

RQ Series

Low Torque Rotary Joint



RQ Series

Low Torque Rotary Joint

Standard: JIS

Type: Metal Seal Type

Long service life

1 billion rotations

- RQ1 : 1 billion rotations
- RQ2 : 0.5 billion rotations
- RQ4 : 0.3 billion rotations
- RQ8 : 0.2 billion rotations
- RQ12: 0.1 billion rotations
- RQ16: 0.1 billion rotations

Low rotational torque

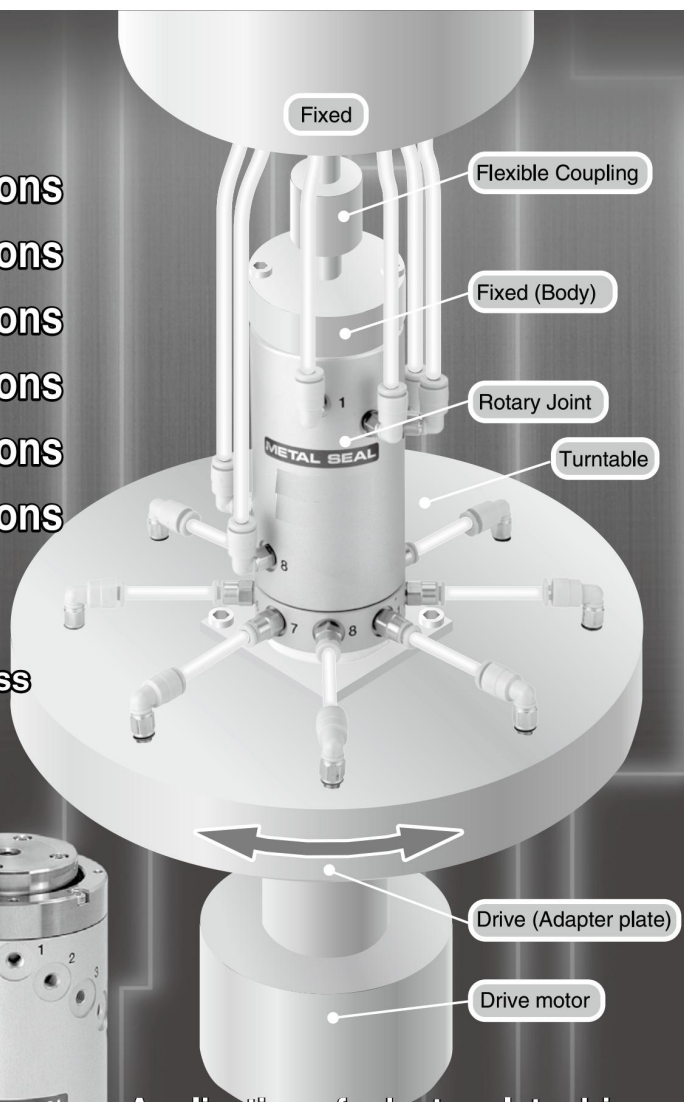
0.003 to 0.50 N·m or less

Allowable RPM

200 to 3000 min⁻¹ (rpm)

Operating temperature

-10 to 80°C



Application of adapter plate drive

* Not suitable for transmission of drive



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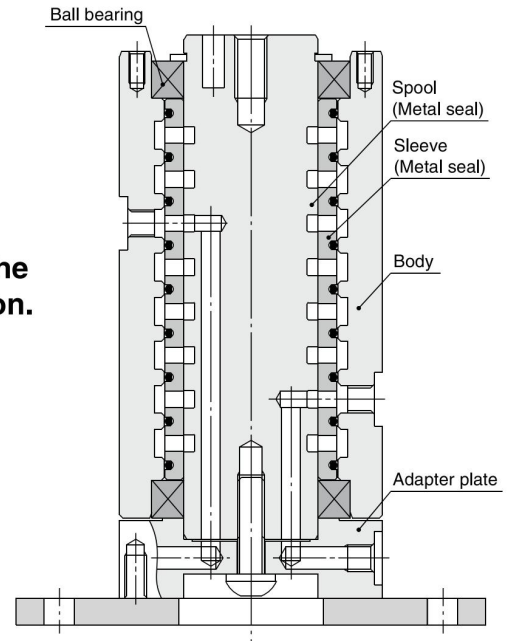
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Rotational torque unaffected by supply pressure and temperature fluctuations

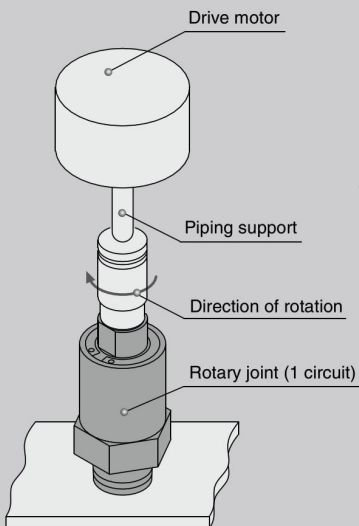
Use of metal seals prevents the spool from sticking to the rotating surface even after a long period of non-operation.

Operating pressure **-100 kPa to 1 MPa**

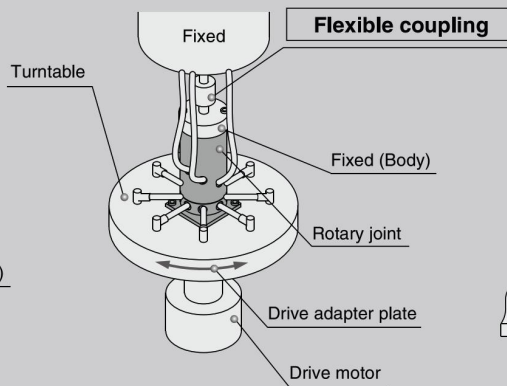
Piping ports are aligned in a spiral line for easy piping



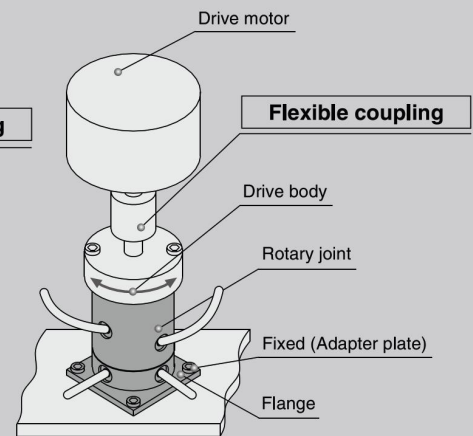
Applications: Air supply to rotary/pivot shafts of turntables and robot arms



Example of 1 circuit



Example of adapter plate drive



* This series cannot be used for drive transmission.

Example of body drive

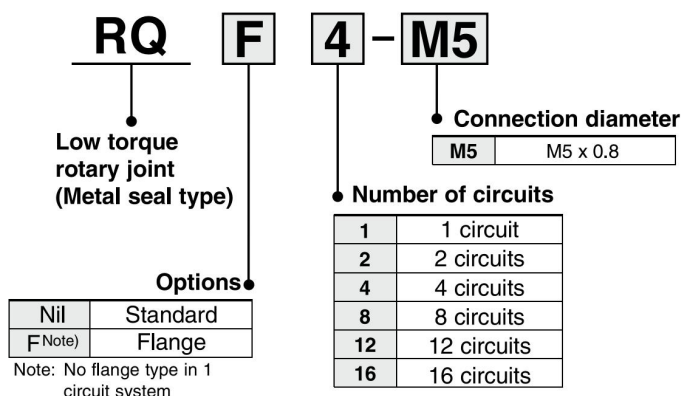
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How to Order



Options/Mounting Bracket

Number of circuits	Flange part number
2 circuits	RQ2-F
4 circuits	RQ4-F
8 circuits	RQ8-F
12 circuits	RQ12-F
16 circuits	RQ16-F

Specifications

Model	RQ1-M5	RQ2-M5	RQ4-M5	RQ8-M5	RQ12-M5	RQ16-M5
Number of circuits (Number of ports)	1	2	4	8	12	16
Fluid	Air					
Seal structure	Metal seal					
Guide structure	Bearing supported		Bearing supported at both ends			
Port size	Male R 1/8		M5 x 0.8			
	Female M5 x 0.8					
Flow rate characteristics	C		0.50 [dm ³ /(s·bar)]			
	b		0.40			
	Cv		0.17			
Lubrication	Not required					
Min. operating pressure	-100 kPa					
Max. operating pressure	1.0 MPa					
Ambient temperature and operating fluid temperature ^{Note 1)}	-10 to 80°C					
Maximum start-up rotation torque ^{Note 2)}	0.003 N·m or less	0.03 N·m or less	0.05 N·m or less	0.10 N·m or less	0.20 N·m or less	0.50 N·m or less
Allowable rotation number ^{Note 5)}	3000 min ⁻¹ (rpm) or less ^{Note 3)}	2000 min ⁻¹ (rpm) or less	1500 min ⁻¹ (rpm) or less	900 min ⁻¹ (rpm) or less	600 min ⁻¹ (rpm) or less	200 min ⁻¹ (rpm) or less
Allowable radial load (allowable coupling axis reaction) ^{Note 4)}	1 N or less	15 N or less	30 N or less	40 N or less	50 N or less	50 N or less
Allowable axial load						
Weight	0.025 kg	0.16 kg	0.39 kg	0.76 kg	1.26 kg	2.80 kg

Note 1) The temperature 80°C includes temperature rise during rotation.

Note 2) The start-up torque does not change with the supply pressure or with non-use (remains within the maximum start-up rotation torque), but it does change with the rotation number.

Note 3) If using at a speed above 600 min⁻¹ (r.p.m.), ensure rotation is in the direction in which the joint is fastened.

Note 4) Rubber / resin couplings are recommended due to their excellent absorption of off center, shocks, and vibrations.

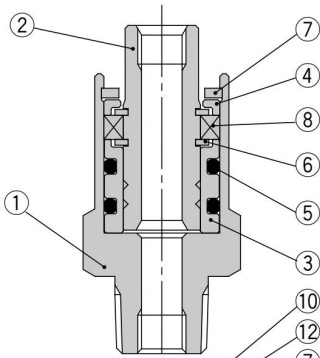
Note 5) min⁻¹: Number of rotations per 1 minute

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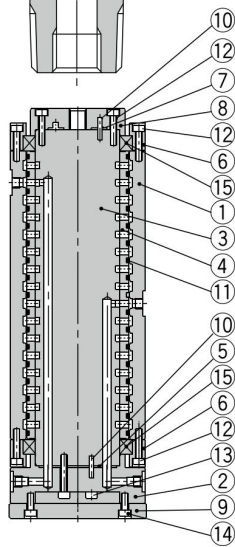
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Construction

RQ1-M5



RQ2 to 16-M5



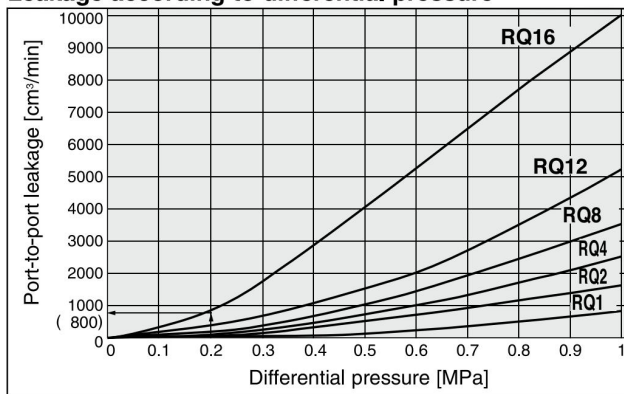
Component Parts/(RQ1 - M5, 1 circuit)

No.	Name	Material	Remarks
1	Body	Stainless steel	
2	Spool	Special stainless steel	
3	Sleeve	Special stainless steel	
4	Plate	Aluminium	
5	O-ring	H-NBR	
6	Retaining ring	Carbon steel	
7	Retaining ring	Carbon steel	
8	Radial bearing		

Component Parts/(RQ2 to 16 - M5, 2 to 16 circuits)

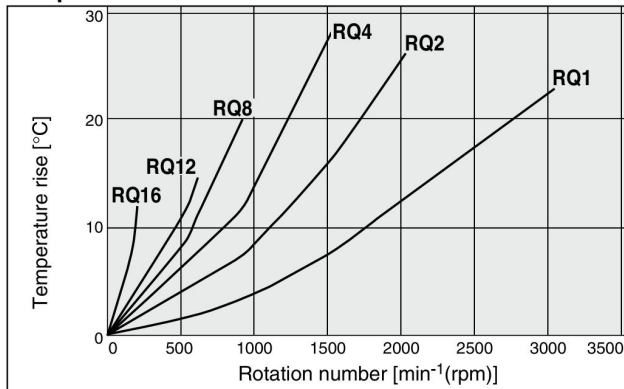
No.	Name	Material	Remarks
1	Body	Aluminum	
2	Adapter plate	Aluminum	
3	Spool	Special stainless steel	
4	Sleeve	Special stainless steel	
5	Gasket	H-NBR	
6	Bearing holder	Stainless steel	16 circuits only
7	Gasket	H-NBR	16 circuits only
8	Plate	Aluminum	16 circuits only
9	Flange	Aluminum	
10	Parallel pin	Carbon steel	Except for 2 circuits
11	O-ring	H-NBR	
12	Bolt	Carbon steel	16 circuits only
13	Bolt	Carbon steel	
14	Bolt	Carbon steel	
15	Radial bearing	—	

Leakage according to differential pressure



Note) These values show reference values and are not guaranteed.

Temperature rise with rotation number

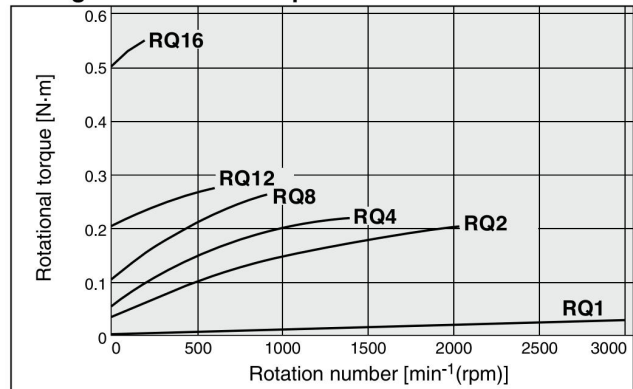


Note: Value when no pressure applied. Temperature rise is reduced by supply of air.

Note: These values show reference values and are not guaranteed.

e.g.: If adjacent ports are connected to vacuum pressure of -0.1 MPa and positive pressure of 0.1 MPa in RQ16, then differential pressure is 0.2 MPa, and leakage is 800 (cm³/min).

Change in rotational torque with rotation number



Note) These values show reference values and are not guaranteed.

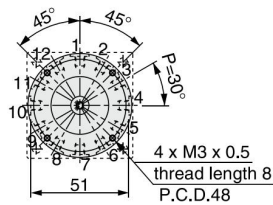
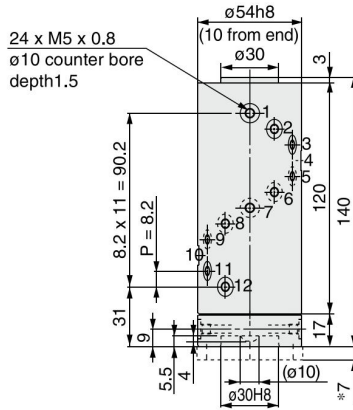
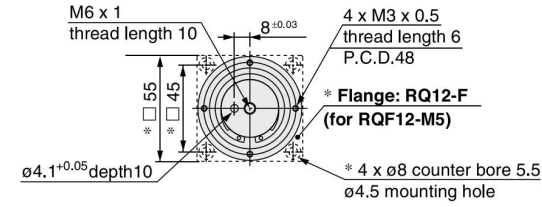
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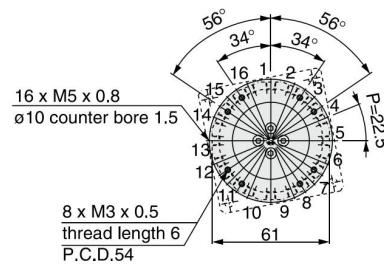
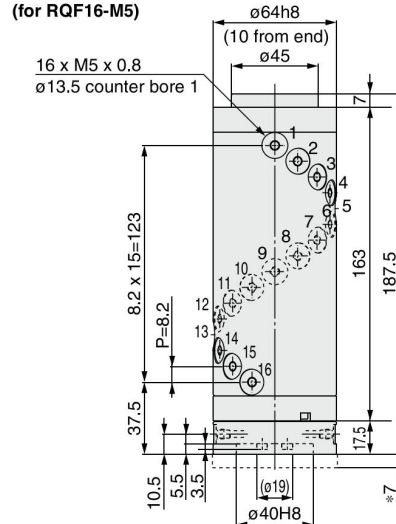
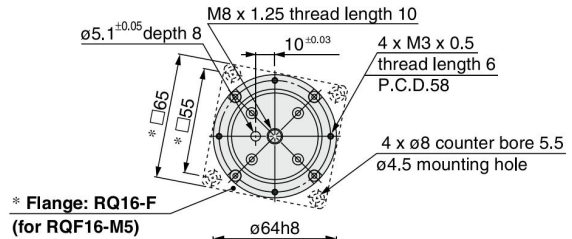
Dimensions: Standard Type/Flange Type

* Symbol indicates flange dimensions

RQ12-M5

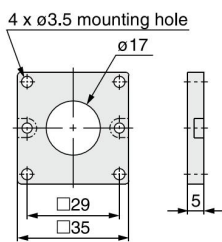


RQ16-M5

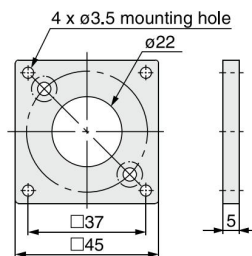


Mounting Bracket/Flange

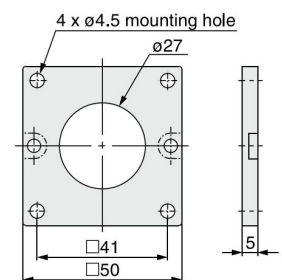
RQ2-F



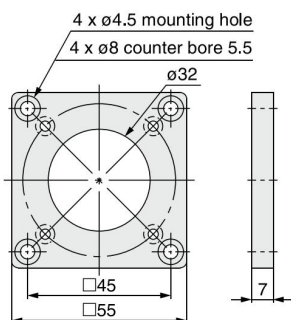
RQ4-F



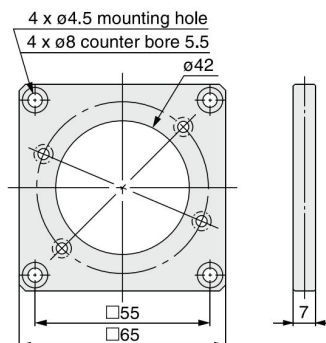
RQ8-F



RQ12-F



RQ16-F



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