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Stirred Reactors

Series Number:
4590

Type:
Bench Top Micro Reactor

Vessel:
Removable

Sizes:
25-100 mL

Maximum Operating Pressure
3000 psi (207 bar)

Maximum Operating Temperature
275° C w/ FFKM O-ring

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. A convenient screw cap and O-ring closure allows these small vessels to be closed by simply turning down a screw cap until it is hand tight. No wrenches or other tools are required. Normal heating rates are achieved using heaters

Series 4590 Bench Top Micro Reactors



4592 Micro Reactor, 50 mL, with 4842 Controller

which clamp directly onto the limited surface area available for heat transfer. The 225° C maximum working temperature with an FKM O-ring can be increased to 275° C by substituting a high temperature, FFKM O-ring at added cost. These micro reactors can be easily converted from one size to another by simply substi-

tuting a larger or smaller cylinder with 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 space available.





Series 4590 Reactor Specifications

Indicates specifications that change within models

Model Number	4591	4592	4593
Sizes, mL	25	50	100
Maximum Pressure, psi (bar)	3000 (207)		
Maximum Temperature °C			
with FFKM O-ring	275		
Vessel Style	Removable		
Reactor Mounting	Bench Top		
Closure	Screw Cap		
Valve Connections, NPT	1/8" Male		
Magnetic Stirrer, Model No.	A1120HC6		
Maximum Torque, Inch-Pounds	16		
Impeller(s), number (blades)	1 (4)		
Pressure Gage, Size, inches	3.5		
Range, psi (bar)	0-3000 (207)*		
Temperature Measurement	Fixed T.C.		
Cooling Coil	Not Available		
Style	N/A		
Bottom Drain Valve	None		
Heater Style	Clamp-on		
Heater Power Watts	400		
Stirrer Motor, hp, type	1/8 V.S.*		
Electrical Supply			
Volts	115 or 230		
Maximum Load, amps, 115/230	10/5		
Vessel Dimensions			
Inside Diameter, inches	1	1.3	1.3
Inside Depth, inches	2	2.25	4.5
Weight of Vessel, pounds	6	6	7
Reactor Dimensions			
Width, inches w/o Controller	11.5		
Depth, inches	17.5		
Height, inches	25.5		
Weight, pounds	55	55	56
Spare Parts Kit	4599		

* Other options available. See Options Section and Ordering Guide



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Stirred Reactors

Series 4590 Options



Series 4590 Options

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Micro Reactor Vessel Assembly



Micro Reactor Vessel Head



50 mL, 100 mL, and 25 mL Cylinders



Series **4590** Ordering Guide

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

EXAMPLE

A 50 mL, T316SS, reactor with an O-ring, 115V explosion proof motor, 3000 psi gage and PID controller with pressure display module would be listed as:

No. 4592-O-SS-115-XP-3000-4842-PDM

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

A. BASE

Model No.	Size	Head Style
4591	25 mL	Removable
4592	50 mL	Removable
4593	100 mL	Removable

B. GASKET/MAXIMUM TEMP.

-O	O-Ring	275° C
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C. MATERIALS OF CONSTRUCTION

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

D. ELECTRICAL SUPPLY

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

E. MOTOR OPTION

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

F. PRESSURE GAGE

-2000	2000 psi/140 bar
-3000	3000 psi/207 bar
-1000	1000 psi/70 bar
-600	600 psi/40 bar
-200	200 psi/14 bar
-100	100 psi/7 bar

G. TEMPERATURE CONTROLLER

-4842	PID Control
-4843	Programable Control
-4861	Process Controller
-4862	Expanded Process Controller

H. 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 4-20 mA)
-SVM	Solenoid Valve Module
-CM	Communications Module.

I. CUSTOM OPTIONS

(LIST ALL DESIRED)	
Gas Entrainment Stirrer	
Condenser	

J. CERTIFICATION

No Symbol	No Certification
-ASME	ASME Certification
-TUV	TUV Certification
-CE	European Community Standard
-P	Parr Certification