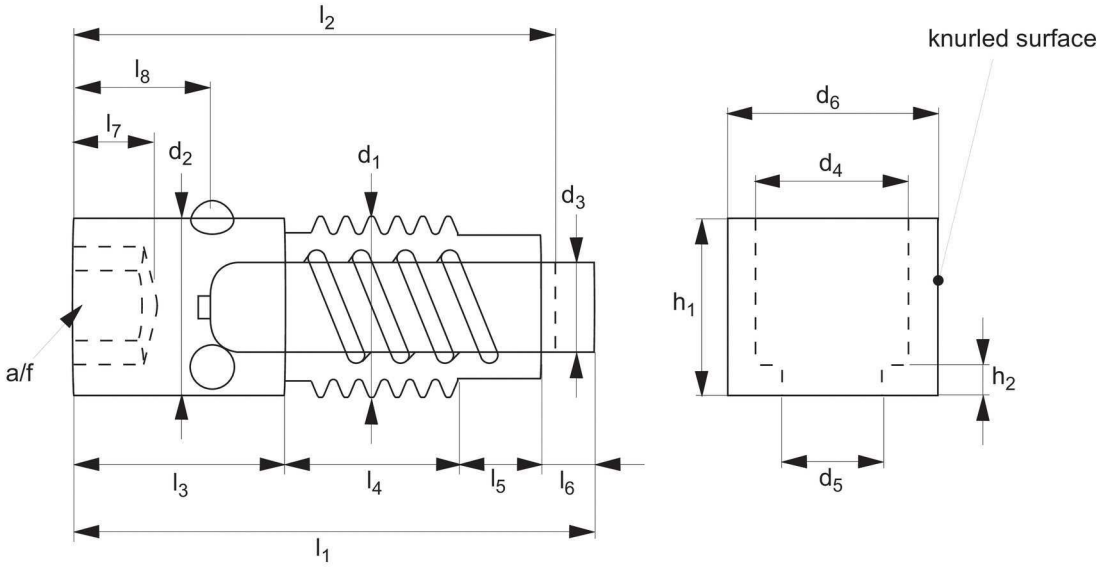
Expanding Loc Down Bolts

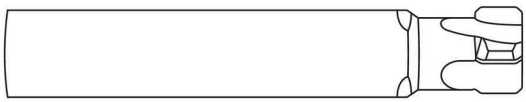
for quick component clamping

12098



loc-down bolt

loc-down bushing



endmill cutter

Order No.	Type	Size	d_1	d_2	d_3	d_4	d_5	d_6	Clamp force max. (kN)**	g
12098.W0012	Loc-Down Bolt	M12	M12 x 1,75	12,38	7,75	-	-	-	8,9	22
12098.W0520	Loc-Down Bushing	For M12	-	-	-	15,8	13	22,0	-	6
12098.W0530	Endmill Cutter	1/2"	-	-	-	-	-	-	-	-
12098.W0535	Bushing Installation Tool	for M12	-	-	-	-	-	-	-	-

Order No.	h_2	l_1	l_2 compressed	l_3	l_4	l_5	l_6	l_7	l_8	a/f		
12098.W0012	27	-	-	40,92	36,64	15,14	14,93	5,76	3,0	4,3	12,04	6
12098.W0520	-	9,6	1,99	-	-	-	-	-	-	-	-	-
12098.W0530	-	-	-	-	-	-	-	-	-	-	-	-

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 - 20Nm.
Alu/brass (w/o bush) 20Nm.
Mild steel/ s/s - 27Nm.
Metals 45RC 20 Nm.
See table below.

Tips
Ideal low cost quick component & 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.

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for quick component clamping

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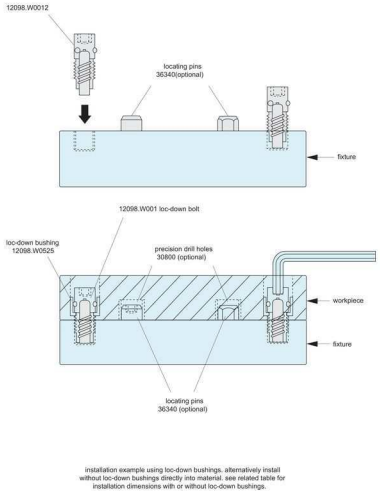

installation example using loc-down bushings. alternatively install without loc-down bushings directly into material. see related table for installation dimensions with or without loc-down bushings.

Material

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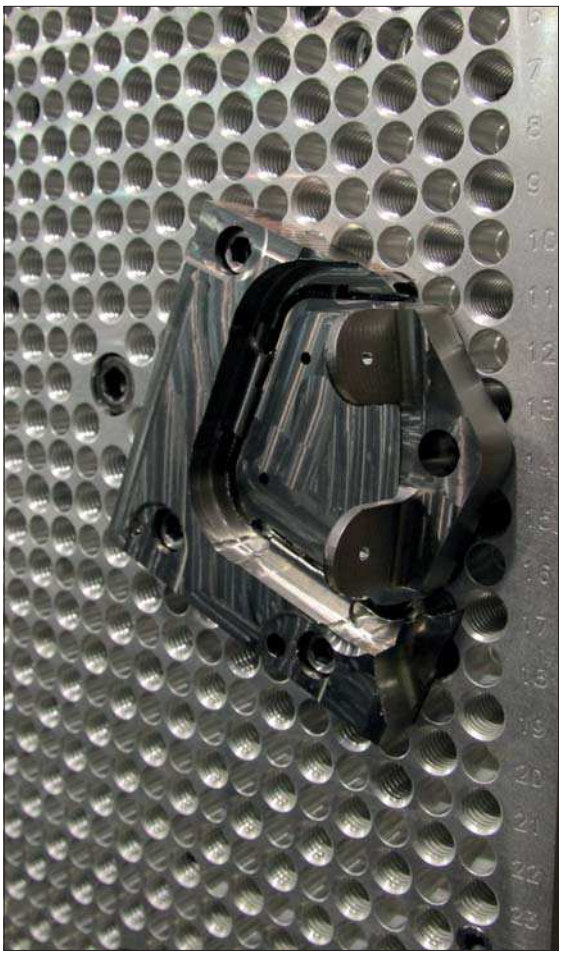
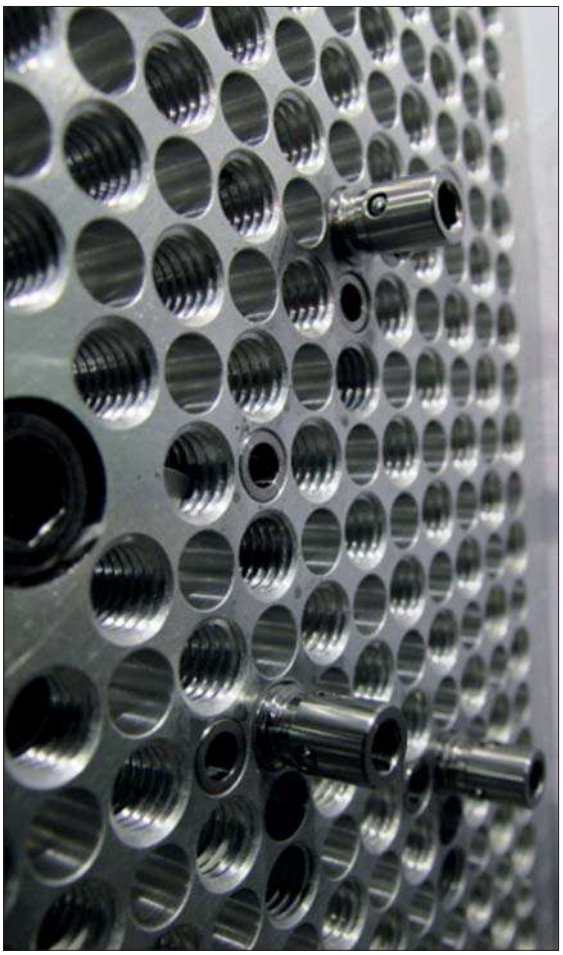
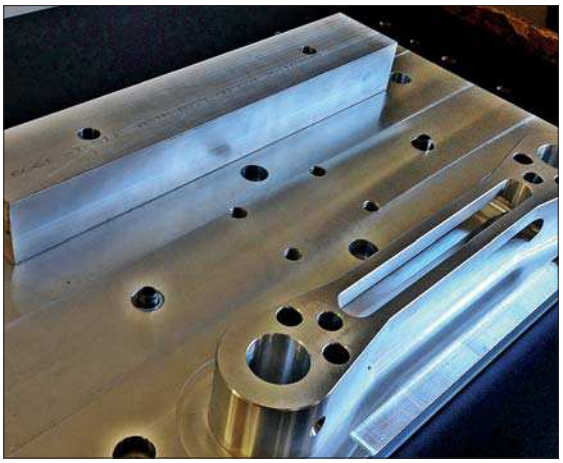
12098 Expanding Loc-Down Bolt

applications







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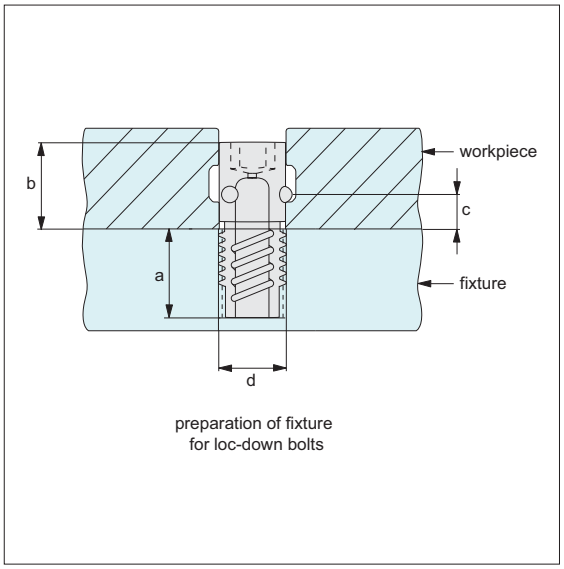
Installation guidance

1. Drill and tap M12 x 1.75 flat bottom hole to a depth of “a”, and countersink 0.8mm x 90°. Thread should be a minimum of 3.8mm from bottom of hole.
2. Note height bolt head will protrude above fixture surface when clamped, dimension “b” - to avoid any tooling interferance.
3. Dimension “c” is the height at which loc-down bolt balls will clamp on workpiece. See “Fixture preparation” chart below.

Fixture preparation

Dimension	mm
a	21,59
b	16,76
c	4,06
d	M12, CS to 0,8 x 90°
ball dia.	4,75



preparation of fixture
for loc-down bolts

Preparation of fixture

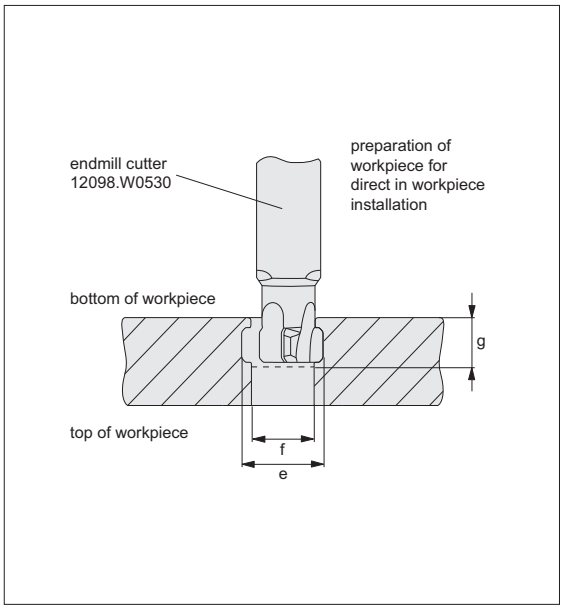
1. Drill 12.7mm through hole, dimension “f”.
2. Using endmill cutter, 12098.W0530 (please order separately), generate .625” dia circle. Tip of cutter should be 10.41mm below top finished surface of part. Please refer to table of endmill cutter starting feeds and speeds for different materials.
3. Countersink 0.8mm x 90°. See “direct workpiece without bushing preparation” chart below.

Direct workpiece without bushing

Dimension	mm
e	15,88
f	12,7 - 13,03, CS to 0.8 x 90°
g	10,41

Endmill cutter starting feeds and speeds

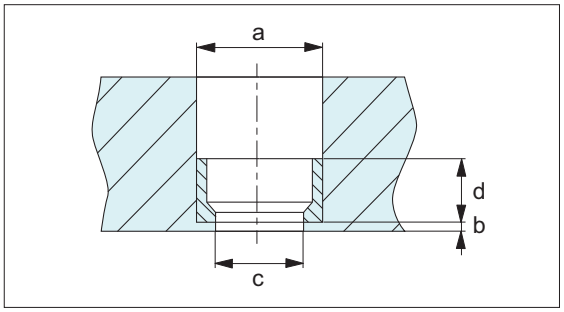
Material	Feed	Speed
Aluminium	25 IPM	3,000 rpm/1 radial pass
Hard metals	1 PM	1,200 rpm/3 equal radial passes



Preparation of workpiece option 1

without bushing direct into workpiece.

1. Drill 12.7mm through workpiece. Deep countersink hole of diameter “a”, leaving 1.57/2.39mm of material on bottom (i.e. mounting)surface of workpiece.
2. Install loc-down bushing 12098.W0525 (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.
5. Countersink 0.8mm x 90°. See “With loc-down bushing” preparation chart.



With loc-down bushing

Dimension	mm (min/max)
a	Steel - 19,012/19,037 Alu/Brass - 19,000/19,025
b	1,57/2,39
c	12,70/13,46
d	9,6

Preparation of workpiece option 2

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