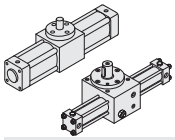
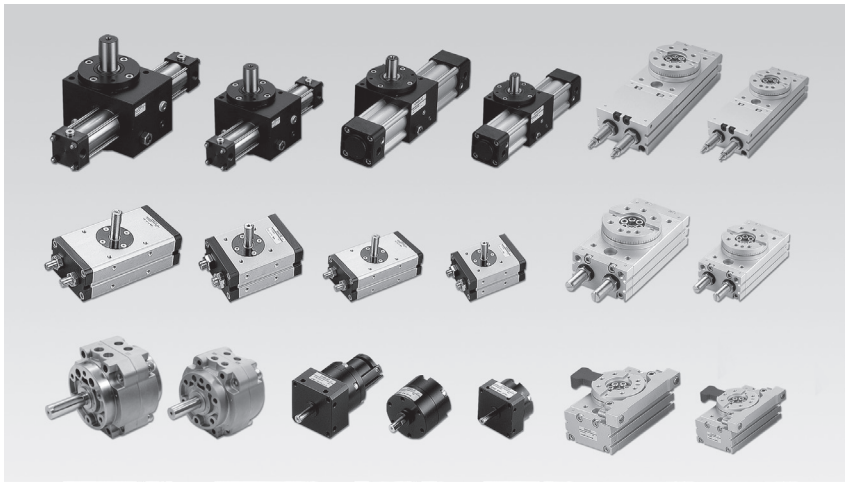


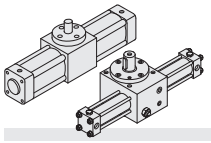
ROTARY CYLINDER

RTM、RTB、RTBM、RTZB、RTP、RTH、RTU Series

CHELIC PNEUMATIC



RTM、RTB、RTBM、RTZB
RTP、RTH、RTU Series
are with a **CAD** auxiliary
design drawings.



⚠ Safety notice / Common caution ①

CHELIC PNEUMATIC

Please read this safety notice carefully, pay attention to safety item while using this product, in order to prevent injury to human body and damage of property; thus, there are divided into three classes of " **Danger** " , " **Warning** " , and " **Caution** " according to the extend of prevention.

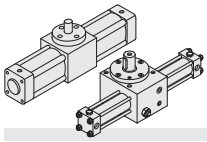
⚠ **Danger**	Obvious situated at " Danger " state, may cause casualty if not avoided; take special safety protection and management to prevent the occurrence of " Danger "

⚠ **Warning**	Condition of operation is situated at " Warning " state, may cause casualty if not avoided ; take special safety protection and manager to prevent the occurrence of " Warning "

⚠ **Caution**	Condition of operation is situated at " Caution " state, may cause minor or moderate injury and damage of property if not avoided; take special safety protection and management.

- For safety protection and prevention of accident, please understand the condition of application and know the design, installation, procedure of usage and essential safety condition before using this product.
- Please use within the specification and requirement of this product; application beyond the specification may cause hazard. In case of special condition of application, take the confirmation of safety into account and then use it; in case of doubt in reading this information and related data, contact us before using.
- It is hazardous in error assemble and operation of compressed air and its accessories; so, while selecting the product, the related personnel of design, assemble, operating and service should possess sufficient knowledge and experience, and follow normal operating procedure, in order to maintain safe operation and good effect.
- The safety notice is made according to **ISO 4414** ; pneumatic fluid power and **JSI B 8370** general requirement of air system.

※ **The safety notice, we do not notify if change anything.**



⚠ Safety notice / Common caution ②

CHELIC PNEUMATIC

This product suitable for application in general industrial equipment; adhere to the following cautionwhile designing, assembling, using and maintenance.

⚠ Danger

1. Please never use in the following application

- Use in operation, delivering and management of the appliance for the purpose of human life and body.
- Use in operation which rise obvious “danger” and safety concern to human life and body.
- Special for safety purpose, situation with impact of safety to human life and body

2. Confirmation of safety shall avoid the following conditions which cause safety impact to human and damage of equipment.

- Operation of machine, device should note to the drop of driven object or race at the rotation radius and operation range cause injury of human and damage of equipment.
- Operation of machine, device should note the air supply source and poor power supply and interruption and cause injury of human and damage of equipment.
- When restarting the machine, device, may cause object flying out and cause injury of human and damage of equipment.

⚠ Warning

1. Please never use in following situation

- In outdoor dusty condition.
- To avoid chemical , corrosive and inflammable gas ; to avoid sea water , high temperature place in surrounding.
- Exceed the condition in the specification of the product.
- In the place tend to receive rigorous shock impact, which affect the quality and stability of the product.

2. Please don’t make any modification or disassemble to the structure, function of the product.

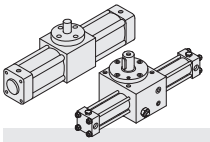
3. Shut off the power switch and air source properly before service and maintenance, to avoid consequent hazard and damage of product.

4. To avoid consequent hazard and damage of product while assembling and operation.

⚠ Caution

1. Pay attention to the cleanliness of the pipeline while piping, to avoid dust, dirt and leak proof tape been sucked into the pipe line and affect the operation performance of the product.

2. There are itemized cautions for various products, please contact our sales representative if you have any question.



⚠ Safety notice / Rotary cylinder Caution for application

Please read this safety notice carefully, pay attention to safety item while using this product, in order to prevent injury to human body and damage of property.

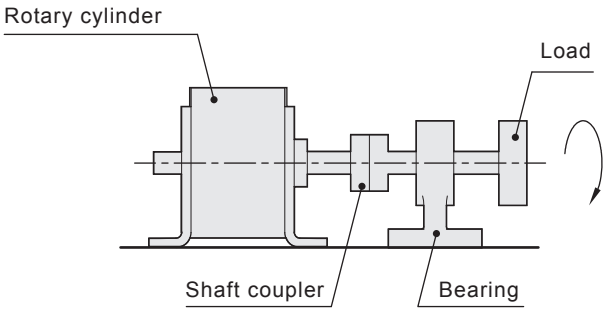
Caution for service and Selection

⚠ Warning

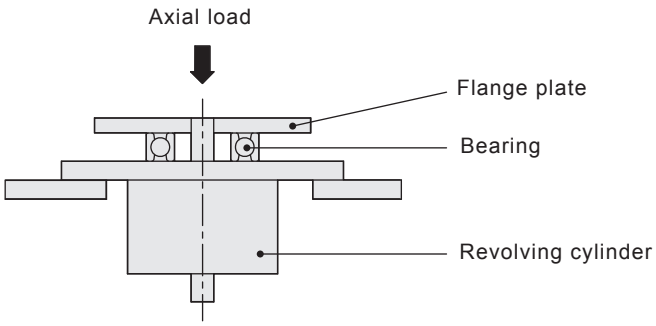
- Make thorough understanding to the characteristic of the compressed air and the application of this product while designing circuit.
- Please use only the fluid stated on the catalog, don't use the fluid other than limited, in order to prevent damage of product and affect the operation safety.
- The air used is compressed air, please note that expandable and unstable pressure will fly out, burst out, or leak.
- Please used as per specification and within the specified condition; use exceed the specification may cause hazard.
- Please used as per the specification stated on the catalog, exceeding the pressure beyond the specification, temperature and condition will cause poor action and affect the operation safety.
- Due to the mechanical design of the revolving cylinder with variation of wobbling movement, please pay attention to flying objects and possible crash hazard of your limbs, which may result in body injury and mechanical damage and so on; please take precaution upon designing.
- The movable range of revolving cylinder may contact our body and cause injury, should be protected by safety guard to prevent direct contact of body hazard.
- For larger mechanism or long stroke object, the revolving cylinder must equip with buffer device and provide with deceleration circuit to reduce and sooth the rigid impact of the mechanism device.
- Take the emergency or transient cut off power source, or power failure, air source circuit pressure drop causing holding force drop, vertical movement slip and resulting in damage of mechanical device, and human safety into account upon designing, so, safety countermeasure should be take in design.
- Take the driving mechanism and circuit control system combination into account upon design, avoid residue pressure in circuit, fail to completely positioning and lateral pressurized and other actor, causing high speed fly out of the object. These situations are very possible to cause body injury and limbs crashed, and damage of mechanism. Countermeasure of protective circuit is necessary.
- Emergency stop device for mechanism is essential. In case of malfunction, in addition to protective device, emergency stop device should be provided in order to prevent body injury and damage of equipment.
- Re-start after emergency stop should confirm safety position of all mechanism, avoid interference and impact due to error position, affect human body and damage the equipment ; there should have safety precaution countermeasure for restarting after emergency stop upon design.

⚠ Caution

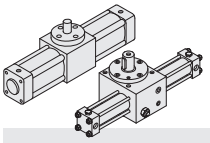
- Adjusting slightly for the angle of rotary cylinder will make the angle to change.
- The magnetic on the cylinder slide base should keep distance from iron plate and magnetic object to prevent the cause of error induction, and should avoid too close to other magnetic related sensor and the range of slide base stroke and induce error induction.
- Please don't apply external process to revolving cylinder to change the profile and structure, causing insufficient strength and structure damage, part damage.
- Please don't enlarge the vent hole of inlet, enlarged bore increase rocking speed and inert torque instant impact, lead to structure damage of product and human injury.
- Fixation of the rotation shaft and object should avoid the phenomena of eccentric and interference,the best method is adopting floating or axial coupling with freeness.



- If the revolving cylinder receives axial load, avoid direct load on shaft, this will tend to damage of internal structure of the revolving cylinder, the best mean is to add the load by using fixture to the shaft, the shaft, the revolving cylinder serve only revolving movement.



- Please don't hammer the revolving shaft and body while revolving shaft is fixing, to avoid bend deformation of revolving shaft and damage deformation of the body.
- The best controlling method of angular positioning of the revolving cylinder is adopting external positioning method, match with positioning screw or hydraulic buffer to control direct stop.



⚠ Safety notice / Rotary cylinder Caution for application

Please read this safety notice carefully, pay attention to safety item while using this product, in order to prevent injury to human body and damage of property.

Caution for service and Maintenance

⚠ Warning

- Shut off the power switch and air source properly before service and maintenance, confirm that there is no residue pressure in the pipeline and start work after confirming the status is safe.
- Please don't disassemble the revolving cylinder in discretion , disassemble the revolving cylinder in discretion will lead to displacement of the original calibration accuracy; error disassembling will lead to hazard and cause problem on operation of the product.

⚠ Caution

- The cylinder is coated with small amount of oil at initial using state, it will decrease after a period of usage, and should be added up with appropriate amount of oil according to actual application condition, lubricant is essential in high speed moving, limit to use ISO-VG32 lubricant, feed by oil applicator, may cause poor action if stop oiled when it is required.

- **Service and maintenance should be perform regularly as schedule, and confirm the normal operation of following :**

(1) Is the compressed air supplied stably?

(2) Is the front filter and strainer normally?

(3) Is the connection portion or piping loosen accompany moving of object? Is the pipe connection portion normal? Any strange noise?

(4) Is the action condition of the cylinder normally? Is there any delay phenomena and exhaust normally? Any strange noise?

(5) Whether the piping system connected to solenoid valve (governor) normally? Do the start of terminal and the action of stop move normally? Is the load system normally?

(6) Is the lubricant feeding system normally? Is the volume of oil adjusted properly?

How to select model

Please follow the steps as following to select machine type

1. Operating condition
2. Require torque
3. Calculation of inertial
4. Confirmation of rotation time
5. Calculation of kinetic Energy

1. Operating conditions are as follows

Please list operating conditions or ask sales representatives before selecting rotary cylinder. It will make more convenient for the data calculated in the future.

- Operating pressure
- Installing type
- Load type

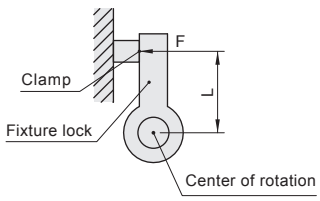
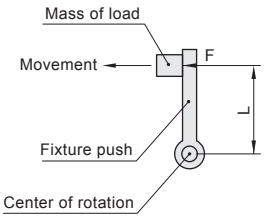
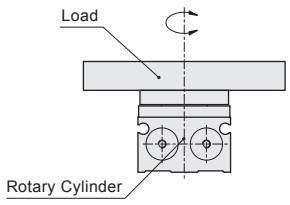
  Static load : Ts (N·m)

  Resistance load : Tf (N·m)

  Inertial load : Ta (N·m)
- Load dimensions
- Rotation time
- Rotation angle
- Load mass

2. Calculation of Required Torque

There are three types will be considered on the load type in the rotary cylinder

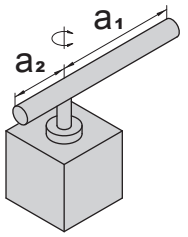
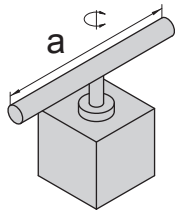
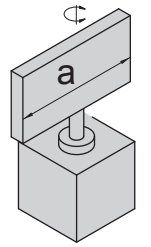
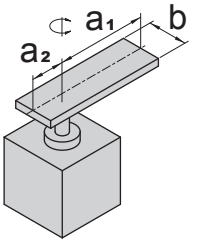
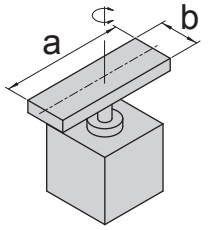
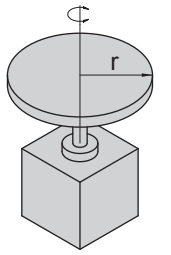
Static load	Resistance load	Inertial load
		
When the pressing force is necessary **Ts** = F · L **F :** Clamp force **L :** Distance from the center of rotation to clamp(m)	When friction force or gravity is applied to the rotation direction **Tf** = μ · m · g · L **m :** Mass of load g : 9.8 m/s2 **L :** Distance from the center of rotation to the gravity **μ :** Coefficient of friction	When the load with inertia is rotated $\mathbf{Ta} = I \cdot \omega = I \cdot \frac{2\theta}{t^2}$ **I :** Moment of inertia **ω:** Angular acceleration **θ :** Rotation angle **t :** Rotation time
Rotary torque ≧ Ts	Rotary torque ≧ (3~5)xTf	Rotary torque ≧ 10xTa

How to select model

3. Calculation of inertial

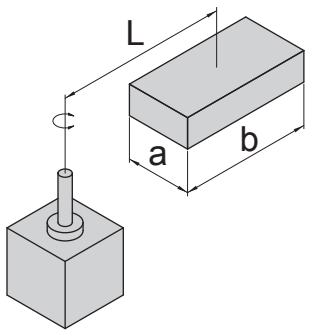
It is necessary to know the moment of inertia of the load in order to determine the value of necessary torque or kinetic energy when selecting a rotary actuator. Please consider the inertial, rotation time... etc of load when selecting machine.

Please check calculation of inertial as following

Thin movement	Thin shaft	Thin rectangular plate
1  $I = m_1 \cdot \frac{a_1^2}{3} + m_2 \cdot \frac{a_2^2}{3}$	2  $I = m \cdot \frac{a^2}{12}$	3  $I = m \cdot \frac{a^2}{12}$
Thin movement including rectangular parallelepiped	**Thin rectangular plate including rectangular parallelepiped**	**Round plate including rectangular parallelepiped**
4  $I = m_1 \cdot \frac{4a_1^2 + b^2}{12} + m_2 \cdot \frac{4a_2^2 + b^2}{12}$	5  $I = m \cdot \frac{a^2 + b^2}{12}$	6  $I = m \cdot \frac{r^2}{12}$

If load is not in the center of rotation move a distance. If the center of rotation and load is connected by jig, it should calculate inertial of jig and plus load.

7



$$I = m \cdot \frac{a^2 + b^2}{12} + m \cdot L^2$$

a,b : The length and wide of load
L : Distance from center of rotation to thin
m : Load mass

How to select model

4. Confirmation of Rotation Time

Rotation time adjustment range is specified for each product for stable operation. Set the rotation time

■ **specified below**

Model	Specification	Rotation time adjustment range sec / 90°
RTM RTMF	10、15、20	0.03~0.3
	30	0.04~0.3
	40	0.07~0.5
	50、63、80、100	0.1~1
RTP	5、10	0.2~0.7
	20、30	0.2~1
RTB RTBM	3	0.2~0.7
	7、10、20、30、50	0.2~1
	70、100、200	0.5~2
	300、500	1~3
RTH	40、63、80	0.8~3

5. Calculation of Kinetic Energy

Kinetic energy is generated when the load rotates. Kinetic energy applies on the product at the operating end as inertial force, and may cause the product to damage. In order to avoid this, the value of allowable kinetic energy is determined for each product.

■ **Use the following formula to calculate the kinetic energy of the load**

$$E = \frac{1}{2} \cdot I \cdot \omega^2 \qquad \omega = \frac{2\theta}{t}$$

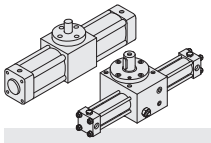
E : Kinetic energy (J)

I : Moment of inertia ($kg \cdot m^2$)

ω : Angle speed (rad / s)

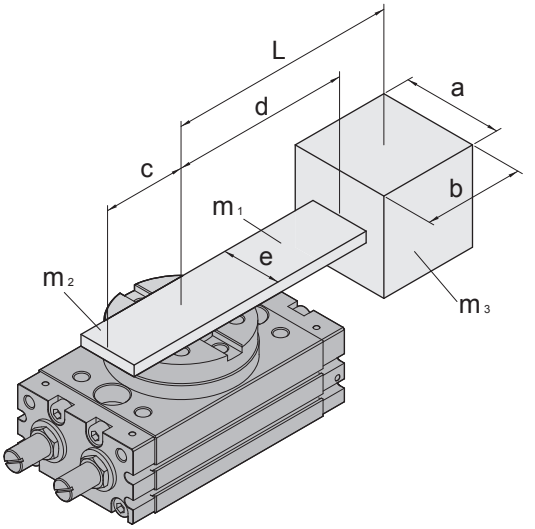
θ : Rotation angle (rad)
Rotation angle 180° =3.14 rad ， 90° =1.57 rad

t : Rotation time (s)



Safety notice / Rotary cylinder
Caution for application

Calculation Example



- **Operating condition**

a = 100 mm
b = 120 mm
c = 50 mm
d = 200 mm
e = 30 mm
L = 250 mm
m 1 = 1.5 kg
m 2 = 0.2 kg
m 3 = 5 kg
Rotation time = 0.8 s
Rotation angle = 90°
Selection type = RTB 70

- **Using formula 4 to calculate the inertia of fixture**

$$I_1 = 1.5 \times \frac{4 \times 0.2^2 + 0.03^2}{12} + 0.2 \times \frac{4 \times 0.05^2 + 0.03^2}{12}$$

$$= 0.021306 \ kg \cdot m^2$$

- **Using formula 7 to calculate the inertia of load**

$$I_2 = 5 \times \frac{0.1^2 + 0.12^2}{12} + 5 \times 0.25^2$$

$$= 0.32266 \ kg \cdot m^2$$

- **The total inertia is** $I_1 + I_2 = 0.34396 \ kg \cdot m^2$

- **Calculate angle speed**

$$\omega = \frac{2 \times 1.57}{0.8}$$

$$= 3.925 \ rad/s$$

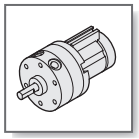
- **Calculate kinetic energy**

$$E_1 = \frac{1}{2} \cdot 0.34396 \cdot 3.925^2$$

$$= 2.6494 \ j$$

Model	Kinetic energy value allowing	
	With adjusting screw	With shock absorber
RTB10	0.007 J	0.039 J
RTB20	0.025 J	0.116 J
RTB30	0.048 J	0.116 J
RTB50	0.081 J	0.294 J
RTB70	0.24 J	1.1 J
RTB100	0.32 J	1.6 J
RTB200	0.56 J	2.9 J

- **The kinetic energy value is bigger than RTB70 after calculating.**
  It needs to use RTB200 with shock absorber to match operating condition.

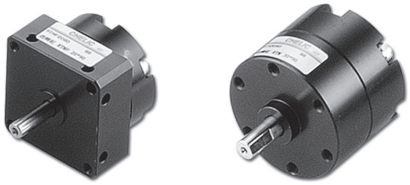


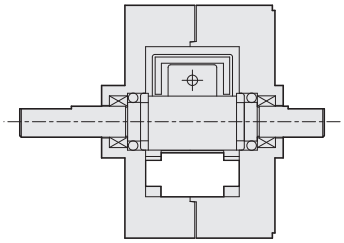
RTM series - ROTARY CYLINDER

Operating specification and Ordering expression

CHELIC PNEUMATIC

Internal structure





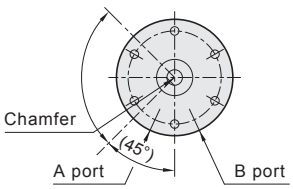
Specification

New

Item \ Model (mm)	RTM10 - ☐	RTM15 - ☐	RTM20 - ☐	RTM30 - ☐	RTM40 - ☐
Operation	Double acting				
Fluid	Air				
Torque N·m	0.14	0.38	0.78	1.8	3.8
Bore Size	Ø 4	Ø 5	Ø 6	Ø 8	Ø 10
Rotation angle	90° 180° 270°				
Port size	M5 x 0.8P				
Pressure range kgf/cm²(kpa)	1.5 ~ 7 (150 ~ 700)				
Temperature range °C	0 ~ 50				
Allowance of kinetic energy J	0.0015	0.001	0.003	0.02	0.04

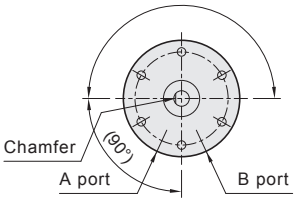
Rotation angle

■ Rotation range 90° $^{+4^\circ}_{0}$



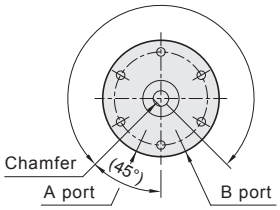
90°

■ Rotation range 180° $^{+4^\circ}_{0}$



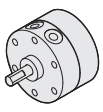
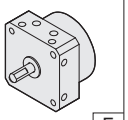
180°

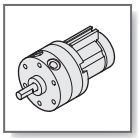
■ Rotation range 270° $^{+4^\circ}_{0}$



270°

How to order

RTM	F	—	10	×	180
Model	Flange type		Torque		Rotation angle
			10 : 0.14 N·m 15 : 0.38 N·m 20 : 0.78 N·m 30 : 1.8 N·m 40 : 3.8 N·m		90 — 90° 180 — 180° 270 — 270°
RTM series Rotary Cylinder	None : Standard F : With front flange plate				

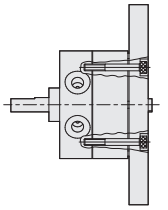


RTM series - ROTARY CYLINDER

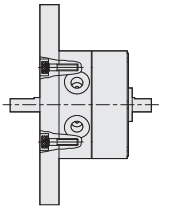
Mounting type and Characteristics (Effective torque)

Mounting type

RTM

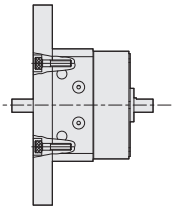


Bottom mounting type

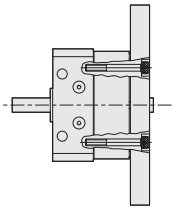


Front mounting type

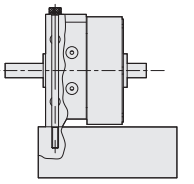
RTM-F



Front flange type



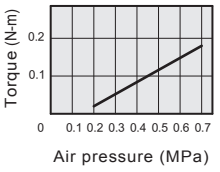
Bottom flange type



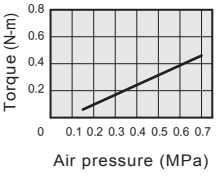
Top mounting type

Drawing of rotary torque

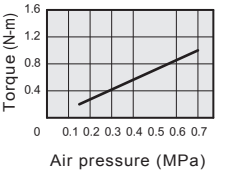
▼ RTM 10



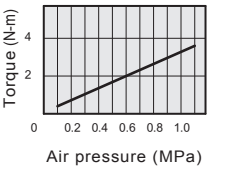
▼ RTM 15



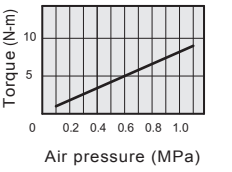
▼ RTM 20



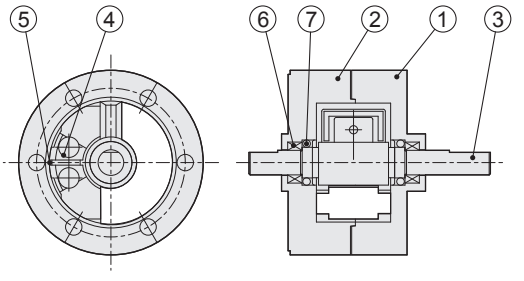
▼ RTM 30



▼ RTM 40

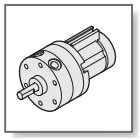


Internal structure



Component and Material list

NO	Item	Material
01	Front cover	Aluminum alloy
02	End cover	Aluminum alloy
03	Rod	Alloy Steel
04	Stopper	Plastic steel
05	O-Ring	NBR
06	Bearing	Bearing steel
07	O-Ring	NBR



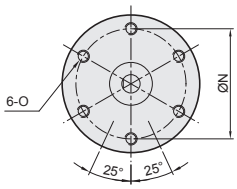
RTM series - ROTARY CYLINDER

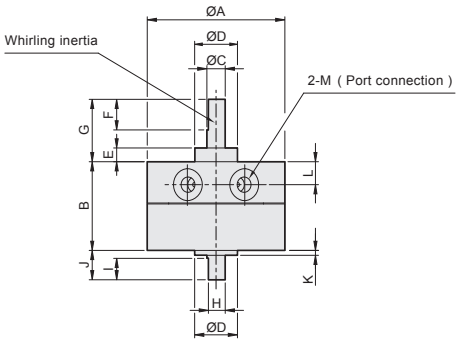
External dimensions

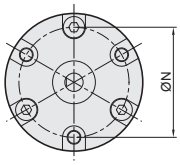
New

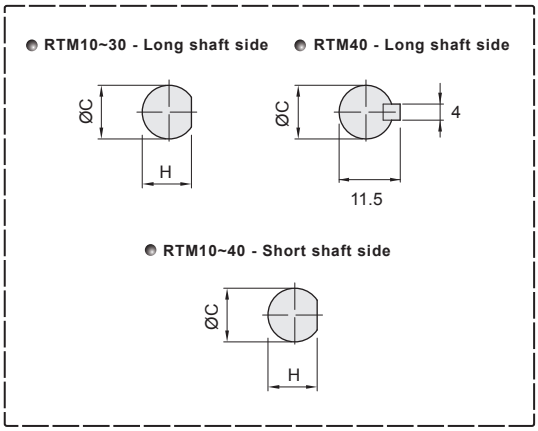
CHELIC PNEUMATIC

RTM 10、15、20、30、40









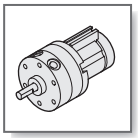
Dimension

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
RTM10-90°	30	17	4	9	3	9	14	3.5	5	8	1	4.2	M5x0.8p	24	M3x0.5p
RTM10-180°															
RTM10-270°															
RTM15-90°	35	20.1	5	12	4	10	18	4.5	6	9	1.5	5	M5x0.8p	29	M3x0.5p
RTM15-180°															
RTM15-270°															
RTM20-90°	44	29.1	6	14	4.5	10	20.3	5.5	7	9.6	1.6	8.5	M5x0.8p	36	M4x0.7p
RTM20-180°															
RTM20-270°															
RTM30-90°	51	40	8	16	5	12	22	7.5	8	13	2	11	M5x0.8p	43	M5x0.8p
RTM30-180°															
RTM30-270°															
RTM40-90°	64	45	10	25	6.5	22	30	9	9	15	4.5	9.5	M5x0.8p	56	M5x0.8p
RTM40-180°															
RTM40-270°															

New

Weight

Model	RTM 10	RTM 15	RTM 20	RTM 30	RTM 40
Weight	28g	48g	112g	200g	342g



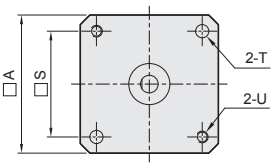
RTM - F series - ROTARY CYLINDER

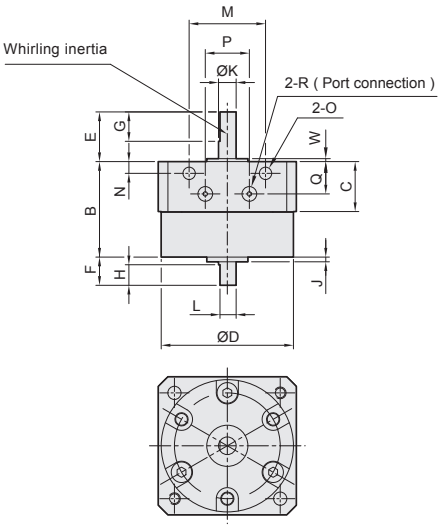
New

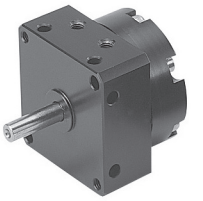
External dimensions

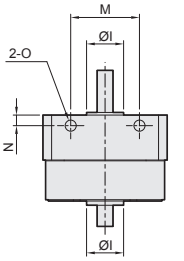
CHELIC PNEUMATIC

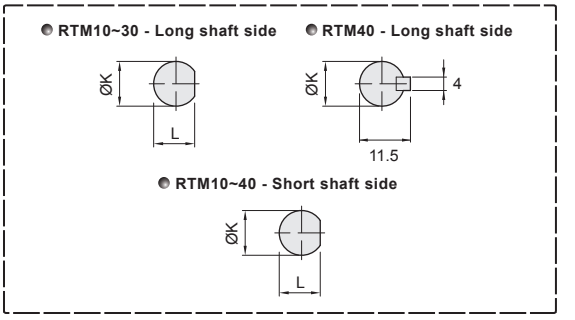
RTM - F 10、15、20、30、40









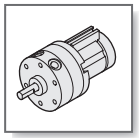


Dimension

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V	W
RTM10-90°																							
RTM10-180°	31	22	13.3	30	14	8	9	5	9	1	4	3.5	17	3	3.5	10.5	9.2	M5x0.8p	25	3.5	M3x0.5p	24	1
RTM10-270°																							
RTM15-90°																							
RTM15-180°	36	25.7	15.5	35	18	9	10	6	12	1.5	5	4.5	21	3	3.5	10.5	10.5	M5x0.8p	29	3.5	M3x0.5p	29	1.5
RTM15-270°																							
RTM20-90°																							
RTM20-180°	44	33.6	19	44	20	9.6	10	7	14	1.6	6	5.5	26	4	4.2	15	13	M5x0.8p	36	4.5	M4x0.7p	36	1
RTM20-270°																							
RTM30-90°																							
RTM30-180°	52	47.5	27.2	51	22	13	12	8	16	2	8	7.5	29	4.5	5.5	13.5	18.5	M5x0.8p	42	5.5	M5x0.8p	43	2
RTM30-270°																							
New RTM40-90°																							
RTM40-180°	64	53	30.4	64	30	15	22	9	25	4.5	10	9	38	5	5.5	19	14	M5x0.8p	52	5.5	M5x0.8p	56	3
RTM40-270°																							

Weight

Model	RTM10-F	RTM15-F	RTM20-F	RTM30-F	RTM40-F
Weight	41g	70g	138g	268g	438g



RTM series - ROTARY CYLINDER

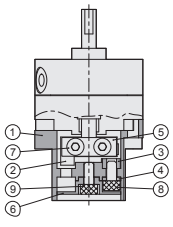
(Angle adjustable and Sensing device)

Operating specification and Ordering expression

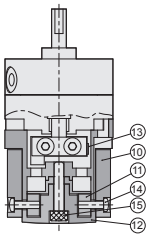
CHELIC PNEUMATIC

Internal structure

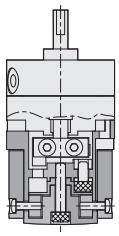
► RTM - L



► RTM - C



► RTM - L-C

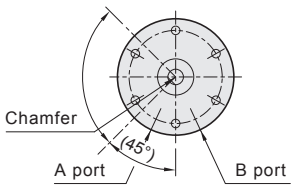


Component and Material list

No.	Item	Material	No.	Item	Material
01	Position base	Zinc alloy	09	Hexagonal screw	Alloy steel
02	Position lump	Stainless steel	10	Mounting base	Aluminum alloy
03	Angle location lump	Iron	11	Base and lump	Aluminum alloy
04	Angle location slice	Iron	12	End cover	Aluminum alloy
05	Lump and slice	Stainless steel	13	Magnet	TME
06	End cover	Aluminum	14	Circle cross screw	Alloy steel
07	Hexagon screw	Alloy steel	15	Hexagonal screw	Alloy steel
08	Hexagon screw	Alloy steel			

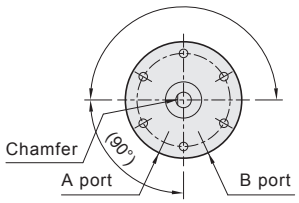
Rotation angle

■ Rotation range 90° $^{+4^\circ}_{0}$



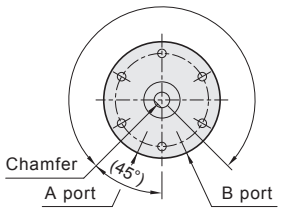
● 90°

■ Rotation range 180° $^{+4^\circ}_{0}$



● 180°

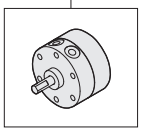
■ Rotation range 270° $^{+4^\circ}_{0}$



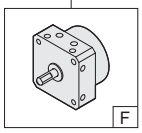
● 270°

How to order

RTM	F	- 10	× 180	- L	- C	1	- SG	1
Model	Flange type	Torque	Rotation angle	Adjustable angle	Sensor switch Holder		Sensor switch	



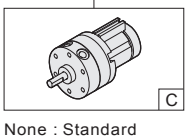
RTM series
Rotary cylinder



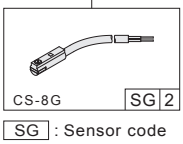
None : Standard
F : With front flange plate

10 : 0.14 N·m
15 : 0.38 N·m
20 : 0.81 N·m
30 : 1.8 N·m

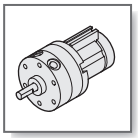
90 - 90°
180 - 180°
270 - 270°



None : Standard
C : Sensor holder
2 : Number of sensor Holder
1 = 1 PCS sensor holder
2 = 2 PCS sensor holder



SG : Sensor code (CS-8G)
SGN : Sensor code (CS-8GN)
SGP : Sensor code (CS-8GP)
2 : Sensor number
1 = 1 PCS sensor
2 = 2 PCS sensor



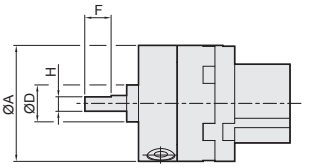
RTM series - ROTARY CYLINDER

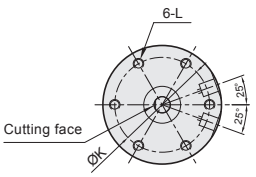
(Angle adjustable and Sensing device)

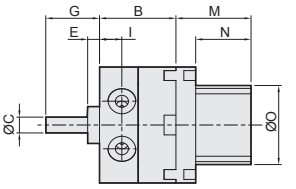
External dimensions

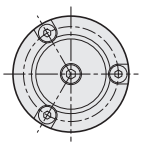
RTM 10、15、20、30 – L

- Adjust angle implement



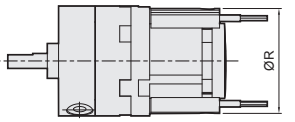


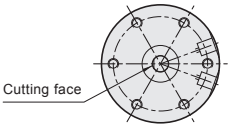


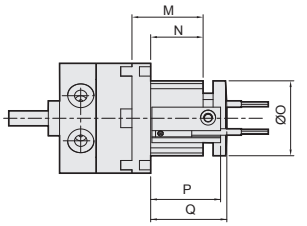


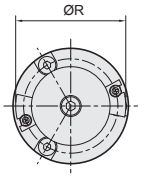
RTM 10、15、20、30 – C

- Sensor switch holder







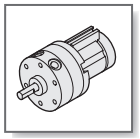


Dimension

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R
RTM10-90°	30	17	4	9	3	9	14	3.5	4.2	M5x0.8p	24	M3x0.5p	24	18	18	23.3	24	29
RTM10-180°																		
RTM10-270°																		
RTM15-90°	35	20.1	5	12	4	10	18	4.5	5	M5x0.8p	29	M3x0.5p	28	22	24	27.3	29.5	34
RTM15-180°																		
RTM15-270°																		
RTM20-90°	44	29.1	6	14	4.5	10	20.3	5.5	8.5	M5x0.8p	36	M4x0.7p	28.5	21	30	28	30.5	42
RTM20-180°																		
RTM20-270°																		
RTM30-90°	51	40	8	16	5	12	22	7.5	11	M5x0.8p	43	M5x0.8p	32.5	24	34	30.8	34	47
RTM30-180°																		
RTM30-270°																		

Weight

Model	RTM 10	RTM 15	RTM 20	RTM 30
Weight	78g	116g	240g	390g



RTM series - ROTARY CYLINDER

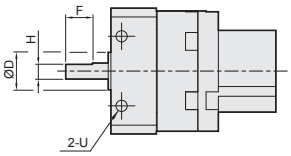
(Angle adjustable and Sensing device)

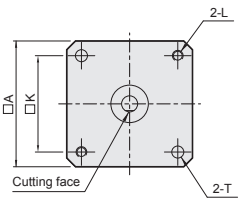
External dimensions

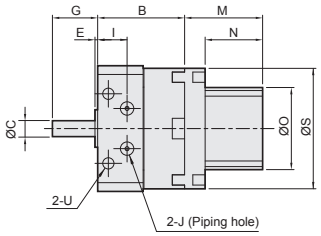
CHELIC PNEUMATIC

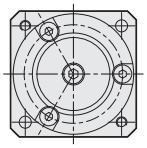
RTM-F 10、15、20、30 – L

- Adjust angle implement



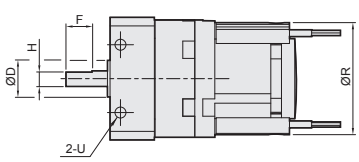


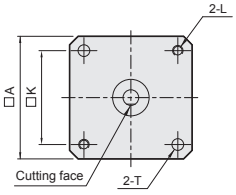


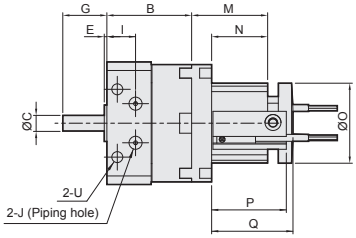


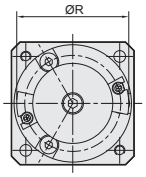
RTM-F 10、15、20、30 – C

- Sensor switch holder







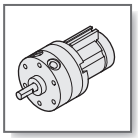


Dimension

Model	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U
RTM10-90°																					
RTM10-180°	31	22	4	9	1	9	14	3.5	9.2	M5x0.8p	25	M3x0.5p	24	18	18	23.3	24	29	30	3.5	3.5
RTM10-270°																					
RTM15-90°																					
RTM15-180°	36	25.7	5	12	1.5	10	18	4.5	10.5	M5x0.8p	29	M3x0.5p	28	22	24	27.3	29.5	34	35	3.5	3.5
RTM15-270°																					
RTM20-90°																					
RTM20-180°	44	33.6	6	14	1	10	20	5.5	13	M5x0.8p	36	M4x0.7p	28.5	21	30	28	30.5	42	44	4.5	4.2
RTM20-270°																					
RTM30-90°																					
RTM30-180°	52	47.5	8	16	2	12	22	7.5	18.5	M5x0.8p	42	M5x0.8p	32.5	24	34	30.8	34	47	51	5.5	5.5
RTM30-270°																					

Weight

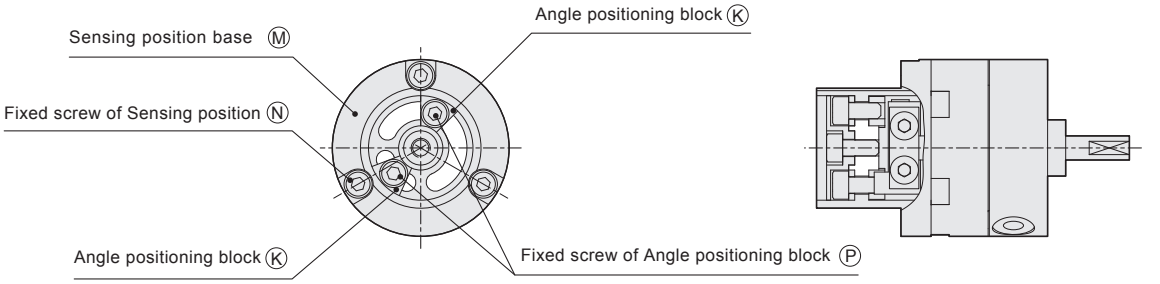
Model	RTM10-F	RTM15-F	RTM20-F	RTM30-F
Weight	91g	138g	266g	468g



RTM series - ROTARY CYLINDER

Description of angel adjustment

Adjustment method of rotation angel

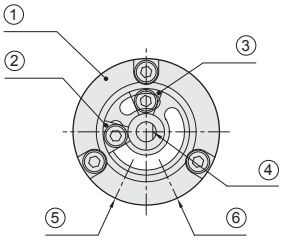


■ Method of adjustment :

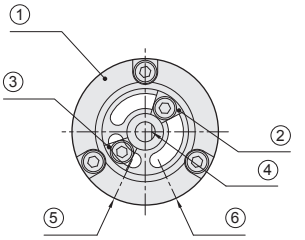
- **1.** Take out the Fixed screw of Sensing position Ⓝ , Adjust the "sense positioning base Ⓜ " to desire setting position (A,B,C) and then tighten to secure.
- **2.** Loosen Fixed screw of Angle positioning block Ⓟ "to allow the" Angle positioning block Ⓚ "sliding on the slot (Please never loosen completely).
- **3.** Slide the "Angle positioning block Ⓚ " to desire angle and then tighten fixed screw.
- **4.** Match the rotating shaft in order to achieve more accurate positioning.

Description of adjustment

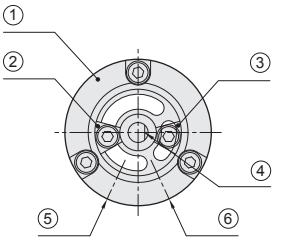
There are three angle setting position (as showing figure - A,B,C below) for sensor positioning base of each model.The preset range of adjustment is between internal angle position block inside the cylinder. Since there is limitation of accuracy of the internal angle positioning blocks inside the cylinder, if 90°and 180° accuratepositioning is required, please adjust to 270°.



Position- A



Position- B



Position- C

■ ① Sensor positioning base ② Angle positioning block-1 ③ Angle positioning block-2

④ Cutting face ⑤ A through hold ⑥ B through hold

While using one group of Angel positioning block and fixed to long slot side, the range of adjustable angle for each specification and listed as below :

	Position - A			Position - B			Position - C		
	90°	180°	270°	90°	180°	180°	90°	180°	270°
RTM-10	0°~90°	130°~180°	175°~225°	30°~90°	0°~180°	0°~250°	0°~10°	105°~180°	105°~270°
RTM-15									
RTM-20									
RTM-30									

Note : 1. Home points are base on clockwise rotated shaft until contacting internal angle positioning blocks serving are 0°. The rotation range is the area while rotating and contact the angle position blocks again.

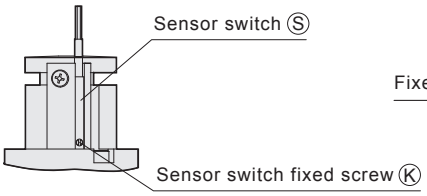
2. Specification of 90° is fixed by model A.

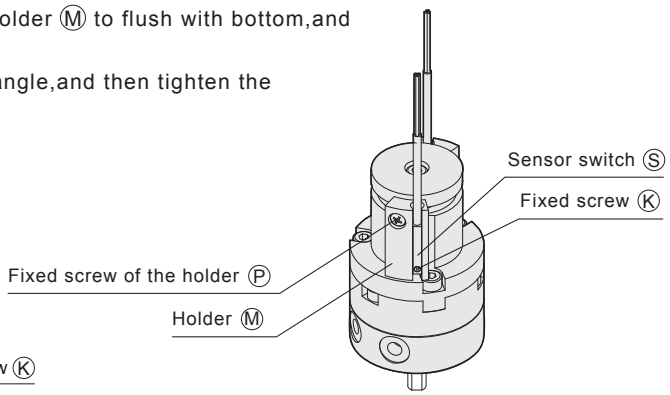
Adjustment method of sensor switch position

Method of adjustment :

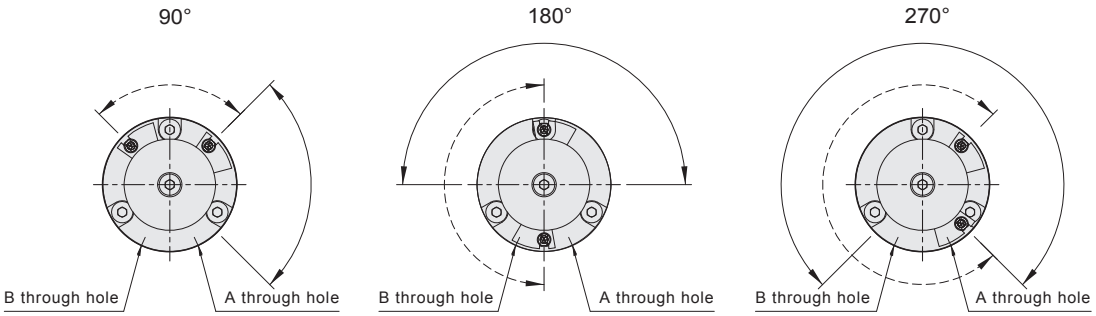
- **1.** Loosen the Fixed screw of the holder Ⓟ "to allow sliding both sides.
- **2.** Insert the sensor switch Ⓢ into Holder Ⓜ to flush with bottom,and then tighten the fixed screw Ⓚ .
- **3.** Adjust the Holder Ⓜ to desired angle,and then tighten the Fixed screw of the holder Ⓟ .

■ **Sensor fixing position**





Sensor switch position and Adjustment method

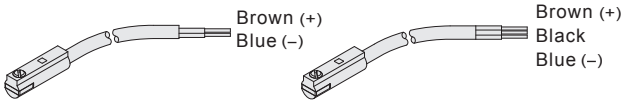


Description of adjustment :

1. As illustrated in above figure, the solid line area indicate rotation area of shaft cutting face, dotted line indicate rotation area of magnet.

2. The rotation area of magnet represents valid adjustment range of the sensor fixing holder. The sensor switch is effective within this range.

Sensor switch model

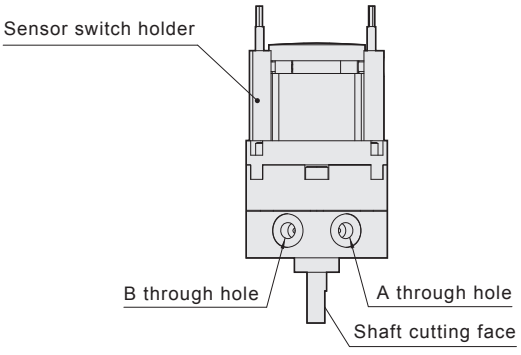


Voltage : DC 10V ~ 28V
AC 10V ~ 28V

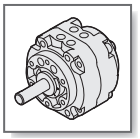
CS-8G

Voltage : DC 4.5V ~ 28V
AC 4.5V ~ 28V

CS-8GN(P)



CS-8G / CS-8GN(P)
(Please see P.22-1.13 sensor switch formulation.)



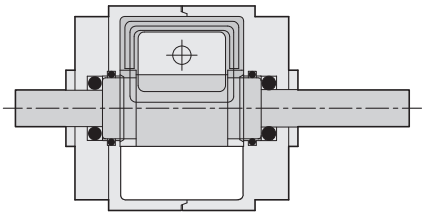
RTM series - ROTARY CYLINDER

Operating specification and Ordering expression

New

CHELIC PNEUMATIC

Internal structure

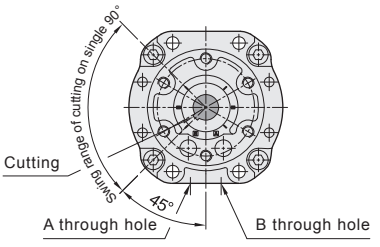


Specification

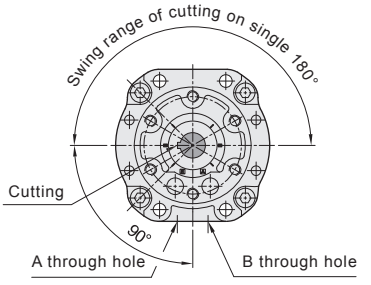
New New

Item / Model (mm)	RTM50 - ☐	RTM63 - ☐	RTM80 - ☐	RTM100 - ☐
Operation	Double acting			
Fluid	Air			
Torque N·m	5	10	18	35
Bore Size	Ø12	Ø15	Ø17	Ø25
Rotation angle	90、180、270°			
Port size	RC1/8		RC1/4	
Pressure range Kgf/cm²(Kpa)	1.5~7(150~700)			
Temperature range ℃	0~50			
Allowance of kinetic energy J	0.082	0.12	0.39	0.6

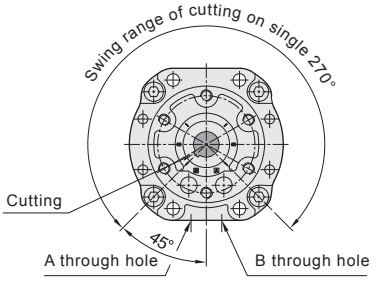
Rotation angle



90°

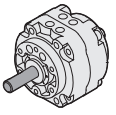


180°

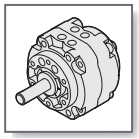


270°

How to order

RTM	—	50	×	180
Model		Torque		Rotation Angle
		50 : 5 N·m 63 : 10 N·m 80 : 18 N·m 100 : 35 N·m		90 — 90° 180 — 180° 270 — 270°

RTM series
Rotary Cylinder



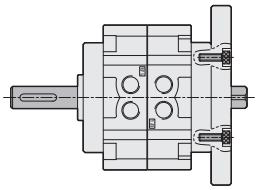
RTM series - ROTARY CYLINDER

Mounting type and Characteristics (effective torque)

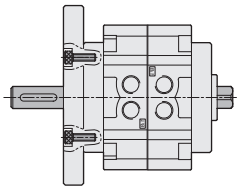
New

CHELIC PNEUMATIC

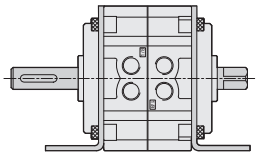
Mounting type



Bottom mounting type



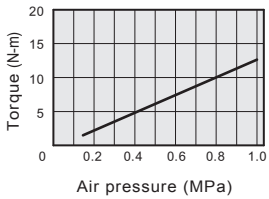
Front mounting type



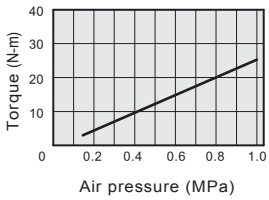
Top mounting type

Out put characteristics

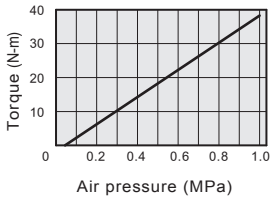
RTM 50



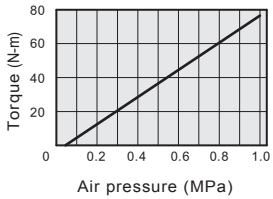
RTM 63



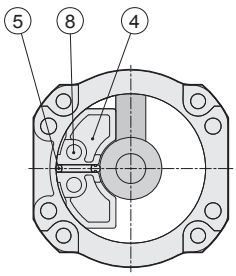
RTM 80

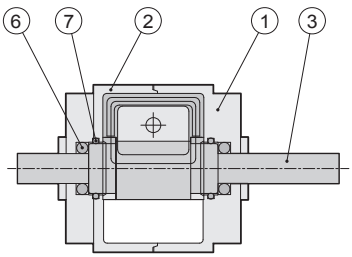


RTM 100



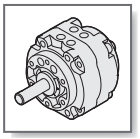
Internal structure





Material list

No.	Item	Material
01	Front body	Aluminum alloy
02	End body	Aluminum alloy
03	Rod	Alloy steel
04	Position block	Aluminum alloy
05	O-Ring	NBR
06	Bearing	Bearing steel
07	O-Ring	NBR
08	Position pin	Bearing steel

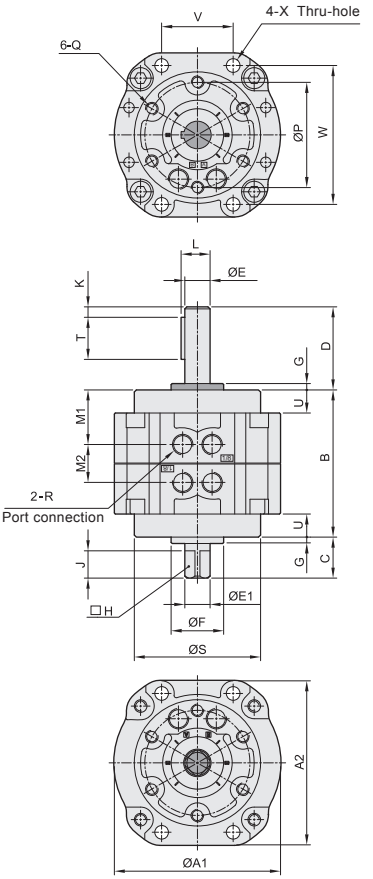


RTM series - ROTARY CYLINDER

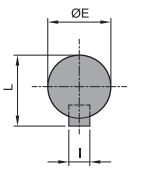
External dimensions

CHELIC PNEUMATIC

RTM 50、63、80、100



Key dimension

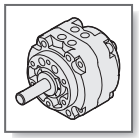


Dimension

Model	A1	A2	B	C	D	E	F	G	H	I	J	K	L	M1	M2	P	Q	R	S	T	U	V	W	ØX
RTM50-90°	79	78	70	19.5	39.5	12	25	3	10	4	13	5	13.5	26	18.2	50	M6X1.0P	RC1/8″	60	20	11	34	66	6.5
RTM50-180°																								
RTM50-270°																								
New RTM63-90°	98	98	80	21	45	15	28	3	12	5	14	5	17	28.9	22.2	60	M8X1.25P	RC1/8″	75	25	14	39	83	9
RTM63-180°																								
RTM63-270°																								
RTM80-90°	110	110	90	23.5	53.5	17	30	3	13	5	16	5	19	30	30.2	70	M8X1.25P	RC1/4″	88	41	15	48	94	9
RTM80-180°																								
RTM80-270°																								
New RTM100-90°	140	140	103	30	65	25	45	4	19	7	22	5	28	35.4	32.2	80	M10X1.5P	RC1/4″	108	40	11.5	60	120	11
RTM100-180°																								
RTM100-270°																								

Weight

Model	RTM 50	RTM 63	RTM 80	RTM 100
Weight	0.76 kg	1.29 kg	1.92 kg	3.56 kg



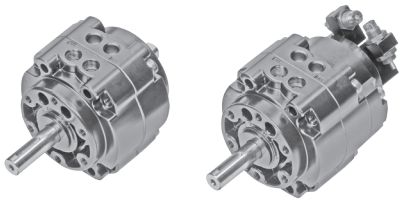
RTM series - ROTARY CYLINDER

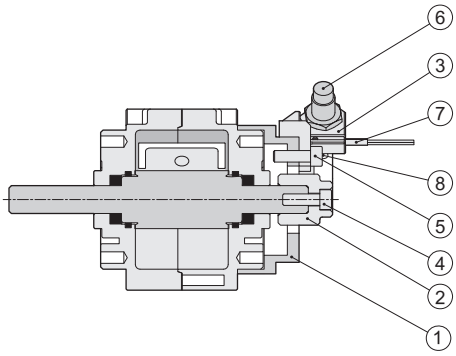
New

Operating specification and Ordering expression

CHELIC PNEUMATIC

Internal structure

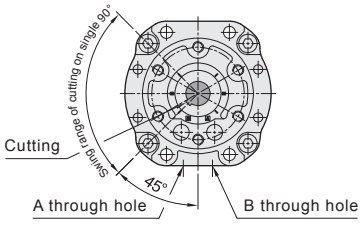




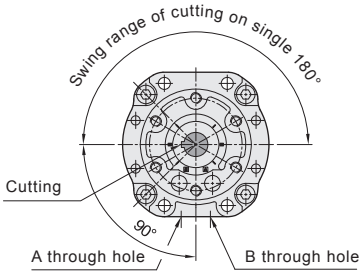
Components and Material list

No.	Item	Material	No.	Item	Material
01	Fixed base	Aluminum alloy	05	Fixed screw	Aluminum alloy
02	Rocker arm	Stainless steel	06	Shock absorber	—
03	Position block	Aluminum alloy	07	Sensor switch	—
04	Fixed screw	Alloy steel	08	Magnet	Rare earth metals

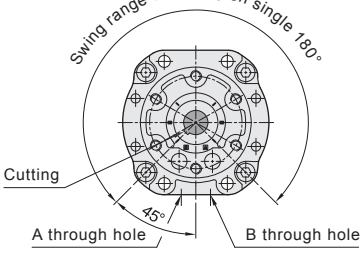
Rotation angle



90°



180°



270°

How to order

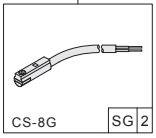
RTM	50	×	180	—	C	1	—	SG	1	—	A	1
Model	Torque		Rotation angle		Sensor switch holder			Sensor switch			Shock absorber	

RTM series
Rotary cylinder

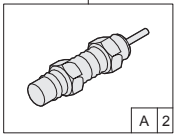
50 : 5 N·m
80 : 18 N·m

90 - 90°
180 - 180°
270 - 270°

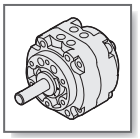
None: Standard
C : Sensor holder rod
※ Standard equipment : Position blot
(Position for adjustment)
2 : Number of sensor holder
1 = 1 pcs
2 = 2 pcs



SG : sensor code (CS-8G)
SGN : sensor code (CS-8GN)
SGP : sensor code (CS-8GP)
2 : Number of sensor
1 = 1 pcs
2 = 2 pcs



A : Shock absorber -SAC1005N
2 : Number of shock absorber
1 = 1 pcs
2 = 2 pcs



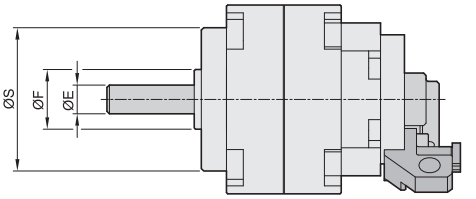
RTM series - ROTARY CYLINDER

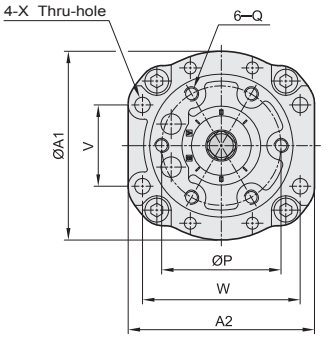
External dimensions

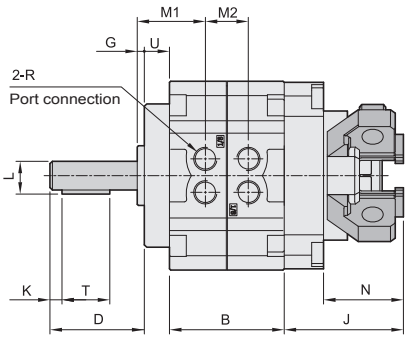
New

CHELIC PNEUMATIC

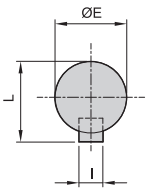
RTM 50、80



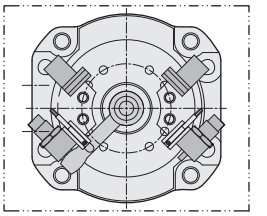




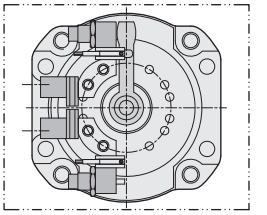
Key dimension



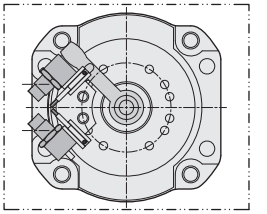
Angle adjustable and Sensor device



RTM□X90°



RTM□X180°



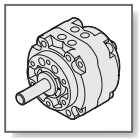
RTM□X270°

Dimension

Model	A1	A2	B	D	E	F	G	J	K	L	M1	M2	N	P	Q	R	S	T	U	V	W	ØX
RTM50-90°																						
RTM50-180°	79	78	48	39.5	12	25	3	50.5	5	13.5	26	18.2	40	50	M6X1.0P	RC1/8″	60	20	11	34	66	6.5
RTM50-270°																						
RTM80-90°																						
RTM80-180°	110	110	60	53.5	17	30	3	54.5	5	19	30	30.2	40	70	M8X1.25P	RC1/4″	88	41	15	48	94	9
RTM80-270°																						

Weight

Model	RTM 50	RTM 80
Weight	1.1 kg	2.3 kg



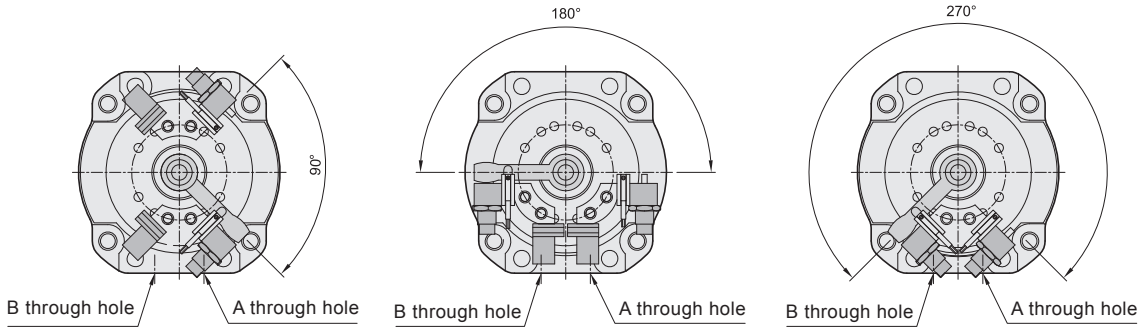
RTM 50,80 series - ROTARY CYLINDER

New

Angle adjustable and Sensorswitch device expression

CHELIC PNEUMATIC

Rotation angle and Rotation range



● 90° ● 180° ● 270°

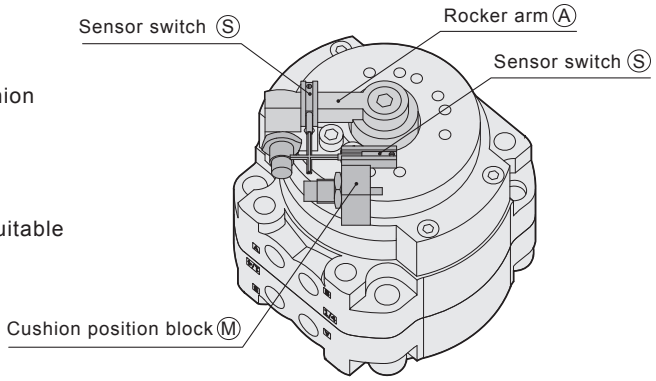
◎ Cushion position block shows as above figure. It could be choice shock absorber for rotating position and adjust angle.The angle range will be 0 ~ -10°

Sensor switch type

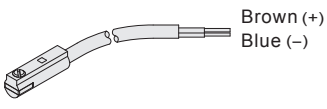
● Cushion position block include sensor switch hole, and it can assemble CS-8G sensor switch.

◎ **Adjustment method :**

1. Insert the sensor Ⓢ into the hole of cushion position block Ⓜ
2. Rotate rocker arm to the suitable angle.
3. After adjusting sensor switch Ⓢ to the suitable position,it should lock the screw to finish.



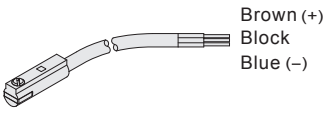
Sensor type



Voltage : DC 10V ~ 28V
AC 10V ~ 28V

CS-8G

(Please see P.22-1.13 sensor switch formulation.)



Voltage : DC 4.5V ~ 28V
AC 4.5V ~ 28V

CS-8GN(P)

(Please see P.22-1.13 sensor switch formulation.)