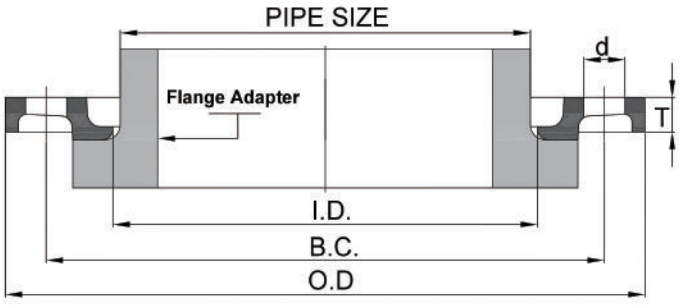
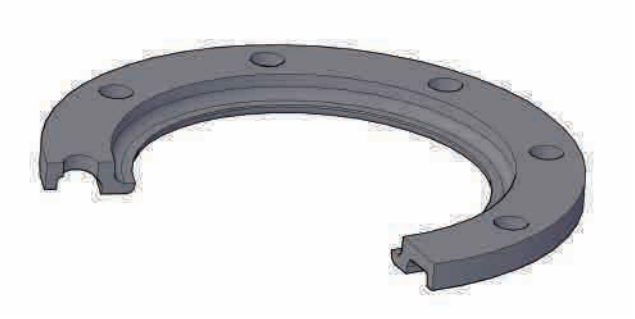
DI CAST CONVOLUTE BACKING RINGS (SDR11&SDR7)





Utilization:	Mate with HDPE and PP Flange Adaptors
Materials:	Cast Ductile Iron, ASTM A536, GGG40
Standard:	ANSI B16.5/16.47 Cl150, AWWA C207
Finish:	Fusion Bonded Epoxy Coated or Hot -dip Galvanized

IPS Pipe Dia.	Product Code	Outside Dia.	Inside Dia.	Flange Thick.	Bolt Hole No.	Bolt Hole Dia.	Bolt Circle	Unit Weight	Pressure
Inch		O.D.	I.D.	T	N	B.D.	B.C.	LBS	PSI
3/4”	DIBR-SDR7-0075D	3.88	1.13	0.51	4	0.63	2.75	1.30	350
1”	DIBR-SDR7-01D	4.25	1.41	0.56	4	0.63	3.13	1.70	350
1 1/4”	DIBR-SDR7-0125D	4.63	1.73	0.63	4	0.63	3.50	1.80	350
1 1/2”	DIBR-SDR7-015D	5.00	1.99	0.69	4	0.63	3.88	2.00	350
2"	DIBR-SDR7-02D	6.00	2.60	0.75	4	0.75	4.75	2.80	350
2"	DIBR-SDR11-02B	6.00	2.60	0.50	4	0.75	4.75	1.78	200
2.5”	DIBR-SDR7-025D	7.00	3.00	0.82	4	0.75	5.50	3.70	350
2.5”	DIBR-SDR7-025B	7.00	3.00	0.52	4	0.75	5.50	2.70	200
3"	DIBR-SDR7-03D	7.50	3.75	0.85	4	0.75	6.00	4.00	350
3"	DIBR-SDR11-03B	7.50	3.75	0.53	4	0.75	6.00	2.68	200
4"	DIBR-SDR7-04D	9.00	4.75	0.92	8	0.75	7.50	5.60	350
4"	DIBR-SDR11-04B	9.00	4.75	0.55	8	0.75	7.50	3.80	200
6"	DIBR-SDR7-06D	11.00	6.88	1.00	8	0.88	9.50	8.00	350
6"	DIBR-SDR11-06B	11.00	6.88	0.63	8	0.88	9.50	5.13	200
8"	DIBR-SDR7-08D	13.50	8.88	1.12	8	0.88	11.75	12.50	350
8"	DIBR-SDR11-08B	13.50	8.88	0.85	8	0.88	11.75	10.00	200
10"	DIBR-SDR7-10D	16.00	11.00	1.22	12	1.00	14.25	16.80	350
10"	DIBR-SDR11-10B	16.00	11.00	0.98	12	1.00	14.25	13.80	200
12"	DIBR-SDR7-12D	19.00	13.15	1.48	12	1.00	17.00	26.80	350
12"	DIBR-SDR11-12B	19.00	13.15	1.25	12	1.00	17.00	23.20	200
14"	DIBR-SDR7-14D	21.00	14.40	1.62	12	1.13	18.75	38.50	350
14"	DIBR-SDR11-14B	21.00	14.40	1.38	12	1.13	18.75	36.00	200
16"	DIBR-SDR7-16D	23.50	16.40	1.82	16	1.13	21.25	49.00	350
16"	DIBR-SDR11-16B	23.50	16.40	1.65	16	1.13	21.25	44.00	200
18"	DIBR-SDR7-18D	25.00	18.40	1.82	16	1.25	22.75	52.00	350
18"	DIBR-SDR11-18B	25.00	18.40	1.67	16	1.25	22.75	49.50	200
20"	DIBR-SDR7-20D	27.50	20.50	2.00	20	1.25	25.00	67.00	350
20"	DIBR-SDR11-20B	27.50	20.50	1.81	20	1.25	25.00	61.00	200
22"	DIBR-SDR11-22B	29.50	22.50	2.00	20	1.38	27.25	73.00	200
24"	DIBR-SDR7-24D	32.00	24.50	2.18	20	1.38	29.50	96.00	350
24"	DIBR-SDR11-24B	32.00	24.50	2.17	20	1.38	29.50	89.00	200
28"	DIBR-SDR11-28B	36.50	28.60	2.50	28	1.38	34.00	124.00	200
30"	DIBR-SDR11-30B	38.75	30.60	2.60	28	1.38	36.00	148.00	200
32"	DIBR-SDR11-32B	41.75	32.60	2.75	28	1.63	38.50	178.00	200
36"	DIBR-SDR11-36B	46.00	36.60	3.15	32	1.63	42.75	238.00	200
42"	DIBR-SDR11-42B	53.00	42.60	3.55	36	1.63	49.50	345.00	200
48"	DIBR-SDR11-48B	59.50	48.60	3.95	44	1.63	56.00	458.00	200
54"	DIBR-SDR11-54B	66.50	54.80	4.15	44	1.88	62.75	580.00	200

FLANGE INSTALLATIONS

ALIGNMENT

I. The sealing faces of the two stub-ends in a joint should be parallel to each other all around the circumference and in full contact (see lines A–A, B–B in Fig. 1).

II. The flange face C–C (see Fig. 2) should be in full contact all around the circumference with the upper face of the stub-end to avoid fulcrum effect which will lead to leaking and even breaking of the flange itself while torquing the bolts.

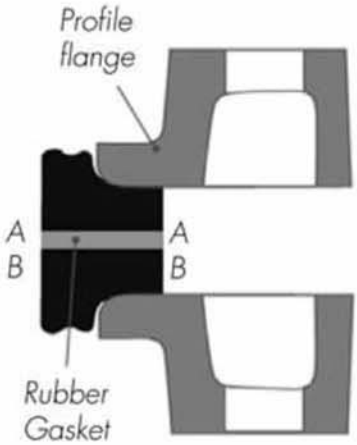


Figure 1: HDPE Stub-end

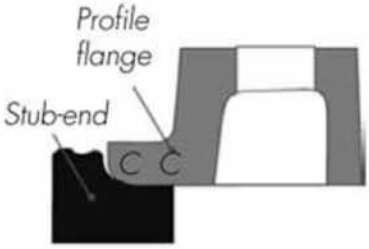


Figure 2

BOLT TIGHTENING

1. Install all the bolts and nuts finger-tight, ensuring at all times that the alignment conforms to figures 1, 2, and 3.
2. As the first torquing step, tighten the bolts in a crisscross sequence as shown in Fig. 4. Using a torque wrench with 20% of the final torque listed in the table on the other side of this sheet, taking care that points (I) and (II) are satisfied at all times.
3. In the four remaining steps, repeat step two four times, each time increasing the torque by 20% of the final value.
4. After reaching the final torque, use rotational tightening until all bolts are stable at the final torque value (in general two complete times around is required).

Always use the crisscross pattern!

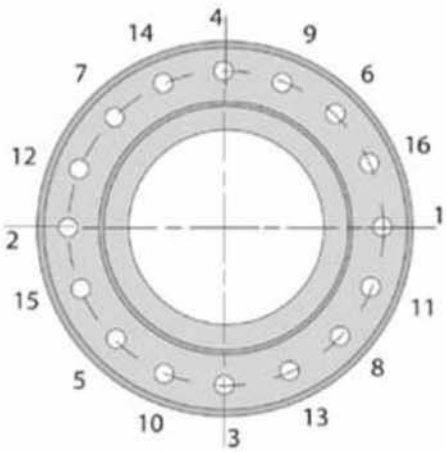


Figure 4: Tightening Sequence

CAUTION! DO NOT USE THIS PROCEDURE TO ALIGN AND/OR PULL THE JOINT TOGETHER.

TORQUE OF BOLT TIGHTENING FOR DI Backup Rings

IPS Pipe	Product	Outside	Inside	Flange	Bolt	Bolt Hole	Bolt Hole	Working	**Torque of**
Dia	Code	Dia.	Dia.	Thik.	No.	Dia.	Circle	Pressure	**Bolt Tightening**
Inch		O.D.	I.D.	T	N	B.D.	B.C.	PSI	**N.m.**
3/4"	DI-SDR7-0075C	99.00	29.00	13.00	4	16.00	70.00	267	**30-35**
1"	DI-SDR7-0100C	108.00	36.00	13.50	4	16.00	79.50	267	**30-35**
1 1/4"	DI-SDR7-0125C	117.60	44.00	16.00	4	16.00	88.90	267	**40-45**
1 1/2"	DI-SDR7-0150C	127.00	51.00	17.50	4	16.00	98.56	267	**45-50**
2"	DI-SDR11-02B	152.40	67.00	12.70	4	19.05	120.65	160	**30-35**
3"	DI-SDR11-03B	190.50	96.00	13.46	4	19.05	152.40	160	**30-35**
4"	DI-SDR11-04B	228.60	123.00	14.00	8	19.05	190.50	160	**30-35**
6"	DI-SDR11-06B	279.40	176.00	16.00	8	22.35	241.30	160	**40-45**
8"	DI-SDR11-08B	342.90	228.00	21.60	8	22.35	298.45	160	**50-60**
10"	DI-SDR11-10B	406.40	282.00	24.90	12	25.40	361.95	160	**60-70**
12"	DI-SDR11-12B	482.60	336.00	31.75	12	25.40	431.80	160	**80-90**
14“	DI-SDR11-14B	533.40	368.00	35.05	12	28.70	476.25	160	**120-130**
16"	DI-SDR11-16B	596.00	426.00	41.91	16	28.70	539.75	160	**120-130**
18"	DI-SDR11-18B	636.00	470.00	42.42	16	31.75	577.85	160	**150-160**
20"	DI-SDR11-20B	698.00	520.00	46.00	20	31.75	635.00	160	**150-160**
22"	DI-SDR11-22B	752.00	570.00	50.80	20	35.05	692.15	160	**180-200**
24"	DI-SDR11-24B	813.00	630.00	55.12	20	35.05	749.30	160	**200-220**