

# Series 4540 600-1200 mL High Pressure Reactor Systems

Series Number:

# 4540

Type:

**High Pressure**

Stand:

**Floor Stand or  
Bench Top**

Vessel Mounting:

**Moveable or  
Fixed Head**

Vessel Sizes, mL:

**600 and 1200**

High Pressure  
MAWP Rating, psi (bar):

**5000 (345)**

Standard Maximum  
Operating Temp., °C:

**350 w/ PTFE Flat Gasket**

**T**his series of stirred reactors has been designed for users who need higher operating pressures than the 2000 to 3000 psi offered by the General Purpose Reactors, but do not require the high operating temperatures provided by the Series 4570 High Pressure, High Temperature Reactors. These reactors offer working pressures to 5000 psi (345 bar) at temperatures to 350 °C.

These vessels have been designed with outside dimensions comparable to the Series 4520 and 4530 Reactors so that they can use the same support system, stirrer drive and heater as these popular general purpose models. This provides not only an attractively priced high pressure/moderate temperature system, but also reactors that can be interchanged with the 1 and 2 liter sizes. The thicker walls required for higher operating pressures reduce the volumes of these reactors to 600 and 1200 mL.

These reactors can be used in either the bench top or floor stand mountings. While the 1200 mL reactor is offered as a "bench top model", it is too tall and too heavy to be handled comfortably on a standard height bench top. It is recommended that the floor stand support option should be selected unless the user has an "adjustable bench top" which will accommodate the overall height of the 1200 mL systems.



**Model 4544 High Pressure Reactor, 600 mL, Moveable Style Vessel, with heater lowered, and a 4848 Controller shown with optional Expansion Modules.**



Series 4540 Pressure Reactor System Specifications						
Shaded bar indicates specifications that change within series.						
<b>Model No. - Moveable Vessel</b>	<b>4544</b>	<b>4546</b>	<b>4544A</b>	<b>4546A</b>	<b>4544C</b>	<b>4546C</b>
<b>Model No. - Fixed Head</b>	<b>4545</b>	<b>4547</b>	<b>4545A</b>	<b>4547A</b>		
<b>Sizes, mL</b>	600	1200	600	1200	600	1200
<b>Maximum Pressure (MAWP)</b>	5000 psi (345 bar)					
<b>Maximum Temperature</b>						
with PTFE Flat Gasket	350 °C					
<b>Vessel Details</b>						
Reactor Mounting	Bench Top		Floor Stand		Moveable Cart	
Closure	Split-Ring (8 Cap Screws)					
Valve Connections	1/4" Male NPT					
Magnetic Stirrer, Model No.	A1120HC6					
Maximum Torque	16 Inch-Pounds					
Impeller(s), 6-Blade	2 (1.75" dia.)					
Pressure Gage, Size	4.5 inches					
Range	5,000 psi (345 bar)					
Temperature Measurement	Thermowell					
Cooling Coil	Optional					
Style	Serpentine					
Bottom Drain Valve (Optional)	1" NPS (Floor Stand Supports Only)					
Heater Style	Calrod					
Heater Power, Watts	1000	1500	1000	1500	1000	1500
Stirrer Motor, hp	1/8	1/8	1/8	1/8	1/4	1/4
<b>Electrical Supply</b>						
Volts, AC	115 or 230					
Maximum Load, amps, 115 / 230	14 / 7					
<b>Vessel Dimensions</b>						
Inside Diameter, inches	3.25					
Inside Depth, inches	4.7	9.8	4.7	9.8	4.7	9.8
Weight of Vessel, pounds	51	57	51	57	51	57
<b>Reactor Dimensions</b>						
Width, inches	17		21		35	
Depth, inches	24		28		18	
Height, inches	38	48	63		50	
Weight, pounds	125	135	175	185	175	185
<b>Spare Parts Kit</b>	4549MA		4549MB		4549MB	
Other options available. See Ordering Guide, visit <a href="http://www.parrinst.com">www.parrinst.com</a> , or call for more information.						

# Series 4540 600-1200 mL High Pressure 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 4546C Reactor, 1200 mL, Moveable Head Style, on a Moveable Cart, and a 4848 Reactor Controller shown with optional Expansion Modules.**



**1200 mL Fixed Head, and 600 mL Moveable Reaction Vessels.**



# Series 4540 Ordering Guide

The Order No. for the Base System is: **454\_\_-T-SS-M-115-VS.12-2000-4848**

A composite identification number to be used when ordering a 4540 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
4544	600 mL	Moveable Bench Top
4544A	600 mL	Moveable Floor Stand
4544C	600 mL	Moveable Cart
4545	600 mL	Fixed Head Bench Top
4545A	600 mL	Fixed Head Floor Stand
4546	1200 mL	Moveable Bench Top
4546A	1200 mL	Moveable Floor Stand
4546C	1200 mL	Moveable Cart
4547	1200 mL	Fixed Head Bench Top
4547A	1200 mL	Fixed Head Floor Stand

## B Gasket / Maximum Temperature

-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
-NI	Nickel 200
-ZR	Zirconium Grade 702 or 705

## D Magnetic Stirrer Drive

-M	General Purpose, 16 in.-lb
-FMD1	Footless, General Purpose, 16 in.-lb,

## E Mag. Drive Material of Construction

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

## F Electrical Supply

-115	115 VAC
-230	230 VAC

## G Motor Option

-VS .12	Variable Speed, 1/8 hp
-VS .25	Variable Speed, 1/4 hp
-XP .25	Explosion Proof, Variable Speed, 1/4 hp
-AM .25	Air Motor, 1/4 hp

## H Pressure Gage

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

## I Internal Cooling Coil

-No Symbol	No Coil
-SC	Serpentine Coil

## J Bottom Drain Valve

-No Symbol	No Bottom Drain Valve
-BDV	Bottom Drain Valve, 1" NPS

## 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
-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

## O Certifications

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

## P Spare Parts Kit

-4549MA	Spare Parts Kit for 4544-4547
-4549MB	Spare Parts Kit for 4544A-4547A, 4544C, 4546C