Series Number:

4530

Type:
General Purpose

Stand:
Floor Stand or Cart

Mounting Style:
Moveable or Fixed Head

Vessel Sizes, mL:
1000-2000 Standard
970-1900 HP

Standard Pressure MAWP Rating, psi (bar):
1900 (131)

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

High Pressure (HP) MAWP Rating, psi (bar):
2900 (200)

Maximum Operating Temperature, °C, at High Pressure (HP):
350 @ 2900 psi

Series 4530 Floor Stand Reactors, 1 & 2 L

Series 4530 1 & 2 L Floor Stand Reactors can be moved, modified to fit your needs, and configured for polymer studies. They are also available in high pressure versions.

- **Reactors configured for high torque applications.** The reactors in this series are mounted on a sturdy floor stand which will accommodate larger stirrer drive motors and stronger power trains that are generally not available for the bench top models. With these options it is possible to provide the high torque and low stirring speeds required for work with polymers, slurries, and other mixtures with viscosity of 1 million centipoise and more. These mountings are also better suited for the installation of a drain valve in the cylinder bottom for convenient removal of the reaction mixture while it is still hot.
- **Reactors requiring extensive modifications.** Floor stand mountings provide a good base for reactor modifications and for the addition of accessories, such as: condensers, packed columns, special motors, custom heaters, jacketed vessels, automatic valves or regulators, and many other fittings. Both fixed head and moveable vessel designs are available. An optional pneumatic lift is available for fixed head models
- **Reactors that need to be moved.** These reactors are designed for use in an area where a bench top is not available. Users who wish to move the reactor to storage when not in use, will appreciate the moveable cart design of the Series 4531 and 4532.

  These reactors are available with an FKM O-ring seal for operating temperatures to 225 °C, and FFKM O-ring for temperatures to 300 °C, or with a flat, PTFE gasket for operating temperatures up to 350 °C maximum.
- **HP versions.** These reactors are also available in a HP (High Pressure) version up to 2900 psi (200 bar) at 350 °C.

4534 Floor Stand Reactor, 2000 mL, Fixed Head, with Heavy-Duty Footless Mag Drive, Serpentine Cooling Coil, optional Solids Charging Device, Cylinder equipped with Welded Jacket, and Bottom Drain Valve.

4530

Series 4530 Pressure Reactor System Specifications						
Shaded bar indicates specifications that change within series.						
Model Number	**4531**	**4532**	**4533**	**4534**	**4535**	**4536**
Approximate Volume, mL	1000	2000	1000	2000	1000	2000
Approximate Volume for HP Models, mL	970	1900	970	1900	970	1900
Maximum Pressure (MAWP)	1900 psi (131 bar)					
Maximum Pressure for HP (MAWP)	2900 psi (200 bar)					
Maximum Temperature						
with FKM O-ring	225 °C					
with FFKM O-ring	300 °C					
with PTFE Flat Gasket	350 °C					
Reactor Details						
Mounting Style	Moveable		Fixed Head		Moveable	
Stand Type	Moveable Cart		Floor Stand		Floor Stand	
Closure	Split-Ring (6 Compression Bolts for Flat Gasket, No Compression Bolts for O-ring)					
High Pressure Closure	Split-Ring (12 Compression Bolts for Flat Gasket, No Compression Bolts for O-ring)					
Valve Connections	1/8" Male NPT					
Magnetic Stirrer, Model No.	A1120HC General Purpose or A2140HC Footless					
Maximum Torque	16 Inch-Pounds					
Impeller(s), 6-Blade	2 (2.28" dia. / HP: 2.00" dia.)					
Stirrer Motor	1/4 hp Variable Speed					
Pressure Gage, Size	4.5 inches					
Range	Standard: 0-2000 psi (138 bar) / HP: 0-3000 psi (207 bar)					
Temperature Measurement	Thermowell					
Cooling Coil (optional)	Serpentine					
Bottom Drain Valve (BDV) (optional)						
Standard Pressure (1900 psi)	3/8" NPT					
High Pressure (2900 psi)	1/4" NPT					
Lift Mechanism (optional)	N/A		Pneumatic Lift		N/A	
Heater Style	Calrod					
Heater Power, Watts	1300		1000 / 1500	1500 / 2000	1000 / 1500	1500 / 2000
Electrical Supply						
Volts, AC	115 / 230					
Maximum Load, amps, 115 / 230	12 / 9					
Cylinder Dimensions						
I.D. x Depth, inches	4.0 x 5.4	4.0 x 10.5	4.0 x 5.4	4.0 x 10.5	4.0 x 5.4	4.0 x 10.5
I.D. x Depth, inches for HP	3.75 x 5.4	3.75 x 10.5	3.75 x 5.4	3.75 x 10.5	3.75 x 5.4	3.75 x 10.5
Vessel Assembly Weight, pounds	30	35	33	38	301	36
Vessel Assembly Weight for HP, pounds	35	43	36	44	35	43
Cylinder Weight, pounds	8.9	13.7	8.9	13.7	8.9	13.7
Cylinder Weight for HP, pounds	11.3	18.4	11.3	18.4	11.3	18.4
Reactor/Stand Dimensions						
Width x Depth w/o Controller, inches	35 x 18		21 x 28		21 x 28	
Height, inches	50		63		63	
Weight, pounds	200	215	225	240	225	240
Spare Parts Kit	4539M (General Purpose)					

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:

4530

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Series 4530 Floor Stand Reactors, 1 & 2 L

4532 Moveable Head on Moveable Cart, 2000 mL, and a 4848 Temperature Controller with optional Expansion Modules.

2000 mL Moveable Vessel

4533 Floor Stand Reactor, 1000 mL, Fixed Head Vessel with Gear Drive, Dual Condenser, Spiral Stirrer, and Bottom Drain Valve.

Series 4530 Ordering Guide

The Order No. for the Base System is: **453__-T-SS-M-115-VS.25-2000-4848**

A composite identification number to be used when ordering a 4530 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
4531	1000 mL	Moveable Head, Moveable Cart
4532	2000 mL	Moveable Head, Moveable Cart
4533	1000 mL	Fixed Head, Stationary Floor Stand
4534	2000 mL	Fixed Head, Stationary Floor Stand
4535	1000 mL	Moveable Head, Stationary Floor Stand
4536	2000 mL	Moveable Head, Stationary Floor Stand

High Pressure sizes are 970 mL and 1900 mL respectively.

B High Pressure Option

-No Symbol	Standard Configuration (1900 psi / 131 bar)
-HP	2900 psi (200 bar)

C Gasket / Maximum Temperature

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

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

E 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

F Mag. 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
-VS .50	Variable Speed, 1/2 hp (230V Only)
-XP .25	Explosion Proof, Variable Speed, 1/4 hp
-XP .50	Explosion Proof, Var. Speed, 1/2 hp (230V Only)
-AM .25	Air Motor, 1/4 hp
-AM .50	Air Motor, 1/2 hp
-GDD	Geared Direct Drive (Fixed Head Only)

I Geared Direct Drive Ratio*

-3D	3:1, 0-600 rpm
-5D	5:1, 0-360 rpm
-10D	10:1, 0-180 rpm

** For -GDD Motor Option Only.*

J Pressure Gage

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

K Internal Cooling Coil

-SC	Serpentine Coil

L Bottom Drain Valve

-BDV	Bottom Drain Valve, 3/8" NPT for standard systems, 1/4" NPT for HP systems (1000 / 970 mL only)

M 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.

N 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.*

O Custom Options (List All Desired)

-AS	Anchor Stirrer
-PS	Paddle Stirrer
-SA	Spiral Stirrer
-GE	Gas Entrainment Stirrer
-BF	Removable Baffle Set
-SB	Static Catalyst Basket
-DB	Dynamic 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 with Cooling Channels
-PL	Pneumatic Lift

See Chapter 7 for a complete list of optional accessories.

P Certifications

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

Q Spare Parts Kit

-4539M	Spare Parts Kit for 4530 Series

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