

Series 4520 1 & 2 Liter General Purpose Reactor Systems

Series Number:

4520

Type:
General Purpose

Stand:
Bench Top

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



Model 4523 Fixed Head Reactor open to show Internal Fittings, and a 4848 Controller shown with optional Expansion Modules.

These are the largest of the Parr Reactors that can be handled on a bench top. They 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. An optional HP (High Pressure) flat gasket version has been added for maximum allowable working pressure of 2900 psi (200 bar) at 350 °C. Both fixed head and moveable vessel designs are available.

An optional pneumatic lift is available for the heavier 2 liter cylinder and heater. It should be noted, however, that the 2 liter, fixed head model is tall and may not be convenient to operate on a standard height bench top. We recommend using a floor stand. (See Series 4530)

With their larger diameter, these mid-size reactors have sufficient space for special modifications, such as: an internal cooling coil, bottom drain valve (not on 2 liter bench top), ball valve for a solids charging

port, catalyst addition devices, condensers, electrical feed-throughs and more. Details are provided in the Chapter 5 of this catalog, starting on page 101.

The standard magnetic stirrer drive on these 4520 Models works well for reaction mixtures with viscosities up to 25,000 centipoise. For heavier stirring loads, these reactors can be equipped with larger magnetic drives, more powerful motors, and drive trains capable of delivering additional stirring torque.



Series 4520 Pressure Reactor System Specifications				
Shaded bar indicates specifications that change within series.				
Model Number	4523	4524	4525	4526
Sizes, mL	1000	2000	1000	2000
Sizes for HP Models, mL	970	1900	970	1900
Maximum Pressure (MAWP)	1900 psi (131 bar)			
HP Maximum Pressure (MAWP)	2900 psi (200 bar)			
Maximum Temperature				
with FKM O-ring	225 °C			
with FFKM O-ring	275 °C			
with PTFE Flat Gasket	350 °C			
Vessel Style	Fixed Head		Moveable	
Reactor Mounting	Bench Top			
Closure	Split-Ring (6 Cap Screws)			
High Pressure Closure	Split-Ring (12 Cap Screws)			
Valve Connections	1/8" Male NPT			
Magnetic Stirrer, Model No.	A1120HC6			
Maximum Torque	16 Inch-Pounds			
Impeller(s), 6 blades	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	NA	Optional	NA
Heater Style	Calrod			
Heater Power, Watts	1000	1500	1000	1500
Stirrer Motor	1/8 hp variable speed			
Electrical Supply				
Volts, AC	115 or 230			
Maximum Load, amps, 115 / 230	14 / 7			
Vessel Dimensions				
Inside Diameter, inches	4.00			
High Pressure Inside Diameter, inches	3.75			
Inside Depth, inches	5.4	10.5	5.4	10.5
Weight of Vessel, pounds	28	32	32	36
Reactor Dimensions				
Width, inches w/o Controller	17			
Depth, inches	24			
Height, inches	38*	48	38*	48
Weight, pounds	125	130	120	125
Spare Parts Kit	4509M			
* Stand height is 48-inches with Bottom Drain Valve option.				
Other options available. See Ordering Guide, visit www.parrinst.com , or call for more information.				

Series 4520 1 & 2 Liter General Purpose Reactor Systems

INDEX TO OPTIONS

OPTIONS	PAGE
Certification	9
Materials of Construction	10
Magnetic Drive	14
Gaskets & Seals	18
Stirrer Motor	104
Rupture Disc	110
Pressure Gage	111
Cooling Coil	115
Bottom Drain Valve	116
4848 Reactor Control	91
4838 Temperature Control	94
4871 Process Control	95

CUSTOM OPTIONS

Stirrers	106
Heaters	102
External Valves and Fittings	117
Solids Charging Ports	114
Condensers	109
Electrical Glands	122
Catalyst Addition Device	114
Catalyst Baskets	108
Relief Valves	111
Windows	121
Gear Drives	104
Explosion Proof Options	119
Sample Collection Device	116

ACCESSORIES

Liners	115
Spare Parts Kits	122
Pressure Hoses	118
Check Valves	117
Liquid Pipettes	113
Gas Burettes	113



Model 4525 Reactor, 1000 mL, Moveable Vessel, and a 4848 Controller shown with optional Expansion Modules.



Model 4523 Bench Top Reactor, 1000 mL, Fixed Head Style.



4526 Moveable Vessel, 2000 mL



Series 4520 Ordering Guide

The Order No. for the Base System is: **452__-T-SS-M-115-VS.12-2000-4848**

A composite identification number to be used when ordering a 4520 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
4523	1000 mL	Fixed
4524	2000 mL	Fixed
4525	1000 mL	Moveable
4526	2000 mL	Moveable

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 Flat Compression Gasket / 350 °C

D 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
-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
-FMD1	Footless, General Purpose, 16 in-lb
-FMD2	Footless, Heavy Duty, 60 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 .12	Variable Speed, 1/8 hp
-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
-AM .50	Air Motor, 1/2 hp

* 230V Systems 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, 3/8" NPT, for 4523 and 4525 Vessels Only

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/Pressure
-CH	China Certification
-P	Parr Certification

Q Spare Parts Kit

-4509M	Spare Parts Kit for 4520 Series
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