

Series Number:

4555

Type:
General Purpose

Stand:
Floor Stand

Mounting Style:
**Moveable or
Fixed Head**

Vessel Sizes, Gallons (Liters):
2.6 (10) and 5 (18.75)

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

Series 4555 Floor Stand Reactors, 2.6 & 5 Gallon

The Model 4555 and 4557 Reactors with their 5 gallon (18.75 L) capacity are the largest stirred reactors offered by Parr.

The 4556 and 4558 Models are similar units with a 10 liter (2.6 gal) volume which falls between the larger 5 gallon design and the smaller 1 and 2 gallon models in the 4550 Series. Vessel styles are offered in a moveable head or fixed head design.

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.

In the moveable head design (see page 21), the vessel is held in a support system which minimizes the physical effort required to handle these heavy components. The hoist is attached to a support column which provides a convenient means for lifting the head and cylinder out of the stand. These components may be transferred to the holding position on the right side of the stand. Vessels equipped with a bottom drain valve will probably remain in the heater most of the time, but can be lifted out when necessary.

The fixed head support stand features hinged split-rings that swing to either side allowing the head to remain fixed to the stand while a pneumatic lift allows the cylinder to be raised and lowered. When lowered, the cylinder can be slid forward for cleaning and servicing.

These reactors are generally used for pilot plant or for custom chemical production purposes, usually with a variety of attachments added to the basic units. Various heaters, larger motors, heavier stirrer drives and remote controls appropriate to the size of these reactors have been designed and are available.

Modified versions of these units are available with higher working pressures and temperatures.



Hinged Split-Rings open to reveal Serpentine Cooling Coil, with Heater and Vessel lowered via Pneumatic Lift.



4557 Floor Stand Reactor, 5 Gallon, Fixed Head, 3-zone Band Heater, with Split-Rings and Pneumatic Lift.

4555

Series 4555 Pressure Reactor System Specifications				
Shaded bar indicates specifications that change within series.				
Model Number	4555	4556	4557	4558
Approximate Volume, Gallon (Liter)	5 (18.75)	2.6 (10)	5 (18.75)	2.6 (10)
Maximum Pressure (MAWP)	1900 psi (131 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	
Stand Type	Table Floor Stand		Floor Stand	
Closure	Split-Ring (12 Compression Bolts for Flat Gasket, no Compression Bolts for O-ring)			
Valve Connections	3/8" NPT Male			
Magnetic Stirrer, Model No.	A1750HC Heavy Duty or A2160HC Footless			
Maximum Torque	60 Inch-Pounds			
Impeller(s), 6-Blades	2 (5.25" dia.)	2 (3.85" dia.)	2 (5.25" dia.)	2 (3.85" dia.)
Stirrer Motor	3/4 hp variable speed			
Pressure Gage, Size	4.5 inches			
Range	0-2000 psi (138 bar)			
Temperature Measurement	Thermowell			
Cooling Coil	Serpentine			
Bottom Drain Valve (BDV) (optional)	1.0" NPT			
Lift Mechanism	Manual Hoist		Pneumatic	
Heater Style	Ceramic, 3-zone	Band Heater, 3-zone	Band Heater, 3-zone	
Heater Power, Watts	4500	4250	5500	3300
Electrical Supply				
Volts, AC	230-1P or 400-415V 3-Phase "Y"			
Maximum Load, amps	1P-30 amps / 3P-15 amps/leg			
Cylinder Dimensions				
I.D. x Depth, inches	9.5 x 16.3	7.75 x 12.2	9.5 x 16.3	7.75 x 12.2
Vessel Assembly Weight, pounds	354	206	355	209
Cylinder Weight, pounds	157	97	157	97
Reactor Dimensions				
Width x Depth w/o Controller, inches	63 x 25		31 x 43	
Height, inches	91		95	87
Weight, pounds	1000	900	1000	900
Spare Parts Kit	4559PCM			
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.				

Power Requirements

Typical power requirements for Parr's large, electrically heated reactors are 40 amp single phase or 3-Phase power sources. Users are advised to have a qualified electrician determine and install an appropriate mains power supply for the large reactor system.

Large reactor systems with lower electrical power requirements, such as low temperature applications are available for use with typical 20 amp, 230 volt sources.

Contact Parr Technical Sales staff for assistance with electrical specifications.

Series 4555 Floor Stand Reactors, 2.6 & 5 Gallon

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5 Gallon Stirred Vessel in stand with stirrer engaged.



4555 Table Floor Stand Reactor, 5 Gallon Moveable Vessel with Head removed from Vessel, Manual Hoist, and a 4848M Controller.

Series 4555 Ordering Guide

The Order No. for the Base System is: **455__-T-SS-HD-230-VS.75-2000-SC-C3-4848-ASME**

A composite identification number to be used when ordering a 4555 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
4555	5 Gallon	Moveable Head
4556	10 Liter	Moveable Head
4557	5 Gallon	Fixed Head
4558	10 Liter	Fixed Head

B Gasket / Maximum Temperature	
-OV	FKM O-ring, 225 °C
-OK	FFKM O-ring, 300 °C
-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
-ZR702	Zirconium Grade 702
-ZR705	Zirconium Grade 705

See [page 10](#) or [24](#) for complete list of available alloys.

D Magnetic Stirrer Drive	
-HD	Heavy Duty, 60 in-lb
-XHD	Extra Heavy Duty, 120 in-lb
-FMD2	Footless Magnetic Drive, 60 in-lb
-FMD3	Footless Magnetic Drive, 120 in-lb

E Mag. Drive Material of Construction	
-MOC Symbol	Indicate Material of Construction

F Electrical Supply	
-230	230 VAC, Single Phase
-400	400-415V 3-Phase "Y"

G Motor Option	
-VS .75	Variable Speed, 3/4 hp
-XP .75	Explosion Proof Variable Speed, 3/4 hp
-AM .100	Air Motor, 1 hp
-GDD	Geared Direct Drive (Fixed Head Only)

H Geared Direct Drive Ratio*		I Pressure Gage	
-3D	3:1, 0-600 rpm	-2000	2000 psi / 138 bar
-5D	5:1, 0-360 rpm	-1000	1000 psi / 69 bar
-10D	10:1, 0-180 rpm	-600	600 psi / 40 bar
* for -GDD Motor Option Only		-200	200 psi / 14 bar
		-100	100 psi / 7 bar

J Internal Cooling Coil	
-SC	Serpentine Coil

K Bottom Drain Valve	
-BDV	Bottom Drain Valve, 1" NPT

L Heater Options	
-C3	Ceramic, 3-zone (4555 only)
-B3	Band Heaters, 3-zone
-WJ	Welded Jacket
-FM	Flexible Mantle Heater, 1-zone, 2500 W, 200 °C Max.

M Head Lift Mechanism (Table Floor Stand only)	
-EH	Electric Hoist (115 VAC)

N 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.

O 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)
-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.

P Custom Options (List All Desired)	
-AS	Anchor Stirrer
-PS	Paddle Stirrer
-SA	Spiral Stirrer
-GE	Gas Entrainment Stirrer
-BF	Removeable Baffle Set
-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

See [Chapter 7](#) for a complete list of optional accessories.

Q Certifications	
-ASME	ASME Documentation
-CE	CE Documentation
-P	Parr Certification

R Spare Parts Kit	
-4559PCM	Spare Parts Kit for 4555 Series

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