

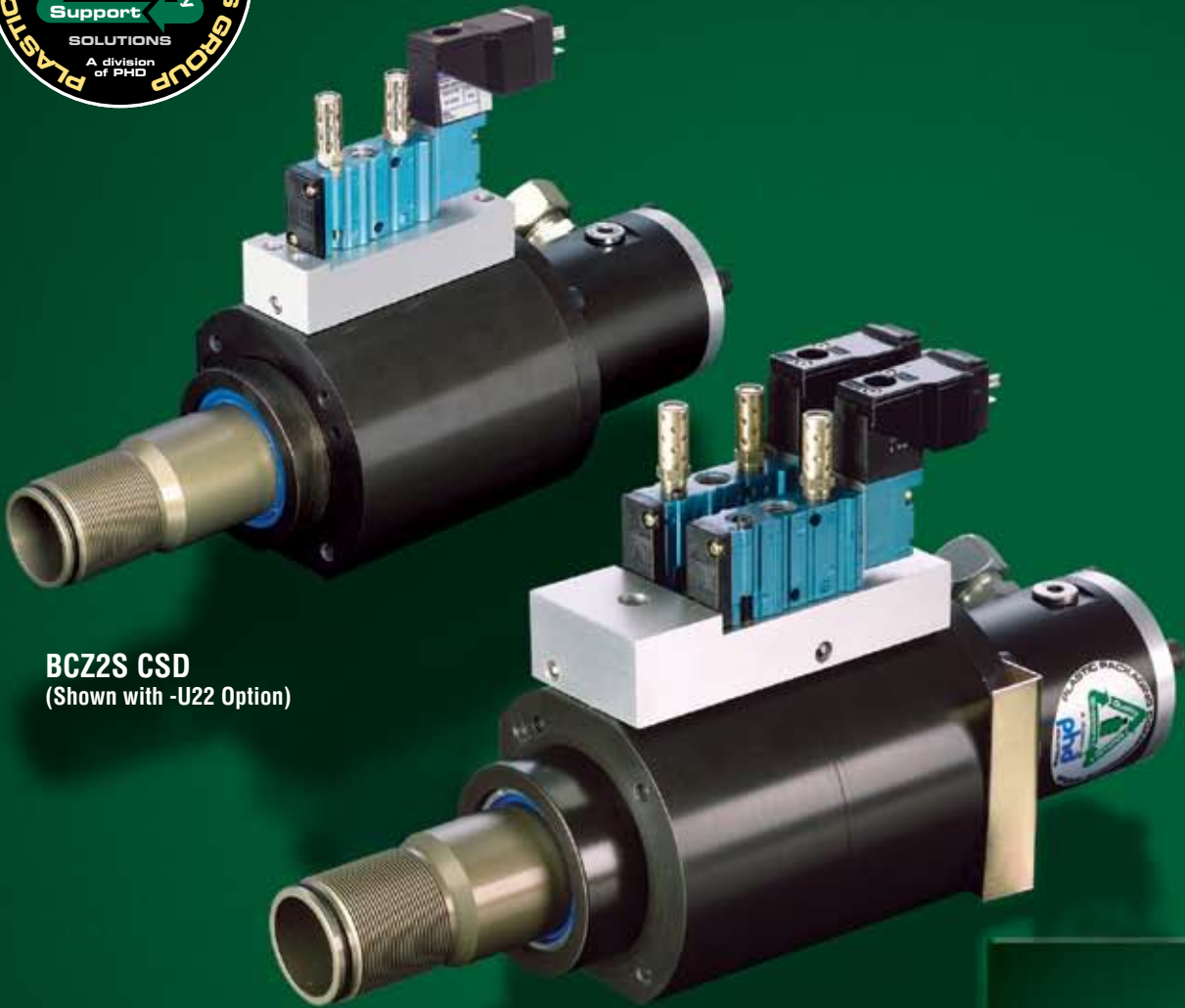
BCZ

SERIES BCZ NOZZLE CYLINDERS

for the Plastic Bottle Blowing Industry



REPLACEMENT FOR SIDEL® MODEL SERIES2 CSD & HEAT SET MACHINES



BCZ2S CSD
(Shown with -U22 Option)

BCZ2D Heat Set
(Shown with -U22 Option)



Either model is available
without manifold

**ISO-9001
CERTIFIED**
Quality Management
System Certified

BCZ04C



PHD is a member of the
MAC Distributor Network

phd 
SOLUTIONS FOR INDUSTRIAL AUTOMATION

www.phdinc.com

ORDERING DATA: SERIES BCZ NOZZLE CYLINDERS

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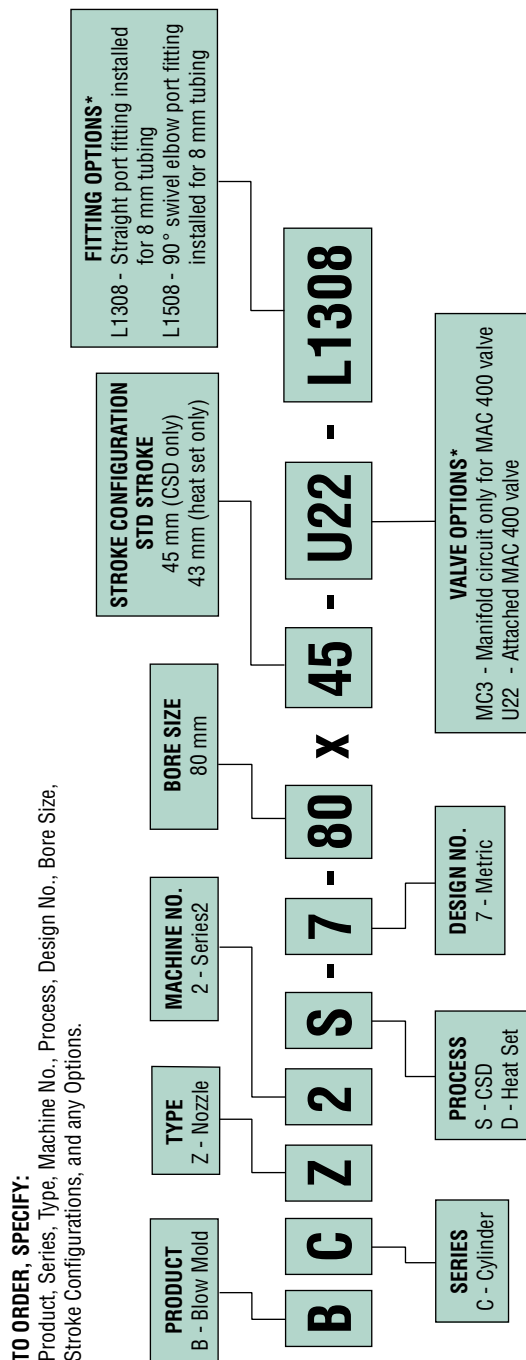
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Exploded Views & Parts Lists

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NOTES:

- 1) Consult PHD for additional options such as magnetic piston, ISO/valve manifold combinations and alternative MAC 400 valve combinations.
- 2) * If no fittings or valves are required, leave blank.

SERIES BCZ CSD NOZZLE CYLINDERS



- Provides Significantly Longer Life
- Reduces Maintenance and Downtime
- Easy and Fast Repairs



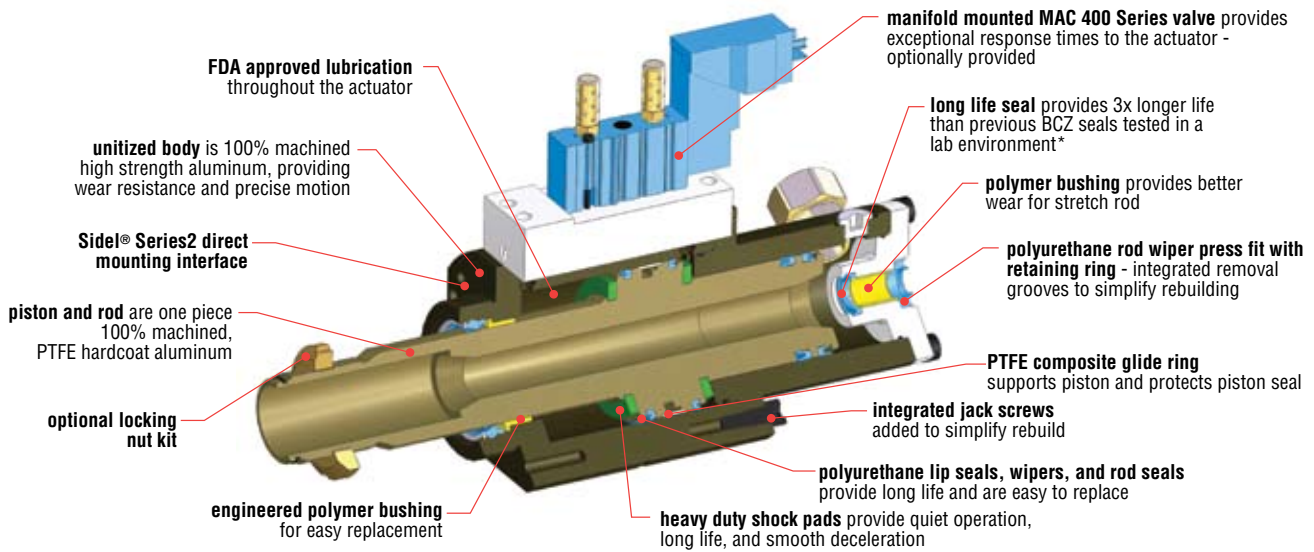
MODEL BCZ2S-7-80x45 CYLINDER

- Replacement for Sidel® Model Series2 Machines.



MODEL BCZ2S-7-80x45-U22 CYLINDER

- Replacement for Sidel® Model Series2 Machines.
- Valve manifold provides exceptional response time.



*For maximum life, PHD recommends lubricating all seals which come in contact with the stretch rod every 3 months with FDA food grade lubricant.

*As machine set-ups and conditions vary, PHD Inc. cannot guarantee the same extended life will be seen as that resulting from PHD's own lab testing of the stretch rod seal.

Common Benefits

- PHD Cylinder mounts into the same space and bolt patterns.
- Provides significantly longer life and reduces maintenance and downtime.
- Internal shock pads are standard, eliminating metal-to-metal contact.
- Cylinders are easily field repairable, and rebuild program is available to maximize your investment.
- Consult PHD for other standard and custom options available.

Industry Uses

- Plastic Packaging

Any other marks or names referenced herein are either registered trademarks or trademarks of their respective owners. No association with or endorsement of any company, organization, or product is intended or should be inferred.

SERIES BCZ HEAT SET NOZZLE CYLINDERS

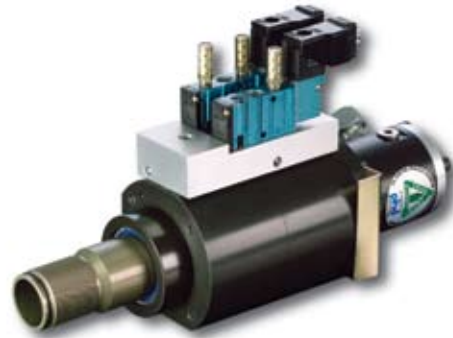


- Provides Significantly Longer Life
- Reduces Maintenance and Downtime
- Easy and Fast Repairs



MODEL BCZ2D-7-80x43 CYLINDER

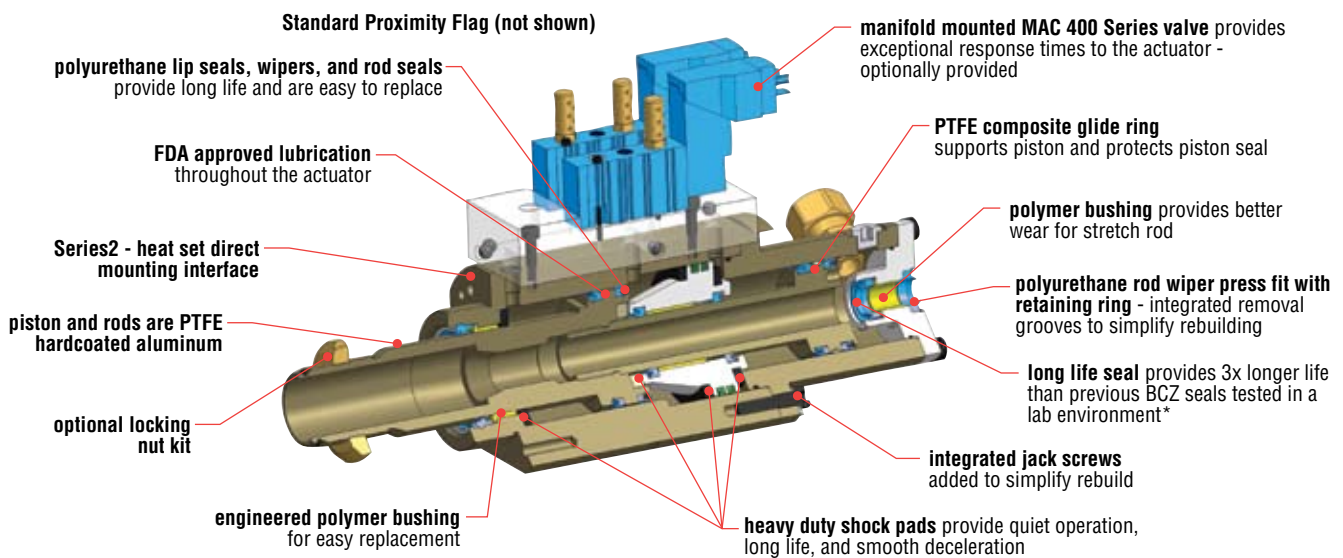
■ Replacement for Sidel® Model Series2 Machines.



MODEL BCZ2D-7-80x43-U22 CYLINDER

■ Replacement for Sidel® Model Series2 Machines.

■ Valve manifold provides exceptional response time.



*For maximum life, PHD recommends lubricating all seals which come in contact with the stretch rod every 3 months with FDA food grade lubricant.

*As machine set-ups and conditions vary, PHD Inc. cannot guarantee the same extended life will be seen as that resulting from PHD's own lab testing of the stretch rod seal.

Common Benefits

- Provides significantly longer life and reduces maintenance and downtime.
- Internal shock pads are standard, eliminating metal-to-metal contact.
- Cylinders are easily field repairable, and rebuild program is available to maximize your investment.
- Consult PHD for other standard and custom options available.

Industry Uses

- Plastic Packaging

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ENGINEERING DATA: SERIES BCZ NOZZLE CYLINDERS

CYLINDER SPECIFICATIONS	BCZ2S		BCZ2D	
	IMPERIAL	METRIC	IMPERIAL	METRIC
TYPE	Pneumatic		Pneumatic	
SERIES	BCZ CSD Nozzle Cylinder		BCZ Heat Set Nozzle Cylinder	
CYLINDER BORE SIZE	3.149 in	80 mm	3.149 in	80 mm
PISTON ROD DIAMETER	1.965 in	50 mm	1.965 in	50 mm
CYLINDER - LOW PRESSURE				
BORE AREA - EXTEND	4.109 in ²	26.51 cm ²	2.368 in ²	15.28 cm ²
BORE AREA - RETRACT	4.748 in ²	30.63 cm ²	3.011 in ²	19.43 cm ²
THEORETICAL EXTEND OUTPUT	357 lb @ 87 psi	1588 N @ 6 bar	206 lb @ 87 psi	916 N @ 6 bar
THEORETICAL RETRACT OUTPUT	413 lb @ 87 psi	1837 N @ 6 bar	262 lb @ 87 psi	1165 N @ 6 bar
OPERATION	Double Acting		Double Acting	
OPERATING PRESSURE RANGE	7.5 - 150 psi	0.5 - 10 bar	7.5 - 150 psi	0.5 - 10 bar
BLOW CYLINDER - HIGH PRESSURE				
BORE SIZE	2.165 in	55mm	2.165 in	55mm
BORE AREA	3.094 in ²	19.96 cm ²	3.437 in ²	22.17 cm ²
OPERATING PRESSURE	600 psi	41.4 bar	600 psi	41.4 bar
THEORETICAL CLAMP FORCE	1856 lb @ 600 psi	8256 N @ 41.4 bar	2062 lb @ 600 psi	9172 N @ 41.4 bar
AMBIENT & FLUID TEMPERATURE	-20° to 180° F	-29° to 82° C	-20° to 180° F	-29° to 82° C
STROKE TIME (TYPICAL)				
EXTEND	93 ms			
RETRACT	78 ms			
FULL RETRACT TO MID POSITION			57 ms	
MID POSITION TO FULL EXTEND			75 ms	
FULL EXTEND TO MID POSITION			113 ms	
MID POSITION TO FULL RETRACT			90 ms	
LUBRICATION	Food Grade Lubricant		Food Grade Lubricant	
PORT SIZE	G1/8		G1/8	
STROKE	1.772 in (+.079 -.000)	45 mm (+2.0 -0.0)	1.693 in (+.098 -.000)	43 mm (+2.5 -0.0)

LIFE EXPECTANCY

Series BCZ Cylinders have been designed for 15 million trouble-free cycles except for high pressure stretch rod seal. Long life stretch rod seal provides 3 times longer life than previous Series BCZ seals tested in a lab environment. Operation with lubricated air can extend cylinder life.

CYCLE RATE

Series BCZ Nozzle Cylinders meet or exceed cycle rate of competitor's unit when using optional manifold/valve combinations.

MAINTENANCE

As with most PHD products, these cylinders are field repairable. Repair kits, tooling kits, and main structural components are available as needed for extended service. Optional rebuild service is available.

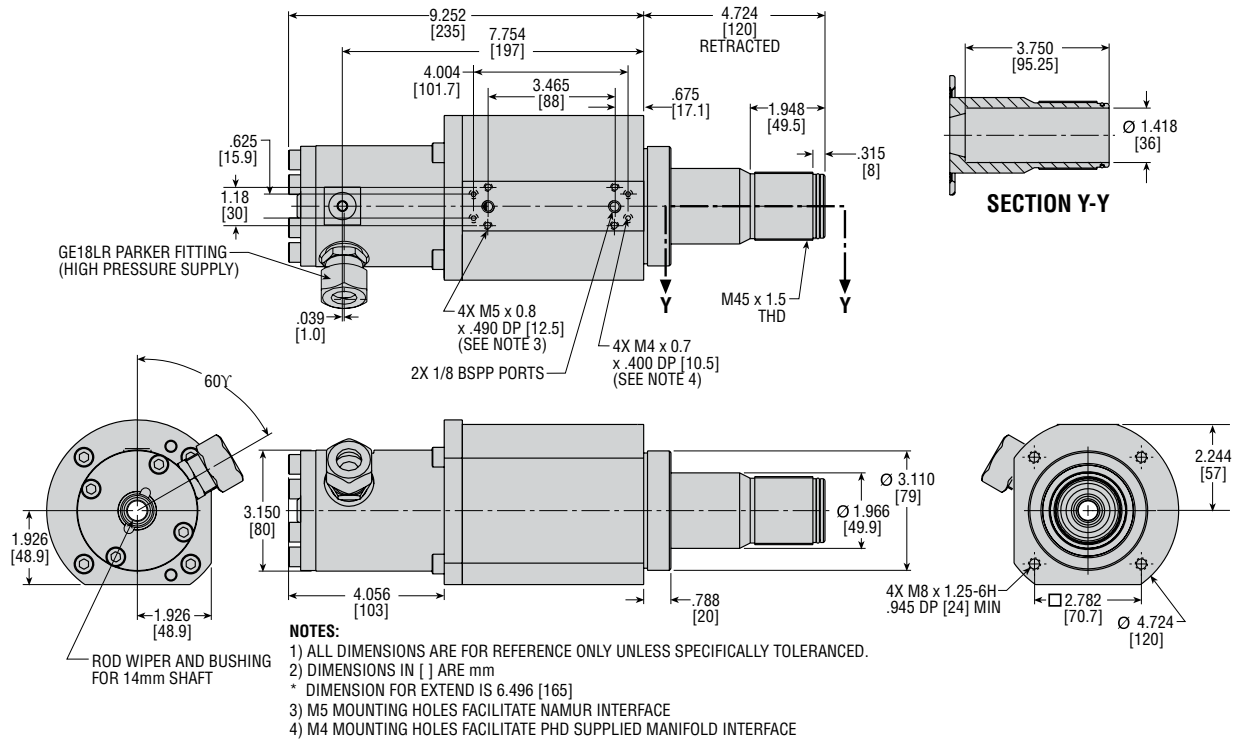
LUBRICATION

Series BCZ Nozzle Cylinders are lubricated with FDA approved food grade lube which provides extended life and better performance. For maximum stretch rod seal life (item 4D in exploded view on pages 10 & 11), PHD recommends lubricating every 3 months.

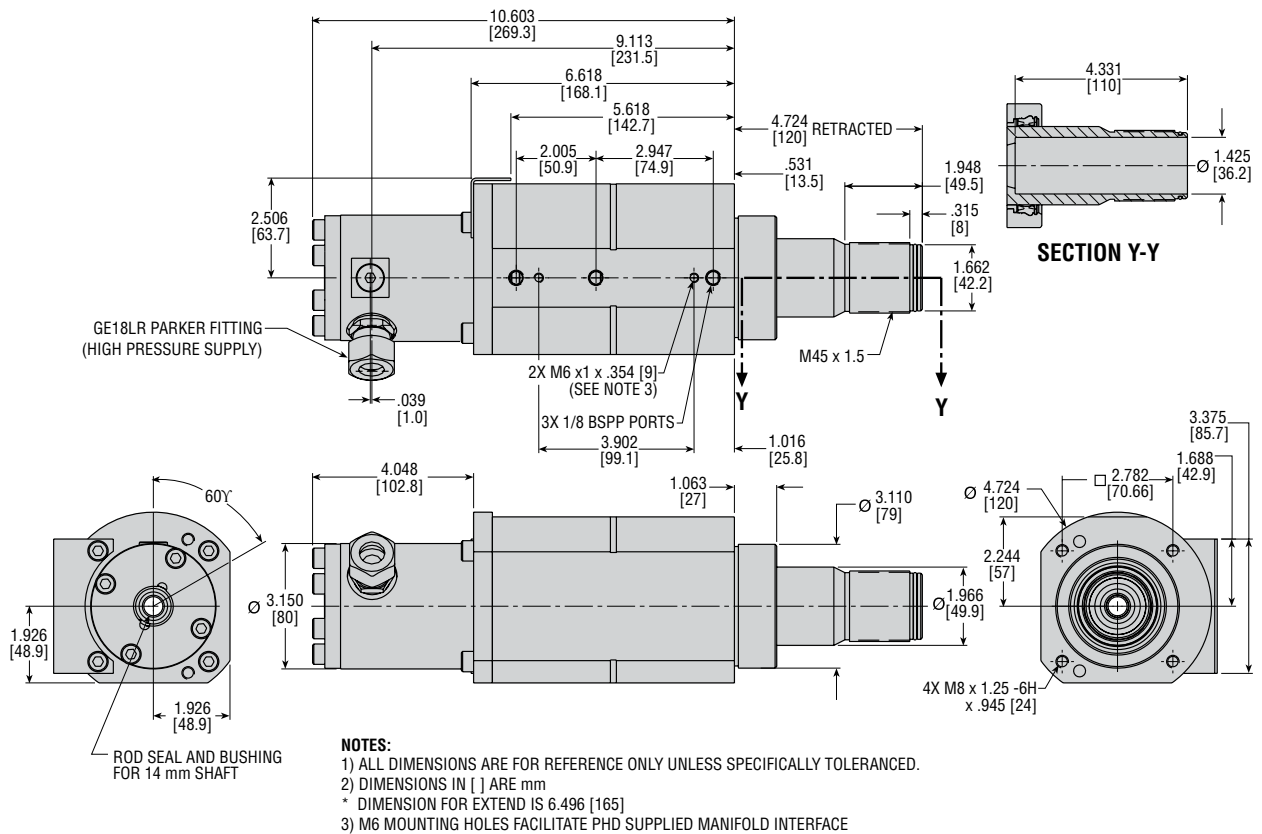
As machine set-ups and conditions vary, PHD Inc. cannot guarantee the same extended life will be seen as that resulting from PHD's own lab testing of the stretch rod seal.

DIMENSIONS: SERIES BCZ NOZZLE CYLINDERS

MODEL BCZ2S-7-80x45 CSD CYLINDER



MODEL BCZ2D-7-80x43 HEAT SET CYLINDER



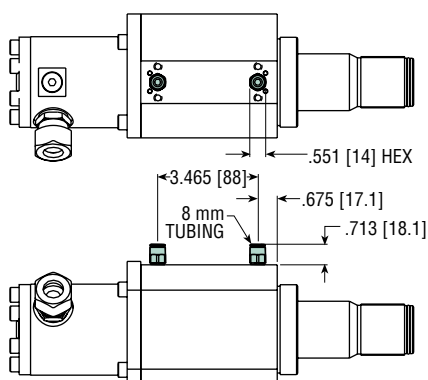
OPTIONS: SERIES BCZ NOZZLE CYLINDERS

L1308 STRAIGHT PORT FITTING INSTALLED FOR 8 mm TUBING

This option provides straight fittings for 8 mm tubing. See page 9 for dimensions of fittings with valve options.

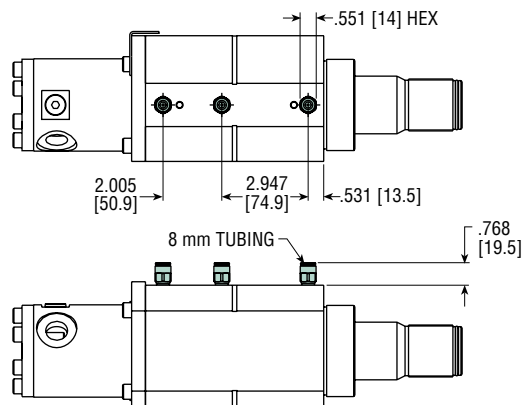
MODEL BCZ2S CSD CYLINDER

For standard units without manifold and/or valve options, two fittings will be supplied. For manifold and valve circuit options, only one fitting will be supplied.



MODEL BCZ2D HEAT SET CYLINDER

For standard units without manifold and/or valve options, three fittings will be supplied. For manifold and valve circuit options, only two fittings will be supplied.

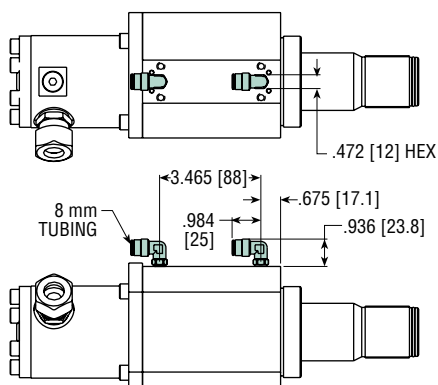


L1508 90° ELBOW PORT FITTING INSTALLED FOR 8 mm TUBING

This option provides 90° swivel elbow fittings for 8 mm tubing. See page 9 for dimensions of fittings with valve options.

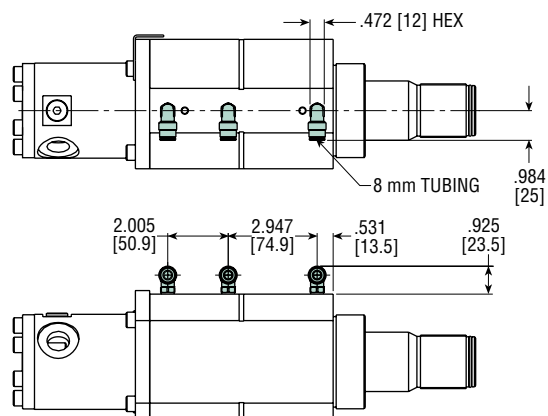
MODEL BCZ2S CSD CYLINDER

For standard units without manifold and/or valve options, two fittings will be supplied. For manifold and valve circuit options, only one fitting will be supplied.



MODEL BCZ2D HEAT SET CYLINDER

For standard units without manifold and/or valve options, three fittings will be supplied. For manifold and valve circuit options, only two fittings will be supplied.



All dimensions are reference only unless specifically tolerated.

OPTIONS: SERIES BCZ NOZZLE CYLINDERS

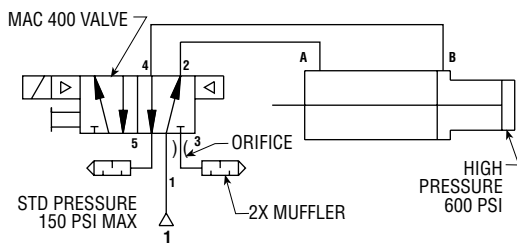
U22 ATTACHED MAC 400 VALVE

This option provides a manifold mounted valve combination that uses a MAC 400 Series valve. This option improves reaction time and simplifies plumbing issues. An exhaust orifice is installed in the valve so that the cylinder will achieve cycle rates of an OEM cylinder. Removing this orifice will decrease actuation time.

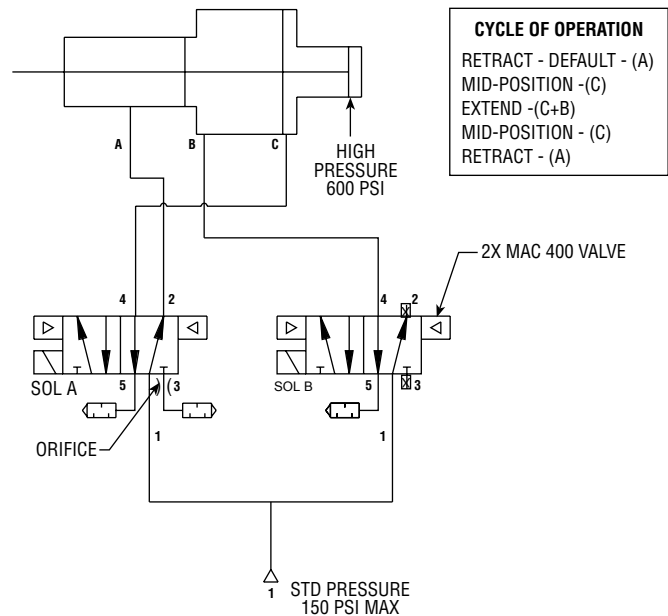
VALVE SPECIFICATIONS	
TYPE	MAC Series 400 411A-BOA-DM-DDAJ-1JM=4357
PRESSURE (MAX)	125 psi
FLOW (MAX)	1.0 Cv
FUNCTION	5/2
OPERATOR	Single
PILOT	Internal
SPOOL	4-Way Pilot
SOLENOID ELECTRICAL CONNECTOR	24 VDC, (5.4 W) Rectangular, DIN 43650 Form B Style
MANUAL OPERATOR	Non-locking Recessed
PILOT EXHAUST	Muffled

PLUMBING SCHEMATICS

BCZ2S CSD CYLINDER

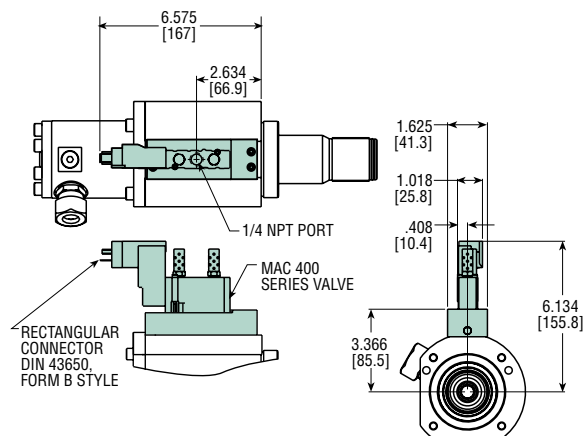


BCZ2D HEAT SET CYLINDER

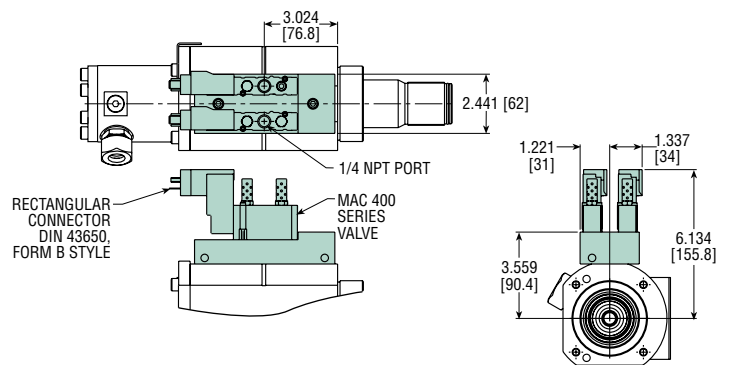


-U22

MODEL BCZ2S CSD CYLINDER



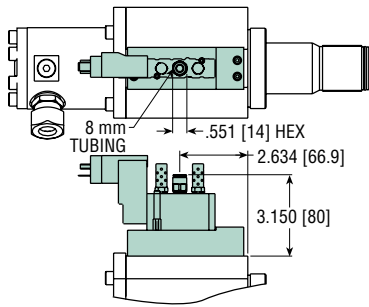
MODEL BCZ2D HEAT SET CYLINDER



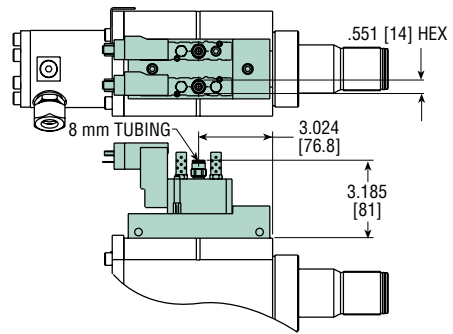
OPTIONS: SERIES BCZ NOZZLE CYLINDERS

-L1308-U22

MODEL BCZ2S CSD CYLINDER

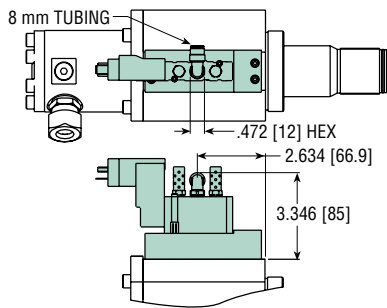


MODEL BCZ2D HEAT SET CYLINDER

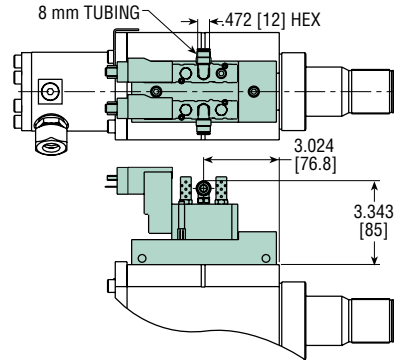


-L1508-U22

MODEL BCZ2S CSD CYLINDER



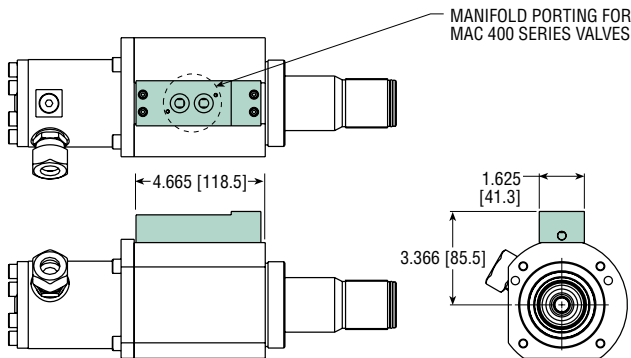
MODEL BCZ2D HEAT SET CYLINDER



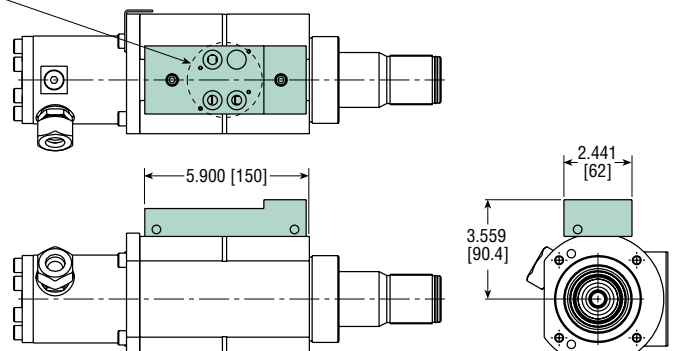
MC3 MANIFOLD CIRCUIT ONLY FOR MAC 400 VALVE

The MC3 option provides a manifold circuit only for use with MAC 400 Series valves. All hardware relating to mounting the valve such as mufflers and seals will be provided in kit form. An exhaust orifice is supplied with the kit so that the cylinder will achieve cycle rates of an OEM cylinder. Removing this orifice will decrease actuation time.

MODEL BCZ2S CSD CYLINDER



MODEL BCZ2D HEAT SET CYLINDER



NOTE: MUFFLERS, SCREWS AND MANIFOLD O-RINGS WILL BE PROVIDED IN SEPARATE BAG FOR INSTALLATION OF VALVES

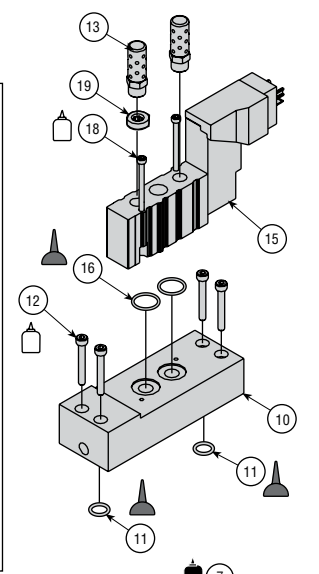
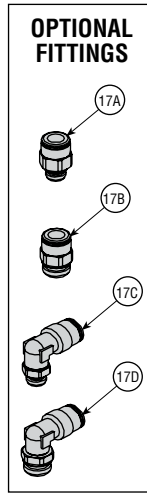
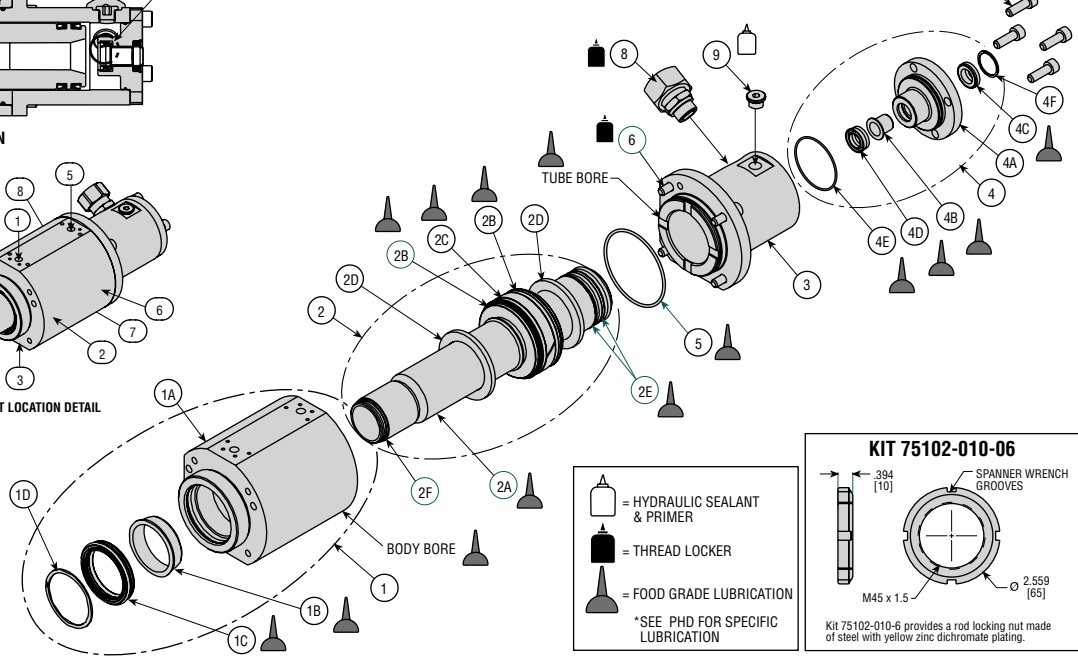
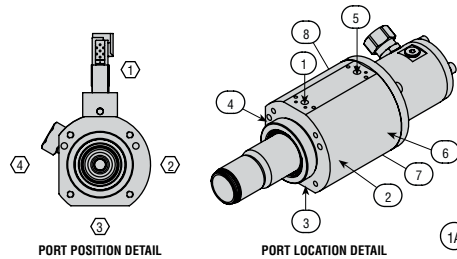
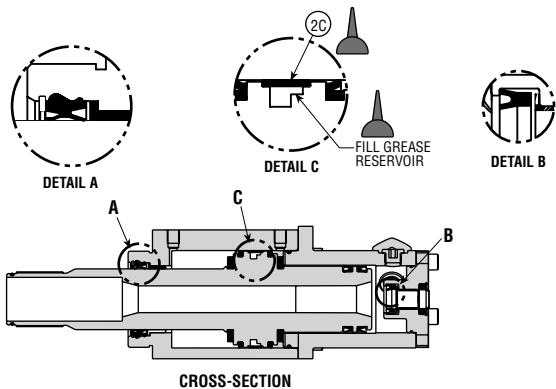
EXPLODED VIEW: SERIES BCZ2S NOZZLE CYLINDERS

KEY	PART DESCRIPTION	BCZ2S-7-80x45
1	Body Assembly	Full unit description required followed by -H2400
1A	Body	75824-00
1B	Bushing	Sold as part of Repair Kit -H9010
1C	Rod Seal	Sold as part of Repair Kit -H9010
1D	Retaining Ring	Sold as part of Repair Kit -H9010
2	Piston and Rod Assembly	Full unit description required followed by -H1000
2A	Piston and Rod	75063
2B	Piston Seal	Sold as part of Repair Kit -H9010
2C	Wear Ring	Sold as part of Repair Kit -H9010
2D	Shock Pad	Sold as part of Repair Kit -H9010
2E	High Pressure Piston Seal	Sold as part of Repair Kit -H9010
2F	Rod O-Ring	Sold as part of Repair Kit -H9010
3	Tube	75065
4	Cap Assembly	Full unit description required followed by -H1200
4A	Cap	77169
4B	Bushing	Sold as part of Cap Repair Kit
4C	Rod Wiper	Sold as part of Cap Repair Kit
4D	Rod Seal ⁵	Sold as part of Cap Repair Kit
4E	Cap O-Ring	Sold as part of Cap Repair Kit
4F	Retaining Ring	Sold as part of Cap Repair Kit
5	Tube O-Ring	Sold as part of Repair Kit -H9010
6	Tube Standard Head Cap Screws	Sold as part of Fastener Kit -H9020
7	Cap Standard Head Cap Screws	Sold as part of Fastener Kit -H9020
8	High Pressure Fitting	12135-024
9	Plug	59144-002
10	Manifold Plate Assembly	75078
11	Manifold O-Ring	Sold As Part of Manifold Kit
12	Manifold SHCS	Sold As Part of Manifold Kit
13	Muffler	Sold As Part of Manifold Kit
15	Mac 400 Series Valve	MAC 411A-B0A-DM-DDAJ-1JM =4357
16	Valve Manifold O-Ring	Sold As Part of Manifold Kit
17A	Straight Port Fitting (-L1308)	62195-024
17B	Straight Port Fitting (-L1308-U22 OR -L1308-MC3)	61734-130
17C	90° Swivel Port Fitting (-L1508)	62195-007
17D	90° Swivel Port Fitting (-L1508-U22 OR -L1508-MC3)	61734-014
18	Valve SHCS	Sold As Part of Manifold Kit
19	Valve Orifice	Sold As Part of Orifice Kit or Manifold Kit

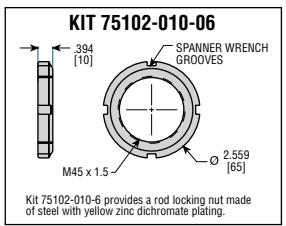
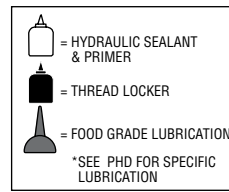
KIT DESCRIPTION	KIT NUMBER
Unit Repair Kit ¹	Full unit description required followed by -H9010
Cap Repair Kit ²	76249
Cap Seal Only Kit ³	76676
Tooling Kit ⁴	75536
Cap Seal Tooling Kit ⁵	80828
Rod Locking Nut	75102-010-06
Fastener Kit	Full unit description required followed by -H9020
Manifold Kit	75103
Orifice Kit	75677

NOTES:

- Includes all parts to repair the full unit excluding cap parts.
- Includes all hardware to completely repair cap.
- Includes rod seal and grease to replace cap seal only.
- Includes all specialized tools required to rebuild unit.
- For maximum life, PHD recommends lubricating all seals which come in contact with the stretch rod every 3 months with the following lubrication: FDA food grade lubricant.
As machine set-ups and conditions vary, PHD Inc. cannot guarantee the same extended life will be seen as that resulting from PHD's own lab testing of the stretch rod seal.
- Includes tools to rebuild cap. Tools in this kit are also included in Kit #75536.



- NOTES:**
- NUMBERS INCLUDED IN A HEX INDICATE PORT POSITION
 - NUMBERS INCLUDED IN AN OVAL INDICATE PORT LOCATION



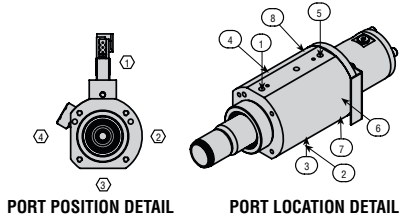
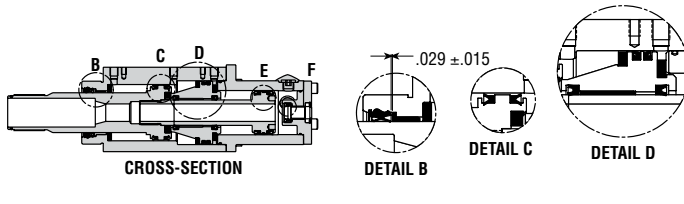
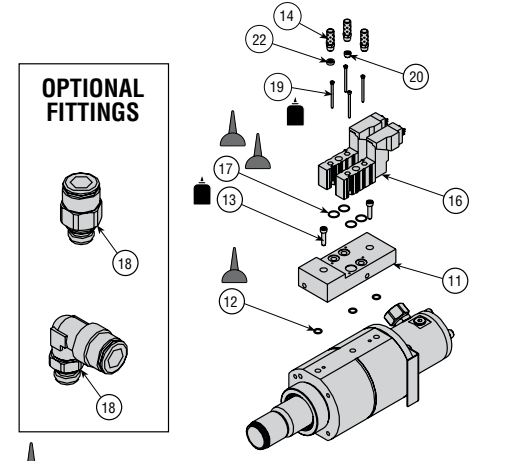
EXPLODED VIEW: SERIES BCZ2D NOZZLE CYLINDERS

KEY	PART DESCRIPTION	BCZ2D-7-80x43
1	Body Assembly	Full unit description required followed by -H2400
1A	Double Stage Body	75084-00
1B	Bushing	Sold as part of Repair Kit -H9010
1C	Rod Seal	Sold as part of Repair Kit -H9010
1D	Retaining Ring	Sold as part of Repair Kit -H9010
2	Piston and Rod Assembly	Full unit description required followed by -H1000
2A	Double Stage Cylinder 1 Piston & Rod	75087
2B	Piston Seal	Sold as part of Repair Kit -H9010
2C	Shock Pad	Sold as part of Repair Kit -H9010
2D	Intermediate Piston Assembly	Full unit description required followed by -H1010
2D1	Piston	75089
2D2	Bushing	Sold as part of Repair Kit -H9010
2D3	Rod Seal	Sold as part of Repair Kit -H9010
2D4	Piston Seal	Sold as part of Repair Kit -H9010
2D5	Shock Pad	Sold as part of Repair Kit -H9010
2D6	Shock Pad	Sold as part of Repair Kit -H9010
2E	Double Stage Cylinder 2 Piston & Rod	75090
2F	High Pressure Piston Seal	Sold as part of Repair Kit -H9010
2G	Wear Ring	Sold as part of Repair Kit -H9010
2H	Rod O-Ring	Sold as part of Repair Kit -H9010
3	Double Stage Tube	75065
4	Cap Assembly	Full unit description required followed by -H1200
4A	Cap	77169
4B	Bushing	Sold As Part of Cap Repair Kit
4C	Rod Wiper	Sold As Part of Cap Repair Kit
4D	Rod Seal ⁴	Sold As Part of Cap Repair Kit
4E	Cap O-Ring	Sold As Part of Cap Repair Kit
4F	Retaining Ring	Sold As Part of Cap Repair Kit
5	Tube O-Ring	Sold as part of Repair Kit -H9010
6	Cap Screw	Sold as part of Fastener Kit -H9020
7	Tube Screws	Sold as part of Fastener Kit -H9020
8	High Pressure Fitting	12135-024
9	Plug	59144-002
10	Shock Pad	Sold as part of Repair Kit -H9010
11	Manifold Plate Assembly	75566
12	Manifold O-Ring	Sold As Part of Manifold Kit
13	Manifold Screw	Sold As Part of Manifold Kit
14	Muffler	Sold As Part of Manifold Kit
15	Label	6441-494
16	MAC 400 Series Valve	MAC 411A-B0A-DM-DDAJ-1 JM = 4357
17	Valve Manifold O-Ring	Sold As Part of Manifold Kit
18	8mm Tube Fitting (-L1308)	62195-024
18	8mm Tube Fitting (-L1508)	62195-007
18	8mm Tube Fitting (-L1308-U22 OR -L1308-MC3)	61734-130
18	8mm Tube Fitting (-L1508-U22 OR -L1508-MC3)	61734-014
19	Valve Screw	Sold As Part of Manifold Kit
20	PTF Port Plug	1992-001
21	Proximity Flag	76232-02
22	Orifice Disk	Sold As Part of Orifice Kit or Manifold Kit

KIT DESCRIPTION	KIT NUMBER
Unit Repair Kit ¹	Full unit description required followed by -H9010
Rod Locking Nut	75102-010-06
Tooling Kit ²	75537
Cap Seal Tooling Kit ⁵	80828
Fastener Kit	Full unit description required followed by -H9020
Manifold Kit	75696
Cap Repair Kit ²	76249
Stretch Rod Seal Repair Kit	76676
Orifice Kit	75677

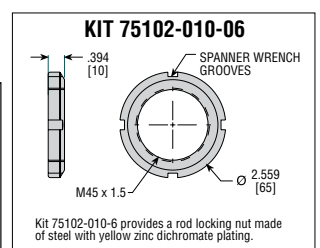
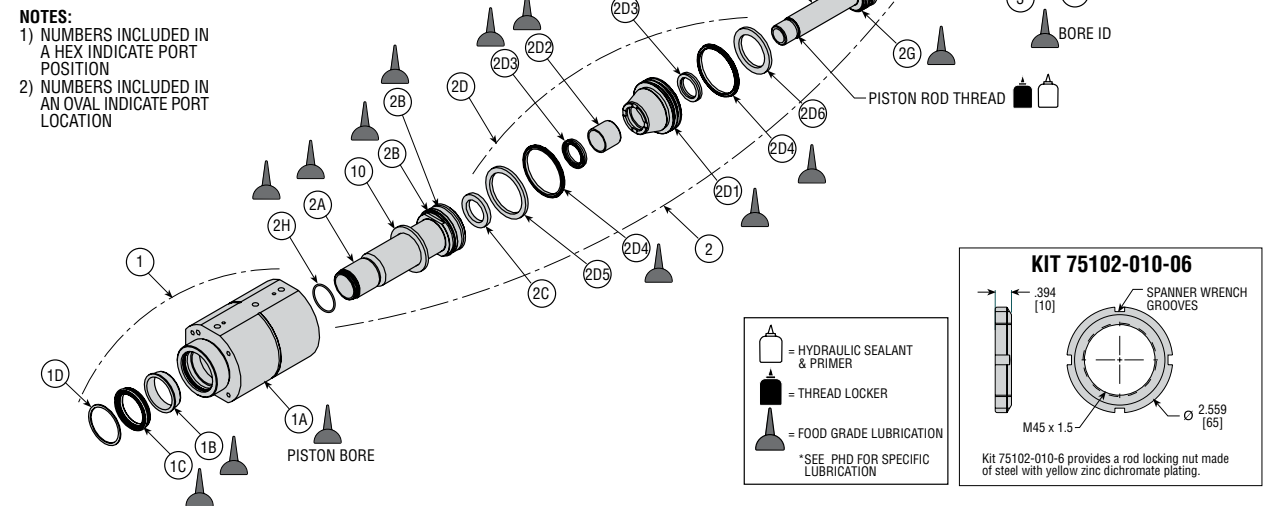
NOTES:

- 1) Includes all parts to repair the full unit excluding cap parts.
- 2) Includes all hardware to completely repair cap.
- 3) Includes all specialized tools required to rebuild unit.
- 4) For maximum life, PHD recommends lubricating all seats which come in contact with the stretch rod every 3 months with the following lubrication: FDA food grade lubrication. As machine set-ups and conditions vary, PHD Inc. cannot guarantee the same extended life will be seen as that resulting from PHD's own lab testing of the stretch rod seal.
- 5) Includes tools to rebuild cap. Tools in this kit are also included in Kit #75536.



NOTES:

- 1) NUMBERS INCLUDED IN A HEX INDICATE PORT POSITION
- 2) NUMBERS INCLUDED IN AN OVAL INDICATE PORT LOCATION

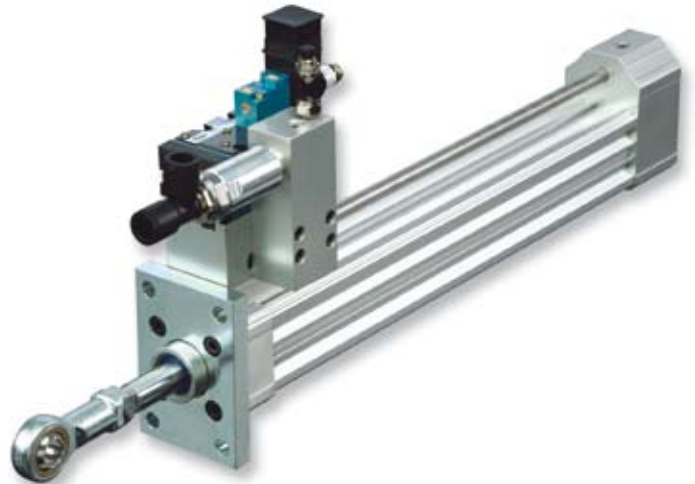


OTHER PLASTIC PACKAGING SOLUTIONS



Series1 Nozzle Cylinder Upgrade for Mechanical Nozzle

This upgrade can save energy, improve production/quality and enable your machine to run lighter preforms.
(request the S1NOZZLE catalog)



Series BCS Stretch Rod Cylinder

This unit can be used as a replacement for Sidel® Series2 Machines. (request the BCS catalog)

PLASTIC PACKAGING COMPONENTS GROUP



This dedicated group at PHD is focused totally on the specific needs of the plastic packaging industry. We offer a full line of automation components: from standard stretch rod cylinders, blow nozzle cylinders, needle cylinders, preform/bottle eject slides, and transfer arms to grippers, cylinders, and escapements. The possibilities are virtually endless.

If an application requires a modified component, our Plastic Packaging Components group is ready to help. We welcome special requests for unique products, regardless of quantity or frequency of order. PHD and your local MDN partner will work closely with you to find a solution to your application needs.

These products, supported by our strong commitment to delivery and service, have made us a leader in industrial automation.

We have the solutions for your processes.

- Blow Nozzle Cylinders, single and dual cavity
- Stretch Rod Cylinders
- Needle Cylinders
- Transfer Arms
- Mold Control Cylinders
- Leak Test Cylinders
- Knock Out Cylinders
- Removal Cylinders and Grippers
- Labeling & Slide Knife Actuators
- Packaging & Palletizing

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