

CLARK SOLUTIONS**Model 1390, 2-Way, NC or NO Solenoid Valve***1/4", 3/8" & 1/2" Pipe Size, Pilot Operated***DESCRIPTION**

Model 1390 two-way normally closed and normally open solenoid valves are available in brass, 304 or 316 stainless steel bodies. A variety of seal and seat materials including Acrylonitrile, Neoprene®, Ethylpropylene, Viton®, and Teflon® satisfy many general industry applications.

The valves employ a solenoid operated pilot valve to change valve state. This enables the valve to use the pressure at the inlet of the valve to assist in changing the valve's state, resulting in a higher operating pressure rating.

Options include weather proof housing, energized coil indicator light and manual override on main passage and on pilot orifice.

SPECIFICATIONS**GENERAL**

Operation: Normally closed or normally open
Valve Body : Brass, AISI 304 stainless steel, AISI 316 stainless steel

Valve Life: > 1,000,000 cycles, field rebuild kits available

Valve Seals & Seats: See Table 2

Connections: 1/4", 3/8" & 1/2", BSP or NPT

Operating Voltage- 12 VDC; 24 VDC/VAC;
120 VAC, 60Hz

Standard Solenoid Housing: Encapsulated, includes DIN 43650 connector (PG-9)

Wire Connection: Screw terminal

Optional IP65/NEMA4 Weather Proof : Encapsulated coil, 1/2" NPT potted conduit connection with flying leads

Coil Rating:

Class F coil to 80°C: AC 60 Hz, 13 W; DC, 19 W

Class H coil to 180°C: AC 60 Hz, 13 W; DC, 19 W

Options: Manual operation, weatherproof housing, energized coil indicator light

Weight: 0.5 kg

**Table 1**

Wetted Materials						
Body	Plunger	Plunger Tower	Springs	Diaphragm	Inner-Diaph. Material	Piston
Brass	AISI 430F	304L or 305 SS	Copper	See Table 2	-	AISI 304
AISI 304	AISI 430F	304L or 305 SS	Silver & 302 SS	See Table 2	AISI 304	AISI 304
AISI 316	AISI 430F	304L or 305 SS	Silver & 302 SS	See Table 2	AISI 316	AISI 316

Table 2

Seat Material	Acrylo Nitrile	Neoprene®	Ethyl-propylene	Viton®	Teflon®
Maximum Temperature	+80°C	+80°C	+150°C	+180°C	+180°C
Uses	Water, air, light oils, kerosene. Low and medium vacuum.	Oxygen, alcohol, argon, other non-corrosive light gases and liquids. Freon 12.	Water steam, hot water, acetone.	Benzene, naphtha, aromatics, etc.. Hot gases. High vacuum.	Steam, hot oils, corrosive fluids.

Connection	Orifice Dia. (mm)	Cv Coef. (GPM)	Kv Coef. (m³/h)	Weight (kg)
Brass body, Normally Closed- Minimum differential pressure with Teflon seat: 0.5 bar- others: 0.2 bar- Maximum differential pressure: 15 bar				
1/4"	6	0.936	0.80	0.70
3/8"	9	0.760	0.65	0.65
1/2"	12	1.050	0.90	0.90
Brass body, Normally Open- Minimum differential pressure with Teflon seat: 0.5 bar- others: 0.2 bar- Maximum differential pressure: 10 bar				
1/4"	6	0.936	0.70	0.70
3/8"	9	0.760	0.65	0.65
1/2"	12	1.050	0.90	0.90

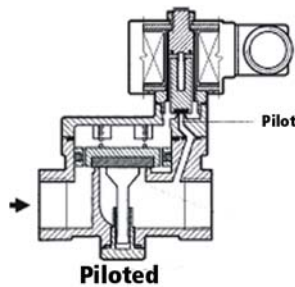
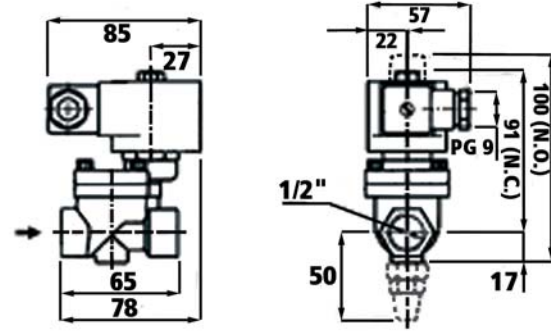
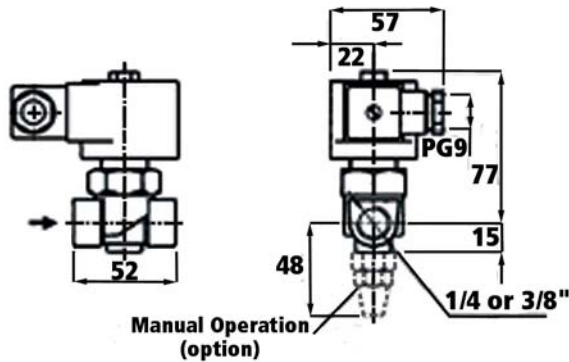
DIMENSIONS (MM)



File LR87427 2M - LR108921-1



File MH16855 Vol. 2 Sec. 2



Piloted valves use the fluid pressure to assist in opening and closing the valve, allowing the valve to operate against higher pressures than a direct acting valve.

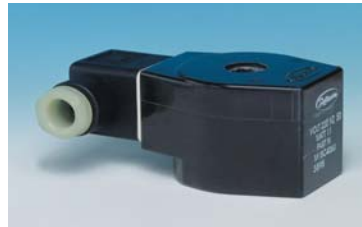
When the pilot valve is closed, the pressure builds up via a small passage from the upstream side of the valve piston/seat. The valve seat is also acted on by a spring.

When the pilot valve opens, a passage that bypasses the valve piston/seat and connects downstream of the piston/seat is opened, relieving pressure from the top of the valve piston/seat. The inlet fluid pressure lifts up the piston to open the valve.

Flow Calculation, Liquids:

$$Q = Cv \sqrt{\frac{DP}{G}}$$

- Q= Flow Rate, GPM (U.S.A.)
- Cv= Valve Flow Coefficient
- DP= Valve Pressure Drop, PSID
- G= Specific Gravity of Liquid (= 1.0 for Water)



Standard Coil and DIN43650 Connector



Option YC Weather Proof Housing with 1/2" NPT Threaded Conduit Connector

ORDERING INFORMATION

SELECT ITEM FROM EACH COLUMN IN CHART BELOW FROM LEFT TO RIGHT

EXAMPLE: 1390SN2-TH24DC

Model Number Information								
Model	Body Material	Seat & Seal Material	Connection	Configuration	Connection Threads	Coil Type	Voltage	Options
1390	B= Brass S= 304 SS I= 316 SS	A= Acrylo-Nitrile V= Viton N= Neoprene E= Ethylpropylene T= Teflon	2= 1/4" 4= 1/2" 3= 3/8"	- = Normally Closed INA=Normally Open	T= NPT - = BSP	F= Class F H= Class H	12DC= 12 VDC 120AC= 120 VAC, 60 Hz 24DC= 24 VDC 24AC= 24 VAC, 60 Hz	Prefix YC= Weather Proof Housing (1/2" NPT Thread) Suffix M= Manual Operation, Main Orifice Suffix MP= Manual Operation, Pilot Orifice Coil Indicator Light= Consult Factory

Magnetically latched solenoids available on select models. Please call us for details.

INSTALLATION RECOMMENDATIONS

Place a strainer with a porosity $\leq 100\mu$ upstream of valve (see Clark Solutions Model 1359 Y Strainer). The valve input pressure must always be greater than the valve outlet pressure. In order for the N.C. or N.O. valve to open, the minimum pressures per specs must be maintained.