

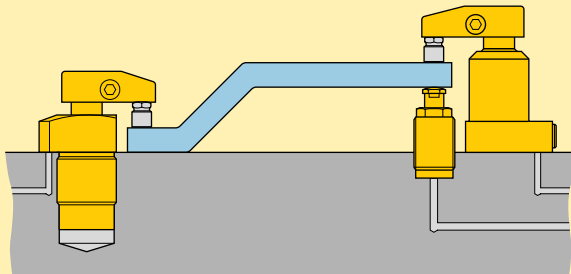
Work supports *Application & selection*

Shown: MPFS-100, WFL-112, WFC-72, WFL-442



▶ The Enerpac work support is a hydraulic means of positively supporting the workpiece to minimize deflections.

The work support automatically adjusts to the contour of the workpiece, and then locks in position. This support then adds rigidity to the fixtured component to minimize machining variations.



■ Lower flange work supports, placed close to the machining area to minimize deflection of the workpiece.

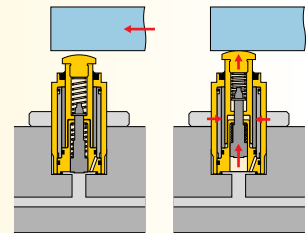
Wide range of sizes and types to efficiently support workpiece

- Low pressure lock-up capability enables the use of machine tool hydraulic systems
- High rated support capacities allow for more compact fixture design
- Corrosion resistant materials, compatible with most coolants and environments
- Threaded and manifold air vent ports allow fixturing that prevents coolants from being drawn into the system
- Minimized deflection increases machining accuracy
- Multiple mounting configurations allow design flexibility
- Collet-Lok® positive locking models:
Hydraulic actuation / mechanical holding allows for palletized systems which do not permit live hydraulics

i Select your work support method:

WF series, Hydraulic advance

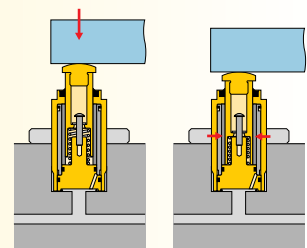
- Retracted plunger allows unobstructed workpiece loading.
- Internal hydraulic plunger advances allowing external plunger to advance under spring load. Bronze sleeve squeezes and holds plunger in fixed position.



▶ 30

WS series, Spring advance

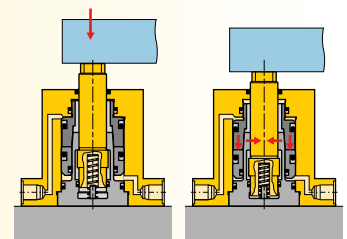
- Workpiece weight compresses the spring of the extended plunger.
- When pressurized, the internal bronze sleeve squeezes and holds the plunger in fixed position.
- Can be operated as air advance.



▶ 32

MP series, Collet-Lok® positive locking

- Unique in the industry. Allows the work support to maintain support after pressure has been removed.
- Extremely low deflections due to the structural design of the collet system.
- Low lockup pressure.



▶ 34

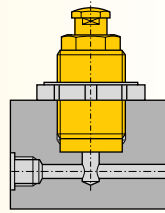




Select your mounting method:

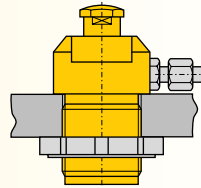
Manifold mount

- Does not require external plumbing
- Compact design, when space is at a premium
- Internal plunger thread for optional contacts



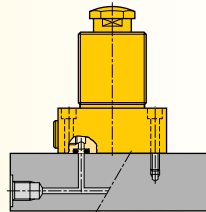
Threaded body

- Ability to adjust height
- Plumbed from either side or bottom
- Internal plunger thread for optional contacts



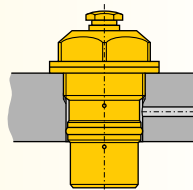
Lower flange

- Plumbed directly or manifold mounted
- No fixture hole required
- Easy to assemble or disassemble
- Internal plunger thread for optional contacts



Cartridge style

- Does not require external plumbing
- Allows close clustering of work supports
- Compact design, when space is at a premium
- Internal plunger thread for optional contacts



Product selection

Maximum support force	Stroke	Manifold mount	Threaded body	Lower flange	Cartridge style
kN	mm				
▼ Hydraulic advance					
7,3	9,7	WFM-72	WFT-72	–	WFC-72
11,1	9,7	–	–	WFL-112	WFC-112
22,2	10,4	–	–	WFL-222	WFC-222
33,4	13,5	–	–	WFL-332	–
44,5	16,5	–	–	WFL-442	–
▼ Spring advance					
7,3	9,7	WSM-72	WST-72	–	WSC-72
11,1	9,7	–	–	WSL-112	WSC-112
22,2	10,4	–	–	WSL-222	WSC-222
33,4	13,5	–	–	WSL-332	–
44,5	16,5	–	–	WSL-442	–
▼ Collet-Lok®					
8,9	9,9	–	MPTS-100	MPFS-100	–
17,8	9,9	–	MPTS-200	MPFS-200	–

Force: 7,3 - 44,5 kN

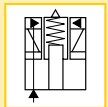
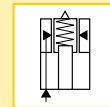
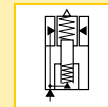
Stroke: 9,7 - 16,5 mm

Pressure: 50 - 350 bar

E Cilindros de soporte

F Vérin anti-vibreur

D Abstützzylinder



Options

Swing cylinders

12



Accessories

72



In line filters

109



Sequence valves MVP-5

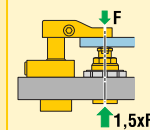
92



Important

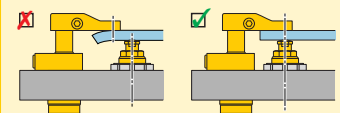
Warning!

Support force and clamping force must be matched. Support force should be at least 150% of clamping force.



Do not exceed maximum flow rates to avoid premature lockup.

Always center load over work support.



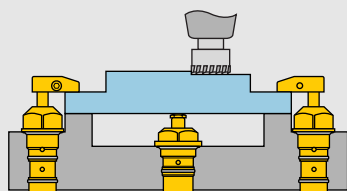
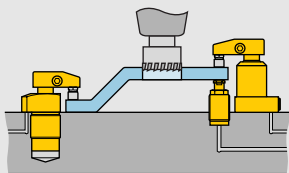
Work supports - Hydraulic advance

Shown: WFM-72, WFL-112



WF series

Enerpac work supports provide either additional non-fixed location points to the clamps, or support to larger or thin section workpiece components, always in order to minimize workpiece deflection during machining.



In order to load the workpiece sideways over the work supports, hydraulic advanced models are being used.



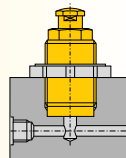
For unobstructed part loading

- Plunger stays retracted until pressure is applied allowing unobstructed loading
- Low pressure lock-up capability enables the use of machine tool hydraulic systems
- High rated support capacities allow for more compact fixture design
- Corrosion resistant materials - compatible with most coolants and environments
- Threaded and manifold air vent ports allow fixturing that prevents coolants and debris from being ingested into the mechanism
- Minimized deflection increases machining accuracy
- Multiple mounting configurations for design flexibility

Four mounting styles

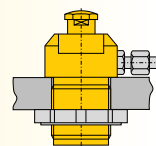
WFM series, Manifold models

Eliminates the need for fittings and tubing on the fixture.



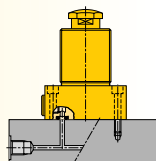
WFT series, Threaded models

Offers the flexibility of side or bottom porting.



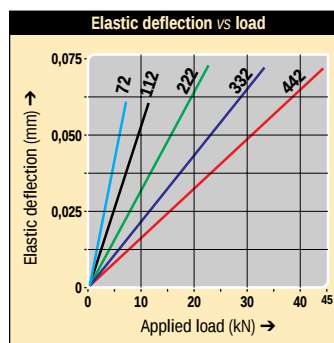
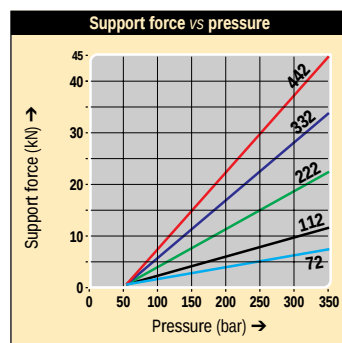
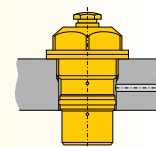
WFL series, Lower flange models

Plumbed directly – no fixture hole required.



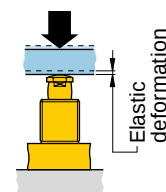
WFC series, Cartridge models

Can be designed into narrow fixture plates as thru-hole mounting is fully functional.



Deflection chart:

Elastic deformation of the work support resulting from the application of load.

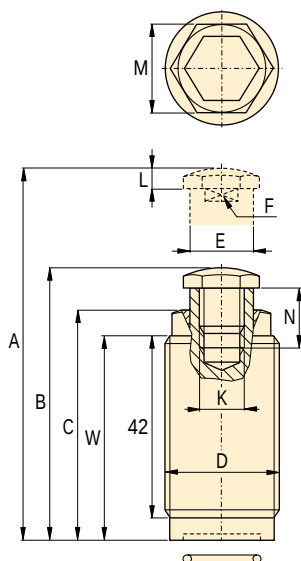


Product selection

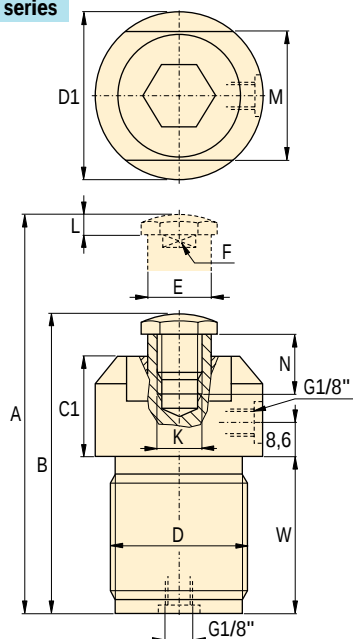
Max. support force	Support plunger stroke	Manifold mount	Threaded body	Lower flange	Cartridge style	Operating pressure		Plunger contact spring force		Oil Capacity	Max. oil flow
kN	mm					min.	max.	ext.	retr.	cm ³	l/min
7,3	9,7	WFM-72	WFT-72	–	WFC-72	48	350	8,9	25,8	0,66	0,7
11,1	9,7	–	–	WFL-112	WFC-112	48	350	15,1	23,1	0,98	1,0
22,2	10,4	–	–	WFL-222	WFC-222	48	350	9,3	86,8	3,11	3,1
33,4	13,5	–	–	WFL-332	–	48	350	17,8	77,9	3,93	3,9
44,5	16,5	–	–	WFL-442	–	48	350	14,7	97,9	4,92	4,9



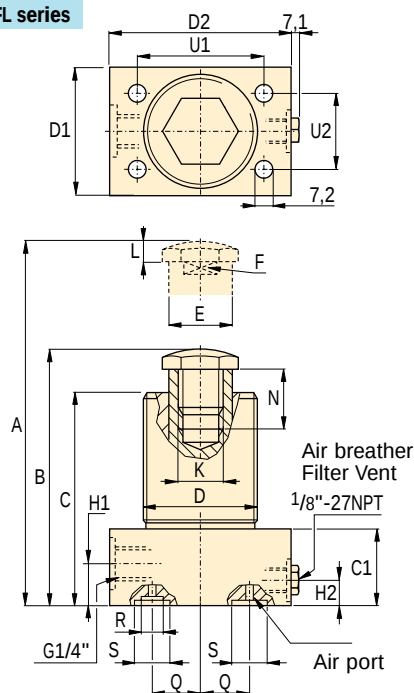
WFM series



WFT series

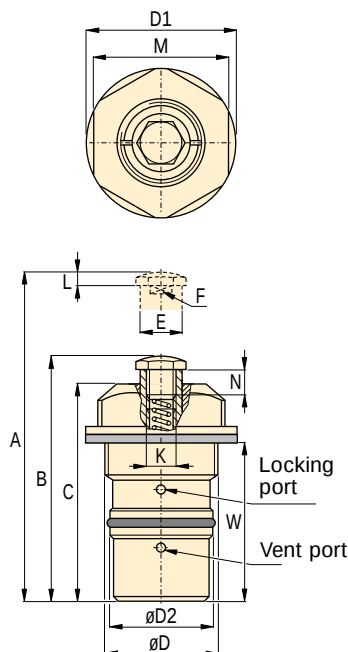


WFL series



R = Fixture hole optional manifold-mount port.

WFC series



Force: 7,3 - 44,5 kN

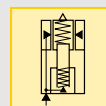
Stroke: 9,7 - 16,5 mm

Pressure: 48 - 350 bar

E Cilindros de soporte

F Vérin anti-vibreur

D Abstützzylinder



Options

Accessories

72 ▶



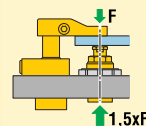
In line filters

109 ▶



Important

WARNING! Support force and clamping force must be matched. Support force should be at least 150% of clamping force.



Do not exceed maximum flow rates to avoid premature lockup.

Always center load over work support.

Product dimensions in mm

Mounting dimensions 36 ▶

Model number	A	B	C	C1	D	D1	D2	E	F	H1	H2	K	L	M	N*	U1	U2	W	kg
WFM-72	76,2	66,5	54,9	—	M30x1,5	—	—	15,0	13,0	—	—	M10x1,5	4,5	23,9	13,5	—	—	49,8	0,2
WFT-72	89,2	79,5	—	25,9	M35x1,5	43,4	—	15,0	13,0	—	—	M10x1,5	4,5	34,0	13,5	—	—	41,9	0,2
WFL-112	99,3	89,7	78,7	27,4	M35x1,5	38,1	60,5	16,0	12,4	14,2	17,8	M10x1,5	4,5	—	18,5	41,1	23,9	—	0,6
WFL-222	102,1	91,7	78,0	26,4	M68x1,5	69,9	82,6	38,0	25,4	13,7	13,2	M20x2,5	6,1	—	8,0	55,4	55,4	—	2,2
WFL-332	111,8	98,3	87,9	26,9	73,2	76,2	88,9	45,0	30,0	13,5	10,7	M20x2,5	6,1	—	8,0	62,0	62,0	—	2,9
WFL-442	128,8	112,3	102,9	30,0	85,9	88,9	101,6	55,0	36,6	13,5	10,7	M20x2,5	6,1	—	15,9	74,7	74,7	—	4,3
WFC-72	81,3	71,6	62,5	—	M33x1,5	41,1	29,5	15,0	13,0	—	—	M10x1,5	4,5	38,1	13,5	—	—	50,3	0,4
WFC-112	102,4	92,7	82,0	—	M42x1,5	57,2	38,0	16,0	12,4	—	—	M10x1,5	4,5	50,8	18,5	—	—	60,5	0,9
WFC-222	114,8	104,4	91,4	—	M60x1,5	76,2	57,1	38,0	25,4	—	—	M20x2,5	6,1	69,9	8,0	—	—	68,6	1,8

* Note: Dimension N is factory set. May change on types 222, 332 and 442 due to adjusted contact spring force.

Note: For dimensions Q, R and S see mounting dimensions 36.

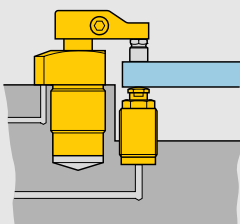
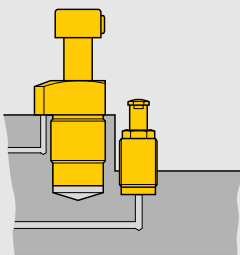
Work supports - Spring advance

Shown: WSL-112, WST-72



WS series

Enerpac work supports provide either additional non-fixed location points to the clamps, or support to larger or thin section workpiece components, always in order to minimize workpiece deflection during machining.



Spring advance work supports with extended plungers, waiting for the next workpiece.



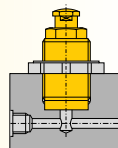
Spring advance work support contacts workpiece as it is loaded into fixture

- Low pressure lock-up capability enables the use of machine tool hydraulic systems
- High rated support capacities allow for more compact fixture design
- Corrosion resistant materials, compatible with most coolants and environments
- Threaded and manifold air vent ports allow fixturing that prevents coolants from being drawn into the system
- Minimized deflection increases machining accuracy
- Multiple mounting configurations for design flexibility
- Can be operated as air advance by removing the spring and applying air pressure on the vent port

Mounting style

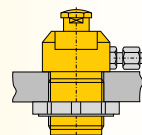
WSM series, Manifold mount

Eliminates the need for fittings and tubing on the fixture.



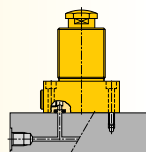
WST series, Threaded body

Offers the flexibility of side or bottom porting.



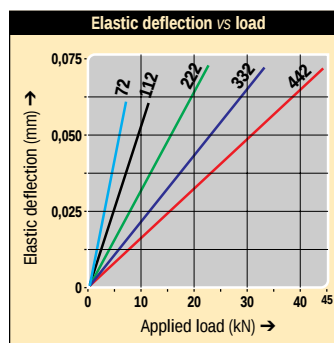
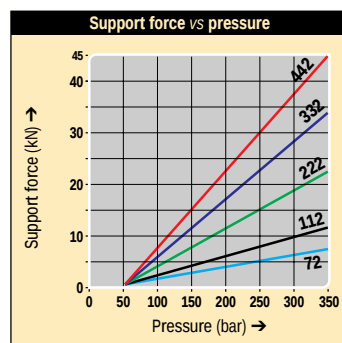
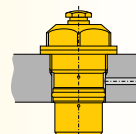
WSL series, Lower flange

Plumbed directly – no fixture hole required.



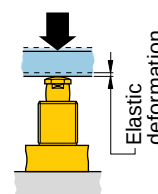
WSC series, Cartridge mount style

Can be designed into narrow fixture plates as thru-hole mounting is fully functional.



Deflection chart:

Elastic deformation of the work support resulting from the application of load.

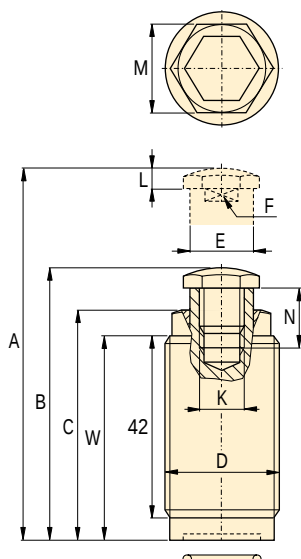


Product selection

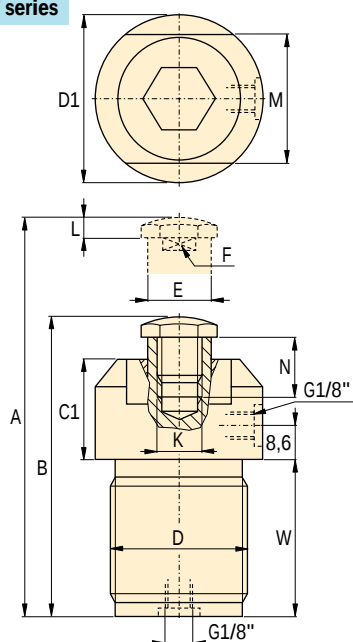
Max. support force	Support plunger stroke	Manifold mount	Threaded body	Lower flange	Cartridge style	Operating pressure	Plunger contact spring force	Oil Capacity	Max. oil flow
kN	mm					bar	N	cm ³	l/min
7,3	9,7	WSM-72	WST-72	–	WSC-72	48 350	8,9 25,8	0,7	0,7
11,1	9,7	–	–	WSL-112	WSC-112	48 350	15,1 23,1	1,0	1,0
22,2	10,4	–	–	WSL-222	WSC-222	48 350	9,3 86,8	3,1	3,1
33,4	13,5	–	–	WSL-332	–	48 350	17,8 77,9	3,9	3,9
44,5	16,5	–	–	WSL-442	–	48 350	14,7 97,9	4,9	4,9



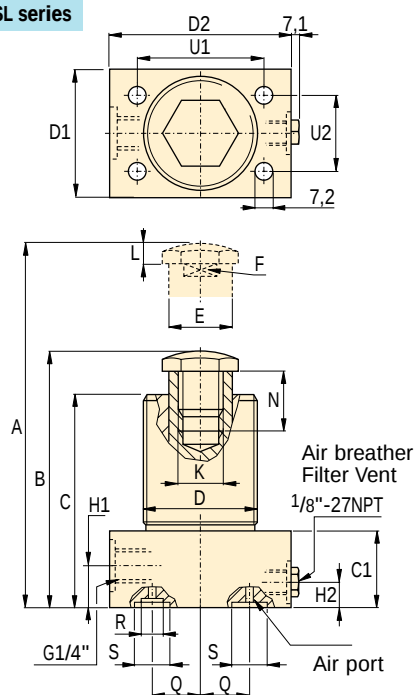
WSM series



WST series

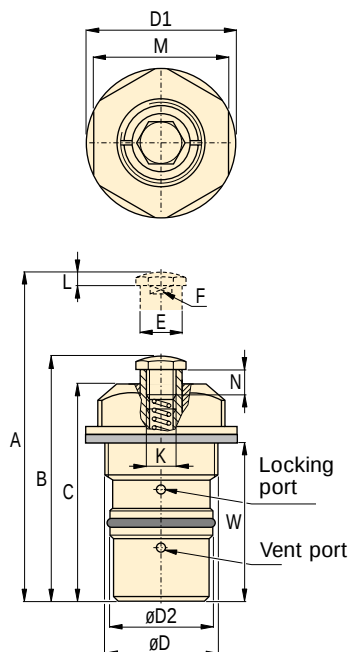


WSL series



R = Fixture hole optional manifold-mount port.

WSC series



Force: 7,3 - 44,5 kN

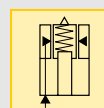
Stroke: 9,7 - 16,5 mm

Pressure: 48 - 350 bar

E Cilindros de soporte

F Vérin anti-vibreur

D Abstützzylinder



Options

Accessories

72



In line filters

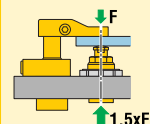
109



Important

Warning!

Support force and clamping force must be matched. Support force should be at least 150% of clamping force.



Do not exceed maximum flow rates to avoid premature lockup

Always center load over work support.

Product dimensions in mm

Mounting dimensions 36

Model number	A	B	C	C1	D	D1	D2	E	F	H1	H2	K	L	M	N*	U1	U2	W	kg
WSM-72	76,2	66,5	54,9	—	M30x1,5	—	—	15,0	13,0	—	—	M10x1,5	4,5	23,9	13,5	—	—	49,8	0,2
WST-72	89,2	79,5	—	25,9	M35x1,5	43,4	—	15,0	13,0	—	—	M10x1,5	4,5	34,0	13,5	—	—	41,9	0,2
WSL-112	85,1	75,4	64,5	23,9	M35x1,5	38,1	60,5	16,0	12,4	11,2	7,6	M10x1,5	4,5	—	18,5	41,1	23,9	—	0,6
WSL-222	96,5	86,1	74,9	24,9	M68x1,5	69,9	82,6	38,0	25,4	12,2	10,2	M20x2,5	6,1	—	8,0	55,4	55,4	—	2,2
WSL-332	108,7	95,3	85,3	26,9	73,2	76,2	88,9	45,0	30,0	13,5	10,7	M20x2,5	6,1	—	8,0	62,0	62,0	—	2,9
WSL-442	126,5	110,0	100,3	30,0	85,9	88,9	101,6	55,0	36,6	13,5	10,7	M20x2,5	6,1	—	15,9	74,7	74,7	—	4,3
WSC-72	81,3	71,6	62,5	—	M33x1,5	41,1	29,5	15,0	13,0	—	—	M10x1,5	4,5	38,1	13,5	—	—	50,3	0,4
WSC-112	85,3	75,7	65,0	—	M42x1,5	57,2	38,0	16,0	12,4	—	—	M10x1,5	4,5	50,8	18,5	—	—	60,5	0,9
WSC-222	97,8	87,4	76,2	—	M60x1,5	76,2	57,1	38,0	25,4	—	—	M20x2,5	6,1	69,9	8,0	—	—	68,6	1,8

* Note: Dimension N is factory set. May change on types 222, 332 and 442 due to adjusted contact spring force.

Note: For dimensions Q, R and S see mounting dimensions 36.

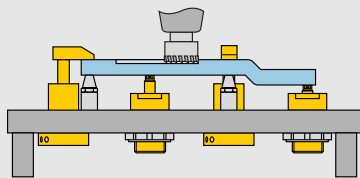
Work supports - Collet-Lok® Design

Shown: MPFS-100, MPTS-100



MP series

Enerpac work supports provide either additional non-fixed location points to the clamps, or support to larger or thin section workpiece components, always in order to minimize workpiece deflection during machining. The Collet-Lok® design does not require hydraulic system pressure to maintain support position.



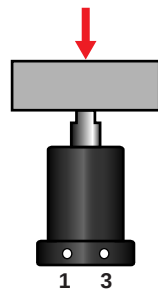
■ While pallet nr. 1 is in the machining chamber, a new work piece is loaded on to pallet nr. 2.



Hydraulically locked, mechanically maintained work support

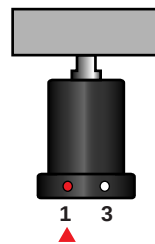
- Collet-Lok® design allows the work support to maintain support position after the hydraulic pressure is removed
- Collet-Lok® maintains a higher level of safety, as it is not dependent on hydraulic supply pressure
- Low deflection: lowest deflection of any work support available
- Threaded or flanged body increases mounting flexibility

Collet-Lok® sequence



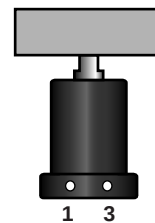
Step 1

Install the workpiece on the support cylinder. The plunger position will adjust to the contour of the workpiece.



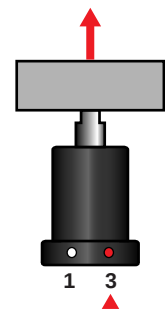
Step 2

Pressurize oil port #1. The plunger will be locked in the supporting position.



Step 3

Depressurize oil port #1. Cylinder can be uncoupled from hydraulics and still support the workpiece.



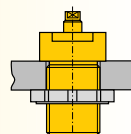
Step 4

Pressurize oil port #3. The plunger will be unlocked. When the workpiece is removed, plunger will extend into its original position.

Mounting style

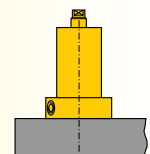
MPT series, Threaded models

Offers the flexibility of side or bottom porting.



MPF series, Flange models

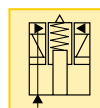
Plumbed directly, no fixture hole required.



Product selection

Max. support force	Support plunger stroke	Flange models	Threaded models	Operating pressure		Locking system displacement		Plunger contact spring force	Max. oil flow
				min.	max.	lock	unlock		
kN	mm			bar		cm³		N	l/min
8,9	10	MPFS-100	-	100	350	3,93	3,93	20,0	6,6
17,8	10	MPFS-200	-	100	350	6,06	6,06	35,2	6,6
8,9	10	-	MPTS-100	100	350	3,93	3,93	15,0	6,6
17,8	10	-	MPTS-200	100	350	6,06	6,06	30,0	6,6

Note: - Minimum unlock pressure must be at least 100 bar above lock pressure.



Force: 8,9 - 17,8 kN

Stroke: 10,0 mm

Pressure: 100 - 350 bar

(E) Cilindros de soporte

(F) Vérin anti-vibreur

(D) Abstützzylinder

Options

Collet-Lok®
swing
cylinders

122 ▶



Autocouplers

1100 ▶



Positive
clamping
cylinders

166 ▶



Sequence
Valves

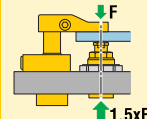
192 ▶



Important

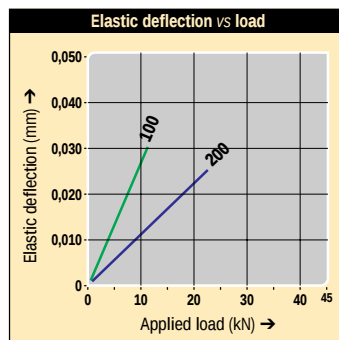
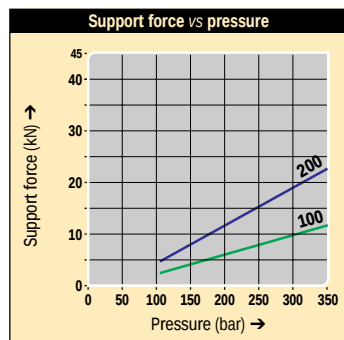
Warning!

Support force and clamping
force must be matched.
Support force should be at
least 150% of
clamping force.



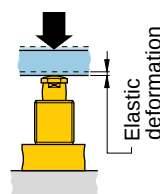
For proper application,
clamp forces, pressures
and timing consult Enerpac
for support.

Always center load
over work support.

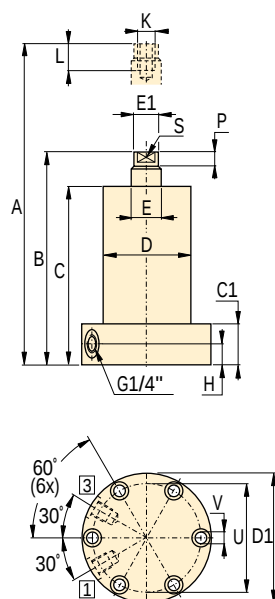


Deflection chart:

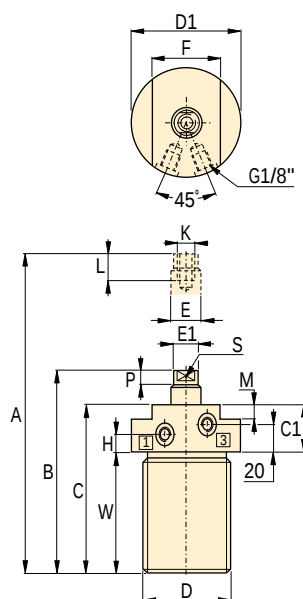
Elastic deformation
of the work support
resulting from the
application of load.



MPFS-100, -200



MPTS-100, -200



Product dimensions in mm [⌀]

Model number	A	B	C	C1	D	D1	E	E1	F	H	K	L	M	P	S	U	V	W	kg
▼ Flange models																			
MPFS-100	126	116	106	25	76	110	15,7	14,0	—	12,4	M8x1,25	15	—	5	12	94	9	—	4,0
MPFS-200	130	120	106	25	92	130	24,9	22,9	—	12,4	M12x1,75	20	—	5	19	112	9	—	6,0
▼ Threaded models																			
MPTS-100	125	115	105	38,1	M60x2	74,7	15,7	14,0	55	15,7	M8x1,25	15	20	5	12	—	—	66,8	3,0
MPTS-200	129	119	105	38,1	M80x2	95,0	24,9	22,9	70	15,7	M12x1,75	20	20	7	19	—	—	66,8	4,0

Mounting dimensions *for work supports*

Shown: WFL-112 holding a casting in place.



Mounting work supports

Enerpac work supports are offered in a wide variety of mounting styles. Dimensions for fixture holes and cavity preparation are specified for each mounting style separately.

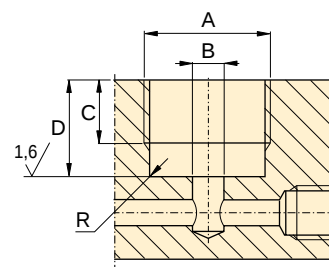
■ The combination of Enerpac swing cylinders and work supports guarantee clamping without deformation.



Manifold work support mounting dimensions

Eliminates the need for fittings and tubing on the fixture. Use a flange nut to secure your Manifold work support.

WFM, WSM



Dimensions in mm [⌀]

Model number	A	B Ø	C	D	R	Manifold O-ring ¹⁾
▼ For manifold mount work supports						
WFM-72	M30x1,5	9,4-9,9	13,2-13,7	18,8-19,3	0,4	ARP-017
WSM-72	M30x1,5	9,4-9,9	13,2-13,7	18,8-19,3	0,4	ARP-017

¹⁾ Polyurethane 92 duro.

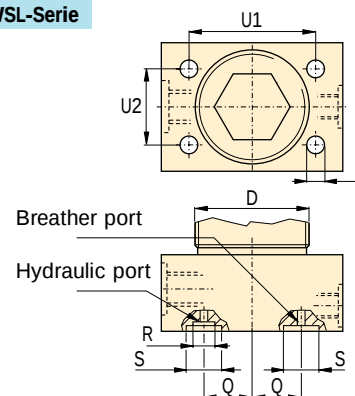
Threaded work support mounting dimensions

Threaded body work supports can be mounted directly into a fixture. The thread size (D) can be found in the dimension charts on □31 (WFT) and □33 (WST models). Use a flange nut to secure your threaded work support in the required position.

Lower flange work support mounting dimensions

Lower flange work supports can be bolted straight onto a fixture, or can be mounted into a fixture. Flange nuts can to be used to secure the cylinders at the required height.

WFL, WSL-Serie



Dimensions in mm [⌀]

Model number	D	Q	R Ø	S Ø	U1	U2	V	Manifold O-ring ¹⁾
▼ For lower flange work supports								
WFL-112	M35x1,5	14,5	5,9	9,5	41,1	23,9	7,2	ARP-010
WFL-222	M68x1,5	27,4	8,6	14,2	55,4	55,4	7,2	ARP-110
WFL-332	73,2	30,5	8,6	14,2	62,0	62,0	7,2	ARP-110
WFL-442	85,9	36,6	8,6	14,2	74,7	74,7	7,2	ARP-110
WSL-112	M35x1,5	14,5	5,9	9,5	41,1	23,9	7,2	ARP-010
WSL-222	M68x1,5	27,4	8,6	14,2	55,4	55,4	7,2	ARP-110
WSL-332	73,2	30,5	8,6	14,2	62,0	62,0	7,2	ARP-110
WSL-442	85,9	36,6	8,6	14,2	74,7	74,7	7,2	ARP-110

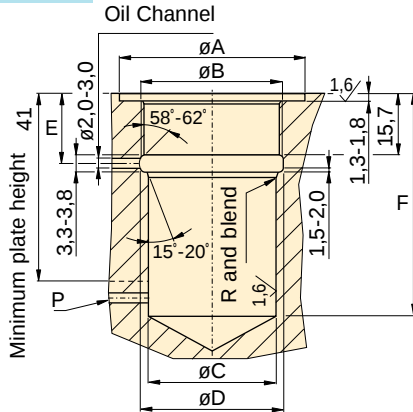
¹⁾ Polyurethane 92 duro.



Cartridge work support mounting dimensions

Can be designed onto narrow fixture plates as thru-hole mounting is fully functional.

WFC / WSC



Dimensions in mm []

Model number	A	B	C	D	E	F min.	Ventilation below F required
▼ Hydraulic advance							
WFC-72	42,7-43,2	M33x1,5	30,02-30,07	33,3-33,8	15,7-17,3	52,8	—
WFC-112	57,4-57,9	M42x1,5	38,07-38,13	42,4-42,9	17,5-19,0	62,5	•
WFC-222	76,5-77,0	M60x1,5	57,12-57,18	60,5-70,0	17,5-18,3	71,1	•
▼ Spring advance							
WSC-72	42,7-43,2	M33x1,5	30,02-30,07	33,3-33,8	15,7-17,3	52,8	—
WSC-112	57,4-57,9	M42x1,5	38,07-38,13	42,4-42,9	17,5-19,0	45,7	•
WSC-222	76,5-77,0	M60x1,5	57,12-57,18	60,5-70,0	17,5-18,3	55,9	•

Note: Ventilation required on WFC-112, 222 below 41 mm when mounted in blind cavity.

Collet-Lok® work support mounting dimensions

Collet-Lok® work support mounting dimensions are indicated in the dimension chart on [p. 35](#). For threaded models, use a flange nut to secure the work support in the required position.

Force: 7,3 - 44,5 kN

Stroke: 9,7 - 16,5 mm

Pressure: 48 - 350 bar

- (E) Cilindros de soporte
- (F) Vérin anti-vibreux
- (D) Abstützzylinder

Options

Swing cylinders

[p. 12](#)



Accessories

[p. 72](#)



In line filters

[p. 109](#)



Fittings

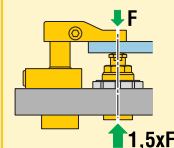
[p. 110](#)



Important

Warning!

Support force and clamping force must be matched. Support force should be at least 150% of clamping force.



Do not exceed maximum flow rates to avoid premature lockup.

Always center load over work support.

