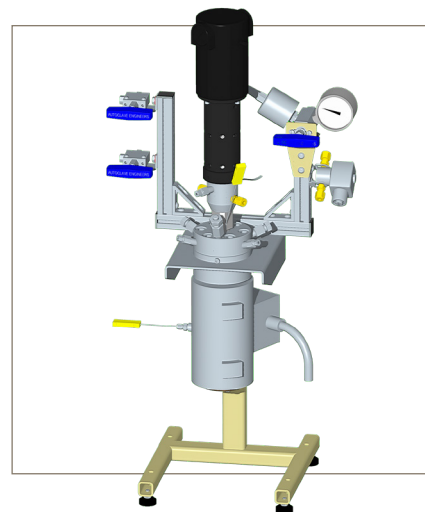


# Bench Top Bolted Closure Reactors

150 ml and 300 ml

ID = 1.81" (46mm)

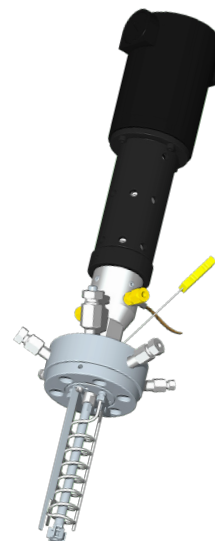


## Principle of Operation:

The Parker Autoclave Engineers' Bolted Closure Reactor has been designed for reliable high pressure operation. The seal can be a metal gasket machined from the same material as the vessel or an elastomeric seal. Many combinations of standard components are available. The cover of the unit remains fixed in the stand to permit opening of the vessel without disassembling any process connections. The body is easily removed and drops away from the cover. The bolted closure stirred laboratory reactor is used for chemical synthesis of corrosive, hazardous and very reactive chemicals/petrochemicals as well as materials research.

## General Specifications:

Maximum Allowable Working Pressure: (MAWP)
5,000 psi @ 850°F (344 Bar @ 454°C) <span style="background-color: yellow;">Note</span>
Maximum Recommended Operating Pressure:
4,300 psi @ 750°F (296 Bar @ 398°C)
Material of Construction:
316 Stainless Steel
Hastelloy® C

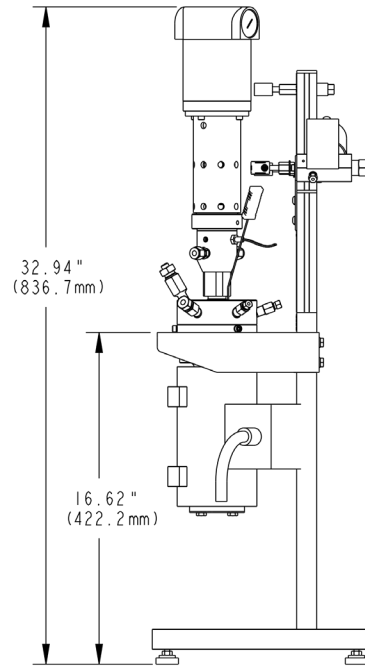
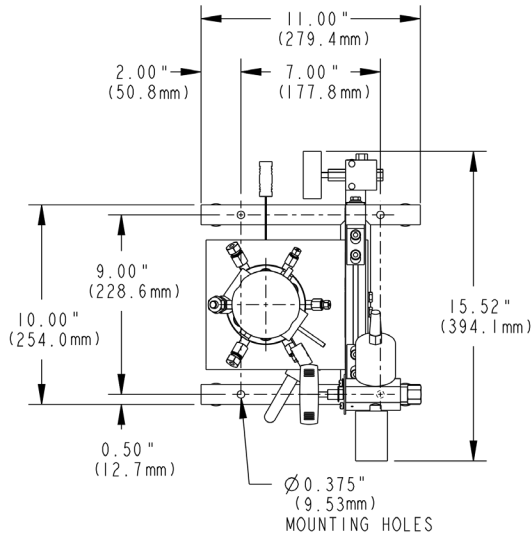


300 ml Bolted Reactor Internals

## Standard/Optional Unit Features:

- 150/300 ml companion volumes with common closure geometry
- Electric heater with over-temperature thermocouple
- Bench top stand
- Process thermocouple (Type K)
- Process Cooling Coil
- Liquid sample tube with valve
- Gas inlet valve
- Vent valve with pressure gauge/transducer and safety rupture disc (0-3000 PSI gauge, 0-5000 PSI, 24VDC, 4-20mA pressure transducer)
- F437FB (.195" ID) Charging Port (see Charging Port Option if needed)
  
- Optional: ASME code stamp or CE mark
- Optional: Elastomer seal for lower temperature operation
- Optional: 150/300 ml companion volumes with common closure geometry
- Optional: i2Mag in-line Magedrive with 1/8 hp motor with Dispersimax impeller

## Drawing Details:



## Ordering Information:

Part Number Example	PH-B	015	SS	—	MM	NS	—	XP
Category		1	2		3	4		5

**Example: PH-B015SS-MMNS-XP**

**Description:** 150 ml Bolted Closure Stirred Reactor, 316 Stainless Steel, No Mixer, No Code Requirements, with Explosion Proof Option

1 - Vessel Volume Code	
015	150 ml
030	300 ml

2 - Vessel Material Code	
SS	316 Stainless Steel
HC	Hastelloy® C

3 - Mixer Code	
NS	No Mixer (port plugged)
MM	In-Line Magnedrive Mixer (w/Dispersimax Impeller - pg. 31)

4 - Pressure Code Requirement (unit voltage)	
NS	None (120 VAC)
AS	ASME Code (120 VAC)
CE	CE Mark (240 VAC)
NE	Export with CRN (240 VAC)

5 - Explosion Proof (option)	
XP	Explosion proof with slip-on jacket and air motor

Hastelloy® C is a registered trademark of Haynes International, Inc.

**Note** The user should be aware that the 850°F (454°C) vessel temperature rating is the maximum mean wall temperature of the vessel, as defined by the ASME B&PV Code. Many variables can affect the thermal capabilities of the vessel. These factors can include, but are not limited to, the use of insulation, whether the process is batch or continuous flow, or even a chemical process itself. These factors may have bearing on heat up rate, maximum process temperature, and the cool down rate of the reactor. These factors should be considered by the user when purchasing a system in order to verify that the equipment will reach desired operating temperature in a reasonable time period. Please consult Parker Autoclave Engineers if assistance is required.

## Optional Feature Kits/Spare Parts

(purchased separately but assembled as part of purchased Reactor if required)

- Soft Seat Vessel Closure Seal Kits
- Magnedrive Bearing Option Kits
- Internal Tube Kits
- Process Cooling Component Kits
- Solid or Liquid Catalyst Charging Kit
- Tool Kits (matched to vessel type)
- Flush Valve Kit

For complete description of kit contents please see pages 16-19

## Universal Reactor Controller (URC)

We recommend that our Reactors be operated using our URC-II control package. It provides an interface to control and monitor heater & process temperature, Magnedrive speed, and Pressure. See page 41 for information on ordering the URC-II controller.

# Floor Stand Bolted Reactors

500ml & 1000ml - ID = 3.00" (76mm)  
2000ml & 4000ml - ID = 5.00" (127mm)

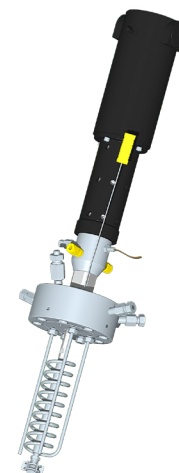


## Principle of Operation:

The Parker Autoclave Engineers' Bolted Closure Reactor has been designed for reliable high pressure operation. The seal can be a metal gasket machined from the same material as the vessel or an elastomeric seal. Many combinations of standard components are available. The cover of the unit remains fixed in the stand to permit opening of the vessel without disassembling any process connections. The body is easily removed and drops away from the cover. The bolted closure stirred laboratory reactor is used for chemical synthesis of corrosive, hazardous and very reactive chemicals/petrochemicals as well as materials research.

## General Specifications:

Maximum Allowable Working Pressure: (MAWP)
5,000 psi @ 850°F (344 Bar @ 454°C) <span style="float: right;">Note</span>
Maximum Recommended Operating Pressure:
4,300 psi @ 750°F (296 Bar @ 398°C)
Material of Construction:
316 Stainless Steel
Hastelloy® C



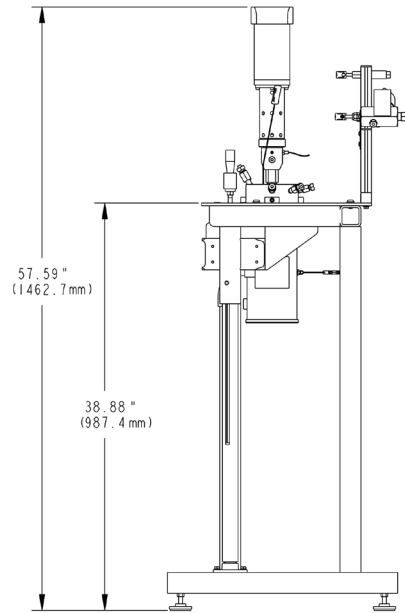
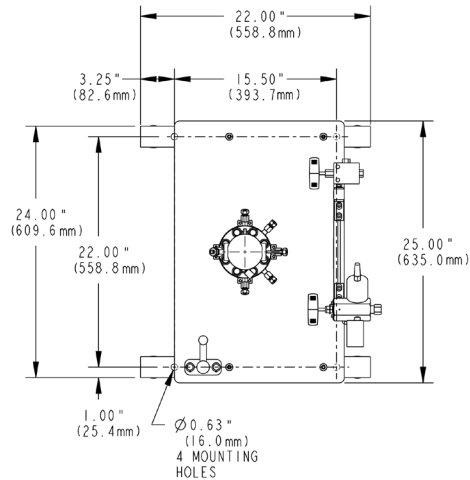
1000 ml Bolted Reactor Internals

## Standard/Optional Unit Features:

- Electric heater with over-temperature thermocouple and easy body removal
- Floor stand with swing-away body lift
- Process thermocouple (Type K)
- Process Cooling Coil
- Liquid sample tube with valve
- Gas inlet valve
- Vent valve with pressure gauge/transducer and safety rupture disc (0-3000 PSI gauge, 0-5000 PSI, 24VDC, 4-20mA pressure transducer)
- F437FB (.195" ID) Charging Port (see Charging Port Option if needed)
- Optional: Mini flush valve
- Optional: ASME code stamp or CE mark
- Optional: Elastomer seal for lower temperature operation
- Optional: 500/1000, and 2000/4000 ml companion volumes with common closure geometry
- Optional: i2Mag in-line Magnedrive with 1/3 hp motor speed sensor with Dispersimax impeller

## Drawing Details:

### 1000ml Bolted



## Ordering Information:

Part Number Example	PH-B	400	SS	—	MM	NS	—	XP
Category		<b>1</b>	<b>2</b>		<b>3</b>	<b>4</b>		<b>5</b>

#### Example: PH-B400SS-MMNS-XP

Description: 4000 ml Bolted Closure Reactor, 316 Stainless Steel, With Drive, No Code Requirements with Explosion Proof Option

1 - Vessel Volume	
050	500 ml
100	1000 ml
200	2000 ml
<b>400</b>	<b>4000 ml</b>

2 - Vessel Material Code	
<b>SS</b>	316 Stainless Steel
HC	Hastelloy® C

3 - Mixer Code	
NS	No Mixer (port plugged)
<b>MM</b>	<b>In-Line Magnedrive Mixer (w/Dispersion Impeller - pg. 31)</b>

4 - Pressure Code Requirement (unit voltage)	
<b>NS</b>	<b>None (240 VAC)</b>
AS	ASME Code (240 VAC)
CE	CE Mark (240 VAC)
NE	Export with CRN (240 VAC)

5 - Explosion Proof (option)	
<b>XP</b>	<b>Explosion proof with slip-on jacket and air motor</b>

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**Note** The user should be aware that the 850°F (454°C) vessel temperature rating is the maximum mean wall temperature of the vessel, as defined by the ASME B&PV Code. Many variables can affect the thermal capabilities of the vessel. These factors can include, but are not limited to, the use of insulation, whether the process is batch or continuous flow, or even a chemical process itself. These factors may have bearing on heat up rate, maximum process temperature, and the cool down rate of the reactor. These factors should be considered by the user when purchasing a system in order to verify that the equipment will reach desired operating temperature in a reasonable time period. Please consult Parker Autoclave Engineers if assistance is required.

## Optional Feature Kits/Spare Parts

(purchased separately but assembled as part of purchased Reactor if required)

- Soft Seat Vessel Closure Seal Kits
- Magnedrive Bearing Option Kits
- Internal Tube Kits
- Process Cooling Component Kits
- Solid or Liquid Catalyst Charging Kit
- Tool Kits (matched to vessel type)
- Flush Valve Kit

For complete description of kit contents please see pages 16-19

## Universal Reactor Controller (URC)

We recommend that our Reactors be operated using our URC-II control package. It provides an interface to control and monitor heater & process temperature, Magnedrive speed, and Pressure. See page 41 for information on ordering the URC-II controller.