

4520

## 1 &amp; 2 Liter Bench Top Reactors



Series Number:  
**4520**

Type:  
**General Purpose  
Bench Top Reactor**

Vessel:  
**Moveable or Fixed**

Sizes:  
**1000-2000 mL**

Maximum Operating  
Pressure:  
**1900 psi (130) bar**

Maximum Operating  
Temperature:  
**225 °C  
w/ FKM O-ring  
275 °C  
w/ FFKM O-ring  
350 °C  
w/ PTFE Flat Gasket**

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. Both fixed head and moveable vessel designs are available. 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, a bottom drain valve, a ball valve for a solids charging port, catalyst addition devices, condensers, electrical feed-throughs and more. Details are provided in the Options Section.

The standard stirrer drive on these 4520 Models works well for reaction mixtures with viscosity 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.



Model 4523 Fixed Head Reactor Open to Show Internal Fittings, with 4843 Controller



Model 4523 Bench Top Reactor, 1000 mL, Fixed Head, with 4843 Controller

# Series 4520 Ordering Guide

A composite identification number to be used when ordering a 4520 Series reactor can be developed by combining individual symbols from the separate sections.

**Example:** A 2000 mL, T316SS, reactor with fixed head, general purpose magnetic drive, PTFE Gasket, 115V, explosion proof 1/4 hp motor, 2000 psi gage and PID controller with pressure display module would be listed as: **No. 4524-T-GP-SS-115-XP.25-2000-4842-PDM**

A.	B.	C.	D.	E.	F.	G.	J.	K.
Model	Gasket	Stirrer	Material	Voltage	Motor	Gage	Controller	Options
No. 4524	-T	-GP	-SS	-115	-XP.25	-2000	-4842	-PDM

## 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. Gasket / Maximum Temperature

-O	FKM O-ring, 225 °C
-T	Compression Gasket, 350 °C

## C. Magnetic Stirrer Drive

-GP	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.

## D. Materials of Construction

-SS	T316 Stainless Steel
-MO	Alloy 400
-IN	Alloy 600
-HB	Alloy B-3
-HC	Alloy C-276
-HC2	Hastelloy C-2000
-CS	Alloy 20Cb3
-TI2	Titanium Grade 2
-TI4	Titanium Grade 4
-NI	Nickel 200
-ZI	Zirconium 702 or 705

## E. Electrical Supply

-115	115 Volt, 50/60Hz
-230	230 Volt, 50/60Hz

## F. 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

## G. Pressure Gage

-3000	3000 psi / 200 bar
-2000	2000 psi / 140 bar
-1000	1000 psi / 70 bar
-600	600 psi / 40 bar
-200	200 psi / 14 bar
-100	100 psi / 7 bar

## H. Internal Cooling Coil

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

## I. Bottom Drain Valve

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

## J. Temperature Controller

-4842*	PID Control
-4843*	Programmable Control
-4870	Process Controller
*(A)	Add to above for Analog Output (0-5 or 0-10 VDC or 4-20mA)

## K. Control Options (List All Desired)

-TDM*	Tachometer Display Module
-PDM*	Pressure Display Module
-HTM*	High Temperature Cut-off Module
-AMM*	Ammeter Display Module
*(A)	Add to above for Analog Output (0-5 or 0-10 VDC or 4-20mA)
-SVM	Solenoid Valve Module
-CM	Communications Module
-4846	Data Acquisition System

## L. Custom Options (List All Desired)

-AS	Anchor Stirrer	-RC	Reflux Condenser
-CB	Catalyst Basket	-RTC	Reflux Take-off Condenser
-CAD	Catalyst Addition Device	-SCP	Solids Charging Port
-BF	Baffles	-ABH	Aluminum Block Heater
-GE	Gas Entrainment Stirrer	-WJ	Welded Jacket

## M. Certifications

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

# 4520

## Series 4520 Options



### INDEX TO OPTIONS

OPTION	PAGE
Gasket Systems	20
Magnetic Drive	16
Materials of Construction	11-14
Electrical Supply	41
Stirrer Motor	78-79
Pressure Gage	85
Rupture Disc	84
Cooling Coil	90
Bottom Drain Valve	91
Temperature Control	104-108
Control Options	107-108
Process Control	110-114
Certification	9-10

### CUSTOM OPTIONS

Stirrers	80-81
Heaters	76-77
External Valves & Fittings	98
Solids Charging Ports	89
Condensers	83
Electrical Leads	96-97
Catalyst Addition Devices	89
Catalyst Baskets	82
Relief Valves	85
Windows	96
Gear Drives	78-79
Explosion Proof Options	94-95

### ACCESSORIES

Liners	90
Spare Parts Kits	98
Pressure Hoses	93
Check Valves	92
Liquid Pipettes	89
Gas Burettes	88

**Model 4525 Reactor, 1000 mL, Moveable Vessel, and 4842 Controller**



**Model 4642 Stirred Vessel Assembly, 2000 mL**



**Model 4524 Reactor, 2000 mL, Fixed Head Style, with Aluminum Block Heater, and 4843 Controller**

Series 4520 Reactor Specifications				
Shaded bar indicates specifications that change within series.				
Model Number	4523	4524	4525	4526
Sizes, mL	1000	2000	1000	2000
Maximum Pressure	1900 psi (130 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>	Fixed Head		Moveable	
Reactor Mounting	Bench Top or Floor Stand			
Closure (Cap Screws)	Split-Ring (6)			
Valve Connections	1/8" Male NPT			
Magnetic Stirrer, Model No.	A1120HC6			
Maximum Torque	16 Inch-Pounds			
Impeller(s), 6 blades	2			
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	A465VB 3/8" NPT			
Heater Style	Calrod			
Heater Power Watts	1000	1500	1000	1500
Stirrer Motor	1/8 hp variable speed*			
<b>Electrical Supply</b>				
Volts	115 or 230			
Maximum Load, 115/230	14 / 7 amps*			
<b>Vessel Dimensions</b>				
Inside Diameter, inches	4.0			
Inside Depth, inches	5.4	10.5	5.4	10.5
Weight of Vessel, pounds	28	32	32	36
<b>Reactor Dimensions</b>				
Width, inches w/o Controller	16.5			
Depth, inches	23.5			
Height, inches	36	48	36	48
Weight, pounds	125	130	120	125
<b>Spare Parts Kit</b>	4509M			

\* Other options available. See Options Section and Ordering Guide