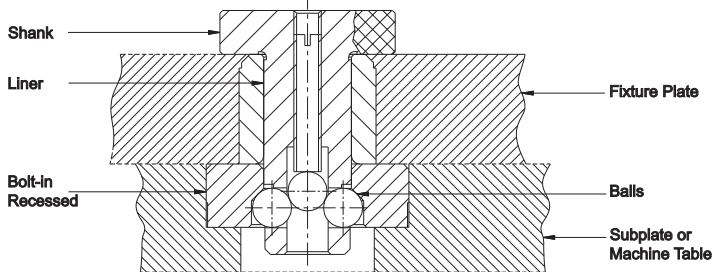




Ball Latch

for single minute exchange of fixture

Application example



Description

Ball latch does two functions:

I) Locating II) Clamping

Locating is achieved by two precision bushes & one locating pin. Screw & balls in tapered seat achieve positive clamping.

Application

Ball latch is useful to locate & to clamp fixture plate to base plate in a minute. This system is suitable for CNC machine where small batches of different jobs are machined. Diagonally opposite two 'Ball-Latches' are sufficient to locate plate. Additional ball latch may create redundant location. Additional ball latch can be used for clamping purpose without fixing liner bushes.

- A. For accurate repeatability ($\pm 0.013\text{mm}$), use two primary liner & center distance tolerance for hole machining is $\pm 0.005\text{mm}$. (Fig. A)
- B. For slightly less accurate repeatability ($\pm 0.04\text{ mm}$) use one primary & one secondary liner with center distance Tolerance for hole machining $\pm 0.025\text{mm}$ (Fig. B)

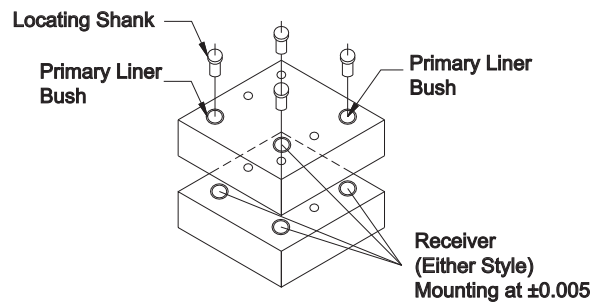
Versions

Ball latch has three parts: -

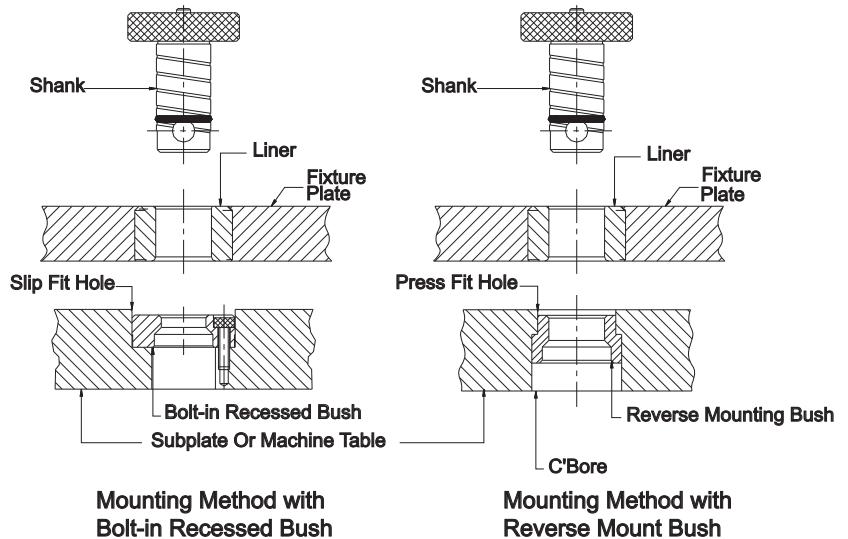
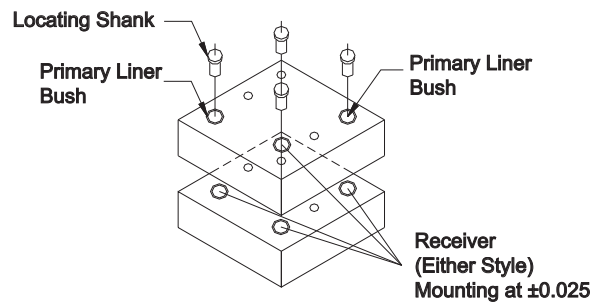
- Shank - Shanks are available in 16mm, 20mm & 25 mm sizes
- Liner - Liner bushes have two types. Primary Liners are with close tolerance, while secondary liners are slightly loose.
- Bottom Bush - Bottom bushes are of two types. Bolt in bushes are fixed from front side, while reverse fit bushes are pressed from bottom side.



For Repeatability ± 0.013



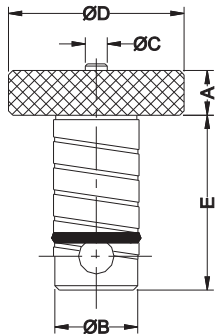
For Repeatability ± 0.04



All dimensions are in mm
Overall dimension tolerance $\pm 0.5\text{ mm}$



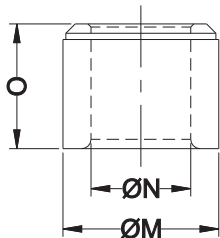
Shank



Part No.	Description	Max. Working Load (KN)	Max. Screw Torque(N-M)	Fixture Plate Thick. ± 0.05	A	Ø B	Ø C	Ø D	E
4500116	S-16 x 20	5.3	1.38	20	8	16	5	32	36.5
4500115	S-20 x 20	12.7	5.40	20	10	20	5	40	40.0
4500117	S-25 x 25	30.4	12.16	25	10	25	5	45	49.0

* Do not exceed maximum screw torque

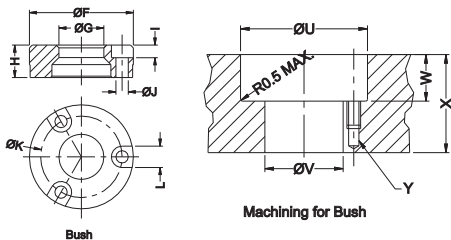
Liner



Part No. Primary Liner	Description	Part No. Secondary Liner	Description	M	N	O -0.25 -0.50	Hole Size For Liner	
							Min.	Max
46 00 445	PL 16 x 20	46 00 479	SL 16 x 20	25	16	20	25.016	25.026
46 00 248	PL 20 x 20	46 00 449	SL 20 x 20	35	20	20	35.018	35.028
46 00 482	PL 25 x 25	46 00 484	SL 25 x 25	35	25	25	35.018	35.028

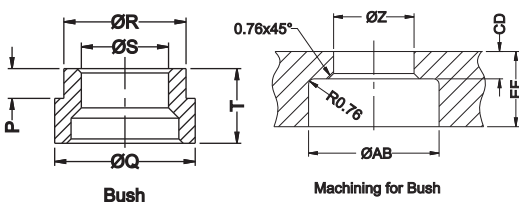
Primary Liner I.D. Is Nominal +0.005/+0.018
Secondary Liner I.D. Is Nominal + 0.025/+0.050

Bolt-in Recessed Bush



Part No.	Description	F	G	H	I	J	K	L	BORE -0.00 +0.01 U	DRILL DIA. V	DEPTH ± 0.025 W	MIN. SUBPLATE THICKNESS X	TAP Y
46 00 478	BB 16	37	16	11.56	4.5	4.4	29	7.6	37	16.5	11.91	20	M-4
46 00 448	BB 20	45	20	15.82	6.0	5.4	35	9.5	45	20.5	16.21	20	M-4
46 00 485	BB 25	55	25	19.94	7.0	6.4	42	11	55	25.5	20.32	25	M-5

Reverse Mounting Bush



Part No.	Description	P	Q	R	S	T	BORE -0.01 -0.00 Z	MIN. SUBPLATE THICKNESS EF	COUNTER BORE ABØ	DEPTH ± 0.025 CD
46 00 444	RB 16	6.81	28.6	22	16	12.1	22	20	29	7.24
46 00 247	RB 20	6.81	32.2	28	20	17.1	28	20	33	8.74
46 00 481	RB 25	10.27	40.2	35	25	21.0	35	25	41	10.54

IMPORTANT NOTES

- I) Never use more than two liner in the fixture plate. Additional clamping holes must be without liners.
- II) While pressing reverses mount bush interference should not be more than 0.013mm.
- III) Bolt in bushes should be below the surface.