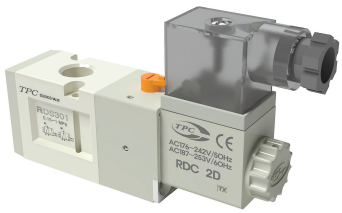
RDS300 Series

Rubber Seal 3port Pilot type

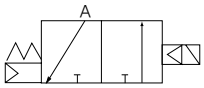


- Compact size and light weight(26.4mm width)
- Large flow capacity
- Easy modification from N.C to N.O
- Made with environment friendly materials
- White color design
- Easy to replace coil

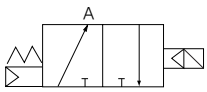
Symbol

Single

RDS301-○○○-○○A(N.C)



RDS301-○○○-○○B(N.O)



How to order

U RDS 3 0 1 — 1 G — 02 A — XWL * *

1 2 3 4 5 6 7 8

1 RDS300 Series
Blank : Metric Rc(PT)
U : NPT

2 Type of actuation
0 : N.C/N.O

3 Port type
1 : 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 • Surge voltage protecting circuit attached)
N : DIN type(connector not included)

6 Port Size
01 : Rc(PT)1/8
02 : Rc(PT)1/4

7 Action
A : Normal Close
B : Normal Open

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

※ Integrated push & lock type is standard option for manual operation.

RDC Series

How to order

RDC 1 G — XWL * *

1 2 3 4

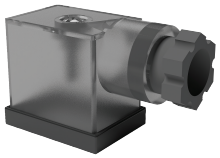
1 RDC Series

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 • Surge volatage protecting circuit attached)
N : DIN type(connector not included)

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

DIN TERMINAL BOX Order form



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

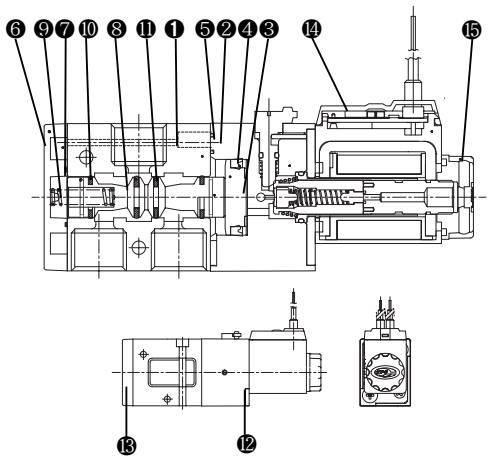
■ Notice

Please fully understand the safety notice before operating this item.

Specifications

Fluid		Air	
Action		PILOT Type	
Action		Air + Spring Type	
Position, port		2 positions / 3 ports	
Body Option		Body ported and Base mounted type	
Port Size Rc(PT)		1/8	1/4
Effective Orifice mm^2(Cv)		19.2 (1.07)	22 (1.2)
Operating Pressure Range		0.15~1.0MPa(1.5~10kgf/cm^2)	
Ambient and Fluid temperature		5~50℃	
Response time		under 30ms(0.5MPa)	
Max. Operating Frequency		5c/s	
Lamp(LED)		Standard	
Lubrication		Not Required	
Manual operation		PUSH & LOCK	
Mounting Position		Free	
Electrical Entry		Grommet(G)	DIN Connector(DZ)
Lead wire color		AC110V : Blue, AC220V : Red, DC24V : Red • Black	
Enclosure		Dust Proof	
Coil rated Voltage	AC(50/60Hz)	110V, 220V, 120V, 240V, 24V	
	DC	24V, 12V, 100V	
Allowable voltage fluctuation		−15~+10%	
Coil insulation type		Class H or Equivalent(180℃)	
Allowable temperature		under 40℃	
Apparent power	AC	5.0 VA(50Hz), 4.0VA(60Hz)	
Power consumption	DC	3.0W/3.2W(with LED)	
Indicator Light & Surge Suppressor Circuit	AC	LED, Varistor	
	DC	LED, Varistor	

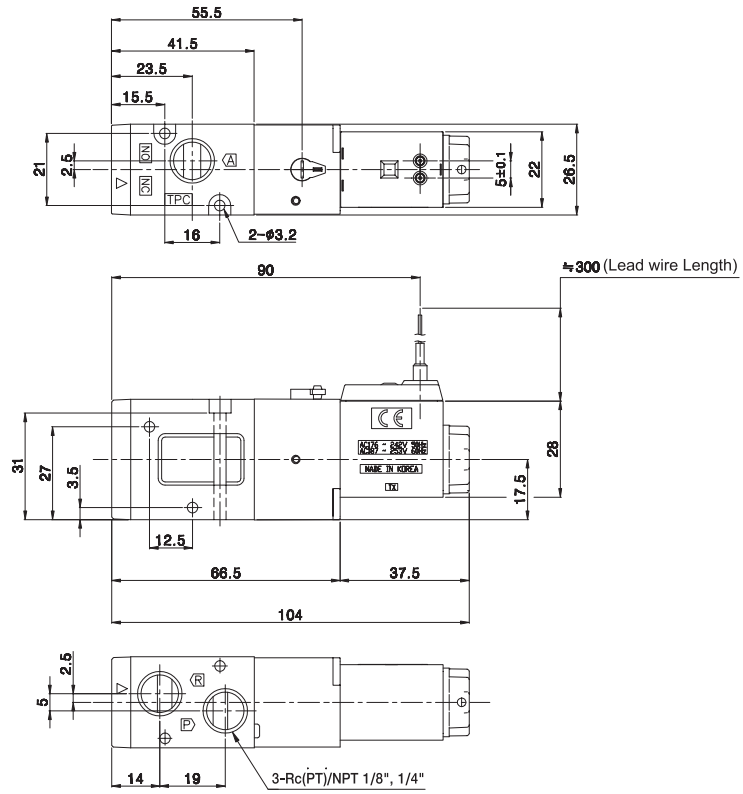
Construction/Parts List



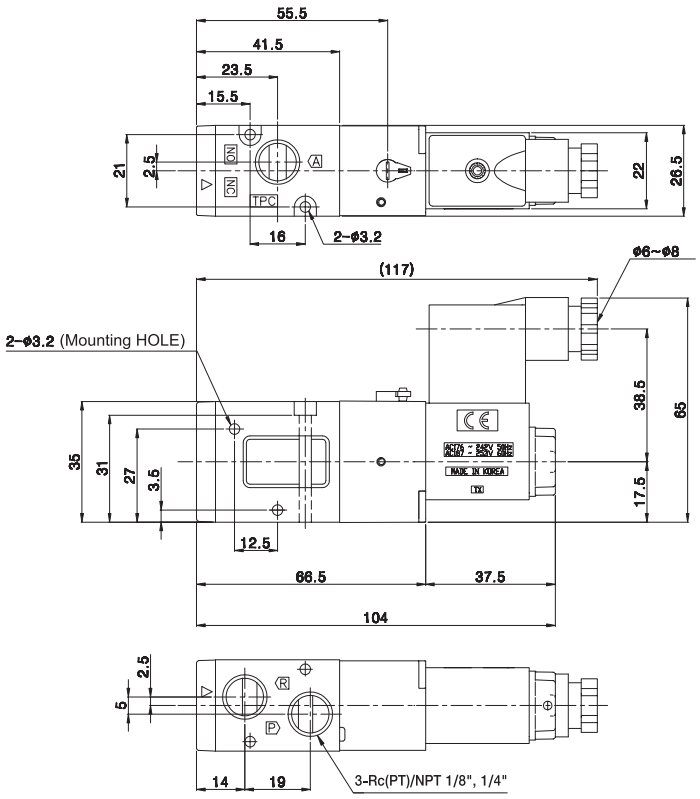
NO.	Description	Material	Remarks
❶	Body	Aluminum Die casting	White color
❷	Adapter Plate A	Resin	
❸	Piston	Resin	
❹	Piston Packing	NBR	
❺	Adapter Plate gasket	NBR	
❻	End Cover	Resin	
❼	End Cover gasket	NBR	
❽	Spool	Alumium	
❾	Spool Spring	Spring Steel	
❿	Spool Packing	NBR	
⓫	Quad Ring	NBR	
⓬	+Pan Headed Screw	Carbon steel	M4×0.7×30ℓ
⓭	+Flush Headed Screw	Carbon steel	M3×0.5×8ℓ
⓮	Coil Ass'y	−	
⓯	Core Fixed Nut	Resin	

Body Ported/2 Position

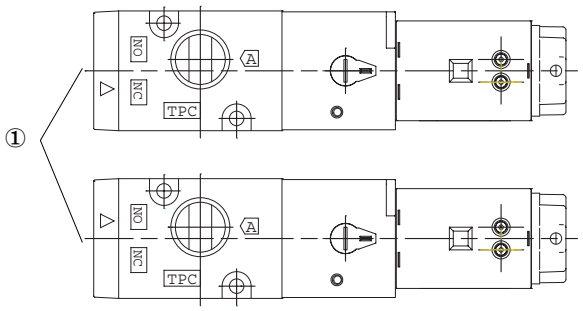
Grommet RDS301-○G



DIN Connector RDS301-○DZ



Change of Actuation(RDS 300)



As shown in the figure above, in event that it is needed to change the actuation from normally closed style to normally open style, it is preferred to remove the body from the sub plate and reset the "▲" mark on the body corresponding to the "NO"mark on thr sub plate.

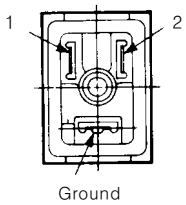
For piping, it is preferred to check the following table.

Flow Path Post	P	A	R
N · C	Upstream	Downstream	Exhaust side
N · O	Exhaust side	Downstream	upstream

Electronical Connection

Be sure to check the inner connections are as follows for the DIN connection and Terminal connection.(with surgeprotection circuit)

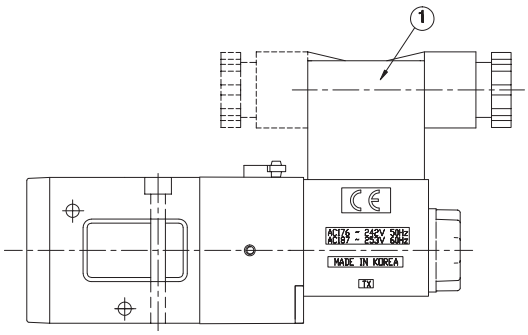
Din Connection



Terminal NO.	1	2
DIN Connection	+	–

Change of Electical Entry

Be sure to push out the body of DIN terminal from the cover, and turn it at 180°and then insert it.

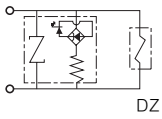
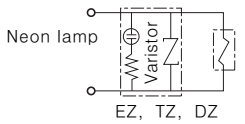


Notices for Handling

■ Notice

Please fully understand the safety notice before operating this item.

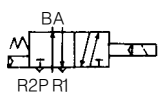
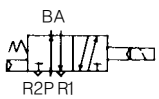
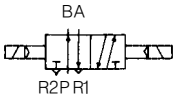
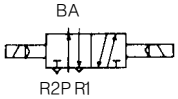
Indicator Light / Surge Voltage Suppressor

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

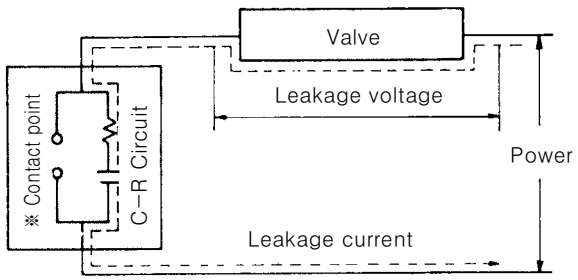
① Fully remove chip, cutting oil or dust in a pipe with air blow (flushing) or washing prior to piping.
② When connecting fittings or piping, be careful to prevent chips or particles from getting inside. Do not wind seal tape on whole threads. Leave 1.5~2 threads unwound.
③ Check if silencer is attached 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 $1.89(P_2+1.033) < P_1+1.033$

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

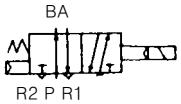
Q : Flux in Conventional Condition(N ℓ /min)
P_1 : 1st Side Pressure (Gauge Pressure) (kgf/cm²)
P_2 : 2st Side Pressure (Gauge Pressure) (kgf/cm²)
△P : Pressure Differential (P_1-P_2) (kgf/cm²)
S : Effective Orifice(mm²)
G : Specific Gravity(Air=1)
θ : Temperature of Air Applied(℃)

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)	