



# 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

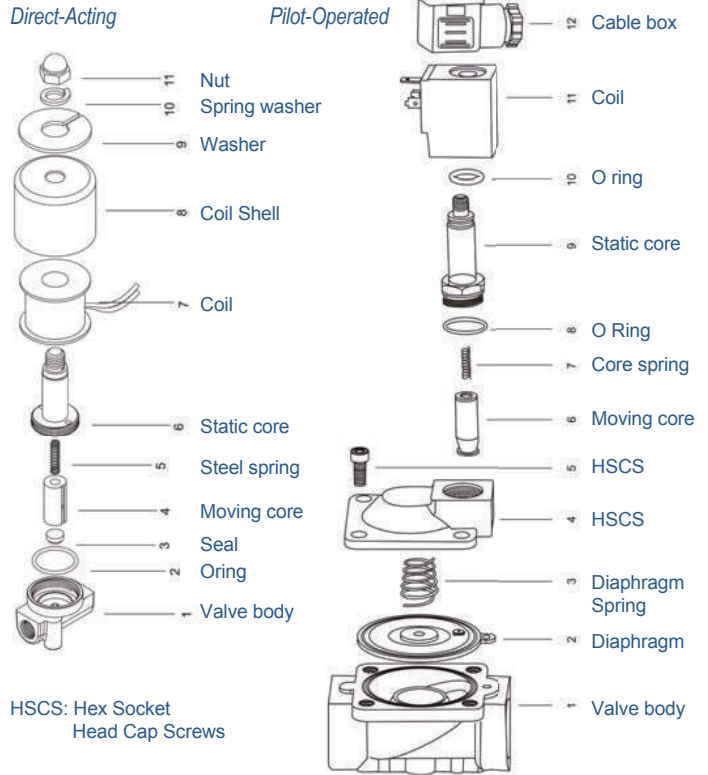


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## Precautions in maintenance

- 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.

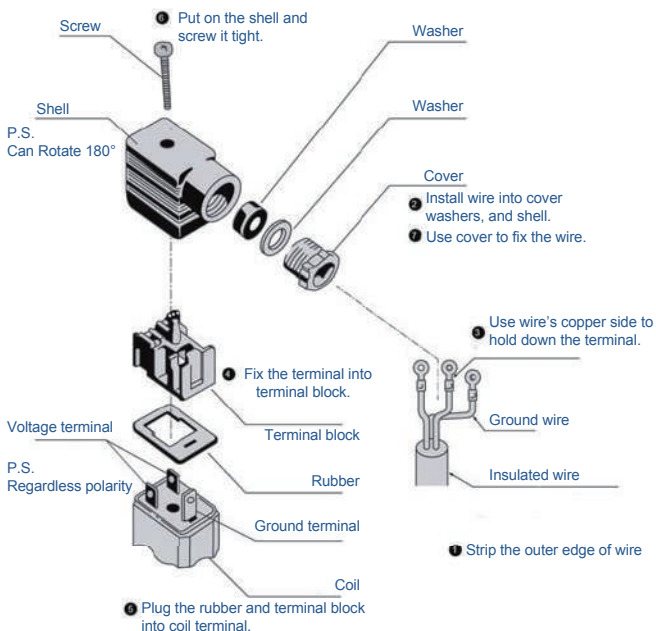
## Exploded view



## Cable box connection

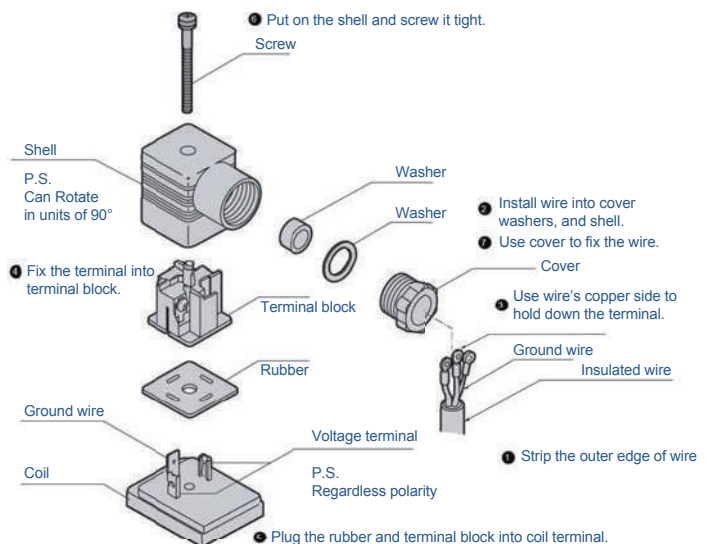
### DIN Cable box (Pg9)

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.





# PRODUCT/ SOLENOID VALVE

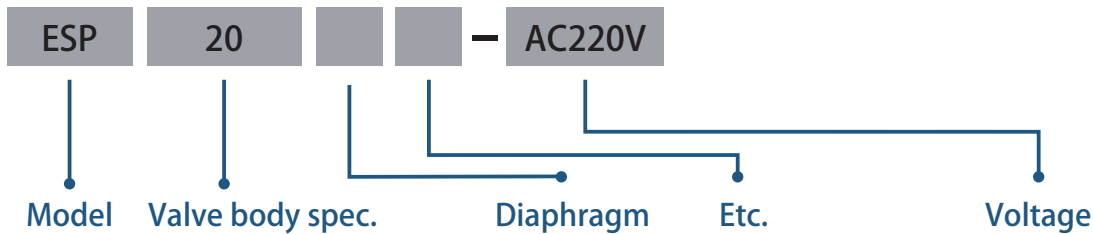
## ESP Series 2 Port Solenoid Valve



## Specifications Characteristics

Model	ESP Series
Structure	2/2 way N. C. ( Normal Close ), 2/2 way N. O. ( Normal Open )
Fluid	Air, Inert gas, Water, Light oil
Temperature	-5°C - 70°C - 110°C
Environment	Temp. -10 - 55°C ; Humidity. 10 - 90% RH
Caliber	Thread 3/8" - 1-1/2" G ( Standard )
Pressure	0.5 - 7 kgf/cm <sup>2</sup>
Material	Nylon PA6
Diaphragm	NBR, VITON, EPDM
Voltage	AC110V, AC220V, AC24V, DC24V. Allowed flow range ± 10%
Coil Level	1. Standard DIN Coil ( Protect level. IP65 ) 2. Power-Saving DIN waterproof Coil ( Protect level. IP65 ) ( Saving Energy 70%, Less temp rise, Long life )
Install	According to the fluid flow direction. Horizontal installation

## How to select model



Diameter	N.C	N.O
3/8"	10	10H
1/2"	15	15H
3/4"	20	20H
1"	25	25H
1-1/4"	35	35H
1-1/2"	40	40H

Diaphragm	Code
NBR	
VITON	V
EPDM	E

Spec.	Code
Standard Coil	
Power Save Coil	M
Pilot lamp	L

Voltage
AC110V
AC220V
AC24V
DC24V



# PRODUCT/ SOLENOID VALVE

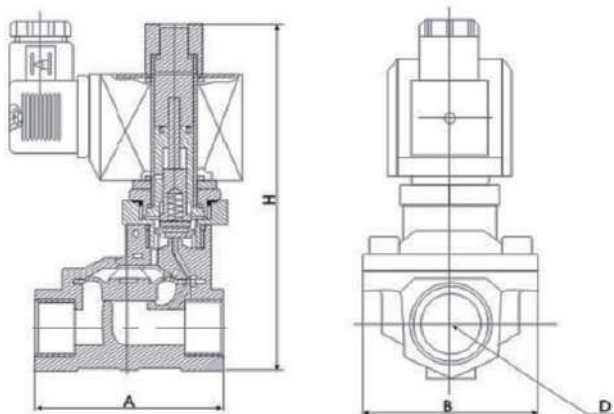
## N.C Specifications list

Spec. Code	Diameter D	Flow Path mm	CV	Pressure Range ( kgf/ cm <sup>2</sup> )			Dimensions A * B * H	Power		Weight Kg	
				Min. Pressure	Maximum Pressure			AC110 ~220V VA	DC 24V W		
					Air	Fluid					Light oil <20CST
10	3/8"	13	4.5	0.5	7	6	5	76 * 52 * 112	22	13	0.38
15	1/2"	13	4.5	0.5	7	6	5	76 * 52 * 112	22	13	0.37
20	3/4"	20	7.6	0.5	7	6	5	90 * 71 * 116	22	13	0.43
25	1"	25	12	0.5	7	6	5	111 * 91 * 123	22	13	0.49
35	1-1/4"	35	22	0.5	7	6	5	158 * 115 * 141	22	13	0.85
40	1-1/2"	40	30	0.5	7	6	5	158 * 115 * 141	22	13	0.78

## N.O Specifications list

Spec. Code	Diameter D	Flow Path mm	CV	Pressure Range ( kgf/ cm <sup>2</sup> )			Dimensions A * B * H	Power		Weight Kg	
				Min. Pressure	Maximum Pressure			AC110 ~220V VA	DC 24V W		
					Air	Fluid					Light oil <20CST
10	3/8"	13	4.5	0.5	5	4	4	76 * 52 * 129	20	20	0.53
15	1/2"	13	4.5	0.5	5	4	4	76 * 52 * 129	20	20	0.52
20	3/4"	20	7.6	0.5	5	4	4	90 * 71 * 133	20	20	0.58
25	1"	25	12	0.5	5	4	4	111 * 91 * 141	20	20	0.65
35	1-1/4"	35	22	0.5	5	4	4	158 * 115 * 158	20	20	1.0
40	1-1/2"	40	30	0.5	5	4	4	158 * 115 * 158	20	20	0.9

## Dimension ( mm )



## Power-Saving 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