

Series Number:

4680

Type:
**High Pressure
High Temperature**

Stand:
Cart or Floor Stand

Mounting Style:
**Moveable or
Fixed Head**

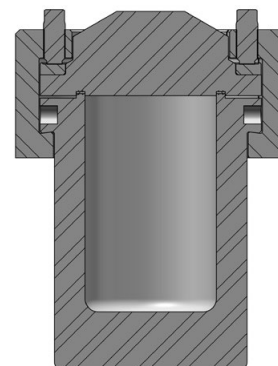
Vessel Sizes, Liters:
1 and 1.8

High Pressure
MAWP Rating, psi (bar):
6000 (410)

Standard Maximum
Operating Temperature, °C:
600 w/ Flat FG Gasket

Series 4680 High Pressure / High Temperature Vessel Systems, 1 & 1.8 Liters

The **Series 4680 High Pressure/High Temperature Vessels** are available with either a 1.0 L or 1.8 L capacity. These vessels can obtain temperatures up to 600 °C and a maximum pressure of 6000 psi (410 bar). The maximum pressure at maximum temperature is 4200 psi (290 bar) at 600 °C. A Split Ring closure with 12 Compression Bolts secures the head which allows a maximum of 8 openings. The Series 4680 Vessels can be configured with either a fixed head on a floor stand or as a moveable head vessel on a moveable cart. The fixed head versions allow the head (and the connections made to it) to remain in place while the cylinder and heater are lowered with the aid of the included pneumatic lift system.



4680 Cross Section

Series 4680 Pressure Vessel Specifications		
Shaded bar indicates specifications that change within series.		
Model Number	4680	
Approximate Volume, mL	1000	1800
Maximum Pressure (MAWP)	5000 psi (345 bar) @ 500 °C 6000 psi (413 bar) @ 350 °C 4200 psi (289 bar) @ 600 °C	
Maximum Temperature		
with PTFE Flat Gasket	350 °C	
with Flexible Graphite Flat Gasket	500-600 °C	
Vessel Details		
Mounting Style	Moveable or Fixed Head	
Closure	Split-Ring with 12 Compression Bolts	
Head Opening Options	One head opening ("B" socket, or rupture disc assembly port) Ports for valve, gage, rupture disc, and thermowell with thermocouple (VGR) Custom port option (Contact our technical sales department to discuss options)	
Maximum Head Openings	8 (Dependent on opening size, and required fittings)	
Valve Connections	1/4" NPT Female	
Pressure Gage, Size	4.5 inches	
Range	0-5000 psi (345 bar) or 0-7500 psi (517 bar)	
Temperature Measurement	Thermowell	
Cooling Coil (optional)	Single Loop	
Bottom Drain Valve	1" NPS	
Stand and Heater (optional)		
Stand Type	Floor Cart with heater (moveable head only) Floor Stand with Pneumatic Lift and heater (fixed head)	
Heater Style	Ceramic Fiber	
Heater Power, Watts	2300	2500
Maximum Load, amps, 230V	10	11
Weights & Dimensions		
Cylinder I.D. x Depth, inches	3.75 x 6.12	3.75 x 10.5
Vessel Assembly w/ Moveable Head Weight, pounds*	74	94
Vessel Assembly w/ Fixed Head Weight, pounds*	88	104
Cylinder Weight, pounds	36	52
*Vessel weight is based on a vessel with VGR head fittings. Vessel weight will vary based on head configuration choice and fitting options.		
Other options available. See Ordering Guide, visit www.parrinst.com , or call for more information.		



4680-1800mL Fixed Head Vessel shown with Split Rings open and vessel down using a pneumatic lift.

Series 4680 Ordering Guide

An example order number for a vessel in this series is: **4680-1000mL-FG-SS-VGR-5000**

A composite identification number to be used when ordering a 4680 Series Pressure Vessel System can be developed by combining individual symbols from the separate sections below. For more information on how to use this ordering guide, please see page 27.

A Vessel Volume	
-1000mL	1000 mL, 3.75" ID
-1800mL	1800 mL, 3.75" ID

B Head Mounting Style	
-No Symbol	Moveable Head (Standard configuration)
-FH	Fixed Head

C Gasket / Maximum Temperature	
-T	PTFE Flat Gasket, 350 °C
-FG	Flexible Graphite Flat Gasket, 350 °C

D Material of Construction	
-SS	T316 Stainless Steel
-C20	Alloy 20
-MO	Alloy 400
-IN600	Alloy 600
-IN625	Alloy 625
-HB	Alloy B-2 / B-3
-HC	Alloy C-276
-NI	Nickel 200
-TI2	Titanium Grade 2
-TI4	Titanium Grade 4
-ZR702	Zirconium Grade 702
-ZR705	Zirconium Grade 705

See page 10 or 24 for complete list of available alloys.

E Head Configuration	
-B	One head opening, "B" socket
-RD	Rupture disc port with rupture disc assembly & disc
-VGR	Valve on gage adapter, pressure gage, rupture disc assembly, & thermocouple and thermowell
-NS	Non-standard, custom head opening

F Optional Fittings & Custom Options (List all needed)	
-VD	Single Valve on head w/ dip tube (VGR Required)
-DVD	Double Valve Assembly on head w/ dip tube (VGR Required)
-CL	Cooling Loop
-BDV	Bottom Drain Valve
-4310B	Gage Block Assembly (for head with "B" socket opening)
-CAD	Internal Catalyst Addition Device
-XCAD	External Catalyst Addition Device
-SCP	Solids Charging Port (Ball Valve)
-RC	Reflux Condenser
-RTC	Reflux/Take-Off Condenser
-WJ	Welded Jacket

G Pressure Gage	
-No Symbol	None
-10000	10000 psi / 690 bar
-7500	7500 psi / 517 bar
-5000	5000 psi / 345 bar
-3000	3000 psi / 207 bar
-2000	2000 psi / 138 bar

H Stand and Heater Options	
-No Symbol	None
-FC	Floor Cart with heater (moveable head only)
-FSP	Floor Stand w/ Pneumatic Lift and heater (fixed head)

I Controller	
-4838	PID Control, Ramp & Soak Programming, and Data logging with Software (RS-485 to USB cable not included). For use with one additional display module.
-4848	PID Control, Ramp & Soak Programming, and Data logging with Software. (RS-485 to USB cable not included). For use with up to three additional display modules.

See Chapter 6 for complete list of Controller options.

J Controller Options (Check all needed)	
-PDM	Pressure Display Module
-HTM	High Temperature Cut Off Module
-ETLM	External Temperature Limit Module
-SVM	Solenoid Valve Module (for cooling control)
-A1925E4	RS-485 to USB Converter (required for data logging)
-A1925E6	RS-485 to USB Converter, isolated, 30-ft
-A2208E	RS-485 Daisy Chain for Multiple Controllers (Must be used with A1925E6)
-A3504HC	SpecView Software Package for 4838/4848 Controller

K Electrical Supply for Heater and/or Controller	
-No Symbol	None
-230	230V Heater

L Certifications	
-No Symbol	No Certification
-ASME	ASME Documentation
-CE	CE Documentation
-P	Parr Certification



4680-1800mL Fixed Head Vessel, double valve w/ dip tube, gas release valve, gage, rupture disc, and thermowell

4680-1800mL Moveable Head High Pressure Vessel in Floor Cart with Heater