

ENERPAC 

Workholding Solutions



**World Class
Collection**

ENERPAC[®]
WORKHOLDING

Clamping and support cylinders



World Class Solutions

Clamping and Support Cylinders

Enerpac's complete line of clamping and support cylinders provides maximum force in the smallest possible package. Our variety of mounting and operation styles was designed with our customers' broad range of needs in mind.

The four different mounting styles of swing clamping cylinders turn 90° to ensure unobstructed unloading of parts. Enerpac offers clamping cylinders in a wide variety of styles, mounting options and shapes. They can be used not only for clamping, but for positioning, punching, pressing... just about any operation you can think of.

Support cylinders, which are typically placed underneath the part, not only support the workpiece but also absorb unwanted vibrations. Serving as a variable datum point on the fixture, allowing for part irregularities, these flexible cylinders are designed to accommodate great variety in fixture design.

■ Enerpac Swing Cylinders hold the workpiece in place during machining.



Swing Cylinders and Clamp Arms



Force: 300 - 8500 lbs

Stroke: .51 - 1.87 inch





Pressure: 500 - 5000 psi

Compact and full featured design

- Compact design allows for efficient fixture layout
- Variety of mounting styles to meet design needs
- Double and single-acting cylinders to suit a variety of hydraulic requirements
- All cylinders are available as left and right turning models
- Large ball and cam design on -11, -21, -51 and -121 models, allows swing rotation to be changed easily
- Kick-out mechanism on -92, -201, and -351 models prevents damage to cylinder from high flow rates or misapplication
- Enerpac *Collet-Lok*® positive locking cylinders are designed to maintain clamping force after hydraulic pressure is removed

Patented clamp arm design

- Innovative clamp arm design allows quick and precise clamp arm positioning while swing cylinder is mounted in fixture

Clamping force lbs	Stroke in		Upper flange 	Lower flange 	Threaded body 	Cartridge 	Standard arm ¹⁾	Long arm ¹⁾
	clamping	total						
▼ Single-acting			Model number ²⁾					
475	.32	.65	SURS-21	SLRS-21	STRS-21	SCRS-22	CAS-51	CAL-22
1100	.39	.89	SURS-51	SLRS-51	STRS-51	SCRS-52	CAS-51	CAL-52
1800	.47	.87	SURS-92	SLRS-92	STRS-92	–	CAS-92	CAL-92
2400	.50	1.12	SURS-121	SLRS-121	STRS-121	SCRS-122	CAS-121	CAL-122
3900	.55	1.10	SURS-201	SLRS-201	STRS-201	–	CAS-201	CAL-202
7450	.63	1.18	SURS-351	SLRS-351	STRS-351	–	CAS-351	CAL-352
▼ Double-acting			Model number ²⁾					
300	.26	.51	SURD-11	SLRD-11	STRD-11	–	CAS-11	CAL-11
500	.32	.65	SURD-21	SLRD-21	STRD-21	SCRD-22	CAS-21	CAL-22
1250	.39	.89	SURD-51	SLRD-51	STRD-51	SCRD-52	CAS-51	CAL-52
2025	.47	.87	SURD-92	SLRD-92	STRD-92	–	CAS-92	CAL-92
2025	1.26	1.65	SURDL-92	–	–	–	CAS-92	CAL-92
2600	.50	1.12	SURD-121	SLRD-121	STRD-121	SCRD-122	CAS-121	CAL-122
2600	1.25	1.87	SURDL-121	–	–	–	CAS-121	CAL-122
4200	.55	1.10	SURD-201	SLRD-201	STRD-201	–	CAS-201	CAL-202
7600	.63	1.18	SURD-351	SLRD-351	STRD-351	–	CAS-351	CAL-352
7600	1.25	1.83	SURDL-351	–	–	–	CAS-351	CAL-352
▼ Positive locking Collet-Lok®			Model number ²⁾					
1000	.32	.94	–	WPFR-50	–	–	CA-540	–
2000	.47	1.10	–	WPFR-100	WPTR-100	–	CA-1050	–
8500	.39	1.65	–	WPFR-300	WPTR-300	–	CA-3070	–

¹⁾ With standard clamp arm. Clamp arms are sold separately.

²⁾ For left turning swing cylinders replace the R in the model number for an L.

Note: Call Enerpac to order models with metric thread and BSPP port connections.

Work Supports







Force: 1650 - 10,000 lbs

Stroke: .38 - .79 inch

Pressure: 700 - 5000 psi

Wide range of sizes and types to efficiently support workpiece

- Low pressure lock-up capability enables the use of machine tool hydraulic systems
- Threaded and manifold air vent ports allow fixturing that prevents coolants from being drawn into the system
- Collet-Lok® positive locking models: hydraulic actuation / mechanical holding allows for palletized systems which do not permit live hydraulics

Maximum support force lbs	Stroke in	Manifold mount	Threaded body	Lower flange	Cartridge style
					
▼ Hydraulic advance		Model number			
1650	.38	WFM-71	WFT-71	–	WFC-72
2500	.38	–	–	WFL-111	WFC-112
5000	.41	–	–	WFL-221	WFC-222
7500	.53	–	–	WFL-331	–
10,000	.65	–	–	WFL-441	–
▼ Spring advance		Model number			
1650	.38	WSM-71	WST-71	–	WSC-72
2500	.38	–	–	WSL-111	WSC-112
5000	.41	–	–	WSL-221	WSC-222
7500	.53	–	–	WSL-331	–
10,000	.65	–	–	WSL-441	–
▼ Positive locking		Model number			
2000	.39	–	WPTS-100	WPFS-100	–
4000	.39	–	WPTS-200	WPFS-200	–
10,000	.79	–	–	WPFS-450	–

Block Cylinders



Force: 2400 - 60,850 lbs

Stroke: .63 - 2.20 inch

Pressure: 580 - 5000 psi

Versatile, all purpose cylinder

- Six clamping capabilities, enable you to choose the right size for your application
- Variety of strokes to meet design needs
- Oil connection alternatives: cylinders incorporate both manifold mount and plumbed options to meet your fixturing needs

Clamping force at 5000 psi lbs	Stroke in		Model number
	push	pull	
▼ Single-acting			
2400	–	.71	CSB-10182
3800	–	.98	CSB-18252
9750	–	.98	CSB-40252
15,200	–	.98	CSB-70252
▼ Double-acting			
2400	1550	.63	CDB-10162
2400	1550	1.42	CDB-10362
3800	2250	.79	CDB-18202
3800	2250	1.97	CDB-18502
9750	4900	.98	CDB-40252
9750	4900	1.97	CDB-40502
15,200	9000	.98	CDB-70252
15,200	9000	1.97	CDB-70502
38,900	23,700	.98	CDB-180252
38,900	23,700	1.97	CDB-180502
60,850	36,650	2.20	CDB-280562

Clamping and support cylinders

Manifold Cylinders



Force: 380 - 6100 lbs

Stroke: .28 - .98 inch

Pressure: 750 - 5000 psi

Compact fixture-integrated positioning and holding

- Fixture-integrated design eliminates the need for fittings and tubing, minimizing space requirements and facilitating easy removal of chips and dirt
- Minimal cylinder height relative to the plunger stroke enables extremely compact fixture designs

Cylinder capacity at 5000 psi	Stroke	Model number	D ∅
380	0.28	CSM-271	SAE#6(.563-18UN)
380	0.51	CSM-2131	SAE#6(.563-18UN)
1190	0.28	CSM-571	SAE#10(.875-14UN)
1190	0.51	CSM-5131	SAE#10(.875-14UN)
2590	0.28	CSM-1071	SAE#12(1.062-12UN)
2590	0.51	CSM-10131	SAE#12(1.062-12UN)
2590	0.75	CSM-10191	SAE#12(1.062-12UN)
3900	0.51	CSM-18131	SAE#16(1.312-12UN)
3900	0.98	CSM-18251	SAE#16(1.312-12UN)
6110	0.59	CSM-27151	SAE#20(1.625-12UN)
6110	0.98	CSM-27251	SAE#20(1.625-12UN)

Note: Seal material: Buna-N, Polyurethane.

Pull Cylinders



Pull force: 575 - 9600 lbs

Push force: 1200 - 18,400 lbs

Stroke: .65 - 1.18 inch

Pressure: 500 - 5000 psi

Compact and full featured design

- Guided linear plunger movement
- Compact design allows for efficient fixture layout
- Variety of mounting styles to meet design needs

Cylinder capacity		Stroke	Upper flange	Lower flange	Threaded body	
lbs	Pull	Push	in	Model number		
				▼ Single-acting		
575	-	.65	PUSS-21	PLSS-21	PTSS-21	
1250	-	.89	PUSS-51	PLSS-51	PTSS-51	
2950	-	1.12	PUSS-121	PLSS-121	PTSS-121	
▼ Double-acting						
600	1200	.65	PUSD-21	PLSD-21	PTSD-21	
1400	2950	.89	PUSD-51	PLSD-51	PTSD-51	
2475	6300	.87	PUSD-92	PLSD-92	PTSD-92	
3150	6150	1.12	PUSD-121	PLSD-121	PTSD-121	
9600	18,400	1.18	PUSD-351	PLSD-351	PTSD-351	

Note: Call Enerpac to order models with metric thread and BSPP port connections.
Pull forces for single-acting cylinders reduced to overcome spring force.

Positive Clamping Cylinders



Force: 1900 - 11,500 lbs

Stroke: .09 - .22 inch

Pressure: 2000 - 5000 psi

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

Cylinder capacity at 5000 psi	Effective clamping stroke	Model number
lbs	in	
2700	.09	MRS-1
6000	.09	MRS-2
11,500	.09	MRS-5
1900	.10	MRS-1001
3700	.10	MRS-2001
5800	.10	MRS-3001
8500	.12	MRS-5001

Threaded Cylinders



Cylinder capacity at 5000 psi lbs	Stroke		Model number	D ø
	push	pull		

▼ Single-acting				
380	-	0.28	CST-271	.500-20 UN
380	-	0.39	CST-2101	.500-20 UN
380	-	0.51	CST-2131	.500-20 UN
1190	-	0.28	CST-571	.750-16 UN
1190	-	0.51	CST-5131	.750-16 UN
1190	-	0.75	CST-5191	.750-16 UN
1190	-	0.98	CST-5251	.750-16 UN
1190	-	1.50	CST-5381	.750-16 UN
1950	-	0.28	CST-971	1.000-12 UN
1950	-	0.51	CST-9131	1.000-12 UN
1950	-	0.75	CST-9191	1.000-12 UN
1950	-	0.98	CST-9251	1.000-12 UN
1950	-	1.50	CST-9381	1.000-12 UN
3900	-	0.51	CST-18131	1.313-16 UN
3900	-	0.98	CST-18251	1.313-16 UN
3900	-	1.50	CST-18381	1.313-16 UN
3900	-	1.97	CST-18501	1.313-16 UN
6110	-	0.59	CST-27151	1.625-16 UN
6110	-	0.98	CST-27251	1.625-16 UN
6110	-	1.97	CST-27501	1.625-16 UN
8800	-	0.51	CST-40131	1.875-16 UN
8800	-	0.98	CST-40251	1.875-16 UN
8800	-	1.50	CST-40381	1.875-16 UN
8800	-	1.97	CST-40501	1.875-16 UN

▼ Double-acting				
3900	2330	0.51	CDT-18131	1.875-16 UN
3900	2330	0.98	CDT-18251	1.875-16 UN
3900	2330	1.50	CDT-18381	1.875-16 UN
3900	2330	1.97	CDT-18501	1.875-16 UN
6110	4080	0.59	CDT-27151	2.125-16 UN
6110	4080	0.98	CDT-27251	2.125-16 UN
6110	4080	1.97	CDT-27501	2.125-16 UN
8800	5870	0.51	CDT-40131	2.500-16 UN
8800	5870	0.98	CDT-40251	2.500-16 UN
8800	5870	1.50	CDT-40381	2.500-16 UN
8800	5870	1.97	CDT-40501	2.500-16 UN

Note: Seal material: Buna-N, Polyurethane.
Minimum operating pressure for single-acting models (to overcome return spring force) is 580 psi.

Force: 380 - 8800 lbs

Stroke: .28 - 1.97 inch

Pressure: 750 - 5000 psi

Extremely compact positioning and fixturing

- Minimum cylinder diameter combined with maximized clamping forces
- Availability of many sizes that support precise fixture designs
- Threaded body allows fine positioning and easy installation

Pull Down Clamp



Force: 870 - 3900 lbs

Stroke: .20 - .31 inch

Pressure: 225 - 5000 psi

Low profile clamp

...for unobstructed top face machining

- Independent horizontal and vertical movement for a true pull down effect
- Manifold and BSPP porting
- Oil ports on both sides for mounting flexibility

▼ Hydraulic pull down clamps

Lateral clamping force at 5000 psi	Pull down force at 5000 psi	Stroke	Model number
lbs	lbs	in	
870	290	.20	ECH-52
3900	1300	.31	ECH-202

▼ Mechanical counter holds

Holding force	Used with pull down clamp model number	Model number
lbs		
870	ECH-52	ECM-5
3900	ECH-202	ECM-20

Hollow Plunger Cylinders



Force: 2610 - 36,000 lbs

Stroke: .25 - 2.50 inch

Pressure: 800 - 5000 psi

For high force push and pull applications on and around the fixture

- Load can be attached to either end of the cylinder, providing a choice of push or pull actions - both realizing full cylinder capacity
- Spring return operation allows for easy unloading of the workpiece

Cylinder capacity ¹⁾	Stroke	Center hole diameter	Model number	Operating pressure
				psi
lbs	in	in		
2610	.25	.39	CY1254-25	3000
4000	.31	.53	RWH-20	3000
4830	.39	.43	HCS-20	5000
7410	.31	.76	CY2129-25	3000
7410	.63	.76	CY2129-5	3000
12,660	.47	.51	HCS-50	5000
13,320	.63	.89	CY2754-5	3000
13,800	.31	.77	QDH-120	5000
13,800	.31	.77	RWH-120	5000
13,800	1.00	.77	RWH-121	5000
18,180	.55	.67	HCS-80	5000
23,500	.50	1.06	RWH-200	5000
23,500	2.00	1.06	RWH-202	5000
25,490	.63	.83	HCS-110	5000
36,000	.50	1.31	RWH-300	5000
36,000	1.00	1.31	RWH-301	5000
36,000	2.50	1.31	RWH-302	5000

¹⁾ At maximum operating pressure.

Note: Seal material Buna-N, Polyurethane, Teflon.



World Class Solutions

Power sources

Whether you need to run your parts once a day or 24 hours a day, Enerpac has the power source to help you get the job done. Power sources range from simple manual pumps to air operated to fully customizable electric motor driven units.

With a wide variety of accessories to choose from, Enerpac power units are easily the most versatile and reliable in the industry.

■ Enerpac boosters provide hydraulic power to the clamping system.



98-010

Turbo II Air-Hydraulic Pumps



Oil Flow: 180 in³/min

Pressure: 1400 - 5000 psi

Air: 12 scfm

Reservoir: 150 - 305 in³

Quick and powerful hydraulic supply in an economical air-powered unit

- On-demand stall-restart operation maintains system pressure, providing clamping security
- Five valve mounting options provide flexibility in setup and operation

Pump type	3000 series model number	Oil flow ¹⁾	5000 series model number	Oil flow ¹⁾	Max. hydraulic pressure
		3000 series		5000 series	
		in ³ /min		in ³ /min	psi
PAT series	PATG-3102NB	180	PATG-5102NB	120	5000
PAC series	PACG-3002SB	180	PACG-5002SB	120	5000
PAS series	PASG-3002SB	180	PASG-5002SB	120	5000
PAM series	PAMG-3402NB	180	PAMG-5402NB	120	5000
PAR series	PARG-3102NB	180	PARG-5102NB	120	5000

¹⁾ At 0 psi hydraulic and 100 psi air pressure.

Hushh 2000 WE series



Flow: 120 in³/min

Pressure: 5000 psi

Motor: 1.5 hp

Reservoir: 5.28 gal

Customize to your needs

...for continuous duty cycle

- New innovative modular design for demanding workholding applications
- Easy to customize with six modular standard kits: valves, manifold, filter, heat exchanger, temperature and level switch and pressure switch
- Flexibility to accommodate multiple-use applications
- Multiple voltage options
- Easy to read integrated sight gauge and thermometer for system monitoring
- Standard oversized filtered breather for easy reservoir fills without the need of special tools

Motor size (hp)	Pressure rating (psi)		Model number	Output flow rate (in ³ /min)		Relief Valve adjustment range (psi)	Sound level (max. dBA)
	1 st stage	2 nd stage		1 st stage	2 nd stage		
1.5	800	5,000	WE series	640	120	800 - 5,000	79

Air Hydraulic Boosters



One shot air/hydraulic booster ...for high production applications

- High speed operation
- Extended service life
- Constant hydraulic output

Ratio: 1:16 - 1:64

Pressure: 1600 - 5000 psi

Oil flow: 3.7 - 18.0 in³/stroke

Air: .95 - 2.3 scfm/cycle

Oil pressure psi		Oil volume per stroke in ³	Air to oil pressure ratio	Model number
at 75 psi air pressure	at 100 psi air pressure			
▼ AHB series				
1200	1600	18.0	1:16	AHB-17
2550	3400	8.5	1:34	AHB-34
3450	4600	6.1	1:46	AHB-46
4800	–	4.5	1:64	AHB-66
▼ B series				
2250	3000	6.2	1:30	B-3006
3750	5000	3.7	1:50	B-5003

Note: Seal material Buna-N, Polyurethane.

Oil/Oil Intensifiers



High flow units intensify low inlet oil pressure to high outlet pressure

- Wide range of intensification ratios allows for adapting to various operating pressure requirements
- Compact and self-contained design allows for easy installation
- PID series includes dump valve, eliminating the need for an external pilot check valve

Ratio: 1:3.2 - 1:6.6

Flow: 75 - 150 in³/min

Pressure: 960 - 5000 psi

Pressure intensification ratio	Maximum input flow		Model number	Inlet pressure range
	in ³ /min	in ³ /min		
1 : 3.2	610	150	PID-321 with dump valve	psi 300-1560
1 : 4.0	580	120	PID-401	300-1250
1 : 5.0	550	95	PID-501	300-1000
1 : 6.6	530	75	PID-661	300-750

■ PID-Series intensifier utilizes low pressure machine hydraulics to power clamping cylinders.





World Class Solutions

Valves

Controlling the operation of your clamping system requires the use of many specialized directional, pressure and flow control valves. Enerpac has the complete line of valving components to complement any hydraulic system. Choose from either manual or electric directional valves, and a wide variety of pressure control, flow control and specialty valves to provide the control and automation that your application needs.

Modular Directional Valves



Pressure: 5000 psi

Max. Flow: 915 in³/min

Solenoid directional valves

- Dual poppet valve design for zero internal leakage
- Inlet check-valve standard
- High cycle switching
- Stackable to eight valve stations high
- 250-5000 psi operational pressure

Voltage @ current	Model number	Flow path
at 50/60 Hz		

▼ 4/3 Closed center

24 VDC @ 1.13 A	VP-11	
110 VAC @ 500 mA	VP-12	
230 VAC @ 250 mA	VP-13	

▼ 4/3 Float center

24 VDC @ 1.13 A	VP-21	
110 VAC @ 500 mA	VP-22	
230 VAC @ 250 mA	VP-23	

▼ 3/2 Normally closed

24 VDC @ 1.13 A	VP-31	
110 VAC @ 500 mA	VP-32	
230 VAC @ 250 mA	VP-33	

▼ 3/2 Normally open

24 VDC @ 1.13 A	VP-41	
110 VAC @ 500 mA	VP-42	
230 VAC @ 250 mA	VP-43	

▼ 3/2 1 port normally closed, 1 port normally closed

24 VDC @ 1.13 A	VP-51	
110 VAC @ 500 mA	VP-52	
230 VAC @ 250 mA	VP-53	

Note: DIN 43650 electrical connector included. Valve weight 6.5 lbs (3,0 kg).

Pressure Reducing Valves



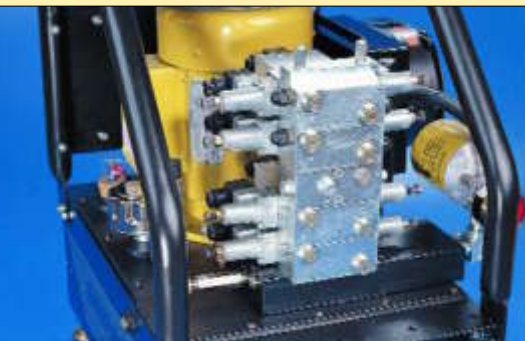
Pressure: 5000 psi

Flow: 417 in³/min

Precise control of hydraulic pressure

- Stackbuilding with VP series modular valves
- Stackable for multiple pressures on one valve stack assembly
- Tool adjustable knob can be locked
- Precise control of pressure
- G1/4" oil connection
- Remote mount PRV-2, PRV-3
- Built-in pressure relief valve on PRV-2

■ Enerpac VP-series valves mounted on a WE series workholding pump.



Mounting style	Adjustable pressure range	Maximum pressure	Model number	Built-in adjustable pressure relief valve
	psi	psi		psi
VP-series	435 - 4350	5000	PRV-1	—
Remote	435 - 4350	5000	PRV-2	0-5000
Remote	435 - 4350	5000	PRV-3	—

Sequence Valves



Pressure: 5000 psi max.

Flow: 250 - 366 in³/min max.

Pressure dependent sequence control

- Sequence valves block the oil to a secondary hydraulic circuit until pressure in the primary circuit reaches a preset level
- Mounting holes on WVP-5
- Manifold mounting ports on MVPM-5

Pressure adjustment range	Model number	Maximum pressure
psi		psi
200-2000	V-2000	5000
500-5000	MVPM-5	5000
500-5000	WVP-5	5000

Seal material: Buna-N.

Manifold O-rings included with MVPM-5. For manifold mounting installation information consult Enerpac for surface preparation.

Flow Control Valves



Max. Flow: 10 GPM

Pressure: 0 - 5000 psi

Pilot Operated Check Valves



Pilot ratio: 7:1

Flow: 10 GPM max.

Regulate the flow of oil

- Color coded flow indicator
- Free flow return
- Fine metering capability
- Lockable
- Standard Viton seals

Pressure range	Oil ports	Model number	Flow path
psi			

▼ Flow control valves

0-5000	SAE #4	VFC-1	
0-5000	G 1/4"	VFC-2	

Seal material: Viton.

To hold cylinder load and ensure remote unlocking

- Fast check-off response
- Hardened seats ensure long life and positive pressure holding
- Built-in accumulator to maintain system pressure
- Mounting holes
- Manifold mount body MVM-72

Accumulator included	Model number	Maximum pressure
		psi
-	V-72	5000
ACL-22	MV-722A	5000
ACL-202	MV-7202A	5000
-	MVM-72	5000

■ Flow control valve regulates the clamping speed.



99-040



World Class Solutions

System Components

From the simplest to the most complex hydraulic system, Enerpac's system components help you complete your design. Gauges, pressure switches, couplers and hoses are simple but necessary items for any hydraulic system, and Enerpac can provide the full range. More specialized components—such as accumulators and automatic coupler systems—ensure that whatever your need, Enerpac can help.

Auto-coupler Systems



Connection: 2 - 4 ports

Stroke: .20 - 4.48 inch

Pressure: 580 - 5000 psi

For automated coupling of hydraulic circuits on palletized systems

- Sensing feedback of coupler position allows for fully automated applications
- Adjustment stroke allows clearance for pallet indexing
- Coupler elements supplied with air blow-off nozzles to prevent damage from contamination

Station position	Model number ¹⁾	Adjustable stroke
		in
▼ 2 port auto coupler		
Base	WCA-62	.20-.59
Base	WCA-82	4.10-4.48
Pallet	WPA-62	—
▼ 4 port auto coupler		
Base	WCA-64	.20-.59
Pallet	WPA-64	—

Rotary Couplers



Passages: 1 - 4 lines

Speed: 30 - 100 RPM max

Pressure: 1500 - 5000 psi

Permanent hydraulic connection on indexing and rotating work stations

- High rotation per minute
- Low starting torque
- Internal oil bearings for increased lifetime
- Rotary couplers are specially designed unions to transfer pressurized fluid from a stationary supply line to a rotating device

Number of radial passages	Model number	Operating pressure range
		psi
1	CR-111	500-5000
2	CRV-221	500-5000
4	CRV-441	500-5000

Pressure Switches



Pressure: 250 - 7500 psi

Accuracy: .25 - 1.50%

Adjustable pressure range	Electrical specifications	Model number	Deadband adjustment
psi	at 50/60 Hz		psi
▼ Electrical pressure switches			
500-3500	125 VAC @5 A	IC-30	90 - 400
500-3500	125 VAC @5 A	IC-31	90 - 400
3000-7500	125 VAC @5 A	IC-50	250 - 800
3000-7500	125 VAC @5 A	IC-51	250 - 800
▼ Digital pressure switches¹⁾			
250-5000	24 VDC @250 mA	PSCK-5	60
250-5000	115 VAC @2.5 A	PSCK-6	60
250-5000	24 VDC @250 mA	PSCK-7	60

¹⁾ Electrical harness included with kit.

■ A 4-way auto coupler is being connected to the receiver, mounted on a palletized fixture.



Reliable electrical control of hydraulic power

- Compact design minimizes space requirements on fixture
- Switch is easily adjustable to meet system requirements
- High duty cycle

Accumulators



Pressure: 0 - 5000 psi

Oil volume: .10 - 30.00 in³

Gas volume: 1.22 - 30.00 in³

Accumulators

...maintain circuit pressure

- Ideal for high frequency and rapid discharge applications
- High energy storage capacity in a compact package

Accumulator coupler packages

...compact design for easy use of accumulators

- Single design accommodates both single-acting or double-acting circuit
- Relief valve fitted and ball check shut-off
- Glycerin-filled gauge included

Operating pressure	Model number	Max. rated oil volume
psi		in ³
▼ Pre-charged accumulators		
0-3000	ACM-1	.10
1500-5000	ACL-21	.90
1500-5000	ACL-201	7.70
1500-5000	ACL-502	20.60
▼ Pre-charged accumulator coupler packages		
1500-5000	ACBS-22	1.00
1500-5000	ACBS-202	10.00
▼ Accumulators		
0-5000	WA-502	2.50
0-5000	WA-505	5.50
0-5000	WA-5010	10.00
0-5000	WA-5030	30.00

Pressure Gauges



Pressure: 0-10,000 psi

Accuracy: 1.5% / full scale

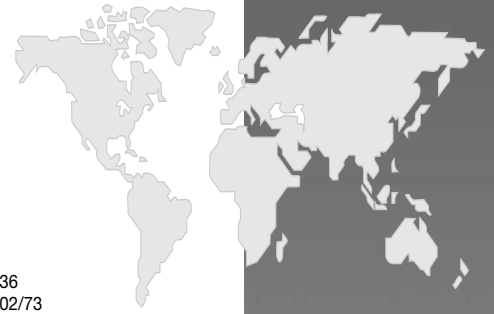
Gauge face: ø 2.5 inch

Highly reliable and accurate pressure sensing

- ± 1.5% accuracy of full scale
- All pressure sensing parts sealed and dampened by glycerine for long life
- Includes safety blow-out disk and pressure equalizing membrane to prevent overpressurization
- Copper alloy, coiled safety Bourdon tube for 1000 psi and higher

Pressure range	Model number		
	Hg	psi bar	
▼ Vacuum gauge – Lower mount			
0-30"	–	–	G-2501L
▼ Compound gauge – Lower mount			
0-30"	0-30	–	G-2502L
▼ Pressure gauge – Lower mount			
–	0-100	0-7	G-2509L
–	0-160	0-11	G-2510L
–	0-200	0-14	G-2511L
–	0-300	0-20	G-2512L
–	0-600	0-40	G-2513L
–	0-1000	0-70	G-2514L
–	0-2000	0-140	G-2515L
–	0-3000	0-200	G-2516L
–	0-6000	0-400	G-2517L
–	0-10,000	0-700	G-2535L
▼ Pressure gauge – Rear mount			
–	0-1000	0-70	G-2531R
–	0-6000	0-400	G-2534R
–	0-10,000	0-700	G-2537R

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