


Keyless Bushings

Compact Type (Centering Function)

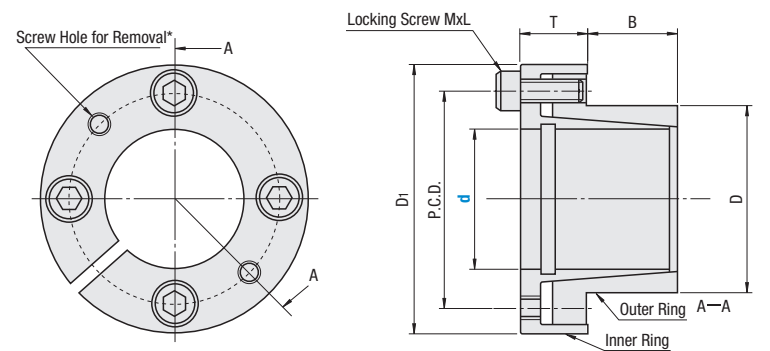
Keyless Bushings – Compact Type (Centering Function)



RoHS10

MLR Electroless Nickel Plating
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.

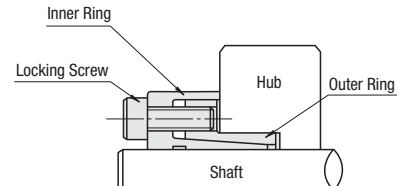
Ⓜ Lock screw of MLR and MLRP is tinted in red due to coating agent.

Part Number	Type	d	D	D ₁	P.C.D.	T	B	Locking Screw	
								M x L	Qty.
5	MLR	5	12	23	15.5	9	10	M3 x 8	4
6	MLR	6	15	28	19.5	11	12	M4 x 10	4
8	MLR	8	18	31.5	22.5	13	14	M5 x 12	5
10	MLR	10	20	33.5	24.5	16	20	M6 x 14	4
12	MLR	12	22	35.5	26.5	22	30	M8 x 18	6
14	MLR	14	25	38.5	28.5	24	30	M8 x 18	6
15	MLR	15	26	40.5	30.5	25	30	M8 x 18	6
16	MLR	16	27	42	32	26	30	M8 x 18	6
17	MLR	17	28	44	34	27	30	M8 x 18	6
18	MLR	18	29	46	36	28	30	M8 x 18	6
19	MLR	19	30	48	38	29	30	M8 x 18	6
20	MLR	20	32	50	40	30	30	M8 x 18	6
22	MLR	22	34	52	42	32	30	M8 x 18	6
24	MLR	24	36	54	44	34	30	M8 x 18	6
25	MLR	25	38	56	46	35	30	M8 x 18	6
28	MLR	28	41	59	49	38	30	M8 x 18	6
30	MLR	30	43	61	51	40	30	M8 x 18	6
32	MLR	32	45	63	53	42	30	M8 x 18	6
35	MLR	35	47	67	57	44	30	M8 x 18	6
38	MLR	38	50	70	60	46	30	M8 x 18	6
40	MLR	40	53	73	63	48	30	M8 x 18	6
42	MLR	42	55	75	65	50	30	M8 x 18	6
45	MLR	45	59	84	72	55	30	M8 x 18	6
48	MLR	48	62	87	75	58	30	M8 x 18	6
50	MLR	50	65	90	78	60	30	M8 x 18	6

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

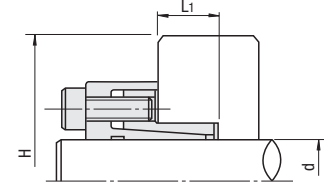
Compact Type (Centering Function), continued

kgf=Nx0.101972

Type	MLR			MLRP			MLRS			Mass (g)
	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)	
5	9	3.45	1.7	9	3.45	1.7	3	1.05	1.1	36
6	11	6.09	4.0	11	6.09	4.0	4	1.92	2.7	34
8	25	15.3	8.0	25	15.3	8.0	8	5.0	5.6	61
10	44	23.2	14.0	44	23.2	14.0	14	7.4	9.6	78
12	53	34.8	14.0	53	34.8	14.0	17	11.1	14.9	86
14	61	46.4	14.0	61	46.4	14.0	20	14.9	23.6	94
15	115	84.5	34.0	115	84.5	34.0	38	27.5	23.6	135
16	123	110	34.0	123	110	34.0	41	27.5	23.6	140
17	131	135	34.0	131	135	34.0	43	27.5	23.6	146
18	210	180	34.0	210	180	34.0	68	27.5	23.6	221
19	221	210	34.0	221	210	34.0	71	27.5	23.6	228
20	233	232	34.0	233	232	34.0	75	27.5	23.6	235
22	256	256	34.0	256	256	34.0	83	27.5	23.6	287
24	279	279	34.0	279	279	34.0	90	27.5	23.6	302
25	291	291	34.0	291	291	34.0	94	27.5	23.6	293
28	488	488	34.0	488	488	34.0	157	27.5	23.6	378
30	523	523	34.0	523	523	34.0	168	27.5	23.6	396
32	558	558	34.0	558	558	34.0	180	27.5	23.6	414
35	813	813	34.0	813	813	34.0	262	27.5	23.6	484
38	883	883	34.0	883	883	34.0	284	27.5	23.6	512
40	929	929	34.0	929	929	34.0	299	27.5	23.6	560
42	976	976	34.0	976	976	34.0	314	27.5	23.6	580
45	1910	1910	34.0	1910	1910	34.0	620	27.5	23.6	962
48	2040	2040	34.0	2040	2040	34.0	670	27.5	23.6	1000
50	2120	2120	34.0	2120	2120	34.0	690	27.5	23.6	1090

How to Determine Hub Outer Diameter

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



Hub Minimum Outer Diameter Table

kgf/mm²=MPa x 0.101972

Type	d	Side Surface Pressure of Hub MPa	MLR				Hub Machining Depth L ₁	MLRP				Hub Machining Depth L ₁	MLRS				Hub Machining Depth L ₁			
			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	FC350 1018 Carbon Steel or Equivalent 1010 Carbon Steel		206	294	392	304 Stainless Steel 1018 Carbon Steel or Equivalent 1010 Carbon Steel		206	294	392	304 Stainless Steel 1018 Carbon Steel or Equivalent 1010 Carbon Steel		206	294	392
5	99	23	23	23	12	99	23	23	23	12	30	23	23	23	12	30	23	23	23	12
6	99	23	23	23	12	99	23	23	23	12	30	23	23	23	12	30	23	23	23	12
8	116	29	28	28	14	116	29	28	28	14	37	28	28	28	14	37	28	28	28	14
10	134	40	31.5	31.5	14	134	40	31.5	31.5	14	43	31.5	31.5	31.5	14	43	31.5	31.5	31.5	14
12	121	40	33.5	33.5	14	121	40	33.5	33.5	14	39	33.5	33.5	33.5	14	39	33.5	33.5	33.5	14
14	110	40	35.5	35.5	16	110	40	35.5	35.5	16	35	35.5	35.5	35.5	16	35	35.5	35.5	35.5	16
15	150	58	41	38.5	16	150	58	41	38.5	16	49	38.5	38.5	38.5	16	49	38.5	38.5	38.5	16
16	144	58	42	39.5	16	144	58	42	39.5	16	47	39.5	39.5	39.5	16	47	39.5	39.5	39.5	16
17	138	57	42	40.5	16	138	57	42	40.5	16	46	40.5	40.5	40.5	16	46	40.5	40.5	40.5	16
18	198	—*	59	46	16	198	—*	59	46	16	64	46	46	46	16	64	46	46	46	16
19	191	—*	59	47	16	191	—*	59	47	16	62	47	47	47	16	62	47	47	47	16
20	184	—*	59	48	16	184	—*	59	48	16	59	48	48	48	16	59	48	48	48	16
22	141	74	54	52	18	141	74	54	52	18	46	52	52	52	18	46	52	52	52	18
24	133	74	56	54	18	133	74	56	54	18	43	54	54	54	18	43	54	54	54	18
25	133	74	56	54	18	133	74	56	54	18	43	54	54	54	18	43	54	54	54	18
28	139	89	56	59	22	139	89	56	59	22	45	59	59	59	22	45	59	59	59	22
30	132	88	67	61	22	132	88	67	61	22	43	61	61	61	22	43	61	61	61	22
32	126	88	68	63	22	126	88	68	63	22	41	63	63	63	22	41	63	63	63	22
35	140	108	79	69	24	140	108	79	69	24	45	67	67	67	24	45	67	67	67	24
38	131	106	81	71	24	131	106	81	71	24	42	70	70	70	24	42	70	70	70	24
40	124	107	84	74	24	124	107	84	74	24	40	73	73	73	24	40	73	73	73	24
42	119	107	85	76	24	119	107	85	76	24	39	75	75	75	24	39	75	75	75	24
45	148	146	103	88	32	148	146	103	88	32	49	84	84	84	32	49	84	84	84	32
48	141	144	105	91	32	141	144	105	91	32	46	87	87	87	32	46	87	87	87	32
50	135	143	107	94	32	135	143	107	94	32	44	90	90	90	32	44	90	90	90	32

*Not available.