

RDV100-300-400 Series

3 Port Pilot Type Solenoid Valve

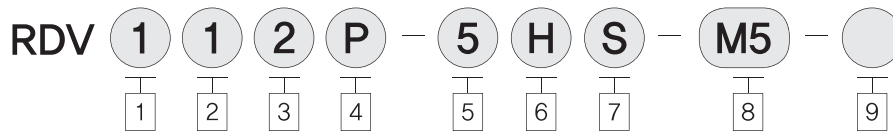


- Quick response time & Large flow capacity
response time less than 15ms (as of RDV 100)
low power consumption: 0.85w (24 DC, 41mA)
flow capacity more than 100 ℓ /min (as of RDV 100)
- Exceptional reliability
prevents spool abrasion with wear-ring
minimized frictional resistance with U-packing
- Variety of products
collective exhaust structure as a standard feature
external pilot type adaptable

<symbol>

	Internal Pilot	External Pilot
N.C		
N.O		

HOW TO ORDER SOLENOID VALVE



1 RDV VALVE Series

- 1: 100 Series
- 3: 300 Series
- 4: 400 Series

2 ChangeOver System

- 1: NC
- 2: NO

3 Manifold Specifications

- 2: Body ported
- 4: Base mounted

4 Pilot Configuration

- Blank: Internal Pilot
- P: External Pilot

5 OPTION

- 1: AC100V
- 2: AC220V
- 5: DC24V
- 6: DC12V

6 Electrical Entry

- H: Horizontal Connector
- V: Vertical Connector
- G: Grommet Type
- D: without Din Terminal Lamp
- DZ: with Din Terminal Lamp
- ※ G, D, DZ types only apply to DC24V, RDV300, RDV400 Series

7 PCB Type

- Blank: basic type (lamp type)
- D: non-polar type
- S: power saving type
- ※ Surge Protector attached to all feature

8 Port Size

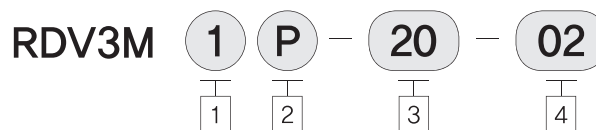
Blank	no Sub Plate	
M5	M5 x 0.8	RDV100
		RDV300
O1	Rc 1/8	RDV400

※ Sub plate attached (base mounted type only)

9 Length of Lead Wire

Blank	300mm (Basic)
XWL 01	100mm
XWL 02	200mm
~	
XWL 20	2000mm

HOW TO ORDER MANIFOLD



1 RDV 3-Port VALVE Series

- 1: 100 Series
- 3: 300 Series
- 4: 400 Series

2 Pilot Configuration

- Blank: internal Pilot
- P: External Pilot

3 Manifold Specifications

- 20: Body ported
- 40: Base mounted

4 Number of Stations(1~20)

01	1stations
02	2stations
03	3stations
~	
20	20stations

※ 1 station is for sub plate, (1 station is not available for body ported type)

Specs

Series		RDV100	RDV300	RDV400
Action		3Port Pilot Type Solenoid Valve (Rubber Seal)		
Fluid		Air		
Range of operating pressure MPa (kgf/cm ²)	Int. Pilot	0.15 ~ 0.7 (1.5 ~7.1)		
	Ext. Pilot	P-Port: -0.1 ~ 0.7 (-1.0 ~ 7.1) X-Port: 0.15 ~ 0.7 (1.5 ~7.1)		
Ambient & fluid temp.		Max. 50°C (frostproof)		
Manual Control		Push & Lock Type		
Pilot exhaust method	Int. Pilot	Common exhaust		
	Ext. Pilot	Individual exhaust		
Lubrication		Unrestricted		
Mounting position		Unrestricted		
Impact/ vibration resistance	H,V	150/30(8.3~2000Hz)		
	G,D,DZ	300/50		
Max. operating frequency		10Hz	5Hz	5Hz
Protection		Dustproof		
Electrical entry		Connector (H: Horizontal, V: Vertical, G: Grommet, D: Din Terminal) Grommet, Din Terminal Type		
Coil rated voltage		DC12 / DC 24 V		
Allowed voltage fluctuation		10% of rated voltage		
Response time (ms)		15ms	25ms	30ms
Power consumption (W)	H,V	Standard: 0.85, Power saving mode: 0.45		
	G,D,DZ	w/ lamp: 1.8, w/o lamp: 1.6		
Effective orifice		Body ported type 기준 1,5mm ²	4,6mm ²	12mm ²

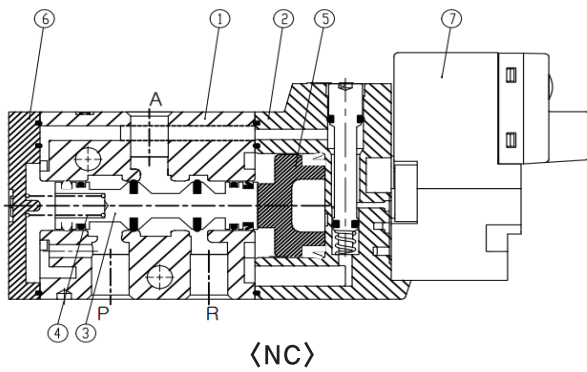
■ Effective orifice and response time of body ported type RDV 100, 300, 400 series

Series	Port size	Effective orifice(mm ²)	Response time(ms)	Weight(g)
RDV112 □	M3	1.5	15	28
RDV312 □	M5	4.6	25	36
RDV412 □	Rc1/8	12	30	64

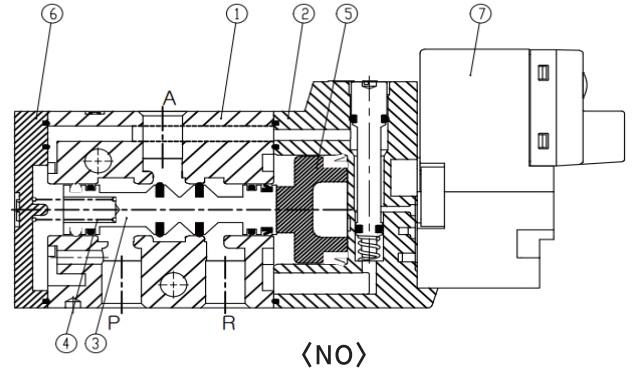
■ Effective orifice and response time of Base mounted type RDV 100, 300, 400 series

Series	Port size	Effective orifice(mm ²)	Response time(ms)	Weight(g)
RDV114 □	M5	1.5	15	26
RDV314 □	M5	4.2	25	36
RDV414 □	Rc1/8	9.2	30	62

Sectional View of Body Ported Type



<NC>

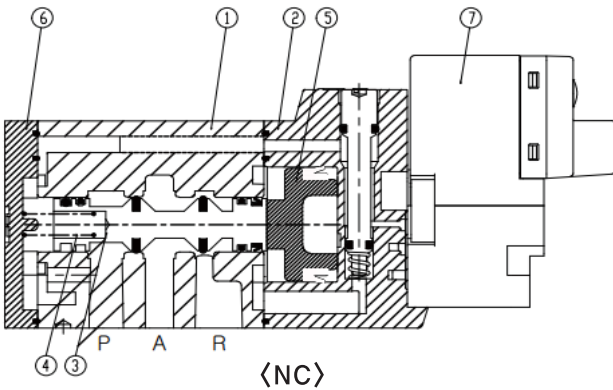


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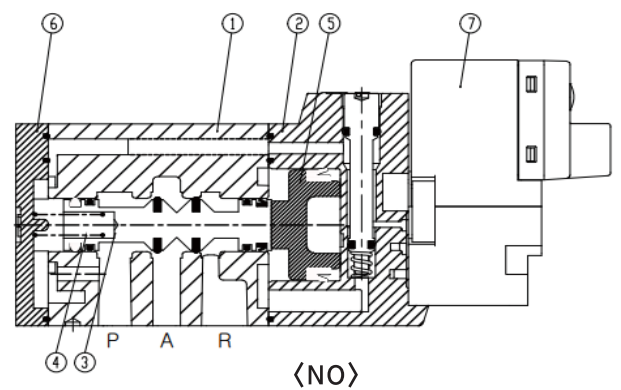
Component Parts

No.	Description	Material	Note
1	Body	Aluminum die casting	RDV 100 zinc die casting
2	Adapter Plate	Resin	
3	Spool	Aluminum	
4	Spool Spring	Stainless steel	RDV300, 400
5	Piston	Resin	
6	End Cover	Resin	
7	Solenoid Ass'y	-	

Sectional View of Base Mounted Type



<NC>

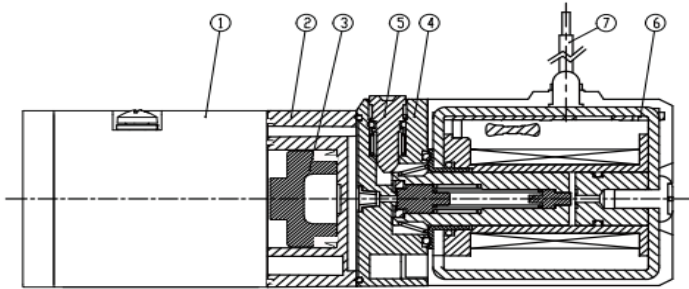


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Component Parts

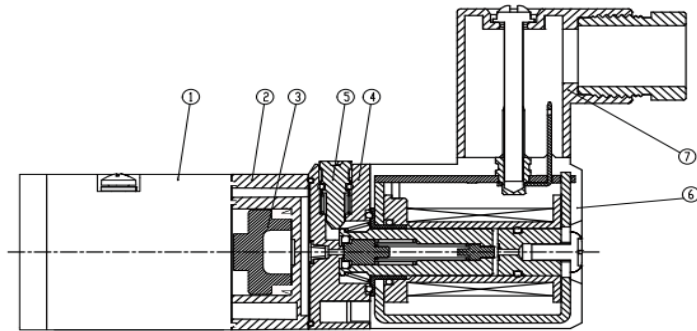
No.	Description	Material	Note
1	Body	Aluminum die casting	RDV 100 zinc die casting
2	Adapter Plate	Resin	
3	Spool	Aluminum	
4	Spool Spring	Stainless steel	RDV300, 400
5	Piston	Resin	
6	End Cover	Resin	
7	Solenoid Ass'y	-	

Sectional View of Grommet Type



Grommet Type			
No.	Description	Material	Note
1	Body	—	RDV300,400 Series
2	Adapter Plate	수지	
3	Piston	수지	
4	Pilot Body	수지	
5	Manual	수지	
6	Solenoid Coil	—	
7	Lead Wire	—	

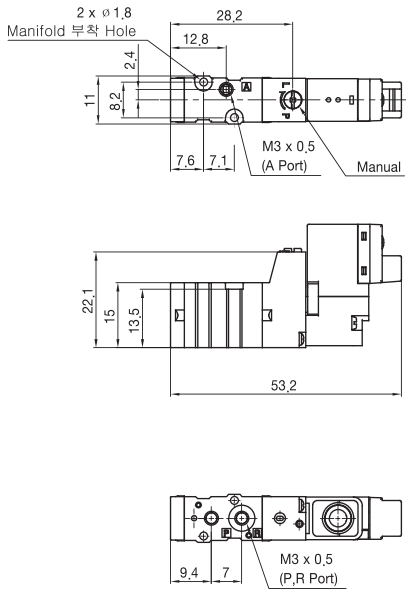
Sectional View of DIN Terminal Type



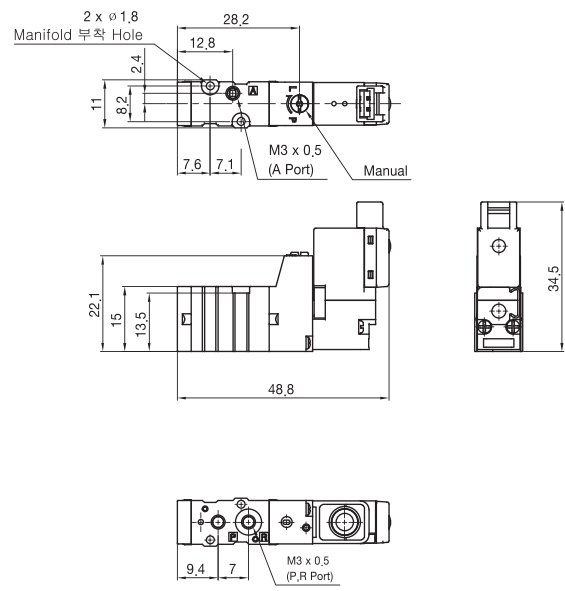
Din Terminal Type			
No.	Description	Material	Note
1	Body	Aluminum die casting	RDV300,400 Series
2	Adapter Plate	Resin	
3	Piston	Aluminum	
4	Pilot Body	Stainless steel	
5	Manual	Resin	
6	Solenoid Coil	Resin	
7	Din Connector Ass'y	—	mpm

RDV100 Series Dimensions

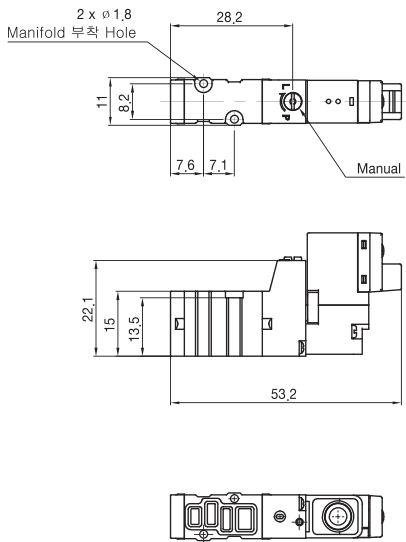
Body ported / H: horizontal connector



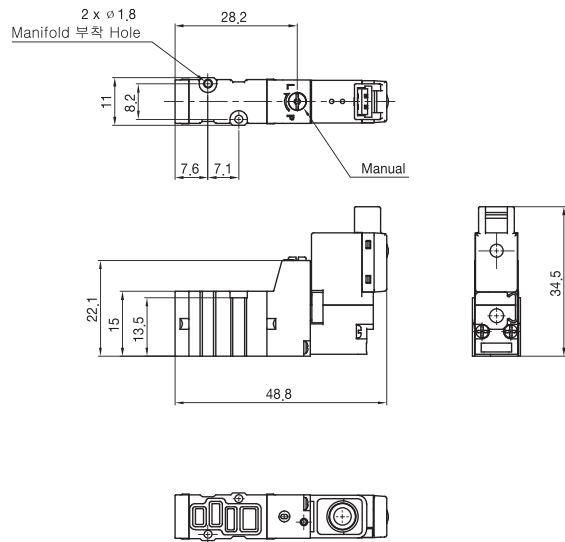
Body ported / V: vertical connector



Base mounted / H: horizontal connector



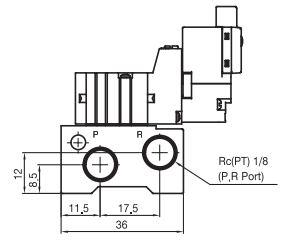
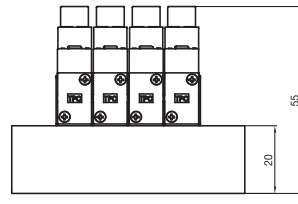
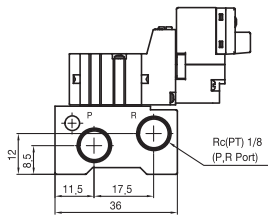
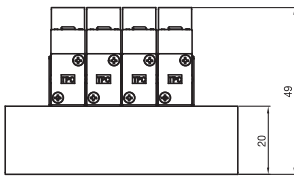
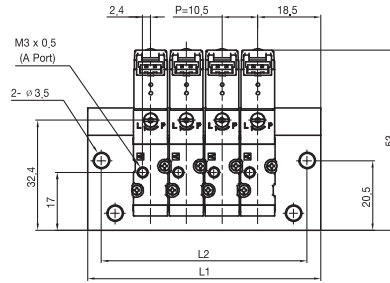
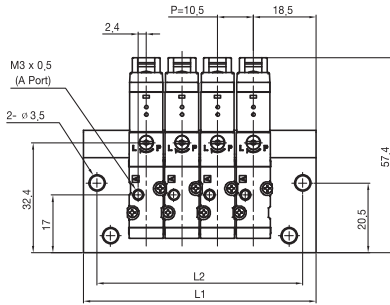
Base mounted / V: vertical connector



RDV 100 Body Ported Type with Int. Pilot Dimensions

H: horizontal connector

V: vertical connector

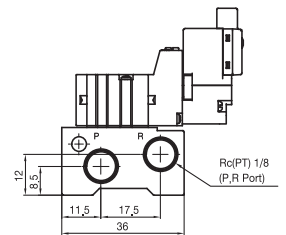
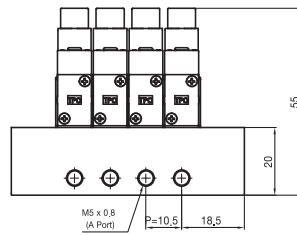
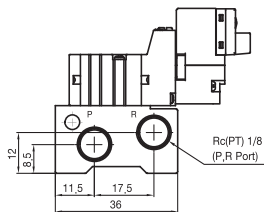
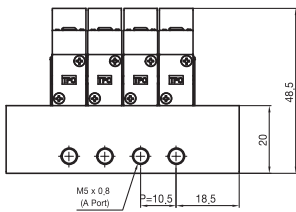
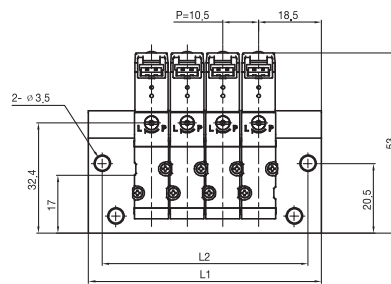
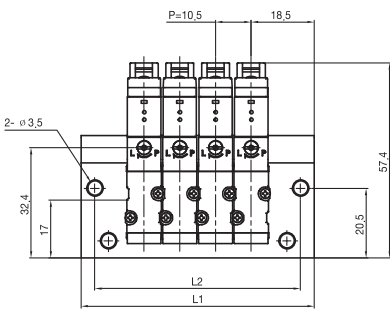


RDV 100	# of strn	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	L1		47,5	58	68,5	79	89,5	100	111	121	132	142	152	163	174	184	195	205	215,5	226
L2		39,5	50	60,5	71	81,5	92	102,5	113	124	134	145	155	166	176	187	197	207,5	218	229

RDV 100 Base Mounted Type with Int. Pilot Dimensions

H: horizontal connector

V: vertical connector

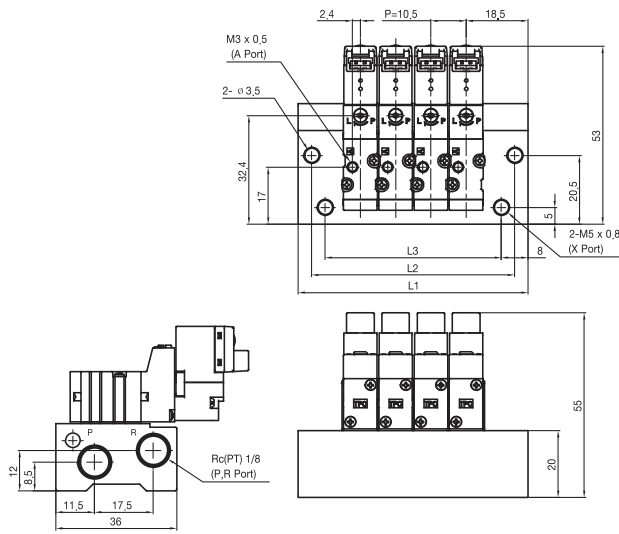
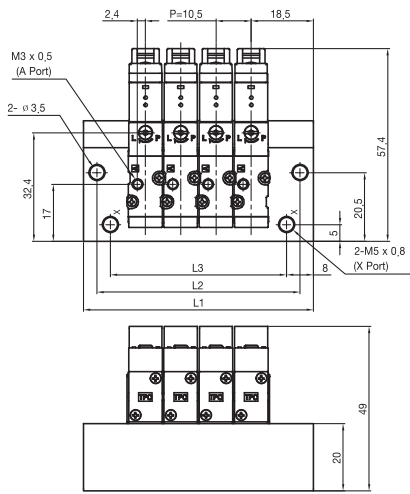


RDV 100	# of strn	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	L1		37	48	58	69	79	90	100	110,5	121	132	142	153	163	174	184	195	205	216	226
L2		29	40	50	60,5	71	82	92	102,5	113	124	134	145	155	166	176	187	197	208	218	229

RDV 100 Body Ported Type with Ext. Pilot Dimensions

H: horizontal connector

V: vertical connector

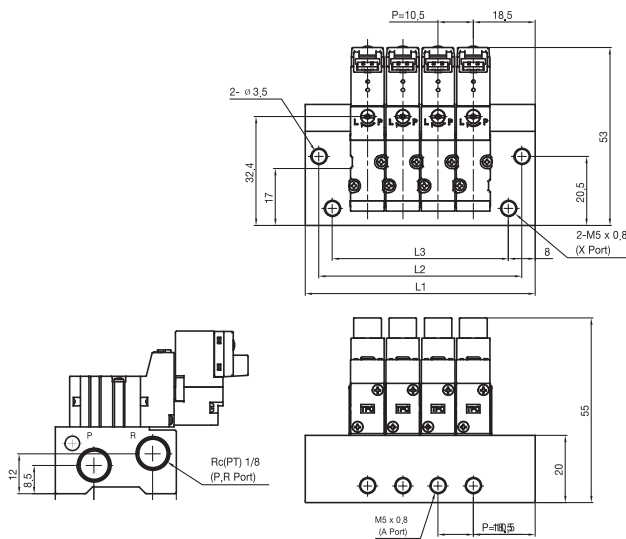
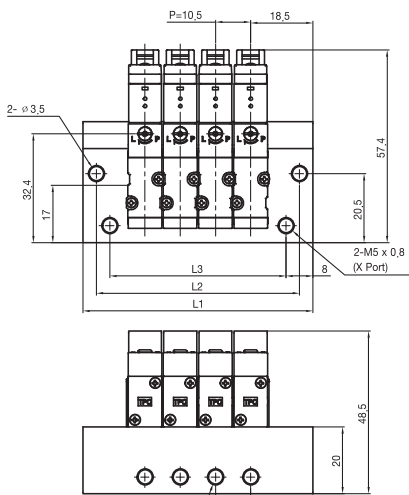


RDV 100	# of stn	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	L1	47,5	58	68,5	79	89,5	100	110,5	121	131,5	142	152,5	163	173,5	184	194,5	205	215,5	226	236,5
	L2	39,5	50	60,5	71	81,5	92	102,5	113	123,5	134	144,5	155	165,5	176	186,5	197	207,5	218	228,5
	L3	31,5	42	52,5	63	73,5	84	94,5	105	115,5	126	136,5	147	157,5	168	178,5	189	199,5	210	220,5

RDV 100 Base Mounted Type with Ext. Pilot Dimensions

H: horizontal connector

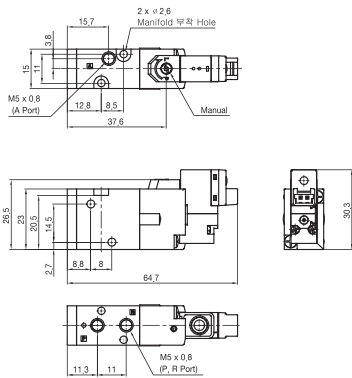
V: vertical connector



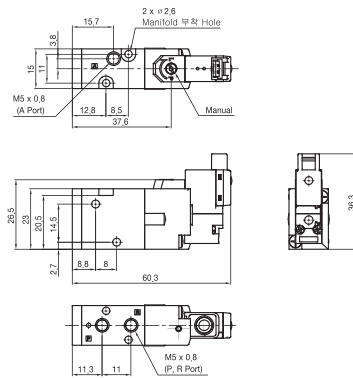
RDV 100	# of stn	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	L1	37	47,5	58	68,5	79	89,5	100	110,5	121	131,5	142	152,5	163	173,5	184	194,5	205	215,5	226	236,5
	L2	29	39,5	50	60,5	71	81,5	92	102,5	113	123,5	134	144,5	155	165,5	176	186,5	197	207,5	218	228,5
	L3	21	31,5	42	52,5	63	73,5	84	94,5	105	115,5	126	136,5	147	157,5	168	178,5	189	199,5	210	220,5

RDV300 Series Dimensions

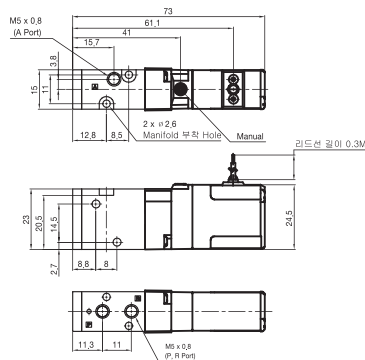
Body ported / H: horizontal connector



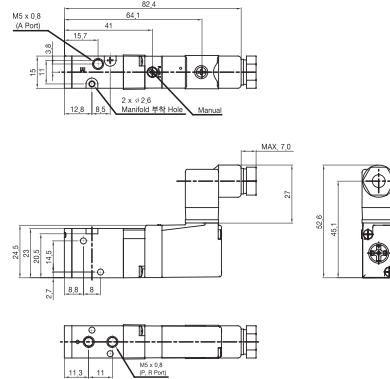
Body ported / V: vertical connector



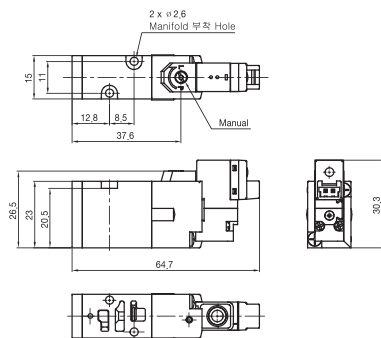
Body ported type / G: Grommet Type



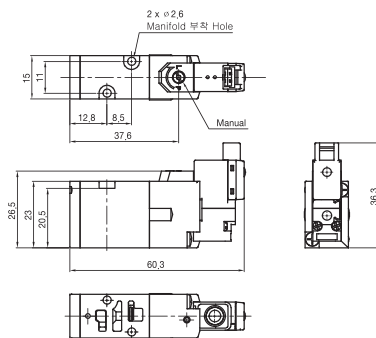
Body ported type / D: Din Terminal type



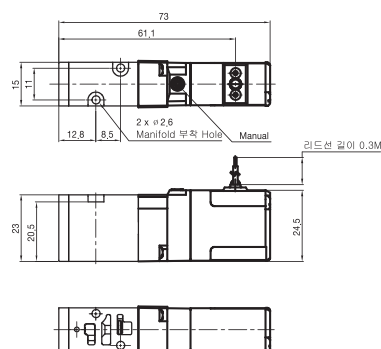
Base mounted / H: horizontal connector



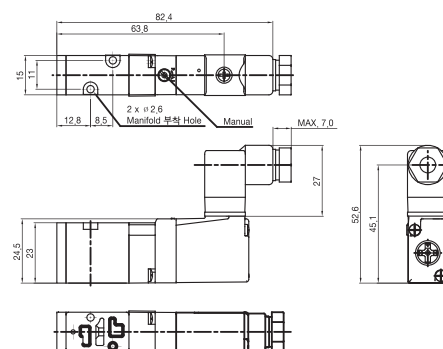
Base mounted / V: vertical connector



Base mounted type / G: Grommet Type



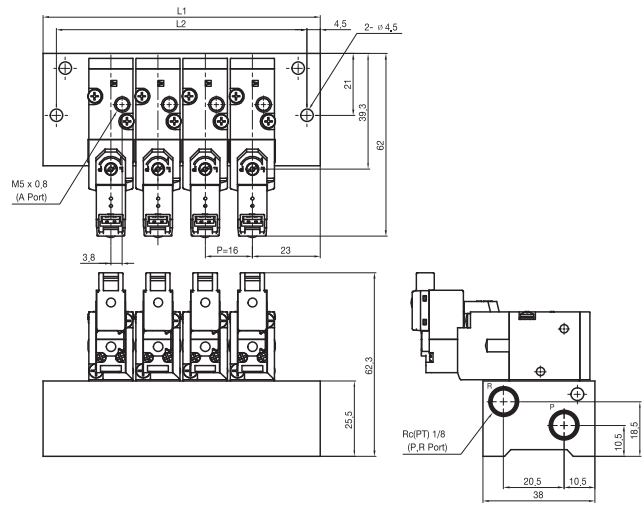
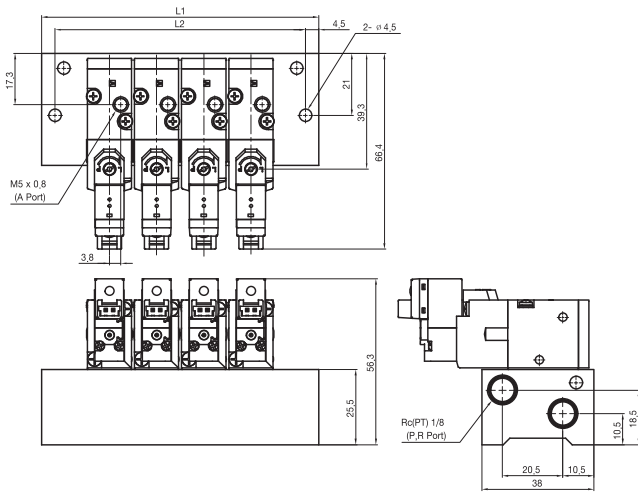
Base mounted type / D: Din Terminal Type



RDV 300 Body Ported Type with Int. Pilot Dimensions

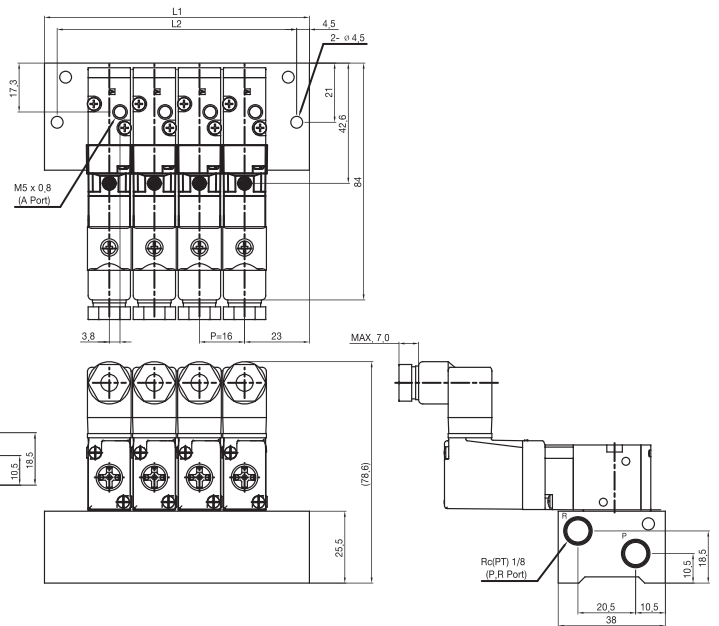
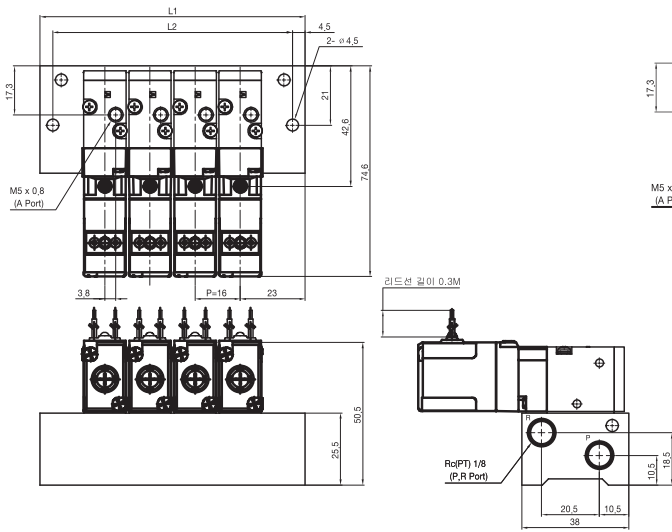
H: horizontal connector

V: vertical connector



G: Grommet Type

D: Din Terminal Type

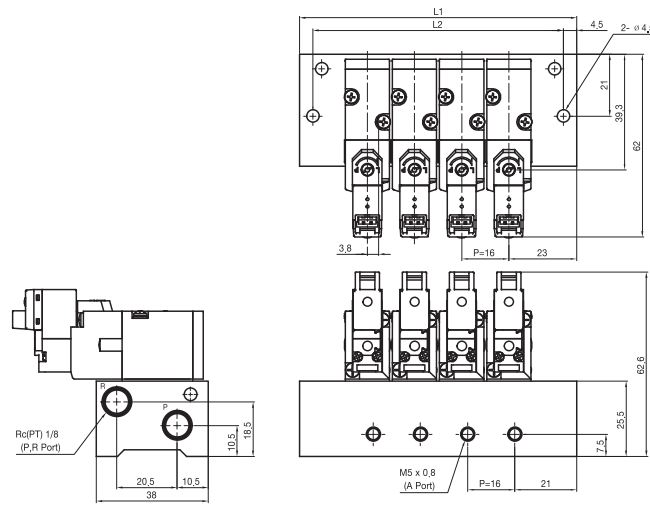
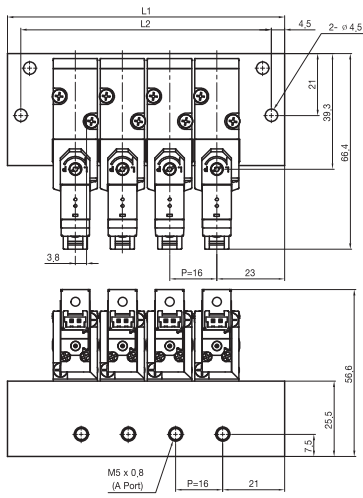


RDV 300	# of strn	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	L1	62	78	94	110	126	142	158	174	190	206	222	238	254	270	286	302	318	334	350
L2	53	69	85	101	117	133	149	165	181	197	213	229	245	261	277	293	309	325	341	

RDV 300 Base Mounted Type with Int. Pilot Dimensions

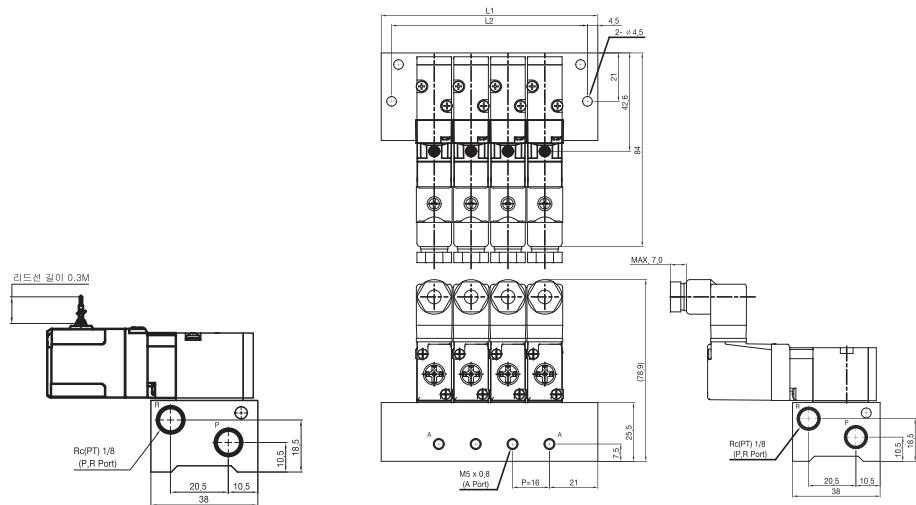
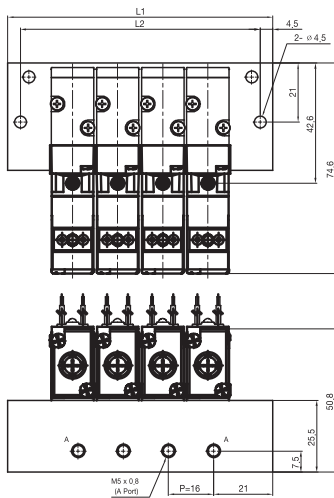
H: horizontal connector

V: vertical connector



G: Grommet Type

Din Terminal Type

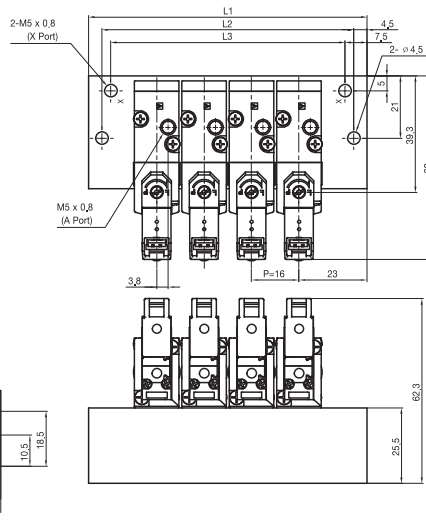
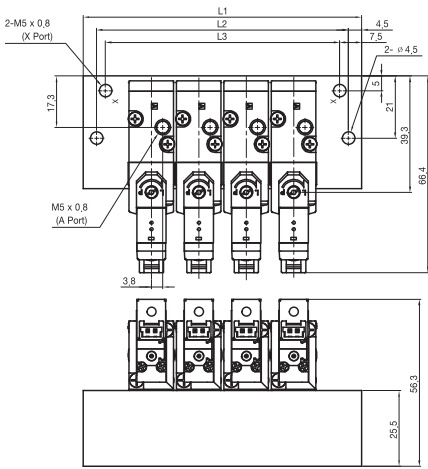


RDV 300	# of str	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	L1	46	62	78	94	110	126	142	158	174	190	206	222	238	254	270	286	302	318	334	350
L2	37	53	69	85	101	117	133	149	165	181	197	213	229	245	261	277	293	309	325	341	

RDV 300 Body Ported Type with Ext. Pilot Dimensions

H: horizontal connector

V: vertical connector

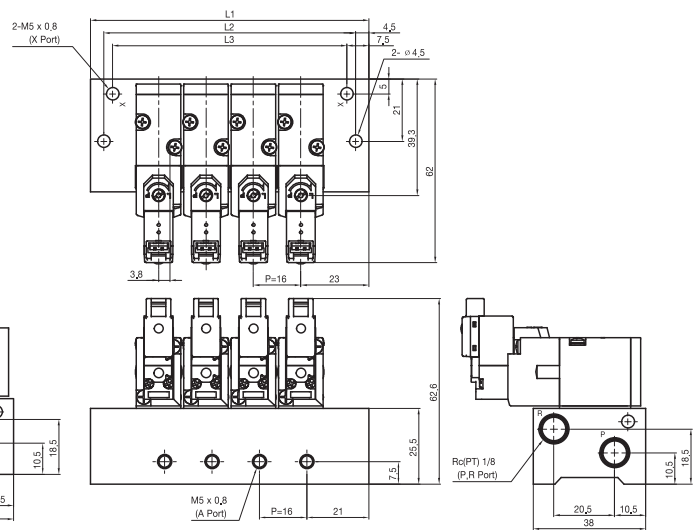
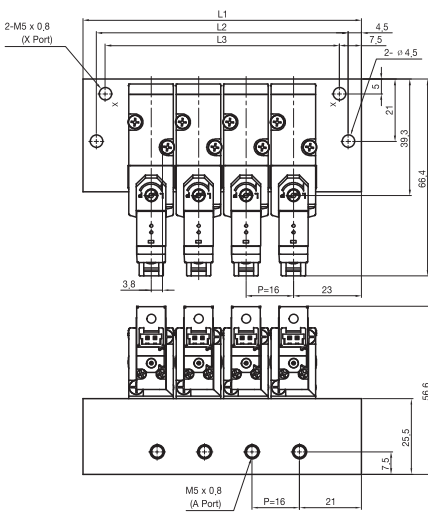


RDV 300	# of strn	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	L1	62	78	94	110	126	142	158	174	190	206	222	238	254	270	286	302	318	334	350
	L2	53	69	85	101	117	133	149	165	181	197	213	229	245	261	277	293	309	325	341
	L3	47	63	79	95	111	127	143	159	175	191	207	223	239	255	271	287	303	319	335

RDV 300 Base Mounted Type with Ext. Pilot Dimensions

H: horizontal connector

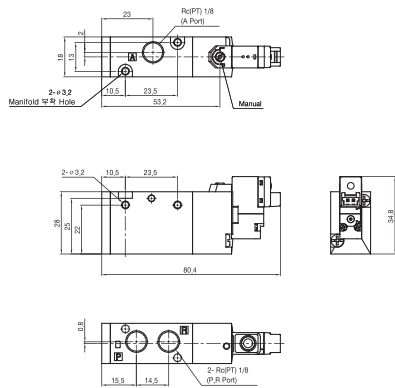
V: vertical connector



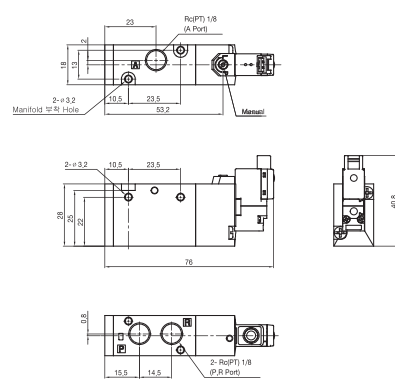
RDV 300	# of strn	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	L1	46	62	78	94	110	126	142	158	174	190	206	222	238	254	270	286	302	318	334	350
	L2	37	53	69	85	101	117	133	149	165	181	197	213	229	245	261	277	293	309	325	341
	L3	31	47	63	79	95	111	127	143	159	175	191	207	223	239	255	271	287	303	319	335

RDV400 Series Dimensions

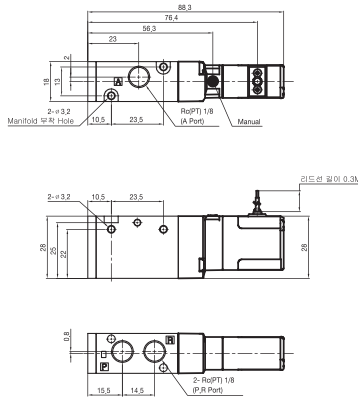
Body ported / H: horizontal connector



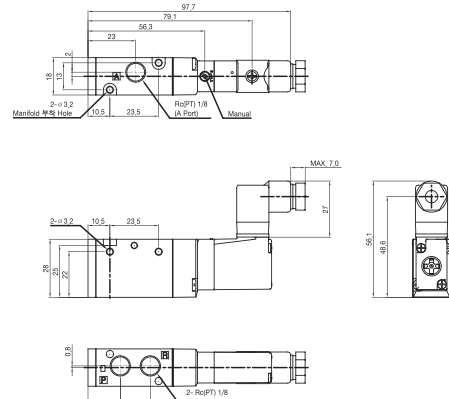
Body ported / V: vertical connector



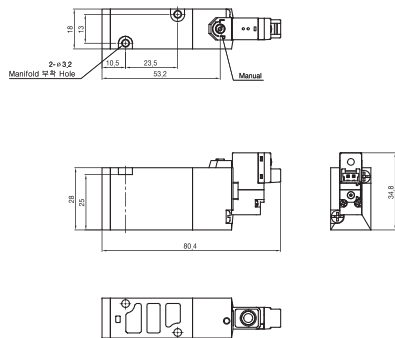
Body ported type / G: Grommet Type



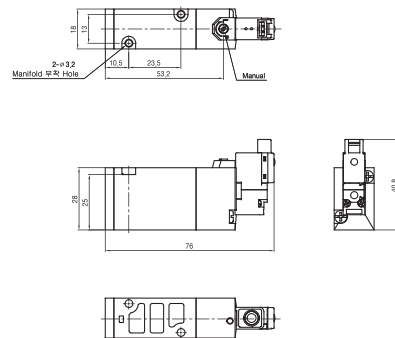
Body ported type / D: Din Terminal Type



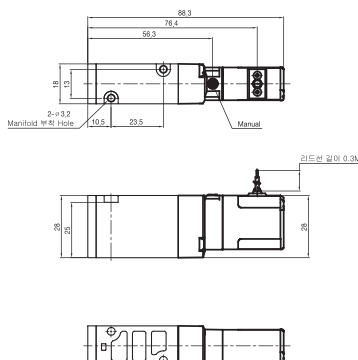
Base mounted / H: horizontal connector



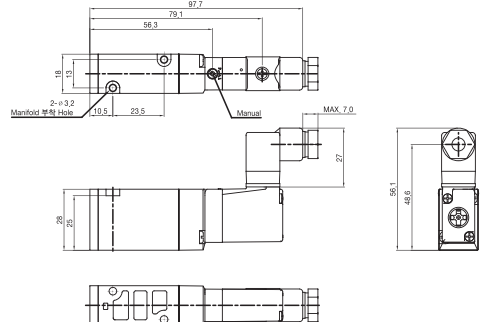
Base mounted / V: vertical connector



Base mounted type / G: Grommet Type



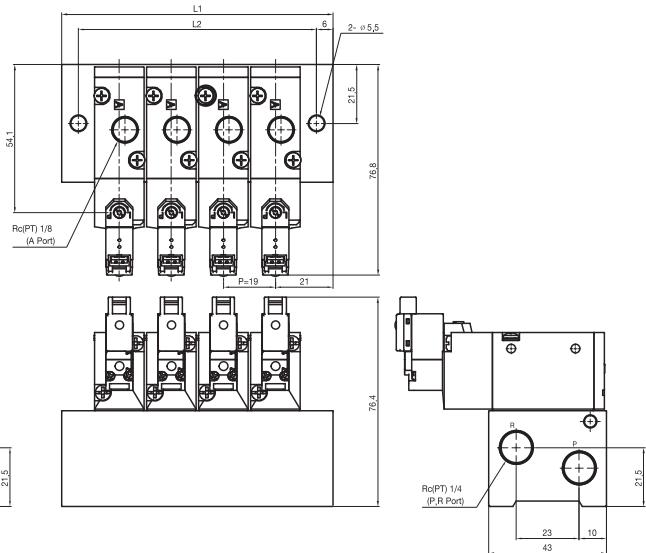
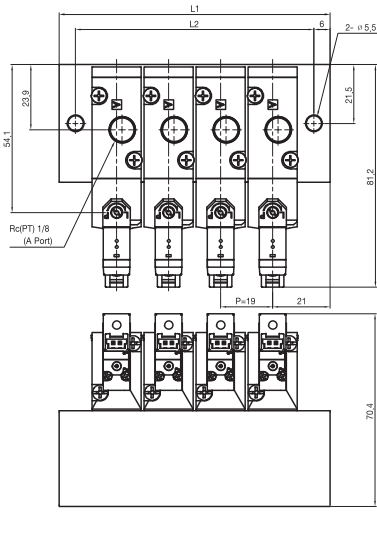
Base mounted type / D: Din Terminal Type



RDV400 Int. Pilot Body ported type Dimensions

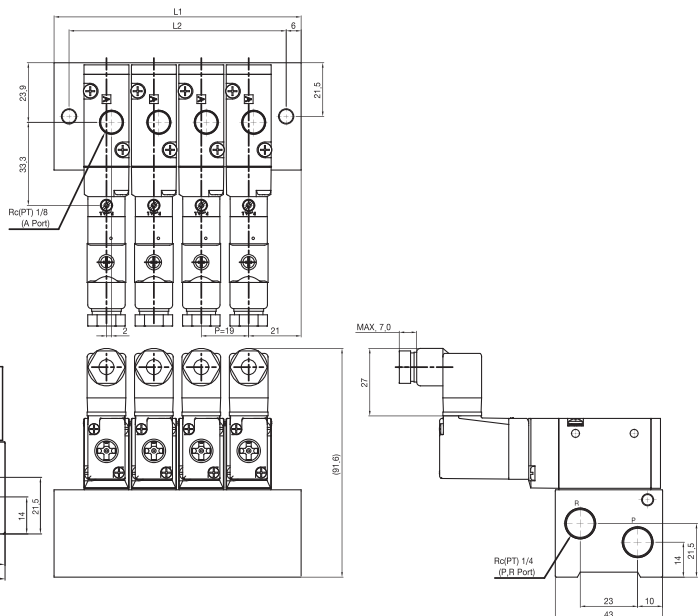
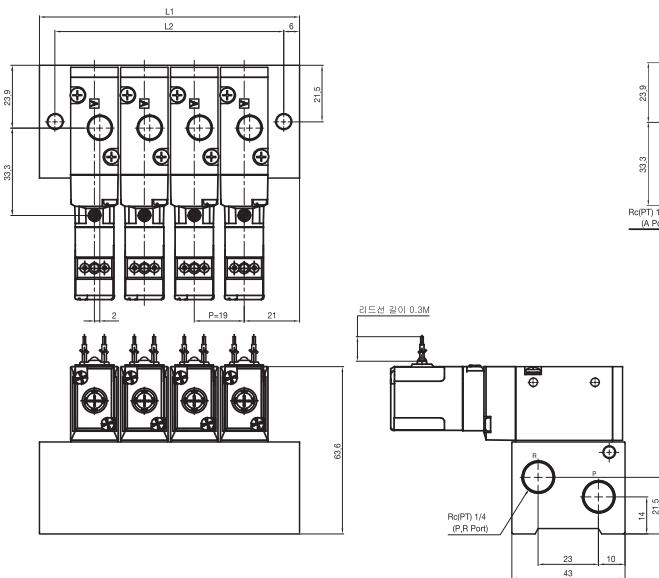
H: horizontal connector

V: vertical connector



G: Grommet Type

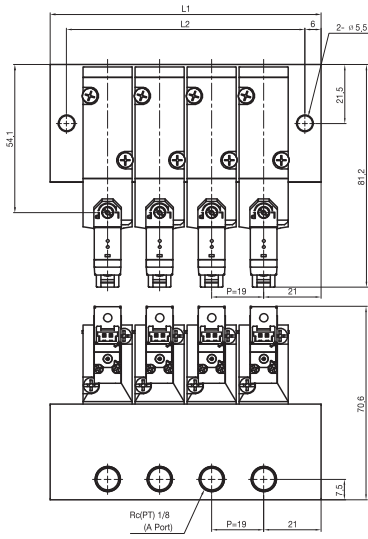
D: Din Terminal Type



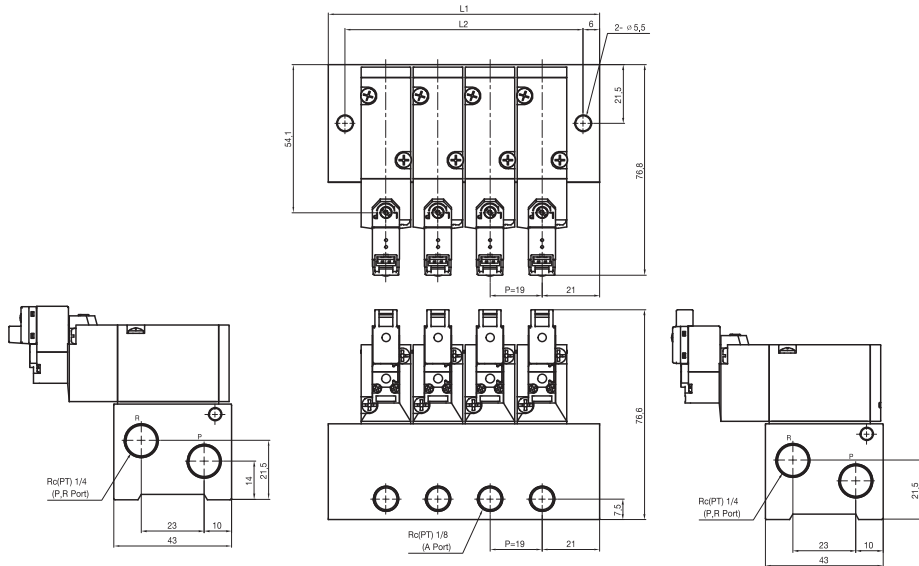
RDV 400	# of stn	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	L1	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
	L2	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

RDV 400 Body Ported Type with Int. Pilot Dimensions

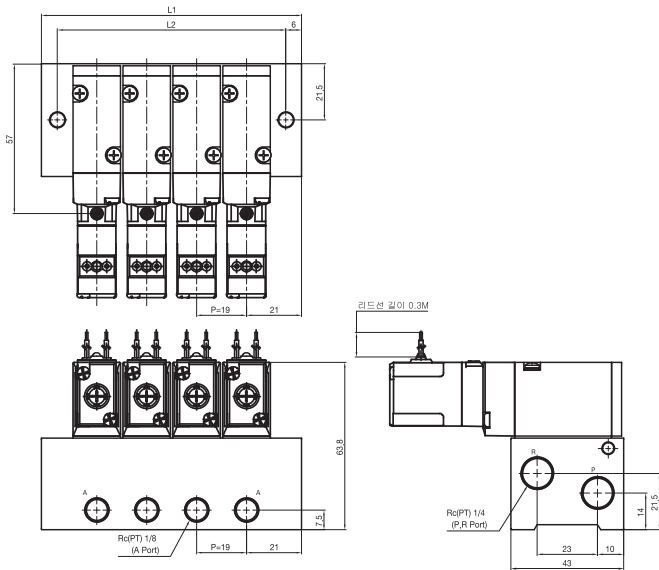
H: horizontal connector



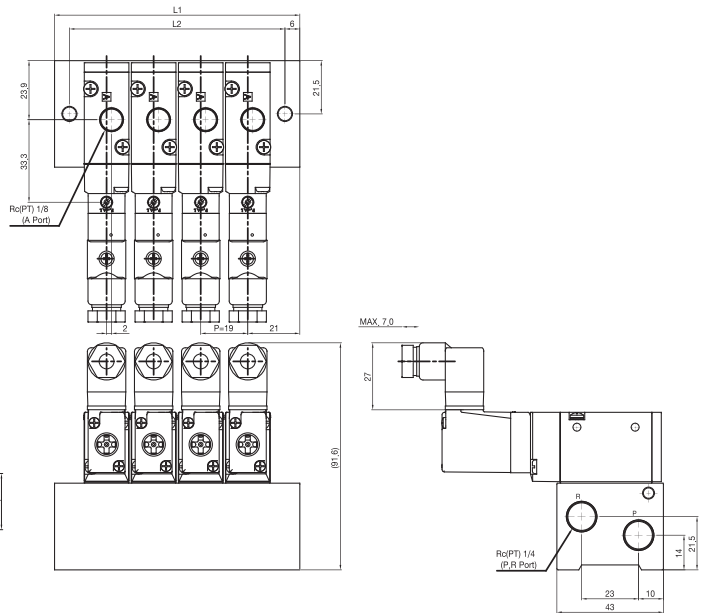
V: vertical connector



G: Grommet Type



D: Din Terminal Type

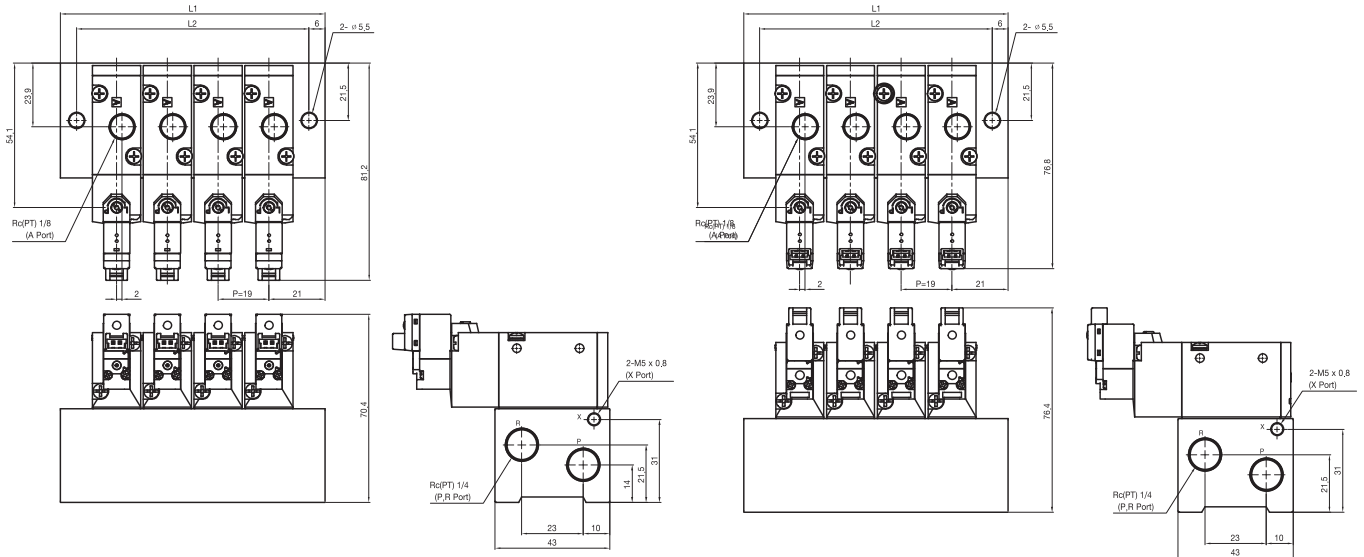


RDV 400	# of stn	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	L1	42	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
	L2	30	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

RDV 400 Base Mounted Type with Int. Pilot Dimensions

H: horizontal connector

V: vertical connector

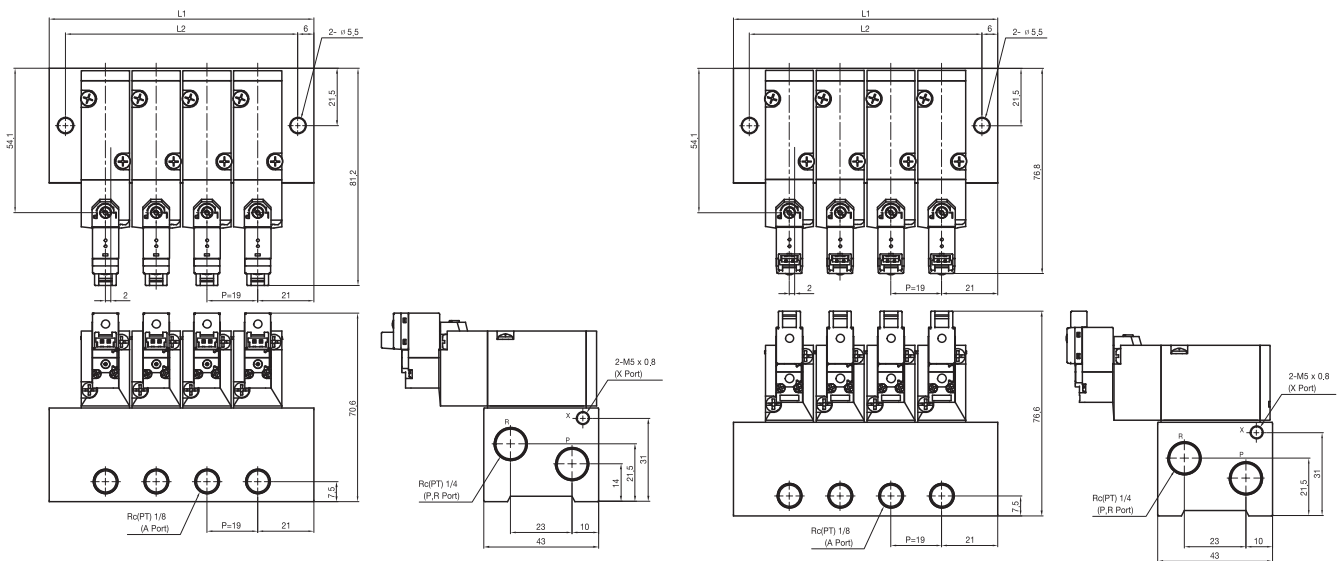


RDV 400	# of stn	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	L1	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
	L2	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

RDV 400 Base Mounted Type with Ext. Pilot Dimensions

H: horizontal connector

V: vertical connector



RDV 400	# of stn	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
	L1	42	61	80	99	118	137	156	175	194	213	232	251	270	289	308	327	346	365	384	403
	L2	30	49	68	87	106	125	144	163	182	201	220	239	258	277	296	315	334	353	372	391

Safety Instructions

These safety instructions are intended to prevent a hazardous situation and/ or equipment damage for users. The following instructions must be read carefully before handling and/ or selecting the product. By reading these instructions, you can use the product more properly and safely and prevent any damage or loss of property.

These instructions indicate the severity of potential hazard by labels of (Caution), (Warning), or (Danger). To ensure safety, ISO4414※1), KS B 6376※2), JIS 8370※3) and other safety guidelines must be observed at all times.

These precautions are subject to change without notice.

 **Danger :** In extreme conditions, imminent hazard and failure to avoid hazard will result in death or serious injuries.

 **Warning :** Description of a potentially hazardous situation of minor to serious injuries or death.

 **Caution :** Description of a potentially hazardous situation of minor or moderate injuries.

※1) ISO4414 : Pneumatic fluid power—Recommendations for the application of equipment to transmission and control systems.

※2) KS B 6376 : General Rules for Pneumatic Equipment

※3) JIS B 8370 : General Rules for Pneumatic Equipment

This product is designed and manufactured to be used in general industrial machinery.

Safety instructions, catalogs and instruction manuals must be read before using any product or selecting an equipment. If exchanged or lent to someone else, make sure to attach the manual in an accessible location so that in order for proper and safe use of new user.

Since not all hazardous situations are described in following sections for danger, warning, and caution, so make sure to read through these instructions and all other user instructions **carefully and put safety first at all times.**

Warning

- Do not use in any of the following conditions. However, there could be possible exception depends on the products; please refer to specification of each products and consider the safety measures before use.
 1. Conditions and environments beyond the given specifications.
 2. If product is used outdoors.
 3. Potential exposure to excessive vibration or impact.
 4. In atmospheres of corrosive or flammable gases, chemicals, salt water, water, steam or where there is direct contact with any of these.
 5. An application, which has the potential of having negative effects on people, property, or animals, requiring special safety supervision.
 6. Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, equipment that makes contact with food and beverages, recreation equipment, emergency stop circuits, combustion equipment, or safety equipment.
- Do not service machinery/ equipment or attempt to remove components until safety is confirmed.
 1. Inspection and maintenance of machinery/ equipment must be performed only if measures to prevent falling or runaway of the driver objects have been established.
 2. When equipment is to be removed, confirm the aforementioned safety process. Cut the air supply for this equipment and exhaust all compressed air residues in the system.
 3. Before restarting machinery/ equipment, confirm measures taken to restrain shooting—out of cylinder piston rod, etc.
- The compatibility of pneumatic equipment is to be assessed by the person who designed the pneumatic system or determined its specifications.

Since the products listed in this instruction are used in various operating conditions, their compatibility for the specific pneumatic system must be determined after analysis or tests operated by the system designer or the person who determined the specification. The person who determined the compatibility of the system is liable for expected performance and safety assurance. This person should configure a system while reviewing all specified items, referred to the latest catalog and technical data and also considering any possible equipment failure.
- Only trained personnel should operate.

Compressed air can be dangerous at any misused moment. Assembling, handling, or repairing of pneumatic equipments must be performed by experienced and trained personnel.

Precautions

⚠ Precautions for specific products

Instructions must be read and understood before use.
Refer to introduction for safety instructions and common precautions.

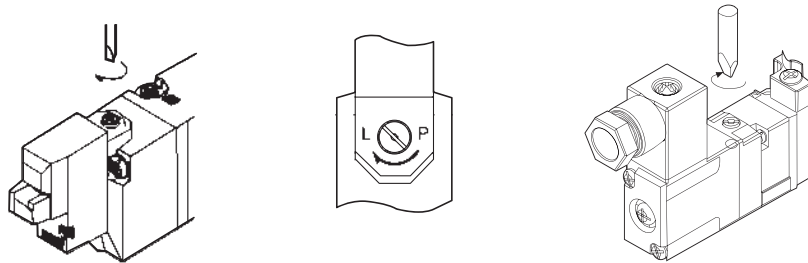
⚠ Caution

Manual Operation

[Push-turn Lock type Driver]

While pressing, turn in the direction of the arrow. If it is not turned, it can be operated the same way as the non-locking type. When operating, watchmaker screwdrivers will ease the process. To unlock, turn it in the reverse direction of the arrow. Applying any forces may have negative impact on performance of the valve.

warning) In automatic operation, be sure to unlock the manual button beforehand.



Exhaust Method for Pilot Air

1) Common Exhaust

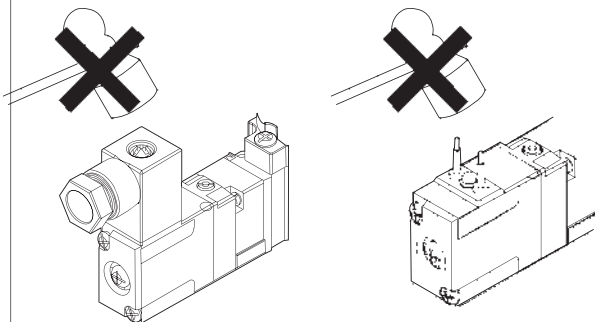
Since, for RDV series, pilot air is exhausted through the main valve body rather than directly to atmosphere, pay attention to the piping and make sure the exhaust port is not clogged. You can manage the direction of piping since P, R ports are installed at both ends of manifold. Use the right size of P port to prevent any malfunction caused by deficiency in flow rate and pressure or the power shortage of actuator.

2) Individual Exhaust

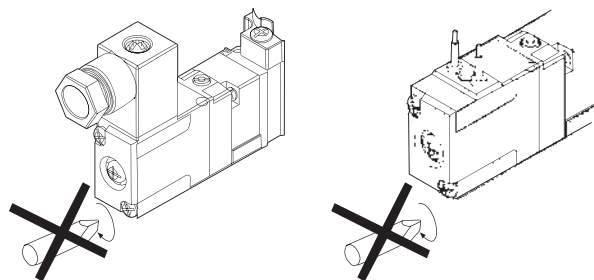
- ① Since pilot air is exhausted directly to atmosphere, it cannot be used in environments requiring cleanliness such as Clean Room.
- ② In order for pilot air to be exhausted through the main valve body (common exhaust), use the connector type (H or V).

Precautions for wiring and handling

- 1) Be careful not to apply any force to connector case or lamp of solenoid coil.

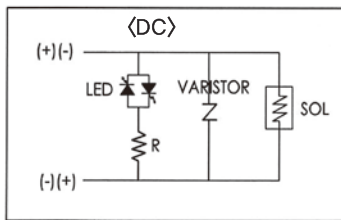


- 2) The screw placed in the middle of solenoid coil is to fasten the core. Do not assemble/ disassemble.

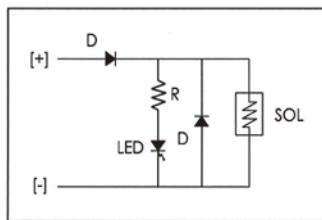


Precautions

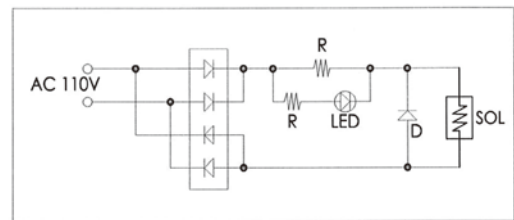
- 3) If used in any of the following conditions, lifespan of solenoid valve will deteriorate rapidly.
 - a. Locations subject to excessive dust, water, vibration or impact.
 - b. Atmospheres of corrosive gases, chemicals or salt water.
 - c. Temperatures beyond the range of specifications(0~60°C).
 - d. When the energized period exceeds the de-energized period (as of one day).
- 4) Make sure the voltage fluctuate within the range of $\pm 10\%$ of rated voltage. If not, it may cause malfunction or damage to coil.
- 5) When connecting or cutting power to a solenoid valve, generation of surge voltage may burn the circuit. In case of using PLC control, take measures to prevent this situation.
- 6) Even when power is shut off, the equipment may still not be deactivated due to leakage current in magnetic circuit. Therefore, make sure to limit the amount of residual leakage voltage to 20% or less of rated voltage with AC coil and 8 % or less of rated voltage with DC coil.
- 7) Valves with AC 110V, AC 220V
 These valves are non-standard options. Please inquire when ordering solenoid coil.



DC non-polar type



DC polar type



AC

[How to use plug connector]

- 1) To attach a connector, hold the lever and connector unit with your fingers, then insert into the connector housing and push the lever's hook into the groove to lock.
- 2) To detach a connector, remove the hook from the groove of connector housing by pressing the lever and pull the connector straight out.
- 3) If you pull the lead too firmly or apply any force, it may cause loose contact or disconnection of wire.

[How to use Din Terminal]

<Wiring tips>

- 1) Pull out the connector from the terminal block by loosening the holding screw.
- 2) After removing the holding screw, separate the terminal block and the case through the notch on the bottom of the connector with a flathead screwdriver, etc.
- 3) Pull out the ground nut and separate the washer and the grommet.
- 4) Insert the cord through the ground, washer, grommet(rubber), and the case in order.
- 5) Secure the cord by loosening the terminal screws of the separated terminal block.
- 6) Insert the terminal block properly into the case considering the outlet of the connector.
- 7) Secure the wiring by tightening the ground nut.
- 8) Assemble the connector with the terminal block and tighten the holding screws.

- warning)
1. If it is hard to put the connector and the terminal together, try again after modifying the position of the terminal (3 PIN).
 2. If you apply any force while tightening the holding screw, it may cause damage to the case.