CAT.No.4209E

KONAN®

Download CAD drawings and PDF catalog data from the following website

URL=https://www.konan-em.com/

Pneumatic

Bore size

TA2 : φ 40～160
TA : φ 200 / TW : 250

Rotary actuator

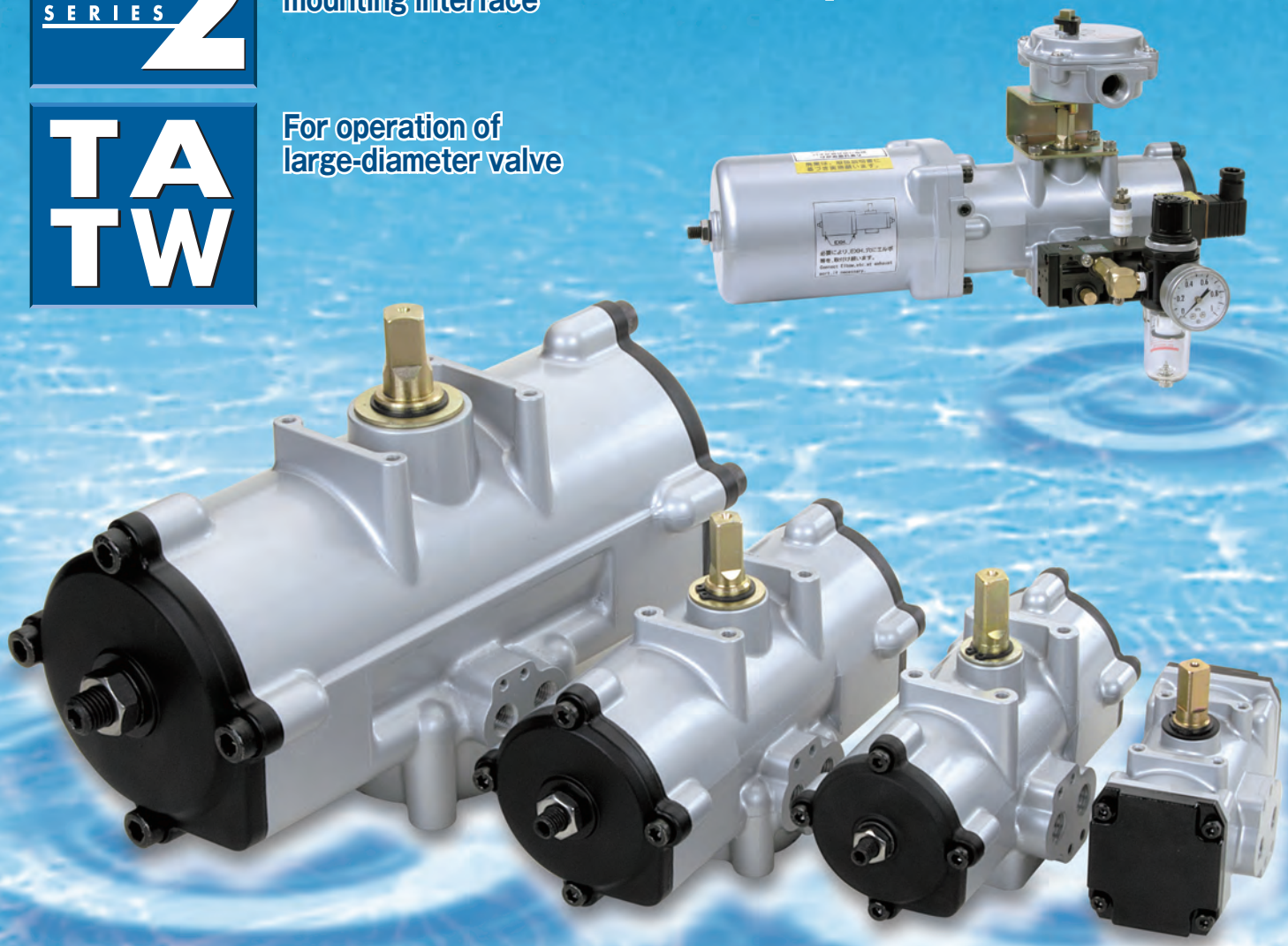
TA2 SERIES

Valve mounting interface : ISO5211 compliant.

Solenoid valve mounting interface : NAMUR compliant.

TA
TW

For operation of large-diameter valve



KONAN ELECTRIC CO.,LTD.

TA2 SERIES

Valve mounting interface
: ISO5211 compliant.

Solenoid valve mounting interface
: NAMUR compliant.

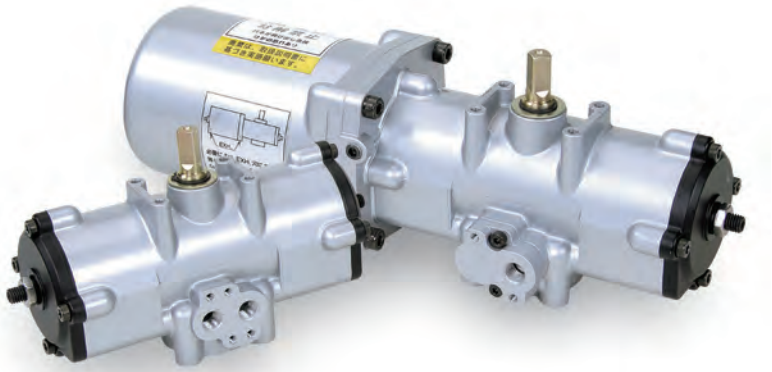
TA TW

For operation of large-diameter valve (TA-200·TW-250)

Reliable actuator technologies backed with experiences for a long time enables firm and safe automatic operations of any large-diameter valves.

Option Information

We provide extensive options that flexibly meet various devices and environment surrounding the rotary actuator for total system design. These options work effectively not only as single components but also in combinations.



Features

1 Extensive options

Many models with various options are now available as standard.
They meet versatile requirements for total system establishment.

2 Complying with NAMUR standards

Solenoid valve mounting interface and optional actuator top mounting interface comply with NAMUR standards (VDI/VDE3845).

NAMUR-compliant solenoid valve mounting interface

3 Light weight and compact design

Employment of die-cast aluminum into main components and unique body shapes achieves the lightweight and compact design.

4 Oilless operation

High-quality lubrication-free materials are used as piston sliding packing and sliding materials for bearing to maintain the high reliability in the non-lubrication operation.

Spring cartridge

This system makes it possible to change the operation from single-acting type to double-acting type and vice versa.
The single-acting type is structured to obtain the same output torque as that of the double-acting type in the air operation mode. (Patented)

Features

Scotch yoke driving system

The scotch yoke mechanism which is compact yet allows high-efficient driving is employed. Both TA-200 and TW-250 exhibit the optimal torque characteristics for valve control requiring the maximum torque at the rotation beginning and final ends.

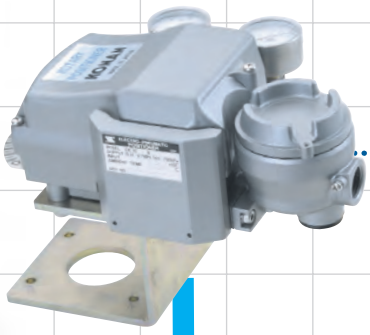
Abundant optional devices

Abundant optional devices have been standardized. The total system helps valve automatic operations.

Connection method

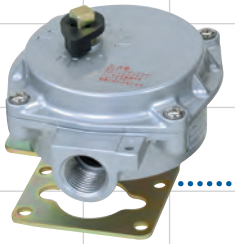
The yoke or coupling-free direct mount system is employed for connection to valves.

- TA-200 employs a female angle conforming to ISO standards.
- TW-250 employs a female key socket system conforming to ISO standards.



Electro-pneumatic Positioner

The electro-pneumatic positioner controls rotational angle of an actuator (valve) accurately without restriction.



Switch box

The high-accuracy limit switch box is provided for detecting rotational position of an actuator (valve).
(Protection class: IP65)

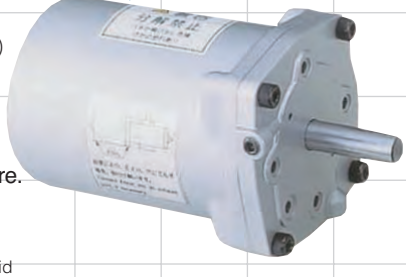
Spring cartridge

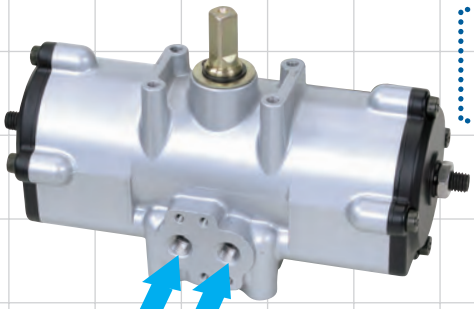
A spring built-in cartridge for single-acting type (spring return) focusing on safety.

NAMUR-compliant Compact Size Explosion-proof Solenoid Valve

Explosion-proof (d2G4) 5-port solenoid valve for driving actuator can be used safely in the environment with explosive gas atmosphere.

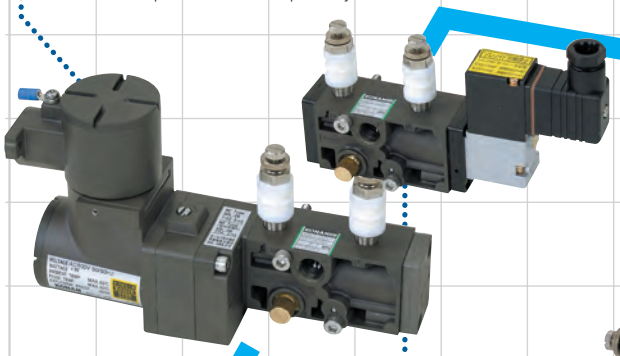
※Intrinsic-safety (i2G4) and hydrogen explosion-proof (d3aG4) type 5-port solenoid valves can be mounted as options. For details please consult separately.

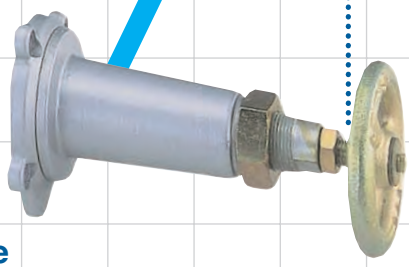




Manual handle

A manual operation unit to be used for single-acting type.





Sub base

A base for piping in case of single-acting type. (spring return)
(Equipped as standard in case of single-acting type)

NAMUR-compliant 5-port Solenoid Valve (Incorporating bypass valve)

The 5-port solenoid valve for driving actuator incorporates a bypass valve to adjust the exhausting amount and is equipped with a speed controller as standard.

FR Unit (Regulator with Filter)

FR unit controls the quality of air sent to an actuator. The unit is composed of a regulator for pressure adjustment and a filter for removing foreign substances in fluid.

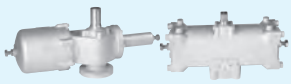
Bypass Valve Incorporating Speed Controller

The bypass valve made of resin incorporates a speed controller that flexibly adjusts the actuator rotational speed (valve open/close speed).

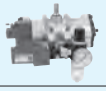
Option

Pneumatic Bore size φ40～φ250

Rotary actuator

	TA2 シリーズ							TA	TW
Bore size	0402	050	063	080	100	125	160	200	250
Drive system	Rack and pinion	Scotch yoke							
Operation type【Option】	Double-acting type（D）								
	Single-acting type（R/L）				Single-acting type（R2/L2）			Single-acting type（R）	–
	–	Single-acting type with manual handle（RM/LM）			Single-acting type with manual handle（RM2/LM2）			–	–
Page	P10～P110							P112～P115	
									

1 Option: Double-acting type φ040～160

Option code	General solenoid valve	FR unit	Switch box	Speed controller /bypass valve	Explosion-proof solenoid valve	Electro -pneumatic positioner	Electro -pneumatic Smart positioner	Compact Electro -pneumatic Smart positioner	Pneumatic -pneumatic positioner	Intrinsic-safety solenoid valve	Page on catalogue	
09				●							P26	
30	●										P30	
31	●	●									P36	
32	●		●								P42	
33	●	●	●								P48	
34			●								P54	
35			●	●							P60	
36					●						P64	
37		●			●						P70	
39						● 063 or higher					P76	
45							● 063 or higher				P80	
46								● 063 or higher			P82	
42									● 063 or higher		P84	
Other combinations				○		○					–	–
										○	–	–
		○								○	–	–

Valve mounting interface : ISO5211 compliant.
Solenoid valve mounting interface : NAMUR compliant.

TA2 SERIES

For operation of large-diameter valve interface

TATW

2 Option: Single-acting type φ040 ~ 160

Option code	General solenoid valve	FR unit	Switch box	Explosion-proof solenoid valve	Electro -pneumatic positioner	Electro -pneumatic Smart positioner	Compact Electro -pneumatic Smart positioner	Pneumatic -pneumatic positioner	Intrinsic-safety solenoid valve	Page on catalogue	
30	●									P30	
31	●	●								P36	
32	●		●							P42	
33	●	●	●							P48	
34			●							P54	
36				●						P64	
37		●		●						P70	
39					● 063 or higher					P76	
45						● 063 or higher				P80	
46							● 063 or higher			P82	
42								● 063 or higher		P84	
Other combinations									○	–	
		○							○	–	

3 Option: Single-acting type with manual handle φ050 ~ 160

Option code	General solenoid valve	FR unit	Switch box	Explosion-proof solenoid valve	Electro -pneumatic positioner	Electro -pneumatic Smart positioner	Compact Electro -pneumatic Smart positioner	Pneumatic -pneumatic positioner	Intrinsic-safety solenoid valve	Page on catalogue	
30	●									P30	
31	●	●								P36	
32	●		●							P42	
33	●	●	●							P48	
34			●							P54	
36				●						P64	
37		●		●						P70	P88
39					● 063 or higher					P76	
45						● 063 or higher				P80	
46							● 063 or higher			P82	
42								● 063 or higher		P84	
Other combinations									○	–	
		○							○	–	

※ For other optional combinations please consult separately.

General Handling Instructions and Precautions

Please read the following general handling instructions and precautions carefully before ordering rotary actuators.

Safety Precautions

References: JIS B9702: Safety of machinery_ principles of risk assessment
JIS B8370: Pneumatic fluid power_general rules relating to systems

⚠ Warning Following information is based on a risk assessment for Konan pneumatic rotary actuators (hereafter referred to as actuator). Each section provides information essential for safe operation of the actuators and prevention of risk and damage that may affect operators. Please read carefully.

① Selection of actuator

1.1 Shock and mechanical safety

Rotary actuator is an actuator to rotate loads by means of pneumatic pressure. It is often used for high-speed operation systems and equipment with heavy loads. In order to enable safe operation of a system incorporating the actuator, it is essential to select appropriate type and size of actuator for the load and motion energy as well as take into consideration the load connection method.

In particular, if motion energy of the load is high (large mass and high-speed operation), appropriate type and size of actuator must be selected.

For example, rotating loads with large inertial force such as dampers may cause damage to internal components of the actuator and connection components that may affect operators and surrounding mechanical systems.

1.2 Output torque characteristics of actuator

Output torque of an actuator is provided by multiplying the internal piston output (supply pressure & piston area) and length of piping. The characteristics of output torque differ depending on the mechanism that converts the linear action of internal piston into rotating action.

In concrete, in the pneumatic double-acting type and rack-and-pinion mechanism type actuators the output torque increases constantly within the whole rotation range, while in the scotch-yoke type the torque is minimum at the center of rotation angle and increases as the rotation angle comes closer to both ends.

Selection of an actuator should be made with a torque suitable for operating the load.

1.3 Load factor and redundant safety

Output torque of an actuator is provided by multiplying the internal piston output (supply pressure & piston area) and length of piping. In order to get sufficient speed (dynamic output), select the actuator size so that the load factor to the output torque indicated in the catalogue becomes no more than 70%.

In case the actuator plays a significant part of the system functionality or that it is used with conditions in which routine maintenance is difficult, the system should be designed to lower the actuator load factor.

For example, selecting a larger size actuator will reinforce impact resistance.

1.4 Mechanical back-up

For securing safe operation of an actuator even in case of entire error of functions involving pneumatic pressure, select a spring offset actuator (hereafter single-acting type actuator) or take other measures to maintain the operation by means of different energy sources.

1.5 Entire safety consideration

Select the actuator model and size in a comprehensive planning and design process of a pneumatic control system, taking into consideration the direct performance requirement as well as the safety in various conditions, including installation, adjustment, full-scale operation, failure, and disposal.

② Design of load interface to actuator

2.1 Connection with loads

Install the actuator so that thrust load and transverse load are not applied to the spindle.

Apply an independent stopper to the rotational axis on the load side in order to prevent axial movement. (Do not use the spindle of the actuator as a stopper.)

Ensure that the load has sufficient insertion length into the spindle, or the mating surface pressure increases to enlarge clearance, which may cause failure in the load positioning.

③ Actuator installation

Actuators have precise operational functions and are used for applications with versatile conditions and environment. It is therefore sometimes difficult to assume all concerned risks or risk factors when designing an actuator. In such cases the actuator function and performance may be deteriorated in a period shorter than the maintenance period set by the manufacturer.

In order to avoid the risks, install the actuator as instructed below.

3.1 Maximum rotation speed

Do not use the actuator with the speed over the maximum rotation speed indicated in the catalogue. Depending on the shape of loads the actuator may be collapsed by inertial force.

3.2 Installation site

Install an actuator in a place where setting and maintenance is easy.

3.3 Operating procedure

Conduct actuator operations test for any abnormality before connection with loads. Then connect loads and check for thrust load and transverse load to the spindle, air leakage from the connection ports, and other abnormalities before installation into the system. If no abnormalities are found, then check the entire system operation.

3.4 Prevention of abrupt rotation of actuator

If an actuator is not in the position under control of a directional control valve at air supply after installation or during maintenance, it may rapidly shift to the control position. In order to avoid this risk, install a slow-start valve at the IN port of the directional control valve.

3.5 Indication

If an actuator nameplate cannot be seen due to installation environment, place an alternative indication near the actuator.

3.6 Residual pressure

An actuator should be installed taking into consideration the risks for sudden blowout of compressed air and unintended operation due to air pressure remaining in the actuator even after exhaustion of air.

3.7 Training

A sufficiently trained person should be responsible for installation and maintenance of an actuator. (Konan provides training for operation and maintenance of pneumatic components. Feel free to contact our sales personnel for details.)

④ Maintenance of actuator

Maintenance should be performed in accordance with the following steps. Feel free to contact our sales personnel for separate maintenance manual.

4.1 Daily inspection

1) Exhaust drain from the air filter.
2) During operation of the system, observe the actuator visually and acoustically from a safe place for loosening of screws and other external abnormalities as well as abnormal noise.
   Inspection should also be performed while the system is not in operation without exhausting pressure for: loosening of screws; external air leakage; and air leakage from exhaust port of the directional control valve and piping joint.

4.2 Periodical inspection
Following periodical inspection should be conducted by-annually or annually.
1) Precise inspection should be performed after electric/pneumatic shut-down and the status recorded. Repair should be performed if necessary.
2) Overhaul should be performed in the 2nd annual inspection and components exchanged as specified or if necessary. The overhaul should also be performed when the actuator operational cycle reaches 100,000 cycles even before two years from the date of last inspection.

4.3 Residual energy
Maintenance requiring actual operation of a system should be performed after pneumatic/electric shut-down and exhaustion of all residual electrical charge and compressed air from the system. Make sure the movable components do not move during the maintenance, and mechanically fix them if necessary for safety. Care should also be taken for components that may drop out during the maintenance operation and components with sharp edges to ensure safety.

4.4 Removing actuator
Before removing or disassembling the actuator, make sure to disconnect the power supply (electricity and compressed air) and release residual pressure in the equipment and piping thoroughly.
For single-acting type actuator make sure that the spindle is positioned with the spring elongated.
For the actuator with manual operating mechanism also make sure that the spindle is positioned with the spring elongated.
When removing a spring unit of single-acting type, loosen the adjustment screw completely before removal, avoiding stopper or piston force to be applied to the screw.

4.5 Communication
If multiple persons are involved in the maintenance operation, keep all the personnel informed about the conditions including power-off, completion of residual pressure exhaustion, power-on, and resumption of air supply.

⑤ Actuator installation

1.Actuator installation site
Use of an actuator at the following sites requires compliances with special functional specifications and regulations. Consult our sales personnel in the planning process for anything unclear.
1) Operating conditions not within the specified range
2) Significant risk for users, properties, or environment is anticipated

Eg: Use for nuclear power plants, vehicles, medical components, components related to the Occupational Health and Safety Law and/or the High Pressure Gas Safety Law, etc.

Users Instructions

⚠ Caution ① Transport of actuator

1.1 Weight
Heavy-weight actuators should be transported with the aid of conveyer equipment. Actuator weight can be confirmed by referring to Konan Rotary Actuator Catalogue and product drawings. Qualified personnel should be responsible for the operation of forklift truck, crane, or slinging according to the regulations and company safety code.
Care should also be taken for transport of light-weight actuators not to cause actuator component deformation and other damage.

1.2 Dropping
During lifting or horizontal transportation of an actuator, handle the actuator carefully not to drop or damage.

1.3 Dust prevention
Plastic plug is attached to the actuator connection ports to prevent dusts and rusts from entering the actuator. Do not remove the plug until immediately before piping. If the plug is lost, take a protection measure with alternative cover.

1.4 Dust prevention for single-acting type
When a single-acting type actuator is used outdoors or at such a place where it is exposed to water splash or much powder dust, prevent the breathing port of spring cover from entry of water or dust.
Care must be taken not to close up the breathing port at installation.

⚠ Caution ② Storage

2.1 Storage during transport
If an actuator is to be installed where it is exposed to wind and rain or other adverse environment, transport the actuator to the specified site just before installation. If the actuator is to be stored at the installation site by necessity, keep it packed and protect with a sheet cover. In such case make sure to shorten the storage period as much as possible.

2.2 Storage
An actuator should be stored as follows to prevent contamination and material deterioration.
1) Avoid high temperature and humidity as well as places with dusts and moisture.
2) If an actuator is to be stored for more than 1 year, keep it packed or provide equivalent protection.
3) Long-term storage may result in sticking of packings due to shortage of lubrication. In such cases, conduct pre-conditioning operation of the actuator before regular use.
4) After a long period of storage, permanent deformation, change of size, or deterioration of packings would be a concern. After such storage period, conduct an actuator operation test. If any abnormalities are found, perform an overhaul or exchange deformed/deteriorated components as appropriate.and connection portions fastened tightly. After start of operation, inspect the connections in a periodical manner to check any loose parts or deformation and re-fasten screws.

⚠ Warning ③ Surrounding environment

3.1 Vibration/shock
1) If an actuator is to be used in a place where it is exposed to excessive shock or vibration, confirm acceleration rate and other conditions before consulting our sales personnel.
2) If the actuator is used in a place where vibration is a concern, ensure the actuator is firmly fixed at the setting and connection portions fastened tightly. Particularly, if the actuator is to be used frequently, take into consideration the fatigue resistance.
3) After start of operation, inspect the connection portions in a periodical manner to check any loose parts or deformation and re-fasten screws. Loose parts may cause unintended motion of the actuator, significantly affecting operators and surrounding systems.

3.2 Handling during installation
Rough handling of an actuator may diminish regular performance of the actuator. For example, riding on, hammering or dropping the actuator may cause damage and deformation of the actuator components. Slight deformation of the actuator body diameter will result in malfunction. Also, bending or deformation of spindle will damage packings, causing air leakage.

3.3 Surrounding environment
Environment surrounding an actuator should be considered carefully. Avoid places where the actuator is exposed to rain and wind, direct sunlight, salt, corrosive gas, chemical fluids, organic solvents, steam, etc. Corrosion resistance measure can be taken depending on the environment. Feel free to contact our sales personnel for details.

3.4 Working temperature
Use an actuator with specified range of ambient/working temperature and supply pressure.

1) Temperature of compressed air around an air compressor may become high, which may cause deterioration of packings or malfunction of the actuator.
2) In a place where temperature is close to 0°C, remove moisture in the compressed air with an air dryer. If the dehumidification is not performed, significant amount of moisture may freeze inside the actuator to cause malfunction.

⚠ Warning ④ Safety measures

4.1 Operation space
Secure sufficient operation space for safe installation and maintenance of an actuator. This should be considered sufficiently, since in many cases a pneumatic control system is installed after completion of a main system. Ensuring safety is the first and foremost priority.

4.2 Mechanical safety
1) Intrinsic safety
Make sure to avoid significant damage to operators by contact with movable, heated or energized components (squashing, dragging, blow, cutting, burn, electric shock, etc.).
2) Safety measures
Put protection cover to the spindle and other movable components during the system operation to prevent operators from approaching. Take utmost care not to insert arms, hands, or fingers into the system.
3) Safety system
If setting of a protection cover or other safety measures cannot be taken due to the functional problem of the system, add equipment that prevents or stops operation of the actuator when people come closer.

4.3 Constraint during operation
Before connecting an actuator and a load, firmly fix the both in order to avoid unintended movement due to gravity or operational work.

4.4 Weight
See Section 1.1 of the Users Instructions.

4.5 Residual energy
See Section 4.3 of the Safety Precautions.

4.6 Other
1) Care should be taken for risks related to actuator system operation such as: sudden blowout of compressed air; unintended operation of the actuator due to residual pressure after exhaustion of air inside the system; and abrupt rotation of actuator just after restarting air supply.
2) Pressurize the exhaust side cylinder chamber before activation of the actuator. If the operation is started with the chamber filled in atmospheric pressure, the load will be abruptly rotated.

⚠ Warning ⑤ Use of actuator

5.1 Modification
Do not modify an actuator. Unexpected risk may arise.

5.2 Load connection
Install the actuator so that thrust load and transverse load are not applied to the spindle.
Apply an independent stopper to the rotational axis on the load side in order to prevent axial movement. (Do not use the spindle of the actuator as a stopper.)
Ensure that the load has sufficient insertion length into the spindle, or the mating surface pressure increases to enlarge clearance, which may cause failure in the load positioning.

5.3 Working pressure
Do not use the actuator with the pressure over the maximum working pressure, which may cause damage to the components or malfunction.
In order to ensure smooth operation and stable output torque, do not use the actuator with the pressure less than the minimum working pressure.

5.4 Dust prevention of single-acting type
When a single-acting type actuator is used outdoors or at such a place where it is exposed to water splash or much powder dust, prevent the breathing port of spring cover from entry of water or dust.
Care must be taken not to close up the breathing port at installation.

5.5 Disassembly of single-acting type spring ass'y
Never attempt to disassemble a spring ass'y of single-acting type actuator. If disassembled forcibly, internal parts may jump out. If any disassembly is necessary, contact our sales personnel.

5.6 Shock absorption using external shock absorber
Generally, shock-absorbing mechanism is not incorporated in the actuator. With the load with high motion energy (large mass and high operation speed), internal components of actuator may be damaged. In such case, it is necessary to slow down the operation speed or mount external rubber cushions or other shock absorbers.
External shock absorbers should have appropriate absorption characteristics as well as suitable connection surface and connection stand with sufficient strength and rigidness.

5.7 External operation
In the event it is necessary to rotate the actuator with spanners and other tools for system adjustment, do not apply static load over the maximum output torque to the spindle.

⚠ Caution ⑥ Actuator adjustment

6.1 Adjustment of rotation angle
Adjustment of rotation angle is made by an adjustment screw after loosening the locknut. Make sure to tighten the locknut after adjustment to secure the adjustment screw. Avoid stopper or piston force to be applied to the screw during adjustment.

6.2 Adjustment of rotation speed
As an actuator needs adjustment of rotation speed, install a speed control valve to restrict the exhausting air from the actuator port (meter-out control).

1) Do not reverse flow direction of a speed controller.
2) Konan standard SC6 series speed controller has an adjustment screw. When it is turned clockwise, the speed decreases to become zero (valve closed). When the screw is then turned counterclockwise, the actuator speed increases corresponding to the number of screw revolution.
3) For safety, fully close the speed controller before air supply, then pressurize and gradually increase the actuator speed using a directional control valve.
4) After adjustment, firmly fasten the locknut of adjustment screw.

⚠ Caution ⑦ Intermediate stop of actuator

Because of the small volume of movable parts, an actuator cannot be stopped intermediately by controlling with a 3-position closed-center type directional control valve. If necessary, an actuator with optional positioner should be selected. Consult our sales personnel for detailed specifications of the actuator with positioner.

⚠ Caution ⑧ Spray lubrication using a lubricator

An actuator can be used without lubrication.6.3 Selection of oilless solenoid valve

8.1 Overhaul of oilless actuator

1) Before overhaul of an actuator contact our sales personnel for grease used after the overhaul. Use specified grease after overhaul of an oilless actuator.
2) A greased oilless actuator can be lubricated but the grease will be exhausted. Although durability is enhanced after the lubrication, continual lubrication will be required.

8.2 Lubrication

1) Use JIS K 2213 (ISO VG32) type turbine oil for lubrication using a lubricator.
2) Spray volume of a lubricator is determined by the number of oil drops (typically 0.03 cm^3 per drop or 1.5 to 2.5 drops per 1 m^3 of air).

8.3 Centralized lubrication

In principle 1 lubricator should be used for 1 actuator. Lubricating multiple actuators may result in uneven oil supply to each actuator, particularly if there are differences in the operation frequency, pipe length, size, and installation height of the actuators. By grouping the actuators with similar conditions, centralized lubrication can be achieved.

⚠ Reference ⑨ Actuator system control

9.1 Sequence control

Follow the below steps for sequence control of an actuator.

1) Detect the position.
2) Interlock the control of other actuators in the system.
3) If operation is stopped in the middle of sequence, make sure to restart the operation from the stopped position safely. If impossible, manually control the actuator to return to the starting position.
4) Set a sequence starting position at which movable components do not move after air exhaustion.

9.2 Power failure and pneumatic pressure failure

1) In case of power failure or emergency stop of an actuator operation, ensure the actuator at operation stops or shifts to a safe position. Care should be taken not to damage personnel or equipment after recovery of the power failure or the system operation. Indicate procedure to recover power failure.
2) In order to complete a cycle operation even in case of pneumatic pressure failure, reserve sufficient amount of pneumatic pressure in an air tank.
3) In case of the system shut-down due to emergency stop or power failure, avoid damage to personnel or equipment when restarting the actuator operation after power recovery or system reset.

⚠ Warning ⑩ Clamp system

If dropout of a workpiece due to pneumatic pressure drop in an actuator-driven clamp system is anticipated, use a single-acting type actuator.

⚠ Warning ⑪ Lifting system

Do not use an actuator for elevators transporting people.

⚠ Warning ⑫ Residual pressure exhaustion

Follow the below for exhaustion of residual pressure inside a pneumatic control system at installation or maintenance.

1) Use a manual control valve for exhaustion of residual pressure.
2) Place manometers, pressure switches, and other residual pressure indicators at each section with residual pressure.
3) In a sequence control system, make sure to centrally control all related residual pressure exhaustion. If this is impossible, indicate the place and switching condition of the air exhaustion equipment with a tag.
4) If allowing separate maintenance of each cylinder chamber, install a 3-port manual valve or other residual pressure exhaustion valve at the inlet or outlet of the directional control valve.
5) In a system circuit using a check valve, pilot type check valve and closed-center directional control valve, exhaust residual pressure separately or indicate warnings for residual pressure, as air may be contained even the system is not in operation.
6) Indicate the residual pressure exhaustion valve in the system circuit drawing.

⚠ Reference ⑬ Circuit and piping

13.1 Pressure drop

In a pneumatic control system with long pipes at the and or entrance of the system, sufficient pressure may not be supplied due to pressure drop. Piping thus should be designed properly, or supplementary air tank should be installed to secure supply pressure if the actuator is operated intermittently.

13.2 Air filtration

Air supplied to an actuator should be filtrated by a filter with nominal filtration rating of no more than 40 □m to remove solid contaminants. Exhaust liquid drain or oil through the filter or drain separator after sufficient cooling of the air. Exposure to contaminated, high temperature compressed air may deteriorate packings or other components, making the product life significantly shorter.

13.3 Piping

1) Do not remove the plastic plug and keep the actuator packed until just before piping in order to prevent dusts and rusts from entering the actuator during storage or installation. Use galvanized pipe for steel tube piping and remove dusts after screwing.
2) Before connection, clean the pipes by air flushing or washing to remove internal dusts, moisture, and oil.
3) If a seal tape is used for screwing, wrap the tape around twice or three times in a direction opposite to the screwing direction, leaving 1.5 to 2 threads from the screw edge.
4) For piping works using tapered male thread joints or steel tubes, use sealing materials such as seal tape and fasten to adhere tightly to the threads. Do not use wrenches and spanners that are excessively large for the joint or those with long extended handle. Do not step on the wrench/spanner to fasten the pipe. Excessive fastening may result in collapse of screws. In case of 6A to 25A (Rc1/8 to 1) size tapered male screws, 4 to 5 threads should be screwed. For operators with little experiences, an exercise before actual piping is recommended.

⚠ Caution ⑭ Special actuators

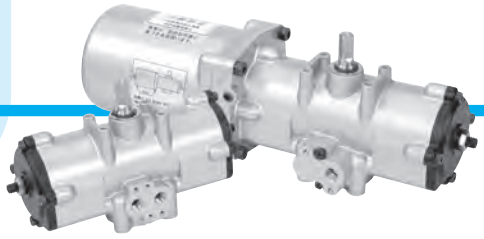
For actuators with special specifications like below, consult our sales personnel and inform the conditions for use.

1) Use with carbon dioxide gas or nitrogen gas
2) Use under conditions with high/low temperature or high radiant heat
3) Use at a place with ozone or salt and underwater
4) Externally washed as part of a sanitary system

⚠ Warning ⑮ Disposal

1) Do not incinerate an actuator for disposal. It may explode or emit poisonous gas.
2) Check the material of each component of an actuator with catalogue or operation manual for segregation disposal. Konan actuators do not include materials indisposable as general industrial waste.
3) Do not dispose single-acting type spring ass'y. Return the ass'y to Konan or contact our sales personnel. Forcible disassembly may cause dangerous dropping out of parts.

Rotary Actuator Basic Type



Specifications

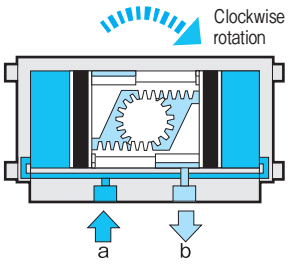
Bore size [mm]	φ 40	φ 50	φ 63	φ 80	φ 100	φ 125	φ 160
Operating fluid	Compressed air						
Operating pressure	0.3 ~ 0.7MPa						
Proof pressure	1.05MPa						
Operating temperature	− 5 ~ 60℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)						
Output torque	Please refer to the "Table of Output Torque" (P22 ~ P24)						
Rotating angle	90°						
Operating speed	Max.90° /1s					Max.90° /2s	Max.90° /3s
Angle adjustment range	−	± 5° both end					

Operation

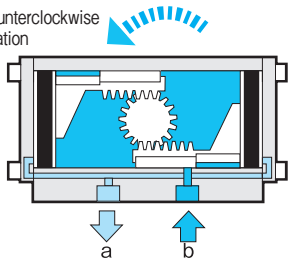
Double-Acting Type [Type D]

〈φ40〉

Port a Pressure supply
Port b Exhaust

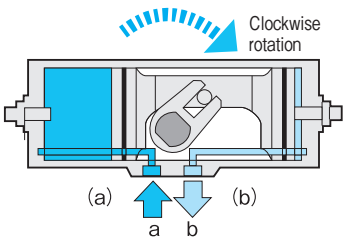


Port a Exhaust
Port b Pressure supply

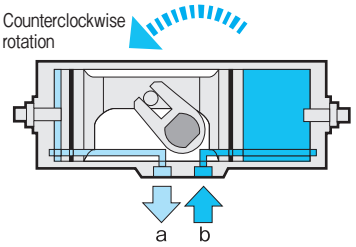


〈φ50・63・80・100・125・160〉

Port a Pressure supply
Port b Exhaust



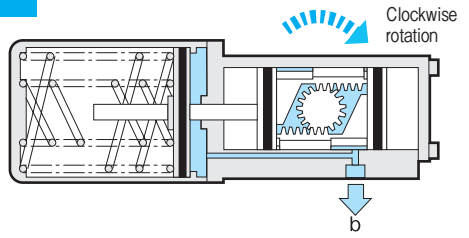
Port a Exhaust
Port b Pressure supply



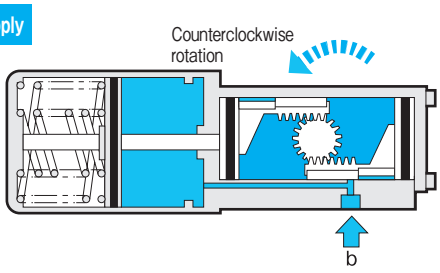
Single-Acting Type [Type R] (Spring Return)

〈φ40〉

Port b Exhaust

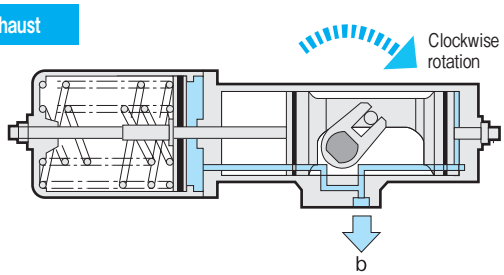


Port b Pressure supply

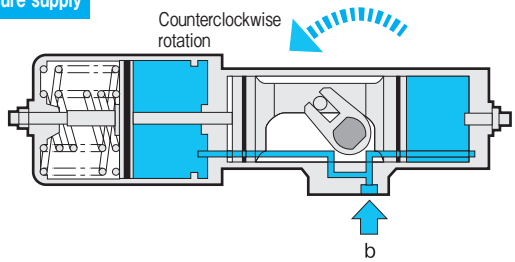


〈φ50・63・80・100・125・160〉

Port b Exhaust



Port b Pressure supply



Model Code

TA2 – ① ② – ③

① Bore size　② Operation type　③ Type of option

1 Bore size [mm]

ϕ 40	0402
ϕ 50	050
ϕ 63	063
ϕ 80	080
ϕ 100	100
ϕ 125	125
ϕ 160	160

2 Operation type

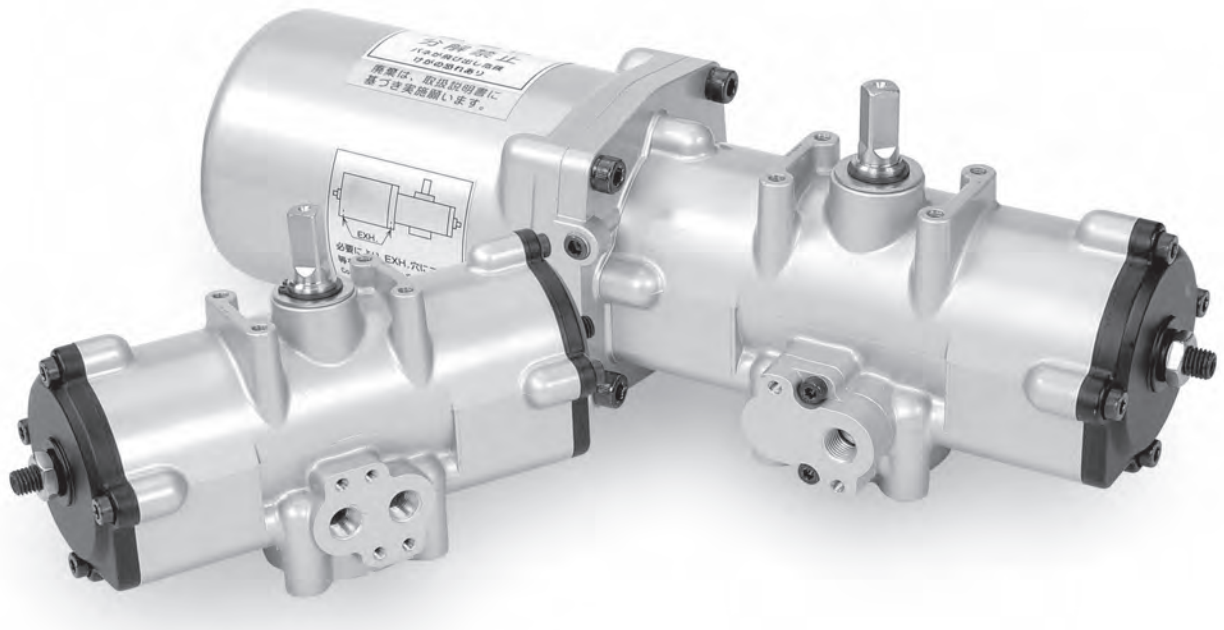
Double-Acting Type	ϕ 40 ~ ϕ 160	D
Single-Acting Type (Clockwise rotation by a spring)	ϕ 40 ~ ϕ 80	R
	ϕ 100 ~ ϕ 160	R2
Single-Acting Type (Counterclockwise rotation by a spring)	ϕ 40 ~ ϕ 80	L
	ϕ 100 ~ ϕ 160	L2

3 Type of option

Basic Type	00

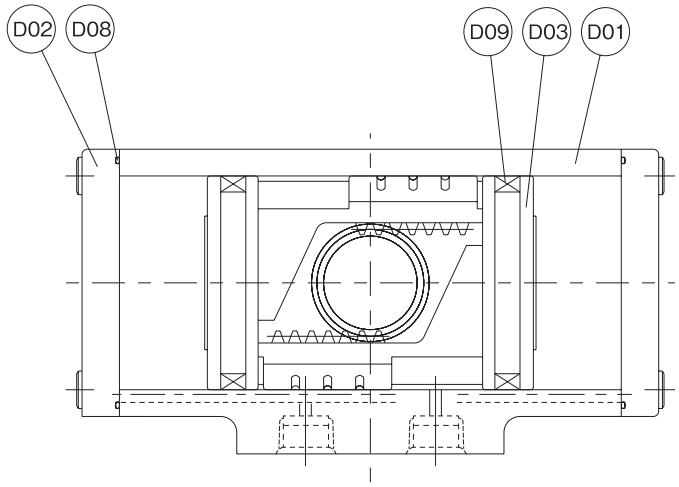
Remarks : For the details of procedure, refer to the corresponding pages to the options respectively.

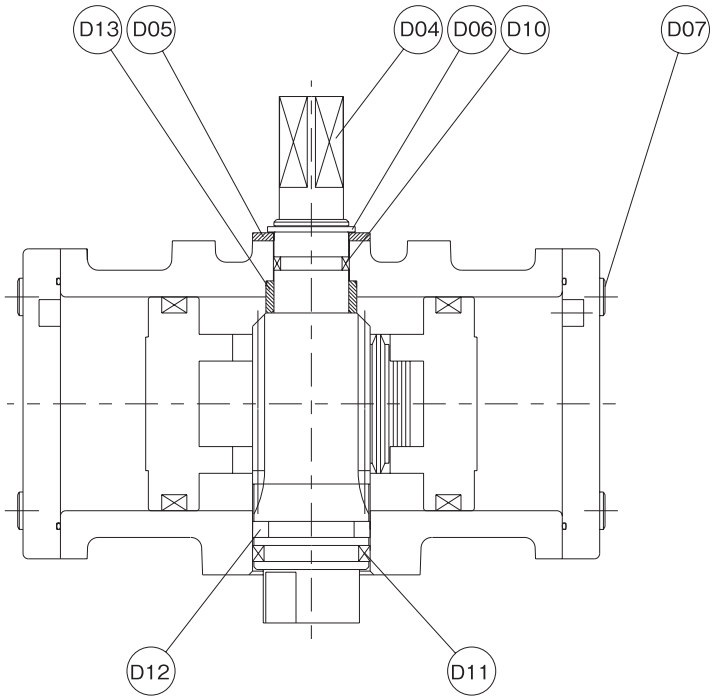
● Please refer to the list on P4 and P5.



Internal Structure 〈φ 40〉

Double-Acting Type [Type D]

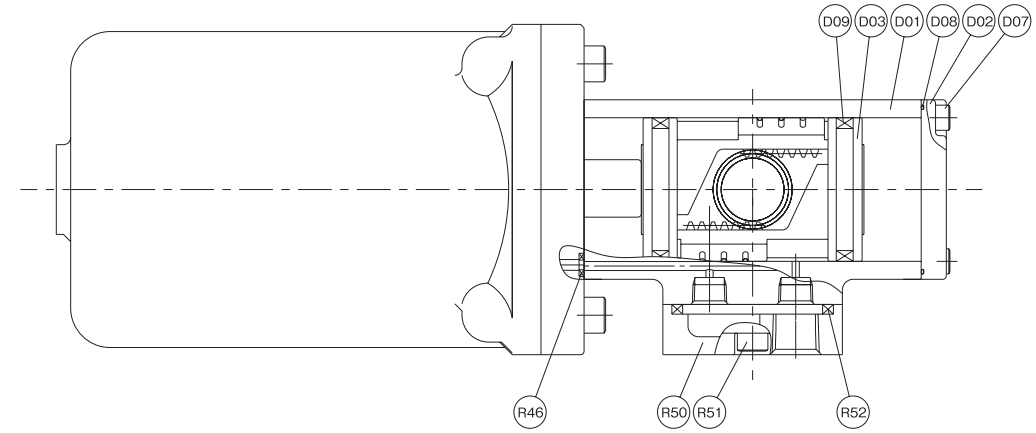


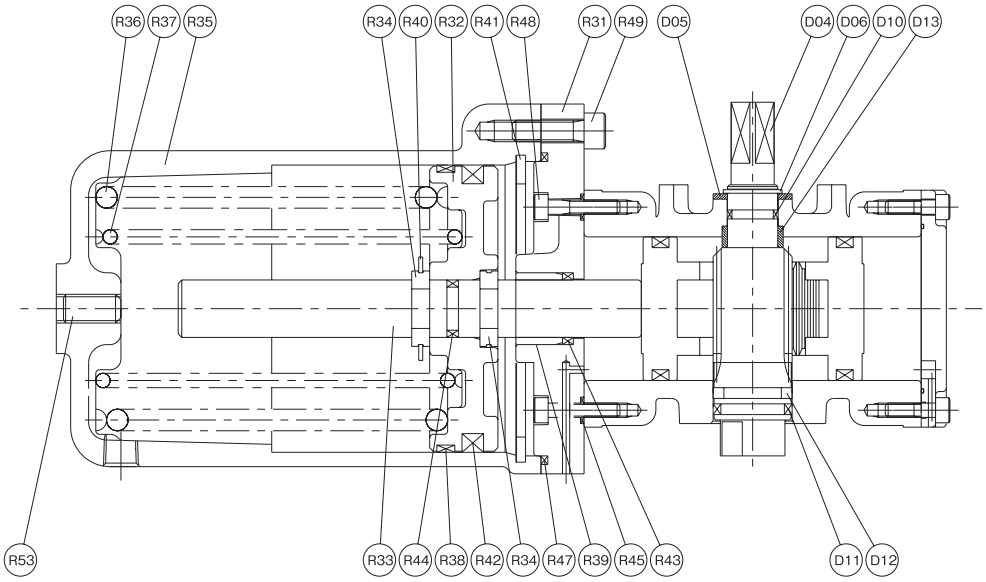


Part No.	Name	Mterial	Qty.
D01	Body	ADC12	1
D02	Flange	ADC12	2
D03	Piston	Zn	2
D04	Spindle	S45C	1
D05	Plain Washer	Resin	1
D06	Retaining Ring	SUP	1
D07	Hex. Socket Head Cap Screw	SCM435	8
D08	Flange Gasket	NBR	2
D09	Piston Packing	NBR	2
D10	Gasket	NBR	1
D11	Gasket	NBR	1
D12	Ring	Resin	1
D13	Bush	C3604	1

Internal Structure 〈φ 40〉

Single-Acting Type [Type R] (Spring Return)





Part No.	Name	Mterial	Qty.
D01	Body	ADC12	1
D02	Flange (A)	ADC12	1
D03	Piston (A)	Zn	2
D04	Spindle	S45C	1
D05	Plain Washer	Resin	1
D06	Retaining Ring	SUP	1
D07	Hex. Socket Head Cap Screw	SCM435	4
D08	Gasket	NBR	1
D09	Piston Packing	NBR	2
D10	Gasket	NBR	1
D11	Gasket	NBR	1
D12	Ring	Resin	1
D13	Bush	C3604	1

Part No.	Name	Mterial	Qty.
R31	Flange (B)	ADC12	1
R32	Piston (B)	ADC12	1
R33	Piston Rod	S45C	1
R34	Key	SS400	4
R35	Spring Cover	ADC12	1
R36	Spring (A)	SWP	1
R37	Spring (B)	SWP	1
R38	Wear Ring	Resin	1
R39	Bush (C)	SBK1218	1
R40	Retaining Ring	SUP	1
R41	Retaining Ring	SUP	1
R42	Piston Packing (B)	NBR	1
R43	Rod Packing	NBR	1

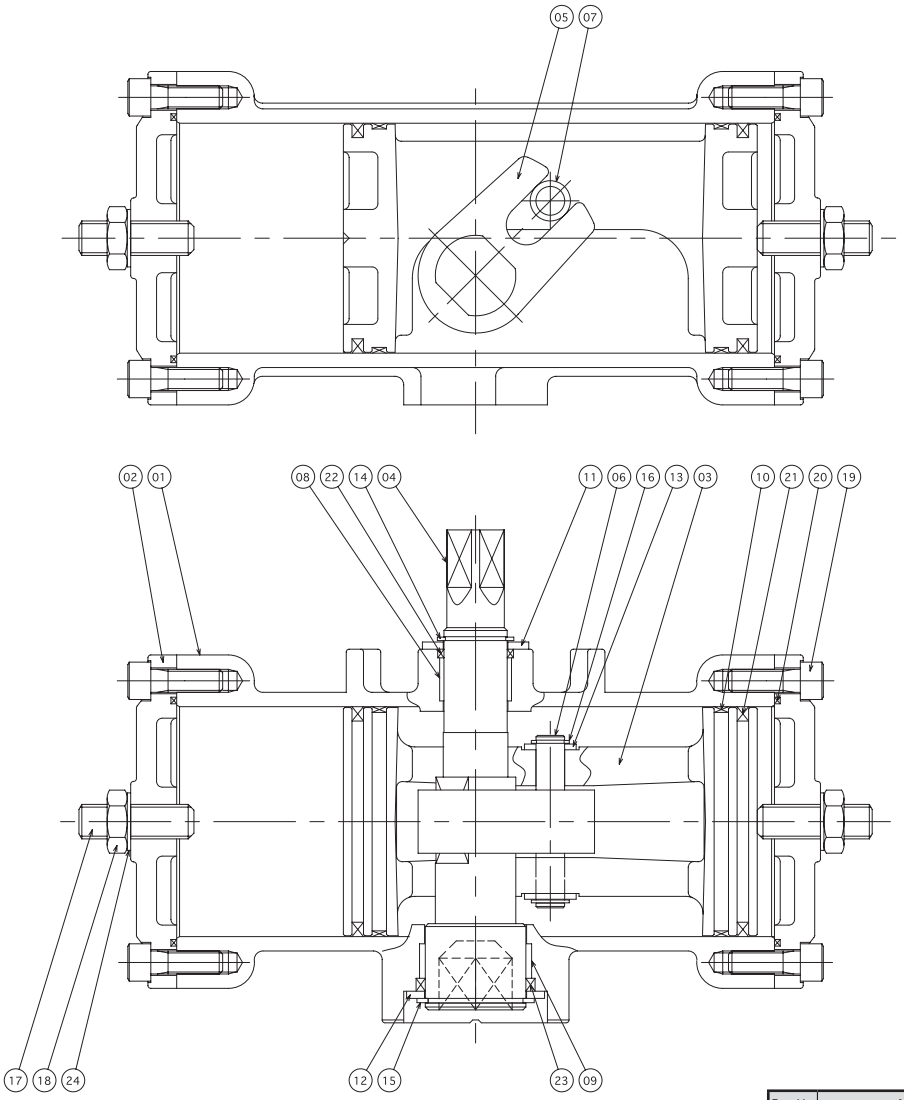
Part No.	Name	Mterial	Qty.
R44	Rod Gasket	NBR	1
R45	Gasket	NBR	4
R46	Gasket	NBR	2
R47	Flange Gasket (B)	NBR	1
R48	Hex. Socket Head Cap Screw	SCM435	4
R49	Hex. Socket Head Cap Screw	SCM435	4
R50	Plate	ADC12	1
R51	Hex. Socket Head Cap Screw	SCM435	2
R52	Gasket	NBR	1
R53	Hexagon Socket Set Screw	SCM435	1

● These drawings show the "R type".
For structural drawings of "L type", contact us.

Rotary Actuator Basic Type

Internal Structure 〈φ 50・63・80・100〉

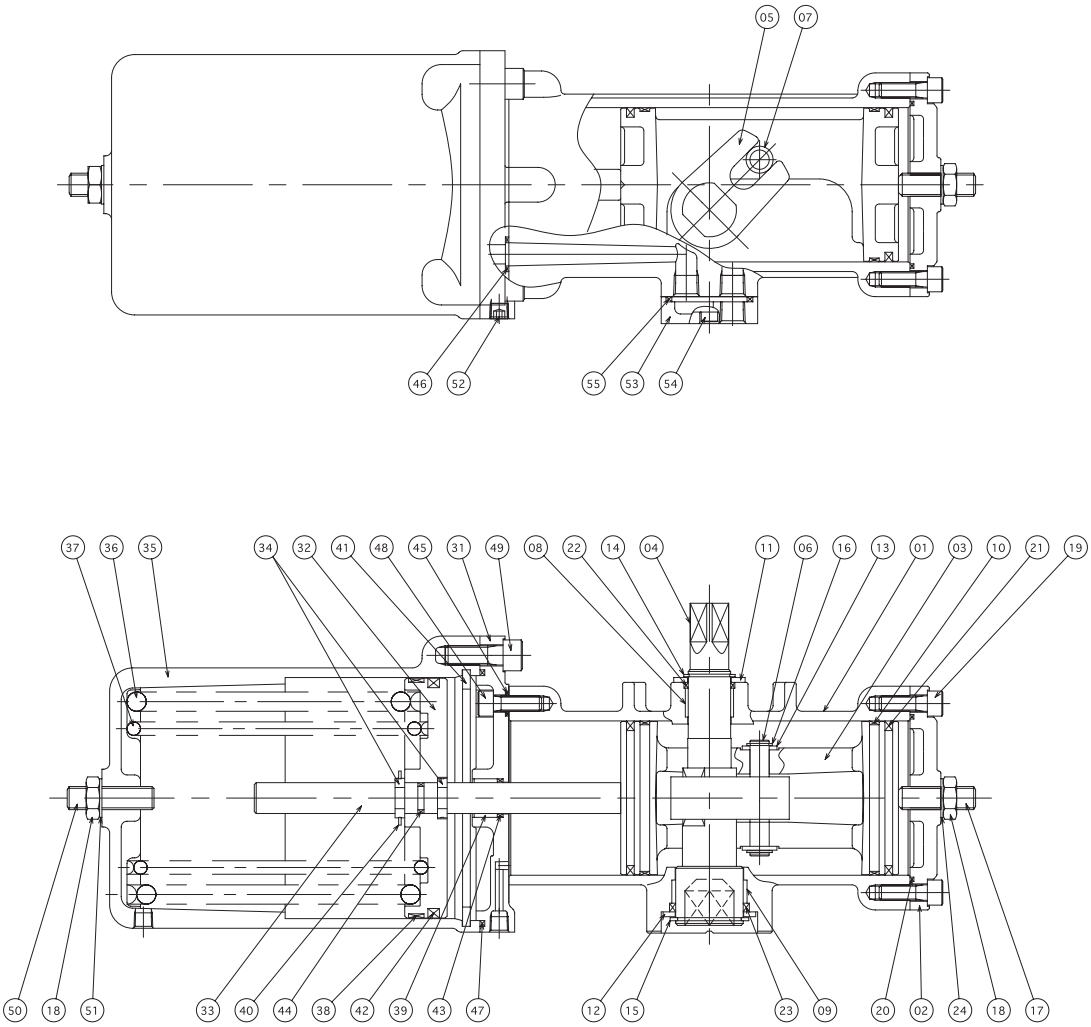
Double-Acting Type [Type D]



Part No.	Name	Mterial	Qty.
01	Body	ADC12	1
02	Flange	ADC12	2
03	Piston	ADC12	1
04	Spindle	S45C	1
05	Arm	Sintered Metal	1
06	Pin	SUM24L	1
07	Ring	S45C	1
08	Bush（A）	Resin	1
09	Bush（B）	Resin	1
10	Wear Ring	Resin	2
11	Plain Washer（A）	SPCC	1
12	Plain Washer（B）	SS400	1
13	Plain Washer（C）	SS400	2
14	Retaining Ring（A）	SUP	1
15	Retaining Ring（B）	SUP	1
16	Retaining Ring（C）	SUP	2
17	Hexagon Socket Set Screw	SCM435	2
18	Hexagon Nut	SUS	2
19	Hex. Socket Head Cap Screw	SCM435	8
20	Flange Gasket	NBR	2
21	Piston Packing	NBR	2
22	Spindle Packing（A）	NBR	1
23	Spindle Packing（B）	NBR	1
24	Seal Washer	NBR,SS	2

Internal Structure 〈φ 50・63・80〉

Single-Acting Type [Type R] (Spring Return)



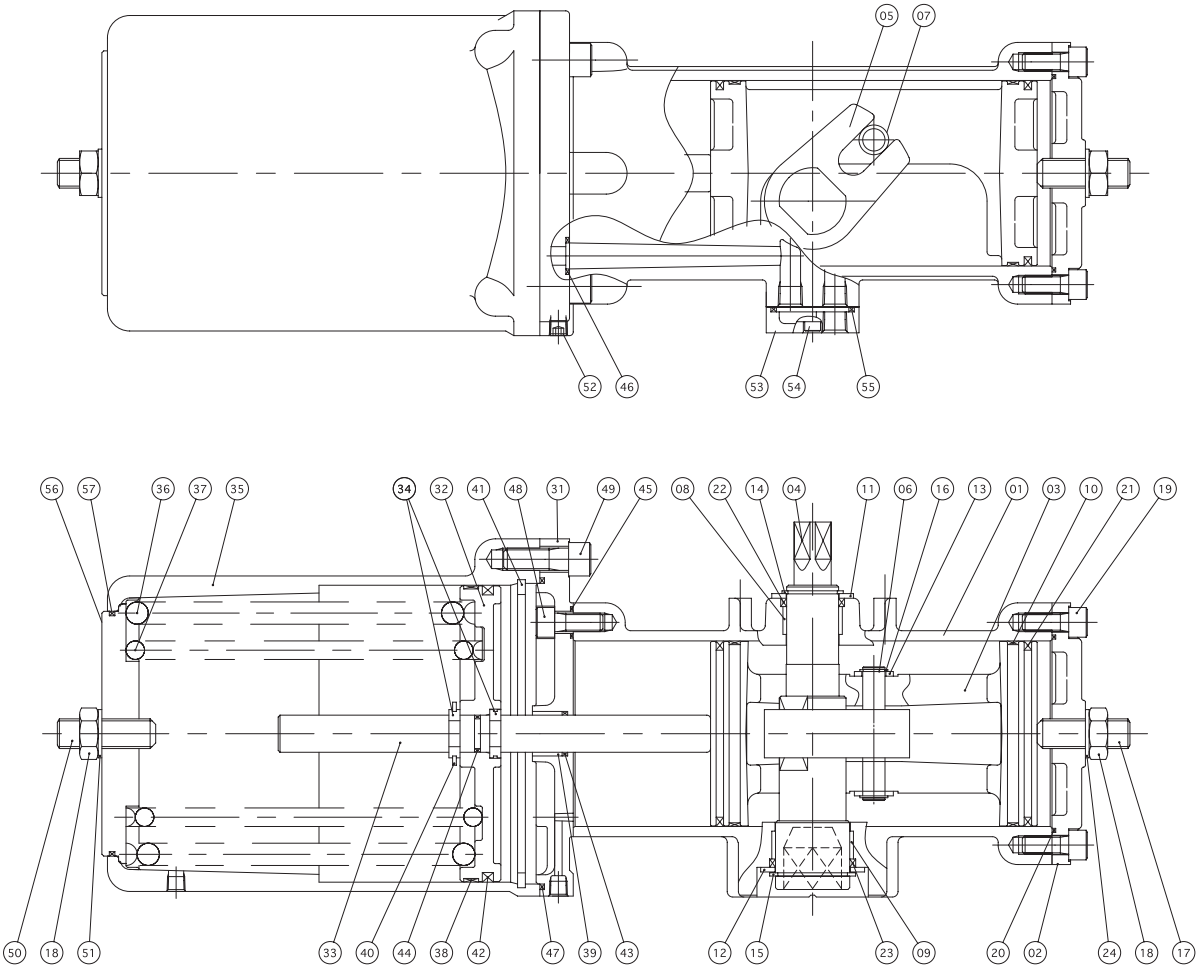
Part No.	Name	Mterial	Qty.
01	Body	ADC12	1
02	Flange	ADC12	1
03	Piston	ADC12	1
04	Spindle	S45C	1
05	Arm	Sintered Metal	1
06	Pin	SUM24L	1
07	Ring	S45C	1
08	Bush (A)	Resin	1
09	Bush (B)	Resin	1
10	Wear Ring	Resin	2
11	Plain Washer (A)	SPCC	1
12	Plain Washer (B)	SS400	1
13	Plain Washer (C)	SS400	2
14	Retaining Ring (A)	SUP	1
15	Retaining Ring (B)	SUP	1
16	Retaining Ring (C)	SUP	2
17	Hexagon Socket Set Screw	SCM435	1
18	Hexagon Nut	SUS	2
19	Hex. Socket Head Cap Screw	SCM435	4
20	Flange Gasket	NBR	1
21	Piston Packing	NBR	2
22	Spindle Packing (A)	NBR	1
23	Spindle Packing (B)	NBR	1
24	Seal Washer	NBR,SS	1

Part No.	Name	Mterial	Qty.
31	Flange (B)	ADC12	1
32	Piston (B)	ADC12	1
33	Piston Rod	S45C	1
34	Key	SS400	4
35	Spring Cover	ADC12	1
36	Spring (A)	SWC	1
37	Spring (B)	SWC	1
38	Wear Ring	Resin	1
39	Bush (C)	SBK1218	1
40	Retaining Ring	SUP	1
41	Retaining Ring	SUP	1
42	Piston Packing (B)	NBR	1
43	Rod Packing	NBR	1
44	Rod Gasket	NBR	1
45	Gasket	NBR	4
46	Gasket	NBR	1
47	Flange Gasket (B)	NBR	1
48	Hex. Socket Head Cap Screw	SCM435	4
49	Hex. Socket Head Cap Screw	SCM435	4
50	Hexagon Socket Set Screw	SCM435	1
51	Conical Spring Washer	S50CM	1
52	Socket Plug	S45C	1
53	Plate	ADC12	1
54	Hex. Socket Head Cap Screw	SCM435	2
55	Gasket	NBR	1

● These drawings show the "R type".
For structural drawings of "L type", contact us.

Internal Structure 〈φ 100〉

Single-Acting Type [Type R2] (Spring Return)



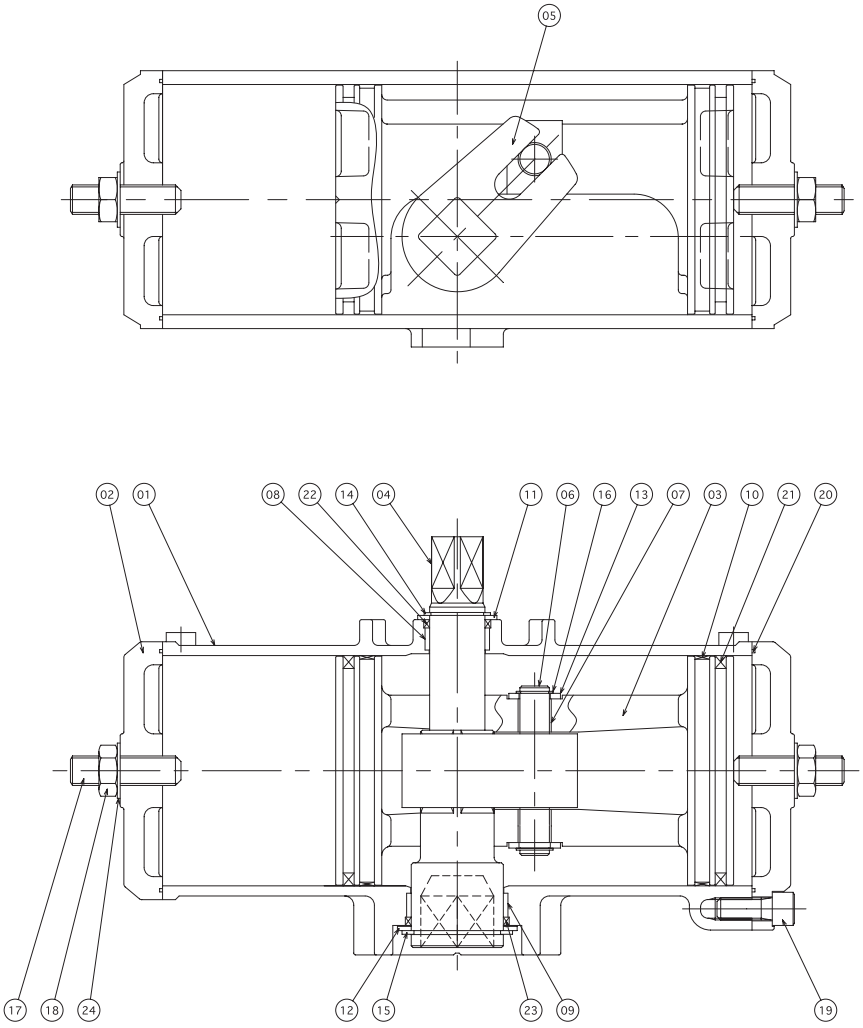
Part No.	Name	Mterial	Qty.
01	Body	ADC12	1
02	Flange	ADC12	1
03	Piston	ADC12	1
04	Spindle	S45C	1
05	Arm	Sintered Metal	1
06	Pin	SUM24L	1
07	Ring	S45C	1
08	Bush (A)	Resin	1
09	Bush (B)	Resin	1
10	Wear Ring	Resin	2
11	Plain Washer (A)	SPCC	1
12	Plain Washer (B)	SS400	1
13	Plain Washer (C)	SS400	2
14	Retaining Ring (A)	SUP	1
15	Retaining Ring (B)	SUP	1
16	Retaining Ring (C)	SUP	2
17	Hexagon Socket Set Screw	SCM435	1
18	Hexagon Nut	SUS	2
19	Hex. Socket Head Cap Screw	SCM435	4
20	Flange Gasket	NBR	1
21	Piston Packing	NBR	2
22	Spindle Packing (A)	NBR	1
23	Spindle Packing (B)	NBR	1
24	Seal Washer	NBR,SS	1

Part No.	Name	Mterial	Qty.
31	Flange (B)	ADC12	1
32	Piston (B)	ADC12	1
33	Piston Rod	S45C	1
34	Key	SS400	4
35	Spring Cover	ADC12	1
36	Spring (A)	SWC	1
37	Spring (B)	SWC	1
38	Wear Ring	Resin	1
39	Bush (C)	SBK1218	1
40	Retaining Ring	SUP	1
41	Retaining Ring	SUP	1
42	Piston Packing (B)	NBR	1
43	Rod Packing	NBR	1
44	Rod Gasket	NBR	1
45	Gasket	NBR	4
46	Gasket	NBR	1
47	Flange Gasket (B)	NBR	1
48	Hex. Socket Head Cap Screw	SCM435	4
49	Hex. Socket Head Cap Screw	SCM435	4
50	Hexagon Socket Set Screw	SCM435	1
51	Conical Spring Washer	S50CM	1
52	Socket Plug	S45C	1
53	Plate	ADC12	1
54	Hex. Socket Head Cap Screw	SCM435	2
55	Gasket	NBR	1
56	Spring seat	S25C	1
57	O-ring	NBR	1

● These drawings show the "R2 type".
For structural drawings of "L2 type", contact us.

Internal Structure 〈φ 125・160〉

Double-Acting Type [Type D]

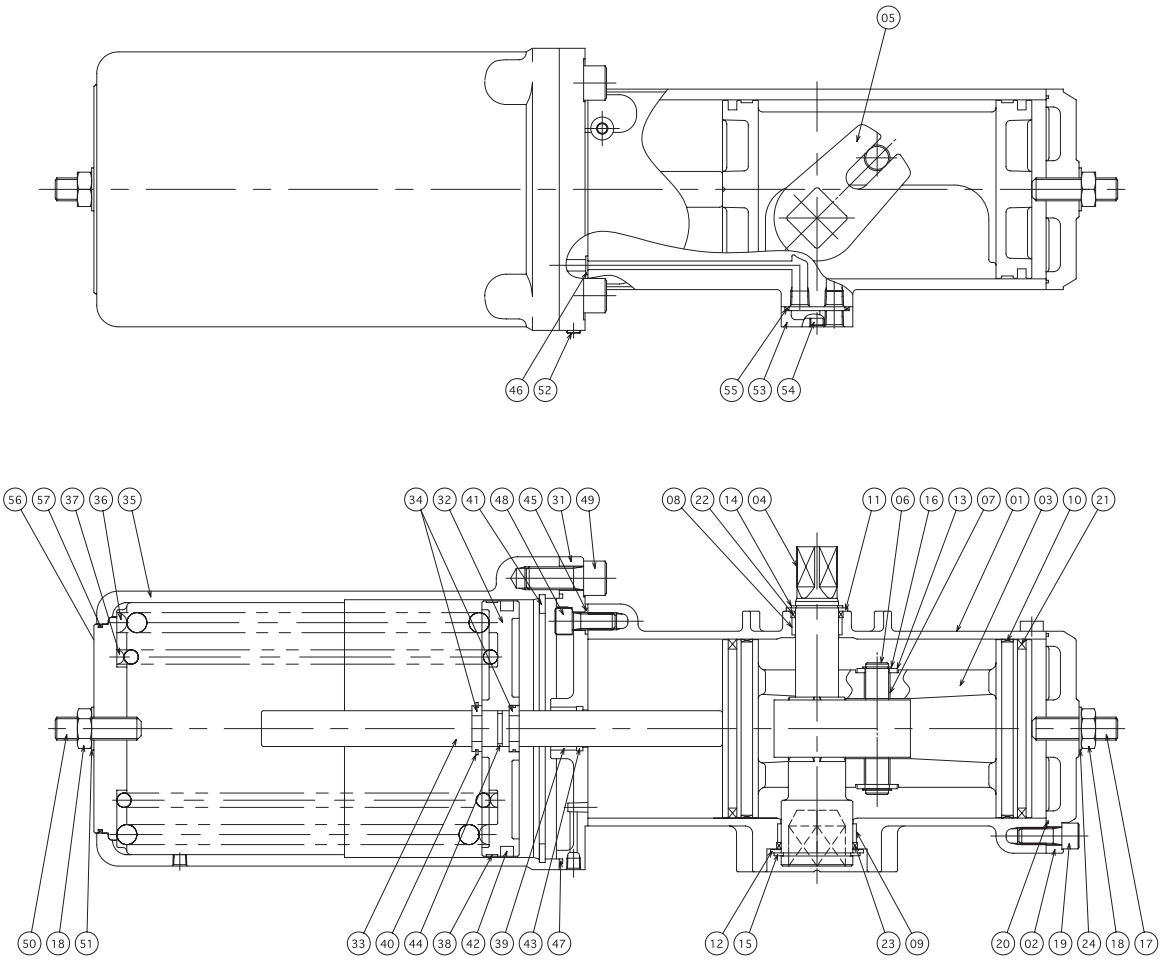


Part No.	Name	Mterial	Qty.
01	Body	ADC12	1
02	Flange	ADC12	2
03	Piston	ADC12	1
04	Spindle	S45C	1
05	Arm	Sintered Metal	1
06	Pin	SUM24L	1
07	Bush (A)	Resin	2
08	Bush (B)	Resin	1
09	Bush (C)	Resin	1
10	Wear Ring	Resin	2
11	Plain Washer (A)	SPCC	1
12	Plain Washer (B)	SPCC	1
13	Plain Washer (C)	SS400	2
14	Retaining Ring (A)	SUP	1
15	Retaining Ring (B)	SUP	1
16	Retaining Ring (C)	SUP	2
17	Hexagon Socket Set Screw	SCM435	2
18	Hexagon Nut	SUS	2
19	Hex. Socket Head Cap Screw	SCM435	8
20	Flange Gasket	NBR	2
21	Piston Packing	NBR	2
22	Spindle Packing (A)	NBR	1
23	Spindle Packing (B)	NBR	1
24	Seal Washer	NBR,SS	2

Rotary Actuator Basic Type

Internal Structure 〈φ 125・160〉

Single-Acting Type [Type R2] (Spring Return)



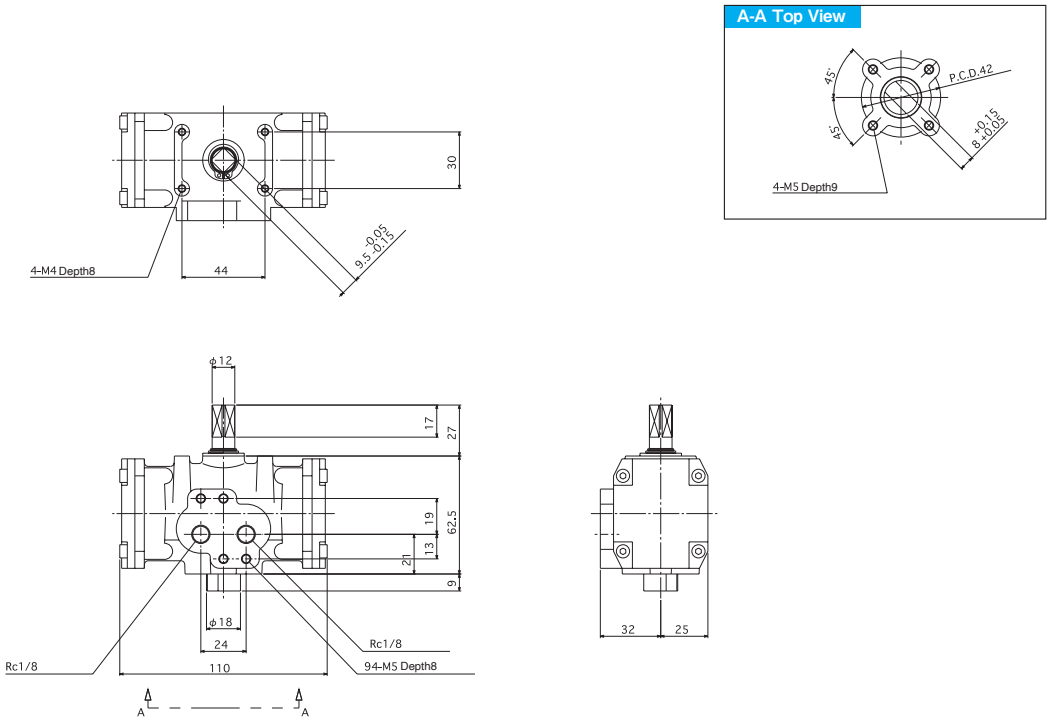
Part No.	Name	Mterial	Qty.
01	Body	ADC12	1
02	Flange	ADC12	1
03	Piston	ADC12	1
04	Spindle	S45C	1
05	Arm	Sintered Metal	1
06	Pin	SUM24L	1
07	Bush (A)	Resin	2
08	Bush (B)	Resin	1
09	Bush (C)	Resin	1
10	Wear Ring	Resin	2
11	Plain Washer (A)	SPCC	1
12	Plain Washer (B)	SPCC	1
13	Plain Washer (C)	SS400	2
14	Retaining Ring (A)	SUP	1
15	Retaining Ring (B)	SUP	1
16	Retaining Ring (C)	SUP	2
17	Hexagon Socket Set Screw	SCM435	1
18	Hexagon Nut	SUS	2
19	Hex. Socket Head Cap Screw	SCM435	4
20	Flange Gasket	NBR	1
21	Piston Packing	NBR	2
22	Spindle Packing (A)	NBR	1
23	Spindle Packing (B)	NBR	1
24	Seal Washer	NBR,SS	1

Part No.	Name	Mterial	Qty.
31	Flange (B)	AC4CH-T6	1
32	Piston (B)	A5052-H112	1
33	Piston Rod	S45C	1
34	Key	SS400	4
35	Spring Cover	AC4CH-T6	1
36	Spring (A)	SUP9A	1
37	Spring (B)	SW0SC	1
38	Wear Ring	樹脂	1
39	Bush (C)	SBK1218	1
40	Retaining Ring	SUP	1
41	Retaining Ring	SUP	1
42	Piston Packing (B)	NBR	1
43	Rod Packing	NBR	1
44	Rod Gasket	NBR	1
45	Gasket	NBR	4
46	Gasket	NBR	2
47	Flange Gasket (B)	NBR	1
48	Hex. Socket Head Cap Screw	SCM435	4
49	Hex. Socket Head Cap Screw	SCM435	4
50	Hexagon Socket Set Screw	SCM435	1
51	Conical Spring Washer	S50CM	1
52	Socket Plug	S45C	1
53	Plate	ADC12	1
54	Hex. Socket Head Cap Screw	SCM435	2
55	Gasket	NBR	1
56	Spring seat	S25C	1
57	O-ring	NBR	1

● These drawings show the "R2 type".
For structural drawings of "L2 type", contact us.

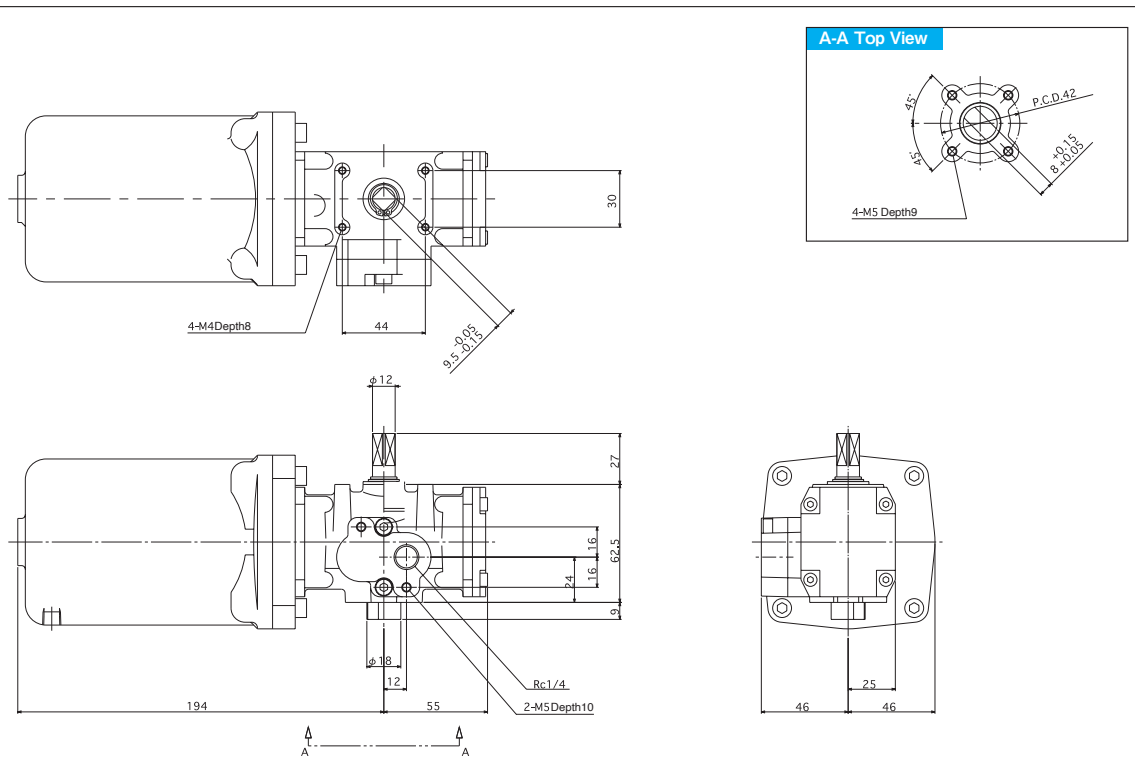
External Dimensions 〈φ 40〉

Double-Acting Type [Type D]



Unit : mm

Single-Acting Type [Type R/Type L] (Spring Return)

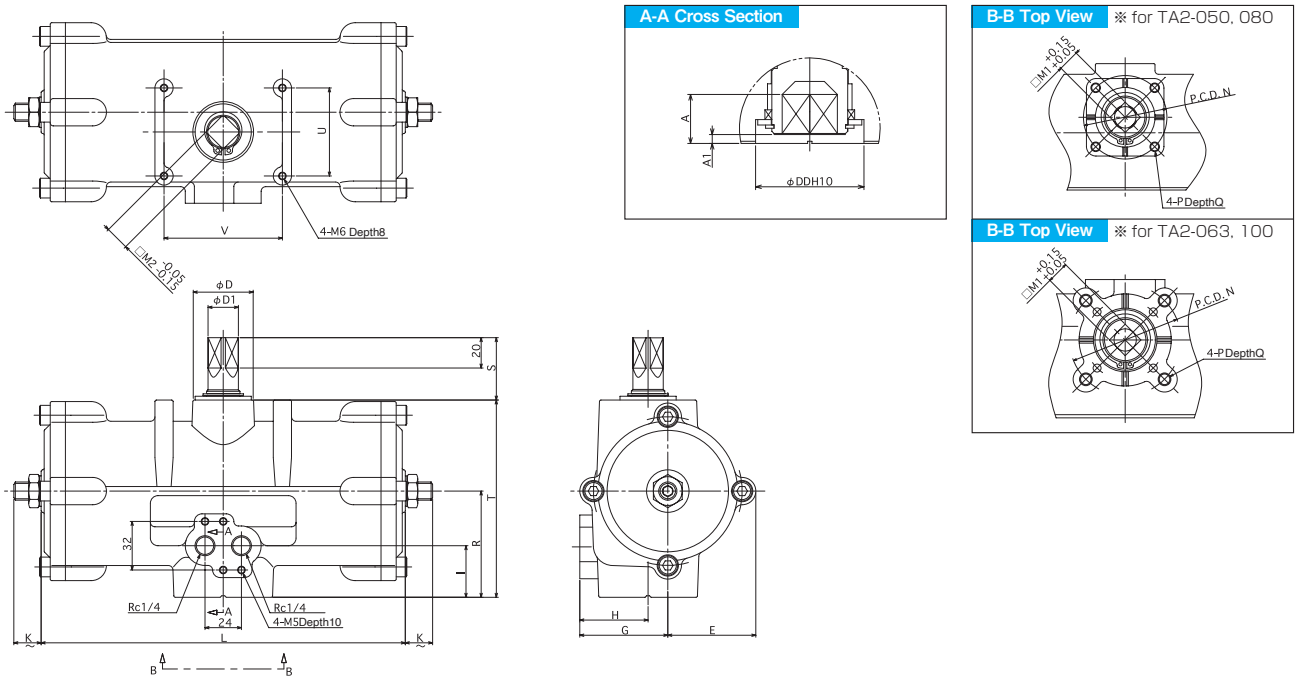


Unit : mm

Rotary Actuator Basic Type

External Dimensions 〈φ 50・63・80・100〉

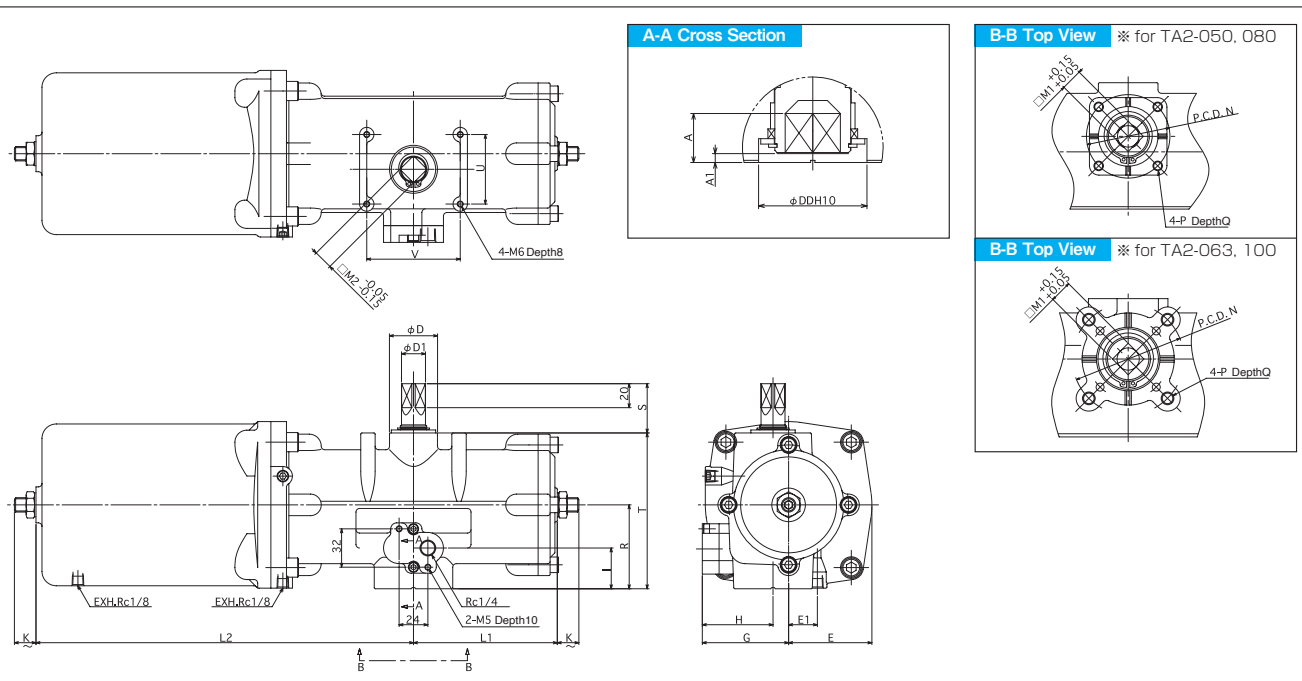
Double-Acting Type [Type D]



Unit : mm

Model Code	Stroke	L	K	I	R	T	S	D	D1	H	G	E	M1	M2	N	P	Q	DD	A	A1	V	U
TA2-050D-00	34	170	14	27	50	90	33	26	14	36	43	39	12	11	50	M6	8	35	16	3	58	36
TA2-063D-00	42	204	16	29	57	105	33	32	14	38	48	47	14	11	70	M8	12	40	17	3	58	36
TA2-080D-00	52	240	18	34	70	130	41	40	20	45	58	58	18	16	70	M8	12	50	22	4	78	58
TA2-100D-00	66	294	24	43	88	161	41	50	20	57	72	70.5	22	16	102	M10	15	60	26	4	78	58

Single-Acting Type [Type R (R2)] (Spring Return)



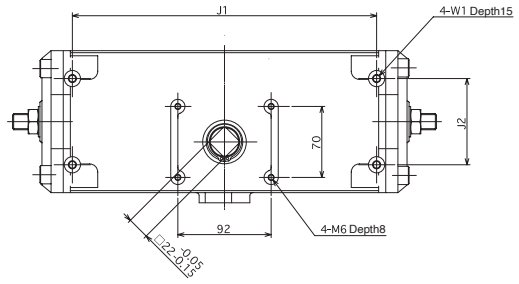
Unit : mm

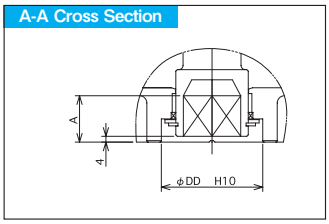
Model Code	Stroke	L1	L2	K	I	R	T	S	D	D1	H	G	E	E1	M1	M2	N	P	Q	DD	A	A1	V	U
TA2-050R-00	34	85	220	14	27	50	90	33	26	14	50	57	46	16	12	11	50	M6	8	35	16	3	58	36
TA2-063R-00	42	102	265	16	29	57	105	33	32	14	52	62	56.5	20	14	11	70	M8	12	40	17	3	58	36
TA2-080R-00	52	120	315	18	34	70	130	41	40	20	59	72	69.5	24	18	16	70	M8	12	50	22	4	78	58
TA2-100R2-00	66	147	383	24	43	88	161	41	50	20	71	86	88	30	22	16	102	M10	15	60	26	4	78	58

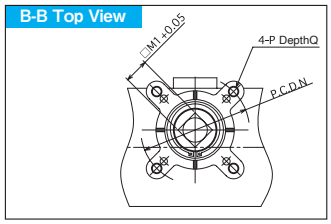
● For dimensional drawings of "L(L2) type" operation system, contact us.

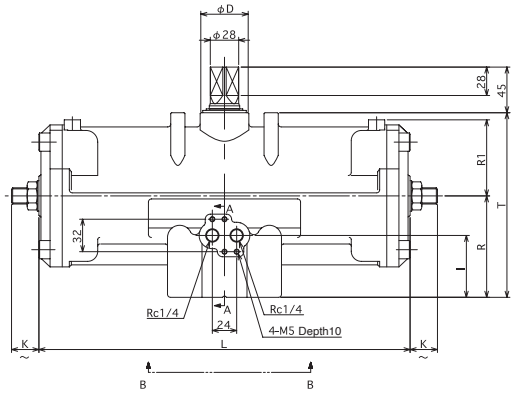
External Dimensions 〈φ 125・160〉

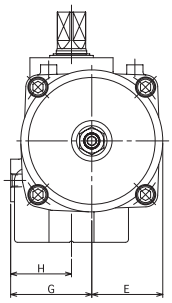
Double-Acting Type [Type D]







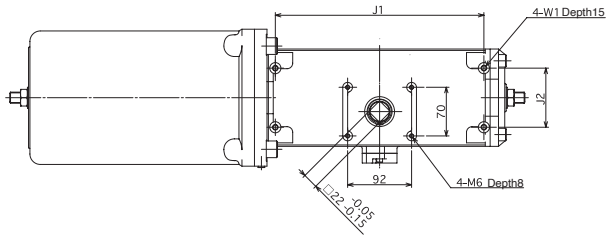


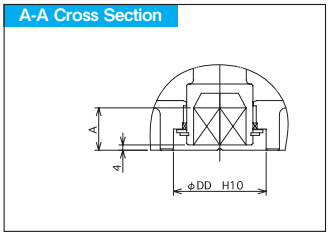


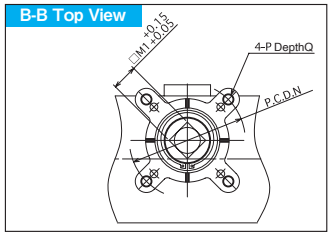
Unit : mm

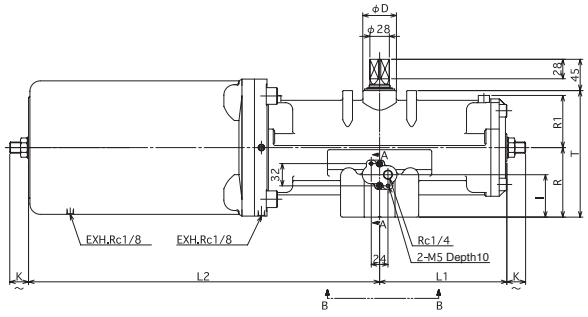
Model Code	Stroke	L	K	I	R	R1	T	D	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125D-00	84	366	27	61	100	75	182	52	60	80	70	28	125	M12	18	70	32	300	85	M8
TA2-160D-00	106	446	30	75	125	91	228	60	68	93	88	36	140	M16	24	90	40	360	100	M10

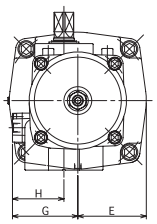
Single-Acting Type [Type R2] (Spring Return)











Unit : mm

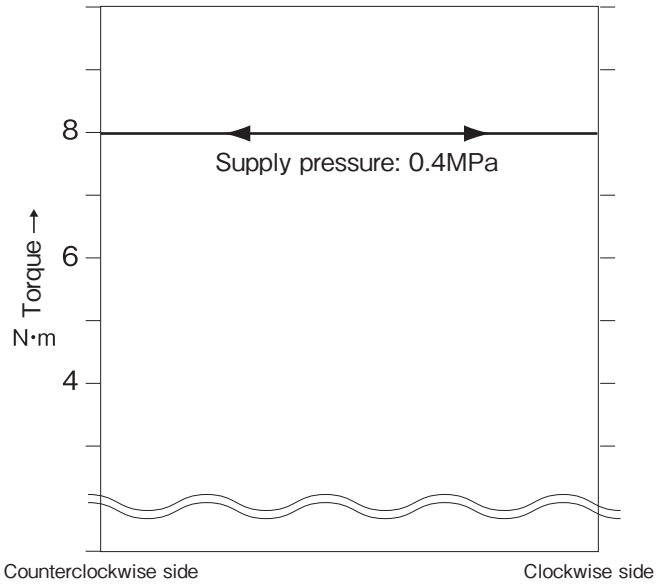
Model Code	Stroke	L1	L2	K	I	R	R1	T	D	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125R2-00	84	183	505	27	61	100	75	182	52	74	94	98.5	28	125	M12	18	70	32	300	85	M8
TA2-160R2-00	106	223	615	30	75	125	91	228	60	82	107	124	36	140	M16	24	90	40	360	100	M10

● For dimensional drawings of "L2 type" operation system, contact us.

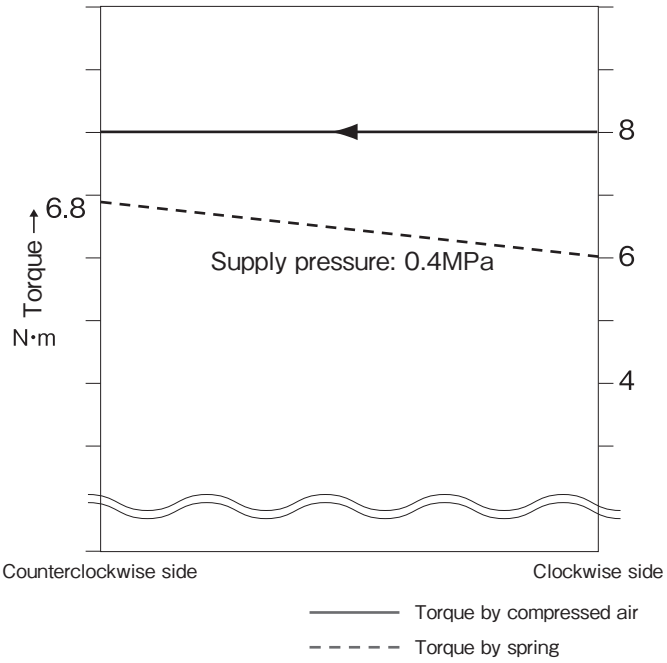
Rotary Actuator Basic Type

Output Torque

Double-Acting Type (TA2-0402D)



Single-Acting Type (TA2-0402R)



■ Output Torque (Double-Acting Type)

Operating pressure	Torque
0.3MPa	5.5 N·m
0.4MPa	8 N·m
0.5MPa	10 N·m
0.6MPa	12 N·m
0.7MPa	14 N·m

Air consumption

Model Code	Air consumption
TA2-0402D	$0.11 \times \left(\frac{P+0.1013}{0.1013} \right) \times n$
TA2-0402R	$0.225 \times \left(\frac{P+0.1013}{0.1013} \right) \times n$

P = Operating preassure [MPa]　　n = Number of cycle (one cycle = one reciprocation)

Output Torque N・m

● The values of torque shown below are obtained by calculation taking the frictional resistance into consideration.

Double-Acting Type [Type D]

Unit：N・m

Model code of Rotary actuator	Operating preassure MPa									
	0.3		0.4		0.5		0.6		0.7	
	Break	Run	Break	Run	Break	Run	Break	Run	Break	Run
TA2-050D-00	14.7	8.8	20.6	11.8	25.5	14.7	30.4	17.6	35.3	20.6
TA2-063D-00	29.4	16.7	40.2	22.5	50.0	27.4	59.8	33.3	70.6	39.2
TA2-080D-00	59.8	33.3	80.4	45.1	100.0	55.9	120.5	67.6	140.1	78.4
TA2-100D-00	116.7	65.7	156.8	88.2	196.0	109.8	235.2	132.3	274.4	153.9
TA2-125D-00	231.4	130.4	296.0	176.4	369.5	220.5	443.9	264.6	539.4	308.7
TA2-160D-00	477.6	269.7	646.8	367.5	808.5	458.6	970.2	550.8	1127.0	642.9

Output Torque N・m

● The values of torque shown below are obtained by calculation taking the frictional resistance into consideration.

Single-Acting Type [Type R / Type L] (Spring Return)

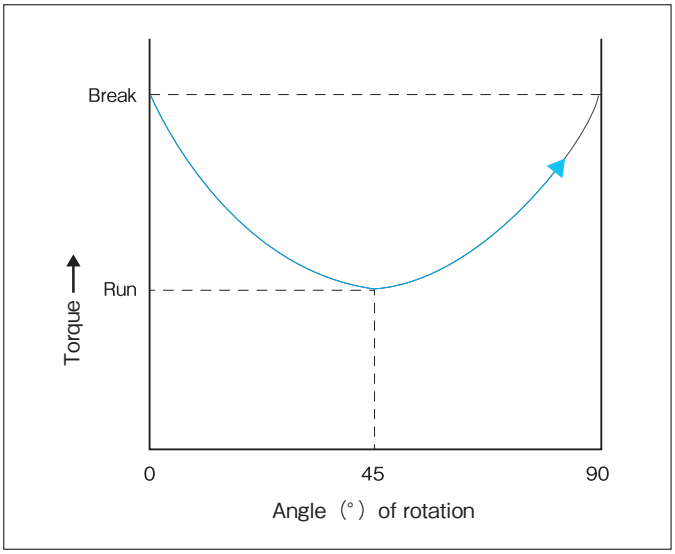
Unit：N・m

Model code of Rotary actuator	Torque（Air）										Torque（Spring）		
	Operating preassure MPa												
	0.3		0.4		0.5		0.6		0.7				
	Break	Run	Break	Run	Break	Run	Break	Run	Break	Run	Break	Run	End
TA2-050R (L)	14.7	8.8	20.6	11.8	25.5	14.7	30.4	17.6	35.3	20.6	26.8	12.4	17.1
TA2-063R (L)	29.4	16.7	40.2	22.5	50.0	27.4	59.8	33.3	70.6	39.2	56.6	25.2	32.6
TA2-080R (L)	59.8	33.3	80.4	45.1	100.0	55.9	120.5	67.6	140.1	78.4	109.3	49.3	65.4
TA2-100R2 (L2)	116.7	65.7	156.8	88.2	196.0	109.8	235.2	132.3	274.4	153.9	226.8	100.5	129.3
TA2-125R2 (L2)	231.4	130.4	296.0	176.4	369.5	220.5	443.9	264.6	539.4	308.7	366.5	175.9	257.0
TA2-160R2 (L2)	477.6	269.7	646.8	367.5	808.5	458.6	970.2	550.8	1127.0	642.9	795.9	375.1	533.3

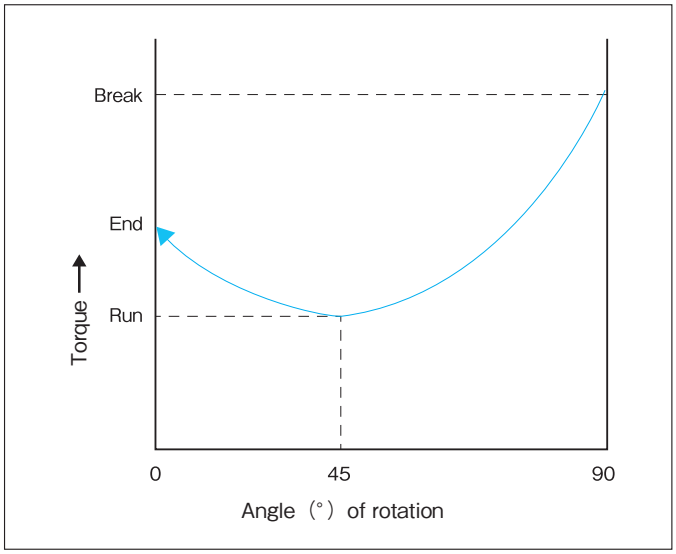
Rotary Actuator Basic Type

Torque Characteristic

Operating by Compressed Air

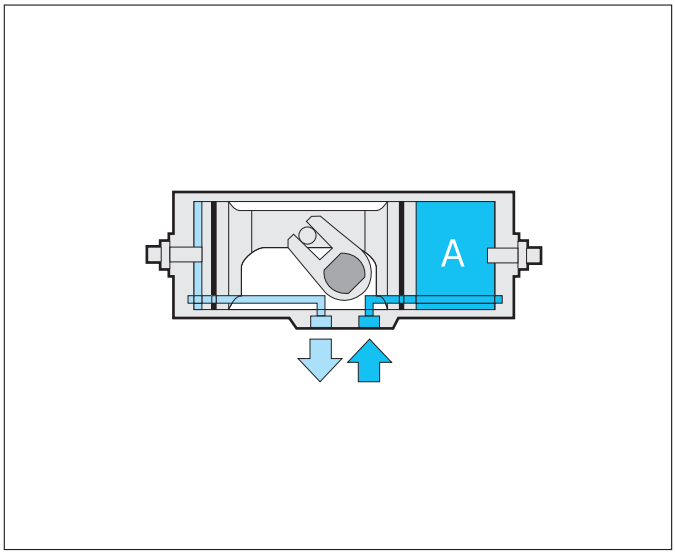


Returning by a Spring



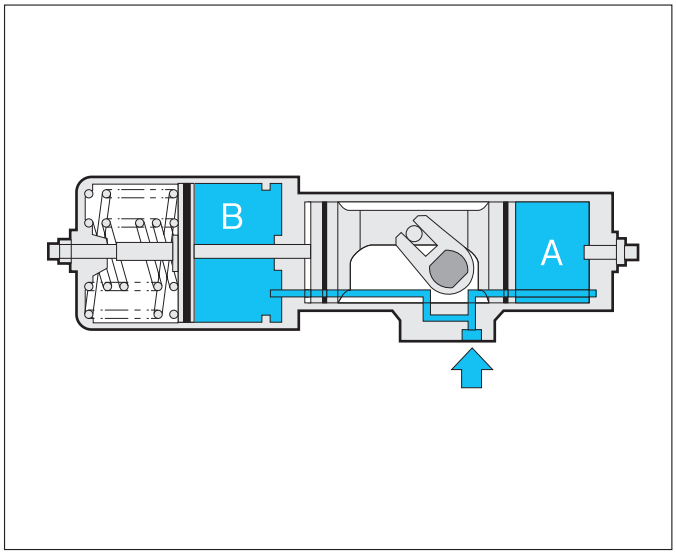
Air consumption

Double-Acting Type [Type D]



Model Code	A [L]	consumption [L]
TA2-050D	0.09	$2 \times A \times \left(\frac{P+0.1013}{0.1013} \right) \times n$
TA2-063D	0.17	
TA2-080D	0.33	
TA2-100D	0.68	
TA2-125D	1.36	
TA2-160D	2.78	

Single-Acting Type [Type R / Type L] (Spring Return)



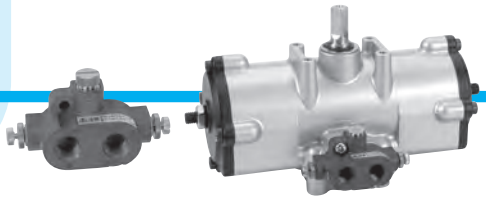
Model Code	A [L]	B [L]	consumption [L]
TA2-050R (L)	0.09	0.25	$(A+B) \times \left(\frac{P+0.1013}{0.1013} \right) \times n$
TA2-063R (L)	0.17	0.50	
TA2-080R (L)	0.33	0.93	
TA2-100R2 (L2)	0.68	1.94	
TA2-125R2 (L2)	1.36	3.08	
TA2-160R2 (L2)	2.78	5.99	

A : Actuator displacement [L]
B : Spring cartridge displacement [L]
P : Operating pressure [MPa]
n : Number of cycle (one cycle = one reciprocation)

Rotary Actuator with Optional Accessories

With Speed Controller and Bypass Valve

Resin-made bypass valve with build-in speed controller, whitch is applicable to the NAMUR interface, is directly mounted in this type.



※ Only the Double-Acting Type is available

Specifications

Bore size [mm]	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100	ϕ 125	ϕ 160
Operating fluid	Compressed air						
Operating pressure	0.3 ~ 0.7MPa						
Proof pressure	1.05MPa						
Operating temperature	− 5 ~ 60℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)						
Output torque	Please refer to the "Table of Output Torque" (P22 ~ P24)						
Rotating angle	90°						
Angle adjustment range	−	± 5° both end					

Model Code

TA2 − ① D − 09

Bore size

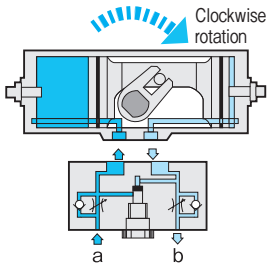
① Bore size (mm)

ϕ 40	0402
ϕ 50	050
ϕ 63	063
ϕ 80	080
ϕ 100	100
ϕ 125	125
ϕ 160	160

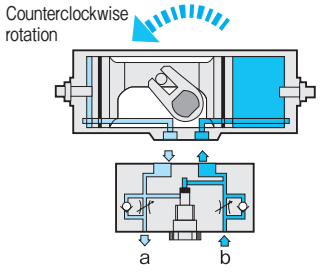
Operation

Double-Acting Type [Type D]

Port a Pressure supply
Port b Exhaust

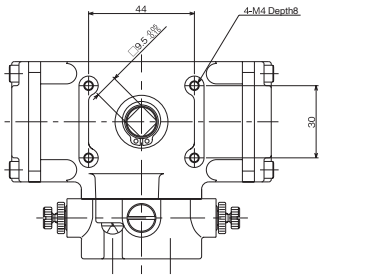


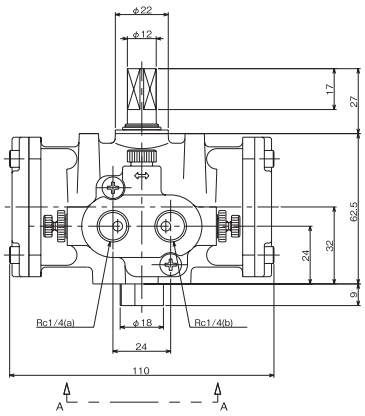
Port a Exhaust
Port b Pressure supply

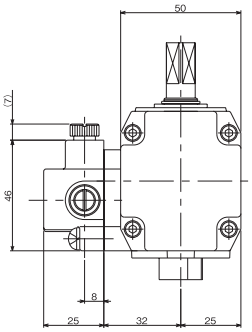


External Dimensions

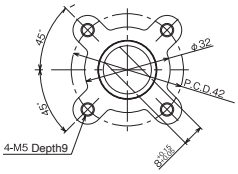
ϕ 40







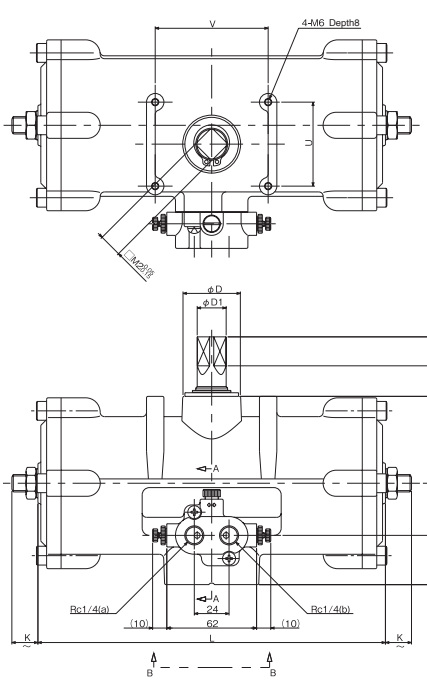
A-A Top View

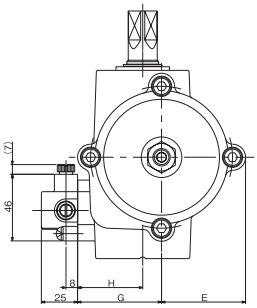


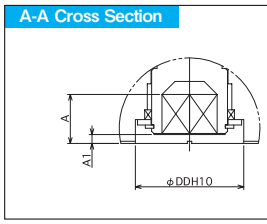
Unit : mm

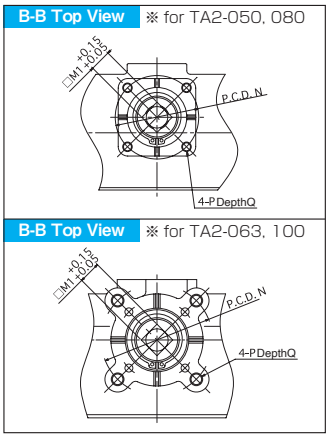
External Dimensions

φ 50・63・80・100





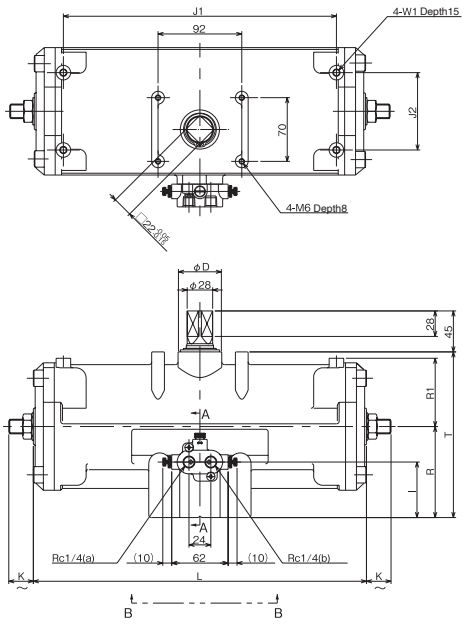


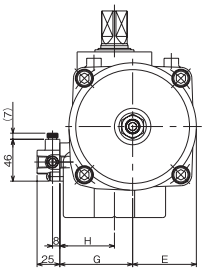


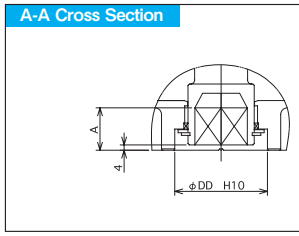
Unit : mm

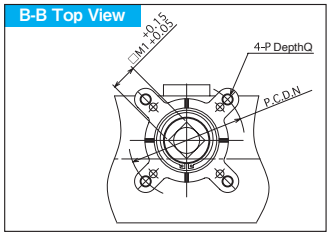
Model Code	Stroke	L	K	I	R	T	S	D	D1	H	G	E	M1	M2	N	P	Q	DD	A	A1	V	U
TA2-050D-09	34	170	14	27	50	90	33	26	14	36	43	39	12	11	50	M6	8	35	16	3	58	36
TA2-063D-09	42	204	16	29	57	105	33	32	14	38	48	47	14	11	70	M8	12	40	17	3	58	36
TA2-080D-09	52	240	18	34	70	130	41	40	20	45	58	58	18	16	70	M8	12	50	22	4	78	58
TA2-100D-09	66	294	24	43	88	161	41	50	20	57	72	70.5	22	16	102	M10	15	60	26	4	78	58

φ 125・160









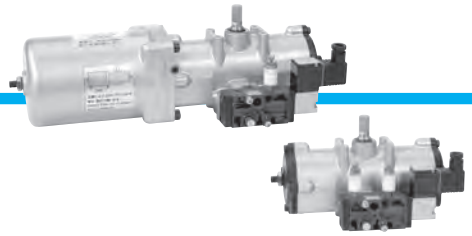
Unit : mm

Model Code	Stroke	L	K	I	R	R1	T	D	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125D-09	84	366	27	61	100	75	182	52	60	80	70	28	125	M12	18	70	32	300	85	M8
TA2-160D-09	106	446	30	75	125	91	228	60	68	93	88	36	140	M16	24	90	40	360	100	M10

TA2 SERIES

Rotary Actuator with Optional Accessories

With 5-Port Solenoid Valve



This type has a high-performance 5-port solenoid valve featured by compactness, large flow, less power consumption, and unlubricated service. As wide variety of options, including DIN connector and Waterproof connector, are available

Specifications

Bore size [mm]		φ 40	φ 50	φ 63	φ 80	φ 100	φ 125	φ 160
Operating fluid		Compressed air						
Operating pressure		0.3 ~ 0.7MPa						
Proof pressure		1.05MPa						
Operating temperature		− 5 ~ 50℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)						
Output torque		Please refer to the "Table of Output Torque" (P22 ~ P24)						
Rotating angle		90°						
Angle adjustment range		−	± 5° both end					
Solenoid valve	Rated voltage	Please refer to the Model Code section.						
	Voltage tolerance	± 10% of the rated voltage						
	Power consumption	AC-6VA、DC-5.5W						
	Protection class	Wiring type L : IP41 D, N : IP54 W : IP55						

Model Code

TA2 − ① ② − 30 − ③ ④ ⑤

① Bore size
② Operation type
③ Type of Solenoid Valve
④ Type of Wiring
⑤ Rated Voltage

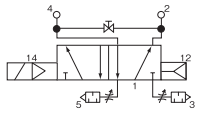
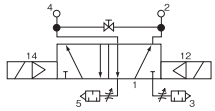
1 Bore size [mm]

φ 40	0402
φ 50	050
φ 63	063
φ 80	080
φ 100	100
φ 125	125
φ 160	160

2 Operation type

Double-Acting Type	φ40 ~ φ160	D
Single-Acting Type (Clockwise rotation by spring)	φ40 ~ φ80	R
	φ100 ~ φ160	R2
Single-Acting Type (Counterclockwise rotation by spring)	φ40 ~ φ80	L
	φ100 ~ φ160	L2

3 Type of Solenoid Valve

Return		S
Hold		D

● In the case where the operation type of ② is R and L, only S (return) is available as type of solenoid valve.
● In the case where the rotation direction of the actuator by the return solenoid valve is opposite to the rotation direction on the above drawing, please inform us of it.

4 Type of Wiring

Lead wire		L
DIN Connector	w/o Lamp	D
	w/ Lamp	N
Drip-proof		W

5 Rated Voltage

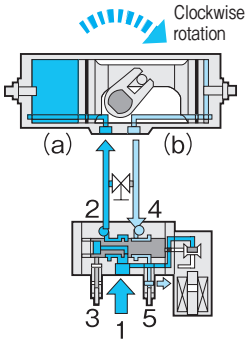
AC100V 50/60Hz	1
(AC110V 50/60Hz)	2
AC200V 50/60Hz	3
(AC220V 50/60Hz)	4
DC24V	5
(DC48V)	6
(DC100V)	7
(DC125V)	8
(DC110V)	9

● ( ) : Semi-standard.

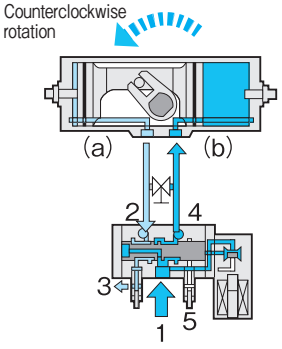
Operation

Double-Acting Type [Type D]

De-energized

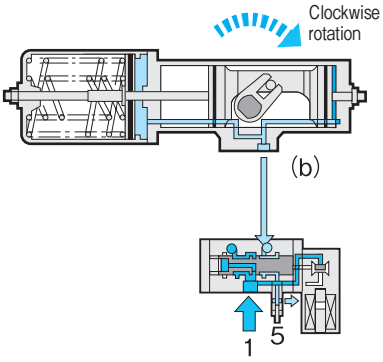


Energized

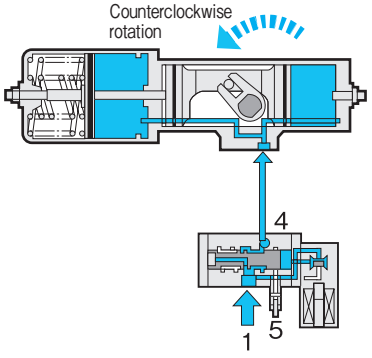


Single-Acting Type [Type R] (Spring Return)

De-energized



Energized



Option

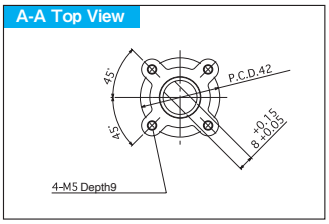
■ For the details of change procedures for actuator operation by solenoid valve (reverse rotation), refer to P107.

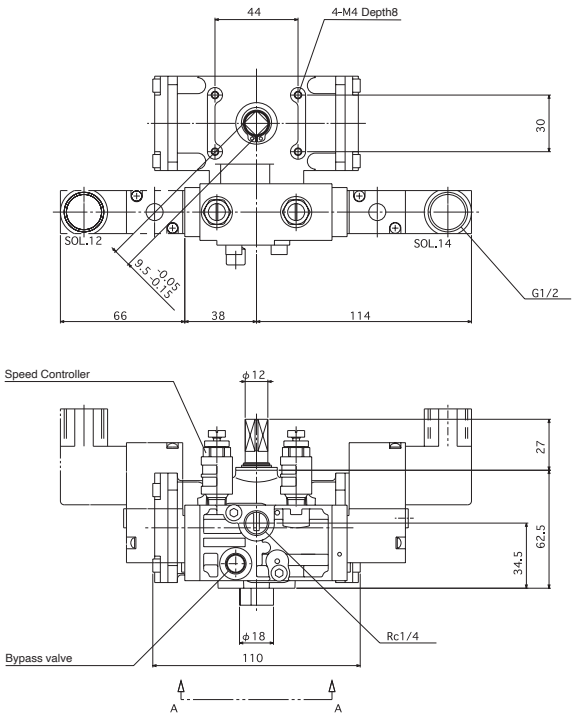
■ For the details of change procedures for operation by spring force of single-acting actuator (reverse rotation), refer to P110.

■ For the details of procedures for wire connection of solenoid valve, refer to P106.

External Dimensions 〈φ 40〉

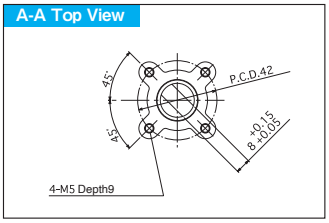
Double-Acting Type [Type D]

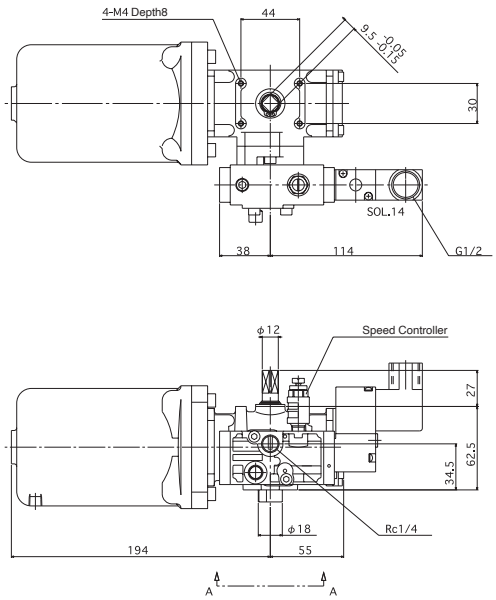




Unit : mm

Single-Acting Type [Type R/Type L] (Spring Return)

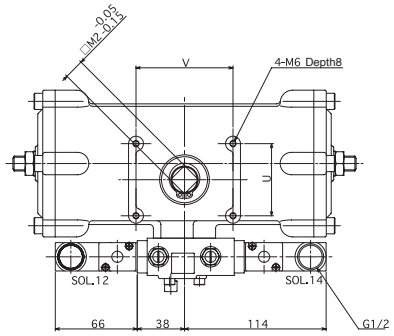


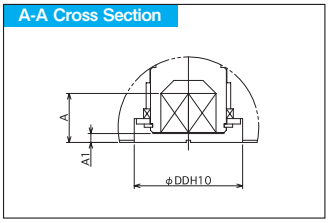


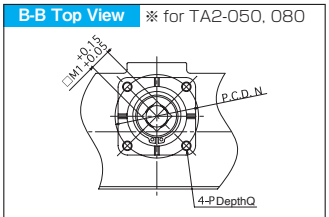
Unit : mm

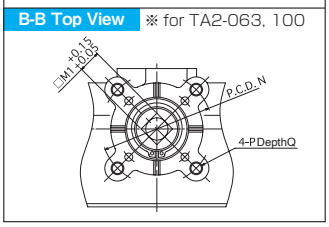
External Dimensions 〈φ 50・63・80・100〉

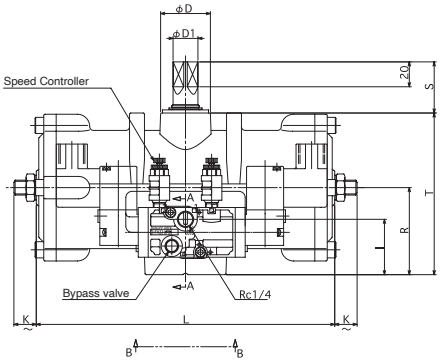
Double-Acting Type [Type D]

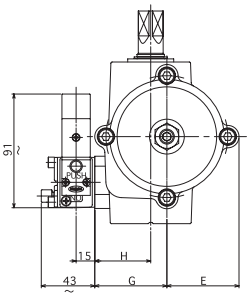








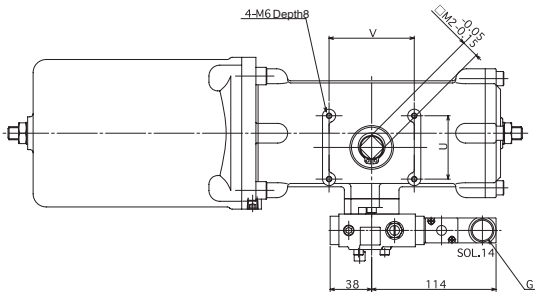


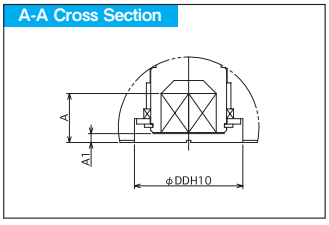


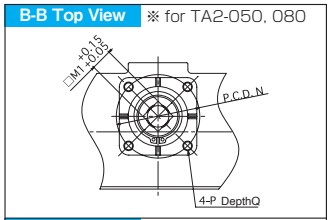
Unit : mm

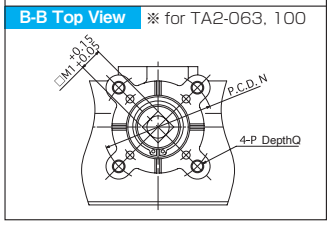
Model Code	Stroke	L	K	I	R	T	S	D	D1	H	G	E	M1	M2	N	P	Q	DD	A	A1	V	U
TA2-050D-30	34	170	14	37.5	50	90	33	26	14	36	43	39	12	11	50	M6	8	35	16	3	58	36
TA2-063D-30	42	204	16	39.5	57	105	33	32	14	38	48	47	14	11	70	M8	12	40	17	3	58	36
TA2-080D-30	52	240	18	44.5	70	130	41	40	20	45	58	58	18	16	70	M8	12	50	22	4	78	58
TA2-100D-30	66	294	24	53.5	88	161	41	50	20	57	72	70.5	22	16	102	M10	15	60	26	4	78	58

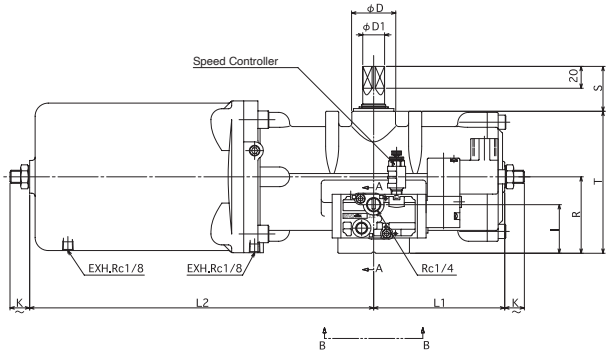
Single-Acting Type [Type R (R2)] (Spring Return)

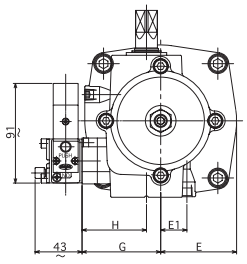












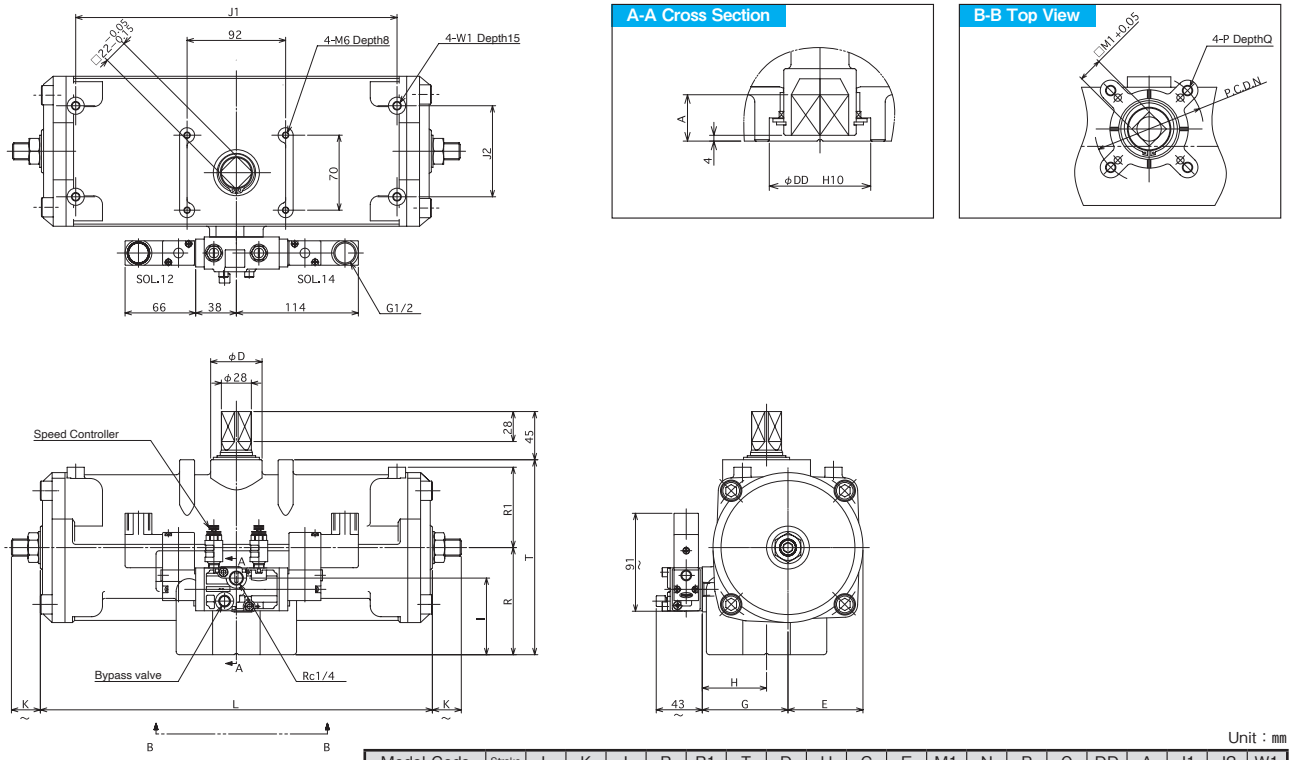
Unit : mm

Model Code	Stroke	L1	L2	K	I	R	T	S	D	D1	H	G	E	E1	M1	M2	N	P	Q	DD	A	A1	V	U
TA2-050R-30	34	85	220	14	37.5	50	90	33	26	14	50	57	46	16	12	11	50	M6	8	35	16	3	58	36
TA2-063R-30	42	102	265	16	39.5	57	105	33	32	14	52	62	56.5	20	14	11	70	M8	12	40	17	3	58	36
TA2-080R-30	52	120	315	18	44.5	70	130	41	40	20	59	72	69.5	24	18	16	70	M8	12	50	22	4	78	58
TA2-100R2-30	66	147	383	24	53.5	88	161	41	50	20	71	86	88	30	22	16	102	M10	15	60	26	4	78	58

● For dimensional drawings of "L(L2) type" operation system, contact us.

External Dimensions 〈φ 125・160〉

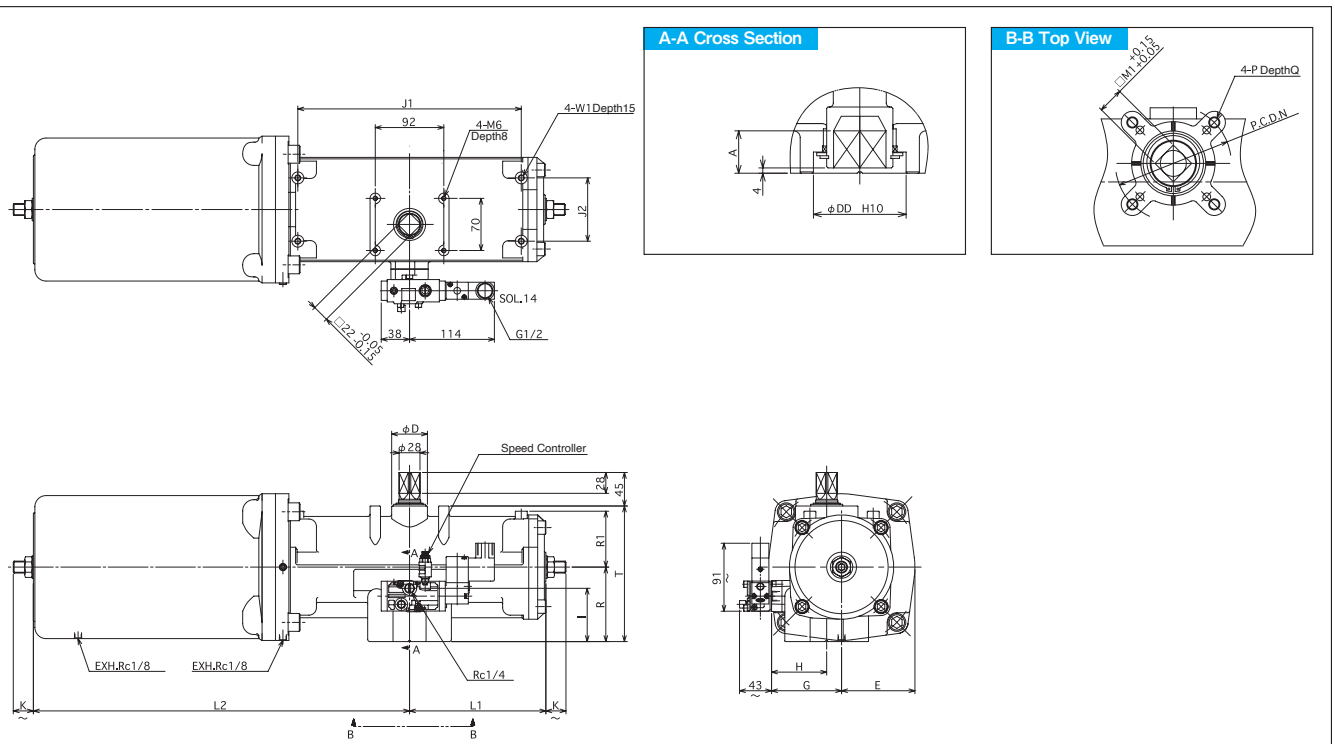
Double-Acting Type [Type D]



Unit : mm

Model Code	Stroke	L	K	I	R	R1	T	D	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125D-30	84	366	27	71.5	100	75	182	52	60	80	70	28	125	M12	18	70	32	300	85	M8
TA2-160D-30	106	446	30	85.5	125	91	228	60	68	93	88	36	140	M16	24	90	40	360	100	M10

Single-Acting Type [Type R2] (Spring Return)



Unit : mm

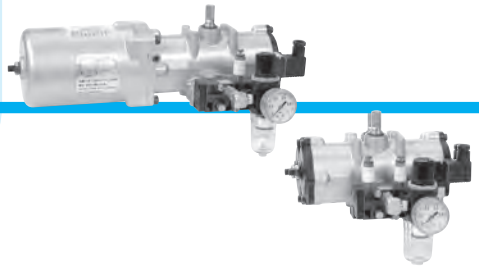
Model Code	Stroke	L1	L2	K	I	R	R1	T	D	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125R2-30	84	183	505	27	71.5	100	75	182	52	74	94	98.5	28	125	M12	18	70	32	300	85	M8
TA2-160R2-30	106	223	615	30	85.5	125	91	228	60	82	107	124	36	140	M16	24	90	40	360	100	M10

● For dimensional drawings of "L2 type" operation system, contact us.

TA2 SERIES

Rotary Actuator with Optional Accessories

With 5-Port Solenoid Valve and FR Unit



The unit is equipped with compact 5-port solenoid valve for driving actuator and FR unit (filter regulator), which refines the operating air.

Specifications

Bore size [mm]		φ 40	φ 50	φ 63	φ 80	φ 100	φ 125	φ 160
Operating fluid		Compressed air						
Operating pressure		0.3 ~ 0.7MPa						
Proof pressure		1.05MPa						
Operating temperature		− 5 ~ 50℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)						
Output torque		Please refer to the "Table of Output Torque" (P22 ~ P24)						
Rotating angle		90°						
Angle adjustment range		−	± 5° both end					
Solenoid valve	Rated voltage	Please refer to the Model Code section.						
	Voltage tolerance	± 10% of the rated voltage						
	Power consumption	AC-6VA、DC-5.5W						
	Protection class	Wiring type L : IP41 D, N : IP54 W : IP55						

Model Code

TA2 − ① ② − 31 − ③ ④ ⑤

①	②	③	④	⑤
Bore size	Operation type	Type of Solenoid Valve	Type of Wiring	Rated Voltage

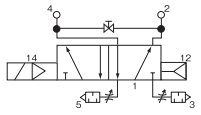
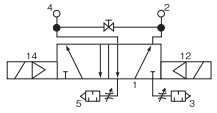
① Bore size [mm]

φ 40	0402
φ 50	050
φ 63	063
φ 80	080
φ 100	100
φ 125	125
φ 160	160

② Operation type

Double-Acting Type	φ 40 ~ φ 160	D
Single-Acting Type (Clockwise rotation by spring)	φ 40 ~ φ 80	R
	φ 100 ~ φ 160	R2
Single-Acting Type (Counterclockwise rotation by spring)	φ 40 ~ φ 80	L
	φ 100 ~ φ 160	L2

③ Type of Solenoid Valve

Return		S
Hold		D

● In the case where the operation type of ② is R and L, only S (return) is available as type of solenoid valve.

● In the case where the rotation direction of the actuator by the return solenoid valve is opposite to the rotation direction on the above drawing, please inform us of it.

④ Type of Wiring

Lead wire		L
DIN Connector	w/o Lamp	D
	w/ Lamp	N
Drip-proof		W

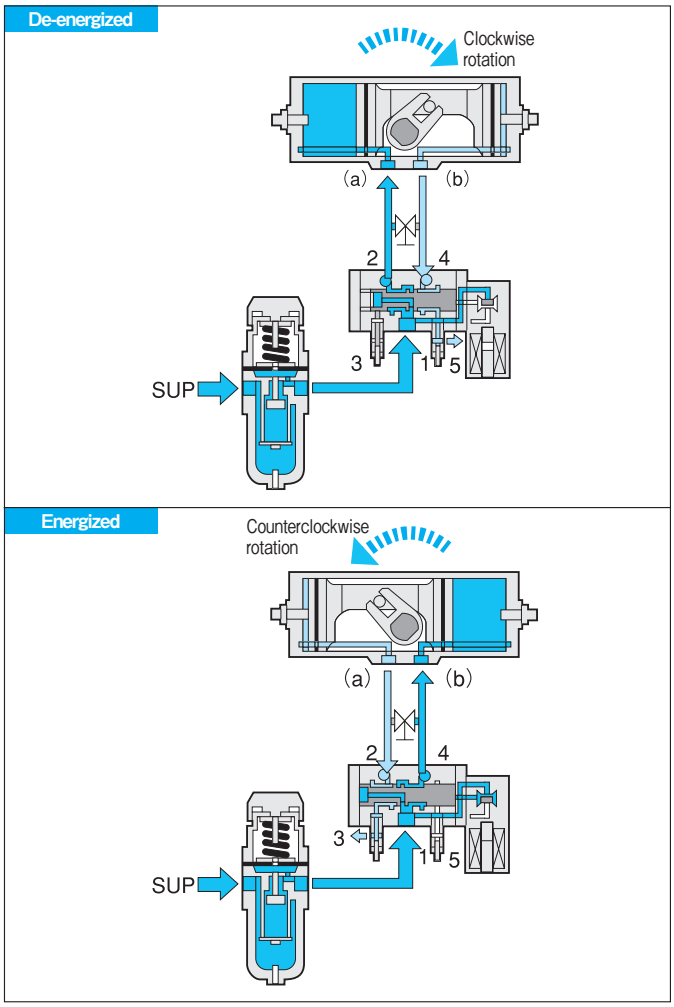
⑤ Rated Voltage

AC100V 50/60Hz	1
(AC110V 50/60Hz)	2
AC200V 50/60Hz	3
(AC220V 50/60Hz)	4
DC24V	5
(DC48V)	6
(DC100V)	7
(DC125V)	8
(DC110V)	9

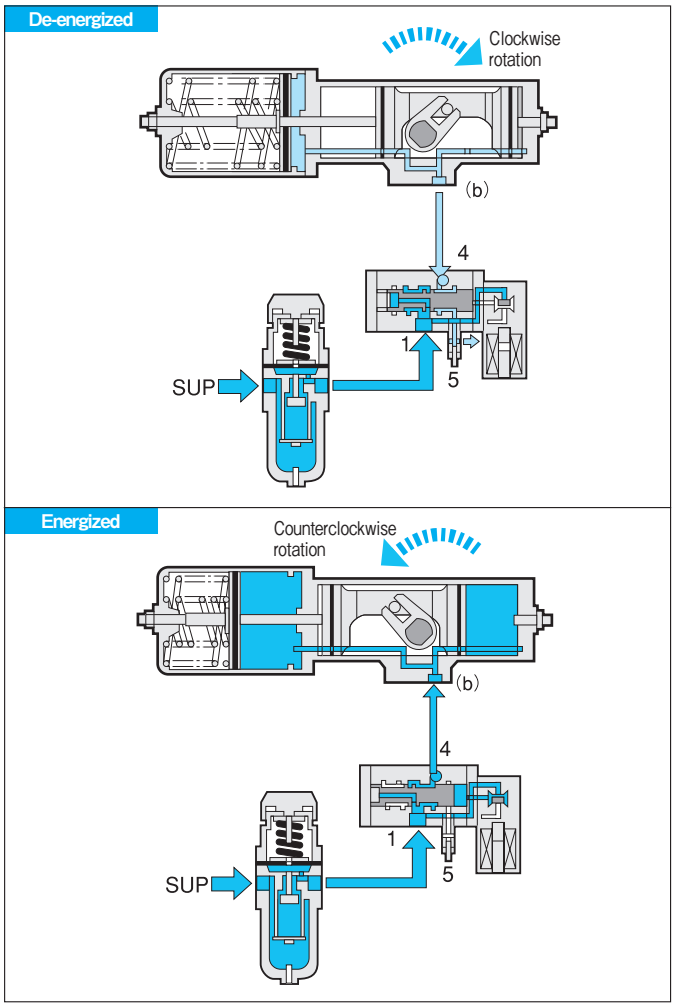
● ( ) : Semi-standard.

Operation

Double-Acting Type [Type D]



Single-Acting Type [Type R] (Spring Return)

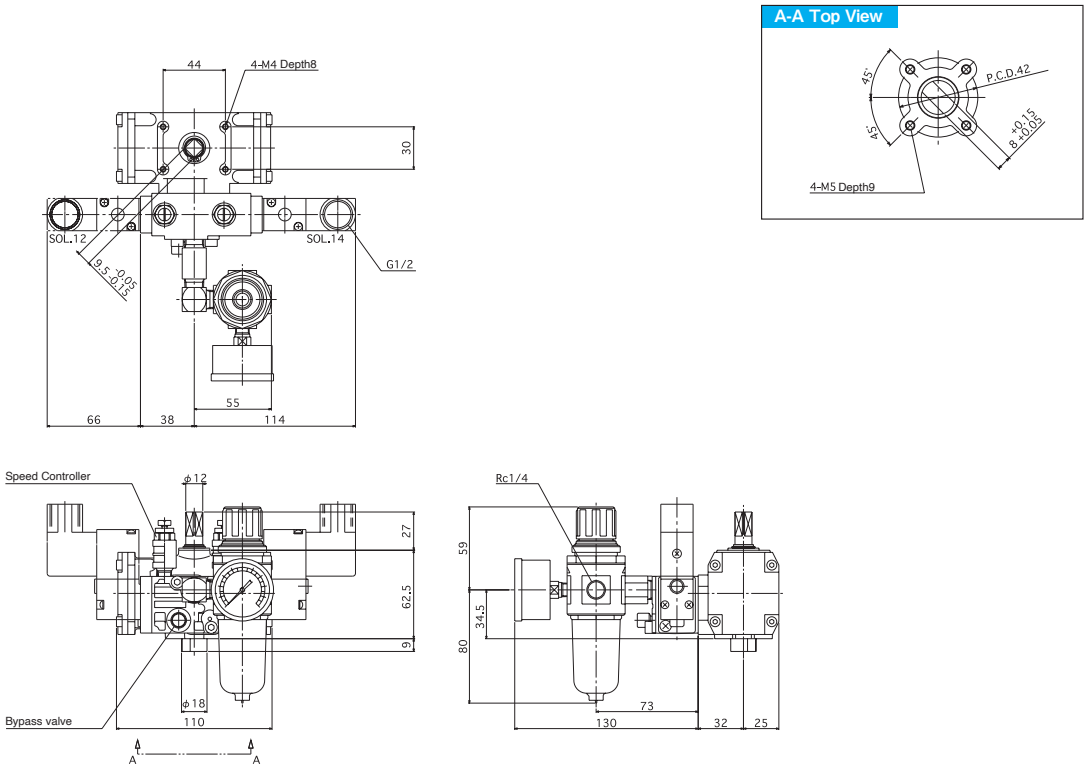


Option

- For the details of change procedures for actuator operation by solenoid valve (reverse rotation), refer to P107.
- For the details of change procedures for operation by spring force of single-acting actuator (reverse rotation), refer to P110.
- For the details of procedures for wire connection of solenoid valve, refer to P106.
- For the procedures for drain discharge, refer to P98.

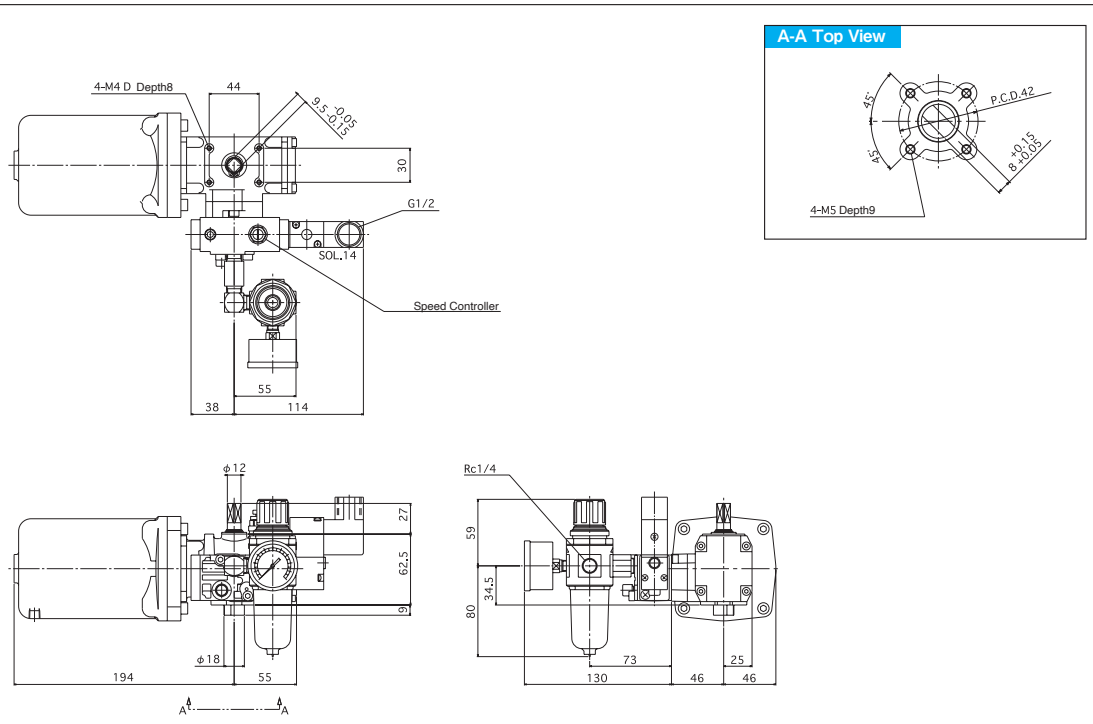
External Dimensions 〈φ 40〉

Double-Acting Type [Type D]



Unit : mm

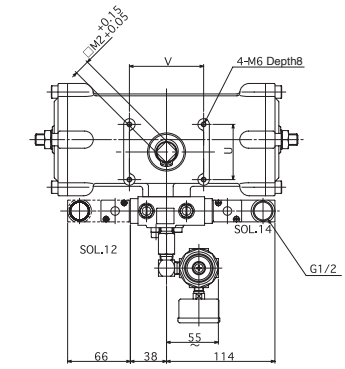
Single-Acting Type [Type R/Type L] (Spring Return)

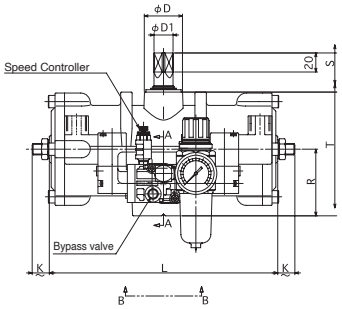


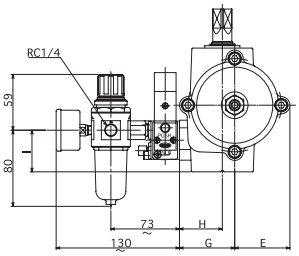
Unit : mm

External Dimensions 〈φ 50・63・80・100〉

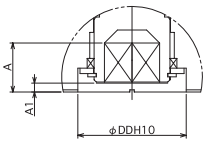
Double-Acting Type [Type D]



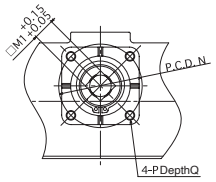




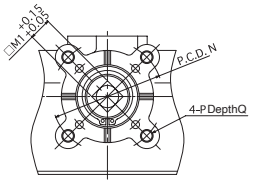
A-A Cross Section



B-B Top View ※ for TA2-050, 080



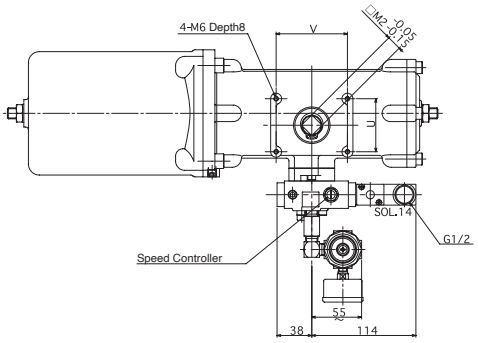
B-B Top View ※ for TA2-063, 100

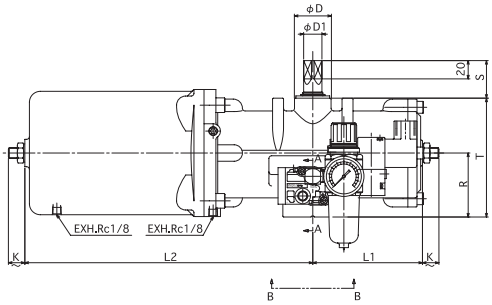


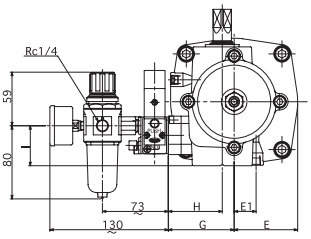
Unit : mm

Model Code	Stroke	L	K	I	R	T	S	D	D1	H	G	E	M1	M2	N	P	Q	DD	A	A1	V	U
TA2-050D-31	34	170	14	37.5	50	90	33	26	14	36	43	39	12	11	50	M6	8	35	16	3	58	36
TA2-063D-31	42	204	16	39.5	57	105	33	32	14	38	48	47	14	11	70	M8	12	40	17	3	58	36
TA2-080D-31	52	240	18	44.5	70	130	41	40	20	45	58	58	18	16	70	M8	12	50	22	4	78	58
TA2-100D-31	66	294	24	53.5	88	161	41	50	20	57	72	70.5	22	16	102	M10	15	60	26	4	78	58

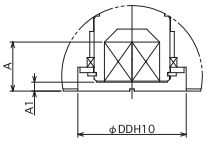
Single-Acting Type [Type R (R2)] (Spring Return)



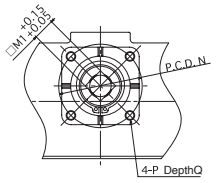




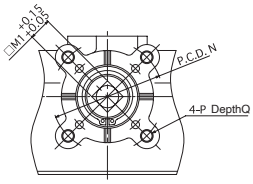
A-A Cross Section



B-B Top View ※ for TA2-050, 080



B-B Top View ※ for TA2-063, 100



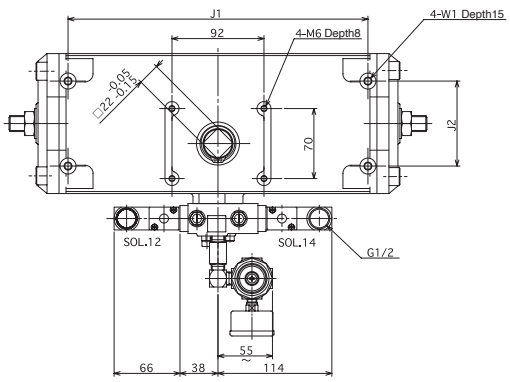
Unit : mm

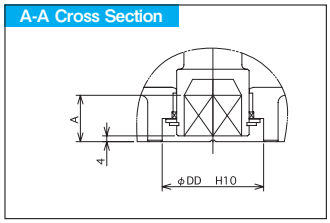
Model Code	Stroke	L1	L2	K	I	R	T	S	D	D1	H	G	E	E1	M1	M2	N	P	Q	DD	A	A1	V	U
TA2-050R-31	34	85	220	14	37.5	50	90	33	26	14	50	57	46	16	12	11	50	M6	8	35	16	3	58	36
TA2-063R-31	42	102	265	16	39.5	57	105	33	32	14	52	62	56.5	20	14	11	70	M8	12	40	17	3	58	36
TA2-080R-31	52	120	315	18	44.5	70	130	41	40	20	59	72	69.5	24	18	16	70	M8	12	50	22	4	78	58
TA2-100R2-31	66	147	383	24	53.5	88	161	41	50	20	71	86	88	30	22	16	102	M10	15	60	26	4	78	58

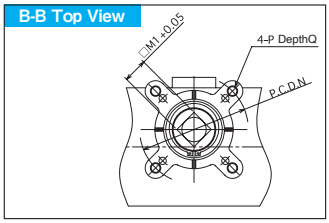
● For dimensional drawings of "L(L2) type" operation system, contact us.

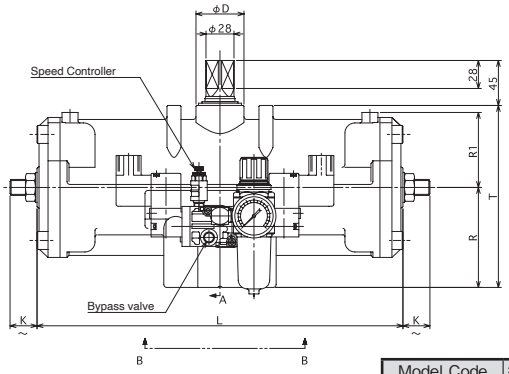
External Dimensions 〈φ 125・160〉

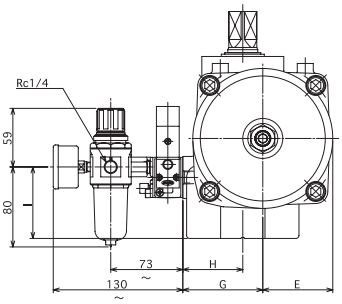
Double-Acting Type [Type D]







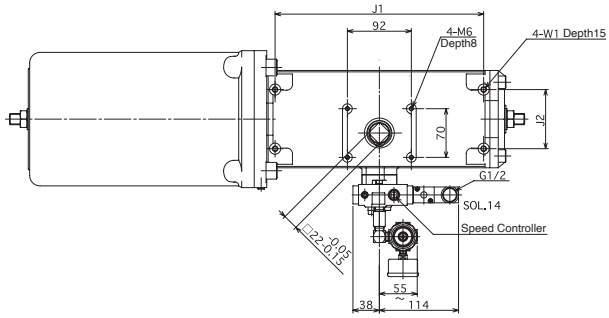


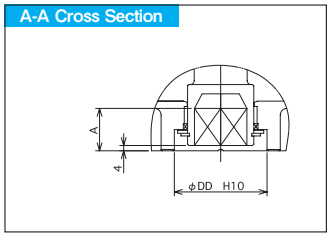


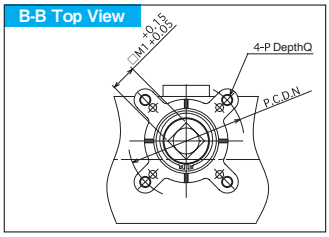
Unit : mm

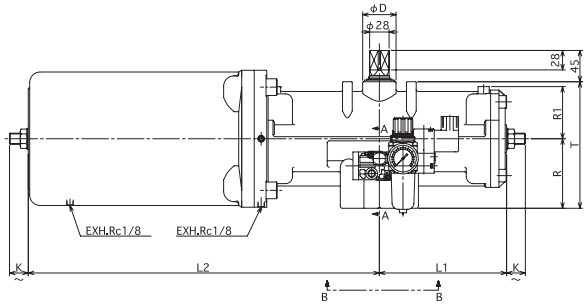
Model Code	Stroke	L	K	R	R1	T	D	H	G	E	I	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125D-31	84	366	27	100	75	182	52	60	80	70	71.5	28	125	M12	18	70	32	300	85	M8
TA2-160D-31	106	446	30	125	91	228	60	68	93	88	85.5	36	140	M16	24	90	40	360	100	M10

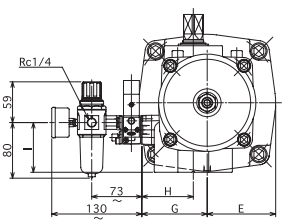
Single-Acting Type [Type R2] (Spring Return)











Unit : mm

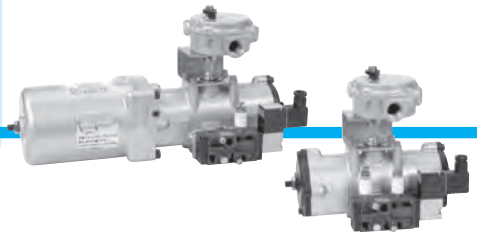
Model Code	Stroke	L1	L2	K	R	R1	T	D	H	G	E	I	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125R2-31	84	183	505	27	100	75	182	52	74	94	98.5	71.5	28	125	M12	18	70	32	300	85	M8
TA2-160R2-31	106	223	615	30	125	91	228	60	82	107	124	85.5	36	140	M16	24	90	40	360	100	M10

● For dimensional drawings of "L2 type" operation system, contact us.

TA2 SERIES

Rotary Actuator with Optional Accessories

With 5-Port Solenoid Valve and Limit Switch Box



Along with a solenoid valve for driving actuator, this type of Rotary Actuator has a switch box containing a built-in precision limit switch (protection construction : IP65) for detecting rotating position.

Specifications

Bore size [mm]		φ 40	φ 50	φ 63	φ 80	φ 100	φ 125	φ 160
Operating fluid		Compressed air						
Operating pressure		0.3 ~ 0.7MPa						
Proof pressure		1.05MPa						
Operating temperature		− 5 ~ 50℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)						
Output torque		Please refer to the "Table of Output Torque" (P22 ~ P24)						
Rotating angle		90°						
Angle adjustment range		−	± 5° both end					
Solenoid valve	Rated voltage	Please refer to the Model Code section.						
	Voltage tolerance	± 10% of the rated voltage						
	Power consumption	AC-6VA、DC-5.5W						
	Protection class	Wiring type L : IP41 D, N : IP54 W : IP55						

Model Code

TA2 − ① ② − 32 − ③ ④ ⑤

① Bore size
② Operation type
③ Type of Solenoid Valve
④ Type of Wiring
⑤ Rated Voltage

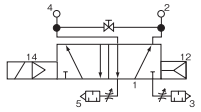
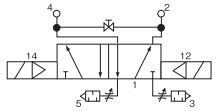
1 Bore size [mm]

φ 40	0402
φ 50	050
φ 63	063
φ 80	080
φ 100	100
φ 125	125
φ 160	160

2 Operation type

Double-Acting Type	φ40 ~ φ160	D
Single-Acting Type (Clockwise rotation by spring)	φ40 ~ φ80	R
	φ100 ~ φ160	R2
Single-Acting Type (Counterclockwise rotation by spring)	φ40 ~ φ80	L
	φ100 ~ φ160	L2

3 Type of Solenoid Valve

Return		S
Hold		D

● In the case where the operation type of ② is R and L, only S (return) is available as type of solenoid valve.
● In the case where the rotation direction of the actuator by the return solenoid valve is opposite to the rotation direction on the above drawing, please inform us of it.

4 Type of Wiring

Lead wire		L
DIN Connector	w/o Lamp	D
	w/ Lamp	N
Drip-proof		W

5 Rated Voltage

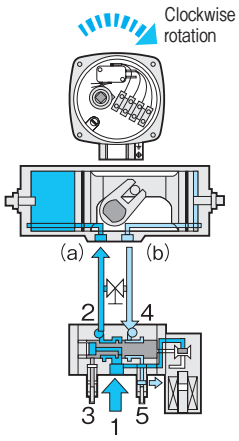
AC100V 50/60Hz	1
(AC110V 50/60Hz)	2
AC200V 50/60Hz	3
(AC220V 50/60Hz)	4
DC24V	5
(DC48V)	6
(DC100V)	7
(DC125V)	8
(DC110V)	9

● ( ) : Semi-standard.

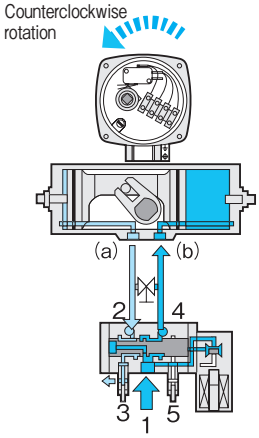
Operation

Double-Acting Type [Type D]

De-energized

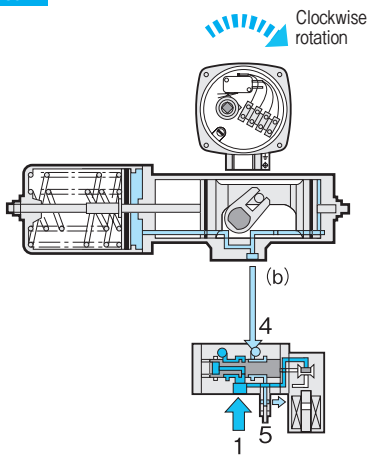


Energized

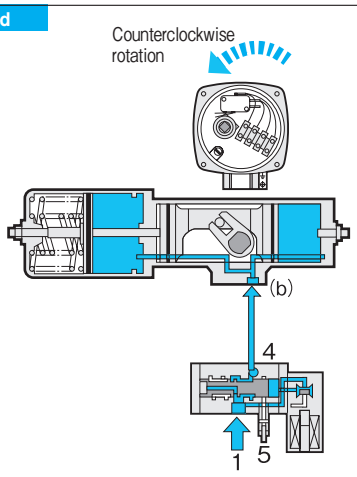


Single-Acting Type [Type R] (Spring Return)

De-energized



Energized

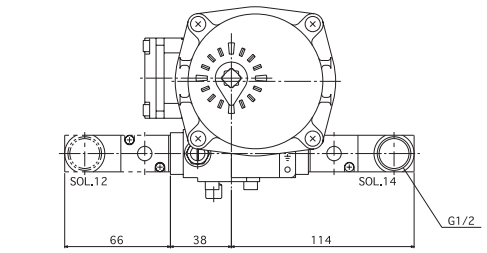


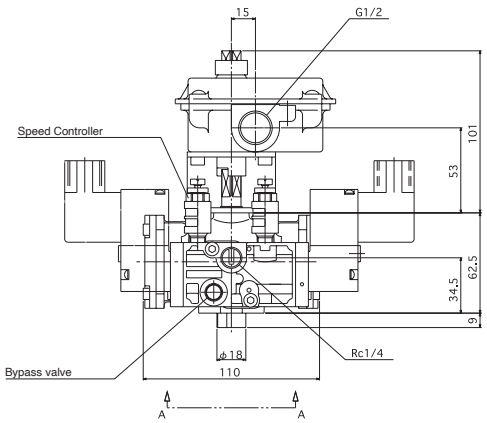
Option

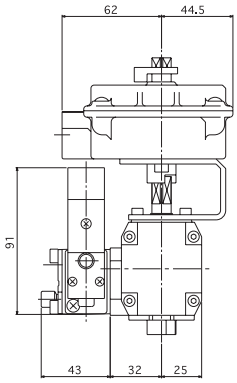
- For the details of change procedures for actuator operation by solenoid valve (reverse rotation), refer to P107.
- For the details of change procedures for operation by spring force of single-acting actuator (reverse rotation), refer to P110.
- For the details of procedures for wire connection of solenoid valve, refer to P106.
- For the details of procedures for wire connection of switch box, refer to P100.

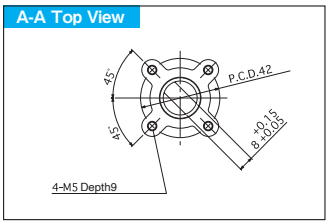
External Dimensions 〈φ 40〉

Double-Acting Type [Type D]



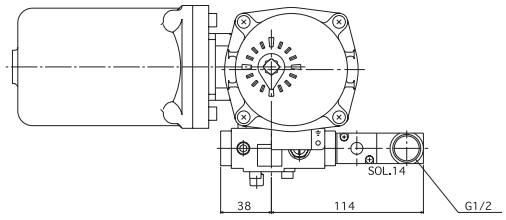


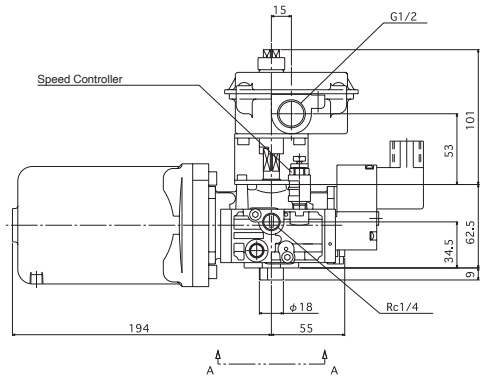


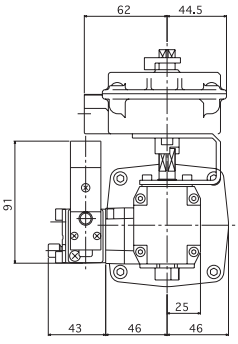


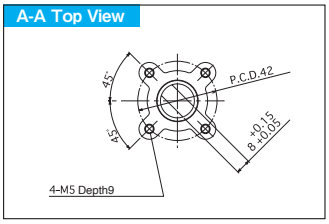
Unit : mm

Single-Acting Type [Type R/Type L] (Spring Return)





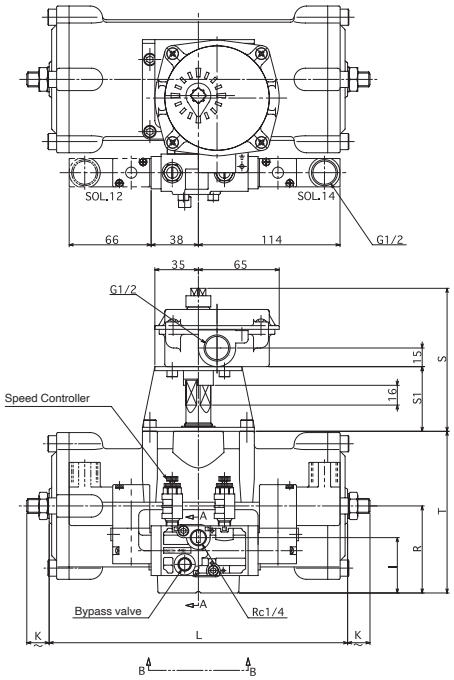


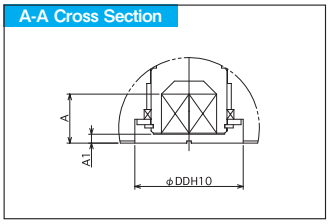


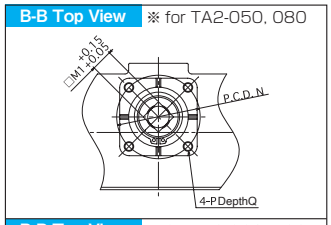
Unit : mm

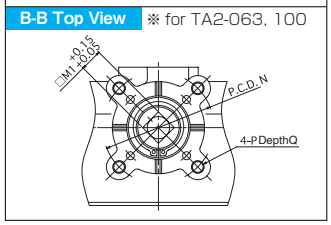
External Dimensions 〈φ 50・63・80・100〉

Double-Acting Type [Type D]





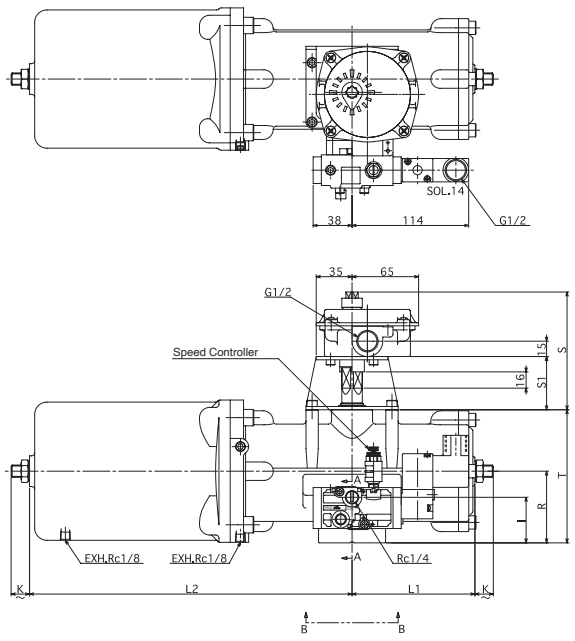


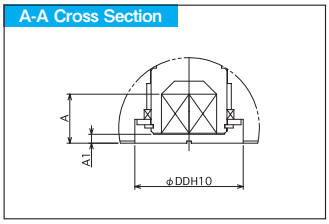


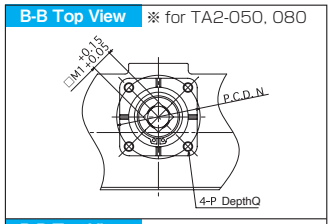
Unit : mm

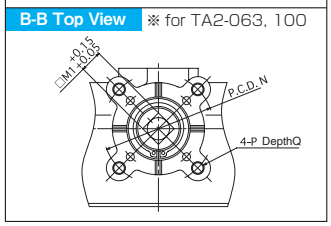
Model Code	Stroke	L	K	I	R	T	S	S1	H	G	E	M1	N	P	Q	DD	A	A1
TA2-050D-32	34	170	14	37.5	50	90	106	43	36	43	39	12	50	M6	8	35	16	3
TA2-063D-32	42	204	16	39.5	57	105	106	43	38	48	47	14	70	M8	12	40	17	3
TA2-080D-32	52	240	18	44.5	70	130	115	52	45	58	58	18	70	M8	12	50	22	4
TA2-100D-32	66	294	24	53.5	88	161	115	52	57	72	70.5	22	102	M10	15	60	26	4

Single-Acting Type [Type R (R2)] (Spring Return)









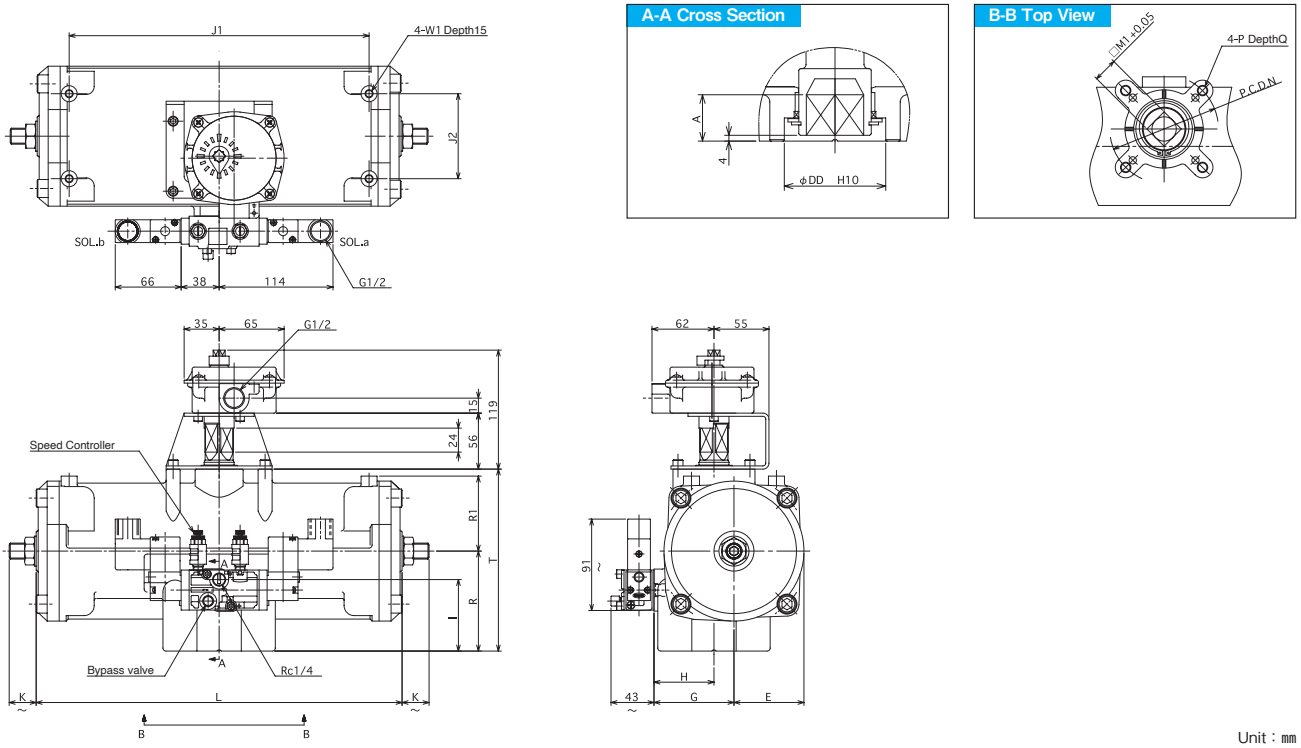
Unit : mm

Model Code	Stroke	L1	L2	K	I	R	T	S	S1	H	G	E	E1	M1	N	P	Q	DD	A	A1
TA2-050R-32	34	85	220	14	37.5	50	90	106	43	50	57	46	16	12	50	M6	8	35	16	3
TA2-063R-32	42	102	265	16	39.5	57	105	106	43	52	62	56.5	20	14	70	M8	12	40	17	3
TA2-080R-32	52	120	315	18	44.5	70	130	115	52	59	72	69.5	24	18	70	M8	12	50	22	4
TA2-100R2-32	66	147	383	24	53.5	88	161	115	52	71	86	88	30	22	102	M10	15	60	26	4

● For dimensional drawings of "L(L2) type" operation system, contact us.

External Dimensions 〈φ 125・160〉

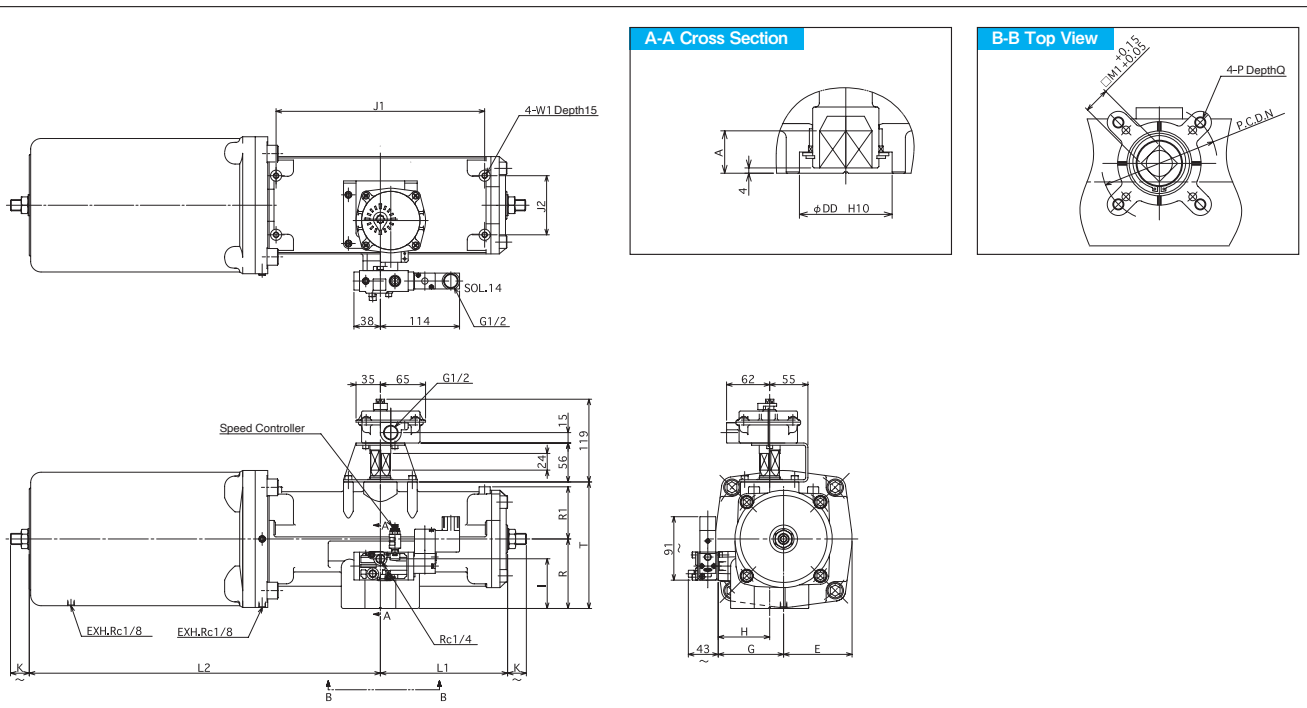
Double-Acting Type [Type D]



Unit : mm

Model Code	Stroke	L	K	I	R	R1	T	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125D-32	84	366	27	71.5	100	75	182	60	80	70	28	125	M12	18	70	32	300	85	M8
TA2-160D-32	106	446	30	85.5	125	91	228	68	93	88	36	140	M16	24	90	40	360	100	M10

Single-Acting Type [Type R2] (Spring Return)



Unit : mm

Model Code	Stroke	L1	L2	K	I	R	R1	T	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125R2-32	84	183	505	27	71.5	100	75	182	74	94	98.5	28	125	M12	18	70	32	300	85	M8
TA2-160R2-32	106	223	615	30	85.5	125	91	228	82	107	124	36	140	M16	24	90	40	360	100	M10

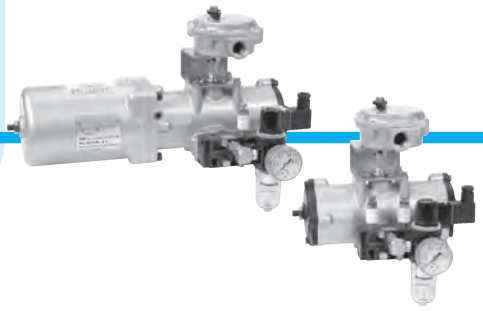
● For dimensional drawings of "L2 type" operation system, contact us.

TA2 SERIES

Rotary Actuator with Optional Accessories

With 5-Port Solenoid Valve, FR Unit, and Limit Switch Box

This type of the Rotary Actuator is completely equipped with a solenoid valve for driving actuator, combined accessory of FR Unit (filter regulator), a switch box containing a built-in precision limit switch.



Specifications

Bore size [mm]		φ 40	φ 50	φ 63	φ 80	φ 100	φ 125	φ 160
Operating fluid		Compressed air						
Operating pressure		0.3 ～ 0.7MPa						
Proof pressure		1.05MPa						
Operating temperature		− 5 ～ 50℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)						
Output torque		Please refer to the "Table of Output Torque" (P22 ～ P24)						
Rotating angle		90°						
Angle adjustment range		−	± 5° both end					
Solenoid valve	Rated voltage	Please refer to the Model Code section.						
	Voltage tolerance	± 10% of the rated voltage						
	Power consumption	AC-6VA、DC-5.5W						
	Protection class	Wiring type L : IP41 D, N : IP54 W : IP55						

Model Code

TA2 − ① ② − 33 − ③ ④ ⑤

① Bore size
② Operation type
③ Type of Solenoid Valve
④ Type of Wiring
⑤ Rated Voltage

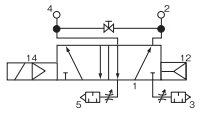
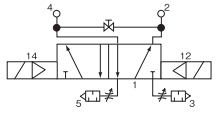
1 Bore size [mm]

φ 40	0402
φ 50	050
φ 63	063
φ 80	080
φ 100	100
φ 125	125
φ 160	160

2 Operation type

Double-Acting Type	φ40 ～ φ160	D
Single-Acting Type (Clockwise rotation by spring)	φ40 ～ φ80	R
	φ100 ～ φ160	R2
Single-Acting Type (Counterclockwise rotation by spring)	φ40 ～ φ80	L
	φ100 ～ φ160	L2

3 Type of Solenoid Valve

Return		S
Hold		D

● In the case where the operation type of ② is R and L, only S (return) is available as type of solenoid valve.
● In the case where the rotation direction of the actuator by the return solenoid valve is opposite to the rotation direction on the above drawing, please inform us of it.

4 Type of Wiring

Lead wire		L
DIN Connector	w/o Lamp	D
	w/ Lamp	N
Drip-proof		W

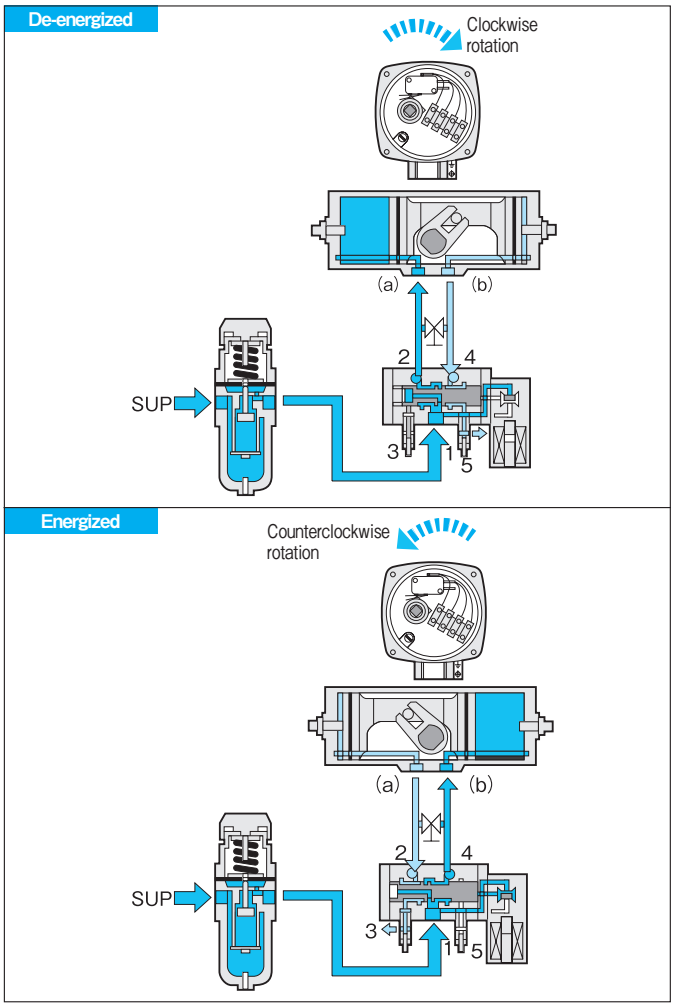
5 Rated Voltage

AC100V 50/60Hz	1
(AC110V 50/60Hz)	2
AC200V 50/60Hz	3
(AC220V 50/60Hz)	4
DC24V	5
(DC48V)	6
(DC100V)	7
(DC125V)	8
(DC110V)	9

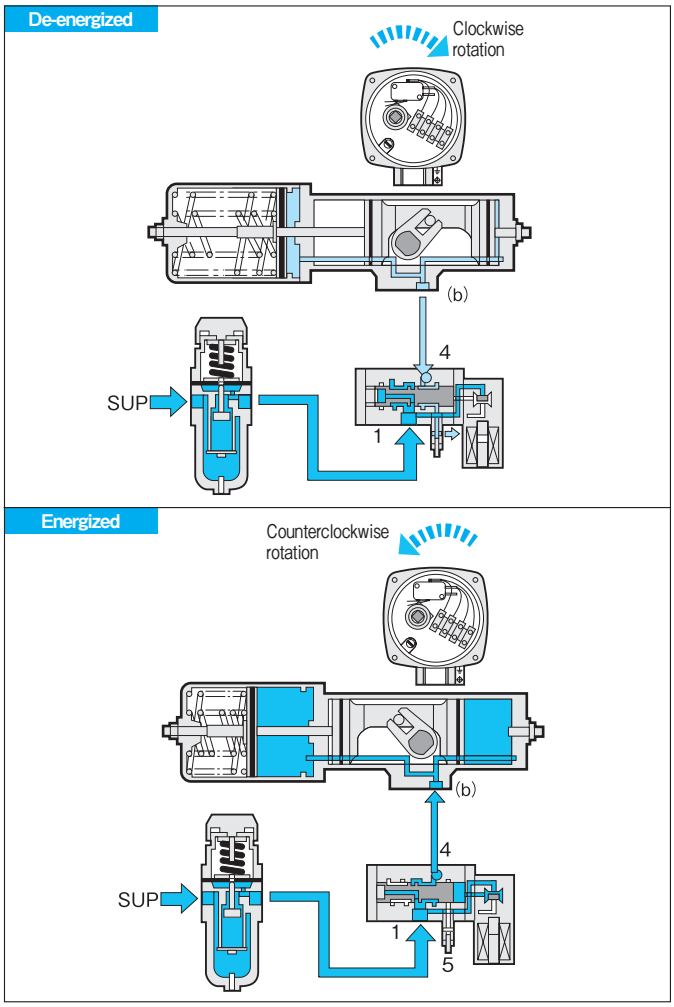
● ( ) : Semi-standard.

Operation

Double-Acting Type [Type D]



Single-Acting Type [Type R] (Spring Return)

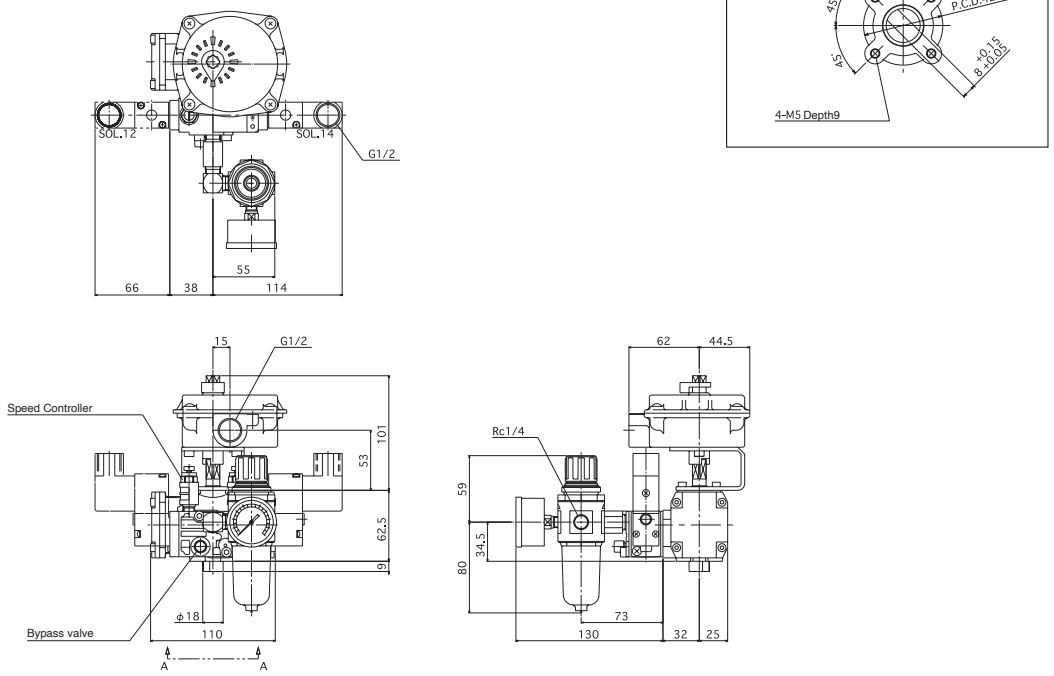


Option

- For the details of change procedures for actuator operation by solenoid valve (reverse rotation), refer to P107.
- For the details of change procedures for operation by spring force of single-acting actuator (reverse rotation), refer to P110.
- For the details of procedures for wire connection of solenoid valve, refer to P106.
- For the procedures for drain discharge, refer to P98.
- For the details of procedures for wire connection of switch box, refer to P100.

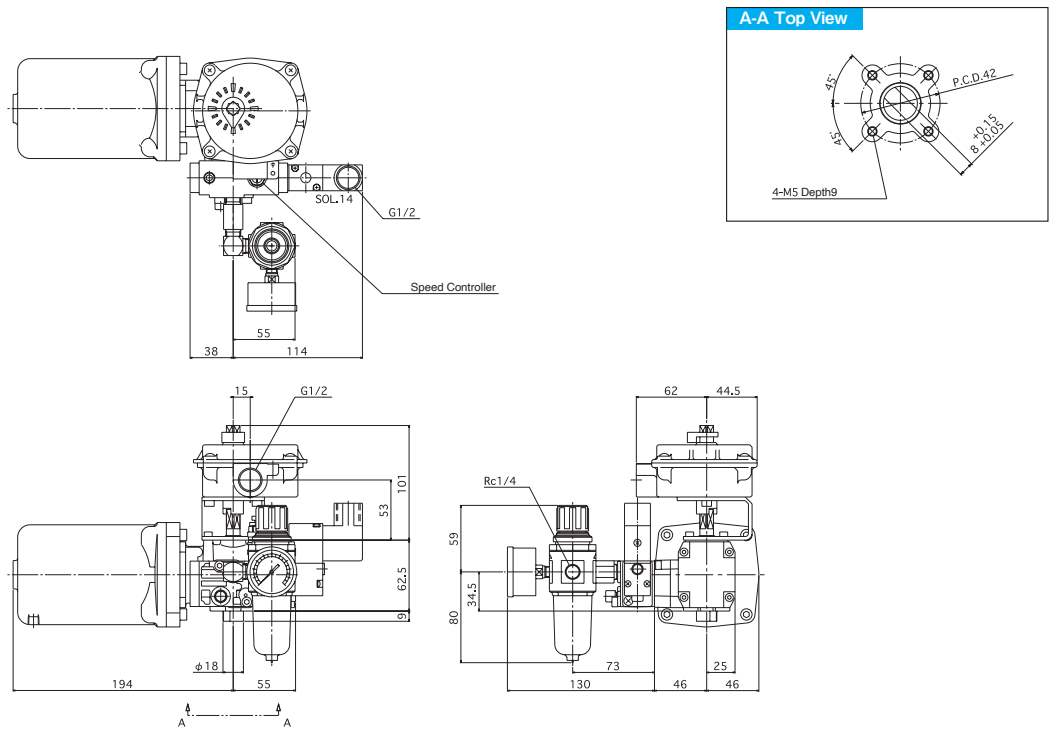
External Dimensions 〈φ 40〉

Double-Acting Type [Type D]



Unit : mm

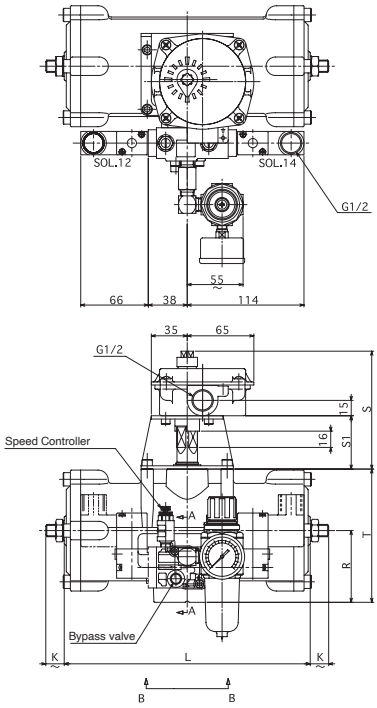
Single-Acting Type [Type R/Type L] (Spring Return)

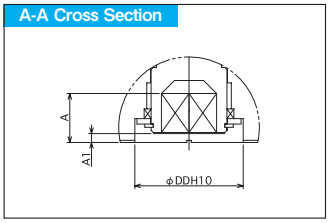


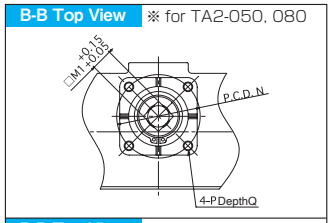
Unit : mm

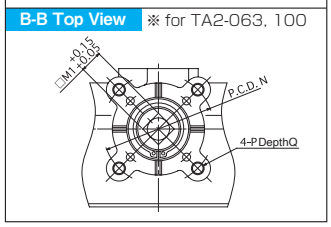
External Dimensions 〈φ 50・63・80・100〉

Double-Acting Type [Type D]





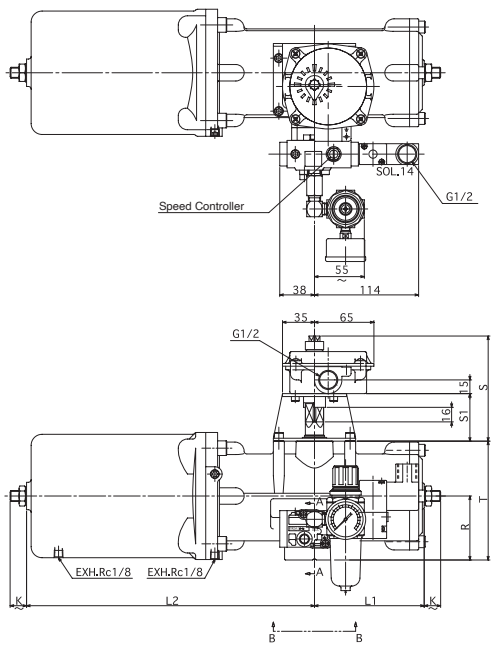


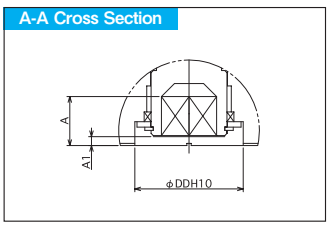


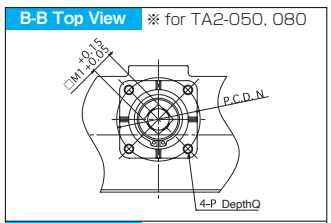
Unit : mm

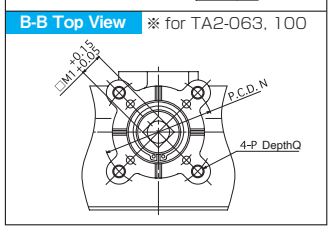
Model Code	Stroke	L	K	I	R	T	S	S1	H	G	E	M1	N	P	Q	DD	A	A1
TA2-050D-33	34	170	14	37.5	50	90	106	43	36	43	39	12	50	M6	8	35	16	3
TA2-063D-33	42	204	16	39.5	57	105	106	43	38	48	47	14	70	M8	12	40	17	3
TA2-080D-33	52	240	18	44.5	70	130	115	52	45	58	58	18	70	M8	12	50	22	4
TA2-100D-33	66	294	24	53.5	88	161	115	52	57	72	70.5	22	102	M10	15	60	26	4

Single-Acting Type [Type R (R2)] (Spring Return)









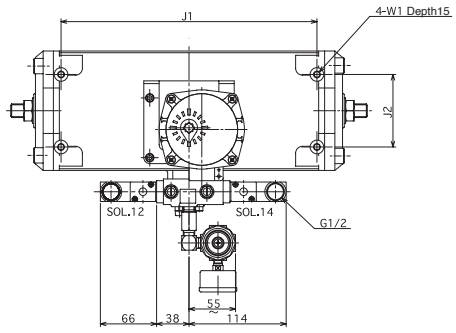
Unit : mm

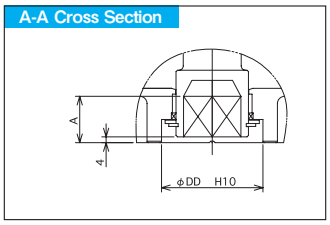
Model Code	Stroke	L1	L2	K	I	R	T	S	S1	H	G	E	E1	M1	N	P	Q	DD	A	A1
TA2-050R-33	34	85	220	14	37.5	50	90	106	43	50	57	46	16	12	50	M6	8	35	16	3
TA2-063R-33	42	102	265	16	39.5	57	105	106	43	52	62	56.5	20	14	70	M8	12	40	17	3
TA2-080R-33	52	120	315	18	44.5	70	130	115	52	59	72	69.5	24	18	70	M8	12	50	22	4
TA2-100R2-33	66	147	383	24	53.5	88	161	115	52	71	86	88	30	22	102	M10	15	60	26	4

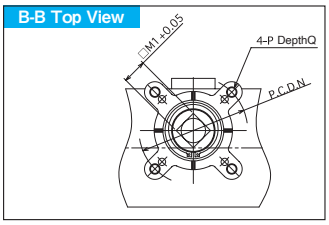
● For dimensional drawings of "L(L2) type" operation system, contact us.

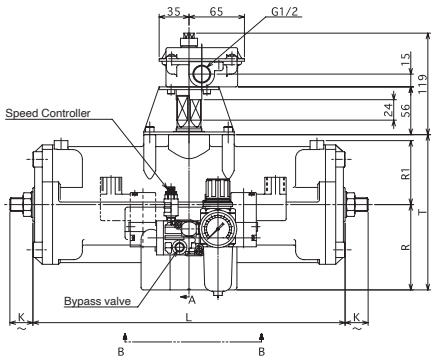
External Dimensions 〈φ 125・160〉

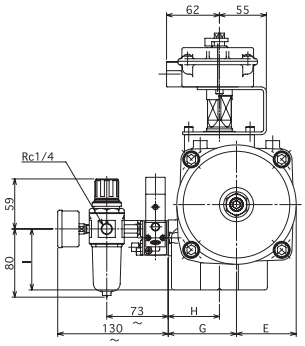
Double-Acting Type [Type D]







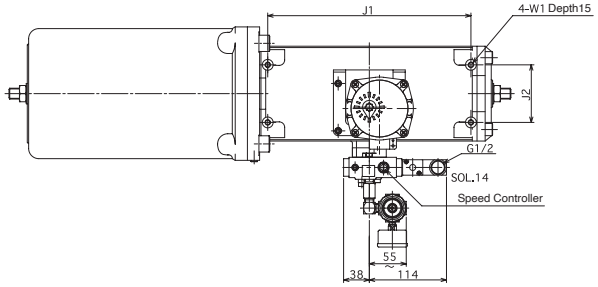


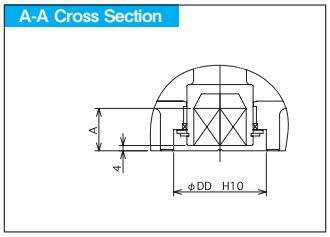


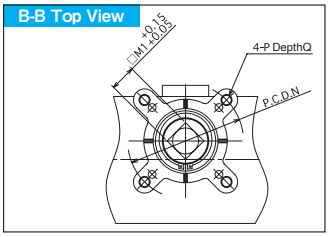
Unit : mm

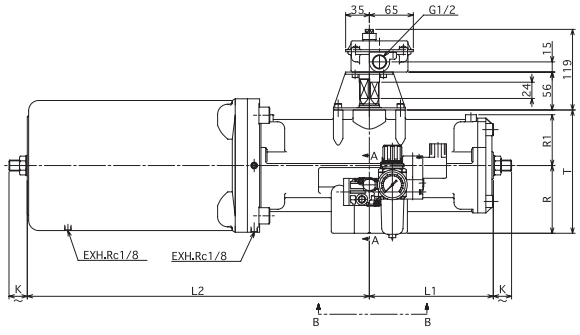
Model Code	Stroke	L	K	R	R1	T	H	G	E	I	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125D-33	84	366	27	100	75	182	60	80	70	71.5	28	125	M12	18	70	32	300	85	M8
TA2-160D-33	106	446	30	125	91	228	68	93	88	85.5	36	140	M16	24	90	40	360	100	M10

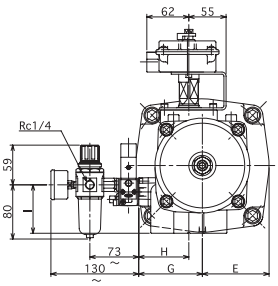
Single-Acting Type [Type R2] (Spring Return)











Unit : mm

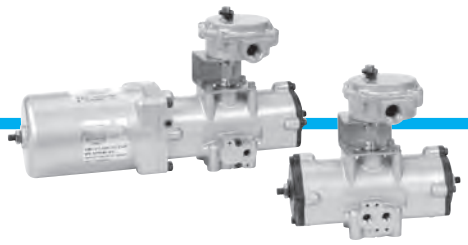
Model Code	Stroke	L1	L2	K	R	R1	T	H	G	E	I	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125R2-33	84	183	505	27	100	75	182	74	94	98.5	71.5	28	125	M12	18	70	32	300	85	M8
TA2-160R2-33	106	223	615	30	125	91	228	82	107	124	85.5	36	140	M16	24	90	40	360	100	M10

● For dimensional drawings of "L2 type" operation system, contact us.

Rotary Actuator with Optional Accessories

With Limit Switch Box

Switch box to detect the position of the actuator's rotating angle (opening/closing angle of valve) is mounted.



Specifications

Bore size [mm]	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100	ϕ 125	ϕ 160
Operating fluid	Compressed air						
Operating pressure	0.3 ~ 0.7MPa						
Proof pressure	1.05MPa						
Operating temperature	− 5 ~ 60℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)						
Output torque	Please refer to the "Table of Output Torque" (P22 ~ P24)						
Rotating angle	90°						
Operating speed	Max.90° /1s					Max.90° /2s	Max.90° /3s
Angle adjustment range	−	± 5° both end					

Model Code

TA2 − ① ② − 34

① Bore size

② Operation type

1 Bore size [mm]

ϕ 40	0402
ϕ 50	050
ϕ 63	063
ϕ 80	080
ϕ 100	100
ϕ 125	125
ϕ 160	160

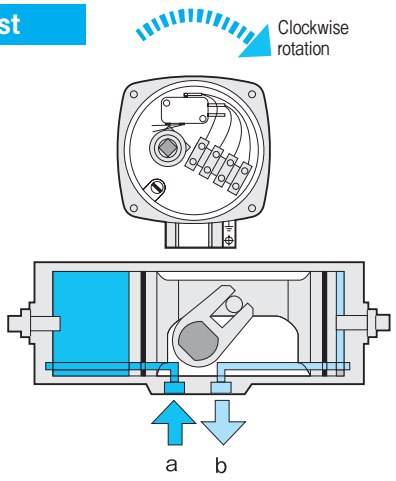
2 Operation type

Double-Acting Type	ϕ40 ~ ϕ160	D
Single-Acting Type (Clockwise rotation by spring)	ϕ40 ~ ϕ80	R
	ϕ100 ~ ϕ160	R2
Single-Acting Type (Counterclockwise rotation by spring)	ϕ40 ~ ϕ80	L
	ϕ100 ~ ϕ160	L2

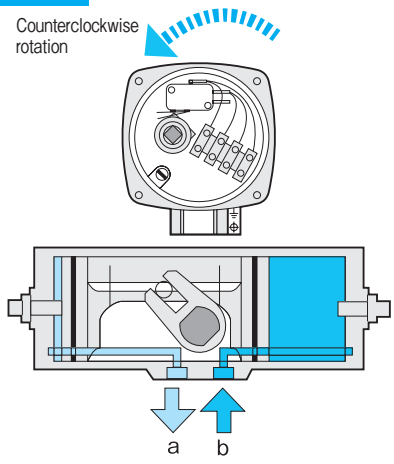
Operation

Double-Acting Type [Type D]

a : Pressurized
b : Exhaust

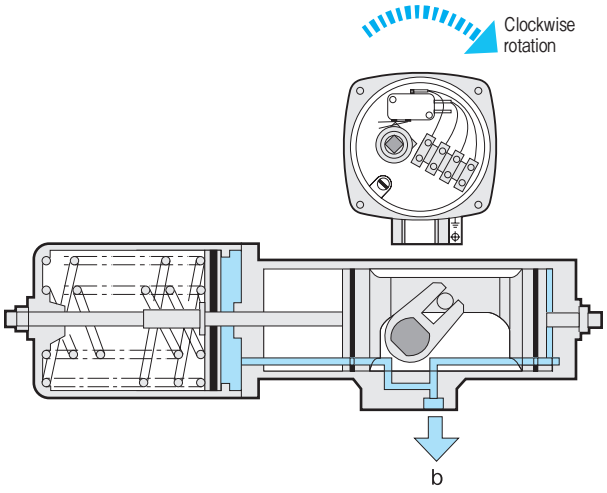


a : Exhaust
b : Pressurized

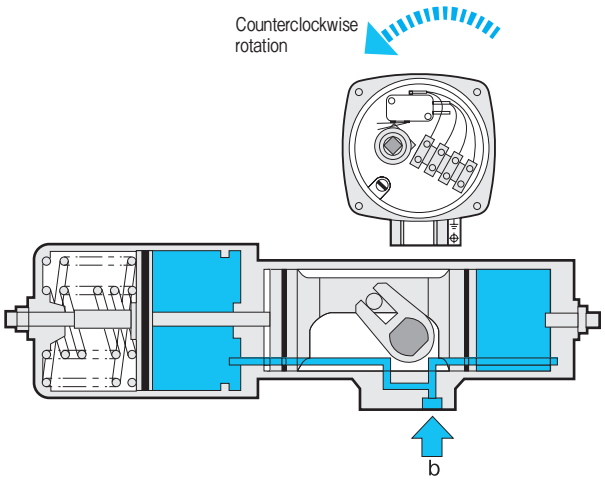


Single-Acting Type [Type R] (Spring Return)

b : Exhaust



b : Pressurized

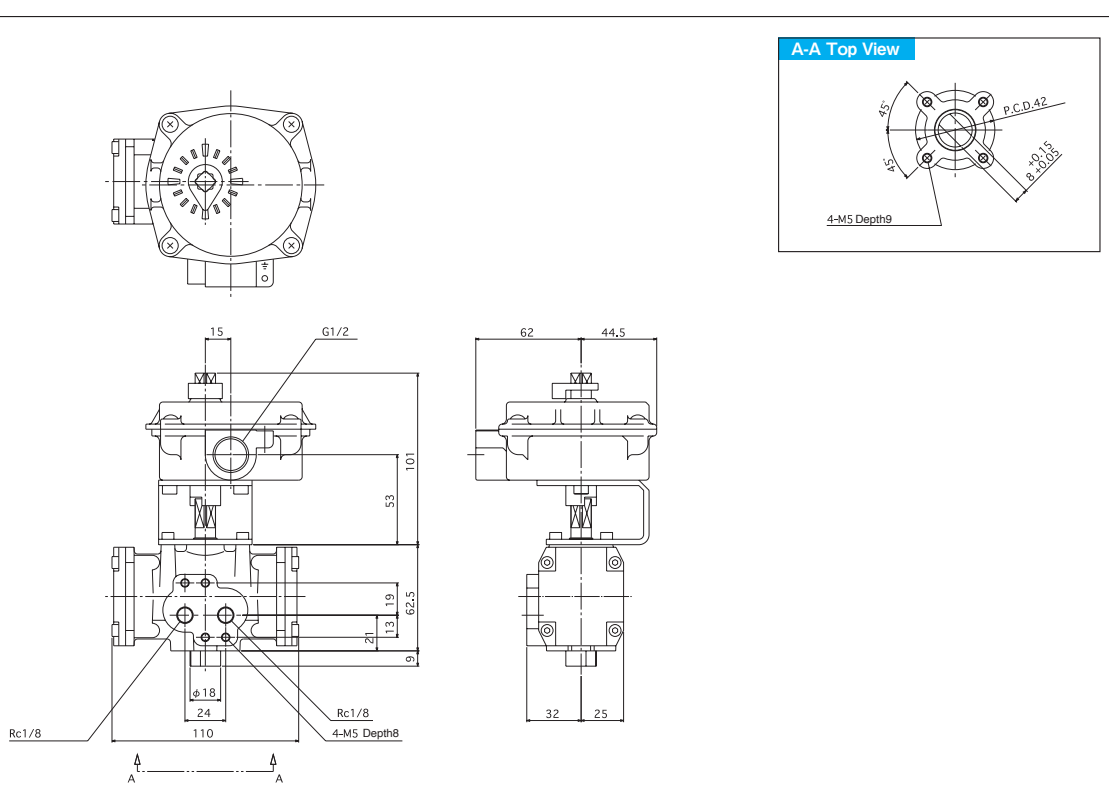


Option

- For the details of change procedures for actuator operation by solenoid valve (reverse rotation), refer to P107.
- For the details of change procedures for operation by spring force of single-acting actuator (reverse rotation), refer to P110.
- For the details of procedures for wire connection of switch box, refer to P100.

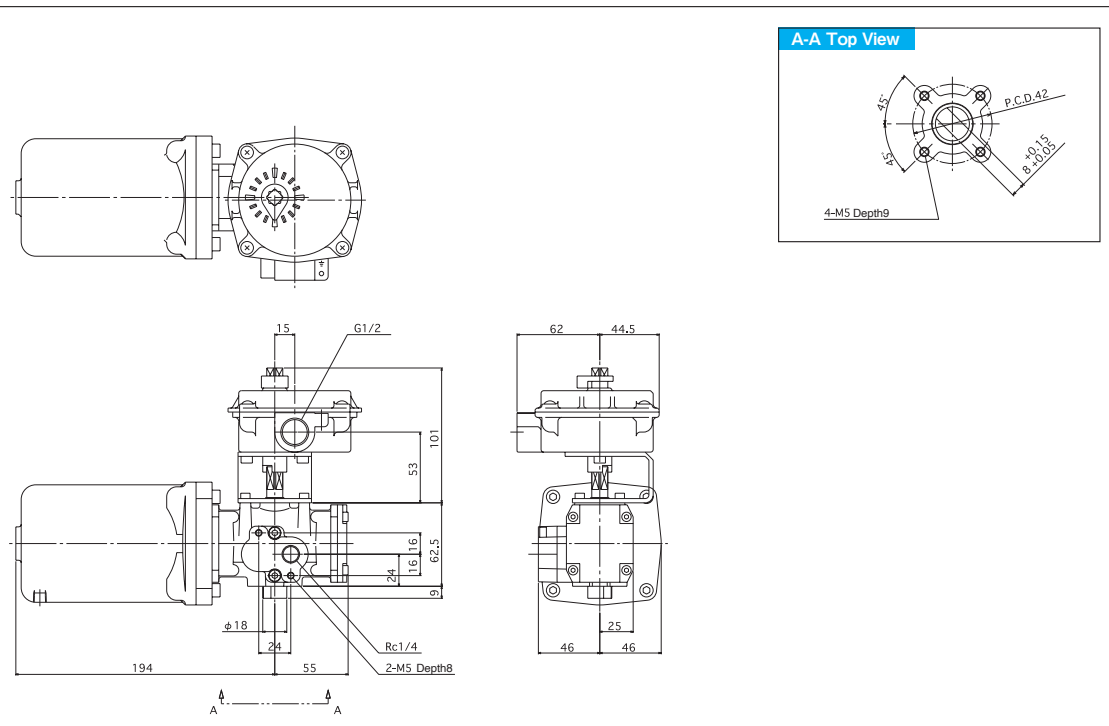
External Dimensions 〈φ 40〉

Double-Acting Type [Type D]



Unit : mm

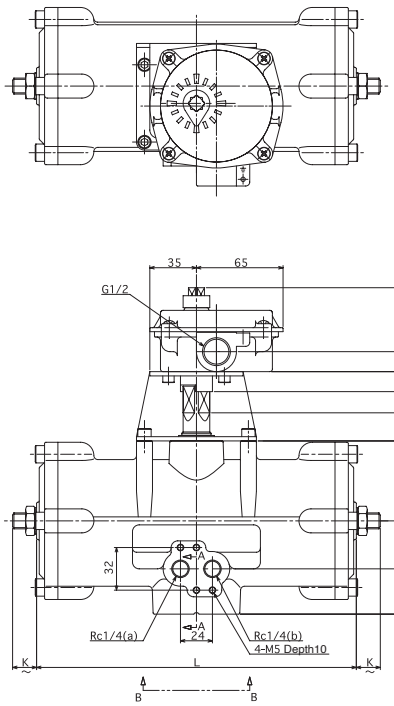
Single-Acting Type [Type R/Type L] (Spring Return)

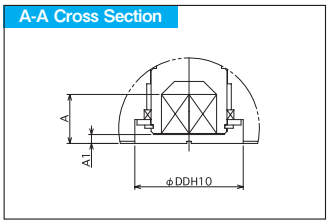


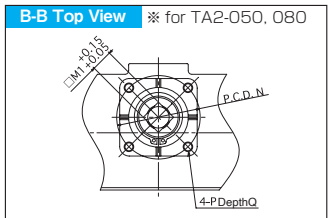
Unit : mm

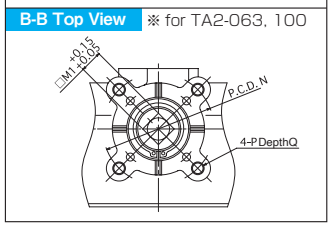
External Dimensions 〈φ 50・63・80・100〉

Double-Acting Type [Type D]





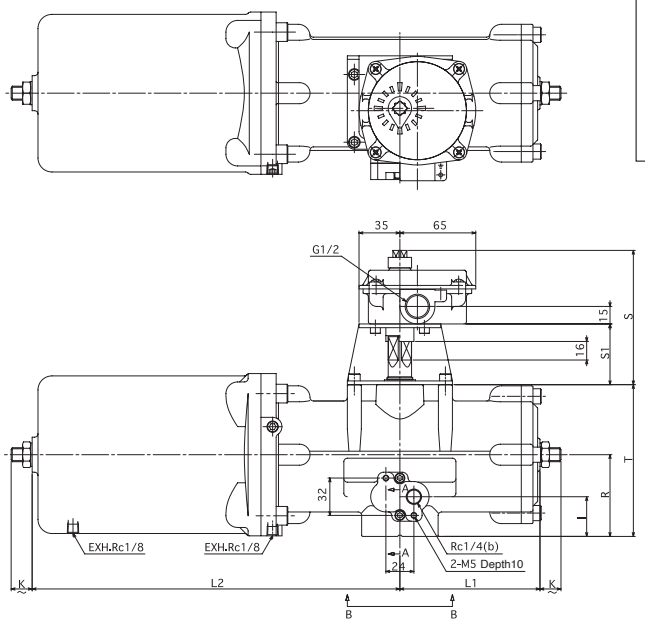


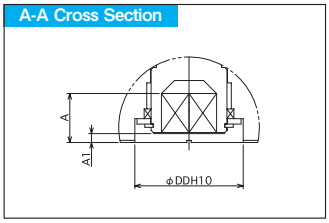


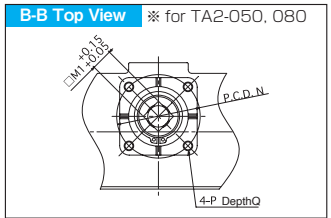
Unit : mm

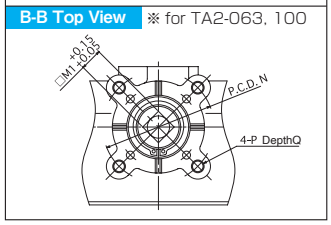
Model Code	Stroke	L	K	I	R	T	S	S1	H	G	E	M1	N	P	Q	DD	A	A1
TA2-050D-34	34	170	14	27	50	90	106	43	36	43	39	12	50	M6	8	35	16	3
TA2-063D-34	42	204	16	29	57	105	106	43	38	48	47	14	70	M8	12	40	17	3
TA2-080D-34	52	240	18	34	70	130	115	52	45	58	58	18	70	M8	12	50	22	4
TA2-100D-34	66	294	24	43	88	161	115	52	57	72	70.5	22	102	M10	15	60	26	4

Single-Acting Type [Type R (R2)] (Spring Return)









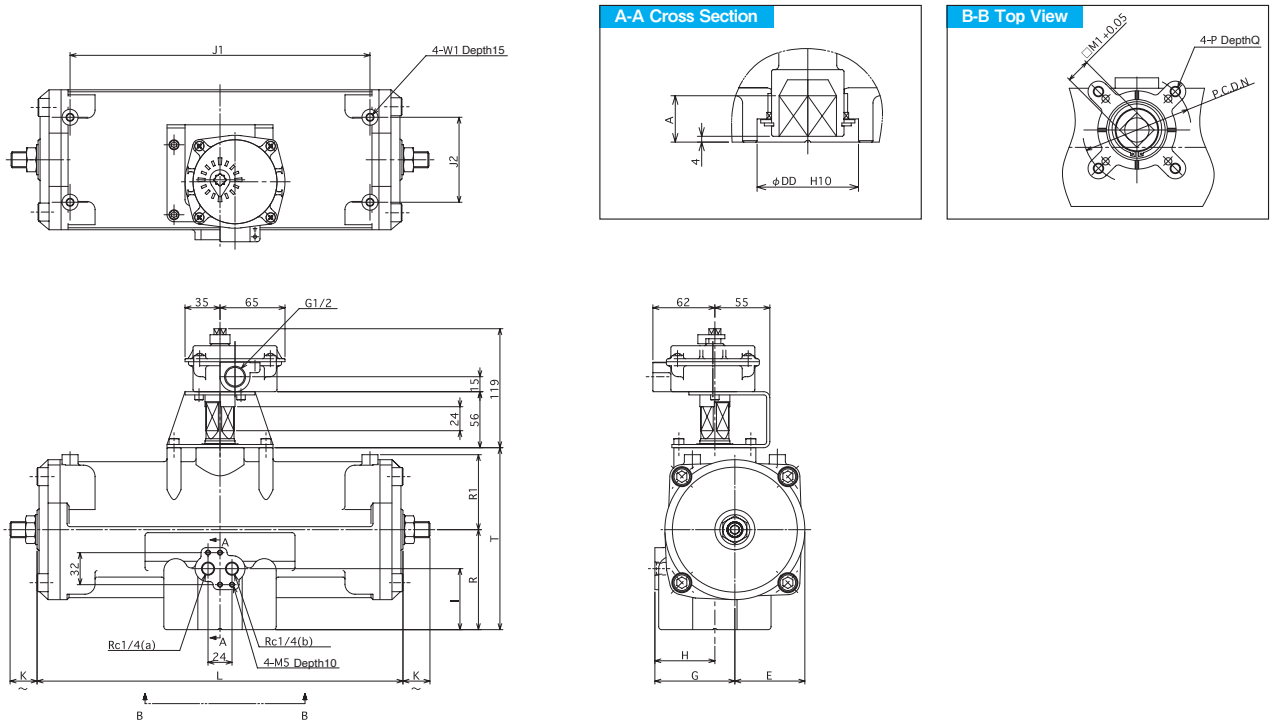
Unit : mm

Model Code	Stroke	L1	L2	K	I	R	T	S	S1	H	G	E	E1	M1	N	P	Q	DD	A	A1
TA2-050R-34	34	85	220	14	27	50	90	106	43	50	57	46	16	12	50	M6	8	35	16	3
TA2-063R-34	42	102	265	16	29	57	105	106	43	52	62	56.5	20	14	70	M8	12	40	17	3
TA2-080R-34	52	120	315	18	34	70	130	115	52	59	72	69.5	24	18	70	M8	12	50	22	4
TA2-100R2-34	66	147	383	24	43	88	161	115	52	71	86	88	30	22	102	M10	15	60	26	4

● For dimensional drawings of "L(L2) type" operation system, contact us.

External Dimensions 〈φ 125・160〉

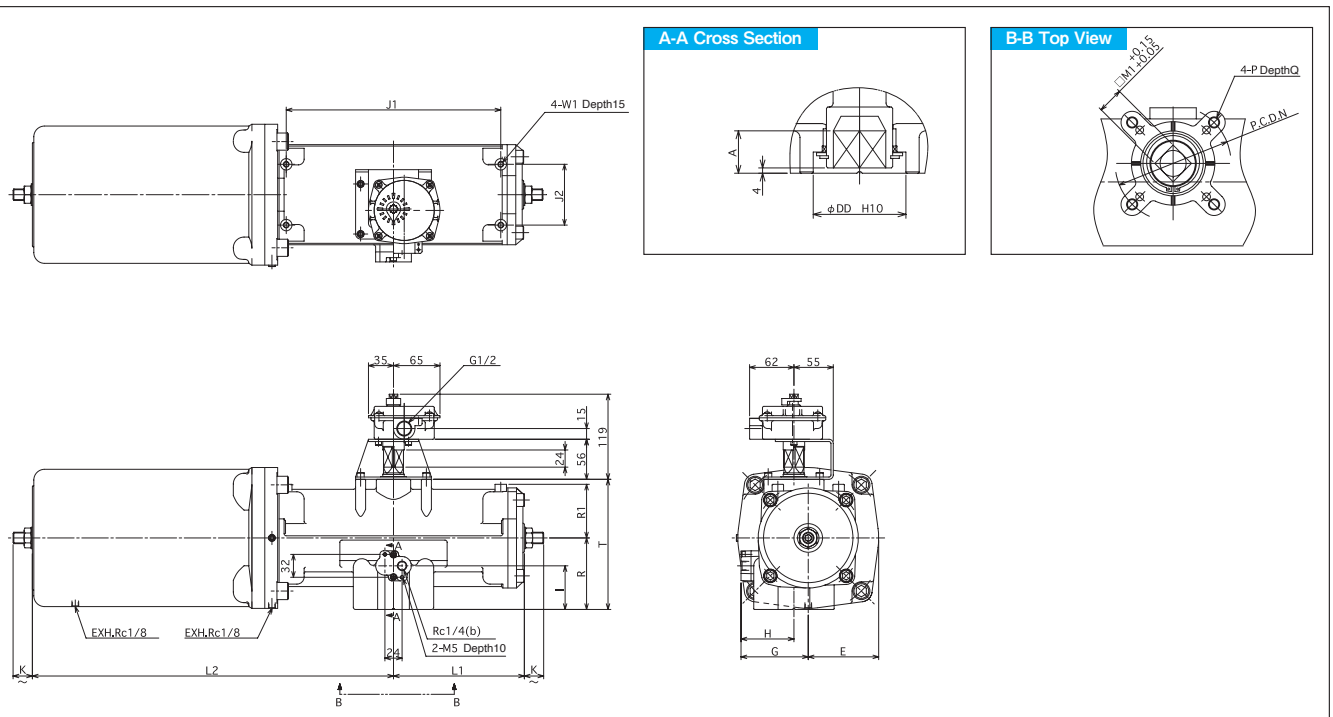
Double-Acting Type [Type D]



Unit : mm

Model Code	Stroke	L	K	I	R	R1	T	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125D-34	84	366	27	61	100	75	182	60	80	70	28	125	M12	18	70	32	300	85	M8
TA2-160D-34	106	446	30	75	125	91	228	68	93	88	36	140	M16	24	90	40	360	100	M10

Single-Acting Type [Type R2] (Spring Return)



Unit : mm

Model Code	Stroke	L1	L2	K	I	R	R1	T	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125R2-34	84	183	505	27	61	100	75	182	74	94	98.5	28	125	M12	18	70	32	300	85	M8
TA2-160R2-34	106	223	615	30	75	125	91	228	82	107	124	36	140	M16	24	90	40	360	100	M10

● For dimensional drawings of "L2 type" operation system, contact us.

TA2
SERIES

Rotary Actuator with Optional Accessories

With Bypass Valve with built-in Speed Controller and Limit Switch Box

This unit type incorporate a switch box for detecting rotating position of the valve and a bypass valve with built-in speed controller, which is applicable to NAMUR interface.

※ Only the Double-Acting Type is available

Specifications

Bore size [mm]	ϕ 40	ϕ 50	ϕ 63	ϕ 80	ϕ 100	ϕ 125	ϕ 160
Operating fluid	Compressed air						
Operating pressure	0.3 ~ 0.7MPa						
Proof pressure	1.05MPa						
Operating temperature	− 5 ~ 60℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)						
Output torque	Please refer to the "Table of Output Torque" (P22 ~ P24)						
Rotating angle	90°						
Angle adjustment range	−	± 5° both end					

Model Code

TA2 − ① TA2 − 35

Bore size

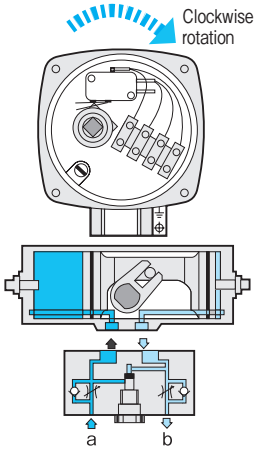
① Bore size [mm]

ϕ 40	0402
ϕ 50	050
ϕ 63	063
ϕ 80	080
ϕ 100	100
ϕ 125	125
ϕ 160	160

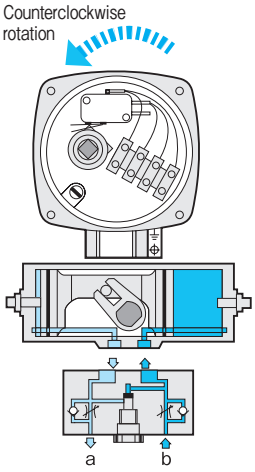
Operation

Double-Acting Type [Type D]

a : Pressurized
b : Exhaust



a : Exhaust
b : Pressurized

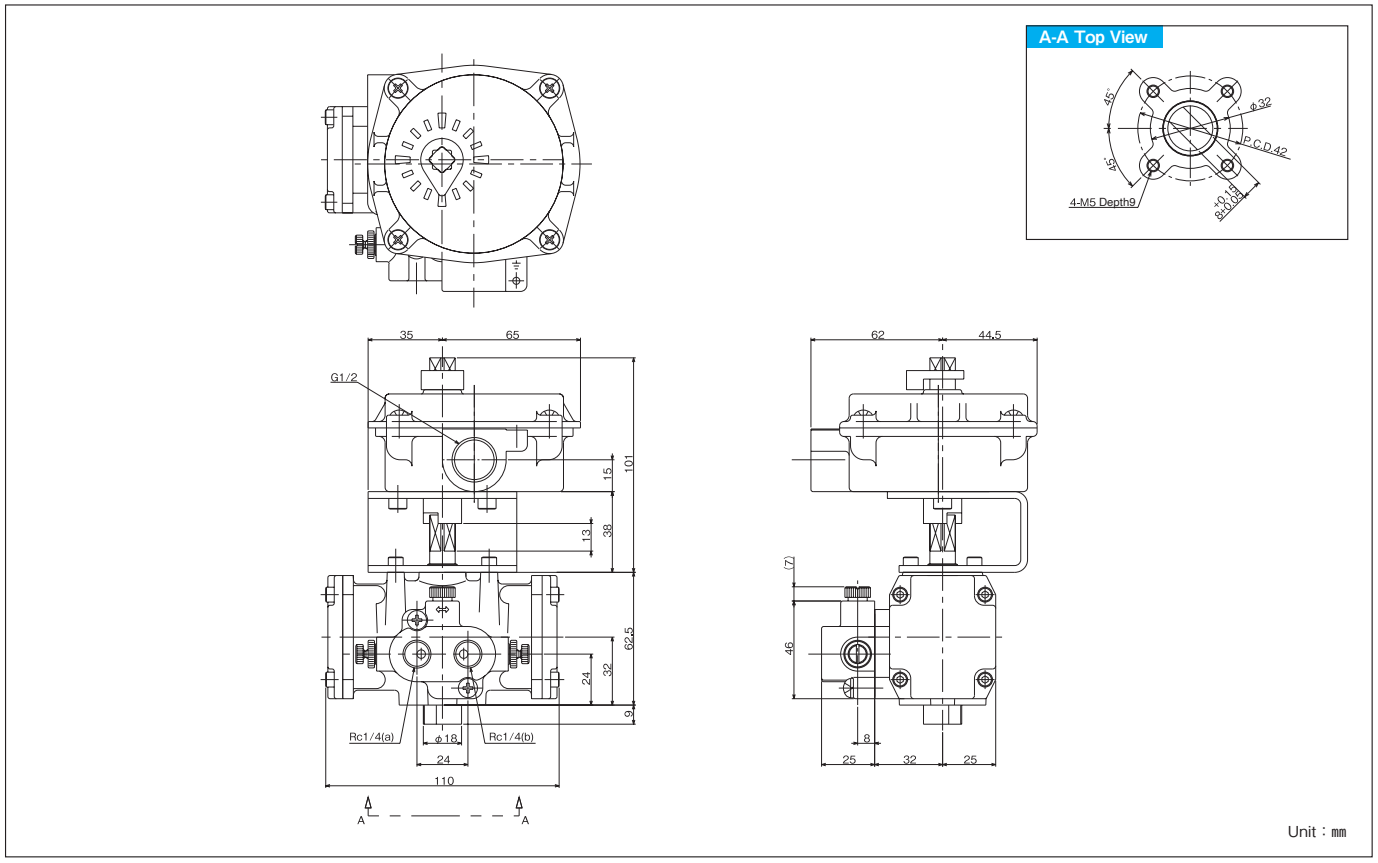


Option

■ For the details of procedures for wire connection of switch box, refer to P100.

External Dimensions

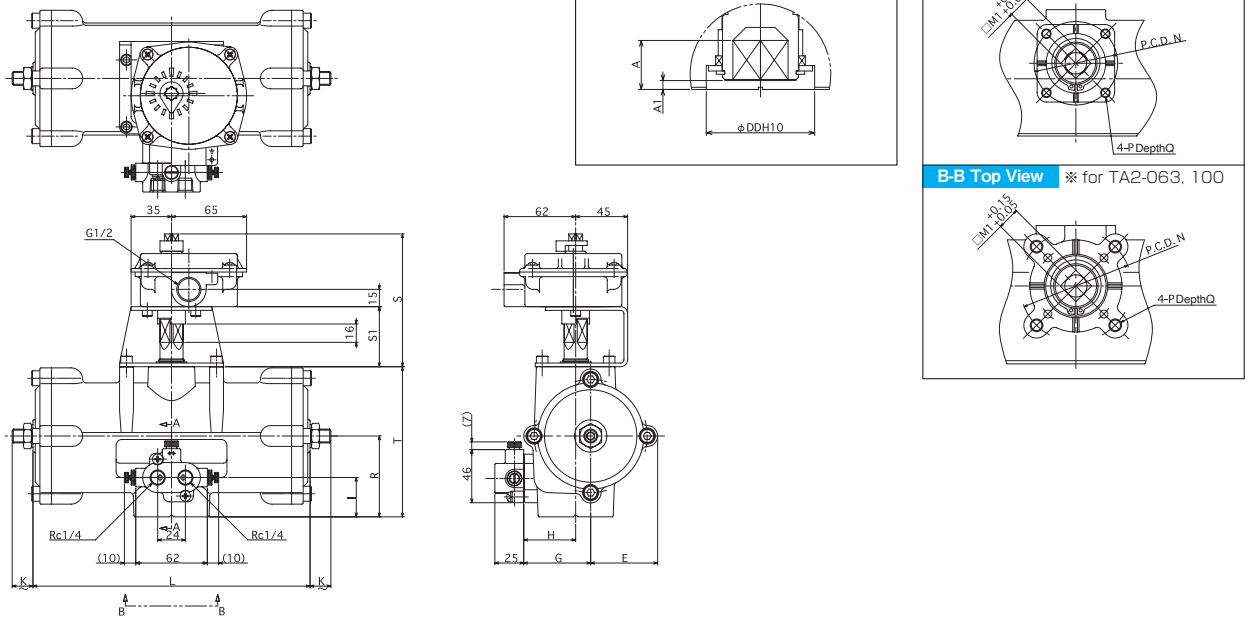
φ 40



Unit : mm

External Dimensions

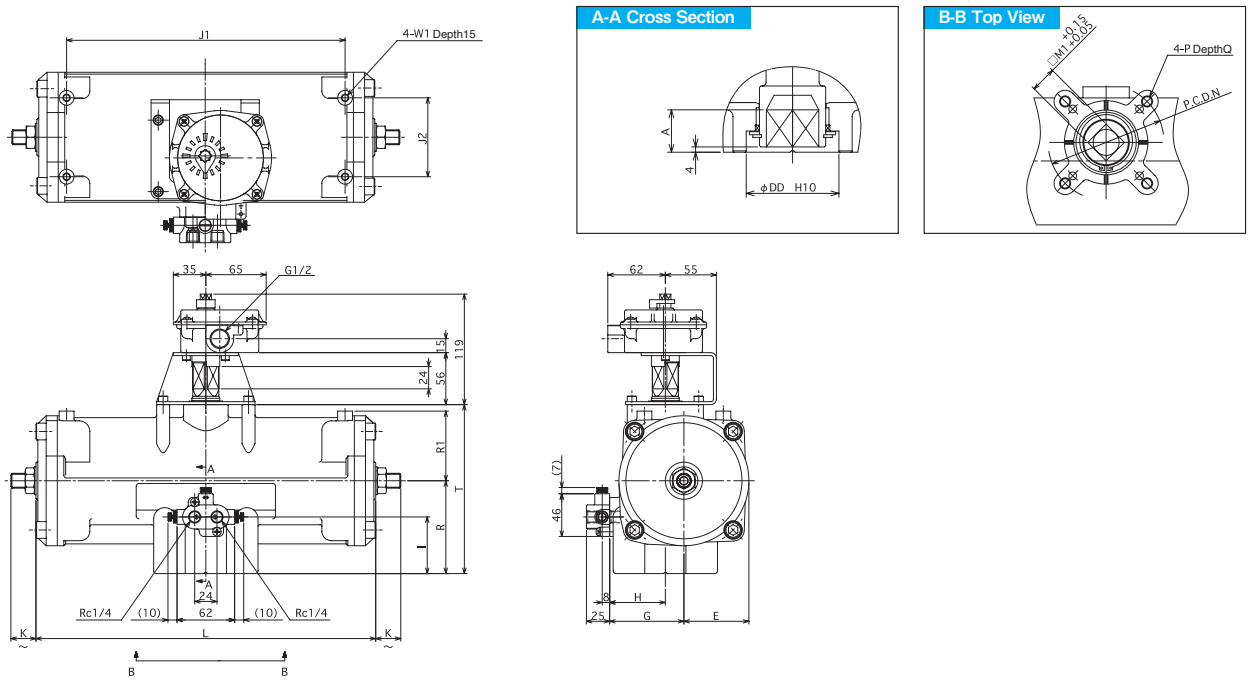
φ 50・63・80・100



Unit : mm

Model Code	Stroke	L	K	I	R	T	S	S1	H	G	E	M1	N	P	Q	DD	A	A1
TA2-050D-35	34	170	14	27	50	90	106	43	36	43	39	12	50	M6	8	35	16	3
TA2-063D-35	42	204	16	29	57	105	106	43	38	48	47	14	70	M8	12	40	17	3
TA2-080D-35	52	240	18	34	70	130	115	52	45	58	58	18	70	M8	12	50	22	4
TA2-100D-35	66	294	24	43	88	161	115	52	57	72	70.5	22	102	M10	15	60	26	4

φ 125・160



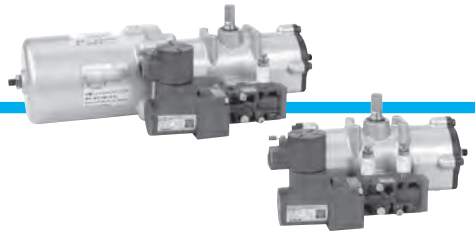
Unit : mm

Model Code	Stroke	L	K	I	R	R1	T	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125D-35	84	366	27	61	100	75	182	60	80	70	28	125	M12	18	70	32	300	85	M8
TA2-160D-30	106	446	30	75	125	91	228	68	93	88	36	140	M16	24	90	40	360	100	M10

TA2 SERIES

Rotary Actuator with Optional Accessories

With Explosion-Proof Solenoid Valve



This type incorporates a 5-port solenoid valve in explosion-proof structure (d2G4). The valve with speed controller as well as bypass valve is compact and power-saving.

Specifications

Bore size [mm]		φ 40	φ 50	φ 63	φ 80	φ 100	φ 125	φ 160
Operating fluid		Compressed air						
Operating pressure		0.3 ~ 0.7MPa						
Proof pressure		1.05MPa						
Operating temperature		− 5 ~ 60℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)						
Output torque		Please refer to the "Table of Output Torque" (P22 ~ P24)						
Rotating angle		90°						
Angle adjustment range		−	± 5° both end					
Solenoid valve	Structure	Explosion-ploof structure (d2G4)						
	Rated voltage	Please refer to the Model Code section.						
	Voltage tolerance	− 15 ~+ 10% of the rated voltage						
	Power consumption	AC-7.5VA (50Hz) 5.5VA (60Hz)、DC-4W						
	Protection class	IP65						

● Ex Ⅱ BT4 explosion-proof solenoid valves are available. For details, contact us.

Model Code

TA2 − ① ② − 36 − ③ ④ ⑤

① Bore size
② Operation type
③ Type of Solenoid Valve
④ Type of Wiring
⑤ Rated Voltage

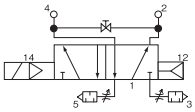
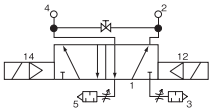
1 Bore size [mm]

φ 40	0402
φ 50	050
φ 63	063
φ 80	080
φ 100	100
φ 125	125
φ 160	160

2 Operation type

Double-Acting Type	φ 40 ~ φ 160	D
Single-Acting Type (Clockwise rotation by spring)	φ 40 ~ φ 80	R
	φ 100 ~ φ 160	R2
Single-Acting Type (Counterclockwise rotation by spring)	φ 40 ~ φ 80	L
	φ 100 ~ φ 160	L2

3 Type of Solenoid Valve

Return		S
Hold		D

● In the case where the operation type of ② is R and L, only S (return) is available as type of solenoid valve.
● In the case where the rotation direction of the actuator by the return solenoid valve is opposite to the rotation direction on the above drawing, please inform us of it.

4 Type of Wiring

Conduit tube system		01
Pressure-resistant packing system (Applicable cable size)	φ 7.5 ~ 8.4	08
	φ 8.5 ~ 9.4	09
	φ 9.5 ~ 10.4	10
	φ 10.5 ~ 11.4	11
	φ 11.5 ~ 12.4	12

5 Rated Voltage

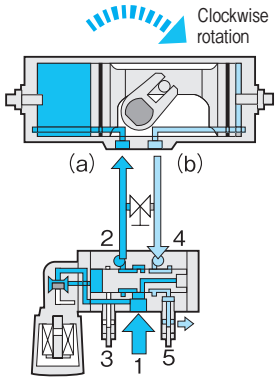
AC100V 50/60Hz、110V 60Hz	1
(AC110V 50Hz、120V 60Hz)	2
AC200V 50/60Hz、220V 60H	3
(AC220V 50Hz、240V 60Hz)	4
(DC12V)	8
DC24V	5
(DC48V)	6
DC100V	7
(DC110V)	9
(DC125V)	A

● ( ) : Semi-standard.

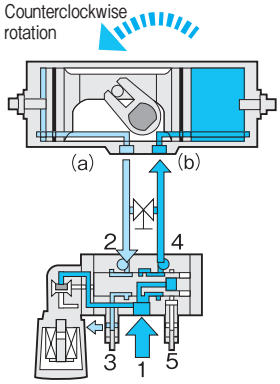
Operation

Double-Acting Type [Type D]

De-energized

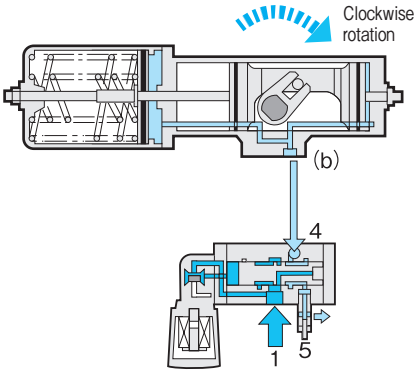


Energized

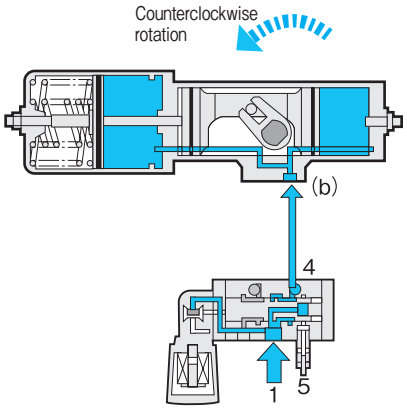


Single-Acting Type [Type R] (Spring Return)

De-energized



Energized



Option

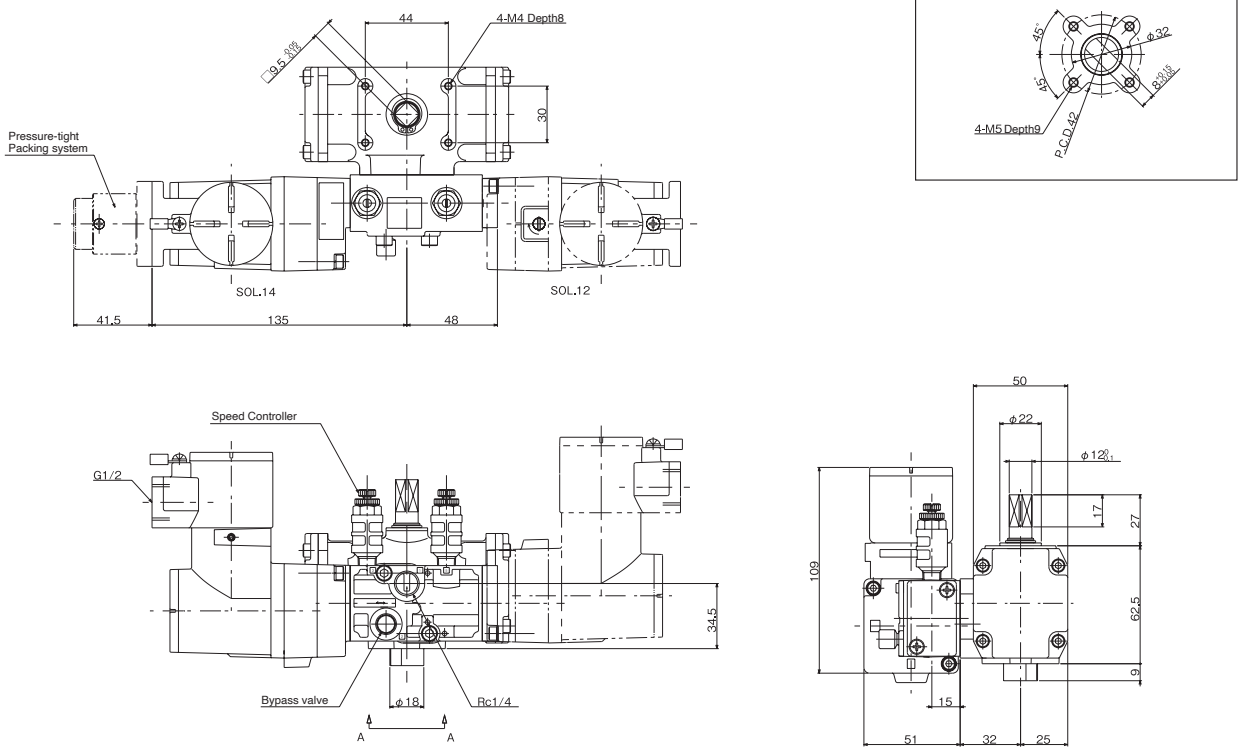
■ For the details of change procedures for actuator operation by explosion-proof solenoid valve (reverse rotation), refer to P109.

■ For the details of change procedures for operation by spring force of single-acting actuator (reverse rotation), refer to P110.

■ For the details of the procedures for wire connection of explosion-proof solenoid valve, refer to P107.

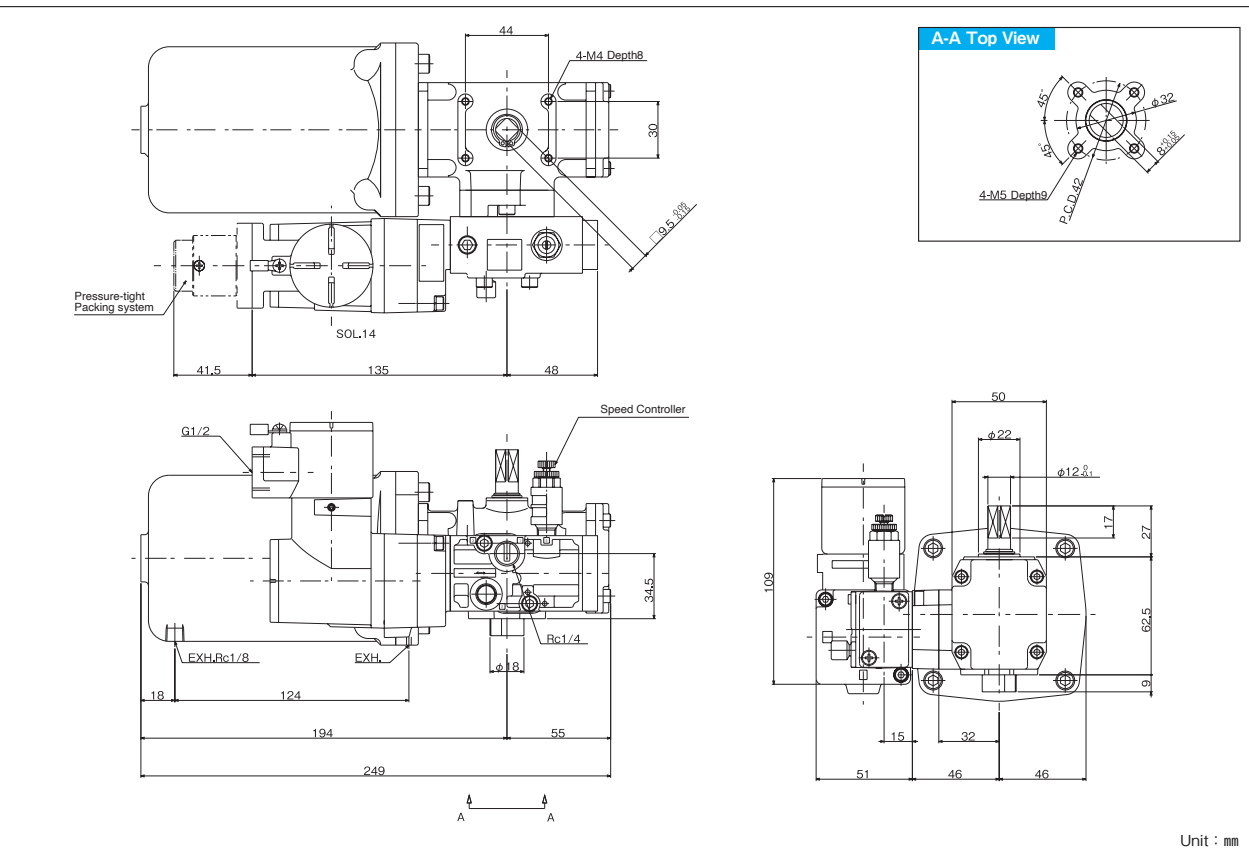
External Dimensions 〈φ 40〉

Double-Acting Type [Type D]



Unit : mm

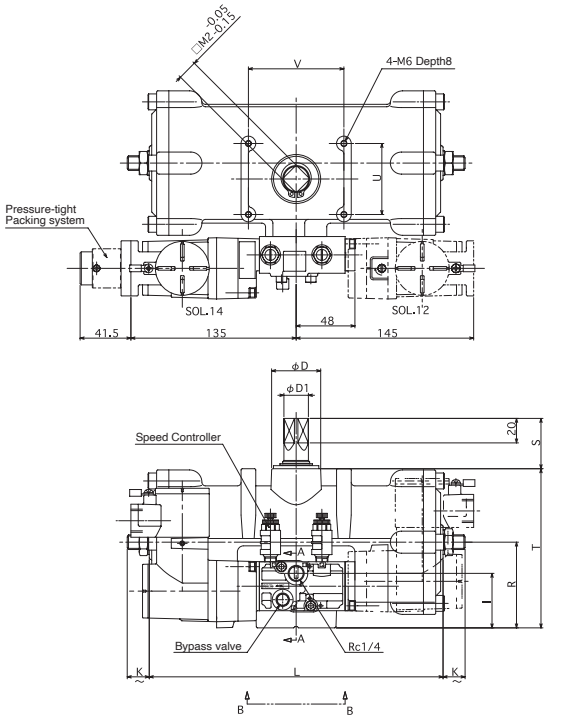
Single-Acting Type [Type R/Type L] (Spring Return)

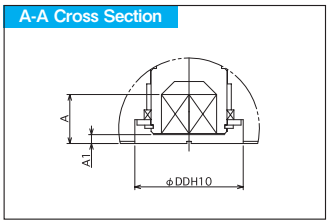


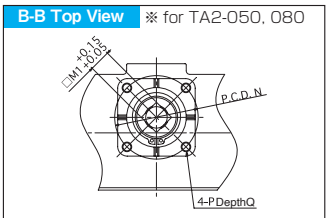
Unit : mm

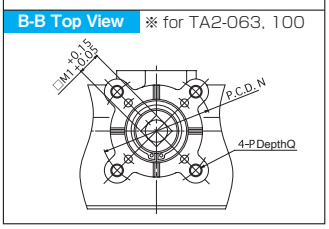
External Dimensions 〈φ 50・63・80・100〉

Double-Acting Type [Type D]





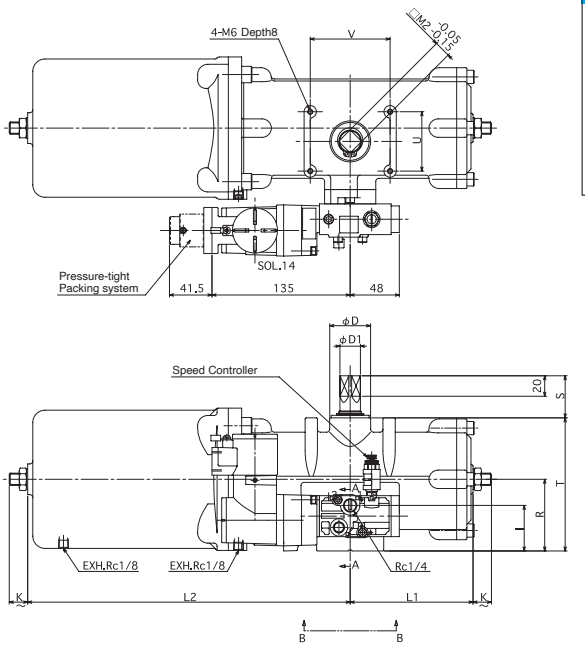


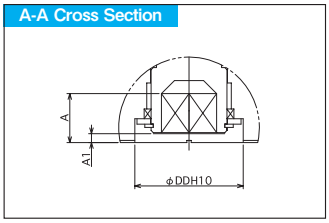


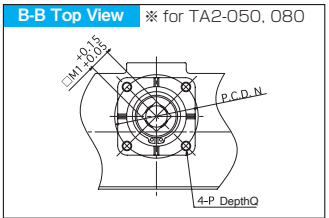
Unit : mm

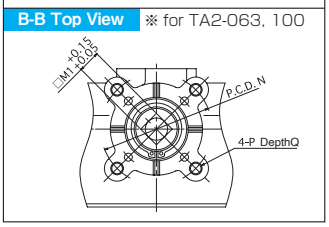
Model Code	Stroke	L	K	I	R	T	S	D	D1	H	G	E	M1	M2	N	P	Q	DD	A	A1	V	U
TA2-050D-36	34	170	14	37.5	50	90	33	26	14	36	43	39	12	11	50	M6	8	35	16	3	58	36
TA2-063D-36	42	204	16	39.5	57	105	33	32	14	38	48	47	14	11	70	M8	12	40	17	3	58	36
TA2-080D-36	52	240	18	44.5	70	130	41	40	20	45	58	58	18	16	70	M8	12	50	22	4	78	58
TA2-100D-36	66	294	24	53.5	88	161	41	50	20	57	72	70.5	22	16	102	M10	15	60	26	4	78	58

Single-Acting Type [Type R (R2)] (Spring Return)









Unit : mm

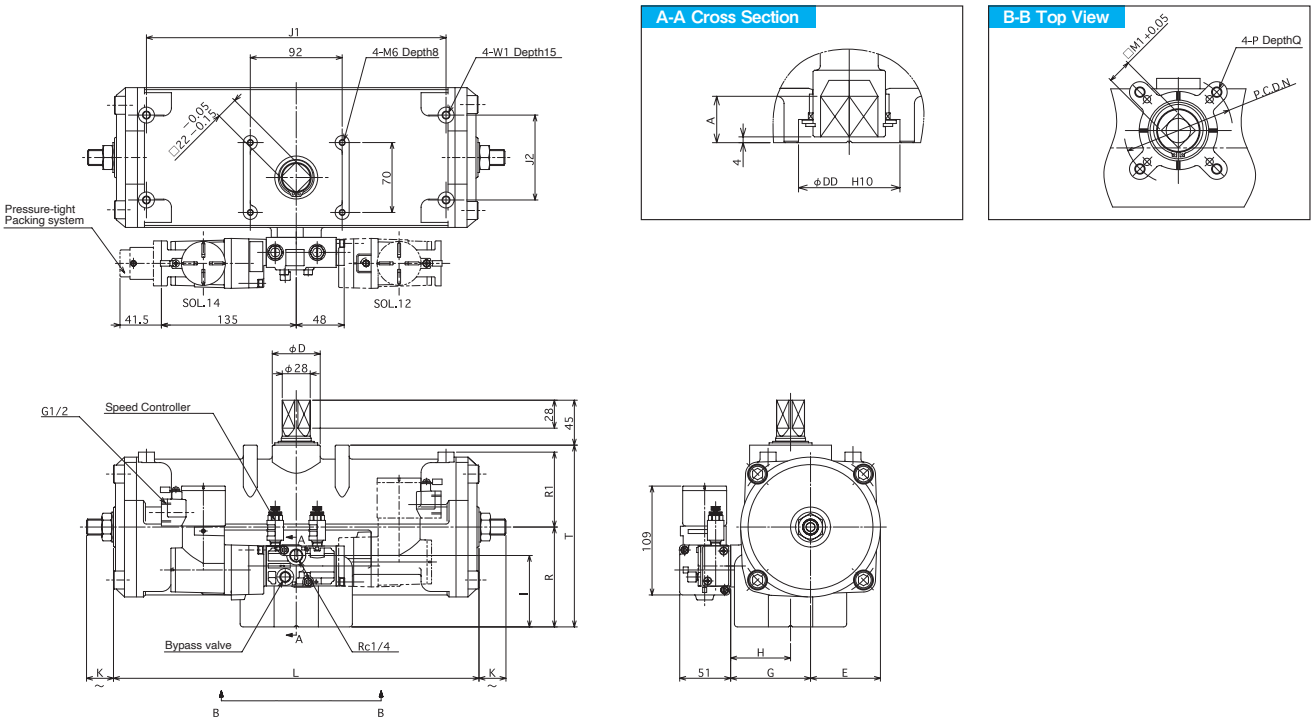
Model Code	Stroke	L1	L2	K	I	R	T	S	D	D1	H	G	E	E1	M1	M2	N	P	Q	DD	A	A1	V	U
TA2-050R-36	34	85	220	14	37.5	50	90	33	26	14	50	57	46	16	12	11	50	M6	8	35	16	3	58	36
TA2-063R-36	42	102	265	16	39.5	57	105	33	32	14	52	62	56.5	20	14	11	70	M8	12	40	17	3	58	36
TA2-080R-36	52	120	315	18	44.5	70	130	41	40	20	59	72	69.5	24	18	16	70	M8	12	50	22	4	78	58
TA2-100R2-36	66	147	383	24	53.5	88	161	41	50	20	71	86	88	30	22	16	102	M10	15	60	26	4	78	58

● For dimensional drawings of "L(L2) type" operation system, contact us.

With Explosion-Proof Solenoid Valve

External Dimensions 〈φ 125・160〉

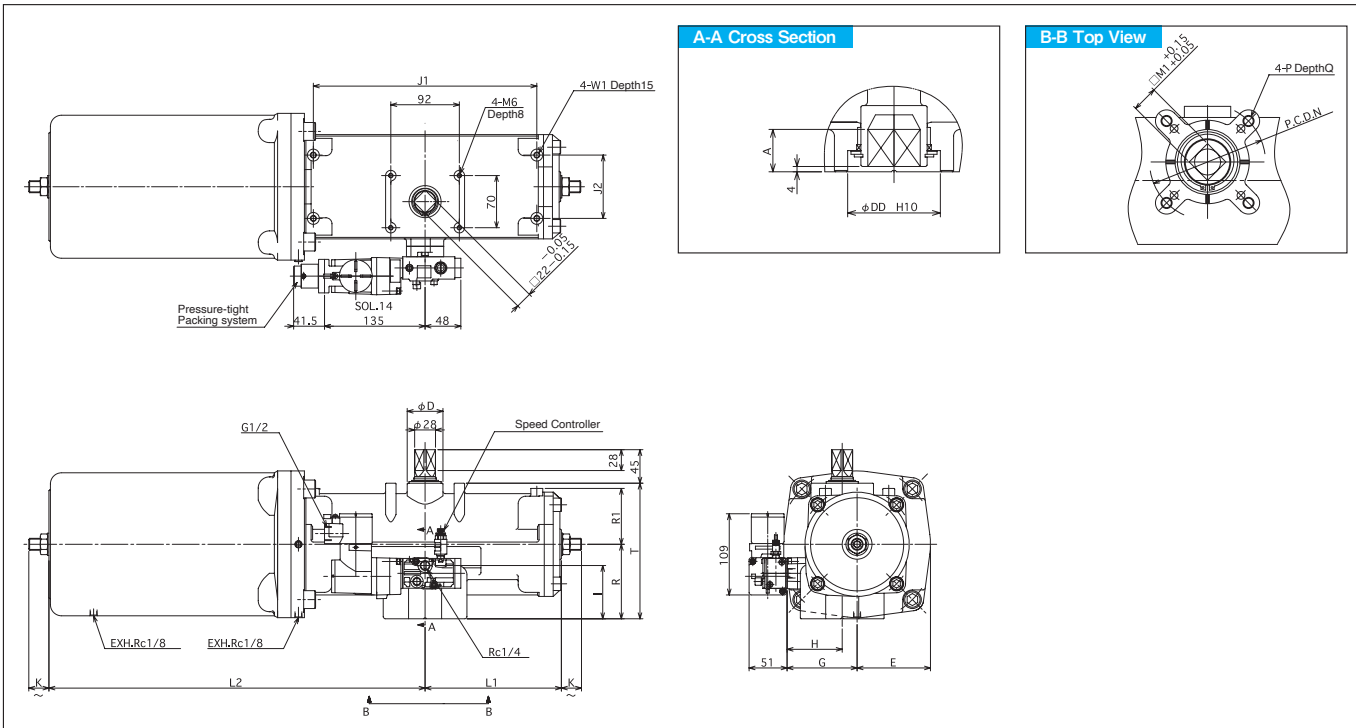
Double-Acting Type [Type D]



Unit : mm

Model Code	Stroke	L	K	I	R	R1	T	D	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125D-36	84	366	27	71.5	100	75	182	52	60	80	70	28	125	M12	18	70	32	300	85	M8
TA2-160D-36	106	446	30	85.5	125	91	228	60	68	93	88	36	140	M16	24	90	40	360	100	M10

Single-Acting Type [Type R2] (Spring Return)



Unit : mm

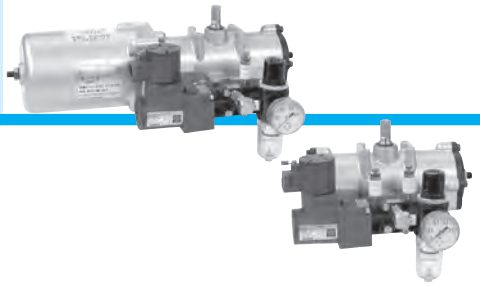
Model Code	Stroke	L1	L2	K	I	R	R1	T	D	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125R2-36	84	183	505	27	71.5	100	75	182	52	74	94	98.5	28	125	M12	18	70	32	300	85	M8
TA2-160R2-36	106	223	615	30	85.5	125	91	228	60	82	107	124	36	140	M16	24	90	40	360	100	M10

● For dimensional drawings of "L2 type" operation system, contact us.

TA2 SERIES

Rotary Actuator with Optional Accessories

With Explosion-Proof Solenoid Valve and FR Unit



This type incorporates a 5-port solenoid valve in explosion-proof structure (d2G4) and FR unit.

Specifications

Bore size [mm]		φ 40	φ 50	φ 63	φ 80	φ 100	φ 125	φ 160
Operating fluid		Compressed air						
Operating pressure		0.3 ~ 0.7MPa						
Proof pressure		1.05MPa						
Operating temperature		− 5 ~ 60℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)						
Output torque		Please refer to the "Table of Output Torque" (P22 ~ P24)						
Rotating angle		90°						
Angle adjustment range		−	± 5° both end					
Solenoid valve	Structure	Explosion-ploof structure (d2G4)						
	Rated voltage	Please refer to the Model Code section.						
	Voltage tolerance	− 15 ~+ 10% of the rated voltage						
	Power consumption	AC-7.5VA (50Hz) 5.5VA (60Hz)、DC-4W						
	Protection class	IP65						

● Ex Ⅱ BT4 explosion-proof solenoid valves are available. For details, contact us.

Model Code

TA2 − ① ② − 37 − ③ ④ ⑤

① Bore size
② Operation type
③ Type of Solenoid Valve
④ Type of Wiring
⑤ Rated Voltage

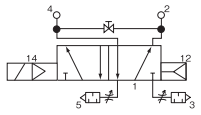
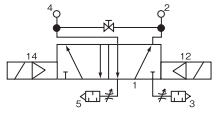
1 Bore size [mm]

φ 40	0402
φ 50	050
φ 63	063
φ 80	080
φ 100	100
φ 125	125
φ 160	160

2 Operation type

Double-Acting Type	φ 40 ~ φ 160	D
Single-Acting Type (Clockwise rotation by spring)	φ 40 ~ φ 80	R
	φ 100 ~ φ 160	R2
Single-Acting Type (Counterclockwise rotation by spring)	φ 40 ~ φ 80	L
	φ 100 ~ φ 160	L2

3 Type of Solenoid Valve

Return		S
Hold		D

● In the case where the operation type of ② is R and L, only S (return) is available as type of solenoid valve.
● In the case where the rotation direction of the actuator by the return solenoid valve is opposite to the rotation direction on the above drawing, please inform us of it.

4 Type of Wiring

Conduit tube system		01
Pressure-resistant packing system (Applicable cable size)	φ 7.5 ~ 8.4	08
	φ 8.5 ~ 9.4	09
	φ 9.5 ~ 10.4	10
	φ 10.5 ~ 11.4	11
	φ 11.5 ~ 12.4	12

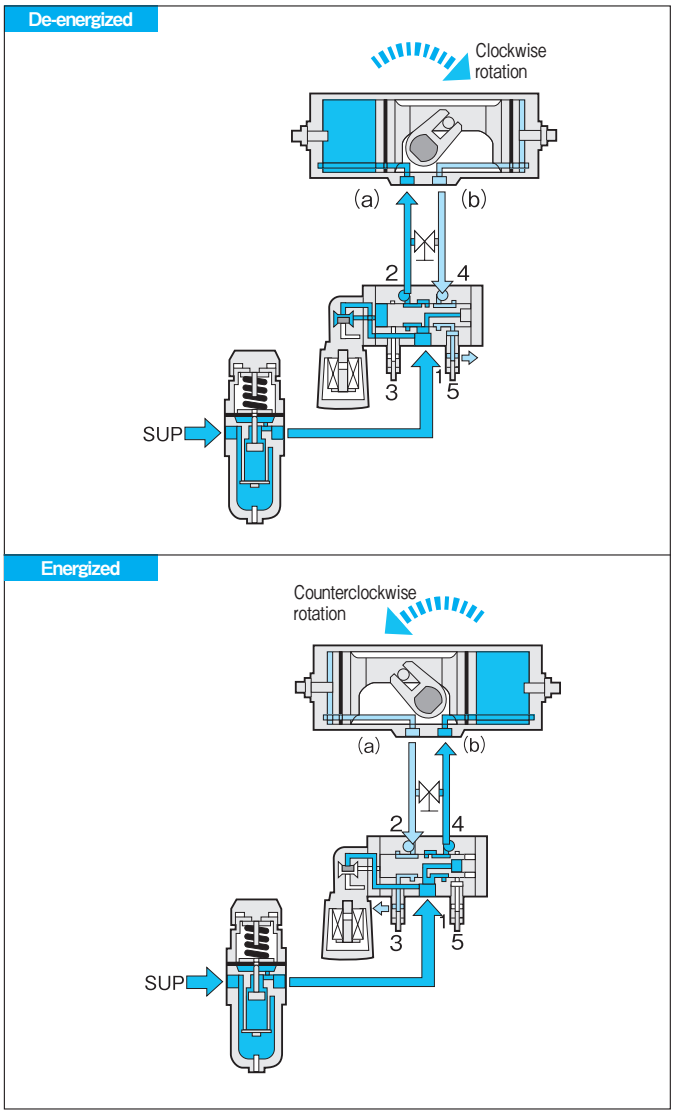
5 Rated Voltage

AC100V 50/60Hz、110V 60Hz	1
(AC110V 50Hz、120V 60Hz)	2
AC200V 50/60Hz、220V 60H	3
(AC220V 50Hz、240V 60Hz)	4
(DC12V)	8
DC24V	5
(DC48V)	6
DC100V	7
(DC110V)	9
(DC125V)	A

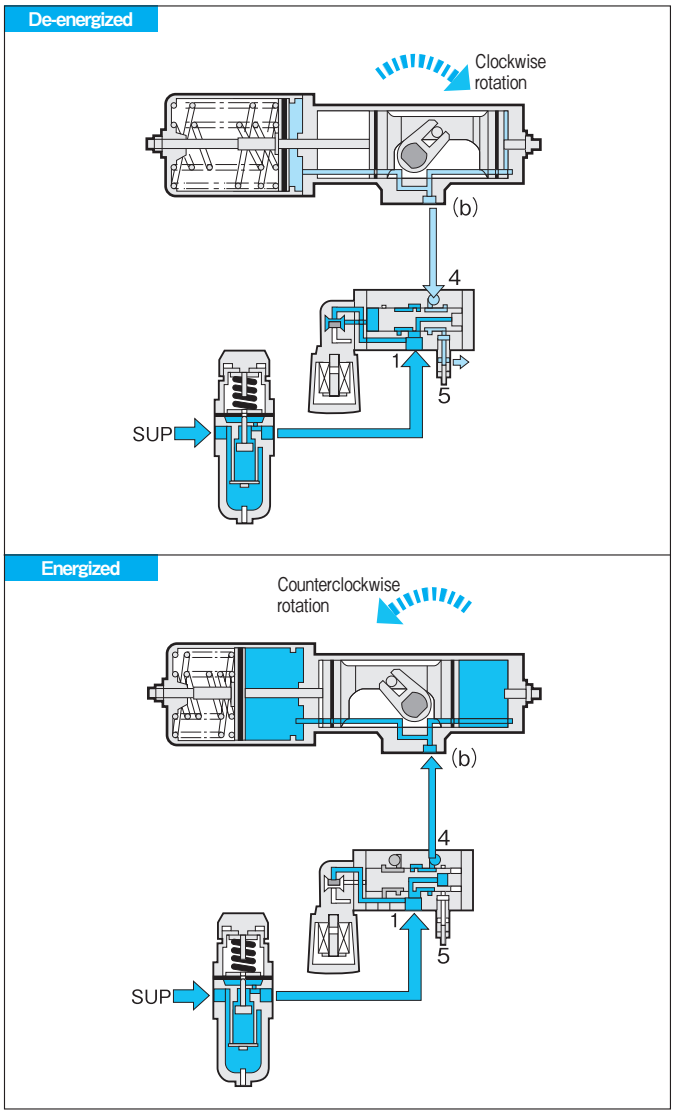
● ( ) : Semi-standard.

Operation

Double-Acting Type [Type D]



Single-Acting Type [Type R] (Spring Return)

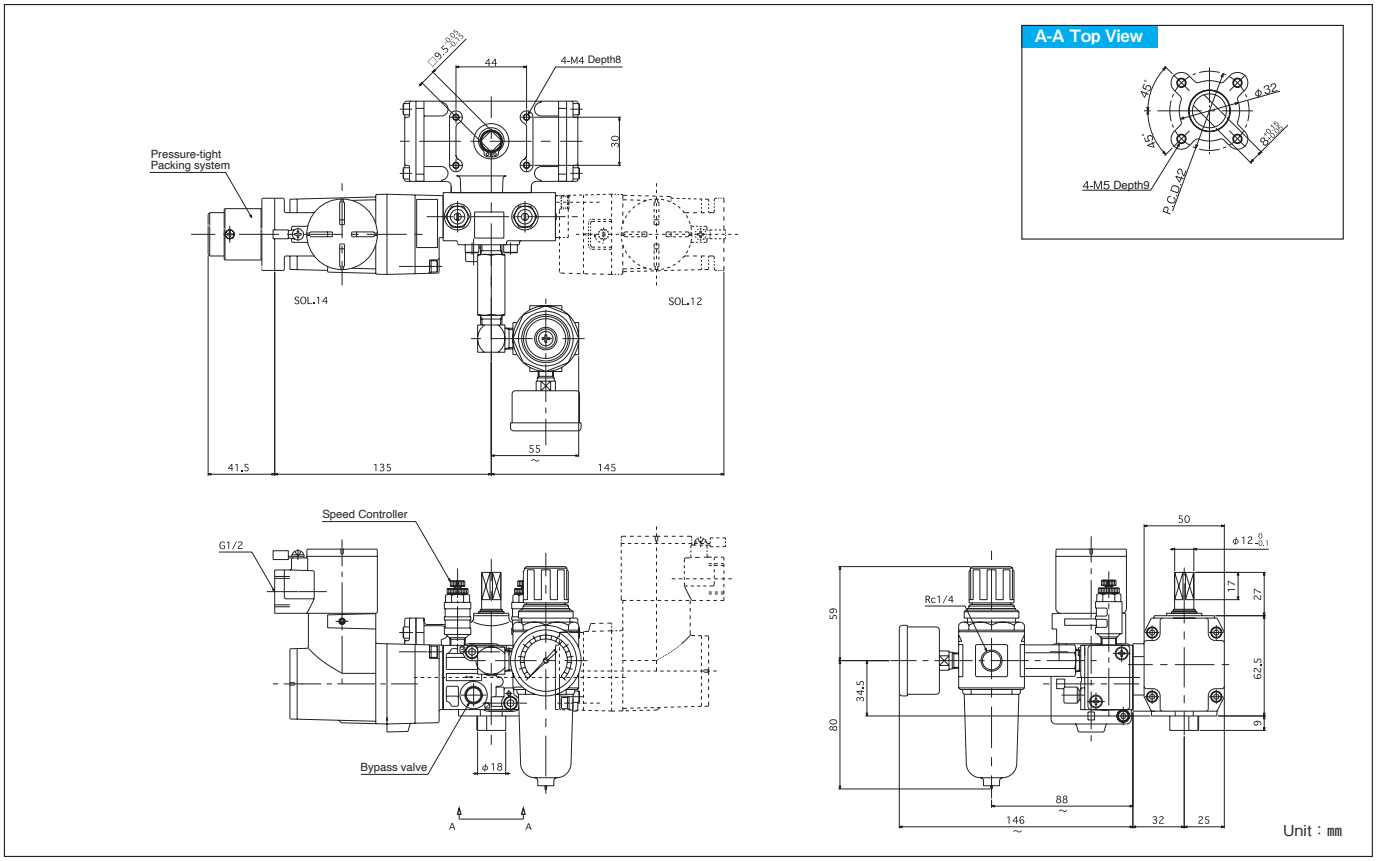


Option

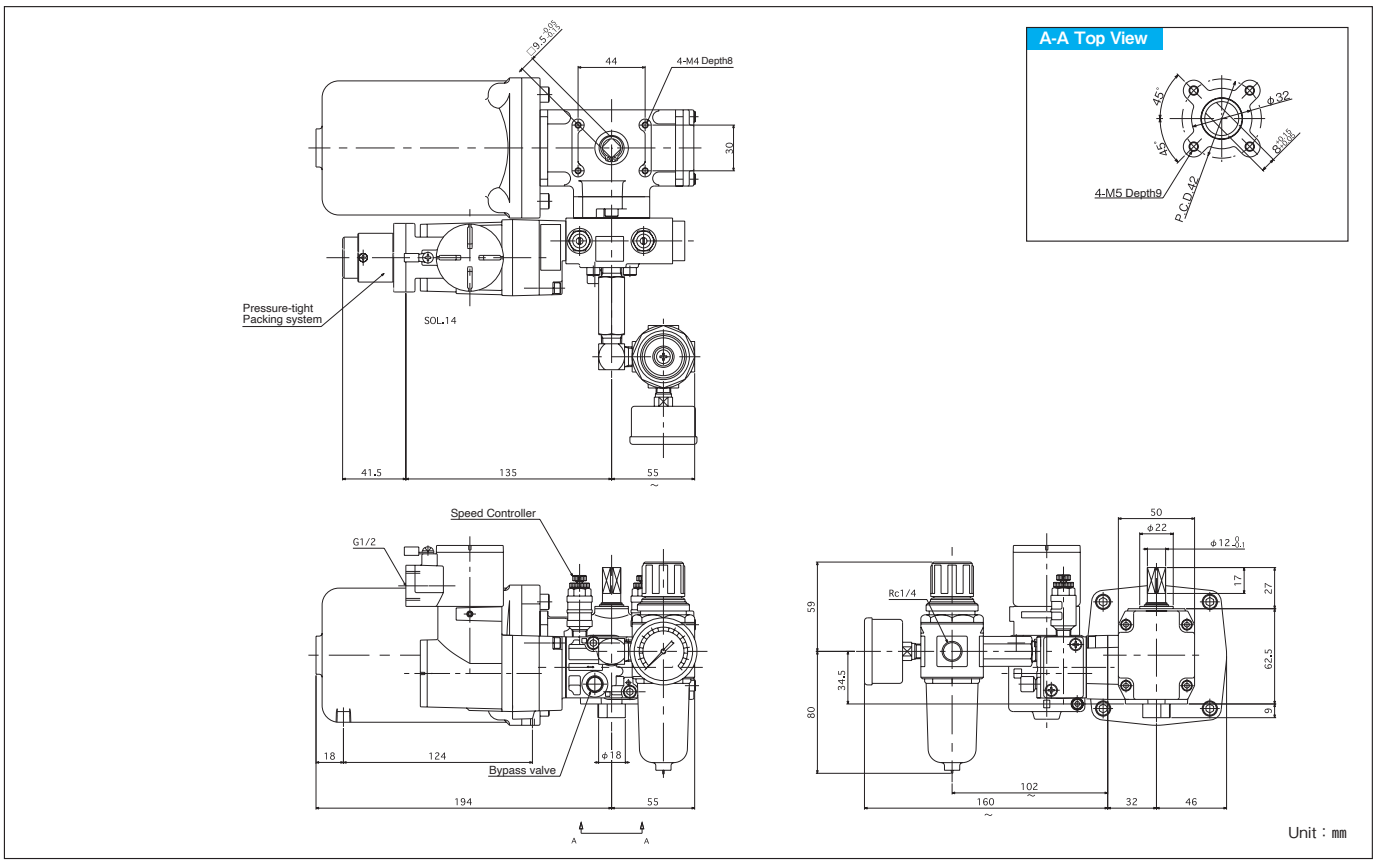
- For the details of change procedures for actuator operation by explosion-proof solenoid valve (reverse rotation), refer to P109.
- For the details of change procedures for operation by spring force of single-acting actuator (reverse rotation), refer to P110.
- For the details of the procedures for wire connection of explosion-proof solenoid valve, refer to P107.
- For the procedures for drain discharge, refer to P98.

External Dimensions 〈φ 40〉

Double-Acting Type [Type D]

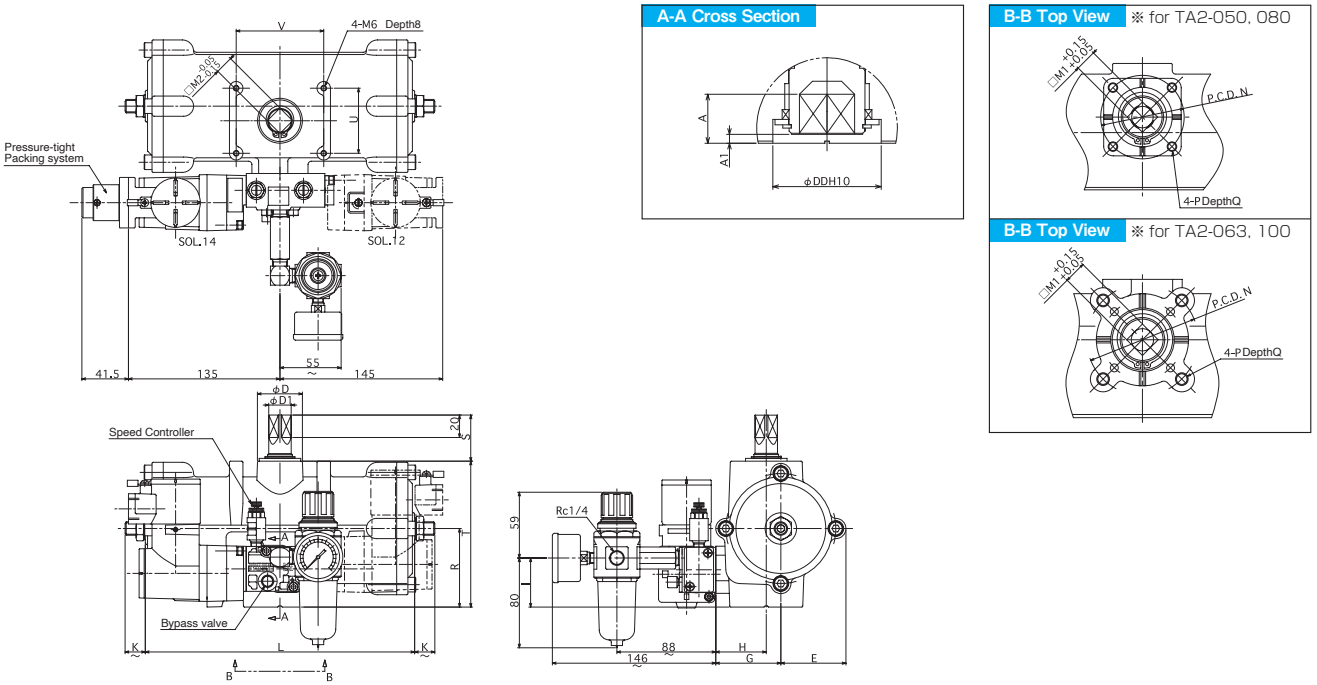


Single-Acting Type [Type R/Type L] (Spring Return)



External Dimensions 〈φ 50・63・80・100〉

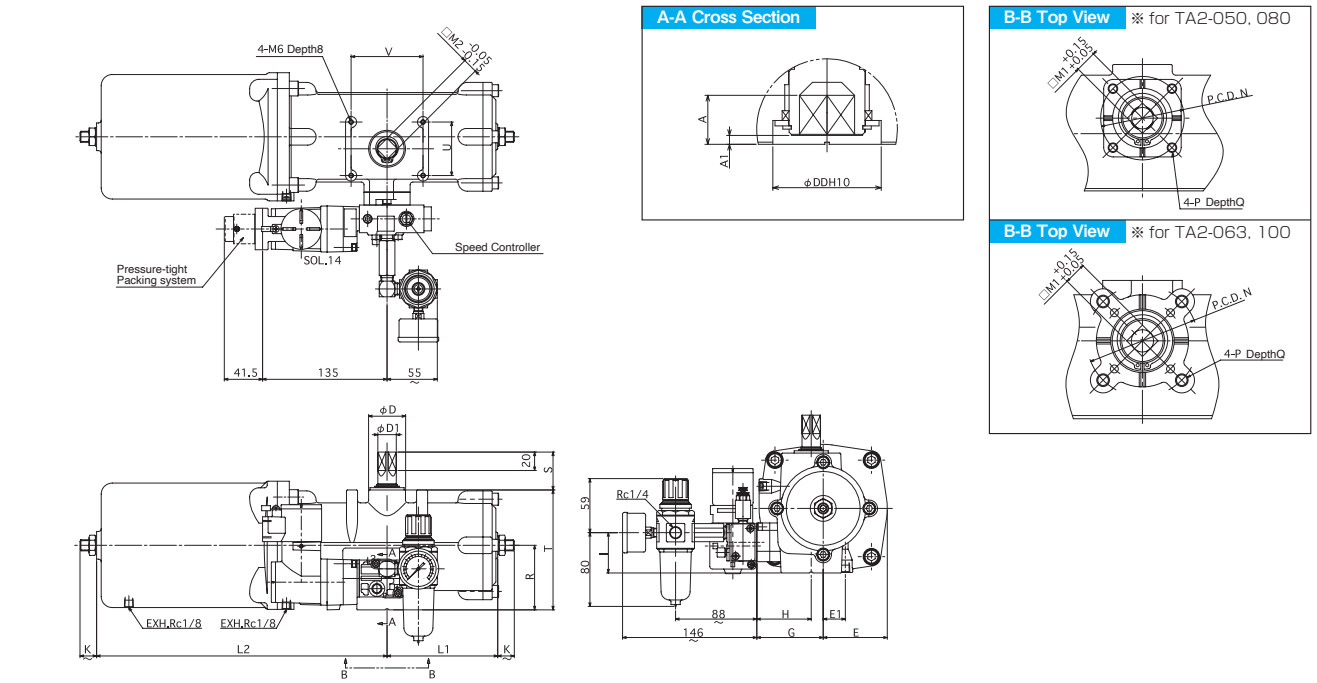
Double-Acting Type [Type D]



Unit : mm

Model Code	Stroke	L	K	I	R	T	S	D	D1	H	G	E	M1	M2	N	P	Q	DD	A	A1	V	U
TA2-050D-37	34	170	14	37.5	50	90	33	26	14	36	43	39	12	11	50	M6	8	35	16	3	58	36
TA2-063D-37	42	204	16	39.5	57	105	33	32	14	38	48	47	14	11	70	M8	12	40	17	3	58	36
TA2-080D-37	52	240	18	44.5	70	130	41	40	20	45	58	58	18	16	70	M8	12	50	22	4	78	58
TA2-100D-37	66	294	24	53.5	88	161	41	50	20	57	72	70.5	22	16	102	M10	15	60	26	4	78	58

Single-Acting Type [Type R (R2)] (Spring Return)



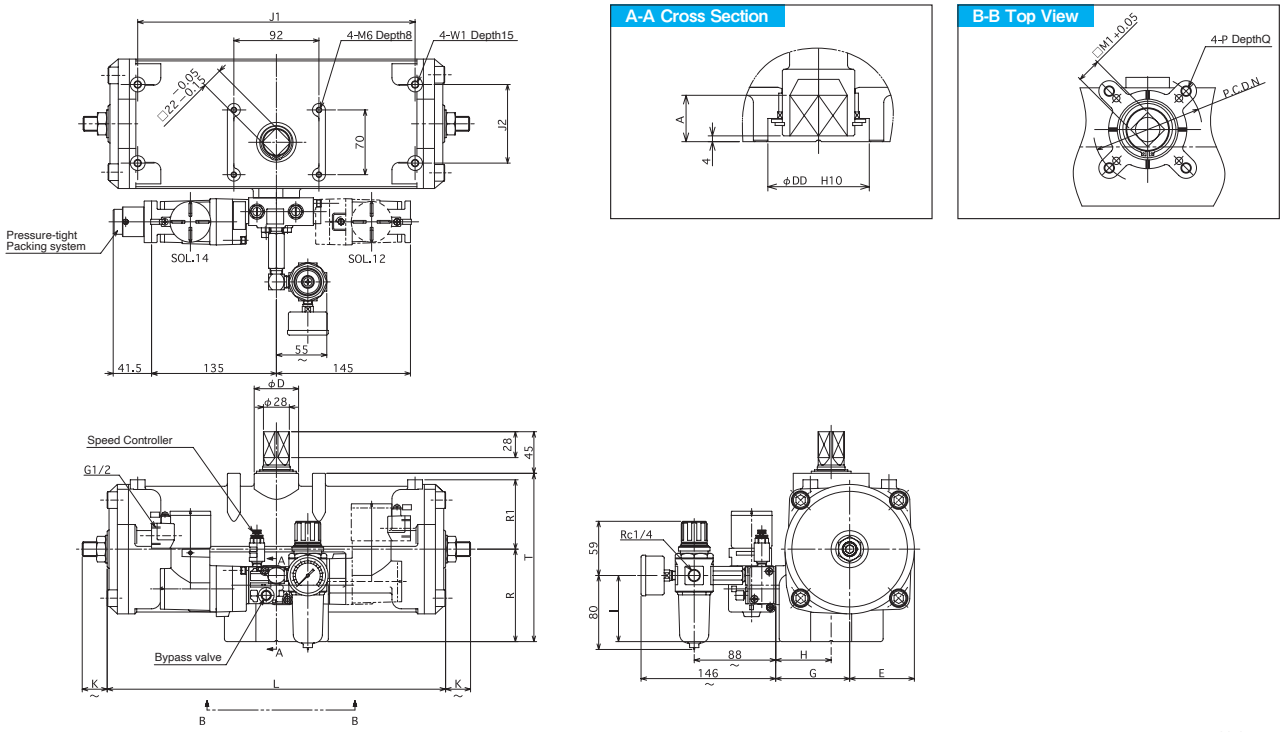
Unit : mm

Model Code	Stroke	L1	L2	K	I	R	T	S	D	D1	H	G	E	E1	M1	M2	N	P	Q	DD	A	A1	V	U
TA2-050R-37	34	85	220	14	37.5	50	90	33	26	14	50	57	46	16	12	11	50	M6	8	35	16	3	58	36
TA2-063R-37	42	102	265	16	39.5	57	105	33	32	14	52	62	56.5	20	14	11	70	M8	12	40	17	3	58	36
TA2-080R-37	52	120	315	18	44.5	70	130	41	40	20	59	72	69.5	24	18	16	70	M8	12	50	22	4	78	58
TA2-100R2-37	66	147	383	24	53.5	88	161	41	50	20	71	86	88	30	22	16	102	M10	15	60	26	4	78	58

● For dimensional drawings of "L(L2) type" operation system, contact us.

External Dimensions 〈φ 125・160〉

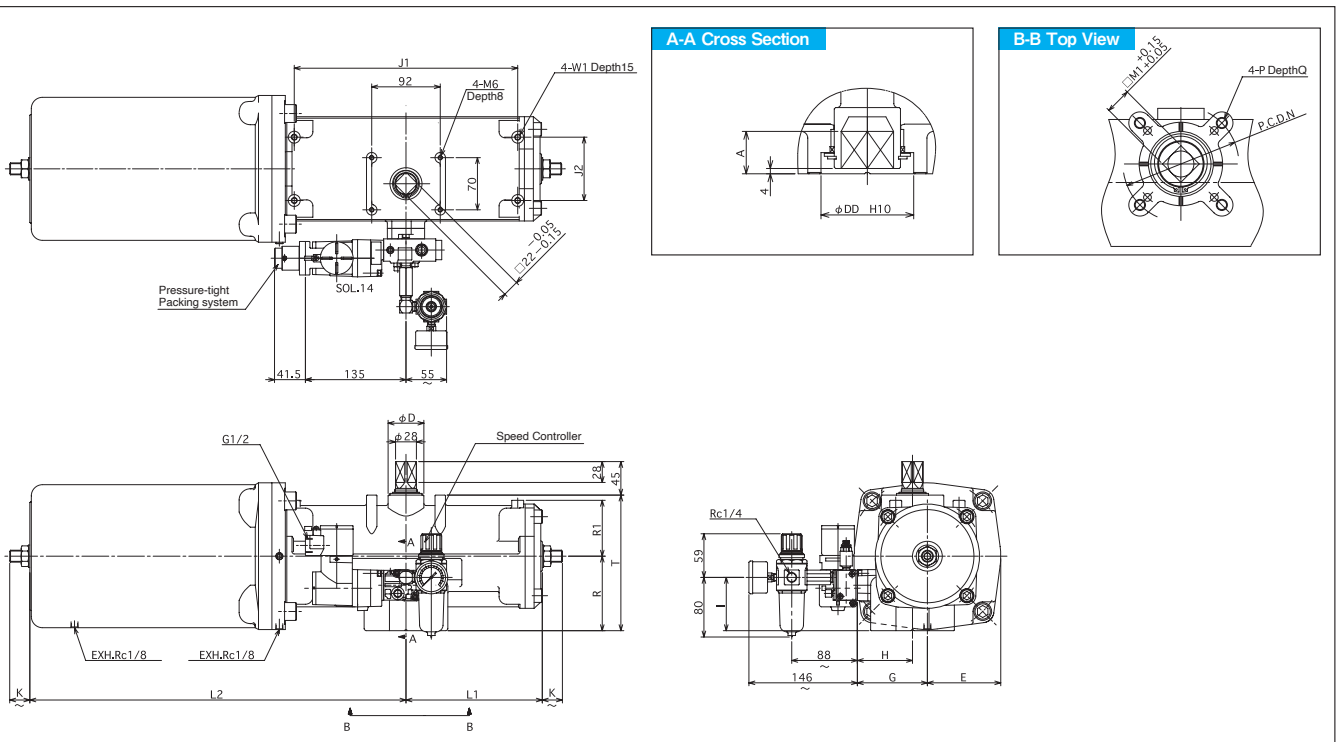
Double-Acting Type [Type D]



Unit : mm

Model Code	Stroke	L	K	I	R	R1	T	D	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125D-37	84	366	27	71.5	100	75	182	52	60	80	70	28	125	M12	18	70	32	300	85	M8
TA2-160D-37	106	446	30	85.5	125	91	228	60	68	93	88	36	140	M16	24	90	40	360	100	M10

Single-Acting Type [Type R2] (Spring Return)



Unit : mm

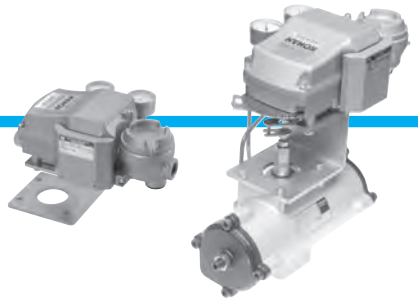
Model Code	Stroke	L1	L2	K	I	R	R1	T	D	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1
TA2-125R2-37	84	183	505	27	71.5	100	75	182	52	74	94	98.5	28	125	M12	18	70	32	300	85	M8
TA2-160R2-37	106	223	615	30	85.5	125	91	228	60	82	107	124	36	140	M16	24	90	40	360	100	M10

● For dimensional drawings of "L2 type" operation system, contact us.

TA2 SERIES

Rotary Actuator with Optional Accessories

With Electric-Pneumatic positioner



This type is equipped with a compact Electric-Pneumatic positioner, which precisely controls rotating angle of the actuator.
We provide two options available : CW Type turns clockwise to increment of the electrical signal, and CCW type turns vice versa.

Specifications

Bore size [mm]	φ 63	φ 80	φ 100	φ 125	φ 160
Operating fluid	Compressed air				
Operating pressure	0.3 ~ 0.7MPa				
Proof pressure	1.05MPa				
Operating temperature	− 5 ~ 60℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)				
Output torque	Please refer to the "Table of Output Torque" (P22 ~ P24) (The load torque is recommended not to exceed 50% of the valve in the output torque table.)				
Rotating angle	90°				
Angle adjustment range	± 5° both end				

● Use clean and fresh air. Adjust the air to be constant pressure suitable for use using a pressure reducing valve. If dust, moisture, oil, etc. are included in air to be used, it may cause troubles and the service life to be shortened. Remove them sufficiently.

Characteristics of the Positioner

Input signal	4 ~ 20mA DC 250 Ω
Cam characteristics	Linear characteristics
Linearity	± 5% F.S
Hysteresis	2% F.S
Repeatability	3% F.S
Sensitivity	3% F.S
Seismic capacity	1% / 1G (Single unit)
Air consumption	11L/min [ANR] (SUP 0.4MPa, Output pressure 75%)
Structure	Flame-proof enclosure construction : Exd Ⅱ BT6
Main component material	Body, Cover : Aluminum Die-casting
Mass	Approx.2kg (Single unit)

● Each performance value varies depending on load factor, etc.

Model Code

TA2 − ① ② − 39 − ③

① Bore size
② Operation type
③ Control direction

1 Bore size [mm]

φ 63	063
φ 80	080
φ 100	100
φ 125	125
φ 160	160

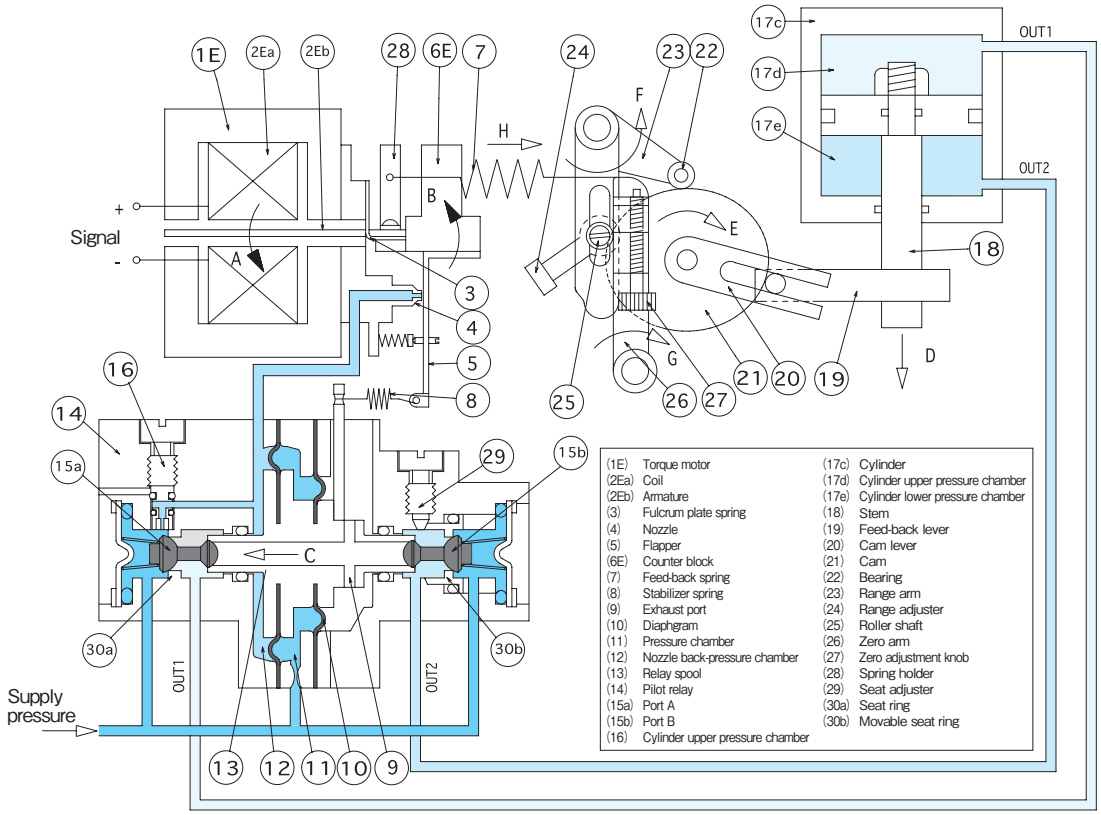
2 Operation type

Double-Acting Type	φ 40 ~ φ 160	D
Single-Acting Type (Clockwise rotation by spring)	φ 40 ~ φ 80	R
	φ 100 ~ φ 160	R2
Single-Acting Type (Counterclockwise rotation by spring)	φ 40 ~ φ 80	L
	φ 100 ~ φ 160	L2

3 Control direction

Clockwise rotation by increasesd electrical signal (C・W)	C
Counterclockwise rotation by increasesd electrical signal (C・C・W)	A

Operating principle

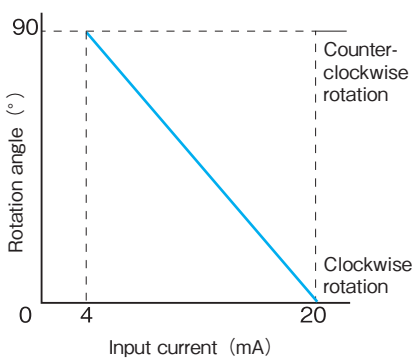


When input power is applied to the torque motor (1E), the armature (2Eb) moves in arrow A direction around the fulcrum plate spring (3). This movement causes the flapper (5) to be separated from the nozzle (4), the pressure of the nozzle back-pressure chamber (12) to decrease and the balance with the pressure chamber (11) to be lost. For this reason, the relay spool (13) pushes the port A (15a) open, which causes the lower cylinder pressure chamber (17e) to be connected to the exhaust port (9) and the stem (18) to be lowered. This movement is transferred to the feed-back lever (19), cam lever (20), range arm (23) and zero arm (26) to extend the feed-back spring (7) and move until the spring tensile strength balances with the absorption power of the torque motor (1E). Accordingly, the movement of the stem (18) in proportion to the input signal is obtained.

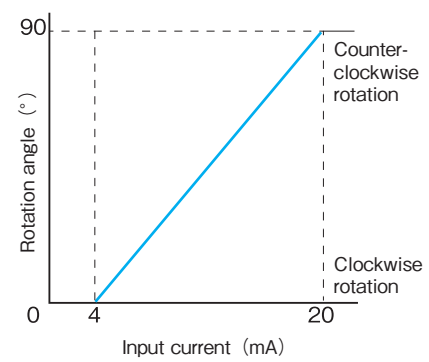
Characteristics Positioner

● Signal current vs Rotation Angles

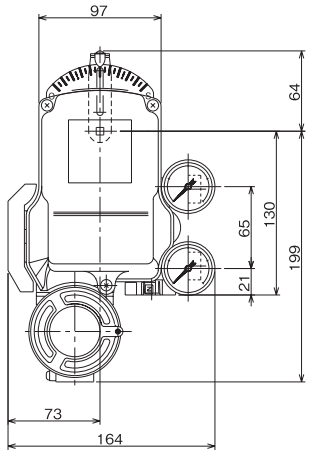
Control Direction (C・W)



Control Direction (C・C・W)



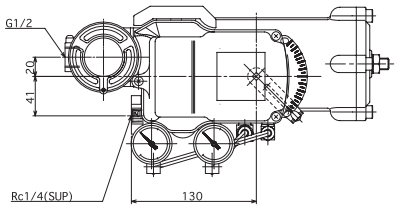
Dimensions of the Positioner

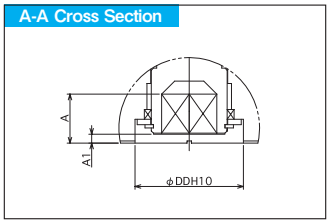


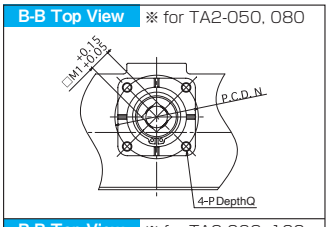
Unit : mm

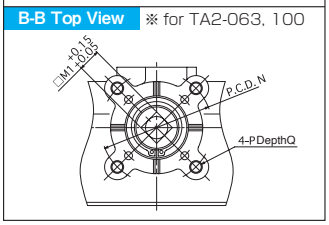
External Dimensions 〈φ 63・80・100〉

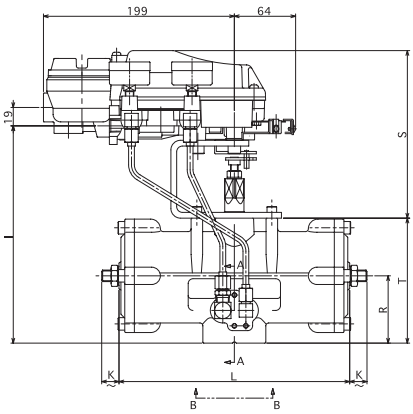
Double-Acting Type [Type D]

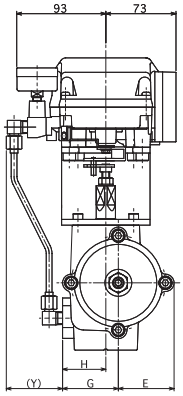


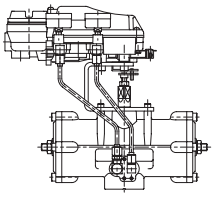










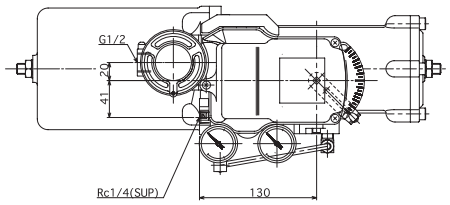


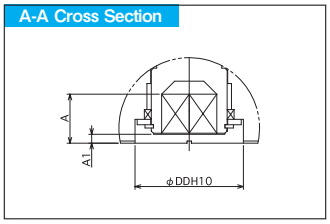
● Piping for the model, which rotates clockwise by increased signal pressure

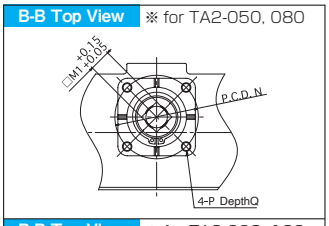
Unit : mm

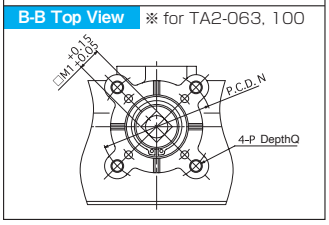
Model Code	Stroke	L	K	R	T	S	I	Y	H	G	E	M1	N	P	Q	DD	A	A1
TA2-063D-39	42	204	16	57	105	171	198	66	38	48	47	14	70	M8	12	40	17	3
TA2-080D-39	52	240	18	70	130	174	226	59	45	58	58	18	70	M8	12	50	22	4
TA2-100D-39	66	294	24	88	161	174	257	47	57	72	70.5	22	102	M10	15	60	26	4

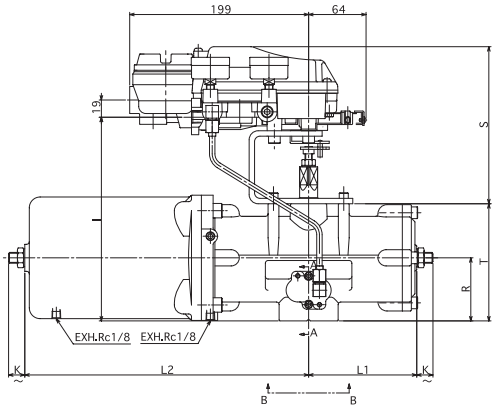
Single-Acting Type [Type R (R2)] (Spring Return)

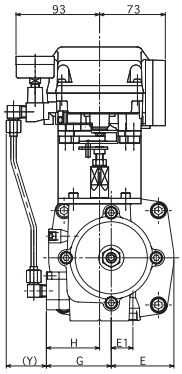


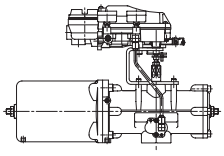












● Piping for the model, which rotates clockwise by increased signal pressure

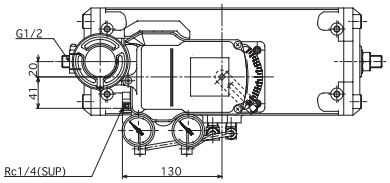
Unit : mm

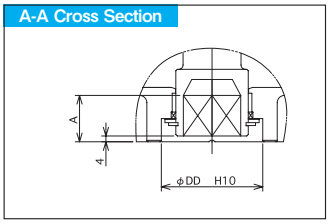
Model Code	Stroke	L1	L2	K	R	T	S	I	Y	H	G	E	E1	M1	N	P	Q	DD	A	A1
TA2-063R-39	42	102	265	16	57	105	171	198	51	52	62	56.5	20	14	70	M8	12	40	17	3
TA2-080R-39	52	120	315	18	70	130	174	226	45	59	72	69.5	24	18	70	M8	12	50	22	4
TA2-100R2-39	66	147	383	24	88	161	174	257	33	71	86	88	30	22	102	M10	15	60	26	4

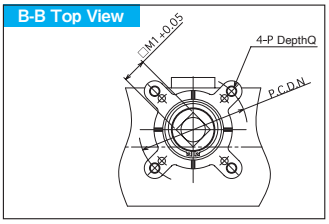
● For dimensional drawings of "L(L2) type" operation system, contact us.

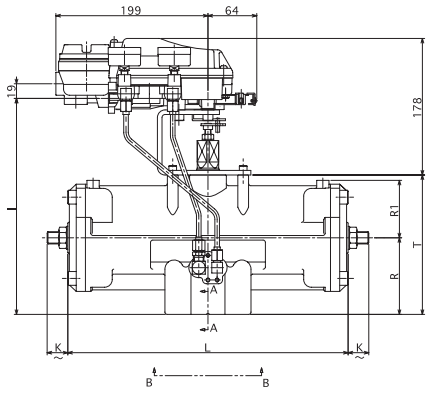
External Dimensions 〈φ 125・160〉

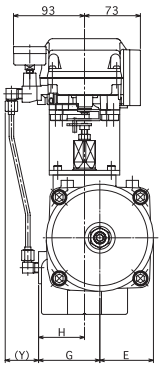
Double-Acting Type [Type D]

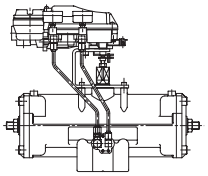










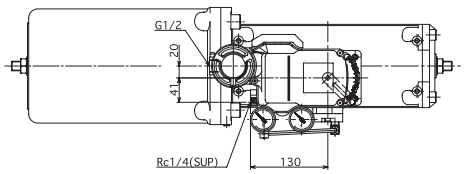


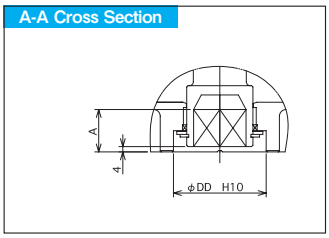
● Piping for the model, which rotates clockwise by increased signal pressure

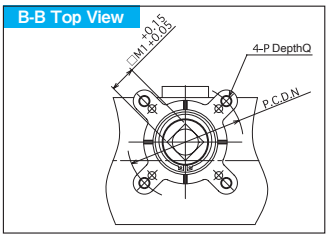
Unit : mm

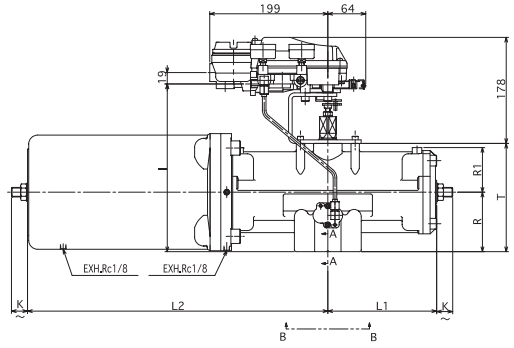
Model Code	Stroke	L	K	R	R1	T	I	Y	H	G	E	M1	N	P	Q	DD	A
TA2-125D-39	84	366	27	100	75	182	282	44	60	80	70	28	125	M12	18	70	32
TA2-160D-39	106	446	30	125	91	228	328	36	68	93	88	36	140	M16	24	90	40

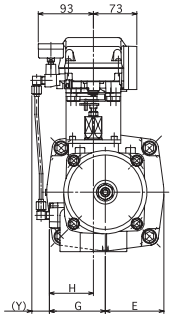
Single-Acting Type [Type R2] (Spring Return)

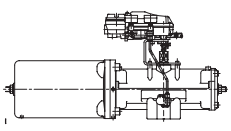












● Piping for the model, which rotates clockwise by increased signal pressure

Unit : mm

Model Code	Stroke	L1	L2	K	R	R1	T	I	Y	H	G	E	M1	N	P	Q	DD	A
TA2-125R2-39	84	183	505	27	100	75	182	282	30	74	94	98.5	28	125	M12	18	70	32
TA2-160R2-39	106	223	615	30	125	91	228	328	22	82	107	124	36	140	M16	24	90	40

● For dimensional drawings of "L2 type" operation system, contact us.

Rotary Actuator with Optional Accessories

With Electric-Pneumatic Smart positioner MP100

Specifications

- **Easy to handle and easy to adjust**
  The auto-tuning system allows anyone to make adjustments using buttons in a short period of time.
- **Equipped with LCD(Liquid Crystal Display)**
  Easy to see the adjustment method and operating status, no need for a handy communicator. In the case of explosion-proof, settings can be made even inside an explosion-proof atmosphere.
  Excellent basic design
- **Excellent basic design**
  Balanced design based on our experience and achievements with mechanical systems.
  Excellent vibration resistance and robustness.
  Equipped with lightning arrester function as standard.
- **HART communication support + opening transmission function (optional)**
  Compatible with the internationally adopted communication function and analog opening transmission function of 4 to 20mA.

Characteristics of the Positioner

Operating fluid	Compressed air
Operating pressure	0.3 ~ 0.7MPa
Proof pressure	1.05MPa
Operating temperature	− 5 ~ 60℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)
Input signal	4 ~ 20mA
Linearity	± 3% F.S
Hysteresis	2% F.S
Repeatability	3% F.S
Sensitivity	3% F.S
Seismic capacity	3G, 10 to 300Hz with no resonance point (Single unit)
Air consumption	10L/min [ANR] (SUP 0.4MPa, Output pressure 75%)
Structure	Protection class : IP66
Housing Construction	Flame-proof enclosure construction : Exd IIC T6
Main component material	Body, Cover : Aluminium Die-casting
Mass	Approx. 3.8kg (Single unit)

● Each performance value varies depending on load factor, etc.

Model Code

TA2 – ① ② – 45 – ③

① Bore size
② Operation type
③ Control direction

1 Bore size [mm]

ϕ 63	063
ϕ 80	080
ϕ 100	100
ϕ 125	125
ϕ 160	160

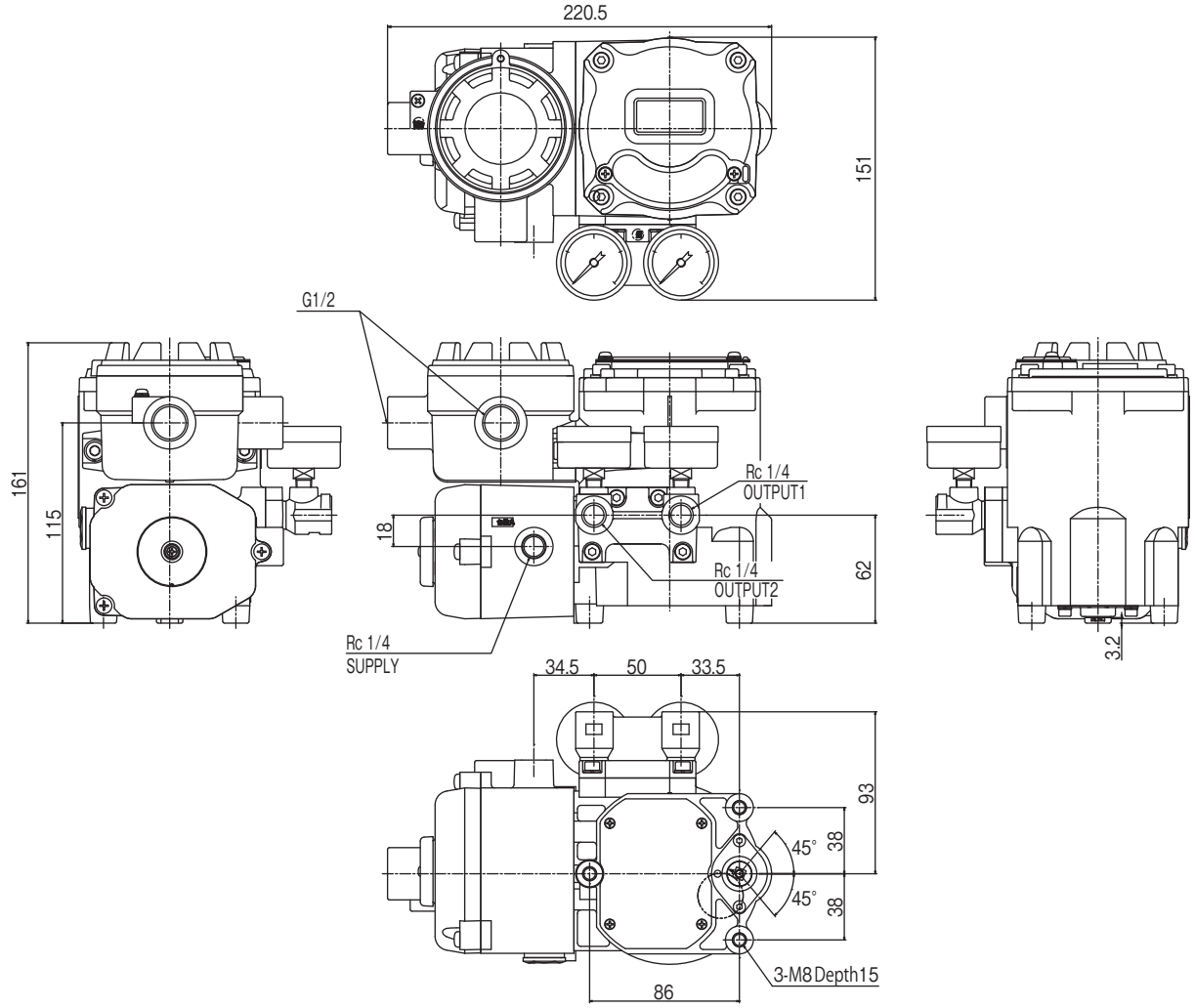
2 Operation type

Double-Acting Type	ϕ40 ~ ϕ160	D
Single-Acting Type (Clockwise rotation by spring)	ϕ40 ~ ϕ80	R
	ϕ100 ~ ϕ160	R2
Single-Acting Type (Counterclockwise rotation by spring)	ϕ40 ~ ϕ80	L
	ϕ100 ~ ϕ160	L2

3 Control direction

Clockwise rotation by increasesd electrical signal (C・W)	C
Counterclockwise rotation by increasesd electrical signal (C・C・W)	A

External Dimensions of the Positioner



※ The type of clamp lever differs depending on the drive units..

■ Air connection port

Supply pressure port	Output pressure port	Pressure gauge
Rc1/4	Rc1/4	Rc1/8

■ Electrical connection port

External conduit lead-in port
G1/2

Rotary Actuator with Optional Accessories

With Compact Electric-Pneumatic Smart positioner MP300

Specifications

- **More compact design**
  MP100 functions and performance are retained in a more compact and lightweight housing.
  Wiring connections and adjustments can be made without opening the main unit cover.
- **Equipped with LCD (Liquid Crystal Display) and operation buttons as standard**
  The LCD, which has been well-reputed on the MP100, continues to be equipped.
  Settings can be made with or without the handy communicator.
- **HART communication support + opening transmission function (option)**
  Compatible with the internationally adopted communication function and analog opening transmission function of 4 to 20mA.
- **Lightning arrestor function equipped as standard**

Characteristics of the Positioner

Operating fluid	Compressed air
Operating pressure	0.3 ~ 0.7MPa
Proof pressure	1.05MPa
Operating temperature	− 5 ~ 60℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)
Input signal	4 ~ 20mA
Linearity	± 3% F.S
Hysteresis	2% F.S
Repeatability	3% F.S
Sensitivity	3% F.S
Air consumption	10L/min〔ANR〕(SUP 0.4MPa, Output pressure 75%)
Structure	Protection class : IP66
Housing Construction	Non Explosion-proof
Main component material	Body, Cover : Aluminium Die-casting
Mass	Approx. 2.5kg (Single unit)

● Each performance value varies depending on load factor, etc.

Model Code

TA2 – ① ② – 46 – ③

① Bore size
② Operation type
③ Control direction

1 Bore size [mm]

φ 63	063
φ 80	080
φ 100	100
φ 125	125
φ 160	160

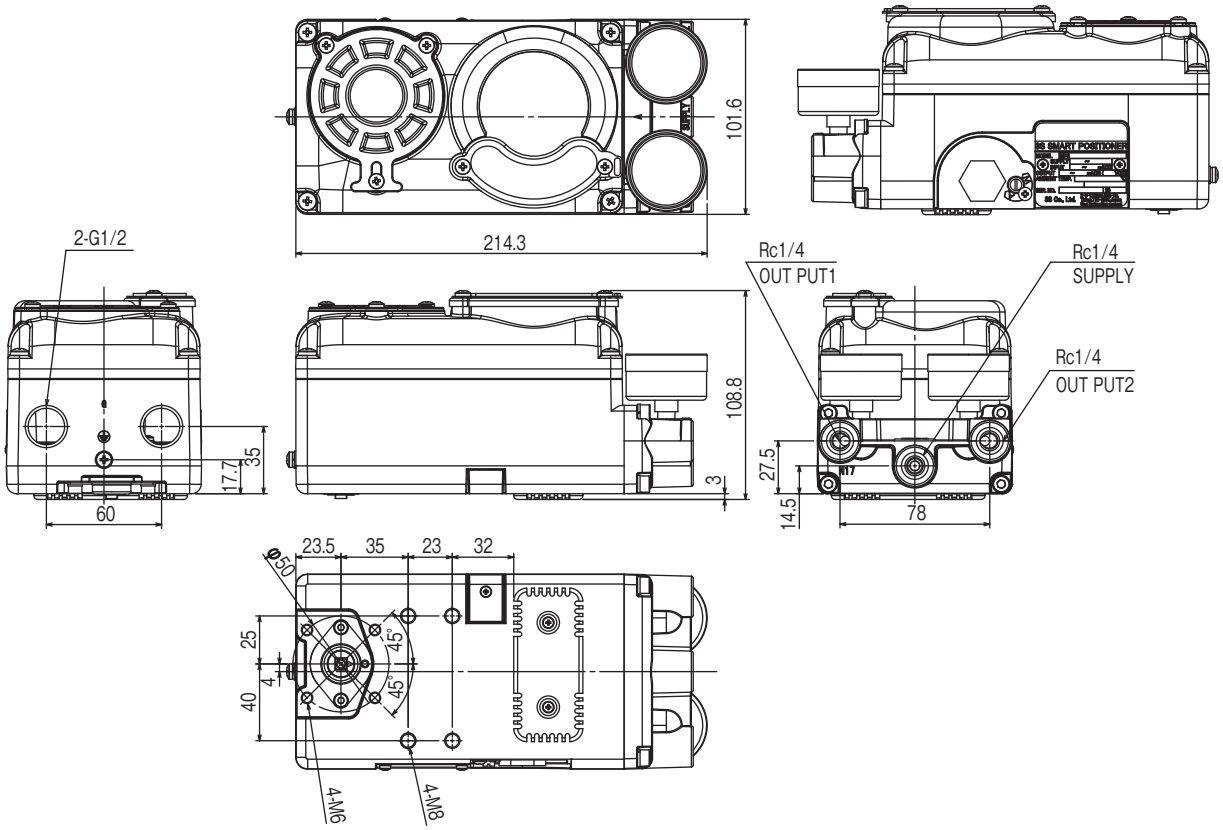
2 Operation type

Double-Acting Type	φ40 ~ φ160	D
Single-Acting Type (Clockwise rotation by spring)	φ40 ~ φ80	R
	φ100 ~ φ160	R2
Single-Acting Type (Counterclockwise rotation by spring)	φ40 ~ φ80	L
	φ100 ~ φ160	L2

3 Control direction

Clockwise rotation by increasesd electrical signal (C・W)	C
Counterclockwise rotation by increasesd electrical signal (C・C・W)	A

External Dimensions of the Positioner



■ Air connection port

Supply pressure port	Output pressure port	Pressure gauge
Rc1/4	Rc1/4	Rc1/8

■ Electrical connection port

External conduit lead-in port
G1/2

Rotary Actuator with Optional Accessories

With Pneumatic-Pneumatic positioner RP-200

This type is equipped with a compact Electric-Pneumatic positioner, which precisely controls rotating angle of the actuator.
We provide two options available : CW Type turns clockwise to increment of the signal pressure, and CCW type turns vice versa.

Specifications

Bore size [mm]	ϕ 63	ϕ 80	ϕ 100	ϕ 125	ϕ 160
Operating fluid	Compressed air				
Operating pressure	0.3 ~ 0.7MPa				
Proof pressure	1.05MPa				
Operating temperature	− 5 ~ 60℃ (In case of 5℃ or less, ensureto be removed any water contained for prevention of freezing.)				
Output torque	Please refer to the "Table of Output Torque" (P22 ~ P24) (The load torque is recommended not to exceed 50% of the valve in the output torque table.)				
Rotating angle	90°				
Angle adjustment range	± 5° both end				

● Use clean and fresh air. Adjust the air to be constant pressure suitable for use using a pressure reducing valve. If dust, moisture, oil, etc. are included in air to be used, it may cause troubles and the service life to be shortened. Remove them sufficiently.

Characteristics of the Positioner

Input signal	0.02 ~ 0.1MPa
Cam characteristics	Linear characteristics
Linearity	± 5% F.S
Hysteresis	2% F.S
Repeatability	3% F.S
Sensitivity	3% F.S
Seismic capacity	1% / 1G (Single unit)
Air consumption	10L/min (ANR) (SUP 0.4MPa, Output pressure 75%)
Structure	Dust proof and drip proof
Main component material	Body, Cover : Aluminium Die-casting
Mass	Approx. 1.6kg (Single unit)

● Each performance value varies depending on load factor, etc.

Model Code

TA2 − ① ② − 42 − ③

① Bore size
② Operation type
③ Control direction

1 Bore size [mm]

ϕ 63	063
ϕ 80	080
ϕ 100	100
ϕ 125	125
ϕ 160	160

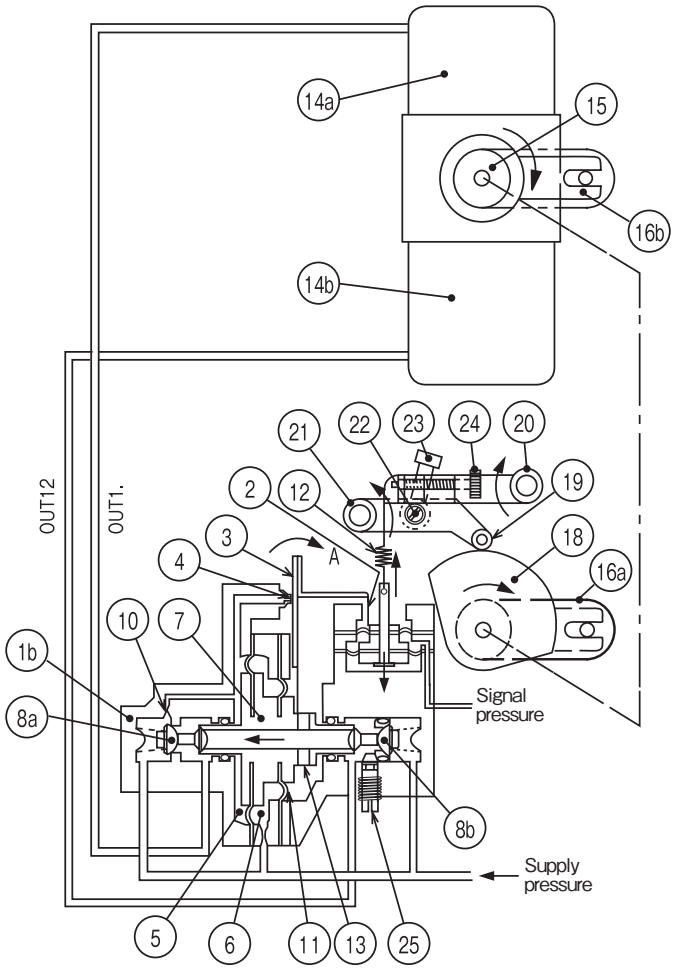
2 Operation type

Double-Acting Type	ϕ 40 ~ ϕ 160	D
Single-Acting Type (Clockwise rotation by spring)	ϕ 40 ~ ϕ 80	R
	ϕ 100 ~ ϕ 160	R2
Single-Acting Type (Counterclockwise rotation by spring)	ϕ 40 ~ ϕ 80	L
	ϕ 100 ~ ϕ 160	L2

3 Control direction

Clockwise rotation by increasesd signal pressure (C・W)	C
Counterclockwise rotation by increasesd signal pressure (C・C・W)	A

Operating principle



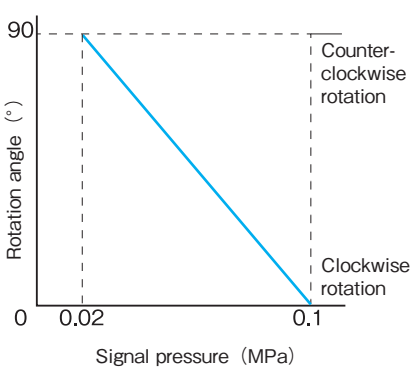
(1a)	Input chamber
(1b)	Pilot relay
(2)	Fulcrum plate spring
(3)	Flapper
(4)	Nozzle
(5)	Nozzle back-pressure chambe
(6)	Pressure chamber
(7)	Relay spool
(8a)	Port A
(8b)	Port B
(9)	Input chamber diaphragm
(10)	Fixed aperture
(11)	Pressure chamber diaphragm
(12)	Feed-back spring
(13)	Exhaust port
(14a)	Right cylinder chamber
(14b)	Left cylinder chamber
(15)	Stem
(16a)	A lever
(16b)	B lever
(18)	Cam
(19)	Bearing
(20)	Zero arm
(21)	Range arm
(22)	Roller shaft
(23)	Range adjuster
(24)	Zero adjustment knob
(25)	Seat adjuster

When input signal is applied to the input chamber (1a), the flapper moves in arrow A direction around the fulcrum plate spring (2). This movement causes the flapper (3) to be separated from the nozzle (4) and the pressure of the nozzle back-pressure chamber (5) to decrease, the balance with the pressure chamber (6) to be lost, and relay spool (7) to push the port A (8a) to open the air-intake valve seat. At the same time, in the port B (8b), the air-intake valve seat of the relay spool (7) is closed and the exhaust valve is opened. Supply pressure is fed from the OUT1. to the right cylinder chamber (14a) and from the OUT2. to the left cylinder chamber (14b) and finally vented to atmosphere via the exhaust port (13) to lower the stem (15). This movement is transferred to the B lever (16b), A lever (16a), cam (18), zero arm (20) and range arm (21) to extend the feed-back spring (12) and move until the spring tensile strength balances with the output of the input chamber. Accordingly, change in opening of the stem (15) in proportion to the input signal pressure is obtained. In balanced conditions at the point indicated by the signal, the respective air-intake valve seat and exhaust valve seat of the OUT1. and OUT2. are returned to the neutral position. In the conditions where loads are not applied to the right and left cylinder chambers, the pressure is set at the balance pressure (approx. 75% of supply pressure).

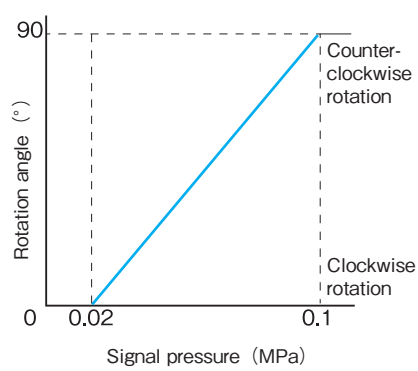
Characteristics Positioner

● Signal pressure vs Rotation Angles

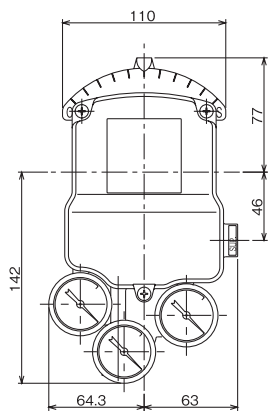
Control Direction (C・W)



Control Direction (C・C・W)



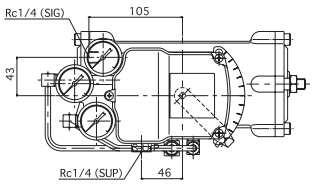
Dimensions of the Positioner

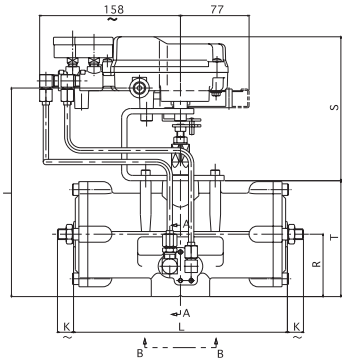


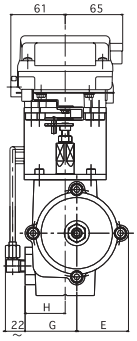
Unit : mm

External Dimensions 〈φ 63・80・100〉

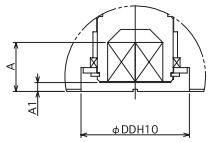
Double-Acting Type [Type D]



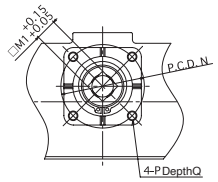




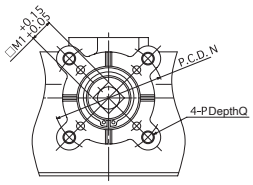
A-A Cross Section

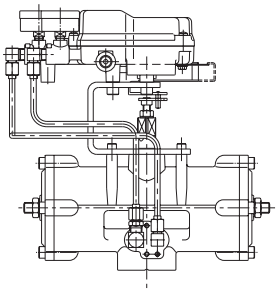


B-B Top View ※ for TA2-050, 080



B-B Top View ※ for TA2-063, 100



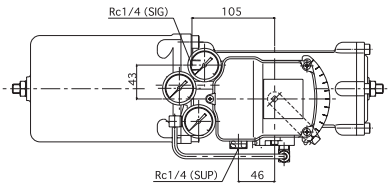


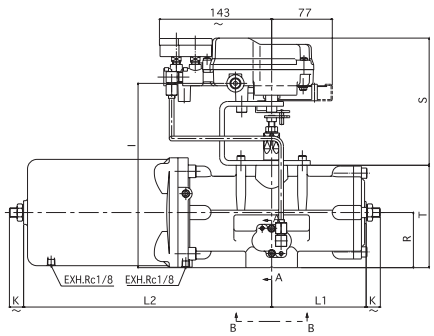
● Piping for the model, which rotates clockwise by increased signal pressure

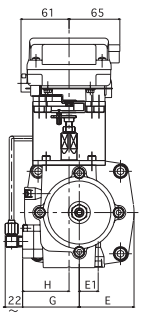
Unit : mm

Model Code	Stroke	L	K	R	T	S	I	H	G	E	M1	N	P	Q	DD	A	A1
TA2-063D-42	42	204	16	57	105	158	206	38	48	47	14	70	M8	12	40	17	3
TA2-080D-42	52	240	18	70	130	161	234	45	58	58	18	70	M8	12	50	22	4
TA2-100D-42	66	294	24	88	161	161	265	57	72	70.5	22	102	M10	15	60	26	4

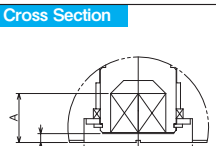
Single-Acting Type [Type R (R2)] (Spring Return)



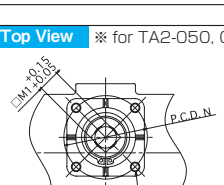




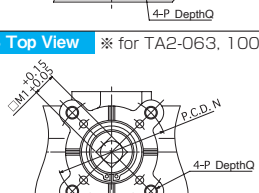
A-A Cross Section

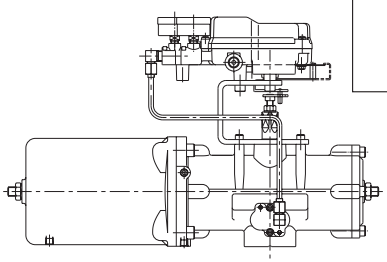


B-B Top View ※ for TA2-050, 080



B-B Top View ※ for TA2-063, 100





● Piping for the model, which rotates clockwise by increased signal pressure

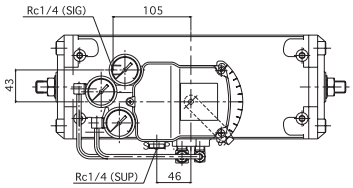
Unit : mm

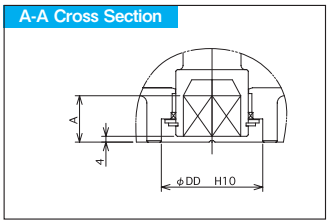
Model Code	Stroke	L1	L2	K	R	T	S	I	H	G	E	E1	M1	N	P	Q	DD	A	A1
TA2-063R-42	42	102	265	16	57	105	158	206	52	62	56.5	20	14	70	M8	12	40	17	3
TA2-080R-42	52	120	315	18	70	130	161	234	59	72	69.5	24	18	70	M8	12	50	22	4
TA2-100R2-42	66	147	383	24	88	161	161	265	71	86	88	30	22	102	M10	15	60	26	4

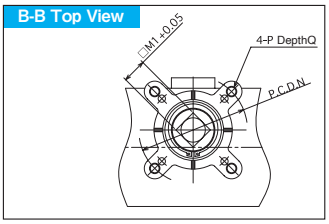
● For dimensional drawings of "L(L2) type" operation system, contact us.

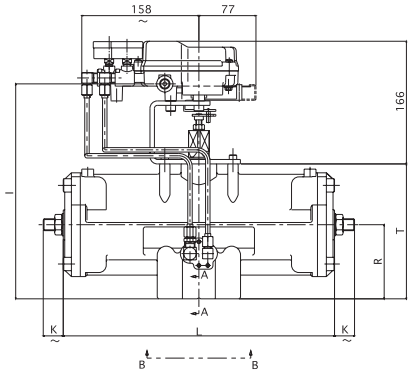
External Dimensions 〈φ 125・160〉

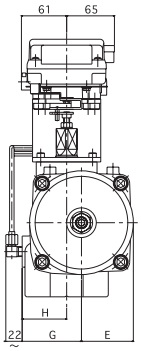
Double-Acting Type [Type D]

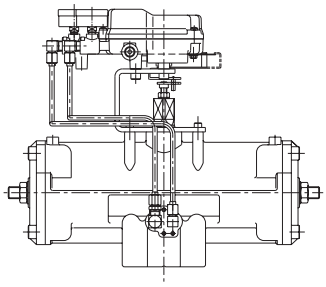










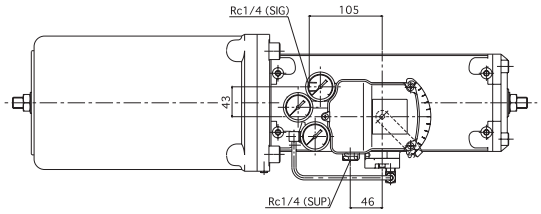


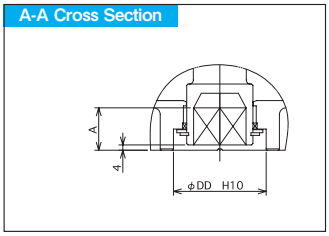
● Piping for the model, which rotates clockwise by increased signal pressure

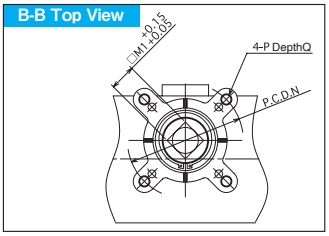
Unit : mm

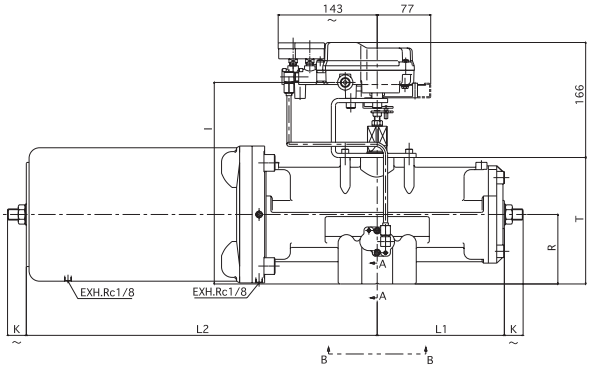
Model Code	Stroke	L	K	R	T	I	H	G	E	M1	N	P	Q	DD	A
TA2-125D-42	84	366	27	100	182	290	60	80	70	28	125	M12	18	70	32
TA2-160D-42	106	446	30	125	228	336	68	93	88	36	140	M16	24	90	40

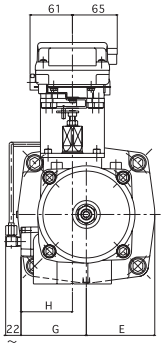
Single-Acting Type [Type R2] (Spring Return)

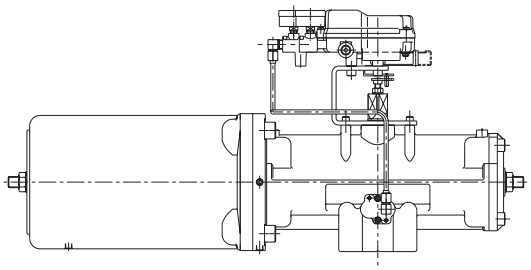












● Piping for the model, which rotates clockwise by increased signal pressure

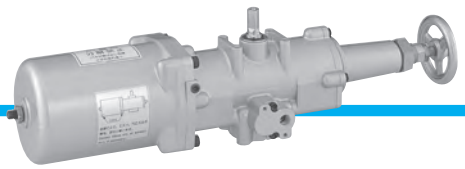
Unit : mm

Model Code	Stroke	L1	L2	K	I	R	T	H	G	E	M1	N	P	Q	DD	A
TA2-125R2-42	84	183	505	37	290	100	182	74	94	98.5	28	125	M12	18	70	32
TA2-160R2-42	106	223	615	43	336	125	228	82	107	124	36	140	M16	24	90	40

● For dimensional drawings of "L2 type" operation system, contact us.

Rotary Actuator with Optional Accessories

With manually operated handle



※ Only the Single-Acting Type (Single return) is available.

This single-acting type actuator is equipped with a manually operated mechanism (Handle Unit).

Specifications

Bore size [mm]	φ 50	φ 63	φ 80	φ 100	φ 125	φ 160
Operating fluid	Compressed air					
Operating pressure	0.3 ~ 0.7MPa					
Proof pressure	1.05MPa					
Operating temperature	− 5 ~ 60℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)					
Output torque	Please refer to the "Table of Output Torque" (P22 ~ P24)					
Rotating angle	90°					
Angle adjustment range	± 5° both end					

Model Code

TA2 – ① ② – ③

① Bore size
② Operation type
③ Option

1 Bore size [mm]

φ 50	050
φ 63	063
φ 80	080
φ 100	100
φ 125	125
φ 160	160

2 Operation type

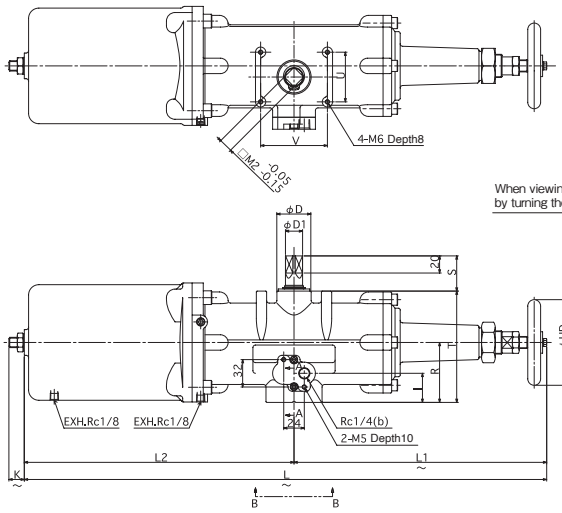
Single-Acting Type (Clockwise rotation by spring)	φ50 ~ φ80	RM
	φ100 ~ φ160	RM2
Single-Acting Type (Counterclockwise rotation by spring)	φ50 ~ φ80	LM
	φ100 ~ φ160	LM2

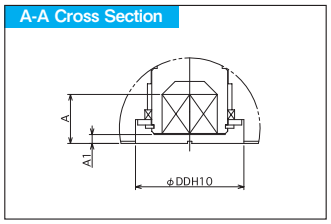
3 Option

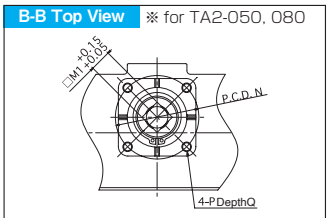
See Page 5.

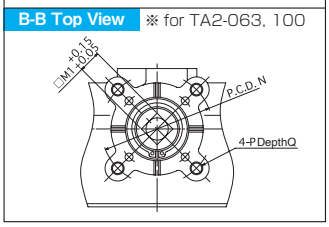
External Dimensions

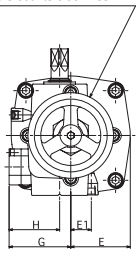
φ 50・63・80・100











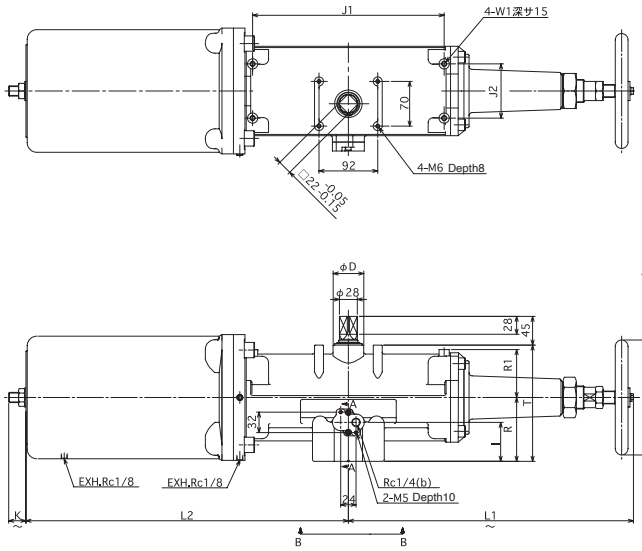
Unit：mm

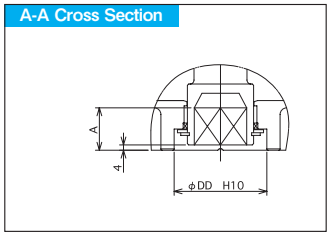
Model Code	Stroke	L	L1	L2	K	I	R	T	S	D	D1	H	G	E	E1	M1	M2	N	P	Q	DD	A	A1	V	U	HD
TA2-050RM-00	34	434	214	220	14	27	50	90	33	26	14	50	57	46	16	12	11	50	M6	8	35	16	3	58	36	63
TA2-063RM-00	42	518	253	265	16	29	57	105	33	32	14	52	62	56.5	20	14	11	70	M8	12	40	17	3	58	36	80
TA2-080RM-00	52	610	295	315	18	34	70	130	41	40	20	59	72	69.5	24	18	16	70	M8	12	50	22	4	78	58	100
TA2-100RM2-00	66	745	362	383	24	43	88	161	41	50	20	71	86	88	30	22	16	102	M10	15	60	26	4	78	58	140

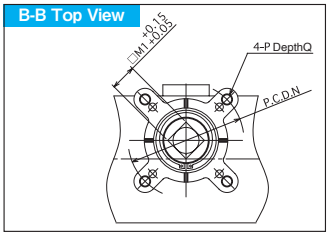
● For dimensional drawings of "L type" operation system, contact us.

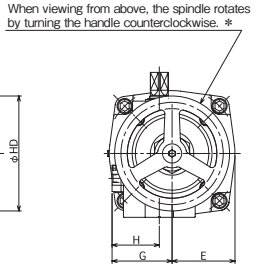
Note：※In case of Type LM, when viewing from above, the spindle rotates clockwise by turning the handle clockwise.

φ 125・160









Unit：mm

Model Code	Stroke	L1	L2	K	I	R	R1	T	D	H	G	E	M1	N	P	Q	DD	A	J1	J2	W1	HD
TA2-125RM2-00	84	446.5	505	27	61	100	75	182	52	74	94	98.5	28	125	M12	18	70	32	300	85	M8	180
TA2-160RM2-00	106	560	615	30	75	125	91	228	60	82	107	124	36	140	M16	24	90	40	360	100	M10	315

● For dimensional drawings of "L type" operation system, contact us.

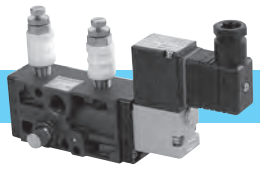
Note：※In case of Type LM, when viewing from above, the spindle rotates clockwise by turning the handle clockwise.

With manually operated handle

Ordering of TA2 Options

When placing orders with only options of actuators with options in the preceding sections and other options, use them.

Assembly of the TA2 options with fitting bolts, piping joints, packing, etc. are available on request.



1 NAMUR standard 5-port solenoid valve with bypass valve.

Specifications

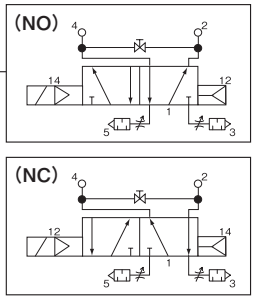
Model code	Return	4N3S102K 4N3S10BK
	Hold	4N3D102K 4N3D10BK
Operating fluid		Compressed air
Operating pressure		0.2 ～ 0.7MPa
Ambient temperature		− 5 ～ 50℃
Fluid temperature		− 5 ～ 50℃ (In case of − 5℃ to + 5℃ , ensure to be removed any water contained for prevention of freezing.)
Operation Frequency		Max. : four times / second Min. : once / month
Voltage tolerance		± 10% of the rated voltage
Lubricating		Not necessary
Mass		Please refer to Page 103.
Protection class		Wiring type L : IP41 D, N : IP54 W : IP55
Valve section	Effective area of valve	Over 10㎟ (for a single solenoid valve without silencer and throttle valve)
	Response time	Less than 0.03 s
	Allowable air leakage	Less than the value provided for in JIS B8375 − 1993
	Proof pressure	1.2MPa
Solenoid section	Type of insulation	JIS C4003 Type B
	Temperature increase	Less than 70℃ (Resistance method)
	Insulation resistance	Over 100MΩ (measured by the 500V insulation resistance method)
	Voltage proof	AC1500V (for one minute)
	Power consumption	AC : 6VA DC : 5.5W
Silencer section (with throttle valve)	Model code	EVS5 − 6A
	Sound-absorbing effect	More than 15dB

Ordering of TA2 Options

Model Code

For this model, actuator-mounting bolts, gaskets & a throttle valve with silencer are attached.

■ Type of Valve Passage【Return】



4N3S ① K– ② ③ – ④ – ⑤

①	②	③	④	⑤
Bore size	Type of Wiring	Rated Voltage	Option	Operation Condition of the Solenoid Valve (only return)

1 Bore size

Rc 1/4 (Standard)	102
1/4NPT *	10B

＊ : NPT screw is used only for the pressure sulppy port (port1) .

2 Type of Wiring

Lead wire		L
DIN Connector	w/o Lamp	D
	w/ Lamp	N
Drip-proof connector		W

● See p106 for details.

3 Rated Voltage

AC100V 50/60Hz	1
(AC110V 50/60Hz)	2
AC200V 50/60Hz	3
(AC220V 50/60Hz)	4
DC24V	5
(DC48V)	6
(DC100V)	7
(DC125V)	8
(DC110V)	9

● ( ) : Semi-standard.

4 Option

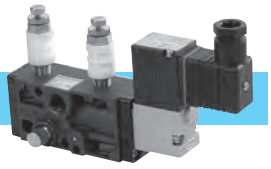
Silencer with throttle valve : Port 5 and port 3 (Equipped as standard))	No entry
Silencer with throttle valve : Port5 Plug : Port3	X
Silencer with throttle valve : Port5 Plug : Port3 With surge absorber	Y
With surge absorber	Z

5 Operation Condition of the Solenoid Valve

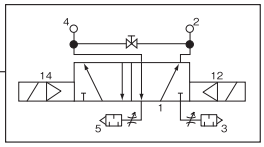
Gasket "NO"	No entry (Standard)
Gasket "NC"	C

● In case of NO type gasket direction upon shipment, air flows into the actuator port (b) by turning on the solenoid and the spindle rotates counterclockwise as viewed from above.

● In case of NC type gasket direction upon shipment, reversal actions are carried out, i.e., air flows into the actuator port (a) by turning on the solenoid and the spindle rotates clockwise as viewed from above.



■ Type of Valve Passage【Hold】



4N3D ① K– ② ③ – ④

Bore size / Type of Wiring / Rated Voltage / Option

1 Bore size

Rc 1/4 (Standard)	102
1/4NPT *	10B

* : NPT screw is used only for the pressure sulppy port (port1).

2 Type of Wiring

Lead wire		L
DIN Connector	w/o Lamp	D
	w/ Lamp	N
Drip-proof connector		W

● See p106 for details.

3 Rated Voltage

AC100V 50/60Hz	1
(AC110V 50/60Hz)	2
AC200V 50/60Hz	3
(AC220V 50/60Hz)	4
DC24V	5
(DC48V)	6
(DC100V)	7
(DC125V)	8
(DC110V)	9

● ( ) : Semi-standard.

4 Option

Silencer with throttle valve : Port 5 and port 3 (Equipped as standard)	No entry
With surge absorber	Z

Ordering of TA2 Options

(2) Explosion-proof solenoid valve with bypass valve, which is conformable to the NAMUR standard

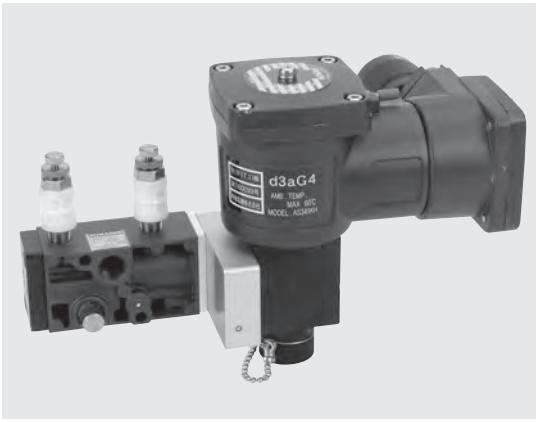
Specifications

Model code	Return	4N4S102K－E＊＊－H＊＊－＊ 4N4S10BK－E＊＊－H＊＊－＊ 4N4S102K－P＊＊－H＊＊－＊ 4N4S10BK－P＊＊－H＊＊－＊
	Hold	4N4D102K－E＊＊－H＊＊－＊ 4N4D10BK－E＊＊－H＊＊－＊ 4N4D102K－P＊＊－H＊＊－＊ 4N4D10BK－P＊＊－H＊＊－＊
Operating fluid		Compressed air
Operating pressure		0.15～0.7MPa
Ambient temperature		－5～60℃
Fluid temperature		－5～60℃ (In case of －5℃ to ＋5℃ , ensure to be removed any water contained for prevention of freezing.)
Operation frequency		Max.：twice /second　Min.：once /six months
Lubricating		Not necessary
Mass		Please refer to Page 103.
Protective class		IP65
Valve section	Effective area of valve	Over 10㎟ (for a single solenoid valve without silencer and throttle valve)
	Response time	Less than 0.05 s
	Allowable air leakage	Below the value provided for in JIS B8375－1993
	Proof pressure	1.2MPa
Solenoid section	Explosion-proof construction	d2G4 Pressure-resistance explosion-proof construction
	Rating	Continuous rating
	Voltage tolerance	－15%～10% of the rated voltage
	Apparent power (AC)	Energized less than 7.5VA (50Hz) and 5.5VA (60Hz) , starting current less than 3 times to the energized power.
	Power consumption (DC)	Below 4W
	Type of insulation	JIS C4003 Type H
	Temperature increase	Less than 70℃ (Resistance method)
	Insulation resistance	Less than 10MΩ (DC500V megger)
	Voltage proof	AC1500V (for one minute)
Silencer section (with throttle valve)	Model code	EVS5－6A
	Sound-absorbing effect	More than 15dB

● Ex Ⅱ BT4 explosion-proof standards is available. For the details, contact KONAN.

The hydrogen explosion-proof (d3aG4) solenoid valve can be mounted.

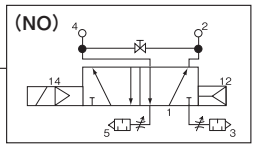
Consult with us separately.

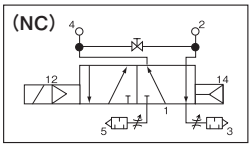


Ordering of TA2 Options

Model Code

■ Type of Valve Passage【Return】





4N4S ① K- ② ③ - H ④ ⑤ ⑥ - ⑦

①	②	③	④	⑤	⑥	⑦
Bore size	Explosion-proof Standard	Type of Wiring	Rated Voltage	Option (Silencer with throttle valve)	Option (Surge absorber)	Operation Condition of the Solenoid Valve

1 Bore size

Rc 1/4 (Standard)	102
1/4NPT *	10B

* : NPT screw is used only for the pressure sulppy port (port1) .

2 Explosion-proof Standard

Structural standard	d2G4	E
EX. Explosion-proof	Exd Ⅱ BT4	P
Explosion-proof for Korea	Exd Ⅱ BT4	H

3 Type of Wiring

Conduit tube system		01
Pressure-resistant packing system (Applicable cable size)	ϕ 7.5 ~ 8.4	08
	ϕ 8.5 ~ 9.4	09
	ϕ 9.5 ~ 10.4	10
	ϕ 10.5 ~ 11.4	11
	ϕ 11.5 ~ 12.4	12

● See p106 to p109 for details.

4 Rated Voltage

AC100V 50/60Hz、110V 60Hz	1
(AC110V 50Hz、120V 60Hz)	2
AC200V 50/60Hz、220V 60Hz	3
(AC220V 50Hz、240V 60Hz)	4
(DC12V)	8
DC24V	5
(DC48V)	6
DC100V	7
(DC110V)	9
(DC125V)	A

● ( ) : Semi-standard.

5 Option (Silencer with throttle valve)

Without	Y
With 2 piece	B
Port5 : With 1 piece Port3 : Plug	X

6 Option (Surge absorber)

Without	0 (Zero)
With surge absorber	Z

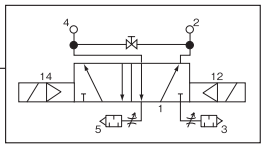
7 Operation Condition of the Solenoid Valve

Gasket "NO"	R (Standard)
Gasket "NC"	No entry

● In case of NO type gasket direction upon shipment, air flows into the actuator port (b) by turning on the solenoid and the spindle rotates counterclockwise as viewed from above.

● In case of NC type gasket direction upon shipment, reversal actions are carried out, i.e., air flows into the actuator port (a) by turning on the solenoid and the spindle rotates clockwise as viewed from above.

■ Type of Valve Passage【Hold】



4N4D ① K– ② ③ – H ④ ⑤ ⑥

①	②	③	④	⑤	⑥
Bore size	Explosion-proof Standard	Type of Wiring	Rated Voltage	Option (Silencer with throttle valve)	Option (Surge absorber)

1 Bore size

Rc 1/4 (Standard)	102
1/4NPT *	10B

＊ : NPT screw is used only for the pressure sulppy port (port1) .

2 Explosion-proof Standard

Structural standard	d2G4	E
EX. Explosion-proof	Exd Ⅱ BT4	P
Explosion-proof for Korea	Exd Ⅱ BT4	H

3 Type of Wiring

Conduit tube system		01
Pressure-resistant packing system (Applicable cable size)	ϕ 7.5 ~ 8.4	08
	ϕ 8.5 ~ 9.4	09
	ϕ 9.5 ~ 10.4	10
	ϕ 10.5 ~ 11.4	11
	ϕ 11.5 ~ 12.4	12

● See p106 to p109 for details.

4 Rated Voltage

AC100V 50/60Hz、110V 60Hz	1
(AC110V 50Hz、120V 60Hz)	2
AC200V 50/60Hz、220V 60Hz	3
(AC220V 50Hz、240V 60Hz)	4
(DC12V)	8
DC24V	5
(DC48V)	6
DC100V	7
(DC110V)	9
(DC125V)	A

● (　　) : Semi-standard.

5 Option (Silencer with throttle valve)

Without	Y
With 2 piece	B
Port5 : With 1 piece Port3 : Plug	X

6 Option (Surge absorber)

Without	0 (Zero)
With surge absorber	Z

Ordering of TA2 Options

③ FR Unit (Filter regulator)

Specifications

Model code		TA2-FR、TA-FR-E ※ In case of φ 40, only TA2-FR is available.
Operating fluid		Compressed air
Operating pressure	Primary side (IN)	Max.1.0MPa
	Secondary side (OUT)	0.05 ～ 0.7MPa
Proof pressure		1.5MPa
Allowable air leakage		Less than 15㎤/min (ANR) only for the relief valve section
Operating temperature		− 20 ～ 60℃ (Only for FR unit itself)
Mass		Please refer to Page 103.
Element filtration		5 μ m
Pressure gauge		Not attached and will be shipped as an accessory.

● Piping fittings are not attached and are shipped as an accessory.

Model Code

TA2 − FR − ①

Type of Solenoid Valve connected to the piping

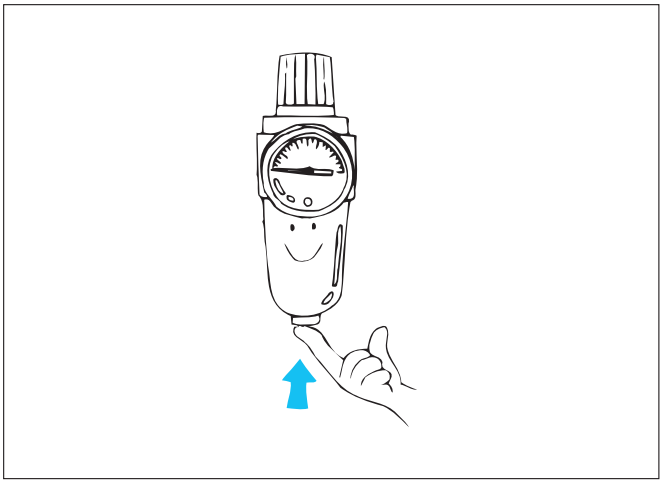
Pressure gauge, connecting nipples/elbows to solenoid are attached.

1 Type of Solenoid Valve connected to the piping

5-port solenoid valve	4N3S102K − ＊＊ (Return) 4N3S10BK − ＊＊ (Return)	No entry (Standard)
	4N3S102K − ＊＊ (Hold) 4N3S10BK − ＊＊ (Hold)	
Explosion-proof solenoid valve	4N4S102K − E ＊＊ (Return) 4N4S10BK − E ＊＊ (Return)	E
	4N4S102K − E ＊＊ (Hold) 4N4S10BK − E ＊＊ (Hold)	

Drain Discharge

● To discharge the drains, push the rod of the drain valve upwards.



(4) Bypass valve with speed controllers

Specifications

Model code	BPSC-08A
Operating fluid	Compressed air
Operating pressure	0.1 ～ 0.7MPa
Proof pressure	1.05MPa
Operating temperature	− 5 ～ 60℃ (In case of − 5℃ to + 5℃ , ensure to be removed any water contained for prevention of freezing.)
Material	Resin (PPC)
Mass	Please refer to Page 103.

Model Code

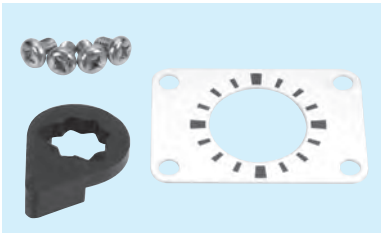
BPSC – 08A

● Actuator-mounting screws are attached.

(5) Indicator (Pointer and indication board)

Specifications

Article No.	Name	Material	Quantity
IN1	Pointer	EPDM	1
IN2	Indication board	Aluminum	1
IN3	Pan-head machine screw	Stainless steel	4



Model Code

TA2 – IN ①

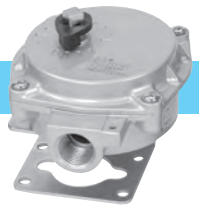
Size of Actuator

1 Size of Actuator

TA2 − 0402	09
TA2 − 050、TA2 − 063	11
TA2 − 080、TA2 − 100	16
TA2 − 125、TA2 − 160	22

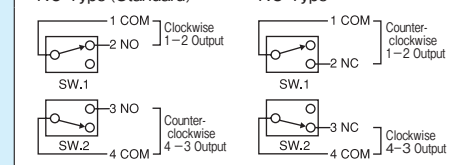
Ordering of TA2 Options

⑥ Limit switch box (Made of Aluminum)



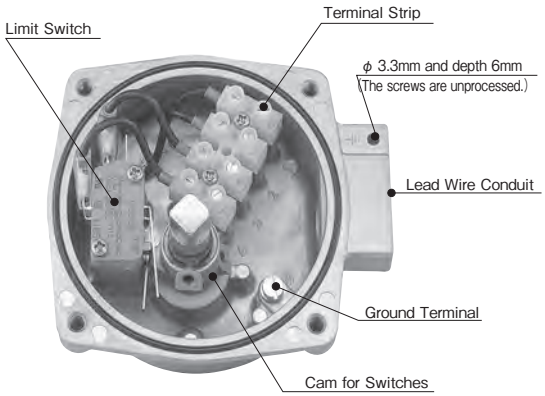
Specifications

Model code	TA2-SB2			Connection diagram	NO Type (Standard) / NC Type
Rating of the limit switch	Rated voltage(V)	Non-inductive Load(A)	Inductive Load(A)		
	AC125	11	7		
	AC250	11	7		
	DC125	0.5	—		
	DC250	0.25	—		
Operating temperature	− 5 ～ 60℃ (only switch box itself)				
Voltage proof	AC1500V (for one minute)			Body material	ADC
Protection class	IP65			Mass	Refer to Page 103.
				Paint color	Silver



(These diagrams show the connection rotated clockwise.)
Loosen terminal strips, insert lead wires at correct positions securely, then ensure to tighten screws.
● Applicable lead wire : 2.5mm² ● Terminal screw size : M3 ● Lead wire conduit : G1/2 ● Connect the gland wire to the ground terminal as needed.

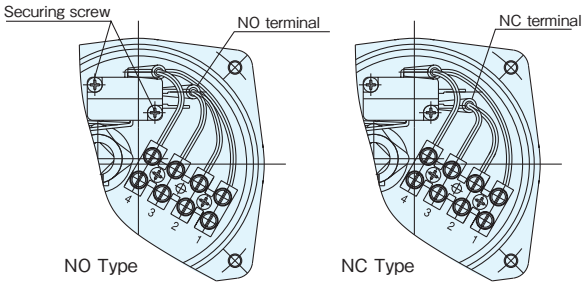
Switch Box Internal Configuration



Change of the Output Signal of the Switch

The circuit configuration of the micro switch built in this device is of the SPDT (Single Pole Double Throw) with output signal of only NO as a standard. To change it to the NC output signal, follow the procedure given below :

① Remove the screws (two) securing microswitches (two) .
② Remove the fast-on connection terminals inserted in the NO terminal strips.
③ Insert the fast-on connection terminals into the NC terminal strips.
④ Secure the microswitches (two pieces) with screws (two) respectively.



Model Code

Switch-mounting brackets & bolts are attached.

TA2 − SB2 − ① − ② − ③

① Spindle size
② Output signal
③ With/Without gland

1 Spindle size

TA2-0402D (R/L)	09
TA2-050D (R/L) TA2-063D (R/L)	11
TA2-080D (R/L) TA2-100D (R/R2/L/L2)	16
TA2-125D (R/R2/L/L2) TA2-160D (R/R2/L/L2)	22

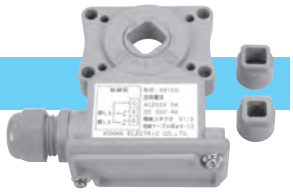
2 Output signal

NO Type (Standard)	NO
NC Type	NC

3 With/Without gland

Without gland	No entry
ϕ 8.5 ～ ϕ 9.4	15A
ϕ 9.5 ～ ϕ 10.4	15B
ϕ 10.5 ～ ϕ 11.4	15C

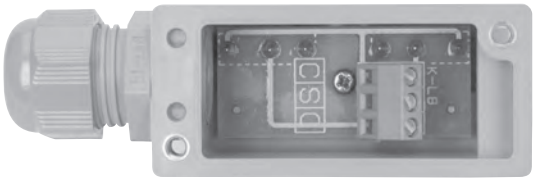
7 Limit switch box (Made of resin)

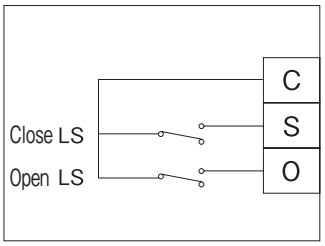


Specifications

Model code	SB100		
Rating of the limit switch	Rated voltage(V)	Non-inductive Load(A)	Inductive Load(A)
	AC125	5	3
	AC250	5	2
	DC 14	5	4
	DC 30	4	3
Operating temperature	− 5 ~ 60℃		

Internal structure of the switch





Model Code

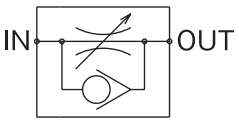
SB100

Ordering of TA2 Options

(8) Air-intake speed controller compatible with the NAMUR standards

Features

〈JIS Symbol〉



1. Meter-in circuit
2. The mounting method to the actuator conforms to the NAMUR standards.

Specifications

Effective sectional area	Controlled flow	10mm^2
	Free flow	12.5mm^2
Operating pressure		0.05MPa ～ 0.7MPa
Proof pressure		1.05MPa
Cracking pressure		Less than 0.05MPa
Operating temperature		− 5 ～ 60℃
Mass		約 0.21kg

Remarks) These specifications are subject to change depending on use conditions.

Model Code

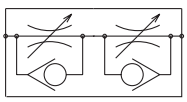
SCTA2 – 02

(9) Air-intake and exhaust speed controller compatible with the NAMUR standards

※ This product is included only in single-action type.

Features

〈JIS Symbol〉



1. Speed control valve combining the meter-in and mater-out functions.
2. Attaching this controller to the single-acting oscillating actuator with spring enables the rotation speeds in rightward/leftward directions to be adjusted respectively by one unit.
3. The attaching time can be reduced greatly in comparison with piping the 2 speed control valves in series. Furthermore, it has effect to prevent the piping from being damaged due to external force.
4. The mounting dimensions to the actuator conform to the NAMUR standards.

Specifications

Fluid	Compressed air
Operating pressure	0.3MPa ～ 0.7MPa
Proof pressure	1.05MPa
Operating temperature	− 5 ～ 60℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)
Effective sectional area	4.9mm^2
Cracking pressure	Less than 0.05MPa (JISB8376-1994)
Mass	0.26kg

Remarks) These specifications are subject to change depending on use conditions.

Model Code

SASC6 – 02 – 8A

Products Mass

● The mass of the entire unit of the product with optional accessories should be calculated by adding mass of such options to the basic mass.

Unit : kg

Basic model	Basic mass (without option)	Additional mass of the optional accessories								
		5- Port solenoid valve		FR unit	Switch box	Electric – pneumatic positioner	d2G4 Explosion-proof solenoid valve		Bypass valve with speed controller	Manually operated handle unit
		S : Return	D : Hold				S : Return	D : Hold		
TA2 – 0402D	0.8	0.4	0.6	0.4	0.6	–	–	–	–	–
TA2 – 0402R	2.3		–							
TA2 – 050D	1.3	0.4	0.6	0.4	0.7	–	0.8	1.4	0.1	0.5
TA2 – 050R (L)	3.0									
TA2 – 063D	2.1	0.4	0.6	0.4	0.7	3.0	0.8	1.4	0.1	0.9
TA2 – 063R (L)	4.9									
TA2 – 080D	3.4	0.4	0.6	0.4	0.8	3.2	0.8	1.4	0.1	1.5
TA2 – 080R (L)	8.5									
TA2 – 100D	6.1	0.4	0.6	0.4	0.8	3.2	0.8	1.4	0.1	2.7
TA2 – 100R (R2/L/L2)	16.4									
TA2 – 125D	9.8	0.4	0.6	0.4	0.9	3.3	0.8	1.4	0.1	5.0
TA2 – 125R (R2/L/L2)	27.6									
TA2 – 160D	18.2	0.4	0.6	0.4	0.9	3.3	0.8	1.4	0.1	13.0
TA2 – 160R (R2/L/L2)	51.2									

Note

- Manually operated handle is not designed to mount on D type (double-acting type).
- Hold type solenoid valve (D) and bypass valve with speed controller are not designed to mount on R type and L type (single-acting type)

Spare Parts List

Double-Acting Type [Type D]

Code No.	Packing	Quantity per unit	TA2-0402D-00	TA2-050D-00	TA2-063D-00	TA2-080D-00	TA2-100D-00	TA2-125D-00	TA2-160D-00
D08	Gasket	2	504-48899-D10	—	—	—	—	—	—
D09	Piston packing	2	02301-0340	—	—	—	—	—	—
D10	Gasket	1	02301-0100	—	—	—	—	—	—
D11	Gasket	1	02301-0180	—	—	—	—	—	—
20	Flange Gasket	2	—	504-32682-20	504-32683-20	504-32802-20	504-32804-20	504-32956-20	504-32957-20A
21	Piston packing	2	—	02494-29850	02494-29860	02494-29870	02494-29880	02494-32530	02494-32540
22	Spindle packing A	1	—	02301-0140	02301-0180	02301-0220	02301-0280	02301-0300	02301-0380
23	Spindle packing B	1	—	02301-0240	02301-0280	02301-0350	02301-0400	02301-0500	02301-0650
24	Seal washer	2	—	01178-08130S	01178-10130S	01178-12130S	01178-16130S	01178-16130S	01178-20130S

Repair kit parts No.	P-TA2-0402D	P-TA2-050D	P-TA2-063D	P-TA2-080D	P-TA2-100D	P-TA2-125D	P-TA2-160D

Single-Acting Type [Type R / L]

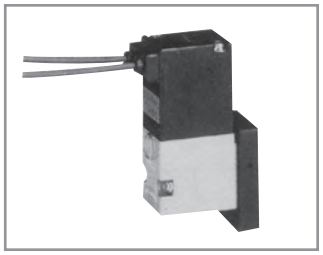
Code No.	Packing	Quantity per unit	TA2-0402R(L)-00	TA2-050R(L)-00	TA2-063R(L)-00	TA2-080R(L)-00	TA2-100R(L)-00 TA2-100R(L2)-00	TA2-125R(L)-00 TA2-125R(L2)-00	TA2-160R(L)-00 TA2-160R(L2)-00
D08	Gasket	1	504-48899-D10	—	—	—	—	—	—
D09	Piston packing	2	02301-0340	—	—	—	—	—	—
D10	Gasket	1	02301-0100	—	—	—	—	—	—
D11	Gasket	1	02301-0180	—	—	—	—	—	—
R43	Rod packing	1	02301-0160	—	—	—	—	—	—
R45	Gasket	4	02308-0500	—	—	—	—	—	—
R46	Gasket	2	02301-0030	—	—	—	—	—	—
R47	Flange Gasket B	1	01305-0800	—	—	—	—	—	—
R52	Gasket	1	02301-0300	—	—	—	—	—	—
20	Flange Gasket A	1	—	504-32682-20	504-32683-20	504-32802-20	504-32804-20	504-32956-20	504-32957-20A
21	Piston packing A	2	—	02494-29850	02494-29860	02494-29870	02494-29880	02494-32530	02494-32540
22	Spindle packing A	1	—	02301-0140	02301-0180	02301-0220	02301-0280	02301-0300	02301-0380
23	Spindle packing B	1	—	02301-0240	02301-0280	02301-0350	02301-0400	02301-0500	02301-0650
24	Seal washer	1	—	01178-08130S	01178-10130S	01178-12130S	01178-16130S	01178-16130S	01178-20130S
43	Rod packing	1	—	02301-0160	02301-0160	02301-0160	02301-0200	02301-0250	02301-0250
45	Gasket	4	—	02301-0060	02301-0070	02301-0100	02301-0120	02301-0140	02301-0180
46	Gasket	1	—	02301-0080	02301-0100	02301-0140	02301-0160	—	—
		2	—	—	—	—	—	02301-0080	02301-0100
47	Flange Gasket B	1	—	01305-0080	01305-1000	01305-11110	01305-11130	01305-11140	504-32959-47
55	Gasket	1	—	02301-0300	02301-0300	02301-0300	02301-0300	02301-0300	02301-0300

Repair kit parts No.	P-TA2-0402R	P-TA2-050R	P-TA2-063R	P-TA2-080R	P-TA2-100R	P-TA2-125R	P-TA2-160R

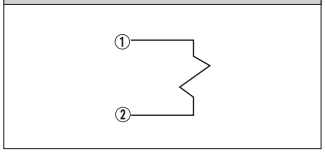
※ Never disassemble the spring unit. (Never remove the stop ring of product form R41.)

1 Procedure for Connecting 5-port Solenoid Valve

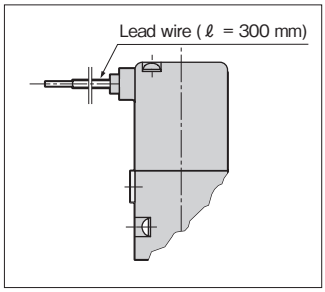
(L) Lead wires



Connection diagram



Lead wire is drawn out of the coil section by approximately 300 mm in length.



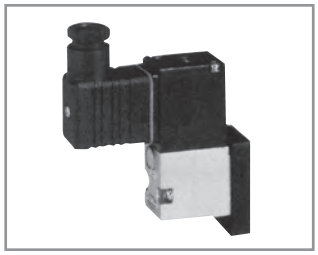
Ensure that the excessive pull-out force is not applied to the lead wire.

Faston terminal : 42232 – 3

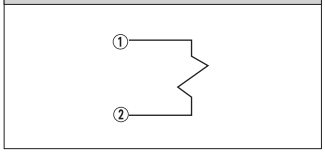
Tool : 47417
Manufacture : AMP

In addition, a type with surge absorber can also be manufactured.
Please contact us if you wish.
However, only DIN connector type.

(D) DIN connector (without indicator)



Connection diagram



Applicable cable size

Use the cable with finished external diameter ϕ6 to ϕ8 mm.

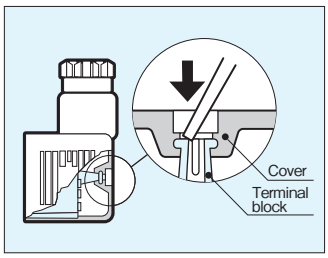
Wiring procedure

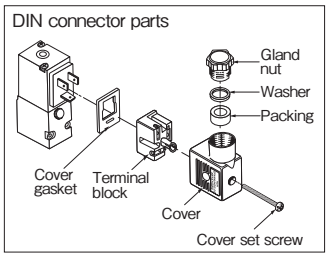
① Remove the covering set screw, press the terminal block head (gray part) visible in the hole with a short stick (such as screw driver) to take out the terminal block.

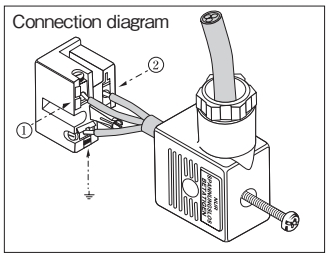
② After passing the cable through the gland nut, washer, packing, and cover, strip ends of the cable jacket, then make a fine strand at each end.

③ Loosen the terminal set screws ① and ② on the terminal block to insert the lead wire securely, then tighten the set screws.
For ground wiring, the lead wire should be connected to the 3 points on the terminal block.

④ After determining the direction of the cable conduit (cover mounting direction), tighten the cover set screw.

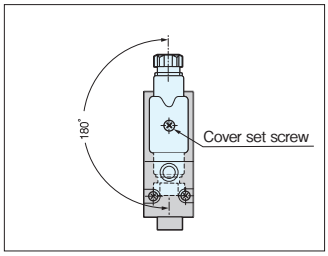




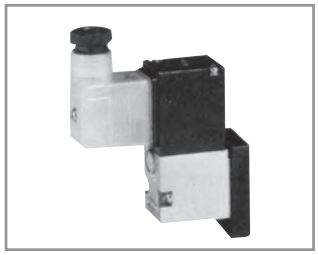


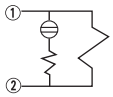
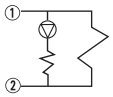
Change of the cable conduit

The direction of the cable conduit can be reversed by loosening the cover set screw and removing the cover.

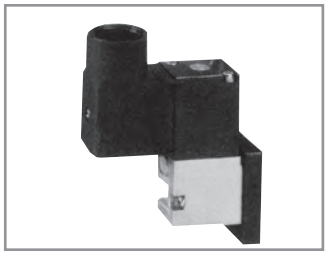


(N) DIN connector (with indicator)

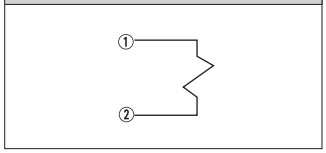


Connection diagram (AC)	Connection diagram (DC)
	

(W) Water-proof connector



Connection diagram



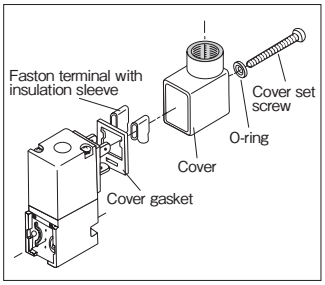
Cable conduit

Size of the screw for the cable conduit of the water-proof terminal cover : G1/2

Applicable lead wire size

As this water-proof connector employs faston terminal, 0.75 to 3.37 mm^2 size lead wire should be used.

Wiring procedure



① After passing the lead wire through the cover and the insulation sleeve, strip ends of the cable jacket (approx. 4 mm), then make a fine strand at each end.

② Insert the lead wire into the faston terminal to secure, cover the insulation sleeve, then insert into the coil side DIN terminal.
Note: Insulation sleeve is not attached to the faston terminal for ground wiring.

③ After determining the direction of the cable conduit (cover mounting direction), tighten the cover set screw.
Note: Care should be taken not to lose attached O-ring.

Options

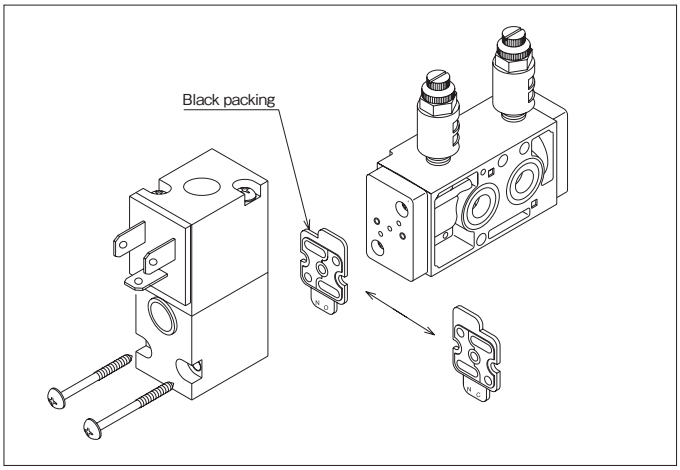
Glands are available as options. When ordering glands, refer to the table below.

Unit: mm

Gland packing i.d.	Applicable cable size	Code
ϕ9	ϕ8.5~9.4	15a
ϕ10	ϕ9.5~10.4	15b
ϕ11	ϕ10.5~11.4	15c

In a double-acting type (D) rotary actuator with return type solenoid valve (S) mounted, standard operation is “counterclockwise rotation when solenoid is energized.” However, following the procedure below allows reverse operation, “clockwise rotation when solenoid is energized.”

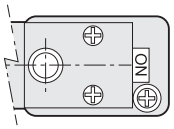
How to convert the operation of 5-port solenoid valve (return type)



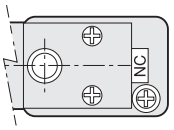
How to convert the operation of rotary actuator

- In a double-acting type actuator with return type solenoid valve mounted, standard operation is as described in page 31 (at shipment).
- If the operation of the solenoid and the rotary actuator should be reversed, turn over the pilot packing of the solenoid valve to set with the “NC” mark visible.

【Standard】



【Reversed】



(2) Procedure for Connecting 5-port Explosion-proof (d2G4) Solenoid Valve

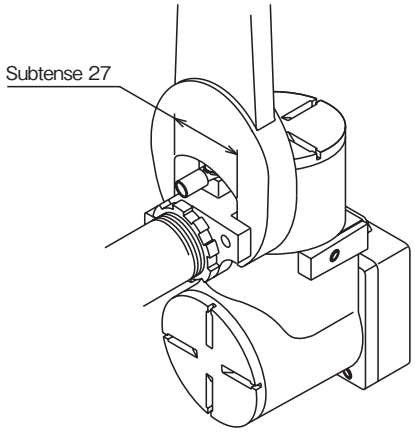
How to pull the external lead wire in the terminal box

Conduit system

Use the thick steel conduit (JIS C8305) with parallel thread screw (JIS B0202) and connect it with the screw by over five threads.

For details of wiring, follow the USERS' GUIDELINES for Electrical Installations for Explosive Gas Atmospheres in General Industry.

If there is a risk for entry of corrosive gas, moisture, or water from the thread, for precaution, apply non-curing water-proof or rust-preventing agent such as liquid gasket to the thread before connecting screw.

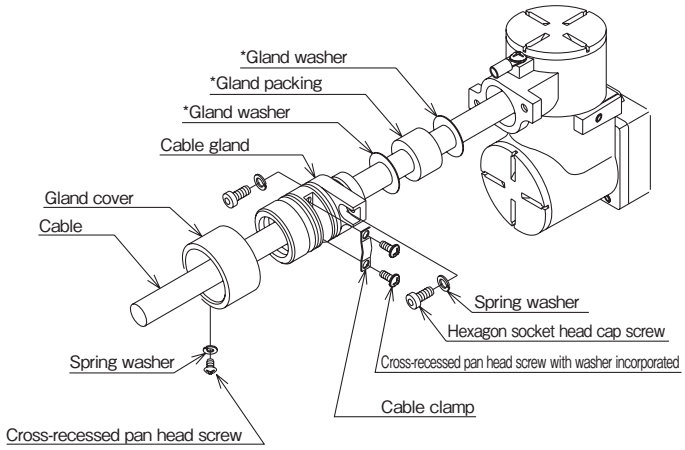


⚠ Warning

When fastening the thick steel conduit or lock nut for the thick steel conduit, use a spanner as shown in the above drawing to ensure no excessive force is applied onto the terminal box. Excessive force applied may impair the explosion-proof performance.

Pressure-resistant packing system

Follow the under-mentioned procedure for cable wiring. Note that the sizes of the marked parts* are different depending on the cable size.



[Assembly procedure]

① Pass the cable through gland washer, gland packing, gland washer, cable gland, and gland cover in order.
② Secure the cable clamp onto the cable gland.
③ Tighten two hexagon socket head cap screws evenly to mount the cable gland on the terminal box.
④ After inserting the cable cover into the cable gland, fasten the cross-recessed pan head screw to secure the cable cover.

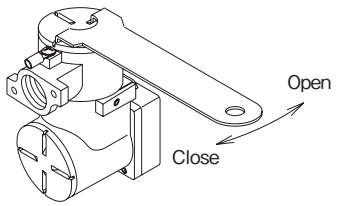
Electric connection

Use the attached solderless terminal V2-M4 (JST Mfg. Co., Ltd.) and the specified fitting YNT-1614 (JST Mfg. Co., Ltd.) for the connection work. Electric cable size should be 1.04 to 2.63 mm^2.

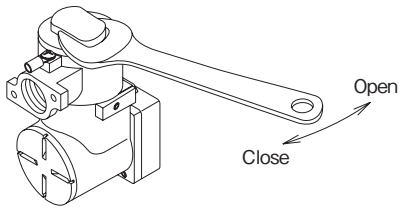
Opening/closing of the terminal box

Explosion-proof construction standard: The terminal box cover can be opened/closed only with a specified tool. When opening or closing the terminal box, use the special tool attached. Ensure to properly fit an angled edge plate into the slot of the cover and turn it as per shown.
Ex explosion-proof type: The terminal box cover can be opened/closed with spanners.

[Explosion-proof construction standard]



[Ex explosion-proof type]



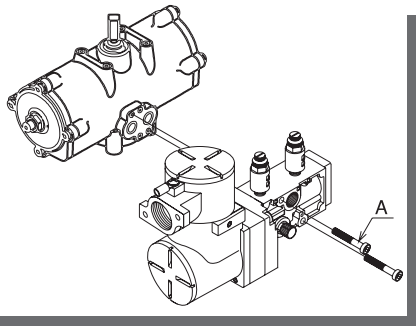
⚠ Warning

Before opening/closing the terminal box or removing/mounting electric terminal, ensure to shut off the power source.
When wiring work is performed outdoors or in the area which is likely to be exposed to water, make sure to take protective measure to prevent entry of the rain water into the terminal box.

How to Convert the Operation of 5-port Explosion-proof (d2G4) Solenoid Valve

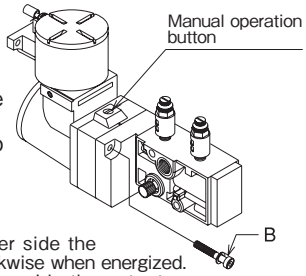
1

Remove the solenoid valve from the rotary actuator or the mounting surface.
(Remove two socket head cap screws A.)



2

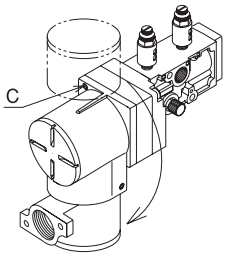
Remove the pilot solenoid valve from the valve body.
(Remove two socket head cap screws B.)



Note: With the manual button upper side the actuator rotates counterclockwise when energized. With the manual button lower side the actuator rotates clockwise when energized.

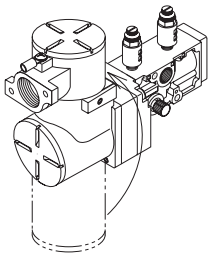
3

Half-turn the removed pilot solenoid valve and mount it again to the valve body.
(Mount two socket head cap screws B.)



4

Loosen the set screw C (by 5 to 6 turns), half-turn the terminal box, and then fasten the set screw to secure the terminal box. Attach the solenoid valve to the actuator in reverse order.

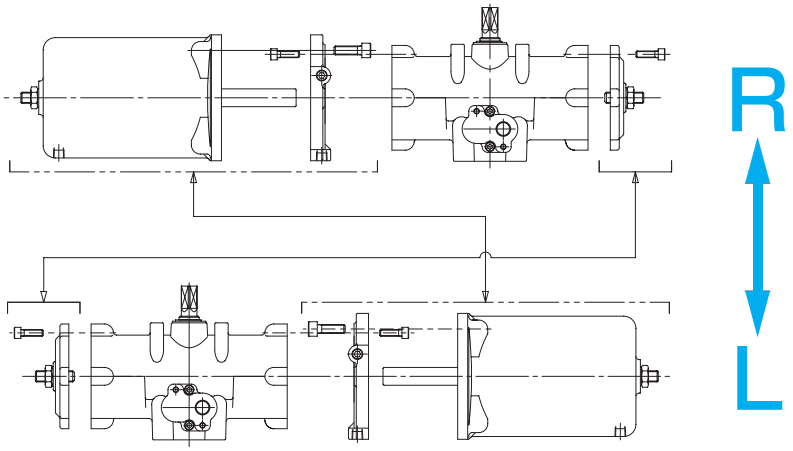


Reference Materials

③ How to convert the operation of single-acting rotally actuator type R and type L ＜for your reference＞

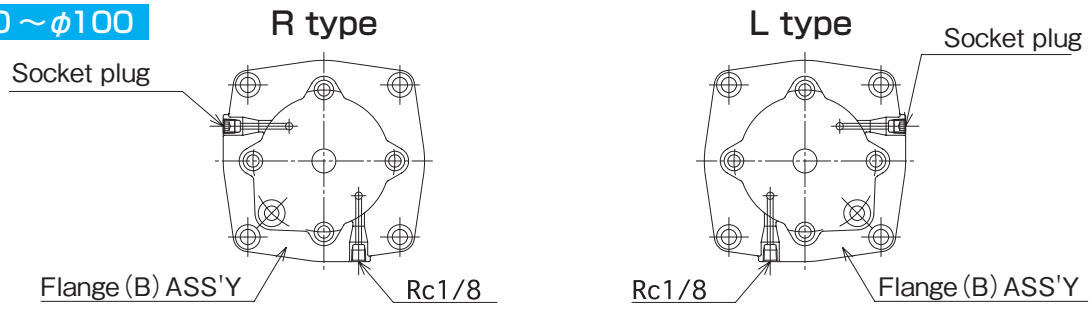
Operation of the single-type rotary actuator can be converted from R type（clockwise rotation by a spring force）to L type（counterclockwise rotation by a spring force）or vice versa by rearranging the spring unit section.

By exchanging the spring unit,
the operation can be changed from R type (rotating clockwise by spring force)
to L type (rotating counter-clockwise by spring force)
or from L type to R type.

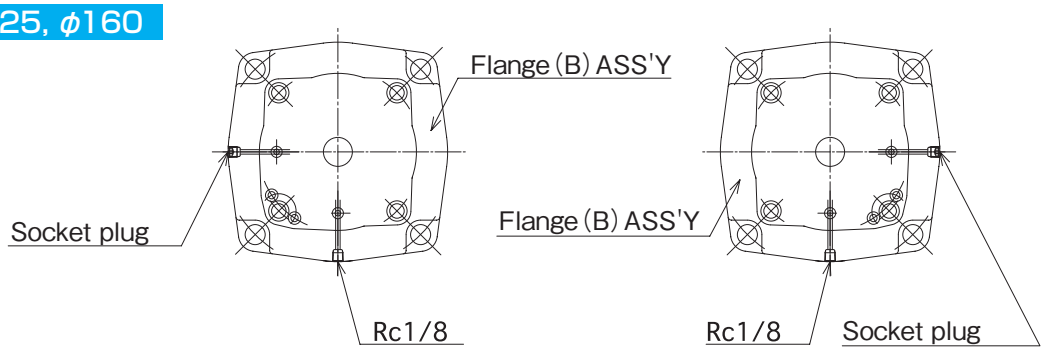


Note 1) If it is necessary to change the nameplate because of change in R/L type, contact our company.
Note 2) The only difference between R type and L type is the position of socket plug (Form R52).
When changing the operation, change the position of the socket plug.

φ 50～φ100

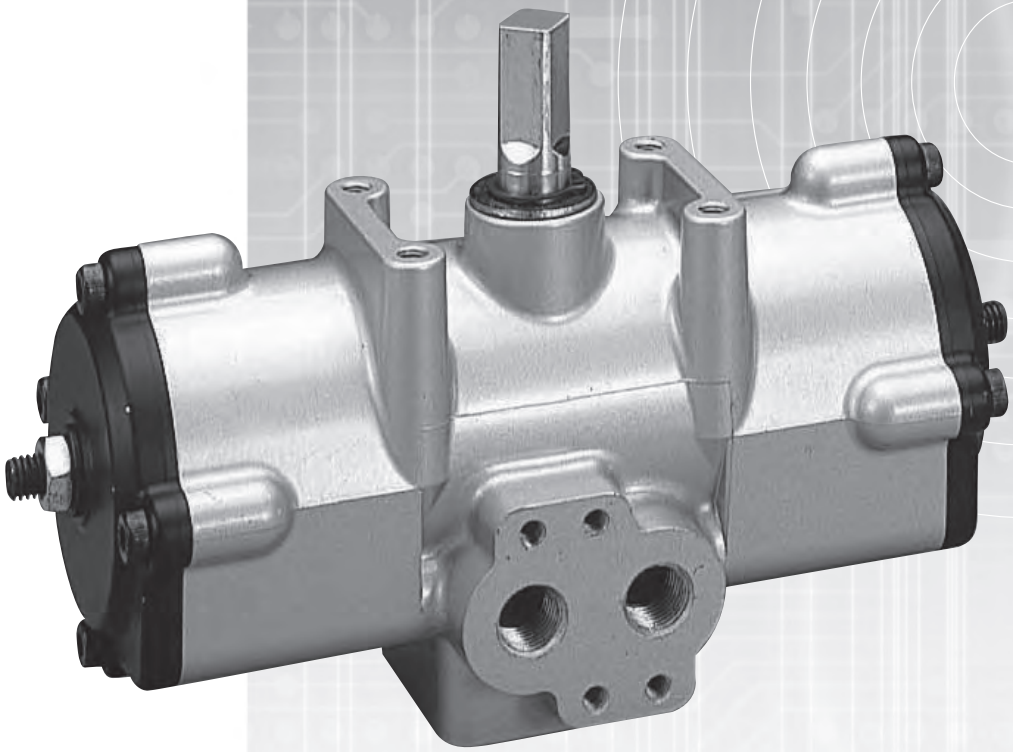


φ125, φ160



TA2-P High Durability Rotary Actuator

Bore size : φ50～φ160



Five times more durable than the standard series!

The durability is about 5 times higher than that of the standard series, making it ideal for high-frequency operation.

Nominal endurance is 500,000 cycles, 5 times that of the standard series

Compatible with standard series!

Since dimensions and shape are identical to standard series, they are compatible each other.

TA2-□①□P

① Code	Bore size
050	φ 50
063	φ 63
080	φ 80
100	φ100
125	φ125
160	φ160

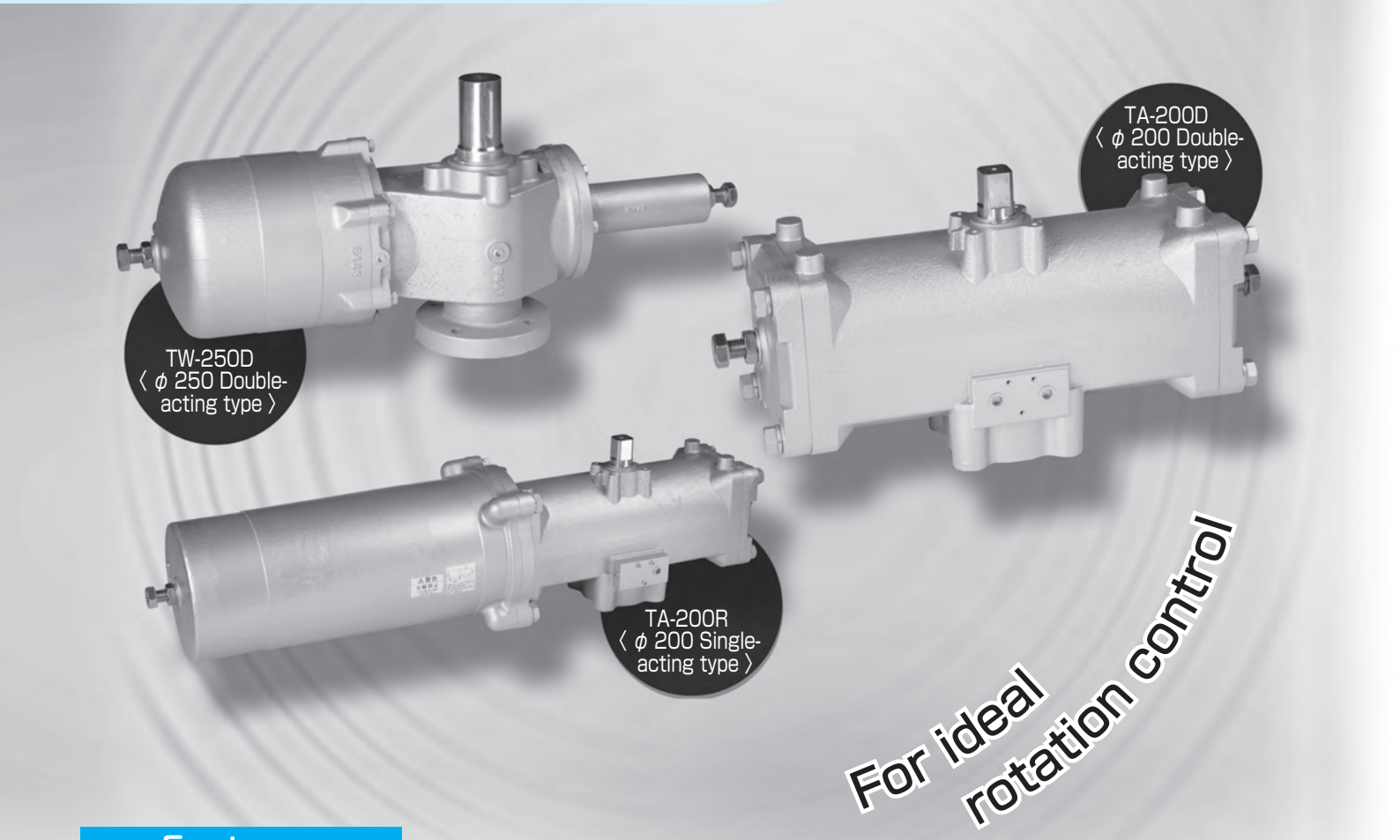
■ Specifications

Bore size	φ50	φ63	φ80	φ100	φ125	φ160
Operating fluid	Compressed air					
Operating pressure	0.3MPa～0.7MPa					
Proof pressure	1.05MPa					
Operating temperature	−5～60℃(In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)					
Output torque	Please refer to the" Table of Output Torque"(P22 ～ P24)					
Rotating angle	90°					
Operating speed	Max.90°/1s				Max.90°/2s	Max.90°/3s
Angle adjustment range	± 5° both end					

Pneumatic Rotary Actuator

For operation oflarge-diameter valve (TA-200 • TW-250)

Reliable actuator technologies backed with experiences for a long time enables firm and safe automatic operations of any large-diameter valves.



Features

Scotch yoke driving system

The scotch yoke mechanism which is compact yet allows high-efficient driving is employed. Both TA-200 and TW-250 exhibit the optimal torque characteristics for valve control requiring the maximum torque at the rotation beginning and final ends.

Abundant optional devices

Abundant optional devices have been standardized. The total system helps valve automatic operations.

Connection method

The yoke or coupling-free direct mount system is employed for connection to valves.

- TA-200 employs a female angle conforming to ISO standards.
- TW-250 employs a female key socket system conforming to ISO standards.

Specifications

Model code	TA-200D-F16-00	TA-200R-F16-00	TW-250D-F16-00
Bore size [mm]	φ 200	φ 200	φ 250
Operating pressure	0.4 ～ 0.7MPa		
Proof pressure	1.05MPa		
Fluid temperature	− 5 ～ 60℃ (In case of 5℃ or less, ensure to be removed any water contained for prevention of freezing.)		
Output torque	Please refer to the “Table of Output Torque” (P115)		
Rotating angle	90°		
Angle adjustment range	± 5° both end		
Rotating speed	Max.90 ° /2s	Max.90 ° /2s	Max.90 ° /3s
Mass	約 70kg (Double-Acting Type)	約 170kg (Single-Acting Type)	約 100kg (Double-Acting Type)

Model Code

TA−200 ① −F16−00

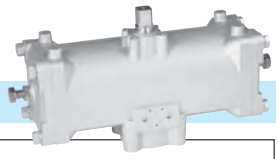
Operation system

TW−250D−F16−00

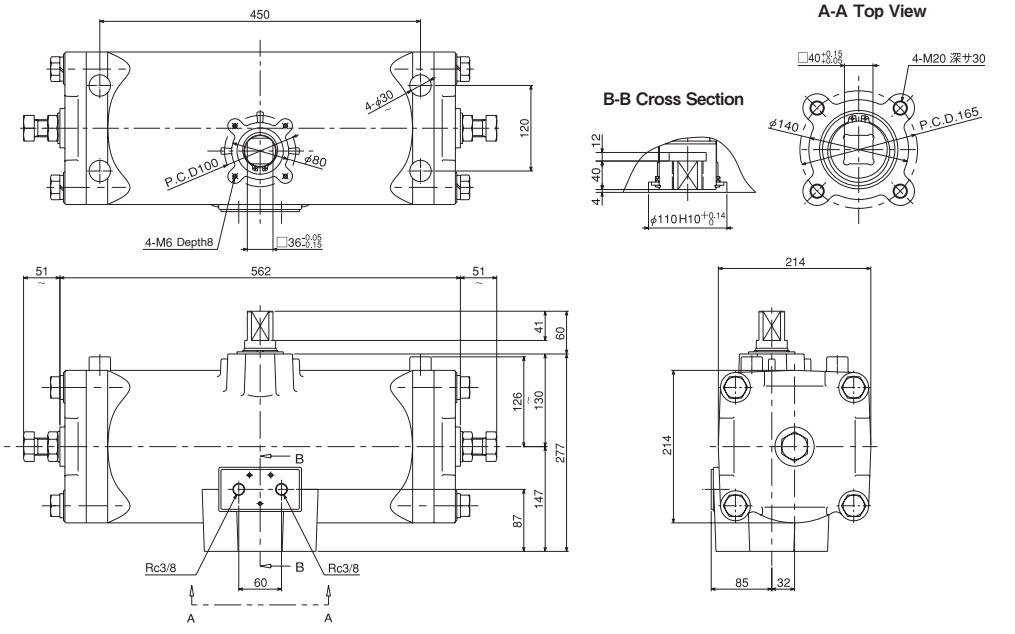
1 Operation system

Double-Acting Type	D
Single-Acting Type	R

External Dimensions



TA-200D



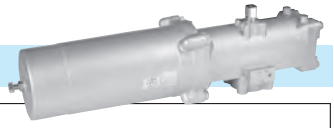
Unit : mm

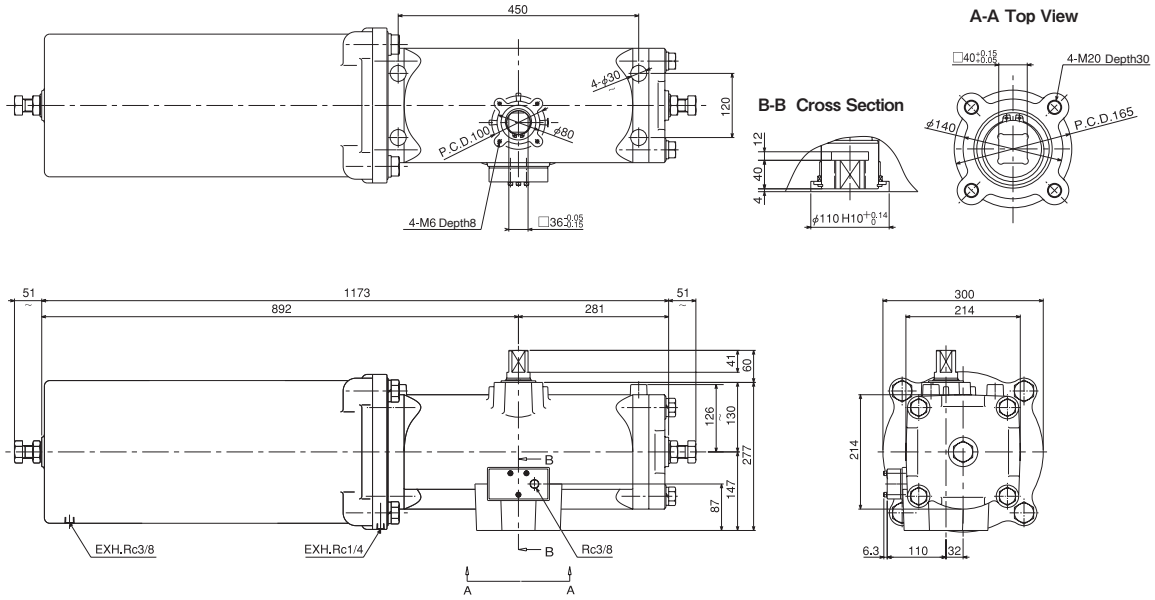
Pneumatic Rotary Actuator

For operation oflarge-diameter valve (TA-200 • TW-250)

External Dimensions

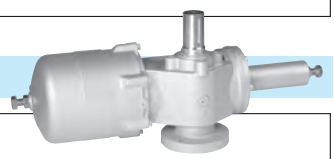
TA-200R

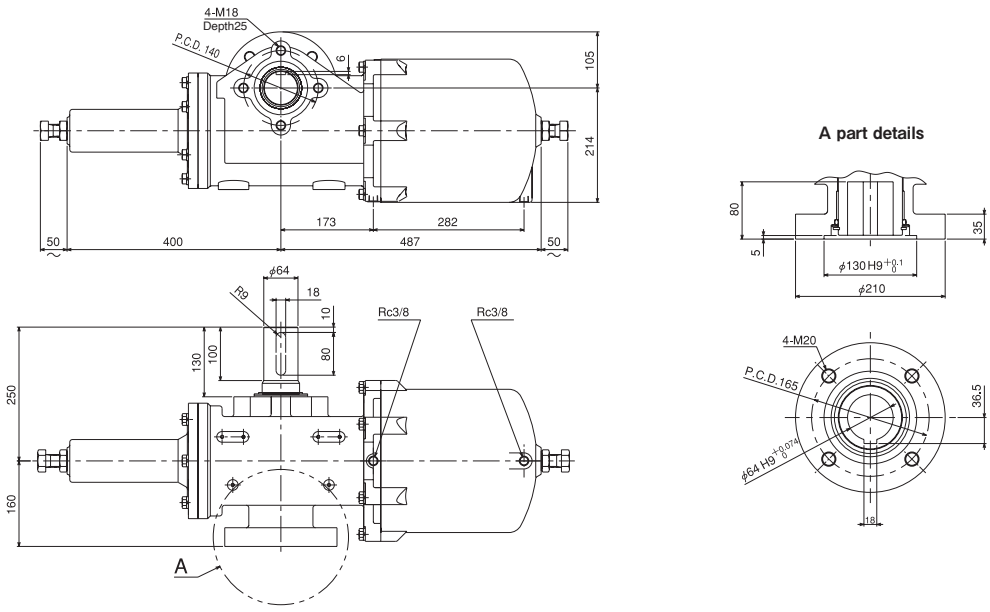




Unit : mm

TW-250D





Unit : mm

Output Torque

Double-Acting Type・Effective output torque

Unit：N・m

Model code of Rotary actuator	Operating preassure MPa							
	0.4		0.5		0.6		0.7	
	Break	Run	Break	Run	Break	Run	Break	Run
TA-200D-F16-00	1,196	679	1,490	848	1,792	1,018	2,081	1,188
TW-250D-F16	2,350	1,320	2,940	1,610	3,520	1,960	4,110	2,300

Single-Acting Type (Spring Return)・Effective output torque

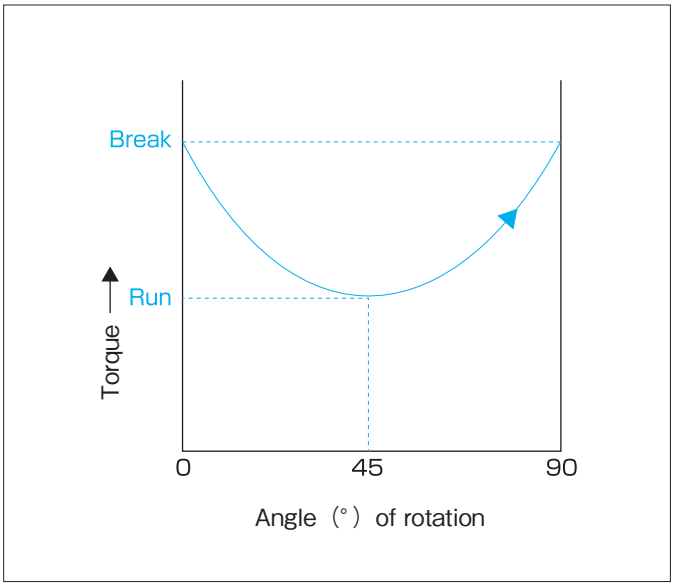
■ Air torque—The same as double-acting type/effective output torque (above table).

Unit：N・m

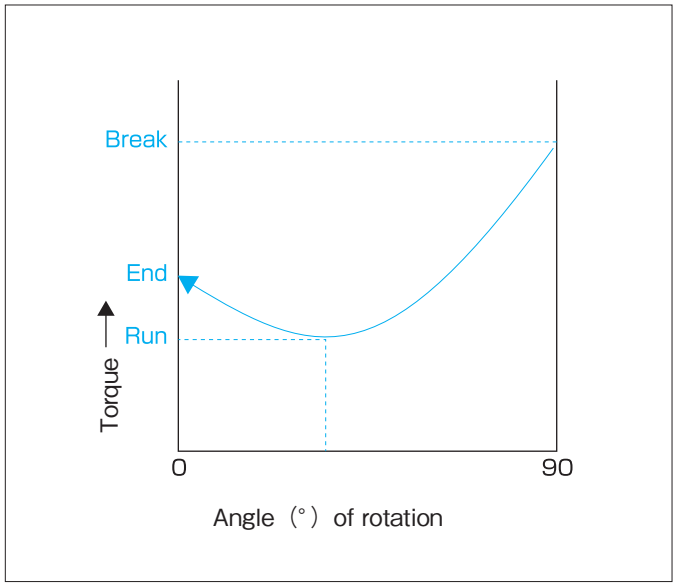
Model code of Rotary actuator	Torque（Spring）		
	Break	Run	End
TA-200R-F16-00	1,444	669	996

Torque Characteristic

Operating by Compressed Air



Returning by a Spring



What's d2G4 / Exd Ⅱ BT4?

For explosion-proof construction of electric equipment, the construction standards and technical standards, specifying 6 explosion-proof constructions each, are established according to the application, type of explosive gas used, or location of the equipment. Such specifications are expressed in codes such as "d2G4" and "Exd Ⅱ BT4." Each of the codes has the following meanings.

d2G4

Explosion-proof construction standard for electric equipment

d

d	Flame-proof enclosure construction	Type of explosion-proof construction
o	Oil-immersion construction	
f	Pressurized apparatus construction	
e	Increasedn safty construction	
i	Intrinsic safty construction	
s	Special type of protection construction	

2

1	Propane etc.	Explosive class
2	Ethylene etc.	
3a	Water gas / Hydrogen	
3b	Carbon disulfide	
3c	Acetylene	
3n	All	

G4

G1	Over 450℃	Ignition degree (ignition temperature)
G2	300 to 450℃	
G3	200 to 300℃	
G4	135 to 200℃	
G5	100 to 135℃	

Exd Ⅱ BT4

Technical standards conforming to the international standards (Ex explosion-proof type)

Ex

d	Flame-proof enclosure construction	Type of explosion-proof construction
o	Oil-immersion construction	
p	Pressurized apparatus construction	
e	Increasedn safty construction	
ia ib	Intrinsic safty construction	
s	Special type of protection construction	
n	Type n construction	

d

ⅡA	Propane etc.	Gas or steam type
ⅡB	Ethylene etc.	
ⅡC	All	

ⅡB

T4

T1	450℃	Temperature class (surface max.temperature)
T2	300℃	
T3	200℃	
T4	135℃	
T5	100℃	
T6	85℃	

Explosive gas classification according to explosive class and ignition degree (construction standard)

Explosion class \ Ignition degree	G1	G2	G3	G4	G5
1	Acrylonitrile, Acetone, Ammonia, Carbon monoxide, Ethane, Acetic acid, Ethyl acetate, Toluene, Propane, Benzene, Methanol, Methane	Ethanol, Isopentyl acetate, 1-Butanol, Butane	Gasoline, Dimethyl ether, Hexane	Acetaldehyde, Diethyl ether	
2		Ethylene, Ethylene oxide			
3a	Water gas, Hydrogen				
3b					Carbon disulfide
3c		Acetylene			
3n	Water gas /Hydrogen/Acetylene/Carbon disulfide				

Note) gray marked are applicable range of d2G4.

Explosive gas classification according to gas or steam type and temperature class (Ex explosion-proof type)

Gas or steam type \ Temperature class	T1	T2	T3	T4	T5	T6
ⅡA	Acetone, Ammonia, Ethane, Acetic acid, Ethyl acetate, Toluene, Benzene, Methane	1-Butanol, Butane, Propane, Methanol	Hexane	Acetaldehyde, Trimethylamine		
ⅡB	Acrylonitrile, Carbon monoxide	Ethanol, Ethylene, Ethylene oxide	Dimethyl ether	Diethyl ether		
ⅡC	Water gas, Hydrogen	Acetylene				Carbon disulfide

Note) gray marked are applicable range of Exd Ⅱ BT4.

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