MSX Flexible coupling - Slit - type

Selection Tool | CAD Download | Zero Backlash | High Rigidity

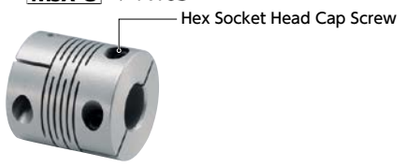
Structure

● Set Screw type

MSX ➡ P.101

● Clamping type

MSX-C ➡ P.103



● Applicable motors

	MSX
Servomotor	◎
Stepping motor	◎
General-purpose motor	◎

◎: Excellent ○: Very good

● Property

	MSX
Zero Backlash	◎
High Torque	○
High Torsional Stiffness	◎

◎: Excellent ○: Very good

- This is a metal spring coupling with single-piece construction. A slit is inserted into a cylindrical material.
- It has an extremely high torsional stiffness and low moment of inertia.
- Extra super duralumin (A7075) featuring the highest strength among aluminum alloy is adopted.
- A plate spring formed by a slit allows eccentricity, angular misalignment, and end-play to be accepted.

● Application

Actuator/High precision XY stage/Index table

● Material/Finish

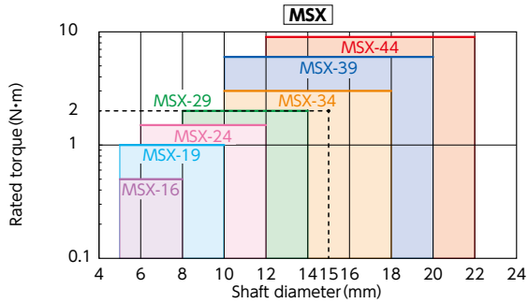
RoHS2 Compliant

	MSX / MSX-C
Main Body	A7075 Alumite Treatment
Hex Socket Set Screw	SCM435 Ferrosoferric oxide film
Hex Socket Head Cap Screw	SCM435 Ferrosoferric oxide film

Selection

● Selection based on shaft diameter and rated torque

The area bounded by the shaft diameter and rated torque indicates is the selection size.



● Selection example

In case of selected parameters of shaft diameter of ϕ 15 and load torque of 2 N•m, the selected size is **MSX-34** or **MSX-34C**.

● Selection based on the rated output of the servomotor

Rated output (W)	Servomotor Specifications*1			Selection size	
	Diameter of motor shaft (mm)	Rated torque (N・m)	Instantaneous max. torque (N・m)	**MSX** Set Screw Type	**MSX-C** Clamping type
10	5 - 6	0.032	0.096	MSX-16	MSX-16C
20	5 - 6	0.064	0.19	MSX-16	MSX-16C
30	5 - 7	0.096	0.29	MSX-19	MSX-19C
50	6 - 8	0.16	0.48	MSX-19	MSX-19C
100	8	0.32	0.95	MSX-19	MSX-19C
200	9 - 14	0.64	1.9	MSX-29	MSX-34C
400	14	1.3	3.8	MSX-39	MSX-39C
750	16 - 19	2.4	7.2	MSX-44	MSX-44C

*1 : Motor specifications are based on general values. For details, see the motor manufacturer's catalogs.This is the size for cases where devices such as reduction gears are not used.

● Related Products

The slit-type coupling **MSXP** in PEEK material can be used in an environment or cleanroom where heat and chemical resistance are required, such as FPD and semiconductor equipments.
➡ P.231

● Part number specification

MSX-19C-5-6

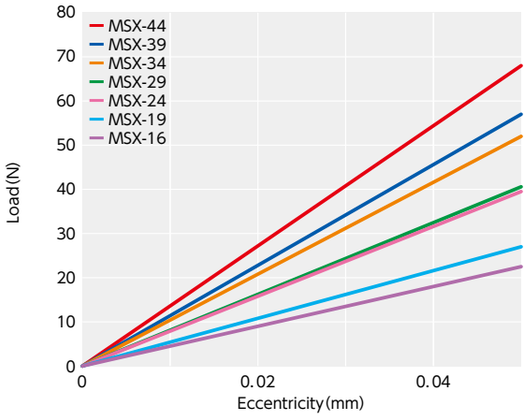
Product Code | size | Bore diameter

Please refer to dimensional table for part number specification.

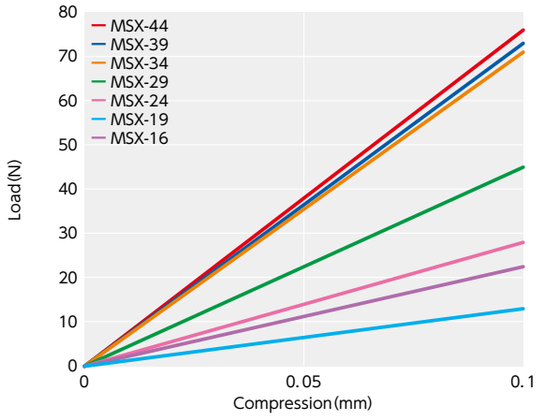
Additional Keyway at Shaft Hole ➡ P.803	Cleanroom Wash & Packaging ➡ P.807	Change to Stainless Steel Screw ➡ P.805
Available / Add'l charge	Available / Add'l charge	Available / Add'l charge

Technical Information

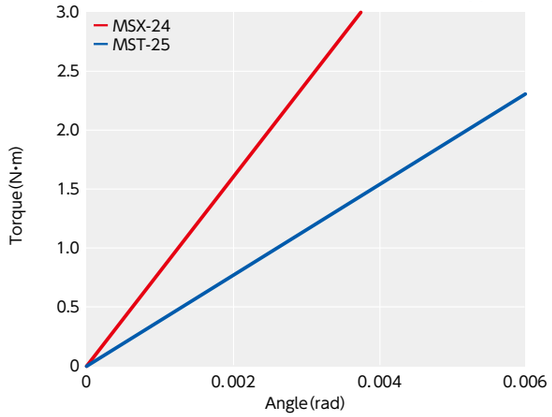
● Eccentric Reaction Force



● Thrust Reaction Force

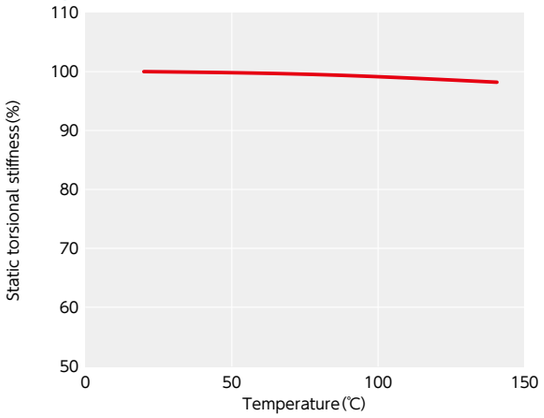


● Comparison of static torsional stiffness (slit-type)



MSX have high torsional stiffness and responsiveness.
Optimal for high-speed and precision positioning for servomotors, etc.

● Change in static torsional stiffness due to temperature

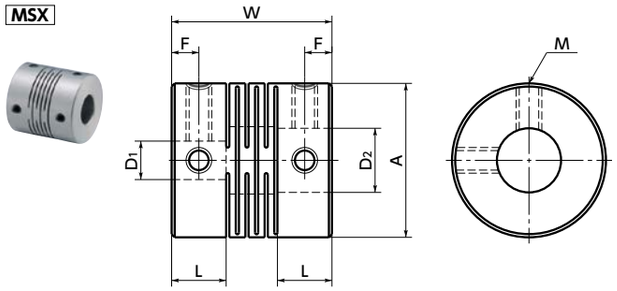


This is a value under the condition where the static torsional stiffness at 20℃ is 100%.
MSX's change in torsional stiffness due to temperature is small and the change in responsiveness is extremely small. However, if the unit is used under higher temperature, be careful about misalignment due to elongation or deflection of the shaft associated with thermal expansion.

MSX Flexible coupling - Slit - type - Set screw type

WEB Selection Tool | WEB CAD Download | Zero Backlash | High Rigidity

MSX



Dimensions

Unit : mm

Part Number 1	A	L	W	F	M	Screw Tightening Torque (N·m)
MSX-16	16	6	17.4	3	M3	0.7
MSX-19	19	6.8	20	3.4	M3	0.7
MSX-24	24	8.5	25	4.25	M4	1.7
MSX-29	29	10.2	30	5.1	M4	1.7
MSX-34	34	12	35	6	M5	4
MSX-39	39	13.5	40	6.75	M5	4
MSX-44	44	15.5	45	7.75	M6	7

Part Number	Standard Bore Diameter (dimensional allowance H8) D1-D2 2							
MSX-16	5 - 5	5 - 6	6 - 6					
MSX-19	5 - 5 6.35 - 6.35	5 - 6 6.35 - 8	5 - 7 8 - 8	5 - 8 8 - 10	6 - 6 10 - 10	6 - 6.35	6 - 7	6 - 8
MSX-24	6 - 6 8 - 9.525	6 - 8 8 - 10	6 - 10 9.525 - 10	6.35 - 6.35 10 - 10	6.35 - 8 10 - 11	6.35 - 10 10 - 12	7 - 8 11 - 12	8 - 8 12 - 12
MSX-29	8 - 8 11 - 12	8 - 10 11 - 14	8 - 11 12 - 12	8 - 12 12 - 14	10 - 10	10 - 11	10 - 12	10 - 14
MSX-34	10 - 14 15 - 15	11 - 14 15 - 16	12 - 12 16 - 16	12 - 14	12 - 16	14 - 14	14 - 15	14 - 16
MSX-39	10 - 14 15 - 15	12 - 12 15 - 16	12 - 14 16 - 16	12 - 15	12 - 16	12 - 19	14 - 14	14 - 15
MSX-44	12 - 12 15 - 19	12 - 14 15 - 20	12 - 19 20 - 20	14 - 14	14 - 15	14 - 16	15 - 15	15 - 16

- All products are provided with hex socket set screw.
- Recommended dimensional allowances of applicable shaft diameter are h6 and h7.

Additional Keyway at Shaft Hole ➡ P.803	Cleanroom Wash & Packaging ➡ P.807	Change to Stainless Steel Screw ➡ P.805
Available / Add'l charge	Available / Add'l charge	Available / Add'l charge

Performance

Part Number	Max. Bore Diameter (mm)	Rated*1 torque (N·m)	Max. Rotational Frequency (min^{-1})	Moment*2 of Inertia ($kg \cdot m^2$)	Static Torsional Stiffness (N·m/rad)	Max. Lateral Misalignment (mm)	Max. Angular Misalignment (°)	Max. Axial Misalignment (mm)	Mass*2 (g)
MSX-16	8	0.5	39000	2.8×10^{-7}	200	0.05	0.5	±0.1	7
MSX-19	10	1	33000	6.2×10^{-7}	270	0.05	0.5	±0.1	10
MSX-24	12	1.5	26000	2.0×10^{-6}	790	0.05	0.5	±0.1	22
MSX-29	14	2	21000	5.2×10^{-6}	1400	0.05	0.5	±0.1	40
MSX-34	18	3	18000	1.1×10^{-5}	2200	0.05	0.5	±0.1	64
MSX-39	20	6	16000	2.9×10^{-5}	4100	0.05	0.5	±0.1	90
MSX-44	22	9	14000	5.5×10^{-5}	5100	0.05	0.5	±0.1	133

*1 : Correction of rated torque due to load fluctuation is not required.
*2 : These are values with max. bore diameter.

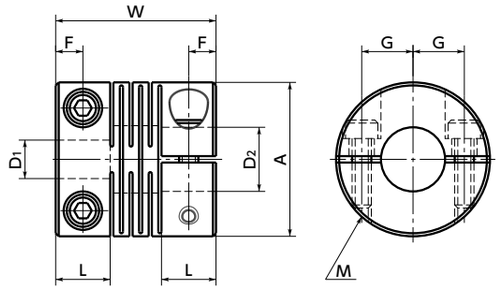
- Part number specification

MSX-19 - 5-6
1 2

MSX-C Flexible coupling - Slit - type - Clamping type

WEB Selection Tool | WEB CAD Download | Zero Backlash | High Rigidity

MSX-C Made of aluminum alloy



Dimensions

Unit : mm

Part Number 1	A	L	W	F	G	M	Screw Tightening Torque (N・m)
MSX-16C	16	6	17.4	3	4.74	M2	0.5
MSX-19C	19	6.8	20	3.4	5.6	M2.5	1
MSX-24C	24	8.5	25	4.25	8	M3	1.5
MSX-29C	29	10.2	30	5.1	9	M3	1.5
MSX-34C	34	12	35	6	11	M3	1.5
MSX-39C	39	13.5	40	6.75	14	M4	2.5
MSX-44C	44	15.5	45	7.75	16	M4	2.5

Part Number	Standard Bore Diameter D1-D2 2							
MSX-16C	5 - 5	5 - 6	6 - 6					
MSX-19C	5 - 5 6.35 - 6.35	5 - 6 6.35 - 8	5 - 7 8 - 8	5 - 8	6 - 6	6 - 6.35	6 - 7	6 - 8
MSX-24C	6 - 6 8 - 9.525	6 - 8 8 - 10	6 - 10 9.525 - 10	6.35 - 6.35 10 - 10	6.35 - 8	6.35 - 10	7 - 8	8 - 8
MSX-29C	8 - 8 12 - 12	8 - 10	8 - 11	8 - 12	10 - 10	10 - 11	10 - 12	11 - 12
MSX-34C	10 - 14 15 - 15	11 - 14 15 - 16	12 - 12 16 - 16	12 - 14	12 - 16	14 - 14	14 - 15	14 - 16
MSX-39C	10 - 14 15 - 15	12 - 12 15 - 16	12 - 14 16 - 16	12 - 15	12 - 16	12 - 19	14 - 14	14 - 15
MSX-44C	12 - 12 15 - 19	12 - 14 15 - 20	12 - 19 20 - 20	14 - 14	14 - 15	14 - 16	15 - 15	15 - 16

- All products are provided with hex socket head cap screw.
- Recommended dimensional allowances of applicable shaft diameter are h6 and h7.
- In case of mounting on D-cut shaft, be careful about the position of the D-cut surface of the shaft. ➡ P.258

Additional Keyway at Shaft Hole ➡ P.803	Cleanroom Wash & Packaging ➡ P.807	Change to Stainless Steel Screw ➡ P.805
Available / Add'l charge	Available / Add'l charge	Available / Add'l charge

Performance

Part Number	Max. Bore Diameter (mm)	Rated*1 torque (N・m)	Max. Rotational Frequency (min^{-1})	Moment*2 of Inertia ($kg・m^2$)	Static Torsional Stiffness (N・m/rad)	Max. Lateral Misalignment (mm)	Max. Angular Misalignment (°)	Max. Axial Misalignment (mm)	Mass*2 (g)
MSX-16C	6	0.5	39000	2.5×10^{-7}	200	0.05	0.5	±0.1	7
MSX-19C	8	1	33000	5.8×10^{-7}	270	0.05	0.5	±0.1	12
MSX-24C	10	1.5	26000	1.8×10^{-6}	790	0.05	0.5	±0.1	23
MSX-29C	12	2	21000	4.7×10^{-6}	1400	0.05	0.5	±0.1	41
MSX-34C	16	3	18000	1.1×10^{-5}	2200	0.05	0.5	±0.1	62
MSX-39C	20	6	16000	2.3×10^{-5}	4100	0.05	0.5	±0.1	88
MSX-44C	22	9	14000	4.3×10^{-5}	5100	0.05	0.5	±0.1	128

*1 : Correction of rated torque due to load fluctuation is not required.
*2 : These are values with max. bore diameter.

- Part number specification

MSX-39C - 14-15
1 2