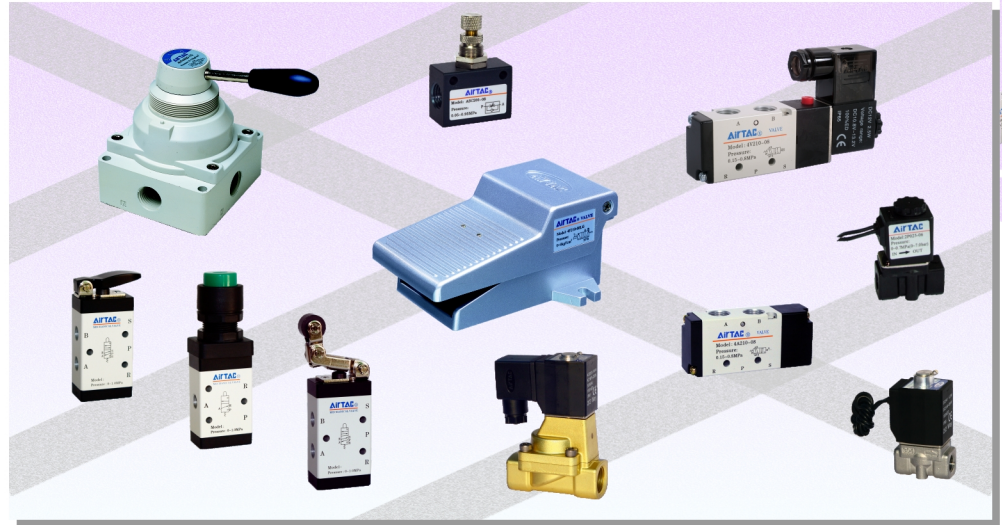


## ■ Summarization of control components

To make system realize the best performance, the control components must be precise and accurate. Component with good performance is the precondition to realize precise and exact action. AirTAC has many types of control components for your choice:

- 1、 Direction control valve—Solenoid valve ;
- 2、 Direction control valve—Air valve;
- 3、 Direction control valve—manual control, mechanical control and other valves;
- 4、 Fluid control valve—two way solenoid valve.



Valves

### ■ Solenoid valve

3V1 Series.....	-02
3V100~300 Series.....	-04
4V100~400 Series.....	-10
4M(NAMUR) Series.....	-18

### ■ Fluid control valve

2W Series.....	-52
2KW Series.....	-56
2S Series.....	-60
2KS Series.....	-64
2L Series.....	-68
2KL Series.....	-72
2V Series.....	-78
2P Series.....	-80

### ■ Air valve

3A100~300 Series.....	-22
4A100~400 Series.....	-25
Manifold.....	-33

### ■ Manual control, mechanical control and other valves

4H Series hand lever valve.....	-36
3L、4L Series Push-Pull valve.....	-37
S3 Series control valve.....	-39
M3 Series control valve.....	-41
M5 Series control valve.....	-43
HSV Series hand slide valve.....	-45
4HV、4HVL Series hand lever valve.....	-46
3F、3FM Series foot pedal valve.....	-48
4F Series foot pedal valve.....	-49
ASC Series flow control valve.....	-50



Valves

## ■ The selection of valves

### 1、 Form selection

According to application requests and conditions, choose the form of valves: direct acting or pilot

### 2、 Selection of control mode

According to the control requests upon application, choose the control mode: air, electrical, manual or mechanical control;

### 3、 Selection of function of valves

The function of valves is selected upon the working requirements: two-position two-way, two-position three-way, two-position five-way and three-position five-way; or middle-sealed, middle leakage and midway pressurizing type, etc;

### 4、 Selection of model and specification

Select the model and specification of valves upon the flow requirements of application;

### 5、 Selection of installation way

The installation way is selected upon the installation requirement of valves: pipe-joint type or containerized type;

### 6、 Selection of electric parameters

Select the electric model of valves upon actual application requirement: voltage, power and grommet type.

### 5、 Application of lowest pressure for air supply

The requirement of lowest application pressure shall be considered for the internal pilot-oriented valves, while direct drive valves or external pilot-oriented valves are not limited by lowest application pressure.

### 6、 Use in vacuum condition

If the valves are used in the place with vacuum switching, measures to prevent the inhalation of dust from suction cup shall be adopted. Moreover, direct drive or external pilot-oriented reversing valves shall be selected in vacuum condition.

## ■ Attentions on Design and Selection

### ! Attention

#### 1、 Correctly understand and apply midway stop function of reversing valve

In the place with three-position middle-sealed or middle-pressure reversing valves to carry out the midway stop of piston in cylinder (double axes or adjustable double axes), as the air has compressibility, it is difficult to have correct and precise position stop. In addition, it is not available to make sure that leakage will not occur in the valves and cylinders, thus it cannot stay in the position of midway stop for a long time. Other ways shall be taken to maintain a long-term stop.

#### 2、 Pay attention to the influences of back pressure caused by the consolidation of valves on the system;

In the place with consolidation of valves, pay attention to the wrong action of actuators caused by back pressure; especially pay attention to the place using three-position midway leakage reversing valves and the place driving single acting cylinder. Individual intake and exhaust must be carried out in the place that may have wrong action.

#### 3、 Fully consider the release of remaining pressure between reversing valves and cylinders;

Considering the system examination need, the function of releasing remaining pressure shall be set up. Especially in the place using three-position midway leakage reversing valves, the remaining pressure between reversing valves and cylinders must be eliminated.

#### 4、 The temporary power supply and air supply of dual controlled valves.

Routine dual electric (air) control valves have memory function (except for three-position valves), in the place with temporary power supply, the duration of power supply shall be above 0.1s to make sure that the valve has changed its direction.

## ■ Notice for Application and Maintenance

### ! Warning

To maintain normal and good working state of pneumatic system, the following maintenance work is necessary in actual use:

- 1、 Examine application pressure: regularly examine whether the pressure is normal in work;
- 2、 Examine the filter situation of the compressed air: regularly examine whether filter filters and oil misting device work normally and whether their pollution situation is normal;
- 3、 Examine whether system pipeline leaks;
- 4、 Examine whether solenoid valves act slowly and whether the exhaust situation is normal;
- 5、 Examine whether the adjustment of oil quantity of oil misting device is normal;
- 6、 Please read relative content in this manual about the requirements of solenoid valves to air quality and application environment, the pipeline connection of solenoid valves and the lubrication of solenoid valves;
- 7、 The switching action of valves shall be guaranteed regularly under low-frequency application, at least once switching shall be conducted for each month.



## ■ The Application of Fluid Control Valves

### ! Attention

#### Pipeline:

- 1、 Completely clean pipeline to eliminate miscellaneous chip, oil pollution and dust.
- 2、 Miscellaneous chip of whorl and sealed materials shall be prevented from entering the pipeline when installing pipeline connection (when adopting whorl sealant tape, at least one section of thread shall be preserved).
- 3、 Pay attention to connective pipe direction (IN, OUT), IN (entrance) or other marks in each interface.
- 4、 Never make the coils bear outside force, and only use spanner to clinch the installation position in pipeline when revolving into pipeline.
- 5、 The pipeline shall not connect the ground; otherwise galvanic corrosion will be caused.
- 6、 Install overflow valves in circuit to prevent the fluid accumulation in pipeline.

#### Wiring:

- 1、 The minimum area of section of the wire is  $0.5\text{mm}^2$ .
- 2、 Electrical circuit shall be adopted to prevent the vibration in connective points.
- 3、 Associate overvoltage suppressor and overvoltage suppressor in coils when electrical components are easily damaged by overvoltage.
- 4、 The allowable voltage scope is within  $-10\% \sim +10\%$  of the rated voltage. If a better response of DC power is required, the voltage scope shall be within  $\pm 5\%$  of the rated voltage and voltage drop can be measured at the connective points between the leading wires and coils.
- 5、 When it is AC power, the backswing voltage is 20% or above of the rated voltage. When it is DC power, it is 2% or above of the rated voltage.

#### Installation:

- 1、 Solenoid valves can be installed in any direction. However, when installing downwards, the foreign body in fluid will adhere to the iron core, this installation mode shall be avoided. When installing, the coils shall be made upward.
- 2、 Never heat coils and insulation components, otherwise they will burn the coils. Anti-freezing heater can only be used in pipeline and valves body.
- 3、 Never install in the place with violent vibration. If it cannot be avoided, the arm length shall be regulated to the minimum to avoid resonance.

#### Storage:

- 1、 If the water fluid will be kept for a long time after using, the moisture shall be completely eliminated to avoid corrosion in rubber part.

#### Long-term open or stop of the valves:

- 1、 The frequency of switching valves depends on the type and performance of the fluid. When using purified water as standard, the valves shall be switched at least once every ten days. If the period is longer than ten days, system test devices shall be installed. Valves shall not be used in the following working environment such as emergent circuit breaker.

#### Temperature of the fluid:

- 1、 Refer to temperature scope of each type and the influences of the factors such as sealed materials, coil insulation, power and air supply. For application in special circumstance, please contact the supplier.

#### Applied fluid:

- 1、 Fluid grade  
When selecting the valves type, make sure that the fluid is adapted to the materials of valves. Generally speaking, the maximum viscosity of fluid is 50cst.  
Please contact the supplier for specific data.  
<Reference> Standard materials  
Valve body: brass or BC6, seal: NBR, coil: insulated B step  
The above valves are used in water, air and oil medium. If they are used in other materials, please refer to "option list" and "adaptable fluid sheet". There will be a small difference in types.
- 2、 Fluid quality  
The impurity in fluid will accelerate the abrasion of valve cup and iron core. Granule that adheres to the iron core and slipping plane will decrease the function of valves and cause invalidity of seal function. Filter shall be installed in the front of the entrance of valves to avoid the above problems. Net limit of 80-100 is normally recommended.
- 3、 Lubrication  
Lubrication is not necessary for this valve, but lubricated air will extend its life.
- 4、 If the valves are used in inflammable oil and air, the leakage at the entrance and exit shall be prevented.
- 5、 If impurity or oil is not allowed in the fluid, the valves without the need of lubrication shall be applied.
- 6、 In case the application condition approaches the limit of valves, the parameter of the option and fluid may be different from that of routine application. Make proper choice according to actual use situation.



Valves



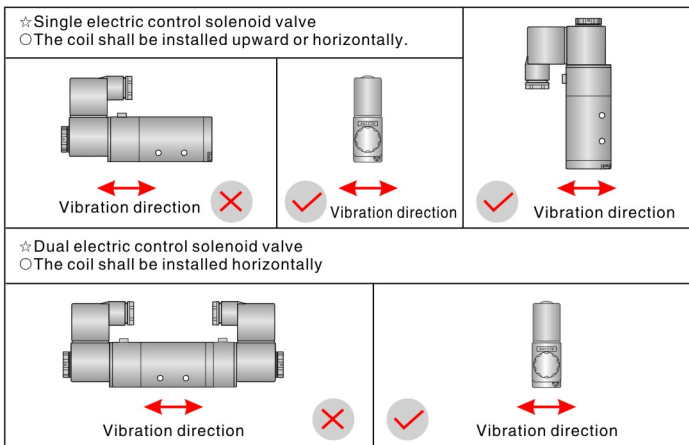
Valves

## Installation of Direction Control Valve

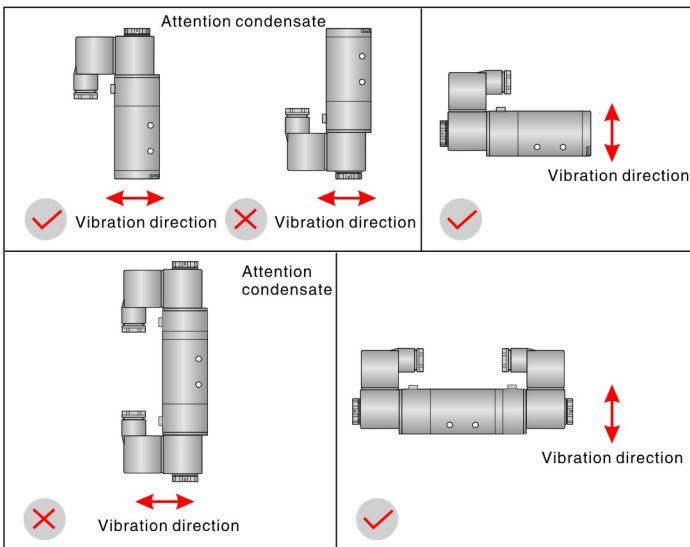
Although direction valves can be installed in any direction, due to the vibration of devices or flowing of liquids such as condensate and oil to the coil part of solenoid valve, poor action of direction valve will be caused. Please take care during installation.

1、The influence of vibration on sliding column in solenoid valve shall be avoided.

During installation, the vibration direction may form a right angle to the action direction (axial direction) of sliding column in solenoid valve to avoid the influence of vibration to sliding column in solenoid valve.



2、To prevent condensate and oil from flowing into coil in solenoid valve, you'd better install the coil upward or horizontally. Installation legend:



3、Blow away the miscellanies such as dust, oil pollution and chips in the pipeline to avoid influencing the action and damage of valves;

4、The intake of internal pilot-oriented solenoid valve cannot throttle to prevent wrong action caused by too large pressure drop when switching the direction;

## ! Danger

- 5、Install reversing valves closely to cylinder as possible as you can to reduce air consumption and achieve a quick response;
- 6、Please make sure completely insert the tubing and use it after confirming that the tubing cannot be pulled out;
- 7、Although our product coils are set as 100% ED, if the product is energized for a long time, overheating will be caused, insulation will be deteriorated and energy will be lost. Solenoid valve with memory function shall be considered to shorten power supply time and extend the service life of coils and save energy consumption under the situation of long-time constant power supply;
- 8、Manual button is not allowed to be used when solenoid valve is energized;
- 9、The application voltage of solenoid valve shall be kept within the specified voltage range to avoid causing poor action of valves or burning coils;
- 10、As the solenoid valve is installed in the control tank, pay attention to the ventilation and heat dispersing when it is energized for a long time to guarantee that the temperature inside of the tank is within the temperature range for the safe application of solenoid valve;
- 11、Interlock protection control circuit shall be designed to prevent the two coils of the dual electrical control solenoid valve from being energized at the same time;
- 12、The blowhole in internal control piston of main valve and exhaust outlet in pilot-oriented valve cannot be jammed or unsmooth;
- 13、As solenoid valve in DC specification has polar indicator lights, pay attention to the positive and negative poles when wiring. Connect "1" to the positive pole, and "2" to the negative pole. If connection is inverted, the indicator lights will not shine but valves can still work.

In addition: refer to page 8 in this manual for the content on the lubrication, tubing and application environment of solenoid valve.





# Solenoid valve(3/2、 5/2、 5/3 way)

## Installation and Application

- 1、 Before installing, be sure the valve hasn't been damaged via transportation.
- 2、 It's suggested to use the medium lubricated by 40 μ m filter element. Be aware of the flow direction and port size.
- 3、 Please notice whether the installation condition accords with technical requirements (such as “voltage” , “actuation frequency” , “working pressure” and “scope of application temperature” ), then the equipment can be installed and used.
- 4、 Notice the flow direction of air during installation, P is the air intake, A (B) is the work port and R (S) is the exhaust outlet.
- 5、 Take measure to avoid vibration and frozen.
- 6、 Before using the fittings and tubes make sure they are clean. When connecting to fittings, be sure the PTFE Thread Seal Tape is used correctly.
- 7、 To keep the dust away, please use the silencer for the exhaust ports. Never forget to install dirt-proof boot in air intake and outlet during dismounting.
- 8、 After installing, please use the manual override to test valve first.



Solenoid valve

## Product series

<p>Solenoid valve: 3V1Series</p>  <p>I -02</p>	<p>Solenoid valve: 3V100 Series</p>  <p>I -04</p>	<p>Solenoid valve: 3V200 Series</p>  <p>I -06</p>
<p>Solenoid valve: 3V300 Series</p>  <p>I -08</p>	<p>Solenoid valve: 4V100 Series</p>  <p>I -10</p>	<p>Solenoid valve: 4V200 Series</p>  <p>I -12</p>
<p>Solenoid valve: 4V300 Series</p>  <p>I -14</p>	<p>Solenoid valve: 4V400 Series</p>  <p>I -16</p>	<p>Solenoid valve: 4M(NAMUR) Series</p>  <p>I -18</p>
<p>Manifold</p>  <p>I -33</p>		



# Solenoid valve ( 3/2 way )



## 3V1 Series

3V1



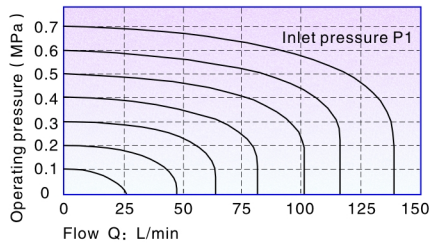
### Symbol



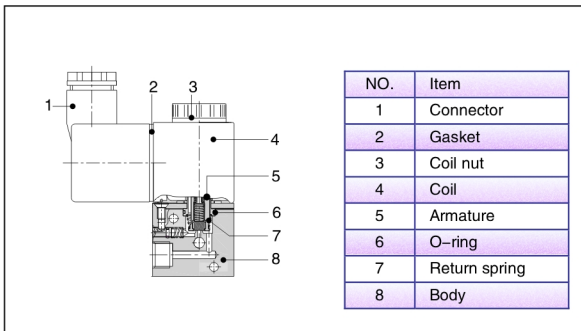
### Product feature

- 1、 Direct acting type and normally closed mode, flexible in direction change;
- 2、 No need to add oil for lubrication;
- 3、 Several valves can be installed integrately to save installation space;
- 4、 Affiliated manual devices are equipped to facilitate installation and debugging;
- 5、 Several standard voltage grades are optional;

### Flow chart



### Inner structure



### Specification

Model	3V1-M5	3V1-06
Fluid	Air (to be filtered by 40um filter element)	
Acting	Direct acting	
Port size ①	M5	1/8"
Valve type	3 port 2 position	
Lubrication	Not required	
Operating pressure	0-0.8MPa(0-114Psi)	
Proof pressure	1.5MPa(215Psi)	
Temperature ℃	-20-70	
Orifice size	φ 1.2mm	
Material of body	Aluminum alloy	

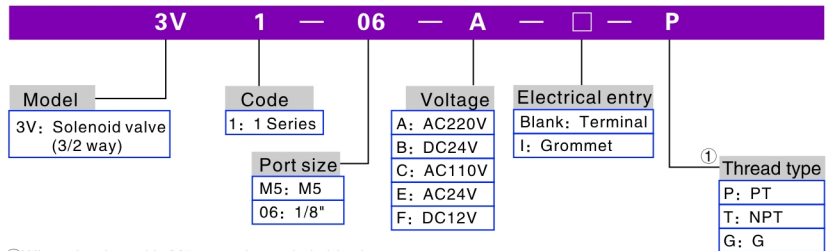
① PT thread, NPT thread and G thread are available.

### Coil specification

Item	Specification
Standard voltage	AC220V, AC110V, AC24V, DC24V, DC12V
Scope of voltage	AC: ± 15% DC: ± 10%
Power consumption	AC: 3.5VA DC : 3.0W
Protection	IP65 ( DIN40050 )
Temperature classification	B Class
Electrical entry	Terminal, Grommet
Activating time	0.05 sec and below
Max. frequency ①	10 cycle/sec

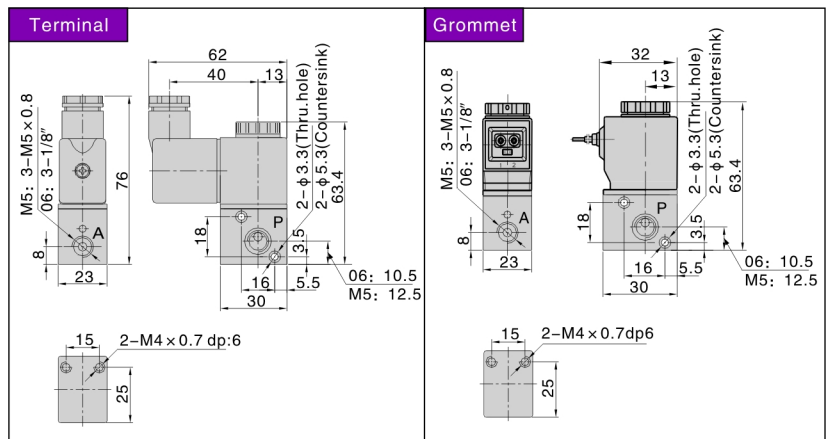
① The maximum actuation frequency is in the no-load state.

### Ordering code



① When the thread is M5 type, the code is blank.

### Dimensions





Series connection

Dimensions(3F)

How to joint

Dimensions(1F)

Product structure

Connection Amount/Q.TY	3V1	3V1-P30	3V1-P31	3V1-P32
3V1-□-□-1F	1	0	0	1
3V1-□-□-2F	2	1	1	1
3V1-□-□- <i>n</i> F	<i>n</i>	1	<i>n</i> -1	2

Note: *n* is the number of junction valve, and *n* ≥ 3

### Ordering code for series

3V1 — 06 — A — □ — 3F — P

**Model**

3V1: Solenoid valve (3/2 way)

**Port size**

M5: M5  
06: 1/8"

**Voltage**

A: AC220V  
B: DC24V  
C: AC110V  
E: AC24V  
F: DC12V

**Electric entry**

Blank: Terminal  
I: Grommet

**Number of stations**

1F: 1 Station  
2F: 2 Stations  
3F: 3 Stations  
.....  
20F: 20 Stations

**Thread type**

P: PT  
T: NPT  
G: G

① When the thread is M5 type, the code is blank.

The above codes have included the series accessories, so it is unnecessary to order the accessories specially. But if you like, you could order as follows.

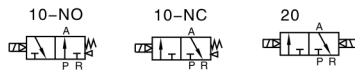
Code of accessories	Accessory name	Part code	Part name	Quantity
3V1-P30	Coupling screw assembly	F-3V1002N	Coupling screw(S)	2
		F-3V1003N	Coupling screw(M)	2
3V1-P31	Coupling screw assembly	GOR20008N75	O-Ring	1
		F-3V1004N	Coupling screw(L)	2
3V1-P32	Bracket assembly	F-3V1001N	Fixed mounting	1
		GSDA04008WA	Cross round head screw	2

# Solenoid valve ( 3/2 way )

## 3V100 Series



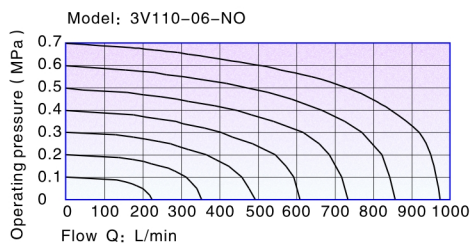
### Symbol



### Product feature

- 1、Pilot-oriented mode: internally piloted
- 2、Structure in sliding column mode: good tightness and sensitive reaction;
- 3、Double control solenoid valves have memory function;
- 4、Internal hole adopts special processing technology which has little attrition friction, low start pressure and long service life;
- 5、No need to add oil for lubrication;
- 6、Affiliated manual devices are equipped to facilitate installation and debugging;
- 7、Several standard voltage grades are optional;

### Flow chart



### Specification

Model	3V110-M5	3V120-M5	3V110-06	3V120-06
Fluid	Air( to be filtered by 40um filter element)			
Acting	Internally piloted			
Port size ①	M5		1/8"	
Orifice size	5.5mm <sup>2</sup> (Cv=0.31)		12.0mm <sup>2</sup> (Cv=0.67)	
Valve type	3 port 2 position			
Lubrication ②	Not required			
Operating pressure	0.15-0.8MPa(21-114Psi)			
Proof pressure	1.5MPa(215Psi)			
Temperature °C	-20~70			
Material of body	Aluminum alloy			

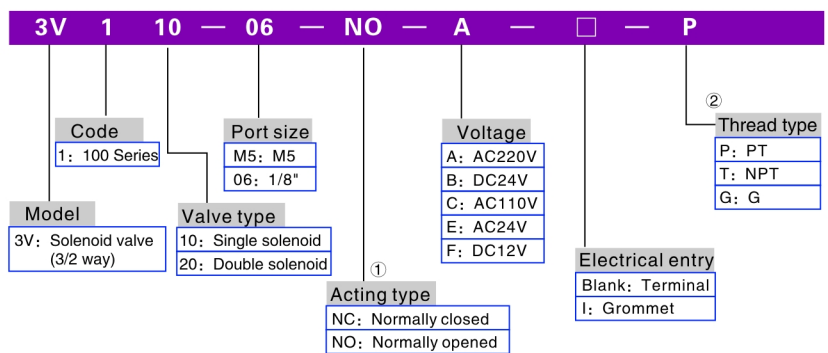
- ① PT thread, NPT thread and G thread are available;
- ② It can not stop in the midway of lubricating. Lubricants like ISO VG32 or equivalent are recommended.

### Coil specification

Item	Specification
Standard voltage	AC220V、AC110V、AC24V、DC24V、DC12V
Scope of voltage	AC: ±15% DC: ±10%
Power consumption	AC: 2.5VA DC : 2.5W
Protection	IP65 ( DIN40050 )
Temperature classification	B Class
Electrical entry	Terminal、Grommet
Activating time	0.05 sec and below
Max. frequency ①	5 cycle/sec

- ① The maximum actuation frequency is in the no-load state.

### Ordering code



- ① Remark: 2 position double control solenoid valves have no differences between normally opened and normally closed state, thus this code is blank.

- ② When the thread is M5 type, the code is blank.





# Solenoid valve ( 3/2 way )

3V100 Series



## Inner structure

## Dimensions

**3V110**

**3V120**

NO.	Item	NO.	Item	NO.	Item
1	Fixed plate	8	O-ring	15	Piston
2	Manual override	9	Body	16	Pilot screw
3	Override spring	10	Spool spring	17	O-ring
4	Piston O-ring	11	Bottom cover gasket	18	Armature
5	Pilot body	12	Bottom cover	19	Coil
6	Spool packing	13	Screw	20	Coil nut
7	Spool	14	Wearing ring	21	Connector

**3V110(Terminal)**

**3V110(Grommet)**

**3V120(Terminal)**

**3V120(Grommet)**



3V100

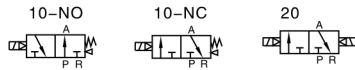


# Solenoid valve ( 3/2 way )

3V200 Series



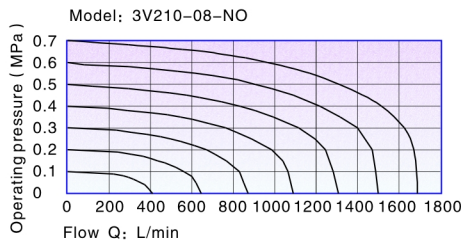
## Symbol



## Product feature

- 1、Pilot-oriented mode: internally piloted;
- 2、Structure in sliding column mode: good tightness and sensitive reaction;
- 3、Double control solenoid valves have memory function;
- 4、Internal hole adopts special processing technology which has little attrition friction, low start pressure and long service life;
- 5、No need to add oil for lubrication;
- 6、Affiliated manual devices are equipped to facilitate installation and debugging;
- 7、Several standard voltage grades are optional;

## Flow chart



## Specification

Model	3V210-06	3V220-06	3V210-08	3V220-08
Fluid	Air( to be filtered by 40um filter element)			
Acting	Internal piloted			
Port size ①	In=Out=1/8"		In=Out=1/4"	
Orifice size	14.0mm <sup>2</sup> (Cv=0.78)		16.0mm <sup>2</sup> (Cv=0.89)	
Valve type	3 port 2 position			
Lubrication ②	Not required			
Operating pressure	0.15~0.8MPa(21~114Psi)			
Proof pressure	1.5MPa(215Psi)			
Temperature °C	-20~70			
Material of body	Aluminum alloy			

① PT thread、NPT thread and G thread are available;

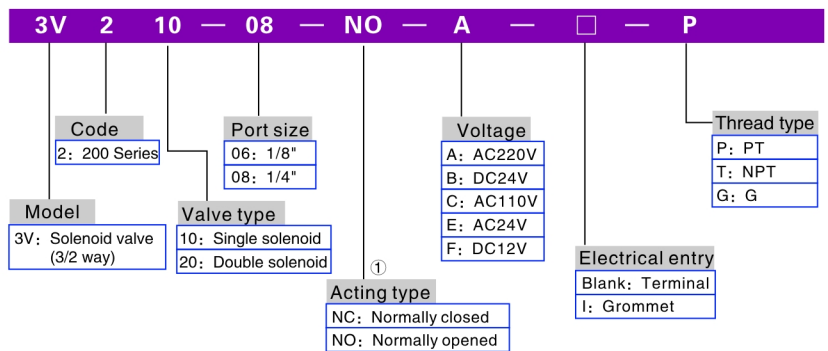
② It can not stop in the midway of lubricating. Lubricants like ISO VG32 or equivalent are recommended.

## Coil specification

Item	Specification
Standard voltage	AC220V、AC110V、AC24V、DC24V、DC12V
Scope of voltage	AC: ±15% DC: ±10%
Power consumption	AC: 3.5VA DC : 3.0W
Protection	IP65 ( DIN40050 )
Temperature classification	B Class
Electrical entry	Terminal、Grommet
Activating time	0.05 sec and below
Max. frequency ①	5 cycle/sec

① The maximum actuation frequency is in the no-load state.

## Ordering code



① Remark: 2 position double control solenoid valves have no differences between normally opened and normally closed state, thus this code is blank.



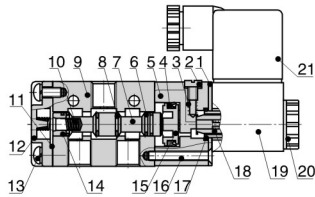


# Solenoid valve ( 3/2 way )

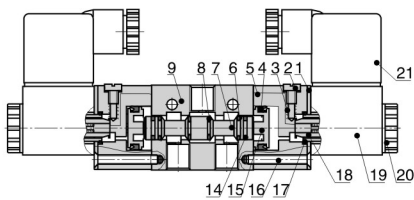
3V200 Series

## Inner structure

3V210



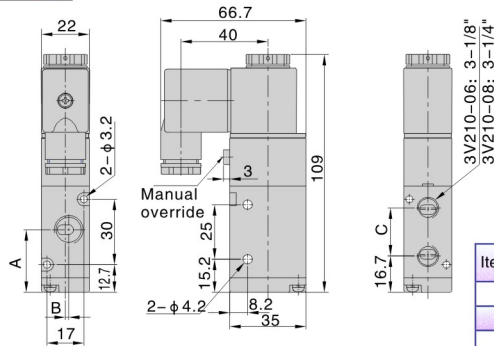
3V220



NO.	Item	NO.	Item	NO.	Item
1	Fixed plate	8	O-ring	15	Piston
2	Manual override	9	Body	16	Pilot screw
3	Override spring	10	Spool spring	17	O-ring
4	Piston O-ring	11	Bottom cover gasket	18	Armature
5	Pilot body	12	Bottom cover	19	Coil
6	Spool packing	13	Screw	20	Coil nut
7	Spool	14	Wearing ring	21	Connector

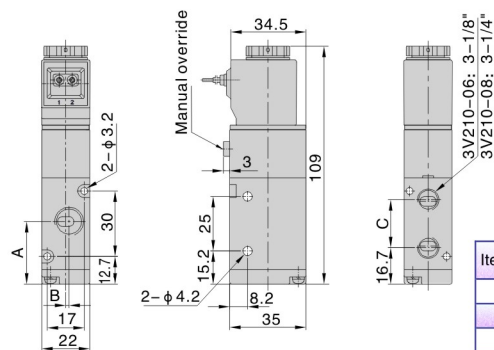
## Dimensions

3V210(Terminal)



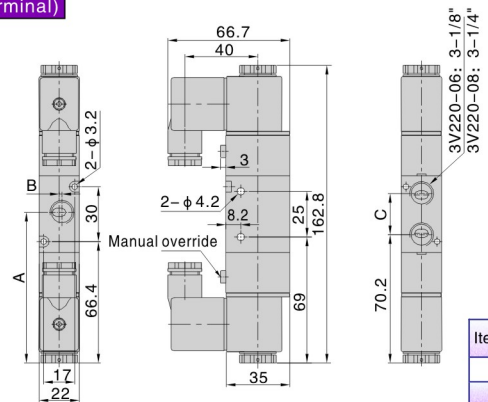
Item \ Model	3V210-06	3V210-08
A	27.7	28.7
B	0	1.5
C	22	22.5

3V210(Grommet)



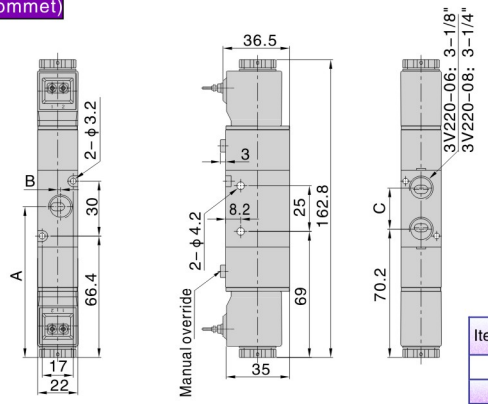
Item \ Model	3V210-06	3V210-08
A	27.7	28.7
B	0	1.5
C	22	22.5

3V220(Terminal)



Item \ Model	3V220-06	3V220-08
A	81.4	82.4
B	0	1.5
C	22	22.5

3V220(Grommet)



Item \ Model	3V220-06	3V220-08
A	81.4	82.4
B	0	1.5
C	22	22.5



3V200

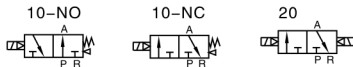
# Solenoid valve ( 3/2 way )

## 3V300 Series

3V300



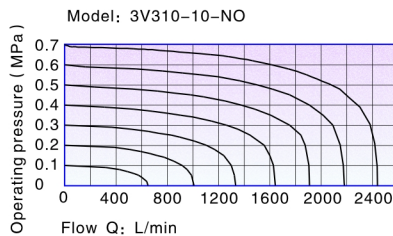
### Symbol



### Product feature

- 1、Pilot-oriented mode: internally piloted;
- 2、Structure in sliding column mode: good tightness and sensitive reaction;
- 3、Double control solenoid valves have memory function;
- 4、Internal hole adopts special processing technology which has little attrition friction, low start pressure and long service life;
- 5、No need to add oil for lubrication;
- 6、Affiliated manual devices are equipped to facilitate installation and debugging;
- 7、Several standard voltage grades are optional;

### Flow chart



### Specification

Model	3V310-08	3V320-08	3V310-10	3V320-10
Fluid	Air ( to be filtered by 40um filter element )			
Acting	Internal piloted			
Port size ①	In=Out=1/4"		In=Out=3/8"	
Orifice size	25.0mm <sup>2</sup> (Cv=1.39)		30.0mm <sup>2</sup> (Cv=1.67)	
Valve type	3 port 2 position			
Lubrication ②	Not required			
Operating pressure	0.15~0.8MPa(21~114Psi)			
Proof pressure	1.5MPa(215Psi)			
Temperature °C	-20~70			
Material of body	Aluminum alloy			

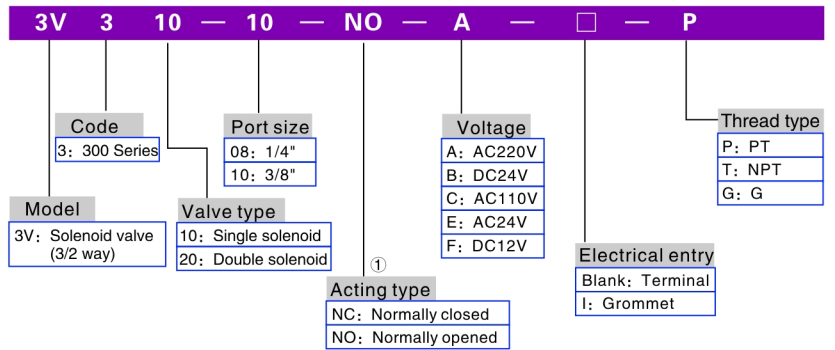
- ① PT thread、NPT thread and G thread are available;  
 ② It can not stop in the midway of lubricating. Lubricants like ISO VG32 or equivalent are recommended.

### Coil specification

Item	Specification
Standard voltage	AC220V、AC110V、AC24V、DC24V、DC12V
Scope of voltage	AC: ± 15% DC: ± 10%
Power consumption	AC: 3.5VA DC : 3.0W
Protection	IP65 ( DIN40050 )
Temperature classification	B Class
Electrical entry	Terminal、Grommet
Activating time	0.05 sec and below
Max. frequency ①	5 cycle/sec

- ① The maximum actuation frequency is in the no-load state.

### Ordering code



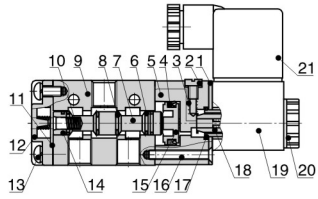
- ① Remark: 2 position double control solenoid valves have no differences between normally opened and normally closed state, thus this code is blank.



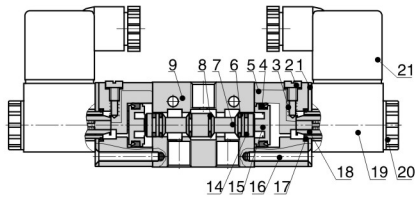
# Solenoid valve ( 3/2 way )

## 3V300 Series

### Inner structure



3V310

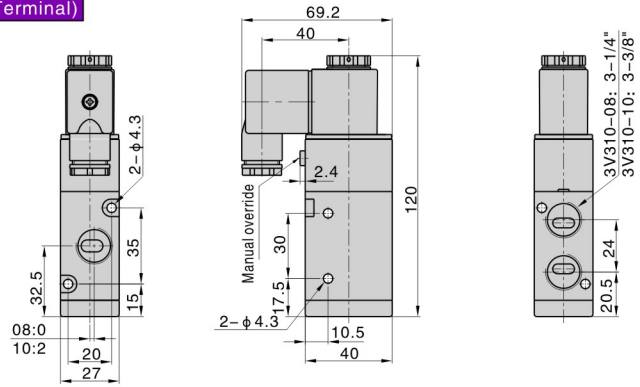


3V320

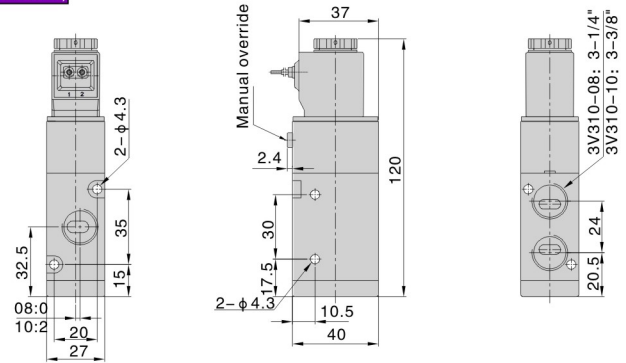
NO.	Item	NO.	Item	NO.	Item
1	Fixed plate	8	O-ring	15	Piston
2	Manual override	9	Body	16	Pilot screw
3	Override spring	10	Spool spring	17	O-ring
4	Piston O-ring	11	Bottom cover gasket	18	Armature
5	Pilot body	12	Bottom cover	19	Coil
6	Spool packing	13	Screw	20	Coil nut
7	Spool	14	Wearing ring	21	Connector

### Dimensions

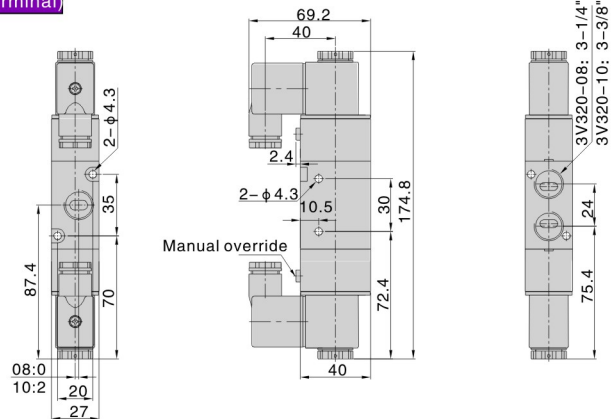
3V310(Terminal)



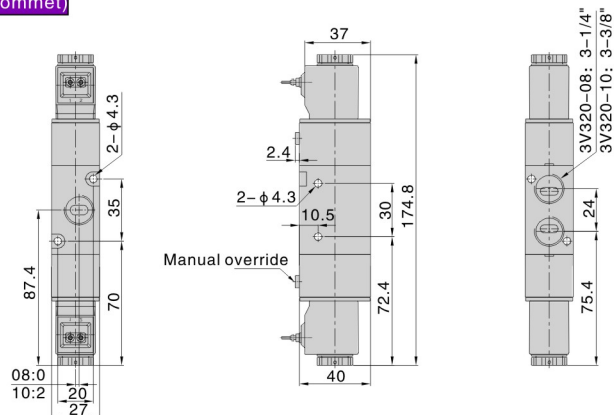
3V310(Grommet)



3V320(Terminal)



3V320(Grommet)



3V300



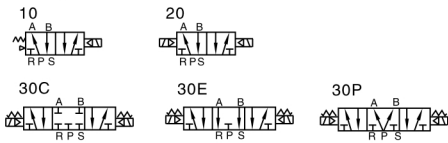
# Solenoid valve ( 5/2 、 5/3 way )

## 4V100 Series

4V100



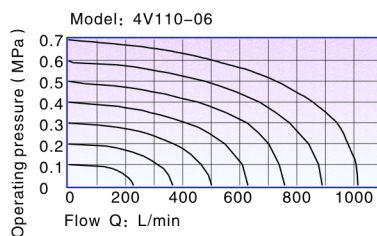
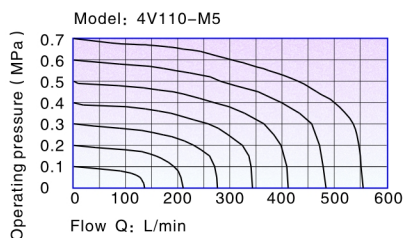
### Symbol



### Product feature

- 1、Pilot-oriented mode: optional for internal or external;
- 2、Structure in sliding column mode: good tightness and sensitive reaction;
- 3、Three position solenoid valves have three kinds of central function for your choice;
- 4、Double control solenoid valves have memory function;
- 5、Internal hole adopts special processing technology which has little attrition friction, low start pressure and long service life;
- 6、No need to add oil for lubrication;
- 7、It is available to form integrated valve group with the base to save installation space;
- 8、Affiliated manual devices are equipped to facilitate installation and debugging;
- 9、Several standard voltage grades are optional;

### Flow chart



### Specification

Model	4V110-M5 4V120-M5	4V130C-M5 4V130E-M5 4V130P-M5	4V110-06 4V120-06	4V130C-06 4V130E-06 4V130P-06
Fluid	Air( to be filtered by 40um filter element)			
Acting	Internal piloted			
Port size ①	In=Out=M5		In=Out =1/8"	
Orifice size	5.5mm <sup>2</sup> (Cv=0.31)	5.0mm <sup>2</sup> (Cv=0.28)	12.0mm <sup>2</sup> (Cv=0.67)	9.0mm <sup>2</sup> (Cv=0.50)
Valve type	5 port 2 position	5 port 3 position	5 port 2 position	5 port 3 position
Operating pressure	0.15~0.8MPa(21~114Psi)			
Proof pressure	1.5MPa(215Psi)			
Temperature ℃	-20~70			
Material of body	Aluminum alloy			
Lubrication ②	Not required			
Max. frequency ③	5 cycle/sec	3 cycle/sec	5 cycle/sec	3 cycle/sec
Weight	4V110-M5:120g 4V120-M5:175g	200g	4V110-06:120g 4V120-06:175g	200g

① PT thread、NPT thread and G thread are available;

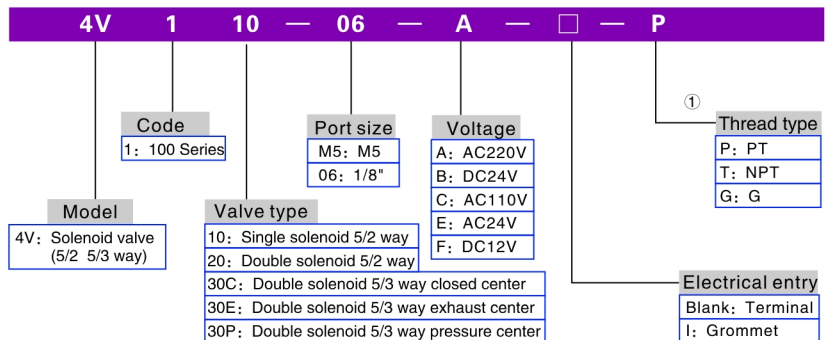
② It can not stop in the midway of lubricating. Lubricants like ISO VG32 or equivalent are recommended.

③ The maximum actuation frequency is in the no-load state.

### Coil specification

Item	Specification
Standard voltage	AC220V、AC110V、AC24V、DC24V、DC12V
Scope of voltage	AC: ± 15% DC: ± 10%
Power consumption	AC: 2.5VA DC : 2.5W
Protection	IP65 ( DIN40050 )
Temperature classification	B Class
Electrical entry	Terminal、Grommet
Activating time	0.05 sec and below

### Ordering code



①When the thread is M5 type, the code is blank.

Please refer to PI-33 for manifold specification and the order way.

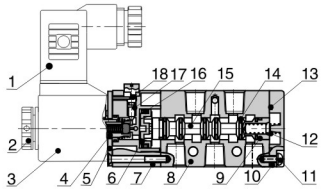


# Solenoid valve ( 5/2 、 5/3 way )

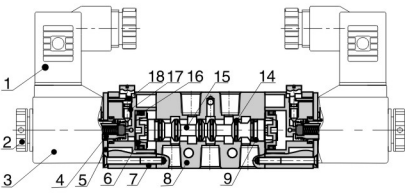
4V100 Series

## Inner structure

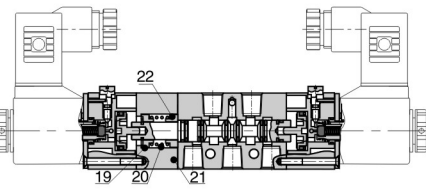
4V110



4V120



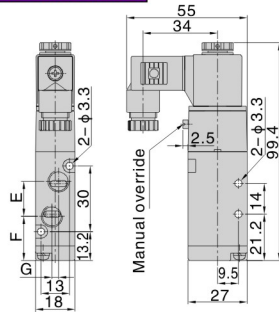
4V130C



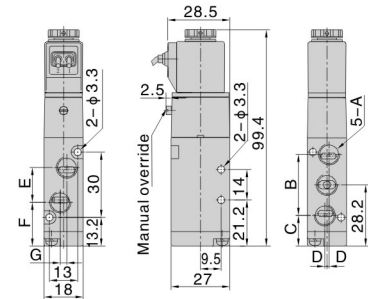
NO.	Item	NO.	Item	NO.	Item
1	Connector	9	Wearing ring	17	Override spring
2	Coil nut	10	Bottom cover	18	Manual override
3	Coil	11	Fixed screw	19	Spring holder
4	Armature	12	Spool spring	20	Return spring
5	Fixed plate	13	Bottom cover gasket	21	Side cover
6	Piston	14	Spool O-ring	22	Spring holder
7	Pilot kit	15	Spool		
8	Body	16	Piston O-ring		

## Dimensions

4V110(Terminal)

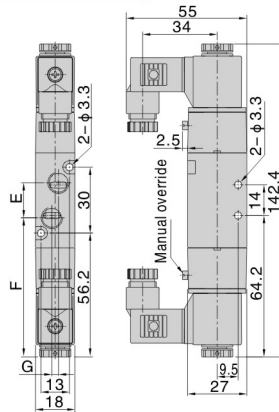


4V110(Grommet)

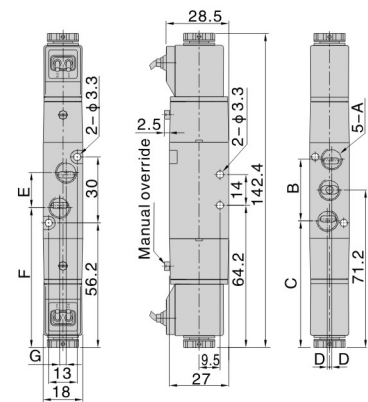


Model/Item	A	B	C	D	E	F	G
4V110-M5	M5 × 0.8	27	14.7	0	14	21.2	0
4V110-06	1/8"	28	14.2	1	16	20.2	3

4V120(Terminal)

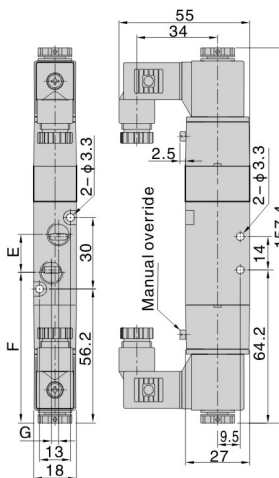


4V120(Grommet)

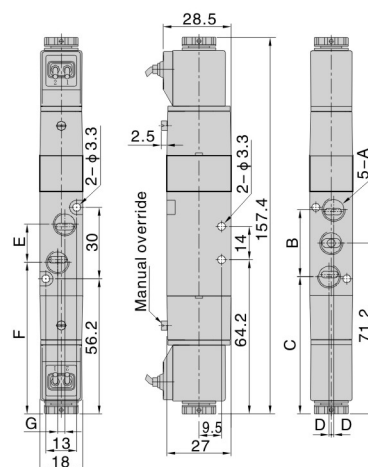


Model/Item	A	B	C	D	E	F	G
4V120-M5	M5 × 0.8	27	57.7	0	14	64.3	0
4V120-06	1/8"	28	57.2	1	16	63.2	3

4V130(Terminal)



4V130(Grommet)



Model/Item	A	B	C	D	E	F	G
4V130-M5	M5 × 0.8	27	57.7	0	14	64.3	0
4V130-06	1/8"	28	57.2	1	16	63.2	3



4V100



# Solenoid valve ( 5/2 、 5/3 way )



## 4V200 Series

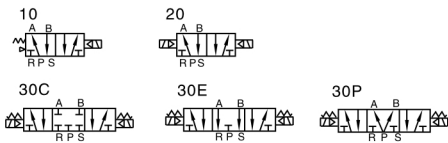
4V200



### Specification

Model	4V210-06 4V220-06	4V230C-06 4V230E-06 4V230P-06	4V210-08 4V220-08	4V230C-08 4V230E-08 4V230P-08
Fluid	Air( to be filtered by 40um filter element)			
Acting	Internal piloted			
Port size ①	In=Out=Exhaust=1/8"		In=Out =1/4"	Exhaust=1/8"
Orifice size	14.0mm <sup>2</sup> (Cv=0.78)	12.0mm <sup>2</sup> (Cv=0.67)	16.0mm <sup>2</sup> (Cv=0.89)	12.0mm <sup>2</sup> (Cv=0.67)
Valve type	5 port 2 position	5 port 3 position	5 port 2 position	5 port 3 position
Operating pressure	0.15~0.8MPa(21~114Psi)			
Proof pressure	1.5MPa(215Psi)			
Temperature ℃	-20~70			
Material of body	Aluminum alloy			
Lubrication ②	Not required			
Max. frequency ③	5 cycle/sec	3 cycle/sec	5 cycle/sec	3 cycle/sec
Weight	4V210-06:220g 4V220-06:320g	360g	4V210-08:220g 4V220-08:320g	360g

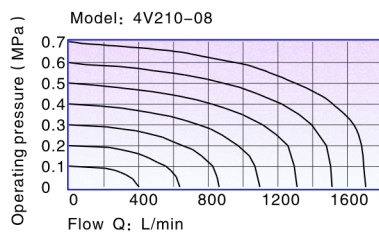
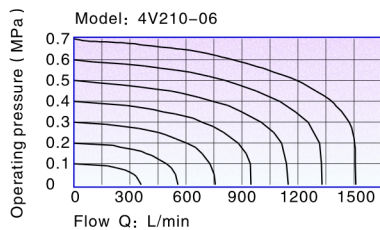
### Symbol



### Product feature

- 1、Pilot-oriented mode: optional for internal or external;
- 2、Structure in sliding column mode: good tightness and sensitive reaction;
- 3、Three position solenoid valves have three kinds of central function for your choice;
- 4、Double control solenoid valves have memory function;
- 5、Internal hole adopts special processing technology which has little attrition friction, low start pressure and long service life;
- 6、No need to add oil for lubrication;
- 7、It is available to form integrated valve group with the base to save installation space;
- 8、Affiliated manual devices are equipped to facilitate installation and debugging;
- 9、Several standard voltage grades are optional;

### Flow chart

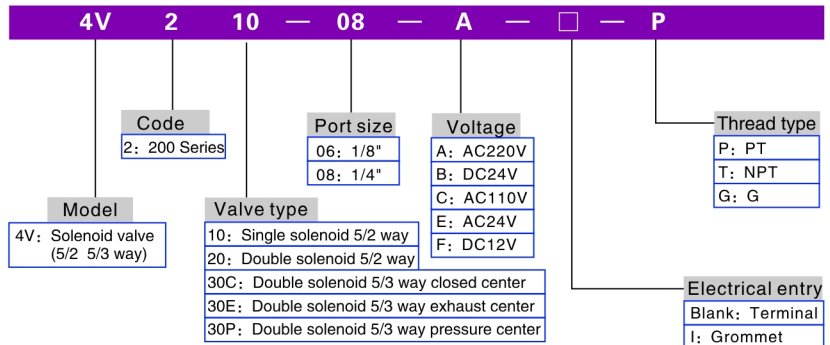


- ① PT thread、NPT thread and G thread are available;
- ② It can not stop in the midway of lubricating. Lubricants like ISO VG32 or equivalent are recommended.
- ③ The maximum actuation frequency is in the no-load state.

### Coil specification

Item	Specification
Standard voltage	AC220V、AC110V、AC24V、DC24V、DC12V
Scope of voltage	AC: ± 15% DC: ± 10%
Power consumption	AC: 3.5VA DC : 3.0W
Protection	IP65 ( DIN40050 )
Temperature classification	B Class
Electrical entry	Terminal、Grommet
Activating time	0.05 sec and below

### Ordering code



Please refer to PI-33 for manifold specification and the order way.

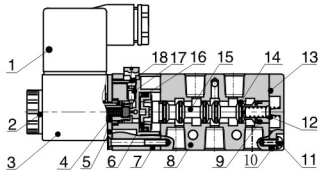


# Solenoid valve ( 5/2 、 5/3 way )

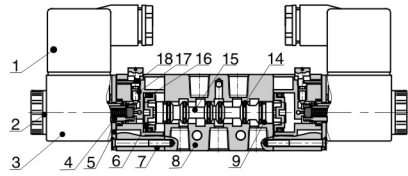
## 4V200 Series

### Inner structure

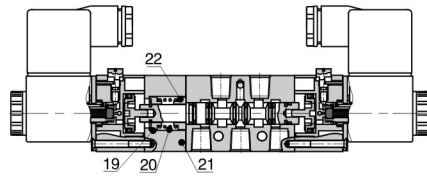
4V210



4V220



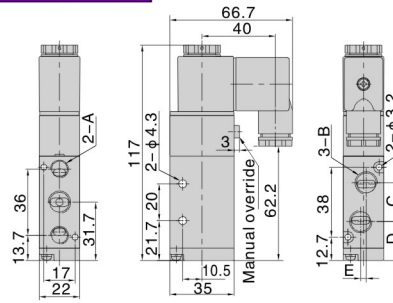
4V230C



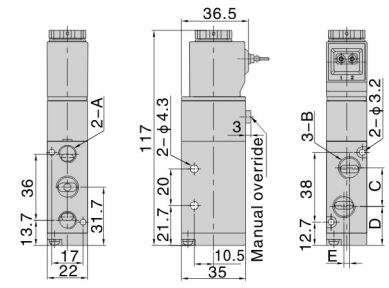
NO.	Item	NO.	Item	NO.	Item
1	Connector	9	Wearing ring	17	Override spring
2	Coil nut	10	Bottom cover	18	Manual override
3	Coil	11	Fixed screw	19	Spring holder
4	Armature	12	Spool spring	20	Return spring
5	Fixed plate	13	Bottom cover gasket	21	Side cover
6	Piston	14	Spool O-ring	22	Spring holder
7	Pilot kit	15	Spool		
8	Body	16	Piston O-ring		

### Dimensions

4V210(Terminal)

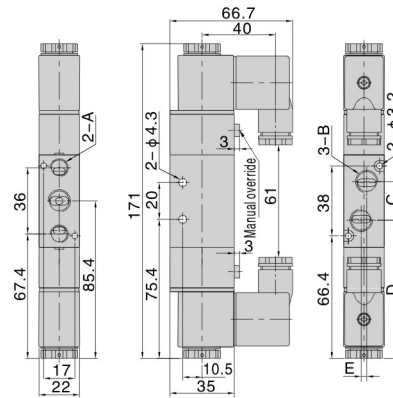


4V210(Grommet)

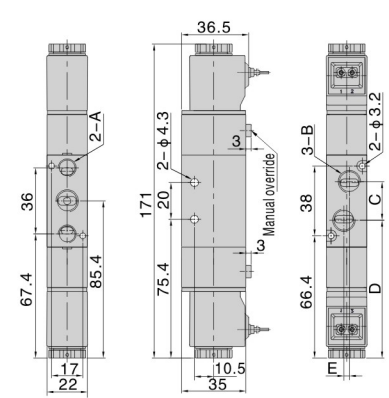


Model\Item	A	B	C	D	E
4V210-06	1/8"	1/8"	18	22.7	0
4V210-08	1/8"	1/4"	21	21.2	3

4V220(Terminal)

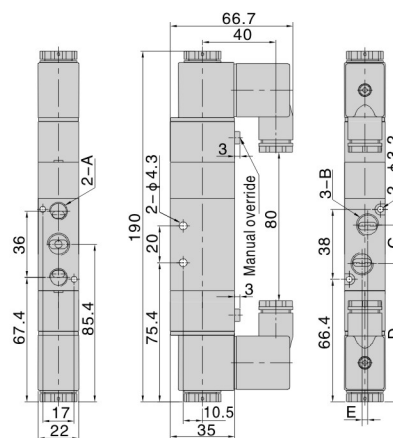


4V220(Grommet)

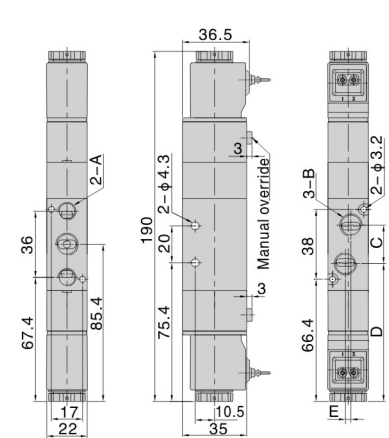


Model\Item	A	B	C	D	E
4V220-06	1/8"	1/8"	18	76.4	0
4V220-08	1/8"	1/4"	21	74.9	3

4V230(Terminal)



4V230(Grommet)



Model\Item	A	B	C	D	E
4V230-06	1/8"	1/8"	18	76.4	0
4V230-08	1/8"	1/4"	21	74.9	3



4V200



# Solenoid valve ( 5/2 、 5/3 way )

## 4V300 Series

4V300



### Specification

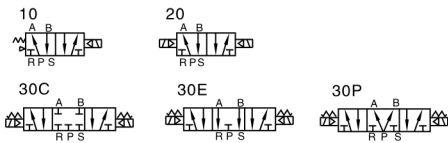
Model	4V310-08 4V320-08	4V330C-08 4V330E-08 4V330P-08	4V310-10 4V320-10	4V330C-10 4V330E-10 4V330P-10
Fluid	Air( to be filtered by 40um filter element)			
Acting	Internal piloted			
Port size ①	In=Out=Exhaust=1/4"		In=Out =3/8"	Exhaust=1/4"
Orifice size	25.0mm <sup>2</sup> (Cv=1.40)	18.0mm <sup>2</sup> (Cv=1.00)	30.0mm <sup>2</sup> (Cv=1.68)	18.0mm <sup>2</sup> (Cv=1.00)
Valve type	5 port 2 position	5 port 3 position	5 port 2 position	5 port 3 position
Operating pressure	0.15~0.8MPa(21~114Psi)			
Proof pressure	1.5MPa(215Psi)			
Temperature ℃	-20~70			
Material of body	Aluminum alloy			
Lubrication ②	Not required			
Max. frequency ③	4 cycle/sec	3 cycle/sec	4 cycle/sec	3 cycle/sec
Weight	4V310-08:310g 4V320-08:400g	450g	4V310-10:310g 4V320-10:400g	450g

① PT thread、NPT thread and G thread are available;

② It can not stop in the midway of lubricating. Lubricants like ISO VG32 or equivalent are recommended;

③ The maximum actuation frequency is in the no-load state.

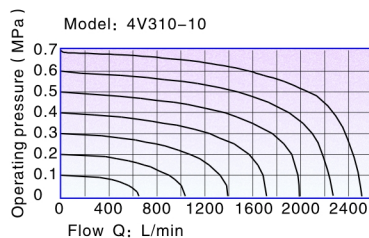
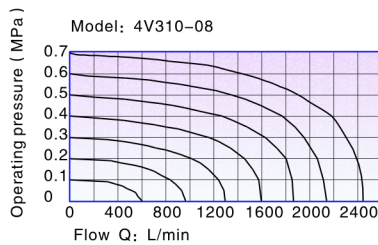
### Symbol



### Product feature

- 1、Pilot-oriented mode: optional for internal or external;
- 2、Structure in sliding column mode: good tightness and sensitive reaction;
- 3、Three position solenoid valves have three kinds of central function for your choice;
- 4、Double control solenoid valves have memory function;
- 5、Internal hole adopts special processing technology which has little attrition friction, low start pressure and long service life;
- 6、No need to add oil for lubrication;
- 7、It is available to form integrated valve group with the base to save installation space;
- 8、Affiliated manual devices are equipped to facilitate installation and debugging;
- 9、Several standard voltage grades are optional;

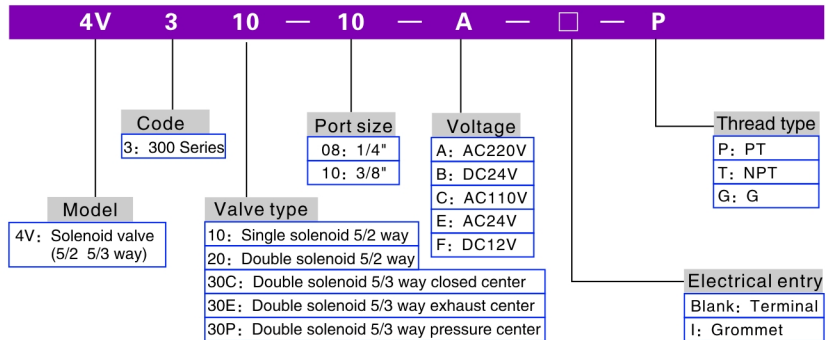
### Flow chart



### Coil specification

Item	Specification
Standard voltage	AC220V、AC110V、AC24V、DC24V、DC12V
Scope of voltage	AC: ± 15% DC: ± 10%
Power consumption	AC: 3.5VA DC : 3.0W
Protection	IP65 ( DIN40050 )
Temperature classification	B Class
Electrical entry	Terminal、Grommet
Activating time	0.05 sec and below

### Ordering code



Please refer to PI-33 for manifold specification and the order way.



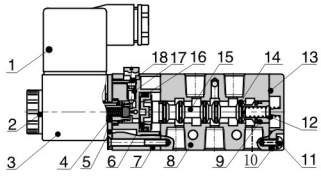


# Solenoid valve ( 5/2 、 5/3 way )

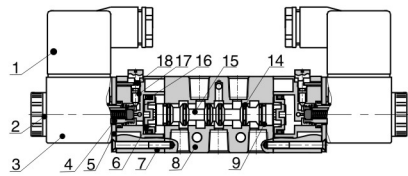
## 4V300 Series

### Inner structure

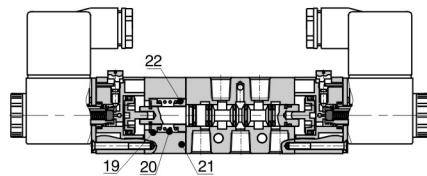
4V310



4V320



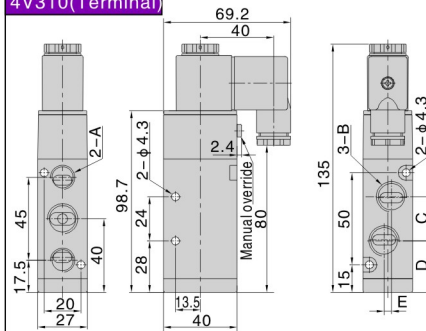
4V330C



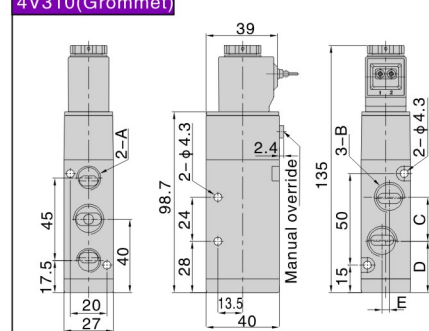
NO.	Item	NO.	Item	NO.	Item
1	Connector	9	Wearing ring	17	Override spring
2	Coil nut	10	Bottom cover	18	Manual override
3	Coil	11	Fixed screw	19	Spring holder
4	Armature	12	Spool spring	20	Return spring
5	Fixed plate	13	Bottom cover gasket	21	Side cover
6	Piston	14	Spool O-ring	22	Spring holder
7	Pilot kit	15	Spool		
8	Body	16	Piston O-ring		

### Dimensions

4V310(Terminal)

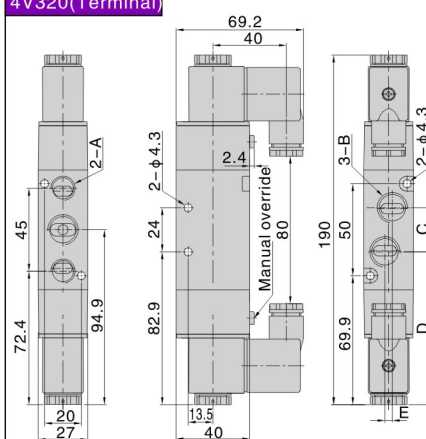


4V310(Grommet)

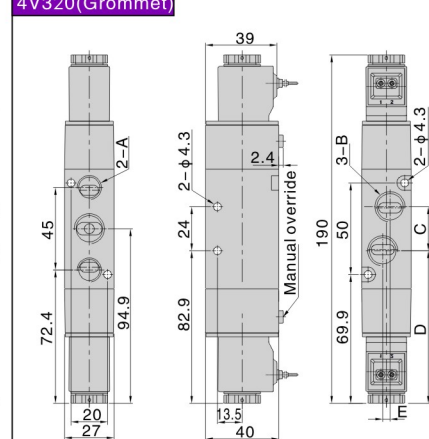


Model\Item	A	B	C	D	E
4V310-08	1/4"	1/4"	22	29	0
4V310-10	1/4"	3/8"	24	28	4

4V320(Terminal)

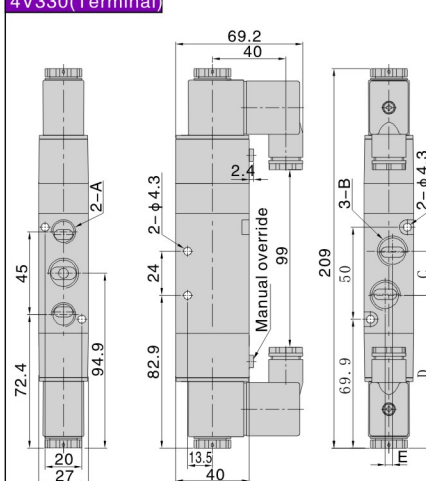


4V320(Grommet)

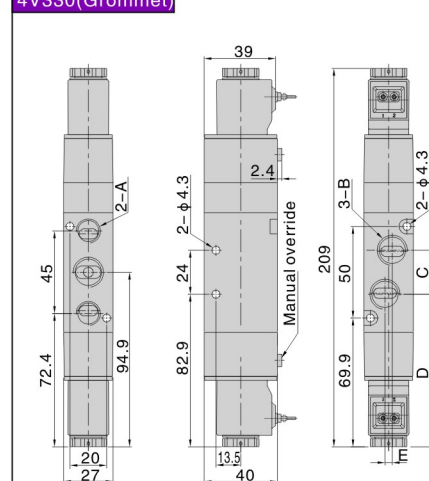


Model\Item	A	B	C	D	E
4V320-08	1/4"	1/4"	22	83.9	0
4V320-10	1/4"	3/8"	24	82.9	4

4V330(Terminal)



4V330(Grommet)



Model\Item	A	B	C	D	E
4V330-08	1/4"	1/4"	22	83.9	0
4V330-10	1/4"	3/8"	24	82.9	4



4V300

# Solenoid valve ( 5/2 、 5/3 way )

## 4V400 Series

4V400

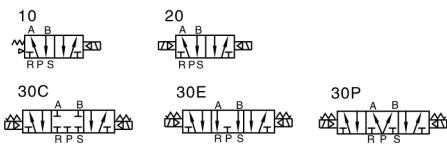


### Specification

Model	4V410-15	4V420-15	4V430C-15	4V430E-15	4V430P-15
Fluid	Air(to be filtered by 40um filter element)				
Acting	Internal piloted				
Port size ①	In=Out=Exhaust=1/2"				
Orifice size	50.0mm <sup>2</sup> (Cv=2.79)		30.0mm <sup>2</sup> (Cv=1.68)		
Valve type	5 port 2 position		5 port 3 position		
Operating pressure	0.15~0.8MPa(21~114Psi)				
Proof pressure	1.5MPa(215Psi)				
Temperature °C	-20~70				
Material of body	Aluminum alloy				
Lubrication ②	Not required				
Max. frequency ③	3 cycle/sec				
Weight	590g	720g		770g	

- ① PT thread, NPT thread and G thread are available;
- ② It can not stop in the midway of lubricating. Lubricants like ISO VG32 or equivalent are recommended;
- ③ The maximum actuation frequency is in the no-load state.

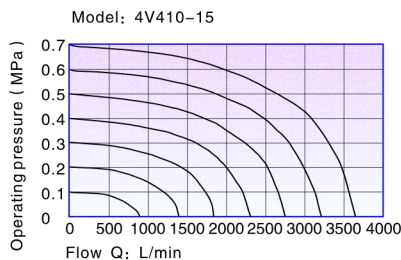
### Symbol



### Product feature

- 1、Pilot-oriented mode: optional for internal or external;
- 2、Structure in sliding column mode: good tightness and sensitive reaction;
- 3、Three position solenoid valves have three kinds of central function for your choice;
- 4、Double control solenoid valves have memory function;
- 5、Internal hole adopts special processing technology which has little attrition friction, low start pressure and long service life;
- 6、No need to add oil for lubrication;
- 7、It is available to form integrated valve group with the base to save installation space;
- 8、Affiliated manual devices are equipped to facilitate installation and debugging;
- 9、Several standard voltage grades are optional;

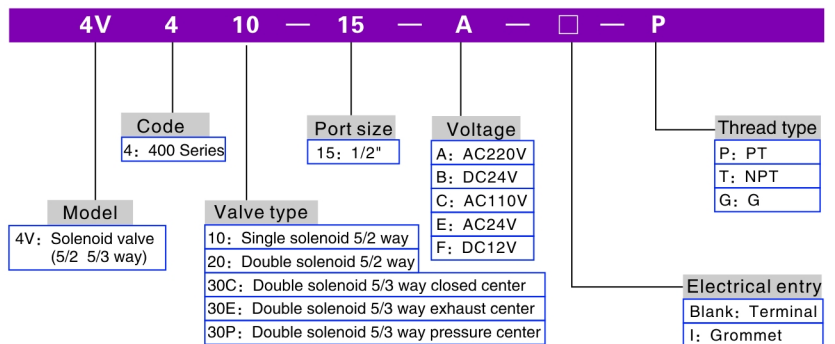
### Flow chart



### Coil specification

Item	Specification
Standard voltage	AC220V、AC110V、AC24V、DC24V、DC12V
Scope of voltage	AC: ± 15% DC: ± 10%
Power consumption	AC: 3.5VA DC : 3.0W
Protection	IP65 ( DIN40050 )
Temperature classification	B Class
Electrical entry	Terminal, Grommet
Activating time	0.05 sec and below

### Ordering code



Please refer to PI-33 for manifold specification and the order way.

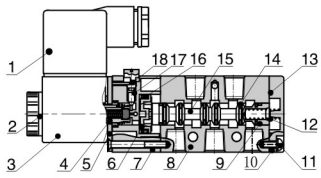


# Solenoid valve ( 5/2 、 5/3 way )

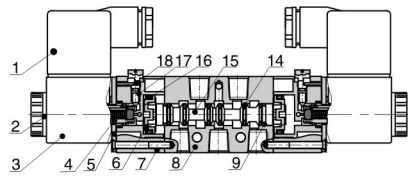
4V400 Series

## Inner structure

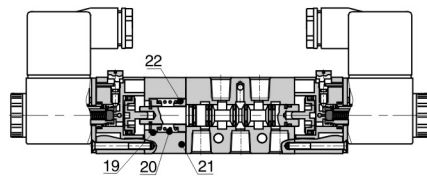
4V410



4V420



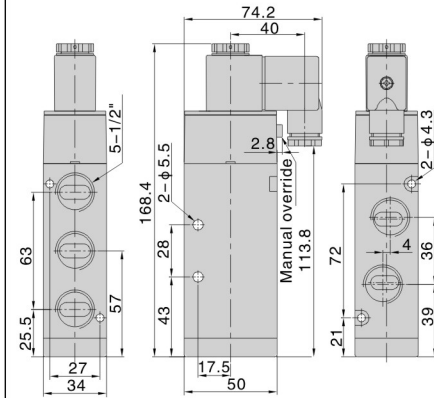
4V430C



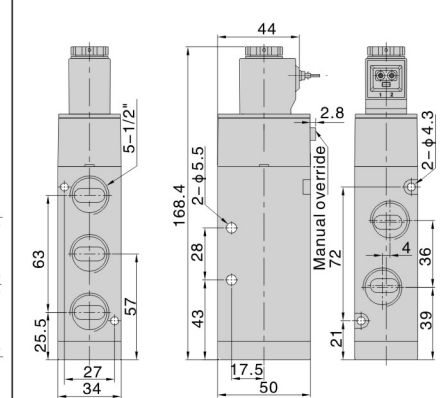
NO.	Item	NO.	Item	NO.	Item
1	Connector	9	Wearing ring	17	Override spring
2	Coil nut	10	Bottom cover	18	Manual override
3	Coil	11	Fixed screw	19	Spring holder
4	Armature	12	Spool spring	20	Return spring
5	Fixed plate	13	Bottom cover gasket	21	Side cover
6	Piston	14	Spool O-ring	22	Spring holder
7	Pilot kit	15	Spool		
8	Body	16	Piston O-ring		

## Dimensions

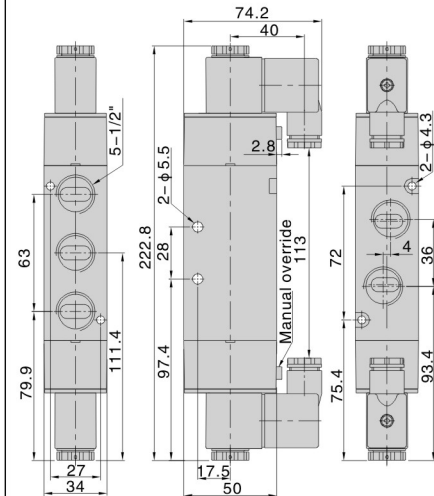
4V410(Terminal)



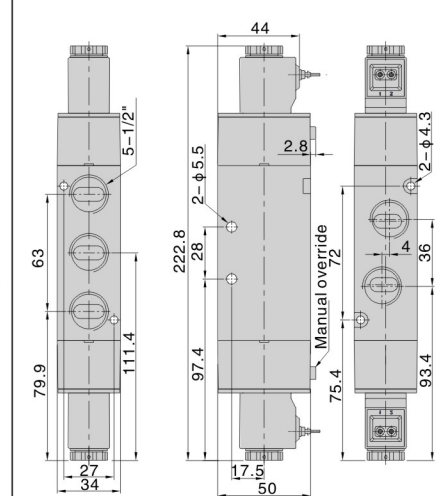
4V410(Grommet)



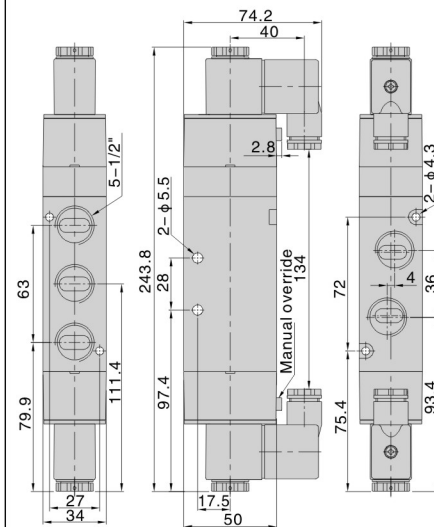
4V420(Terminal)



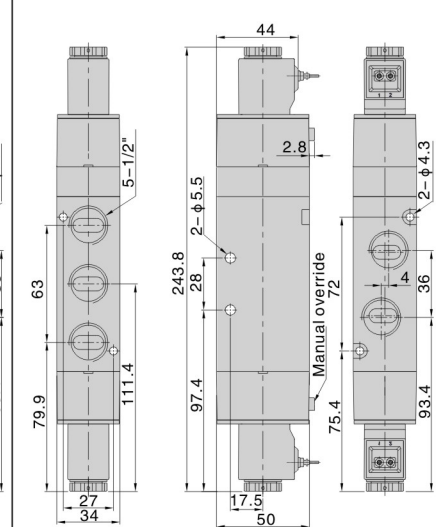
4V420(Grommet)



4V430(Terminal)



4V430(Grommet)



4V400



# Solenoid valve ( 5/2 way )

## 4M(NAMUR) Series

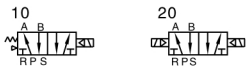


### Specification

Model	4M110-M5	4M110-06	4M210-06	4M210-08	4M310-08	4M310-10
Fluid	Air ( to be filtered by 40um filter element )					
Acting	Internal piloted					
Port size ①	In=Exhaust=M5	In=Exhaust=1/8"	In=Exhaust=1/8"	In=1/4" Exhaust=1/8"	In=Exhaust=1/4"	In=3/8" Exhaust=1/4"
Orifice size	5.5mm <sup>2</sup> (Cv=0.31)	12.0mm <sup>2</sup> (Cv=0.67)	14.0mm <sup>2</sup> (Cv=0.78)	16.0mm <sup>2</sup> (Cv=0.89)	25.0mm <sup>2</sup> (Cv=1.40)	30.0mm <sup>2</sup> (Cv=1.68)
Valve type	5 port 2 position					
Operating pressure	0.15-0.8MPa(21-114Psi)					
Proof pressure	1.5MPa(215Psi)					
Temperature °C	-20~70					
Material of body	Aluminum alloy					
Lubrication ②	Not required					
Max. frequency ③	5 cycle / sec				4 cycle / sec	
Weight g	4M110:120; 4M120:175	4M210:220; 4M220:320	4M310:310; 4M320:400			

- ① PT thread, NPT thread and G thread are available;
- ② It can not stop in the midway of lubricating. Lubricants like ISO VG32 or equivalent are recommended.
- ③ The maximum actuation frequency is in the no-load state.

### Symbol



### Product feature

- 1、Internally piloted structure;
- 2、Structure in sliding column mode: good tightness and sensitive reaction;
- 3、Double control solenoid valves have memory function;
- 4、Internal hole adopts special processing technology which has little attrition friction, low start pressure and long service life;
- 5、No need to add oil for lubrication;
- 6、Install in the side plate with the surface upward, which can be used by directly connecting with the actuators;
- 7、Affiliated manual devices are equipped to facilitate installation and debugging;
- 8、Several standard voltage grades are optional;

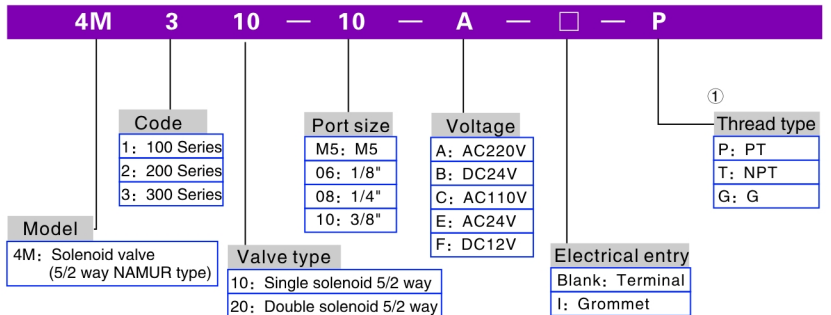
### Flow chart

Please refer to the same types of 4V series solenoid valves.

### Coil specification

Item/Model	4M110, 4M120	4M210, 4M220, 4M310, 4M320
Standard voltage	AC220V, AC110V, AC24V, DC24V, DC12V	
Scope of voltage	AC: ±15% DC: ±10%	
Power consumption	AC: 2.5VA DC : 2.5W	AC: 3.5VA DC : 3.0W
Protection	IP65 ( DIN40050 )	
Temperature classification	B Class	
Electrical entry	Terminal, Grommet	
Activating time	0.05 sec and below	

### Ordering code



①When the thread is M5 type, the code is blank.

### Inner structure

**Single solenoid**

**Double solenoid**

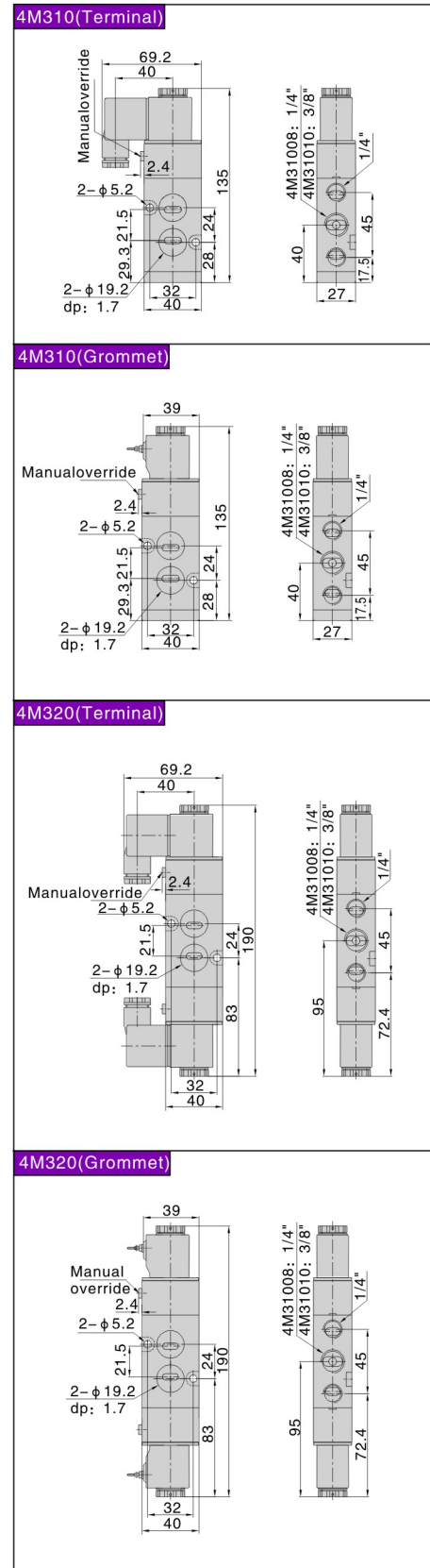
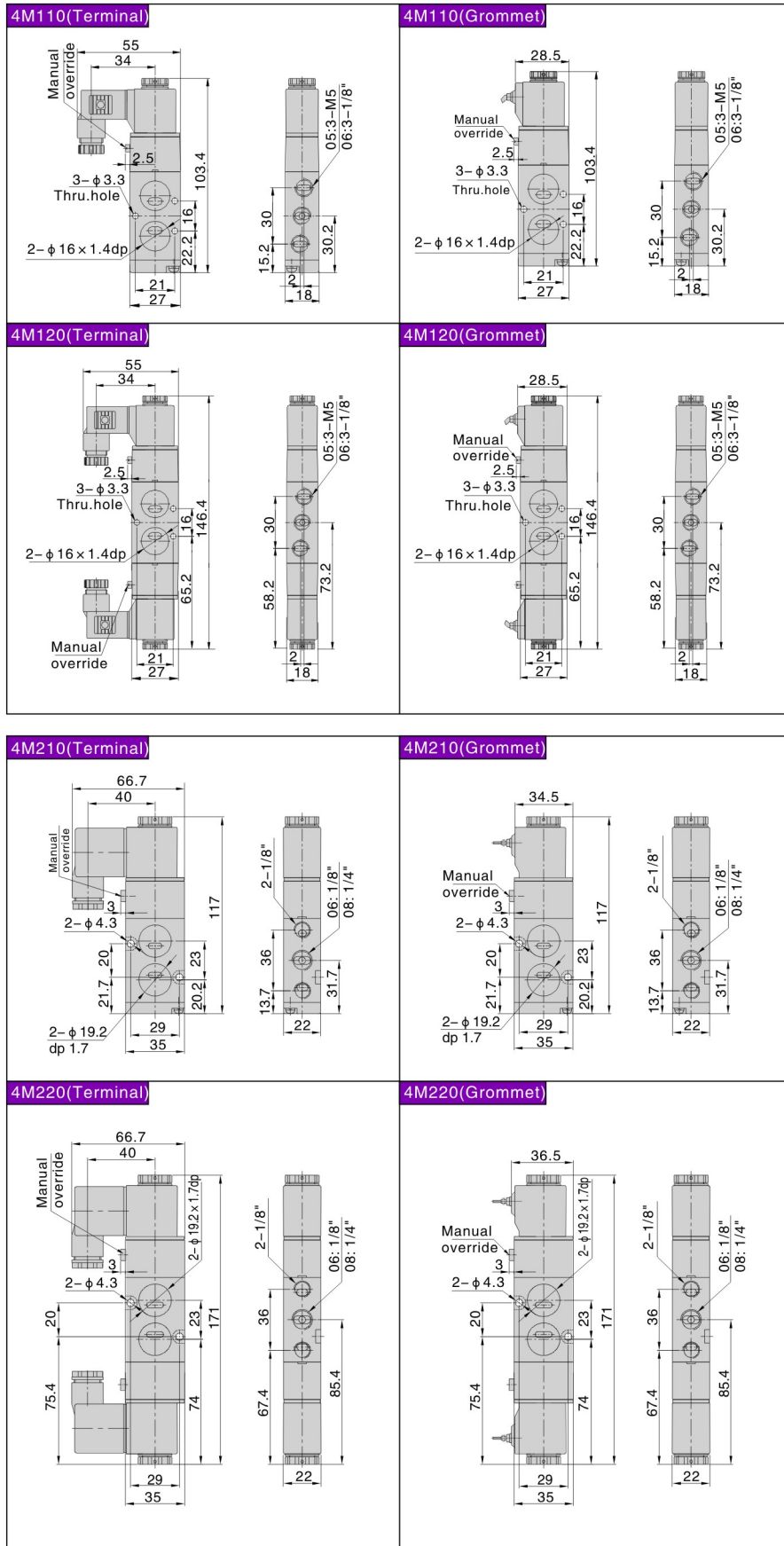
NO.	Item	NO.	Item
1	Connector	10	Bottom cover
2	Coil nut	11	Fixed screw
3	Coil	12	Spool spring
4	Armature	13	Bottom cover gasket
5	Fixed plate	14	Spool O-ring
6	Piston	15	Spool
7	Pilot kit	16	Piston O-ring
8	Body	17	Override spring
9	Wearing ring	18	Manual override



# Solenoid valve ( 5/2 way )

## 4M(NAMUR) Series

### ■ Dimensions



4M



# Coil

## 080、092 Series



Coil

The coils and internal wiring drawing in connector and corresponding table of fitted products are provided for the convenience of your selection.

### 080 Series

Production series	Coil type	Voltage	Coil inside connection diagram	Connector type	Connector inside connection diagram	Memo
3V100 Series 4V100 Series 4M100 Series	CDA080 Terminal	AC		PL1515T-P1	-	Applied to: CDA080 AC、DC type coil
				PL1515T-P2		Applied to: CDA080 AC type coil
	PL1515T-P3			Applied to: CDA080 DC type coil		
	CLA080 Grommet	AC		-	-	-
CLA080 Grommet	DC	-	-	-	-	

### Ordering code

**CD A080 — A**

#### Coil type

CD: Terminal  
CL: Grommet

#### Coil's bore

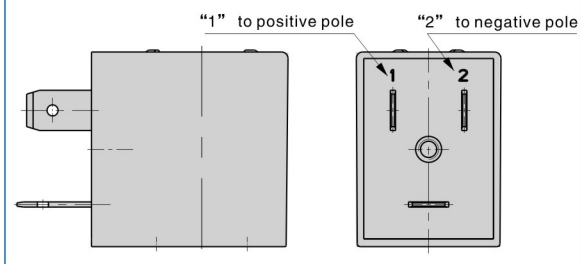
A080: The first product of 8.0mm bore  
A092: The first product of 9.0mm bore

#### Voltage

A: AC220V  
B: DC24V  
C: AC110V  
E: AC24V  
F: DC12V

### Attentions for block wiring

Coil terminal with DC specification has polar indicator lights, thus when wiring, notice positive and negative poles, "1" shall be connected to positive pole, "2" to negative pole. If the poles are connected inversely, the indicator lights will not shine but valve still actuates.



### 092 Series

Production series	Coil type	Voltage	Coil inside connection diagram	Connector type	Connector inside connection diagram	Memo
3V1 Series 3V200 Series 3V300 Series 4V200 Series 4V300 Series 4V400 Series 4M200 Series 4M300 Series	CDA092 Terminal	AC		4V210-005-P1	-	Applied to: CDA092 AC、DC type coil
				4V210-005-P2		Applied to: CDA092 AC type coil
	4V210-005-P3			Applied to: CDA092 DC type coil		
	CLA092 Grommet	AC		-	-	-
CLA092 Grommet	DC	-	-	-	-	

