



**Parker Autoclave Engineers**  
 Providing Tools for Research and Industry

# Pressure Vessels

## Bolted Closure Pressure Vessels

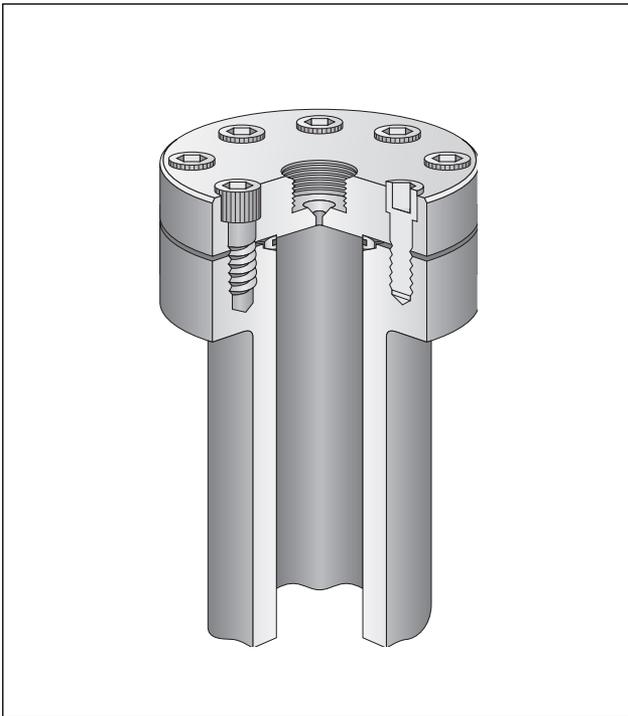
### At a Glance

Volumes: 300 ml to 7.57L  
 MAWP: 2000 to 6000 psi @ 72° F  
 (138 to 413 bar @ 22° C)  
 (Reduced pressures available up to 1400° F)  
 Material of Construction: 316 Stainless Steel

All pressure ratings are based on ASME Code Section VIII Div. 1.

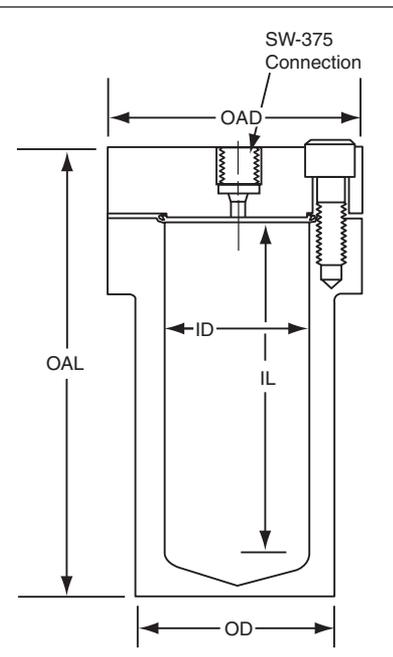
### Principle of Operation

Parker Autoclave Engineers Bolted Closure (confined gasket) pressure vessels are widely accepted for their simplicity, ease of assembly and flexibility. Particularly suited to applications calling for agitation, they are full-opening with the entire vessel I.D. available for cover openings and connections. Additional openings can be machined in the body flange and bottom of vessel. Parker Autoclave Engineers Bolted Closure vessels feature the Gasche™ confined gasket design for reliable sealing even at very high temperatures. It is shaped to effect a tight metal-to-metal seal on the body and cover and is reusable over many openings and closings of the vessel.



## Specifications and Part Numbers

Model Drawing #	Nominal Capacity	Dimensions-inches (mm)				
		ID	OD	IL	OAL	OAD
BC0030SS05 10A-2496	300 ml	1.81 (46)	2.56 (65)	7.13 (181)	9.50 (241)	4.13 (105)
BC0100SS06 10A-2497	1000 ml	3.00 (76)	4.38 (111)	9.06 (230)	12.25 (311)	5.56 (141)
BC0200SS05 10A-2498	2000 ml	3.50 (89)	5.00 (127)	13.00 (330)	16.56 (421)	6.44 (163)
BC0378SS05 10A-2500	3.78 liters	5.00 (127)	7.12 (181)	12.00 (305)	17.03 (433)	8.88 (225)
BC0757SS05 10A-2502	7.57 liters	5.00 (127)	7.12 (181)	24.00 (610)	28.75 (730)	8.88 (225)
BC0378SS03 10A-2499	3.78 liters	5.00 (127)	6.25 (159)	12.00 (305)	16.06 (408)	8.12 (206)
BC0757SS03 10A-2501	7.57 liters	5.00 (127)	6.25 (159)	24.00 (610)	28.00 (711)	8.12 (206)
WB0757SS03 10A-5877	7.57 liters Wide Body	6.50 (165)	8.06 (205)	14.00 (356)	18.79 (477)	10.50 (267)



Alloy steel cap screws supplied with order number above. For Type 316 SS cap screws, see table on page 2.

Other inside lengths can be supplied on special order; consult factory for availability.

**NOTE:** Wrench flats are supplied on 300 ml and 1 liter bodies at bottom to and in tightening bolts.





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**Bolted Closure Reactor Vessels**

**Pressure vs. Temperature Tables (standard 316 SS body, cover and seal ring)**

ALLOY STEEL (B-16) CAP SCREWS	Model Number	°F	to 100°	200°	300°	400°	500°	600°	650°	700°	800°	850°	900°	950°	1000°	1050°	1100°
		°C	(38°)	(93°)	(149°)	(204°)	(260°)	(316°)	(343°)	(371°)	(427°)	(454°)	(482°)	(510°)	(538°)	(566°)	(593°)
	BC0030SS05	psi	6000	6000	5925	5850	5800	5475	5400	5250	5125	5075	5000	4975	3925	2250	1000
	(bar)	(414)	(414)	(409)	(403)	(400)	(377)	(372)	(362)	(353)	(350)	(345)	(343)	(271)	(155)	(69)	
BC0100SS06	psi	6000	6000	5925	5825	5825	5825	5800	5650	5500	5450	5400	5325	3650	2075	925	
	(bar)	(414)	(414)	(409)	(402)	(402)	(402)	(400)	(390)	(379)	(376)	(372)	(367)	(252)	(143)	(63)	
BC0200SS05	psi	5750	5750	5625	5525	5525	5525	5500	5350	5225	5150	5125	5050	3825	2175	975	
	(bar)	(396)	(396)	(388)	(381)	(381)	(381)	(379)	(369)	(360)	(355)	(353)	(348)	(264)	(150)	(67)	
BC0378SS05	psi	5750	5750	5625	5525	5525	5525	5500	5350	5225	5150	5125	5050	4075	2325	1025	
	(bar)	(396)	(396)	(388)	(381)	(381)	(381)	(379)	(369)	(360)	(355)	(353)	(348)	(281)	(160)	(70)	
BC0378SS03	psi	3450	3450	3375	3300	3300	3300	3300	3200	3125	3100	3075	3000	2050	1175	525	
	(bar)	(238)	(238)	(233)	(228)	(228)	(228)	(228)	(221)	(215)	(214)	(212)	(207)	(141)	(81)	(36)	
WB0757SS03 (Wider Body)	psi	3600	3600	3525	3450	3450	3450	3450	3350	3275	3225	3200	3175	2600	1475	650	
	(bar)	(248)	(248)	(243)	(238)	(238)	(238)	(238)	(231)	(226)	(222)	(221)	(219)	(179)	(102)	(44)	

TYPE 316 STAINLESS STEEL (B-8M) CAP SCREWS	Model Number	°F	to 100°	200°	300°	400°	500°	600°	650°	700°	800°	850°	900°	950°	1000°	1050°	1100°
		°C	(38°)	(93°)	(149°)	(204°)	(260°)	(316°)	(343°)	(371°)	(427°)	(454°)	(482°)	(510°)	(538°)	(566°)	(593°)
	BM0030SS04	psi	6000	5750	5225	4750	4475	4225	4100	4050	3925	3900	3850	3825	3800	3750	3675
	(bar)	(414)	(396)	(360)	(327)	(309)	(291)	(283)	(279)	(271)	(269)	(265)	(264)	(262)	(259)	(253)	
BM0100SS04	psi	6000	5350	4850	4425	4150	3925	3825	3750	3650	3625	3575	3550	3525	3475	3425	
	(bar)	(414)	(369)	(334)	(305)	(286)	(271)	(264)	(259)	(252)	(250)	(246)	(245)	(243)	(240)	(236)	
BM0200SS04	psi	5750	5600	5075	4625	4350	4100	4000	3925	3825	3775	3750	3725	3675	3650	3575	
	(bar)	(396)	(386)	(350)	(319)	(300)	(283)	(276)	(271)	(264)	(260)	(259)	(257)	(253)	(252)	(246)	
BM0378SS04	psi	5750	5750	5425	4925	4625	4375	4250	4175	4075	4050	4000	3975	3925	3900	3825	
	(bar)	(396)	(396)	(374)	(340)	(319)	(302)	(293)	(288)	(281)	(279)	(276)	(274)	(271)	(269)	(264)	
BM0378SS02	psi	3525	3000	2725	2475	2325	2200	2150	2100	2050	2025	2025	2000	1975	1950	1925	
	(bar)	(243)	(207)	(188)	(171)	(160)	(152)	(148)	(145)	(141)	(140)	(140)	(138)	(136)	(134)	(133)	
WM0757SS03 (Wider Body)	psi	3600	3600	3425	3125	2950	2775	2700	2650	2600	2550	2550	2525	2500	2475	2425	
	(bar)	(248)	(248)	(236)	(215)	(203)	(191)	(186)	(183)	(179)	(176)	(176)	(174)	(172)	(171)	(167)	
Model Number	°F	1150°	1200°	1250°	1300°	1350°	1400°										
	°C	(621°)	(649°)	(677°)	(704°)	(732°)	(760°)										
BM0030SS04	psi	3150	2375	1775	1325	1000	725										
	(bar)	(217)	(164)	(122)	(91)	(68)	(50)										
BM0100SS04	psi	3075	2450	1775	1350	975	725										
	(bar)	(212)	(169)	(122)	(93)	(67)	(50)										
BM0200SS04	psi	3225	2425	1800	1350	1025	750										
	(bar)	(222)	(167)	(124)	(93)	(70)	(51)										
BM0378SS04	psi	3225	2450	1800	1350	1000	800										
	(bar)	(222)	(169)	(124)	(93)	(68)	(55)										
BM0378SS02	psi	1725	1375	1000	750	550	400										
	(bar)	(119)	(94)	(68)	(51)	(37)	(27)										
WM0757SS03 (Wider Body)	psi	2000	1525	1125	825	625	500										
	(bar)	(138)	(105)	(77)	(56)	(43)	(34)										

**CAUTION:** Sensitization occurs over the temperature range from 850° F to 1475° F (454° C to 802° C). This is a harmful grain boundary condition affecting corrosion resistance of austenitic alloys.



## Special Materials: Pressure vs. Temperature

Material		316 SS (standard)	Hast. B	Hast. C	Titanium	Inconel	Monel	Nickel
Temperature Rating at MAWP		@650° F	@650° F	@650° F	@600° F	@650° F	@650° F	@600° F
		(343° C)	(343° C)	(343° C)	(316° C)	(343° C)	(343° C)	(316° C)
Vessel Number		Maximum Allowable Working Pressure						
BC0030	psi	5400	6000	6000	1875	6000	4325	3300
	(bar)	(372)	(414)	(414)	(129)	(414)	(298)	(228)
BC0100	psi	5800	6000	6000	2000	6000	4625	3525
	(bar)	(400)	(414)	(414)	(138)	(414)	(319)	(243)
BC0200	psi	5500	6000	6000	1925	6000	4450	3400
	(bar)	(379)	(414)	(414)	(133)	(414)	(307)	(234)
BC0378 BC0757	psi	5500	6000	6000	1925	6000	4425	3375
	(bar)	(379)	(414)	(414)	(133)	(414)	(305)	(233)
BC0378 BC0757	psi	3300	5625	4675	1175	4150	2700	2075
	(bar)	(228)	(322)	(322)	(810)	(286)	(186)	(143)
WB0757 (Wider Body)	psi	3450	5750	4925	1200	4225	2775	2100
	(bar)	(238)	(396)	(340)	(827)	(291)	(191)	(145)

## Removable Liners

Most Bolted vessels are available with welded loose-fitting liners of 16-gage material. When ordering, specify Type 316 ss ("SS"), titanium ("TI"), Inconel ("IN"), nickel ("NI"), Hastalloy® B ("HB"), Hastalloy® C ("HC"), Monel ("MO"), or glass ("GL").

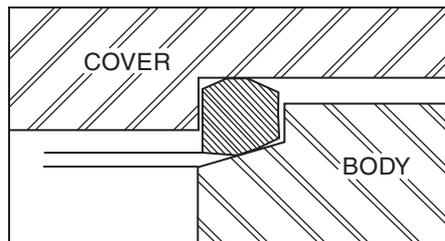
## Recommended Cap Screw Torque

Vessel Catalog Order number	RECOMMENDED TORQUE	
	For Normal Conditions	To Deform New Gasket in a Used Body and Cover
BC0030SS05	40 ft lbs (5.5 KgM)	50 ft lbs (7.0 KgM)
BC0100SS06	60 ft lbs (8.0 KgM)	90 ft lbs (12.0 KgM)
BC0200SS05	100 ft lbs (14.0 KgM)	125 ft lbs (17.0 KgM)
BC0378SS05	275 ft lbs (38.0 KgM)	350 ft lbs (48.4 KgM)
BC0757SS05	275 ft lbs (38.0 KgM)	350 ft lbs (48.4 KgM)
BC0378SS03	150 ft lbs (21.0 KgM)	190 ft lbs (26.0 KgM)
BC0757SS03	150 ft lbs (21.0 KgM)	190 ft lbs (26.0 KgM)
WB0757SS03 (Wider Body)	215 ft lbs (30.0 KgM)	235 ft lbs (32.0 KgM)

Torque values above are recommended when vessel is to be operated at full rated pressure; lower torque may be used for lower pressure operation.

## Optional O-Ring Gaskets

O-rings can be used as alternate sealing gaskets at lower temperatures and where properties of the reactants permit. Uniform O-ring sizes and order numbers for standard AE Bolted Closure vessels are listed below.



## Optional O-Ring Chart

Material	Max Temp °F (°C)
Buna N	250° (121°)
EPR	300° (149°)
Silicone	400° (204°)
*Viton®	450° (232°)
PTFE Encapsulated *Viton®	450° (232°)
*Kalrez®	500° (260°)

\* Products are registered trademarks of Dupont Dow Elastomers.

## The Gasche™ Gasket

Parker Autoclave Engineers Bolted Closure vessels feature the Gasche™ confined gasket design for reliable sealing even at very high temperatures. It is shaped to effect a tight metal-to-metal seal on the body and cover and is reusable over many openings and closings of the vessel.

## Ordering Guide

BC Bolted Closure	0030 Capacity in ml	SS Material of Construction	*05 Pressure psi (bar)
WB - Wider Body BM - B8M Cap Screws	0030 - 300 ml 0100 - 1000 ml 0200 - 2000 ml 0378 - 3.78 l 0757 - 7.57 l	SS - 316 Stainless Steel HB - Hastelloy® B HC - Hastelloy® C TI - Titanium IN - Inconel MO - Monel NI - Nickel	06 - 6000 (414) 05 - 5000 (345) 03 - 3000 (207)

\* Pressure rating will vary based on temperature and material of construction.

\* Hastelloy® is a registered trademark of Haynes International, Inc.

## Features & Other Available Options

- Different connections available
- Other materials of construction
- Heaters
- Stands
- ASME Code Stamp, CRN Registration
- Liners
- Consult factory to discuss your special requirements

## Supporting Information

Stirred Reactor Systems: (See Stirred Reactor section of this catalog (SR-SG))

MagneDrives®: (See Agitation section of this catalog)(AG-SG)

Controls: (See Instrumentation section of this catalog) (IN-SG)

Valves, Fittings & Tubing: (See VFT Catalog)

### WARNING

**FAILURE, IMPROPER SELECTION OR IMPROPER USE OF THE PRODUCTS AND/OR SYSTEMS DESCRIBED HEREIN OR RELATED ITEMS CAN CAUSE DEATH, PERSONAL INJURY AND PROPERTY DAMAGE.**

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