

4590

Series 4590 Micro Reactors



Series Number:
4590

Type:
**Bench Top Micro
Reactor**

Vessel:
**Moveable or
Fixed Head**

Sizes:
25, 50, 100 mL

Maximum Operating
Pressure:
3000 psi (200) bar

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



4592 Micro Reactor, 50 mL, Fixed Head, with 4843 Controller

These are the smallest of all Parr Stirred Reactors. They will be a good choice for chemists working with very expensive materials or materials only available in small amounts. They will also appeal to users who wish to minimize the risks associated with hazardous materials or reactions by restricting the reactants or products to a minimum. They also minimize the quantities of waste products which may require special disposal procedures.

These micro reactors have been designed to provide as many of the features of the

larger vessels as possible in the limited space available. All of the standard head fittings are provided, but cooling is not available unless some of the normal fittings are eliminated. Alternately available are aluminum block heaters with cooling capability or welded jackets.

These systems are offered in both fixed head and moveable head vessel styles with a choice of either a self sealing O-ring for temperatures up to 225 °C or with FFKM O-ring for temperatures to 275 °C or with a flat, PTFE gasket for higher temperatures to 350 °C. A split ring closure is standard.

The 25 and 50 mL micro reactors use band heaters which clamp directly onto the cylinder which has a limited surface area available for heat transfer. The 100 mL micro reactors use mantle heaters.

These micro reactors can be easily converted from one size to another by simply substituting a larger or smaller cylinder and the corresponding internal fittings. The support system can also be readily adapted to accept any of the vessels from the 4560 Mini Reactor Series. The opportunity to modify these small reactors is restricted because of the limited head space available.

Series 4590 Ordering Guide

A composite identification number to be used when ordering a 4590 Series Reactor can be developed by combining individual symbols from the separate sections.

Example: A 50 mL, T316SS, moveable head reactor with general purpose magnetic drive, O-ring seal, 115V, explosion proof motor, 3000 psi gage and PID controller with pressure display module would be listed as: **No. 4592-O-GP-SS-115-XP.25-3000-4842-PDM**

A.	B.	C.	D.	E.	F.	G.	H.	I.
Model	Gasket	Stirrer	Material	Voltage	Motor	Gage	Controller	Options
No. 4592	-O	-GP	-SS	-115	-XP.25	-3000	-4842	-PDM

A. Base Model		
Model No.	Size	Vessel Style
4591	25 mL	Moveable
4592	50 mL	Moveable
4593	100 mL	Moveable
4596	25 mL	Fixed Head
4597	50 mL	Fixed Head
4598	100 mL	Fixed Head

B. Gasket / Maximum Temperature		
-O	FKM O-ring, 225 °C	FFKM O-ring, 275 °C
-T	PTFE Compression Gasket, 350 °C	

C. Stirrer Drive	
-GP	General Purpose Magnetic

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
-XP .25	Explosion Proof, Variable Speed, 1/4 hp
-AM .25	Air Motor, 1/4 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. Temperature Controller	
-4842*	PID Control
-4843*	Programmable Control
-4835	Compact Control PID
-4836*	Compact Control Ramp & Soak
-4870	Process Controller
*(A)	Add to above for Analog Output (0-5 or 0-10 VDC or 4-20mA)

I. 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

J. Custom Options (List All Desired)	
-RC	Reflux Condenser
-RTC	Reflux Take-off Condenser
-GE	Gas Entrainment Stirrer
-ABH	Aluminum Block Heater
-WJ	Welded Jacket

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

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Series 4590 Options



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Model 4593 Reactor, Moveable Vessel, 100 mL, with PTFE Compression Gasket, and Split Ring Closure



Model 4793A, 100 mL, Moveable Vessel Assembly

Series 4590 Reactor Specifications						
Shaded bar indicates specifications that change within series.						
Model Number	4591	4592	4593	4596	4597	4598
Sizes, mL	25	50	100	25	50	100
Maximum Pressure	3000 psi (200 bar)					
Maximum Temperature						
with FKM O-ring	225 °C Screw Cap or Split Rings					
with FFKM O-ring	275 °C Screw Cap or Split Rings					
with PTFE Flat Gasket	350 °C Split Rings					
Vessel Style	Moveable			Fixed Head		
Reactor Mounting	Bench Top					
Closure (Cap Screws)	Split-Rings (6)					
Valve Connections	1/8" NPT Male					
Magnetic Stirrer, Model No.	A1120HC6					
Maximum Torque	16 Inch-Pounds					
Impeller(s), 4-Blade	1					
Pressure Gage, Size	3.5 inches					
Range	0-3000 psi (200 bar)*					
Temperature Measurement	Fixed Thermocouple					
Cooling Coil	Not Available					
Style	Not Available					
Bottom Drain Valve	Not Available					
Heater Style	Clamp-on		Mantle		Clamp-on	Mantle
Heater Power Watts	400					
Stirrer Motor	1/8 hp Variable Speed*					
Electrical Supply						
Volts	115 or 230					
Maximum Load, 115 / 230	12 / 6 amps					
Vessel Dimensions						
Inside Diameter, inches	1.0	1.3	1.3	1.0	1.3	1.3
Inside Depth, inches	2.0	2.3	4.6	2.0	2.3	4.6
Weight of Vessel, pounds	7	7	8	7	7	8
Reactor Dimensions						
Width, inches w/o Controller	11.5					
Depth, inches	17.5					
Height, inches	25.5					
Weight, pounds	55	55	56	56	56	57
Spare Parts Kit	4599M					
* Other options available. See Options Section and Ordering Guide						