Keyless Bushings

Compact Type (Centering Function)

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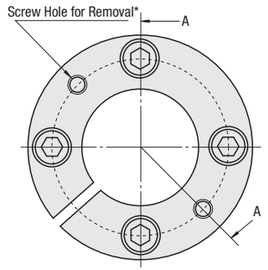
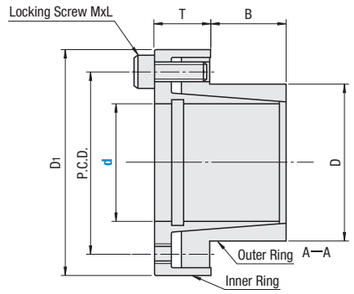
RoHS10

MLR
MLRP Electroless Nickel Plating
MLRS Stainless Steel

Type	Main Body	
	Material	Surface Treatment
MLR	1045 Carbon Steel or Equivalent	—
MLRP	1045 Carbon Steel or Equivalent	Electroless Nickel Plating
MLRS	304 Stainless Steel	—





*Thread diameter of screw hole for removal is the same as that of locking screw.

Lock screw of MLR and MLRP is tinted in red due to coating agent.

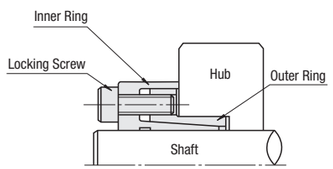
Part Number		D	D_1	P.C.D.	T	B	Locking Screw	
Type	d						M x L	Qty.
MLR MLRP Electroless Nickel Plating MLRS Stainless Steel	5	12	23	15.5	9	10	M3 x 8	4
	6							
	8	15	28	19.5	11	12	M4 x 10	4
	10	18	31.5	22.5				5
	12	20	33.5	24.5				
	14	22	35.5	26.5				
	15	23	38.5	28.5	13	14	M5 x 12	4
	16	24	39.5	29.5				
	17	25	40.5	30.5				
	18	26	46	33	16	16	M6 x 14	4
	19	27	47	34				
	20	28	48	35				
	22	32	52	39				
	24	34	54	41				
	25							
	28	39	59	46		20		6
	30	41	61	48				
	32	43	63	50				
	35	47	67	54		22		8
	38	50	70	57				
	40	53	73	60				
	42	55	75	62				
	45	59	84	69	20.5	30	M8 x 18	
	48	62	87	72				
	50	65	90	75				

Part Number Example

Part Number
MLR10

Features

– Small difference between the inner and outer diameters makes it possible for compact design.
– Hub does not move when tightened because the inner ring touches the end face of the hub.
– It has a function (centering function) to control pendulum of the end face and the circumference of the hub against the shaft.



Recommended Tolerance of Shaft and Hub

Shaft Outer Diameter	h7 (g6)
Hub Inner Diameter	H7

Finish surface roughness at or below 1.6a in shaft and 3.2a in hub.

Keyless Bushings

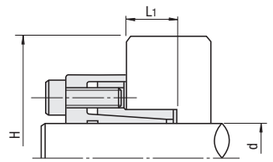
Compact Type (Centering Function), *continued*

kgf=Nx0.101972

Type	MLR			MLRP			MLRS			Mass
d	Max. Allowable Torque (Nm)	Allowable Thrust Load (kN)	Screw Tightening Torque (Nm)	Max. Allowable Torque (Nm)	Allowable Thrust Load (kN)	Screw Tightening Torque (Nm)	Max. Allowable Torque (Nm)	Allowable Thrust Load (kN)	Screw Tightening Torque (Nm)	(g)
5	9	3.45	1.7	9	3.45	1.7	3	1.05	1.1	36
6	11			11			4			34
8	25	6.09	4.0	25	6.09	4.0	8	1.92	2.7	61
10	44	8.71		44	8.71		14	2.75		78
12	53			53			17			86
14	61			61			20			94
15	115	15.3	8.0	115	15.3	8.0	38	5.0	5.6	135
16	123			123			41			140
17	131			131			43			146
18	210	23.2	14.0	210	23.2	14.0	68	7.4	9.6	221
19	221			221			71			228
20	233			233			75			235
22	256			256			83			287
24	279			279			90			302
25	291			291			94			293
28	488	34.8		488	34.8		157	11.1		378
30	523			523			168			396
32	558			558			180			414
35	813	46.4		813	46.4		262	14.9		484
38	883			883			284			512
40	929			929			299			560
42	976			976			314			580
45	1910	84.5	34.0	1910	84.5	34.0	620	27.5	23.6	962
48	2040			2040			670			1000
50	2120			2120			690			1090

How to Determine Hub Outer Diameter

After selecting Keyless Bushing size, hub size and material, confirm that the selected values meet the conditions H≤hub minimum outer diameter in the right table.



Hub Minimum Outer Diameter Table

kgf/mm²=MPax0.101972

Type	MLR					MLRP					MLRS				
		H Hub Minimum Outer Diameter					H Hub Minimum Outer Diameter					H Hub Minimum Outer Diameter			
		Yield Point Stress of Hub Material (MPa)					Yield Point Stress of Hub Material (MPa)					Yield Point Stress of Hub Material (MPa)			
		206	294	392			206	294	392			206	294	392	
d	Side Surface Pressure of Hub MPa	FC350 1018 Carbon Steel or Equivalent 1010 Carbon Steel	FCD Cast Iron 450 1035 Carbon Steel	FCD Cast Iron 600 1055 Carbon Steel	Hub Machining Depth L_1	Side Surface Pressure of Hub MPa	304 Stainless Steel 1018 Carbon Steel or Equivalent 1010 Carbon Steel	FCD Cast Iron 450 1035 Carbon Steel	S40300 Stainless Steel 1055 Carbon Steel	Hub Machining Depth L_1	Side Surface Pressure of Hub MPa	304 Stainless Steel 1018 Carbon Steel or Equivalent 1010 Carbon Steel	FCD Cast Iron 450 1035 Carbon Steel	S40300 Stainless Steel 1055 Carbon Steel	Hub Machining Depth L_1
5	99	23	23	23	12	99	23	23	23	12	30	23	23	23	12
6	99	23	23	23		99	23	23	23		30	23	23	23	
8	116	29	28	28	14	116	29	28	28	14	37	28	28	28	14
10	134	40	31.5	31.5		134	40	31.5	31.5		43	31.5	31.5	31.5	
12	121	40	33.5	33.5		121	40	33.5	33.5		39	33.5	33.5	33.5	
14	110	40	35.5	35.5		110	40	35.5	35.5		35	35.5	35.5	35.5	
15	150	58	41	38.5	16	150	58	41	38.5	16	49	38.5	38.5	38.5	16
16	144	58	42	39.5		144	58	42	39.5		47	39.5	39.5	39.5	
17	138	57	42	40.5		138	57	42	40.5		46	40.5	40.5	40.5	
18	198	—*	59	46		198	—*	59	46		64	46	46	46	
19	191		59	47		191		59	47		62	47	47	47	
20	184		59	48		184		59	48		59	48	48	48	
22	141	74	54	52	18	141	74	54	52	18	46	52	52	52	18
24	133	74	56	54		133	74	56	54		43	54	54	54	
25	133	74	56	54		133	74	56	54		43	54	54	54	
28	139	89	56	59	22	139	89	56	59	22	45	59	59	59	22
30	132	88	67	61		132	88	67	61		43	61	61	61	
32	126	88	68	63		126	88	68	63		41	63	63	63	
35	140	108	79	69	24	140	108	79	69	24	45	67	67	67	24
38	131	106	81	71		131	106	81	71		42	70	70	70	
40	124	107	84	74		124	107	84	74		40	73	73	73	
42	119	107	85	76		119	107	85	76		39	75	75	75	
45	148	146	103	88	32	148	146	103	88	32	49	84	84	84	32
48	141	144	105	91		141	144	105	91		46	87	87	87	
50	135	143	107	94		135	143	107	94		44	90	90	90	

*Not available.