MFB/MFBS Flexible Couplings - Bellows Type

Zero Backlash SUS Stainless steel

Structure

● Set Screw Type

MFB Aluminum alloy hub ➡ P.xxxx

MFBS Made of all stainless steel ➡ P.xxxx

● Clamping Type

MFB-C Aluminum alloy hub ➡ P.xxxx

MFBS-C Made of all stainless steel ➡ P.xxxx

● Applicable motors

	MFB	MFBS
Servomotor	●	●
Stepping Motor	○	○
General-purpose Motor	●	●

○: Very good ●: Available

● Property

	MFB	MFBS
Zero Backlash	◎	◎
Allowable Misalignment	○	○
Corrosion Resistance (All S.S.)	–	◎

◎: Excellent ○: Very good

- This is a bellows type flexible coupling.
- The bellows allows eccentricity, angular misalignment, and end-play.
- Even if there is misalignment, the constant revolution is performed.
- There are two types of bellows: phosphor bronze type and stainless steel type.

● Application

Encoder

● Material/Finish

RoHS

	MFB / MFB-C	MFBS / MFBS-C
Hub	A2017 Anodized*1	SUS303
Bellows	C5191	SUS316L
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 with or without surface treatment. This does not affect the performance of the couplings.

● Part number specification

MFB - 20C - 6 - 8

Product Code | Size | Bore Diameter

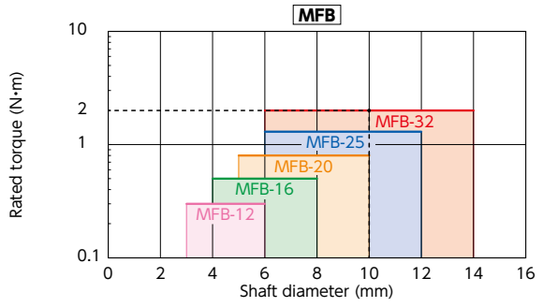
Please refer to dimensional table for part number specification.

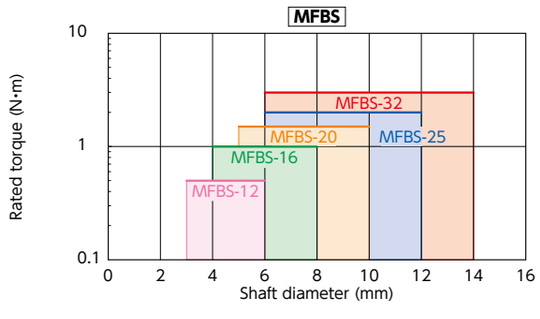
Additional Keyway at Shaft Hole ➡ P.xxxx	Cleanroom Wash & Packaging ➡ P.xxxx	Change to Stainless Steel Screw ➡ P.xxxx
Available / Add'l charge	Not Available	Please feel free to contact us

Selection

● Selection Based on Shaft Diameter and Rated Torque

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





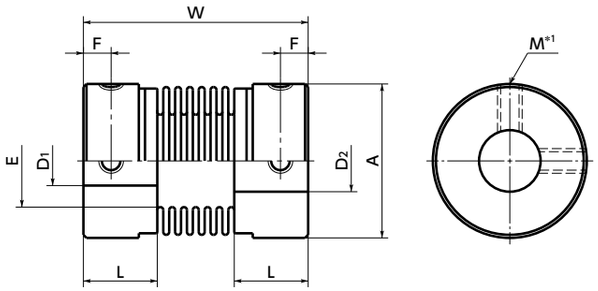
● Selection Example

In case of selected parameters of shaft diameter of ϕ 10 and load torque of 2 N・m, the selected size for **MFB** **MFB-32**.

MFB/MFBS/MFB-C/MFBS-C Flexible Couplings - Bellows Type

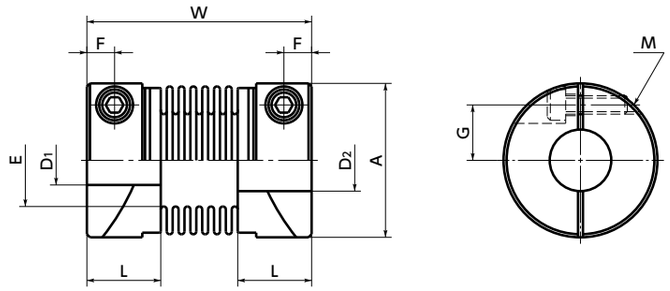
Zero Backlash SUS Stainless steel

MFB Aluminum alloy hub
MFBS Made of all stainless steel



*1 : In a case where the bore diameter is ϕ 4 or less, the set screw is used in only one place.

MFB-C Aluminum alloy hub
MFBS-C Made of all stainless steel



Dimensions

Unit : mm

Part Number 1	A	L	W	E	F	G	M	Screw Tightening Torque (N・m)	Standard Bore Diameter D1・D2 2							
									3	4	5	6	8	10	12	14
MFB-12	12	7.5	23.5	7	2.5		M2.5	0.5	●	●	●	●				
MFB-16	16	9	26.5	9.5	3		M3	0.7		●	●	●	●			
MFB-20	20	10	33	12.5	3.5		M3	0.7			●	●	●	●		
MFB-25	25	12	36.5	15	4.5		M4	1.7				●	●	●	●	
MFB-32	32	13.5	42	21	5.5		M4	1.7				●	●	●	●	●
MFBS-12	12	7.5	23.5	7	2.5		M2.5	0.2	●	●	●	●				
MFBS-16	16	9	26.5	9.5	3		M3	0.7		●	●	●	●			
MFBS-20	20	10	32	12.5	3.5		M3	0.7			●	●	●	●		
MFBS-25	25	12	36.5	15	4.5		M4	1.7				●	●	●	●	
MFBS-32	32	13.5	42	21	5.5		M4	1.7				●	●	●	●	●
MFB-12C	12	7.5	23.5	7	2.25	4	M2	0.5		●	●					
MFB-16C	16	9	26.5	9.5	3	5	M2.5	1			●	●				
MFB-20C	20	10	33	12.5	3.5	6.5	M2.5	1				●	●			
MFB-25C	25	12	36.5	15	4.5	9	M3	1.5					●	●		
MFB-32C	32	13.5	42	21	5	11	M4	2.5					●	●	●	●
MFBS-12C	12	7.5	23.5	7	2.25	4	M2	0.5		●	●					
MFBS-16C	16	9	26.5	9.5	3	5	M2.5	1			●	●				
MFBS-20C	20	10	32	12.5	3.5	6.5	M2.5	1				●	●			
MFBS-25C	25	12	36.5	15	4.5	9	M3	1.5					●	●		
MFBS-32C	32	13.5	42	21	5	11	M4	2.5					●	●	●	●

- All products are provided with hex socket set screw **MFB**/**MFBS** or hex socket head cap screw **MFB-C**/**MFBS-C**.
- Tolerance of shaft bore on set screw type is H8.
- Recommended tolerance for shaft diameters is h6 and h7.
- For the shaft insertion amount to the coupling, see Mounting/maintenance.

Precautions for Use

- In case of mounting on D-cut shaft, be careful about the position of the D-cut surface of the shaft. ➡ P.xxxx
- There are sizes where the hex socket head bolt exceeds the outer diameter of the coupling and the rotating diameter is larger than the outer diameter. Please be careful of the interference of coupling. ➡ P.xxxx

Additional Keyway at Shaft Hole ➡ P.xxxx	Cleanroom Wash & Packaging ➡ P.xxxx	Change to Stainless Steel Screw ➡ P.xxxx
Available / Add'l charge	Not Available	Please feel free to contact us

Performance

Part Number	Max. Bore Diameter (mm)	Rated Torque *1 (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)
MFB-12	6.35	0.3	52000	9.0×10^{-8}	82	0.1	1.5	$^{+0.4}_{-1.2}$	4.1
MFB-16	8	0.5	39000	3.5×10^{-7}	110	0.1	1.5	$^{+0.4}_{-1.2}$	9
MFB-20	10	0.8	31000	9.9×10^{-7}	180	0.15	2	$^{+0.6}_{-1.8}$	16
MFB-25	12	1.3	25000	3.1×10^{-6}	240	0.15	2	$^{+0.6}_{-1.8}$	32
MFB-32	16	2	19000	9.2×10^{-6}	330	0.2	2	$^{+0.8}_{-2.5}$	57
MFBS-12	6.35	0.5	52000	2.1×10^{-7}	100	0.1	1.5	$^{+0.4}_{-1.2}$	9.1
MFBS-16	8	1	39000	8.0×10^{-7}	150	0.1	1.5	$^{+0.4}_{-1.2}$	20
MFBS-20	10	1.5	31000	2.3×10^{-6}	220	0.15	2	$^{+0.6}_{-1.8}$	37
MFBS-25	12	2	25000	7.0×10^{-6}	330	0.15	2	$^{+0.6}_{-1.8}$	73
MFBS-32	16	3	19000	2.1×10^{-5}	490	0.2	2	$^{+0.8}_{-2.5}$	130
MFB-12C	5	0.3	52000	9.7×10^{-8}	82	0.1	1.5	$^{+0.4}_{-1.2}$	3.8
MFB-16C	6.35	0.5	39000	3.7×10^{-7}	110	0.1	1.5	$^{+0.4}_{-1.2}$	9.8
MFB-20C	8	0.8	31000	1.0×10^{-6}	180	0.15	2	$^{+0.6}_{-1.8}$	16
MFB-25C	10	1.3	25000	3.1×10^{-6}	240	0.15	2	$^{+0.6}_{-1.8}$	32
MFB-32C	14	2	19000	9.6×10^{-6}	330	0.2	2	$^{+0.8}_{-2.5}$	58
MFBS-12C	5	0.5	52000	2.1×10^{-7}	100	0.1	1.5	$^{+0.4}_{-1.2}$	9.2
MFBS-16C	6.35	1	39000	8.1×10^{-7}	150	0.1	1.5	$^{+0.4}_{-1.2}$	22
MFBS-20C	8	1.5	31000	2.3×10^{-6}	220	0.15	2	$^{+0.6}_{-1.8}$	38
MFBS-25C	10	2	25000	6.9×10^{-6}	330	0.15	2	$^{+0.6}_{-1.8}$	74
MFBS-32C	14	3	19000	2.1×10^{-5}	490	0.2	2	$^{+0.8}_{-2.5}$	130

*1 : Correction of rated torque due to load fluctuation is not required.
※ The shaft's slip torque may be smaller than the coupling's rated torque depending on the shaft bore. ➡ P.xxxx
*2 : These are values with max. bore diameter.

- Part number specification

MFB-12C - 4-5
1 2

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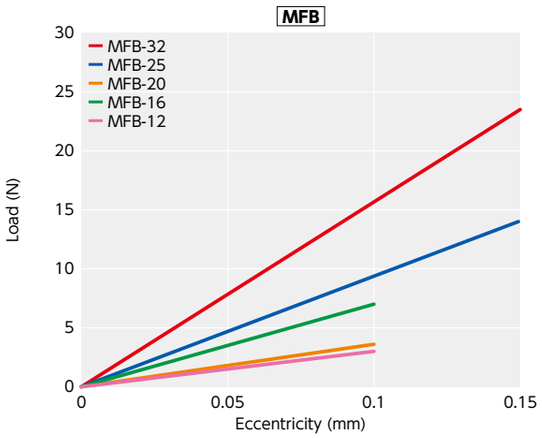
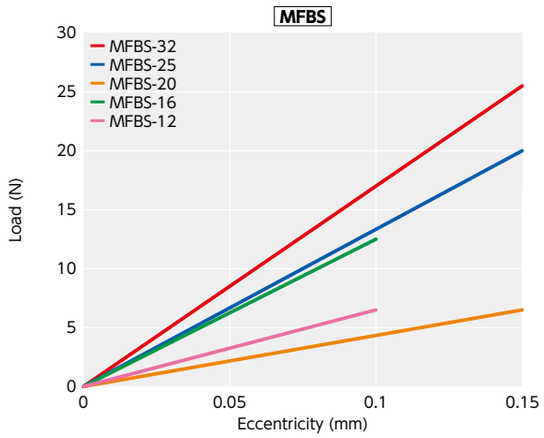
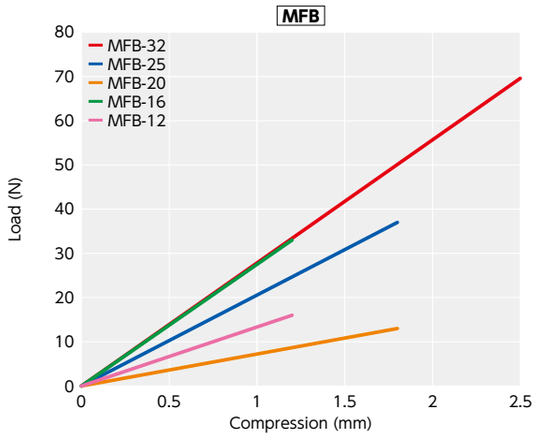
Technical Information

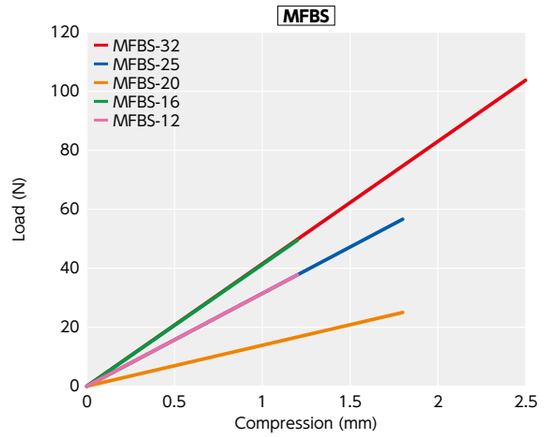
● Eccentric Reaction Force





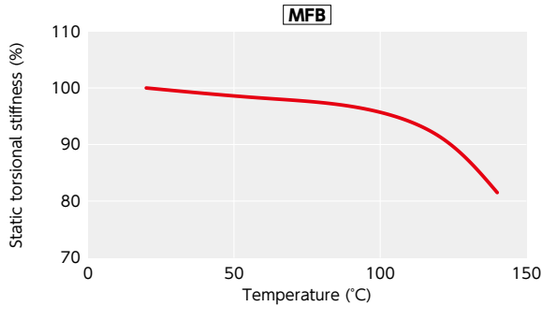
● Thrust Reaction Force

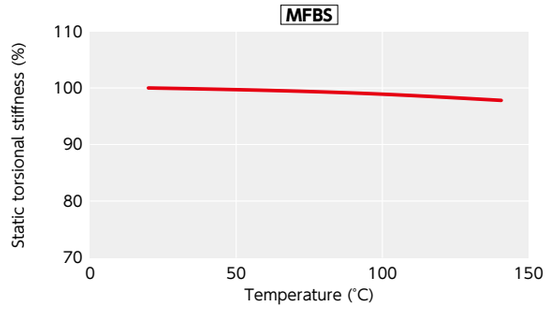




● Change in static torsional stiffness due to temperature

This is a value under the condition where the static torsional stiffness at 20℃ is 100%.
The change of **MFB** and **MFBS** 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.

MFB ———Aluminum Alloy Coupling

MFBS ———Stainless Steel Coupling

As in the table below, the clamping type **MFBS-C** has different slip torque according to the bore diameter. Take care during selection.

Unit : N・m

Part Number	Bore Diameter (mm)					
	4	5	6	8	10	12
MFBS-12C	0.4	0.6				
MFBS-16C		0.9	1.9			
MFBS-20C			1.6	1.8		
MFBS-25C				2.2	2.9	
MFBS-32C				3	3.4	4.1

- 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 **MFBS-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.

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