Series Number:

4540

Type:
High Pressure

Stand:
Bench Top, Floor Stand, or Cart

Mounting Style:
Moveable or Fixed Head

Vessel Sizes, mL:
600 and 1200

High Pressure MAWP Rating, psi (bar):
5000 (345)

Standard Maximum Operating Temperature, °C:
350 w/ PTFE Flat Gasket

Series 4540 High Pressure Reactors, 600 & 1200 mL

This series of stirred reactors has been designed for users who need higher operating pressures than the 1900 to 2900 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. The 4540 series 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 fixed head 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 Bench Top Reactor, 600 mL, Moveable Head, with heater lowered, and a 4848 Controller shown with optional Expansion Modules.

4540

Series 4540 Pressure Reactor System Specifications						
Shaded bar indicates specifications that change within series.						
Model No. - Moveable Vessel	**4544**	**—**	**4544A**	**—**	**4544C**	**4546C**
Model No. - Fixed Head	**4545**	**4547**	**4545A**	**4547A**		
Approximate Volume, mL	600	1200	600	1200	600	1200
Maximum Pressure (MAWP)	5000 psi (345 bar)					
Maximum Temperature						
with PTFE Flat Gasket	350 °C					
Reactor Details						
Mounting Style	Moveable or Fixed Head					
Stand Type	Bench Top		Floor Stand		Moveable Cart	
Closure	Split-Ring (8 Compression Bolts for Flat Gasket, no Compression Bolts for O-ring)					
Valve Connections	1/4" Male NPT					
Magnetic Stirrer, Model No.	A1120HC6 General Purpose or A2140HC Footless					
Maximum Torque	16 Inch-Pounds					
Impeller(s), 6-Blade	2 (1.75" dia.)					
Stirrer Motor	1/8 hp		1/8 hp		1/4 hp	
Pressure Gage, Size	4.5 inches					
Range	0-5000 psi (345 bar)					
Temperature Measurement	Thermowell					
Cooling Coil (optional)	Serpentine or Loop					
Bottom Drain Valve (BDV) (optional)	N/A		1" NPS		N/A	
Lift Mechanism	N/A	Pneumatic	N/A	Pneumatic	N/A	N/A
Heater Style	Calrod					
Heater Power, Watts	1000 / 1500	1500 / 2000	1000 / 1500	1500 / 2000	1300	1300
Electrical Supply						
Volts, AC	115 / 230					
Maximum Load, amps, 115 / 230	12 / 9					
Cylinder Dimensions						
I.D. x Depth, inches	3.25 x 4.7	3.25 x 9.8	3.25 x 4.7	3.25 x 9.8	3.25 x 4.7	3.25 x 9.8
Vessel Assembly Weight, pounds	4544: 50 4545: 53	65	4544A: 50 4545A: 53	65	50	61
Cylinder Weight, pounds	18	29	18	29	18	29
Reactor Dimensions						
Width x Depth w/o Controller, inches	17 x 24		21 x 28		35 x 18	
Height, inches	38	48	63		50	
Cylinder Weight, pounds	125	135	175	185	175	185
Spare Parts Kit	4549M					

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:

4540

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Series 4540 High Pressure Reactors, 600 & 1200 mL

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

Model 4546C Moveable Head Reactor on a Moveable Cart, 1200 mL, and a 4848 Reactor Controller shown with optional Expansion Modules.

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 Head, Bench Top
4544A	600 mL	Moveable Head, Floor Stand
4544C	600 mL	Moveable Head, Moveable Cart
4545	600 mL	Fixed Head, Bench Top
4545A	600 mL	Fixed Head, Stationary Floor Stand
4546C	1200 mL	Moveable Head, Moveable Cart
4547	1200 mL	Fixed Head, Bench Top
4547A	1200 mL	Fixed Head, Stationary Floor Stand

B Gasket / Maximum Temperature

-T	PTFE Flat 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*
-NI	Nickel 200*
-ZR702	Zirconium Grade 702*
-ZR705	Zirconium Grade 705*

** Maximum Pressure and/or Temperature are 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

E Mag. Drive Material of Construction

-MOC Symbol	Indicates 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

-10000	10000 psi / 690 bar
-7500	7500 psi / 517 bar
-5000	5000 psi / 345 bar
-3000	3000 psi / 207 bar

I Internal Cooling Coil

-SC	Serpentine Coil
-CL	Single Cooling Loop

J Bottom Drain Valve

-BDV	Bottom Drain Valve, 1" NPS

K 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.

L 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
-A3504HC	SpecView Software Package for 4838/4848

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

M Custom Options (List All Desired)

-AS	Anchor Stirrer
-PS	Paddle Stirrer
-GE	Gas Entrainment Stirrer
-SP	Spiral Stirrer
-BF	Removeable Baffle Set
-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
-ABH	Aluminum Block Heater w/ Cooling Channels

See Chapter 7 for a complete list of optional accessories.

N Certifications

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

O Spare Parts Kit

-4549M	Spare Parts Kit for 4540 Series

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