

Section 9

AWWA Ductile Iron Series

AWWA Ductile Iron Series	178
Radius Cut Groove Specifications	178
AWWA Grooved Couplings & Flange Adapters	
A505 Coupling	179
A507 Transition Coupling	180
A512 Flange Adapter	180
Grooved Fittings	
A10 / A11 / A20 / A60 Elbows, Tee & Cap	181
A25 / A50 / A10R Reducing Tee, Concentric Reducer & Reducing Elbow	182

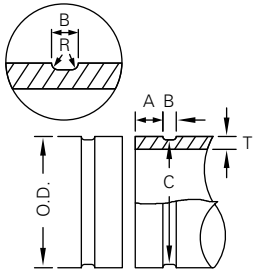
AWWA Ductile Iron Series

Shurjoint offers a variety of grooved mechanical couplings and fittings for AWWA ductile iron pipe in sizes 3" to 24". The **Shurjoint** coupling features a two-piece housing and GapSeal gasket for a leak-tight seal. Ductile iron pipe shall be cut-grooved to AWWA C606 Table 2 and Table 3 - Radius Cut Groove Specifications.

Rubber gaskets are specially compounded to seal on ductile iron surfaces and are available in three grades to meet your service requirement needs. See page 179 for details.



Radius Cut Grooving Dimensions – Ductile Iron Pipe



Gasket Seating Surface (A):

The same coupling can be used either as a rigid joint or a flexible joint depending on the groove. Gasket seat "A Rigid" is for rigid joints and Gasket seat "A Flex." for flexible joints.

The gasket seating surface shall be free from deep scores, marks, or ridges that could prevent a positive seal.

Groove Diameter (C):

The "C" diameters are average values. The groove must be of uniform depth around the entire pipe circumference.

Radius (R):

The groove must be cut with a radius 'R' at the corners of the groove to reduce stress concentration.

Minimum Wall Thickness (T):

"T" is the minimum allowable wall thickness that may be cut-grooved; tolerances are to conform to ANSI/AWWA C151/A21.51.

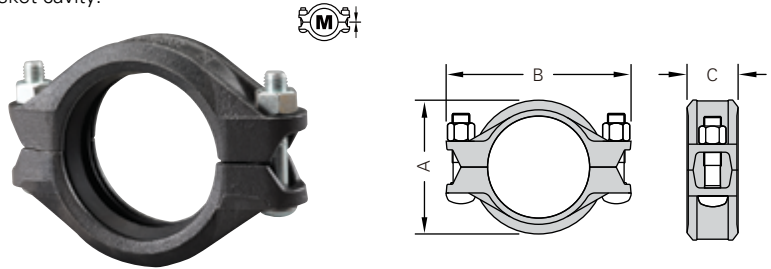
AWWA Ductile Iron Pipe

Nominal Size	Pipe O.D.			Gasket Seat A		Groove Width B +0.031/-0.016 +0.79/-0.41	Groove Dia. C		Radius R	Min. Allowed Wall Thickness T
	Basic	Tolerance		Rigid +0/-0.02 +0/-0.51	Flex. +0.016/-0.047 +0.41/-1.19		Basic	Tol. +0 +0		
in	in	in	in	in	in	in	in	in	in	in
mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
3	3.96	+0.045	-0.045	0.840	0.750	0.375	3.723	-0.020	0.120	0.31
80	100.6	+1.14	-1.14	21.34	19.05	9.53	94.56	-0.51	3.05	7.9
4	4.80	+0.045	-0.045	0.840	0.750	0.375	4.563	-0.020	0.120	0.32
100	121.9	+1.14	-1.14	21.34	19.05	9.53	115.90	-0.51	3.05	8.1
6	6.90	+0.060	-0.060	0.840	0.750	0.375	6.656	-0.020	0.120	0.34
150	175.3	+1.52	-1.52	21.34	19.05	9.53	169.06	-0.51	3.05	8.6
8	9.05	+0.060	-0.060	0.840	0.875	0.500	8.781	-0.025	0.145	0.36
200	229.9	+1.52	-1.52	21.34	22.83	12.70	223.04	-0.64	3.68	9.1
10	11.10	+0.060	-0.060	1.015	0.938	0.500	10.813	-0.025	0.145	0.38
250	281.9	+1.52	-1.52	25.78	23.83	12.70	274.65	-0.64	3.68	9.7
12	13.20	+0.060	-0.060	1.015	0.938	0.500	12.906	-0.030	0.145	0.40
300	335.3	+1.52	-1.52	25.78	23.83	12.70	327.81	-0.76	3.68	10.2
14	15.30	+0.050	-0.080	1.015	0.938	0.625	14.969	-0.030	0.165	0.42
350	388.6	+1.27	-2.03	25.78	23.83	15.88	380.21	-0.76	4.19	10.7
16	17.40	+0.050	-0.080	1.340	1.188	0.625	17.063	-0.030	0.165	0.43
400	442.0	+1.27	-2.03	34.04	30.18	15.88	433.40	-0.76	4.19	10.9
18	19.50	+0.050	-0.080	1.340	1.188	0.625	19.125	-0.030	0.185	0.44
450	495.3	+1.27	-2.03	34.04	30.18	15.88	485.78	-0.76	4.70	11.2
20	21.60	+0.050	-0.080	1.340	1.188	0.625	21.219	-0.030	0.185	0.45
500	548.6	+1.27	-2.03	34.04	30.18	15.88	538.96	-0.76	4.70	11.4
24	25.80	+0.050	-0.080	1.340	1.188	0.625	25.046	-0.030	0.185	0.47
600	655.3	+1.27	-2.03	34.04	30.18	15.88	645.31	-0.76	4.70	11.9

Model A505 Coupling

Shurjoint Model A505 Couplings are designed for connecting grooved ductile iron pipe and fittings of ANSI/AWWA C151/A21.51, Class 53 or higher dimensions. The same coupling can be used either as a flexible coupling or a rigid coupling depending on the type of groove processed. The Model A505 Coupling is recommended for service up to 500 psi (35 Bar) depending on the size.

The GapSeal gasket fits flush over the pipe ends and prevents fluids from entering into the gasket cavity.



AWWA D.I. Pipe		Max. Working Pressure (CWP)*	Max. End Load	Axial Displacement †	Bolt		Dimensions			Weight
Nominal Size	Pipe O.D.				No.	Size	A	B	C	
in	in	PSI	Lbs	in			in	in	in	Lbs
mm	mm	Bar	kN	mm			mm	mm	mm	Kgs
3	3.96	500	6200	0~0.09	2	½ x 3	5.33	7.36	2.40	5.5
80	100.6	35	27.59	0~2.4			136	187	61	2.5
4	4.80	500	9000	0~0.09	2	¾ x 3½	6.96	8.33	2.32	7.3
100	121.9	35	40.50	0~2.4			157	212	59	3.3
6	6.90	400	14950	0~0.09	2	¾ x 3½	9.37	10.75	2.44	9.7
150	175.3	28	66.26	0~2.4			211	273	62	4.4
8	9.05	400	25600	0~0.16	2	¾ x 4¾	12.07	13.94	2.64	18.7
200	229.9	28	113.92	0~4.0			272	354	67	8.5
10	11.10	350	33850	0~0.16	2	¾ x 4¾	14.50	16.06	2.95	24.2
250	281.9	24	150.63	0~4.0			326	408	75	11.0
12	13.20	350	47900	0~0.16	2	7⁄8 x 6½	16.89	18.19	2.95	30.8
300	335.3	24	211.50	0~4.0			380	462	75	14.0

* Pressure ratings listed are based on radius cut-grooved Thickness Class 53 or higher pipe.

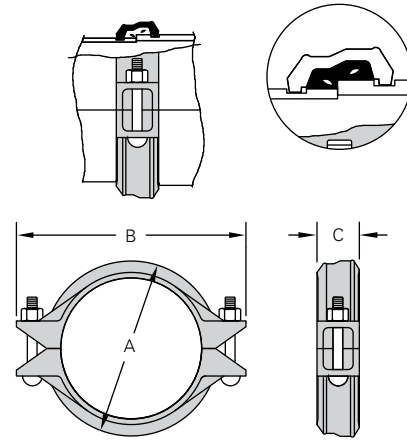
† Only when connected on flexible radius groove.

Special gaskets for AWWA ductile iron pipe

Grade	Temp. Range	Compound	Color Code	General Service Recommendations
S	-20°F to + 180°F (-29°C to +82°C)	Nitrile	 Red Stripe	Specially formulated to seal on ductile iron pipe iron surfaces. Recommended for petroleum products, air with oil vapors, vegetable and mineral oils within the specified temperature range; except hot dry air over +140°F (60°C) and water over +150°F (65°C) Not Recommended for Hot Water Services.
M	-20°F to + 200°F (-29°C to +93°C)	Halogenated Butyl	 Brown Stripe	Specially formulated to seal on ductile iron pipe surfaces. Recommended for water service plus a variety of dilute acids, oil-free air and other chemical services within the specified temperature range. The compound is UL classified per NSF/ANSI 61 and NSF/ANSI 372 for potable water applications. Not Recommended for Hot Water Services.
L	-30°F to + 350°F (-34°C to +177°C)	Silicone	 Red Gasket	Recommended for dry heat, air without hydrocarbons to 350°F (177°C) and certain chemical services.

Model A507 Transition Coupling

The Shurjoint Model A507 Transition Coupling provides for a direct connection between grooved end IPS steel pipe and grooved end AWWA ductile iron pipe, fittings and or valves. The A507 will accommodate roll or cut grooved IPS steel pipe and rigid or flexible AWWA ductile iron cut grooves.

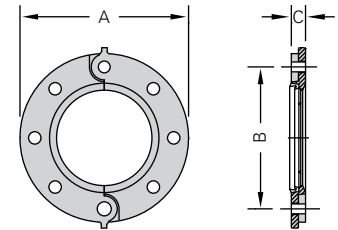


Nominal Size	Pipe O.D.		Max. Working Pressure (CWP)*	Max. End Load	Axial Displacement	Bolt Size	Dimensions			Weight
	IPS Steel	AWWA Ductile Iron					A	B	C	
in	in	in	PSI	Lbs	in	in	in	in	Lbs	
mm	mm	mm	Bar	kN	mm	mm	mm	mm	Kgs	
3	3.500	3.96	500	4810	0.03	½ x 2¾	5.31	7.28	2.13	4.8
80	88.9	100.6	35	21.41	1		135	185	54	2.2
4	4.500	4.80	500	7950	0.03	¾ x 3½	6.22	8.54	2.19	6.4
100	114.3	121.9	35	35.38	1		158	217	56	2.9
6	6.625	6.90	400	13780	0.03	¾ x 3½	8.23	10.75	2.19	8.6
150	168.3	175.3	28	61.32	1		209	273	56	3.9
8	8.625	9.05	400	23370	0.03	¾ x 4¾	10.79	13.66	2.52	16.7
200	219.1	229.9	28	103.99	1		274	347	64	7.6
10	10.750	11.10	350	33850	0.03	¾ x 6½	13.03	16.10	2.76	24.9
250	273.0	281.9	24	155.96	1		331	409	70	11.3
12	12.750	13.20	350	47870	0.03	¾ x 6½	15.00	18.35	2.76	28.6
300	323.9	335.3	24	220.64	1		381	466	70	13.0

* Pressure ratings listed are based on radius cut-grooved Thickness Class 53 or higher pipe.

Model A512 Flange Adapter

The Shurjoint Model A512 Flange Adapter provides for the direct connection between AWWA ductile iron radius pipe grooves and flanged components. The two part flange features integral closure tabs to aid in assembly. Note: As with other flange adapters the A512 requires a sufficient smooth flat mating area for proper sealing, please refer to the A512 cut sheet or contact Shurjoint for details.



AWWA D.I. Pipe		Max. Working Pressure (CWP)*	Max. End Load	Bolt		Dimensions			Weight
Nominal Size	Pipe O.D.			No.	Size	A	B	C	
in	in	PSI	Lbs		in	in	in	Lbs	
mm	mm	Bar	kN		mm	mm	mm	Kgs	
3	3.96	250	3100	4	¾ x 3	7.50	6.00	1.10	8.6
80	100.6	17	13.80			190	152	28	3.9
4	4.80	250	4500	8	¾ x 3	9.00	7.50	1.10	9.9
100	121.9	17	20.03			229	191	28	4.5
6	6.90	250	9300	8	¾ x 3½	11.00	9.49	1.10	12.0
150	175.3	17	41.39			279	241	28	5.4
8	9.05	250	16000	8	¾ x 3½	13.50	11.75	1.22	18.9
200	229.9	17	71.20			343	298	31	8.6
10	11.10	250	23700	12	¾ x 4	16.00	14.25	1.26	25.3
250	281.9	17	105.47			406	362	32	11.5
12	13.20	250	34000	12	¾ x 4	19.00	17.00	1.26	34.4
300	335.3	17	151.30			483	432	32	15.6

* Pressure ratings listed are based on radius cut-grooved Thickness Class 53 or higher pipe.

** Flange drilling to ANSI B16.1 Class 125.

AWWA Grooved Fittings

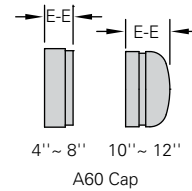
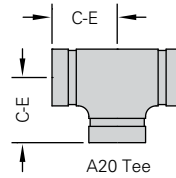
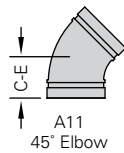
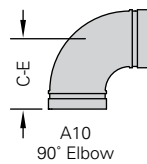
Model

A10 90° Elbow
A20 Tee

A11 45° Elbow
A60 Cap

Shurjoint AWWA grooved end fittings are supplied with rigid radius grooves as per ANSI / AWWA C606. The fittings also conform to ANSI A21.10 / AWWA C110 for center to end (C to E) dimensions and AWWA C153 or ANSI A21.10 / AWWA

C110 for wall thickness. Pressure ratings are 500 psi (35 Bar). Fittings are supplied painted black. Other surface finish options including 'non-coated' and cement/mortar lining Type II are available on request.



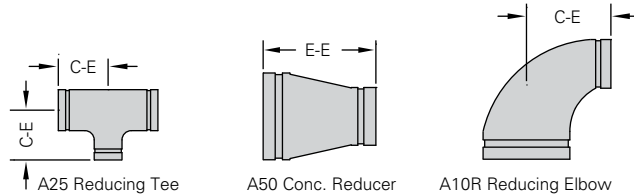
AWWA D.I. Pipe		A10 90° Elbow		A11 45° Elbow		A20 Tee		A60 Cap	
Nom. Size	O.D.	C - E	Weight	C - E	Weight	C - E	Weight	E - E	Weight
in	in	in	Lbs	in	Lbs	in	Lbs	in	Lbs
mm	mm	mm	Kgs	mm	Kgs	mm	Kgs	mm	Kgs
3	3.96	5.50	9.2	3.00	5.8	5.50	13.4	1.22	2.6
80	100.6	140	4.2	76	2.6	140	6.1	31	1.2
4	4.80	6.50	12.3	4.00	9.2	6.50	18.5	1.22	3.5
100	121.9	165	5.6	102	4.2	165	8.4	31	1.6
6	6.90	8.00	23.5	5.00	17.6	8.00	35.0	1.22	6.8
150	175.3	203	10.7	127	8.0	203	15.9	31	3.1
8	9.05	9.00	41.6	5.50	33.0	9.00	60.3	1.46	13.0
200	229.9	229	18.9	140	15.0	229	27.4	37	5.9
10	11.10	11.00	64.9	6.50	44.9	11.00	110.5	2.99	22.0
250	281.9	279	29.5	165	20.4	279	45.7	76	10.0
12	13.20	12.00	94.2	7.50	72.0	12.00	136.0	2.99	24.6
300	335.3	305	42.8	191	32.7	305	61.7	76	11.2

Model

A25 Reducing Tee

A50 Concentric Reducer

A10R Reducing Elbow



AWWA D.I. Pipe		A25 Reducing Tee		A50 Concentric Reducer		A10R 90° Reducing Elbow	
Nom. Size	O.D.	C - E	Weight	E - E	Weight	C - E	Weight
in	Lbs	in	Lbs	in	Lbs	in	Lbs
mm	Kgs	mm	Kgs	mm	Kgs	mm	Kgs
4 x 3	4.80 x 3.96	6.50	18.8	7.00	7.7	6.50	12.1
100 x 80	121.9 x 100.6	165	8.5	178	3.5	165	5.5
6 x 4	6.90 x 4.80	8.00	33.3	9.00	14.3	8.00	25.1
150 x 100	175.3 x 121.9	203	15.2	229	6.5	203	11.4
8 x 4	9.05 x 4.80	9.00	51.2	11.00	24.0	9.00	43.5
200 x 100	229.9 x 121.9	229	23.3	279	10.9	229	19.8
8 x 6	9.05 x 6.90	9.00	57.2	11.00	24.0	9.00	41.8
200 x 150	229.9 x 175.3	229	26.0	279	12.6	229	19.0
10 x 4	11.10 x 4.80	11.00*	120.0	12.00*	42.0	-	-
250 x 100	281.9 x 121.9	279	54.4	305	19.1	-	-
10 x 6	11.10 x 6.90	11.00	128.0	12.00	46.0	11.00	77.0
250 x 150	281.9 x 175.3	279	58.1	305	20.9	279	34.9
10 x 8	11.10 x 9.05	11.00	130.0	12.00	50.0	11.00	88.0
250 x 200	281.9 x 229.9	279	59.0	305	22.7	279	39.9
12 x 4	13.20 x 4.80	12.00*	112.0	14.00*	60.0	-	-
300 x 100	335.3 x 121.9	305	50.8	356	27.2	-	-
12 x 6	13.20 x 6.90	12.00*	180.0	14.00*	70.0	12.00*	110.0
300 x 150	335.3 x 175.3	305	81.7	356	31.8	305	49.9
12 x 8	13.20 x 9.05	12.00*	186.0	14.00*	74.0	12.00*	126.0
300 x 200	335.3 x 229.9	305	84.4	356	33.6	305	57.2
12 x 10	13.20 x 11.10	12.00*	192.0	14.00	84.0	12.00*	150.0
300 x 250	335.3 x 281.9	305	87.1	356	38.1	305	68.0

* Non-standard/stock items may require longer lead time.