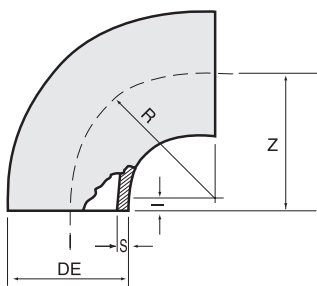


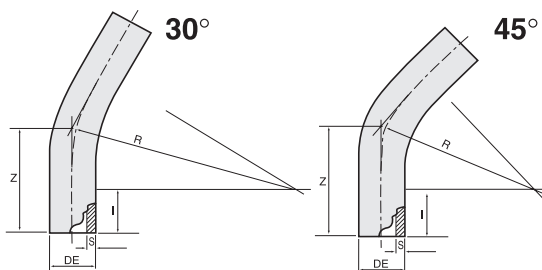
## Short Radius Bends



90°			
DE	R	Z	I
20	20	25	5
25	25	30	5
32	32	37	5
40	40	45	5
50	50	58	8
63	63	71	8
75	75	85	10
90	90	100	10
110	110	120	10
125	125	141	16
140	140	158	18
160	160	178	18
180	180	199	19
200	200	219	19
225	225	242	17
250	250	280	30
280	280	320	40
315	315	355	40
355	355	380	25
400	400	435	35

For dimension "S" refer to SDR sheet on page 1-1

## Sweep Bends: extended for Electrofusion and Butt Welding



### 30° SWEEP BENDS

DE	Z	I	R
63	140	75	225
75	178	100	305
90	178	100	305
110	280	100	380
125	330	150	375
160	280	150	460
200	343	200	535
225	343	200	535
250	420	250	615
280	420	250	615
315	445	250	715
355	550	250	780
400	750	250	1000

### 45° SWEEP BENDS

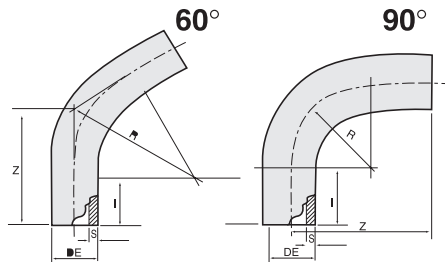
DE	Z	I	R
63	175	75	225
75	229	100	305
90	229	100	305
110	254	100	380
125	304	150	380
160	343	150	460
200	420	200	535
225	420	200	535
250	507	250	615
280	507	250	615
315	558	250	715
355	650	250	780
400	800	250	1000

\* Radius may vary. Please specify if critical.

Sizes above 400mm are readily available - please enquire.

For dimension "S" refer to SDR sheet on page 1-1.

## Sweep Bends: extended for Electrofusion and Butt Welding



### 60° SWEEP BENDS

DE	Z	I	R*
63	205	75	225
75	280	100	305
90	280	100	305
110	318	100	380
125	368	150	380
160	420	150	460
200	507	200	535
225	507	200	535
250	610	250	615
280	610	250	615
315	660	250	715
355	740	250	780
400	900	250	1000

### 90° SWEEP BENDS

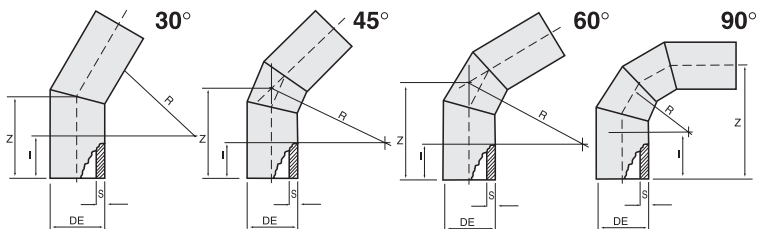
DE	Z	I	R*
63	300	75	225
75	405	100	305
90	405	100	305
110	480	100	380
125	530	150	380
160	610	150	460
200	735	200	535
225	735	200	535
250	865	250	615
280	865	250	615
315	965	250	715
355	1130	250	780
400	1250	250	1000

\* Radius may vary. Please specify if critical.

Sizes above 400mm are readily available - please enquire.

For dimension "S" refer to SDR sheet on page 1-1.

## Bends Segmented: for Butt Welding



AS/NZS4130:1997

### 30° BENDS

DE	Z	I	R
200	230	150	300
213	241	150	338
225	241	150	338
250	350	250	375
280	362	250	420
315	428	300	478
355	443	300	533
400	461	300	600
450	481	300	675
500	551	350	750
560	575	350	840
630	603	350	945

### 45° BENDS

DE	Z	I	R
200	274	150	300
213	290	150	338
225	290	150	338
250	412	250	375
280	424	250	420
315	498	300	478
355	520	300	533
400	548	300	600
450	580	300	675
500	665	350	750
560	698	350	840
630	741	350	945

### 60° BENDS

DE	Z	I	R
200	323	150	300
213	345	150	338
225	345	150	338
250	466	250	375
280	492	250	420
315	576	300	478
355	608	300	533
400	646	300	600
450	689	300	675
500	783	350	750
560	835	350	840
630	896	350	945

### 90° BENDS

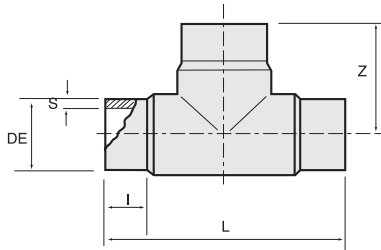
DE	Z	I	R
200	450	150	300
213	488	150	338
225	488	150	338
250	625	250	375
280	670	250	420
315	778	300	478
355	883	300	533
400	900	300	600
450	975	300	675
500	1100	350	750
560	1190	350	840
630	1295	350	945

Sizes above 630mm available on request For dimension "S" refer to SDR sheet on page 1-1

Pressure re-rating applies. For pressure rating refer page 2-15.

11.25° & 22.5° available on request.

## Tees: Injection Moulded for Butt Welding

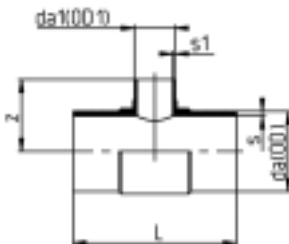


DE	L	Z	I
20	70	35	14
25	78	40	14
32	88	46	16
40	90	50	15
50	100	52	13.5
63	125	65	15
75	147	75	15
90	208	104	39
110	248	120	50
125	266	135	46
140	293	145	48
160	330	165	30
200	385	190	55
225	440	206	55
250	465	232	70
280	540	270	82
315	530	268	75
355	665	332	97
400	682	337	100

For long spigot moulded tees, please refer to electrofusion tables.

For dimension "S" refer to SDR sheet on page 1-1.

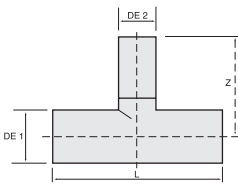
## Reducing Tees: Injection Moulded for Butt Welding



$da_1/da_2$ $OD_1/OD_2$ (mm)	$z$ (mm)	$L$ (mm)
90/32	85	213
90/50	100	213
110/32	94	244
110/50	103	244
125/63	112	278
140/63	120	305
140/75	130	305
140/90	130	305
140/110	140	305
160/125	150	325
180/63	134	358
180/75	140	352
180/125	166	366
225/125	178	456
250/110	197	450
250/160	219	458

For long spigot moulded tees, please refer to electrofusion tables.

For Dimension "s" refer to SDR sheet on page 1-1.



## Reducing Tees: Fabricated for Butt Welding

Dimensions in mm

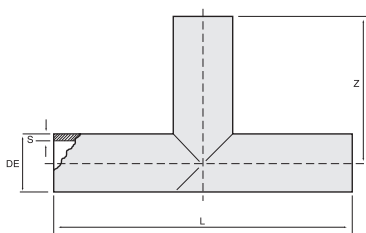
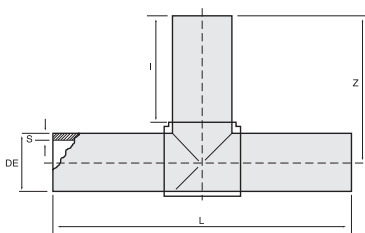
Pressure re-rating applies, for pressure rating refer page 2-15.

DE1	DE2	L	Z
90	50	605	302.5
90	63	605	302.5
110	50	635	317.5
110	63	635	317.5
110	75	635	317.5
125	50	650	325
125	63	650	325
125	75	650	325
125	90	650	325
140	63	650	325
140	75	650	325
140	90	650	325
140	110	650	325
160	63	680	340
160	75	680	340
160	90	680	340
160	110	680	340
200	75	710	355
200	90	710	355
200	110	710	355
200	125	710	355
200	140	710	355
200	160	710	355
225	75	710	355
225	90	710	355
225	110	710	355
225	140	710	355
225	160	710	355
250	90	740	355
250	110	740	355
250	125	740	355
250	140	740	355
250	160	740	355
250	200	740	370
280	110	740	370
280	125	740	370
280	140	740	370
280	160	740	370
280	200	740	370
280	225	740	370
315	110	760	380
315	125	760	370
315	140	760	370
315	160	760	370
315	200	760	370

DE1	DE2	L	Z
355	110	780	390
355	125	780	390
355	140	780	390
355	160	780	390
355	200	780	390
355	225	780	390
355	250	780	390
355	280	780	390
400	125	1120	560
400	140	1120	560
400	160	1120	560
400	200	1120	560
400	225	1120	560
400	250	1120	560
400	280	1120	560
400	315	1120	560
450	140	1145	572.5
450	160	1145	572.5
450	200	1145	572.5
450	225	1145	572.5
450	250	1145	572.5
450	280	1145	572.5
450	315	1145	572.5
500	160	1170	585
500	200	710	585
500	225	710	585
500	250	710	585
500	280	710	585
500	315	710	585
500	355	710	585
500	400	710	585
560	200	1235	617.5
560	225	1235	617.5
560	250	1235	617.5
560	280	1235	617.5
560	315	1235	617.5
560	355	1235	617.5
560	400	1235	617.5
630	200	1235	617.5
630	225	1235	617.5
630	250	1235	617.5
630	280	1235	617.5
630	315	1235	617.5
630	355	1235	617.5

Larger sizes available on request

## Welded Tees: for Butt Welding



DE	L	Z
90	370	185
110	450	225
125	480	240
140	480	240
160	560	280
200	620	310
225	620	310
250	680	340
280	680	340
315	760	380
355	800	400
400	960	480
450	1010	505
500	1060	530
560	1190	595
630	1190	595

DE	L	Z
90	1210	605
110	1270	635
125	1270	650
140	1300	650
160	1360	680
200	1420	710
225	1420	710
250	1480	740
280	1480	740
315	1520	760
355	1560	780
400	2240	1120
450	2290	1145
500	2340	1170
560	2470	1235
630	2470	1235

Larger sizes available on request

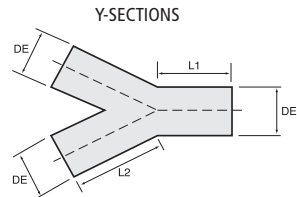
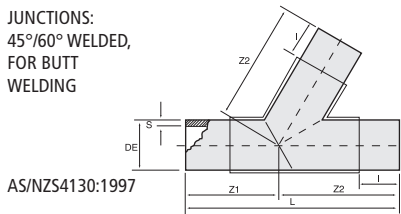
For dimension "S" refer to SDR sheet on page 1-1.

Tees are available with fibreglass reinforcements. (Price on application)

Pressure re-rating applies, for pressure rating refer page 2-15.

## Junctions: Welded for Butt Welding

JUNCTIONS:  
45°/60° WELDED,  
FOR BUTT  
WELDING



Dimensions in mm

### 45°/60° Junctions

DE	L	Z1	Z2	l1
90	700	275	425	150
110	700	275	425	150
125	745	290	455	150
140	781	306	475	150
160	842	330	512	150
200	959	372	587	150
225	1080	425	655	250
250	1155	450	705	250
280	1245	490	755	300
315	1340	525	815	300
355	1455	575	880	300
400	1550	600	950	300
450	1625	625	1000	300
500	1700	650	1050	300

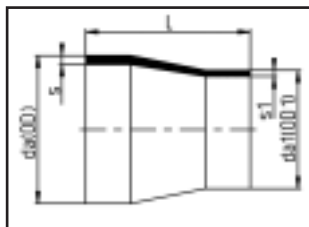
### Y Sections

DE	L1	L2
90	400	450
110	400	450
125	400	450
140	400	600
160	400	600
200	400	750
225	400	750
250	400	900
280	400	900
315	400	1050
355	500	1180
400	500	1250
450	600	1300
500	600	1400
560	800	1400
630	800	1400

Larger sizes available and Specific angles are available on request.  
Pressure re-rating applies, for pressure rating refer page 2-15.

## Reducers: Concentric and Eccentric for Butt Welding

Dimension	da(O.D.) mm	da1 (O.D.1) mm	L mm
25/20	25	20	36
32/20	32	20	40
32/25	32	25	39
40/20	40	20	45
40/25	40	25	45
40/32	40	32	38
50/25	50	25	49
50/32	50	32	47
50/40	50	40	50
63/32	63	32	56
63/40	63	40	53
63/50	63	50	59
75/32	75	32	78
75/40	75	40	71
75/50	75	50	61
75/63	75	63	63
90/50	90	50	78
90/63	90	63	67
90/75	90	75	68
110/50	110	50	102
110/63	110	63	81
110/75	110	75	94
110/90	110	90	85
125/63	125	63	89
125/75	125	75	103
125/90	125	90	81
125/110	125	110	89
140/75	140	75	119
140/90	140	90	110
140/110	140	110	110
140/125	140	125	91



Other sizes and ratings  
available to suit specific  
requirements. P.O.A.  
AS4130:1997

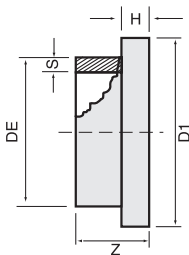
For dimension "S" refer to SDR sheet on page 1-1

## Reducers: Concentric and Eccentric for Butt Welding (cont.)

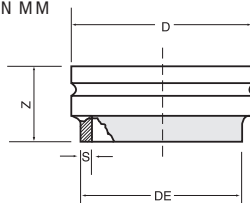
Dimension	da(O.D.) mm	da1 (O.D.1) mm	L mm
160/90	160	90	109
160/110	160	110	107
160/125	160	125	113
160/140	160	140	105
180/90	180	90	157
180/110	180	110	157
180/125	180	125	115
180/140	180	140	136
180/160	180	160	122
200/140	200	140	149
200/160	200	160	134
200/180	200	180	149
225/140	225	140	135
225/160	225	160	136
225/180	225	180	167
225/200	225	200	167
250/160	250	160	151
250/180	250	180	182
250/200	250	200	149
250/225	250	225	144
280/200	280	200	206
280/225	280	225	206
280/250	280	250	165
315/200	315	200	196
315/225	315	225	203
315/250	315	250	186.5
315/280	315	280	222

For dimension "S" refer to SDR sheet on page 1-1

## Stub Flanges/Shouldered Ends for Butt Welding



DIMENSIONS IN MM



### Stub Flanges

DE	D1	Z	H
63	96	50	14
75	108	50	14
90	128	60	14
110	160	60	14
125	192	65	25
140	192	65	25
160	213	65	25
180	213	65	25
200	270	75	25
225	270	75	25
250	334	80	30
280	334	80	30
315	380	80	30
355	444	90	40
400	495	90	40
450	545	90	40
500	602	105	50
560	657	105	55
630	708	110	55
710	812	115	60
800	948	115	60
1000	1136	115	60

### Shouldered Ends

DE	D	Z	Coupling Size
63	68	65	2 <sup>3</sup> / <sub>8</sub> "
75	97	75	3 <sup>1</sup> / <sub>2</sub> "
90	97	75	3 <sup>1</sup> / <sub>2</sub> "
110	122	75	4 <sup>1</sup> / <sub>2</sub> "
125	176	75	6 <sup>1</sup> / <sub>2</sub> "
140	176	75	6 <sup>1</sup> / <sub>2</sub> "
160	176	75	6 <sup>1</sup> / <sub>2</sub> "
200	235	75	8 <sup>5</sup> / <sub>8</sub> "
225	235	75	8 <sup>5</sup> / <sub>8</sub> "
250	287	75	10 <sup>3</sup> / <sub>4</sub> "
280	338	75	12 <sup>3</sup> / <sub>4</sub> "
315	338	75	12 <sup>3</sup> / <sub>4</sub> "
355	369	75	14"

For dimension "S" refer to SDR sheet on page 1-1

## Flat Black HDPE Sheet

THICKNESS (mm) SHEET SIZE (m)	
5	3 x 1.5
6	3 x 1.5
10	3 x 1.5
10	4 x 2
12	3 x 1.5
15	3 x 1.5
15	4 x 2
20	3 x 1.5
25	3 x 1.5
30	3 x 1.5
40	2 x 1
60	2 x 1
100	2 x 1

## Flat Polypropylene Sheet

THICKNESS (mm) SHEET SIZE (m)	
3	3 x 1.5
4.5	3 x 1.5
6	3 x 1.5
10	3 x 1.5
12	3 x 1.5
15	3 x 1.5
20	3 x 1.5
25	3 x 1.5

## Polyethylene and Polypropylene Rod

### Polypropylene Weld Rod

THICKNESS (mm)	KG / REEL
3	2.2
4	2.2
3 core	2.2
TRIANGLE	2.2

### Polyethylene Weld Rod

THICKNESS (mm)	KG / REEL
3	2.2
4	2.2

### Polyethylene Solid Rod

THICKNESS (mm)	LENGTH (m)
60	1
110	1
160	1

### Polypropylene Solid Rod

THICKNESS (mm)	LENGTH (m)
90	1
125	1
160	1

Other colours and molecular weights available on request

## Tees / Junctions / Mitre Bends

### GFR FABRICATED FITTINGS ARE MANUFACTURED FROM PIPE OF THE PRESSURE DIMENSION SHOWN IN THE CATALOGUE

These products should be pressure re-rated according to the following formulae.

#### BUTT WELDING

- 1 All equal tees, junctions and mitre bends are to be fabricated by full face butt welding only.
- 2 Fittings are to be hydrostatic pressure re-rated from the nominal pipe class. This re-rating takes into account a butt weld strength of 90% of pipe strength, and stress increase due to fitting shape.  
  
The re-rating factors to be applied are:-  
Rating = Pipe Class x  $\frac{0.9}{1.5}$
- 3 Wye (Y) junctions are for drainage applications only.
- 4 All requirements for butt welding must be observed.

#### EXTRUSION WELDING

- 1 Tees, junctions, and mitre bends may be extrusion welded where full face butt welding is not available.
- 2 Fittings made by extrusion welding are to be pressure re-rated from the nominal pipe class. This re-rating takes into account an extrusion weld strength of 60% of pipe strength, and stress increase due to fitting shape.  
  
The re-rating factors to be applied are:-  
Rating = Pipe Class x  $\frac{0.6}{1.5}$
- 3 Wye (Y) junctions are for drainage applications only
- 4 The maximum ratio of branch/main pipe diameters is 45%
- 5 All requirements for extrusion welding must be observed.