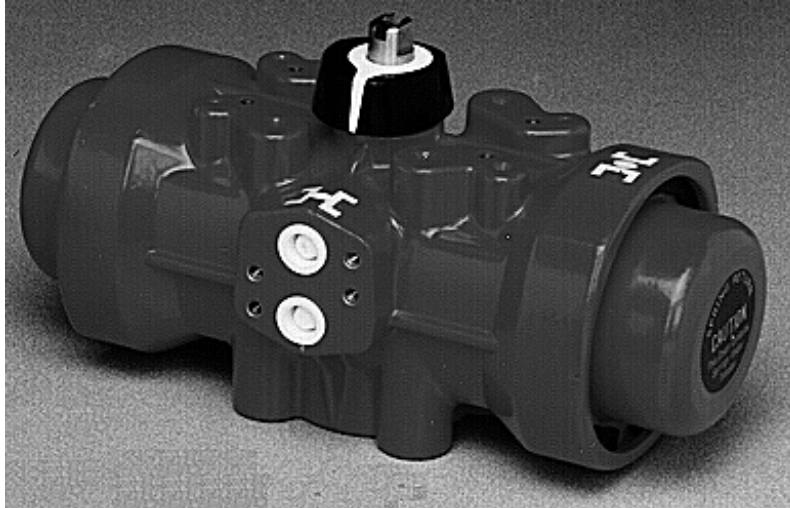


Pneumatic Series 79P Actuator



Installation, Operation and Maintenance Manual



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Series 79P Pneumatic Actuator Introduction

Description

The Series 79P Pneumatic Actuator is a quarter turn operator, that has two opposed pistons with racks engaging with a single pinion on the actuator shaft. Racks and pinion engage with massive teeth over full length of pinion, resulting in balanced forces with minimal backlash.

Pistons and racks are molded polyarilamide for sizes A through D5, and Aluminum Alloy for sizes E through G. Piston guides are Polyacetal for sizes A through D5, and PTFE Bronze for sizes E through G. Pinion gears are Cataphoresis coated Aluminum Alloy. Body and end caps are 316SS, Polyamide glass filled, or cast Aluminum Alloy Cataphoresis and Rilsan coated inside and outside. Actuator shaft is Stainless Steel (Series 300) for sizes A through D, and Cataphoresis coated steel for sizes D5 through G. O-Rings are self-Lubricating BUNA-N. Air connections are ¼" FNPT.

Air Requirement

The condition and quality of the compressed air supply to an actuator will affect the efficiency and the life of the seals, guides, and actuator in general. We recommend installing a shutoff valve ahead of actuator to allow shutoff of air to allow removal of valve and actuator for maintenance.

Clean, instrument quality dry air or gas is recommended for satisfactory operation. Lubricated air is acceptable, but is not necessary as the o-ring material is self-lubricating BUNA-N.

If air lubricators are used, the lubricant selected must be compatible with actuator internals!

Actuator may be used with liquid as the power source as long as liquid is compatible with actuator internals, and contains no suspended particles. The actuator environment temperature limits are -25°F and 195°F.

Installation

Type 21 Ball Valves

Position the valve and the actuator to corresponding positions (either OPEN or CLOSED). The flats on the actuator shaft extension and the indicator knob should indicate valve position

Type 21 Ball Valves (See Drawing #0114BV sizes ½" – 2")

Install mounting bracket #3 to actuator #2 using bolts #8 and washers #9. Insert coupling #4 on stem of valve #1 and then bolt valve #1 to mounting bracket #3 using bolts #5, nuts #6, and washers #7.

Note: All bolts should be snug and not excessively over tightened.

Type 21 Ball Valves (See Drawing #0115BV sizes 2-1/2" - 4")

Install mounting bracket #3 to actuator #2 using bolts #8 and washers #9. Insert coupling #4 on stem of valve #1 and then bolt valve #1 to mounting bracket #3 using bolts #5, nuts #6, and washers #7.

Note: All bolts should be snug and not excessively over tightened.

Type 23 Ball Valve (3-way)

Position the valve and the actuator to corresponding positions (either OPEN or CLOSED). The flats on the actuator shaft extension and the indicator knob should indicate valve position

Type 23 Ball Valves (3-way): (See Drawing #0139BV, sizes ½" - 4")

Install mounting bracket #3 to actuator #2 using bolts #8 and washers #9. Insert coupling #4 on stem of valve #1 and then bolt valve #1 to mounting bracket #3 using bolts #5, nuts #6, and washers #7.

Type 56 / 57 / 57L Butterfly Valves

Position the valve and the actuator to corresponding positions (either OPEN or CLOSED). The flats on the actuator shaft extension and the indicator knob should indicate valve position

CAUTION: If valve is in line, system must be shut down and have no line pressure before removing throttle plate and retaining washer.

Butterfly Valves (Type-57/57L See Drawing # 0204BF57 sizes 1-1/2" – 6")

No specially machined stem or valve body drilling required. Remove handle (remove handle cap and hex head bolt) to expose throttle plate screws. Remove throttle plate and retaining washer to expose existing bolt pattern.

Insert coupling #4 into actuator. Mount bracket #3 to actuator with bolts #8 & washers #9 and tighten evenly. Install valve #1 onto mounting bracket and align stem of valve to engage with actuator shaft coupling. (Line scribed on top of stem indicates disc orientation). Install bolts and nuts #5 thru #7 and tighten evenly. Flats on actuator shaft indicate valve position. (Disc Orientation)

Butterfly Valves (Type-56 (16" only) See Drawing #0167BF size 16")

Butterfly Valves (Type-57/57L See Drawing #0167BF57 sizes 8" – 14")

No specially machined stem or valve body drilling required. Remove gear operator by removing 4 thru bolts in body of valve to gear operator and lift off. Insert actuator shaft adapter #9 into actuator. Mount bracket #2 to actuator #10 using bolts #7 and washers #8. Install valve #1 to mounting bracket #2 using bolts #3, nuts #6, and washers #4, keeping in mind line scribed in valve stem indicates disc orientation before mounting and by flats on actuator shaft after mounting.

Type 75 Butterfly Valves

Butterfly Valves (See Drawing #1230 sizes 18" - 24")

No specially machined stem or valve body drilling required. Remove gear operator by removing 4 thru bolts in body of valve to gear operator and lift off. Insert actuator shaft adapter #9 into actuator. Mount bracket #2 to actuator #10 using bolts #7 and washers #8. Install valve #1 to mounting bracket #2 using bolts #3, nuts #6, and washers #4, keeping in mind line scribed in valve stem indicates disc orientation before mounting and by flats on actuator shaft after mounting.

CAUTION: If mounted unit is installed other than straight up, the actuator should be supported individually in order to prevent side loading and loosening up of fasteners.

Operation

Single and Double Acting:

Pressurized air is introduced via the bottom port and displaces two opposed pistons. When the pistons are displaced, they in turn rotate the actuator output shaft counterclockwise, which opens the valve. This action is the same for single acting and double acting actuators.

Single Acting:

When the pressurized air is removed from the bottom port, the compressed springs located at the opposite side of the pistons relax. As the spring relax, they in turn rotate the actuator output shaft in a clockwise rotation, which closes the valve. Although the term "relax" is used, the springs are NEVER relaxed, and are ALWAYS under tension, so caution must be exercised.

Double Acting:

When the pressurized air is removed from the bottom port, the unit remains in the same position until pressurized air is applied to the top port (unlike the single acting actuator). When the pressurized air is introduced to the top port, it is channeled to the opposite side of the pistons, driving them to their original position, which in turn rotates the actuator output shaft in a clockwise direction, closing the valve.

Optional Solenoid Valve (See drawing #004PNU)

An optional solenoid valve (ASCO 8401 NAMUR mount) can be supplied mounted directly to the actuator. The cycling is accomplished by energizing the solenoid coil for one valve position (typically open), and de-energizing for the opposite valve position (typically closed). The unit is electrically fail safe; so it will return to its de-energized position on electrical failure, provided the air supply is not interrupted.

The 8401 solenoid is equipped with speed controls, a manual override, and 18 inch long #18 AWG lead wire.

The speed controls are needle valves that will reduce the C_v value or increase the cycle time by creating back pressure within the actuator. Speed control adjustments are independent for the opening and closing strokes.

Caution: If speed control adjustments are screwed in too far, actuator can not exhaust properly and will not cycle!!

The manual override is engaged by pressing and rotating the red slotted screw clockwise 90 for the open position. Once the valve is open, simply rotate the red screw counter-clockwise 90 for the closed position.

Caution: Manual override will not work without air supply!!

Maintenance

The Series 79P double rack and pinion actuators do not need any preventative maintenance.

Periodic checks should be performed to ensure proper tightness of all fasteners.

Caution: Isolate actuator from electrical power supply and compressed air supply before any maintenance is performed. Make sure both sides of pistons have been bled off.

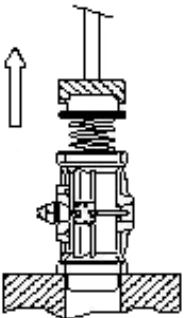
CAUTION --- DANGER!!!!!!

Failure to use proper tools can result in **SERIOUS INJURY!**



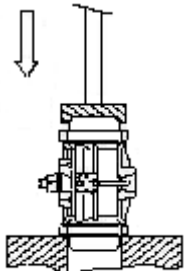
The actuator springs are very strong and are compressed when actuator is assembled. A machine press (not a vise), custom fixture, and proper tools are required to disassemble actuator.

Dis-assembly of Actuator



1. Place actuator in press and compress actuator.
2. When pressure is on end cap remove snap ring from groove.
3. Slowly release press, allowing springs to fully extend.
4. Remove end cap and springs
5. Repeat steps 1 through 4 for opposite end cap
6. Rotate shaft counter-clockwise to remove pistons.
7. Remove snap ring from shaft.
8. Slide shaft through actuator body and out the bottom.

Assembly of Actuator



1. Install shaft, washer, and secure with snap ring; making sure that the snap ring is seated
2. With the air inlet ports facing you, install pistons into actuator body with the rack of the right piston facing the air inlet ports.
3. Rotate shaft CCW (beyond open position) to engage both racks. Next, rotate shaft CW to pull pistons to the closed fully position (actuator shaft should not be cocked, and there should be equal distance between the actuator body and the pistons).
4. Install desired number of springs and end cap to actuator body.
5. Compress springs with machine press
6. When end cap is in place, install snap ring; making sure that the snap ring is seated
7. Slowly remove pressure from press to insure proper seating of end cap.
8. Repeat steps 4 through 8 for other end.

Repair Kits

NOTE: When ordering replacement actuator parts and/or options specify model # and voltage.

| Actuator Model | Part Number | Actuator Model | Part Number |
|-----------------------|--------------------|-----------------------|--------------------|
| A79P | 2398001 | D79P | 2398020 |
| B79P | 2398000 | D579P | 2398025 |
| B579P | 2398005 | E79P | 2398030 |
| C79P | 2398010 | F79P | 2398040 |
| C579P | 2398015 | G79P | 2398050 |

Each repair kit includes the following (Please reference exploded views)

| Description | Item Number |
|------------------------------|--------------------|
| 1 set of piston o-rings | 11 |
| 1 set of piston guides | 9 |
| 1 set of guide rings | 10 |
| 1 set of end cap o-rings | 3 |
| 1 set of upper shaft o-rings | 12 |
| 1 set of lower shaft o-rings | 13 |
| 1 shaft washer | 6 |
| 1 shaft snap ring | 7 |

Engineering Data

Actuators

| AIR CONSUMPTION (CUBIC INCHES) | | | |
|------------------------------------------|-------------|--------------|---------------|
| Model No. | Air to Air | | Air to Spring |
| | Open Port A | Close Port B | Air Stroke |
| A79P | 4.58 | 3.05 | 4.58 |
| B79P | 9.15 | 6.1 | 9.15 |
| B579P | 17 | 15.25 | 17 |
| C79P | 21.35 | 19.52 | 21.35 |
| C579P | 39.66 | 33.56 | 39.66 |
| D79P | 48.82 | 42.72 | 48.82 |
| D579P | 91.54 | 79.33 | 91.54 |
| E79P | 125.1 | 115.95 | 125.1 |
| F79P | 323.43 | 219 | 323.43 |
| G79P | 640.75 | 427.17 | 640.75 |

| CYCLE TIME (SECONDS PER STROKE) | | | | |
|-------------------------------------------|-------------|--------------|---------------|--------------|
| Model No. | Air to Air | | Air to Spring | |
| | Open Port A | Close Port B | Open Port A | Close Port B |
| A79P | 0.10 | 0.10 | 0.15 | 0.30 |
| B79P | 0.15 | 0.15 | 0.20 | 0.40 |
| B579P | 0.20 | 0.20 | 0.40 | 0.80 |
| C79P | 0.25 | 0.25 | 0.60 | 1.10 |
| C579P | 0.30 | 0.30 | 1.00 | 1.50 |
| D79P | 0.40 | 0.40 | 1.70 | 2.00 |
| D579P | 0.50 | 0.50 | 2.70 | 3.90 |
| E79P | 0.60 | 0.60 | 3.80 | 5.50 |
| F79P | 1.20 | 1.20 | 5.80 | 12.00 |
| G79P | 2.00 | 2.00 | 18.20 | 19.00 |

NOTE: Actuator supplied with 80 psi, and

Solenoids

All solenoid coils may be used at +10% to -10% of rated voltages. Coils are 50/60 Hertz and are rated for continuous duty if operated at 60 Hertz.

Note: Consult factory for non-standard voltages and for continuous duty at 50 Hertz.

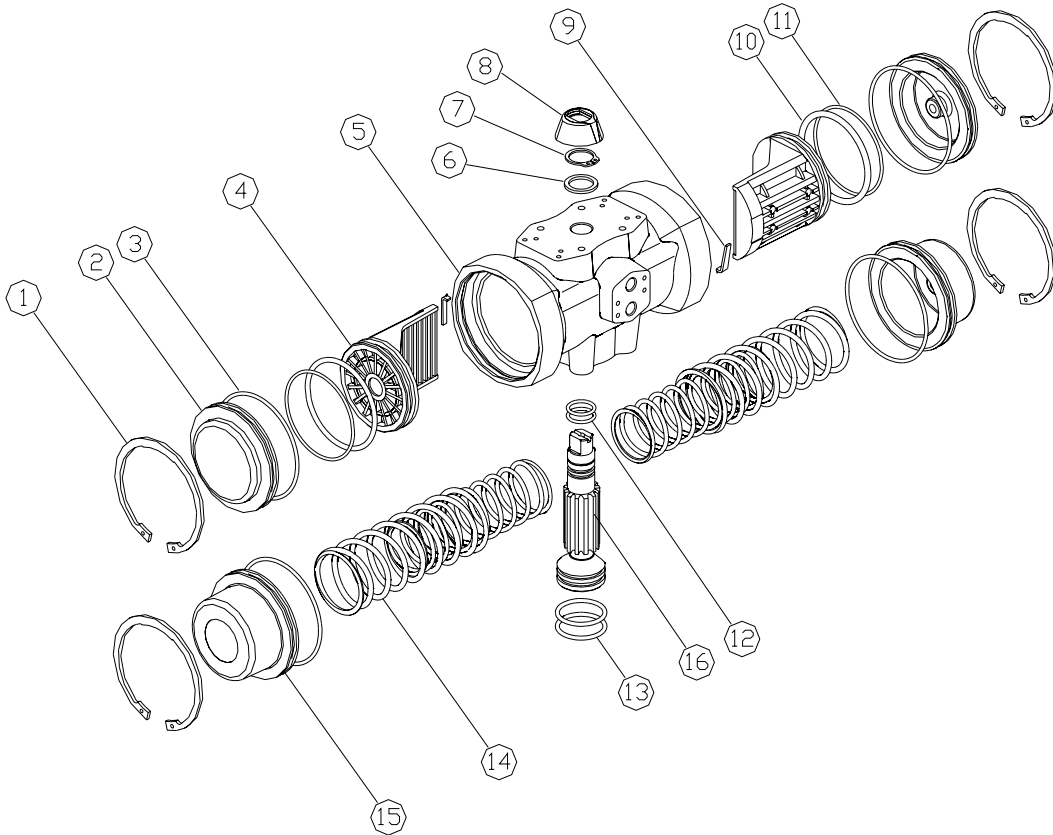
| Rated Voltage | In Rush Current Milliamp @ 60 Hz | Holding Current Milliamp @ 60 Hz | Watts @ Rated Voltages |
|---------------|-------------------------------------|-------------------------------------|---------------------------|
| 120 VAC | 113 | 71 | 6.2 |
| 24 VAC | 566 | 360 | 6.2 |
| 240 VAC | 56 | 35 | 6.2 |
| 12 VDC | --- | 583 | 7 |
| 24 VDC | --- | 292 | 7 |

Solenoids are furnished with 18 inch long #18 AWG lead wire.

Attachments: 8 drawings: 0114BV, 0115BV, 0139BV, 0167BF, 0167BF57, 0204BF57 1230, 0004PNU.

Exploded Views

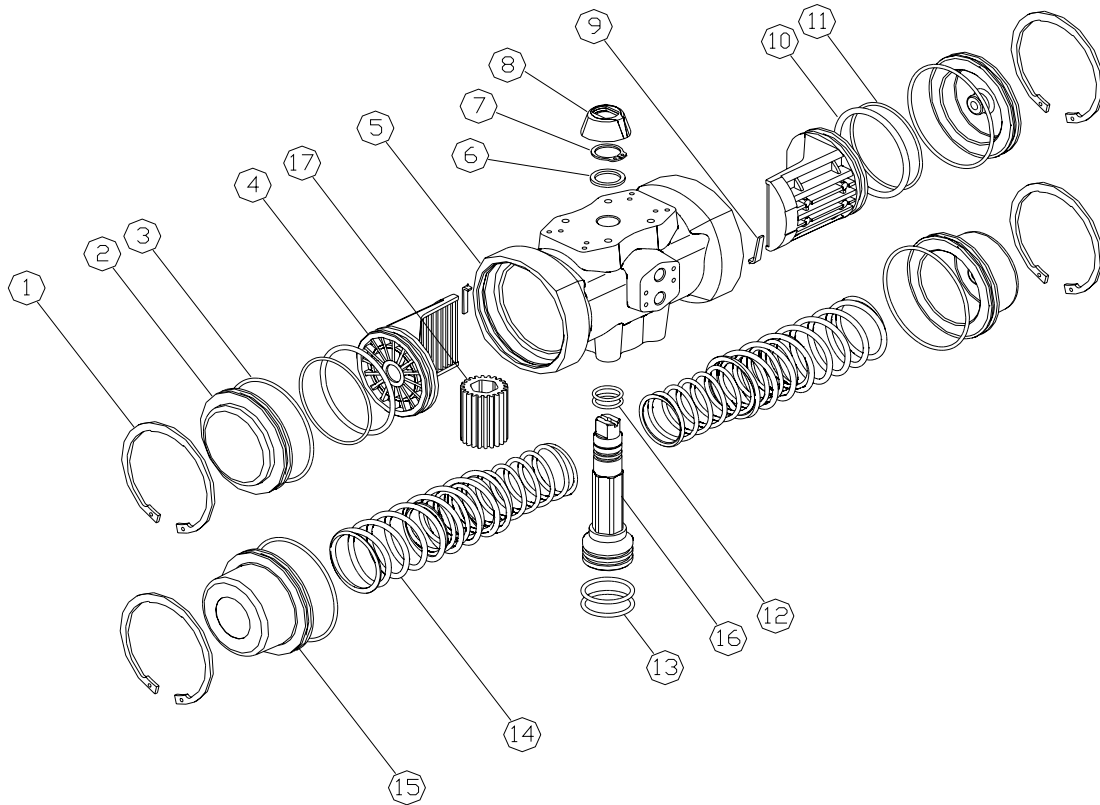
A79, B79, & B579



| No | Description | Qty | Material |
|----|------------------------|-----|-----------------------------------------------------------------|
| 1 | End Cap Retaining Ring | 2 | Cataphoresis Coated Steel |
| 2 | Double Acting End Cap | 2 | See Note for Material |
| 3 | End Cap O-Ring | 2 | NBR |
| 4 | Piston | 2 | Polyarilamide |
| 5 | Actuator Body | 1 | See Note for Material |
| 6 | Washer | 1 | Polyamide 6 |
| 7 | Shaft Retaining Ring | 1 | Stainless Steel for A79 Nickel PTFE Coated Steel for B79 & B579 |
| 8 | Position Indicator | 1 | Polyacetal for A79 - Polyamide for B79 & B579 |
| 9 | Piston Guide* | 2 | Polyacetal |
| 10 | Guide Ring | 2 | Polyacetal |
| 11 | Piston O-Ring | 2 | NBR |
| 12 | Upper Shaft O-Ring | 2 | NBR |
| 13 | Lower Shaft O-Ring | 2 | NBR |
| 14 | Spring Set | 1 | Cataphoresis Coated DIN-17223-C |
| 15 | Spring Return End Cap | 2 | See Note for Material |
| 16 | Shaft | 1 | 303 Stainless Steel - B79 & B579 Polyamide with 303 SS Insert |

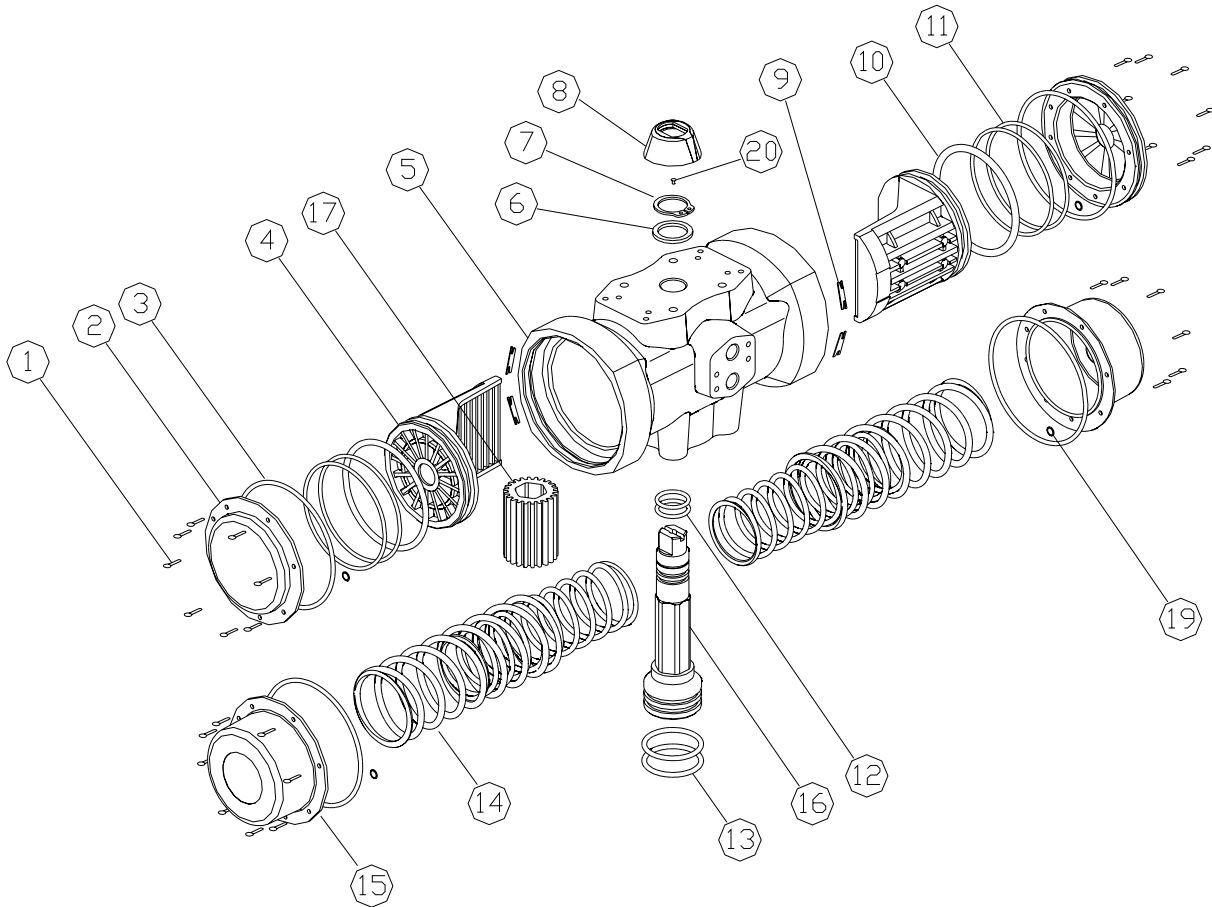
* Not used on A79 Actuators

C79, C579, D79, & D579



| No | Description | Qty | Material |
|----|------------------------|-----|-------------------------------------------------------------------------------|
| 1 | End Cap Retaining Ring | 2 | Cataphoresis Coated Steel |
| 2 | Double Acting End Cap | 2 | See Note for Material |
| 3 | End Cap O-Ring | 2 | NBR |
| 4 | Piston | 2 | Polyarilamide |
| 5 | Actuator Body | 1 | See Note for Material |
| 6 | Washer | 1 | Polyamide 6 |
| 7 | Shaft Retaining Ring | 1 | Nickel PTFE Coated Steel |
| 8 | Position Indicator | 1 | Polyamide |
| 9 | Piston Guide | 2 | Polyacetal |
| 10 | Guide Ring | 2 | Polyacetal |
| 11 | Piston O-Ring | 2 | NBR |
| 12 | Upper Shaft O-Ring | 2 | NBR |
| 13 | Lower Shaft O-Ring | 2 | NBR |
| 14 | Spring Set | 1 | Cataphoresis Coated DIN-17223-C |
| 15 | Spring Return End Cap | 2 | See Note for Material |
| 16 | Shaft | 1 | 303 Stainless Steel for C79, C579 & D79 Cataphoresis Coated Steel for D579 |
| 17 | Pinion Gear | 1 | Cataphoresis Coated Aluminum Alloy |

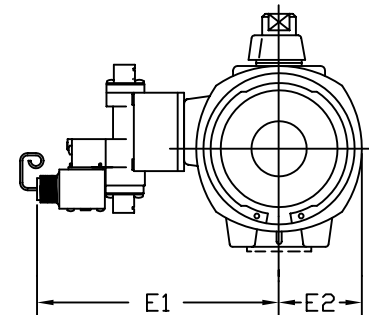
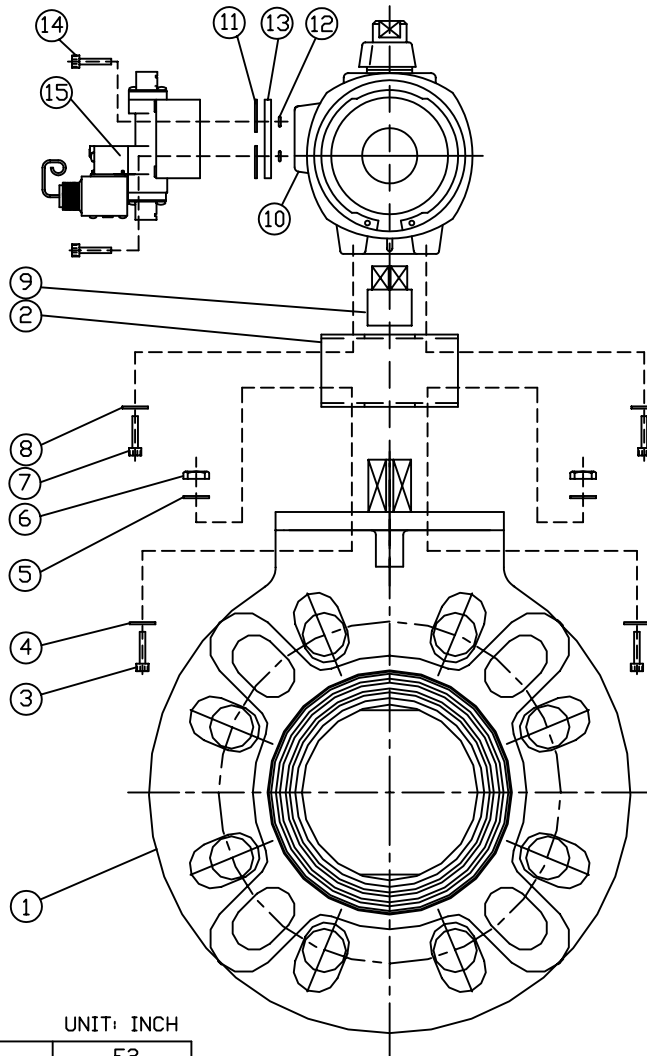
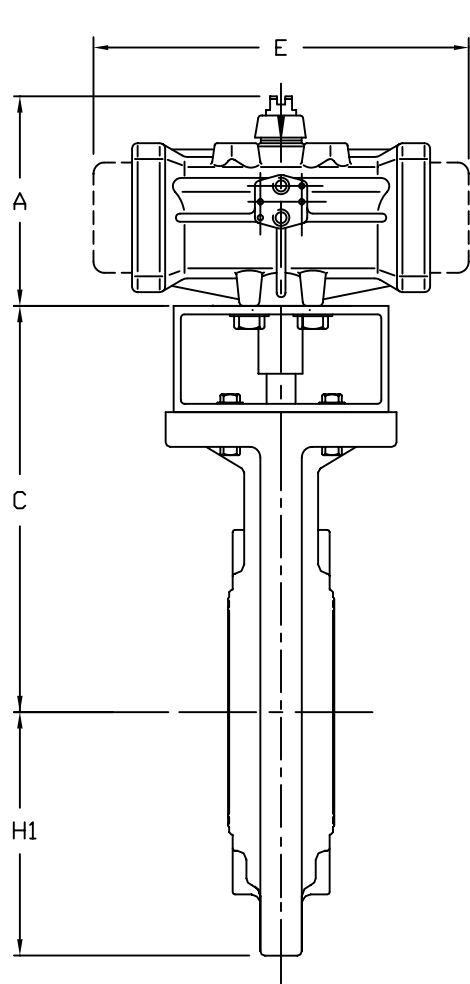
E79, F79, & G79



| No | Description | Qty | Material |
|----|-----------------------|-----|---------------------------------------------|
| 1 | Allen Screw* | 16 | 304 Stainless Steel |
| 2 | Double Acting End Cap | 2 | Cataphoresis & Rilsan Coated Aluminum Alloy |
| 3 | End Cap O-Ring | 2 | NBR |
| 4 | Piston | 2 | Aluminum Alloy |
| 5 | Actuator Body | 1 | Cataphoresis & Rilsan Coated Aluminum Alloy |
| 6 | Washer | 1 | Polyamide 6 |
| 7 | Shaft Retaining Ring | 1 | Nickel PTFE Coated Steel |
| 8 | Position Indicator | 1 | Polyamide for E79 - PP for F79 & G79 |
| 9 | Piston Guide | 4 | PTFE + Bronze |
| 10 | Guide Ring | 2 | PTFE + Bronze |
| 11 | Piston O-Ring | 4 | NBR |
| 12 | Upper Shaft O-Ring | 2 | NBR |
| 13 | Lower Shaft O-Ring | 2 | NBR |
| 14 | Spring Set | 1 | Cataphoresis Coated DIN-17223-C |
| 15 | Spring Return End Cap | 2 | Cataphoresis & Rilsan Coated Aluminum Alloy |
| 16 | Shaft | 1 | Cataphoresis Coated Steel |
| 17 | Pinion Gear | 1 | Cataphoresis Coated Aluminum Alloy |
| 19 | End Cap Gasket | 2 | NBR |
| 20 | Set Screw | 1 | 304 Stainless Steel |

* E79 uses 12 Allen Screws

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NOTE: ACTUATOR BODY IS CAST ALUMINUM WITH RILSAN (POLYAMIDE NYLON II) COATING FOR VALVE SIZES 8 THROUGH 24 AIR-AIR AND 5 THROUGH 12 AIR-SPRING. ACTUATOR BODY IS AVAILABLE IN STAINLESS STEEL OR GLASS FILLED POLYAMIDE FOR VALVE SIZES 1 1/2 THROUGH 6 AIR-AIR AND 1 1/2 THROUGH 4 AIR-SPRING

| | | | |
|-----|---------------------------|---------------------|-----|
| 15 | SOLENOID, ASCO (OPTIONS) | ZYTEL | 1 |
| 14 | SCREW, SDC HEAD (OPTIONS) | STAINLESS STEEL 303 | 2 |
| 13 | PLATE MOUNTING (OPTIONS) | ZYTEL | 1 |
| 12 | O-RING (OPTIONS) | NBR | 2 |
| 11 | GASKET (OPTIONS) | NBR | 2 |
| 10 | ACTUATOR (SEE NOTE) | SERIES 79P | 1 |
| 9 | SHAFT ADAPTER | STAINLESS STEEL 303 | 1 |
| 8 | FLAT WASHER | STAINLESS STEEL 303 | 4 |
| 7 | SCREW | STAINLESS STEEL 303 | 4 |
| 6 | NUT, HEX LOCKING | STAINLESS STEEL 303 | 4 |
| 5 | WASHER, FLAT | STAINLESS STEEL 303 | 4 |
| 4 | WASHER, FLAT | STAINLESS STEEL 303 | 4 |
| 3 | SCREW | STAINLESS STEEL 303 | 4 |
| 2 | MOUNTING BRACKET | STAINLESS STEEL 303 | 1 |
| 1 | BUTTERFLY VALVE TYPE57 | U-PVC, PP, PVDF | 1 |
| No. | DESCRIPTION | MATERIAL | QTY |

UNIT: INCH

| VALVE SIZE | C | H1 | A | | E | | E1 | | E2 | |
|------------|-------|-------|-------|-------|-------|-------|------|-------|------|------|
| | | | A-A | A-S | A-A | A-S | A-A | A-S | A-A | A-S |
| 1 1/2 | 5.50 | 2.95 | 4.40 | 5.00 | 4.92 | 8.74 | 6.02 | 6.25 | 1.41 | 1.85 |
| 2 | 5.57 | 3.25 | 4.40 | 5.00 | 4.92 | 8.74 | 6.02 | 6.25 | 1.41 | 1.85 |
| 2 1/2 | 6.08 | 3.66 | 4.40 | 5.00 | 4.92 | 8.74 | 6.02 | 6.25 | 1.41 | 1.85 |
| 3 | 6.28 | 3.94 | 5.00 | 6.49 | 7.00 | 11.49 | 6.25 | 6.84 | 1.85 | 2.36 |
| 4 | 6.56 | 4.53 | 5.00 | 6.49 | 7.00 | 11.49 | 6.25 | 6.84 | 1.85 | 2.36 |
| 5 | 8.05 | 5.00 | 5.00 | 8.54 | 7.00 | 17.04 | 6.25 | 7.83 | 1.85 | 3.23 |
| 6 | 9.01 | 5.63 | 6.49 | 8.54 | 9.21 | 17.04 | 6.84 | 7.83 | 2.36 | 3.23 |
| 8 | 11.27 | 6.69 | 8.54 | 11.26 | 12.12 | 25.28 | 7.83 | 8.42 | 3.23 | 3.78 |
| 10 | 12.46 | 7.99 | 8.54 | 13.07 | 12.12 | 20.83 | 7.83 | 9.41 | 3.23 | 4.76 |
| 12 | 14.69 | 9.53 | 11.26 | 13.07 | 16.46 | 20.83 | 8.42 | 9.41 | 3.78 | 4.76 |
| 14 | 14.81 | 10.24 | 11.26 | 15.47 | 16.46 | 22.44 | 8.42 | 11.84 | 3.78 | 6.75 |

NOTE: The shape and appearance of assembly differ a little with nominal size compared to this drawing.

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| | NAME | DATE |
|---------|----------------|---------|
| DR | JOHN GLASSFORD | 6/14/05 |
| APPD | DAVE HURLEY | 6/14/05 |
| PROD | LEO LESTER | 6/14/05 |
| WO#/CO# | | |
| FILE | | |

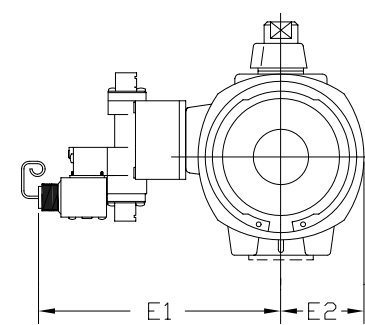
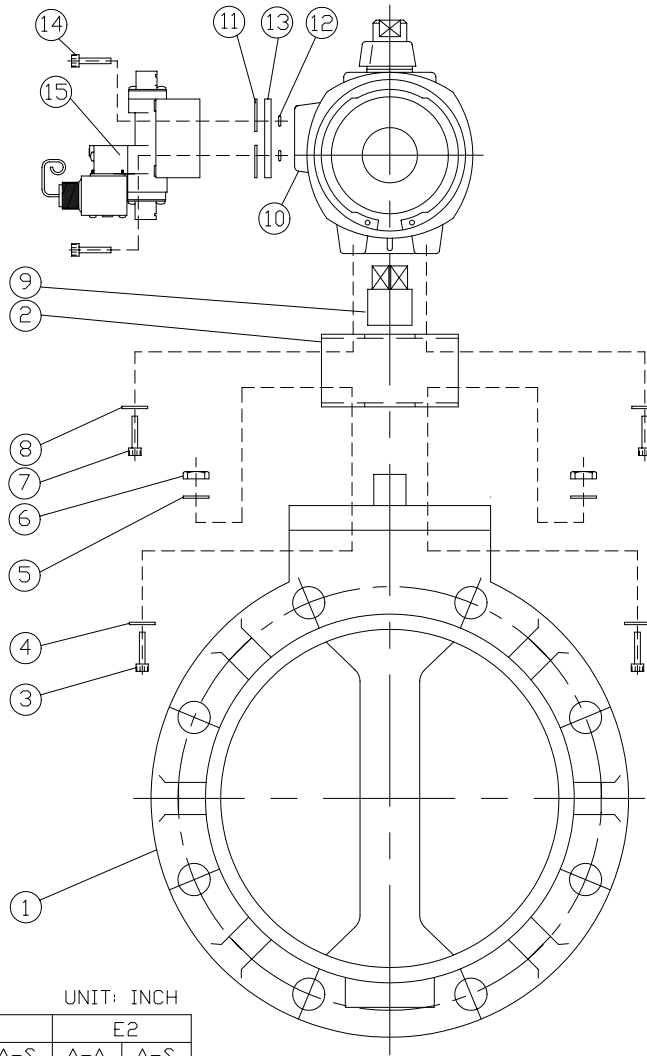
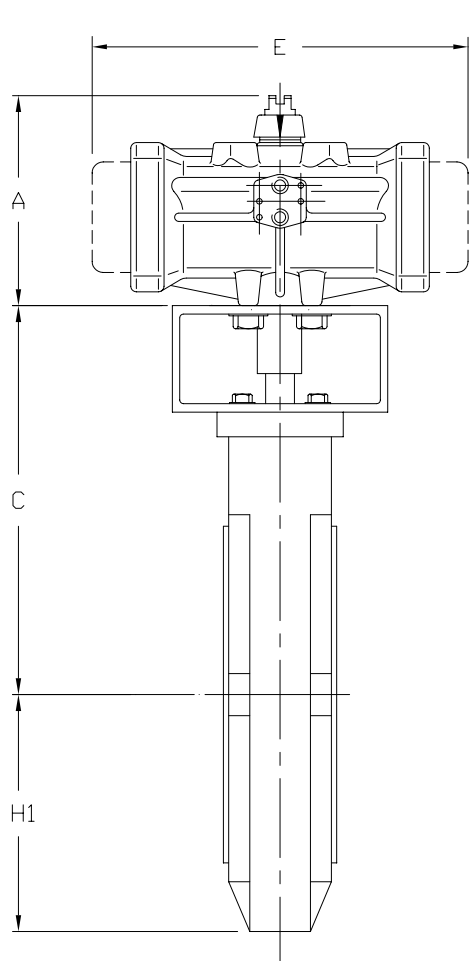
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 35 GREEN STREET, P.O. BOX 653, MALDEN, MA.



BUTTERFLY VALVE TYPE57
SERIES79P PNEUMATIC ACT.
1-1/2" THRU. 14"

| | | | | | |
|-------|-----|----------|--------------|-----|---|
| SIZE | A | DWG. NO. | 0167BF57 | REV | A |
| SCALE | NTS | | SHEET 1 OF 1 | | |

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NOTE: ACTUATOR BODY IS CAST ALUMINUM WITH RILSAN (POLYAMIDE NYLON II) COATING FOR VALVE SIZES 8 THROUGH 24 AIR-AIR AND 5 THROUGH 12 AIR-SPRING. ACTUATOR BODY IS AVAILABLE IN STAINLESS STEEL OR GLASS FILLED POLYAMIDE FOR VALVE SIZES 1 1/2 THROUGH 6 AIR-AIR AND 1 1/2 THROUGH 4 AIR-SPRING

| | | | |
|-----|---------------------------|---------------------|-----|
| 15 | SOLENOID, ASCO (OPTIONS) | ZYTEL | 1 |
| 14 | SCREW, SDC HEAD (OPTIONS) | STAINLESS STEEL 303 | 2 |
| 13 | PLATE MOUNTING (OPTIONS) | ZYTEL | 1 |
| 12 | O-RING (OPTIONS) | NBR | 2 |
| 11 | GASKET (OPTIONS) | NBR | 2 |
| 10 | ACTUATOR (SEE NOTE) | SERIES 79P | 1 |
| 9 | SHAFT ADAPTER | STAINLESS STEEL 303 | 1 |
| 8 | FLAT WASHER | STAINLESS STEEL 303 | 4 |
| 7 | SCREW | STAINLESS STEEL 303 | 4 |
| 6 | NUT, HEX LOCKING | STAINLESS STEEL 303 | 4 |
| 5 | WASHER, FLAT | STAINLESS STEEL 303 | 4 |
| 4 | WASHER, FLAT | STAINLESS STEEL 303 | 4 |
| 3 | SCREW | STAINLESS STEEL 303 | 4 |
| 2 | MOUNTING BRACKET | STAINLESS STEEL 303 | 1 |
| 1 | BUTTERFLY VALVE TYPE56 | PVC, PP, PVDF | 1 |
| No. | DESCRIPTION | MATERIAL | QTY |

UNIT: INCH

| VALVE SIZE | C | H1 | A | | E | | E1 | | E2 | |
|------------|-------|-------|-------|-------|-------|-------|------|-------|------|------|
| | | | A-A | A-S | A-A | A-S | A-A | A-S | A-A | A-S |
| 1 1/2 | 5.50 | 2.95 | 4.40 | 5.00 | 4.92 | 8.74 | 6.02 | 6.25 | 1.41 | 1.85 |
| 2 | 5.57 | 3.25 | 4.40 | 5.00 | 4.92 | 8.74 | 6.02 | 6.25 | 1.41 | 1.85 |
| 2 1/2 | 6.08 | 3.66 | 4.40 | 5.00 | 4.92 | 8.74 | 6.02 | 6.25 | 1.41 | 1.85 |
| 3 | 6.28 | 3.94 | 5.00 | 6.49 | 7.00 | 11.49 | 6.25 | 6.84 | 1.85 | 2.36 |
| 4 | 6.56 | 4.53 | 5.00 | 6.49 | 7.00 | 11.49 | 6.25 | 6.84 | 1.85 | 2.36 |
| 5 | 8.05 | 5.00 | 5.00 | 8.54 | 7.00 | 17.04 | 6.25 | 7.83 | 1.85 | 3.23 |
| 6 | 9.01 | 5.63 | 6.49 | 8.54 | 9.21 | 17.04 | 6.84 | 7.83 | 2.36 | 3.23 |
| 8 | 11.27 | 6.69 | 8.54 | 11.26 | 12.12 | 25.28 | 7.83 | 8.42 | 3.23 | 3.78 |
| 10 | 12.46 | 7.99 | 8.54 | 13.07 | 12.12 | 20.83 | 7.83 | 9.41 | 3.23 | 4.76 |
| 12 | 14.69 | 9.53 | 11.26 | 13.07 | 16.46 | 20.83 | 8.42 | 9.41 | 3.78 | 4.76 |
| 14 | 14.81 | 10.24 | 11.26 | 15.47 | 16.46 | 22.44 | 8.42 | 11.84 | 3.78 | 6.75 |
| 16 | 16.78 | 11.81 | 11.26 | 16.53 | 16.46 | 32.83 | 8.42 | 12.52 | 3.78 | 7.16 |

NOTE: The shape and appearance of assembly differ a little with nominal size compared to this drawing.

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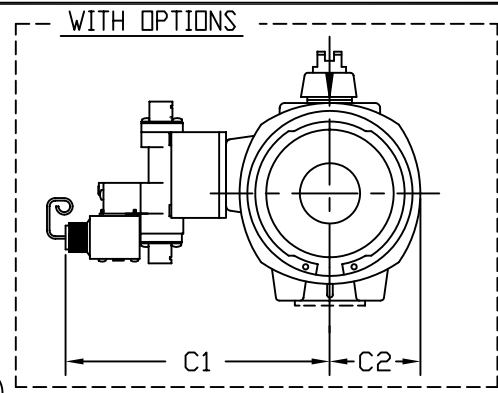
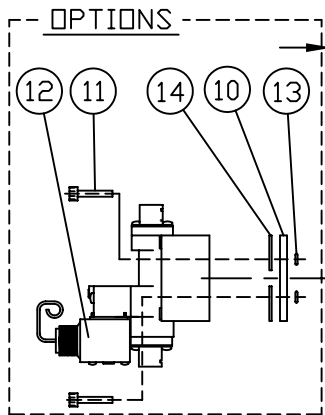
| | | |
|---------|------------------|--------|
| DR | KENICHI MIYAZAKI | 9/6/01 |
| APPD | DAVE HURLEY | 9/6/01 |
| PROD | LED LESTER | 9/6/01 |
| WO#/CO# | | |
| FILE | | |

ASAHI/AMERICA
ISO 9001 CERTIFIED
35 GREEN STREET, P.O. BOX 653, MALDEN, MA.



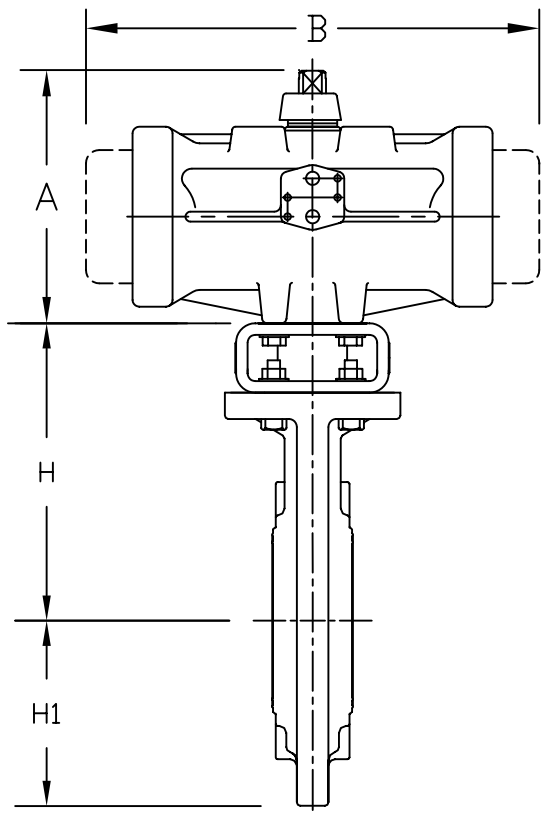
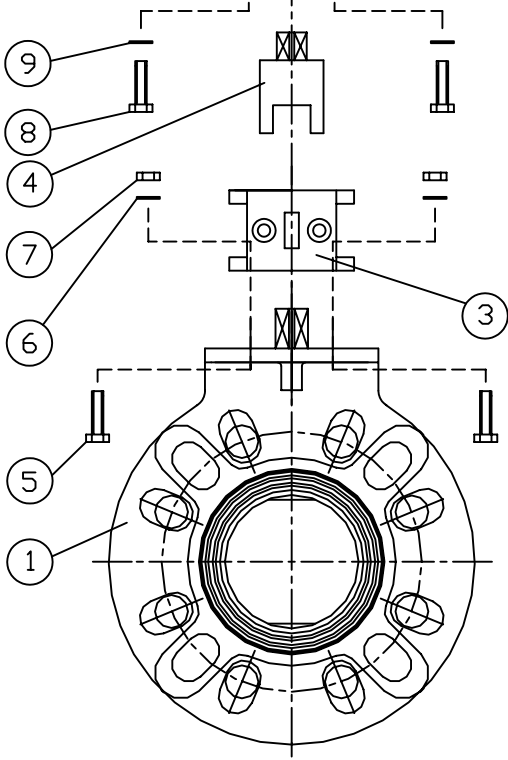
| | | |
|------------------------------------------------------------------------|--------------|-----|
| BUTTERFLY VALVE TYPE56 SERIES79P PNEUMATIC ACT. 1-1/2" THRU. 16" | | |
| SIZE | DWG. NO. | REV |
| A | 0167BF | B |
| SCALE | SHEET 1 OF 1 | |
| NTS | | |

UNIT: INCH



| VALVE SIZE | MODEL A-A | MODEL A-S | A | | B | | C | | C1 | | C2 | |
|------------|-----------|-----------|------|------|------|-------|------|------|------|------|------|------|
| | | | A-A | A-S | A-A | A-S | A-A | A-S | A-A | A-S | A-A | A-S |
| 1-1/2" | BP79PN | CP79PSN | 4.40 | 5.00 | 4.92 | 8.74 | 1.73 | 1.73 | 5.66 | 5.89 | 1.41 | 1.85 |
| 2" | BP79PN | CP79PSN | 4.40 | 5.00 | 4.92 | 8.74 | 1.73 | 1.73 | 5.66 | 5.89 | 1.41 | 1.85 |
| 2-1/2" | BP79PN | CP79PSN | 4.40 | 5.00 | 4.92 | 8.74 | 1.73 | 1.73 | 5.66 | 5.89 | 1.41 | 1.85 |
| 3" | CP79PN | DP79PSN | 5.00 | 6.49 | 7.00 | 11.50 | 1.96 | 1.96 | 5.89 | 6.48 | 1.85 | 2.36 |
| 4" | CP79PN | DP79PSN | 5.00 | 6.49 | 7.00 | 11.50 | 1.96 | 1.96 | 5.89 | 6.48 | 1.85 | 2.36 |
| 5" | CP79PN | E79PSN | 5.00 | 8.54 | 7.00 | 18.50 | 1.96 | 1.96 | 5.89 | 7.47 | 1.85 | 3.23 |
| 6" | DP79PN | E79PSN | 6.49 | 8.54 | 9.21 | 18.50 | 2.55 | 2.55 | 6.48 | 7.47 | 2.36 | 3.23 |

NOTE: E79 AVAILABLE RILSAN COATED CAST ALUMINUM ONLY



| | | | |
|------|------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 14 | GASKET (OPTIONS) | NBR | 2 |
| 13 | O-RING (OPTIONS) | NBR | 2 |
| 12 | SOLENOID (ASCO) (OPTIONS) | ZYTEL | 1 |
| 11 | SCREW SOC HD (OPTIONS) | STAINLESS STEEL 303 | 1 |
| 10 | MOUNTING PLATE (OPTIONS) | ZYTEL | 1 |
| 9 | FLAT WASHER (FOR BP79 : M6.0) (FOR CP79 AND DP79 : M8.0) (FOR E79 : M10.0) | STAINLESS STEEL | 4 |
| 8 | BOLT (FOR BP79 : M6.0x1.00-16LG) (FOR CP79 AND DP79 : M8.0x1.25-16LG) (FOR E79 : M10.0x1.50-20LG) | STAINLESS STEEL | 4 |
| 7 | NUT (FOR 1-1/2" THRU. 4" : M8.0x1.25) (FOR 6" : M10.0x1.50) | STAINLESS STEEL | 4 |
| 6 | FLAT WASHER (FOR 1-1/2" THRU. 4" : M8.0) (FOR 6" : M10.0) | STAINLESS STEEL | 8 |
| 5 | BOLT (FOR 1-1/2" THRU. 4" : M8.0x1.25-35LG) (FOR 6" : M10.0x1.50-40LG) | STAINLESS STEEL | 4 |
| 4 | COUPLING | STAINLESS STEEL 303 | 1 |
| 3 | MOUNTING BRACKET | PPG | 1 |
| 2 | ACTUATOR SERIES 79 | <input type="checkbox"/> GLASS FILLED POLYAMIDE <input type="checkbox"/> STAINLESS STEEL (OPTION) <input type="checkbox"/> RILSAN COATED CAST ALUMINUM (OPTION) | 1 |
| 1 | BUTTERFLY VALVE TYPE 57 | U-PVC,PP,PVDF | 1 |
| ITEM | DESCRIPTION | MATERIAL | QTY |

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UNIT: INCH

| VALVE SIZE | 1-1/2" | 2" | 2-1/2" | 3" | 4" | 5" | 6" |
|------------|--------|------|--------|------|------|------|------|
| H | 5.51 | 5.75 | 6.18 | 6.46 | 7.16 | 8.46 | 8.97 |
| H1 | 2.95 | 3.27 | 3.66 | 3.94 | 4.53 | 5.00 | 5.63 |

NOTE: 1. The shape and appearance of assembly differ a little with nominal size compared to this drawing.
 2. For 1-1/2" thru. 4" Mounting Bracket : F7 x F05,F07
 For 5" and 6" Mounting Bracket : F10 x F07,F10

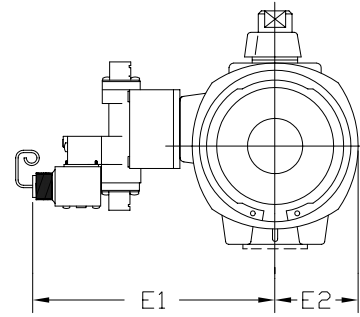
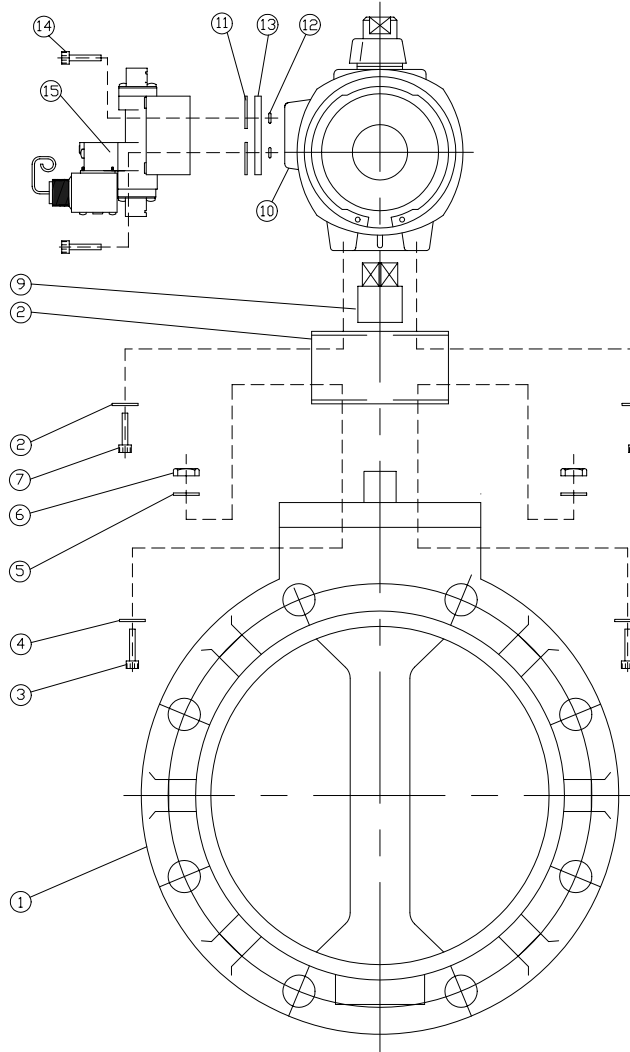
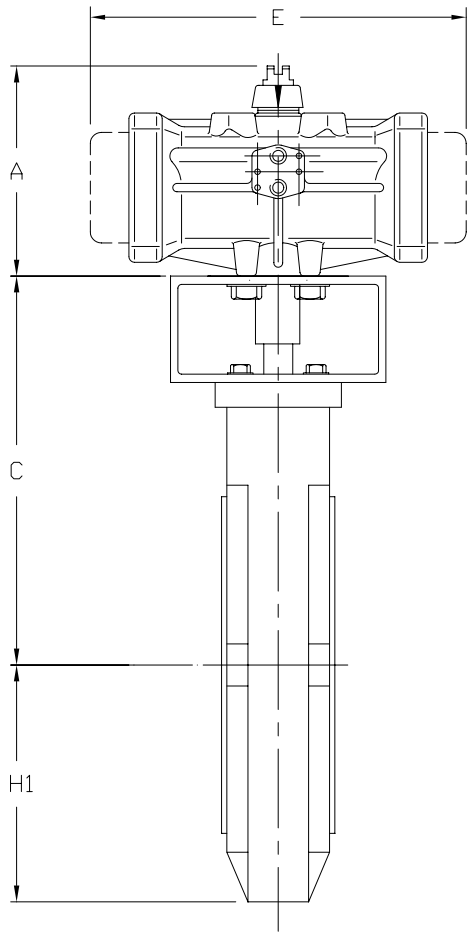
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| DR | NAME | DATE |
|---------|----------------|---------|
| DR | JOHN GLASSFORD | 6/14/05 |
| APPD | DAVE HURLEY | 6/14/05 |
| PROD | LED LESTER | 6/14/05 |
| WO#/CO# | | |
| FILE | | |

ASAHI/AMERICA
 ISO 9001 CERTIFIED
 35 GREEN STREET, P.O. BOX 653, MALDEN, MA.

**BUTTERFLY VALVE TYPE 57
 SERIES 79 PNEUMATIC ACT.
 1-1/2" THRU 6"**

| | | | | | |
|-------|-----|----------|--------------|-----|---|
| SIZE | A | DWG. NO. | 0204BF57 | REV | A |
| SCALE | NTS | | SHEET 1 OF 1 | | |



NOTE: ACTUATOR BODY IS CAST ALUMINUM WITH RILSAN (POLYAMIDE NYLON II) COATING FOR VALVE SIZES 18 THROUGH 24 AIR-AIR AND 12 AIR-SPRING.

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| | | | |
|-----|---------------------------|---------------|-----|
| 15 | SOLENOID, ASCO (OPTIONS) | ZYTEL | 1 |
| 14 | SCREW, SOC HEAD (OPTIONS) | 300SS | 2 |
| 13 | PLATE MOUNTING (OPTIONS) | ZYTEL | 1 |
| 12 | O-RING (OPTIONS) | NBR | 2 |
| 11 | GASKET (OPTIONS) | NBR | 2 |
| 10 | ACTUATOR (SEE NOTE) | SERIES 79P | 1 |
| 9 | SHAFT ADAPTER | 300SS | 1 |
| 8 | WASHER, LOCK | 300SS | 4 |
| 7 | SCREW | 300SS | 4 |
| 6 | NUT, HEX LOCKING | 300SS | 4 |
| 5 | WASHER, FLAT | 300SS | 4 |
| 4 | WASHER, FLAT | 300SS | 4 |
| 3 | SCREW | 300SS | 4 |
| 2 | MOUNTING BRACKET | 300SS | 1 |
| 1 | BUTTERFLY VALVE TYPE75 | PVC, PP, PVDF | 1 |
| No. | DESCRIPTION | MATERIAL | QTY |

UNIT: INCH

| VALVE SIZE | C | H1 | A | | E | | E1 | | E2 | |
|------------|-------|-------|-------|-------|-------|-------|------|-------|------|------|
| | | | A-A | A-S | A-A | A-S | A-A | A-S | A-A | A-S |
| 18 | 17.57 | 12.40 | 11.26 | 16.53 | 16.46 | 32.83 | 8.42 | 12.52 | 3.78 | 7.16 |
| 20 | 18.75 | 13.78 | 13.07 | 16.53 | 17.09 | 32.83 | 9.41 | 12.52 | 4.76 | 7.16 |
| 24 | 21.31 | 16.02 | 13.07 | 16.53 | 17.09 | 32.83 | 9.41 | 12.52 | 4.76 | 7.16 |

NOTE. The shape and appearance of assembly differ a little with nominal size compared to this drawing.

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| | NAME | DATE |
|---------|------------------|--------|
| DR | KENICHI MIYAZAKI | 9/6/01 |
| APPD | DAVE HURLEY | 9/6/01 |
| PROD | LED LESTER | 9/6/01 |
| WO#/CO# | | |
| FILE | | |

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35 GREEN STREET, P.O. BOX 653, MALDEN, MA.

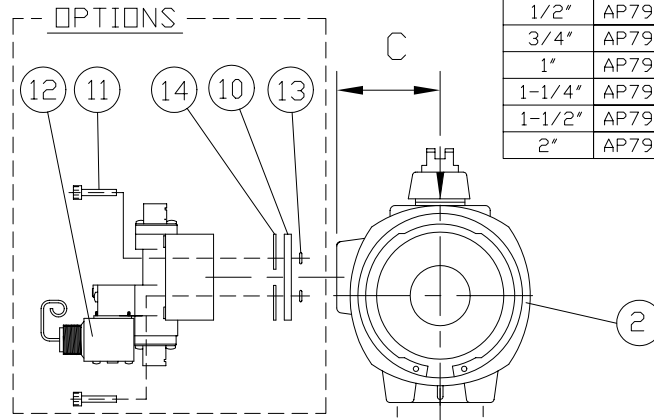
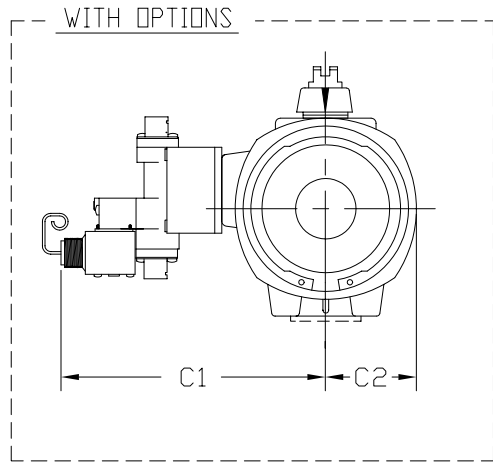


BUTTERFLY VALVE TYPE75
SERIES79P PNEUMATIC ACT.
18" THRU. 24"

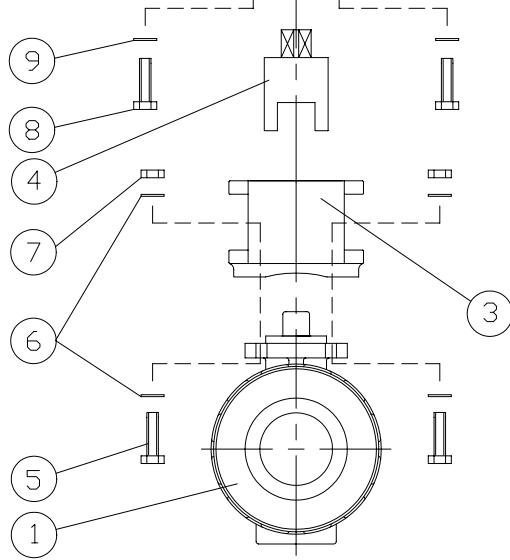
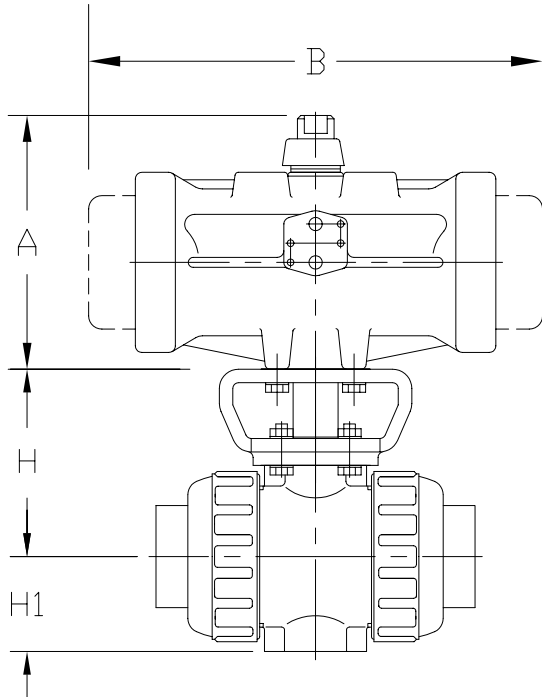
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|-------|-----|----------|--------------|-----|---|
| SIZE | A | DWG. NO. | 1230 | REV | A |
| SCALE | NTS | | SHEET 1 OF 1 | | |

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ASAHI/AMERICA

UNIT: INCH



| VALVE SIZE | MODEL A-A | MODEL A-S | A | | B | | C | | C1 | | C2 | |
|------------|-----------|-----------|------|------|------|------|------|------|------|------|------|------|
| | | | A-A | A-S | A-A | A-S | A-A | A-S | A-A | A-S | A-A | A-S |
| 1/2" | AP79PN | AP79PSN | 3.34 | 3.34 | 4.22 | 5.55 | 1.47 | 1.47 | 5.41 | 5.41 | 1.21 | 1.21 |
| 3/4" | AP79PN | AP79PSN | 3.34 | 3.34 | 4.22 | 5.55 | 1.47 | 1.47 | 5.41 | 5.41 | 1.21 | 1.21 |
| 1" | AP79PN | AP79PSN | 3.34 | 3.34 | 4.22 | 5.55 | 1.47 | 1.47 | 5.41 | 5.41 | 1.21 | 1.21 |
| 1-1/4" | AP79PN | AP79PSN | 3.34 | 3.34 | 4.22 | 5.55 | 1.47 | 1.47 | 5.41 | 5.41 | 1.21 | 1.21 |
| 1-1/2" | AP79PN | BP79PSN | 3.34 | 4.40 | 4.22 | 5.86 | 1.47 | 1.73 | 5.41 | 5.66 | 1.21 | 1.41 |
| 2" | AP79PN | CP79PSN | 3.34 | 5.00 | 4.22 | 7.64 | 1.47 | 1.97 | 5.41 | 5.89 | 1.21 | 1.85 |



| | | | |
|------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 14 | GASKET (OPTIONS) | NBR | 2 |
| 13 | O-RING (OPTIONS) | NBR | 2 |
| 12 | SOLENOID (ASCO) (OPTIONS) | ZYTEL | 1 |
| 11 | SCREW SOC HD (OPTIONS) | 300SS | 1 |
| 10 | MOUNTING PLATE (OPTIONS) | ZYTEL | 1 |
| 9 | FLAT WASHER (M6.0) | STAINLESS STEEL | 4 |
| 8 | BOLT (FOR A79 (PW) USE M5.0x8-16LG) (FOR B79 (PO) USE M6.0x1-16LG) (FOR C79 (PI) USE M8.0x1.25-16LG) | STAINLESS STEEL | 4 |
| 7 | NUT (FOR 1/2" THRU 1-1/4" : M5.0x8) (FOR 1/2" THRU 1-1/4" : M6.0x1) | STAINLESS STEEL | 4 |
| 6 | FLAT WASHER (FOR 1/2" THRU 1-1/4" : M5.0) (FOR 1/2" THRU 1-1/4" : M6.0) | STAINLESS STEEL | 8 |
| 5 | BOLT (FOR 1/2" THRU 1-1/4" : M5.0x8-16LG) (FOR 1/2" THRU 1-1/4" : M6.0x1-20LG) | STAINLESS STEEL | 4 |
| 4 | COUPLING | STAINLESS STEEL 303 | 1 |
| 3 | MOUNTING BRACKET | PPG | 1 |
| 2 | ACTUATOR SERIES 79 | <input type="checkbox"/> GLASS FILLED POLYAMIDE <input type="checkbox"/> STAINLESS STEEL (OPTION) <input type="checkbox"/> RILSAN COATED CAST ALUMINUM (OPTION) | 1 |
| 1 | BALL VALVE TYPE 21 | PVC, CPVC, PP, PVDF | 1 |
| ITEM | DESCRIPTION | MATERIAL | QTY |

UNIT: INCH

| VALVE SIZE | 1/2" | 3/4" | 1" | 1-1/4" | 1-1/2" | 2" |
|------------|------|------|------|--------|--------|------|
| H | 2.76 | 3.01 | 3.29 | 3.64 | 3.98 | 4.43 |
| H1 | 1.14 | 1.38 | 1.54 | 1.85 | 2.17 | 2.60 |

NOTE. The shape and appearance of assembly differ a little with nominal size compared to this drawing.

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| DR | NAME | DATE |
|---------|------------------|---------|
| APPD | KENICHI MIYAZAKI | 8/14/01 |
| PROD | DAVE HURLEY | 8/14/01 |
| FILE | LED LESTER | 8/14/01 |
| WO#/CO# | | |

ASAHI/AMERICA

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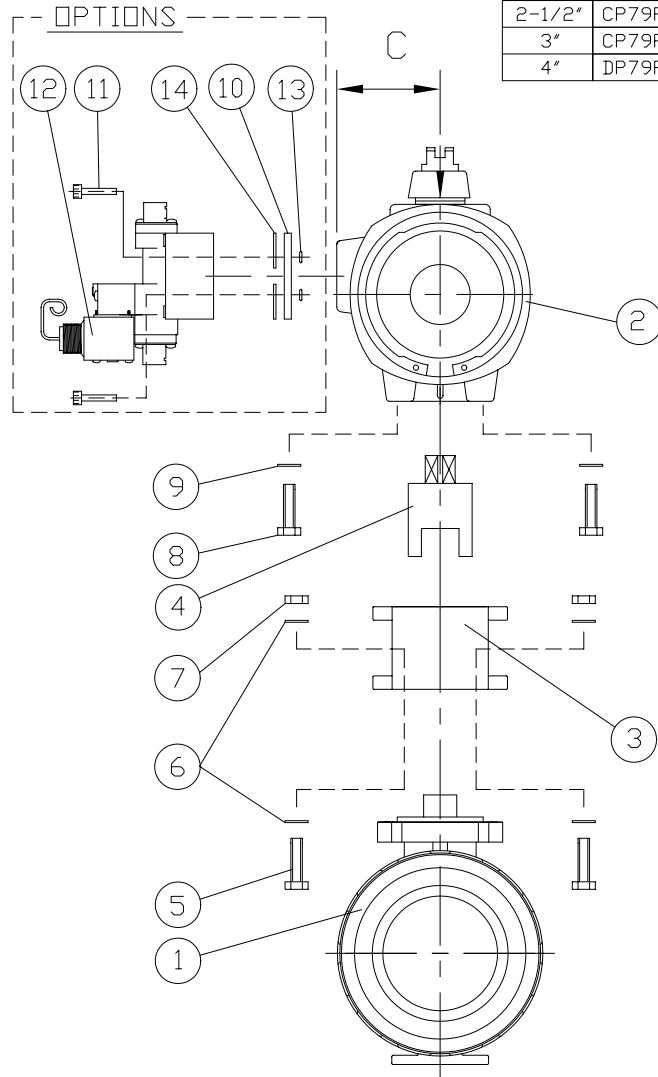
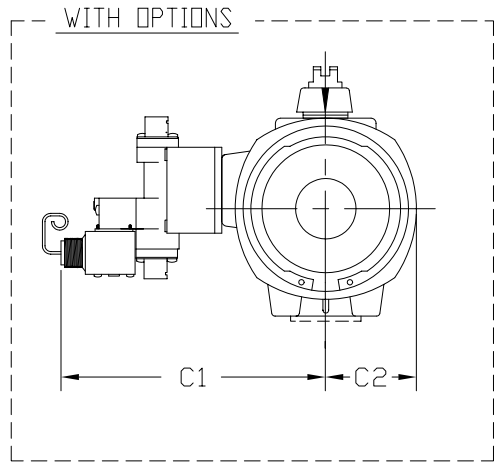
35 GREEN STREET, P.O. BOX 653, MALDEN, MA.



BALL VALVE TYPE 21
SERIES 79 PNEUMATIC ACT.
1/2" THRU 2"

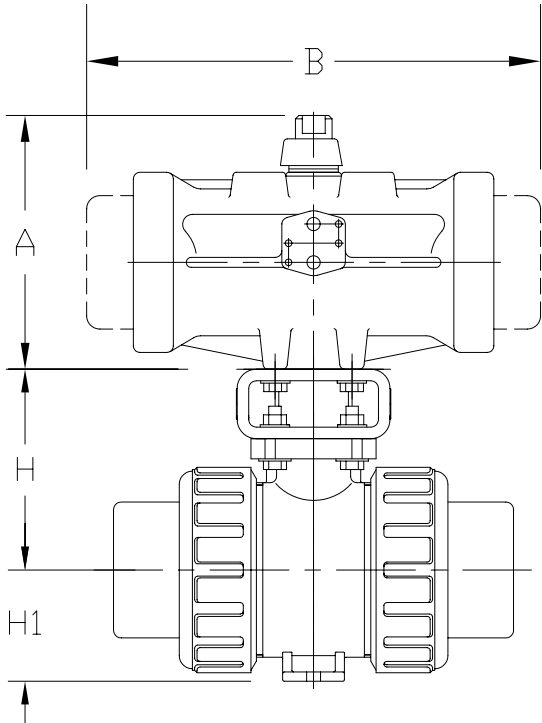
| | | | | | |
|-------|-----|----------|--------------|-----|---|
| SIZE | A | DWG. NO. | 0114BV | REV | A |
| SCALE | NTS | | SHEET 1 OF 1 | | |

UNIT: INCH



| VALVE SIZE | MODEL A-A | MODEL A-S | A | | B | | C | | C1 | | C2 | |
|------------|-----------|-----------|------|------|------|-------|------|------|------|------|------|------|
| | | | A-A | A-S | A-A | A-S | A-A | A-S | A-A | A-S | A-A | A-S |
| 2-1/2" | CP79PN | CP79PSN | 5.00 | 5.00 | 7.00 | 8.74 | 1.97 | 1.97 | 5.89 | 5.89 | 1.85 | 1.85 |
| 3" | CP79PN | DP79PSN | 5.00 | 6.49 | 7.00 | 11.49 | 1.97 | 2.56 | 5.89 | 6.48 | 1.85 | 2.36 |
| 4" | DP79PN | DP79PSN | 6.49 | 6.49 | 9.21 | 11.49 | 2.56 | 2.56 | 6.48 | 6.48 | 2.36 | 2.36 |

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| | | | |
|------|---------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 14 | GASKET (OPTIONS) | NBR | 2 |
| 13 | O-RING (OPTIONS) | NBR | 2 |
| 12 | SOLENOID (ASCO) (OPTIONS) | ZYTEL | 1 |
| 11 | SCREW SOC HD (OPTIONS) | 300SS | 1 |
| 10 | MOUNTING PLATE (OPTIONS) | ZYTEL | 1 |
| 9 | FLAT WASHER (M6.0) | STAINLESS STEEL | 4 |
| 8 | BOLT (FOR A79 (PW) USE M5.0x8-16LG) (FOR B79 (P0) USE M6.0x1-16LG) (FOR C79 (P1) USE M8.0x1.25-16LG) | STAINLESS STEEL | 4 |
| 7 | NUT (FOR 2-1/2" AND 3" : M8.0x1.25) (FOR 4" : M10.0x1.50) | STAINLESS STEEL | 4 |
| 6 | FLAT WASHER (FOR 2-1/2" AND 3" : M8.0) (FOR 4" : M10.0) | STAINLESS STEEL | 8 |
| 5 | BOLT (FOR 2-1/2" AND 3" : M8.0x1.25-35LG) (FOR 4" : M10.0x1.50-40LG) | STAINLESS STEEL | 4 |
| 4 | COUPLING | STAINLESS STEEL 303 | 1 |
| 3 | MOUNTING BRACKET | PPG | 1 |
| 2 | ACTUATOR SERIES 79 | <input type="checkbox"/> GLASS FILLED POLYAMIDE <input type="checkbox"/> STAINLESS STEEL (OPTION) <input type="checkbox"/> RILSAN COATED CAST ALUMINUM (OPTION) | 1 |
| 1 | BALL VALVE TYPE 21 | PVC, CPVC, PP, PVDF | 1 |
| ITEM | DESCRIPTION | MATERIAL | QTY |

UNIT: INCH

| VALVE SIZE | 2-1/2" | 3" | 4" |
|------------|--------|------|------|
| H | 5.12 | 5.47 | 6.97 |
| H1 | 2.83 | 3.35 | 4.33 |

NOTE. The shape and appearance of assembly differ a little with nominal size compared to this drawing.

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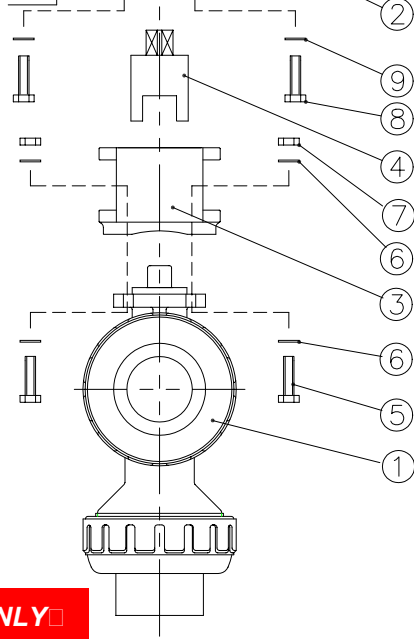
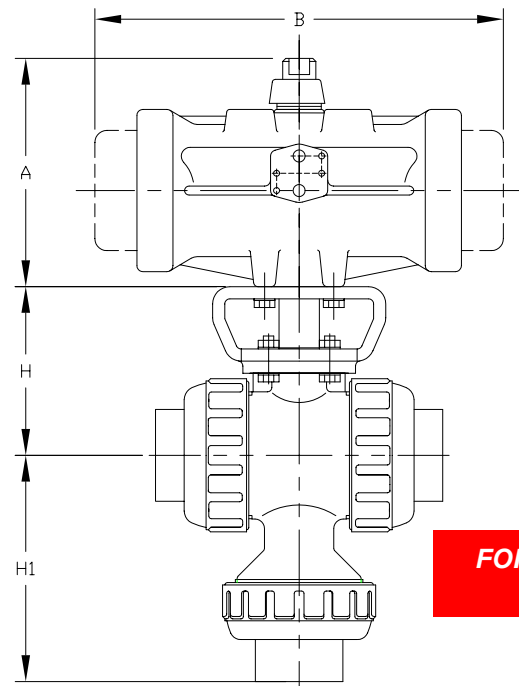
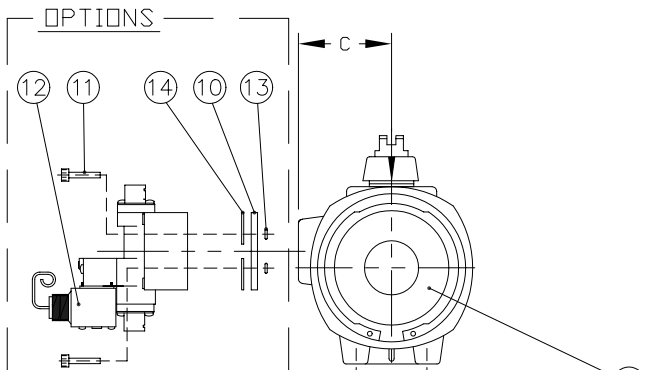
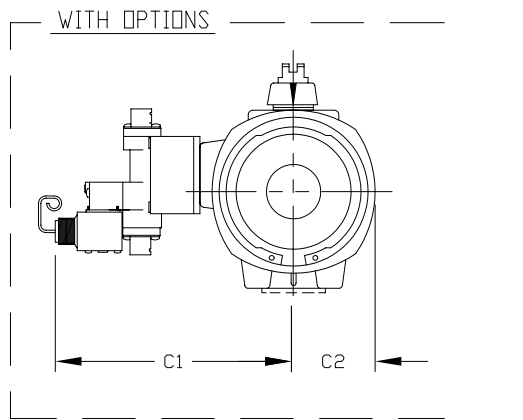
| | NAME | DATE |
|---------|------------------|---------|
| DR | KENICHI MIYAZAKI | 8/14/01 |
| APPD | DAVE HURLEY | 8/14/01 |
| PROD | LED LESTER | 8/14/01 |
| WO#/CO# | | |
| FILE | | |

ASAHI/AMERICA
ISO 9001 CERTIFIED
35 GREEN STREET, P.O. BOX 653, MALDEN, MA.



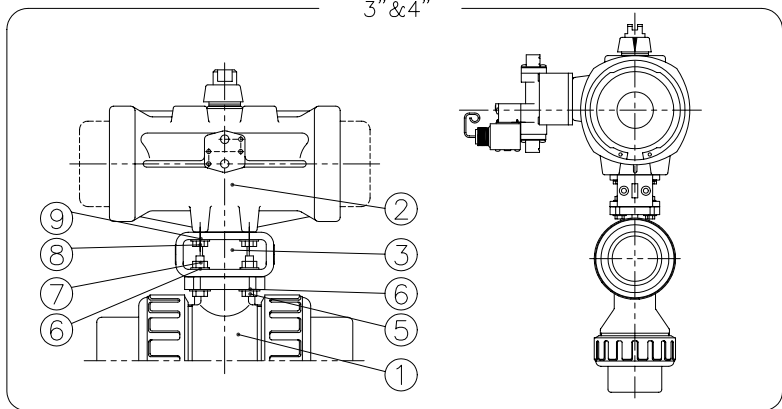
BALL VALVE TYPE 21
SERIES 79 PNEUMATIC ACT.
2-1/2" THRU 4"

| | | | | | |
|-------|-----|----------|--------------|-----|---|
| SIZE | A | DWG. NO. | 0115BV | REV | A |
| SCALE | NTS | | SHEET 1 OF 1 | | |



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NOTE: 1) THE SHAPE AND APPEARANCE OF ASSEMBLY DIFFER A LITTLE WITH NOMINAL SIZE COMPARED TO THIS DRAWING.
2) FOR DETAILED VALVE DIMENSIONS, REFER TO DWG. NO. 0126BV, 0127BV, 0128BV.
L-PORT : DWG. NO. 0126BV
DOUBLE L-PORT : DWG. NO. 0127BV
CROSS PORT : DWG. NO. 0128BV



DIMENSIONS TABLE

UNIT: inch

| VALVE SIZE | MODEL A-A | MODEL A-S | A | | B | | C | | C1 | | C2 | |
|------------|-----------|-----------|------|------|------|-------|------|------|------|------|------|------|
| | | | A-A | A-S | A-A | A-S | A-A | A-S | A-A | A-S | A-A | A-S |
| 1/2" | AP79PN | AP79PSN | 3.34 | 3.34 | 4.22 | 5.55 | 1.47 | 1.47 | 5.41 | 5.41 | 1.21 | 1.21 |
| 3/4" | AP79PN | AP79PSN | 3.34 | 3.34 | 4.22 | 5.55 | 1.47 | 1.47 | 5.41 | 5.41 | 1.21 | 1.21 |
| 1" | AP79PN | AP79PSN | 3.34 | 3.34 | 4.22 | 5.55 | 1.47 | 1.47 | 5.41 | 5.41 | 1.21 | 1.21 |
| 1-1/2" | AP79PN | BP79PSN | 3.34 | 4.40 | 4.22 | 5.86 | 1.47 | 1.73 | 5.41 | 5.66 | 1.21 | 1.41 |
| 2" | AP79PN | CP79PSN | 3.34 | 5.00 | 4.22 | 7.64 | 1.47 | 1.97 | 5.41 | 5.89 | 1.21 | 1.85 |
| 3" | CP79PN | DP79PSN | 5.00 | 6.49 | 7.00 | 11.49 | 1.97 | 2.56 | 5.89 | 6.48 | 1.85 | 2.36 |
| 4" | DP79PN | DP79PSN | 6.49 | 6.49 | 9.21 | 11.49 | 2.56 | 2.56 | 6.48 | 6.48 | 2.36 | 2.36 |

| NOMINAL SIZE | H | FLANGED | | THREADED | | SOCKET | | | | | | SPIGOT (BUIT END) | | |
|--------------|------|---------|-------|----------|-------|-----------|-------|----------------|-------|----------------|-------|-------------------|-------|-------|
| | | H1 | L | H1 | L | PVC, CPVC | | PP, PVDF (DIN) | | PP, PVDF (IPS) | | H1 | L | |
| | | | | | | H1 | L | H1 | L | H1 | L | | | |
| 1/2" | 15mm | 2.76 | 3.70 | 5.63 | 2.89 | 4.02 | 3.08 | 4.45 | 2.80 | 3.90 | 3.09 | 4.45 | 3.27 | 4.88 |
| 3/4" | 20 | 3.01 | 4.50 | 6.77 | 3.48 | 4.72 | 3.56 | 5.08 | 3.27 | 4.49 | 3.61 | 5.08 | 3.90 | 5.67 |
| 1" | 25 | 3.29 | 5.24 | 7.36 | 4.13 | 5.16 | 4.32 | 5.75 | 3.94 | 4.84 | 4.37 | 5.75 | 4.53 | 6.06 |
| 1 1/2" | 40 | 3.98 | 6.50 | 8.35 | 5.53 | 6.42 | 5.71 | 7.24 | 5.16 | 5.83 | 5.85 | 7.24 | 6.02 | 6.85 |
| 2" | 50 | 4.43 | 7.34 | 9.21 | 6.61 | 7.76 | 6.66 | 8.23 | 6.06 | 6.93 | 6.76 | 8.23 | 7.01 | 8.82 |
| 3" | 80 | 5.47 | 10.06 | 11.97 | 9.25 | 10.39 | 9.59 | 11.10 | 8.82 | 9.88 | 11.10 | 11.10 | 9.69 | 11.61 |
| 4" | 100 | 6.97 | 12.01 | 14.65 | 11.77 | 14.17 | 11.58 | 13.90 | 10.98 | 12.20 | 14.37 | 14.37 | 11.85 | 12.72 |

| 14 | GASKET (OPTIONS) | NBR | 2 |
|------|-------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 13 | O-RING (OPTIONS) | NBR | 2 |
| 12 | SOLENOID (ASCO) (OPTIONS) | ZYTEL | 1 |
| 11 | SCREW SOC HD (OPTIONS) | STAINLESS STEEL | 1 |
| 10 | MOUNTING PLATE (OPTIONS) | ZYTEL | 1 |
| 9 | FLAT WASHER (M6.0) | STAINLESS STEEL | 4 |
| 8 | BOLT (FOR A79 (PW) USE M5.0x8-16LG) (FOR B79 (PO) USE M6.0x1-16LG) (FOR C79 (PI) USE M8.0x1.25-16LG) | STAINLESS STEEL | 4 |
| 7 | NUT (FOR 1/2" THRU 1-1/4" : M5.0x8) (FOR 1-1/2" THRU 2" : M6.0x1) (FOR 3" : M8.0x1.25) (FOR 4" : M10.0x1.50) | STAINLESS STEEL | 4 |
| 6 | FLAT WASHER (FOR 1/2" THRU 1-1/4" : M5.0) (FOR 1-1/2" THRU 2" : M6.0) (FOR 3" : M8.0) (FOR 4" : M10.0) | STAINLESS STEEL | 8 |
| 5 | BOLT (FOR 1/2" THRU 1" : M5.0x8-16LG) (FOR 1-1/2" THRU 2" : M6.0x1-20LG) (FOR 3" : M8.0x1.25-35LG) (FOR 4" : M10.0x1.50-40LG) | STAINLESS STEEL | 4 |
| 4 | COUPLING | STAINLESS STEEL 303 | 1 |
| 3 | MOUNTING BRACKET | PPG | 1 |
| 2 | ACTUATOR SERIES 79 | <input type="checkbox"/> GLASS FILLED POLYAMIDE <input type="checkbox"/> STAINLESS STEEL (OPTION) <input type="checkbox"/> RILSAN COATED CAST ALUMINUM (OPTION) | 1 |
| 1 | MULTI-PORT BALL VALVE TYPE23 | PVC, CPVC, PP, PVDF | 1 |
| ITEM | DESCRIPTION | MATERIAL | QTY |

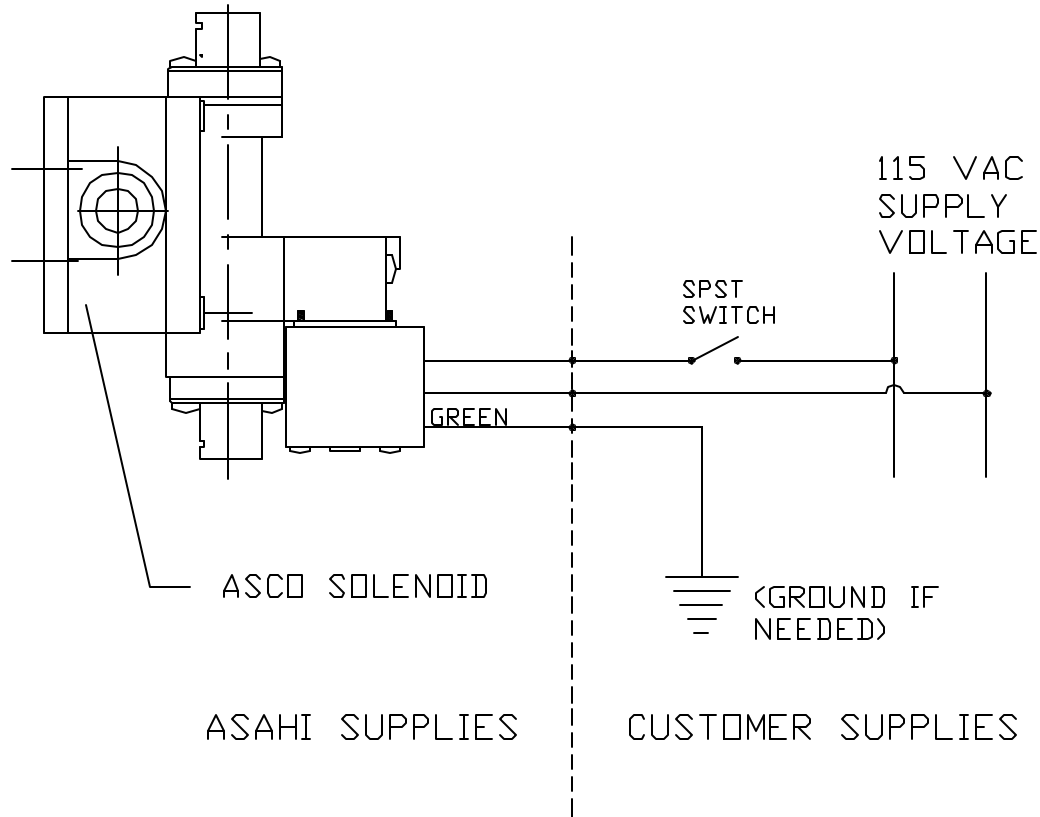
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| | NAME | DATE |
|---------|------------------|---------|
| DR | KENICHI MIYAZAKI | 1/28/03 |
| APPD | DAVE HURLEY | 1/28/03 |
| PROD | LEO LESTER | 1/28/03 |
| WO#/CO# | | |
| FILE | | |

ASAHI/AMERICA
ISO 9001 CERTIFIED
35 GREEN STREET, P.O. BOX 653, MALDEN, MA.

MULTI PORT BALL VALVE TYPE23 WITH SERIES79 ACT. 1/2" THRU 4"

| | | | | | |
|-------|-----|----------|---------|-----|------|
| SIZE | A | DWG. NO. | 0139BV | REV | A |
| SCALE | NTS | | SHEET 1 | | OF 1 |



| | | | | | | | |
|----------------------------------------------------------------------------------------------------------------------------|--|---------------------------------------------------------------------------------------------------------------------------------------------------------------|------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------|----------|-----|
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| DIMENSIONS ARE IN INCHES TOLERANCES: 2 PL DECIMALS ± .01 3 PL DECIMALS ± .005 ANGULAR ± 1/2° FRACTIONAL ± 1/64 | | | | | | | |
| MATERIAL | | DR | A.SELEZNEV | 2/24/98 | ASCO SOLENOID GENERAL WIRING SCHEMATIC | | |
| | | CHK | | | | | |
| | | APPD | | | | | |
| FINISH | | PATH | C\ACT | | SIZE | DWG. NO. | REV |
| | | | | | A | 0004PNU | 0 |
| | | | | SCALE | SHEET 1 OF 1 | | |
| | | | | NTS | | | |