes ANSI 150 to 1500.
- Size Range 15-600mm.
- End Connections – threaded NPT or flanged ANSI 150 through 1500.



## Vaas Knifegate Valves

- Model 940-50 to 600mm.
- Max W.P. 1000 kPa.
- End Connections flangeless or lugged to Australian or ANSI standards.



## Emico 2-piece Ball Valves

- Size range 15-200mm.
- Flanged ANSI 150.
- Firesafe and non-firesafe designs.
- 2 piece body, full bore.

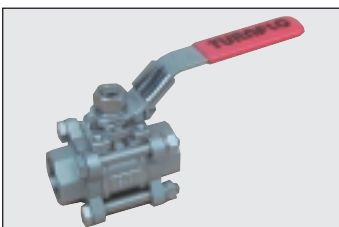
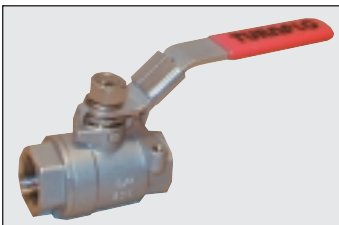
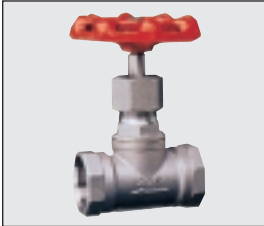


## Emico Firesafe Ball Valves

- 3 piece body, full port, Firesafe.
- Size Range 8-50mm.

# STAINLESS STEEL VALVES

## Turnflo Stainless Steel Valves



### SGA Gate Valve

- Screwed Bonnet NRS, Screwed BSP
- ASTM A351 CF8M
- 1400 kPa Working Pressure WOG at 180°C
- Size Range 8-80mm

### SGL Globe Valve

- Screwed Bonnet, Rising Stem, Screwed BSP
- ASTM A351 CF8M
- 1400 kPa Working Pressure WOG at 180°C
- Size Range 8-50mm

### SSC Swing Check Valve

- Screwed Bonnet, Screwed BSP
- ASTM A351 CF8M
- 1400 kPa Working Pressure WOG at 180°C
- Size Range 8-80mm

### SYS Strainer

- Ends Screwed BSP
- Pressure and Temperature rating
- Steam: 4000 kPa @ 450°C
- Water, Oil, Gas: 9400 kPa @ 38°C
- Size Range 10-50mm

### SB1 1 piece Ball Valve

- Pressure rated to 5500 kPa @ 110°C
- Regular Port
- Screwed BSP
- Locking Lever
- Size Range 8-50mm

### SB2 Ball Valve 2 piece Ball Valve

- Pressure rated to 6890 kPa @ 110°C
- Full Port
- Screwed BSP
- Locking Lever
- Mounting Pad for Actuator
- Size Range 8-50mm

### SB3 3 piece Ball Valve

- Pressure rated 8-50mm 6890 kPa @ 80°C
- Full Port
- Size Range 8-80mm
- Screwed BSP – (Alternatively B/W or S/W ends)
- Optional carbon-filled seats
- Drop-out body
- Locking Lever

# SPIRAL WELDED PIPING

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OneSteel offers a comprehensive range of Spirally Welded Pipe and Fittings for low pressure fluid services including mining, air conditioning, water reticulation and a variety of process piping applications.

## Size Range

76mm to 1500mm diameter

## Pipe Thickness

1.2mm to 5mm

## Pipe Length

Standard 3m and 6m or made to order

## Materials

Stainless steel type 304, 321, 316, Mild Steel, Aluminium 3CR 12 & 5CR 12.

## Welding Process

M.I.G. or T.I.G

## Joining Methods

Flanged using standard angle iron or table flange. Buttweld and collar. Shouldered ends & Couplings.  
Grooved ends & Couplings.

## Fittings & Accessories

Comprehensive range of standard and custom-made fittings.

## Typical Applications

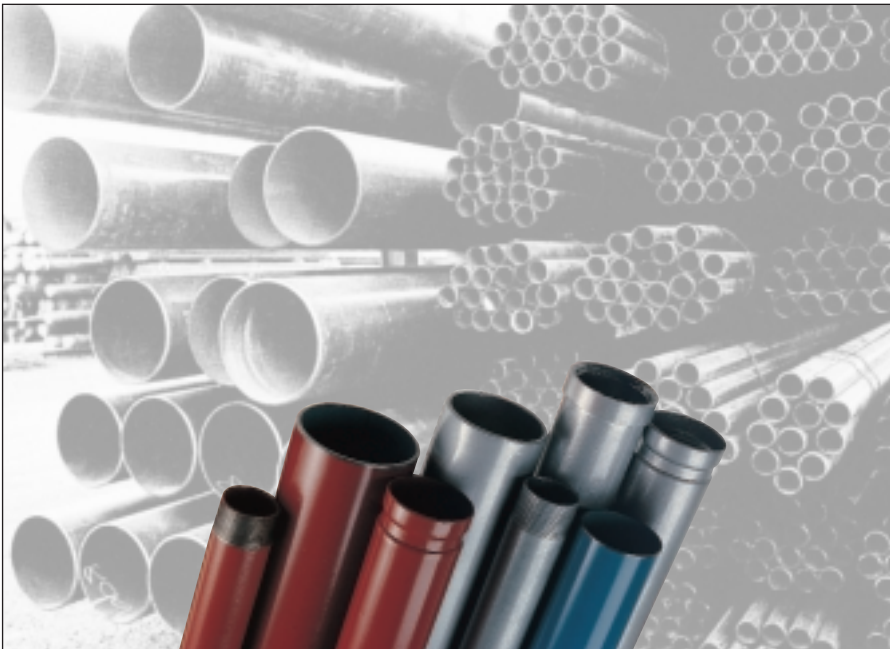
- Condenser Water
- Dust Collection Systems
- Boiler Flues
- Pneumatic Conveying
- High Pressure Air Lines
- Diesel Exhaust
- Fire Mains (Sprinkler Piping)
- Augers
- Water Supply Lines/Water Reticulation



# YOUR TOTAL PIPING PACKAGE

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The OneSteel Stainless Steel package is part of our vast range of pipes, fittings and valves for the process industry. You may now call on OneSteel for your piping requirements in carbon and alloy steels, stainless steel, cast iron and various plastics. We are Australia's largest stockist of piping products, with over 100 locations throughout the country.



In addition, we offer complementary packages for the construction and process industries in cooperation with other members of the OneSteel group. We are able to offer products and solutions in structural steel and tube, sheet and coil, aluminium and reinforcing products together with our Piping Systems package.

*With the addition of stainless steel products we believe that OneSteel now offers our customers a Total Piping Package.*

# STAINLESS STEEL GLOSSARY

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The Stainless Steel Glossary is to be used as a reference guide only. It contains explanations of terms commonly used in the Stainless Steel family.

## What is Stainless Steel?

Stainless Steel is a generic term for the corrosion resistant members of the steel family.

### Benefits include:

- Corrosion resistance
- High and low temperature resistance
- Ease of fabrication
- Strength

The Stainless Steel family can be simply grouped into five (5) basic categories:

### Austenitic Stainless Steel:

The most popular group for piping systems components.

The Austenitic grades of Stainless Steel are typically non-magnetic if fully annealed. The basic elements added include chrome (Cr) and Nickel (Ni), which improve corrosion resistance and facilitate fabrication.

Most popular grades include: 316/316L, followed by 304/304L

("L" represents low carbon content, which improves weld-ability).

### Ferritic:

Not suited to piping systems, moderate corrosion resistance only.

Commonly used in household appliances, general building & architectural applications.

### Duplex:

Can also often be referred to as Ferritic-Austenitic Stainless Steel, as this group is a mix of Ferritic and Austenitic, making them resistant to stress corrosion cracking.

Commonly used where chloride is present and applications such as heat exchangers.

### Martensitic:

Not used for piping systems, except for valve stems and similar components. Containing a lower chrome (Cr) content with higher carbon (C).

Known for strength & hardness, typical applications include cutlery, shafts and spindles, such as those found in valves.

### Precipitation Hardening:

Stainless Steel supplied in treated solution suitable for machinability. Common applications include pump shafts and valve spindles.

# STAINLESS STEEL GLOSSARY

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## Alloy Steels:

A steel to which one or more elements have been added, in addition to carbon, to produce specific properties.

## Annealing:

The heating and cooling of steel for the purpose of removing stress, altering ductility or changing the physical and chemical properties.

## Corrosion:

Simply defined as the destruction of a metal or alloy by a mechanism which is basically electrochemical in nature. Rusting.

## Creep:

Metal subjected to high temperatures will be affected by deformation. The deformation extent is determined by the stress and temperature at the time.

## Galvanic Corrosion:

Bi-metal attack. When two or more dissimilar metals are connected or in contact.

## Passivating:

The treating of stainless steel by dipping in a dilute solution acid, such as nitric, to remove free iron from the surface and improve the corrosion resistance by forming a passive film on the surface.

## Pickling:

The immersion of a material in an acid solution for the purpose of removing oxide scale after annealing or heat treating.

## Polishing:

Usually associated with tube where the quality of the surface finish is to be improved. This is achieved by sanding or by electropolishing.



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Available from:

Available From:



### OneSteel Piping Systems

Adelaide	70 Grand Junction Road, Kilburn SA	08 8304 7510
Brisbane	285 Lavarack Avenue, Eagle Farm QLD	07 3860 3300
Darwin	Lot 889 Stuart Highway, Berrimah NT	08 8935 0350
Gladstone	Bensted Street, Gladstone QLD	07 4972 8033
Mackay	Cnr. Harbour Road & Spiller Avenue, North Mackay QLD	07 4955 1555
Melbourne	31-41 National Drive, Lyndhurst VIC	03 8795 2300
Newcastle	Creek Road, Wallsend NSW	02 4955 0622
Perth	1 Howson Way, Spearwood WA	08 9494 0900
Sydney	412-426 Victoria Street, Wetherill Park NSW	02 9756 1899
Townsville	387-399 Bayswater Road, Garbutt QLD	07 4775 5100
Wollongong	Five Islands Road, Wollongong NSW	02 4271 1788

[www.OneSteel.com](http://www.OneSteel.com)



### OneSteel Building Services

<b>National (Toll Free)</b>		<b>1300 553 473</b>
Adelaide	70 Grand Junction Road, Kilburn SA	08 8304 7570
Brisbane	Unit 5, 429 Creek Road, Mt Gravatt QLD	07 3420 4099
Melbourne	90 Turner Street, Port Melbourne VIC	03 8645 3222
Perth	1 Howson Way, Spearwood WA	08 9494 0989
Sydney	49 Elizabeth Street, Wetherill Park NSW	02 8788 5810

[www.OneSteelBuildingServices.com](http://www.OneSteelBuildingServices.com)

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