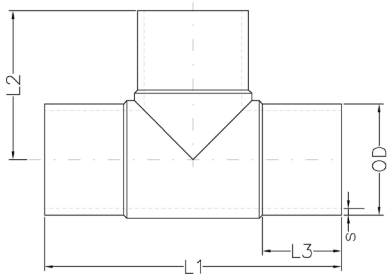


Butt Fusion IPS Tees



- Molded from black PE 100 / 4710 resin & NSF-61 certified
- Complies with the following product standards: ASTM D2513, D3261, D3350, and AWWA C906
- Made in the USA
- FM Approval Class 1613



SDR 7 (STANDARD DIMENSION RATIO) 335 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.115.0002.07	2" IPS	9.69	4.88	2.87	0.339	2.375	335
FF-51.115.0003.07	3" IPS	11.61	5.79	3.54	0.500	3.500	335
FF-51.115.0004.07	4" IPS	13.78	6.89	3.94	0.643	4.500	335
FF-51.115.0006.07	6" IPS	17.68	8.82	4.72	0.946	6.625	335
FF-51.115.0008.07	8" IPS	23.03	11.46	5.67	1.232	8.625	335
FF-51.115.0010.07	10" IPS	27.17	13.54	6.22	1.536	10.750	335
FF-51.115.0012.07	12" IPS	29.72	14.84	6.77	1.821	12.750	335

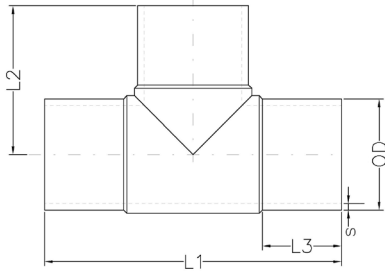
SDR 9 (STANDARD DIMENSION RATIO) 250 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.115.0002.09	2" IPS	9.69	4.88	2.87	0.264	2.375	250
FF-51.115.0003.09	3" IPS	11.61	5.79	3.54	0.389	3.500	250
FF-51.115.0004.09	4" IPS	13.78	6.89	3.94	0.500	4.500	250
FF-51.115.0006.09	6" IPS	17.68	8.82	4.72	0.736	6.625	250
FF-51.115.0008.09	8" IPS	23.03	11.46	5.67	0.958	8.625	250
FF-51.115.0010.09	10" IPS	27.17	13.54	6.22	1.194	10.750	250
FF-51.115.0012.09	12" IPS	29.72	14.84	6.77	1.417	12.750	250

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.
4. Only fittings with a FM pressure rating are FM approved.

Butt Fusion IPS Tees



- Molded from black PE 100 / 4710 resin & NSF-61 certified
- Complies with the following product standards: ASTM D2513, D3261, D3350, and AWWA C906
- Made in the USA
- FM Approval Class 1613



SDR 11 (STANDARD DIMENSION RATIO) 200 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.115.0075.11	¾" IPS	5.12	2.56	1.65	0.100	1.050	-
FF-51.115.0001.11	1" IPS	5.67	2.83	1.77	0.120	1.320	-
FF-51.115.0125.11	1¼" IPS	6.61	3.31	2.01	0.150	1.660	-
FF-51.115.0150.11	1½" IPS	7.99	4.00	2.52	0.170	1.900	-
FF-51.115.0002.11	2" IPS	9.69	4.88	2.87	0.216	2.375	200
FF-51.115.0003.11	3" IPS	11.61	5.79	3.54	0.318	3.500	200
FF-51.115.0004.11	4" IPS	13.78	6.89	3.94	0.409	4.500	200
FF-51.115.0006.11	6" IPS	17.68	8.82	4.72	0.603	6.625	200
FF-51.115.0008.11	8" IPS	23.03	11.46	5.67	0.785	8.625	200
FF-51.115.0010.11	10" IPS	27.17	13.54	6.22	0.978	10.750	200
FF-51.115.0012.11	12" IPS	29.72	14.84	6.77	1.160	12.750	200

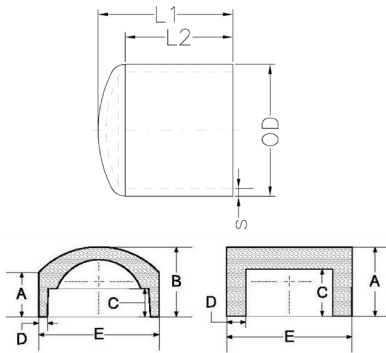
SDR 17 (STANDARD DIMENSION RATIO) 125 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.115.0002.17	2" IPS	9.69	4.88	2.87	0.14	2.38	-
FF-51.115.0003.17	3" IPS	11.61	5.79	3.54	0.21	3.50	-
FF-51.115.0004.17	4" IPS	13.78	6.89	3.94	0.26	4.50	-
FF-51.115.0006.17	6" IPS	17.68	8.82	4.72	0.39	6.63	-
FF-51.115.0008.17	8" IPS	23.03	11.46	5.67	0.51	8.63	-
FF-51.115.0010.17	10" IPS	27.17	13.54	6.22	0.63	10.75	-
FF-51.115.0012.17	12" IPS	29.72	14.84	6.77	0.75	12.75	-

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.
4. Only fittings with a FM pressure rating are FM approved.

Butt Fusion IPS End Caps



- Molded from black PE 100 / 4710 resin & NSF-61 certified
- Complies with the following product standards: ASTM D2513, D3261, D3350, and AWWA C906
- Made in the USA
- FM Approval Class 1613



SDR 7 (STANDARD DIMENSION RATIO) 335 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.314.0002.07	2" IPS	3.86	3.15	0.339	2.38	335
FF-51.314.0003.07	3" IPS	4.61	3.58	0.500	3.50	335
FF-51.314.0004.07	4" IPS	5.24	3.89	0.643	4.50	335
FF-51.314.0006.07	6" IPS	6.77	4.72	0.946	6.63	335
FF-51.314.0008.07	8" IPS	8.43	5.57	1.232	8.63	335
FF-51.314.0010.07	10" IPS	9.69	6.12	1.536	10.75	335
FF-51.314.0012.07	12" IPS	11.50	7.25	1.821	12.75	335

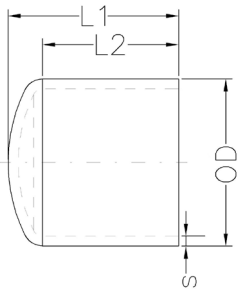
SDR 9 (STANDARD DIMENSION RATIO) 250 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.314.0002.09	2" IPS	3.86	3.15	0.264	2.38	250
FF-51.314.0003.09	3" IPS	4.61	3.58	0.389	3.50	250
FF-51.314.0004.09	4" IPS	5.24	3.89	0.500	4.50	250
FF-51.314.0006.09	6" IPS	6.77	4.72	0.736	6.63	250
FF-51.314.0008.09	8" IPS	8.43	5.57	0.958	8.63	250
FF-51.314.0010.09	10" IPS	9.69	6.12	1.194	10.75	250
FF-51.314.0012.09	12" IPS	11.50	7.25	1.417	12.75	250

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.
4. Only fittings with a FM pressure rating are FM approved.

Butt Fusion IPS End Caps



- Molded from black PE 100 / 4710 resin & NSF-61 certified
- Complies with the following product standards: ASTM D2513, D3261, D3350, and AWWA C906
- Made in the USA
- FM Approval Class 1613



SDR 11 (STANDARD DIMENSION RATIO) 200 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.114.0075.11	¾" IPS	2.05	1.77	0.10	1.05	-
FF-51.114.0001.11	1" IPS	2.20	1.77	0.12	1.32	-
FF-51.114.0125.11	1¼" IPS	2.52	1.99	0.15	1.66	-
FF-51.114.0150.11	1½" IPS	2.83	2.20	0.17	1.90	-
FF-51.114.0002.11	2" IPS	3.15	2.48	0.22	2.38	200
FF-51.114.0003.11	3" IPS	4.57	3.62	0.32	3.50	200
FF-51.114.0004.11	4" IPS	5.16	3.90	0.41	4.50	200
FF-51.114.0006.11	6" IPS	6.69	4.72	0.60	6.63	200
FF-51.114.0008.11	8" IPS	8.43	5.83	0.79	8.63	200
FF-51.114.0010.11	10" IPS	9.57	6.30	0.98	10.75	200
FF-51.114.0012.11	12" IPS	11.46	7.48	1.16	12.75	200

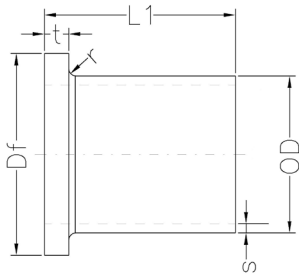
SDR 17 (STANDARD DIMENSION RATIO) 150 PSI (WORKING PRESSURE AT 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.114.0002.17	2" IPS	3.15	2.48	0.14	2.38	-
FF-51.114.0003.17	3" IPS	4.57	3.62	0.21	3.50	-
FF-51.114.0004.17	4" IPS	5.16	3.90	0.26	4.50	-
FF-51.114.0006.17	6" IPS	6.69	4.72	0.39	6.63	-
FF-51.114.0008.17	8" IPS	8.43	5.83	0.51	8.63	-
FF-51.114.0010.17	10" IPS	9.57	6.30	0.63	10.75	-
FF-51.114.0012.17	12" IPS	11.46	7.48	0.75	12.75	-

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.
4. Only fittings with a FM pressure rating are FM approved.

Butt Fusion
IPS
Flange Adapters



- Molded from black PE 100 / 4710 resin & NSF-61 certified
- Complies with the following product standards: ASTM D2513, D3261, D3350, F2880, and AWWA C906
- Made in the USA
- FM Approval Class 1613

SDR 7 (STANDARD DIMENSION RATIO) 335 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	s (inch) Wall	OD (inch)	Df (inch)	t (inch) Wall	r (inch)	FM Pressure Rating (psi.)
FF-51.312.0002.07	2" IPS	7.400	0.34	2.380	3.85	0.49	0.19	-
FF-51.312.0003.07	3" IPS	6.030	0.50	3.500	5.00	0.84	0.28	-
FF-51.312.0004.07	4" IPS	6.330	0.64	4.500	6.54	1.00	0.28	-
FF-51.312.0006.07	6" IPS	7.247	0.95	6.630	8.60	1.00	0.28	-
FF-51.312.0008.07	8" IPS	8.105	1.23	8.625	10.70	1.12	0.35	-
FF-51.312.0010.07	10" IPS	11.980	1.54	10.75	12.75	1.54	0.35	-

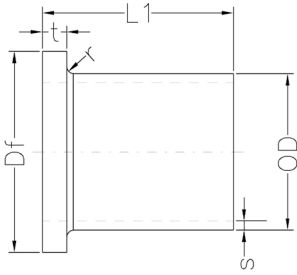
SDR 9 (STANDARD DIMENSION RATIO) 250 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	s (inch) Wall	OD (inch)	Df (inch)	t (inch) Wall	r (inch)	FM Pressure Rating (psi.)
FF-51.312.0002.09	2" IPS	7.4	0.26	2.38	3.85	0.49	0.19	-
FF-51.312.0003.09	3" IPS	6.03	0.39	3.50	5.00	0.84	0.28	-
FF-51.312.0004.09	4" IPS	6.33	0.50	4.50	6.54	1.00	0.28	-
FF-51.312.0006.09	6" IPS	7.247	0.74	6.63	8.60	1.00	0.28	-
FF-51.312.0008.09	8" IPS	8.105	0.96	8.625	10.70	1.12	0.35	-
FF-51.312.0010.09	10" IPS	11.98	1.19	10.75	12.75	1.54	0.35	-

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.
4. Only fittings with a FM pressure rating are FM approved.

Butt Fusion IPS Flange Adapters



- Molded from black PE 100 / 4710 resin & NSF-61 certified
- Complies with the following product standards: ASTM D2513, D3261, D3350, F2880, and AWWA C906
- Made in the USA
- FM Approval Class 1613



SDR 11 (STANDARD DIMENSION RATIO) 200 PSI (WORKING PRESSURE AT 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	s (inch) Wall	OD (inch)	Df (inch)	t (inch) Wall	r (inch)	FM Pressure Rating (psi.)
FF-51.112.0075.11	¾" IPS	4.02	0.09	1.05	1.85	0.39	0.12	-
FF-51.112.0001.11	1" IPS	4.02	0.12	1.32	2.36	0.39	0.12	-
FF-51.112.0125.11	1¼" IPS	4.02	0.15	1.66	2.80	0.39	0.20	-
FF-51.112.0150.11	1½" IPS	4.02	0.17	1.90	3.15	0.39	0.20	-
FF-51.112.0002.11	2" IPS	6.10	0.22	2.38	3.94	0.55	0.20	200
FF-51.112.0003.11	3" IPS	6.10	0.32	3.50	5.00	0.67	0.28	200
FF-51.112.0004.11	4" IPS	6.10	0.41	4.50	6.61	0.79	0.28	200
FF-51.112.0006.11	6" IPS	7.87	0.60	6.63	8.50	1.02	0.28	200
FF-51.112.0008.11	8" IPS	10.63	0.79	8.63	10.63	1.26	0.35	200
FF-51.112.0010.11	10" IPS	12.99	0.98	10.75	12.99	1.38	0.35	200
FF-51.112.0012.11	12" IPS	15.75	1.16	12.75	15.75	1.5	0.35	200
FF-51.112.0014.11	14" IPS	13.00	1.27	13.94	17.5	1.50	0.43	-
FF-51.112.0016.11	16" IPS	13.00	1.45	15.93	20.0	1.77	0.43	-
FF-51.112.0018.11	18" IPS	13.00	1.64	17.92	21.38	1.89	0.43	-

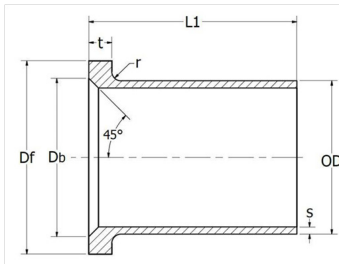
SDR 17 (STANDARD DIMENSION RATIO) 150 PSI (WORKING PRESSURE AT 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	s (inch) Wall	OD (inch)	Df (inch)	t (inch) Wall	r (inch)	FM Pressure Rating (psi.)
FF-51.112.0002.17	2" IPS	6.10	0.14	2.38	3.94	0.55	0.20	-
FF-51.112.0003.17	3" IPS	6.10	0.21	3.50	5.00	0.67	0.28	-
FF-51.112.0004.17	4" IPS	6.10	0.26	4.50	6.61	0.79	0.28	-
FF-51.112.0006.17	6" IPS	8.50	0.39	6.63	8.50	1.02	0.28	-
FF-51.112.0008.17	8" IPS	10.51	0.51	8.63	10.63	1.02	0.35	-
FF-51.112.0010.17	10" IPS	11.61	0.63	10.75	12.99	1.18	0.35	-
FF-51.112.0012.17	12" IPS	10.83	0.75	12.75	15.75	1.38	0.35	-
FF-51.112.0014.17	14" IPS	13.00	0.83	13.94	17.50	1.50	0.43	-
FF-51.112.0016.17	16" IPS	13.00	0.94	15.93	20.00	1.77	0.43	-
FF-51.112.0018.17	18" IPS	13.00	1.06	17.92	21.38	1.89	0.43	-

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.
4. Only fittings with a FM pressure rating are FM approved.

Butt Fusion IPS Beveled Flange Adapters



- Molded from black PE 100 / 4710 resin & NSF-61 certified
- Complies with the following product standards: ASTM D2513, D3261, D3350, and AWWA C906
- Made in the USA
- FM Approval Class 1613



SDR 17 (STANDARD DIAMETER RATIO) 150 PSI (WORKING PRESSURE AT 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	s (inch) Wall	OD (inch)	Df (inch)	Db (inch)	t (inch) Wall	r (inch)	FM Pressure Rating (psi.)
FF-51.112B45.002.17	2" IPS	6.10	0.14	2.38	3.94	2.8	0.55	0.20	-
FF-51.112B45.003.17	3" IPS	6.10	0.21	3.5	5.00	3.8	0.67	0.28	-
FF-51.112B45.004.17	4" IPS	6.10	0.26	4.5	6.61	4.8	0.79	0.28	-
FF-51.112B45.006.17	6" IPS	8.50	0.39	6.63	8.50	6.6	1.02	0.28	-
FF-51.112B45.008.17	8" IPS	10.51	0.51	8.63	10.63	8.6	1.02	0.35	-
FF-51.112B45.010.17	10" IPS	11.61	0.63	10.75	12.99	10.75	1.18	0.35	-
FF-51.112B45.012.17	12" IPS	10.83	0.75	12.75	15.75	12.75	1.38	0.35	-
FF-51.112B45.014.17	14" IPS	13.0	0.83	13.94	17.50	13.94	1.50	0.43	-
FF-51.112B45.016.17	16" IPS	13.0	0.94	15.93	20.00	15.93	1.77	0.43	-
FF-51.112B45.018.17	18" IPS	13.0	1.06	17.92	21.38	17.92	1.89	0.43	-

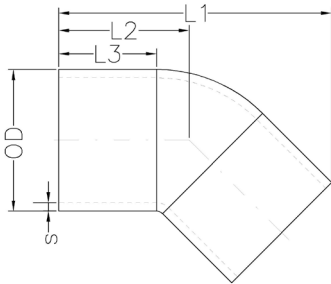
SDR 11 (STANDARD DIMENSION RATIO) 200 PSI (WORKING PRESSURE AT 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	s (inch) Wall	OD (inch)	Df (inch)	Db (inch)	t (inch) Wall	r (inch)	FM Pressure Rating (psi.)
FF-51.112B45.0002.11	2" IPS	6.10	0.22	2.38	3.94	2.8	0.55	0.20	200
FF-51.112B45.0003.11	3" IPS	6.10	0.32	3.50	5.00	3.8	0.67	0.28	200
FF-51.112B45.0004.11	4" IPS	6.10	0.41	4.50	6.61	4.8	0.79	0.28	200
FF-51.112B45.0006.11	6" IPS	7.87	0.60	6.63	8.50	6.6	1.02	0.28	200
FF-51.112B45.0008.11	8" IPS	10.63	0.79	8.63	10.83	8.6	1.26	0.35	200
FF-51.112B45.0010.11	10" IPS	12.99	0.98	10.75	12.99	10.75	1.38	0.35	200
FF-51.112B45.0012.11	12" IPS	15.75	1.16	12.75	15.75	12.75	1.50	0.35	200
FF-51.112B45.0014.11	14" IPS	13.0	1.27	13.94	17.5	TBD	1.50	0.43	-
FF-51.112B45.0016.11	16" IPS	13.0	1.45	15.93	20.0	TBD	1.77	0.43	-
FF-51.112B45.0018.11	18" IPS	13.0	1.64	17.92	21.38	TBD	1.89	0.43	-

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.
4. Only fittings with a FM pressure rating are FM approved.

Butt Fusion IPS 45° Elbows



- Molded from black PE 100 / 4710 resin & NSF-61 certified
- Complies with the following product standards: ASTM D2513, D3261, D3350, and AWWA C906
- Made in the USA
- FM Approval Class 1613



SDR 7 (STANDARD DIMENSION RATIO) 335 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.110.0002.07	2" IPS	8.28	4.2	2.40	0.339	2.38	335
FF-51.110.0003.07	3" IPS	10.15	5.00	2.50	0.500	3.50	335
FF-51.110.0004.07	4" IPS	10.70	5.07	2.80	0.643	4.50	335
FF-51.110.0006.07	6" IPS	16.27	8.13	4.00	0.946	6.63	335
FF-51.110.0008.07	8" IPS	16.97	7.90	4.80	1.232	8.63	-
FF-51.110.0010.07	10" IPS	20.28	9.10	5.60	1.536	10.75	-
FF-51.110.0012.07	12" IPS	21.93	10.12	5.98	1.821	12.75	-

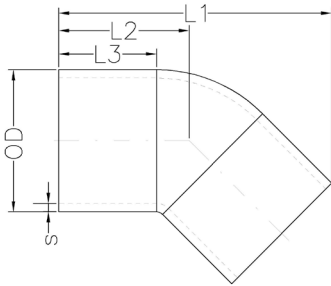
SDR 9 (STANDARD DIMENSION RATIO) 250 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.110.0002.09	2" IPS	8.28	4.20	2.40	0.264	2.38	250
FF-51.110.0003.09	3" IPS	10.15	5.00	2.50	0.389	3.50	250
FF-51.110.0004.09	4" IPS	10.70	5.07	2.80	0.500	4.50	250
FF-51.110.0006.09	6" IPS	16.27	8.13	4.00	0.736	6.63	250
FF-51.110.0008.09	8" IPS	16.97	7.90	4.80	0.958	8.63	-
FF-51.110.0010.09	10" IPS	20.28	9.10	5.60	1.194	10.75	-
FF-51.110.0012.09	12" IPS	21.93	10.12	5.98	1.417	12.75	-

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.
4. Only fittings with a FM pressure rating are FM approved.

Butt Fusion IPS 45° Elbows



- Molded from black PE 100 / 4710 resin & NSF-61 certified
- Complies with the following product standards: ASTM D2513, D3261, D3350, and AWWA C906
- Made in the USA
- FM Approval Class 1613



SDR 11 (STANDARD DIMENSION RATIO) 200 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.110.0075.11	¾" IPS	4.53	2.44	1.77	0.10	1.05	-
FF-51.110.0001.11	1" IPS	4.84	2.56	1.85	0.12	1.32	-
FF-51.110.0125.11	1¼" IPS	5.71	2.99	2.05	0.15	1.66	-
FF-51.110.0150.11	1½" IPS	6.14	3.23	2.24	0.17	1.90	-
FF-51.110.0002.11	2" IPS	6.38	3.23	2.52	0.22	2.38	200
FF-51.110.0003.11	3" IPS	9.09	4.57	3.39	0.32	3.50	200
FF-51.110.0004.11	4" IPS	10.24	5.04	3.58	0.41	4.50	200
FF-51.110.0006.11	6" IPS	13.82	6.61	4.53	0.60	6.63	200
FF-51.110.0008.11	8" IPS	16.97	8.15	5.63	0.79	8.63	200
FF-51.110.0010.11	10" IPS	20.28	9.61	6.18	0.98	10.75	200
FF-51.110.0012.11	12" IPS	21.93	10.04	6.50	1.16	12.75	200

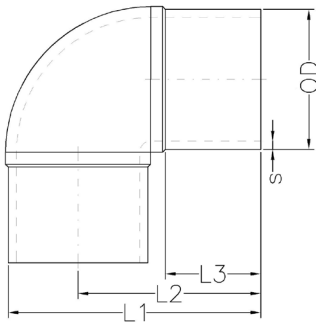
SDR 17 (STANDARD DIMENSION RATIO) 150 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.110.0002.17	2" IPS	6.38	3.23	2.52	0.14	2.38	-
FF-51.110.0003.17	3" IPS	9.09	4.57	3.39	0.21	3.50	-
FF-51.110.0004.17	4" IPS	10.24	5.04	3.58	0.26	4.50	-
FF-51.110.0006.17	6" IPS	13.82	6.61	4.53	0.39	6.63	-
FF-51.110.0008.17	8" IPS	16.97	8.15	5.63	0.51	8.63	-
FF-51.110.0010.17	10" IPS	20.28	9.61	6.18	0.63	10.75	-
FF-51.110.0012.17	12" IPS	21.93	10.04	6.50	0.75	12.75	-

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.
4. Only fittings with a FM pressure rating are FM approved.

Butt Fusion IPS 90° Elbows



- Molded from black PE 100 / 4710 resin & NSF-61 certified
- Complies with the following product standards: ASTM D2513, D3261, D3350, and AWWA C906
- Made in the USA
- FM Approval Class 1613



SDR 7 (STANDARD DIMENSION RATIO) 335 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.113.0002.07	2" IPS	5.75	4.25	2.45	0.339	2.38	335
FF-51.113.0003.07	3" IPS	7.53	5.65	3.05	0.500	3.50	335
FF-51.113.0004.07	4" IPS	8.68	6.13	3.25	0.643	4.50	335
FF-51.113.0006.07	6" IPS	12.80	9.28	4.05	0.946	6.63	335
FF-51.113.0008.07	8" IPS	15.75	10.71	4.80	1.232	8.63	-
FF-51.113.0010.07	10" IPS	18.82	12.64	5.55	1.536	10.75	-
FF-51.113.0012.07	12" IPS	20.83	14.29	5.98	1.821	12.75	-

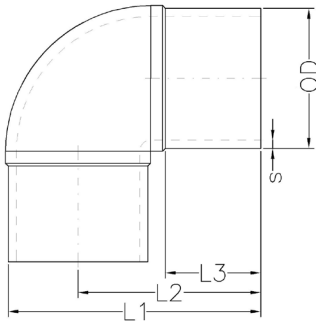
SDR 9 (STANDARD DIMENSION RATIO) 250 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.113.0002.09	2" IPS	5.75	4.25	2.45	0.264	2.38	250
FF-51.113.0003.09	3" IPS	7.53	5.65	3.05	0.389	3.50	250
FF-51.113.0004.09	4" IPS	8.68	6.13	3.25	0.500	4.50	250
FF-51.113.0006.09	6" IPS	12.8	9.28	4.05	0.736	6.63	250
FF-51.113.0008.09	8" IPS	15.75	10.71	4.80	0.958	8.63	-
FF-51.113.0010.09	10" IPS	18.82	12.64	5.55	1.194	10.75	-
FF-51.113.0012.09	12" IPS	20.83	14.29	5.98	1.417	12.75	-

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.
4. Only fittings with a FM pressure rating are FM approved.

Butt Fusion IPS 90° Elbows



- Molded from black PE 100 / 4710 resin & NSF-61 certified
- Complies with the following product standards: ASTM D2513, D3261, D3350, and AWWA C906
- Made in the USA
- FM Approval Class 1613



SDR 11 (STANDARD DIMENSION RATIO) 200 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.113.0075.11	3/4" IPS	3.35	2.83	1.77	0.10	1.05	-
FF-51.113.0001.11	1" IPS	3.66	3.03	1.85	0.12	1.32	-
FF-51.113.0125.11	1 1/4" IPS	4.33	3.46	2.05	0.15	1.66	-
FF-51.113.0150.11	1 1/2" IPS	4.88	3.94	2.24	0.17	1.90	-
FF-51.113.0002.11	2" IPS	5.71	4.41	2.44	0.22	2.38	200
FF-51.113.0003.11	3" IPS	7.48	5.67	3.23	0.32	3.50	200
FF-51.113.0004.11	4" IPS	8.9	6.54	3.66	0.41	4.50	200
FF-51.113.0006.11	6" IPS	12.13	8.74	4.49	0.60	6.63	200
FF-51.113.0008.11	8" IPS	15.75	11.42	5.63	0.79	8.63	200
FF-51.113.0010.11	10" IPS	18.82	13.35	6.14	0.98	10.75	200
FF-51.113.0012.11	12" IPS	20.83	14.17	6.30	1.16	12.75	200

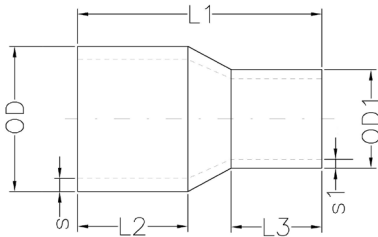
SDR 17 (STANDARD DIMENSION RATIO) 150 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	FM Pressure Rating (psi.)
FF-51.113.0002.17	2" IPS	5.71	4.41	2.44	0.14	2.38	-
FF-51.113.0003.17	3" IPS	7.48	5.67	3.23	0.21	3.50	-
FF-51.113.0004.17	4" IPS	8.90	6.54	3.66	0.26	4.50	-
FF-51.113.0006.17	6" IPS	12.13	8.74	4.49	0.39	6.63	-
FF-51.113.0008.17	8" IPS	15.75	11.42	5.63	0.51	8.63	-
FF-51.113.0010.17	10" IPS	18.82	13.35	6.14	0.63	10.75	-
FF-51.113.0012.17	12" IPS	20.83	14.17	6.30	0.75	12.75	-

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.
4. Only fittings with a FM pressure rating are FM approved.

Butt Fusion IPS Reducers



- Molded from black PE 100 / 4710 resin & NSF-61 certified
- Complies with the following product standards: ASTM D2513, D3261, D3350, and AWWA C906
- Made in the USA
- FM Approval Class 1613



SDR 7 (STANDARD DIMENSION RATIO) 335 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	s1 (inch) Min Wall	OD 1 (inch)	FM Pressure Rating (psi.)
FF-51.317.0201.07	2 x 1" IPS	6.15	3.00	1.525	0.340	2.375	0.190	1.315	-
FF-51.317.0302.07	3 x 2" IPS	7.91	3.46	3.310	0.500	3.500	0.339	2.380	335
FF-51.317.0402.07	4 x 2" IPS	8.82	3.58	3.310	0.643	4.500	0.339	2.380	335
FF-51.317.0403.07	4 x 3" IPS	7.99	3.58	3.460	0.643	4.500	0.500	3.500	335
FF-51.317.0604.07	6 x 4" IPS	9.88	4.21	3.580	0.946	6.630	0.643	4.500	335
FF-51.317.0806.07	8 x 6" IPS	11.18	5.08	4.210	1.232	8.630	0.946	6.630	335
FF-51.317.1008.07	10 x 8" IPS	12.83	5.87	5.080	1.536	10.75	1.232	8.630	-
FF-51.317.1210.07	12 x 10" IPS	14.02	6.26	5.870	1.821	12.75	1.536	10.75	-

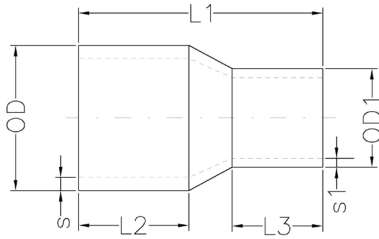
SDR 9 (STANDARD DIMENSION RATIO) 250 PSI (WORKING PRESSURE AS 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	s1 (inch) Min Wall	OD 1 (inch)	FM Pressure Rating (psi.)
FF-51.317.0201.09	2 x 1" IPS	6.15	3.00	1.525	0.26	2.375	0.150	1.315	-
FF-51.317.0302.09	3 x 2" IPS	7.91	3.46	3.310	0.389	3.500	0.264	2.380	250
FF-51.317.0402.09	4 x 2" IPS	8.82	3.58	3.310	0.500	4.500	0.264	2.380	250
FF-51.317.0403.09	4 x 3" IPS	7.99	3.58	3.460	0.500	4.500	0.389	3.500	250
FF-51.317.0604.09	6 x 4" IPS	9.88	4.21	3.580	0.736	6.630	0.500	4.500	250
FF-51.317.0806.09	8 x 6" IPS	11.18	5.08	4.210	0.958	8.630	0.736	6.630	250
FF-51.317.1008.09	10 x 8" IPS	12.83	5.87	5.080	1.194	10.75	0.958	8.630	-
FF-51.317.1210.09	12 x 10" IPS	14.02	6.26	5.870	1.417	12.75	1.194	10.75	-

Notes:

- All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
- The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
- Fittings are marked to meet the applicable standards.
- Only fittings with a FM pressure rating are FM approved.

Butt Fusion IPS Reducers



- Molded from black PE 100 / 4710 resin & NSF-61 certified
- Complies with the following product standards: ASTM D2513, D3261, D3350, and AWWA C906
- Made in the USA
- FM Approval Class 1613



SDR 11 (STANDARD DIMENSION RATIO) 200 PSI (WORKING PRESSURE AT 73.4° F)

Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	s1 (inch) Min Wall	OD 1 (inch)	FM Pressure Rating (psi.)
FF-51.118.2150.11	2 x 1 1/2" IPS	6.22	2.87	2.48	0.22	2.38	0.17	1.90	-
FF-51.118.0302.11	3 x 2" IPS	7.72	3.74	2.83	0.318	3.50	0.216	2.38	200
FF-51.118.0402.11	4 x 2" IPS	8.82	4.09	2.76	0.409	4.50	0.216	2.38	200
FF-51.118.0403.11	4 x 3" IPS	8.78	4.13	3.70	0.409	4.50	0.318	3.50	200
FF-51.118.0603.11	6 x 3" IPS	11.18	5.06	3.78	0.603	6.63	0.318	3.50	200
FF-51.118.0604.11	6 x 4" IPS	10.94	4.84	3.90	0.603	6.63	0.409	4.50	200
FF-51.118.0806.11	8 x 6" IPS	12.36	5.51	4.96	0.785	8.63	0.603	6.63	200
FF-51.118.1008.11	10 x 8" IPS	14.21	6.22	5.94	0.978	10.75	0.785	8.63	200
FF-51.118.1208.11	12 x 8" IPS	16.34	6.54	5.91	1.16	12.75	0.785	8.63	200
FF-51.118.1210.11	12 x 10" IPS	16.14	6.61	6.46	1.16	12.75	0.978	10.75	200

SDR 17 (STANDARD DIMENSION RATIO) 150 PSI (WORKING PRESSURE AT 73.4° F)

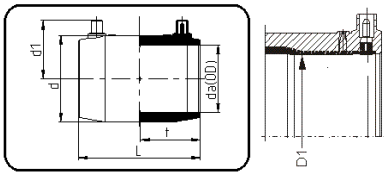
Product Code	Nominal Diameter (inch)	L1 (inch)	L2 (inch)	L3 (inch)	s (inch) Min Wall	OD (inch)	s1 (inch) Min Wall	OD 1 (inch)	FM Pressure Rating (psi.)
FF-51.118.0302.17	3 x 2" IPS	7.72	3.74	2.83	0.21	3.50	0.14	2.38	-
FF-51.118.0402.17	4 x 2" IPS	8.82	4.09	2.76	0.26	4.50	0.14	2.38	-
FF-51.118.0403.17	4 x 3" IPS	8.78	4.13	3.70	0.26	4.50	0.21	3.50	-
FF-51.118.0603.17	6 x 3" IPS	11.18	5.06	3.78	0.39	6.63	0.21	3.50	-
FF-51.118.0604.17	6 x 4" IPS	10.94	4.84	3.90	0.39	6.63	0.26	4.50	-
FF-51.118.0806.17	8 x 6" IPS	12.36	5.51	4.96	0.51	8.63	0.39	6.63	-
FF-51.118.1008.17	10 x 8" IPS	14.21	6.22	5.94	0.75	10.75	0.51	8.63	-
FF-51.118.1208.17	12 x 8" IPS	16.34	6.54	5.91	0.75	12.75	0.51	8.63	-
FF-51.118.1210.17	12 x 10" IPS	16.14	6.61	6.46	0.75	12.75	0.63	10.75	-

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.
4. Only fittings with a FM pressure rating are FM approved.

Electrofusion IPS Couplings

MONOFILAR



- Molded from black PE 100-RC / 4710 & NSF-61 approved resin
- Complies with the following product standards: ASTM D2513, D3261, D3350, F1055, and AWWA C906
- FM Approval Class 1613



SDR 11 (STANDARD DIMENSION RATIO) WATER 200 PSI, GAS* (WORKING PRESSURE AT 73.4° F)

Product Code	Nominal Diameter da OD (inch)	D1 (ID)	L (inch)	d1 (inch)	d (inch)	t (inch)	Weight (lbs.)	FM Pressure Rating (psi.)
RI-51.173.0050.11	½" IPS	0.839	2.913	1.220	1.378	1.457	0.1	-
RI-51.173.0075.11	¾" IPS	1.047	3.150	1.406	1.496	1.575	0.1	-
RI-51.173.0001.11	1" IPS	1.315	3.465	1.693	1.654	1.732	0.1	-
RI-51.173.0125.11	1 ¼" IPS	1.661	3.898	2.146	1.752	1.949	0.2	-
RI-51.173.0150.11	1 ½" IPS	1.902	4.382	2.531	1.969	2.191	0.3	-
RI-51.173.0002.11	2" IPS	2.378	5.031	3.130	2.224	2.516	0.5	250
RI-51.173.0003.11	3" IPS	3.524	5.551	4.331	2.835	2.736	0.8	250
RI-51.173.0004.11	4" IPS	4.528	5.984	5.591	3.346	2.953	1.3	250
RI-51.173.0006.11	6" IPS	6.634	7.126	8.110	4.390	3.524	3.3	250
RI-51.173.0008.11	8" IPS	8.646	9.094	10.551	5.433	4.469	6.8	250
RI-51.173.0010.11	10" IPS	10.787	9.843	13.228	6.496	4.843	13.3	250
RI-51.173.0012.11	12" IPS	12.795	10.236	15.709	7.480	5.039	18.3	250
RI-51.173.0014.11	14" IPS	14.028	11.024	17.402	8.819	5.433	30.6	-
RI-51.173.0016.11	16" IPS	16.024	11.890	x	19.646	5.945	42.3	-

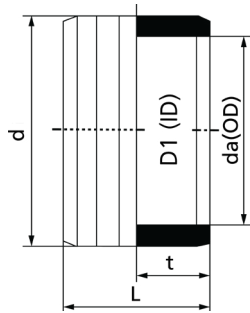
All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards Drawing shown is an approximation only. 2"-12" E-Couplings are FM Approved. Pressures listed are sustainable maximum operating pressure at 73°F.

Approved processing temperatures between -10°C (14°F) and 45°C (113°F) for couplings 28" or less. Approved processing temperatures between 0°C (32°F) and 45°C (113°F) for couplings 30" to 48".

* The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.

Electrofusion IPS Couplings

BILFILAR



- Molded from black PE 100-RC / 4710 & NSF-61 approved resin
- Complies with the following product standards: ASTM D2513, D3261, D3350, F1055, and AWWA C906

SDR 11 (STANDARD DIMENSION RATIO) WATER 200 PSI, GAS* (WORKING PRESSURE AT 73.4° F)

Product Code	Nominal Diameter da OD (inch)	D1 (ID)	L (inch)	d1 (inch)	d (inch)	t (inch)	Weight (lbs.)	FM Pressure Rating (psi.)
RI-51.373.0018.11	18" IPS	18.016	13.780	x	22.008	6.890	57.8	-
RI-51.373.0020.11	20" IPS	20.000	14.567	x	24.449	7.283	78.3	-
RI-51.373.0022.11	22" IPS	21.980	14.961	x	26.969	7.480	95.7	-
RI-51.373.0024.11	24" IPS	23.976	16.142	x	29.331	8.071	123.5	-
RI-51.373.0026.11	26" IPS	25.984	16.142	x	31.811	8.071	148.8	-
RI-51.373.0028.11	28" IPS	27.972	16.142	x	34.252	8.071	179.7	-

SDR 33-17 (STANDARD DIMENSION RATIO) WATER 150 PSI, GAS* (WORKING PRESSURE AT 73.4° F)

Product Code	Nominal Diameter da OD (inch)	D1 (ID)	L (inch)	d1 (inch)	d (inch)	t (inch)	Weight (lbs.)	FM Pressure Rating (psi.)
RI-51.373.0018.17	18" IPS	18.016	13.780	x	20.433	6.890	34.2	-
RI-51.373.0020.17	20" IPS	20.000	14.567	x	22.677	7.283	45.2	-
RI-51.373.0022.17	22" IPS	21.980	14.961	x	25.197	7.480	60.0	-
RI-51.373.0024.17	24" IPS	23.976	16.142	x	27.205	8.071	70.6	-
RI-51.373.0026.17	26" IPS	25.984	16.142	x	29.488	8.071	84.9	-
RI-51.373.0028.17	28" IPS	27.972	16.142	x	31.772	8.071	104.7	-
RI-51.373.0030.17	30" IPS	29.980	19.685	x	34.016	9.843	145.3	-
RI-51.373.0032.17	32" IPS	31.969	19.685	x	36.299	9.843	166.3	-
RI-51.373.0034.17	34" IPS	33.937	20.079	x	38.504	10.039	183.0	-
RI-51.373.0036.17	36" IPS	35.945	20.079	x	40.906	10.039	209.5	-
RI-51.373.0042.17	42" IPS	41.929	20.866	x	47.638	10.433	304.7	-
RI-51.373.0048.17	48" IPS	47.913	21.260	x	54.409	10.630	403.5	-

SDR 26 (STANDARD DIMENSION RATIO) WATER 200 PSI, GAS* (WORKING PRESSURE AT 73.4° F)

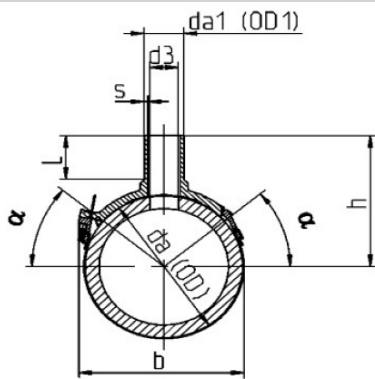
Product Code	Nominal Diameter da OD (inch)	D1 (ID)	L (inch)	d1 (inch)	d (inch)	t (inch)	Weight (lbs.)	FM Pressure Rating (psi.)
RI-51.373.0054.17	54" IPS	58.465	21.654	x	x	10.827	295.4	-
RI-51.373.0063.17	63" IPS	68.228	22.441	x	x	11.220	384.6	-

All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards Drawing shown is an approximation only. 2"-12" E-Couplings are FM Approved. Pressures listed are sustainable maximum operating pressure at 73°F. 54" and the 63" are made to order.

Approved processing temperatures between -10°C (14°F) and 45°C (113°F) for couplings 28" or less. Approved processing temperatures between 0°C (32°F) and 45°C (113°F) for couplings 30" to 48".

* The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.

Electofusion IPS Branch Saddles



- Permanent under saddle.
- Fixing tab for easy installation.

SDR 11 - STANDARD DIMENSION RATIO / WATER - MOP 200 PSI (PN 16), GAS*

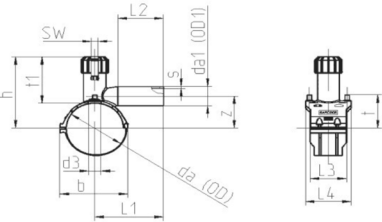
Code	Nominal Diameter [INCH]	da (OD) [INCH]	da1 (OD1) [inch]	h [INCH]	d3 [INCH]	b [INCH]	s [INCH]	alph [°]	L [INCH]	Weight [LBS]
RF-51.288.0301.11	3" x 1"	3	1	5.07	0.69	4.86	0.12	0	2.36	0.40
RF-51.288.0325.11	3" x 1¼"	3	1.25	5.07	0.94	4.86	0.12	0	2.36	0.40
RF-51.288.0302.11	3" x 2"	3	2	5.52	1.53	4.86	0.12	0	2.36	0.40
RF-51.288.0401.11	4" x 1"	4	1	5.61	0.69	5.65	0.12	0	2.36	0.46
RF-51.288.0425.11	4" x 1¼"	4	1.25	5.61	0.94	5.65	0.12	0	2.36	0.46
RF-51.288.0402.11	4" x 2"	4	2	6.20	1.53	5.65	0.12	0	2.36	0.46
RF-51.288.0601.11	6" x 1"	6	1	6.93	0.69	7.62	0.12	0	2.36	0.98
RF-51.288.0625.11	6" x 1¼"	6	1.25	6.93	0.94	7.62	0.12	0	2.36	0.98
RF-51.288.0602.11	6" x 2"	6	2	7.56	1.53	7.62	0.12	0	2.36	0.98
RF-51.288.0603.11	6" x 3"	6	3	8.27	2.53	7.62	0.12	0	2.36	0.98
RF-51.288.0604.11	6" x 4"	6	4	8.27	3.53	7.62	0.12	0	2.36	0.98
RF-51.288.0801.11	8" x 1"	8	1	7.74	0.69	9.63	0.12	0	2.36	1.02
RF-51.288.0825.11	8" x 1¼"	8	1.25	7.74	0.94	9.63	0.12	0	2.36	1.02
RF-51.288.0802.11	8" x 2"	8	2	8.37	1.53	9.63	0.12	0	2.36	1.02
RF-51.288.0803.11	8" x 3"	8	3	9.08	2.53	9.63	0.12	0	2.36	1.02
RF-51.288.0804.11	8" x 4"	8	4	9.08	3.53	9.63	0.12	0	2.36	1.02
RF-51.288.1002.11	10" x 2"	10	2	9.99	1.31	10.47	0.23	40	3.03	1.21
RF-51.288.1003.11	10" x 3"	10	3	10.78	2.31	10.47	0.23	40	3.03	1.21
RF-51.288.1004.11	10" x 4"	10	4	10.78	3.31	10.47	0.23	40	3.03	1.21
RF-51.288.1202.11	12" x 2"	12	2	10.80	1.31	11.57	0.23	40	3.03	1.36
RF-51.288.1203.11	12" x 3"	12	3	11.55	2.31	11.57	0.23	40	3.03	1.36
RF-51.288.1204.11	12" x 4"	12	4	11.55	3.31	11.57	0.23	40	3.03	1.36

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. Fittings are marked to meet the applicable standards.

* The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.

Electrofusion
IPS
Tapping Tees



SDR 11 (STANDARD DIMENSION RATIO) WATER 200 PSI, GAS* (WORKING PRESSURE AT 73.4° F)

Water - MOP 200 PSI, Gas*

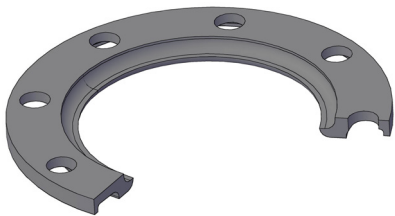
Nominal Diameter	Code	da (OD)	da1 (OD1)	s	z	L1	L2	L3	L4	d3	h	b	SW	t	t1	Weight
in		in	in	in	in	in	in	in	in	in	in	in	in	in	in	lbs
2" / 1/2" CTS	RI-51.278.0250.12	2	0.5	0.10	2.24	4.72	3.39	4.02	4.69	1.02	6.67	3.90	0.39	2.34	5.43	1.18
2" / 1" CTS	RI-51.278.0201.12	2	1.0	0.12	2.24	5.12	3.62	4.02	4.69	1.02	6.67	3.90	0.39	2.34	5.43	1.21
2" / 3/4" IPS	RI-51.278.0275.11	2	0.75	0.09	2.24	5.12	3.62	4.02	4.69	1.02	6.67	3.90	0.39	2.34	5.43	1.20
2" / 1" IPS	RI-51.278.0201.11	2	1.0	0.12	2.24	5.12	3.62	4.02	4.69	1.02	6.67	3.90	0.39	2.34	5.43	1.21
3" / 1/2" CTS	RI-51.278.0350.12	3	0.5	0.10	2.64	4.92	3.39	4.06	5.12	1.26	7.74	5.04	0.67	2.87	5.98	1.62
3" / 1" CTS	RI-51.278.0301.12	3	1.0	0.12	2.64	5.12	3.62	4.06	5.12	1.26	7.74	5.04	0.67	2.87	5.98	1.64
3" / 3/4" IPS	RI-51.278.0375.11	3	0.75	0.09	2.64	5.12	3.62	4.06	5.12	1.26	7.74	5.04	0.67	2.87	5.98	1.63
3" / 1" IPS	RI-51.278.0301.11	3	1.0	0.12	2.64	5.12	3.62	4.06	5.12	1.26	7.74	5.04	0.67	2.87	5.98	1.65
4" / 1/2" CTS	RI-51.278.0450.12	4	0.5	0.10	2.99	4.92	3.39	4.06	5.12	1.26	8.13	5.87	0.67	3.27	5.98	1.71
4" / 1" CTS	RI-51.278.0401.12	4	1.0	0.12	2.99	5.12	3.62	4.06	5.12	1.26	8.13	5.87	0.67	3.27	5.98	1.74
4" / 3/4" IPS	RI-51.278.0475.11	4	0.75	0.09	2.99	5.12	3.62	4.06	5.12	1.26	8.13	5.87	0.67	3.27	5.98	1.72
4" / 1" IPS	RI-51.278.0401.11	4	1.0	0.12	2.99	5.12	3.62	4.06	5.12	1.26	8.13	5.87	0.67	3.27	5.98	1.74
6" / 1/2" CTS	RI-51.278.0650.12	6	0.5	0.10	3.90	4.92	3.39	4.06	5.16	1.26	9.11	8.03	0.67	4.25	5.98	1.28
6" / 1" CTS	RI-51.278.0601.12	6	1.0	0.12	3.90	5.12	3.62	4.06	5.16	1.26	9.11	8.03	0.67	4.25	5.98	1.90
6" / 3/4" IPS	RI-51.278.0675.11	6	0.75	0.09	3.90	5.12	3.62	4.06	5.16	1.26	9.11	8.03	0.67	4.25	5.98	1.89
6" / 1" IPS	RI-51.278.0601.11	6	1.0	0.12	3.90	5.12	3.62	4.06	5.16	1.26	9.11	8.03	0.67	4.25	5.98	1.90

Notes:

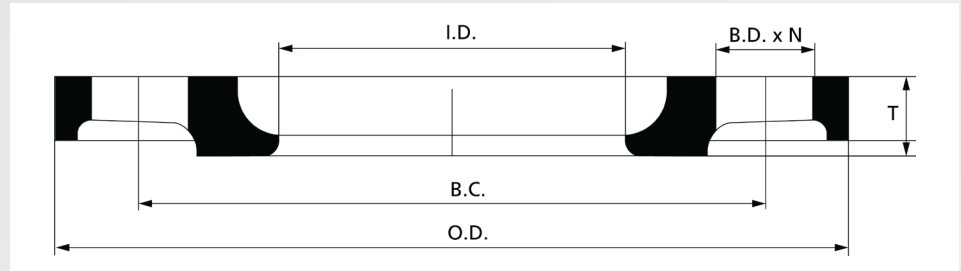
1. All dimensions shown are nominal and subject to manufacturing tolerance OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. Fittings are marked to meet the applicable standards.

* The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.

Ductile Iron Back-up Rings



- Material: ASTM A536, G65-45-12
- Description: Convuluted design with heat fused epoxy for use with HDPE flange adapters
- Meets Requirements: Class 150, Mates with ANSI B16.5 and AWWA C207



SDR 7 (STANDARD DIMENSION RATIO) 335 PSI (WORKING PRESSURE AS 73.4° F)

IPS Pipe Dia.	Product Code	Outside Dia. (inch)	Inside Dia. (inch)	Flange Thick. (inch)	Bolt Hole No.	Bolt Hole Dia. (inch)	Bolt Hole Circle (inch)	Unit Weight (lbs.)	FM Pressure Rating (psi.)
¾"	RO-BRINGS-DI-R7-00.75	3.88	1.12	0.50	4	0.63	2.75	1.10	-
1"	RO-BRINGS-DI-R7-01.00	4.25	1.39	0.56	4	0.63	3.13	1.60	-
1 ¼"	RO-BRINGS-DI-R7-01.25	4.63	1.73	0.63	4	0.63	3.50	1.90	-
1 ½"	RO-BRINGS-DI-R7-01.50	5.00	1.98	0.69	4	0.63	3.88	2.00	-
2"	RO-BRINGS-DI-R7-02.00	6.00	2.60	0.75	4	0.75	4.75	2.80	-
3"	RO-BRINGS-DI-R7-03.00	7.50	3.75	0.85	4	0.75	6.00	4.00	-
4"	RO-BRINGS-DI-R7-04.00	9.00	4.75	0.92	8	0.75	7.50	5.60	-
6"	RO-BRINGS-DI-R7-06.00	11.00	6.88	1.00	8	0.88	9.50	8.00	-
8"	RO-BRINGS-DI-R7-08.00	13.50	8.88	1.12	8	0.88	11.75	12.5	-
10"	RO-BRINGS-DI-R7-10.00	16.00	11.00	1.22	12	1.00	14.25	16.8	-
12"	RO-BRINGS-DI-R7-12.00	19.00	13.15	1.48	12	1.00	17.00	26.8	-

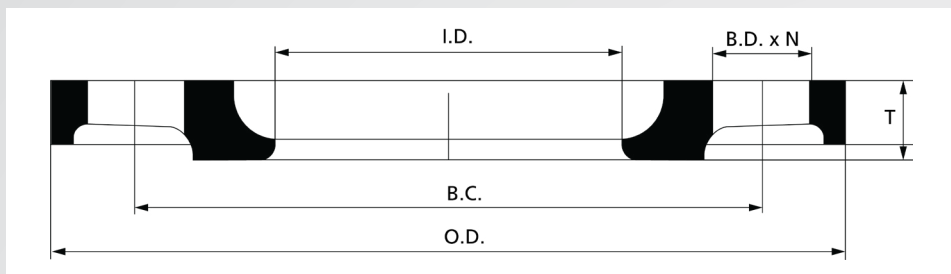
Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance OD and minimum wall are determined in accordance with ASTM and ANSI standards. Drawing shown is an approximation only.
2. Back-up Rings are marked to meet the applicable standards.
3. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
4. Only fittings with a FM pressure rating are FM approved.

Ductile Iron Back-up Rings



- Material: ASTM A536, G65-45-12
- Description: Convolved design with heat fused epoxy for use with HDPE flange adapters
- Meets Requirements: Class 150, Mates with ANSI B16.5 and AWWA C207
- FM Approval Class 1613



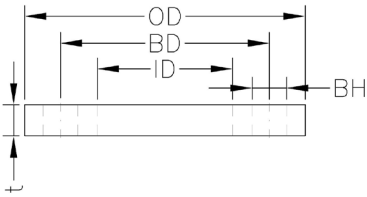
SDR 11 (STANDARD DIMENSION RATIO) 200 PSI (WORKING PRESSURE AT 73.4° F)

IPS Pipe Dia.	Product Code	Outside Dia. (inch)	Inside Dia. (inch)	Flange Thick. (inch)	Bolt Hole No.	Bolt Hole Dia. (inch)	Bolt Hole Circle (inch)	Unit Weight (lbs.)	FM Pressure Rating (psi.)
2"	RO-BRINGS-DI-R11-02.00	6.00	2.60	0.52	4	0.75	4.75	2.80	200
3"	RO-BRINGS-DI-R11-03.00	7.50	3.75	0.55	4	0.75	6.00	4.00	200
4"	RO-BRINGS-DI-R11-04.00	9.00	4.75	0.60	8	0.75	7.50	5.60	200
6"	RO-BRINGS-DI-R11-06.00	11.00	6.88	0.67	8	0.88	9.50	8.00	200
8"	RO-BRINGS-DI-R11-08.00	13.50	8.88	0.90	8	0.88	11.75	12.5	200
10"	RO-BRINGS-DI-R11-10.00	16.00	11.00	1.05	12	1.00	14.25	16.8	200
12"	RO-BRINGS-DI-R11-12.00	19.00	13.15	1.35	12	1.00	17.00	26.8	200
14"	RO-BRINGS-DI-R11-14.00	21.00	14.40	1.45	12	1.13	18.75	36.0	-
16"	RO-BRINGS-DI-R11-16.00	23.50	16.40	1.72	16	1.13	21.25	44.0	-
18"	RO-BRINGS-DI-R11-18.00	25.00	18.40	1.75	16	1.25	22.75	49.5	-
20"	RO-BRINGS-DI-R11-20.00	27.50	20.50	1.90	20	1.25	25.00	61.0	-
22"	RO-BRINGS-DI-R11-22.00	29.50	22.50	2.00	20	1.38	27.25	73.0	-
24"	RO-BRINGS-DI-R11-24.00	32.00	24.50	2.23	20	1.38	29.50	89.0	-
28"	RO-BRINGS-DI-R11-28.00	36.50	28.60	2.48	28	1.38	34.00	124.0	-
30"	RO-BRINGS-DI-R11-30.00	38.75	30.60	2.68	28	1.38	36.00	148.0	-
32"	RO-BRINGS-DI-R11-32.00	41.75	32.60	2.74	28	1.63	38.50	178.0	-
36"	RO-BRINGS-DI-R11-36.00	46.00	36.60	3.15	32	1.63	42.75	238.0	-
42"	RO-BRINGS-DI-R11-42.00	53.00	42.60	3.55	36	1.63	49.50	345.0	-
48"	RO-BRINGS-DI-R11-48.00	59.50	48.60	3.95	44	1.63	56.00	458.0	-

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. Back-up Rings are marked to meet the applicable standards.
3. Only fittings with a FM pressure rating are FM approved.
4. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.

ANSI PP-FRP Steel Insert Back-up Rings



- For use in highly corrosive environments
- Longer service life than DI backing rings
- Connecting dimensions: ANSI/ASME B16.5, class 150

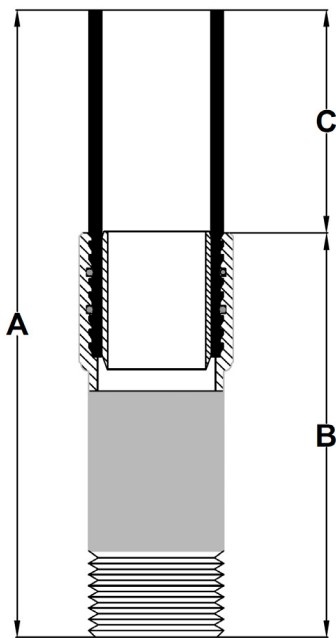
SDR 11 (STANDARD DIMENSION RATIO) 200 PSI, GAS* (WORKING PRESSURE AT 73.4° F)

Product Code	Nominal Diameter (inch)	BH (inch)	t (inch)	Diameter (inch)		
				OD	BD	ID
RO-11.013.0020.11	½"	0.63	0.47	3.74	2.38	1.12
RO-11.013.0025.11	¾"	0.63	0.47	4.02	2.75	1.36
RO-11.013.0032.11	1"	0.63	0.63	4.49	3.12	1.68
RO-11.013.0040.11	1¼"	0.63	0.63	5.12	3.50	2.03
RO-11.013.0050.11	1½"	0.63	0.71	5.24	3.88	2.46
RO-11.013.0063.11	2"	0.79	0.71	6.38	4.75	3.12
RO-11.013.0075.11	2½"	0.79	0.71	7.24	5.50	3.67
RO-11.013.0090.11	3"	0.79	0.71	7.64	6.00	4.41
RO-11.013.0110.11	4"	0.79	0.71	9.02	7.50	5.27
RO-11.013.0160.11	6"	0.87	0.94	11.14	9.50	7.06
RO-11.013.0200.11	8"	0.87	0.94	13.58	11.75	9.33
RO-11.013.0250.11	10"	0.98	1.06	16.22	14.25	11.36
RO-11.013.0315.11	12"	0.98	1.29	19.17	17.00	13.32

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and bolt hole size and location are determined in accordance with ANSI standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Back-up Rings are marked to meet the applicable standards.
4. All Back-up Rings produced at AGRU Austria.

Carbon Steel to PE Category 1 Transition Fittings



Carbon Steel to HDPE Thread End Transition Fittings Gas PE Pipe

- Electrostatically applied epoxy coating for durable corrosion resistance.
- Category 1 – Transition joint is stronger than the PE pipe.
- O-Ring seals for added leak protection.
- All steel welds are performed by an automated welding process to insure quality and consistency
- All welds are 100% air tested to insure good weld integrity.
- Meet all requirements for ASTM F1973 and ASTM D2513.
- Can be custom manufactured using pipe that meets customer specifications.
- Steel Pipe Spec: A53 Grade B, API5L
- PE Pipe Spec: ASTM PE 4710 with or without a yellow stripes

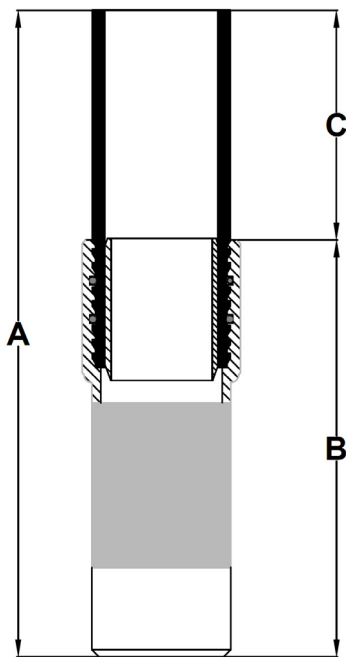
SDR 11

Description (Steel and Plastic)	A	B	C
1 1/4 IPS X 1 1/4 IPS	17.45"	6.00"	11.45"
1 1/2 IPS X 1 1/2 IPS	17.35"	6.00"	11.35"
2 IPS X 2 IPS	17.41"	6.20"	11.21"
3 IPS X 3 IPS	17.39"	7.00"	10.39"
4 IPS X 4 IPS	17.39"	7.00"	10.39"

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.

Carbon Steel to PE Category 1 Transition Fittings



Carbon Steel to PE Weld End Transition Fittings Black PE Pipe

- Electrostatically applied epoxy coating for durable corrosion resistance.
- Category 1 – Transition joint is stronger than the PE pipe.
- O-Ring seals for added leak protection.
- All steel welds are performed by an automated welding process to insure quality and consistency
- All welds are 100% air tested to insure good weld integrity.
- Meet all requirements for ASTM F1973 and ASTM D2513.
- Can be custom manufactured using pipe that meets customer specifications.
- Steel Pipe Spec: A53 Grade B, API5L
- PE Pipe Spec: ASTM PE 4710 with or without a yellow stripes

SDR 11

Description (Steel and Plastic)	A	B	C
1 1/4 IPS X 1 1/4 IPS	24.90"	13.45"	11.45"
1 1/2 IPS X 1 1/2 IPS	24.90"	13.55"	11.35"
2 IPS X 2 IPS	24.90"	13.69"	11.21"
3 IPS X 3 IPS	24.89"	14.50"	10.39"
4 IPS X 4 IPS	28.84"	14.45"	10.39"

Notes:

1. All dimensions shown are nominal and subject to manufacturing tolerance. OD and minimum wall are determined in accordance with ASTM standards. Drawing shown is an approximation only.
2. The maximum pressure for gas applications should be calculated based on the applicable local and federal regulations.
3. Fittings are marked to meet the applicable standards.