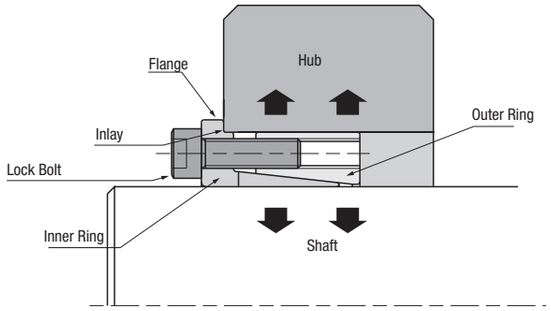
Mecha Locks
–Thin Type–

■Features of Mecha Locks

- The Mecha Lock is a fastening tool to tightly fasten a hub to a shaft by using friction.This is accomplished by converting bolt tightening power into pressure on the tapered inner diameter surface of the hub, and the tapered outer diameter of the shaft. A hub (such as pulleys, gears and sprockets) can be easily connected with a shaft by bolting.
- It is well suited to applications with repeated forward/backward rotation as it virtually eliminates backlash. It can also handle some thrust.
- Design allows for infinite phase adjustment after installation.
- It saves complex key machining on shafts and hubs as well as polishing in assembling, which leads to total cost reduction.

■Structure of Mecha Lock



■Installation

(1) Wipe off the shaft surface and apply oil or grease.
(Do not use any oil or grease containing molybdenum type elimination agent.)
(2) Wipe off and apply oil and grease on contact surfaces of Mecha Locks and Hubs.
Apply oil or grease to the thread and seat of lock bolt.
(3) Please insert the shaft after assembling the Mecha Locks and Hubs temporarily.
(Please do not tighten the bolt before inserting the shaft)
(4) After locating, tighten the lock bolts using a torque wrench in the diagonal line order, beginning lightly (approx. 1/4 of the predetermined tightening torque).
(5) Tighten the bolts further to an increased torque (approximately 1/2 specified torque).
(6) Tighten with the predetermined tightening torque.
(7) Finally, tighten the lock bolt in circumferential order.

■Note on Installation

· Bolt the Mecha Lock after inserting the shaft.
(Mecha Locks may deform if the bolt is tightened before inserting the shaft.)
· Use torque wrenches to tighten the bolts.
· Do not use bolt other than those attached for lock bolt.

■Removal

· Be sure to work after the system is completely shut down.
· Loosen the lock bolt in circumferential order.
· Insert bolt in screw hole for removal and tighten evenly.
· Repeat "Installation" process for re-installation.

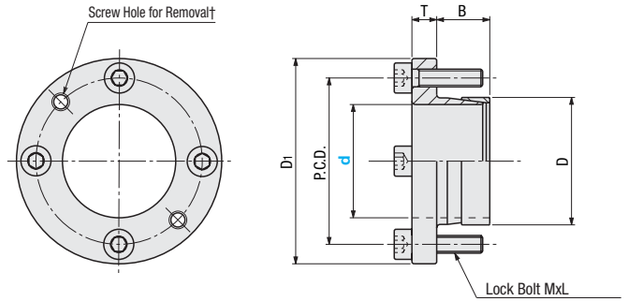
■Selection Table

Part Number	MLSL	MLR · MLRP MLRS	MLM · MLMB MLMP · MLHS	MLA · MLAP MLAT	MLN · MLNB MLNP
Page	P.2036	P.2037	P.2039	P.2041 · 2042	P.2042
Series	Thin Type	Compact Type	Standard Type	Straight High Torque Straight	Nut Type
					
Allowable Torque	Acceptable	Good	Good	Excellent	Good
Thin (Inner and Outer Ø Difference)	Excellent	Excellent	Good	Good	Good
Lightness	Excellent	Good	Good	Good	Good
Centering Function	Poor	Good	Excellent	Poor	Poor
Installation	Acceptable	Good	Good	Good	Excellent
Price	Excellent	Excellent	Excellent	Good	Good
Features	Because the bolt is installed directly on the hub, the inner and outer diameter difference is small and thin. Applicable to installation on a small hub, also. It is the best for the aluminum belt pulley and etc.	Because mounting tap of the bolt is built in the flange, the inner and outer diameter difference is small and thin. Applicable to installation on a small hub. Centering function is equipped.	It is the most widely used locking mechanism. A high-performance centering function is equipped.The wide range of sizes, materials and types of surface treatment is available.	Compared with straight type, maximum allowable torque is larger, and it can lock the shaft and hub firmly. Straight type for compact designed high torque is also available.	Compared with conventional lock bolt type, the installation is extremely easy, because it can be installed by simply tightening the nut.

※In the case of shafts with key groove, the Mecha Lock can be installed on such shafts if the groove width within JIS.

RoHS

MLSL



*Thread diameter of removal screw hole is the same as that of lock bolt.

Body ⚿ 1.1191/C45E

Part Number Type	d	D	D1	P.C.D.	T	B	Lock Bolt MxL	Lock Bolt Qty.	Lock Bolt Tightening Torque (N · m)	Max. Allowable Torque (N · m)	Allowable Thrust Load (kN)	Mass (g)	Unit Price Qty. 1~3
MLSL	5	8	21.5	15	4	9.5	M3x10	3	1.9	4.2	1.69	13	22,60
	6	9	22.5	16						5.6	1.87	15	22,60
	8	11	24.5	18						8.5	2.12	17	23,50
	10	13	29	21	5	11.5	M4x18	4	3.9	18	3.59	28	24,20
	12	15	31	23						23	3.76	31	25,50
	14	18	36	26	6	14				37	5.21	52	26,30
	15	19	37	27						39	5.10	55	27,20
	16	20	38	28						42	5.17	57	27,70
	17	21	39	29						45	5.23	59	27,70
	19	24	42	32						49	5.12	71	27,80
	20	25	46	36	7	15	M5x20		7.8	97	9.68	103	28,60
	22	26	47	37						110	9.98	101	29,50
	24	28	49	39						121	10.0	106	30,20
	25	30	51	41						124	9.90	119	31,00
	28	32	53	43						141	10.0	118	31,80
	30	35	56	46						149	9.89	135	33,30

kgf=Nx0.101972

Order Example — Part Number: MLSL10

Days to Ship: 8 Days

Express A — 2,00 EUR/piece — P.92

※An Express Charge of 5,40 EUR for 3 or more identical pieces.

Price

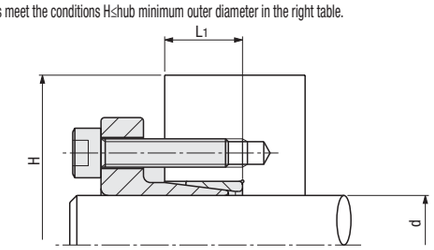
■Volume Discount P.92

Quantity	1~3	4~9	10~19
Rate	Price List	5%	10%

※For orders larger than indicated values, please request for quotation.

■How to Determine Hub Outer Diameter

After selecting mecha-lock size as well as hub size and material, confirm that the selected values meet the conditions H≤hub minimum outer diameter in the right table.



■Recommended Tolerances of Shaft and Hub

Outer Diameter of Shaft	h7 (g6)
Hub Inner Diameter	H7

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

■Hub Minimum Outer Diameter Table

kgf/mm²=MPax0.101972

d	Side Surface Pressure of Hub MPa	H Hub Minimum Outer Diameter Yield Point Stress of Hub Material (MPa) 206 FC350 1.0040/Ust.42.2 1.0301/C10	294 EN-JS 1040/EN-GJS400 (GGG-40) 1.1181/C35E	392 EN-JS 1060/EN-GJS600 (GGG-60) 1.1203/C55E	Hub Machining Depth L1
5	134	21.5	21.5	21.5	8
6	132	23	22.5	22.5	
8	123	25	24.5	24.5	
10	153	38	29	29	9.5
12	139	39	31	31	
14	161	56	38	36	11
15	149	52	38	37	
16	143	52	39	38	
17	138	52	39	39	
19	118	51	42	42	
20	198	–*	62	49	12
22	196		64	51	
24	184		64	52	
25	169	101	63	53	
28	160	96	64	55	
30	145	89	66	57	