

Aquatherm Technical Bulletin

202310A - AQTTB

Aquatherm Polypropylene Flange Backing Rings

Date Issued: 12 October 2023

Aquatherm is transitioning the flange rings (backing rings) from the powder-coated steel to an overmolded Polypropylene with steel insert ring. This provides significant improvement in corrosion resistance and performance in harsh/corrosive environments. The molding process results in a slightly thicker ring, so as to ensure the strength and rigidity of the steel ring insert. The Aquatherm bolt kits and bolt length charts have been updated to include longer bolts where applicable (Table 1). However, existing bolt kits will also work with the new rings but may have fewer threads exposed once installed (Figure 1). Backing rings are light gray color for sizes up to 12-inch and black for larger sizes.

Flange Connection to Aquatherm Ball Valves

Historically, the backing rings for sizes 3, 3.5, 4 and 6-in. Aquatherm Polypropylene Ball Valves had slotted holes to accommodate use with either an ANSI/ASME flange connection or when connecting to the metric Aquatherm ball valve. The new molded Polypropylene/steel rings will have standard ANSI bolt holes and will not work with Aquatherm ball valves.

The Aquatherm bolt kits for the metric ball valves will now include two UNS 316L stainless steel split-rings with slotted bolt holes for making the flange connection. These are provided as a split ring so they can be used in cases where the flange adapter was previously fused to the pipe with a standard ring.



Figure 1 – Photos of installed bolt/nut/washers on new rings using Aquatherm flange-to-flange and 1/8-in EPDM gasket

Aquatherm Bolt Length Table

For use with Sangir PP Coated Flange Rings

Table 1

Aquatherm Flange Adapter		SDR	Bolt Diameter	AQT Flange-to-Flange	AQT Flange-to-Steel	AQT Flange-to-BFV
Flange Size	in.		in.	in.	in.	
32 mm	1"	all	0.5	3.00	2.50	-
40 mm	1-1/4"	all	0.5	3.25	2.75	-
50 mm	1-1/2"	all	0.5	3.50	2.75	-
63 mm	2"	all	0.63	3.75	3.25	2.25
75 mm	2-1/2"	all	0.63	4.00	3.25	2.25
90 mm	3"	all	0.63	4.00	3.50	2.25
110 mm	3-1/2"	all	0.63	4.50	3.75	-
125 mm	4"	all	0.63	4.50	4.00	2.75
160 mm	6"	7.4	0.75	5.50	4.50	3.25
160 mm	6"	9	0.75	5.50	4.50	3.25
160 mm	6"	11	0.75	5.50	4.50	3.25
160 mm	6"	17.6	0.75	5.50	4.50	3.25
200 mm	8"	7.4	0.75	6.00	5.00	3.50
200 mm	8"	9	0.75	6.00	5.00	3.50
200 mm	8"	11	0.75	6.00	5.00	3.50
200 mm	8"	17.6	0.75	6.50	5.00	3.75
250 mm	10"	7.4	0.88	7.00	5.50	4.00
250 mm	10"	9	0.88	7.00	5.50	4.00
250 mm	10"	11	0.88	7.00	5.50	4.00
250 mm	10"	17.6	0.88	7.00	5.50	4.00
315 mm	12"	9	0.88	8.00	6.00	4.75
315 mm	12"	11	0.88	7.00	5.50	4.25
315 mm	12"	17.6	0.88	6.00	5.00	3.75
355 mm	14"	9	1	10.00	7.50	5.75
355 mm	14"	11	1	7.50	6.00	4.50
355 mm	14"	17.6	1	7.50	6.00	4.50
400 mm	16"	11	1	8.00	6.50	5.00
400 mm	16"	17.6	1	7.00	6.00	4.25
450 mm	18"	11	1.13	9.50	7.00	5.75
450 mm	18"	17.6	1.13	8.00	6.50	5.25
500 mm	20"	17.6	1.13	8.50	7.00	5.75
630 mm	24"	17.6	1.25	8.50	7.00	6.25

Flange bolt specification:¹

- All flange combinations shall have washers on the bolt caps and the nuts.
- Washers shall be hardened plain washers, wide Type A, Regular Type B or Wide Type B per ASTM B18.21.1
- Flange Ring Bolts shall be ASTM A307 Grade A or B, Grade B recommended.

New Aquatherm Polypropylene Coated Flange Rings

New Part Number	Pipe Size	Ring Outside Diameter	Ring Inside Diameter	Bolt Circle Diameter	Flange Thickness	Number of Bolt Holes	Bolt Hole Size
9793815712	1" (32 mm)	4.61" (117 mm)	1.69" (43 mm)	3.13" (79.5 mm)	0.63" (16 mm)	4	0.63" (16 mm)
9793815714	1.25" (40 mm)	4.61" (117 mm)	2.05" (52 mm)	3.50" (88.9 mm)	0.63" (16 mm)	4	0.63" (16 mm)
9793815716	1.5" (50mm)	5.00" (127 mm)	2.48" (63 mm)	3.87" (98.4 mm)	0.71" (18 mm)	4	0.63" (16 mm)
9793815718	2" (63 mm)	6.10" (155 mm)	3.07" (78 mm)	4.76" (121 mm)	0.71" (18 mm)	4	0.75" (19.1 mm)
9793815720	2.5" (75 mm)	7.00" (178 mm)	3.62" (92 mm)	5.51" (140 mm)	0.71" (18 mm)	4	0.75" (19.1 mm)
9793815722	3" (90mm)	7.52" (191 mm)	4.33" (110 mm)	5.98" (152 mm)	0.79" (20 mm)	4	0.75" (19.1 mm)
9793815724	3.5" (110mm)	9.06" (230 mm)	5.24" (133 mm)	7.05" (179 mm)	0.87" (22 mm)	8	0.75" (19.1 mm)
9793815726	4" (125 mm)	9.02" (229 mm)	5.08" (129 mm)	7.52" (191 mm)	0.87" (22 mm)	8	0.75" (19.1 mm)
9793815730	6" (160 mm)	11.22" (285 mm)	6.97" (177 mm)	9.49" (241 mm)	1.02" (26 mm)	8	0.88" (22.4 mm)
9793815734	8" (200 mm)	13.50" (343 mm)	9.21" (234 mm)	11.73" (298 mm)	1.02" (26 mm)	8	0.88" (22.4 mm)
9793815738	10" (250 mm)	15.98" (406 mm)	11.30" (287 mm)	14.29" (363 mm)	1.18" (30 mm)	12	1.00" (25.4 mm)
9793815742	12" (315 mm)	19.02" (483 mm)	13.39" (340 mm)	17.00" (432 mm)	1.18" (30 mm)	12	1.00" (25.4 mm)
9793815744	14" (355 mm)	20.98" (533 mm)	14.76" (375 mm)	18.74" (476 mm)	1.18" (30 mm)	12	1.12" (28.4 mm)
9793815746	16" (400 mm)	23.50" (597 mm)	16.85" (428 mm)	21.30" (541 mm)	1.26" (32 mm)	16	1.12" (28.4 mm)
9793815748	18" (450 mm)	25.00" (635 mm)	18.43" (468 mm)	22.80" (579 mm)	1.26" (32 mm)	16	1.25" (31.8 mm)
9793815750	20" (500 mm)	27.00" (686 mm)	20.98" (533 mm)	25.00" (635 mm)	1.26" (32 mm)	20	1.25" (31.8 mm)
9793815754	24" (630 mm)	32.17" (817 mm)	25.39" (645 mm)	29.49" (749 mm)	1.26" (32 mm)	20	1.38" (35.1 mm)

Aquatherm Stainless Steel Split Flange Rings

Part Number	Dimension	No. of Bolt Holes	Outside Diameter, in.	Bolt Circle Dia., in.	inside Diameter, in.	Bolt Hole Size, in.	Thickness, in.
9790625712	1" - 32 mm	4	4.25	3.13	1.63	0.62	0.63
9790625714	1-1/4" - 40 mm	4	4.62	3.50	2.00	0.62	0.63
9790625716	1-1/2" - 50 mm	4	5.00	3.88	2.44	0.62	0.63
9790625718	2" - 63 mm	4	6.00	4.75	3.06	0.75	0.63
9790625720	2-1/2" - 75 mm	4	7.00	5.50	3.63	0.75	0.63
9790625722	3" - 90 mm	8	7.50	6.00	4.34	0.75	0.63
9790625724	3-1/2" - 110 mm	8	8.50	7.00	5.25	0.75	0.63
9790625726	4" - 125 mm	8	9.00	7.50	5.25	0.75	0.63
9790625730	6" - 160 mm	8	11.00	9.50	7.00	0.88	0.69
9790625734	8" - 200 mm	8	13.50	11.80	9.31	0.88	0.69
9790625738	10" - 250 mm	12	16.00	14.30	11.30	1.00	0.75
9790625742	12" - 315 mm	12	19.00	17.00	13.40	1.00	0.88
9790625744	14" - 355 mm	12	21.00	18.80	15.00	1.12	0.88
9790625746	16" - 400 mm	16	23.50	21.30	16.90	1.12	0.88
9790625748	18" - 450 mm	16	25.00	22.80	18.80	1.25	0.88
9790625750	20" - 500 mm	20	27.50	25.00	20.80	1.25	1.00
9790625754	24" - 630 mm	20	31.80	29.50	25.40	1.38	1.13



Revisions:

1. 20 Nov. 2023 – Added Flange bolt specifications
2. 4 Dec. 2023 – Revised Bolt Length Table