

Diesel Fuel Check Valves



Features

- Problem Solvers for Diesel Engine Shutdown Systems
- Precision Made
- Stainless Steel Spring
- Compact and Simple to Install

Description

Murphy offers two types of diesel fuel line valves: check valves and pressure relief valves. The CKV series check valves are in-line, one-way valves that prevent fuel from being siphoned back into an injector or injection pump which could delay a shutdown. There are two types of check valves: CKV2336 and CKV1WPS. The CKV2336 has a 1/4 NPT threaded male connection on each end for connecting to fuel line fittings or hoses. The CKV1WPS check valve is typically mounted in the fuel bypass line of the last fuel injector. The CKV1WPS features a hollow bolt connection and a barbed, 1/8 NPT connection for flex hose or fitting. The PRV series pressure relief valves, relieve overpressure in a fuel system usually caused by closing of a solenoid fuel valve. The PRV50 and PRV70 have a 1/4 NPT threaded connection on each end for connecting to fuel line fittings or hoses.

Specifications

Materials

	Body	Seal	Spring
CKV2336	Brass	Poppet	SS
CKV1WPS	Brass	SS	SS
PRV50/PRV70	Brass	SS	SS

Note: SS=Stainless steel.

Specifications

CKV2336	4 psi (27)
CKV1WPS	2 psi (14)
PRV50	25 psi (172)
PRV70	70 psi (483)

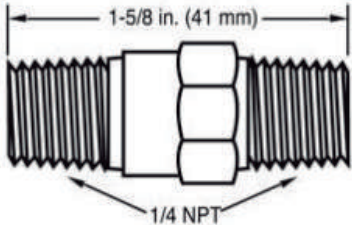
Note: metric (kPa) equivalents in parenthesis.

Static Pressure (all):
150 psi (1.03 MPa) maximum

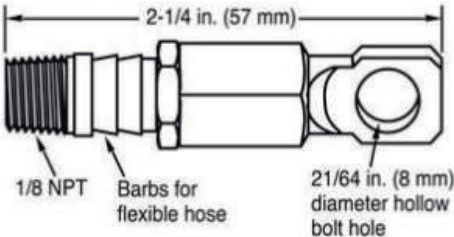
Weight:
CKV2336: 1.3 oz (40.5 grams)
CKV1WPS: 1.3 oz (40.5 grams)
PRV50/PRV70: 1.3 oz (40.5 grams)

Dimensions

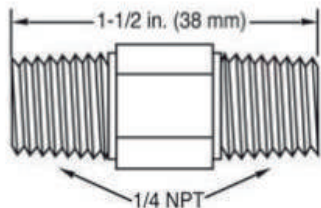
CKV2336



CKV1WPS



PRV50 and PRV70



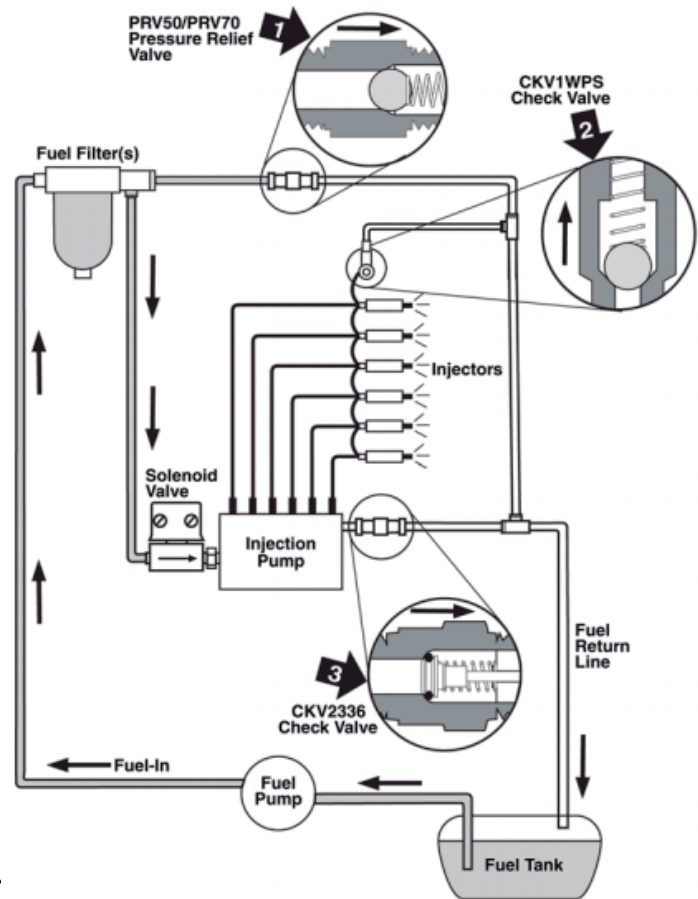
Basic Operation

Murphy Check Valves and Pressure Relief Valves enhance the operation of diesel engine shutdown valves by reducing the time required for complete engine shutdown after the solenoid valve closes. The diagram to the right shows a typical installation using CKV check valves and PRV pressure relief valves.

All valves are shown closed.

Check Valves close off the fuel return line(s) to prevent fuel or air from re-entering the injection system through the bypass line(s). Models **CKV2336 (3)** is an in-line valve. Model **CKV1WPS (2)** has a 21/64 in. (8 mm) banjo fitting that attaches to the return line of the final injector. All check valves allow fuel to flow away from the injectors but close to prevent fuel from flowing in the reverse direction.

The **PRV50** and **PRV70 (1)** relieve pressure buildup in the fuel system that can cause fuel filter canisters to burst. When the solenoid valve closes to stop the engine, the fuel transfer pump will continue to produce pressure as the engine slows down to stop. This pressure buildup, if not relieved, can cause fuel filter canisters or gaskets to leak. PRV's are installed in the bypass line from the fuel filter(s) to the fuel return line.



How to Order

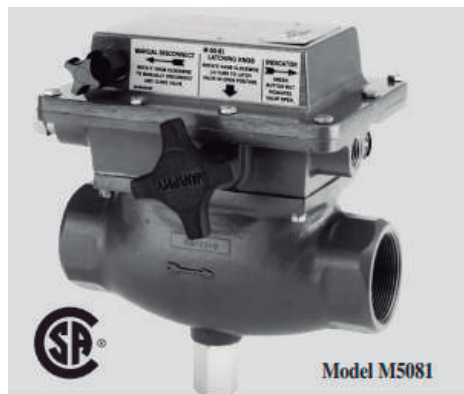
Specify model number:

CKV2336
CKV1WPS
PRV50
PRV70

Note: there are no replacement parts.

Warranty: A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to <http://www.fwmurphy.com/warranty>

MURPHY

**M25 and M50 Series**

- Instant Response to Shut Off Signal
- Positive Valve Closure
- Vents Gases Trapped After Shutdown
- Explosion-proof Models Available
- Models Available for Magneto, CD Ignition or 12/24 VDC
- Normally Energized Model Available

Description

These fuel shutoff valves are semi-automatic devices for shutdown of natural gas fueled engines. The valve is opened manually and closes when the electromagnet is energized and trips the latch. The valve can be closed manually by turning the valve's disconnect knob. A normally energized model is available that holds the valve open electrically and closes when the coil is de-energized. A vent in the valve body relieves trapped gas when the valve closes. A pop-out indicator button informs you when the valve is open or closed.

The valve's tripping power is provided by an engine ignition system or battery. Models are available for magneto, CD ignition or 12/24 V battery.

The M2582 is a 1 inch (25 mm) valve with 1 NPT connections. It has one SPDT snap-switch. The valve body is made of sandcast aluminum. It does not include the open/close indicator button.

M5081 is a 2 inch (51 mm) valve with 2 NPT connections. It has two SPDT snap-switches. The valve body is available in sandcast aluminum or cast steel (optional).

M5081FS is the same as the M5081 but has a normally energized circuit. This circuit allows the valve to be held open electrically and close by interruption of the coil's power circuit. **A manual trip knob is not available on this model.**

An optional 2 in. (51 mm) steel flange pipe connection is available for M5081 and M5081FS steel body models (see Dimensions page 3).

Description

Valve Body: Sandcast aluminum, painted red (corrosion resistance).

Optional cast steel available for M5081 and M5081FS models only.

Valve Seat: Buna-N

Maximum Pressure Rating:

- M2582: 80 psig (552 kPa) [5.52 bar]
- M5081: 100 psig (689 kPa) [6.89 bar]
- M5081FS: 100 psig (689 kPa) [6.89 bar]

Coil Rating: Intermittent duty; coil type must match power source;

- CD ignition coil resistance: 72 Ω CD primary voltage: 1.38 to 3.8 A
- M5081FS model: Energized to run (continuous-duty coil) coil resistance:
- 12 Volt model: 33 Ω (0.36 A)
- 24 Volt model: 136 Ω (0.17 A)
- Magneto ignition coil resistance: 0.5 Ω
- Magneto primary voltage: 1 to 5 A
- Battery coil resistance : 7 Ω 12 or 24 VDC: 1.2 to 2.4 A

Wiring (See Internal Wiring page 2):

- M2582: Wire leads
- M5081 and M5081FS: Terminal blocks

Snap-switch Rating: 5 A @ 480 VAC

Laboratory Approval: CSA listed for Class I, Groups C and D Hazardous Locations. 5 amps maximum; intermittent duty; models M5081 and M5081-CD engine ignition powered, and model M5081-B, 12 or 24 VAC or VDC; switch contacts rated 5 A @ 480 VAC maximum.

Options and Accessories**Diode Package (65010065)**

The Murphy 202 V diode package is designed to allow the fuel shutoff valve to be used with dual Magneto Ignition systems. Sold separately (see How to Order).

Magnetic Switch Adapter

As ignition systems wear from usage their power output becomes less and less. Ignition may not have the capacity to reliably trip the fuel valve. Therefore, the use of a Magnetic Switch Adapter for CD ignition systems is recommended. The adapter stores energy from the CD ignition to trip the fuel valve. Three models are available:

65020126: For Negative Ground CD Ignitions up to 240 VDC

65020127: For Positive Ground CD Ignitions up to 450 VDC

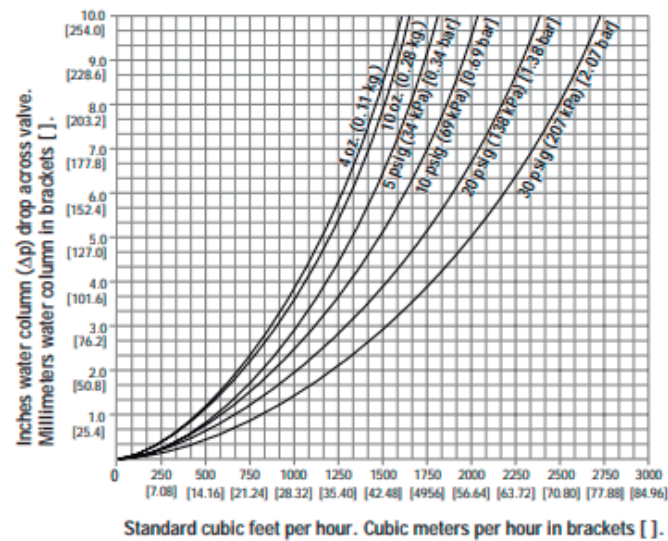
65020155: For Negative Ground CD Ignitions 240 VDC to 450 VDC

Warranty: A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to www.fwmurphy.com/support/warranty.htm

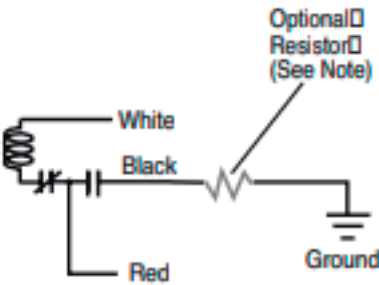
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MURPHY

M2582

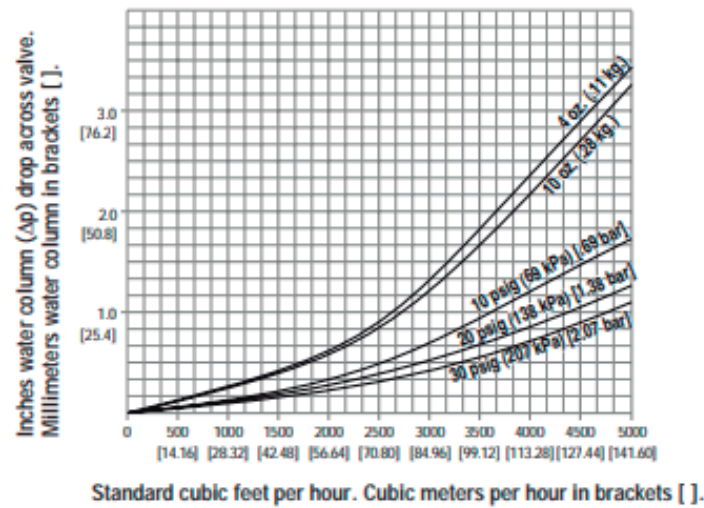


M2582

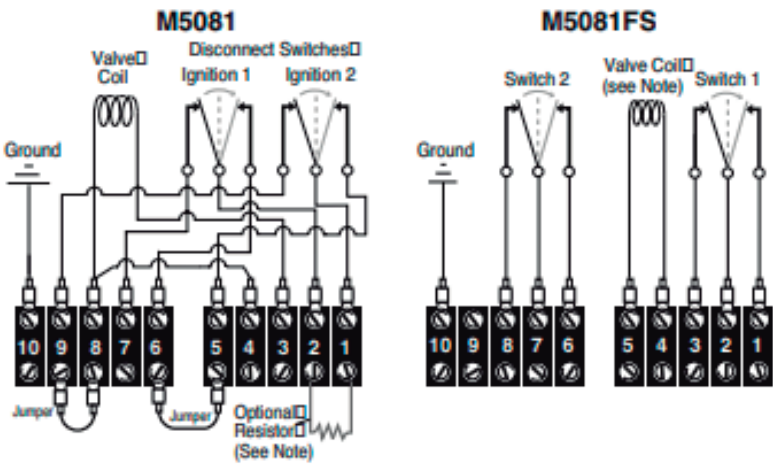


081FS
NOTE: For grounding the ignition (CD models only) through the fuel valve's internal snap-switch, a Murphy Magnetic Switch adapter (see page 4) must be used in addition to a 100 ohm, 2 watt resistor (supplied with valve).

M2582

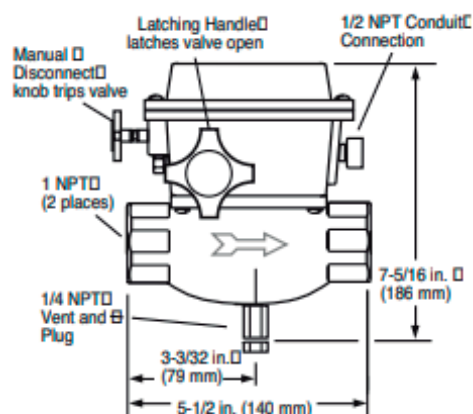


M2582

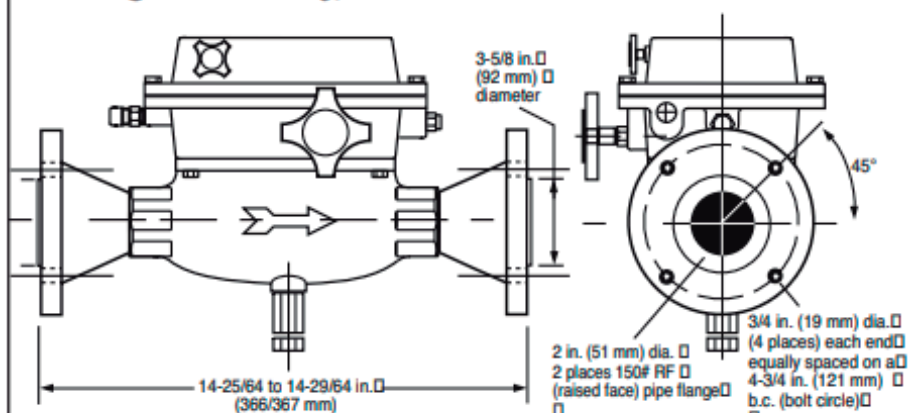


NOTE: For grounding the ignition (CD models only) through the fuel valve's internal snap-switch, a Murphy Magnetic Switch adapter (see page 4) must be used in addition to a 100 ohm, 2 watt resistor (supplied with valve)

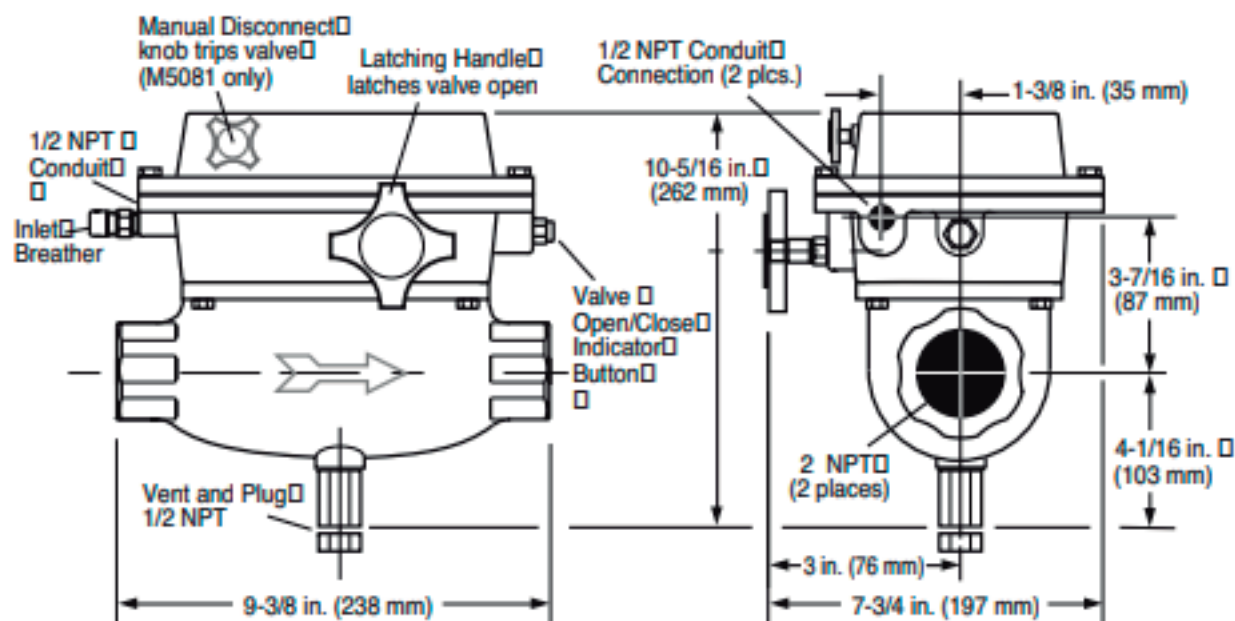
M2582



Steel Flanged Option "3" (available on M5081 and M5081FS steel body configurations only)



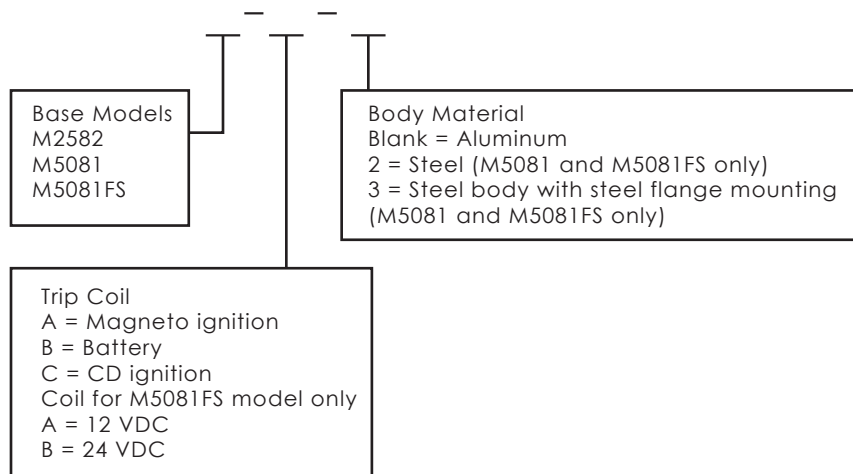
M5081 and M5081FS



How to Order

To order your valve, use the diagram below to specify your model and options.

Example: **M5081-A-2**



How to Order

Specify part number when ordering.

Magnetic Switch Adapter

65020126: For Negative Ground CD Ignitions up to 240 VDC

65020127: For Positive Ground CD Ignitions up to 450 VDC

65020155: For Negative Ground CD Ignitions 240 VDC to 450 VDC

Diode Package

65010065: For use with dual Magneto Ignition systems.

Shipping Information

Shipping Weights:

- M2582: 5 lbs 8 oz. (2.49 kg)
- M5081: 14 lbs 8 oz. (6.58 kg)
- M5081-2: 40 lbs (18.14 kg)
- M5081-3: 56 lbs (25.40 kg)
- M5081FS: 14 lbs 8 oz. (6.58 kg)
- M5081FS-2: 40 lbs (18.14 kg)
- M5081FS-3: 56 lbs (25.40 kg)

Shipping Dimensions:

- M2582: 8 x 8 x 7 in. (203 x 203 x 178 mm)
- M5081: 12 x 12 x 9-5/16 in. (305 x 305 x 237 mm)
- M5081-2: 12 x 12 x 9-5/16 in. (305 x 305 x 237 mm)
- M5081-3: 18 x 12 x 13-1/2 in. (457 x 305 x 343 mm)
- M5081FS: 12 x 12 x 9-5/16 in. (305 x 305 x 237 mm)
- M5081FS-2: 12 x 12 x 9-5/16 in. (305 x 305 x 237 mm)
- M5081FS-3: 18 x 12 x 13-1/2 in. (457 x 305 x 343 mm)

Service Parts

Specify part number when ordering.

	M2582	M5081	M5081FS
Coil Assembly			
Battery	55000128	55000126	—
CD Ignition	55000129	55000127	—
Magneto Ignition	55000094	55000080	—
"FS" Coil Assembly			
12 VDC	—	—	55000158
24 VDC	—	—	55000159
Latch Block Assembly			
Latch block assembly	55000095	55000074	—
Latch block switch and coil assembly	55000144	—	—
Latch block switch and mounting bracket assembly	—	55000118	—
Handle and Latch Kit			
Handle and latch kit	—	55000102	55000102
Handle kit	55000096	—	—
Manual Disconnect Assembly	55000097	55000137	—
Snap-switch Assembly	55000098	55000072	55000160
Close/Open Indicator Assembly	—	5500-0138	55000138
Stem and Seat Kit	55000093	55000075	55000135
Top Works Complete Valve Less Body and Vent	55000146	55000131	55000161 (12V) 55000194 (24V)
Vent Bushing Assembly	55000143	55000132	55000132
Diaphragm Assembly	—	—	—
Pilot Diaphragm	—	—	—
Diode Package for Dual Magneto Ignitions	—	65010065	—
Magnetic Switch Adapter for CD Ignitions			
Single/Dual ign. – negative ground up to 240 VDC	65020126	65020126	—
Single/Dual ign. – positive ground up to 450 VDC	65020127	65020127	—
Single/Dual ign. – negative ground up to 450 VDC	65020155	65020155	—

Pneumatic Valves for Fuel Gas Shutoff



Models M2582-P and M5180-P

- Pneumatically Open and Shut Off Fuel Gas Automatically or Semi-automatically
- Pneumatic Control Pressure Can Be Air, Gas or Oil
- Models for 2 in. or 1 in. (51 mm or 25 mm) Fuel Gas Lines

Description

The M2582-P and M5180-P are pneumatically controlled fuel shut-off valves that open and close automatically or semi-automatically. The pneumatic control pressure can be air, oil or gas. A manual lever aids in opening the valve when control pressure is insufficient. A gas escape vent, when properly vented and maintained, releases trapped gas from the valve after shutoff.

Description

Automatic: As the control pressure/vacuum increases the valve will open. When the control pressure/vacuum decreases, the valve will close.

Semi-Automatic: If the control pressure/vacuum is too low and the valve does not open automatically, it can be opened manually by lifting the built-in lever arm and setting the latch. The latch resets automatically when control pressure rises enough to release it.

M2582-P is for 1 in. (25 mm) gas lines. It automatically opens at 2 psi (14 kPa) [.14 bar] and fully opens the seat at 3 psi (21 kPa) [.21 bar]. The valve can be manually opened with the lever and latch against inlet pressure of 80 psi (552 kPa) [5.52 bar]. The latch will release after pilot pressure reaches 2.5 psi (17 kPa) [.17 bar].

The M5180-P is for 2 in. (52 mm) gas lines. It automatically opens at 2 psi (14 kPa) [.14 bar] and fully opens the seat at 3 psi (21 kPa) [.21 bar]. The valve can be manually opened with lever and latched against inlet pressure of 100 psi (689 kPa) [6.89 bar]. The latch will release after pilot pressure reaches 2.5 psi (17kPa) [.17 bar].

Description

Valve Body: Sandcast aluminum (alodined for corrosion resistance). Optional steel body available on M5180-P models only (see How to Order).

Valve Seat: Buna-N

Valve Inlet Pressure (Maximum):

M2582-P: 80 psi (552 kPa) [5.52 bar]

M5180-P: 100 psi (689 kPa) [6.89 bar]

Parts Exposed to Gas Line Flow:

M2582-P:

- Aluminum
- Buna-N
- 302, 303, and 17-7 PH stainless steel

M5180-P:

- Aluminum (Steel optional)
- Buna-N
- 302, 303, 304, and 416 stainless steel

Control Diaphragm: Flexweave polyester fabric and Buna-N elastomer.

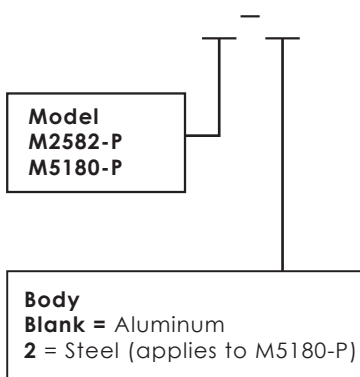
Control Pressure (Maximum):

M2582-P: 75 psi (517 kPa) [5.17 bar]

M5180-P: 80 psig (552 kPa) [5.52 bar]

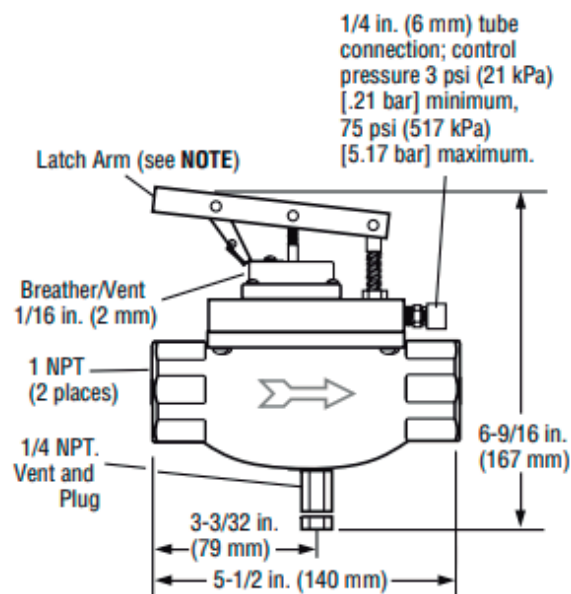
How to Order

To order, use the diagram below



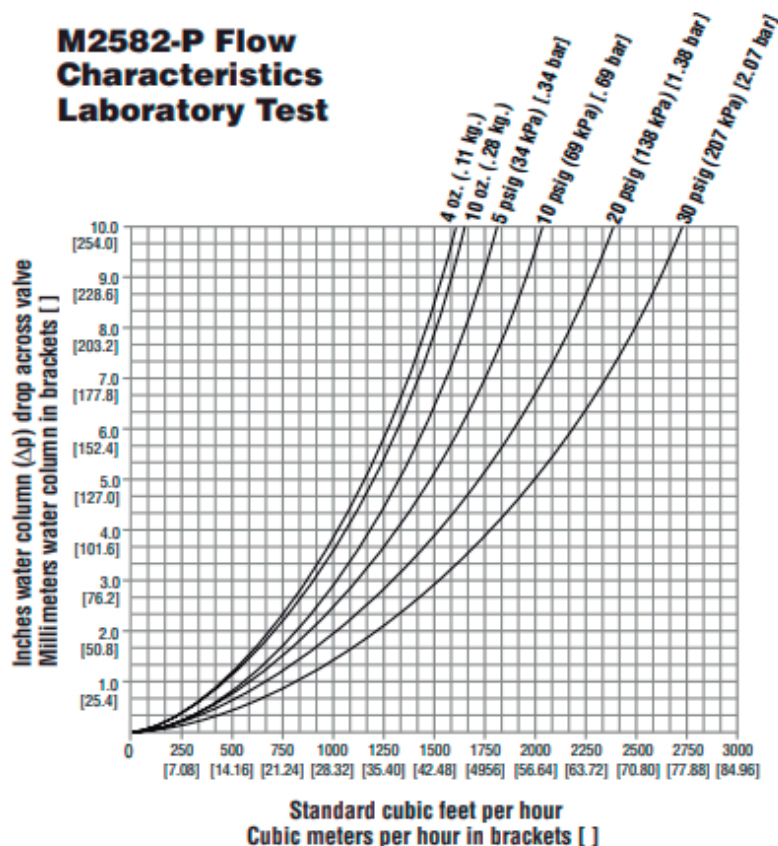
Warranty: A limited warranty on materials and workmanship is given with this FW Murphy product. A copy of the warranty may be viewed or printed by going to <http://www.fwmurphy.com/warranty>

M2582-P Dimensions

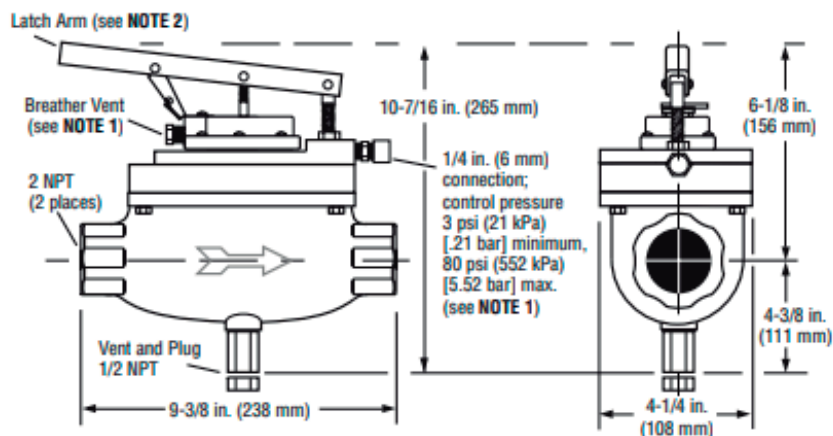


NOTE: Thumb operated opening latch (2.5 psi [17 kPa] [.17 bar] required to release cocking latch)

M2582-P Flow Characteristics Laboratory Test



M5180-P Dimensions



NOTE 1: Control pressure connection fitting and breather vent fitting can be swapped to convert to vacuum control.

NOTE 2: Thumb operated opening latch (2.5 psi [17 kPa] [.17 bar] required to release cocking latch).

Shipping Weights

M2582-P: 5 lbs 10 oz (2.55 kg).

M5180-P: 14 lbs 9 oz (6.61 kg).

With steel body option "2": 25 lbs (11.34 kg).

Shipping Dimensions

M2582-P: 8-1/4 x 8-1/4 x 7-1/2 in.
(210 x 210 x 191 mm).

M5180-P: 12-1/4 x 12-1/4 x 9-3/4 in.
(311 x 311 x 248 mm).

Service Parts

Specify part number when ordering.	M2582P	M5180P
Handle and Latch Kit	55000148	55000154
Stem and Seat Kit	55000147	55000135
Top Works Complete Valve Less Body & Vent	55000150	55000155
Vent Bushing Assembly	55000143	55000132
Diaphragm Assembly	55000184	55000153
Pilot Diaphragm	00007908	55050420

Diesel - Fuel Shutoff Valves



SV - Series

- Solenoid Operated Fuel Shutoff Valve
- Diesel Engines
- Diesel Driven Pumps and Compressors
- High Pressure Models
- Select from 12 or 24 VCD Models

Description

The SV-series valve is a normally closed valve that opens when current is supplied from the battery through a magnetic switch. Temperature, level, or pressure SWITCHGAGE® instruments installed on the engine and pump or compressor, trip the magnetic switch, breaking the circuit from the battery which closes the valve and stops the engine.

The SV-12 valve operates on 12VDC, has a 1/4 NPT inlet and outlet, and a full 3/16 in. (5 mm) orifice. 24 VDC (SV-24) is optional. The SV valves open against 30 psi. (207 kPa) [2.07 bar] inlet pressure.

Greater Flow Rate Valve

Special series SV valve is available with a 1/4 in. (6 mm) orifice which opens against maximum pressure of 15 psi (103 kPa) [103 bar]. This valve is recommended where greater flow is required, and only static head or low transfer pump pressures are encountered.

High Pressure Valves

SV-HP series valves open against diesel fuel transfer pump pressure up to 60 psi (414 kPa) [4.14 bar]. Models are available for 12 or 24 volt DC systems. The orifice is 1/4 in. (6 mm), using the same inlet/outlet and options as standard SV.

Specifications

Electrical Rating:

SV-12: 12VDC, 10 watts
SV-24: 24VDC, 10 watts

Orifice: 3/16 in. (5mm) diameter (optional 1/4 in. [6mm] diameter). See chart above, right.

Body Connections: 1/4 NPT inlet/outlet

Maximum Opening Pressure:

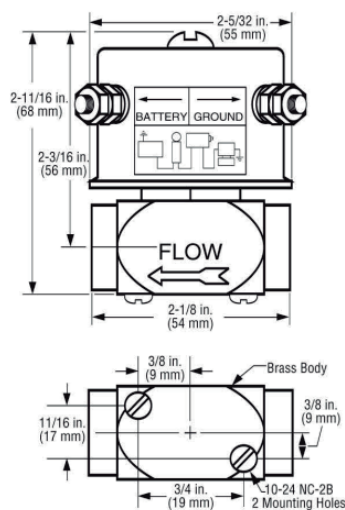
3/16 in. (5mm) orifice: 30 psi (207 kPa)[2.07 bar]
1/4 in. (6mm) orifice: 15 psi (103 kPa)[103 bar]

SV-HP (High Pressure model)

Orifice: 1/4 in. (6mm) diameter. See chart below.
Maximum Opening Pressure:
60 psi (414 kPa)[4.14 bar]

	3/16 Orifice					1/4 Orifice					
Differential Pressure	1	2	5	10	20	30	1	2	5	10	15
Gallons per Minute	.48	.68	1.1	1.5	2.2	2.6	.72	1.05	1.65	2.35	2.70
Liters per Minute	2.01	2.85	4.62	6.3	9.24	10.92	3.02	4.41	6.93	9.87	11.34

Dimensions

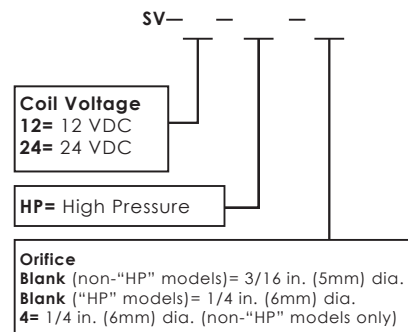


Shipping Weight: 1 lb. 6 oz. (0.68 kg)
Shipping Dimension: 3 x 2-3/4 Sx 2-3/4 in.
(76 x 70 x 70 mm)

How to Order

See the diagram below, example: **SV - 12 - HP**

CAUTION: NEVER use the SV valves with distributor type injection pumps. For use with DIESEL ONLY.



SV Repair Parts

The service parts callouts diagrams is shown on page 2.

Callout	Part Description	Part Number
A	Coil Replacement Kit	55-01-0141
	12 volt kit	55-01-0145
	24 volt kit	

WARRANTY: A limited warranty on materials and workmanship is given with this FW Murphy product.
A copy of the warranty may be viewed or printed by going by going to www.fwmurphy.com/support/warranty.htm

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Things You Should Know About SV-Series Valves

The SV-Series fuel shutoff valve is intended for use with diesel engines having externally accessible fuel injection pumps. The volume of fuel required for the engine to operate must be able to pass through the 3/16 in. (5 mm) or 1/4 in. (6 mm) orifice of the valve. You must be able to attach the fuel valve directly onto or in close proximity to the fuel injection pump in order to close off fuel flow to the pump.

The SV-Series is **NOT** intended for use with engines having "unit" injections or distributor type injection pumps. Use only with diesel.

Installation and Service Suggestions

- 1.- Make sure the valve is the same voltage as the battery. Under continuous duty, the coil will normally be hot, however, incorrect voltage can cause smoking and burned coils.
2. The valve will not operate if the flow arrow on the side of the valve does not indicate the correct direction of the flow.
3. Do not apply pipe dope to female valve threads. Drop inside the valve will foul the seat and prevent proper seal.
4. Install the valve as close as possible to the injection pump.

Troubleshooting the SV-Series Valves

Check Control Circuit: To determine if the electrical system is energizing the solenoid, listen for metallic click signifying the solenoid is operating. Absence of the click indicates loss of power supply. Check for blown or loose fuses, for an open circuit or a grounded coil, for broken lead wires or open splice connections.

Coil Burnout: Check for open-circuit coil. Replace coil if necessary.

High or Low Voltage: Check voltage across the coil with a voltmeter. Voltage must be in 85% to 110% of nameplate rating.

Incorrect Pressure: Check fuel line pressure. Pressure on the valve must be within the specific range of the SV in use.

Fuel Leak Through Valve: Disassemble the valve and clean parts.

Slow Shutdown: Due to the internal fuel capacity of some injection pumps, engine shutdown will not occur until that fuel is used up.

Note: If engine continues to run after the valve closes, install a check valve such as CKV2336 in return line.

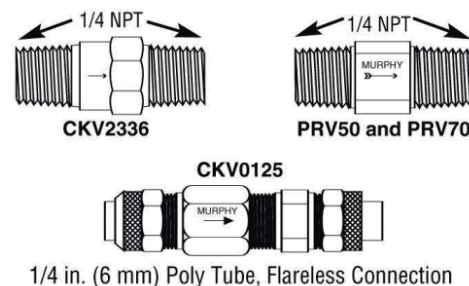
Auxiliary Fuel Valves

Fuel Return Line Check Valve

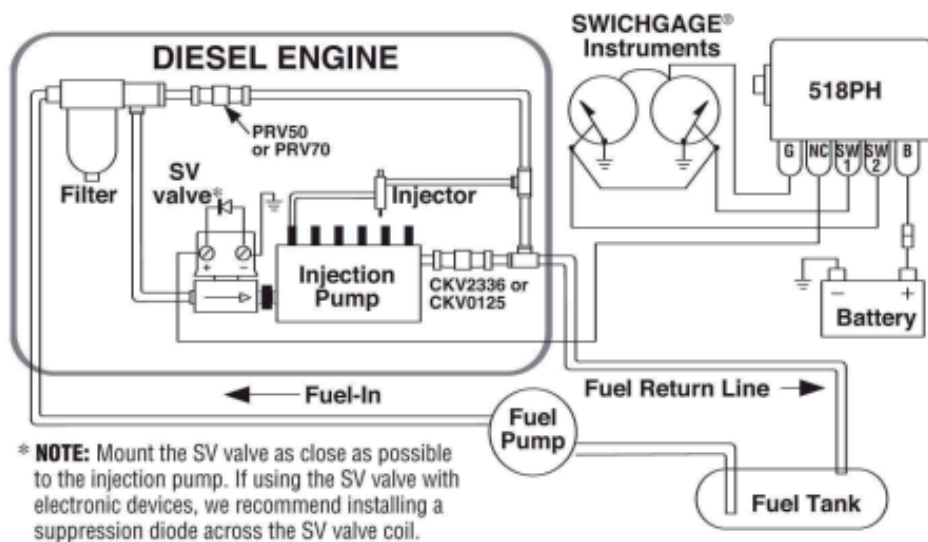
The CKV series is an in-line, one-way valve for the prevention of fuel siphoning from the diesel return line by an injection pump. In engine shutdown systems using a Murphy SV valve, the CKV is necessary to ensure a rapid shut down of the engine by fuel starvation of the injection system. For details see bulletin CKV-7867B.

Fuel Line Pressure Relief Valve

The PRV50 is an in-line, one-way valve for the prevention of overpressure damage to fuel filters and their housings. This pressure relief valve operates in conjunction with a Murphy SV series shutdown valve; after the SV closes, a rapid high pressure build-up caused by the fuel pump can occur. The PRV, mounted in a fuel return line after the filter, will open to relieve pressure buildup.



Typical SV Valve Installation



Service Parts Callouts

