

ATEX Compliant

5 Port Solenoid Valve

Series 52-SY



CE 0344



II 2G Ex ia IIC T4...T5 Gb Ta-10°C to 50°C
II 2G Ex ia IIC T6 Gb Ta-10°C to 45°C

How to order

52 - SY 5 1 2 0 **L 3** **01 F**

ATEX category 2

Series

5	52-SY5000
7	52-SY7000
9	52-SY9000

Type of actuation

1	2-position single
2	2-position double
3	3-position closed centre
4	3-position exhaust centre
5	3-position pressure centre

Piping type

2	Body ported type
4	Base mounted type

Pilot type

Nil	Internal pilot
R (Note)	External pilot

Note) Base mounted type only.

Barrier

Nil	Without barrier
A	Z728.H
B	MTL728P+
F	KFD0-SD2-Ex1.1065

Note) One barrier per solenoid supplied. Additionally, when the barrier is selected, the barriers equivalent to the number of solenoids are included with the product.

Electrical entry

L	Plug connector type
LL	Plug connector with cover type
TT	Cable type

Lead wire length

3	300 mm
6	600 mm
10	1000 mm
15	1500 mm
20	2000 mm
30	3000 mm
100	10000 mm (Semi-standard)

* L type has 300 mm and 600 mm only.

Bracket

Nil	Without bracket
F1	With foot bracket (Note 1)
F2	With side bracket

Note 1) 2 position single solenoid valve only.
Note 2) 52-SY9000 has no bracket.

Thread type

Nil	Rc
F	G
N	NPT
T	NPTF

A, B port size (Body ported type)

Symbol	Port size	Applicable series
01	1/8	52-SY5000
C4	One-touch fitting for ø4	
C6	One-touch fitting for ø6	
C8	One-touch fitting for ø8	
N3	One-touch fitting for ø5/32"	
N7	One-touch fitting for ø1/4"	52-SY7000
N9	One-touch fitting for ø5/16"	
02	1/4	
C8	One-touch fitting for ø8	52-SY9000
C10	One-touch fitting for ø10	
N9	One-touch fitting for ø5/16"	
N11	One-touch fitting for ø3/8"	
02	1/4	
03	3/8	52-SY9000
C8	One-touch fitting for ø8	
C10	One-touch fitting for ø10	
C12	One-touch fitting for ø12	
N9	One-touch fitting for ø5/16"	
N11	One-touch fitting for ø3/8"	

Port size (Base mounted type)

Symbol	Port size	Applicable series
Nil	Without sub-plate	52-SY5000
02	1/4	
02	1/4	
03	3/8	52-SY7000
03	3/8	
04	1/2	52-SY9000

Manual override

Nil	Non-locking push type
D	Push-turn locking slotted type
E	Push-turn locking lever type

Specifications

Series			52-SY5000	52-SY7000	52-SY9000
Ambient and fluid temperature	Temperature class T6		-10 to 45°C (No freezing)		
	Temperature class T4, T5		-10 to 50°C (No freezing)		
Coil temperature rise			40°C less (at rated)		
Barrier input voltage (non hazardous area)			24 VDC (system rated voltage) at 1.1 W		
Coil rated voltage (hazardous area)			12 VDC at 0.52 W		
Intrinsically safe			ia		
Gas group			IIC		
Protection rating	L type	Plug connector type	IP30 (LL type : IP40)		
	TT type	Cable type	IP65		

Note) Impact resistance: No malfunction resulted from the impact test using a drop impact tester. The test were performed one time each in the axial and right angle directions of the main valve and armature, in both energized and de-energized states (Valve in the initial stage).

Vibration resistance: No malfunction occurred in a one-sweep test between 8.3 and 2000Hz. The test was performed for both energized and de-energized states in the axial and right angle directions of the main valve and armature (valve in the initial stage).

Standard SY manifolds Types 20, 41, 42 are used for 52-SY valves.

Manifold Specifications for 20 Type

Model	SS5Y5-20	SS5Y7-20
Applicable valve	52-SY5□20	52-SY7□20
Manifold style	Single base / B mounting	
1 (SUP) / 3/5 (EXH)	Common SUP / Common EXH	
Valve stations	2 to 20 ⁽¹⁾	
4/2 (A/B) Location	Valve	
Port size	1,3,5 (P,EA,EB) Port	1/4
	4,2 (A,B) Port	1/8 C4 (One-touch fitting for ø4) C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8) 1/4 C8 (One-touch fitting for ø8) C10 (One-touch fitting for ø10)
Manifold base weight W (g) n: Station	W = 36n + 6	W = 43n + 64

Note 1) For more than 10 stations (more than 5 stations in case of SS5Y7), supply pressure to P port on both sides and exhaust from EA/EB port on both side.

Note 2) 52-SY9□20 valve are not available with manifold as standard.

Manifold Specifications for 41 and 42 Type

Model	SS5Y5-41	SS5Y5-42	SS5Y7-42
Applicable valve	52-SY5□40		52-SY7□40
Manifold style	Single base / B mounting		
1 (SUP) / 3/5 (EXH)	Common SUP / Common EXH		
Valve stations	2 to 20 ⁽¹⁾		
4/2 (A/B) Porting spec.	Location	Base	
	Direction	Side	
Port size	1,3,5 (P,EA,EB) Port	1/4	
	4,2 (A,B) Port	1/8 C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8) 1/4 C6 (One-touch fitting for ø6) C8 (One-touch fitting for ø8) 1/4 C10 (One-touch fitting for ø10)	
Manifold base weight W (g) n: Station	W = 61n + 101	W = 79n + 127	W = 100n + 151

Note 1) For more than 10 stations (more than 5 stations in case of SS5Y7), supply pressure to P port on both sides and exhaust from EA/EB port on both side.

Note 2) 52-SY9□40 valve are not available with manifold as standard.

Note 3) 52-SY series are not available with resin type manifold (45 type).

⚠ Safety Instructions

- 1) This product is not suitable for Zone 0. The suitable zones are Zones 1 and 2.
- 2) SMC-TAS and TAV Series, antistatic tubing, are available if required.
- 3) The solenoid valve has polarity. Confirm the correct polarity by observing the color of the lead wires. If the polarity is reversed, the barrier may be damaged.
- 4) Confirm that the solenoid input voltage at the lead wires is 10.8 VDC (min).
- 5) This product must be connected to an appropriate barrier (ATEX compliant product), or a certified intrinsically safe circuit, with the following maximum values.
 $U_i = 28 \text{ V}$
 $I_i = 225 \text{ mA}$ (resistively limited)
 $P_i = 1 \text{ W}$
 $C_i = 0 \text{ nF}$
 $L_i = 0 \text{ mH}$

Response time

Type of actuation	Response time (ms) (0.5 MPa)		
	52-SY5000	52-SY7000	52-SY9000
2-position single	26 or less	38 or less	50 or less
2-position double	22 or less	30 or less	50 or less
3-position	38 or less	56 or less	70 or less

Note 1) According to dynamic performance test JIS B8375-1981.
Note 2) Response time when barriers were combined with a valve.

Note 3) System A: Valve + Z728.H
B: Valve + MTL728P+
F: Valve + KFD0-SD2-Ex1.1065

Manifold Specifications for 20 Type

Model	Port size		Flow characteristics					
	1,5,3 (P,EA,EB)	4,2 (A,B)	1 → 4/2 (P → A/B)	4/2 → 5/3 (A/B → EA/EB)				
			$c[dm^3/(s \cdot bar)]$	b	Cv	$c[dm^3/(s \cdot bar)]$	b	Cv
SS5Y5-20	1/4	C8	1.90	0.28	0.48	2.20	0.20	0.53
SS5Y7-20	1/4	C10	3.60	0.93	3.60	0.93	0.27	0.88

Note) Values for 5 stations manifold with a 2 position single type valve.

Manifold Specifications for 41 and 42 Type

Model	Port size		Flow characteristics					
	1,5,3 (P,EA,EB)	4,2 (A,B)	1 → 4/2 (P → A/B)	4/2 → 5/3 (A/B → EA/EB)				
			$c[dm^3/(s \cdot bar)]$	b	Cv	$c[dm^3/(s \cdot bar)]$	b	Cv
SS5Y5-41	1/4	C8	1.80	0.23	0.44	1.90	0.16	0.45
SS5Y5-42	1/4	C8	1.90	0.20	0.46	1.90	0.12	0.43
SS5Y7-42	1/4	C10	3.00	0.25	0.75	3.00	0.12	0.66

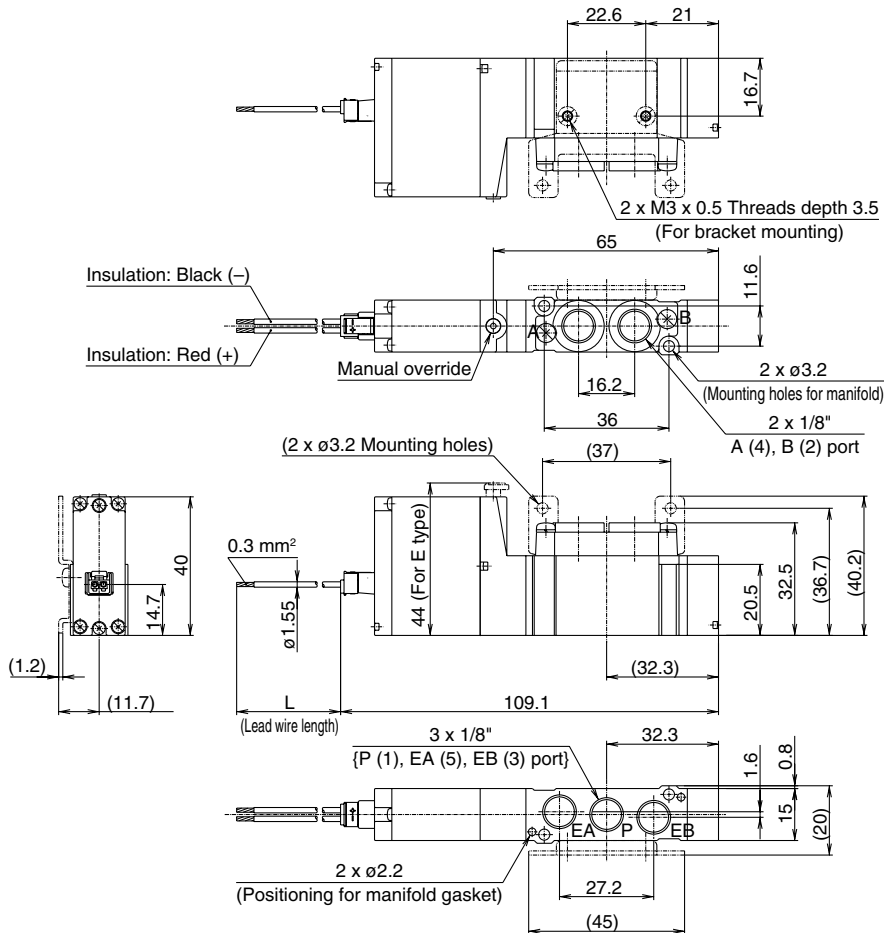
Note) Values for 5 stations manifold with a 2 position single type valve.

Dimensions

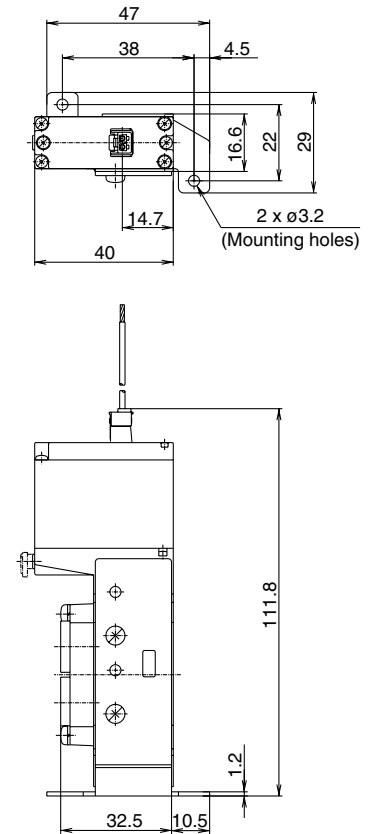
2-position single

L plug connector (L)

52-SY5120-L□□-01□ (-F2)

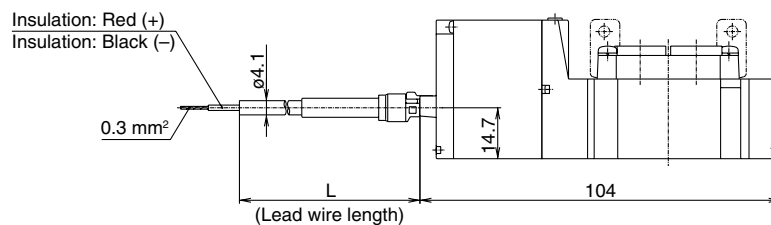


In case with foot bracket 52-SY5120-L□□-01□-F1



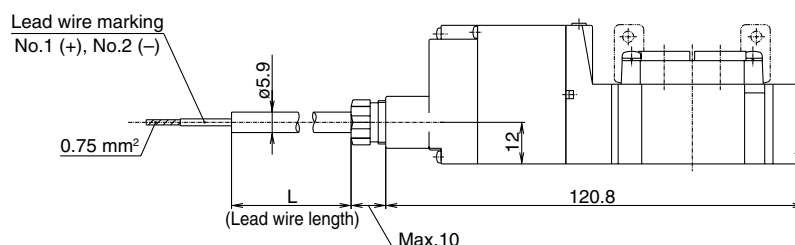
L plug connector with cover (LL)

52-SY5120-LL□□-01□ (-F2)



Cable type (TT)

52-SY5120-TT□□-01□ (-F2)

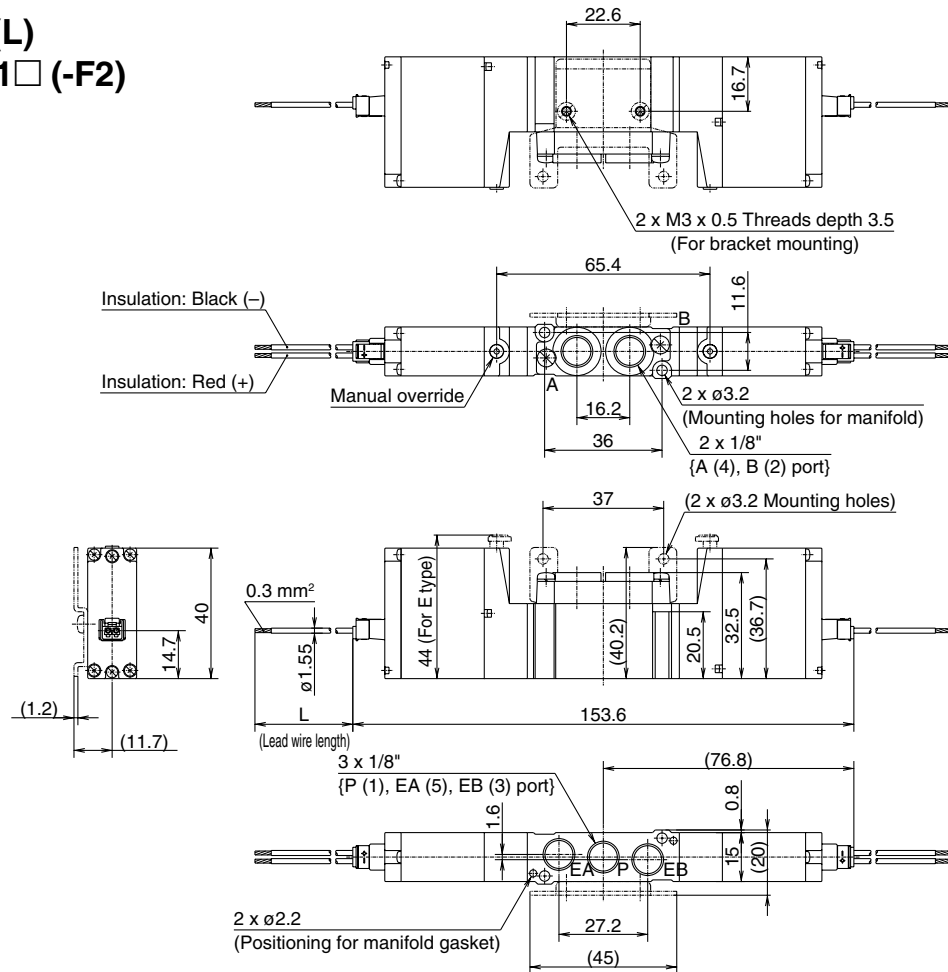


Dimensions

2-position double

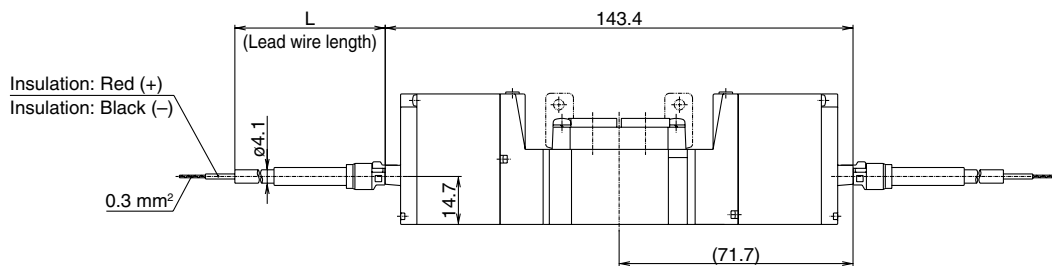
L plug connector (L)

52-SY5220-L□□-01□ (-F2)



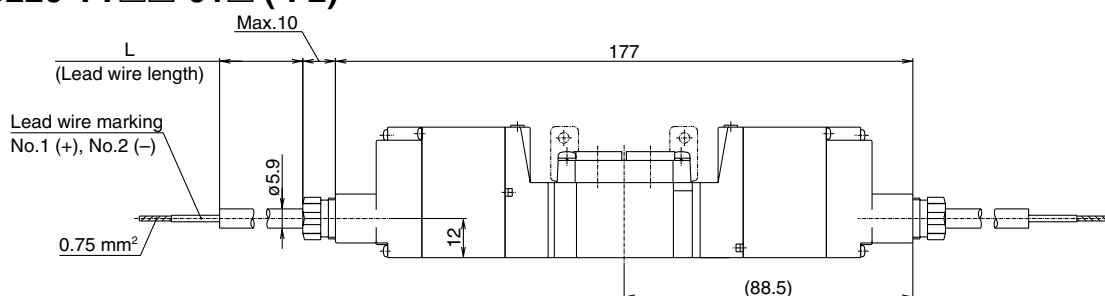
L plug connector with cover (LL)

52-SY5220-LL□□-01□ (-F2)



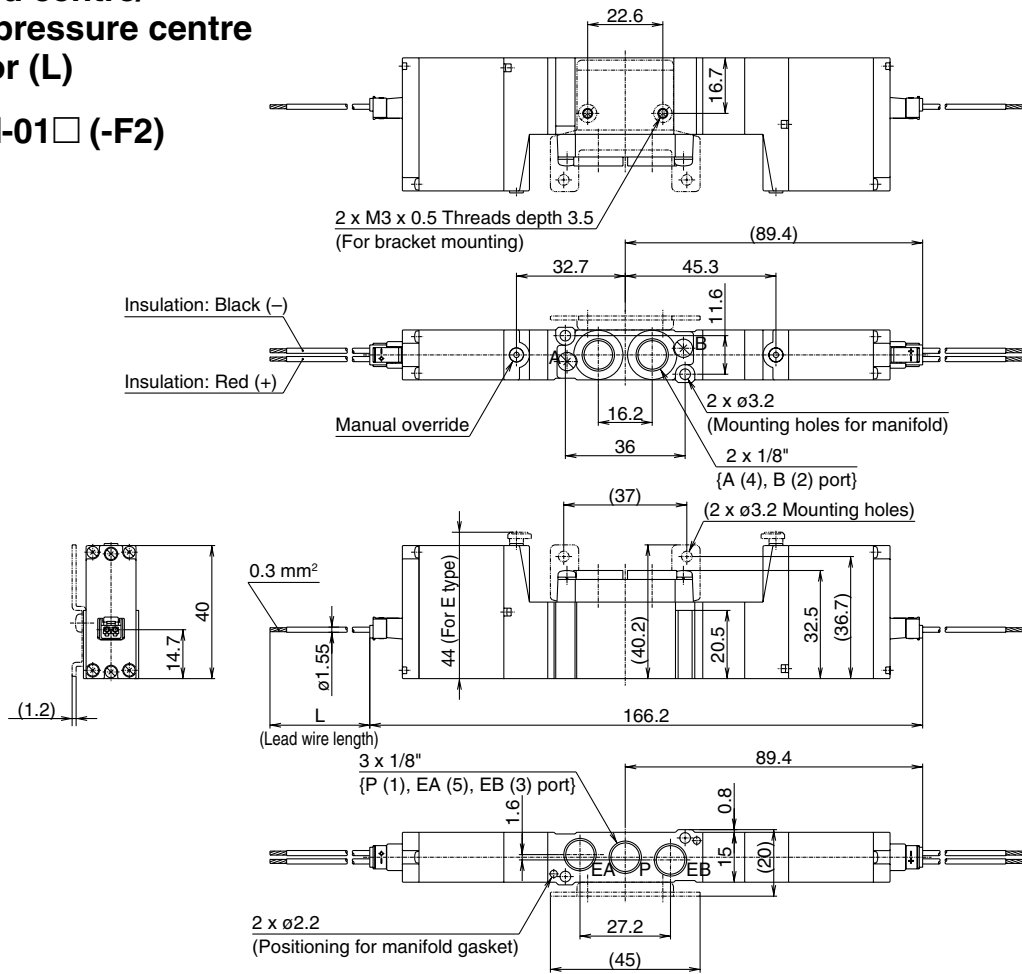
Cable type (TT)

52-SY5220-TT□□-01□ (-F2)



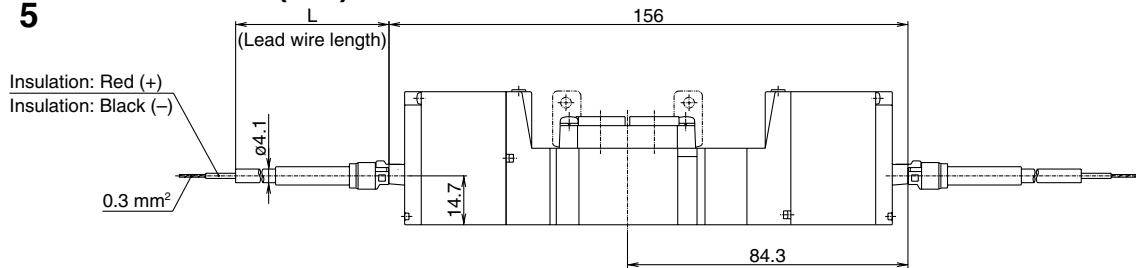
**3-position closed centre/
exhaust centre/pressure centre
L plug connector (L)**

52-SY5420-L□□-01□ (-F2)



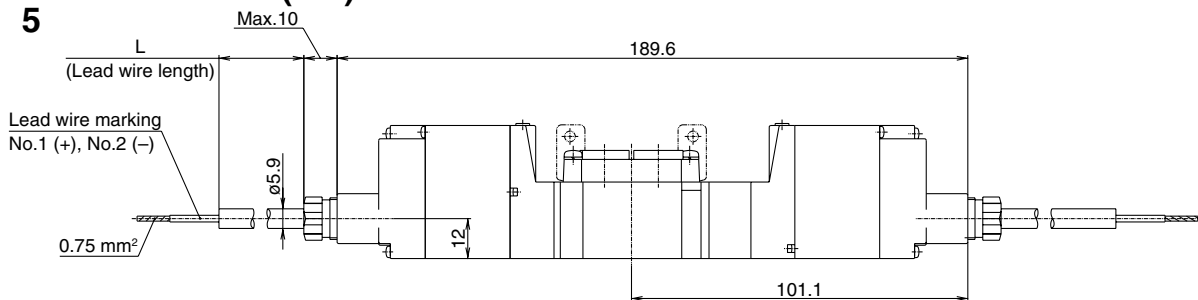
L plug connector with cover (LL)

52-SY5420-LL□□-01□ (-F2)



Cable type (TT)

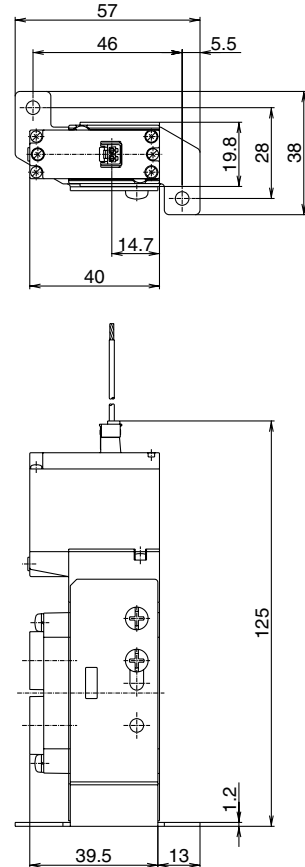
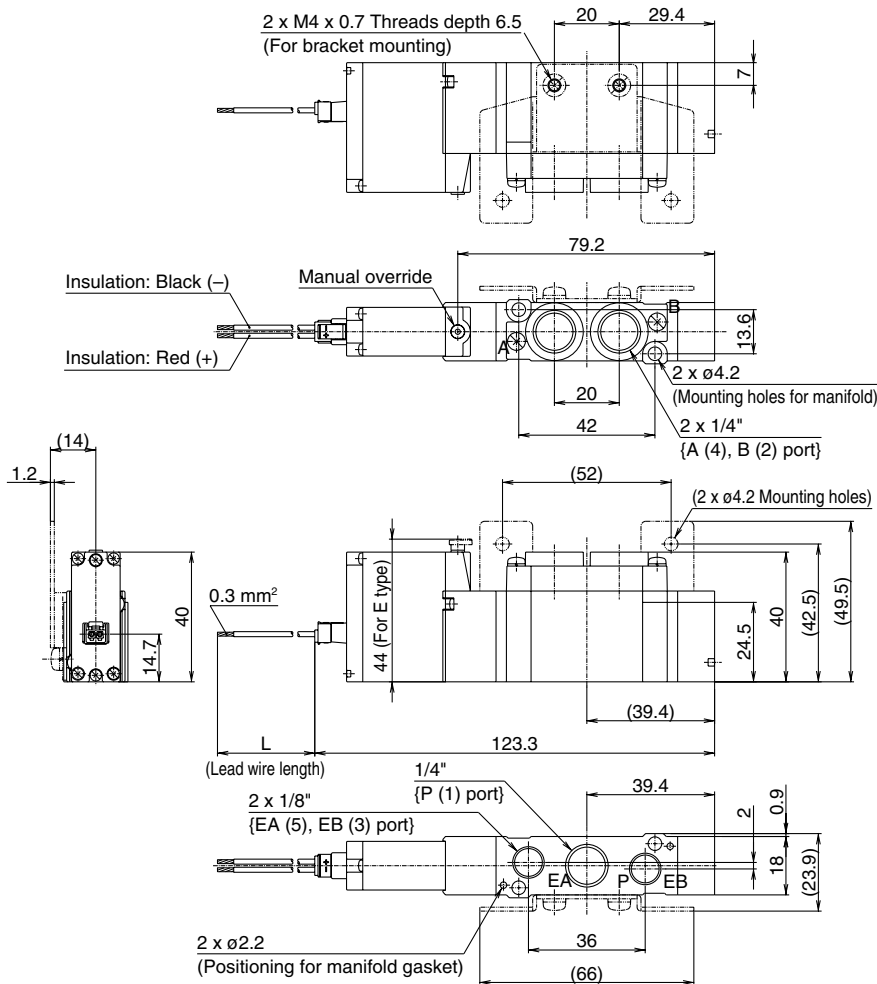
52-SY5420-TT□□-01□ (-F2)
Max.10



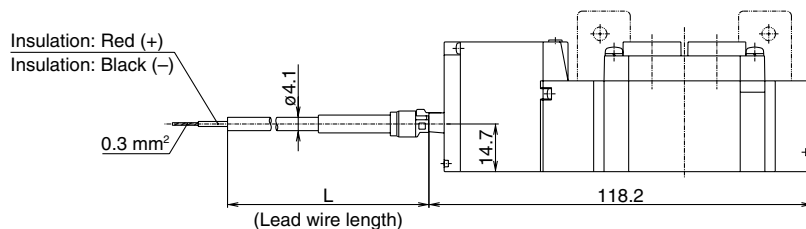
Dimensions

2-position single L plug connector (L) 52-SY7120-L□□-02□ (-F2)

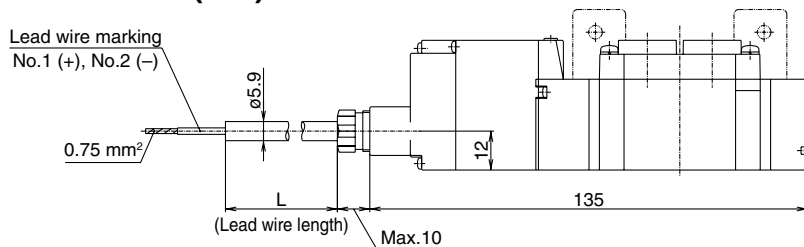
In case with foot bracket 52-SY7120-L□□-02□-(F1)



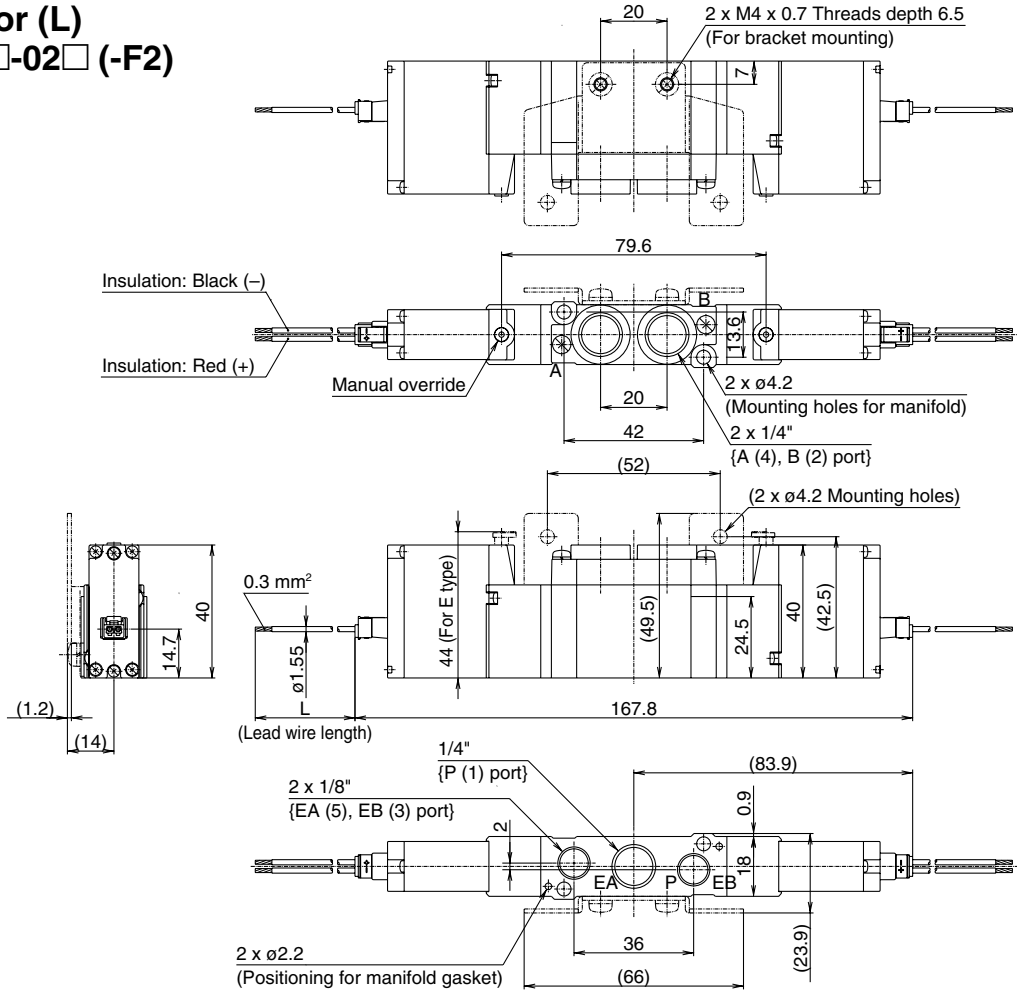
L plug connector with cover (LL) 52-SY7120-LL□□-02□ (-F2)



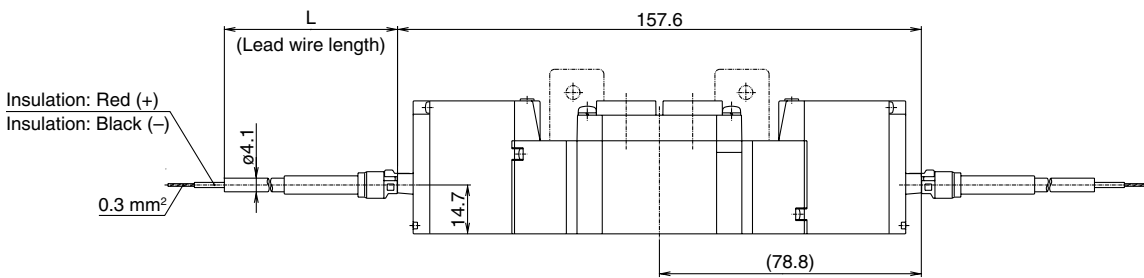
Cable type (TT) 52-SY7120-TT□□-02□ (-F2)



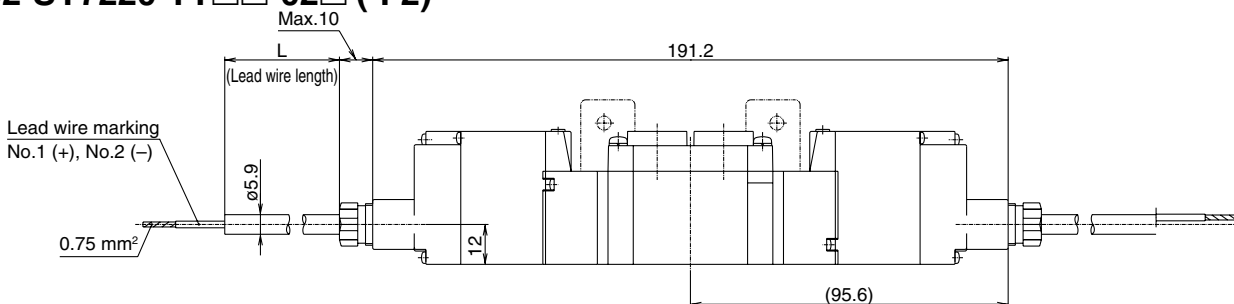
**2-position double
L plug connector (L)
52-SY7220-L□□-02□ (-F2)**



L plug connector with cover (LL)
52-SY7220-LL□□-02□ (-F2)



Cable type (TT)
52-SY7220-TT□□-02□ (-F2)



3-position closed centre/exhaust centre/pressure centre

52-SY7420-L□□-02□ (-F2)



52-SY7420-LL□□-02□ (-F2)



52-SY7420-TT□□-02□ (-F2)

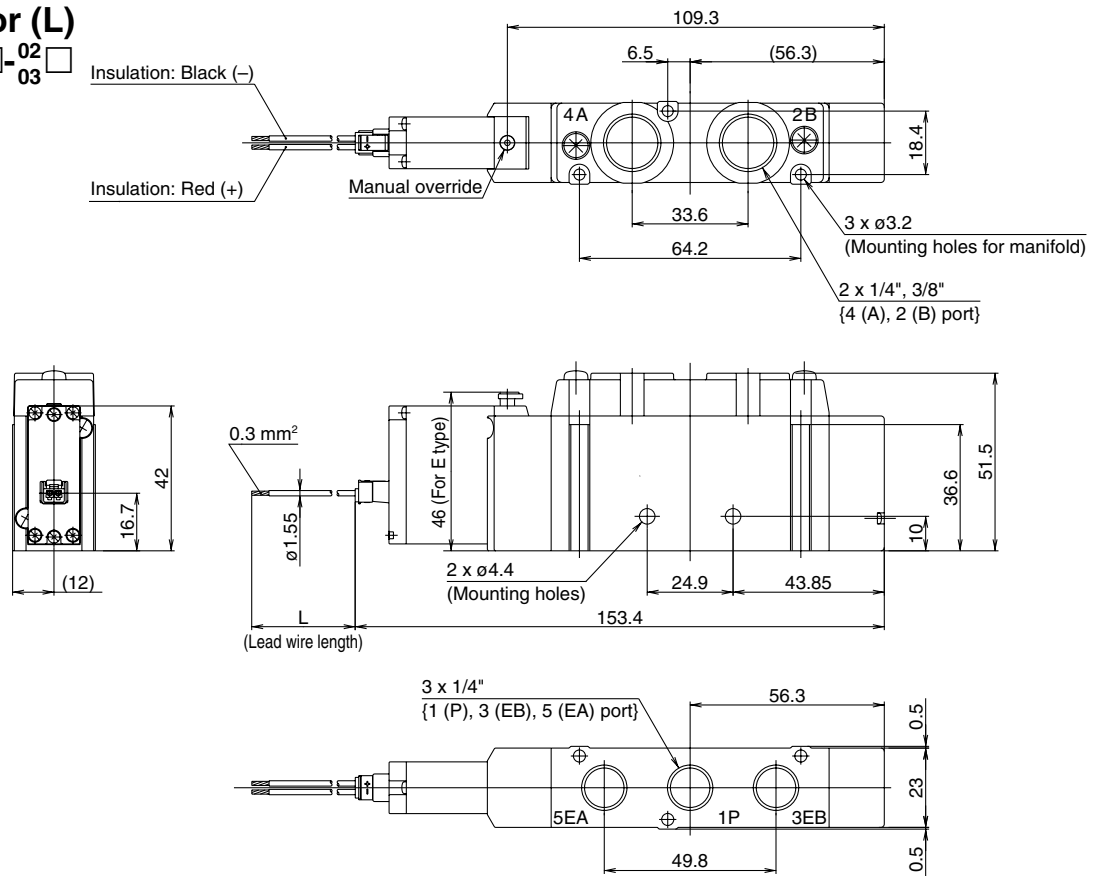


Dimensions

2-position single

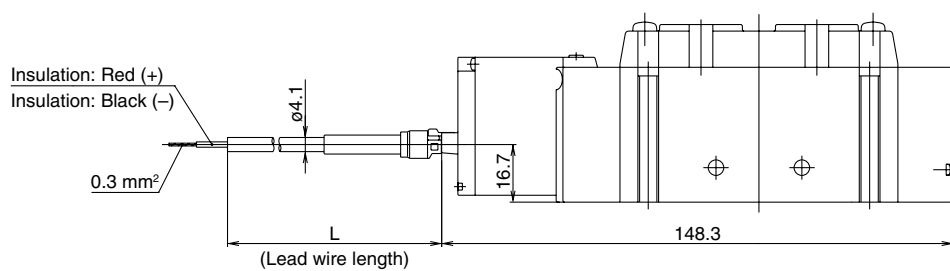
L plug connector (L)

52-SY9120-L□□-⁰²□₀₃



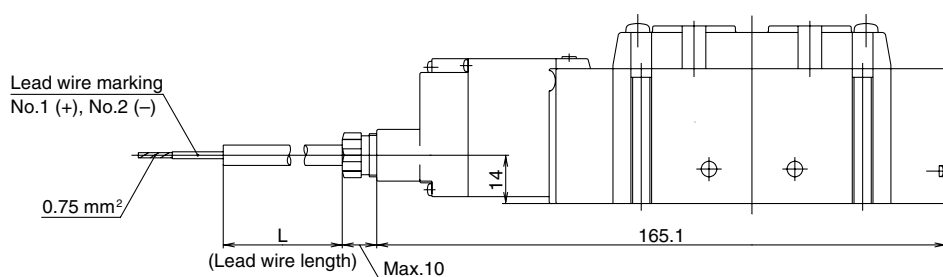
L plug connector with cover (LL)

52-SY9120-LL□□-⁰²□₀₃



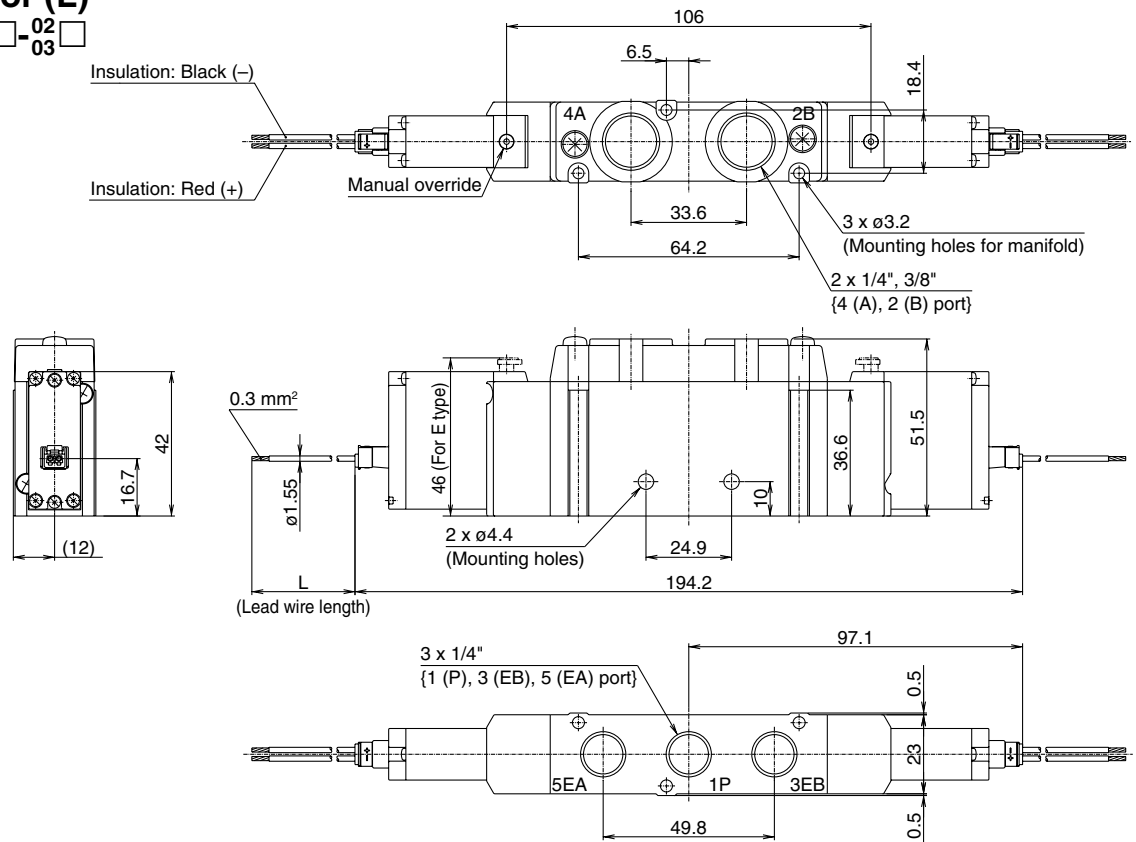
Cable type (TT)

52-SY9120-TT□□-⁰²□₀₃

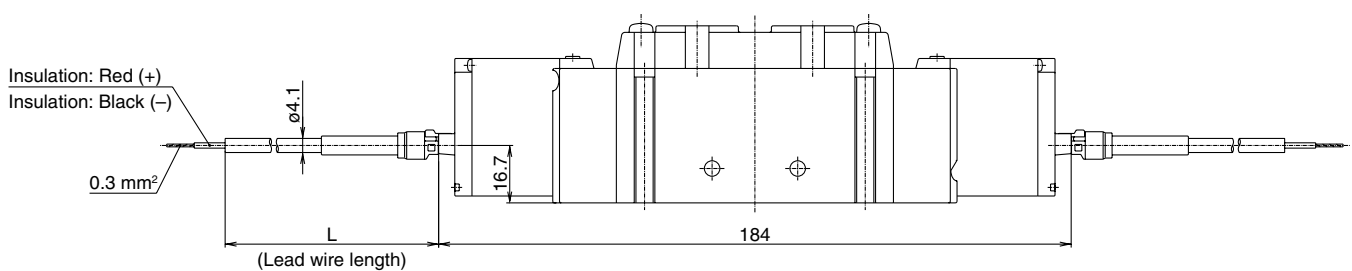


Dimensions

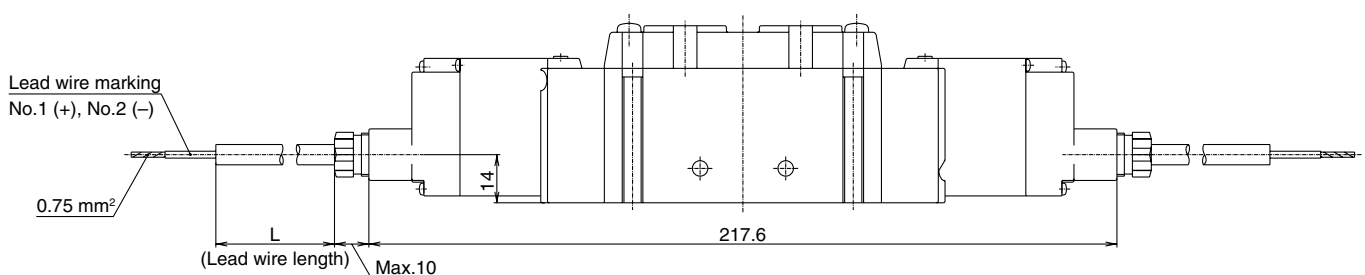
2-position double L plug connector (L) 52-SY9220-L□□-⁰²₀₃□



L plug connector with cover (LL) 52-SY9220-LL□□-⁰²₀₃□



Cable type (TT) 52-SY9220-TT□□-⁰²₀₃□

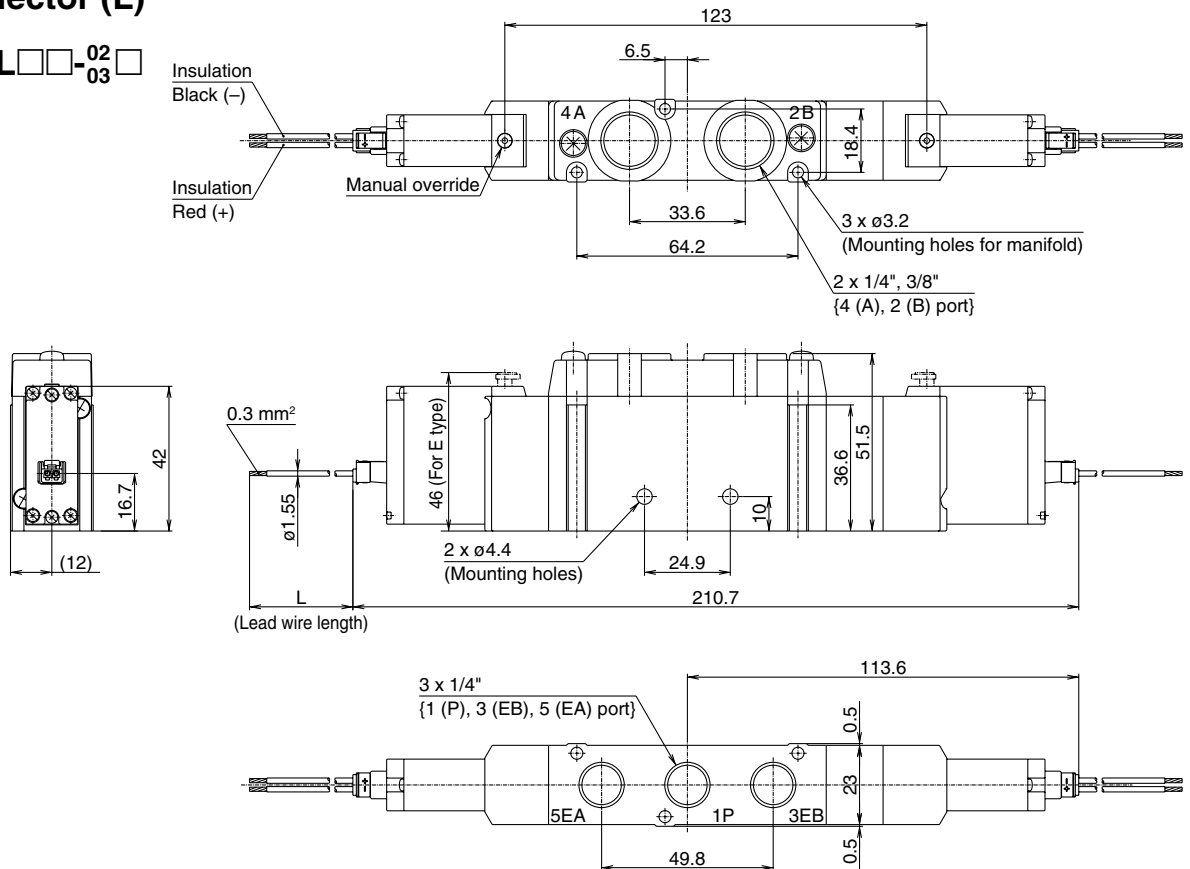


Dimensions

3-position closed centre/exhaust centre/pressure centre

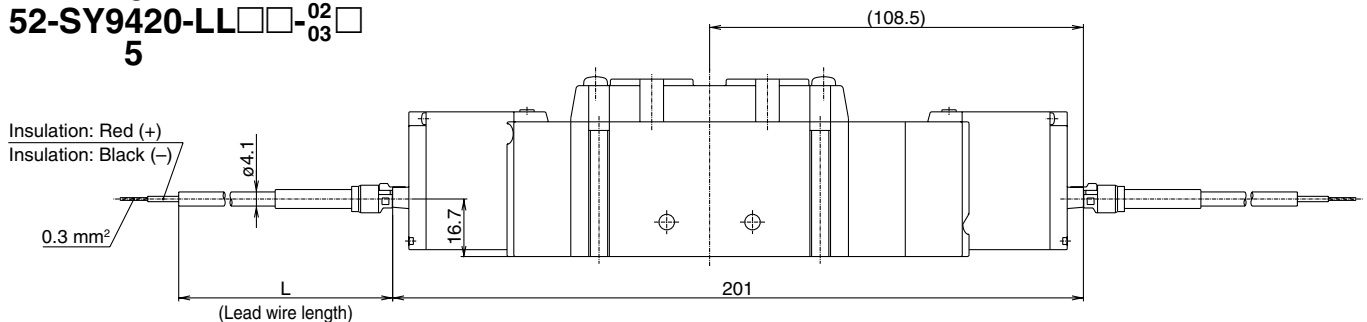
L plug connector (L)

3
52-SY9420-L□□-02□
5



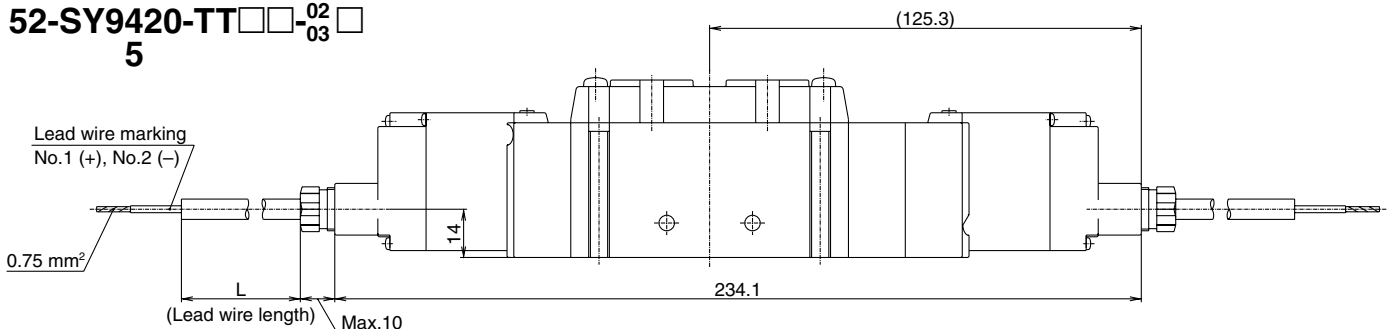
L plug connector with cover (LL)

3
52-SY9420-LL□□-02□
5



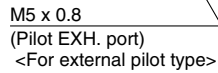
Cable type (TT)

3
52-SY9420-TT□□-02□
5

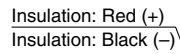


2-position single

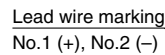
52-SY5140 (R) -L□□-02□



52-SY5140 (R) -LL□□-02□

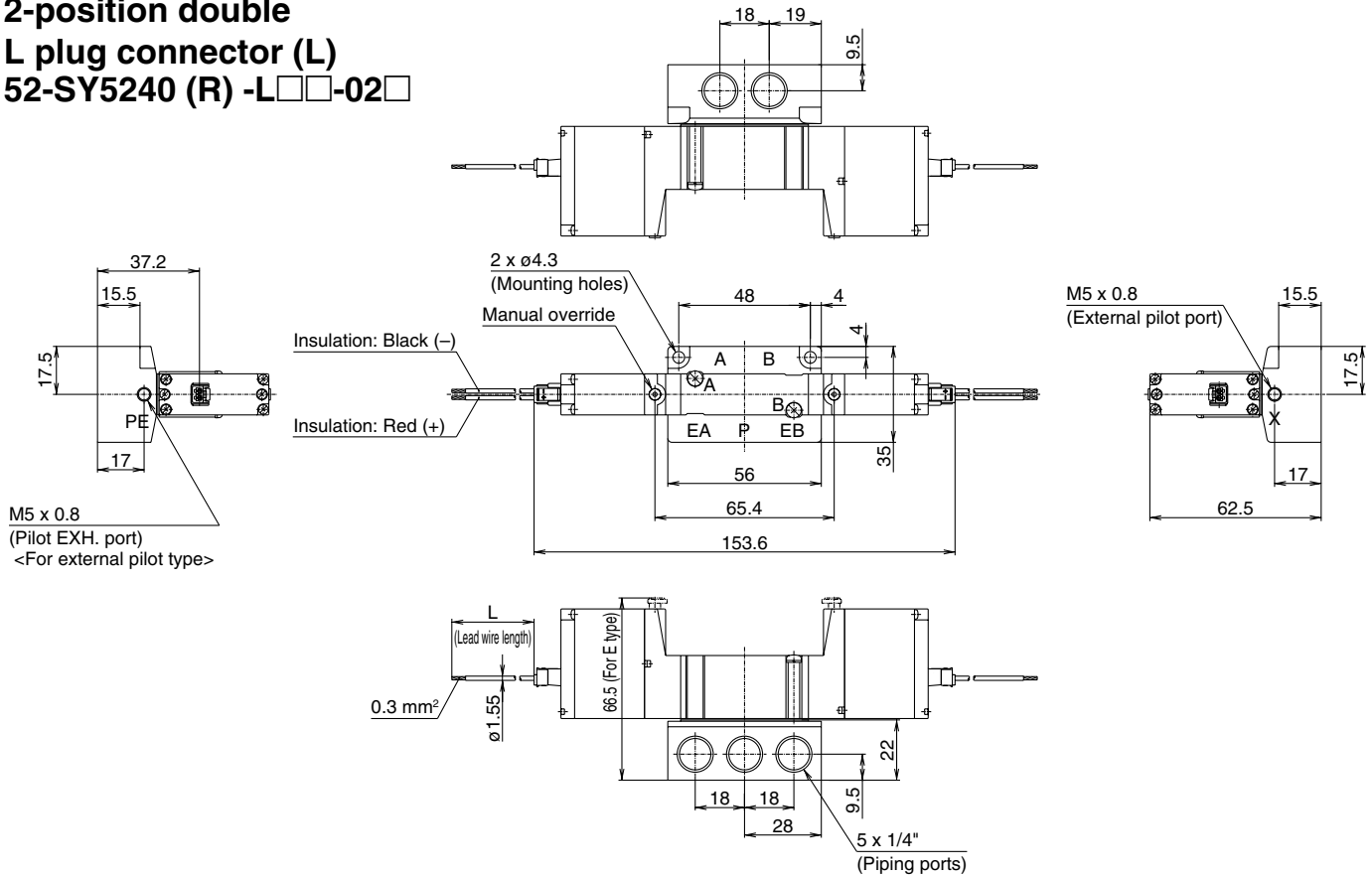


52-SY5140 (R) -TT□□-02□

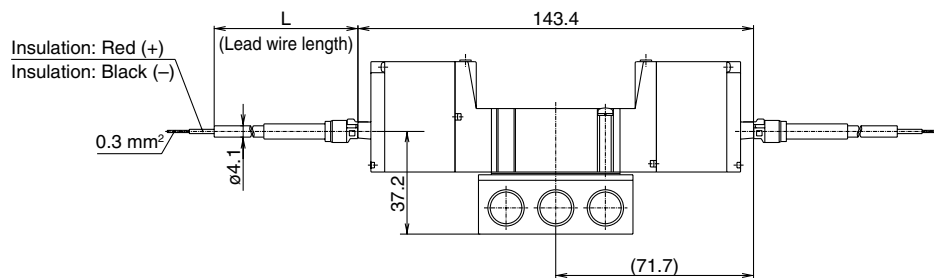


Dimensions

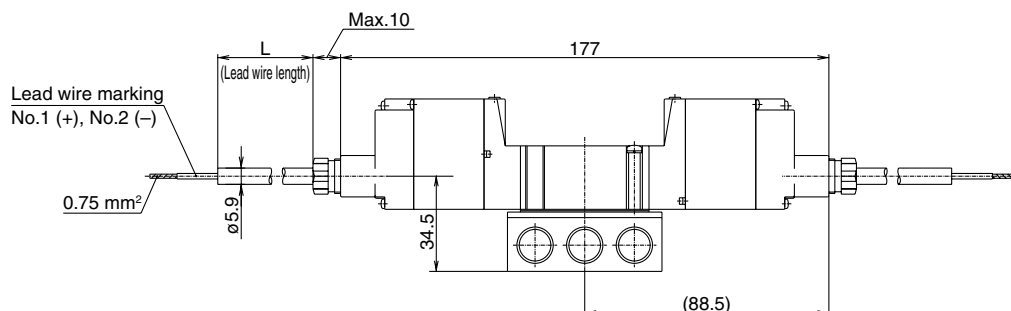
2-position double L plug connector (L) 52-SY5240 (R) -L□□-02□



L plug connector with cover (LL) 52-SY5240 (R) -LL□□-02□



Cable type (TT) 52-SY5240 (R) -TT□□-02□

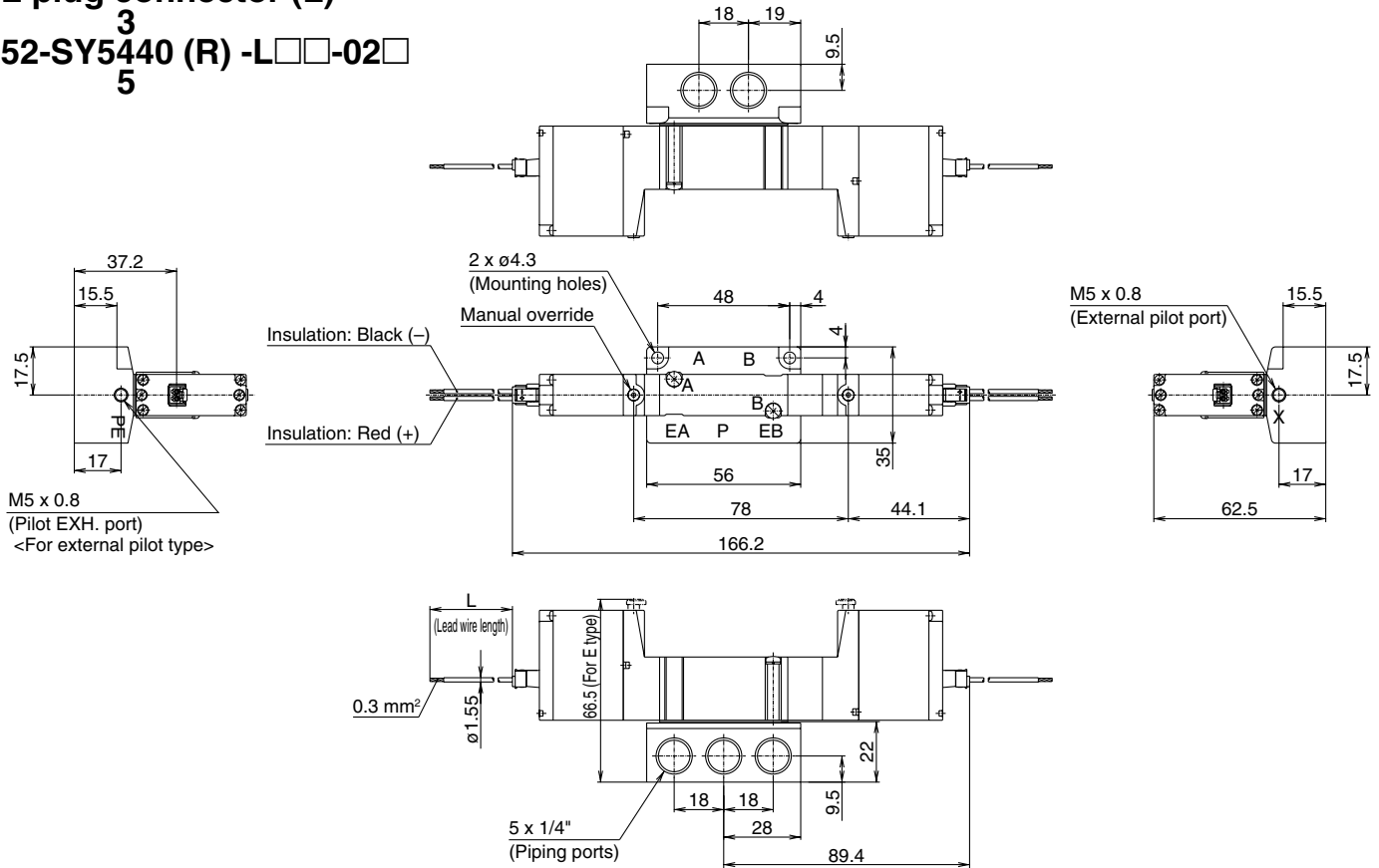


Dimensions

3-position closed centre/exhaust centre/pressure centre

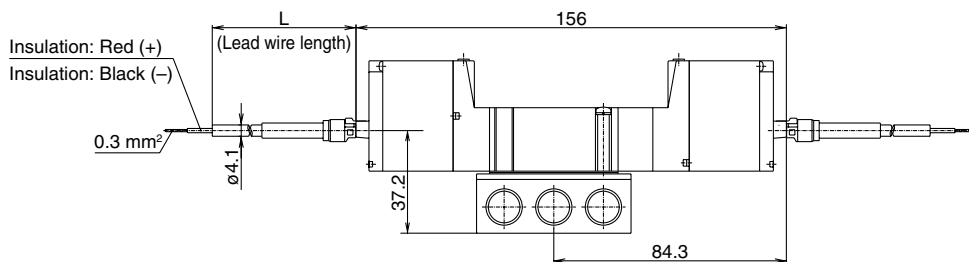
L plug connector (L)

³
52-SY5440 (R) -L□□-02□
₅



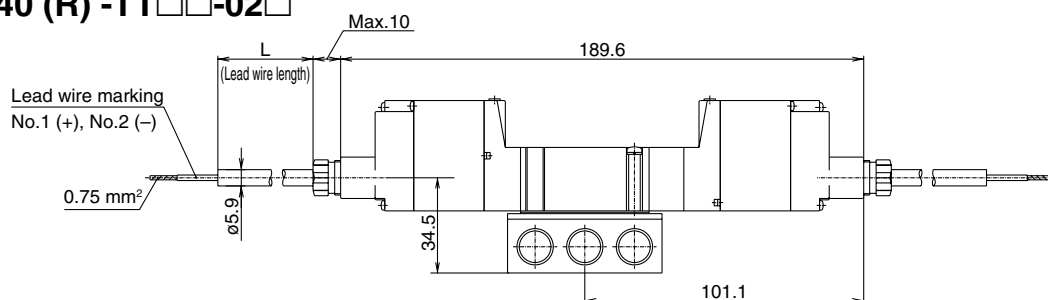
L plug connector with cover (LL)

³
52-SY5440 (R) -LL□□-02□
₅



Cable type (TT)

³
52-SY5440 (R) -TT□□-02□
₅

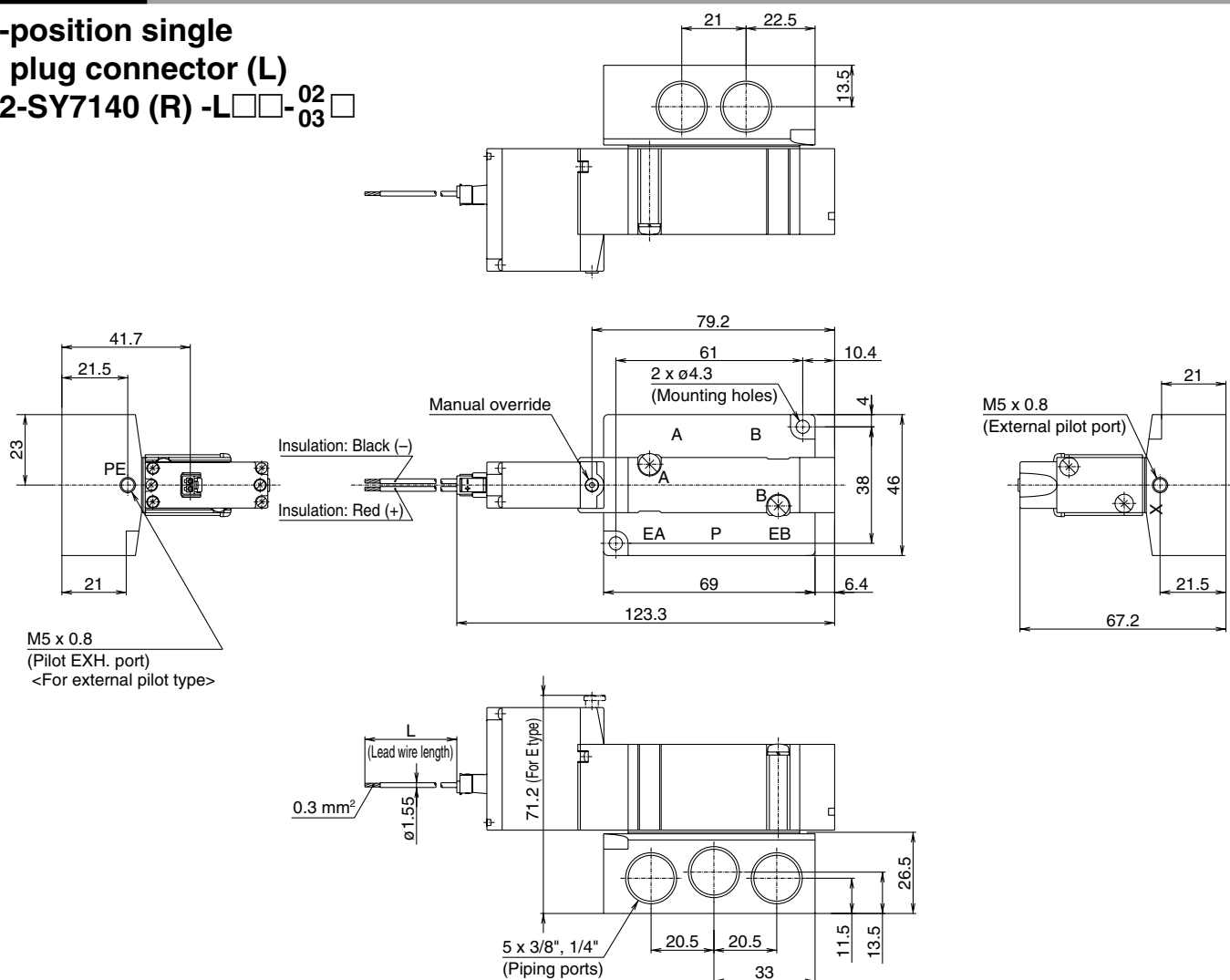


Dimensions

2-position single

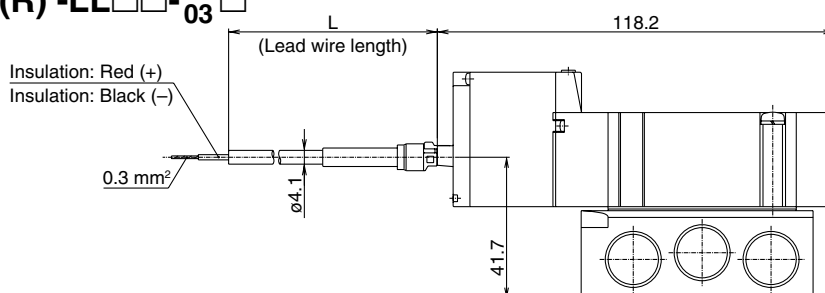
L plug connector (L)

52-SY7140 (R) -L□□-02□
03□



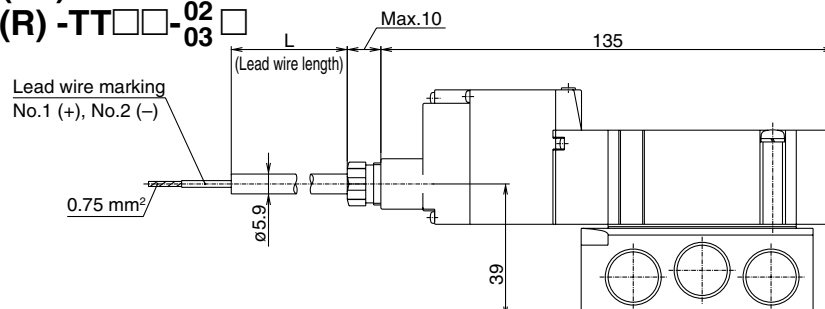
L plug connector with cover (LL)

52-SY7140 (R) -LL□□-02□
03□



Cable type (TT)

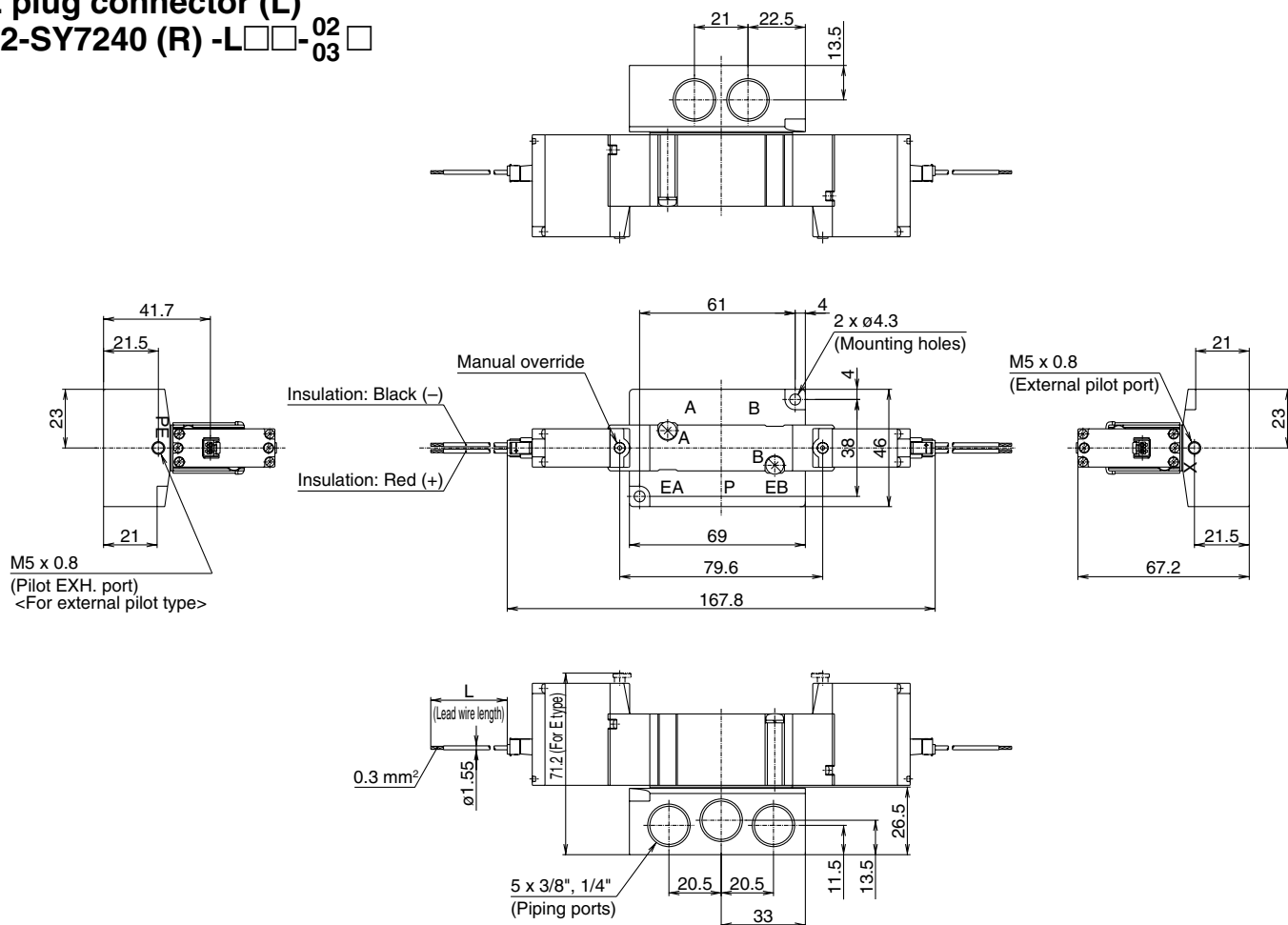
52-SY7140 (R) -TT□□-02□
03□



Dimensions

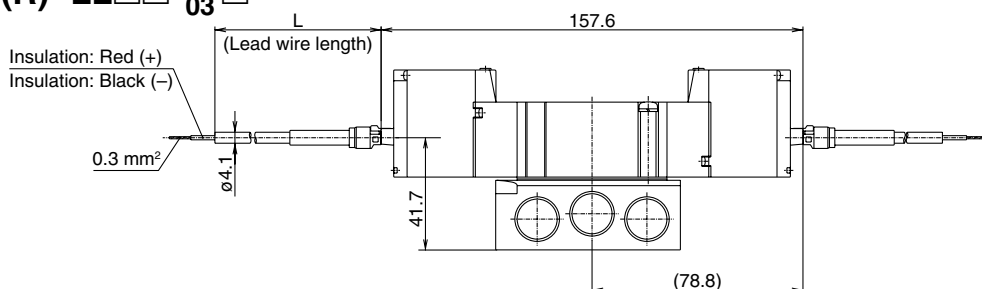
2-position double L plug connector (L)

52-SY7240 (R) -L□□-02□
03□



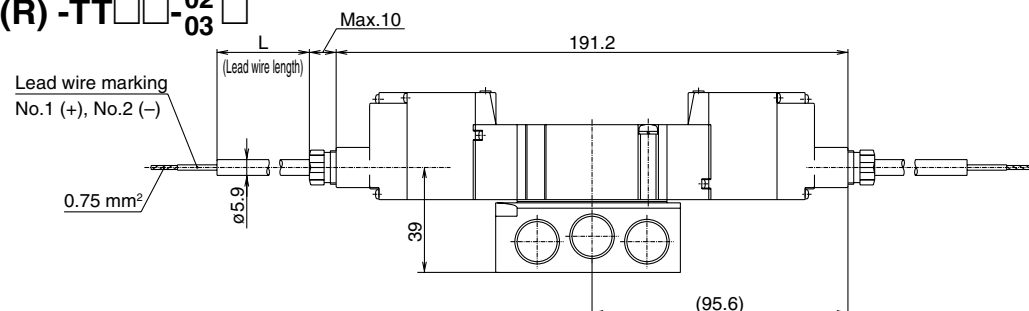
L plug connector with cover (LL)

52-SY7240 (R) -LL□□-02□
03□



Cable type (TT)

52-SY7240 (R) -TT□□-02□
03□

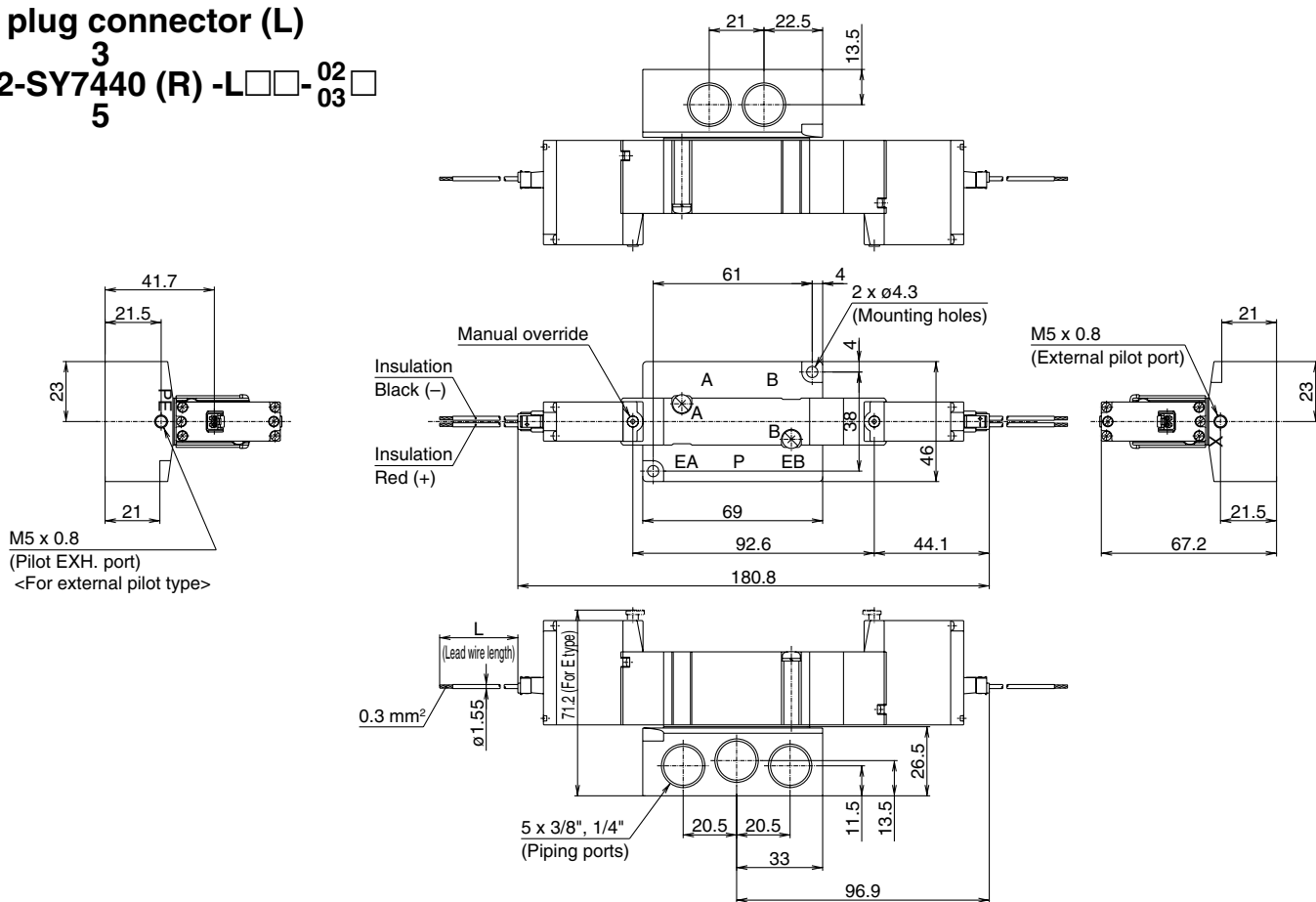


Dimensions

3-position closed centre/exhaust centre/pressure centre

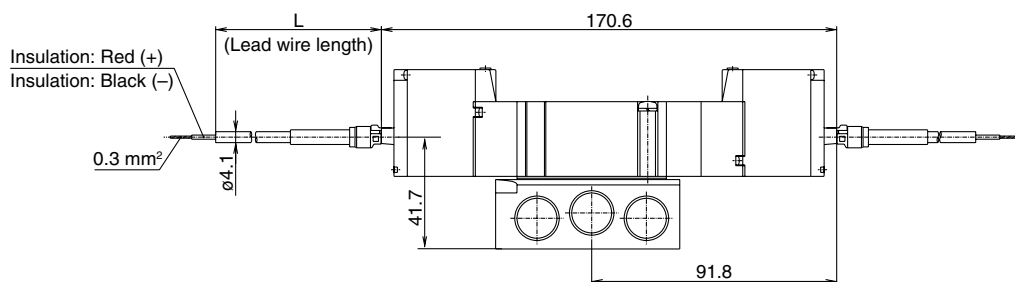
L plug connector (L)

3
52-SY7440 (R) -L□□-02□
5



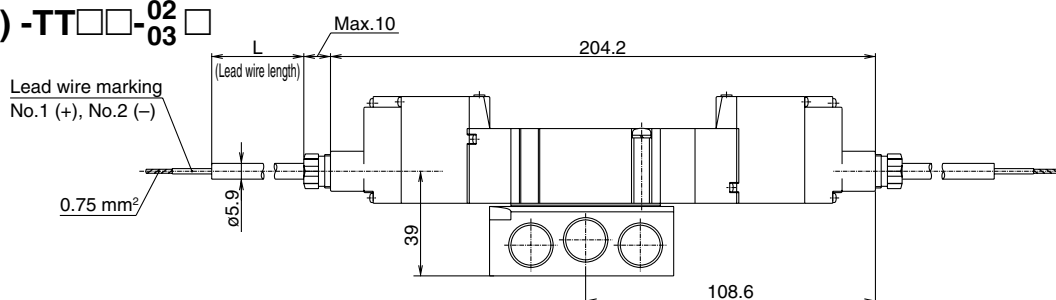
L plug connector with cover (LL)

3
52-SY7440 (R) -LL□□-02□
5



Cable type (TT)

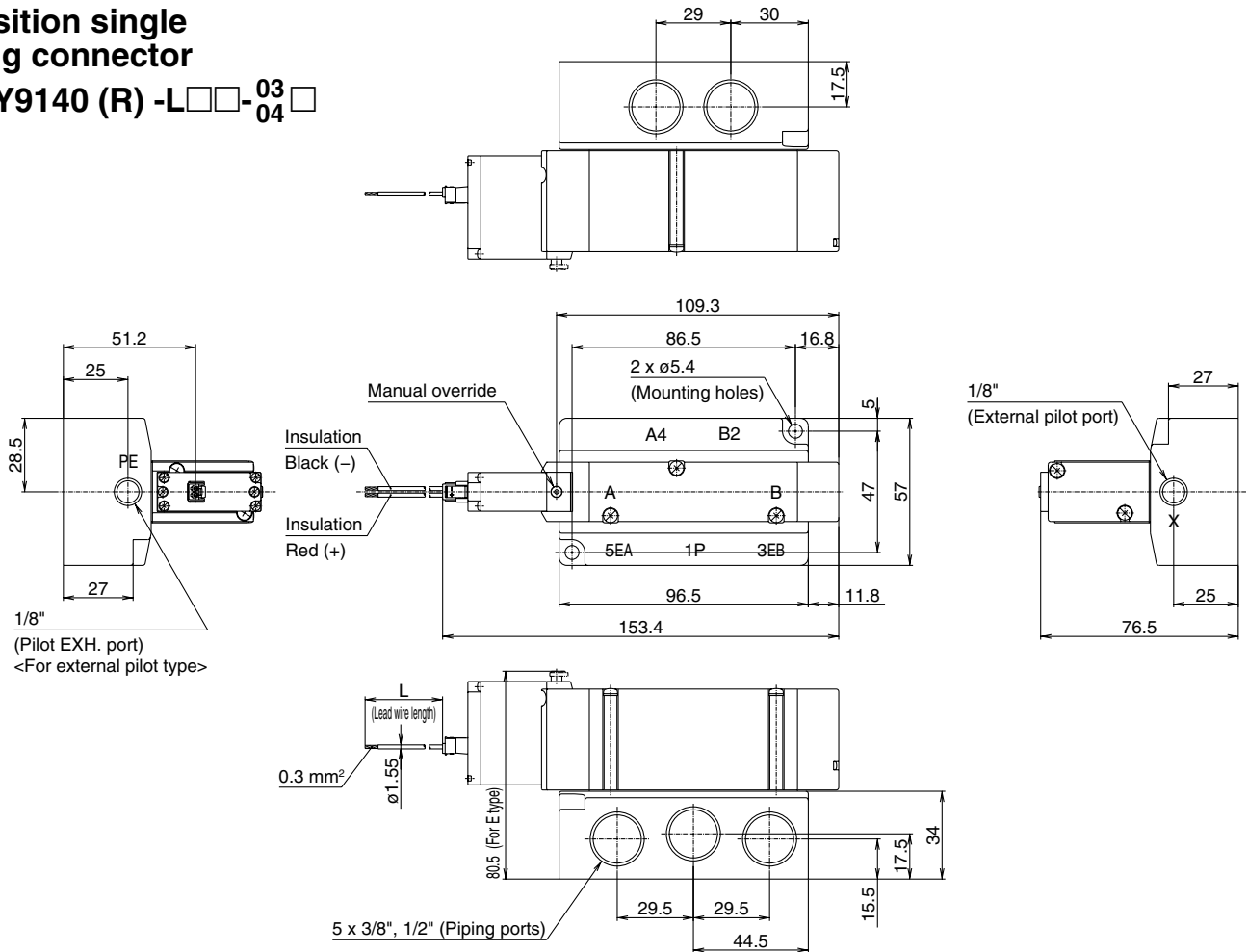
3
52-SY7440 (R) -TT□□-02□
5



Dimensions

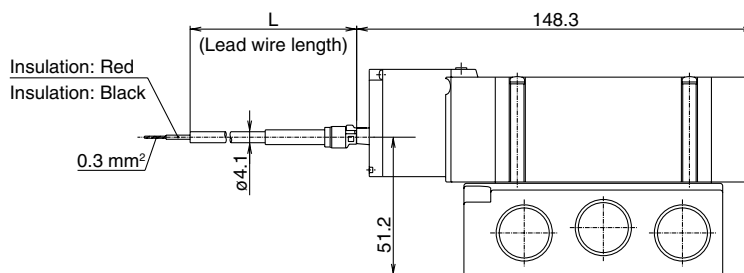
2-position single L plug connector

52-SY9140 (R) -L□□-03□
04□



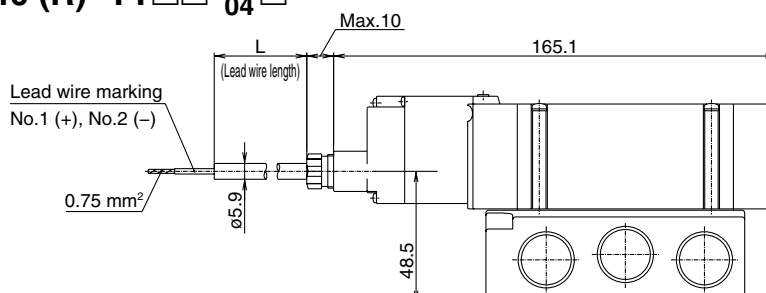
L plug connector with cover (LL)

52-SY9140 (R) -LL□□-03□
04□



Cable type (TT)

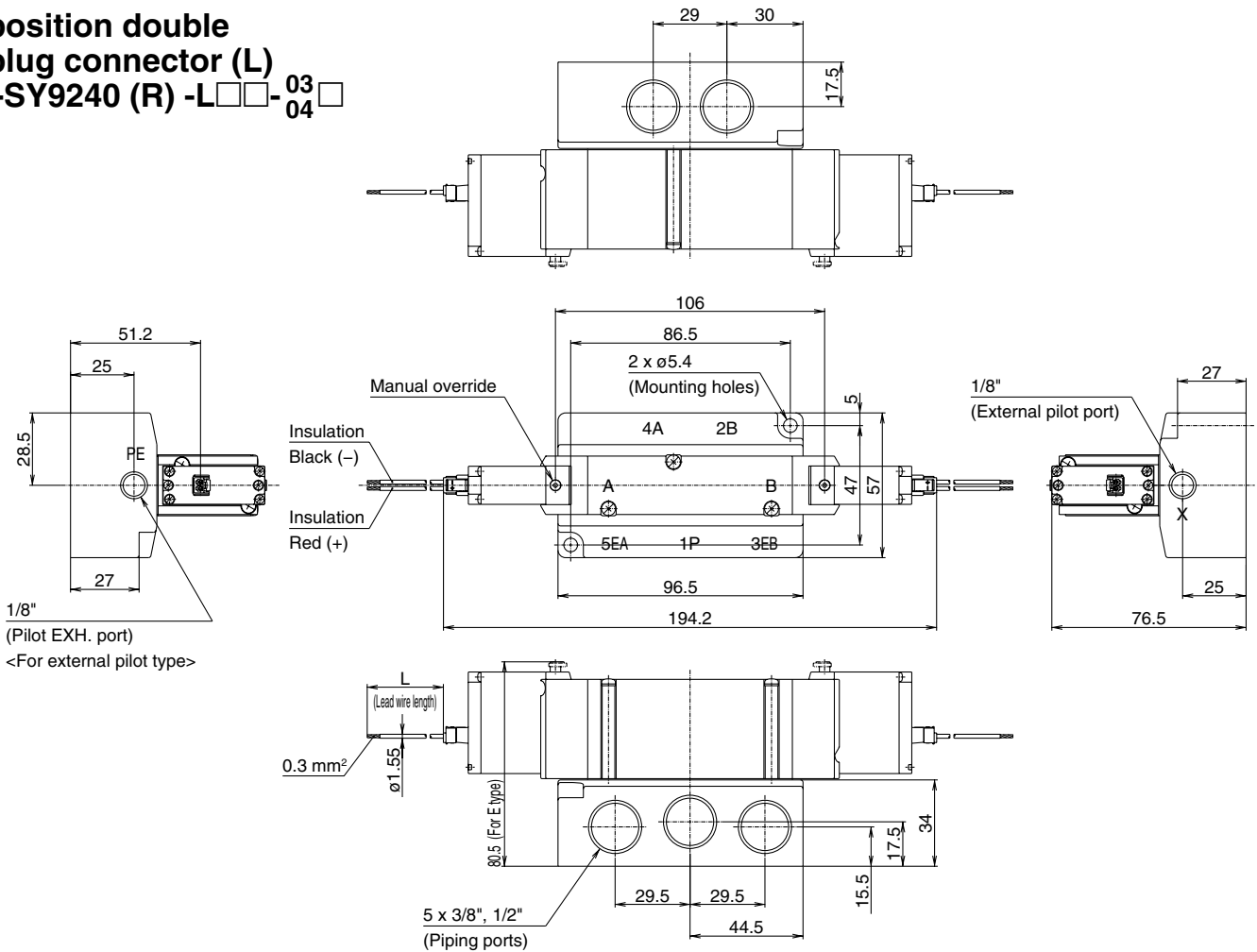
52-SY9140 (R) -TT□□-03□
04□



Dimensions

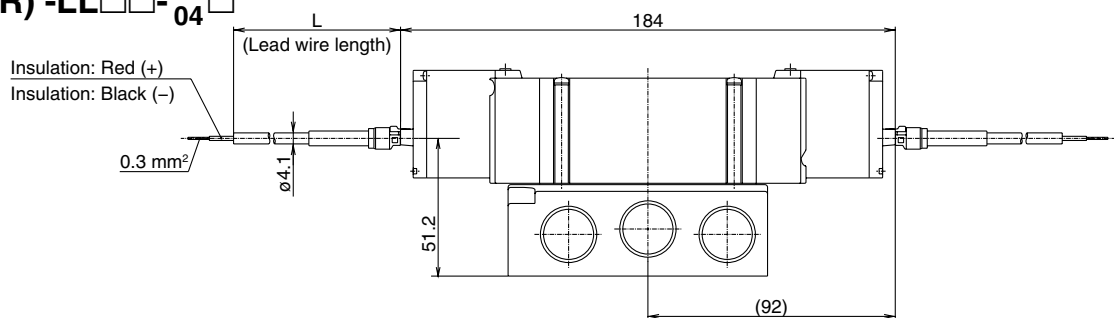
2-position double L plug connector (L)

52-SY9240 (R) -L□□-03□
04□



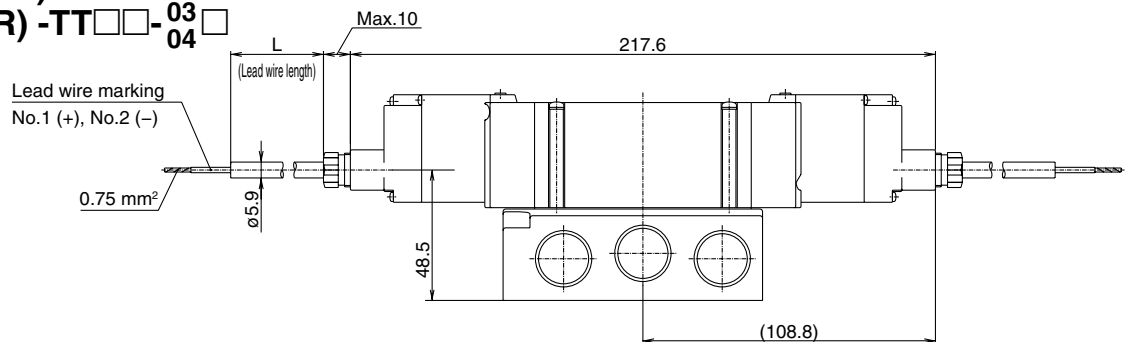
L plug connector with cover (LL)

52-SY9240 (R) -LL□□-03□
04□



Cable type (TT)

52-SY9240 (R) -TT□□-03□
04□



**3-position closed centre/exhaust centre/
pressure centre**

52-SY9440 (R) -L□□-03□
504□



52-SY9440 (R) -LL□□-03□
504□



52-SY9440 (R) -TT□□-03□
04□

