

# STAINLESS STEEL

## SAND CASTING & INVESTMENT CASTING

### FITTINGS

#### SCOPE

OUR CASTING PRODUCTS LINES INCLUDE:

- ELBOWS, TEES, STREET ELBOWS.
- CAPS, PLUGS, BUSHINGS
- SOCKETS, COUPLINGS
- NIPPLES.
- UNIONS.

#### STEEL GRADES

OUR FITTINGS ARE MANUFACTURED CONFORMING TO THE REQUIREMENTS OF

- ASTM A 351 Gr CF8 (304)
- ASTM A 351 Gr CF8M (316)
- SCS14, SCS13
- SUS-316L

#### THREADS

THREADS ON SCREWED FITTINGS ARE MADE IN ACCORDANCE TO:

- NPT-ANSI B2. 1
- BSPT, PT-BS 21, 1973
- DIN-DIN 2999.

#### DIMENSIONS

FITTINGS' DIMENSIONS ARE, UNLESS OTHERWISE SPECIFIED, CONFORMING TO:

- DIN 2986, 2987, 2988....
- ANSI B16.3, B16.4....

#### NOMINAL BORES

NOMINAL BORES IN FITTINGS ARE EXPRESSED IN "INCH" OR "MM" COMPARED AS BELOW:

INCH	1/8	1/4	3/8	1/2	3/4	1	1 1/4	1 1/2	2	2 1/2	3	4
MM	6	8	10	15	20	25	32	40	50	65	80	100

#### PRESSURE

150 LBS

#### MARKINGS

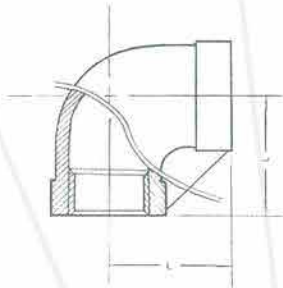
EACH FITTING IS MARKED WITH

- NOMINAL DIMENSION
- STEEL GRADE
- PRESSURE
- LOGO (OPTIONAL)
- HEAT NO. (OPTIONAL)
- TAIWAN (OPTIONAL)

#### REMARKS

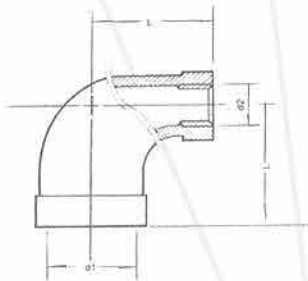
ANY OTHER TYPE STAINLESS STEEL CASTING ITEMS RE WELCOME PROVIDED SPECIFICATION DRAWINGS... ARE GIVEN.

### ELBOW 90°



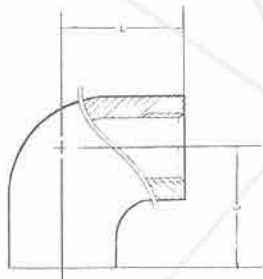
NOMINAL BORE	L mm	NOMINAL BORE	L mm
1/8	16	1 1/4	45
1/4	19	1 1/2	49
3/8	25	2	57
1/2	28	2 1/2	69
3/4	32	3	78
1	39	4	96

### ELBOW REDUCED



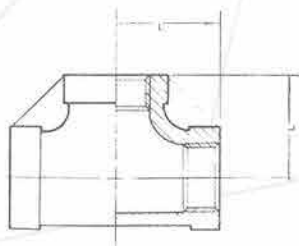
NOM. BORE d1	NOM. BORE d2	L1 mm	L2 mm	NOM. BORE d1	NOM. BORE d2	L1 mm	L2 mm
1/4	1/8	20	20	1 1/4	3/4	36	41
3/8	1/4	23	23	1 1/4	1	40	42
1/2	3/8	26	26	1 1/2	1	42	46
3/4	3/8	28	28	1 1/2	1 1/4	46	48
3/4	1/2	30	31	2	1 1/4	52	55
1	1/2	32	34	-	-	-	-
1	3/4	35	36	-	-	-	-

### ELBOW PLAIN



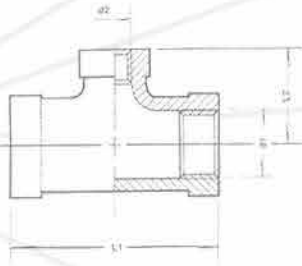
NOMINAL BORE	L mm	NOMINAL BORE	L mm
1/8	19	1 1/4	45
1/4	21	1 1/2	50
3/8	25	2	58
1/2	28	-	-
3/4	33	-	-
1	38	-	-

### TEE BANDED



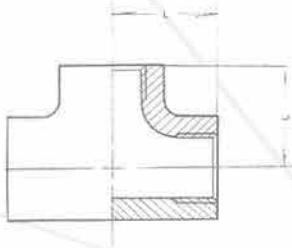
NOMINAL BORE	L mm	NOMINAL BORE	L mm
1/8	16	1 1/4	45
1/4	19	1 1/2	49
3/8	25	2	57
1/2	28	2 1/2	69
3/4	32	3	78
1	39	4	96

## TEE REDUCED



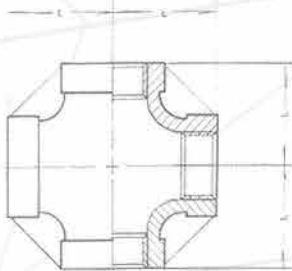
NOM. BORE		L1 mm	L2 mm	NOM. BORE		L1 mm	L2 mm
d1	d2			d1	d2		
1/4	1/8	39	20	1 1/4	1	80	42
3/8	1/8	46	20	1 1/2	1/2	68	42
3/8	1/4	46	23	1 1/2	3/4	76	44
1/2	1/4	52	23	1 1/2	1	80	46
1/2	3/8	52	26	1 1/2	1 1/4	88	48
3/4	3/8	56	28	2	3/4	80	50
3/4	1/2	60	31	2	1	88	52
1	1/2	64	34	2	1 1/4	96	54
1	3/4	70	35	2	1 1/2	104	55
1 1/4	1/2	66	40	-	-	-	-
1 1/4	3/4	75	40	-	-	-	-

## TEE PLAIN



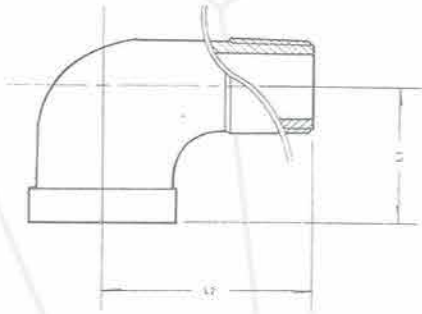
NOMINAL BORE	L mm	NOMINAL BORE	L mm
1/8	19	1 1/4	45
1/4	21	1 1/2	50
3/8	25	2	58
1/2	28	-	-
3/4	33	-	-
1	38	-	-

## CROSS



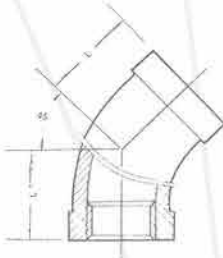
NOMINAL BORE	L mm	NOMINAL BORE	L mm
1/8	16	1 1/4	45
1/4	19	1 1/2	49
3/8	25	2	57
1/2	28	2 1/2	69
3/4	32	3	78
1	39	4	96

## STREET ELBOW



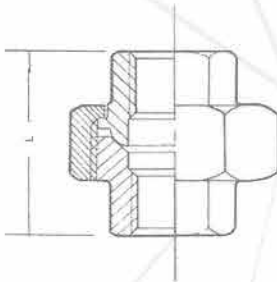
NOMINAL BORE	L1 mm	L2 mm	NOMINAL BORE	L1 mm	L2 mm
1/8	17	25	1 1/4	44	63
1/4	20	30	1 1/2	48	73
3/8	24	37	2	57	77
1/2	28	41	-	-	-
3/4	33	48	-	-	-
1	36	55	-	-	-

## ELBOW 45°



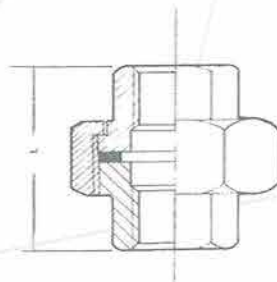
NOMINAL BORE	L mm	NOMINAL BORE	L mm
1/8	18	1 1/4	33
1/4	19	1 1/2	36
3/8	20	2	42
1/2	22	-	-
3/4	25	-	-
1	28	-	-

## UNION CONICAL, F/F



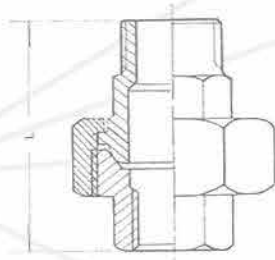
NOMINAL BORE	L mm	NOMINAL BORE	L mm
1/8	31	1 1/4	60
1/4	34	1 1/2	65
3/8	39	2	72
1/2	41	-	-
3/4	49	-	-
1	52	-	-

## UNION FLAT, F/F



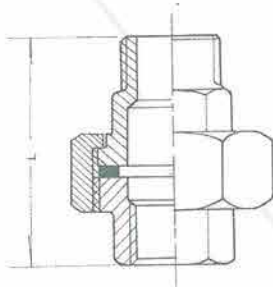
NOMINAL BORE	L mm	NOMINAL BORE	L mm
1/8	31	1 1/4	60
1/4	34	1 1/2	65
3/8	39	2	72
1/2	41	-	-
3/4	49	-	-
1	52	-	-

### UNION CONICAL, M/F



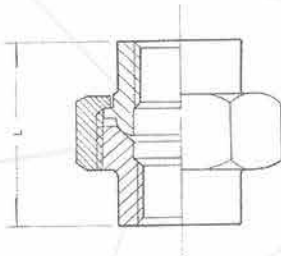
NOMINAL BORE	L mm	NOMINAL BORE	L mm
-	-	1¼	77
¼	53	1½	82
⅜	57	2	95
½	57	2½	112
¾	62	3	125
1	69	-	-

### UNION FLAT, M/F



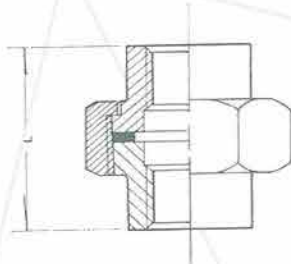
NOMINAL BORE	L mm	NOMINAL BORE	L mm
-	-	1¼	77
¼	53	1½	82
⅜	57	2	95
½	57	2½	112
¾	62	3	125
1	69	-	-

### UNION CONICAL, F/F (O.D MACHINED)



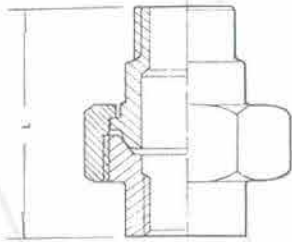
NOMINAL BORE	L mm	NOMINAL BORE	L mm
⅛	-	1¼	55
¼	34	1½	60
⅜	36	2	67
½	40	2½	78
¾	43	3	90
1	51	4	-

### UNION FLAT, F/F (O.D MACHINED)



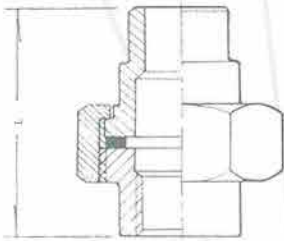
NOMINAL BORE	L mm	NOMINAL BORE	L mm
⅛	-	1¼	55
¼	34	1½	60
⅜	36	2	67
½	40	2½	78
¾	43	3	90
1	51	4	-

### UNION CONICAL, M/F (O.D. MACHINED)



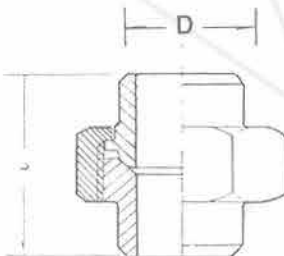
NOMINAL BORE	L mm	NOMINAL BORE	L mm
-	-	1¼	77
¼	42	1½	84
⅜	54	2	90
½	57	2½	100
¾	61	3	126
1	68	-	-

### UNION FLAT, M/F (O.D. MACHINED)



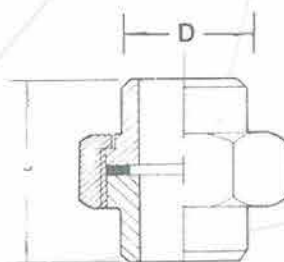
NOMINAL BORE	L mm	NOMINAL BORE	L mm
-	-	1¼	77
¼	42	1½	84
⅜	54	2	90
½	57	2½	100
¾	61	3	126
1	68	-	-

### UNION CONICAL, B/W



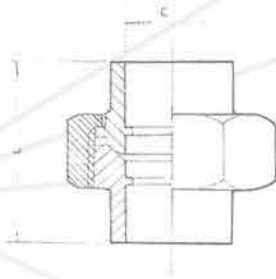
NOMINAL BORE	D mm	L mm	NOMINAL BORE	D mm	L mm
-	-	-	1¼	42.4	56
¼	13.5	39	1½	48.3	68
⅜	17.2	40	2	60.3	75
½	21.3	41	2½	76.1	85
¾	26.9	46	3	88.9	96
1	33.7	49	-	-	-

### UNION FLAT, B/W



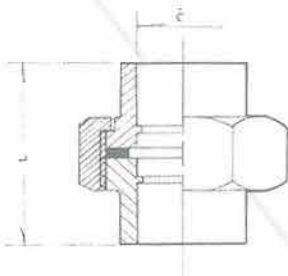
NOMINAL BORE	D mm	L mm	NOMINAL BORE	D mm	L mm
-	-	-	1¼	42.4	56
¼	13.5	39	1½	48.3	68
⅜	17.2	40	2	60.3	75
½	21.3	41	2½	76.1	85
¾	26.9	46	3	88.9	96
1	33.7	49	-	-	-

### UNION CONICAL, S/W (O.D. MACHINED)



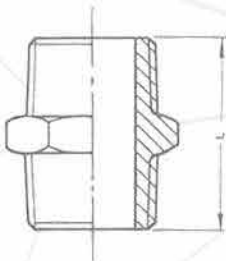
NOMINAL BORE	L mm	C mm	NOMINAL BORE	L mm	C mm
-	-	-	1¼	55	42.40
1/4	34	14.00	1½	60	48.50
3/8	36	17.40	2	67	60.60
1/2	40	21.60	2½	78	73.30
3/4	43	26.90	3	90	89.20
1	51	33.70	-	-	-

### UNION FLAT, S/W (O.D. MACHINED)



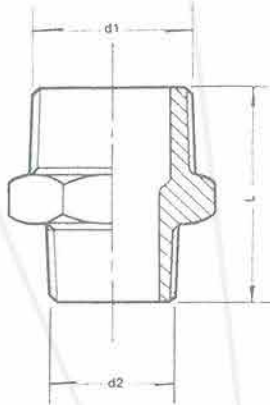
NOMINAL BORE	L mm	C mm	NOMINAL BORE	L mm	C mm
-	-	-	1¼	55	42.40
1/4	34	14.00	1½	60	48.50
3/8	36	17.40	2	67	60.60
1/2	40	21.60	2½	78	73.30
3/4	43	26.90	3	90	89.20
1	51	33.70	-	-	-

### HEXAGON NIPPLE



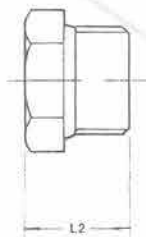
NOMINAL BORE	L mm	NOMINAL BORE	L mm
1/8	22	1¼	54
1/4	30	1½	54
3/8	31	2	65
1/2	39	2½	72
3/4	44	3	81
1	50	-	-

## HEXAGON NIPPLE, REDUCED



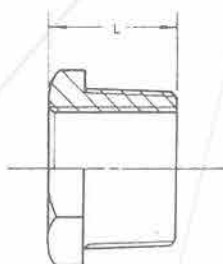
NOM. BORE		L mm	NOM. BORE		L mm
d1	d2		d1	d2	
1/4	1/8	29	1 1/4	1	49
3/8	1/8	30	1 1/2	1/2	50
3/8	1/4	33	1 1/2	3/4	51
1/2	1/8	33	1 1/2	1	52
1/2	1/4	36	1 1/2	1 1/4	56
1/2	3/8	37	2	1/2	53
3/4	1/4	38	2	3/4	54
3/4	3/8	39	2	1	55
3/4	1/2	44	2	1 1/4	59
1	1/8	38	2	1 1/2	65
1	1/4	41	2 1/2	1 1/2	
1	3/8	42	2 1/2	1 1/2	
1	1/2	45	3	2	
1	3/4	46	3	2 1/2	
1 1/4	1/2	48	4	2	
1 1/4	3/4	48	4	3	

## HEXAGON PLUGS



NOMINAL BORE	L mm	NOMINAL BORE	L mm
1/8	18	1 1/4	29
1/4	18	1 1/2	32
3/8	19	2	36
1/2	22	2 1/2	43
3/4	27	3	48
1	27	4	58

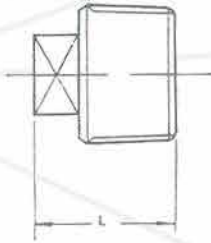
## HEXAGON BUSHING



NOMINAL BORE		L mm	NOMINAL BORE		L mm
d1	d2		d1	d2	
-	-	-	1 1/4	1/2~1	29
1/4	1/8	18	1 1/2	1/2~1 1/4	32
3/8	1/8~1/4	19	2	1/2~1 1/2	35
1/2	1/8~3/8	22	2 1/2	1~2	43
3/4	1/8~1/2	24	3	1 1/4~2 1/2	48
1	1/8~3/4	27	4	2~3	58

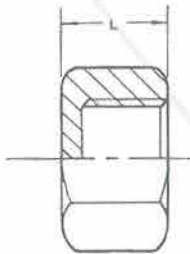


## SQUARE PLUG



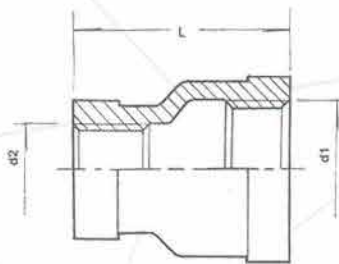
NOMINAL BORE		L mm	NOMINAL BORE		L mm
1/8		17	1 1/4		37
1/4		21	1 1/2		37
3/8		23	2		42
1/2		24	2 1/2		47
3/4		28	3		52
1		35	4		63

## HEXAGON CAP



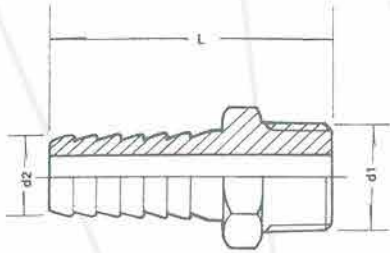
NOMINAL BORE		L mm	NOMINAL BORE		L mm
1/8		13	1 1/4		27
1/4		15	1 1/2		27
3/8		17	2		32
1/2		19	2 1/2		35
3/4		22	3		38
1		24	4		45

## SOCKET REDUCED, PLAIN (RED, COUPLING)

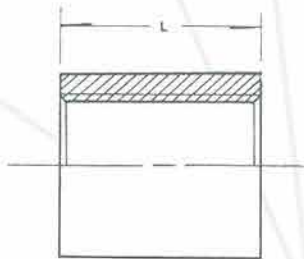


NOMINAL BORE		L mm	NOMINAL BORE		L mm
d1	d2		d1	d2	
-	-	-	1 1/4	1/2 ~ 1	48
1/4	1/8	27	1 1/2	1/2 ~ 1 1/4	52
3/8	1/8 ~ 1/4	28	2	1/2 ~ 1 1/2	58
1/2	1/8 ~ 3/8	34	2 1/2	1 ~ 2	-
3/4	1/8 ~ 1/2	38	3	1 1/2 ~ 2 1/2	-
1	1/4 ~ 3/4	42			

## HEX. HOSE NIPPLE

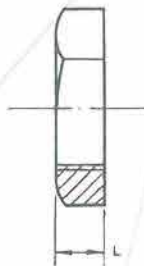


d1	d2	L mm	d1	d2	L mm
1/8	7	40	3/4	14	70
1/4	7	40	3/4	16	70
1/4	9	47	3/4	20	70
1/4	11	54	1	20	74
1/4	14	40	1	26	74
3/8	9	54	1 1/4	33	82
3/8	11	54	1 1/2	39	95
3/8	14	43	1 1/2	46	95
1/2	14	65	2	51	105
1/2	15	65	2	57	105



## SOCKET, O.D. MACHINED PLAIN (COUPLING)

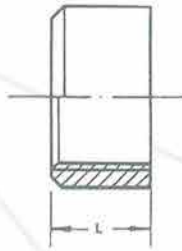
NOM. BORE	L mm DIN	L mm AS	NOM. BORE	L mm DIN	L mm AS
1/8	17	20	1 1/4	48	51
1/4	25	27	1 1/2	48	51
3/8	26	28	1	56	60
1/2	34	36	2 1/4	65	69
3/4	36	39	3	71	76
1	43	46	4	83	88



## LOCK NUT (BACK NUT)

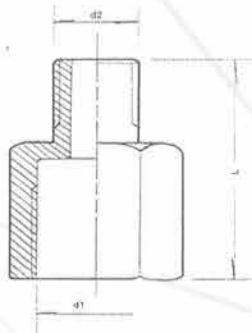
NOMINAL BORE	L mm	NOMINAL BORE	L mm
1/8	6	1 1/4	11
1/4	6	1 1/2	12
3/8	7	2	13
1/2	8	2 1/2	16
3/4	9	3	19
1	10	4	22

### HALF-SOCKET, O.D. MACHINED (HALF COUPLING)



NOM. BORE	L mm DIN	L mm AS	NOM. BORE	L mm DIN	L mm AS
1/8	9	11	1 1/4	22	24
1/4	11	12	1 1/2	22	26
3/8	12	13	1	26	30
1/2	15	16	2 1/4	30	33
3/4	17	18	3	33	36
1	19	21	4	40	43

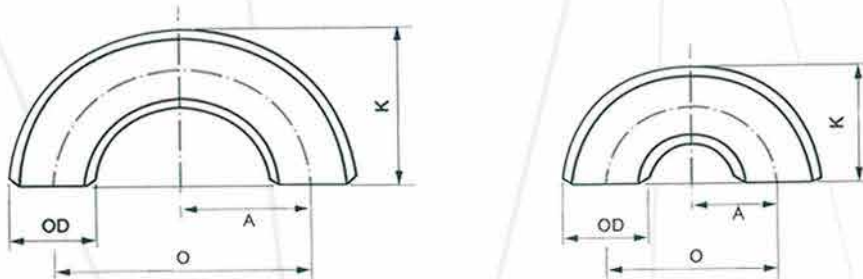
### HEXAGON ADAPTER



NOM. BORE		L mm	NOM. BORE		L mm
d1	d2		d1	d2	
1/8	1/8	22	3/4	1/8	
1/4	1/8	27	3/4	1/4	
1/4	1/4	21	3/4	3/8	
3/8	1/8	27	3/4	1/2	
3/8	1/4	31	1	1/2	
3/8	3/8	31	1	3/4	
1/2	1/4	37			
1/2	3/8	37			
1/2	1/2				

# TECHNICAL PARAMETERS

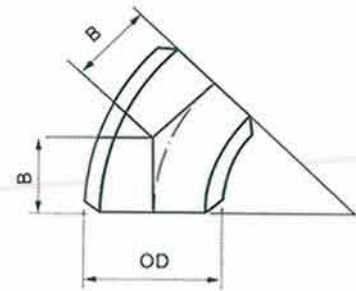
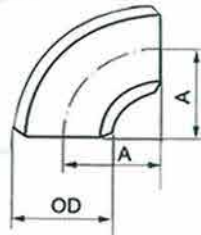
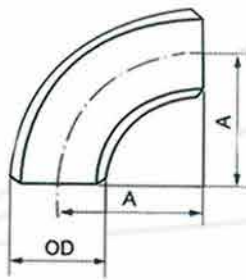
Wrought Steel Buttwelding Fittings(ASME)  
Long and Short Radius Returns



ANSI B16.9, B16.28

Nominal pipe size(NPS)	Outside Diameter at bevel OD		Center-to-center				End-to-End			
			180 Returns O				180 Returns K			
			Long Radius		Short Radius		Long Radius		Short Radius	
			IN	MM	IN	MM	IN	MM	IN	MM
1/2	0.84	21.3	3	76	-	-	1.88	48	-	-
3/4	1.05	26.7	2.25	57	-	-	1.69	43	-	-
1	1.32	33.4	3	76	2	51	2.19	56	1.62	41
1 1/4	1.66	42.2	3.75	95	2.5	64	2.75	70	2.06	52
1 1/2	1.9	48.3	4.5	114	3	76	3.25	83	2.44	62
2	2.38	60.3	6	152	4	102	4.19	106	3.19	81
2 1/2	2.88	73.0	7.5	190	5	127	5.19	132	3.94	100
3	3.5	88.9	9	229	6	152	6.25	159	4.75	121
3 1/2	4	101.6	10.5	267	7	178	7.25	184	5.5	140
4	4.5	114.3	12	305	8	203	8.25	210	6.25	159
5	5.56	141.3	15	381	10	254	10.31	262	7.75	197
6	6.62	168.3	18	457	12	305	12.31	313	9.31	237
8	8.62	219.1	24	610	16	406	16.31	414	12.31	313
10	10.75	273.0	30	762	20	508	20.38	518	15.38	391
12	12.75	323.8	36	914	24	610	24.38	619	18.38	467
14	14	355.6	42	1067	28	711	28	711	21	533
16	16	406.4	48	1219	32	813	32	813	24	610
18	18	457	54	1372	36	914	36	914	27	686
20	20	508	60	1524	40	1016	40	1016	30	762
22	22	559	66	1676	44	1118	44	1118	33	838
24	24	610	72	1829	48	1219	48	1219	36	914

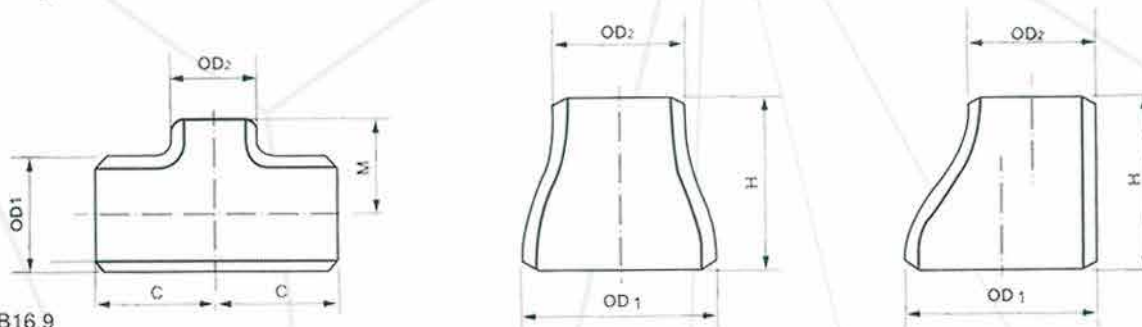
### Wrought Steel Buttwelding Fittings(ASME) Long and Short Radius Elbows



ANSI B16.9, B16.28

Nominal pipe size(NPS)	Outside Diameter at bevel OD		Center-to-End							
			90° Elbows A				45° Elbows B			
			Long Radius		Short Radius		Long Radius		Short Radius	
			IN	MM	IN	MM	IN	MM	IN	MM
1/2	0.84	21.3	1.5	38	-	-	0.62	16	-	-
3/4	1.05	26.7	1.12	29	-	-	0.44	11	-	-
1	1.32	33.4	1.5	38	1	25	0.88	22	0.41	10
1 1/4	1.66	42.2	1.88	48	1.25	32	1	25	0.52	13
1 1/2	1.9	48.3	2.25	57	1.5	38	1.12	29	0.62	16
2	2.38	60.3	3	76	2	51	1.38	35	0.83	21
2 1/2	2.88	73.0	3.75	95	2.5	64	1.75	44	1.04	26
3	3.5	88.9	4.5	114	3	76	2	51	1.24	32
3 1/2	4	101.6	5.25	133	3.5	89	2.25	57	1.45	37
4	4.5	114.3	6	152	4	102	2.5	64	1.66	42
5	5.56	141.3	7.5	190	5	127	3.12	79	2.07	53
6	6.62	168.3	9	229	6	152	3.75	95	2.50	63
8	8.62	219.1	12	305	8	203	5	127	3.31	84
10	10.75	273.0	15	381	10	254	6.25	159	4.14	105
12	12.75	323.8	18	457	12	305	7.5	190	4.97	126
14	14	355.6	21	533	14	356	8.75	222	5.80	147
16	16	406.4	24	610	16	406	10	254	6.63	168
18	18	457	27	686	18	457	11.25	286	7.46	189
20	20	508	30	762	20	508	12.5	318	8.28	210
22	22	559	33	838	22	559	13.5	343	9.11	232
24	24	610	36	914	24	610	15	381	9.94	253
26	26	660	39	991	26	660	16	405	10.77	274
28	28	711	42	1067	28	711	17.25	438	11.60	295
30	30	762	45	1143	30	762	18.5	470	12.43	316
32	32	813	48	1219	32	813	19.75	502	14.89	378
34	34	864	51	1295	34	864	21	533	14.08	358
36	36	914	54	1372	36	914	22.25	565	14.91	379
38	38	965	57	1448	38	965	23.62	600	15.74	400
40	40	1016	60	1524	40	1016	24.88	632	16.57	421
42	42	1067	63	1600	42	1067	26	660	17.40	442
44	44	1118	66	1676	44	1118	27.38	695	18.23	463
46	46	1168	69	1753	46	1168	28.62	727	19.05	484
48	48	1219	72	1829	48	1219	29.88	759	19.88	505

## Wrought Steel Buttwelding Fittings(ASME) Reducing Tees and Concentric & Eccentric Reducers



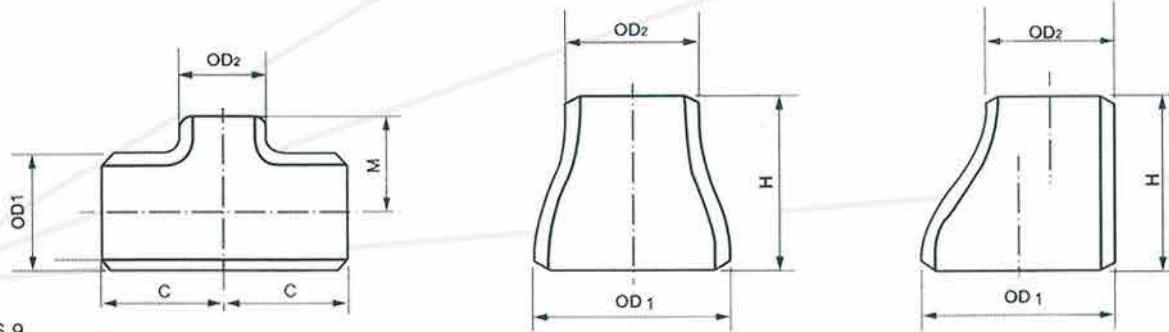
ANSI B16.9

Nominal pipe size(NPS)	Outside Diameter at Bevel				Center-to-End				End-to-End	
	OD1		OD2		C		M		H	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
3/4 x 1/2	1.05	26.7	0.84	21.3	1.12	29	1.12	29	1.5	38
1 x 3/4	1.32	33.4	1.05	26.7	1.5	38	1.5	38	2	51
1 x 1/2	1.32	33.4	0.84	21.3	1.5	38	1.5	38	2	51
1 1/4 x 1	1.66	42.2	1.32	33.4	1.88	48	1.88	48	2	51
1 1/4 x 3/4	1.66	42.2	1.05	26.7	1.88	48	1.88	48	2	51
1 1/4 x 1/2	1.66	42.2	0.84	21.3	1.88	48	1.88	48	2	51
1 1/2 x 1 1/4	1.9	48.3	1.66	42.2	2.25	57	2.25	57	2.5	64
1 1/2 x 1	1.9	48.3	1.32	33.4	2.25	57	2.25	57	2.5	64
1 1/2 x 3/4	1.9	48.3	1.05	26.7	2.25	57	2.25	57	2.5	64
1 1/2 x 1/2	1.9	48.3	0.84	21.3	2.25	57	2.25	57	2.5	64
2 x 1 1/2	2.38	60.3	1.9	48.3	2.5	64	2.38	60	3	76
2 x 1 1/4	2.38	60.3	1.66	42.2	2.5	64	2.25	57	3	76
2 x 1	2.38	60.3	1.32	33.4	2.5	64	2	51	3	76
2 x 3/4	2.38	60.3	1.05	26.7	2.5	64	1.75	44	3	76
2 x 1/2	2.38	60.3	0.84	21.3	2.5	64	-	-	3	76
2 1/2 x 2	2.88	73	2.38	60.3	3	76	2.75	70	3.5	89
2 1/2 x 1 1/2	2.88	73	1.9	48.3	3	76	2.62	67	3.5	89
2 1/2 x 1 1/4	2.88	73	1.66	42.2	3	76	2.5	64	3.5	89
2 1/2 x 1	2.88	73	1.32	33.4	3	76	2.25	57	3.5	89
2 1/2 x 3/4	2.88	73	1.05	26.7	3	76	-	-	3.5	89
2 1/2 x 1/2	2.88	73	0.84	21.3	3	76	-	-	3.5	89
3 x 2 1/2	3.5	88.9	2.88	73	3.38	86	3.25	83	3.5	89
3 x 2	3.5	88.9	2.38	60.3	3.38	86	3	76	3.5	89
3 x 1 1/2	3.5	88.9	1.9	48.3	3.38	86	2.88	73	3.5	89
3 x 1 1/4	3.5	88.9	1.66	42.2	3.38	86	2.75	70	3.5	89
3 x 1	3.5	88.9	1.32	33.4	3.38	86	-	-	3.5	89
3 x 3/4	3.5	88.9	1.05	26.7	3.38	86	-	-	3.5	89
3 x 1/2	3.5	88.9	0.84	21.3	3.38	86	-	-	3.5	89
3 1/2 x 3	4	101.6	3.5	88.9	3.75	95	3.62	92	4	102
3 1/2 x 2 1/2	4	101.6	2.88	73	3.75	95	3.5	89	4	102
3 1/2 x 2	4	101.6	2.38	60.3	3.75	95	3.25	83	4	102
3 1/2 x 1 1/2	4	101.6	1.9	48.3	3.75	95	3.12	79	4	102
3 1/2 x 1 1/4	4	101.6	1.66	42.2	3.75	95	-	-	4	102
4 x 3 1/2	4.5	114.3	4	101.6	4.12	105	4	102	4	102
4 x 3	4.5	114.3	3.5	88.9	4.12	105	3.88	98	4	102
4 x 2 1/2	4.5	114.3	2.88	73	4.12	105	3.75	95	4	102
4 x 2	4.5	114.3	2.38	60.3	4.12	105	3.5	89	4	102
4 x 1 1/2	4.5	114.3	1.9	48.3	4.12	105	3.38	86	4	102
4 x 1 1/4	4.5	114.3	1.66	42.2	4.12	105	-	-	4	102
4 x 1	4.5	114.3	1.32	33.4	4.12	105	-	-	4	102

NOTE:

( 1 ) Outlet dimensions M for run sizes NPS 14 and larger is recommended but not required.

Wrought Steel Buttwelding Fittings(ASME)  
Reducing Tees and Concentric & Eccentric Reducers



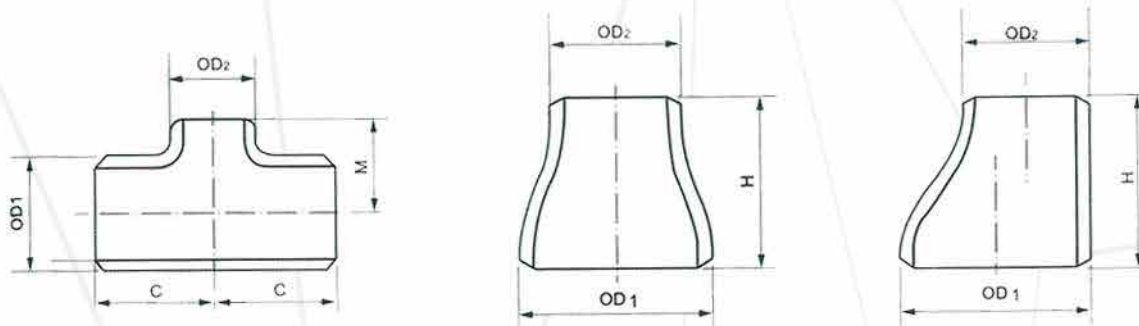
ANSI B16.9

Nominal pipe size(NPS)	Outside Diameter at Bevel				Center-to-End				End-to-End	
	OD1		OD2		C		M(1)		H	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
5×4	5.56	141.3	4.5	114.3	4.88	124	4.62	117	5	127
5×3½	5.56	141.3	4	101.6	4.88	124	4.5	114	5	127
5×3	5.56	141.3	3.5	88.9	4.88	124	4.38	111	5	127
5×2½	5.56	141.3	2.88	73	4.88	124	4.25	108	5	127
5×2	5.56	141.3	2.38	60.3	4.88	124	4.12	105	5	127
5×1½	5.56	141.3	1.9	48.3	4.88	124	*	*	5	127
5×1¼	5.56	141.3	1.66	42.2	4.88	124	*	*	5	127
6×5	6.62	168.3	4.56	141.3	5.62	143	5.38	137	5.5	140
6×4	6.62	168.3	4.5	114.3	5.62	143	5.12	130	5.5	140
6×3½	6.62	168.3	4	101.6	5.62	143	5	127	5.5	140
6×3	6.62	168.3	3.5	88.9	5.62	143	4.88	124	5.5	140
6×2½	6.62	168.3	2.88	73	5.62	143	4.75	121	5.5	140
6×2	6.62	168.3	2.38	60.3	5.62	143	*	*	5.5	140
8×6	8.62	219.1	6.62	168.3	7	178	6.62	168	6	152
8×5	8.62	219.1	5.56	141.3	7	178	6.38	162	6	152
8×4	8.62	219.1	4.5	114.3	7	178	6.12	156	6	152
8×3½	8.62	219.1	4	101.6	7	178	6	152	6	152
8×3	8.62	219.1	3.5	88.9	7	178	*	*	6	152
10×8	10.75	273	8.62	219.1	8.5	216	8	203	7	178
10×6	10.75	273	6.62	168.3	8.5	216	7.62	194	7	178
10×5	10.75	273	5.56	141.3	8.5	216	7.5	191	7	178
10×4	10.75	273	4.5	114.3	8.5	216	7.25	184	7	178
10×3	10.75	273	3.5	88.9	8.5	216	*	*	7	178
12×10	12.75	323.8	10.75	273	10	254	9.5	241	8	203
12×8	12.75	323.8	8.62	219.1	10	254	9	229	8	203
12×6	12.75	323.8	6.62	168.3	10	254	8.62	219	8	203
12×5	12.75	323.8	5.56	141.3	10	254	8.5	216	8	203
12×4	12.75	323.8	4.5	114.3	10	254	*	*	8	203
14×12	14	355.6	12.75	323.8	11	279	10.62	270	13	330
14×10	14	355.6	10.75	273	11	279	10.12	257	13	330
14×8	14	355.6	8.62	219.1	11	279	9.75	248	13	330
14×6	14	355.6	6.62	168.3	11	279	9.38	238	13	330
14×5	14	355.6	5.56	141.3	11	279	*	*	13	330
16×14	16	406.4	14	355.6	12	305	12	305	14	356
16×12	16	406.4	12.75	323.8	12	305	11.62	295	14	356
16×10	16	406.4	10.75	273	12	305	11.12	283	14	356
16×8	16	406.4	8.62	219.1	12	305	10.75	273	14	356
16×6	16	406.4	6.62	168.3	12	305	10.38	264	14	356
18×16	18	457	16	406.4	13.5	343	13	330	15	381

NOTE:

( 1 ) Outlet dimensions M for run sizes NPS 14 and larger is recommended but not required.

### Wrought Steel Buttwelding Fittings(ASME) Reducing Tees and Concentric & Eccentric Reducers



ANSI B16.9

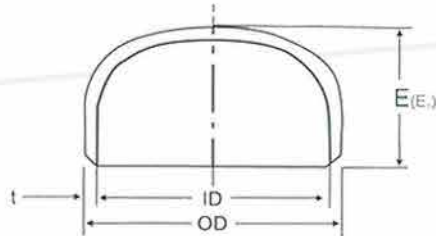
Nominal pipe size (NPS)	Outside Diameter at Bevel				Center-to-End				End-to-End	
	OD1		OD2		C		M(1)		H	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
18×14	18	457	14	355.6	13.5	343	13	330	15	381
18×12	18	457	12.75	323.8	13.5	343	12.62	321	15	381
18×10	18	457	10.75	273	13.5	343	12.12	308	15	381
18×8	18	457	8.62	219.1	13.5	343	11.75	298	15	381
20×18	20	508	18	457.2	15	381	14.5	368	20	508
20×16	20	508	16	406.4	15	381	14	356	20	508
20×14	20	508	14	355.6	15	381	14	356	20	508
20×12	20	508	12.75	323.8	15	381	13.62	346	20	508
20×10	20	508	10.75	273	15	381	13.12	333	20	508
20×8	20	508	8.62	219.1	15	381	12.75	324	20	508
22×20	22	559	20	508	16.5	419	16	406	20	508
22×18	22	559	18	457.2	16.5	419	15.5	394	20	508
22×16	22	559	16	406.4	16.5	419	15	381	20	508
22×14	22	559	14	355.6	16.5	419	15	381	20	508
22×12	22	559	12.75	323.8	16.5	419	14.62	371	20	508
22×10	22	559	10.75	273	16.5	419	14.12	359	20	508
24×22	24	610	22	558.8	17	432	17	432	20	508
24×20	24	610	20	508	17	432	17	432	20	508
24×18	24	610	18	457.2	17	432	16.5	419	20	508
24×16	24	610	16	406.4	17	432	16	406	20	508
24×14	24	610	14	355.6	17	432	16	406	20	508
24×12	24	610	12.75	323.8	17	432	15.62	397	20	508
24×10	24	610	10.75	273	17	432	15.12	384	20	508
26×24	26	660	24	609.6	19.5	495	19	483	24	610
26×22	26	660	22	558.6	19.5	495	18.5	470	24	610
26×20	26	660	20	508	19.5	495	18	457	24	610
26×18	26	660	18	457.2	19.5	495	17.5	444	24	610
26×16	26	660	16	406.4	19.5	495	17	432	24	610
26×14	26	660	14	355.6	19.5	495	17	432	24	610
26×12	26	660	12.75	323.8	19.5	495	16.62	422	24	610
28×26	28	711	26	660.4	20.5	521	20.5	521	24	610
28×24	28	711	24	609.6	20.5	521	20	508	24	610
28×22	28	711	22	558.8	20.5	521	19.5	495	24	610
28×20	28	711	20	508	20.5	521	19	483	24	610
28×18	28	711	18	457.2	20.5	521	18.5	470	24	610
28×16	28	711	16	406.4	20.5	521	18	457	24	610
28×14	28	711	14	355.6	20.5	521	18	457	24	610
28×12	28	711	12.75	323.8	20.5	521	17.62	448	24	610
30×28	30	762	28	711.2	22	559	21.5	546	24	610

NOTE:

( 1 ) Outlet dimensions M for run sizes NPS 14 and larger is recommended but not required.



Wrought Steel Buttwelding Fittings(ASME)  
Dimensions of Caps



Caps  
ASME/ANSI B16.9  
MSS SP-43

Nominal Pipe Size (NPS)	Dimensions				
	Outside Diameter at bevel OD		Length:E	Restrictions Thickness	Length:E,
	IN	MM	MM	MM	MM
1/2	0.84	21.3	25.4	4.57	25.4
3/4	1.05	26.7	25.4	3.81	25.4
1	1.32	33.4	38.1	4.57	38.1
1 1/4	1.66	42.2	38.1	4.83	38.1
1 1/2	1.9	48.3	38.1	5.08	38.1
2	2.38	60.3	38.1	5.59	44.5
2 1/2	2.88	73.0	38.1	7.11	50.8
3	3.5	88.9	50.8	7.62	63.5
4	4.5	114.3	63.5	8.64	76.2
5	5.56	141.3	76.2	9.65	88.9
6	6.62	168.3	88.9	10.92	101.6
8	8.62	219.1	101.6	12.7	127.0
10	10.75	273.0	127.0	12.7	152.4
12	12.75	323.8	152.4	12.7	177.8
14	14	355.6	165.1	12.7	190.5
16	16	406.4	177.8	12.7	203.2
18	18	457	203.2	12.7	228.6
20	20	508	228.6	12.7	254.0
22	22	559	254.0	12.7	254.0
24	24	610	266.7	12.7	304.8
26	26	660	266.7	-	-
28	28	711	266.7	-	-
30	30	762	266.7	-	-
32	32	813	266.7	-	-
34	34	864	266.7	-	-
36	36	914	266.7	-	-
38	38	965	304.8	-	-
40	40	1016	304.8	-	-
42	42	1067	304.8	-	-
44	44	1118	342.9	-	-
46	46	1168	342.9	-	-
48	48	1219	342.9	-	-