

CCC Certification (Explosion-proof Electrical Product)



# Pilot Operated 3-Port Solenoid Valve

## 50-VPE500/700-X140 Series

Ex db IIC T5/T6 Gb  
Ex tb III C T85°C/T100°C Db

### Specifications

Fluid	Air		
Type of actuation	N.C. or N.O. (Convertible)		
Pilot type	Internal pilot	External pilot	
Operating pressure range	0.2 to 0.8 MPa	Supply pressure	-101.2 kPa to 0.8 MPa
		External pilot pressure	0.2 to 0.8 MPa
Ambient and fluid temperatures	T5: -10°C to 50°C T6: -10°C to 40°C		
Response time	45 ms or less (at 0.5 MPa)*1		
Max. operating frequency	1 Hz		
Lubrication	Not required		
Manual override	Non-locking push type		
	Push-turn locking type D		
Mounting orientation	Unrestricted		

### Pilot Air Exhaust Port (PE Port)

There is a pilot air exhaust port (PE port) at the bottom of all pilot valves, excluding the common exhaust type. Please refrain from blocking this port as failure to do so may result in valve malfunction. In addition, if there is a possibility that the hazard classification will change due to the exhaust air, be sure to connect piping to this port and exhaust it to a safe location.

### Explosion Proof Precautions

- The zones of this valve are as follows.  
Gas: Zone 1 or 2  
Dust: Zone 21 or 22
- This valve is certified as an explosion-proof valve by the National Supervision and Inspection Center for Explosion Protection and Safety of Instrumentation (NEPSI) of China. It is only certified for use as an explosion-proof valve within China.
- The external ground cable has a 4 to 6.64 mm<sup>2</sup> conductor cross section, so be sure to protect it from bending or excessive force.
- When using a cable gland, be sure to use a GBEx certified product with CCC certification.
- Please use the product in accordance with other Chinese laws.
- Be sure to implement measures to prevent static electricity from charging the non-metal parts on the external surface of the valve.
- As air is also exhausted from the valve PE port (pilot valve exhaust passage), be sure to confirm whether this will affect the ambient environment before use.
- Be sure to either use antistatic fittings or to implement static electricity prevention measures.

\*1 Based on dynamic performance test, JIS B 8419: 2010. (0.5 MPa, at rated voltage.)

### Solenoid Specifications

External wiring connection		Flameproof threaded-joint metal conduit	
Coil rated voltage	AC (% Hz)	100, 200, 12, 24, 48, 110, 220, 240 V	
	DC	24, 6, 12, 48, 110 V	
Allowable voltage fluctuation		-15% to +10% of rated voltage	
Coil Insulation type		Class B	
Apparent power	AC	Starting	9.1 VA (50 Hz) 7.8 VA (60 Hz)
		Holding	6.2 VA (50 Hz) 4.6 VA (60 Hz)
Power consumption	DC	3.5 W (Coil rated voltage: 6, 12, 24 V)*2 1.2 W (For the 24 V coil rated voltage low wattage specification)	

\*2 The other voltage: 4 W

### Option

Description	Part no.	Applicable
Bracket (With mounting screw)	VP500-27-3A	50-VPE542
	VP700-27-2A	50-VPE742

### Flow Rate Characteristics

Piping	Model	Port size	Flow rate characteristics												Weight kg
			1 → 2 (P → A)			2 → 3 (A → R)			3 → 2 (R → A)			2 → 1 (A → P)			
			C [dm <sup>3</sup> /(s·bar)]	b	Cv	C [dm <sup>3</sup> /(s·bar)]	b	Cv	C [dm <sup>3</sup> /(s·bar)]	b	Cv	C [dm <sup>3</sup> /(s·bar)]	b	Cv	
Body ported	50-VPE542-□□-02-03-X60	1/4	6.6	0.35	1.6	7.4	0.41	2.0	6.9	0.34	1.7	7.5	0.42	2.0	1.0
		3/8	9.1	0.42	2.4	9	0.43	2.4	8.8	0.36	2.2	9.3	0.43	2.5	
	50-VPE742-□□-03-04-X60	3/8	12	0.29	2.9	12	0.36	3.1	12	0.31	3.1	13	0.36	3.4	1.28
		1/2	15	0.23	3.8	14	0.25	3.8	15	0.22	3.7	16	0.29	4	

\*3 Weight for the flameproof threaded-joint metal conduit type

## How to Order

**50-VPE 5 4 2 - 1 T D M - 02 A - Y - X140**

● **Explosion-proof**

50	Flameproof, dustproof construction
----	------------------------------------

● **Body type**

Symbol	Body type, Applicable series	
	50-VPE500-X140	50-VPE700-X140
5	●	—
7	—	●

● **Type of valve actuation**

4	In common between N.C. and N.O. (Pilot type)
---	--

● **Body model**

2	Body ported
---	-------------

● **Body option**

Nil	Standard (Internal pilot)
R	External pilot

● **Rated voltage**

AC (50/60 Hz)		DC	
1	100 VAC	5	24 VDC
2	200 VAC	6	12 VDC
3	110 VAC	V	6 VDC
4	220 VAC	Y	48 VDC
7	240 VAC	Z	110 VDC
8	48 VAC		
A	12 VAC		
B	24 VAC		

\* Only 24 VDC can be selected for the low wattage specification ("Y").

● **Symbol**

Type	N.C.	N.O.
Internal pilot (Standard)		
External pilot	Universal 	

● **CCC certified explosion-proof electrical product**

● **Special specification**

Symbol	Specifications
Nil	None
Y	Low wattage

● **Option**

Nil	None
F	With bracket

\* The bracket will be shipped unattached.

● **Symbol**

A	Normally closed
B	Normally open

● **Thread type (Port size)**

Nil	Rc
F	G
N	NPT
T	NPTF

● **Port size (P, A, B)**

Symbol	Port size	Applicable series	
		50-VPE500-X140	50-VPE700-X140
02	1/4	●	—
03	3/8	●	●
04	1/2	—	●

● **Electrical connection port**

Symbol	Thread type
M	M20 x 1.5
N	NPT1/2

● **Manual overrid**

Nil	Non-locking push type
D	Push-turn locking type D (slotted type)

● **External wire connection**

T	Metal conduit threaded type Flameproof enclosure cable gland (not supplied) type*1
---	---

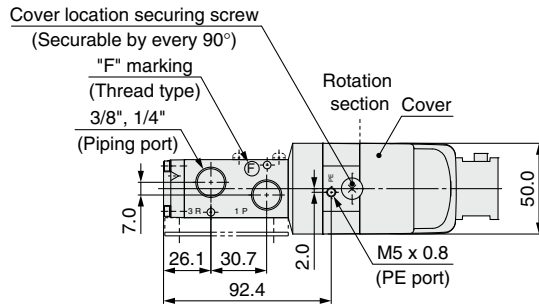
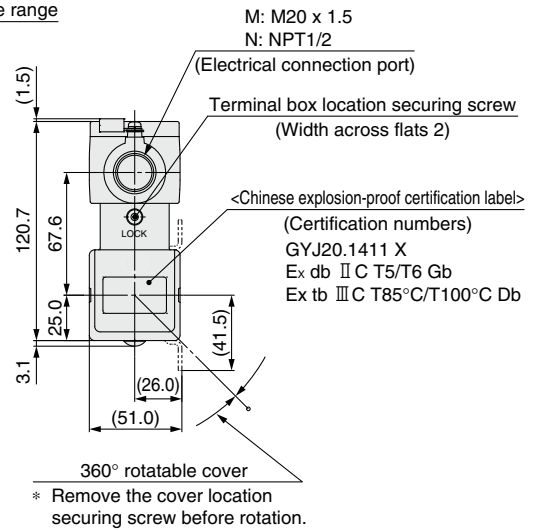
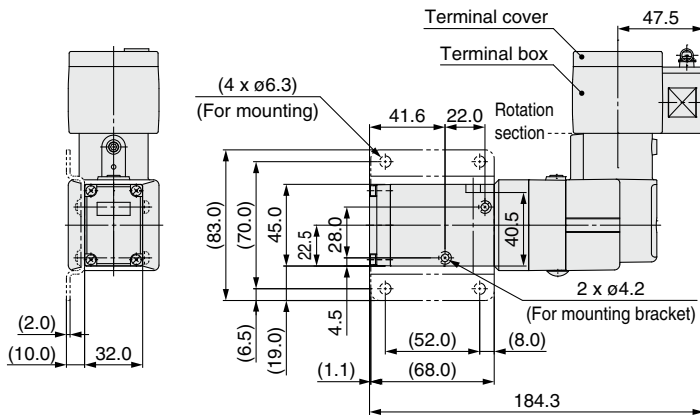
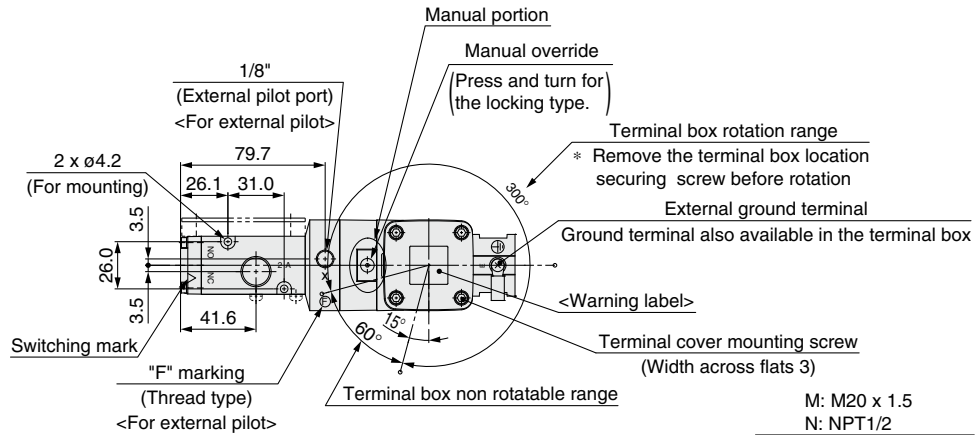
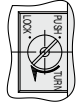
\*1 Please use a commercially available cable gland with Chinese certified explosion-proof product if a product is used as a flameproof enclosure cable gland type.

# 50-VPE500/700-X140 Series

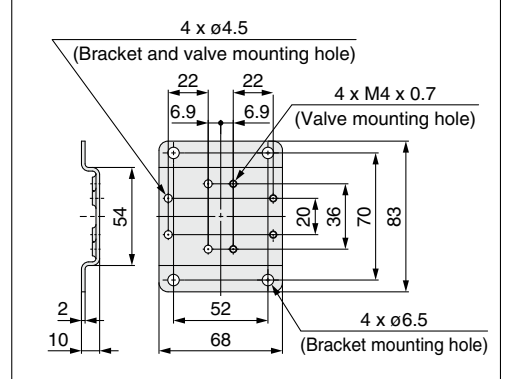
## Body Ported/50-VPE500

### Metal conduit threaded type/50-VPE542(R)-□T(D)□-□□□(-F)-□-□X140

#### Details of Manual Portion Type D

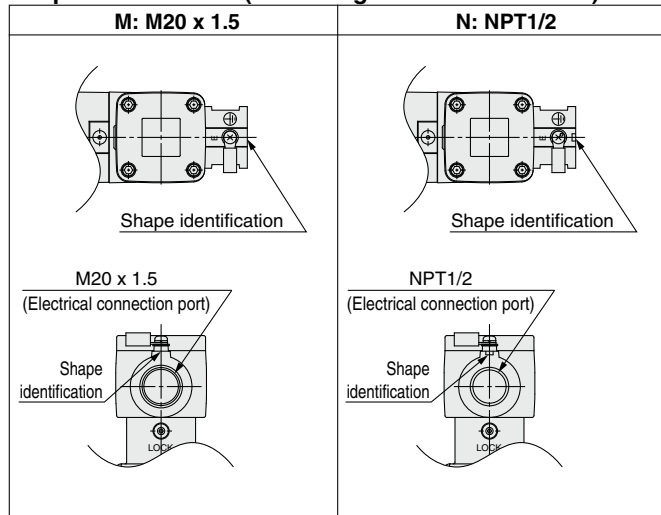


#### Bracket/VP500-27-3



Screw part number: AC00031 (M4 x 38, With spring washer)

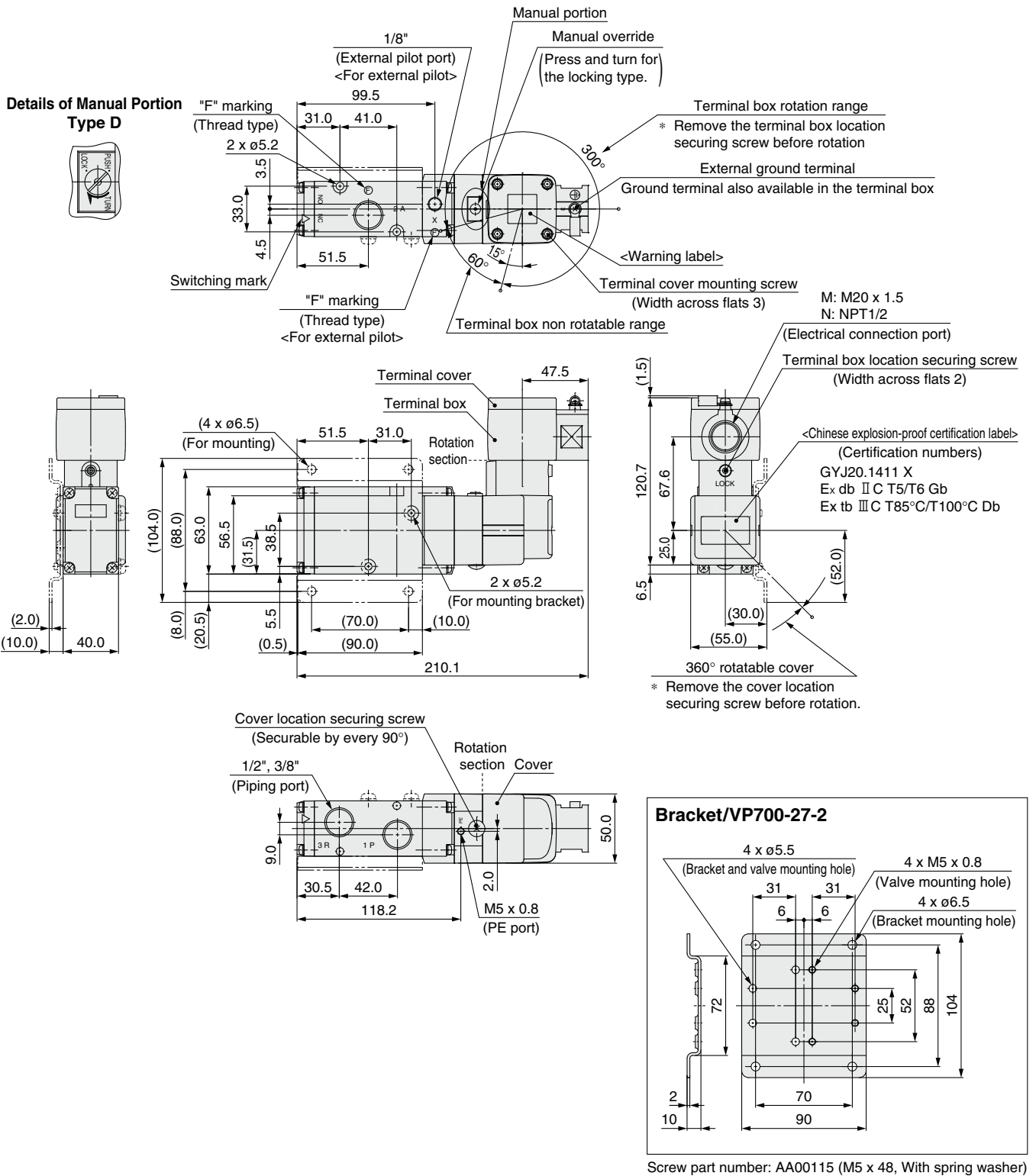
#### Shape identification (External ground terminal area)



\* The shape identification is the same for the 50-VPE500 and 700.

## Body Ported/50-VPE700

### Metal conduit threaded type/50-VPE742(R)-□T(D)□-□□□(-F)-□-X140



# Specific Product Precautions

## Precautions on 50-VPE500/50-VPE700

### Piping

If the P port size of this valve is excessively reduced, a malfunction may occur due to the resulting pressure drop. We recommend using a size 10 or larger (fitting inner diameter) for the 50-VPE542 and a size 12 or larger (fitting inner diameter) for the 50-VPE742, with a piping length of 3 m or less. In addition, when the P port size is reduced, please use an external pilot type valve.

### Special Applications

It can't be used in special applications such as using as a non-leakage valve.

### External Pilot

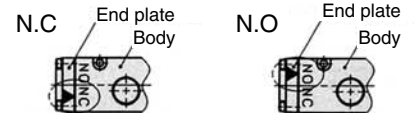
Use external pilot type in the following cases:

- For vacuum or for low pressure 0.2 MPa or less
- When having P port downsized in diameter
- When using A port as the atmospheric releasing port, e.g. air blower

### Change of Actuation

It is possible to switch this valve between normally closed (N.C.) and normally open (N.O.).

#### Body ported



When changing the actuation from normally closed type to normally open type, remove the body from the sub-plate and reset the "▼" mark on the body corresponding to the "NO" mark on the sub-plate as shown in the above.

Refer to the following table for piping.

	Port		
Actuation	P	A	R
N.C	Inlet	Outlet	Exhaust side
N.O	Exhaust side	Outlet	Inlet