

XRP Rigid Coupling

WEB Selection Tool CAD Download 0 Zero Backlash High Rigidity

Structure

Clamping type

XRP-C → P.209



Material/Finish

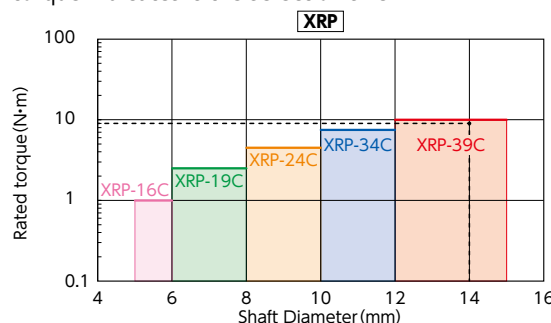
RoHS2 Compliant

	XRP-C
Main Body	A7075
Hex Socket Head Cap Screw	SCM435 Ferroferric 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 14 and load torque of 9 N·m, the selected size is

XRP-39C.

Recommended applicable motor

	XRP-C
Servomotor	○
Stepping motor	○
General-purpose motor	—

○: Excellent ○: Very good △: Available

Property

	XRP-C
Zero Backlash	○
High Torque	○
High Torsional Stiffness	○

○: Excellent ○: Very good

- This is a high precision rigid coupling.
- Coaxiality, bore diameter, and run out have been pursued to the ultimate level.
- An inspection report is attached to all products before shipment.
- Light weight and ultra small moment of inertia. High response.
- This is a shaft fastening structure with consideration of rotational balance and unbalance is ultra small.
- Extra super duralumin (A7075) featuring the highest strength among aluminum alloy is adopted.

Application

High precision measurement device/High precision XY stage/Encoder

Part number specification

XRP-19C-6-8

Product Code size Bore Diameter

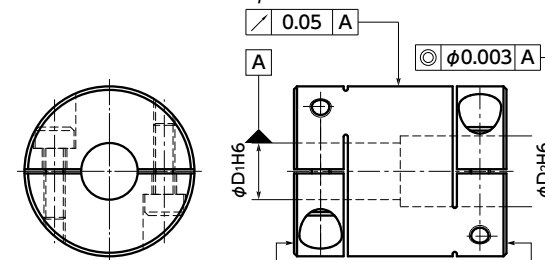
Please refer to dimensional table for part number specification.

Additional Keyway at Shaft Hole → P.803 Cleanroom Wash & Packaging → P.807 Change to Stainless Steel Screw → P.805
Please feel free to contact us Available / Add'l charge Available / Add'l charge



Commitment to high precision

- The coaxiality of both bores is not more than 3 μ m.
- Bore diameter tolerance is H6.
- Radial run out and run out of end face against bore are not more than 50 μ m.



Precision assurance by total inspection

- The inspection is conducted in an environment of constant temperature and humidity.
- Inspection item:
Bore diameters D1 and D2
Coaxiality of bores D1 and D2
Radial run out and run out of end face against bore

3D measurement device:

UPMC850CARAT SuperAcc made by Carl Zeiss
Measurement precision Max. allowable instruction error 0.7+L/600 μ m
Max. allowable probing error 0.6 μ m
Measurement environment Temperature 20 $\pm$ 1°C
Humidity 50 $\pm$ 10%



Concentricity tolerance and coaxiality tolerance

Property symbol	Definition of tolerance zone
○	If the symbol ϕ is attached to the tolerance value, the tolerance zone is regulated by a circle of diameter t. The center of circular tolerance zone coincides with datum A.
○	If the symbol ϕ is attached to the tolerance value, the tolerance zone is regulated by a cylinder of diameter t. The axis line of cylindrical tolerance zone coincides with datum A.
○	Example and explanation of instruction method The actual (reproduced) center of the outside circle must be within the circle concentric with datum circle A and of 0.1 in diameter. The actual (reproduced) shaft line of inside cylinder must be within a cylindrical tolerance area coaxial with common datum axis line A-B and of 0.08 in diameter.

Excerpt from JIS B 0021

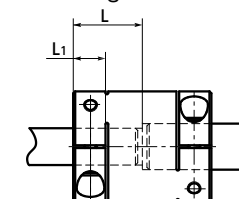
Shaft insertion length

The shaft insertion length should be not less than L₁ (clamp portion) and not more than L.

The insertion length of a shaft to maintain the high precision should be L dimension if possible.

However, be careful so that both shaft ends do not interfere with each other.

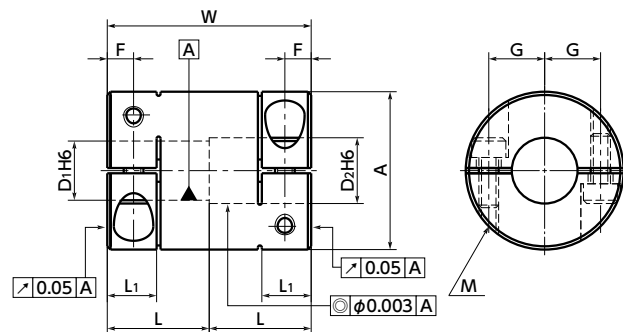
If the shaft insertion length is less than L₁, it may derange the coaxiality or generate vibration when fastening the shaft.



XRP Rigid Coupling - Clamping Type

WEB Selection Tool WEB CAD Download Zero Backlash High Rigidity

XRP-C



Dimensions

Unit : mm

Part Number	A	L	L1	W	F	G	M	Screw Tightening Torque (N·m)
XRP-16C	16	10	5	20	2.6	5	M2	0.5
XRP-19C	19	13	6.5	26	3.5	6.25	M2.5	1
XRP-24C	24	15	7	30	3.75	7.75	M3	1.5
XRP-34C	34	20	8	40	4	12	M3	1.5
XRP-39C	39	24	10	48	5	14.5	M4	2.5

Part Number	Standard Bore Diameter D1・D2		
XRP-16C	5 - 5	5 - 6	6 - 6
XRP-19C	6 - 6	6 - 8	8 - 8
XRP-24C	8 - 8	8 - 10	10 - 10
XRP-34C	10 - 10	10 - 12	12 - 12
XRP-39C	12 - 12	12 - 14	15 - 15

- All products are provided with hex socket head cap screws.
- Recommended tolerance of applicable shaft diameter is h6.
- In case of mounting on D-cut shaft, be careful about the position of the D-cut surface of the shaft. → P.258

Performance

Part Number	Max. Bore Diameter (mm)	Rated torque*1 (N·m)	Max. Rotational Frequency (min ⁻¹)	Moment of Inertia*2 (kg·m ²)	Mass*2 (g)
XRP-16C	6	1	39000	3.1×10^{-7}	9
XRP-19C	8	2.5	33000	8.0×10^{-7}	15
XRP-24C	10	4.5	26000	2.7×10^{-6}	32
XRP-34C	15	7.5	18000	1.4×10^{-5}	87
XRP-39C	18	10	16000	3.9×10^{-5}	140

*1 : Correction of rated torque due to load fluctuation is not required.

*2 : These are values with max. bore diameter.

- Part number specification

XRP-24C-8-10

1

2

Additional Keyway at Shaft Hole → P.803	Cleanroom Wash & Packaging → P.807	Change to Stainless Steel Screw → P.805
Please feel free to contact us	Available / Add'l charge	Available / Add'l charge

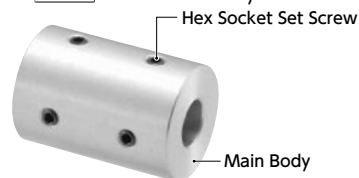
MRG / MRGS Rigid Coupling

WEB Selection Tool CAD Download 0 Zero Backlash High torque High Rigidity SUS Stainless steel

Structure

Set screw type

MRG Aluminum alloy hub → P.213



MRGS Made of all stainless steel → P.213



Clamping type

MRG-C Aluminum alloy hub → P.215



MRGS-C Made of all stainless steel → P.215



Split type

MRG-W Aluminum alloy hub → P.217



MRGS-W Made of all stainless steel → P.217



Related Products

Rigid coupling with high precision **XRP** is available.
→ P.207



Recommended applicable motor

	MRG	MRGS
Servomotor	○	○
Stepping motor	○	○
General-purpose motor	—	—

○: Excellent ○: Very good △: Available

Property

	MRG	MRGS
Zero Backlash	○	○
High Torque	○	○
High Torsional Stiffness	○	○
Corrosion Resistance (All S.S.)	—	○

○: Excellent ○: Very good

- These are rigid-type couplings.
- Light weight and ultra small moment of inertia. High response.
- There are two types of units made of aluminum alloy or all stainless steel.
- There are three attachment methods: set screw type, clamping type, and split type.
- Sizes of $\phi 40$ - $\phi 65$ in outside diameter have been added.

Application

High precision XY stage/Machine tool/Cleaning equipment

Material/Finish

RoHS2 Compliant

	MRG / MRG-C / MRG-W	MRGS / MRGS-C / MRGS-W
Main Body	A2017 Alumite Treatment	SUS303
Hex Socket Set Screw	SCM435 Ferrosoferric Oxide Film	SUSXM7
Hex Socket Head Cap Screw	SCM435 Ferrosoferric Oxide Film	SUSXM7

Part number specification

MRG-16W-5-6

Product Code size Bore Diameter

Please refer to dimensional table for part number specification.

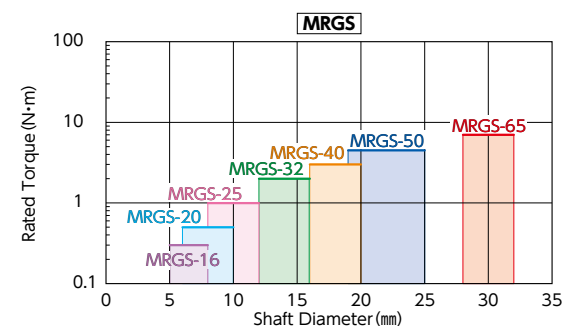
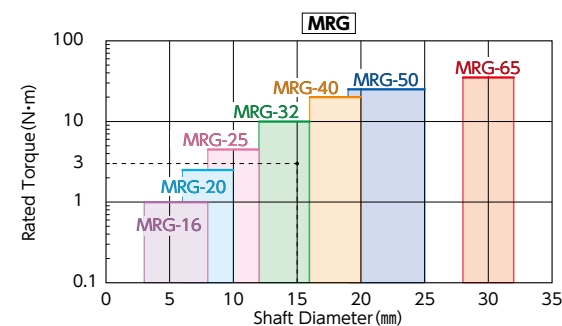
Additional Keyway at Shaft Hole → P.803 Cleanroom Wash & Packaging → P.807 SUS Change to Stainless Steel Screw → P.805
Please feel free to contact us Available / Add'l charge Available / Add'l charge



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

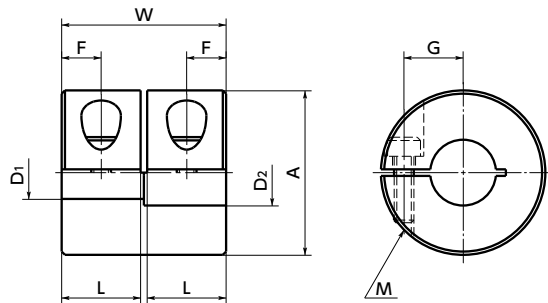
In case of selected parameters of shaft diameter of $\phi 15$ and load torque of $3 \text{ N} \cdot \text{m}$, the selected size is

MRG-32.

MRG-C / MRGS-C Rigid coupling - Clamping type

WEB Selection Tool CAD Download 0 Zero Backlash High torque High Rigidity SUS Stainless steel

MRG-C Made of aluminum alloy
MRGS-C Made of all stainless steel



Dimensions • Performance

Unit : mm

Part Number 	A	W	L	F	G	M	Screw Tightening Torque (N·m)	Standard Bore Diameter D1 • D2 																
								5	6	8	10	12	14	15	16	18	19	20	25	28	30			
MRG-16C	16	16	7.5	3.75	5	M2.5	1	●	●															
MRG-20C	20	20	9.5	4.75	6.5	M2.5	1		●	●														
MRG-25C	25	25	12	6	9	M3	1.5			●	●													
MRG-32C	32	32	15.5	7.75	11	M4	2.5				●	●	●											
MRG-40C	40	40	19.5	9.5	14	M5	4							●	●	●								
MRG-50C	50	50	24.4	12	18	M6	8										●	●						
MRG-65C	65	65	31.9	16	23	M8	16												●	●	●			
MRGS-16C	16	16	7.5	3.75	5	M2.5	1	●	●															
MRGS-20C	20	20	9.5	4.75	6.5	M2.5	1		●	●														
MRGS-25C	25	25	12	6	9	M3	1.5			●	●													
MRGS-32C	32	32	15.5	7.75	11	M4	2.5				●	●	●											
MRGS-40C	40	40	19.5	9.5	14	M5	4							●	●	●								
MRGS-50C	50	50	24.4	12	18	M6	8										●	●						
MRGS-65C	65	65	31.9	16	23	M8	16												●	●	●			

- All products are provided with hex socket head cap screws.
- 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

Performance

Part Number	Max. Bore Diameter (mm)	Rated torque*1 (N·m)	Max. Rotational Frequency (min ⁻¹)	Moment of Inertia*2 (kg·m ²)	Mass*2 (g)
MRG-16C	6	1	39000	3.0×10^{-7}	8.3
MRG-20C	8	2.5	31000	8.7×10^{-7}	15
MRG-25C	10	4.5	25000	2.7×10^{-6}	29
MRG-32C	14	10	19000	7.1×10^{-6}	51
MRG-40C	18	20	15000	2.4×10^{-5}	104
MRG-50C	24	25	12000	7.5×10^{-5}	197
MRG-65C	30	35	9000	2.8×10^{-4}	446
MRGS-16C	6	0.3	39000	8.0×10^{-7}	22
MRGS-20C	8	0.5	31000	2.4×10^{-6}	41
MRGS-25C	10	1	25000	7.3×10^{-6}	80
MRGS-32C	14	2	19000	2.5×10^{-5}	160
MRGS-40C	18	3	15000	7.0×10^{-5}	297
MRGS-50C	24	4.5	12000	2.1×10^{-4}	563
MRGS-65C	30	7	9000	8.1×10^{-4}	1270

*1 : Correction of rated torque due to load fluctuation is not required.

*2 : These are values with max. bore diameter.

- Part number specification

MRG-32C- 12-14

1

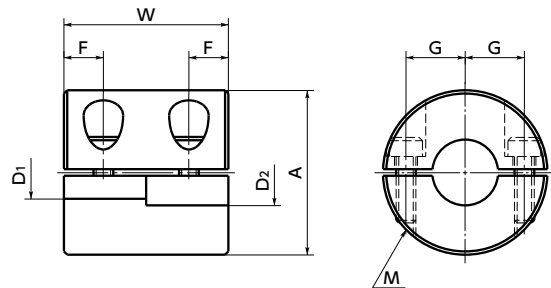
2

Additional Keyway at Shaft Hole → P.803 Cleanroom Wash & Packaging → P.807 SUS Change to Stainless Steel Screw → P.805
 Please feel free to contact us Available / Add'l charge Available / Add'l charge

MRG-W / MRGS-W Rigid coupling - Split type

WEB Selection Tool CAD Download 0 Zero Backlash High torque High Rigidity SUS Stainless steel

MRG-W Made of aluminum alloy
MRGS-W Made of all stainless steel



Dimensions • Performance

Unit : mm

Part Number	A	W	F	G	M	Screw Tightening Torque (N・m)	Standard Bore Diameter															
							D1・D2	5	6	8	10	12	14	15	16	18	19	20	25	28	30	
MRG-16W	16	16	4	5	M2.5	1	●	●														
MRG-20W	20	20	5	6.5	M2.5	1		●	●													
MRG-25W	25	25	6	9	M3	1.5			●	●												
MRG-32W	32	32	8	11	M4	2.5				●	●	●										
MRG-40W	40	40	9.5	14	M5	4						●	●	●								
MRG-50W	50	50	12	18	M6	8										●	●					
MRG-65W	65	65	16	23	M8	16												●	●	●		
MRGS-16W	16	16	4	5	M2.5	1	●	●														
MRGS-20W	20	20	5	6.5	M2.5	1		●	●													
MRGS-25W	25	25	6	9	M3	1.5			●	●												
MRGS-32W	32	32	8	11	M4	2.5				●	●	●										
MRGS-40W	40	40	9.5	14	M5	4							●	●	●							
MRGS-50W	50	50	12	18	M6	8										●	●					
MRGS-65W	65	65	16	23	M8	16												●	●	●		

- All products are provided with hex socket head cap screws.
- Recommended dimensional allowances of applicable shaft diameter are h6 and h7.

Performance

Part Number	Max. Bore Diameter (mm)	Rated torque*1 (N·m)	Max. Rotational Frequency (min ⁻¹)	Moment of Inertia*2 (kg·m ²)	Mass*2 (g)
MRG-16W	6	1	39000	3.2×10 ⁻⁷	8.8
MRG-20W	8	2.5	31000	8.7×10 ⁻⁷	15
MRG-25W	10	4.5	25000	2.7×10 ⁻⁶	29
MRG-32W	14	10	19000	9.3×10 ⁻⁶	61
MRG-40W	18	20	15000	2.3×10 ⁻⁵	99
MRG-50W	24	25	12000	7.1×10 ⁻⁵	189
MRG-65W	30	35	9000	2.7×10 ⁻⁴	428
MRGS-16W	6	0.3	39000	8.2×10 ⁻⁷	22
MRGS-20W	8	0.5	31000	2.4×10 ⁻⁶	41
MRGS-25W	10	1	25000	7.3×10 ⁻⁶	80
MRGS-32W	14	2	19000	2.5×10 ⁻⁵	160
MRGS-40W	18	3	15000	6.7×10 ⁻⁵	285
MRGS-50W	24	4.5	12000	2.0×10 ⁻⁴	541
MRGS-65W	30	7	9000	7.7×10 ⁻⁴	1220

*1: Correction of rated torque due to load fluctuation is not required.

*2: These are values with max. bore diameter.

- Part number specification

MRGS-25W-8-8

1

2

Additional Keyway at Shaft Hole → P.803 Cleanroom Wash & Packaging → P.807 SUS Change to Stainless Steel Screw → P.805
 Please feel free to contact us Available / Add'l charge Available / Add'l charge

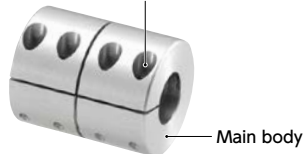
MLR / MLRS Rigid Coupling

WEB Selection Tool CAD Download 0 Zero Backlash High Rigidity SUS Stainless steel

Structure

Clamping type

MLR-C Made of aluminum alloy → P.221
Hex Socket Head Cap Screw



MLRS-C Made of all stainless steel → P.221



Semi-split type

MLR-V Made of aluminum alloy → P.223



MLRS-V Made of all stainless steel → P.223



Recommended applicable motor

	MLR	MLRS
Servomotor	○	○
Stepping motor	○	○
General-purpose motor	—	—

○: Excellent ○: Very good △: Available

Property

	MLR	MLRS
Zero Backlash	○	○
High Torque	○	○
High Torsional Stiffness	○	○
Corrosion Resistance (All S.S.)	—	○

○: Excellent ○: Very good

- This is a long type rigid coupling.
- This can also be used as a joint for extending a shaft.
- There are two types of units made of aluminum alloy or stainless steel.
- There are clamping type and semi-split type.

Application

Cleaning equipment/Transport device

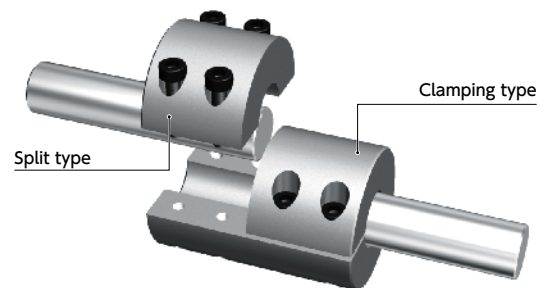
Material/Finish

RoHS2 Compliant

	MLR-C / MLR-V	MLRS-C / MLRS-V
Main Body	A2017 Alumite Treatment	SUS303
Hex Socket Head Cap Screw	SCM435 Ferrosoferic Oxide Film	SUSXM7

Semi-split type

Semi-split type is an attachment method in which one side of the hubs is clamping type and the other side is split type. While keeping one shaft attached on clamping side, the other shaft can be mounted or removed on split side, thus easier assembling set up.



Related Products

Rigid coupling with high precision **XRP** is available.
→ P.207



Part number specification

MLR-16V-6-6

Product Code size Bore Diameter

Please refer to dimensional table for part number specification.

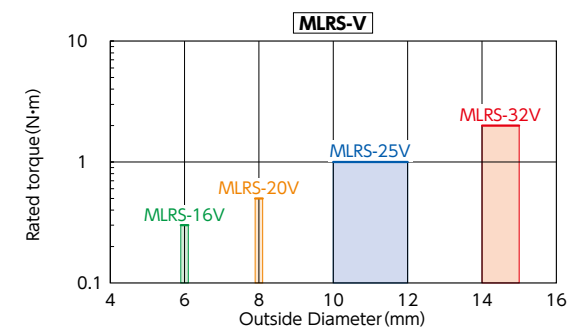
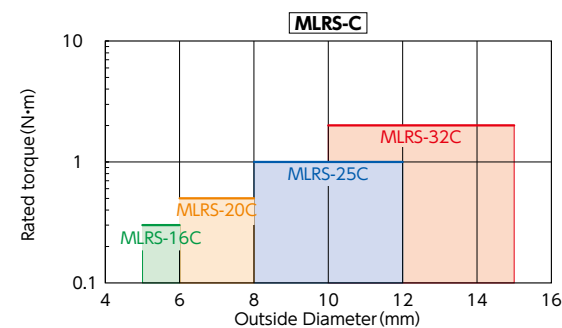
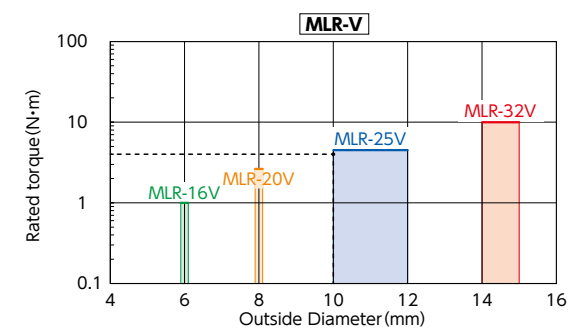
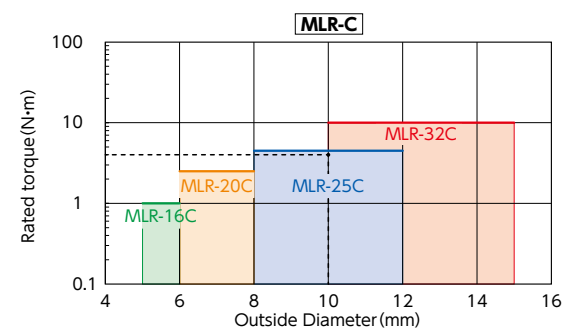
Additional Keyway at Shaft Hole → P.803 Cleanroom Wash & Packaging → P.807 SUS Change to Stainless Steel Screw → P.805
Please feel free to contact us Available / Add'l charge Available / Add'l charge



Selection

Selection based on shaft diameter and rated torque

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



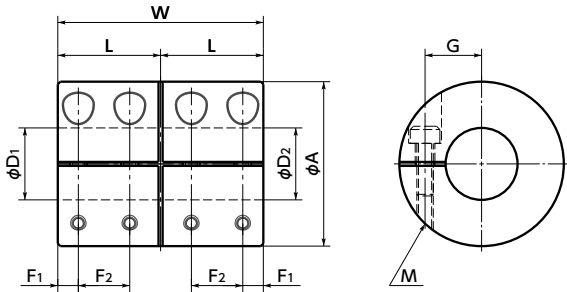
Selection example

In case of selected parameters of shaft diameter of $\phi 10$ and load torque of 4 N·m, the selected size is **MLR-25C** or **MLR-25V**.

MLR-C / MLRS-C Rigid coupling - Clamping type

WEB Selection Tool WEB CAD Download 0 Zero Backlash High Rigidity SUS Stainless steel

MLR-C Made of aluminum alloy
MLRS-C Made of all stainless steel



Dimensions

Unit : mm

Part Number	A	L	W	F1	F2	G	M	Screw Tightening Torque (N・m)	Standard Bore Diameter D1-D2						
									5 - 5	5 - 6	6 - 6				
MLR-16C	16	11	22	2.5	5.5	5	M2	0.5	5 - 5	5 - 6	6 - 6				
MLR-20C	20	12	24	2.5	6	7	M2	0.5	6 - 6	6 - 8	8 - 8				
MLR-25C	25	18	36	4.5	9	9	M2.5	1	8 - 8	8 - 10	10 - 10	12 - 12			
MLR-32C	32	20	40	4	10	11	M3	1.5	10 - 10	10 - 12	10 - 14	12 - 12	12 - 14	14 - 14	15 - 15
MLRS-16C	16	11	22	2.5	5.5	5	M2	0.5	5 - 5	5 - 6	6 - 6				
MLRS-20C	20	12	24	2.5	6	7	M2	0.5	6 - 6	6 - 8	8 - 8				
MLRS-25C	25	18	36	4.5	9	9	M2.5	1	8 - 8	8 - 10	10 - 10	12 - 12			
MLRS-32C	32	20	40	4	10	11	M3	1.5	10 - 10	10 - 12	10 - 14	12 - 12	12 - 14	14 - 14	15 - 15

- All products are provided with hex socket head cap screws.
- 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

Performance

Part Number	Max. Bore Diameter (mm)	Rated torque*1 (N・m)	Max. Rotational Frequency (min ⁻¹)	Moment of Inertia*2 (kg・m ²)	Mass*2 (g)
MLR-16C	6	1	39000	3.4×10 ⁻⁷	10
MLR-20C	8	2.5	31000	9.2×10 ⁻⁷	18
MLR-25C	12	4.5	25000	3.4×10 ⁻⁶	38
MLR-32C	15	10	19000	1.0×10 ⁻⁵	70
MLRS-16C	6	0.3	39000	8.9×10 ⁻⁷	25
MLRS-20C	8	0.5	31000	2.5×10 ⁻⁶	45
MLRS-25C	12	1	25000	9.2×10 ⁻⁶	100
MLRS-32C	15	2	19000	2.7×10 ⁻⁵	180

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

- Part number specification

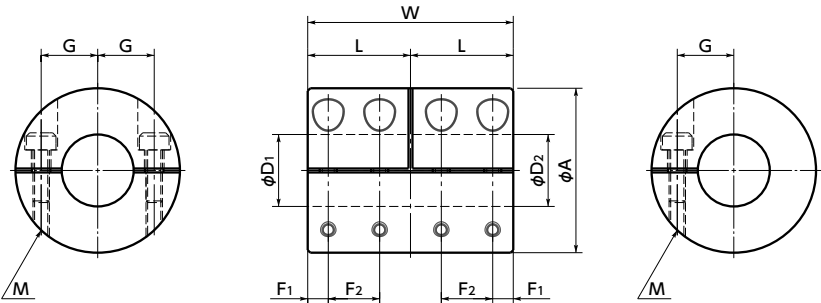
MLR-16C-5-5
1 2

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

MLR-V / MLRS-V Rigid coupling - Semi - split type

WEB Selection Tool CAD Download 0 Zero Backlash High Rigidity SUS Stainless steel

MLR-V Made of aluminum alloy
MLRS-V Made of all stainless steel



Dimensions

Unit : mm

Part Number 1	A	L	W	F1	F2	G	M	Screw Tightening Torque (N・m)	Standard Bore Diameter D1-D2 2	
MLR-16V	16	11	22	2.5	5.5	5	M2	0.5	6 - 6	
MLR-20V	20	12	24	2.5	6	7	M2	0.5	8 - 8	
MLR-25V	25	18	36	4.5	9	9	M2.5	1	10 - 10	12 - 12
MLR-32V	32	20	40	4	10	11	M3	1.5	14 - 14	15 - 15
MLRS-16V	16	11	22	2.5	5.5	5	M2	0.5	6 - 6	
MLRS-20V	20	12	24	2.5	6	7	M2	0.5	8 - 8	
MLRS-25V	25	18	36	4.5	9	9	M2.5	1	10 - 10	12 - 12
MLRS-32V	32	20	40	4	10	11	M3	1.5	14 - 14	15 - 15

- All products are provided with hex socket head cap screws.
- 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

Performance

Part Number	Max. Bore Diameter (mm)	Rated torque*1 (N・m)	Max. Rotational Frequency (min ⁻¹)	Moment of Inertia*2 (kg・m ²)	Mass*2 (g)
MLR-16V	6	1	39000	3.5×10 ⁻⁷	10
MLR-20V	8	2.5	31000	9.5×10 ⁻⁷	18
MLR-25V	12	4.5	25000	3.4×10 ⁻⁶	38
MLR-32V	15	10	19000	1.0×10 ⁻⁵	70
MLRS-16V	6	0.3	39000	9.1×10 ⁻⁷	25
MLRS-20V	8	0.5	31000	2.6×10 ⁻⁶	45
MLRS-25V	12	1	25000	9.3×10 ⁻⁶	100
MLRS-32V	15	2	19000	2.8×10 ⁻⁵	180

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

- Part number specification

MLRS-20V - 8-8
1 2

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