



GENERAL KNOWLEDGE

General Instruction for Solenoid

For your own safety, please read the instruction below before you inquiring / using our products.

Application

- Fluid in the pipeline MUST BE same as instruction shows on a solenoid.
- The fluid's temperature needs to be lower than valve's standard temperature.
- Our products normally allowed fluid's viscosity under 20 CST.
- If the highest working pressure difference lower than 0.05 MPa, please select Direct-Acting type. If the difference higher than 0.05 Mpa, please select Pilot-Operated type (Diaphragm type).
- Originally our products are working ONE DIRECTION, please install by fluid flow direction to avoid the reverse pressure. Could install stop-check valve if the counter current shows.
- Please install filter before installing Solenoid valve if the fluid isn't clean, to reduce any wastes and impurities from the pipeline.
- Please check your available flow aperture and nozzle diameter.
- Normally our products only have ON / OFF two switches, if its available, please install side-manual switch for your maintenance convenience.
- When there's water hammer phenomenon, please aware of valve switching time adjustment and choose the suitable product.
- Be aware of the effect caused by environmental temperature.

- Power voltage can allowed about $\pm 10\%$ fluctuation, volt-ampere is higher while using AC starts.
- The solenoid valve can be divided into two types. N.C. (Normal Closed) and N.O. (Normal Open), please select your suitable type.

Security

- Solenoids are not suitable for power on for a long time because of its design principles. If it powered on too long, metal coil will overheat cause shortened life and malfunction.
- Regular-type solenoid is not waterproof, please select waterproof type if the environment not allowed.
- Solenoid's highest standard pressure must exceed the highest pressure in the pipeline or it will cause shortened life and other malfunction.
- Please select full-stainless steel type if its corrosive fluid. High acid and alkaline fluids are suitable for PTFE valve body style.
- Dangerous environment that may cause explosion needs to select corresponding explosion-proof products.

Install Caution

- Clean the pipeline with fluids, make sure it already removed any dusts, impurities, rust and stop tapes.
- Please keep 1.5~2 turns screw thread while wrapping stop tapes.
- Sealant might be easily flow into the product, and may cause malfunction if using too much sealant while installing.

- It's better install with horizontal direction and coil face up.
- Make sure you have enough space for maintenance.
- Do not press coil parts while installing.
- Check the pipeline direction, leak or not, wire connection after the installment.

(Aluminum alloy)

Caliber	Tightening torque suggest
Rc 1/8	7~9 N•m
Rc 1/4	12~14 N•m
Rc 3/8	22~24 N•m
Rc 1/2	28~30 N•m
Rc 3/4	31~33 N•m
Rc 1	36~38 N•m
Rc 1-1/4	40~42 N•m
Rc 1-1/2	48~50 N•m
Rc 2	57~56 N•m

(Brass, Stainless steel)

Caliber	Tightening torque suggest
Rc 1/8	18~20 N•m
Rc 1/4	23~25 N•m
Rc 3/8	31~33 N•m
Rc 1/2	41~43 N•m
Rc 3/4	62~65 N•m
Rc 1	83~86 N•m
Rc 1-1/4	97~100 N•m
Rc 1-1/2	104~108 N•m
Rc 2	132~136 N•m

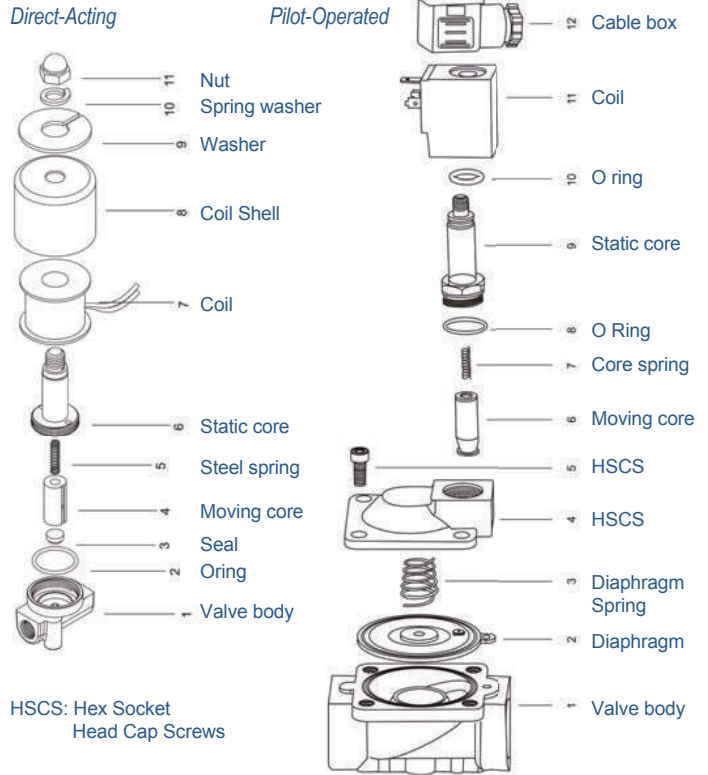


GENERAL KNOWLEDGE

Precautions in maintenance

- Solenoid coil and its drive element will heat after power on, please DO NOT touch or it will cause scald.
- If you need to decompose our product to inspect, please remove the power, and release the rest of the pressure in the pipeline. Make sure you are safe then continue the progress.
- To avoid rubber parts in the valve expansion or deformation, Please use neutral cleaner when you are cleaning the parts of valve.
- If you are not going to use our product of a long time after you used, please completely remove the rest of the fluid in the valve. If there's any fluid residue, it will get rusty in the next time you use and cause poor product performance.
- To keep its best situation, please arrange regular inspect and change parts by its usage frequency.

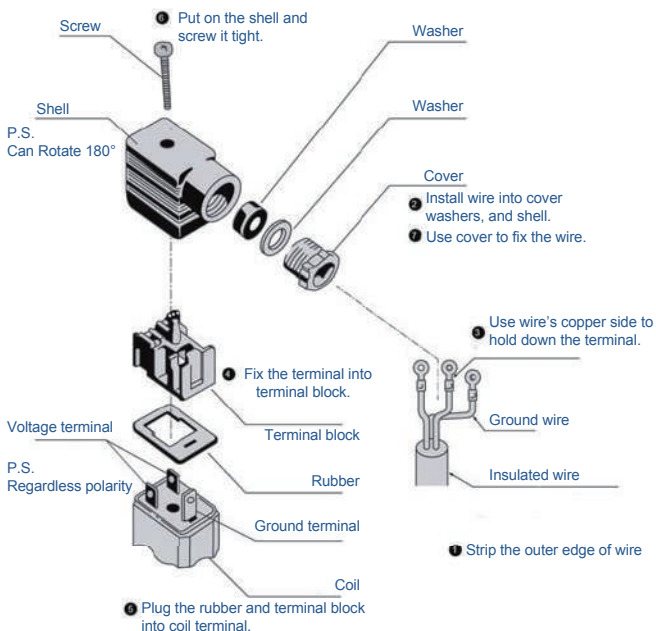
Exploded view



Cable box connection

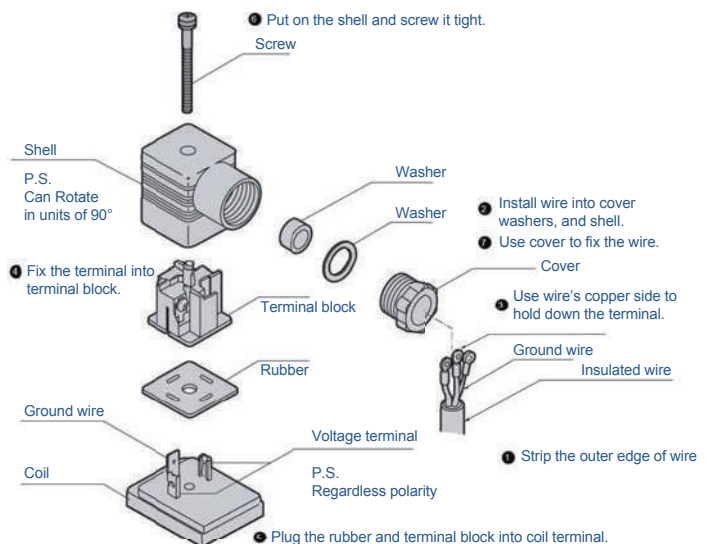
DIN Cable box (Pg9)

1. Please use insulated wire, Outer diameter $\varnothing 6 \sim \varnothing 10$ mm, section area $0.5 \sim 1.5 \text{ mm}^2$.
2. Tightening torque suggest $0.5\text{N} \cdot \text{m}$
3. If you need to change wire direction, take out cable box from shell, rotate 180 degrees then press into shell again.
4. Follow instruction from step 1 to step 7.



DIN Cable box (Pg11)

1. Please use insulated wire, Outer diameter $\varnothing 6 \sim \varnothing 10$ mm, section area $0.5 \sim 1.5 \text{ mm}^2$.
2. Tightening torque suggest $0.5\text{N} \cdot \text{m}$
3. If you need to change wire direction, take out cable box from shell, rotate 90 degrees then press into shell again.
4. Follow instruction from step 1 to step 7.





TXMC



PRODUCT/ SOLENOID VALVE

TB · TS Series 3 Port Solenoid Valve



T Column



Cylinder



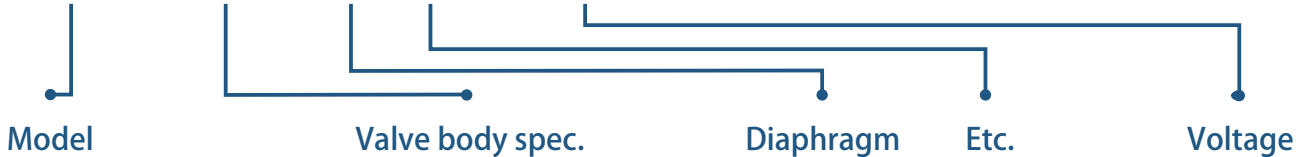
Power save
Waterproof
Coil

Specifications Characteristics

Model	TB, TS Series
Structure	Direct-Action, 3 port 2 way. (4 kinds of flow directions.)
Fluid	Air, Inert gas, Water, Light oil
Temperature	-5°C - 70°C - 110°C (VITON Diaphragm can reach 110°C)
Environment	Temp. -10 - 55°C ; Humidity. 10 - 90% RH
Caliber	Thread 1/8" - 1/4" G (Standard) / NPT (Select)
Pressure	0 - 13 kgf/cm ²
Material	Brass, Stainless steel SUS316
Diaphragm	NBR · VITON · EPDM (Control different kinds of fluid)
Voltage	Reference below, Allowed voltage flow range ± 10%
Coil Level	1. DIN waterproof Coil (Protect level. IP65) 2. Power-Saving DIN waterproof Coil (Protect level. IP65) (Saving Energy 70%, Less temp rise, Long life)
Installment	According to the flow direction. Horizontal installation

How to select model

TBL 2.5B V - AC220V



Model			Valve body spec.				Diaphragm		Etc.		Voltage	
Model	Flow Direction	Code	Diameter	Flow Path	Brass	SUS316	Diaphragm	Code	Spec.	Code	Voltage	
T Column (With mounting hole)	I	TBI	1/8"	1.5	1.5A	S1.5A	NBR	V	DIN Waterproof	M	AC110V	
	J	TBJ		2.0	2A	S2A			Power Save Waterproof		AC220V	
	K	TBK		2.5	2.5A	S2.5A			Pilot lamp		L	AC24V
	L	TBL		3	3A	S3A			NPT Thread		N	DC24V
Cylinder (W/O mounting hole)	I	TSI		1/4"	4	4A	S4A	EPDM	E			
	J	TSJ			1.5	1.5B	S1.5B					
	K	TSK			2.0	2B	S2B					
	L	TSL			2.5	2.5B	S2.5B					
				3	3B	S3B						
				4	4B	S4B						

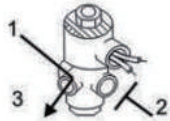


PRODUCT/ SOLENOID VALVE

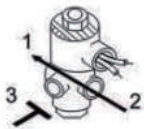
I-Type flow direction specifications

Pressure input : 2

Power OFF



Power ON



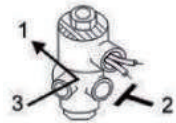
According to flow direction.

Spec. Code	Diameter	Flow Path	CV	Pressure Range (kgf/ cm ²)							Power	
				Min. Pressure	Maximum Pressure						AC 220V VA	DC 24V W
					Air		Fluid		Light Oil <20 CST			
					AC	DC	AC	DC	AC	DC		
<input type="checkbox"/> 1.5A	1/8"	1.5	0.07	0	13	11	13	11	12	10	22	13
<input type="checkbox"/> 2A		2.0	0.14	0	11	9	11	9	10	8	22	13
<input type="checkbox"/> 2.5A		2.5	0.21	0	9	7	9	7	8	6	22	13
<input type="checkbox"/> 3A		3.0	0.25	0	6	4	6	4	5	3	22	13
<input type="checkbox"/> 4A		4.0	0.35	0	3	2	3	2	2.5	2	22	13
<input type="checkbox"/> 1.5B	1/4"	1.5	0.07	0	13	11	13	11	12	10	22	13
<input type="checkbox"/> 2B		2.0	0.14	0	11	9	11	9	10	8	22	13
<input type="checkbox"/> 2.5B		2.5	0.21	0	9	7	9	7	8	6	22	13
<input type="checkbox"/> 3B		3.0	0.25	0	6	4	6	4	5	3	22	13
<input type="checkbox"/> 4B		4.0	0.35	0	3	2	3	2	2.5	2	22	13

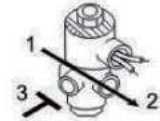
J-Type flow direction specifications

Pressure input : 3

Power OFF



Power ON



According to flow direction.

Spec. Code	Diameter	Flow Path	CV	Pressure Range (kgf/ cm ²)							Power	
				Min. Pressure	Maximum Pressure						AC 220V VA	DC 24V W
					Air		Fluid		Light Oil <20 CST			
					AC	DC	AC	DC	AC	DC		
<input type="checkbox"/> 1.5A	1/8"	1.5	0.07	0	13	11	13	11	12	10	22	13
<input type="checkbox"/> 2A		2.0	0.14	0	11	9	11	9	10	8	22	13
<input type="checkbox"/> 2.5A		2.5	0.21	0	9	7	9	7	8	6	22	13
<input type="checkbox"/> 3A		3.0	0.25	0	6	4	6	4	5	3	22	13
<input type="checkbox"/> 4A		4.0	0.35	0	3	2	3	2	2.5	2	22	13
<input type="checkbox"/> 1.5B	1/4"	1.5	0.07	0	13	11	13	11	12	10	22	13
<input type="checkbox"/> 2B		2.0	0.14	0	11	9	11	9	10	8	22	13
<input type="checkbox"/> 2.5B		2.5	0.21	0	9	7	9	7	8	6	22	13
<input type="checkbox"/> 3B		3.0	0.25	0	6	4	6	4	5	3	22	13
<input type="checkbox"/> 4B		4.0	0.35	0	3	2	3	2	2.5	2	22	13

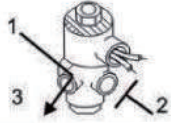


PRODUCT/ SOLENOID VALVE

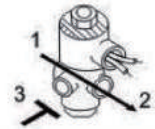
K-Type flow direction specifications

Pressure input : 1

Power OFF



Power ON



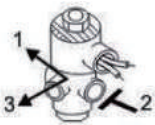
According to flow direction.

Spec. Code	Diameter	Flow Path	CV	Pressure Range (kgf/ cm ²)							Power	
				Min. Pressure	Maximum Pressure						AC 220V VA	DC 24V W
					Air		Fluid		Light Oil <20 CST			
					AC	DC	AC	DC	AC	DC		
□ 1.5A	1/8"	1.5	0.07	0	13	11	13	11	12	10	22	13
□ 2A		2.0	0.14	0	11	9	11	9	10	8	22	13
□ 2.5A		2.5	0.21	0	9	7	9	7	8	6	22	13
□ 3A		3.0	0.25	0	6	4	6	4	5	3	22	13
□ 4A	1/4"	4.0	0.35	0	3	2	3	2	2.5	2	22	13
□ 1.5B		1.5	0.07	0	13	11	13	11	12	10	22	13
□ 2B		2.0	0.14	0	11	9	11	9	10	8	22	13
□ 2.5B		2.5	0.21	0	9	7	9	7	8	6	22	13
□ 3B	1/4"	3.0	0.25	0	6	4	6	4	5	3	22	13
□ 4B		4.0	0.35	0	3	2	3	2	2.5	2	22	13

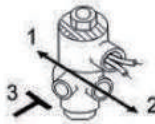
L-Type flow direction specifications

Pressure input : Anywhere

Power OFF



Power ON



According to flow direction.

Spec. Code	Diameter	Flow Path	CV	Pressure Range (kgf/ cm ²)							Power	
				Min. Pressure	Maximum Pressure						AC 220V VA	DC 24V W
					Air		Fluid		Light Oil <20 CST			
					AC	DC	AC	DC	AC	DC		
□ 1.5A	1/8"	1.5	0.07	0	7	5	7	5	6	4	22	13
□ 2A		2.0	0.14	0	5	4	5	4	4	3	22	13
□ 2.5A		2.5	0.21	0	4	3	4	3	3	2	22	13
□ 3A		3.0	0.25	0	2.5	2	2.5	2	2.5	2	22	13
□ 4A	1/4"	4.0	0.35	0	1.7	0.8	1.7	0.8	1.5	0.6	22	13
□ 1.5B		1.5	0.07	0	7	5	7	5	6	4	22	13
□ 2B		2.0	0.14	0	5	4	5	4	4	3	22	13
□ 2.5B		2.5	0.21	0	4	3	4	3	3	2	22	13
□ 3B	1/4"	3.0	0.25	0	2.5	2	2.5	2	2.5	2	22	13
□ 4B		4.0	0.35	0	1.7	0.8	1.7	0.8	1.5	0.6	22	13



TXMC



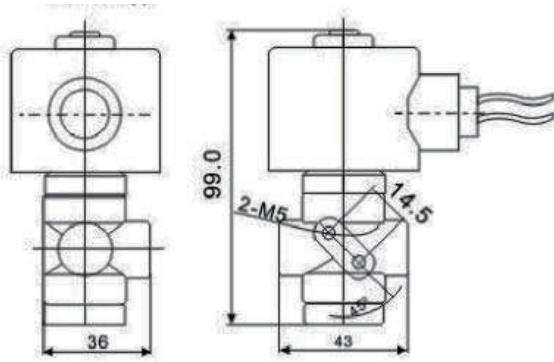
PRODUCT/ SOLENOID VALVE

Power-Save coil parameters

Coil Code	Voltage	Power		Electric	
		Activate	Hold	Activate	Hold
SM31	AC220V	78VA	4.5VA	350mA	20mA
SM32	AC110V	72VA	5.0VA	660mA	45mA
SM34	AC24V	19VA	7.0VA	940mA	310mA
SM36	DC24V	50W	7.2W	2185mA	350mA

Dimension (mm)

T Column (Weight : 0.42KG)



Cylinder (Weight : 0.49KG)

