

# Series 4530 1 & 2 L General Purpose Reactor Systems

Series Number:

# 4530

Type:

**General Purpose**

Stand:

**Floor Stand**

Vessel Mounting:

**Moveable or Fixed Head**

Vessel Sizes, mL:

**1000-2000  
970-1900 HP**

Standard Pressure  
MAWP Rating, psi (bar):  
**1900 (131)**

Standard Maximum  
Operating Temp., °C:  
**225 w/ FKM O-ring  
275 w/ FFKM O-ring  
350 w/ PTFE Flat Gasket**

High Pressure (HP)  
MAWP Rating, psi (bar):  
**2900 (200)**

Maximum Operating  
Temperature, °C, at  
High Pressure (HP):  
**350 @ 2900 psi**

**T**his series of reactors will appeal to users who have any of the following needs:

- **Reactors Configured for Polymer Studies.** The reactors in this series are mounted on a sturdy floor stand which will accommodate larger stirrer drive motors and stronger power trains than are generally not available for the bench top models. With these options it is possible to provide the high torque and low stirring speeds required for work with polymers and other mixtures with viscosity of 1 million centipoise and more. These mountings are also better suited for the installation of a drain valve in the cylinder bottom for convenient removal of the reaction mixture while it is still hot.

- **Reactors Requiring Extensive Modifications.** Floor stand mountings provide a good base for reactor modifications and for the addition of accessories, such as: condensers, packed columns, special motors, special heaters, jacketed vessels, automatic valves or regulators, and many other fittings. Both fixed head and moveable vessel designs are available.

- **Reactors that Need to be Moved.** These reactors are designed for use in an area where a bench top is not available. Users who wish to move the reactor to storage when not in use, will appreciate the moveable cart design of the Series 4531 and 4532. All of the 1 and 2 liter reactors in this series can be furnished with either a self-sealing, O-ring closure for working temperatures up to 225 °C, or with a flat, PTFE gasket for higher temperatures to 350 °C.

- **HP versions.** These reactors are now available in an HP (High Pressure) version up to 2900 psi (200 bar) at 350 °C.



**4534 Floor Stand Reactor, 2000 mL, Fixed Head, with Spiral Cooling Coil and Liquid Charging Pipette, in the open position, and a 4848 Controller with optional Expansion Modules.**



**4534 Reactor, assembled with heater raised.**



**4534 Reactor, assembled with heater down.**



Series 4530 Pressure Reactor System Specifications						
Shaded bar indicates specifications that change within series.						
Model Number	4531	4532	4533	4534	4535	4536
Sizes, mL	1000	2000	1000	2000	1000	2000
Sizes for HP Models, mL	970	1900	970	1900	970	1900
Maximum Pressure (MAWP)	1900 psi (131 bar)					
HP Maximum Pressure (MAWP)	2900 psi (200 bar)					
<b>Maximum Temperature</b>						
with FKM O-ring	225 °C					
with FFKM O-ring	275 °C					
with PTFE Flat Gasket	350 °C					
<b>Vessel Style</b>	Moveable		Fixed Head		Moveable	
Reactor Mounting	Cart		Floor Stand		Floor Stand	
Closure	Split-Ring (6 Cap Screws)					
High Pressure Closure	Split-Ring (12 Cap Screws)					
Valve Connections	1/8" Male NPT					
Magnetic Stirrer, Model No.	A1120HC					
Maximum Torque	16 Inch-Pounds					
Impeller(s), 6-Blade	2 (2.28" dia.)					
Pressure Gage, Size	4.5 inches					
Range	0-2000 psi (140 bar)					
Temperature Measurement	Thermowell					
Cooling Coil	Optional					
Style	Serpentine or Spiral					
Bottom Drain Valve (Optional)	3/8" NPT (1900 psi / 350 °C)			1/4" NPT (2900 psi / 350 °C)		
Heater Style	Calrod					
Heater Power, Watts	1000	1500	1000	1500	1000	1500
Stirrer Motor	1/4 hp Variable Speed					
<b>Electrical Supply</b>						
Volts, AC	115 or 230					
Maximum Load, amps, 115 / 230	14 / 7					
<b>Vessel Dimensions</b>						
Inside Diameter, inches	4.0					
High Pressure Inside Diameter, inches	3.75					
Inside Depth, inches	5.4	10.5	5.4	10.5	5.4	10.5
Weight of Vessel, pounds	28	32	32	36	28	32
<b>Reactor Dimensions</b>						
Width, inches w/o Controller	35		21		21	
Depth, inches	18		28		28	
Height, inches	50		62		62	
Weight, pounds	200	215	225	240	225	240
<b>Spare Parts Kit</b>	4539M (General Purpose) or 4539MA (Heavy Duty)					
Other options available. See Ordering Guide, visit <a href="http://www.parrinst.com">www.parrinst.com</a> , or call for more information.						

# Series 4530 1 & 2 L General Purpose Reactor Systems

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4532 Floor Stand Reactor, 2000 mL, Moveable Vessel on Cart, and a 4848 Temperature Controller with optional Expansion Modules.



4533 Reactor, 1000 mL Vessel with Gear Drive, Dual Condenser and Spiral Stirrer.

2000 mL Stirred Moveable Vessel



# Series 4530 Ordering Guide

The Order No. for the Base System is: **453\_\_-T-SS-M-115-VS.25-2000-4848**

A composite identification number to be used when ordering a 4530 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 No.	Size	Vessel Style
4531	1000 mL	Moveable, Cart
4532	2000 mL	Moveable, Cart
4533	1000 mL	Fixed Head, Floor Stand
4534	2000 mL	Fixed Head, Floor Stand
4535	1000 mL	Moveable, Floor Stand
4536	2000 mL	Moveable, Floor Stand

## B High Pressure Option

-No Symbol	Standard Configuration
-HP	2900 psi (200 bar)

## C Gasket / Maximum Temperature

-OV	FKM O-ring / 225 °C
-OK	FFKM O-ring / 275 °C
-T	PTFE Compression Gasket / 350 °C

## D Material 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
-NI	Nickel 200
-ZR	Zirconium Grade 702 or 705

## E 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

## F Mag. Drive Material of Construction

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

## G Electrical Supply

-115	115 VAC
-230	230 VAC

## H Motor Option

-VS .25	Variable Speed, 1/4 hp
-VS .50	Variable Speed, 1/2 hp (230V Only)
-XP .25	Explosion Proof, Variable Speed, 1/4 hp
-XP .50	Explosion Proof, Var. Speed, 1/2 hp (230V Only)
-AM .25	Air Motor, 1/4 hp
-AM .50	Air Motor, 1/2 hp
-GDD	Geared Direct Drive (Fixed Head Units Only)

## I Pressure Gage

-3000	3000 psi / 200 bar
-2000	2000 psi / 137 bar
-1000	1000 psi / 70 bar
-600	600 psi / 40 bar
-200	200 psi / 14 bar
-100	100 psi / 7 bar

## J Internal Cooling Coil

-No Symbol	No Coil
-CC	Spiral Coil
-SC	Serpentine Coil

## K Bottom Drain Valve

-No Symbol	No Bottom Drain Valve
-BDV	Bottom Drain Valve

## L 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

## M 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

## N 4848 Cooling Control: Solenoid Valve Module

-SVM1	115 VAC
-SVM2	230 VAC

## O Custom Options (List All Desired)

-AS	Anchor Stirrer
-SB	Static Catalyst Basket
-DB	Dynamic Catalyst Basket
-CAD	Catalyst Addition Device
-BF	Baffles
-GE	Gas Entrainment Stirrer
-RC	Reflux Condenser
-RTC	Reflux Take-off Condenser
-ABH	Aluminum Block Heater
-WJ	Welded Jacket
-SCP	Solids Charging Port
-SA	Spiral Stirrer
-PS	Paddle Stirrer

## P Certifications

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

## Q Spare Parts Kit

-4539M	General Purpose Spare Parts Kit for 4530 Series
-4539MA	Heavy Duty Spare Parts Kit for 4530 Series