Series Number:
4570/80

Series 4570/80 HP/HT Reactors, 250-5500 mL

Type:
High Temperature / High Pressure

Stand:
Bench Top, Floor Stand or Cart

Mounting Style:
Moveable or Fixed Head

Vessel Sizes, mL:
250-5500

Standard Pressure MAWP Rating, psi (bar):
4570: 5000 (345)
4580: 3000 (207)

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 moveable 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 (207 bar) maximum pressure with a 500 °C maximum working temperature and mounted on moveable 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.

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.

Model 4578 High Temperature/High Pressure Reactor, Floor Stand, 1800 mL, Fixed Head, with Heater and Pneumatic Lift.

4570/80

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**
Approximate Volume, mL	1000	1800	3750	5500	500	250
Maximum Pressure, MAWP	5000 psi (345 bar)		3000 psi (207 bar, 200 bar for CE orders)		5000 psi (345 bar)	
Maximum Temperature						
with Flexible Graphite Flat Gasket	500 °C					
Reactor Details						
Stand Type	Cart / Floor Stand		Cart / Floor Stand		Bench Top	
Closure (Compression Bolts)	Split-Ring (12 Compression Bolts for Flat Gasket)		Split-Ring (16 Compression Bolts for Flat Gasket)		Split-Ring (8 Compression Bolts for Flat Gasket)	
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 (.81" / 1.38" dia.)	
Stirrer Motor, Variable Speed	1/4 hp		1/2 hp		1/8 hp	
Pressure Gage, Size	4.5 inches					
Range	0-5000 psi (345 bar)		0-3000 psi (207 bar)		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	Calrod: Fixed Head, Ceramic: Removeable					
Heater Power, Watts	2800		2800		1800	1400
Electrical Supply						
Volts, AC	230		230		115 / 230	
Maximum Load, amps, 115 / 230	15		15		9 / 15	
Cylinder Dimensions						
Inside Diameter, inches	3.75 x 6.2	3.75 x 10.5	5.5 x 9.7	5.5 x 15.1	2.5 x 6.6	2.5 x 3.2
Moveable Vessel Assembly Weight, pounds	83	100	124	143	44	38
Fixed Vessel Assembly Weight, pounds	92	109	136	155	44	38
Cylinder Weight, pounds	36	52	53	72	15	9
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, pounds	245	265	325	355	125	120
Fixed Weight, pounds	265	285	345	375	127	122
Spare Parts Kit	4579M		4589M		4579M	

Other options available. See Ordering Guide, visit www.parrinst.com, or call for more information.
Weights and dimensions are estimated from the base model. Final weights and dimensions will vary based on options selected.

Series Number:

4570/80

Series 4570/80 HP/HT Reactors, 250-5500 mL

Model 4581 High Temperature/High Pressure Reactor, with 1 Gallon Moveable Vessel, and a 4848 Reactor Controller with optional Expansion Modules.

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

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

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Series 4570/80 Ordering Guide

The Order No. for the Base System is: **457__-FG-SS-M-115-VS.__-5000-4848**
or 458__-FG-SS-HD-230-VS.50-3000-4848

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, Moveable Cart
4572	1800 mL	Moveable Head, Moveable Cart
4577	1000 mL	Fixed Head, Stationary Floor Stand
4578	1800 mL	Fixed Head, Stationary Floor Stand
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
4581	1.0 Gallon	Moveable Head, Moveable Cart
4582	1.5 Gallon	Moveable Head, Moveable Cart
4583	1.0 Gallon	Fixed Head, Stationary Floor Stand
4584	1.5 Gallon	Fixed Head, Stationary 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 / B-3*
-HC	Alloy C-276
-CS	Alloy 20*
-TI2	Titanium Grade 2*
-TI4	Titanium Grade 4*
-ZR702	Zirconium Grade 702*
-ZR705	Zirconium Grade 705*

*Maximum temperature and/or pressure limited.
See page 10 or 24 for complete list of available alloys.

D Magnetic Stirrer Drive

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

* Not available on 4575-76 (250 mL & 500 mL)

E Mag. Drive Material of Construction

-MOC Symbol	Indicate Material of Construction

F Electrical Supply

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

G 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 -HD Magnetic Stirrer Drive.
Only available on 230V systems.

H Pressure Gage

-5000	5000 psi / 345 bar (4570 Series Only)
-3000	3000 psi / 207 bar
-2000	2000 psi / 138 bar
-1000	1000 psi / 69 bar

I Bottom Drain Valve

-BDV	Bottom Drain Valve (Not available on 250 mL or Bench Top Systems)

J Controller

-4848 (included in base system)	PID Control, Ramp & Soak Programming, Motor Speed Control, and Data logging with Software. (RS-485 to USB cable not included) For use with up to three additional display modules.
-4848B	Same as above but for use with up to six additional display modules.
-A2110E	Motor Controller
-4871	Process Controller (for enhanced control options)

See Chapter 6 for a complete list of controllers and options.

K 4848 Controller Options

-TDM	Tachometer Display Module
-MCM	Motor Control Module w/Tachometer
-PDM	Pressure Display Module
-HTM	High Temperature Cut Off Module
-ETLM	External Temperature Limit Module
-MTM*	Motor Torque Module
-SVM	Solenoid Valve Module (for cooling control)
-A1925E4	RS-485 to USB Cable for 4848 Controller (required for data logging)
-A1925E6	RS-485 to USB Converter, isolated, 30-ft
-A2208E	RS-485 Daisy Chain for Multiple Controller (must be used with A1925E6)
-A3504HC	SpecView Software Package for 4838/4848

** The MTM must be installed in conjunction with the MCM.*

L Custom Options (List All Desired)

-AS	Anchor Stirrer
-PS	Paddle Stirrer
-SA	Spiral Stirrer
-GE	Gas Entrainment Stirrer
-BF	Removeable Baffle Set
-SB	Static Catalyst Basket
-DB	Dynamic Catalyst Basket
-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

See Chapter 7 for a complete list of optional accessories.

M Certifications

-ASME	ASME Documentation
-CE	CE Documentation
-P	Parr Certification

N Spare Parts Kit

-4579M	Spare Parts Kit for 4570 Series
-4589M	Spare Parts Kit for 4580 Series

Please note that all options and combinations are not compatible with all models.