

3 Port Solenoid Valve Metal Seal

Series VZ400

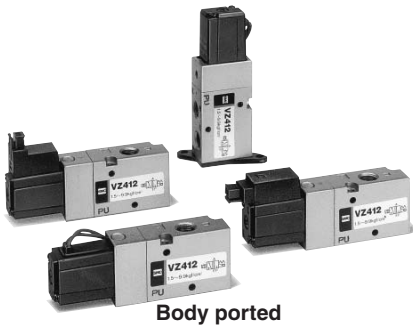
Large flow capacity

Low power consumption:
1.8 W (75 mA, 24 VDC)

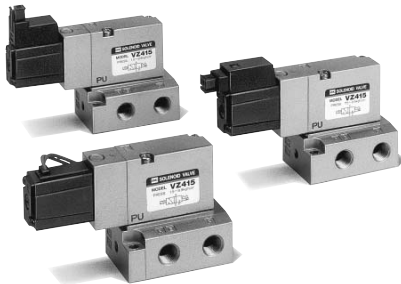
Plug connector

One-touch wiring of plug connectors

Common pilot exhaust sub-plate mounted and manifold

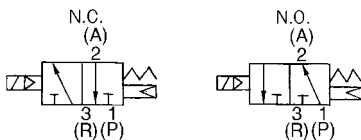


Body ported



Base mounted

JIS Symbol



Model

Piping	Type of actuation	Choice of pilot valve exhaust	
		Individual exhaust	Common exhaust
Body ported	N.C.	VZ412	VZ412*
	N.O.	VZ422	VZ422*
Base mounted	N.C.	—	VZ415
	N.O.	—	VZ425



* Body ported type provides both individual exhaust and common exhaust.

Specifications

Fluid	Air/Inert gas
Maximum operating pressure	1.0 MPa
Minimum operating pressure	0.15 MPa
Proof pressure	1.5 MPa
Ambient and fluid temperature	-10 to 50°C
Lubrication	Not required
Enclosure	Dustproof ⁽⁵⁾
Manual override	Push type (Safety style), Locking type (Tool required), Locking type (Manual)
Shock/Vibration resistance (m/s ²)	150/50 ⁽⁶⁾

Specifications	Type	Body ported		Base mounted (With sub-plate)		
		N.C. valve	N.O. valve	N.C. valve	N.O. valve	
Port size		Rc 1/8		Rc 1/8, 1/4		
Flow characteristics	1 → 2 (P → A)	C[dm ³ /(s·bar)]	2.0	2.0	2.4	2.4
		b	0.14	0.17	0.19	0.19
		Cv	0.49	0.49	0.57	0.57
	2 → 3 (A → R)	C[dm ³ /(s·bar)]	2.2	2.2	2.2	1.9
		b	0.17	0.17	0.11	0.32
		Cv	0.53	0.53	0.49	0.45
Max. operating frequency (c/s) (AC/DC) ⁽¹⁾		15		15		
Response time (ms) (AC/DC) ⁽²⁾		21/21 or less		21/21 or less		
Weight (kg) ⁽³⁾		0.125		0.250		



Note 1) Minimum operating frequency: As per JIS B 8373 (Once in 30 days)
 Note 2) Based on JIS B 8375-1981 (Supply pressure; 0.5 MPa; without surge voltage suppressor)
 Note 3) Value for grommet (Sub-plate weight: 0.055 kg)
 Note 4) "Note 1)" and "Note 2)" are with controlled clean air.

Note 5) Based on JIS C 0920

Note 6) Impact resistance: No malfunction occurred when it is tested with a drop tester in the axial direction and at the right angles to the main valve and armature in both energized and de-energized states every once for each condition. (Values at the initial period)

Vibration resistance: No malfunction occurred in a one-sweep test between 45 and 2000 Hz. Test was performed at both energized and de-energized states in the axial direction and at the right angles to the main valve and armature. (Values at the initial period)

Solenoid Specifications

* Option

Electrical entry	Grommet (G), Plug connector (L), Plug connector (M), DIN terminal (D)		
Coil rated voltage (V)	AC 50/60 Hz	100, 200, 24*, 48*, 110*, 220*	
	DC	24, 6*, 12*, 48*	
Allowable voltage fluctuation (%)	-15 to +10% of rated voltage		
Coil insulation type	Class E or equivalent (120°C) ⁽²⁾		
Temperature rise (°C)	45 or less		
Power consumption (W)	DC	1.8 (With indicator light: 2.1)	
Apparent power (VA)	AC	Inrush	4.5/50 Hz, 4.2/60 Hz
		Holding	3.5/50 Hz, 3/60 Hz
Surge voltage suppressor ⁽¹⁾	DC: Diode, AC: ZNR		
Indicator light	DC: LED (Red), AC: Neon bulb		



Note 1) In the case of grommet type, it is equipped on the middle of lead wire.

Note 2) Based on JIS C 4003

Option

Description	Part no.	Note
Foot bracket (With screw) ⁽¹⁾	VZ4000-22A	For VZ4□2
Silencer	R 1/8	Noise reduction: 21 dB (ø13 x 38ℓ)
	R 1/4 ⁽²⁾	Noise reduction: 25 dB (ø16 x 36ℓ)



Note 1) For body ported type Note 2) For sub-base mounted type

3 Port Solenoid Valve Metal Seal, Body Ported/Base Mounted **Series VZ400**

How to Order

VZ4 1 2 1 G [] [] **01** []

Series VZ400

Type of actuation

1	N.C. (Normally closed)
2	N.O. (Normally open)

Body type

Body ported	2	Individual pilot exhaust Common pilot exhaust
Base mounted	5	Common pilot exhaust

Rated voltage

1	100 VAC, 50/60 Hz
2	200 VAC, 50/60 Hz
3*	110 VAC, 50/60 Hz
4*	220 VAC, 50/60 Hz
5	24 VDC
6*	12 VDC
9*	Other

* Option

Light/Surge voltage suppressor

Nil	None
Z	With light/surge voltage suppressor (Indicator light is not available for grommet type.)
S	With surge voltage suppressor

* "DOZ" is not available.

Electrical entry

G: Grommet, Lead wire length 300 mm	L: L plug connector, With lead wire	LN: L plug connector, Without lead wire	LO: L plug connector, Without connector	D: DIN terminal
H: Grommet, Lead wire length 600 mm	M: M plug connector, With lead wire	MN: M plug connector, Without lead wire	MO: M plug connector, Without connector	DO: DIN terminal, Without connector

Type "G", "L", and "M": Lead wire 300 mm

Option

F*	Foot bracket
U	Silencer
K*	Foot bracket + Silencer

* Only body ported type

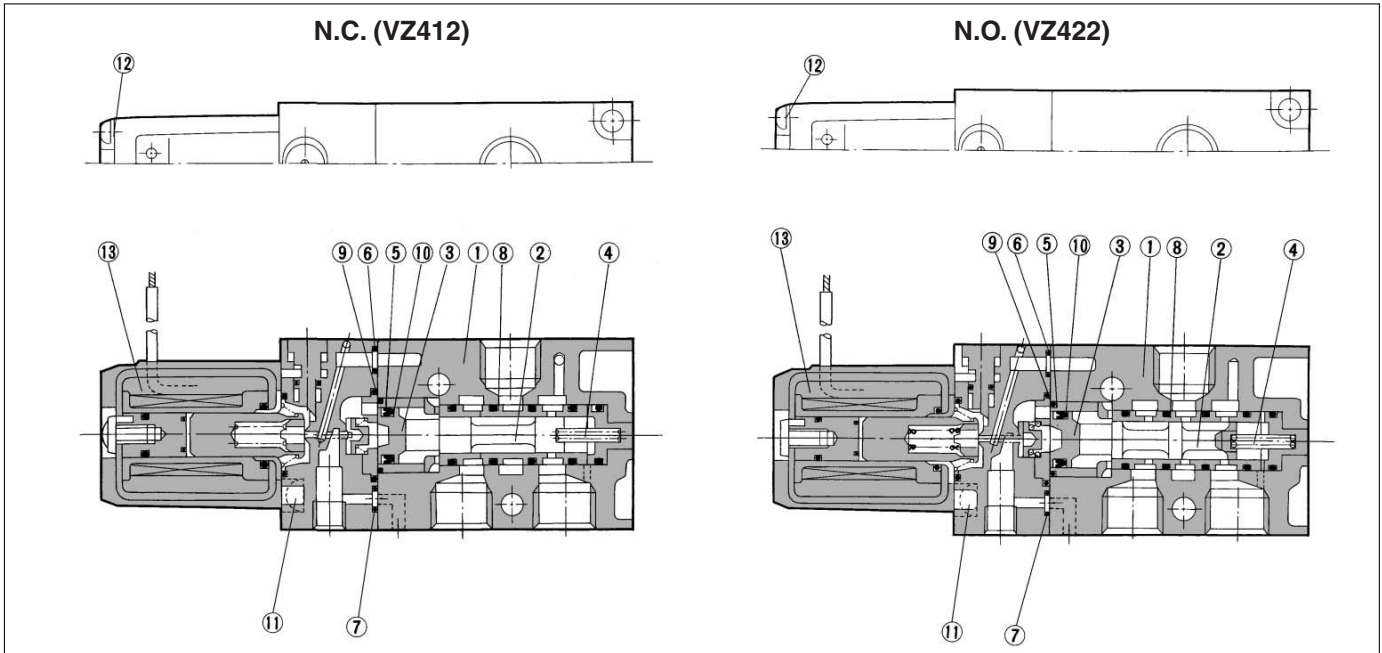
Port size

Body ported	01	Rc 1/8
	Nil	Without sub-plate
Base mounted	01	Rc 1/8
	02	Rc 1/4

Manual override

Nil	Push type (Safety style)
B	Locking type (Tool required)
C	Locking type (Manual)

Construction (Body ported)



Component Parts

No.	Description	Material	Note
①	Body	Aluminum die-casted	Platinum silver
②	Spool/Sleeve	Stainless steel	
③	Piston	Polyacetal	

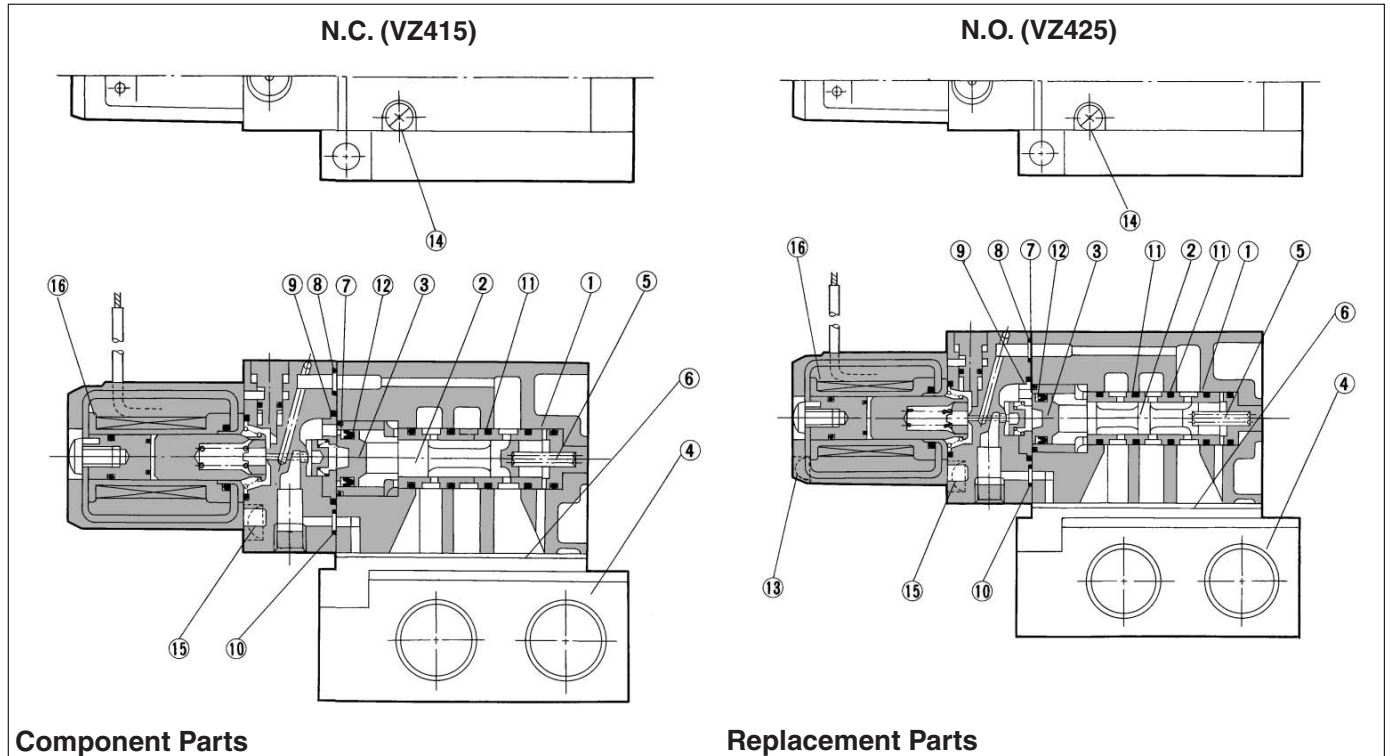
Replacement Parts

No.	Description	Material	Note
④	Return spring	Stainless steel	
⑤	O-ring	NBR	
⑥	Seal	NBR	
⑦	O-ring	NBR	
⑧	O-ring	NBR	
⑨	O-ring	NBR	
⑩	Mini Y seal	NBR	
⑪	Round head combination screw	Carbon steel	
⑫	Round head combination screw	Carbon steel	
⑬	Pilot valve assembly	—	SCZ4□□□-□-□

- V100
- SY
- SYJ
- VK
- VZ
- VT
- VP
- VG
- VP
- S070
- VQ
- VKF
- VQZ
- VZ
- VS
- VFN

Series VZ400

Construction: Sub-plate Mounted



Component Parts

No.	Description	Material	Note
①	Body	Aluminum die-casted	Platinum silver
②	Spool/Sleeve	Stainless steel	
③	Piston	Polyacetal	
④	Sub-plate	Aluminum die-casted	Platinum silver

Replacement Parts

No.	Description	Material	Part no.
⑤	Return spring	Stainless steel	
⑥	Gasket	NBR	
⑦	O-ring	NBR	
⑧	Seal	NBR	
⑨	O-ring	NBR	
⑩	O-ring	NBR	
⑪	O-ring	NBR	
⑫	Mini Y seal	NBR	
⑬	Round head combination screw	Carbon steel	
⑭	Round head combination screw	Carbon steel	
⑮	Round head combination screw	Carbon steel	
⑯	Pilot valve assembly	—	SCZ4□□□-□-□

Sub-plate Assembly Part No.: VZ400-S-⁰¹/₀₂

* Mounting bolt and gasket are not attached.

How to Order Pilot Valve Assembly

SCZ4 G □ □ 1 1

Series VZ400

Electrical entry		Manual override	Pilot pressure exhaust	Rated voltage		
G	Grommet	300 mm lead wire	Nil	Push type (Safety style)	1	100 VAC, 50/60 Hz
H		600 mm lead wire	B	Locking type (Tool required)	2	200 VAC, 50/60 Hz
L	L plug connector	With lead wire	C	Locking type (Manual)	1	Spacer side exhaust (Type 20)
LN		Without lead wire			2	Body side exhaust (Type 30, 50)
LO		Without connector			3*	110 VAC, 50/60 Hz
M	M plug connector	With lead wire			4*	220 VAC, 50/60 Hz
MN		Without lead wire			5	24 VDC
MO		Without connector			6*	12 VDC
D	DIN terminal	With connector			9	Other
DO		Without connector				

Light/Surge voltage suppressor

Nil	None
Z*	With light/surge voltage suppressor
S	With surge voltage suppressor

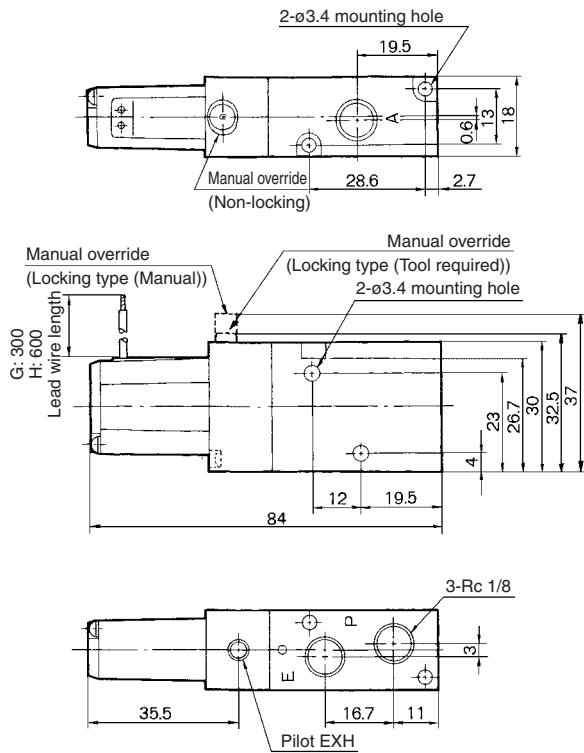
* Indicator light is not available for grommet type.
* "DOZ" is not available.

* Option

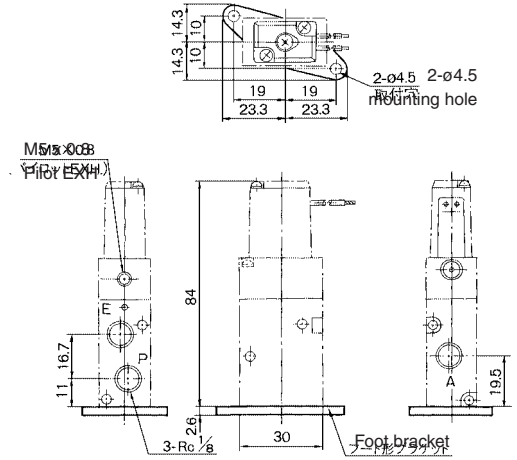
3 Port Solenoid Valve Metal Seal, Body Ported/Base Mounted **Series VZ400**

Dimensions: Body Ported

Grommet: VZ4 $\frac{1}{2}$ 2-□ $\frac{G}{H}$ (S)-01

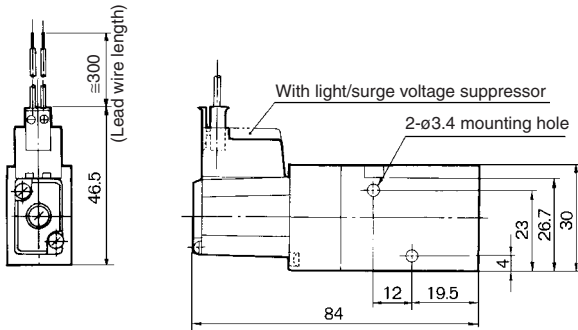


With foot bracket: VZ4 $\frac{1}{2}$ 2-□□-01-F

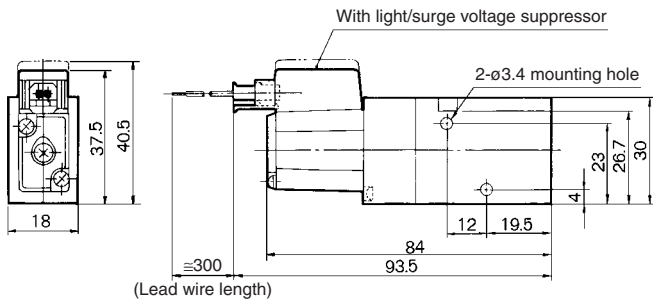


Locking type manual override

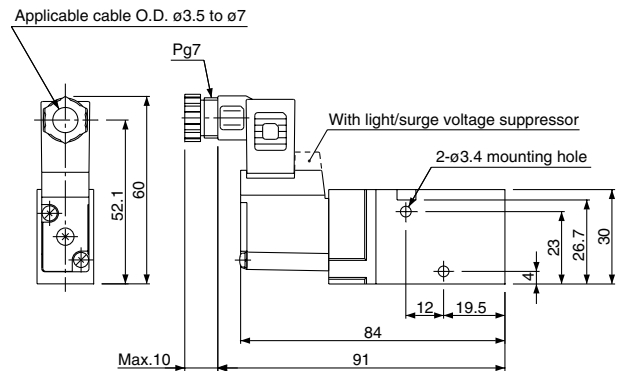
L VZ4 $\frac{1}{2}$ 2-□L(Z)-01



M plug connector: VZ4 $\frac{1}{2}$ 2-□M(Z)-01



DIN terminal: VZ4 $\frac{1}{2}$ 2-□D(Z)-01



V100

SY

SYJ

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

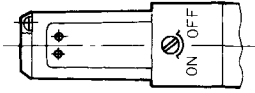
VS

VFN

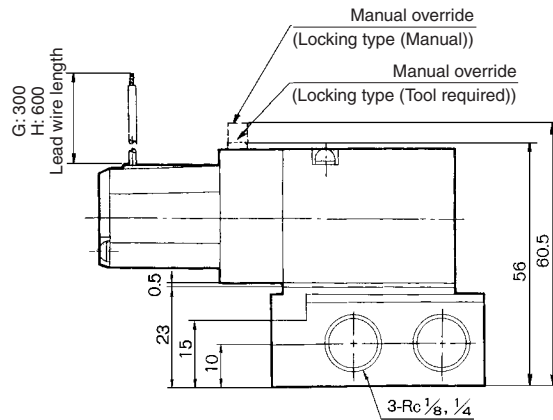
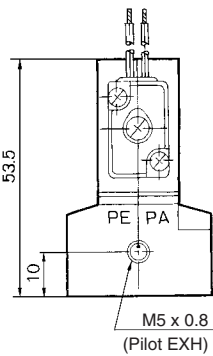
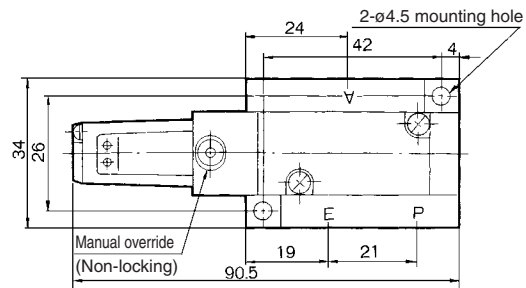
Series VZ400

Dimensions: Sub-plate Mounted

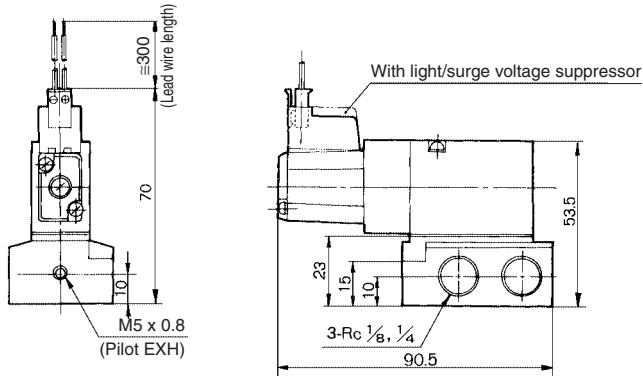
Grommet: VZ4 $\frac{1}{2}$ 5-□ $\frac{G}{H}$ (S)- $\frac{01}{02}$



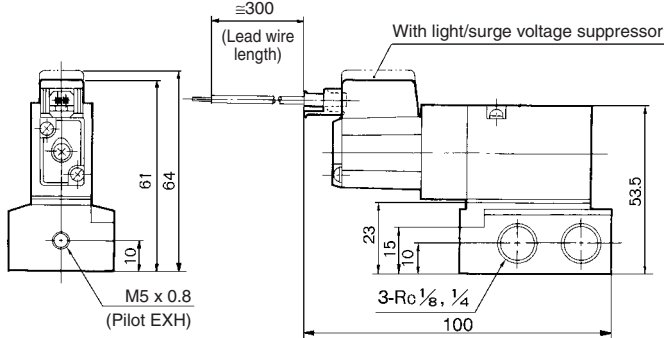
Locking type manual override



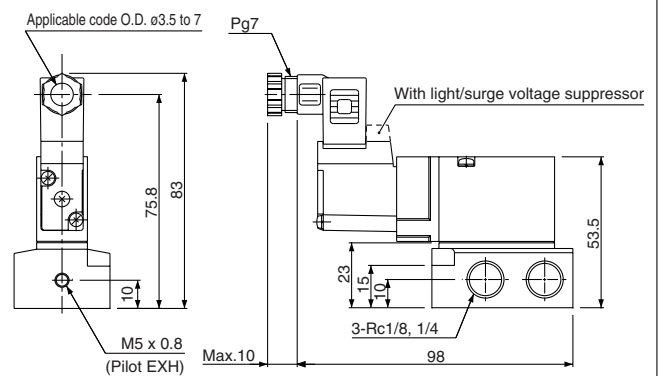
L plug connector: VZ4 $\frac{1}{2}$ 5-□L(Z)- $\frac{01}{02}$



M plug connector: VZ4 $\frac{1}{2}$ 5-□M(Z)- $\frac{01}{02}$



DIN terminal: VZ4 $\frac{1}{2}$ 5-□D(Z)- $\frac{01}{02}$



Series VZ400 Manifold Specifications

Manifold Variations: VV3Z4



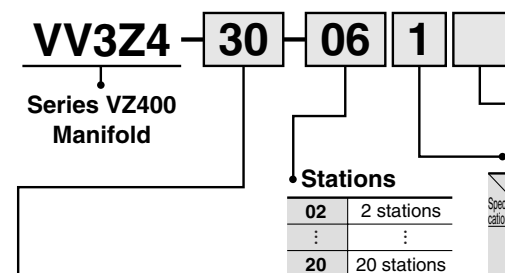
Model

Manifold type		Single base, B mount			
Passage		Common SUP/EXH type			
Valve stations		Max. 20 stations			
Manifold base model		VV3Z4-20	VV3Z4-30	VV3Z4-50	VV3Z4-S50
Pilot valve exhaust		Individual exhaust	Common exhaust	Common exhaust	
					Built-in One-touch fittings
2(A) port	Piping direction/Location	Top/Valve		Side/Base (Opposite side of solenoid)	
	Port size	Rc 1/8		Rc1/8, 1/4	C6, C8
P, E port	Port size	Rc 1/4		Rc 1/4	
		Applicable valve model		VZ415-□□□	
Blanking plate		VVZ400-31A-1	VVZ400-32A-1	VVZ400-32A-2	VVZ400-31A-2

Screws and Gasket Assembly Part No.

Model	Part no.
VV3Z4-20	BG-VZ402
VV3Z4-30	BG-VZ403
VV3Z4-50 -S50	BG-VZ405

How to Order Manifold Base



Symbol

Symbol	Passage		Porting specifications	Applicable base
	1(P)	3(R)		
1	Common	Common	Top, Side	Type 20, 30 and 50

A port size on base side

Model	Symbol
VV3Z4-50 VV3Z4-S50 *	Nil
	Without 2(A) port (Body ported type 20, 30)
	01 Rc 1/8
	02 Rc 1/4
	C6 Built-in One-touch fittings Applicable tubing O.D. ø6
	C8 Built-in One-touch fittings Applicable tubing O.D. ø8

* VV3Z4-S50: only C6 & C8.

Manifold specifications/Single base type B mount (P/E port size)

Symbol	Piping	P, E port Port size	Applicable valve model
20	Body ported (Individual pilot exhaust)	Rc 1/4	VZ4□2
30	Body ported (Common pilot exhaust)	Rc 1/4	VZ4□2
50	Base mounted (Common pilot exhaust) 2(A) port direction: opposite side of solenoid valve	Rc 1/4	VZ4□5
S50*	Base mounted (Common pilot exhaust) 2(A) port direction: same side of solenoid valve	Rc 1/4	VZ4□5

* Type S50 is available only with built-in One-touch fittings.

Instruct by specifying the valves, blanking plate option to be mounted on the manifold along with the manifold base model no. And for the order of valves installation or option's position, instruct separately by the manifold specification sheet.

(Example)

<Top ported, common pilot exhaust>

VV3Z4-30-061 (6 stations)

VZ412-1G-01..... 3 pcs.

VZ412-1G-01..... 2 pcs.

VVZ400-32A-1..... 1 pc. (Blanking plate)

<Side ported, common pilot exhaust>

VV3Z4-50-061-01 (6 stations)

VZ415-1G..... 3 pcs.

VZ425-1G..... 2 pcs.

VVZ400-32A-2..... 1 pc. (Blanking plate)

<Side ported, common pilot exhaust>

VV3Z4-S50-061-C8 (6 stations)

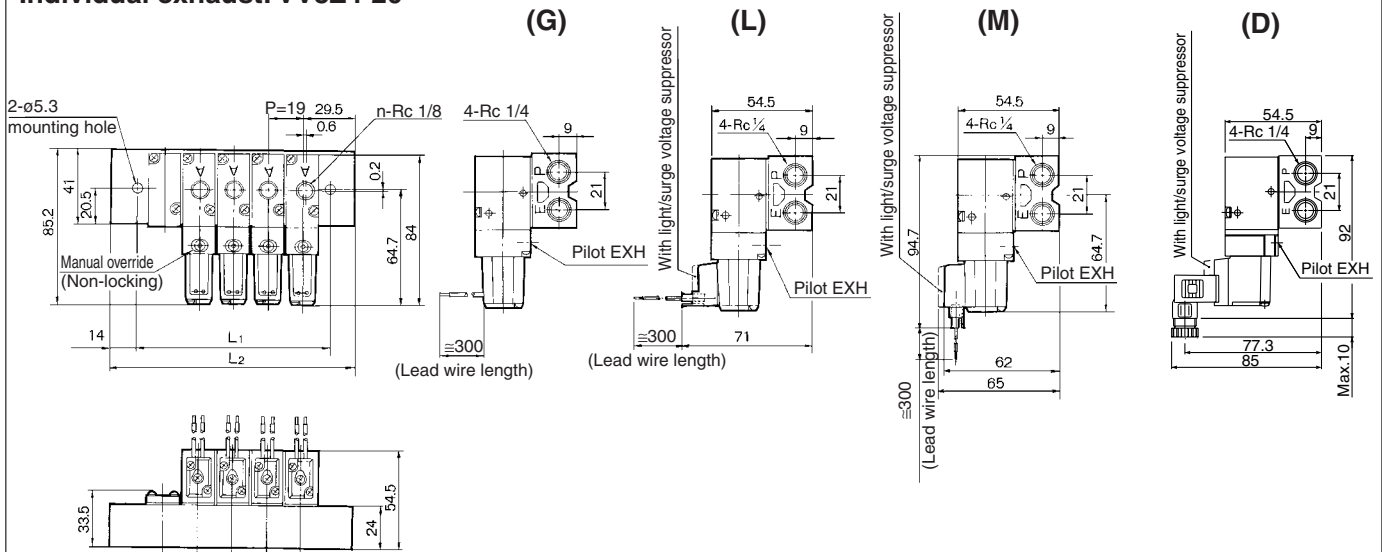
VZ415-5L..... 3 pcs.

VZ415-5L..... 3 pcs.

Series VZ400

Dimensions: Individual Exhaust/Common Exhaust

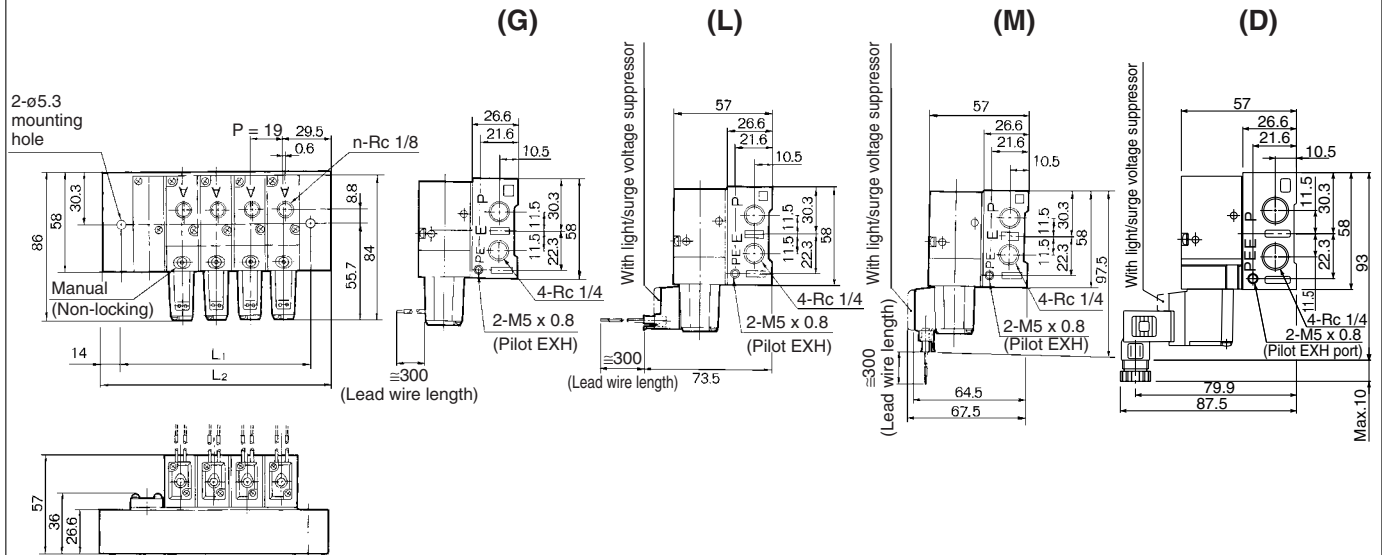
Individual exhaust: VV3Z4-20



n: Stations

Stations	2	3	4	5	6	7	8	9	10	Formula
L ₁	50	69	88	107	126	145	164	183	202	L ₁ = 19n + 12
L ₂	78	97	116	135	154	173	192	211	230	L ₂ = 19n + 40

Common exhaust: VV3Z4-30



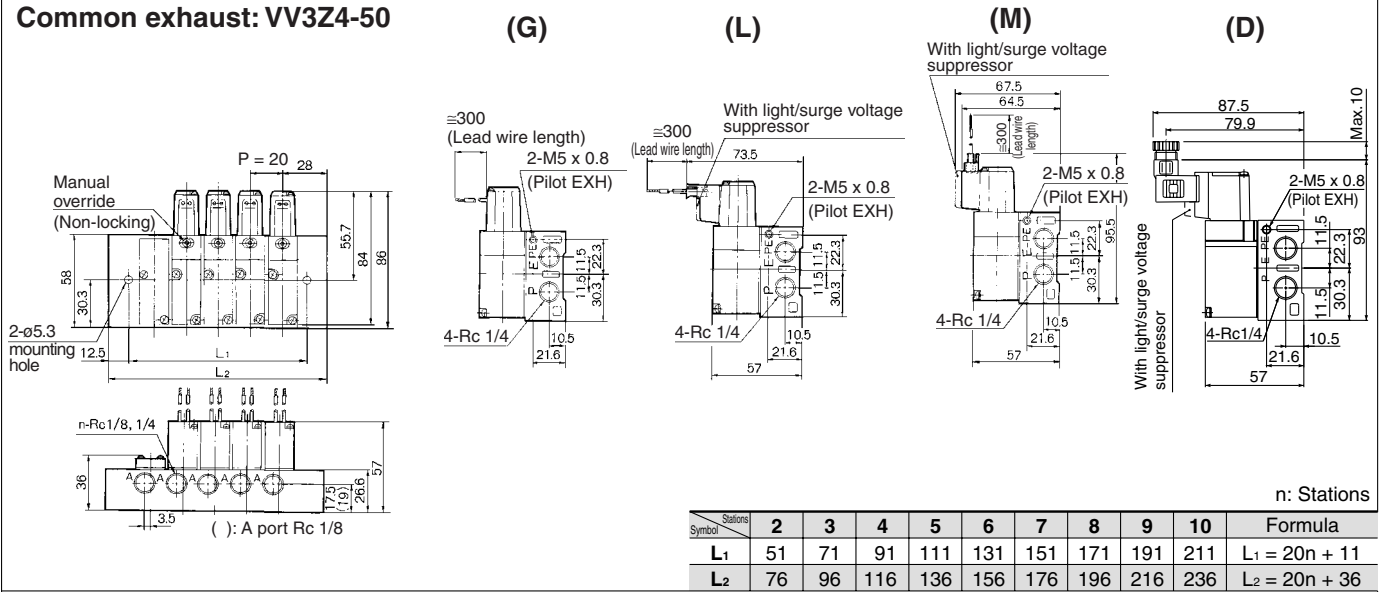
n: Stations

Stations	2	3	4	5	6	7	8	9	10	Formula
L ₁	50	69	88	107	126	145	164	183	202	L ₁ = 19n + 12
L ₂	78	97	116	135	154	173	192	211	230	L ₂ = 19n + 40

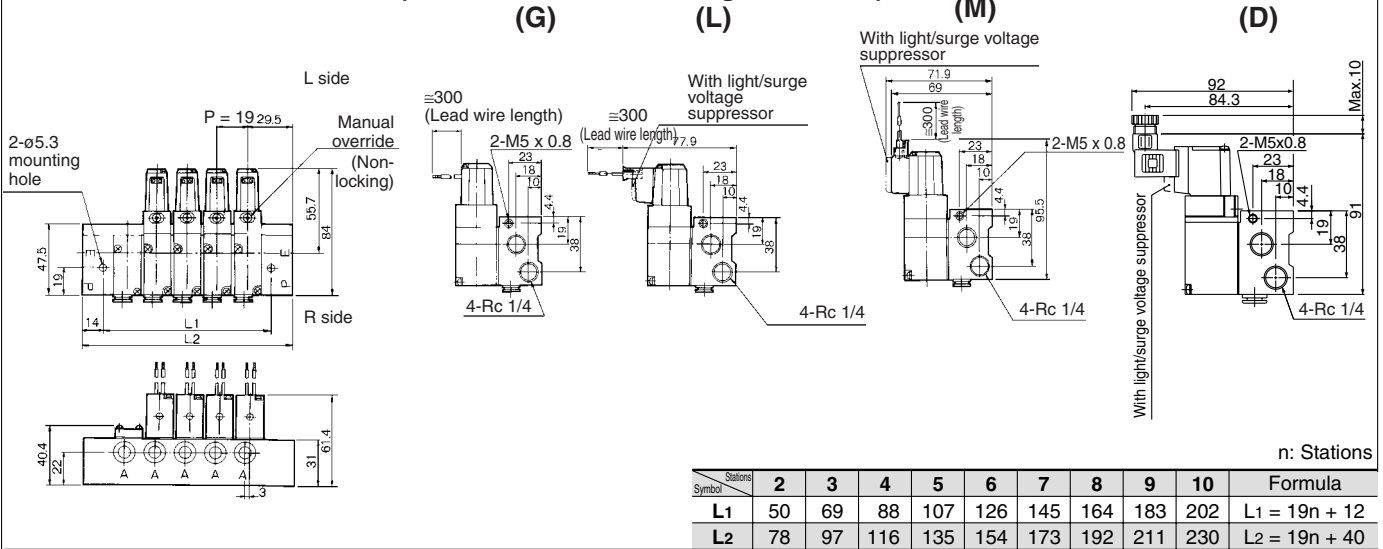
3 Port Solenoid Valve Metal Seal, Body Ported/Base Mounted **Series VZ400**

Dimensions: Common Exhaust

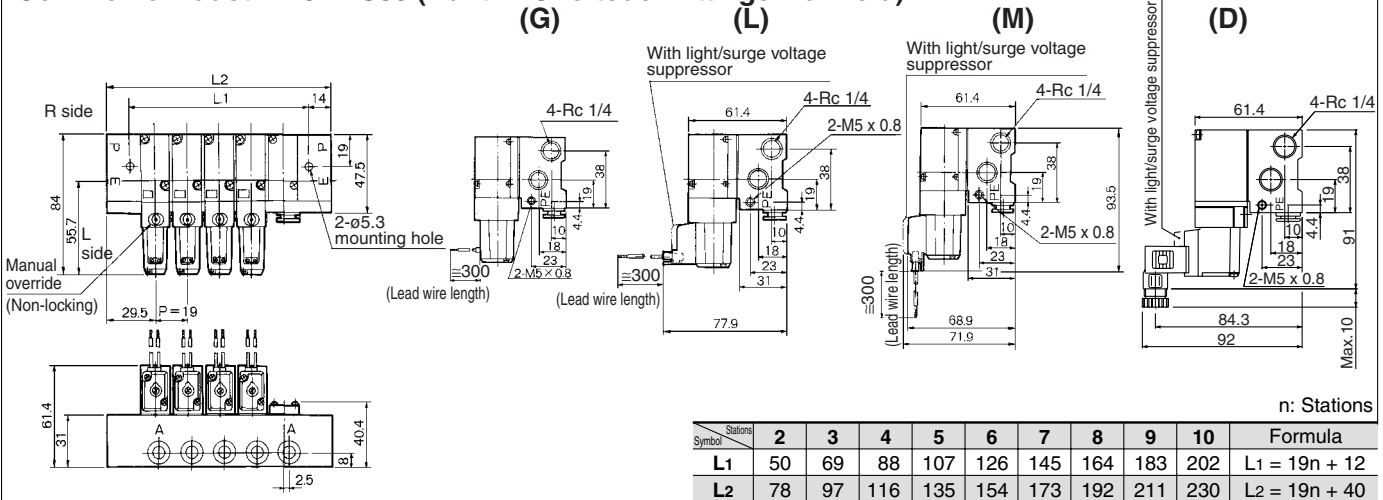
Common exhaust: VV3Z4-50



Common exhaust: VV3Z4-50 (Built-in One-touch fittings manifold)



Common exhaust: VV3Z4-S50 (Built-in One-touch fittings manifold)



- V100
- SY
- SYJ
- VK
- VZ
- VT
- VP
- VG
- VP
- S070
- VQ
- VKF
- VQZ
- VZ**
- VS
- VFN

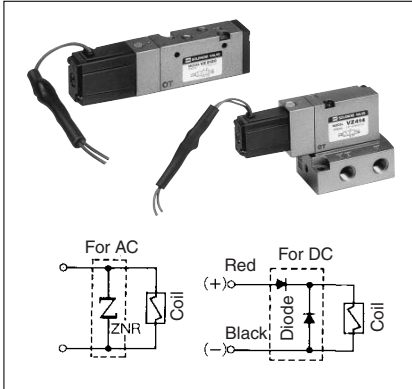
⚠️ Caution 1

Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 4-18-2.

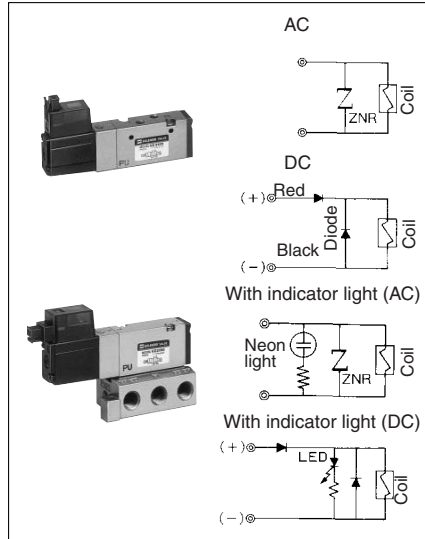
Surge Voltage Suppressor

⚠️ Caution

Grommet Type



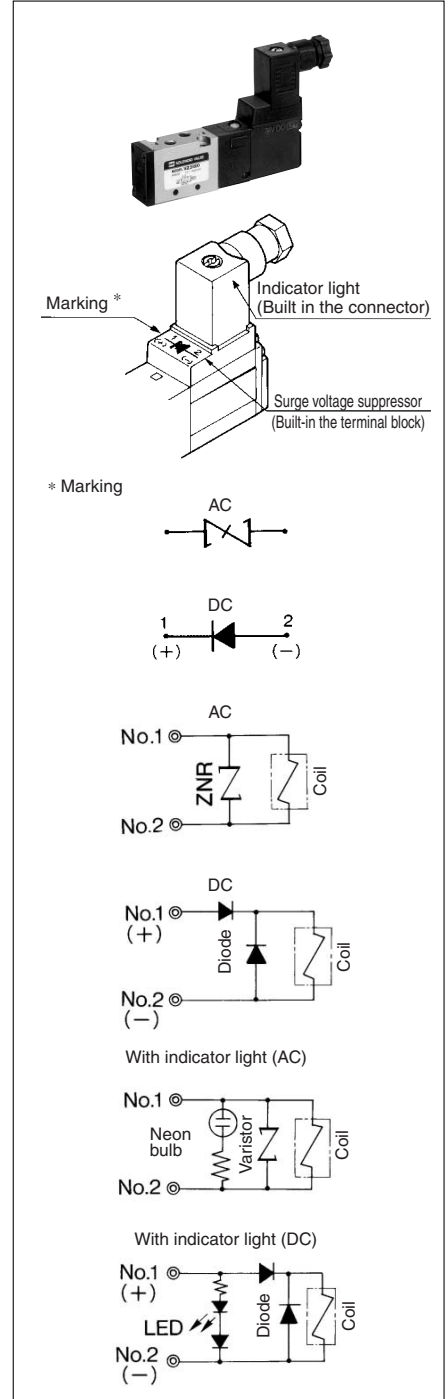
Plug Connector Type



In applications where the supply voltage is DC, correctly connect the lead wires to + (positive) and - (negative) indications on the connector or to the markings.

For those on which the lead wires have been pre-wired, the positive side is red and negative side is black.

DIN Terminal Type

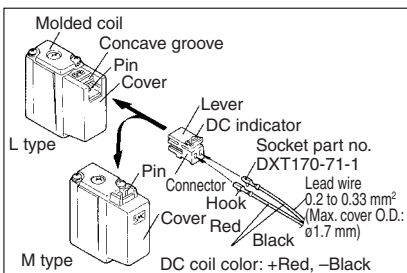


In the case of DC wiring, connect terminal no. 1 of the connector to the positive [+] side, and terminal no. 2 to the negative [-] side. (Refer to the marks on the terminal board.)

How to Use Plug Connector

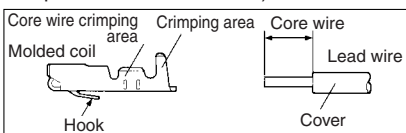
Attaching and detaching connectors

- To attach a connector, hold the lever and connector unit between your fingers and insert straight onto the pins of the solenoid valve so that the lever's pawl is pushed into the groove and locks.
- To detach a connector, remove the pawl from the groove by pushing the lever downward with your thumb, and pull the connector straight out.



Crimping the Lead Wire and Socket

Peel 3.2 to 3.7 mm of the tip of lead wire, enter the core wires neatly into a socket and crimp it with a special crimp tool. Be careful so that the cover of lead wire does not enter into the crimping part. (Crimping tool part no.: DXT 170-75-1)



Connector assembly part no.

DXT170-80 — [] **A** — []

Lead wire color			Lead wire length	
Symbol	With socket Lead wire	Note	Symbol	Lead wire length (mm)
Nil	Socket only (2 pcs.)	Without lead wire	Nil	300
1	Blue (2)	For 100 VAC	6	600
2	Red (2)	For 200 VAC	10	1000
3	Gray (2)	Another VAC	15	1500
4	Red: +, Black: -	For DC	20	2000
			25	2500
			30	3000

Note) When ordering a valve with a lead wire of 600 mm or longer, be sure to indicate the model number of the valve without connector and connector assembly.

Ex.)

For lead wire length (1000 mm)
Solenoid valve:
VZ2150-5M0-01.....5 pcs.
Connector assembly:
DXT170-80-4A-10.....5 pcs.

⚠️ Precaution 2

Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 4-18-2.

How to Use Plug Connector

⚠️ Caution

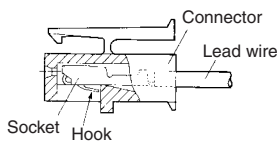
Attaching and detaching lead wires with sockets

1. Attaching

Insert the sockets into the square holes of the connector (with + and - indication) and continue to push the sockets all the way in until the lock by hooking into the seats in the connector. (When they are pushed in, their hooks open and they are locked automatically.) Then confirm that they are locked by pulling lightly on the lead wires.

2. Detaching

To detach a socket from a connector, pull out the lead wire while pressing the socket's hook with a stick having a thin tip (approx. 1 mm). If the socket will be used again, first spread the hook outward.



Connector assembly with protective cover

Connector assembly with protective cover enhances dust protection.

- Effective to prevent short circuit accidents due to penetration of foreign matter into the connector section.
- The material of cover is chloroprene rubber for electricity which is excellent in weathering and electrical insulating properties. But don't splash with cutting oil.
- Simple and unencumbered appearance by adopting round-shaped cord.

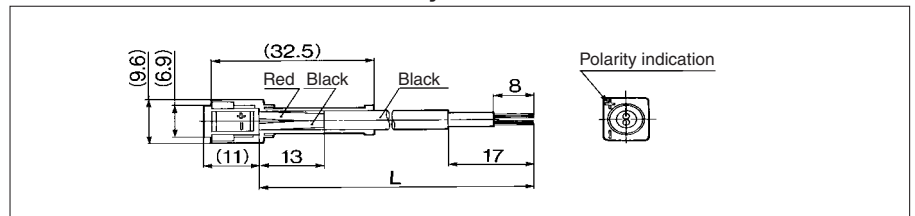
How to Order

DXT170-123-A

Lead wire length

Symbol	Lead wire length L (mm)
Nil	300
6	600
10	1000
15	1500
20	2000
25	2500
30	3000

Dimensions: Connector Assembly with Cover



How to Calculate the Flow Rate

For obtaining the flow rate, refer to page 4-1-6.

V100

SY

SYJ

VK

VZ

VT

VP

VG

VP

S070

VQ

VKF

VQZ

VZ

VS

VFN

⚠️ Precaution 3

Be sure to read before handling. For Safety Instructions and Solenoid Valve Precautions, refer to page 4-18-2.

How to Wire DIN Terminal

⚠️ Caution

Connection

1. Loosen the set screw and pull out the connector from the terminal block of the solenoid.
2. Pull out screw and insert a screwdriver to the slit area near the bottom of terminal block to separate block and housing.
3. Loosen the terminal screws (slotted screws) on the terminal block, insert the core of the lead wire into the terminal in accordance with the prescribed connection method, and attach securely with the terminal screws.
4. Tighten the ground nut to secure the wire.

Change of electrical entry (Orientation)

After separating terminal block and housing, the cord entry direction can be changed by attaching the housing in the desired direction (4 directions in 90 increments).

* In the case of w/indicator light, avoid damaging the indicator light with lead wire.

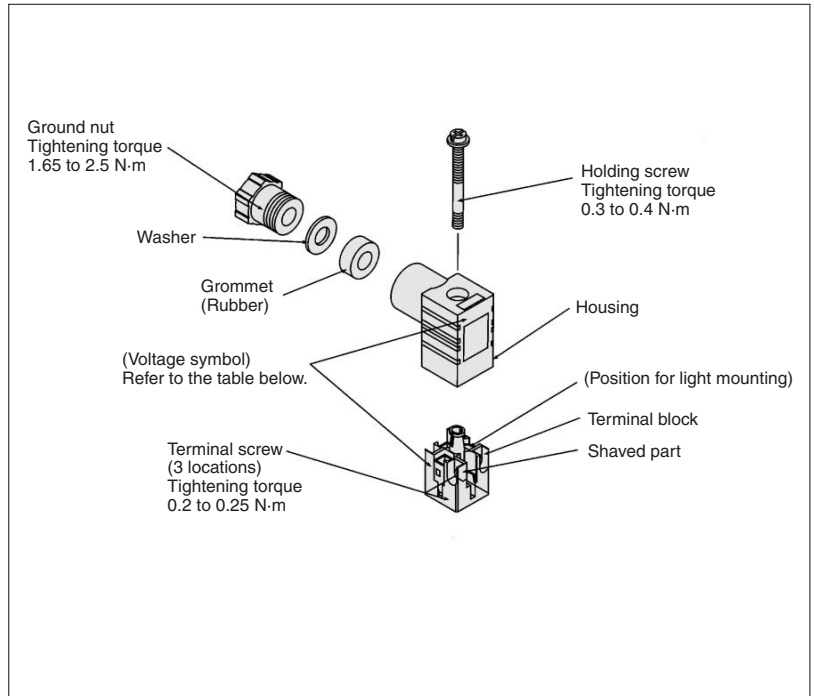
Precautions

Plug a connector in or out vertically, never at an angle.

Applicable cable

O.D.: $\varnothing 3.5$ to $\varnothing 7$

(Reference) 0.5 mm² 2 core and 3 core wires equivalent to JIS C 3306.



DIN Terminal Part No.

Without indicator light	DXT170-176-1
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With Indicator Light

Rated voltage	Voltage symbol	Part no.
100 VAC	100V	DXT170-176-2-01
200 VAC	200V	DXT170-176-2-02
110 VAC	110V	DXT170-176-2-03
220 VAC	220V	DXT170-176-2-04
240 VAC	240V	DXT170-176-2-07
6 VDC	6VD	DXT170-176-3-51
12 VDC	12VD	DXT170-176-3-06
24 VDC	24VD	DXT170-176-3-05
48 VDC	48VD	DXT170-176-3-53

Circuit with Indicator Light

