

Pressure Sensing Valve

Model 4023E

Typical applications

- Well head control
- Actuator piloting valve
- Suction/discharge pressure



Model 4023E

Key features and benefits

- Setting to 524 bar (7600 psi)
- 2 or 3-way action
- Balanced 3-way valve - pressure can be applied to any port
- 3-way valve suitable for LP gases, natural gas, oil, air etc
- Bubble-tight seals with center dead spot (no port overlap)
- Field adjustable - rising or falling
- Adjustable setpoint
- Gulfproof finish standard

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Overview

AMOT Model 4023 can be used as a 2 or 3-way capacity, pressure sensing valve. This valve is ideal for applications that require compressor suction and discharge pressure sensing at high pressure levels. Dual purpose construction provides a wide latitude of applications and permits easy field adjustment or changeover from trip on falling to trip on rising pressure.

Trip settings are adjustable in eight ranges from 1.2 bar (18 psi) falling to 524 bar (7,600 psi) rising pressure. The 4023E valve is suitable for use on air, hydraulic, or gas control systems with control systems pressure up to 125 psi.

Operation

The 3-way valve has a pressure-actuated, spring return operator. Without pressure applied to the sensed pressure port, Port 3 is open to Port 2. With pressure applied to the sensed pressure port, Port 3 closes before Port 1 opens to Port 2. A small dead spot on the center of the stroke prevents valve port overlap. The valve is normally set at the factory so that Port 1 just opens to Port 2 on a pressure rise to the specified tripping pressure setting. The valve is converted to 2-way action by plugging Port 1 or Port 3.

A manual reset feature is available to reset the valve after tripping. Pull out the reset knob to reset after trip on falling pressure. Push in the reset knob to reset after trip on rising pressure.

Units with pressure range (B) = 1 and 2 use a diaphragm with a gulfproofed aluminum housing to sense pressure. Units with a higher pressure range use a Teflon lip-type seal on a stainless steel piston inside a stainless steel cylinder to sense pressure.

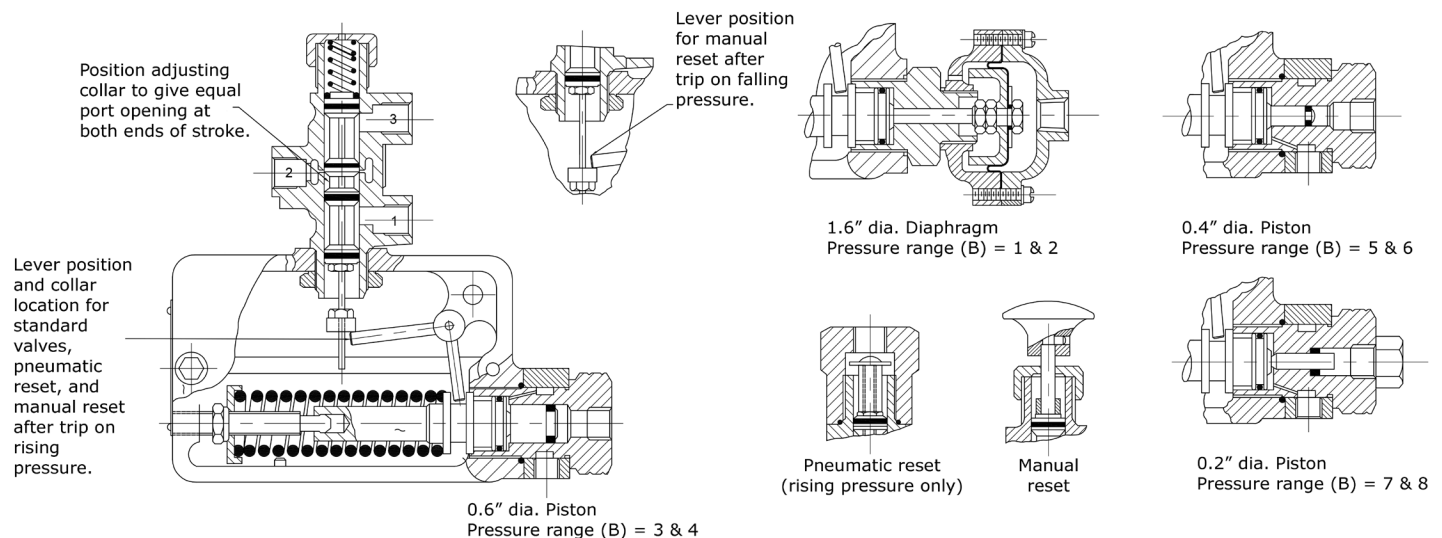
Installation

Model 4023 can be mounted in any position. Use two 1/4" diameter screws through the holes in the back of the case, or two 3/8-16 screws into the case through a mounting plate on the back side. When manual reset (trip on falling pressure) is included, the valve should be mounted with the reset knob down.

If a 4023 valve with pressure range (B) = 3 or higher have been in stock without being used for a long period of time, the Teflon seal may leak slightly. It is recommended that this seal be exercised by running the sensed pressure up and down its complete range about six times to overcome any leakage problems. Control pressure, sensed pressure sources and interconnecting tubing must be free of dirt, chips, rust and other contaminants.

With manual reset (trip on rising pressure), the valve should be mounted with the reset knob up. Frictional force of the seal rings holds valve spool in position. Machine vibration can cause the valve to reset if not mounted as instructed.

Apply a quality thread sealant such as Loctite™ Pipe Sealant to pipe thread connections. Avoid applying excessive torque on fittings at Ports 1, 2 and 3.



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Valve Characteristics

Pressure ranges

Pressure ranges - bar (psi)								
Code	Rising		Falling		Differential		Proof	
	bar	psi	bar	psi	bar	psi	bar	psi
1	1.4 - 3.4	20 - 49	1.2 - 3.4	17 - 49	0.28 - 0.48	4 - 7	24	348
2	2.1 - 8.6	30 - 125	1.7 - 7.9	25 - 115	0.48 - 0.83	7 - 12	24	348
3	9.0 - 27.6	131 - 400	6.9 - 25.5	100 - 370	2.4 - 3.4	35 - 35	103	1,494
4	17.2 - 55.2	249 - 801	13.8 - 48.3	200 - 701	3.2 - 4.1	46 - 59	103	1,494
5	27.6 - 75.8	400 - 1,099	19.0 - 62.1	276 - 901	6.9 - 10	100 - 145	241	3,495
6	44.8 - 155.1	650 - 2,250	34.5 - 137.9	500 - 2,000	8.3 - 11.7	120 - 170	241	3,495
7	68.9 - 241.3	999 - 3,500	51.7 - 206.8	750 - 2,999	20.7 - 27.6	300 - 400	690	10,008
8	100 - 524	1,450 - 7,600	68.9 - 482.6	999 - 7,000	27.6 - 41.4	400 - 600	690	10,008

How to Order

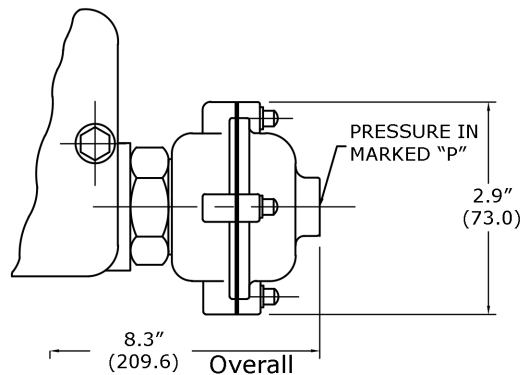
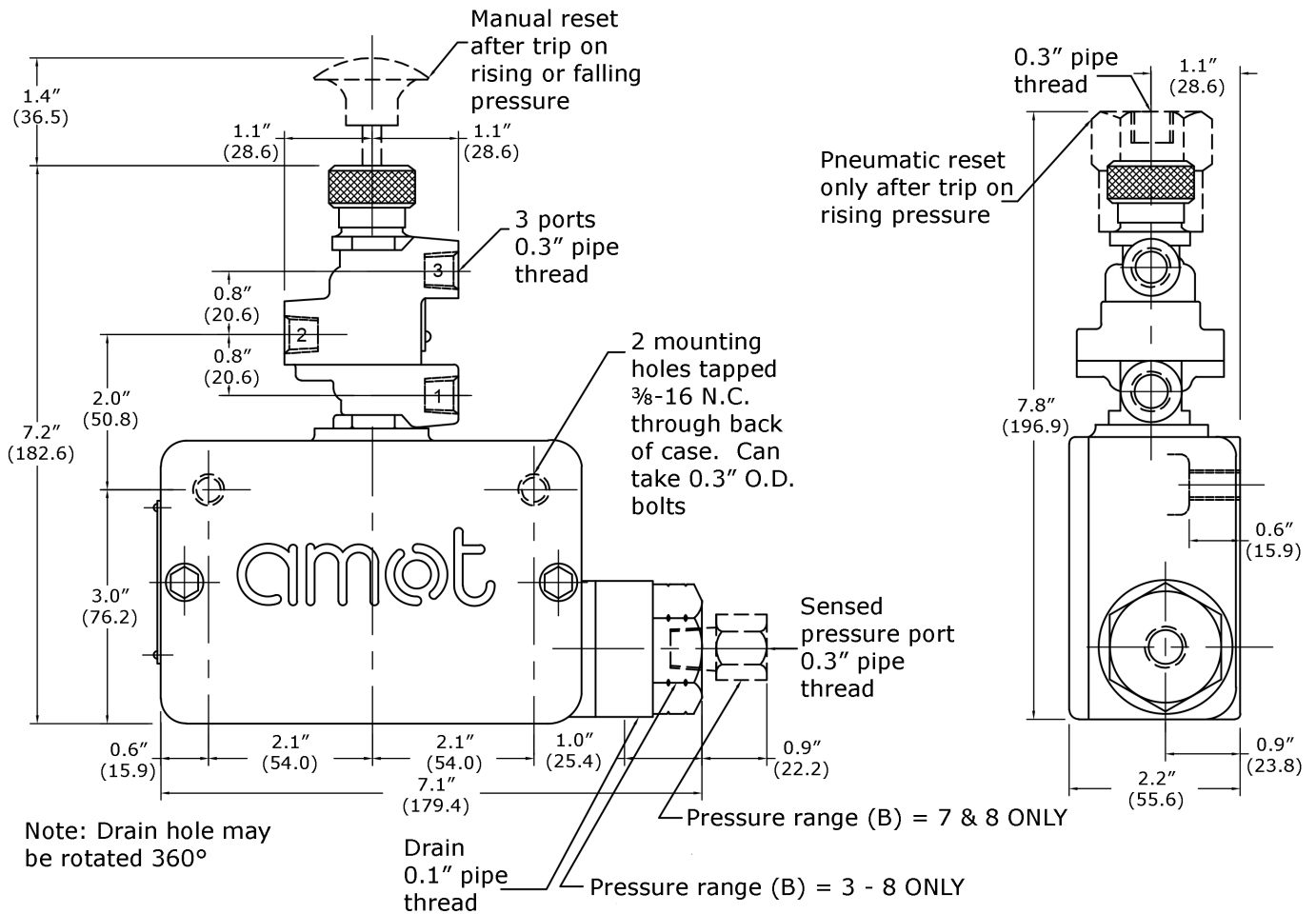
Use the table below to select the unique specification of your Model 4023E Pressure Sensing Valve.

Example	4023E	3	4	0	D	Code description	Comments
						Model (A)	
Model (A)	4023E						
						Pressure range (B)	
Pressure range (B)		1				For information about pressure ranges available, refer to the pressure ranges table above.	
		2					
		3					
		4					
		5					
		6					
		7					
		8					
						Port threads and finish (C)	
						Thread	Finish
Port threads and finish (C)	4				NPT	Gulfproof	
						Reset type code (D)	
Reset type code (D)		0				Automatic	
		1				Manual	
		3				Pneumatic	Special order
						Seal material (E)	
Seal material (E)		A				Buna N/Nitrile	Pressure range (B) = 1 - 2
		C				Viton	Pressure range (B) = 1 - 2
		D				Viton	Pressure range (B) = 3 - 8

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Dimensions

Dimensions - inches (mm)



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Specification

		Metric units	English units
Standard materials			
Housing	Anodized aluminum		
Piston and cylinder	Stainless steel		
3-way valve spool	Anodized aluminum		
Seals and diaphragm	Buna N/Nitrile, Viton		
Piston seal	Teflon		
Maximum operation pressure	at Ports 1, 2, 3	8.6 bar	125 psi
Maximum temperature		66°C	150°F
Valve free flow area	$\frac{9}{32}$ " diameter port	Kv = 1.0	Cv = 1.2
Net weight		1.81 kg	4 lbs
Shipping weight		2.26 kg	5 lbs

Maintenance and Service Parts

Over time, exposure to foreign chemicals and particulate matter as well as prolonged operation at extreme conditions may reduce the effectiveness of the valve. At such time, AMOT Pressure Sensing Valves can be restored to original performance simply by installing an AMOT pressure sensing valve service kit. Service kits include all new seals and seal components required for normal maintenance.

Unless leakage or other problems are noticed earlier, an inspection of the units at YEARLY intervals is adequate to detect and make provision for normal wear and preventive maintenance.

How to order service kits

Service kits are available with parts required to service the valve. Order service kits using the service kit model number which is identified by the pressure range code and seal material code found in the AMOT valve part number.

Refer to the AMOT valve part number printed on the valve nameplate and the AMOT valve part number structure on page 4.

AMOT recommends that Model 4023 valves be checked MONTHLY for proper functioning by simulating an unsafe condition.

AMOT designs and tests all its products to ensure that high quality standards are met. For good product life, carefully follow AMOT's installation and maintenance instructions; failure to do so could result in damage to the equipment being protected or controlled.

For pneumatic reset models (4023E(-)43(-)) please order a service kit and pneumatic seal ⁴⁹ (P/N: **1168**) in order to properly service the valve.

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Maintenance and Service Parts Continued

Service kit model number structure

- 1) Identify the AMOT valve part number located on the valve nameplate.
- 2) Identify the pressure range code, located in the Pressure range (B) section of the AMOT valve part number.
- 3) Identify the seal material code, located in the Seal material (E) section of the AMOT valve part number.
- 4) Identify those codes in the service kit identification table below to identify the proper service kit model number.

Service kit identification					
	Pressure range (B)			Seal material (E)	Service kit model no.
	1,2			A	9132X
				C	9132X001
	3,4			D	9155X001
	5,6				9155X003
	7,8				9155X005
Examples					
Valve part number					Service kit model no.
4023E	1	4	0	A	9132X
4023E	2	4	1	C	9132X001
4023E	3	4	3	D	9155X001 ¹

NOTES:

¹ Order pneumatic seal (9) along with service kit 9155X001 in order to properly service a pneumatic valve.

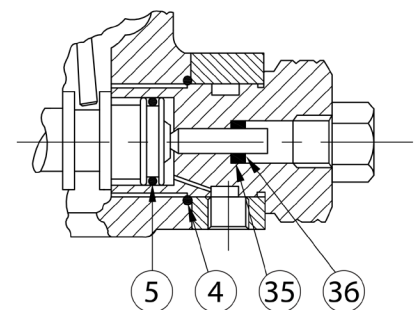
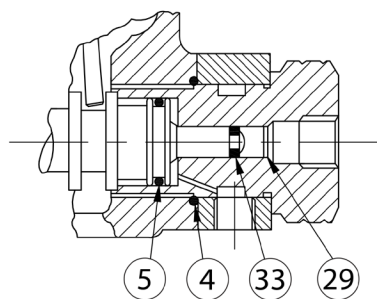
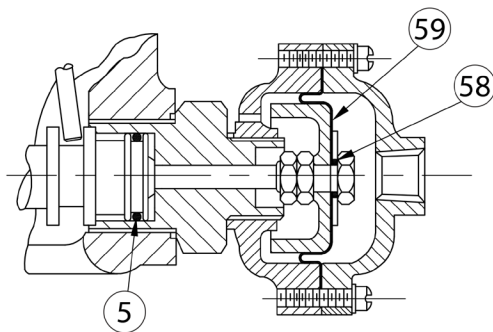
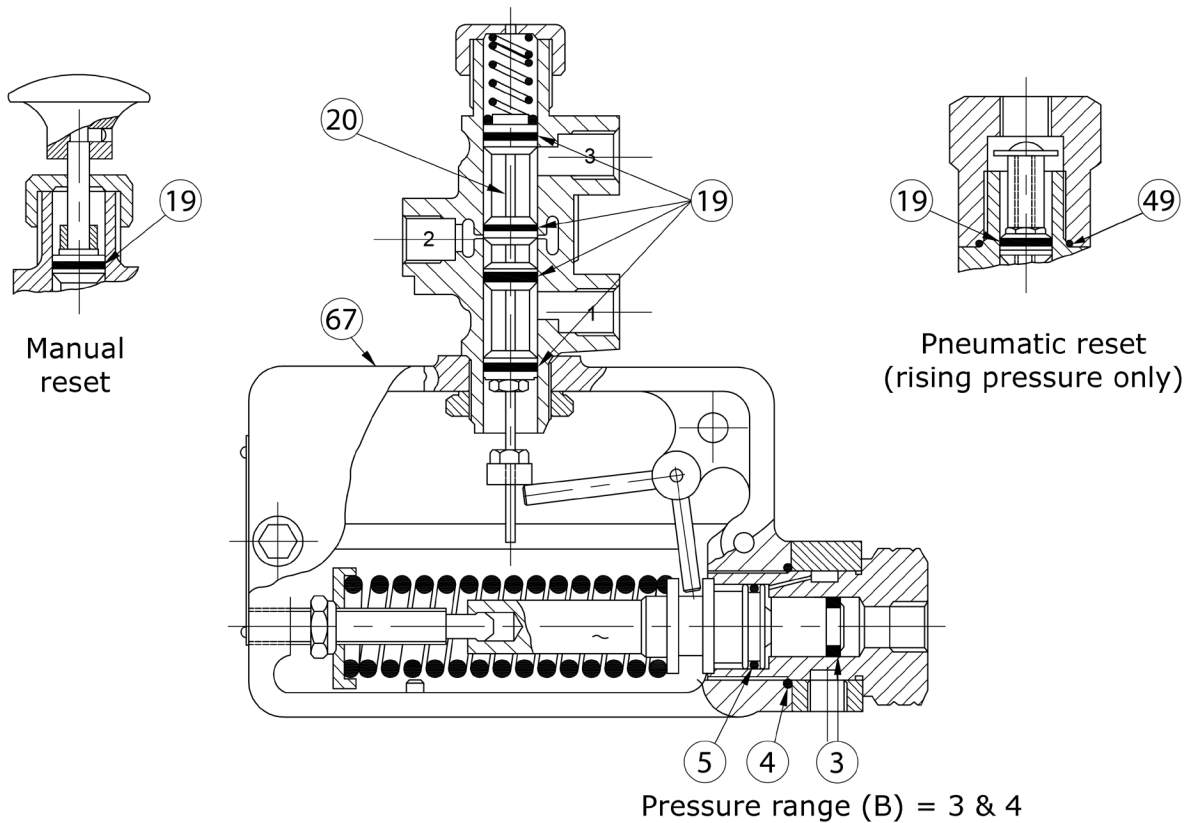
Service parts (refer to diagrams on page 8)

Ref no.	Service kit parts				Description
	9132X & 9132X001	9155X001	9155X003	9155X005	
3	-	1	-	-	Piston seal
4	-	1	1	1	Collar seal
5	1	1	1	1	Plunger seal
19	4	4	4	4	Spool seals
29	-	-	1	-	Retaining ring
33	-	-	1	-	Piston seal
35	-	-	-	1	Piston seal
36	-	-	-	1	Retaining ring
58	1	-	-	-	Diaphragm seal
59	1	-	-	-	Diaphragm
67	1	1	1	1	Gasket

Pressure Sensing Valve - Model 4023E

Maintenance and Service Parts Continued

Service parts continued



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WARNING

This product can expose you to chemicals including Lead, which is known to the state of California to cause cancer and birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.