Series Number:

4560

Type:
Mini

Stand:
Bench Top

Mounting Style:
Moveable or Fixed Head

Vessel Sizes, mL:
100 - 600

Standard Temperature MAWP Rating, psi (bar):
3000 (207)

High Temperature (HT) MAWP Rating, psi (bar):
2000 (138)

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

High Temperature (HT) Maximum Operating Temperature, °C:
500 w/ FG Flat Gasket

Series 4560 Mini Reactors, 100-600 mL

These are the most popular of all Parr Stirred Reactors. Although they are called "Mini" reactors, they offer a range of sizes large enough to work with significant sample sizes, yet small enough to be handled with ease.

They are offered in both fixed head and moveable vessel styles and are available with an FKM O-ring seal for operating temperatures to 225 °C, an FFKM O-ring for temperatures to 300 °C, or with a flat, PTFE gasket for operating temperatures to 350 °C.

Choosing the high temperature option (HT) boosts the maximum temperature to 500 °C, but reduces the MAWP to 2000 psi (138 bar). Standard Mini reactors can be converted to high temperature reactors (500 °C max temperature and 2000 psi MAWP) by changing the head assembly (contains cone connections, high temperature valves, and graphoil gasket) replacing the heater with a ceramic fiber heater and replacing the split-ring. Contact Parr Instrument Company for details.

4566 Bench Top Mini Reactor, 300 mL, Fixed Head, Drop-Band Split-Ring, and a 4848 Controller shown with optional Expansion Modules.

Although internal and external space is limited in these small vessels, gas entrainment impellers, catalyst baskets, condensers and other options are available. All reactors in this series can also be easily converted from one size to another by simply substituting a longer or shorter cylinder with the corresponding internal fittings and heaters.

The support system for these Mini Reactors is designed specifically to provide stability at stirring speeds up to 1700 rpm, in a compact mounting small enough to fit into a laboratory hood. The support system can also be adapted to accept any of the smaller vessels from the 4590 Micro Reactor Series.

4560 Reactor Vessels from left to right, 300 mL, 100 mL, 450 mL, 160 mL, and 600 mL.

4560

Series 4560 Pressure Reactor System Specifications										
Shaded bar indicates specifications that change within series.										
Model Number	**4561**	**4562**	**4563**	**4564**	**4565**	**4566**	**4567**	**4568**	**4566B**	**4566C**
Approximate Volume, mL	300	450	600	160	100	300	450	600	160	100
Maximum Pressure (MAWP)	3000 psi (207 bar, 200 bar for CE orders)									
HT Max. Pressure (MAWP)	2000 psi (138 bar)									
Maximum Temperature										
with FKM O-ring	225 °C									
with FFKM O-ring	300 °C									
with PTFE Flat Gasket	350 °C									
with Flexible Graphite Flat Gasket (HT)	500 °C			N/A		500 °C			N/A	
Reactor Details										
Mounting Style	Moveable					Fixed Head				
Stand Type	Bench Top									
Closure	Split-Ring (6 Compression Bolts for Flat Gasket, no Compression Bolts for O-ring)									
Valve Connections	1/8" NPT Male									
Magnetic Stirrer, Model No.	A1120HC6									
Maximum Torque	16 Inch-Pounds									
Impeller(s), 4-Blade, 1.38" dia.	1	1	2	1	1	1	1	2	1	1
Stirrer Motor	1/8 hp variable speed									
Pressure Gage, Size	3.5 inches									
Range, Standard Temperature	0-3000 psi (207 bar)									
Range, High Temperature	0-2000 psi (138 bar)									
Temperature Measurement	Fixed Thermocouple (Thermowell for special alloys)									
Cooling Coil	Included			Not Included		Included			Not Included	
Style	Single Loop (Optional Serpentine Style)									
Bottom Drain Valve, optional	1/4" NPT (Not available on HT Models)									
Heater Style	Mantle			Clamp-on		Mantle			Clamp-on	
Heater Power, Watts	510	590	780	525		510	590	780	525	
Heater Style w/ HT Option	Ceramic Fiber			N/A		Ceramic Fiber			N/A	
Heater Power, Watts	800	800	1100	N/A		800	800	1100	N/A	
Electrical Supply										
Volts, AC	115 / 230									
Maximum Load, amps, 115 / 230	10 / 5 (14 / 7 High Temperature)									
Cylinder Dimensions										
I.D x Depth, inches	2.5 x 4.0	2.5 x 6.0	2.5 x 8.0	2.5 x 2.0	2.1 x 2.0	2.5 x 4.0	2.5 x 6.0	2.5 x 8.0	2.5 x 2.0	2.1 x 2.0
Vessel Assembly Weight, pounds	17	21	21	17	18	18	21	22	18	19
Weight of Cylinder, pounds	3.7	4.9	6.2	2.4	3.3	3.7	4.9	6.2	2.4	3.3
Reactor Dimensions										
Width x Depth w/o Controller, inches	12 x 18									
Height, inches	28	32	36	28	28	28	32	36	28	28
Weight, pounds	60	63	66	60	60	62	65	68	60	60
Spare Parts Kit	4569M (4569HT for High Temperature)									

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:

4560

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Series 4560 Mini Reactors, 100-600 mL

4566 Bench Top Mini Reactor, 300 mL, Fixed Head, with Aluminum Block Heater, and a 4848 Controller shown with optional Expansion Modules.

Model 4563 Bench Top Mini Reactor, 600 mL, Moveable Head, PTFE Flat Gasket Seal, with vessel disassembled, and a 4848 Controller shown with optional Expansion Modules.

Series 4560 Ordering Guide

The Order No. for the Base System is: **456__-T-SS-M-115-VS.12-2000-4848**

A composite identification number to be used when ordering a 4560 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
4561	300 mL	Moveable Head
4562	450 mL	Moveable Head
4563	600 mL	Moveable Head
4564	160 mL*	Moveable Head
4565	100 mL *	Moveable Head
4566	300 mL	Fixed Head
4567	450 mL	Fixed Head
4568	600 mL	Fixed Head
4566B	160 mL*	Fixed Head
4566C	100 mL*	Fixed Head

* High temperature option not available.

B High Temperature Option

-No Symbol	Standard Configuration: 3000 psi / 207 bar
-HT	2000 psi / 138 bar @ 500 °C

C Gasket / Maximum Temperature

-OV	FKM O-ring, 225 °C
-OK	FFKM O-ring, 300 °C
-T	PTFE Flat Gasket, 350 °C
-FG	Flexible Graphite Flat Gasket, 500 °C

D Material 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*
-ZR702	Zirconium Grade 702*
-ZR705	Zirconium Grade 705*

* Not available for HT option

See page 10 or 24 for complete list of available alloys.

E Magnetic Stirrer Drive

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

F Stirrer Drive Material of Construction

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

I Pressure Gage

-3000	3000 psi / 207 bar	-600	600 psi / 40 bar
-2000	2000 psi / 138 bar	-200	200 psi / 14 bar
-1000	1000 psi / 69 bar	-100	100 psi / 7 bar

J Internal Cooling Coil

-CL	Internal Cooling Loop

K Bottom Drain Valve

-BDV	Bottom Drain Valve (Not Available on High Temperature Vessels)

L 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.

M 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
-A2208E	RS-485 Daisy Chain for Multiple Controller (must be used with A1925E6)
-A3504HC	SpecView Software Package for 4838/4848

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

N Custom Options (List All Desired)

-AS	Anchor Stirrer
-PS	Paddle Stirrer
-SA	Spiral Stirrer
-GE	Gas Entrainment Stirrer
-BF	Removeable Baffle Set
-SB	Static Catalyst Basket
-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.

O Certifications

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

P Spare Parts Kit

-4569M	Spare Parts Kit for 4560 Series
-4569HT	Spare Parts Kit for 4560HT Series

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