U.S. SOLID® High Quality Valves	INSTALLATION AND MAINTENANCE SPECIAL SOLENOID VALVES	USS-HSV MODELS Manual No.7488

Thank you for purchasing your U.S. Solid USS-HSV Solenoid Valve. We are happy to have you as a customer! We want you to get the most out of your new equipment, so we have included a few pointers to get you started.

INTRODUCTION

HIGH PRESSURE SOLENOID VALVE

For demanding applications of high pressure, upgrade to our heavy-duty solenoid valve—engineered to withstand 60/100 bar pressure or super high 160 bar and 356°F (180°C) temperatures where basic models fail. Featuring a solid brass body and PTFE seals, it delivers robust performance with liquids, gases, oils, or compressed air — suitable for HVAC, industrial, commercial, or household applications, as well as high-pressure systems, safety valves, and compressor valves. The integrated junction box protects wiring in harsh environments.

VACUUM SOLENOID VALVE

A vacuum solenoid valve is a specialized valve designed for installation on mechanical vacuum pumps. The valve is connected to the same power supply as the pump, allowing the pump's operation (start and stop) to directly control the valve's opening and closing. When the pump stops operating or the power supply is suddenly interrupted, the valve automatically seals off the vacuum system and simultaneously introduces atmospheric air into the pump chamber via the pump's inlet. This action effectively prevents pump oil from flowing back and contaminating the vacuum system. Vacuum solenoid valves are suitable for use with air and non-corrosive gases as their working medium.Vacuum Degree: The term "vacuum" used here refers to relative vacuum. This specific vacuum solenoid valve is designed for a vacuum range of 0.0-1.0 MPa (Megapascals).

HIGH TEMPERATURE SOLENOID VALVE

Our high-temperature series solenoid valves differ from standard models by utilizing special materials and designs to provide superior temperature resistance, capable of handling media including steam, hot water, and oil.
The pilot-operated version features durable PTFE seals (-22 to 392°F/-30 to 200°C) with a robust piston structure for extended service life in harsh conditions. The direct-acting version incorporates high-performance PEEK seals (-76 to 572°F/-60 to 300°C) with zero-pressure start capability and unique thermal isolation between coil and valve body.
While the more complex pilot-operated design excels in durability, the direct-acting version specializes in ultra-high temperature applications with small flow rates. Both variants significantly outperform conventional solenoid valves in temperature resistance.

EXPLOSION-PROOF SOLENOID VALVE

This explosion-proof coil is the core component of the explosion-proof solenoid valve, designed specifically for explosive hazardous environments. Adopts potting-type (mb) explosion-proof technology, encapsulating internal components that may generate sparks or high temperatures with special sealing materials to block contact with external explosive mixtures, reducing ignition risks structurally.It is certified with dual explosion-proof ratings, enabling it to operate safely in both explosive gas atmospheres and explosive dust atmospheres, ensuring stable performance in high-risk scenarios.Before installation, confirm that the actual environment’s gas/dust group and hazardous area match the certification to avoid over-range use.

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FLOW DIRECTION

Make note of the arrow on your valve. Most U.S. Solid valves are unidirectional. This means they are intended for flow in one direction only, in the direction of the arrow. See Figure 1 for location of arrow. If connected in opposite direction, the valve will not actuate properly (will not close for Normally Closed valves). Additionally, be sure the medium passing through is filtered. If not, particles will cling to the gasket over time, which can cause it to not seal properly.

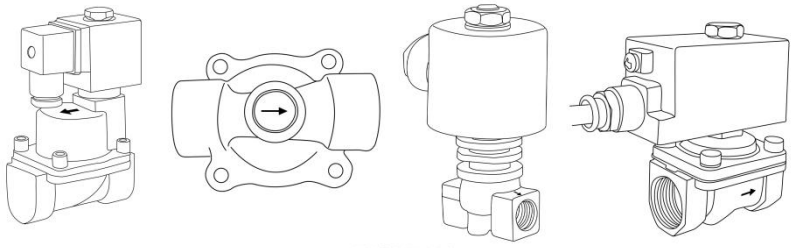
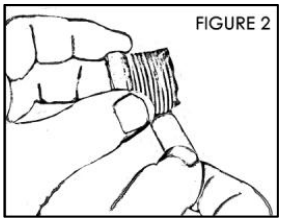


FIGURE1



THREADING

U.S. Solid Valves follow National Standards for pipe thread. In the U.S.A. we use NPT, while in England we use BSPT. We recommend use of tefflon tape to ensure seal of the NPT threading, as shown in Figure 2.

SPECIFICATIONS

High Pressure Solenoid Valve

Model (USS-HSV)	00001	00002	00003	00004	00005	00006	00007	00008	00009	00010	00011	00012
Size (inches)	1/4	1/2	3/4	1	1/4	1/2	3/4	1	1/4	1/2	3/4	1
Material	Brass				Stainless Steel							
Pressure(bar)	1-50				20-60	20-100			20-60	20-100		
Temperature(℉)	23-302				-22-356	-76-248			-22-356	-76-248		
Voltage	DC 12V								DC 24V			
Output Power	16 W				8.5 W							
Orifice (mm)	12	12	25	25	9	15	20	25	9	15	20	25
Flow Rate (Cv)	2.33	2.33	5.84	11.67	1.7	4.5	9.3	12	1.7	4.5	9.3	12
Model (USS-HSV)	00013	00014	00015	00016	00021	00022	00023	00024	00025	00026	00027	00028
Size (inches)	1/4	1/2	3/4	1	1/4	1/2	3/4	1	1/4	1/2	3/4	1
Material	Stainless Steel											
Pressure(bar)	20-100				20-160				1-50			
Temperature(℉)	23-302				-22-356	-76-248			-22-356	-76-248		
Voltage	AC 110V (220V)				DC 12V							
Output Power	8.5 VA				8 W		21 W		8 W		21 W	
Orifice (mm)	9	15	20	25	9	15	20	25	9	9	20	25
Flow Rate (Cv)	1.7	4.5	9.3	12	1.7	4.5	9.3	12	1.7	1.7	9.3	12

Vacuum Solenoid Valve

Model (USS-HSV)	02001	02002	02003	02004	02005	02006	02007	02008	02009	02010	02011	02012
Size (inches)	1/2	3/4	1	1/2	3/4	1	1/2	3/4	1	1/2	3/4	1
Material	Brass			Stainless Steel			Brass			Stainless Steel		
Pressure(Mpa)	0.0 -1.0											
Temperature(℉)	14-176											
Voltage	DC 12V						AC 110V (220V)					
Enclosure Rating	IP65											
Output Power	24W						30VA					
Orifice (mm)	15	20	25	15	20	25	15	20	25	15	20	25
Flow Rate (Cv)	4.5	9.3	12	4.5	9.3	12	4.5	9.3	12	4.5	9.3	12

High Temperature Solenoid Valve

Model(USS-HSV)	01002	01003	01004	01015	01016	01024	01025	01026	01037	01038	01009	01010
Body Material	Stainless Steel										Brass	
Size (inches)	1/2	3/4	1	1/8	1/4	1/2	3/4	1	1/8	1/4	1/2	3/4
Orifice (mm)	15	20	25	1.5	3	15	20	25	1.5	3	15	20
Flow Rate (Cv)	4.5	9.3	12	1	2.7	4.5	9.3	12	1	2.7	4.5	9.3
Operation Type	Pilot-operated			Direct-acting		Pilot-operated			Direct-acting		Pilot-operated	
Enclosure Rating	IP65			-		IP65			-		IP65	
Seal Material	PTFE			PEEK		PTFE			PEEK		PTFE	
Temperature(℉)	-22-392			-76-572		-22-392			-76-572		-22-392	
Pressure (bar)	0.5-16			0-30	0-13	0.5-16			0-30	0-13	0.5-16	
Output Power	16W			13.3W		18VA			30VA		16W	
Voltage	DC 12V					AC 110V (220V)					DC 12V	

Model(USS-HSV)	01011	01019	01020	01030	01031	01032	01041	01042
Body Material	Brass							
Size (inches)	1	1/8	1/4	1/2	3/4	1	1/8	1/4
Orifice (mm)	25	1.5	3	15	20	25	1.5	3
Flow Rate (Cv)	12	1	2.7	4.5	9.3	12	1	2.7
Operation Type	Pilot-operated	Direct-acting		Pilot-operated			Direct-acting	
Enclosure Rating	IP65	-		IP65			-	
Seal Material	PTFE	PEEK		PTFE			PEEK	
Temperature(℉)	-22-392	-76-572		-22-392			-76-572	
Pressure (bar)	0.5-16	0-30	0-13	0.5-16			0-30	0-13
Output Power	16W	13.3W		18VA			30VA	
Voltage	DC 12V			AC 110V (220V)				

Explosion-proof Solenoid Valve

Model(USS-HSV)	03001	03002	03003	03004	03005	03006	03007	03008	03009	03010	03011	03012
Size (inches)	1/2	3/4	1	1/2	3/4	1	1/2	3/4	1	1/2	3/4	1
Orifice(mm)	15	20	25	15	20	25	15	20	25	15	20	25
Flow Rate (Cv)	4.5	9.3	12	4.5	9.3	12	4.5	9.3	12	4.5	9.3	12
Body Material	Brass			Stainless Steel			Brass			Stainless Steel		
Voltage	DC 24V						AC 110V					
Output Power	13 W						24 VA					
Pressure (Mpa)	0.8						1.0					
Temperature(℉)	14-302											
Application	Diesel fuel,kerosene, alcohol etc.											
Seal Material	VITON											
Coil Model	1420											
Coil Aperture Diameter(mm)	14.5											
Coil Temperature (℉)	-4-113											
Coil Temperature Rise(℉)	≤175											

Explosion-proof Rating	Applicable Conditions
Ex mb IIC T4 Gb (Explosive Gas Atmosphere)	- Gas Group: Group II (flammable gases such as hydrogen, acetylene, and ethylene) - Hazardous Areas: Zone 1, Zone 2 - Ambient Temperature: -20℃~+60℃ - Maximum Surface Temperature: ≤135℃ (T4 class)
Ex mb IIIC T130℃ Db (Explosive Dust Atmosphere)	- Dust Group: Group IIIC (conductive dust or flammable non-conductive dust) - Hazardous Areas: Zone 21, Zone 22 - Ambient Temperature: -20℃~+60℃ - Maximum Surface Temperature: ≤130℃ (T130℃ class)

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WARNING- Please be careful of the following to help ensure your safety and optimal performance over time.

INSTALLATION

Install the valve horizontally in the direction of the port. The valve is suitable for indoor and outdoor use,

but it is necessary to avoid being exposed to rain when used outdoors to prevent short circuit of the coil.

POLARITY

All U.S. Solid USS-HSV solenoid valves are 2 wire set-up, the valves will actuate regardless of which terminal each wire is connected to (+ or -).

OVERHEATING

These valves are not intended to be energized for more than 6 hours continuously. The coils are in a

contained area, and can burnout if energized for too long.

PRESSURE

All solenoid valves need some pressure to actuate. This is especially true of pilot or indirectly operated valves.

CONTACT

We realize that other questions or concerns may arise during the installation and operation. Please contact us or visit our website for help.

Email: service@ussolid.com

Website: www.ussolid.com

CE

PARTICLE FREE

Make sure whatever medium is flowing through the valve is free of particles.These particles can attach themselves to the gasket and will lead to poor performance or leakage over time.

WATER RESISTANCE

Most U.S. Solid solenoid valves are splash resistant; however, some models feature an IP65 waterproof rating. For applications requiring waterproof performance, refer to the specification sheet for compatible models. Caution: Non-waterproof valves must not be exposed directly to rain or submerged in liquid.

INSTRUCTIONS on ENVIRONMENTAL PROTECTION

At the end of its life cycle, please do not dispose of this equipment by throwing it in the usual trash can.

Instead, hand it over at a collection point for the recycling of electrical and electronic appliances. It does not contain dangerous nor toxic products for humans, but inadequate disposal could still damage the environment. The materials are recyclable as mentioned. By recycling material or through other forms or repurposing old appliances, you are making an important contribution to the protection of our environment. Please inquire with your local community authorities for the proper disposal location.

WARRANTY: All U.S. Solid USS-HSV solenoid valves come with a one year warranty.