


Keyless Bushings

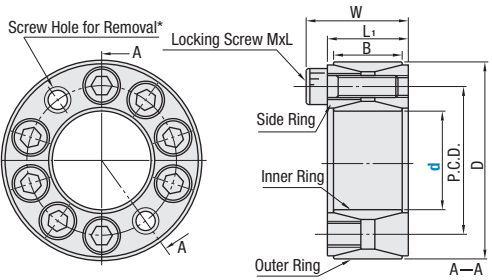
Straight Type

Keyless Bushings – Straight Type



RoHS 10

MLA MLAP Electroless Nickel Plating



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

Ⓢ Locking screw of MLA and MLAP is tinted in red due to coating agent.

Ⓢ When installation, press down side rings strongly and tighten with screws.

Type	Main Body	
	Material	Surface Treatment
MLA MLAP	1045 Carbon Steel or Equivalent	Electroless Nickel Plating

kgf=Nx0.101972

Part Number	Type	d	D	W	P.C.D.	L ₁	B	Locking Screw				Max. Allowable Torque (Nm)	Allowable Thrust Load (kN)	Screw Hole for Removal	Mass (g)
								M x L	Qty.	Hexagonal Wrench Nominal	Tightening Torque (Nm)				
20	MLA MLAP	20	47	26	34.5	20	18	M6 x 18	8	5	12.7	29.4	2	240	
22		230													
24		250													
25		240													
28		290													
30		280													
32		340													
35		310													
38		370													
40		350													
42		600													
45		570													
48		630													
50		610													
55	660														
60	700														
65	710														

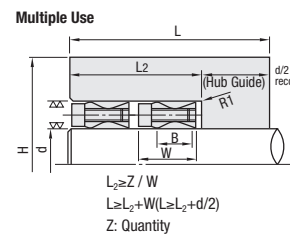
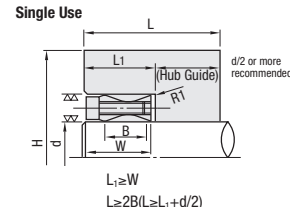
Part Number Example MLA30

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.

How to Determine Hub Outer Diameter
After selecting the Keyless Bushing size, hub size and material, confirm that the selected values meet the conditions H_{shub} minimum outer diameter in the right table.




Hub Minimum Outer Diameter Table kgf/mm²=MPaX0.101972

Machined Inner Diameter of Hub Bore d	Side Surface Pressure of Hub MPa	1 Hub				Hub Machining Depth L ₁	2 Hubs				Hub Machining Depth L ₂				
		H Hub Minimum Outer Diameter					H Hub Minimum Outer Diameter								
		Yield Point Stress of Hub Material (MPa)	147	206	294		392	Yield Point Stress of Hub Material (MPa)	147	206		294	392		
20	100	FC350 1018 Carbon Steel or Equivalent	FC350 1018 Carbon Steel or Equivalent	FC350 1018 Carbon Steel or Equivalent	FC350 1018 Carbon Steel or Equivalent	28	Alloy Cast Iron Class No.35	FC350 1018 Carbon Steel or Equivalent	FC350 1018 Carbon Steel or Equivalent	FC350 1018 Carbon Steel or Equivalent	FC350 1018 Carbon Steel or Equivalent	87	72	63	58
												83	69	62	58
												85	72	65	61
												98	82	72	67
												115	93	81	75
												109	90	79	74
												126	101	88	81
												159	123	105	96
												171	128	107	98
												170	131	112	102
												159	127	109	101
												200	147	123	111
												214	156	130	118
												211	159	134	123

Keyless Bushings

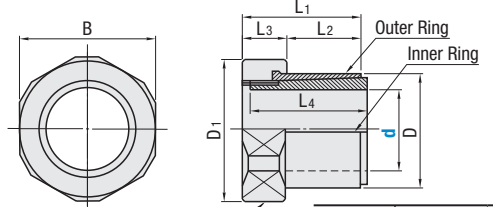
Easy Mounting (Nut) Type / Straight Type for High Torque

Keyless Bushings – Easy Mounting (Nut) Type



RoHS 10

MLN MLNB Black Oxide
MLNP MLNP Electroless Nickel Plating



Ⓢ Nut of MLNP is tinted in red due to coating agent.

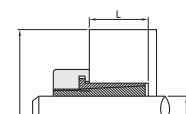
Type	Material	Surface Treatment
MLN MLNB	1045 Carbon Steel or Equivalent	Black Oxide
MLNP	1045 Carbon Steel or Equivalent	Electroless Nickel Plating

kgf=Nx0.101972 kgf/mm²=MPaX0.101972

Part Number	Type	d	D	B	D ₁	L ₁	L ₂	L ₃	L ₄	Max. Allowable Torque (Nm)		Allowable Thrust Load (kN)		Tightening (Nm)	Mass (g)	Side Surface Pressure of Hub MPa	H Hub Minimum Outer Diameter				Hub Machining Depth L																					
										MLN, MLNP	MLNB	MLN, MLNP	MLNB				Yield Point Stress of Hub Material (MPa)																									
																	1018 Carbon Steel or Equivalent 1010 Carbon Steel	FC350	294	392																						
8	MLN MLNB MLNP	14	22	23.5	19	11	8	19	29.4	21	6.9	5.2	24.5	34	178	128	31	24	24	21	22	19	13																			
10		17																						21	12	9	21	34.3	24	4.8	29.4	43	128	89	33	28	26	23	24	21	21	14
11		18																						22	12	10	22	39.2	28	5.1	34.3	46	132	92	38	30	29	25	25	23	23	15
12		20																						23	13	11	23	49.0	34	7.3	5.7	44.1	50	122	82	40	32	31	27	28	25	17
14		23																						26	15	12	26	88.3	62	12.3	8.9	58.8	80	106	73	41	34	34	30	31	28	17
15		24																						27	16	12	27	108	76	13.7	10.1	68.6	85	106	73	43	36	35	31	32	29	18
17		26																						31	19	12	31	186	130	19.6	15.3	98.1	96	107	74	50	41	40	35	36	33	21
20		29																						33	20	13	33	245	172	24.5	17.2	137	135	114	80	52	44	45	39	40	37	22
22		32																						35	22	13	35	275	193	24.5	17.6	147	147	90	62	54	46	41	41	38	24	
24		34																						37	24	13	37	314	220	25.5	18.3	167	185	83	58	55	48	47	42	43	40	26
25		35																						38	25	13	38	353	247	27.5	19.8	186	187	85.1	60	55	49	48	44	44	41	27
28		40																						43	28	15	43	378	265	26.5	18.9	226	320	68.9	48	57	52	51	48	48	45	30
30		42																						46	30	16	46	392	274	25.5	18.3	255	398	66.3	46	61	55	54	50	50	48	32
35		48																						52	35	17	52	461	323	25.5	18.5	294	521	50	35	64	59	58	55	55	53	37

Recommended Tolerance of Shaft and Hub / Roughness of Surface


Shaft Outer Diameter	h7 (g6)	Ra1.6 or less
Hub Inner Diameter	H7	Ra3.2 or less



How to Determine Hub Outer Diameter
After selecting the Keyless Bushing size, hub size and material, confirm that the selected values meet the conditions H_{shub} minimum outer diameter in the table.

Part Number Example MLN25

Keyless Bushings – Straight Type for High Torque

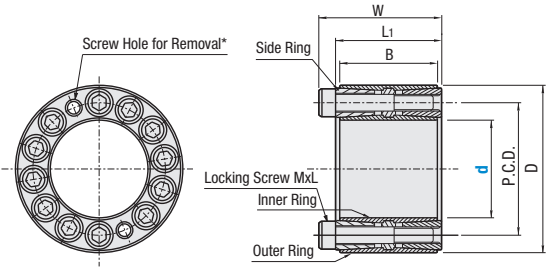


RoHS 10

MLAT

*Thread diameters of the screw hole for removal is the same as that of the lock screw.

Ⓢ Weight of side ring itself may shrink or enlarge the inner or outer rings. When installation, loosen side rings on both sides and insert a shaft into the hub.



Main Body Material: 1045 Carbon Steel or Equivalent

kgf=Nx0.101972 kgf/mm²=MPaX0.101972

Part Number	Type	d	D	W	P.C.D.	L ₁	B	Locking Screw			Max. Allowable Torque (Nm)	Allowable Thrust Load (kN)	Screw Hole for Removal	Mass (g)	Side Surface Pressure of Hub MPa	H Hub Minimum Outer Diameter			Hub Machining Depth L								
								MxL	Qty.	Tightening Torque (Nm)						Yield Point Stress of Hub Material (MPa)											
																1018 Carbon Steel or Equivalent 1010 Carbon Steel	FC350	294		392							
30	MLAT	55	44	38	35	M6x35	10	15.7	1110	74	2	490	136	122	91	80	44										
35		60																47.5	62	12	1550	88.8	560	150	151	106	90
40		65																52.5	65	14	2070	103	620	161	187	121	101
45		75																60	70	14	3800	168	1090	166	229	143	118
50		80																65	75	14	4220	168	1170	156	215	145	122
55		85																70	80	14	4640	168	1250	147	207	147	126
60		90																75	85	14	5060	168	1340	138	204	151	131
65		95																80	90	14	6400	197	1430	153	247	170	144

Part Number Example MLAT35

Recommended Tolerance of Shaft and Hub / Roughness of Surface

Shaft Outer Diameter	h7 (g6)	Ra1.6 or less
Hub Inner Diameter	H7	Ra3.2 or less

How to Determine Hub Outer Diameter
After selecting the Keyless Bushing size, hub size and material, confirm that the selected values meet the conditions H_{shub} minimum outer diameter in the table.

