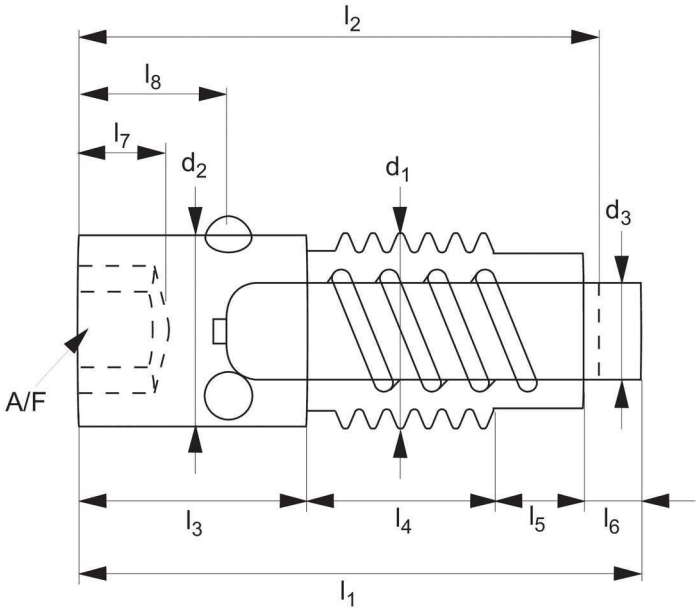
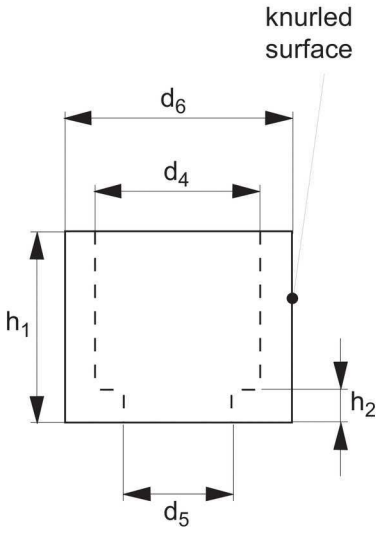
Expanding Loc-Down Bolts

for quick component clamping

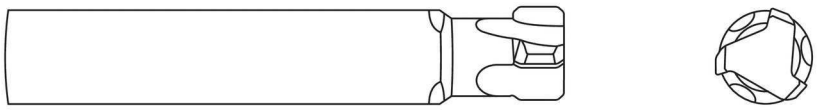
12098



loc-down bolt



loc-down bushing



endmill cutter

Material
Stainless steel, heat treated.

Technical Notes
**Please note: max. clamping force is typically 0,33kN. force for every 1 Nm. of torque, and is dependent upon workpiece material.
Max torque:
With bushing 20 Nm.
Alu/brass (without bush) 20 Nm.
Mild steel/ stainles steel 27Nm.
Metals HRc 45 20Nm.
See technical pages.

Tips
Ideal low cost quick component and fixture change. Use in conjunction with location pins 36340 and drill bushes 30800 for fast and accurate positioning. Provides repeatability to 0,01mm.
Time saving solution, removing the need for traditional bolts whilst reducing tooling interference from traditional clamping methods.
Ideal for high speed machining of components.

Important Notes
See installation guidance sheet for correct installation procedure.

Order No.	Type	Size	d_1	d_2	d_3	d_4	d_5	d_6	h_1	g
12098.W0010	Loc-down bolt	M10	M10x1,50	9,9	5,0	-	-	-	-	16
12098.W0012	Loc-down bolt	M12	M12x1,75	12,6	7,9	-	-	-	-	27
12098.W0016	Loc-down bolt	M16	M16x2,00	15,9	9,8	-	-	-	-	58
12098.W0110	Loc-down bushing	M10	-	-	-	13,2	10,2	18,0	10,0	10
12098.W0112	Loc-down bushing	M12	-	-	-	16,3	13,0	22,0	9,7	14
12098.W0116	Loc-down bushing	M16	-	-	-	20,7	16,1	26,9	14,1	30
12098.W0510	Endmill cutter	M10	-	-	-	-	-	-	-	-
12098.W0512	Endmill cutter	for M12, M16	-	-	-	-	-	-	-	-
12098.W0535	Bushing install tool	for M10 to M16	-	-	-	-	-	-	-	159

Order No.	h_2	l_1	l_2	l_3	l_4	l_5	l_6	l_7	l_8	A/F
12098.W0010	-	42,8	40,2	14,1	18,7	5,3	4,6	6,3	10,5	5
12098.W0012	-	43,8	38,5	15,8	16,0	6,3	5,7	6,8	12,3	6
12098.W0016	-	56,4	50,0	21,3	22,7	6,0	6,3	8,5	15,9	8
12098.W0110	2,9	-	-	-	-	-	-	-	-	-
12098.W0112	1,6	-	-	-	-	-	-	-	-	-
12098.W0116	3,6	-	-	-	-	-	-	-	-	-
12098.W0510	-	-	-	-	-	-	-	-	-	-
12098.W0512	-	-	-	-	-	-	-	-	-	-
12098.W0535	-	-	-	-	-	-	-	-	-	-

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for quick component clamping

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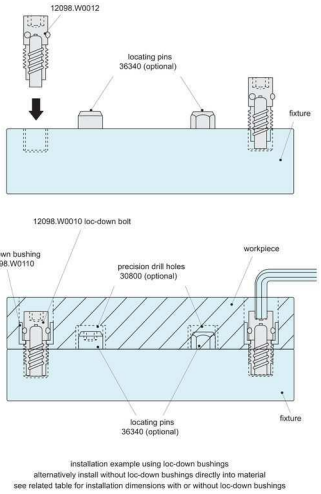

installation example using loc-down bushings
alternatively install without loc-down bushings directly into material
see related table for installation dimensions with or without loc-down bushings

Material

Stainless steel, heat treated.

Technical Notes

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Max torque:
With bushing 20 Nm.
Alu/brass (without bush) 20 Nm.
Mild steel/ stainles steel 27Nm.
Metals HRc 45 20Nm.
See technical pages.

Tips

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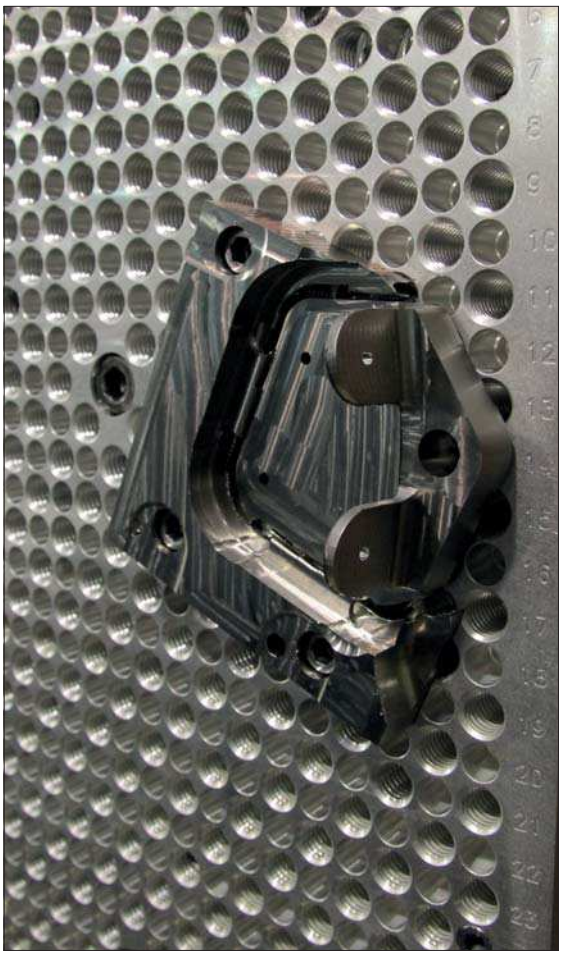
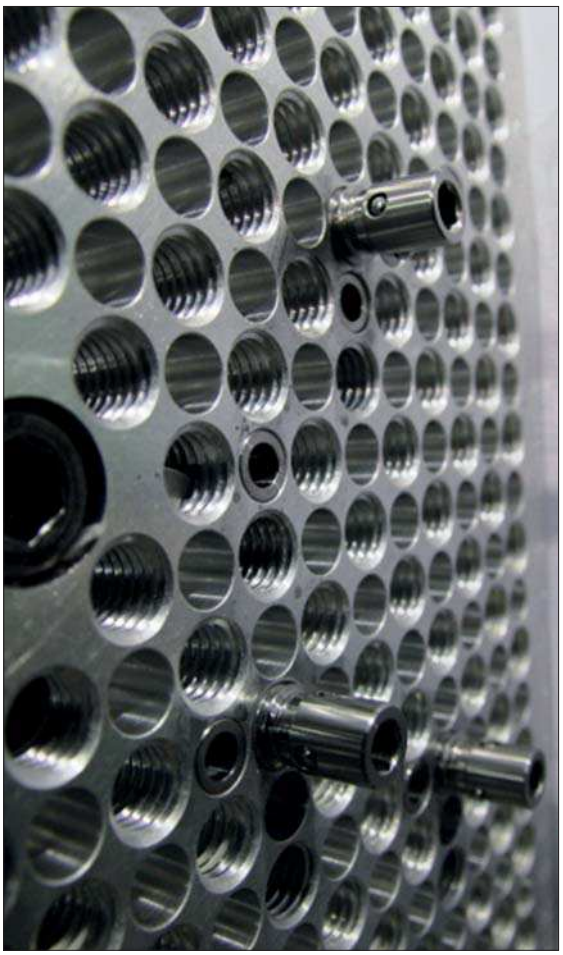
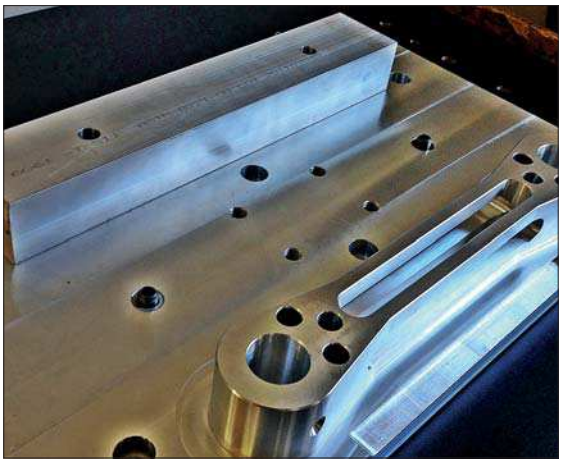
12098 Expanding Loc-Down Bolt

applications





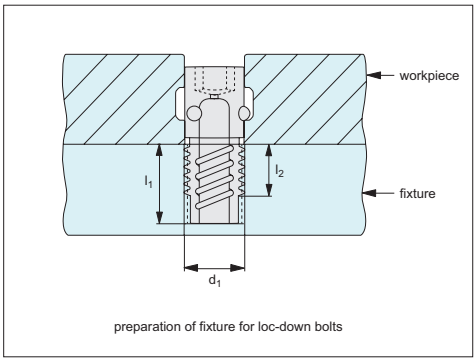


Wixroyd 0845 26 66 577 info@wixroyd.com

Installation guidance

Preparation of fixture

1. Drill and tap blind hole to thread d_1 depth of l_1.
2. Thread must be to a minimum depth l_2 and a blind hole.
3. Blind hole must be flat to ensure proper actuation of bolt.



preparation of fixture for loc-down bolts

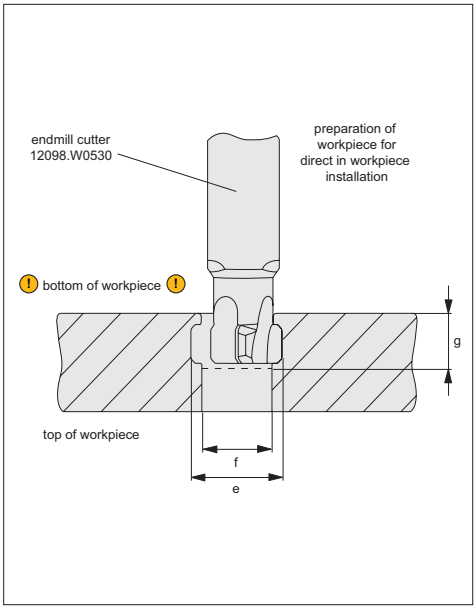
Preparation of fixture

Loc-down Bolt	Size	d_1	l_1	l_2 min.
12098.W0010	M10	M10 x 1,5	22	18
12098.W0012	M12	M10 x 1,75	22	18
12098.W0016	M16	M10 x 2,0	27	22

Preparation of workpiece option 1

without bushing direct into workpiece.

1. Drill through hole, dimension 'f'.
2. Using endmill cutter, (please order separately), touch off on bottom of workpiece and drop tool to dimension 'g'. Now cut a groove to diameter 'e'. Please refer to table of endmill cutter starting feeds and speeds for different materials.
3. Countersink 0.8mm x 90°. See "direct workpiece without bushing preparation" chart below.



Preparation of workpiece option 1

Loc-down Bolt	Size	e	f	g
12098.W0010	M10	12,5 - 12,7	9,9	11,43
12098.W0012	M12	15,9 - 16,0	13,0	11,73
12098.W0016	M16	20,6 - 20,9	16,5	15,09

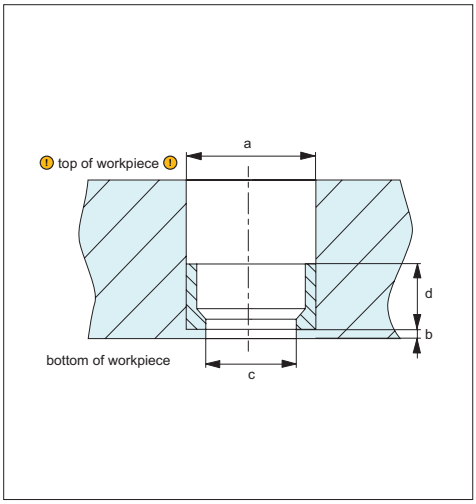
Endmill cutter starting feeds and speeds

Material	Feed	Speed
Aluminium	25 IPM	3,000 rpm/1 radial pass
Hard metals	1 IPM	1,200 rpm/3 equal radial passes

Preparation of workpiece option 2

with loc-down bushing (especially for soft materials).

1. Drill through workpiece to dimenison 'c'. Deep countersink hole of diameter "a", leaving material on bottom of thickness 'b' (i.e. mounting) surface of workpiece.
2. Install loc-down bushing (please order separately), ensuring bottom of bushing is flush with base of counter sink hole.
3. On deep holes , consider counter bore for dimension "a" for easier bushing installation.
4. This is a press fit installation, metal is displaced. The OD of the bushing is knurled, to aid in retention, and minimize bushing and part distortion. Using bushing installation tool 12098.W0535 (order separately) provides properly seated bushing installation, without damage to the bushing.



Preparation of workpiece option 2

Loc-down Bolt	Size	Loc-down bushing	Endmill cutter	a	b	c	d
12098.W0010	M10	12098.W0110	12098.W0510	18,00/18,02	2,0	10,3/10,5	10,0
12098.W0012	M12	12098.W0112	12098.W0512	22,00/22,03	2,0	13,0/13,5	9,7
12098.W0016	M16	12098.W0116	12098.W0516	27,00/27,03	2,5	16,3/16,6	14,0