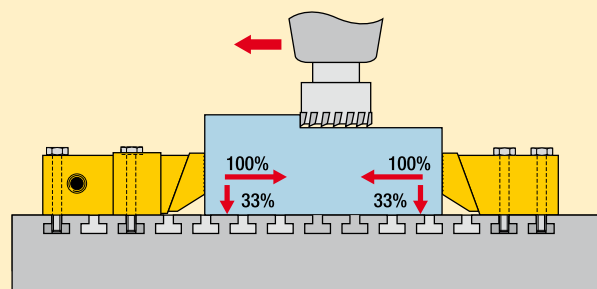


Pull down clamps *Application & selection*

Shown: ECM-20, ECH-202, ECM-5, ECH-52



Enerpac pull down clamps are designed to allow unobstructed top face machining. Independent horizontal and vertical movement achieves high lateral and pull down forces to hold the workpiece firmly down against the machine table or fixture. The pull down forces are approximately 33% of the clamping force.



The pull down clamps can be permanently mounted using the supplied mounting bolts. Optional T-nuts can be used for adapting to varying workpiece sizes.

■ Enerpac hydraulic pull down clamps and their mechanical counter parts used to manufacture tie-rod cylinder end caps.

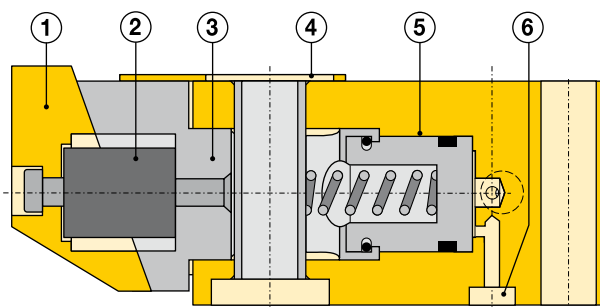


Low profile clamp

..... for unobstructed top face machining

- Independent horizontal and vertical movement for a true pull down effect
- Compact size and low height allows more flexible and economic mounting than comparable dedicated vise
- Manifold and BSPP porting
- Investment high-alloy cast, heat-treated clamping jaw and plunger
- Contamination resistant design for low maintenance, removable guard for chip removal
- Oil ports on both sides for mounting flexibility
- Optional mechanical counter hold provides pull down on end stop for large parts
- Mounting bolts included for ease of installation.

i Pull down clamp operation



The moveable jaw ① and the flexible connection design ② allows lateral movement and eliminate any bending moment. Roller finished cylinder bore ③ improves seal life. The removable guard ④ prevents the entry of chips and allows easy cleaning. Heat treated, centerless ground plunger ⑤ for extremely close tolerances and long life. The clamps feature both manifold mount ⑥ and plumbed oil connection.

globe Product selection

Lateral clamping force at 350 bar	Pull down force at 350 bar	Stroke	Model number	Effective area	Oil capacity	Mounting bolts ¹⁾ (included)
kN	kN	mm		cm ²	cm ³	

▼ Hydraulic pull down clamps

3,9	1,3	5,1	ECH-52	1,16	0,13	M8 x 45
17,4	5,8	7,9	ECH-202	5,03	1,07	M12 x 80

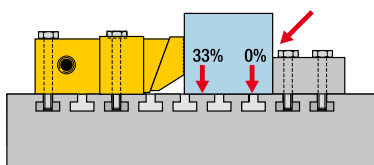
Holding force	For pull down clamp model number	Model number	Mounting bolts included ¹⁾ number	Replaceable ribbed jaws model
kN				

▼ Mechanical counter holds

3,9	ECH-52	ECM-5	M8 x 35	ECJR-5
17,4	ECH-202	ECM-20	M12 x 65	ECJR-20

¹⁾ Torque M8 with 24,4 Nm, M12 with 85,4 Nm.
The use of T-nuts requires longer bolts.

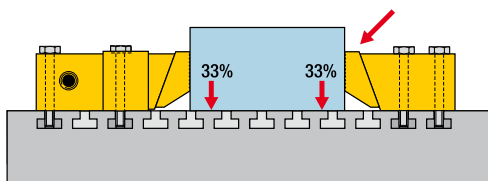
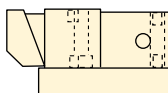
i Pull down force



Fixed stop set-up

A very workable set-up for workpieces that are not larger or wider than twice the width of the edge clamp. The pull down force of the hydraulic actuated edge clamp is sufficient to pull down and hold the product during actual machining.

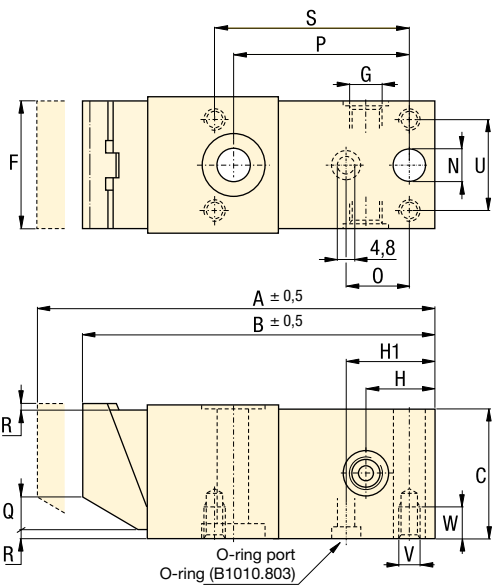
The mounting surface must extend out under the jaw.



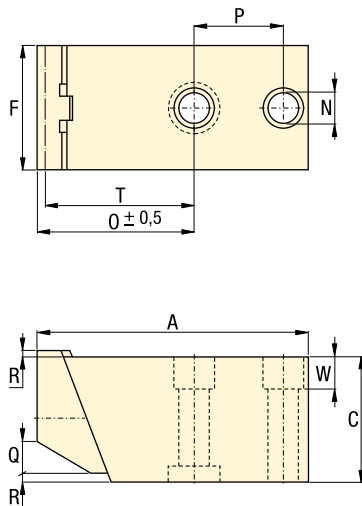
Counter hold set-up

For workpieces larger than twice the width of the edge clamp used, it is recommended to install a mechanical counter hold. The counter hold also produces a pull down force equal to 1/3 of the lateral force of the hydraulic edge clamp applied. In this way the grip on the workpiece is very tight. Another advantage of this set-up is the repeated accuracy of machining results.

ECH-52, -202

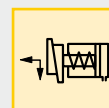


ECM-5, -20



- Force: 3,9 - 17,4 kN
- Stroke: 5,1 - 7,9 mm
- Pressure: 15 - 350 bar

- E** Garras de empuje oblicuo
- F** Crampons plaqueurs
- D** Niederzugspanner



Options

Fittings

194



Threaded cylinders

66



Positive clamping cylinders

80



! Important

Do not allow the clamping jaw to extend below the lower surface of the clamp body.

Product dimensions in mm [\pm]

Model number	A	B	C	F	G	H	H1	N	O	P	Q	R	S	T	U	V	W	kg
▼ Hydraulic pull down clamps																		
ECH-52	105,2	100,1	30,0	30,0	G1/8"	19,1	18,8	8,4	11,7	53,1	3,0	2,0	58,9	-	22,1	M5 x 0,8	6,1	0,7
ECH-202	142,7	134,9	50,0	50,0	G1/4"	24,9	23,6	12,4	13,7	67,1	14,0	3,0	73,9	-	36,1	M8 x 1,25	11,9	2,5
▼ Mechanical counter holds																		
ECM-5	79,0	-	30,0	30,0	-	-	-	8,4	41,9	25,9	3,0	2,0	-	40,9	-	-	7,9	0,6
ECM-20	102,1	-	50,0	50,0	-	-	-	12,4	59,9	30,0	14,0	3,0	-	58,9	-	-	13,0	1,9