

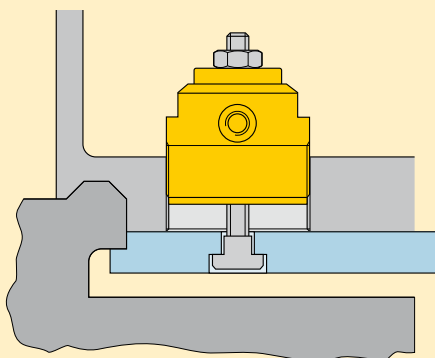
Positive clamping cylinder *Application & selection*

Shown: MRS-1, MRS-1001, MRS-5001



▶ These cylinders are designed for prolonged clamping applications in moveable machine parts, tools, fixtures, pallets and workpieces.

The mechanical clamping force of this cylinder is ideal for FMS applications. Hydraulic pressure is used to release the workpiece and is not required to maintain the clamping force on the workpiece. Internal high strength springs produce the required clamping force.



■ When pressure is released, the Enerpac MRS cylinders clamp the workpiece by pushing it against the frame that is attached to the fixture.

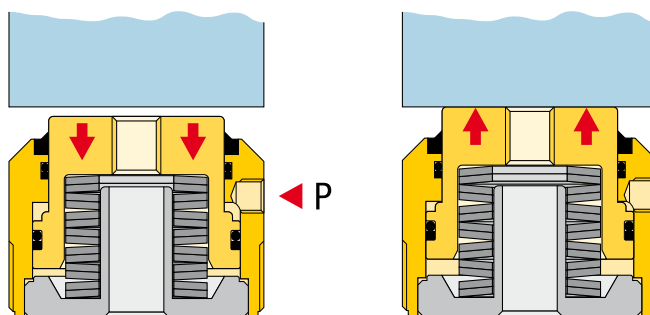
Ideal for palletized applications

- Heavy disk springs maintain the clamping force - hydraulic pressure is used for release
- Single-acting design allows easy setup of hydraulic system
- Hollow plunger design allows easy retrofit for mechanical clamping
- Custom buttons can be fitted into the plunger for clamping directly against a workpiece
- Threaded body allows easy cylinders mounting directly into fixture plate
- Internal threaded plunger allows accessories to be used easily for retrofit applications.

i Positive clamping operation

The applied clamping force is determined by how far the cylinder's plunger is being retracted when engaging contact with the workpiece (referred to as the effective clamping stroke).

Use the diagrams on the next page as a guide to your fixture set-up. Note that in order to load and unload the workpiece, the plunger must be retracted somewhat further than the effective clamping stroke.



Hydraulic pressure applied

- Plunger retracts
- Work piece is released
- New work piece is loaded.

Hydraulic pressure released

- Springs apply force
- Workpiece is clamped
- Machining can take place.

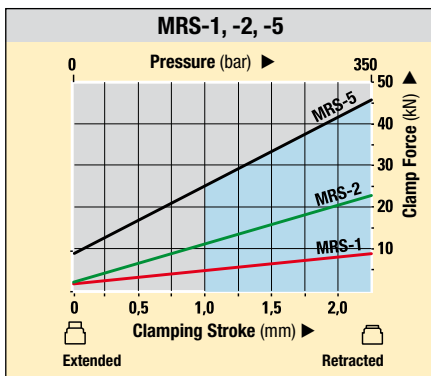
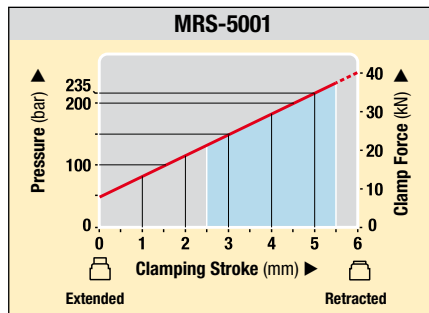
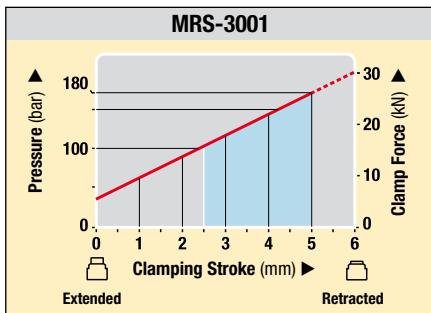
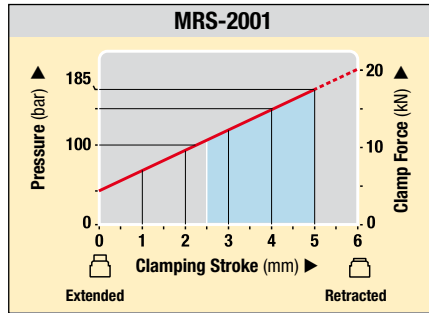
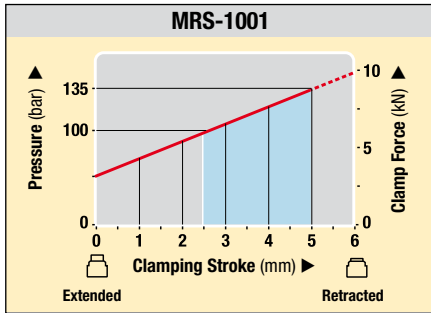
Product selection

Cylinder capacity at 350 bar	Effective clamping stroke	Model number	Required operating pressure ¹⁾	Max. tensioning stroke	Oil capacity
kN	mm		bar	mm	cm ³
12,0	2,3	MRS-1	350	2,3	8,36
26,7	2,3	MRS-2	350	2,3	4,26
51,2	2,3	MRS-5	350	2,3	8,19
8,5	2,5	MRS-1001	140	5,1	8,85
16,5	2,5	MRS-2001	185	5,1	11,96
25,8	2,5	MRS-3001	180	5,1	19,99
37,8	3,0	MRS-5001	235	5,6	22,12

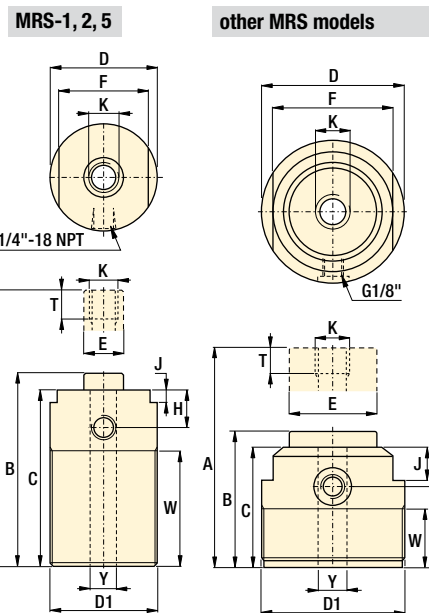
¹⁾ Minimum operating pressure to fully retract the plunger.
Note: Seal material Buna-N, Polyurethane.



1 Pressure/Stroke/Force diagrams



= Suggested Clamping Range



- Force:** 8,5 - 51,2 kN
- Stroke:** 2,3 - 5,6 mm
- Pressure:** 140 - 350 bar

- E** Cilindros de amarre
- F** Vérins de bridage positif
- D** Federspannzylinder



Options

Contact bolts

86 ▶

Flange nuts

86 ▶

Collet-Lok® work supports

16 ▶

Important

Be sure to refer to the force/stroke chart when selecting cylinders for an application. Piece parts with a large variation at the clamping point may be prone to having variations in clamping force.

Depending on the cycle usage of the application and amount of deflection, the internal disk springs may need to be replaced at scheduled intervals.

Product dimensions in mm []

Model number	A	B	C	D	D1	E	F	H	J	K	T	W	Y	kg
MRS-1	85,1	82,8	79,0	36,1	M36 x 1,5	12,7	30,0	18,0	6,1	M8 x 1,25	36,1	50,0	8,9	0,5
MRS-2	89,9	87,9	84,1	48,0	M48 x 1,5	17,3	39,9	20,1	7,1	M10 x 1,5	38,1	50,0	10,9	0,9
MRS-5	125,0	122,7	119,1	59,9	M60 x 2	22,1	50,0	21,1	7,1	M16 x 2	39,9	85,1	17,0	1,8
MRS-1001	62,0	56,9	53,1	65,0	M65 x 1,5	39,9	55,1	35,1	15,0	M12 x 1,75	20,1	24,9	13,0	1,2
MRS-2001	65,0	59,9	56,9	80,0	M80 x 2	54,9	65,0	38,1	15,0	M 16 x 2	20,1	29,0	17,0	2,1
MRS-3001	73,9	69,1	66,0	95,0	M95 x 2	59,9	80,0	46,0	17,0	M20 x 2,5	20,1	37,1	21,1	3,0
MRS-5001	96,0	65,0	67,6	95,0	M95 x 2	59,9	80,0	46,0	17,0	M20 x 2,5	20,1	37,1	21,1	3,5