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OMEGA®

FSV Series

VALVES

INSTRUCTION SHEET

M4267-1205

AUTOMATIC ELECTRONIC DRAIN VALVE-INSTRUCTION SHEET

Please do not install this Automatic Electronic Drain Valve (ADV) until you have read and understood these instructions.

1) Remove ADV from packaging and inspect for transportation damage. Make sure the ADV specifications match your application requirements.
2) DO NOT install the ADV on equipment that is pressured. Depressurize the system or isolate the system before installing.
3) A ball-valve and strainer should be installed on the system prior to the ADV. This will prevent:
   - clogging of the ADV
   - allowing isolation of the ADV for service work
4) Install ADV with flow going in the direction of the flow arrow on the body of the valve. Teflon tape and or pipe dope may be used on the threads of the ADV, but great care should be taken. Teflon tape and pipe dope. if if enters the ADV's valve body, may damage normal function of the ADV.
5) Install ADV below device to be drained.
6) Set valve on time and valve off time to desired settings.
7) Supply the ADV with the proper electrical supply voltage. Please check the side of the coil for proper voltage.
8) Pressurize the system and check for leaks.
9) Observe all Federal. State and local laws and regulations when installing and operating the ADV.

Tip:

The ADV may be mounted in any position.

Spare Parts:

1) Coil - specify voltage.
2) Diaphragm with diaphragm holder (Brass) part #840002

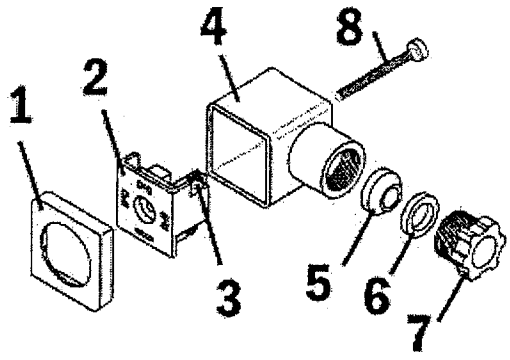
Trouble Shooting:

1) Valve will not close
   Answer: This is usually caused by scale and or dirt getting into the solenoid valve and preventing the diaphragm from seating. Remove solenoid valve from coil. Disassemble and clean out all debris. Reassemble and test.
2) Timer will not activate
   Answer: Check electrical supply. If electrical supply is correct. return ADV for factory inspection.

INSTRUCTIONS FOR *SOLENOID VALVE* INSTALLATIONS

Instructions for Electrical Plug

1) Place your 18 gauge SVT or equal wire into#7, 6, 5 and 4 in that order.
2) Terminate your wire into the cable fixing screws #3 and the other pole screw termination.
3) The ground or earth termination lies in-between #3 and the other termination. Screw (earth symbol ⏚).
4) Reassemble the connector. You are ready to connect to valve.
5) You must observe **all** Federal, State and local regulations when using this equipment.



1 Gasket
2 Terminal block
3 Cable fixing screws
4 Housing
5 Gasket
6 Washer
7 Gland nut
8 Fixing screw

Instructions for Installing

1) Examine valve for transport damage.
2) Compare the technical description of valve on valve tag (on top of the coil) with your application requirements.
3) Keep dirt and debris out of valve and piping.
4) Flow arrows on valve indicate flow direction.
5) **Do not** use valve or coil as a lever when installing.
6) Make all electrical and plumbing connections in accordance with federal, state and local regulations.

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Piston Actuated Valve

Installation and Maintenance Instructions

Safety note
Handling precautions

PTFE

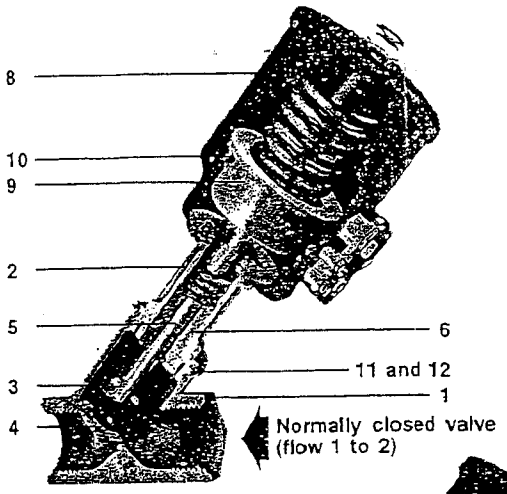
Within its working temperature range PTFE is a completely inert material, but when heated to its sintering temperature it gives rise to a gaseous decomposition products or fumes which can produce unpleasant effects if inhaled. The inhalation of these fumes is easily prevented by applying local exhaust ventilation to atmosphere as near to their source as possible.
Smoking should be prohibited in workshops where PTFE is handled because tobacco contaminated with PTFE will during burning give rise to polymer fumes. It is therefore important to avoid contamination of clothing, especially the pockets, with PTFE and to maintain a reasonable standard or personal cleanliness by washing hands and removing any PTFE particles lodged under the fingernails.

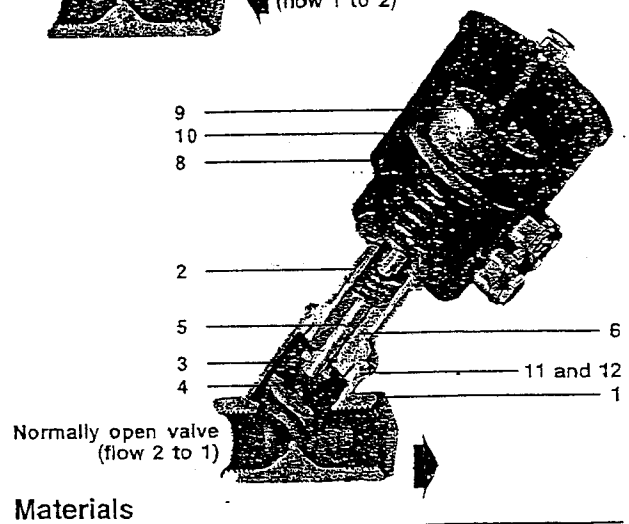
Description

A two port angle seat pneumatic piston actuated on/off valve for use on steam, water, air and inert gas applications.

Available types

Normally closed with flow over seat (ports 1 to 2)
Normally open with flow under seat (ports 2 to 1)





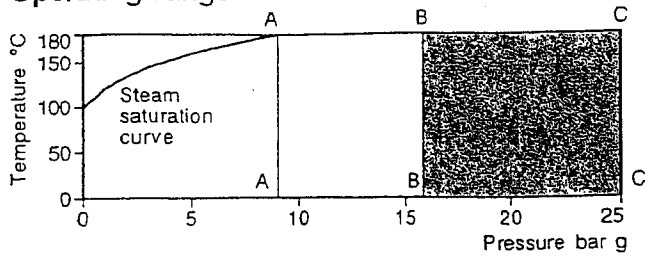
Technical data

Leakage	PTFE soft seat - ANSI Class VI	
Flow characteristic	Fast opening (on/off)	
Flow direction	See available types or refer to product label	
Pilot media	Air, inert gas or water (60°C)	
Actuator size	Pilot connection	Maximum pilot pressure
45 mm diameter	⅛" BSP	10 bar g
63 mm diameter	¼" BSP	10 bar g
90 mm diameter	¼" BSP	8 bar g

Limiting conditions

Body design pressure	(½" to 1")	PN40
	(1¼" to 2")	PN25
Maximum design temperature		180°C
Minimum design temperature		-10°C
Maximum saturated steam pressure		9 bar g
Maximum differential pressure		Refer to product label

Operating range



A - A Maximum operating pressure on saturated steam 9 bar g
B - B Maximum operating pressure on sizes 1¼" to 2" 16 bar g
C - C Maximum operating pressure on sizes ½" to 1" 25 bar g

Materials

No	Part	Material	
1	Body	Stainless steel	AISI 316L
2	Bonnet	Stainless steel	AISI 316L
3	Plug	Stainless steel	AISI 316L
4	Plug seal	PTFE	
5	Valve stem	Steel ELNP (Niploy)	
6	Stem seals	PTFE chevrons	
7 *	Stem 'O' ring	Viton	
8	Actuator housing	Glass filled polyamide	
9	Piston	Glass filled polyamide	
10	Piston lip seal	Viton	
11	Gasket	PTFE	
12	'O' ring	Viton	

* not shown

K_V values

Size	½"	¾"	1"	1¼"	1½"	2"
K_V	4.2	7.8	18.6	27	42	51.6

For conversion $C_V(UK) = K_V \times 0.97$ $C_V(US) = K_V \times 1.17$

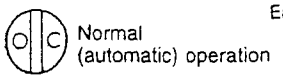
Installation

1. Connecting pipework should be supported to prevent stresses being applied to valve body.
2. The valve can be mounted in any orientation. The actuator can be rotated 360° in the direction indicated on the product label to facilitate easy pilot mounting and connection.
3. Ensure that the connecting pipework is isolated and free from scale, dirt etc. Any loose material entering the valve body may damage the PTFE head seal preventing tight shut-off.
4. Do not exceed the performance rating of the valve.
5. Refer to limiting conditions and product label details for limitations of pilot pressure and operating temperatures.
6. Refer to limiting conditions and valve body markings for limitation of body working pressure and operating temperature.
7. Ensure that the valve is mounted correctly for the flow direction required, as detailed in available types as indicated on the product label.
8. A red indicator will appear in the actuator top cover when the valve is fully open.

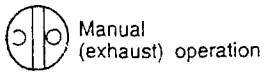
Solenoid valves

Directly mounted solenoid valves type DM should be mounted on the piston actuator as shown. Fitting solenoid valves on normally closed valves use pilot connection marked 'NC'. For normally open valves use pilot connection marked 'NO'. When using water as pilot media, remove the cap from the exhaust connection and connect a drain line.

Auto/manual operation selection

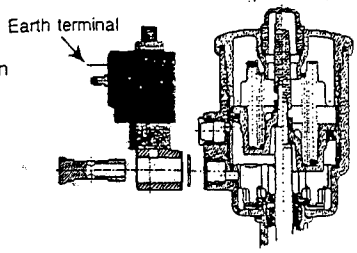


Normal (automatic) operation



Manual (exhaust) operation

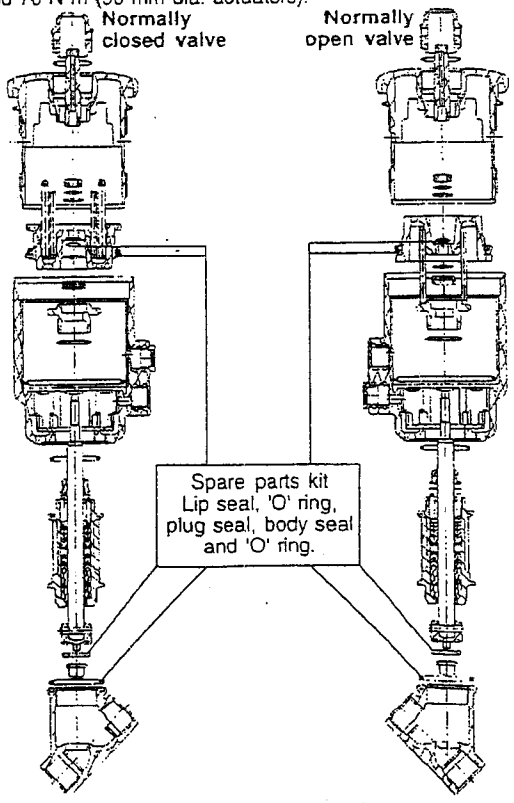
Solenoid valve mounting (normally closed valves)



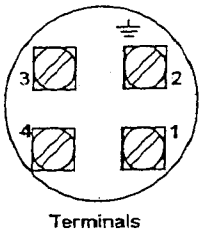
Available spare

A spare seal kit is available comprising valve head seal, stem 'O' ring, piston lip seal, body seal and 'O' ring. To replace these items proceed as follows:

1. Isolate upstream and downstream valves.
2. Vent pilot pressure from the actuator and disconnect pilot from solenoid/pipework.
3. Remove the valve from the pipeline.
4. Remove the valve body and inspect the PTFE head seal. Replace if necessary. Before removing the valve body on normally closed valves apply a pilot pressure to the actuator to eliminate the spring force acting down on the valve head. If a replacement head seal is required, remove the seal retaining cap nut ensuring that the head is held firmly to prevent rotation (two flats are provided on the head). Fit a new PTFE head seal and refit cap nut applying Loctite 620 to the screw thread of the stem. Tighten cap nut to 15 N m. Tighten valve body/bonnet (see table 1).
5. To inspect or replace the stem 'O' ring or piston lip seal firstly remove the valve body as described above.
6. Whilst holding the actuator housing, remove the actuator top cover taking care as the internal spring is under compression.
7. Whilst holding the valve head (two flats are provided on the head) unscrew the travel indicator and stem nut.
8. Remove the piston lip seal and stem 'O' ring and replace if required. Clean any dirt or old grease from the piston/actuator slide area and carefully apply new inert grease compatible with viton seals.
9. Reassemble in reverse order replacing body seal and 'O' ring. Tighten actuator cover to 50 N m (45 and 63 mm dia. actuator) and 70 N m (90 mm dia. actuators).



Wiring connections



Terminals

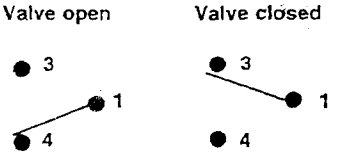


Table 1 Body/Bonnet torque rating (N m)

Valve size	Torque	Valve size	Torque
½"	35	1¼"	55
¾"	45	1½"	60
1"	50	2"	70

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OMEGA ENGINEERING, INC. warrants this unit to be free of defects in materials and workmanship for a period of **13 months** from date of purchase. OMEGA's WARRANTY adds an additional one (1) month grace period to the normal **one (1) year product warranty** to cover handling and shipping time. This ensures that OMEGA's customers receive maximum coverage on each product.

If the unit malfunctions, it must be returned to the factory for evaluation. OMEGA's Customer Service Department will issue an Authorized Return (AR) number immediately upon phone or written request. Upon examination by OMEGA, if the unit is found to be defective, it will be repaired or replaced at no charge. OMEGA's WARRANTY does not apply to defects resulting from any action of the purchaser, including but not limited to mishandling, improper interfacing, operation outside of design limits, improper repair, or unauthorized modification. This WARRANTY is VOID if the unit shows evidence of having been tampered with or shows evidence of having been damaged as a result of excessive corrosion; or current, heat, moisture or vibration; improper specification; misapplication; misuse or other operating conditions outside of OMEGA's control. Components in which wear is not warranted, include but are not limited to contact points, fuses, and triacs.

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Direct all warranty and repair requests/inquiries to the OMEGA Customer Service Department. BEFORE RETURNING ANY PRODUCT(S) TO OMEGA, PURCHASER MUST OBTAIN AN AUTHORIZED RETURN (AR) NUMBER FROM OMEGA'S CUSTOMER SERVICE DEPARTMENT (IN ORDER TO AVOID PROCESSING DELAYS). The assigned AR number should then be marked on the outside of the return package and on any correspondence.

The purchaser is responsible for shipping charges, freight, insurance and proper packaging to prevent breakage in transit.

FOR **WARRANTY** RETURNS, please have the following information available BEFORE contacting OMEGA:
1. Purchase Order number under which the product was PURCHASED,
2. Model and serial number of the product under warranty, and
3. Repair instructions and/or specific problems relative to the product.

FOR **NON-WARRANTY** REPAIRS, consult OMEGA for current repair charges. Have the following information available BEFORE contacting OMEGA:
1. Purchase Order number to cover the COST of the repair,
2. Model and serial number of the product, and
3. Repair instructions and/or specific problems relative to the product.

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