No.DIK-45700-OM002

SMC®

Operation Manual

PRODUCT NAME

Vacuum regulator

MODEL/ Series

IRV10

IRV10A

IRV20

IRV20A

SMC Corporation

Table of Contents

Safety Instructions

Be sure to read and understand this operation manual before handling.

Keep this operation manual to refer anytime necessary and make sure to deliver this manusl to the end user.

These safety instructions are intended to prevent hazardous and/or equipment damage.

These instructions indicate the level of potential hazard by labeling "Caution","Warning" or "Danger". To ensure safety,be sure to observe ISO4414(Note1),JIS B 8370(Note2)and other safety practices.

⚠Caution

Operator error could result in injury or equipment damage.

⚠Warning

Operator error could result in serious injury or loss of life.

⚠Danger

In extreme conditions, there is a possibility of serious injury or loss of life.

(Note 1)	ISO 4414	Pneumatic fluid power-Recommendations for the application of equipment to transmission and control systems.
(Note 2)	JIS B 8370	General Rule for Pneumatic Systems

⚠ Warning

① The compatibility of pneumatic equipment is the responsibility of the person who designs the pneumatic system of decides its specifications.

Since the products specified here are used in various operating conditions,their conmatibility with the specific pneumatic system must be based on specifications or after analysis and/or tests to meet your specific requirements.

② Only trained personnel should operate pneumatically operated machinery and equipment.

Compressed air can be dangerous if an operator isunfamiliar with it. Assembly,handling or pneumatic systems should be performed by trained and experienced operators.

③ Do not service machinery/equipment or attempt to remove components until safety is confirmed.

Ⓐ Inspection and maintenance of machinery/equipment should only be performed after confirmation of safe locked-out control positions.

Ⓑ When equipment is to be removed, confirm the safety process as mentioned above. Cut the supply pressure for the equipment and exhaust all residual compressed air or vacuum pressure (negative pressure) in the system.

Ⓒ Before machinery/equipment is re-started, take measures to prevent quick extensions of the cylinder piston rod etc. (Bleed air into the system gradually to create back-pressure.)

④ Contact SMC if the product is to be used in any of the following conditions,

Ⓐ Conditions and environments beyond the given specifications, or if product is used outdoors.

Ⓑ Installation on equipment in conjunction with atomic energy, railway, air navigation, vehicles, medical equipment, food and beverage, recreation equipment, emergency stopcircuites, press applications, or sefety equipment,

Ⓒ An application which has the possibility of having negative effects on people, property, or animals, requiring special safety analysis,

Introduction

IRV10,10A,20,20A vacuum regulator is an apparatus to adjust vacuum pressure (negative pressure) Arbitrarily by connecting vacuum pump to the port on the VAC. side.

1 .Specifications

Model		IRV10※	IRV20※
Fluid		Air	
Set pressure		-100 to -1.3kPa (Note 1)	
Handle resolution		within 0.13kPa (Note 2)	
Air suction rate		within 0.6ℓ/min(ANR)	
Operating temperature		5~60℃	
Vacuum side port size		φ6、φ8	φ6、φ8、φ10
Set side port size		φ1/4"、φ5/16"	φ1/4"、φ5/16"、φ3/8"
Weight (No accessories)	Renewal type	135g(IRV10-C08)	250g(IRV20-C10)
	One-side piping type	125g(IRV10A-C08)	250g(IRV20A-C10)

(Note 1) This varies with pressure on vacuum pump side.

(Note 2) This value varies with conditions and does not gurantee the practical performance.

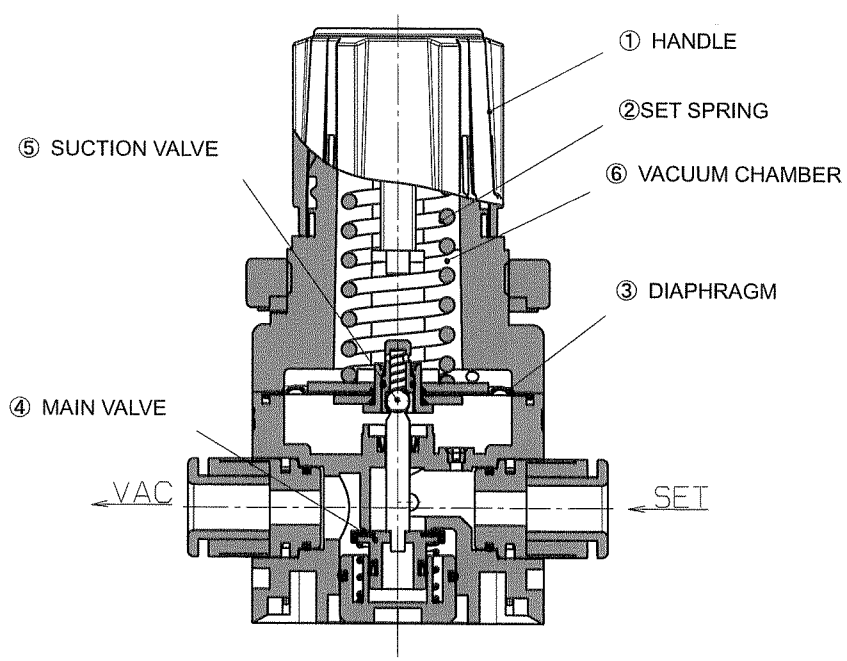
2 .Construction and Operating Principle

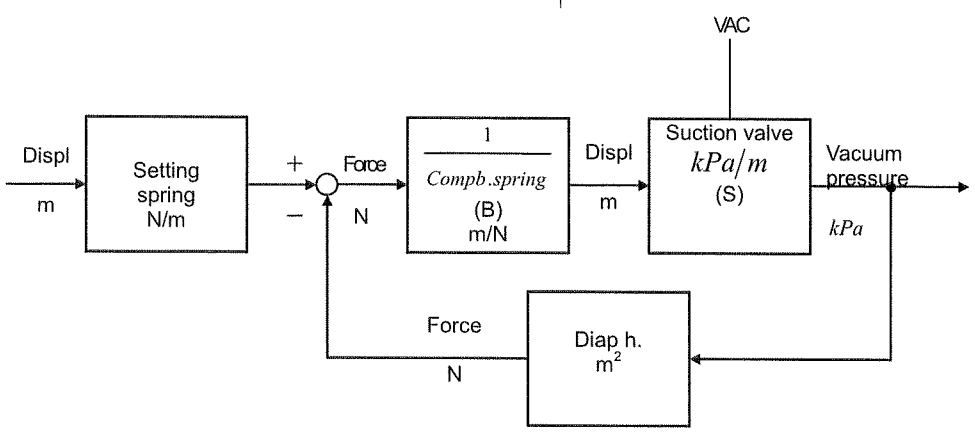
By turning handle①clockwise, force of set spring②pushes down diaphragm③and main valve④ so that VAC. Pressure side and SET. Pressure side are connected, which increases vacuum on SET. Pressure side (become closer to absolute vacuum).

Vacuum pressure on SET. Pressure side passes air pass, goes to vacuum chamber⑥and acts on the top of diaphragm③. This pressure opposes compression force of set spring② and becomes SET. Pressure.

When vacuum SET. Pressure becomes higher than the set value (closer to absolute vacuum), balance of set spring② and SET. Pressure in vacuum chamber⑥ is lost. Because of this, diaphragm③ is pushed up so that main valve④ closes and atmosphere suction valve⑤ opens. Atmosphere flows in SET. Pressure and becomes SET. Pressure when compression force of set Spring② balances with SET. Pressure.

When vacuum of SET. Pressure becomes lower than the set value (closer to atmospheric pressure), balance of set spring② and SET. Pressure in vacuum chamber⑥ is lost, and diaphragm ③ is pushed down. Atmosphere suction valve⑤ closes and main valve④ opens, and air is sucked to VAC. Pressure side. It becomes SET. Pressure when compression force of set spring② balances with SET. Pressure.





Block Diagram

3 .How to Order

I R V | 20 | ※ | – | ※ | C08 | ※ | ※

Body size

10	The maximum flowing quantity 140l/min(ANR)
20	The maximum flowing quantity 240l/min(ANR)

Type

None	Renewal type
A	One-side piping type

One-touch fitting

None	Straight
L	Elbow

Accessories2 (Note1)

None	No accessory	
G	With Pressure gauge(Note2)	
ZN	Digital Pressure Switch	NPN open collector 1 out put
ZP		PNP open collector 1 out put
ZA		NPN open collector 2 out put
ZB		PNP open collector 2 out put

(Note1) A plug nut and gauge nut are provided. They will be enclosed with the product for delivery.

(Note2) Accuracy of pressure gauge: +/-3%F.S.

Accessories 1 (Note1)

None	No accessory
B	With Bracket
L	With Bottom Bracket

Connectting port size

symbol	Port size		IRV10※	IRV20※
C06	mm	φ6	●	●
C08		φ8	●	●
C10		φ10	–	●
N07	inch	φ1/4"	●	●
N09		φ5/16"	●	●
N11		φ3/8"	–	●

4 .Specific Product Precautions

⚠ Warning — Handling

(1) If a possible danger of system is expected when vacuum pressure is Decreased by service interruption and/or vacuum pump trouble,provide the system with a safety circuit to avoid such a danger.

(2) If a possible danger of system is expected when vacuum regurator fails, provide the system with a safty circuit to avoid such a danger.

⚠ Caution — Handling

(1) Reduce the set pressure to zero(atomospheric pressure) for removeing the plug when additionally mount the pressure gauge and pressure switch.

1.For customers purchasing regulator with a pressure gauge or pressure switch

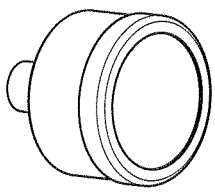
1-1 Accessories

- Pressure gauge (GZ43,GZ33)or pressure switch (ZSE30A)----------1 piece
- Gauge nut (with O-ring)----------1 piece

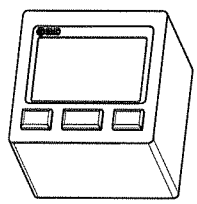
Note) The gauge nut is mounted on the pressure gauge or pressure switch.

- Plug nut (with O-ring)----------1 piece
- Clip----------1 piece

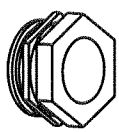
Note) For the summarized piping specification, only 1 clip is provided ,and no plug nut is provided.



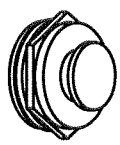
Pressure gauge



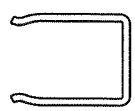
Pressure switch



Gauge nut



Plug nut

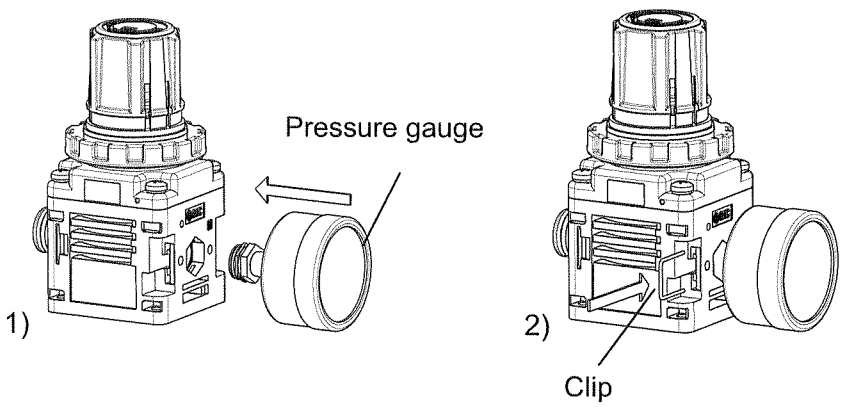


Clip

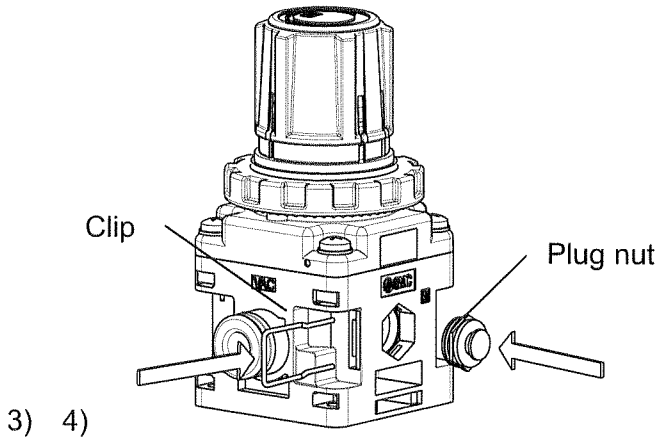
1-2 Mounting of pressure gauge or pressure switch

1) Confirm the VAC side and SET side of the product, and insert the pressure gauge or pressure switch completely (until flush with the product surface)into the preferred hexagon gauge port.
Insert the clip to the left side of the product completely as shown in the figure.

2) After insertion, check to ensure the pressure gauge does not come off.
This is the end of the mounting procedure for the summarized piping specification.



3) Insert the plug nut into the opposite gauge port completely.
4) Insert the clip into the left side of the product completely as with 2).



Note) When the pressure gauge or pressure switch is removed, be sure to remove the clip straight.
The body is made of resin, so never apply torque.

(2) Do not remove the biss on the body with negative pressure applied.
(3) Reduce the set pressure to zero(atomospheric pressure) and shut off the vacuum pump pressure completely for removing the guide for inspection.
(4) One touch fitting is cassette type for easy replacement. One-touch fitting is set by clip inserted as drawing below. To replace the fitting, remove the clip with flat blade drver. Then, insert one-touch fitting until it contact to the end, and insert the clip to its original position.

Note1) Before replacement, ensure that VAC.SET pressure is not applied and exhaust inside pressure completely. Operation with pressure applied is dangerous.

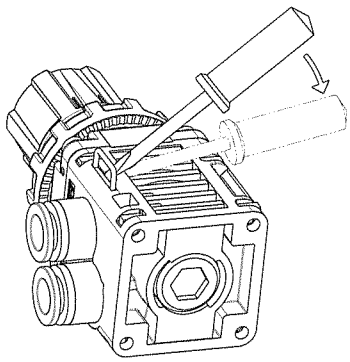
Note2) To pull out the clip, pull it out slowly supporting with hand. The clip may pop out and dangerous if pulling the clip with force.

Note3) After ensuring the replacement part is inserted to the end, inwert the clip to the end. If the clip is not inserted completely, it will come off.

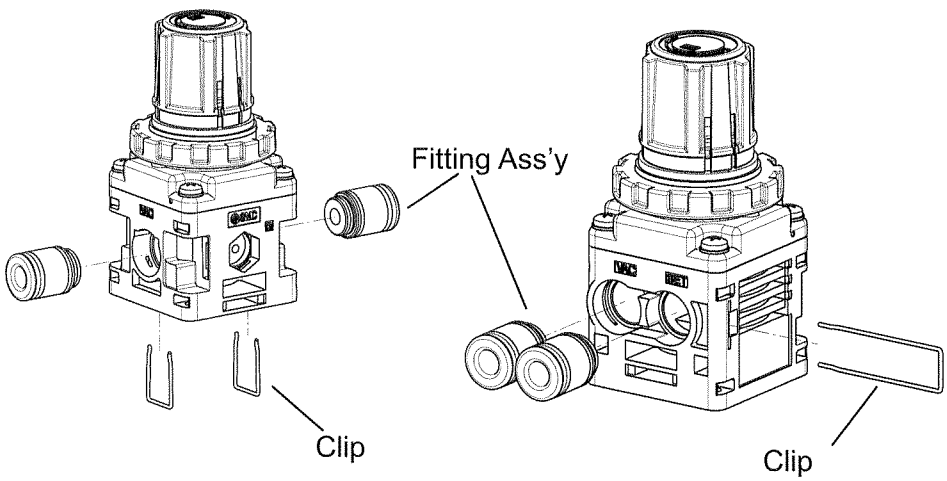
Note4) To insert elbow type one-touch fitting, hold the fitting with hand during inserting the tube. Inserting the tube without holding the body applies excess force to blocks and one-touch fitting and it leads to cause air leakage and damage.

How to pull out the clip

Set the driver tip to the slope of the place where the clip inserted, lift the clip by moving the driver slowly.



Mounting of fitting assembly

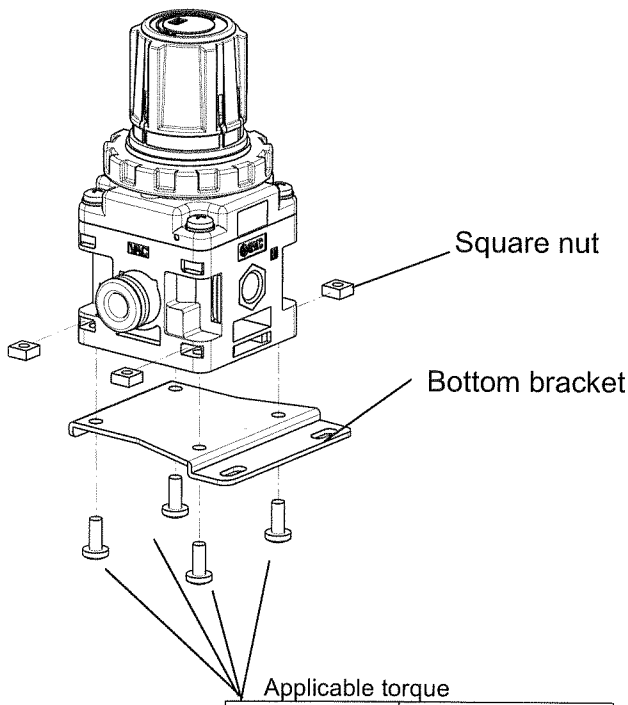


⚠ Warning — Handling

(1) Keep the specified tightening torque for mounting

Excessive torque can damage the mounting screws and product body.
And insufficient torque can cause the threaded parts to loosen.

Cross recessed round head screw for mounting the bottom bracket



Applicable torque

IRV10(A):M3	0.32±0.03N·m
IRV20(A):M4	0.76±0.05N·m

⚠ Caution — Environment

(1)Do not use the product in an environment where the product is directiy exposed to orrosive gases, chemicals, salt water or steam.

(2)Do not mount the product in a location where it is subject to strong vibrations and/or shocks.

(3)Use this vacuum regulator in a location free from dirt since this product sucks atmosphere all the time.

(4)When the product is directly exposed to sunlight, provide a protective cover.

(5)When heat source is around the product, shut off radiant heat.

⚠ Caution — Vacuum Source

(1)This vauum regulator is not designed to adjust pressure of vacuum pump.

(2)Note that ejector should not be used as"vacuum source"since its flow rate is less than this vacuum regulator.

⚠ Caution — Air

(1) Contact SMC when using the product in applications other than Compressed air.

(2)Do not use air containing chemicals, synthetic oils with organic solvents, Salinity and corrosive gases.

⚠ Caution — Operation

(1) Connect vacuum pump to the port indicated by "VAC"(shown in upper Right of the port).

(2) Pressure changes"atmospheric pressure→vacuum pressure" by turning the handle clockwse and "vacuum pressure→atmospheric pressure" by turning the handle counterclockwise.

(3)Never touch to exhaust hole (Inlet for atmosphere)on the body during adjusting pressure.

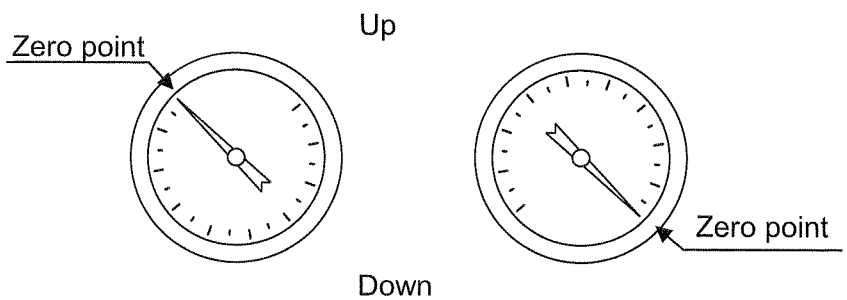
(4)To lock the handle after pressure setting, push the handle until orange Mark below is hidden and it clicks. To unlock the handle, pull the handle Until the orange make is seen and it clicks.

(5) Do not apply positive pressure to this vacuum regulator since this is for Negative pressure use only. If positive pressure is applied, this vacuum regulator will not be broken. However, main valve inside pressure adjusting valve becomes "open" and positive pressure will be introduced to vacuum pump, and vacuum pump may be failed.

(6)When vacuum pump capacity is relatively small or piping ID is small, large fluctuation of set pressure (variation range in pressure when flowing from zero) may be the result. In this case, change the vacuum pump or piping diameter. If the vacuum pump may not be replaced, add a tank (capacity of the tank depends on the operating conditions) on VAC side.

(7) Note that pressure response time after valve (solenoid valve) opening/ closing is affected by internal volume of the setting side (including piping volume). In addition,capacity of vacuum pump affects the response time.

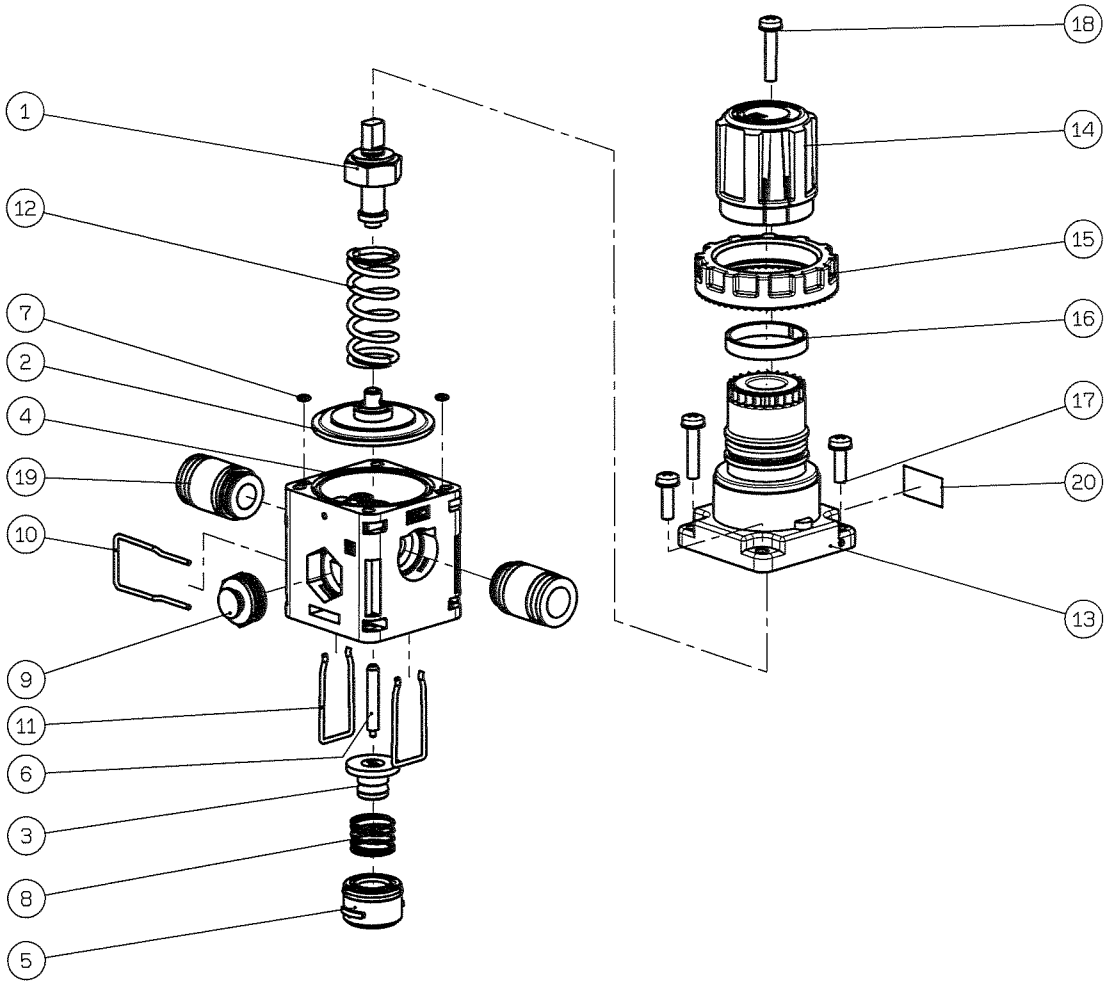
(8) If pressure gauge is used in the direction as Figure 1, it may cause displacement from zero point.So,be sure to use pressure gauge in the Direction as Figure 2



5.Warranty

1. Period: 1.5 year after delivery to the customer's specified location or one year after starting operation, whichever comes sooner.
2. Scope: If a failure occurs within the warranty period which is deemed to be SMC's responsibility, we will provide a replacement product as limited warranty. Any loss or damage incurred by the failure is not covered by the warranty."
3. Contents:
   a. We guarantee that the product will operate normally if it is installed under maintenance and control in accordance with the Operation Manual, and operated under the conditions specified in the catalog or contracted separately.
   b. We guarantee that the product does not have any defects in components, materials or assembly.
   c. We guarantee that the product complies with the outline dimensions provided.
   d. The following situations are out of scope of this warranty.
      1) The product was incorrectly installed or connected with other equipment.
      2) The product was under insufficient maintenance and control or incorrectly handled.
      3) The product was operated outside of the specifications.
      4) The product was modified or altered in construction.
      5) The failure was a secondary failure of the product caused by the failure of equipment connected to the product.
      6) The failure was caused by a natural disaster such as an earthquake, typhoon, or flood, or by an accident or fire.

4. If there is any doubt about anything specified in "Scope" and "Content", it shall be resolved by agreement between the customer and SMC.



ITEM	PART NO	PART NAME	MATERIAL	QTY	REMARKS
20		Name plate	Resin	1	
19	VVQ1000-51A-※	One-touch fitting	–	2	
18		Machine screw	Steel	2	M3x15
17		Machine screw	Steel	2	M3x10
16		Set ring	Resin	1	
15		Set nut	Resin	1	
14		Handle	Resin	1	
13		Bonnet assembly		1	
12		Adjusting spring	Steel	1	
11		Clip for fitting	Stainless	2	
10		Clip for nut	Stainless	1	
9		Plug nut	Brass	2	
8		Valve spring	Stainless	1	
7	KA01749	O-ring	NBR	2	Φ1.7x0.85
6		Stem	Brass	1	
5		Valve guide assembly		1	
4		Body assembly		1	With orifice
3	P601010-3	Valve assembly		1	
2	P601010-2	Diaphragm assembly		1	
1		Adjusting pressure screw assembly		1	

REV	QTY	DESCRIPTION	DATE	PREPARED	REV NO

FINISH
PAINT
PACKING
MATERIAL
MATERIAL SIZE

IRV10 1
MODEL QTY

THIRD ANGLE

TOLERANCES JIS B 0405			
RANGE(mm)	GRADE f ±	m ±	c ±
0.5≤D≤3	0.05	0.1	0.2
3<D≤6	0.05	0.1	0.3
6<D≤30	0.1	0.2	0.5
30<D≤120	0.15	0.3	0.8
120<D≤400	0.2	0.5	1.2
400<D≤1000	0.3	0.8	2
1000<D≤2000	0.5	1.2	3

DRAWN DATE
DESIGNED DATE
CHECKED DATE
APPROVED DATE

SCALE 1:1

DWG NAME
Vacuum Regulator
Resolution Assembling Drawing

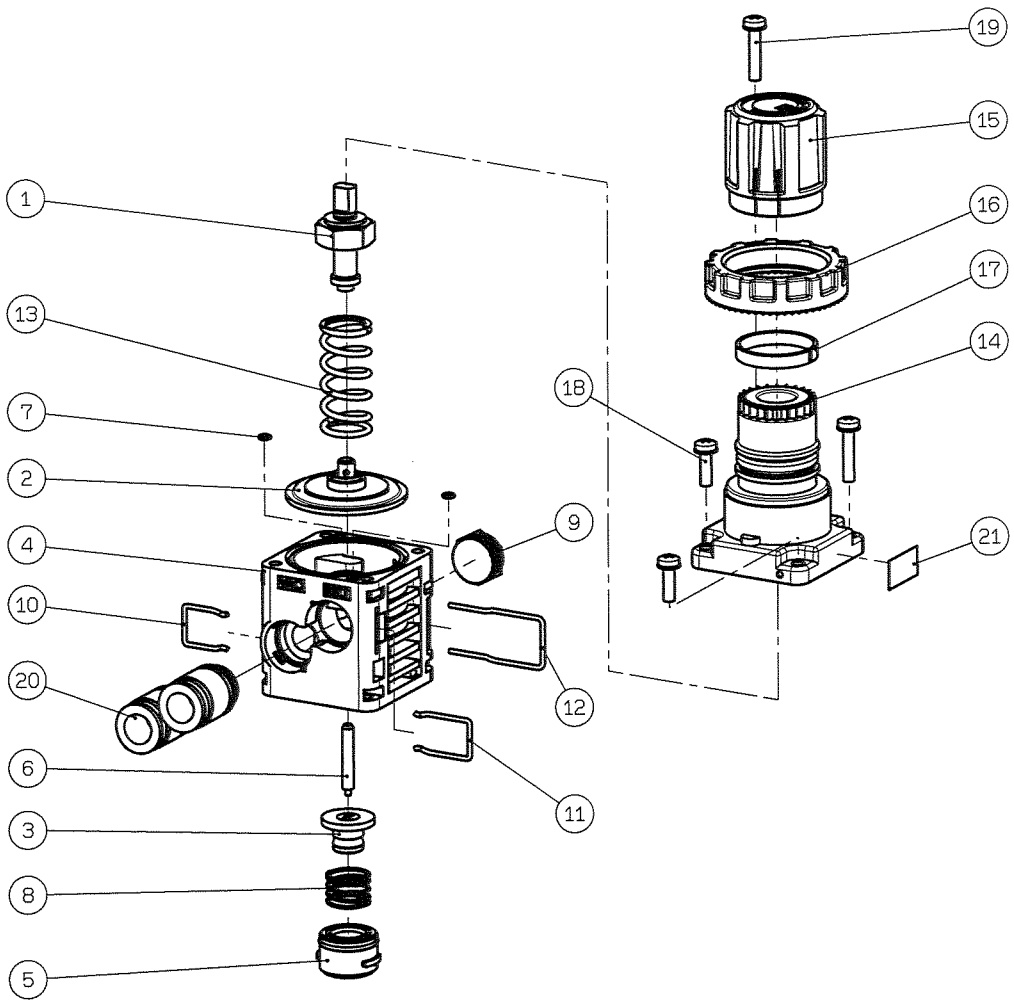
DWG NO (TA) IRV10

REVISION

DWG NAME | DWG REC | DWG ID AD50250300

SMC Corporation

FINISH:表面処理 / PAINT:塗装 / PACKING:包装区分
MATERIAL:材質 / MATERIAL SIZE:材料寸法



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15		Handle	Resin	1	
14		Bonnet assembly		1	
13		Adjusting spring	Steel	1	
12		Clip for nut	Stainless	1	
11		Clip for fitting	Stainless	1	
10		Clip for fitting	Stainless	1	
9		Plug nut	Brass	1	
8		Valve spring	Stainless	1	
7	KA01749	O-ring	NBR	2	Φ1.7x0.85
6		Stem	Brass	1	
5		Valve guide assembly		1	
4		Body assembly		1	with orifice
3	P601010-3	Valve assembly		1	
2	P601010-2	Diaphragm assembly		1	
1		Adjusting pressure screw assembly		1	

REV	QTY	DESCRIPTION	DATE	PREPARED	REV NO

FINISH
PAINT
PACKING
MATERIAL
MATERIAL SIZE

IRV10 1
MODEL QTY

THIRD ANGLE

TOLERANCES JIS B 0405

RANGE(mm)	GRADE f ±	m ±	c ±
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400<D≤1000	0.3	0.8	2
1000<D≤2000	0.5	1.2	

DRAWN DATE
DESIGNED DATE
CHECKED DATE
APPROVED DATE

SCALE 1:1

DWG NAME Vacuum Regulator Resolution Assembling Drawing

DWG NO (TA) IRV10A

REVISION

DWG NAME

DWG REC

DWG ID AD50250400

SMC Corporation

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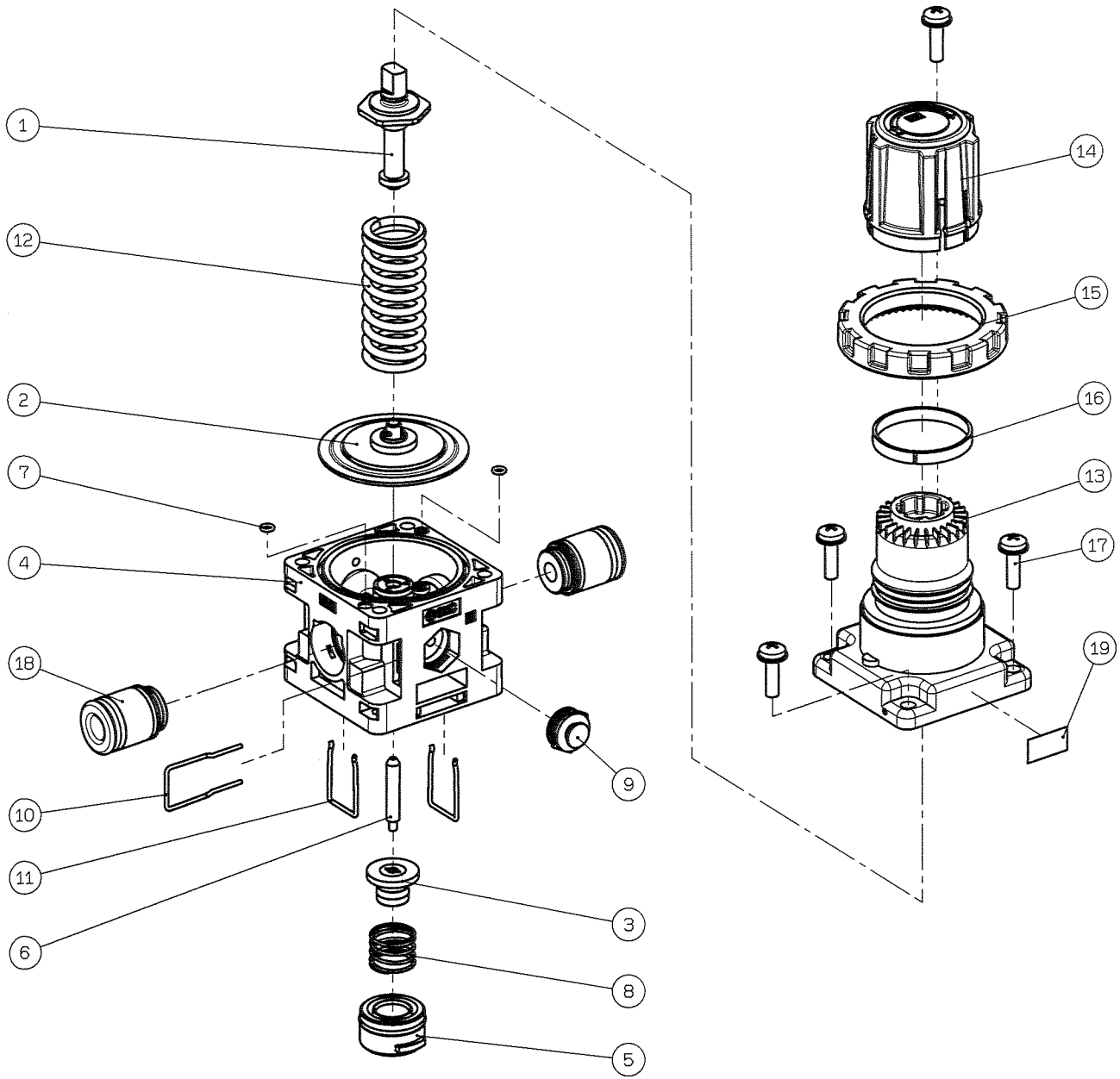
MATERIAL:材質 / MATERIAL SIZE:材料寸法

A2-V05



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17		Machine screw	Steel	4	M4x14
16		Set ring	Resin	1	
15		Set nut	Resin	1	
14		Handle	Resin	1	
13		Bonnet assembly		1	
12		Adjusting spring	Steel	1	
11		Clip for fitting	Stainless	2	
10		Clip for nut	Stainless	1	
9		Plug nut	Brass	2	
8		Valve spring	Stainless	1	
7	KA00016	O-ring	NBR	2	Φ2.5x1
6		Stem	Brass	1	
5		Valve guide assembly		1	
4		Body assembly		1	With orifice
3	P601020-3	Valve assembly		1	
2	P601020-2	Diaphragm assembly		1	
1		Adjusting pressure screw assembly		1	

REV	QTY	DESCRIPTION	DATE	PREPARED	REV NO

FINISH
PAINT
PACKING
MATERIAL
MATERIAL SIZE

IRV20 1
MODEL QTY

TOLERANCES JIS B 0405

RANGE(mm)	GRADE f ±	m ±	c ±
0.5≤D≤3	0.05	0.1	0.2
3<D≤6	0.05	0.1	0.3
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DRAWN DATE
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SCALE 1:1

THIRD ANGLE

DWG NAME Vacuum Regulator Resolution Assembling Drawing

DWG NO TA IRV20

REVISION

DWG NAME
DWG REC
DWG ID AD50250500

SMC Corporation

FINISH:表面処理 / PAINT:塗装 / PACKING:包装区分
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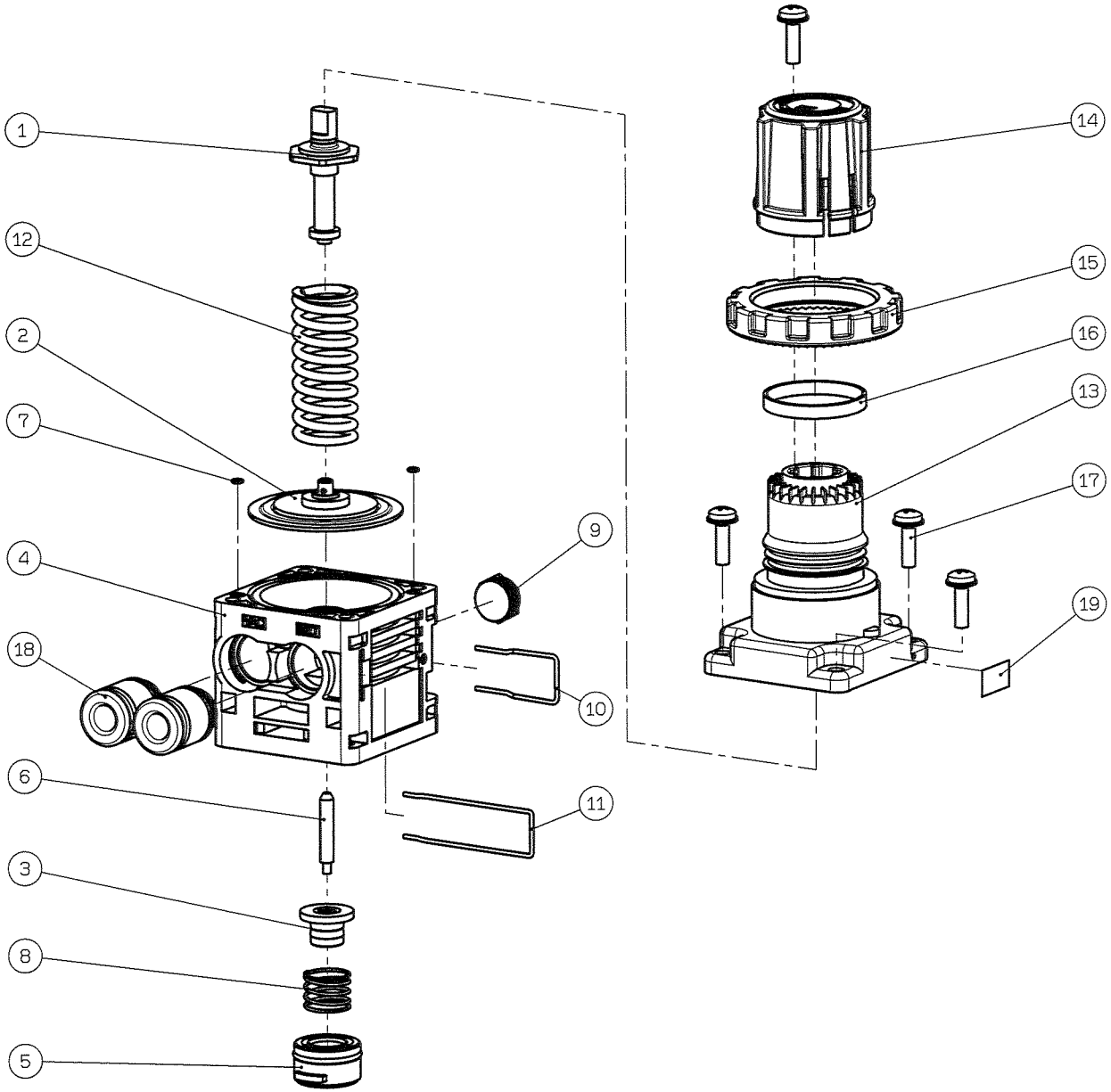
A2-V05



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9		Plug nut	Brass	1	
8		Valve spring	Stainless	1	
7	KA00016	O-ring	NBR	2	Φ2.5x1
6		Stem	Brass	1	
5		Valve guide assembly		1	
4		Body assembly		1	with orifice
3	P601020-3	Valve assembly		1	
2	P601020-2	Diaphragm assembly		1	
1		Adjusting pressure screw assembly		1	

REV	QTY	DESCRIPTION	DATE	PREPARED	REV NO

FINISH
PAINT
PACKING
MATERIAL
MATERIAL SIZE

IRV20A 1
MODEL QTY

THIRD ANGLE

TOLERANCES JIS B 0405			
RANGE(mm)	GRADE f ±	m ±	c ±
0.5≤D≤3	0.05	0.1	0.2
3<D≤6	0.05	0.1	0.3
6<D≤30	0.1	0.2	0.5
30<D≤120	0.15	0.3	0.8
120<D≤400	0.2	0.5	1.2
400<D≤1000	0.3	0.8	2
1000<D≤2000	0.5	1.2	3

DRAWN DATE
DESIGNED DATE
CHECKED DATE
APPROVED DATE

SCALE 1:1

DWG NAME
Vacuum Regulator
Resolution Assembling Drawing

DWG NO TA IRV20A

REVISION

DWG NAME
DWG REC
DWG ID AD50250600

SMC Corporation

FINISH:表面処理 / PAINT:塗装 / PACKING:包装区分
MATERIAL:材質 / MATERIAL SIZE:材料寸法

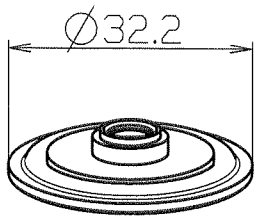
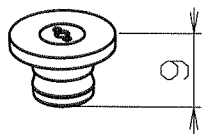
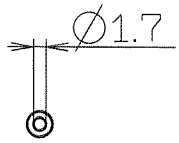
A2-V05

7. LIST OF SPARES

Document No.	DIK-45700-SL003	Page 1/1

TITLE Series IRV10※ Repairing parts kit

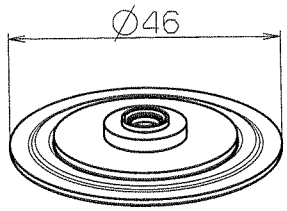
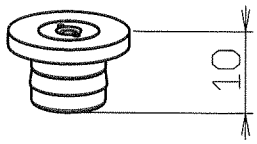
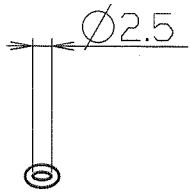
MODEL No. IRV10※

No.	NAME	SKETCH	MATERIAL	SUPPLY QUANTITY		DRAWING		REMARKS
				WORKING	SPARE	PART No.	ITEM No	
1	Diaphragm Ass'y		NBR	1		P601010-2		
2	Valve Ass'y		NBR	1		P601010-3		
3	"O"ring		NBR	2		φ1.7× 0.85		

Document No.	DIK-45700-SL004	Page 1/1

TITLE Series IRV20※ Repairing parts kit

MODEL No. IRV20※

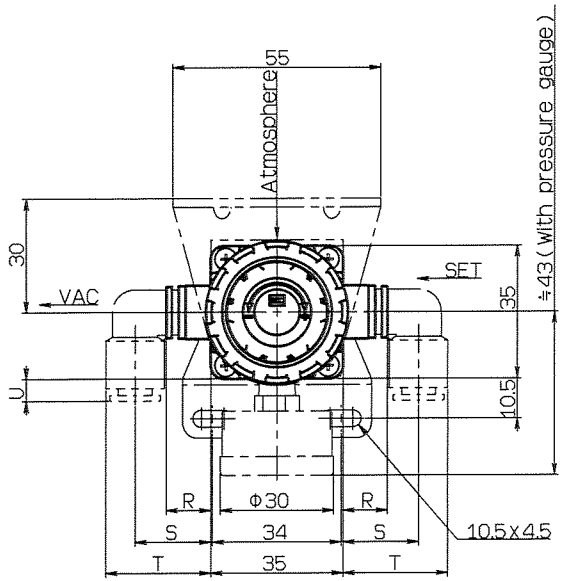
No.	NAME	SKETCH	MATERIAL	SUPPLY QUANTITY		DRAWING		REMARKS
				WORKING	SPARE	PART No.	ITEM No	
1	Diaphragm Ass'y		NBR	1		P601020-2		
2	Valve Ass'y		NBR	1		P601020-3		
3	"O"ring		NBR	2		ϕ2.5×1		

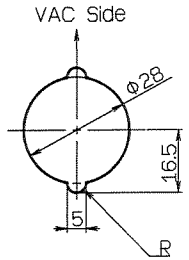
One-touch fitting dimension

One-touch fitting size	VAC/SET			
	Straight	Elbow	Elbow	Elbow
	R	S	T	U
Φ6, Φ1/4	10	19	26	3
Φ8, Φ5/16	12	20	28	6

Specification

Setting pressure	−100~−1.3kPa
Operating temperature	5~60℃
VAC side port size	Φ6、Φ1/4、Φ8、Φ5/16
SET side port size	Φ6、Φ1/4、Φ8、Φ5/16
Port size for pressure gauge	Rc1/8 (pressure gauge.with pressure switch attached only one)
Weight(Without accessory)	135g(IRV10-C08)





Panel cut
Panel board thickness max.3

Model indentification numbering

IRV10 − □ □ □ □

One-touch fitting

Nil	Straight
L	Elbow

Accessory1 Note1)

Nil	None
B	with bracket
L	with bottom bracket

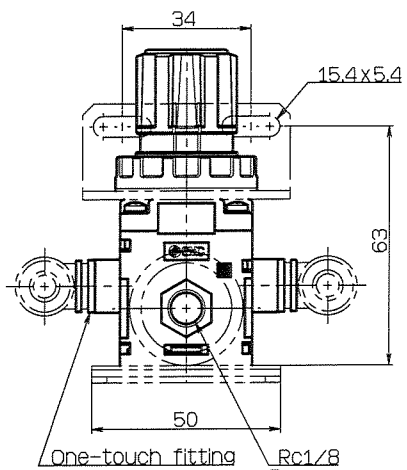
Connecting port size

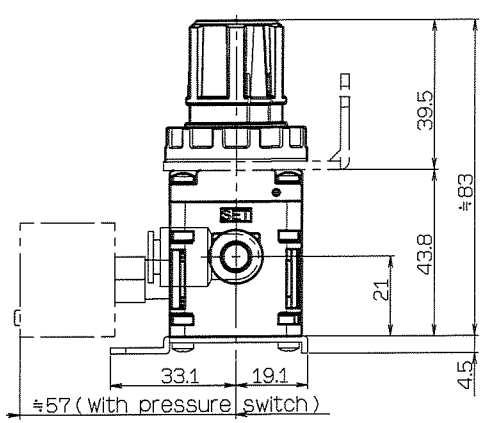
Symbol	Specification	Port size
C06	mm	Φ6
C08		Φ8
N07	inch	Φ1/4"
N09		Φ5/16"

Accessory2 Note2)

Nil	None	
G	With pressure gauge	
ZN	with digital pressure switch	NPN open collector 1 output
ZP		PNP open collector 1 output
ZA		NPN open collector 2 output
ZB		PNP open collector 2 output

Note1) Note2)
Accessories1,2 are shipped together





Mounting direction of pressure gauge
If pressure gauge is used in the direction as Figure 1.
it may cause displacement from zero point.So,be sure to
use pressure gauge in the direction as Figure 2.

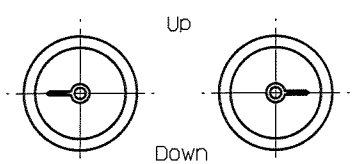


Figure 1 Figure 2

ITEM	PART• NO	PART • NAME	MATERIAL	QTY	REMARKS

REV	QTY	DESCRIPTION	DATE	PREPARED	REV NO

FINISH
PAINT: Urban White1
PACKING
MATERIAL
MATERIAL SIZE

MODEL QTY
THIRD ANGLE

TOLERANCES JIS B 0405

RANGE(mm)	GRADE f ±	m ±	c ±
0.5≤D≤3	0.05	0.1	0.2
3<D≤6	0.05	0.1	0.3
6<D≤30	0.1	0.2	0.5
30<D≤120	0.15	0.3	0.8
120<D≤400	0.2	0.5	1.2
400<D≤1000	0.3	0.8	2
1000<D≤2000	0.5	1.2	3

DRAWN DATE
DESIGNED DATE
CHECKED DATE
APPROVED DATE

SCALE 1:1

DWG NAME: Vacuum Regulator
DWG NO: (C)IRV10-※※※※
REVISION

DWG NAME
DWG REC
DWG ID AD50251100

SMC Corporation

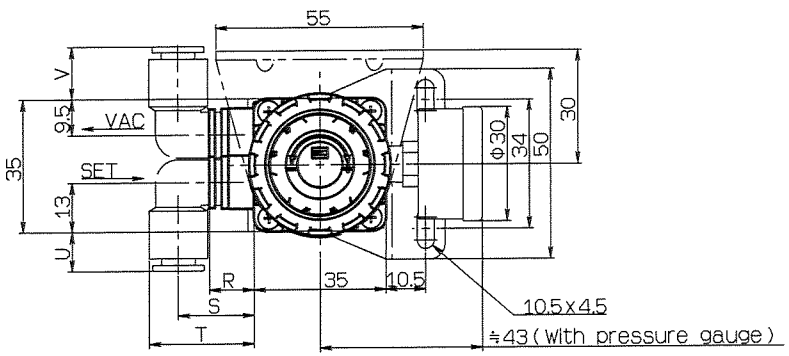
FINISH:表面処理 / PAINT:塗装 / PACKING:包装区分
MATERIAL:材質 / MATERIAL SIZE:材料寸法

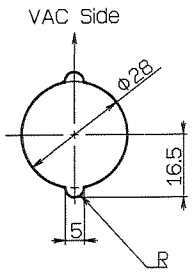
Specification

Setting pressure	-100~-1.3kPa
Operating temperature	5~60℃
VAC side port size	Φ6、Φ1/4、Φ8、Φ5/16
SET side port size	Φ6、Φ1/4、Φ8、Φ5/16
Port size for pressure gauge	Rc1/8 (pressure gauge,with pressure switch attached only one)
Weight(without accessory)	125g(IRV10A-C08)

One-touch fitting dimension

One-touch fitting size	VAC/SET				
	Straight	Elbow	Elbow	Elbow	Elbow
	R	S	T	U	V
Φ6、Φ1/4	10	19	26	7.5	11
Φ8、Φ5/16	12	20	28	10.5	14





Panel cut
Panel board thickness max.3

Model indentification numbering

IRV10A - □ □ □ □

One-touch fitting

Nil	Straight
L	Elbow

Accessory1 Note1)

Nil	None
B	with bracket
L	with bottom bracket

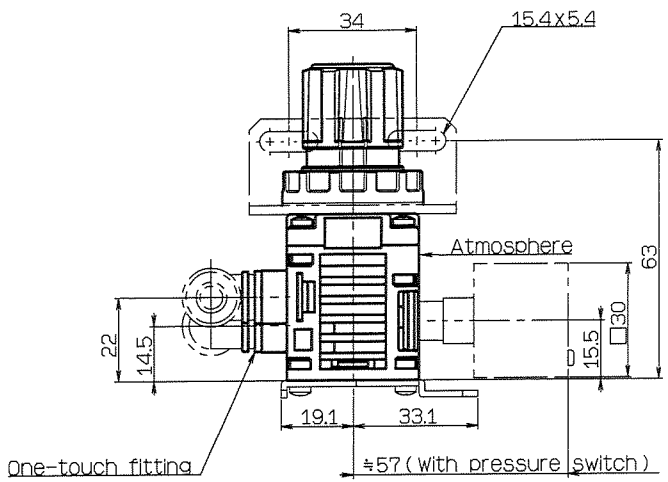
Connectting port size

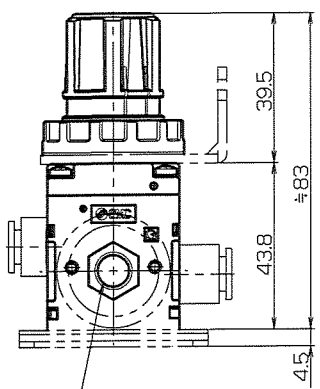
Symbol	Specification	Port size
C06	mm	Φ6
C08		Φ8
N07	inch	Φ1/4"
N09		Φ5/16"

Accessory2 Note2)

Nil	None	
G	with pressure gauge	
ZN	with digital pressure switch	NPN open collector 1 output
ZP		PNP open collector 1 output
ZA		NPN open collector 2 output
ZB		PNP open collector 2 output

Note1) Note2)
Accessories1.2 are shipped together





Mounting direction of pressure gauge
If pressure gauge is used in the direction as Figure 1, it may cause displacement from zero point.So,be sure to use pressure gauge in the direction as Figure 2.

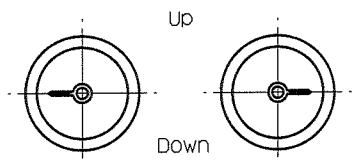


Figure 1 Figure 2

ITEM	PART• NO	PART • NAME	MATERIAL	QTY	REMARKS

REV	QTY	DESCRIPTION	DATE	PREPARED	REV NO

TOLERANCES JIS B 0405

RANGE(mm)	GRADE f ±	m	c ±
0.5≤D≤3	0.05	0.1	0.2
3<D≤6	0.05	0.1	0.3
6<D≤30	0.1	0.2	0.5
30<D≤120	0.15	0.3	0.8
120<D≤400	0.2	0.5	1.2
400<D≤1000	0.3	0.8	2
1000<D≤2000	0.5	1.2	

DRAWN DATE
DESIGNED DATE
CHECKED DATE
APPROVED DATE

FINISH
PAINT Urban White1
PACKING
MATERIAL
MATERIAL SIZE

MODEL QTY
THIRD ANGLE

SCALE 1:1

DWG NAME Vacuum Regulator

DWG NO ©IRV10A-※※※※

REVISION

FINISH:表面処理 / PAINT:塗装 / PACKING:包装区分
MATERIAL:材質 / MATERIAL SIZE:材料寸法

DWG NAME | DWG REC | DWG ID AD50251200 | SMC Corporation

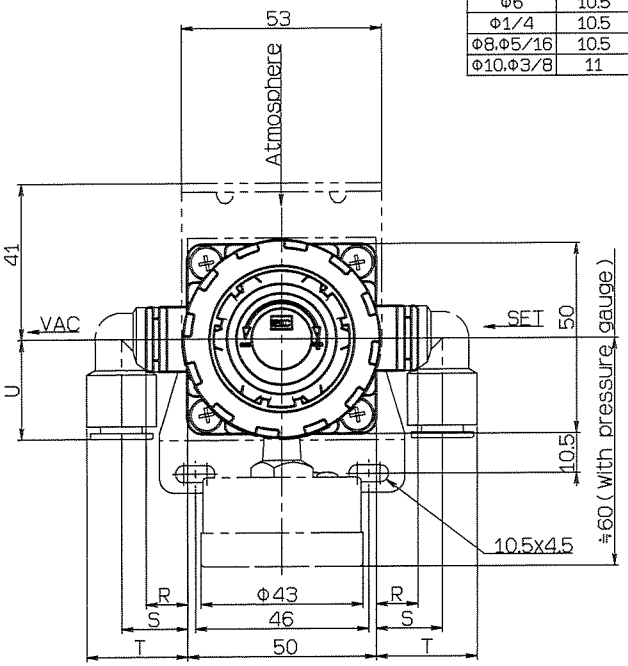
ⓒIRV20-※※※※ ON SMC

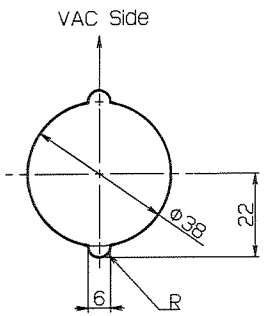
One-touch fitting dimension

One-touch fitting size	VAC/SET			
	Straight	Elbow	Elbow	Elbow
	R	S	T	U
Φ6	10.5	21	27.5	21
Φ1/4	10.5	21	27.5	21.5
Φ8,Φ5/16	10.5	21	28.5	24
Φ10,Φ3/8	11	21	30.5	27

Specification

Setting pressure	−100~−1.3kPa
Operating temperature	5~60℃
VAC side port size	Φ6、Φ8、Φ10、Φ1/4、Φ5/16、Φ3/8
SET side port size	Φ6、Φ8、Φ10、Φ1/4、Φ5/16、Φ3/8
Port size for pressure gauge	Rc1/8 (Pressure gauge、with pressure switch attached only one)
Weight(Without accessory)	250g (IRV20-C10)





Model indentification numbering

IRV20 − □ □ □ □

One-touch fitting

Nil	Straight
L	Elbow

Connecting port size

Symbol	Specification	Port size
C06	mm	Φ6
C08		Φ8
C10		Φ10
N07	inch	Φ1/4"
N09		Φ5/16"
N11		Φ3/8"

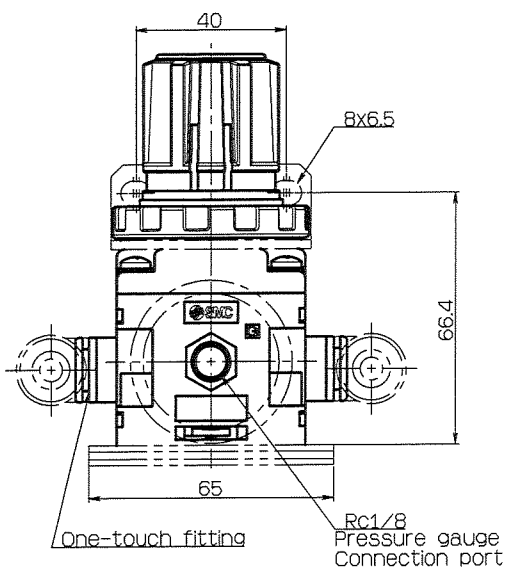
Accessory1 Note1)

Nil	None
B	With bracket
L	With bottom bracket

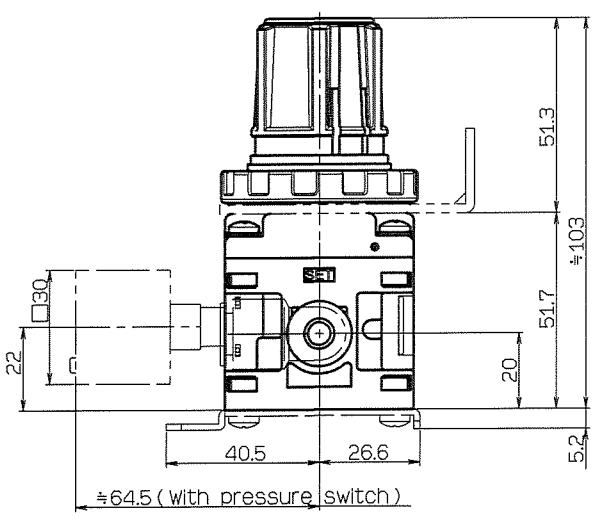
Accessory2 Note2)

Nil	None	
G	With pressure gauge	
ZN	With digital pressure switch	NPN open collector 1 output
ZP		PNP open collector 1 output
ZA		NPN open collector 2 output
ZB		PNP open collector 2 output

Note1) Note2)
Accessories1,2 are shipped together



Panel cut
Panel board thicness max.4



Mounting direction of pressure gauge
If pressure gauge is used in the direction as Figure 1, it may cause displacement from zero point.So,be sure to use pressure gauge in the direction as Figure 2.

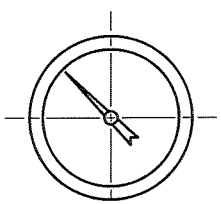


Figure 1

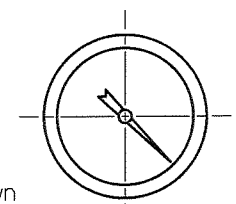


Figure 2

ITEM	PART• NO	PART • NAME	MATERIAL	QTY	REMARKS

REV	QTY	DESCRIPTION	DATE	PREPARED	REV NO

FINISH: PAINT: Urban White1 PACKING: MATERIAL: MATERIAL SIZE:

MODEL QTY

THIRD ANGLE

TOLERANCES JS 8 0405			
RANGE(mm)	GRADE f ±	m ±	c ±
0.5≤D≤3	0.05	0.1	0.2
3<D≤6	0.05	0.1	0.3
6<D≤30	0.1	0.2	0.5
30<D≤120	0.15	0.3	0.8
120<D≤400	0.2	0.5	1.2
400<D≤1000	0.3	0.8	2
1000<D≤2000	0.5	1.2	3

DRAWN DATE
DESIGNED DATE
CHECKED DATE
APPROVED DATE

SCALE 1:1

DWG NAME Vacuum Regulator

DWG NO ⓒIRV20-※※※※

REVISION

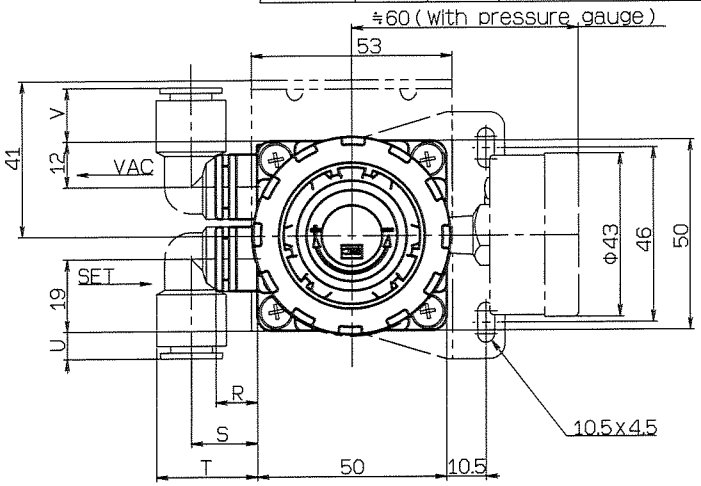
DWG NAME | DWG REC | DWG ID AD50251300 | SMC Corporation

FINISH:表面処理 / PAINT:塗装 / PACKING:包装区分
MATERIAL:材質 / MATERIAL SIZE:材料寸法

A2-V05

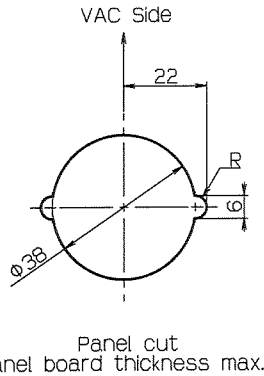
One-touch fitting dimension

One-touch fitting size	VAC/SET				
	Straight	Elbow	Elbow	Elbow	Elbow
	R	S	T	U	V
Φ6	10.5	21	27.5	1	8
Φ1/4	10.5	21	27.5	1.5	8.5
Φ8,Φ5/16	10.5	21	28.5	4	11
Φ10,Φ3/8	11	21	30.5	7	14



Specification

Setting pressure	-100~-1.3kPa
Operating temperature	5~60℃
VAC side port size	Φ6、Φ8、Φ10、Φ1/4、Φ5/16、Φ3/8
SET side port size	Φ6、Φ8、Φ10、Φ1/4、Φ5/16、Φ3/8
Port size for pressure gauge	Rc1/8 (Pressure gauge,with pressure switch attached only one)
Weight(Without accessory)	250g (IRV20A-C10)



Panel cut
Panel board thickness max.4

Model indentification numbering

IRV20A - □ □ □ □

One-touch fitting

Nil	Straight
L	Elbow

Accessory1 Note1)

Nil	None
B	with bracket
L	with bottom bracket

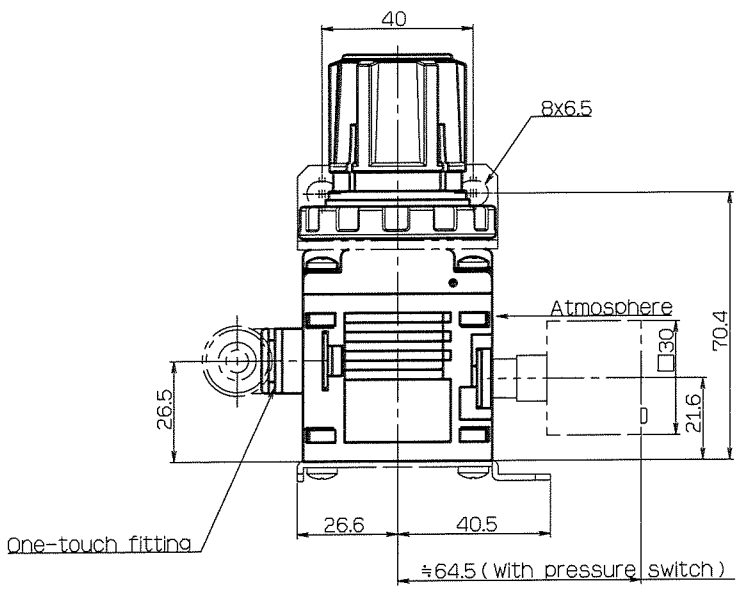
Connectting port size

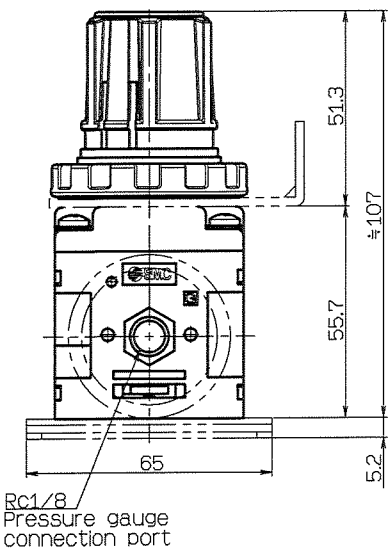
Symbol	Specification	Port size
C06	mm	Φ6
C08		Φ8
C10		Φ10
N07	inch	Φ1/4"
N09		Φ5/16"
N11		Φ3/8"

Accessory2 Note2)

Nil	None	
G	With pressure gauge	
ZN	With digital pressure switch	NPN open collector 1 output
ZP		PNP open collector 1 output
ZA		NPN open collector 2 outout
ZB		PNP open collector 2 outout

Note1) Note2)
Accessories1,2 are shipped together





Mounting direction of pressure gauge

If pressure gauge is used in the direction as Figure 1, it may cause displacement from zero point.So,be sure to use pressure gauge in the direction as Figure 2.

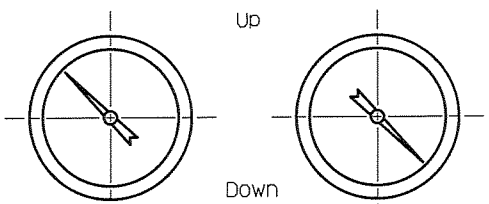


Figure 1 Figure 2

REV	QTY	DESCRIPTION	DATE	PREPARED	REV NO

TOLERANCES JIS B 0405			
RANGE(mm)	GRADE f ±	m ±	c ±
0.5≦D<3	0.05	0.1	0.2
3<D≦6	0.05	0.1	0.3
6<D≦30	0.1	0.2	0.5
30<D≦120	0.15	0.3	0.8
120<D≦400	0.2	0.5	1.2
400<D≦1000	0.3	0.8	2
1000<D≦2000	0.5	1.2	

DRAWN DATE
DESIGNED DATE
CHECKED DATE
APPROVED DATE

FINISH
PAINT Urban White1
PACKING
MATERIAL
MATERIAL SIZE

MODEL QTY

THIRD ANGLE

SCALE 1:1

DWG NAME Vacuum Regulator

DWG NO ⓒIRV20A-※※※※

REVISION

DWG NAME
DWG REC
DWG ID AD50251400

SMC Corporation

FINISH:表面処理 / PAINT:塗装 / PACKING:包装区分
MATERIAL:材質 / MATERIAL SIZE:材料寸法

Revision history

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Tel: 03-5207-8271 Fax: 03-5298-5361

SMC