CCC Certification (Explosion-proof Electrical Product)

Pilot Operated 5-Port Solenoid Valve

50-VFE3000-X140 Series
50-VFE5000-X140 Series

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

Specifications

Series		50-VFE3000-X140	50-VFE5000-X140
Fluid		Air	
Operating pressure range	2-position single/3-position	0.15 to 0.9 MPa	
	2-position double	0.1 to 0.9 MPa	
Ambient and fluid temperatures		T5: −10°C to 50°C T6: −10°C to 40°C	
Response time	2-position single/double	45 ms or less*1	45 ms or less*1
	3-position	60 ms or less*1	70 ms or less*1
Max. operating frequency	2-position single/double	1 Hz	1 Hz
	3-position	1 Hz	1 Hz
Lubrication		Not required	
Manual override		Non-locking push type, Push-turn locking type D	
Mounting orientation		Unrestricted	
Pilot valve exhaust method		Individual exhaust, Main/Pilot valve common exhaust	Individual exhaust Pilot common exhaust

*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 (50/60 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
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)
Coil Insulation type			Class B

*2 The other voltage: 4 W

Option

Description	Part no.	Applicable
Bracket (With mounting screw)	VF3000-16-1A	50-VFE3□3□
	VF5000-7-1A	50-VFE5□20

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

1) The zones of this valve are as follows.
   Gas: Zone 1 or 2
   Dust: Zone 21 or 22
2) 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.
3) The external ground cable has a 4 to 6.64 mm^2 conductor cross section, so be sure to protect it from bending or excessive force.
4) When using a cable gland, be sure to use a GBEx certified product with CCC certification.
5) Please use the product in accordance with other Chinese laws.
6) Be sure to implement measures to prevent static electricity from charging the non-metal parts on the external surface of the valve.
7) 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.
8) Be sure to either use antistatic fittings or to implement static electricity prevention measures.

Option

Valve model*4	Type of actuation		Port size		Flow rate characteristics*3						Weight*5 kg
					1 → 4/2 (P → A/B)			4/2 → 5/3 (A/B → R1/R2)			
			1, 4, 2 (P, A, B)	5, 3 (R1, R2)	C [dm³/(s/bar)]	b	Cv	C [dm³/(s/bar)]	b	Cv	
50-VFE3□30-01-X140	2-position	Single	1/8		3.0	0.38	0.78	2.8	0.30	0.67	0.85
		Double			3.0	0.38	0.78	2.8	0.30	0.67	1.58
	3-position	Closed center			2.4	0.31	0.64	1.8	0.37	0.46	1.67
		Exhaust center			2.6	0.37	0.70	3.0 [2.5]	0.32 [0.28]	0.76 [0.62]	
		Pressure center			3.0 [1.4]	0.42 [0.44]	0.83 [0.39]	2.4	0.27	0.59	
50-VFE3□30-02-X140	2-position	Single	1/4	1/8	4.0	0.36	1.0	3.1	0.32	0.75	0.85
		Double			4.0	0.36	1.0	3.1	0.32	0.75	1.58
	3-position	Closed center			2.4	0.45	0.68	1.9	0.37	0.47	1.67
		Exhaust center			3.0	0.42	0.82	3.1 [2.7]	0.36 [0.29]	0.79 [0.66]	
		Pressure center			5.5 [1.4]	0.37 [0.50]	1.4 [0.40]	2.6	0.32	0.64	
50-VFE5□20-02-X140	2-position	Single	1/4		7.1	0.46	1.9	7.7	0.51	2.2	1.01
		Double			7.1	0.46	1.9	7.7	0.51	2.2	1.7
	3-position	Closed center			6.7	0.46	1.8	6.6	0.41	1.8	1.84
		Exhaust center			7.1	0.42	1.9	8.0 [7.4]	0.45 [0.47]	2.2 [2.1]	
		Pressure center			6.8 [2.7]	0.51 [0.50]	2.0 [0.78]	5.7	0.37	1.4	
50-VFE5□20-03-X140	2-position	Single	3/8		8.8	0.44	2.4	10.0	0.49	2.9	1.01
		Double			8.8	0.44	2.4	10.0	0.49	2.9	1.7
	3-position	Closed center			7.5	0.43	2.0	7.5	0.38	1.9	1.84
		Exhaust center			8.3	0.40	2.2	10.0 [8.7]	0.48 [0.46]	3.0 [2.4]	
		Pressure center			9.2 [3.0]	0.50 [0.49]	2.6 [0.85]	6.1	0.35	1.6	

*3 [ ]: denotes the normal position.
*4 For the main/pilot valve common exhaust type, select 50-VFE3□33.
*5 Weight for the flameproof threaded-joint metal conduit type
* As the product is body ported, it can be connected to a manifold base as is.

Manifold

Model	Manifold type			
	Type		EXH type	A/B(CYL) port piping
50-VFE3□30-□□-X140	B mount	Type 30	Common	Valve
50-VFE3□40-□□-X140		Type 40	Common	Base
50-VFE3□50-□□-X140		Type 50	Individual	Base
50-VFE3□90-□□-X140	NAMUR Interface	Type 90	Individual	Base
50-VFE5□20-□□-X140	B mount	Type 20	Common	Valve
		Type 21	Common	Valve
50-VFE5□44-□□-X140		Type 40	Common	Base

∗ Select 50-VFE3□33 or 50-VFE3□43 for the main/pilot valve common exhaust type.

How to Order

50 – VFE 5 1 2 0 – 1 T □ M – 03 □ – □ – Y – X140

Explosion-proof

50	Flameproof, dustproof construction

Body type

Symbol	Body type, Applicable series	
	50-VFE3000-X140	50-VFE5000-X140
3	●	—
5	—	●

Symbol

1	Single solenoid
2	Double solenoid
3	Closed center
4	Exhaust center
5	Pressure center

Body model

Symbol	Body model	Applicable series	
		50-VFE3000-X140	50-VFE5000-X140
2	Body ported (For manifold type 20)	—	●
3	Body ported (For manifold type 30)	●	—
4	Base mounted (For manifold type 40)	●	●
5	For manifold type 50	●	—

Body option

Symbol	Body model	Applicable series	
		50-VFE3000-X140	50-VFE5000-X140
0	Standard	50-VFE3□$^{30}_{40}_{50}$-X140	50-VFE5□20-X140
3	Common exhaust type for main and pilot valve	50-VFE3□$^{33}_{43}$-X140	—
4	Centralized piping type for pilot exhaust	—	50-VFE5□44-X140

Rated voltage

AC (50/60 Hz)

1	100 VAC
2	200 VAC
3	110 VAC
4	220 VAC
7	240 VAC
8	48 VAC
A	12 VAC
B	24 VAC

DC

5	24 VDC
6	12 VDC
V	6 VDC
Y	48 VDC
Z	110 VDC

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

External wire connection

T	Metal conduit threaded type Flameproof enclosure cable gland (not supplied) type∗2

∗2 Please use a commerclally available cable gland with Chinese certified explosion-proof product if a product is used as a flameproof enclosure cable gland type.

Manual override

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

Electrical connection port

Symbol	Thread type
M	M20 x 1.5
N	NPT1/2

Port size (P, A, B)

Symbol	Port size	Applicable series	
		50-VFE3000-X140	50-VFE5000-X140
Nil	None	50-VFE3□$^{40}_{43}_{50}$-X140	50-VFE5□44-X140
01	1/8	50-VFE3□$^{30}_{33}$-X140	—
02	1/4	50-VFE3□$^{30}_{33}$-X140	50-VFE5□20-X140
03	3/8	—	50-VFE5□20-X140

Thread type (Port size)

Nil	Rc
F	G
N	NPT
T	NPTF

Option

Nil	None
F	With bracket

∗ Avallable only for 50-VFE3□30/33 or 50-VFE□5□20 (The bracket will be shipped unattached.)

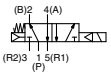
Special specification

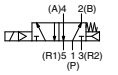
Symbol	Specifications
Nil	None
Y	Low wattage

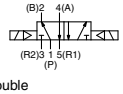
CCC certified explosion-proof electrical product

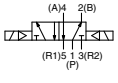
Symbol

2-position

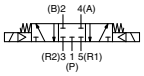
Single
50-VFE3130·3133


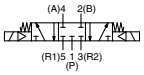
Single
50-VFE3140·3143·3150
50-VFE5120·5144


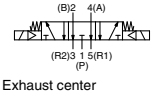
Double
50-VFE3230·3233


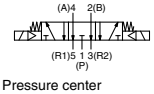
Double
50-VFE3240·3243·3250
50-VFE5220·5244


3-position

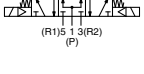
Closed center
50-VFE3330·3333


Closed center
50-VFE3340·3343·3350
50-VFE5320·5344


Exhaust center
50-VFE3430·3433


Exhaust center
50-VFE3440·3443·3450
50-VFE5420·5444


Pressure center
50-VFE3530·3533


Pressure center
50-VFE3540·3543·3550
50-VFE5520·5544


NAMUR Interface 5-Port Solenoid Valve How to Order

50 – VFE3 [1] 90 – [1] [T] [ ] [M] – [00F] – [ ] [ ] – [Y] – X140

Explosion-proof

50	Flameproof, dustproof construction

Symbol

1	Single solenoid
2	Double solenoid

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”).

External wire connection

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

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

Manual override

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

Electrical connection port

Symbol	Thread type
M	M20 x 1.5
N	NPT1/2

Thread type

Nil	Rc
00F	G
00N	NPT
00T	NPTF

Pilot valve mounting position (Single only)

Symbol	Pilot valve mounting position
Nil	Standard
R	Port 2(B) side

Option

Symbol	Option
Nil	Without spacer assembly
1	With spacer assembly

Special specification

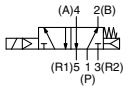
Symbol	Specifications
Nil	None
Y	Low wattage

CCC certified explosion-proof electrical product

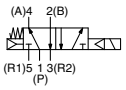
Symbol

2-position

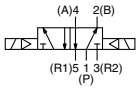
Single
50-VFE3190-X140



50-VFE3190-R-X140

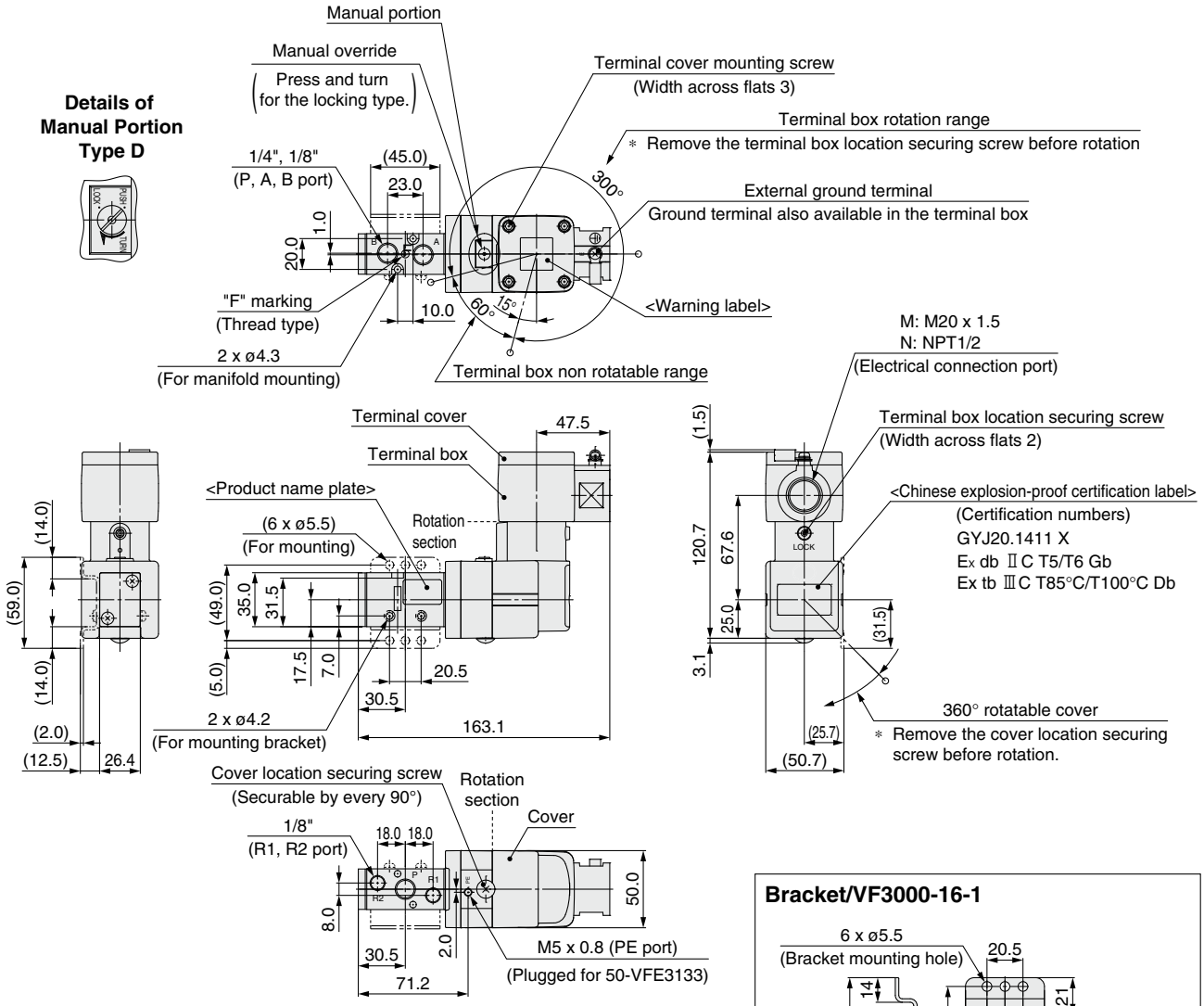


Double
50-VFE3290-X140

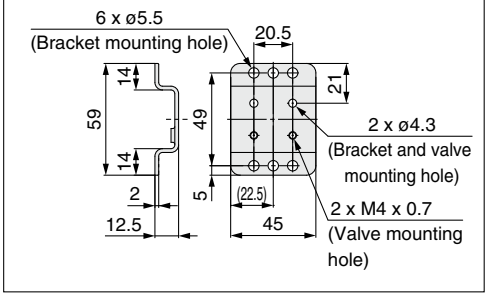


50-VFE3000 Body Ported/2-Position Single

Metal conduit threaded type/50-VFE3130-□T(D)□-□□(-F)-□-X140

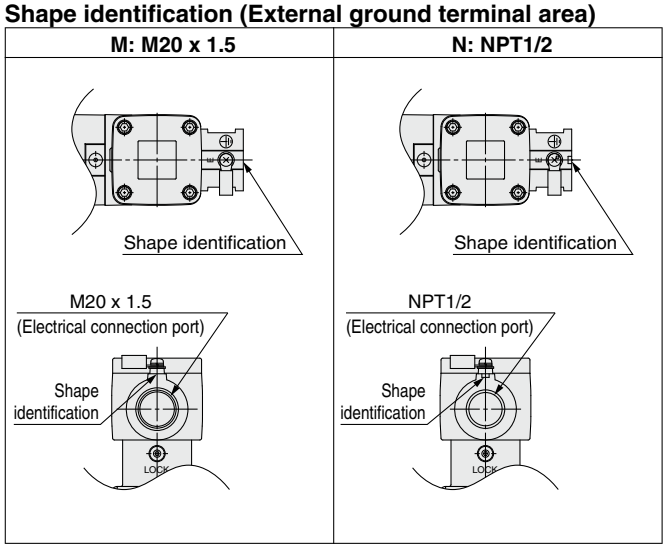


Bracket/VF3000-16-1



Screw part number: AC00297 (M4 x 32, With spring washer)

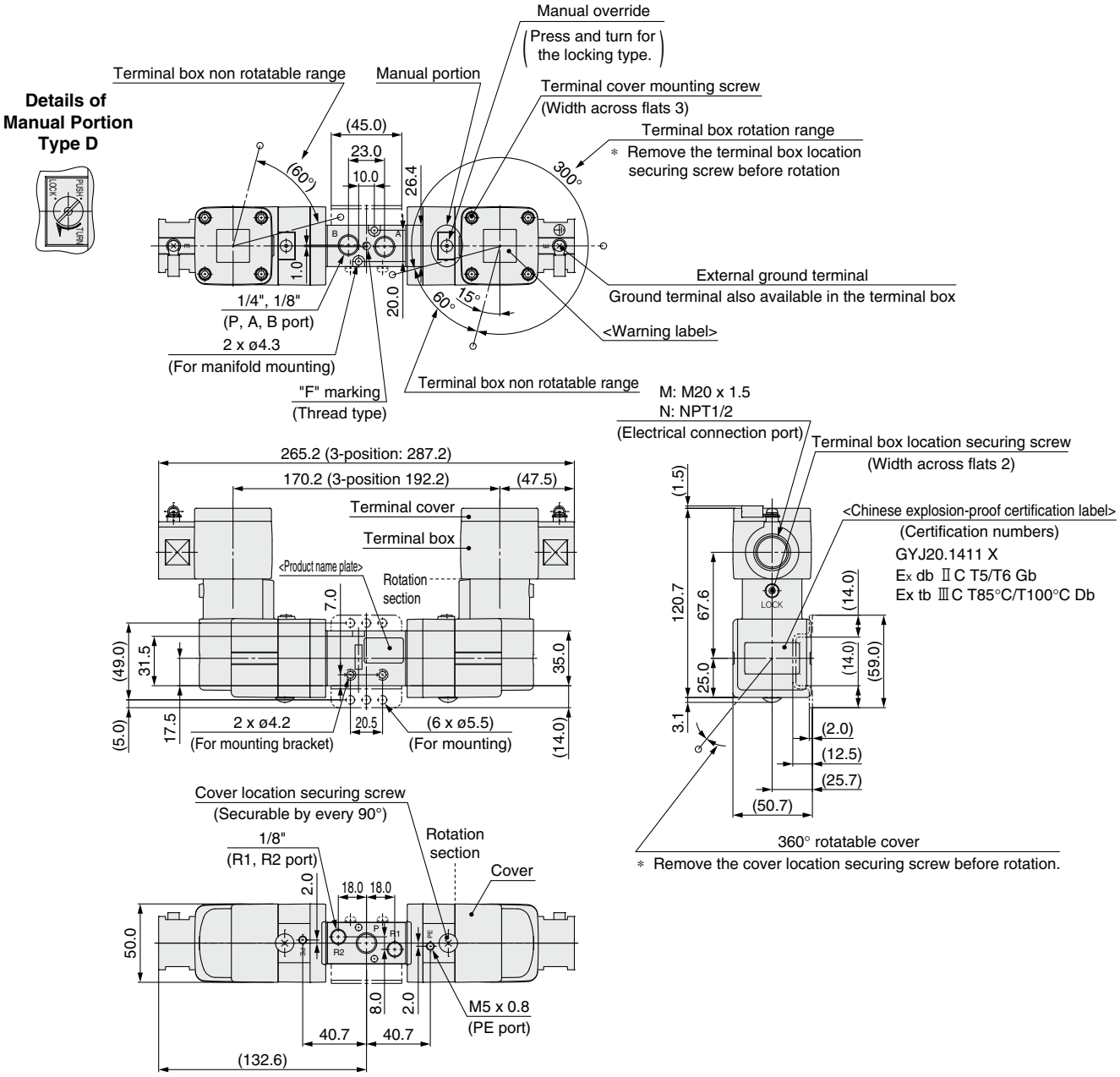
Shape identification (External ground terminal area)



* The shape identification is the same for the 50-VFE3000 and 5000.

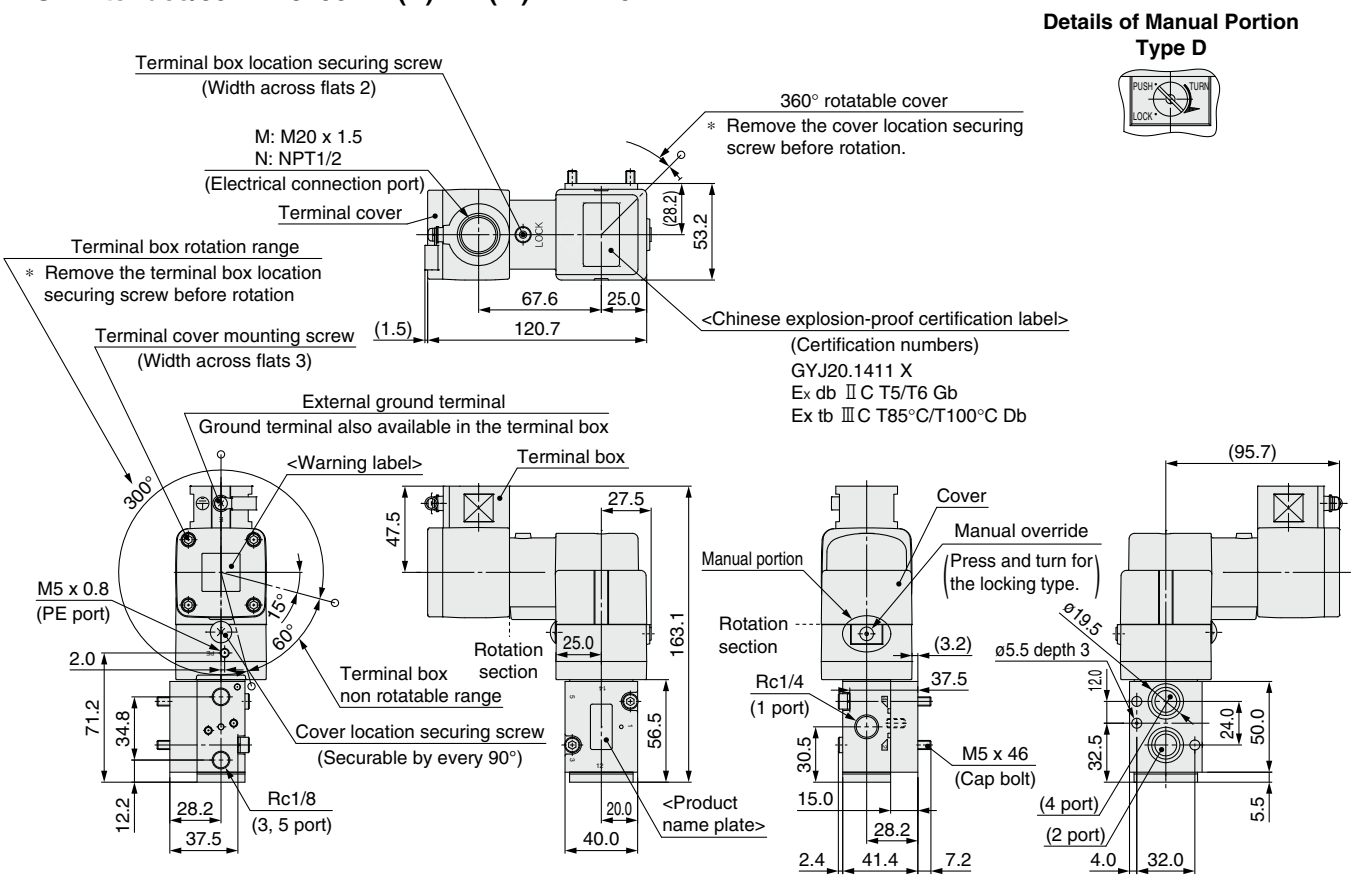
50-VFE3000 Body Ported/2-Pposition Double, 3-Position Closed Center, Exhaust Center, Pressure Center

Metal conduit threaded type/50-VFE3□30-□T(D)□-□□(-F)-□-X140

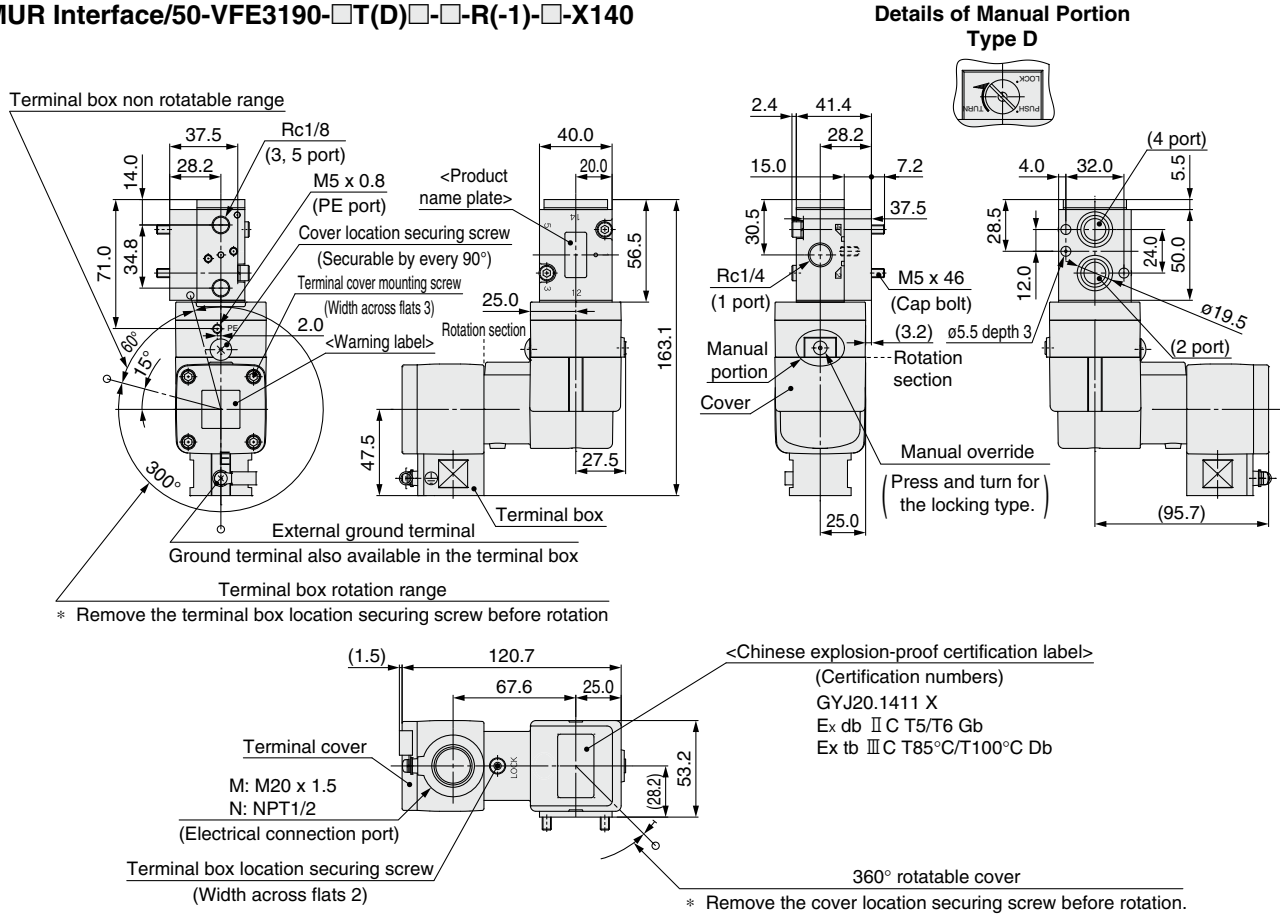


50-VFE3000 Body Ported/2-Pposition Double, 3-Position Closed Center, Exhaust Center, Pressure Center

NAMUR Interface/50-VFE3190-□T(D)□-□(-1)-□-X140

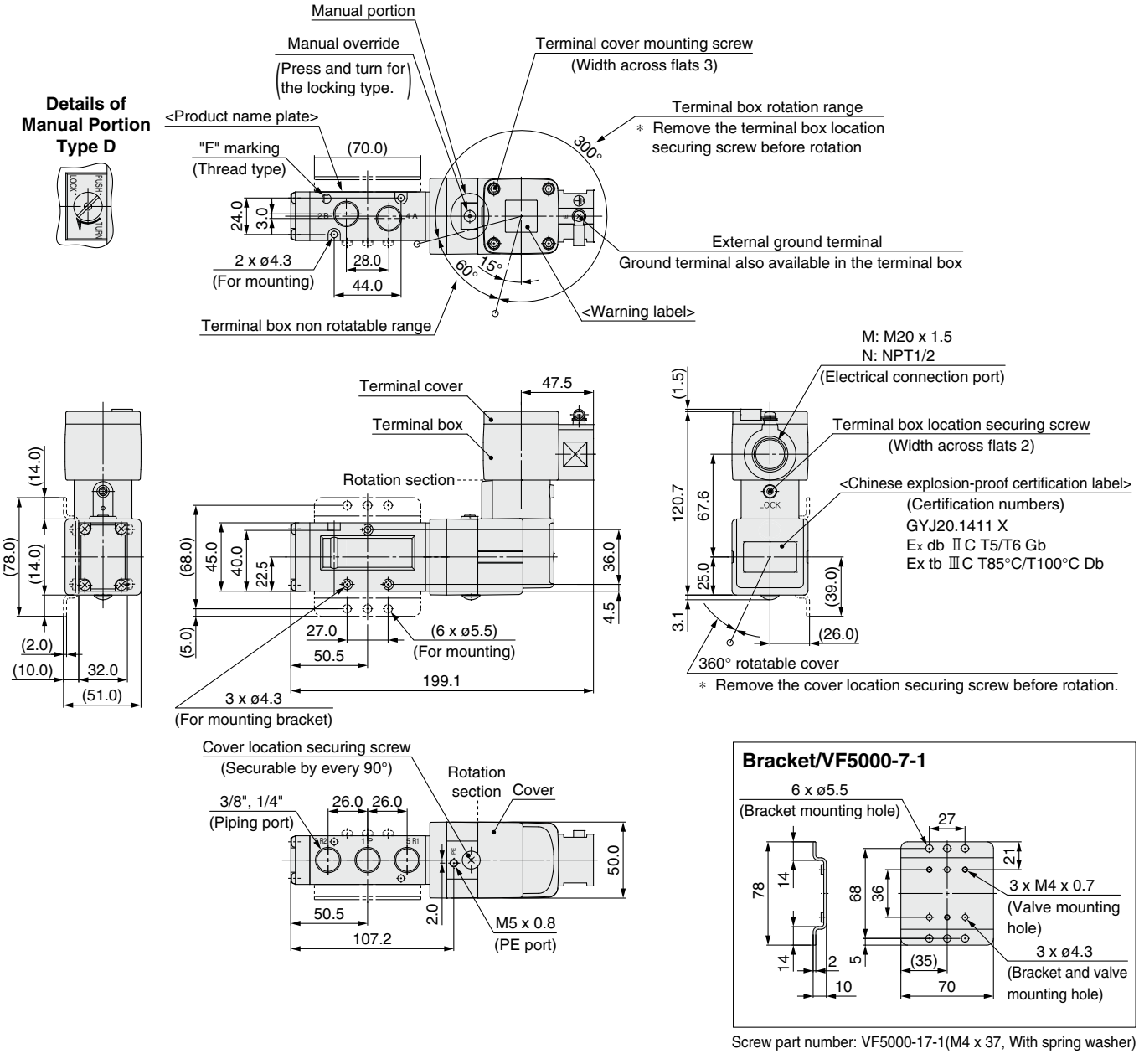


NAMUR Interface/50-VFE3190-□T(D)□-□-R(-1)-□-X140



50-VFE5000 Body Ported/2-Position Single

Metal conduit threaded type/50-VFE512□-□T(D)□-□□(-F)-□-X140

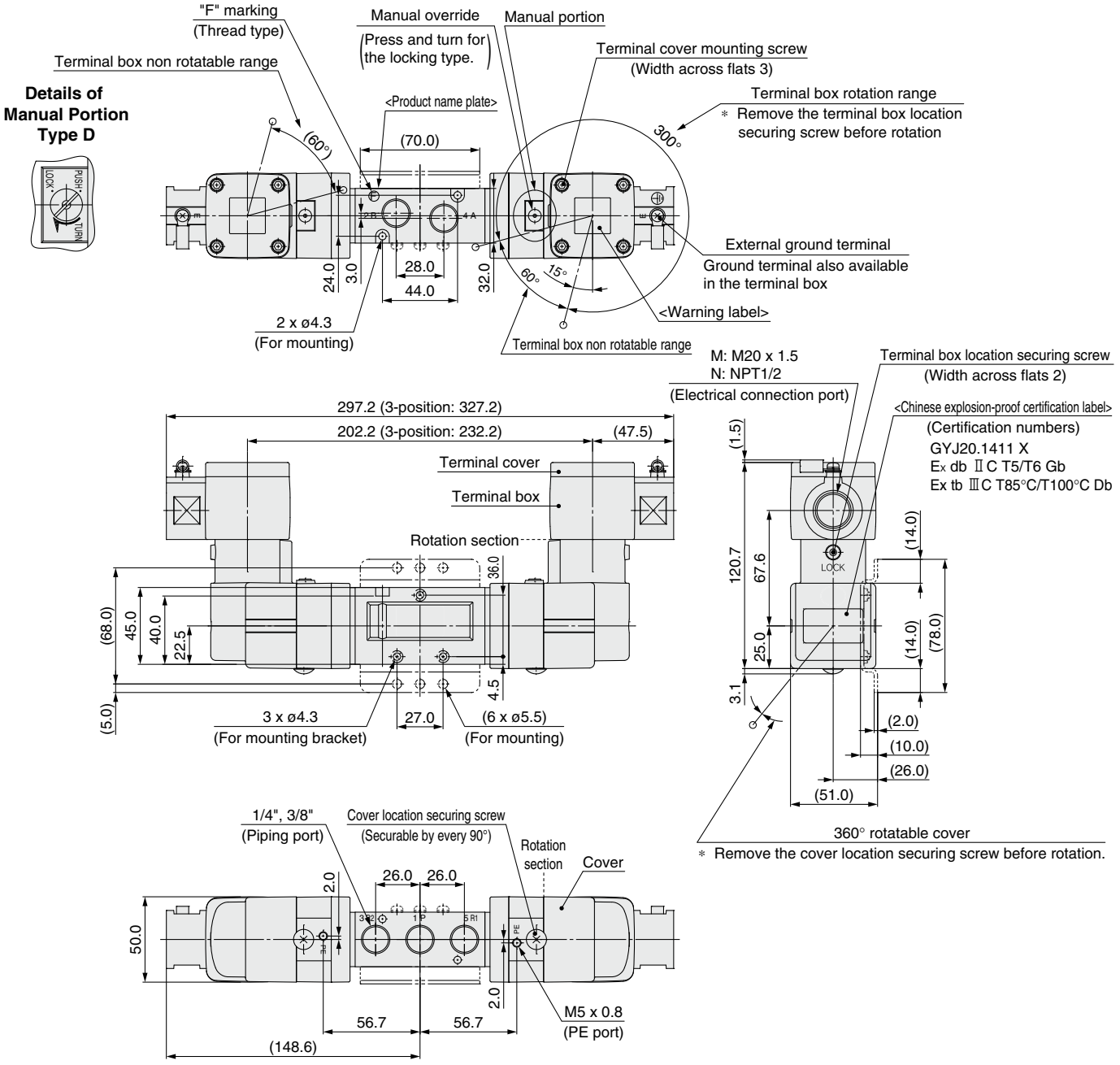


Bracket/VF5000-7-1

Screw part number: VF5000-17-1(M4 x 37, With spring washer)

50-VFE5000 Body Ported/2-Pposition Double, 3-Position Closed Center, Exhaust Center, Pressure Center

Metal conduit threaded type/50-VFE5□2□-□T(D)□-□□(-F)-□-X140



50-VFE3000-X140 Series
Manifold Specifications

Manifold Specifications

Model		(2)Type 30	(2)Type 40	(3)Type 50
Applicable valve		50-VFE3□3$^{0}_{3}$-X140	50-VFE3□4$^{0}_{3}$-X140	50-VFE3□50-X140
Manifold type		Single base/B mount		
P(SUP)·(1)R(EXH)		Common SUP, Common EXH		Common SUP, Individual EXH
Valve stations		2 to 10 stations		
Piping direction	P	Side / Base	Side / Base	Side / Base
	R	Side / Base	Side / Base	Top / Valve
Port location	A·B	Top / Valve	Bottom / Base	Bottom / Base
Port size	P	1/4	1/4	1/4
	R	1/4	1/4	1/4
	A·B	1/8·1/4	1/4	1/4

∗ Common exhaust type for main and pilot valve is possible only in the valves of common exhaust.
(1) Supply (P port) is commom.
(2) For more than 8 stations, supply air to both sides of P port and exhaust air from both sides of R port.
(3) For more than 10 stations, supply air to both sides of P port.

How to Order Manifold

Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

(Example) **50-VV5FE3-30-05**·····1 pc. (Manifold)
50-VFE3130-1TM-02-X140·····2 pcs. (Valve)
50-VFE3230-1TM-02-X140·····2 pcs. (Valve)
VF3000-13-1A·····1 pc. (Blanking plate)

Common SUP/Common EXH

∗ For more than 8 stations, supply air to both sides of P port and exhaust air from both sides of R port.

Type 30

How to Order

50−VV5FE3−30−**05**

Stations

02	2 stations
⋮	⋮
10	10 stations

∗ The max. number of stations is 10 stations.

Applicable solenoid valve
50-VFE3□3□-X140

Applicable blanking plate assembly
VF3000-13-1A

Type 40

How to Order

50−VV5FE3−40−**05**−**02**

Stations

02	2 stations
⋮	⋮
10	10 stations

Base mounted type A, B port size

02	Rc 1/4

∗ The max. number of stations is 10 stations.

Applicable solenoid valve
50-VFE3□4□-X140

Applicable blanking plate assembly
VF3000-13-1A

Common SUP/Individual EXH

∗ For more than 8 stations, supply air to both sides of P port.

Type 50

How to Order

50−VV5FE3−50−**05**−**02**

Stations

02	2 stations
⋮	⋮
10	10 stations

Base mounted type A, B port size

02	Rc 1/4

∗ The max. number of stations is 10 stations.

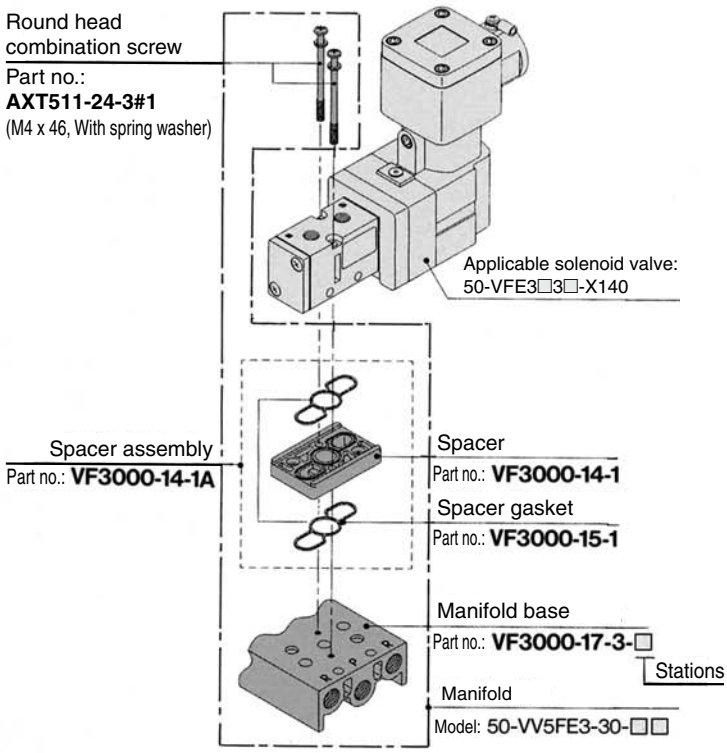
Applicable solenoid valve
50-VFE3□50-X140

Applicable blanking plate assembly
VF3000-13-1A

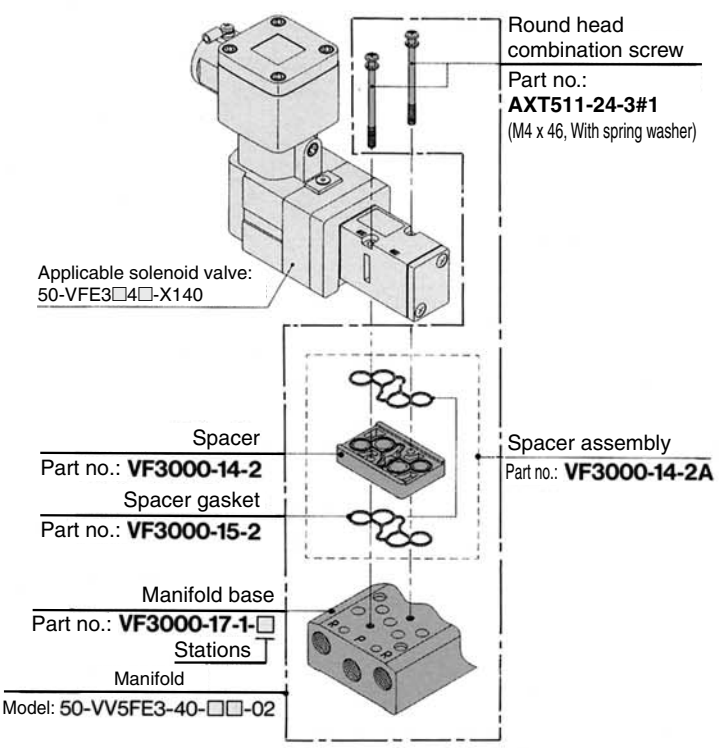
Option

Manifold component parts

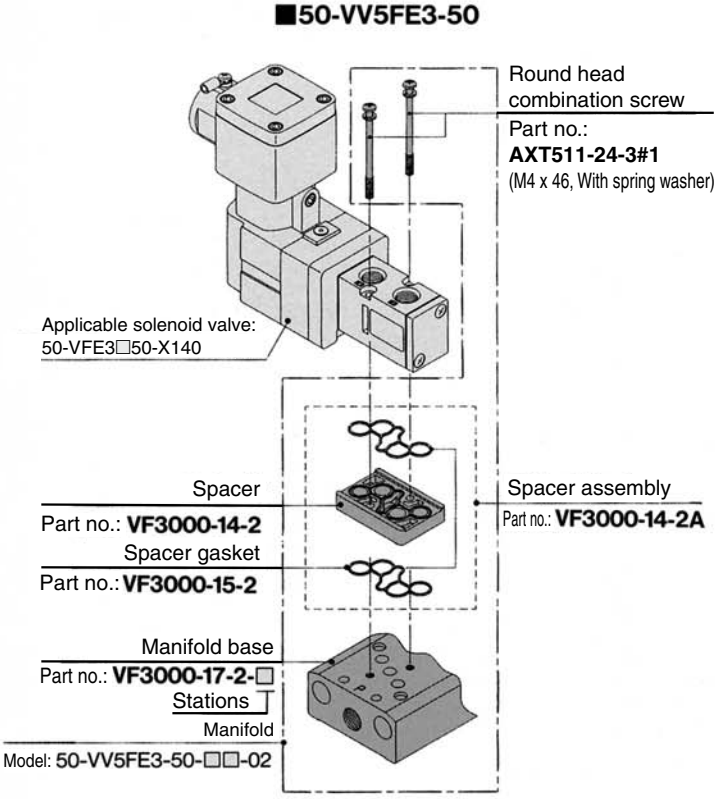
■50-VV5FE3-30



■50-VV5FE3-40

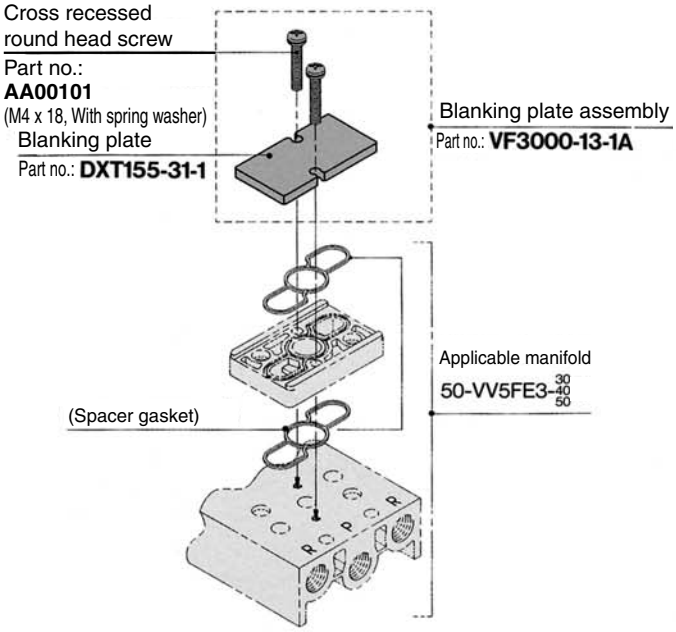


■50-VV5FE3-50



Blanking plate assembly

VF3000-13-1A



50-VFE5000-X140 Series
Manifold Specifications

Manifold Specifications

Model		(3)Type 20	(2)Type 21	(3)Type 40
Applicable valve		50-VFE5□$^{2}_{4}$□-X140		
Manifold type		Single base/B mount		
P(SUP)·(1)R(EXH)		Common SUP, Common EXH		
Valve stations		2 to 10 stations		
Piping direction	P	Side / Base	Side / Side block	Side / Base
	R	Side / Base	Side / Side block	Side / Base
Port location	A·B	Top / Valve	Top / Valve	Bottom / Base
Port size	P	3/8	1/2	3/8
	R	3/8	1/2	3/8
	A·B	1/4·3/8	1/4·3/8	1/4

(1) Supply (P port) is commom.
(2) For more than 8 stations, supply air to both sides of P port and exhaust air from both sides of R port.
(3) For more than 5 stations, supply air to both sides of P port and exhaust air from both sides of R port.

How to Order Manifold

Instruct by specifying the valves and blanking plate assembly to be mounted on the manifold along with the manifold base model no.

(Example) **50-VV5FE5-20-05**·····1 pc. (Manifold)
50-VFE5120-1TM-02-X140 ·····2 pcs. (Valve)
50-VFE5220-1TM-02-X140 ·····2 pcs. (Valve)
VF5000-4-1A ·····1 pc. (Blanking plate)

Common SUP/Common EXH

* For more than 5 stations for type 20 and 40 or more than 8 station for type 21, supply air from both sides of supply P port and exhaust air from both sides of exhaust R port.

Type 20

How to Order

50−VV5FE5−20−**05**

Stations

02	2 stations
⋮	⋮
10	10 stations

* The max. number of stations is 10 stations.

Applicable solenoid valve
50-VFE5□20-X140

Applicable blanking plate assembly
VF5000-4-1A

Type 21

How to Order

50−VV5FE5−21−**05**

Stations

02	2 stations
⋮	⋮
10	10 stations

* The max. number of stations is 10 stations.

Applicable solenoid valve
50-VFE5□20-X140

Applicable blanking plate assembly
VF5000-4-1A

Type 40

How to Order

50−VV5FE5−40−**05**−**02**

Stations

02	2 stations
⋮	⋮
10	10 stations

Base mounted type A, B port size

02	Rc 1/4

* The max. number of stations is 10 stations.

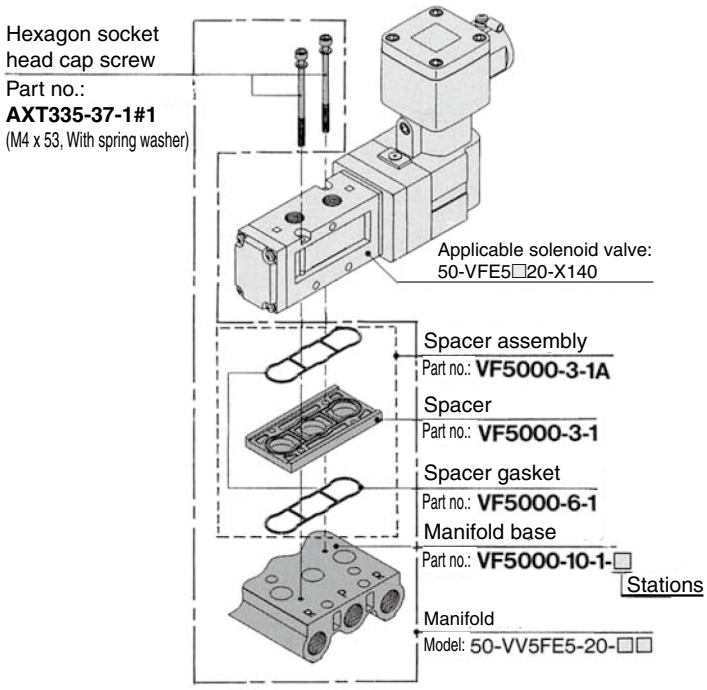
Applicable solenoid valve
50-VFE5□44-X140

Applicable blanking plate assembly
VF5000-4-1A

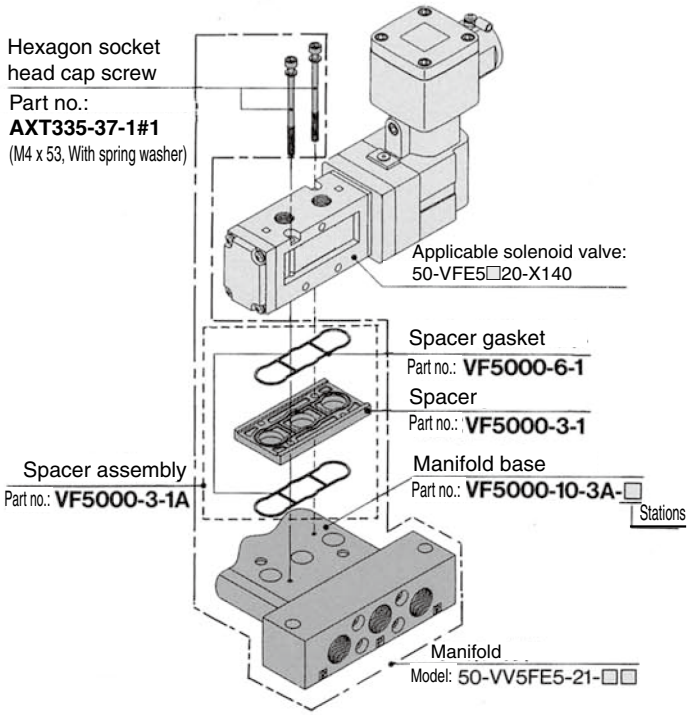
Option

Manifold component parts

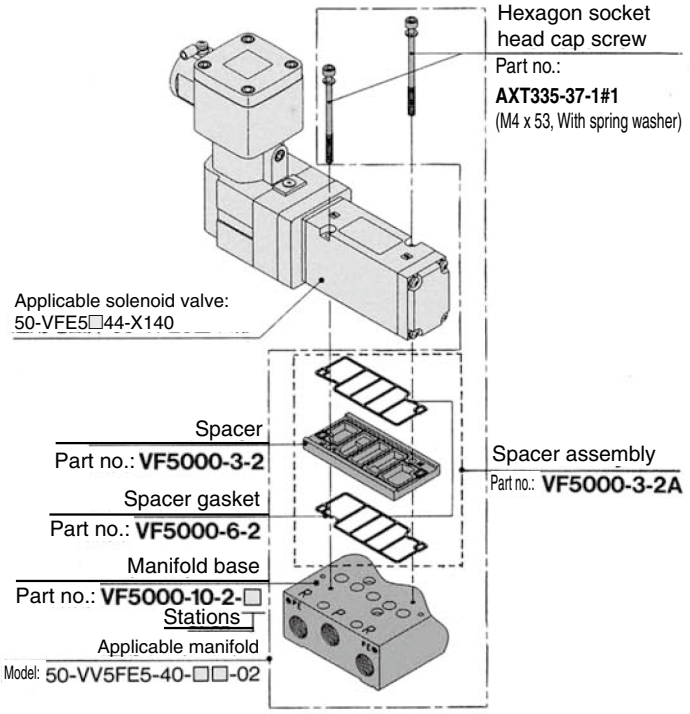
■50-VV5FE5-20



■50-VV5FE5-21



■50-VV5FE5-40



Blanking plate assembly

VF5000-4-1A