

Series 4570/80 High Temperature/High Pressure Reactor Systems

Series Number:

4570/80

Type:

**High Temperature
High Pressure**

Stand:

**Bench Top,
Floor Stand or
Cart**

Vessel Mounting:

**Moveable or
Fixed Head**

Vessel Sizes, mL:

250-5500

Standard Pressure
MAWP Rating, psi (bar):

**3000 (200) 4580
5000 (345) 4570**

Maximum Operating
Temperature, °C:

500 w/ FG Flat Gasket

Parr offers a number of different reactors in the 4570 and 4580 Series in a variety of sizes and with different mountings for operating pressures to 5000 psi (345 bar) and temperatures to 500 °C.

4571 - 4572 Reactors

These are 1000 and 1800 mL moveable head reactors mounted in movable carts.

4577 - 4578 Reactors

These are 1000 and 1800 mL fixed head reactors mounted on a floor stand with pneumatic lift.

4575 - 4576A Reactors

These are 500 and 250 mL bench top reactors with 5000 psi (345 bar) and 500 °C ratings. They are available as either moveable or fixed head vessels.

4581 - 4582 Reactors

These 1 gallon (3.75 L) and 1.5 gallon (5.5 L) reactors are designed for 3000 psi (200 bar) maximum pressure with a 500 °C maximum working temperature and mounted on movable carts.

4583 - 4584 Reactors

These are 1 gallon (3.75 L) and 1.5 gallon (5.5 L) fixed head reactors mounted on floor stands with pneumatic lift.

All of these reactors have been designed with suitable valves, fittings and modifications to the vessel itself to operate at the higher temperature and pressure ratings.

Flat, flexible graphite (FG) gaskets are used for temperatures in the higher range to 500 °C. These can be replaced with PTFE gaskets for procedures in which the temperature will not exceed 350 °C. All cart and floor stand models use ceramic fiber heaters to achieve the higher operating temperatures.



Model 4577 High Temperature/High Pressure Reactor, Floor Stand, Fixed Head 1000 mL with Heater and Pneumatic Lift.



The Series 4570/80 High Temperature/High Pressure Reactors come in three configurations, from left to right: Bench Top (250 & 500 mL Only), Floor Stand, and Cart.



Series 4570/80 Pressure Reactor System Specifications						
Shaded bar indicates specifications that change within series.						
Model No. – Moveable Vessel	4571	4572	4581	4582	4575B	4576B
Model No. – Fixed Head	4577	4578	4583	4584	4575A	4576A
Reactor Mounting	Cart / Floor Stand		Cart / Floor Stand		Bench Top	
Sizes, mL	1000	1800	3750	5500	500	250
Maximum Pressure, MAWP	5000 psi (345 bar)		3000 psi (200 bar)		5000 psi (345 bar)	
Maximum Temperature						
with FG Flat Gasket	500 °C					
Vessel Details						
Closure (Cap Screws)	Split Ring (12)		Split Ring (16)		Split Ring (8)	
Valves Mounted	Head					
Valve Connections	1/4" NPT Female					
Magnetic Stirrer, Model No.	A1120HC		A1180HC		A1120HC	
Maximum Torque	16 Inch-Pounds		60 Inch-Pounds		16 Inch-Pounds	
Impeller(s), 6-Blade (4-blade)	2 (2" dia.)		2 (3.5" dia.)		2 (1.38" dia.)	
Pressure Gage, Size	4.5 inches					
Range	0-5000 psi (345 bar)					
Temperature Measurement	Thermowell					
Cooling Coil	Included					
Style	Serpentine		Serpentine		Single Loop	
Bottom Drain Valve	1" NPS (Floor stand supports only)					
Heater Style	Ceramic					
Heater Power, Watts	2800	2800	2800		1000	
Stirrer Motor, Variable Speed	1/4 hp		1/2 hp		1/8 hp	
Electrical Supply						
Volts, AC	230		230		115 or 230	
Maximum Load, amps, 115 / 230	13	14	15		12 / 6	
Vessel Dimensions						
Inside Diameter, inches	3.75		5.5		2.5	
Inside Depth, inches	6.2	10.5	9.7	15	6.6	3.2
Weight of Moveable Vessel, pounds	70	85	100	130	35	29
Weight of Fixed Vessel, pounds	85	100	120	160	37	31
Reactor Dimensions						
Moveable Width x Depth x Height, in.	Cart: 35 x 18 x 50		Cart: 35 x 18 x 50		Bench Top: 17 x 24 x 42	
Fixed Width x Depth x Height, in.	Floor Stand: 20 x 31 x 75		Floor Stand: 20 x 31 x 75			
Moveable Weight w/Controller, pounds	245	265	325	355	125	120
Fixed Weight w/Controller, pounds	265	285	345	375	127	122
Spare Parts Kit	4579B		4589B		4579D	
Other options available. See Ordering Guide, visit www.parrinst.com , or call for more information.						

Series 4570/80 High Temperature/High Pressure Reactor Systems

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Model 4581 High Temperature/High Pressure Reactor, with One Gallon Moveable Vessel, and a 4848 Reactor Controller with optional Expansion Modules.



Model 4576A HT/HP Reactor, Fixed Head Bench Top, with 250 mL Vessel.



Model 4575B High Pressure/High Temperature 500 mL Moveable Vessel Assembly.



Series 4570/80 Ordering Guide

The Order No. for the Base System is: **457__ or 458__-FG-M or HD-SS-115 or 230-VS.__-5000-4848**

A composite identification number to be used when ordering a 4570 or 4580 Series Reactor 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 Base Model

Model	Size	Vessel Style
4571	1000 mL	Moveable Head, Cart
4572	1800 mL	Moveable Head, Cart
4575B	500 mL	Moveable Head, Bench Top
4576B	250 mL	Moveable Head, Bench Top
4575A	500 mL	Fixed Head, Bench Top
4576A	250 mL	Fixed Head, Bench Top
4577	1000 mL	Fixed Head, Floor Stand
4578	1800 mL	Fixed Head, Floor Stand
4581	1.0 Gallon	Moveable Head, Cart
4582	1.5 Gallon	Moveable Head, Cart
4583	1.0 Gallon	Fixed Head, Floor Stand
4584	1.5 Gallon	Fixed Head, Floor Stand

B Gasket / Maximum Temperature

-FG	Flexible Graphite Gasket, 500 °C
-T	PTFE Compression Gasket, 350 °C

C Materials of Construction

-SS	T316 Stainless Steel
-MO	Alloy 400*
-IN	Alloy 600
-HB	Alloy B-2*
-HC	Alloy C-276
-CS	Alloy 20*
-TI2	Titanium Grade 2*
-TI4	Titanium Grade 4*
-ZR	Zirconium Grade 702* or 705*

* Maximum temperature limited.

D Magnetic Stirrer Drive for 4575-76 Only

-M	General Purpose, 16 in-lb
-FMD	Footless, General Purpose, 16 in-lb

E Magnetic Stirrer Drive for 4571-4584 Only

-M	General Purpose, 16 in-lb
-HD	Heavy Duty, 60 in-lb
-XHD	Extra Heavy Duty, 120 in-lb
-FMD1	Footless, 16 in-lb.
-FMD2	Footless, Heavy Duty, 60 in-lb
-FMD3	Footless, Extra Heavy Duty, 120 in-lb

F Mag. Drive Material of Construction

-No Symbol	Same Material As Vessel
-MOC Symbol	Indicate Material of Construction

G Electrical Supply

-115	115 VAC (4575-4576 Only)
-230	230 VAC

H Motor Option

-VS .12	Variable Speed, 1/8 hp (4575-4576 Only)
-VS .25	Variable Speed, 1/4 hp
-VS .50*	Variable Speed, 1/2 hp
-XP .25	Explosion Proof Variable Speed, 1/4 hp

-XP .50*	Explosion Proof Variable Speed, 1/2 hp
-AM .25	Air Motor, 1/4 hp (4575-4576 Only)
-AM .50*	Air Motor, 1/2 hp
-GDD	Geared Direct Drive (Fixed Head Unit Only)

* For use with Heavy Duty (HD) Magnetic Stirrer Drive. Only available on 230V systems.

I Pressure Gage

-2000	2000 psi / 137 bar
-3000	3000 psi / 200 bar
-5000	5000 psi / 345 bar

J Bottom Drain Valve

-No Symbol	No Bottom Drain Valve
-BDV	Bottom Drain Valve (Not available on 250 mL or Bench Top Systems.)

K Controller

-4848	PID Control, Ramp & Soak Programming, Motor Speed Control, and Data logging with Software
-A1925E4	Optional RS485 to USB Cable for 4848 Controller
-4871	Process Controller

L 4848 Expansion Modules

-TDM	Tachometer Display Module
-MCM	Tachometer w/Motor Control Module
-PDM	Pressure Display Module
-HTM	High Temperature Cut Off Module
-ETLM	External Temperature Limit Module
-MTM	Motor Torque Module

M 4848 Cooling Control: Solenoid Valve Module

-SVM1	115 VAC
-SVM2	230 VAC

N Custom Options (List All Desired)

-AS	Anchor Stirrer
-SB*	Static Catalyst Basket
-GE	Gas Entrainment Stirrer
-RC	Reflux Condenser
-RTC	Reflux Take-off Condenser
-BF	Baffles

* Not available on 250 mL vessels

O Certifications

-No Symbol	No Certification
-ASME	ASME Certification
-CE/PED	European Community Certification
-CH	China Certification
-P	Parr Certification

P Spare Parts Kit

-4579B	Spare Parts Kit for 4571, 4572, 4577, 4578
-4589B	Spare Parts Kit for 4581, 4582, 4583, 4584
-4579D	Spare Parts Kit for 4575B, 4576B, 4575A, 4576A