MST/MSTS Flexible Couplings - Slit Type

Zero Backlash SUS Stainless steel

Structure

- Set Screw Type ➡ P.xxxx

MST Made of aluminum alloy

MSTS Made of all stainless steel

- Clamping Type ➡ P.xxxx

MST-C Made of aluminum alloy

MSTS-C Made of all stainless steel

Outside diameter ϕ40 - ϕ63

MSTS-C

Outside diameter ϕ12 - ϕ32

- Set Screws + Key Type ➡ P.xxxx

MST-K Made of aluminum alloy

MSTS-K Made of all stainless steel

- Part number specification

MST - 32K - 12-12

Product Code | Size | Bore Diameter

Please refer to dimensional table for part number specification.

- Applicable motors

	MST	MSTS
Servomotor	●	●
Stepping Motor	◎	◎
General-purpose Motor	●	●

◎: Excellent ●: Available

- Property

	MST	MSTS
Zero Backlash	◎	◎
High Torque	○	○
High Torsional Stiffness	○	○
Allowable Misalignment	○	○
Corrosion Resistance (All S.S.)	–	◎

◎: Excellent ○: Very good

- This is a metal spring coupling with single-piece construction. A slit is inserted into a cylindrical material.
- A plate spring formed by a slit allows eccentricity, angular misalignment, and end-play to be accepted.
- There are two types of units made of aluminum alloy or all stainless steel.
- Wide variation of outside diameter ϕ 8 - ϕ 63.

- Application

Transport device / XY stage / Parts feeder

- Material/Finish

RoHS

	MST / MST-C / MST-K	MSTS / MSTS-C / MSTS-K
Main Body	A2017 Anodized*1	SUS303
Hex Socket Set Screw	SCM435 Ferrosoferric Oxide Film (Black)	SUSXM7
Hex Socket Head Cap Screw	SCM435 Ferrosoferric Oxide Film (Black)	SUSXM7

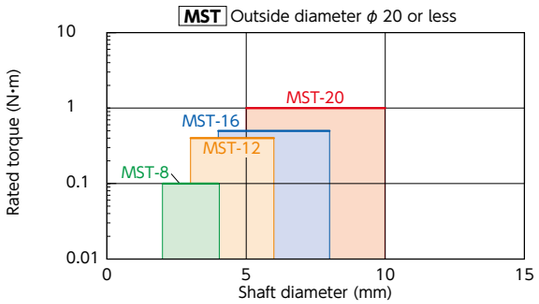
*1: Due to manufacturing process requirements, couplings may have bores and keyways with or without surface treatment. This does not affect the performance of the couplings.

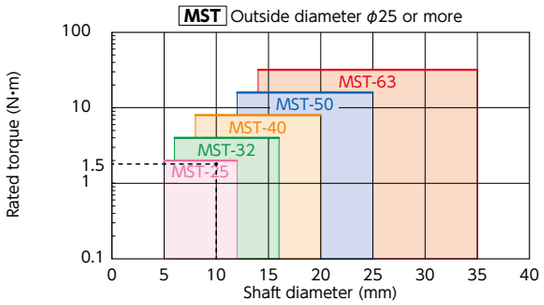
Additional Keyway at Shaft Hole ➡ P.xxxx	Cleanroom Wash & Packaging ➡ P.xxxx	Change to Stainless Steel Screw ➡ P.xxxx
Bore additional modification only/ Add'l charge	Please feel free to contact us	Please feel free to contact us

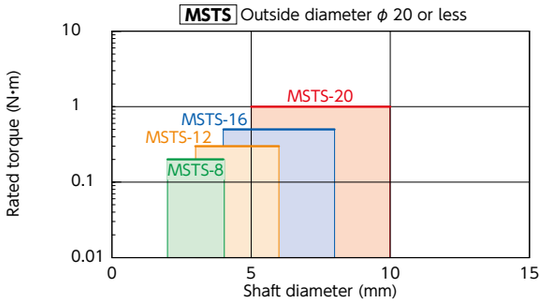
Selection

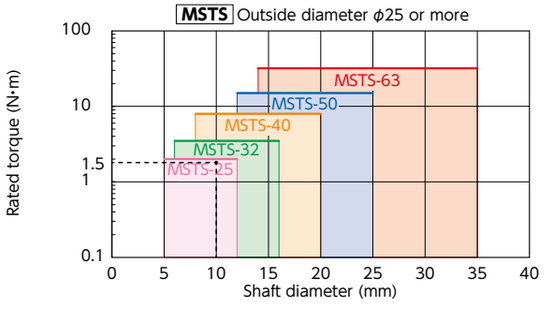
Selection Based on Shaft Diameter and Rated Torque

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









- Selection Example

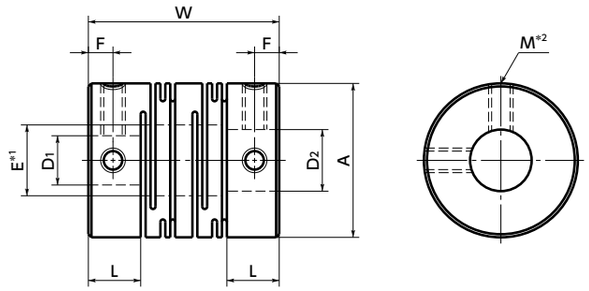
In case of selected parameters of shaft diameter of ϕ 10 and load torque of 1.5 N•m, the selected size for **MST** **MSTS** is **MST-25** **MSTS-25**

GOOD DESIGN

MST/MSTS Flexible Couplings - Slit Type - Set Screw Type

Zero Backlash SUS Stainless steel

MST Made of aluminum alloy
MSTS Made of all stainless steel



*1： E=D2(D2<6)
E=D2+0.5(D2≥6)
*2： In a case where the bore diameter is ϕ 4 or less, the set screw is used in only one place.

Dimensions

Unit : mm

Part Number 1	A	L	W	F	M	Screw Tightening Torque (N・m)
MST-8	8	3.5	14	1.7	M2	0.18
MST-12	12	5	18.5	2.5	M2.5	0.5
MST-16	16	6.5	23	3	M3	0.7
MST-20	20	7.5	26	3	M3	0.7
MST-25	25	8.5	31	4	M4	1.7
MST-32	32	11.9	41	6	M4	1.7
MST-40	40	17	56	8.5	M5	4
MST-50	50	21	71	10.5	M6	7
MST-63	63	26	90	13	M8	15
MSTS-8	8	3.5	14	1.7	M2	0.12
MSTS-12	12	5	18.5	2.5	M2.5	0.2
MSTS-16	16	6.5	23	3	M3	0.7
MSTS-20	20	7.5	26	3	M3	0.7
MSTS-25	25	8.5	31	4	M4	1.7
MSTS-32	32	11.9	41	6	M4	1.7
MSTS-40	40	17	56	8.5	M5	4
MSTS-50	50	21	71	10.5	M6	7
MSTS-63	63	26	90	13	M8	15

Part Number		Standard Bore Diameter (Dimensional Allowance H8) D1-D2 2							
MST-8	**MSTS-8**	2 - 2	2 - 3	3 - 3					
MST-12	**MSTS-12**	3 - 3	3 - 4	3 - 6*1	4 - 4	4 - 5	4.5 - 5	5 - 5	5 - 6
MST-16	**MSTS-16**	4 - 4 6 - 6.35	4 - 5 6 - 7	4 - 6 6 - 8	4.5 - 5 6.35 - 8	5 - 5	5 - 6	5 - 8	6 - 6
MST-20	**MSTS-20**	5 - 5 6.35 - 8	5 - 6 8 - 8	5 - 8 8 - 9.525*2	6 - 6 8 - 10	6 - 6.35 10 - 10	6 - 7	6 - 8	6 - 10
MST-25	**MSTS-25**	5 - 6 8 - 9.525*2	6 - 6 8 - 10	6 - 6.35 8 - 12	6 - 8 9.525 - 10	6 - 10 10 - 10	6.35 - 8 10 - 11*2	6.35 - 10 10 - 12	8 - 8 12 - 12
MST-32	**MSTS-32**	6 - 8 10 - 12	6.35 - 8 10 - 14	8 - 8 12 - 12	8 - 10 12 - 14	8 - 12 14 - 14	9.525 - 12 14 - 16	10 - 10	10 - 11
MST-40	**MSTS-40**	8 - 9.525	10 - 10	12 - 12	14 - 14	15 - 15	16 - 16	16 - 18*2	18 - 18
MST-50	**MSTS-50**	12 - 12	14 - 14	15 - 15	16 - 18				
MST-63	**MSTS-63**	14 - 14							

*1： Only MST-** is a standard product. For MSTS-**, use the additional modification service BT.
*2： Only MSTS-** is a standard product. For MST-**, use the additional modification service BT.

- All products are provided with hex socket set screws.
- Recommended tolerance for shaft diameters is h6 and h7.
- For the shaft insertion amount to the coupling, see Mounting/maintenance.

Additional Keyway at Shaft Hole ➡ P.xxxx	Cleanroom Wash & Packaging ➡ P.xxxx	Change to Stainless Steel Screw ➡ P.xxxx
Bore additional modification only/ Add'l charge	Please feel free to contact us	Please feel free to contact us

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)
MST-8	4	0.1	78000	1.2×10^{-8}	25	0.1	2	±0.2	1.4
MST-12	6	0.4	52000	8.3×10^{-8}	45	0.1	2	±0.3	3.7
MST-16	8	0.5	39000	3.3×10^{-7}	80	0.1	2	±0.4	8.1
MST-20	10	1	31000	9.0×10^{-7}	170	0.1	2	±0.4	14
MST-25	12	2	25000	2.6×10^{-6}	380	0.15	2	±0.5	27
MST-32	16	4	19000	9.6×10^{-6}	500	0.15	2	±0.5	60
MST-40	20	8	15000	3.2×10^{-5}	700	0.2	2	±0.5	130
MST-50	25	16	12000	1.0×10^{-4}	1800	0.2	2	±0.5	260
MST-63	35	32	10000	3.2×10^{-4}	3100	0.2	2	±0.5	490
MSTS-8	4	0.2	78000	3.1×10^{-8}	50	0.1	2	±0.2	3
MSTS-12	6	0.3	52000	2.1×10^{-7}	64	0.1	2	±0.3	9.3
MSTS-16	8	0.5	39000	8.4×10^{-7}	85	0.1	2	±0.3	21
MSTS-20	10	1	31000	2.4×10^{-6}	250	0.1	2	±0.3	38
MSTS-25	12	2	25000	6.8×10^{-6}	330	0.15	2	±0.4	71
MSTS-32	16	3.5	19000	2.6×10^{-5}	850	0.15	2	±0.5	160
MSTS-40	20	8	15000	8.7×10^{-5}	1000	0.2	2	±0.5	350
MSTS-50	25	15	12000	2.7×10^{-4}	1400	0.2	2	±0.5	700
MSTS-63	35	35	10000	8.4×10^{-4}	1800	0.2	2	±0.5	1300

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

- Part number specification

MSTS-25 - 9.525-10
1 2

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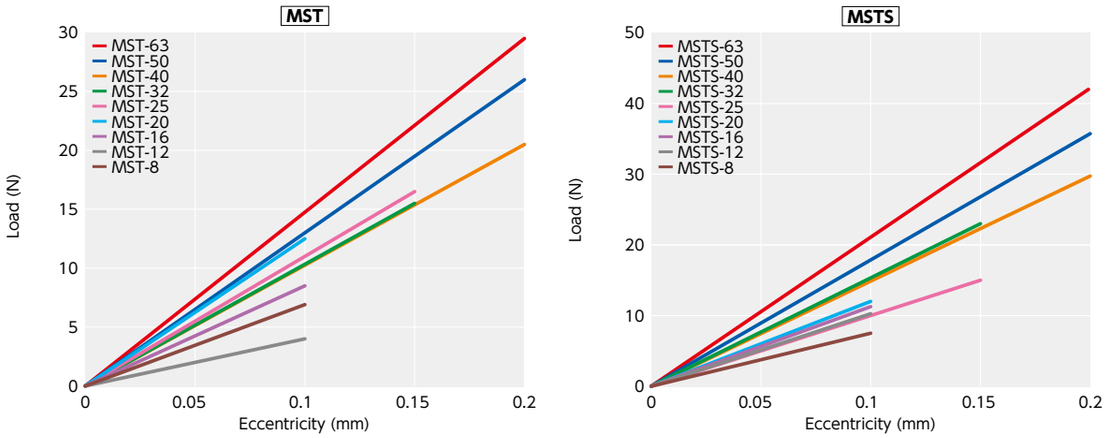
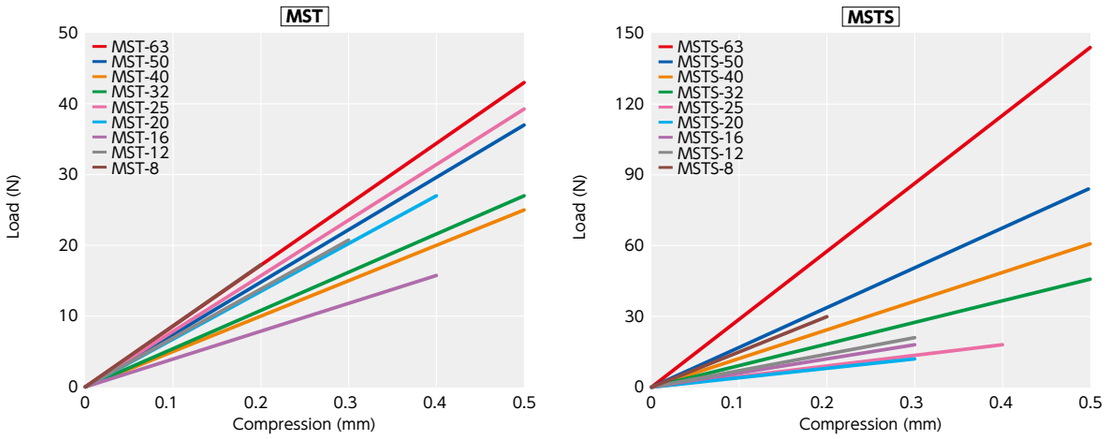
Technical Information

● Eccentric Reaction Force

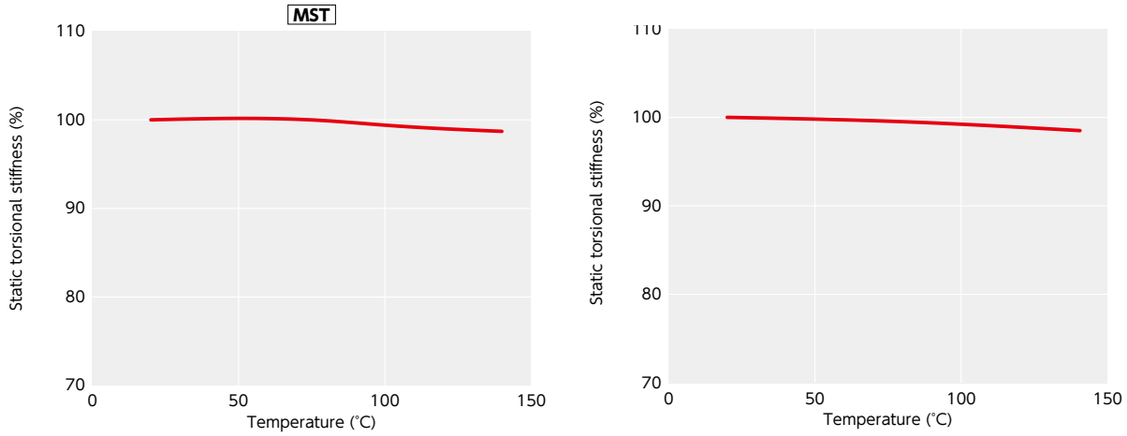


● Thrust Reaction Force



● Change in static torsional stiffness due to temperature

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



● Slip Torque

For slip torque of set screw type, see each material under "Slip Torque of Coupling – Set Screw Type" for details.
MST ———Aluminum Alloy Coupling
MSTS ———Stainless Steel Coupling
As in the table below, the clamping types **MST-C** and **MSTS-C** have different slip torque according to the bore diameter. Take care during selection.

Unit : N・m

Part Number	Bore Diameter (mm)													
	4	4.5	5	6	6.35	7	8	9.525	10	11	12	14	15	16
MST-25C			3	3.6										
MST-32C							4.1	7.3						
MST-40C							7.1				14	17	20	24
MST-63C												59		63
MSTS-12C	0.4	0.5												
MSTS-16C		0.7	0.8											
MSTS-20C			1.2	1.7	1.7	1.7								
MSTS-25C			0.7	0.7	0.9		1.7	3.8						
MSTS-32C							1.2	2.1	2.7	2.9	5.9			
MSTS-40C							8.7				12	12	14	
MSTS-50C											22	28		
MSTS-63C												28		49

- These are test values based on the conditions of shaft dimensional allowance: h7, hardness: 34 - 40 HRC, and screw tightening torque of the values described in **MST-C** **MSTS-C** dimension tables. They are not guaranteed values.
- Slip torque changes with usage conditions. Carry out tests under conditions similar to actual conditions in advance.