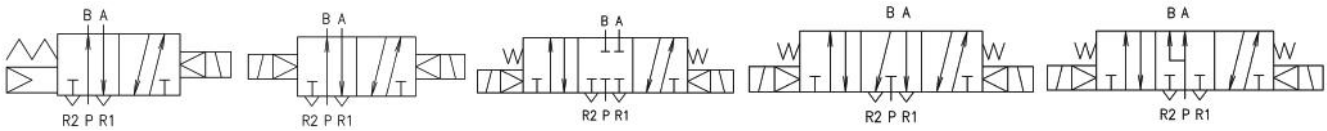
RDS5000 SERIES

Rubber Seal 5port Pilot Type

- Compact size and light weight(32mm width)
- Large flow capacity - Cv2.8, Rc(PT)3/8 and Cv3.2, Rc(PT)1/2
- Made with environment friendly materials
- White color design
- Easy to replace coil

Symbol

Single	Double	Closed Center	Exhaust Center	Pressure Center
RDS5120	RDS5220	RDS5320	RDS5420	RDS5520



HOW TO ORDER

U RDS 5 1 2 0 — 1 G — 02 — XWL＊＊

1 | 2 3 | 4 | 5 | 6 | 7

1 RDS5000 Series
Blank : Metric Rc(PT)
U : NPT

2 Type of Actuation
1 : Single
2 : Double
3 : Closed Center
4 : Exhaust Center
5 : Pressure Center

3 Port type
2 : Body Ported

4 Coil Voltage
1: AC110V, 50/60HZ
2: AC220V, 50/60HZ
3: AC120V, 50/60HZ
4: AC240V, 50/60HZ
5: DC24V
6: DC12V
8: AC24V, 50/60HZ
9: DC100V

5 Electrical Entry
G : Grommet(Lead wire 300mm)
D : DIN Connector
DZ : DIN Connector (Lamp and surge voltage protecting circuit attached)
N : DIN type(connector not included)

6 PORT SIZE
02 : Rc(PT)1/4
03 : Rc(PT)3/8
04 : Rc(PT)1/2

8 Lead wire
Blank : 300mm
XWL01 : 100mm
XWL01 : 200mm
:
XWL01 : 2000mm
※ Integrated push & lock type is standard option for manual operation.

TVF3130-61-2005 – Additional Symbol (1)

1 Additional Symbol

Additional Symbol	Rated Voltage
❶	AC110V, 50/60Hz
❷	AC220V, 50/60Hz
❸	AC120V, 50/60HZ
❹	AC240V, 50/60HZ
❺	DC24V
❻	DC12V
❽	AC24V, 50/60HZ
❾	DC100V

■ Notice

Please fully understand the safety notice before operating this item.

Specifications

Fluid		Air
AMBIENT AND FLUID TEMPERATURE(MPS)	2 Position Single, 3 Position	0.15 ~ 1.0 MPa [0.2~1.0kgf/㎠]
	2 Position Double	0.1 ~ 1.0MPa
Ambient and Fluid temperature		5~50℃
Response time(ms)	2 Position Single, Double	under 40ms
	3 Position	under 50ms
Max. Operating Frequency(Hz)	2 Position Single, Double	5 c/s
	3 Position	3 c/s
Lamp(LED)		Standard
Manual operation		PUSH & LOCK
Electrical Entry		Grommet(G), DIN Connector(DZ)
Lubrication		Not Required
Coil rated Voltage	AC(50/60)Hz	110V, 220V, 120V, 240V, 24V
	DC	24V, 12V, 100V
Power Consumption	Apparent power(AC)	5.0VA(50Hz), 4.0VA(60Hz)
	Power consumption(DC)	3.0 / 3.2W(with LED)

Type

Piping type	Type	Type of Actuation	(1)PORT SIZE (SUP,CYL.)	Effective Orifice mm2(Cv) Rc(PT)3/8	Effective Orifice mm2(Cv) Rc(PT)1/2	(2)Weight(kg)
Body Ported	RDS5120-○○-02/03/04	2 Position Single	Rc(PT)1/4 Rc(PT)3/8 Rc(PT)1/2	50(2.8)	58(3.2)	0.40
	RDS5220-○○-02/03/04	2 Position Double		50(2.8)	58(3.2)	0.48
	RDS5320-○○-02/03/04	3 Position Closed Center		40(2.2)	45(2.5)	0.60
	RDS5420-○○-02/03/04	3 Position Exhaust Center		43(2.4)	48(2.7)	0.60
	RDS5520-○○-02/03/04	3 Position Pressure Center		40(2.2)	45(2.5)	0.60

(1) Body ported type can be attached to each manifold base.(Manifold Type / B mount common exhaust)
(2) The weight is based on grommet type.
(3) Effective sectional area of valve is assigned by provider, which shows a bit of difference from exhaust effective sectional area.(Lamp/Surge voltage protecting circuit attached)

RDC Series

HOW TO ORDER

RDC (1) **1** (2) **G** (3) – **XWL** * * (4)

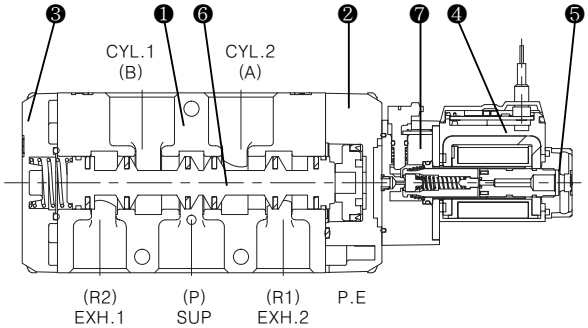
1 RDC Series

2 Coil Voltage
- 1: AC110V, 50/60HZ
- 2: AC220V, 50/60HZ
- 3: AC120V, 50/60HZ
- 4: AC240V, 50/60HZ
- 5: DC24V
- 6: DC12V
- 8: AC24V, 50/60HZ
- 9: DC100V

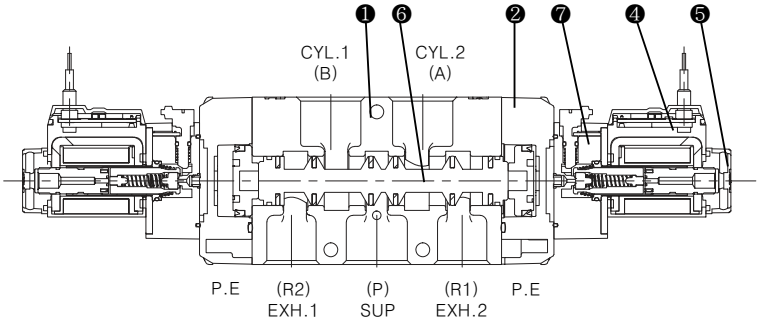
3 Electrical Entry
- G : Grommet(Lead wire 300mm)
- D : DIN Connector
- DZ : DIN Connector (Lamp and surge voltage protecting circuit attached)
- N : DIN Type (connector not included)

4 Length of lead wire
- Blank : 300mm
- XWL01: 100mm
- XWL02: 200mm
- :
- XWL20: 2000mm

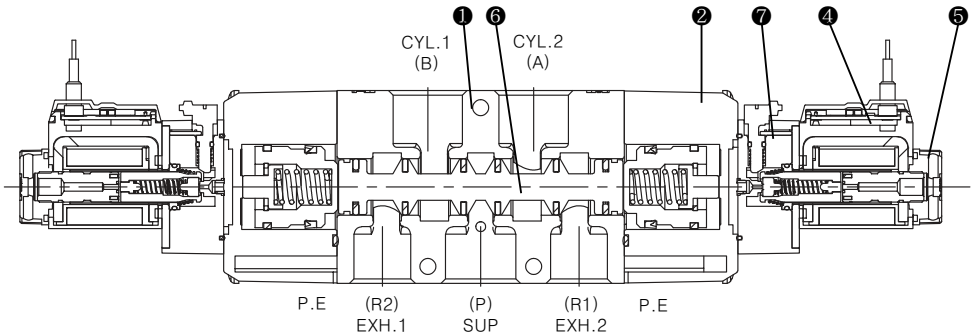
Single Solenoid



Double Solenoid



3 Position Solenoid

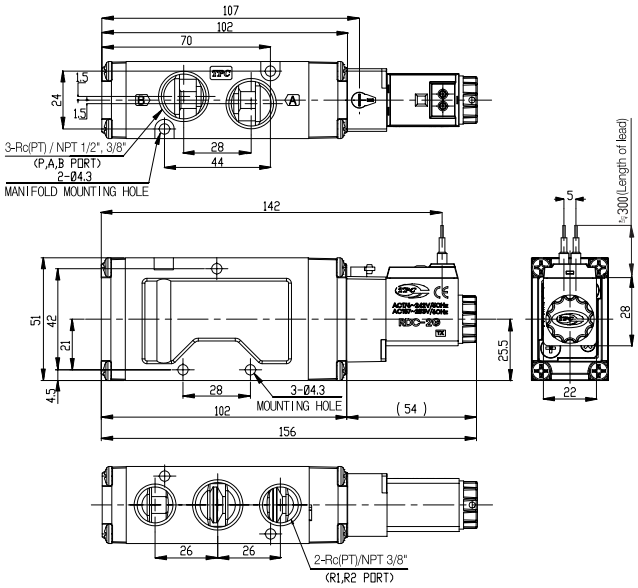


Main Parts for manifold

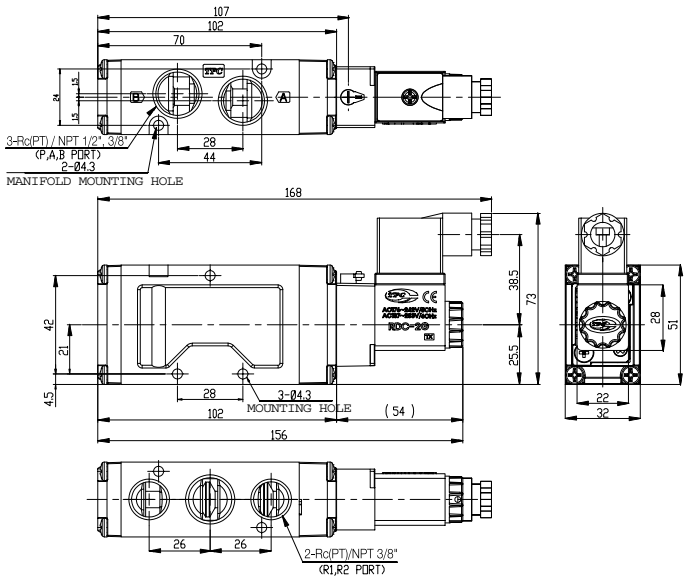
NO.	Description	Material	Remarks
❶	Body	Aluminum die casting	White paint
❷	Adapter Plate A	Resin	
❸	End Cover	Resin	
❹	Coil Ass'y	–	
❺	Core Fixed Nut	Resin	
❻	Spool	Alumium	
❼	Pilot Body	Resin	

Body Ported/2 Position Single Solenoid

Grommet/RDS512○-○G

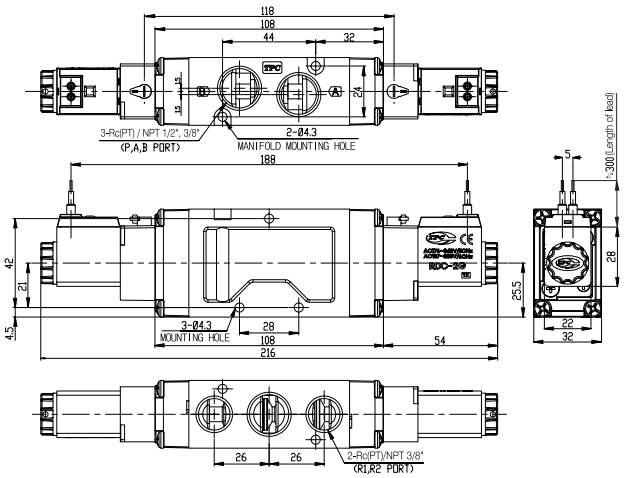


DIN Connector/RDS512○-○D(DZ)

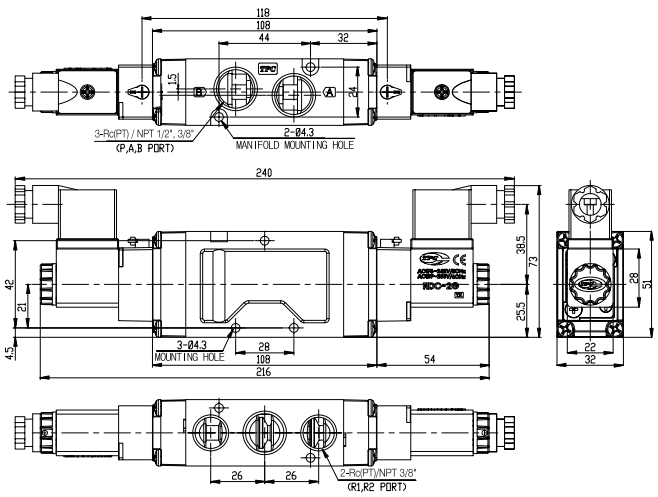


Body Ported/2 Position Double Solenoid

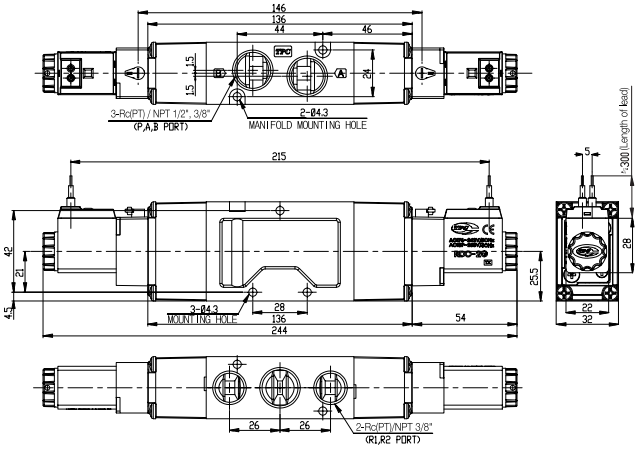
Grommet/RDS522○-○G

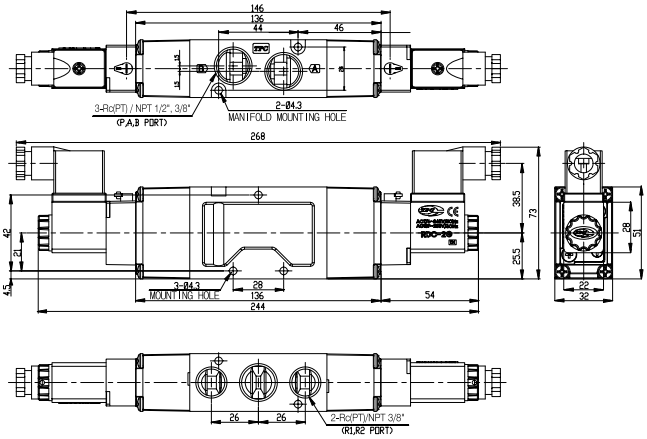


DIN Connector/RDS522○-○D(DZ)



Grommet/RDS5○2○-○G





Manifold

TVV5F5-30

Type · Specifications

Manifold Type	BMount(Single Base type)	
EXHAUST Port Type	Common	Individual
(1)Maximum Valve Connection number	10 stations	

(1) For more than 5 stations of B mounting type, pressurized at both ends of P(SUP) port and exhausted by both R(EXH) ports.

Type · Specifications

Type	Manifold Base type	(1)R(EXH) Type	Piping Direction/Connect Location			PORT SIZE Rc(PT)			Applied Valve Type
			P(SUP)	R(EXH)	A,B(CYL)	P(SUP)	R(EXH)	A,B(CYL)	
B Mount	TVV5F5-20	Common	Transverse Base	Transverse Base	Upper Valve	1/2	3/8	3/8 · 1/2	RDS5○20

(1) The type of P port is common.

Blank Plate HOW TO ORDER

TVF5120-83A

(Gasket & Bolt included)

Manifold Gasket

TVF5120-52A

Manifold Base HOW TO ORDER FORM

U TVV5F5 — 2 0 — 0 5 ○

1 2 3 4 5

1 Manifold
Blank : Metric(PT)
U : NPT

2 RDS5000 SERIES Manifold

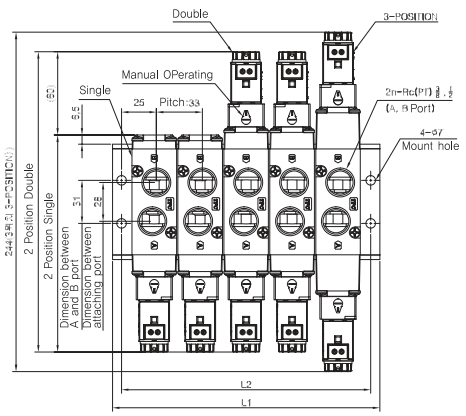
3 Manifold Specifications
Symbol : 20
A,B(CYL) port piping position : valve
Port size
P : Rc(PT)1/2
R : Rc(PT)3/8
Applied Valve Type : RDS5□20

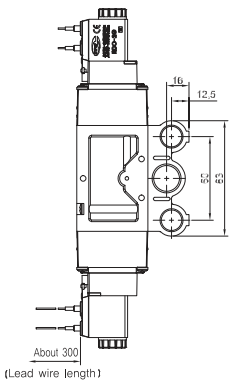
4 Stations
02 : 2 Stations
~
10 : 10 Station

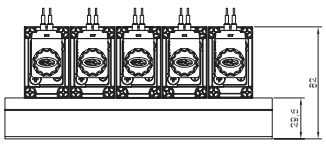
5 Component Symbol
Symbol : 1
Passage Specification
P(SUP) : Common
R(EXH) : Common
Piping Specification
A, B(CYL):Upper(Transverse)
Remark : 20 Type

B Mount type/TVV5F5 - 20

Common EXH/TVV5F5 - 20 - ○○1







L:Dimension Sheet

(n:Stations)

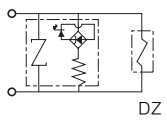
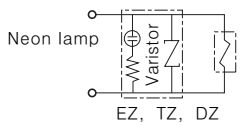
L \ n	2	3	4	5	6	7	8	9	10
L1	93	126	159	192	225	258	291	324	357
L2	80	113	146	179	212	245	278	311	344

Notices for Handling

■ Notice

Please fully understand the safety notice before operating this item.

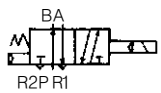
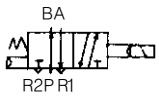
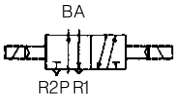
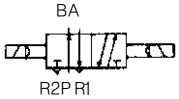
Indicator Light / Surge Voltage Suppressor

Rated Voltage	AC, DC
Less than 24V	
Less than 200V	

(Note1) No lamp attaching type for Grommet (G) type
(Note2) ZNR is called as Varistor. which is surge voltage protection circuit.

In Case of Using 3-Port Valve (in case of 5-port)

With closing one direction of cylinder port (A and B), it is applied as 3-port valve of normal closed (N.C) or Normal Open (N.O). It is covenient if 3-port valve is necessary. But, do not apply for special purposes such as Non Leak Valve. Moreover, please use with opened condition for exhaust port.

Plug Location		BPort (CYL.1Port)	APort (CYL.2Port)
Switching Method		N.C	N.O
Solenoid Number	Single	(X)Plug 	(X)Plug 
	Double	(X)Plug 	(X)Plug 

For the Quality of Fluid Applied

① 5㎛ fillter resolution is sufficient.
② Large amount of drain may cause operation failure of pneumatic equipment which firstly uses valve and environmental contamination, so that special management is required. Moreover, if management of drain exhaust is difficult, it is recommended to use automatic exhaust attaching filter.
③ If large quantity of carbon powder is generated from compressor, it may cause operation failure owing to attaching on valve inside. It is recommended to use less carbon powder generating compressor or install coalescing filter.

For Piping

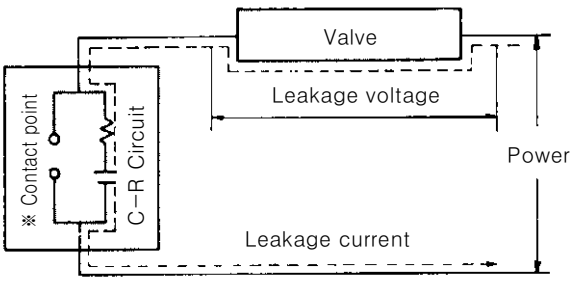
① Fully remove chip, cutting oil or dust in a pipe with air blow (flushing) or washing prior to piping.
② When connecting fittings or piping, be careful to prevent chips or particles from getting inside. Do not wind seal tape on whole threads. Leave 1.5~2 threads unwound.
③ Check if silencer is attached to PE port of Manifold valve.
④ Connecting torque for piping.

Contact screw	Proper Tightening Torque kgf · cm(N · m)	Material of Tightening Part
M3	3.1~3.9(0.31~0.39)	Resin
	4.7~5.9(0.47~0.59)	Aluminum
M4	7.5~9.5(0.75~0.95)	Resin
	11.5~14.5(1.15~1.45)	Aluminum
M5	15~20(1.5~2)	Resin
PT 1/8	70~90(7~9)	Aluminum
PT 1/4	120~140(12~14)	

For Leakage Voltage

① In case of power OFF, restrain residual leakage voltage in both ends of AC coil under 20% of rated voltage, and under 3% for DC coil.(Please measure AC coil with manually pressing metal pin.)

② In case of using C−R circuit for contact point protection, be cautious that leakage voltage possibly increases owing to leakage current through C−R circuit.



※ Be cautious that some of non-contact point relays have protection circuit built-in

Operating Environment

① Do not attach around the place affected by corrosive gas, chemical liquid, sea water splash, rainwater and steam.

② Make a measure such as protection cover, etc, for attaching in the place affected by water drops, oil and splatter during welding process.

③ Prevent inflow of dust into valve with attaching silencer at exhaust port of valve.

For Using in Low Temperature

It is available to use by −10℃, however, full caution is needed for condensation of drain and moist. It is recommended to install drier for the case above.

For Sequential Power Supply

In case of sequential power supply, apply more than 0.1 second for power supply and 0.05 second for power OFF.

In Case of Long Term Power Supply

In case of using for a long period with power supply, please ask for consultation to manufacturer.

How to Find the Flow Rate

① In case of $P_2+1.033 \leqq P_1+1.033 \leqq 1.89(P_2+1.033)$

$$Q=22.2S\sqrt{\frac{\triangle P(P_2+1.033)}{G}}\cdot\sqrt{\frac{273}{273+\theta}}$$

① In case of $1.89(P_2+1.033) < P_1+1.033$

$$Q=11.1S(P_1+1.033)\frac{1}{\sqrt{G}}\cdot\sqrt{\frac{273}{273+\theta}}$$

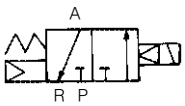
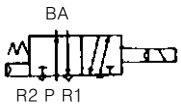
Q : Flux in Conventional Condition(N ℓ /min)
P_1 : 1st Side Pressure (Gauge Pressure) (kgf/cm²)
P_2 : 2st Side Pressure (Gauge Pressure) (kgf/cm²)
△P : Pressure Differential (P_1-P_2) (kgf/cm²)
S : Effective Orifice(mm²)
G : Specific Gravity(Air=1)
θ : Temperature of Air Applied(℃)

Lubrication

① Initially lubricated, possible to use with non−Lube.

② Please use turbine oil class 1(ISO VG32)
Moreover, if refueling is stopped, it may cause operation failure owing to loss of initial lubricant, so that refueling should be continued.
Please contact for turbine oil class 1(ISO VG32)

Port Indicating Symbol Sheet

Index	RDS300	RDS3000, RDS5000
Inlet	P(SUP)	
Outlet	A(CYL)	A(CYL.2) and B(CYL.1)
Exhaust hole	R(EXH)	R1(EXH2) and R2(EXH1)
KS symbol (Single Solenoid)		
	S:P(SUP)	

Notices for Handling

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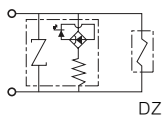
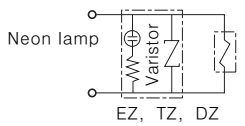
Less than 24V	
Less than 200V	

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Plug Location		BPort (CYL.1Port)	APort (CYL.2Port)
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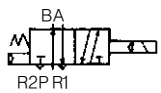
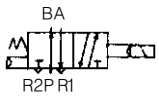
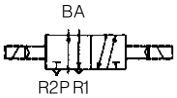
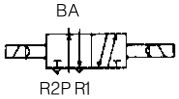
Solenoid Number	Single	(X)Plug 	(X)Plug 
	Double	(X)Plug 	(X)Plug 

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④ Connecting torque for piping.

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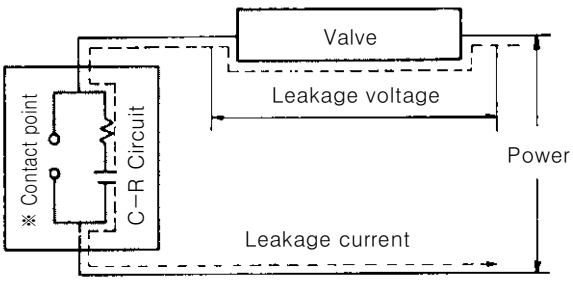
	4.7~5.9(0.47~0.59)	Aluminum
M4	7.5~9.5(0.75~0.95)	Resin
	11.5~14.5(1.15~1.45)	Aluminum
M5	15~20(1.5~2)	Resin
PT 1/8	70~90(7~9)	Aluminum
PT 1/4	120~140(12~14)	

For Leakage Voltage

① In case of power OFF, restrain residual leakage voltage in both ends of AC coil under 20% of rated voltage, and under 3% for DC coil.(Please measure AC coil with manually pressing metal pin.)

② In case of using C−R circuit for contact point protection, be cautious that leakage voltage possibly increases owing to leakage current through C−R circuit.



※ Be cautious that some of non-contact point relays have protection circuit built-in

Operating Environment

① Do not attach around the place affected by corrosive gas, chemical liquid, sea water splash, rainwater and steam.

② Make a measure such as protection cover, etc, for attaching in the place affected by water drops, oil and splatter during welding process.

③ Prevent inflow of dust into valve with attaching silencer at exhaust port of valve.

For Using in Low Temperature

It is available to use by −10℃, however, full caution is needed for condensation of drain and moist. It is recommended to install drier for the case above.

For Sequential Power Supply

In case of sequential power supply, apply more than 0.1 second for power supply and 0.05 second for power OFF.

In Case of Long Term Power Supply

In case of using for a long period with power supply, please ask for consultation to manufacturer.

How to Find the Flow Rate

① In case of $P_2+1.033 \leqq P_1+1.033 \leqq 1.89(P_2+1.033)$

$$Q=22.2S\sqrt{\frac{\triangle P(P_2+1.033)}{G}}\cdot\sqrt{\frac{273}{273+\theta}}$$

① In case of $1.89(P_2+1.033) < P_1+1.033$

$$Q=11.1S(P_1+1.033)\frac{1}{\sqrt{G}}\cdot\sqrt{\frac{273}{273+\theta}}$$

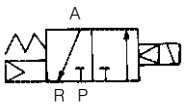
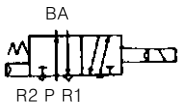
Q : Flux in Conventional Condition(N ℓ /min)
P_1 : 1st Side Pressure (Gauge Pressure) (kgf/cm²)
P_2 : 2st Side Pressure (Gauge Pressure) (kgf/cm²)
△P : Pressure Differential (P_1-P_2) (kgf/cm²)
S : Effective Orifice(mm²)
G : Specific Gravity(Air=1)
θ : Temperature of Air Applied(℃)

Lubrication

① Initially lubricated, possible to use with non−Lube.

② Please use turbine oil class 1(ISO VG32)
Moreover, if refueling is stopped, it may cause operation failure owing to loss of initial lubricant, so that refueling should be continued.
Please contact for turbine oil class 1(ISO VG32)

Port Indicating Symbol Sheet

Index	RDS300	RDS3000, RDS5000
Inlet	P(SUP)	
Outlet	A(CYL)	A(CYL.2) and B(CYL.1)
Exhaust hole	R(EXH)	R1(EXH2) and R2(EXH1)
KS symbol (Single Solenoid)		
	S:P(SUP)	