

ENERPAC hydraulic pumps are available in over 1,000 different configurations. Whatever your high pressure pump needs are... speed, control, intermittent or heavy-duty performance... you can be sure that Enerpac has the pump to suit the application.

Featuring Hand, Battery, Electric, Air and Gasoline powered models, with multiple reservoir and valve configurations, Enerpac offers the most comprehensive high pressure pump line available.



Pump Selection

For help in selecting the correct pump for your application, please review our **“Yellow Pages.”** If you require further assistance, contact the Enerpac office located near you.

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Torque Wrench Pumps

System matched air and electric pumps provide control to operate Enerpac Torque Wrenches.

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Pumps and Directional Control Valves Section Overview

Power Source	Pump Types	Maximum Reservoir Capacity	Max. Flow at Rated Pressure (in ³ /min)	Series		Page
Manual	Lightweight Hand Pumps Exclusively from Enerpac	155 in ³	.15 (in ³ /stroke)	P		58 ▶
	ULTIMA Steel Hand Pumps Low Pressure Hand Pumps	453 in ³ 200 in ³	.29 .58 (in ³ /stroke)	P P		60 ▶ 62 ▶
	Foot Pump For Hands Free Operation	38 in ³	.15 (in ³ /stroke)	P		64 ▶
	Multifluid Hand Pumps Pumping Fluids up to 14,500 psi	-	1.28 (in ³ /stroke)	MP		65 ▶
	Ultra-High Pressure Hand Pumps Pressure up to 40,000 psi	60 in ³	.15 (in ³ /stroke)	P/11		66 ▶
Electric	Battery Powered Hydraulic Pump Cordless Hydraulic Power	120 in ³	15	XC		68 ▶
	Economy Series Compact and Portable	1 gal.	20	PU		70 ▶
	Submerged Series Powerful and Low-Noise	1.5 gal.	20	PE		72 ▶
	Z-Class Portable and Powerful	10 gal.	60 200	ZU ZE		78 ▶ 84 ▶
	8000-Series The Maximum Flow Pump	25 gal.	462	PE		90 ▶
Air	ZA4 Air Hydraulic Pumps The Standard for Air-Hydraulic Pumps	10 gal.	80	ZA		92 ▶
	XA-Series Air Hydraulic Pumps XVARI® Technology for Productivity and Ergonomics	122 in ³	15	XA		94 ▶
	Turbo II Air Hydraulic Pumps Compact Air Over Hydraulic	305 in ³	10	PA		96 ▶
	Air Hydraulic Pumps Single and Twin-Air Motor	80 in ³ 2 gal.	8 9	PA PAM		98 ▶ 99 ▶
Gasoline	ZG5/ZG6 Gasoline Hydraulic Pumps Gas Powered High Flow Pumps	10 gal.	200	ZG5/ ZG6		100 ▶
	Atlas Series Small and Lightweight	2 gal.	40	PGM		102 ▶
	8000-Series Gasoline Pumps For the Largest Jobs	25 gal.	1.5 (gal/min)	EGM		103 ▶
Directional Control Valves						104 ▶

P-Series, Lightweight Hand Pumps

▼ Pumps shown, from top to bottom: P-802, P-842, P-202, P-142



- Lightweight and compact design
- Durable glass-filled nylon reservoir and nylon encapsulated aluminum pump base for maximum corrosion resistance
- Two-speed operation on most models reduces handle strokes by as much as 78% over single speed pumps
- Lower handle effort to minimize operator fatigue
- Integral 4-way valve on P-842 for operation of double-acting cylinders
- Handle lock and lightweight construction for easy carrying
- Large oil capacities to power a wide range of cylinders or tools
- Non-conductive fiberglass handle for operator safety
- Internal pressure relief valve for overload protection

▼ P-392 in action with RC-256 cylinders.



Exclusively from Enerpac



Cylinder Matching Chart

For help in selecting the correct hand pump for your application, please refer to the Cylinder Matching Chart located in the “Yellow Pages”.

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Speed Chart

To determine how a specific pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the “Yellow Pages”.

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Tank Kits

When a return-to-tank port is required, the Tank Kits provide a 7/16-20 port at the rear of the reservoir.

PC-20	Fits P-141, P-142
PC-25	Fits P-202, P-391, P-392



LX-101 Hand Pump Oil

A medium viscosity oil specially formulated for hand pumps. Performs well in low temperatures and requires less pumping effort than standard Enerpac HF blue oil.

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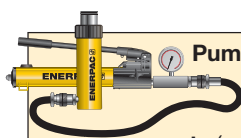
Pump Type	Usable Oil Capacity (in ³)	Model Number	Pressure Rating*		Oil Displacement per Stroke (in ³)		Max. Handle Effort (lbs)
			(psi)		(in ³)		
			1 st stage	2 nd stage	1 st stage	2 nd stage	
Single speed	20	P-141	N/A	10,000	N/A	.055	72
	55	P-391	N/A	10,000	N/A	.151	85
Two speed	20	P-142**	200	10,000	.221	.055	78
	55	P-202	200	10,000	.221	.055	63
	55	P-392**	200	10,000	.687	.151	93
	155	P-802	400	10,000	2.40	.151	95
	155	P-842***	400	10,000	2.40	.151	95

* Contact Enerpac for applications where operating pressure is less than 10% of pressure rating.

** Available as set, see note on top of next page.

*** For use with double-acting cylinders.

Lightweight Hand Pumps



Pump and Cylinder Sets

Pumps marked with an ** are available as sets (pump, cylinder, gauge, couplers and hose) for your ordering convenience.

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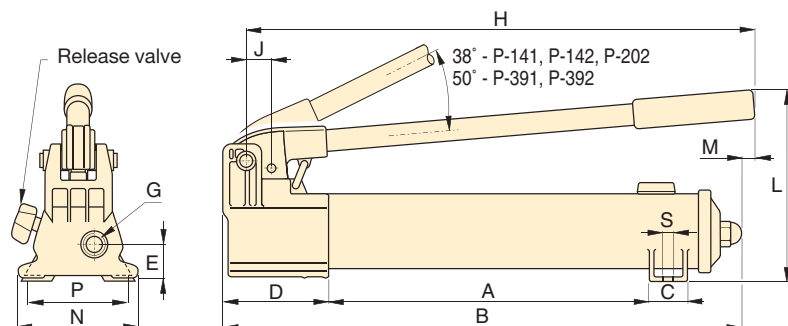
P Series



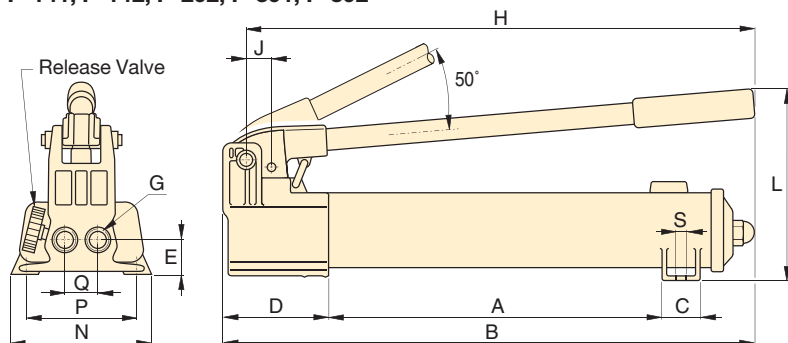
Reservoir Capacity:
20-155 in³

Flow at Rated Pressure:
.055-.15 in³/stroke

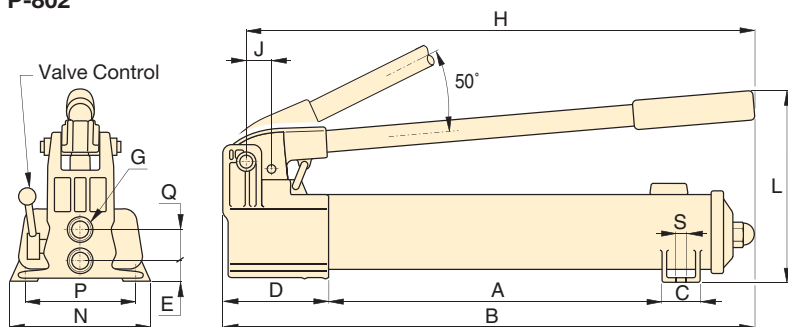
Maximum Operating Pressure:
10,000 psi



P-141, P-142, P-202, P-391, P-392



P-802



P-842



Hoses

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

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Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the

System Components section for a full range of gauges.

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Aluminum Reservoir

For applications where composite reservoirs may not be suitable, the P-392AL utilizes an

extruded aluminum reservoir. Also included is a second handle for two-hand use. Contact Enerpac for details.

Piston Stroke	Dimensions (in)															Weight (lbs)	Model Number
	(in)	A	B	C	D	E	G	H	J	L	M	N	P	Q	S		
.50	7.31	13.25	1.13	3.37	1.13	1/4"-18 NPTF	12.56	.75	5.63	-	3.75	3.25	-	.28	4.5	P-141	
1.00	13.56	21.00	1.44	3.93	1.31	3/8"-18 NPTF	20.56	1.19	7.00	.63	4.75	-	-	-	9.0	P-391	
.50	7.31	13.25	1.13	3.37	1.13	1/4"-18 NPTF	12.56	.75	5.63	-	3.75	3.25	-	.28	5.3	P-142**	
.50	13.56	20.06	1.44	3.37	1.13	1/4"-18 NPTF	15.75	.75	5.69	.63	3.75	-	-	-	7.5	P-202	
1.00	13.56	21.00	1.44	3.93	1.31	3/8"-18 NPTF	20.56	1.19	7.00	.63	-	-	-	-	9.0	P-392**	
1.00	13.30	21.75	1.78	5.25	1.39	3/8"-18 NPTF	20.75	2.19	9.00	-	7.12	6.02	1.40	.41	18.0	P-802	
1.00	13.30	21.75	1.78	5.25	.81	3/8"-18 NPTF	20.75	2.19	9.00	-	7.12	6.02	1.44	.41	22.0	P-842***	

▼ Shown from left to right: P-77, P-80, P-84, P-801, P-39



- Reduced handle effort and ergonomic grip for less operator fatigue
- Two-speed operation for fast and easy operation (except P-39)
- Vent free reservoir eliminates spills
- Quick grip handle allows for easy transport
- Integral reservoir over-pressurization protection
- All steel construction, chrome plated plunger and wiper system for durable, long lasting performance
- 4-way valving on the P84 and P-464 for operation of double-acting cylinders

▼ In the absence of a power supply, the P-80 Hand Pump offers a powerful solution.



The Solution for Tough Jobs



Two Speed Pumps

Recommended for applications where cylinder plunger must advance rapidly to contact load, and applications where greater oil capacities are required, such as multiple cylinder hook-ups.



Foot Pump Conversion Kits

Convert your **P39, P77, P80, or P801** to foot power with the **PC-11 Kit**. Includes instructions for easy conversion.



Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the System Components section for a full range of gauges.

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4-Way Control Valve

P-84 and P-464 feature a manual 4-way control valve, designed for use with one double-acting or two single-acting cylinders. For system set-up information:

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Pump Type	Usable Oil Capacity (in ³)	Model Number	Pressure Rating*		Oil Displacement per Stroke		Max. Handle Effort (lbs)
			(psi)		(in ³)		
			1 st stage	2 nd stage	1 st stage	2 nd stage	
Single	47	P-39	N/C	10,000	N/C	.15	85
	47	P-77	500	10,000	1.00	.15	88
Two-speed	134	P-80**	500	10,000	1.00	.15	77
	250	P-801	500	10,000	1.00	.15	77
	134	P-84***	500	10,000	1.00	.15	77
	453	P-462	200	10,000	7.69	.29	110
	453	P-464***	200	10,000	7.69	.29	110

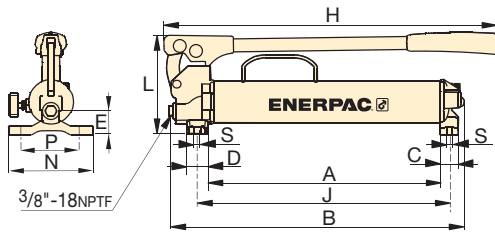
* Contact Enerpac for applications where operating pressure is less than 10% of pressure rating.

** Available as a set, see note on next page.

*** For use with double-acting cylinders.

Steel Hand Pumps

P Series

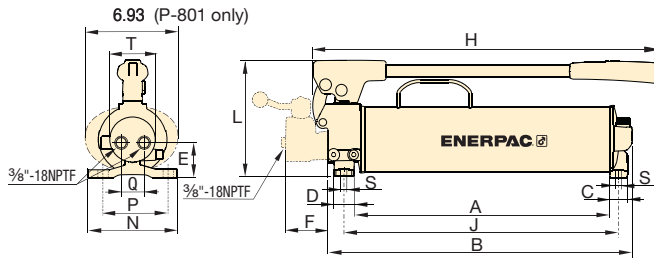


P-39, P-77

Reservoir Capacity:
47-453 in³

Flow at Rated Pressure:
.15-.29 in³/stroke

Maximum Operating Pressure:
10,000 psi



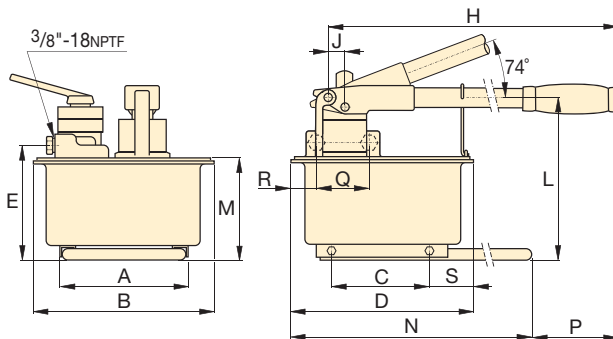
P-80, P-801, P-84



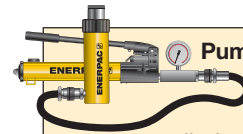
Extra Capacity Hand Pumps

P-462 and P-464 feature extra large reservoirs and a high first-stage flow rate.

These pumps are ideally suited for powering high-capacity cylinders.



P-462, P-464



Pump and Cylinder Sets

P-80 is also available as a set (pump, cylinder, gauge, couplers and hose) for your ordering convenience.

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Cylinder Matching Chart

For help in selecting the correct hand pump for your application, please refer to the Cylinder Matching Chart located in the "Yellow Pages".

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Piston Stroke	Dimensions (in)																Weight (lbs)	Model Number
	(in)	A	B	C	D	E	F	H	J	L	M	N	P	Q	R	S		
1.00	15.09	18.91	1.18	1.38	1.48	-	21.63	16.37	6.39	-	5.51	4.37	-	-	0.33	-	13.6	P-39
1.00	15.39	19.19	1.18	1.38	1.86	-	21.63	16.67	6.39	-	5.51	4.37	-	-	0.33	-	15.6	P-77
1.00	16.83	20.12	1.18	1.38	2.17	-	23.50	18.11	7.65	-	5.91	4.76	1.65	-	0.33	2.93	23.6	P-80**
1.00	16.83	20.12	1.18	1.38	2.17	-	23.50	18.11	7.65	-	5.91	4.76	1.65	-	0.33	2.93	31.0	P-801
1.00	16.83	20.06	1.18	1.38	2.30	2.77	22.78	18.11	7.65	-	5.91	4.76	1.50	-	0.33	2.93	26.0	P-84***
1.50	8.25	12.13	6.42	12.63	7.68	-	26.44	.98	10.63	6.89	25.6	3.63	-	-	3.13	-	61.0	P-462
1.50	8.35	12.13	6.42	12.63	7.68	-	26.44	.98	10.63	6.89	25.6	3.63	3.50	2.68	3.13	-	61.0	P-464***

▼ Shown from left to right: P-25, P-51, P-18



When Less Than 10,000 psi is All You Need

- P-25 and P-50 pump oil in both forward and reverse handle movement improving overall efficiency, ideal when mounting space is restricted
- External load-release valve
- Internal pressure-relief valve for overload protection
- P-51 can be operated in horizontal and vertical position with pump head and oil outlet facing downwards



LX-101 Hand Pump Oil

A medium viscosity oil specially formulated for hand pumps. Performs well in low temperatures and requires less pumping effort than standard Enerpac HF blue oil.

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Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the System Components section for a full range of gauges.

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▼ P-18 hand pump used for locking the rotating table for marble polishing.



Pump Type	Usable Oil Capacity (in ³)	Model Number	Pressure Rating (psi)	Oil Displacement per Stroke (in ³)	Max. Handle Effort (lbs)
Single-speed	22	P-18	2,850	0.15	34
	200	P-25	2,500	0.58	60
	200	P-50	5,000	0.29	60
	50	P-51	3,000	0.25	61

Low Pressure Hand Pumps

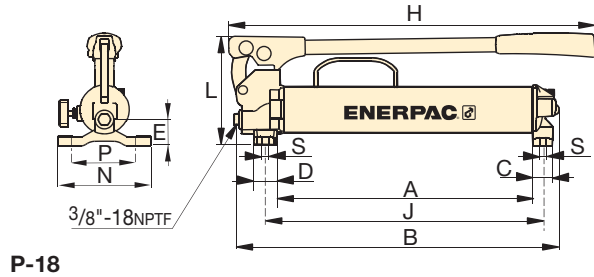
P Series



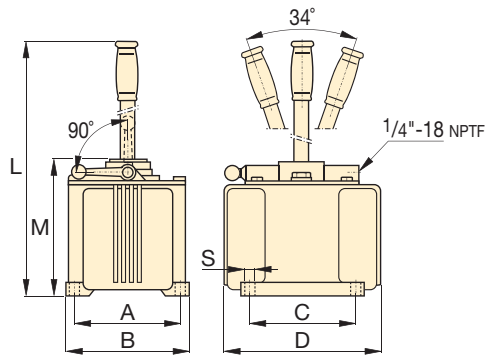
Reservoir Capacity:
22-200 in³

Flow at Rated Pressure:
.15-.58 in³/stroke

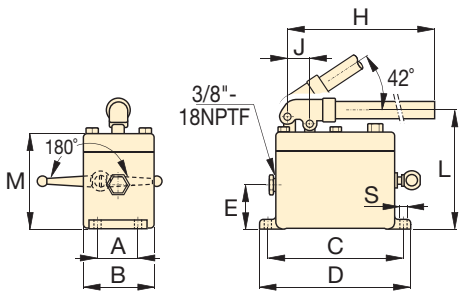
Maximum Operating Pressure:
2,500-5,000 psi



P-18



P-25, P-50



P-51



Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

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P-51 hand pumps used with RC-series cylinders to keep wooden layers under pressure during lamination of plates.



Piston Stroke	Dimensions (in)												Weight (lbs)	Model Number
	(in)	A	B	C	D	E	H	J	L	M	N	P		
1.00	8.70	12.44	1.18	1.38	1.48	15.17	9.98	6.39	-	5.51	4.37	.33	11	P-18
1.50	6.00	6.82	6.00	9.43	-	-	-	26.94	7.88	-	-	.40	36	P-25
1.50	6.00	6.82	6.00	9.43	-	-	-	26.94	7.88	-	-	.40	37	P-50
1.00	2.06	3.63	7.12	7.88	2.25	24.00	1.16	6.31	5.06	-	-	.34	12	P-51

Lightweight Hydraulic Foot Pump

▼ Shown: P-392FP



- **Robust, durable and compact**
 - Steel frame for maximum stability
 - Steel pumping handle
 - Aluminium reservoir
- **Foot pedal lock and lightweight construction for portability**
- **Two-speed operation reduces foot pedal strokes**
- **Large foot-pad release valve for controlling load descent**
- **Internal pressure relief valve for overload protection**

▼ P-392FP offers the advantage of hands free operation to handle and control the tool or cylinder.



P Series

Reservoir Capacity:

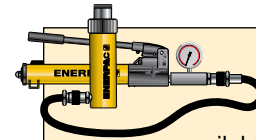
38 in³

Flow at Rated Pressure:

.151 in³/stroke

Maximum Operating Pressure:

10,000 psi



Pump and Cylinder Sets

The P-392FP is available as sets (pump, cylinder, gauge, couplers and hose) for your ordering convenience.

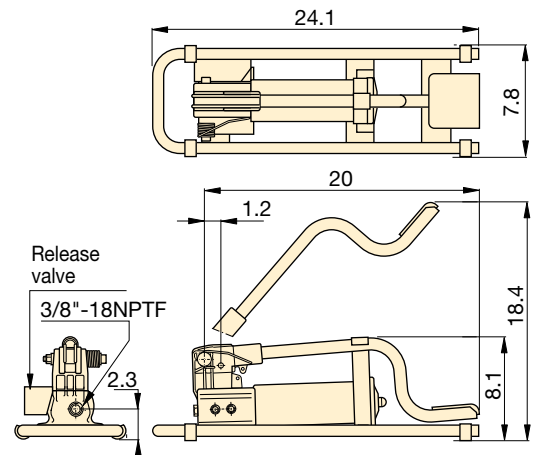
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Hoses

Enerpac offers a complete line of high quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

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Usable Oil Capacity (in ³)	Model Number	Pressure Rating (psi)		Oil Displacement per Stroke (in ³)		Max. Handle Effort (lbs)	Piston Stroke (in)	Weight (lbs)
		1st stage	2nd stage	1st stage	2nd stage			
30	P-392FP *	200	10,000	.687	.151	125	1	16

* Available as set, see note on this page.

Multifluid Hand Pumps

▼ Shown: **MP-110**



MP Series

Reservoir Capacity:
2 gal. (optional)

Flow at Rated Pressure:
.12-1.28 in³/stroke

Maximum Operating Pressure:
1,500-14,500 psi



Optional Reservoir Kit

The 2 gallon reservoir kit **MP-10T*** includes tank with skid frame, top plate with reservoir seal, suction pipe and mounting bolts. Useable oil capacity is 1.5 gal.

*For use with mineral oil applications only.

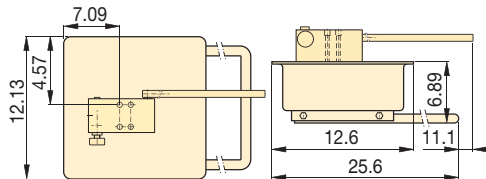


Also available is model number **11-400**.

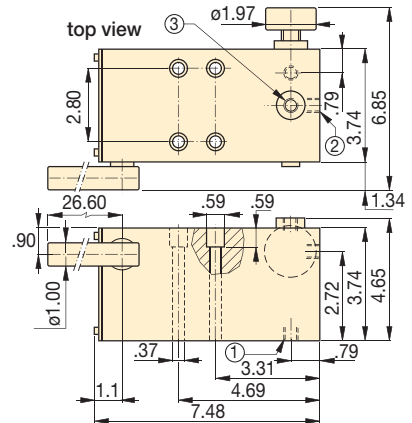
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- Superior corrosion resistance
- Impregnated aluminum anodized pump housing with stainless steel internal pumping components
- Standard Nitrile seals – excellent for demineralized water, oil/water emulsions, water glycols, mineral oils, hydraulic fluids
- Custom EPDM seals available for use with Skydrol® or brake fluids
- Two speed pumps up to 14,500 psi pressure
- Externally adjustable pressure relief valve
- 1/4" NPTF gauge port

▼ MP-Series pumps are ideal for testing and filling applications.



MP-10T



MP-110, 350, 700, 1000

- ① Suction / Tank return port 3/8"-18 NPTF
- ② Pressure port 3/8"-18 NPTF
- ③ Gauge port 1/4"-18 NPTF

Pump Type	Usable Oil Capacity (in ³)	Model Number	Pressure Rating (psi)		Oil Displacement per Stroke (in ³)		Max. Handle Effort (lbs)	Piston Stroke (in)	Weight (lbs)
			1st stage	2nd stage	1st stage	2nd stage			
Two Speed	*	MP-110	500	1500	3.2	1.28	99	1.04	14.5
	*	MP-350	500	5000	3.2	.43	99	1.04	14.5
	*	MP-700	500	10,000	3.2	.18	99	1.04	14.5
	*	MP-1000	500	14,500	3.2	.12	99	1.04	14.5

Note: MP-Pump includes .060 in. thick gasket for reservoir mounting.

* MP-Series pumps require the use of an external reservoir.

▼ Shown from left to right: 11-100, P-2282



Ultra-High Pressure up to 40,000 psi



2-Way Shut-Off Valve 72-750

For 40,000 psi applications requiring a shut-off valve or gauge snubber. Made of 318 Stainless Steel and utilizing .38 inch cone fittings, it is the perfect selection for use with your Ultra-High Pressure Hand Pump.

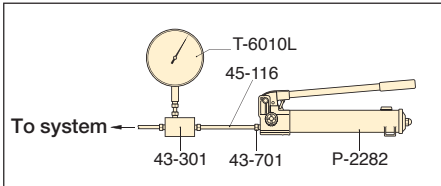


Test System Gauges

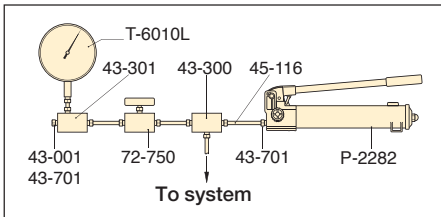
Ideal for monitoring pressure in your hydraulic circuit, Test System Gauges, such as the T-6010L, are available with cone threads or NPTF threads and in a variety of pressure ranges.

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- Two-speed operation on the P-2282 allows for faster fill, reducing cycle times for many testing applications
- 303 Stainless steel construction on the 11-100 and 11-400 models enable use with many different fluids, such as distilled water, alcohol, diesters, silicones, soluble oils and petroleum
- Large release knob for improved control of pressure release
- Outlet ports are 3/4"-16 cone for 40,000 psi rating



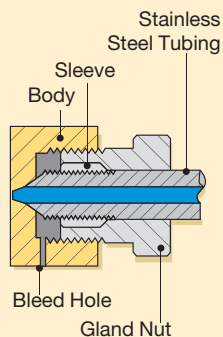
▲ Typical Test System



▲ Test System with Gauge and Snubber

Cone Seal

Stainless Steel High Pressure fittings seal on a "cone" surface and do not require pipe sealer. The Gland Nut holds the sleeve and tubing tight against the cone surface to provide a 40,000 psi seal.



Pump Type	Usable Oil Capacity (in ³)	Model Number	Pressure Rating* (psi)		Oil Displacement per Stroke (in ³)		Max. Handle Effort (lbs)
			1st stage	2nd stage	1st stage	2nd stage	
Two-speed	60	P-2282	200	40,000	.99	.037	106
Single-speed	45	11-100	N/C	10,000	N/C	.152	120
	45	11-400	N/C	40,000	N/C	.038	120

* Contact Enerpac for applications where operating pressure is less than 10% of pressure rating.

Ultra-High Pressure Hand Pumps

▼ Optional Ultra-High Pressure Fittings and Tubing

Description	Connection	Model No.
40,000 psi		
Gland Nut Plug	.38" cone	43-001
Elbow	.38" cone	43-200
Tee	.38" cone	43-300
Gauge Tee	.38" cone side/ .25" cone gauge port	43-301
Gauge Adaptor	.38" cone side/ .25" cone gauge port	83-011
Coupling	.38" cone	43-400
Cross	.38" cone	43-600
Gland Nut with Sleeve	.38" cone	43-701
Gauge Connector	.25" cone	43-704
Tubing	4" tube, O.D. .38" * 8" tube, O.D. .38" * 12" tube, O.D. .38" *	45-116 45-126 45-136
WARNING: Maximum working pressure: 10,000 psi only		
Adaptor	.38" F cone to 1/4" M NPTF .38" F cone to 3/8" M NPTF	41-146 41-166
Adaptor	.38" F cone to 1/4" F NPTF .38" F cone to 3/8" F NPTF	41-246 41-266
Adaptor	.38" M cone to 3/8" F NPTF	41-366

Note: .25" cone fittings use 3/16"-18 threads, 3/8" cone fittings use 1/4"-16 threads.

* Actual tubing lengths are .75" less than nominal size shown. These dimensions make distance between centers of valves and fittings multiples of 4" spaces.

P/11 Series



Reservoir Capacity:
45-60 in³

Flow at Rated Pressure:
.037-.152 in³/stroke

Maximum Operating Pressure:
10,000-40,000 psi



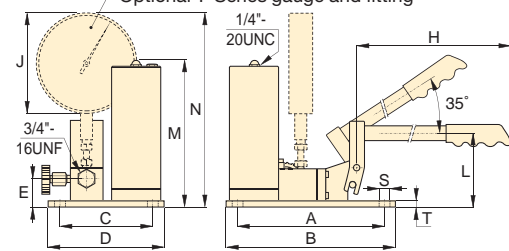
Stainless Steel Construction

Ultra-high Pressure Fittings feature all stainless steel construction except adaptor 41-366, which features nickel plated carbon steel construction.



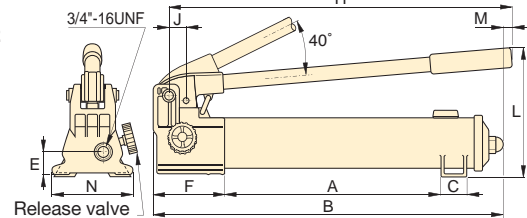
Ultra-High Pressure pumps DO NOT have an internal safety pressure relief valve.

11-100*, 11-400



*NOTE: Maximum operating pressure for model 11-100 is 10,000 psi.

P-2282



Piston Stroke	Dimensions (in)													Weight (lbs)	Model Number
	A	B	C	D	E	F	H	J	L	M	N	S	T		
1.00	13.56	22.00	1.40	—	1.24	5.25	20.75	1.16	9.00	.28	4.74	—	—	14	P-2282
.78	9.45	10.50	5.98	7.00	1.77	—	25.00	6.41	4.50	9.33	12.38	.31	.37	22	11-100
.78	9.45	10.50	5.98	7.00	1.77	—	25.00	6.41	4.50	9.33	12.38	.31	.37	22	11-400

▼ Shown: XC-1201



- Lightweight design with integrated handle and carrying strap for portability
- Bladder reservoir prevents contamination and allows pump usage in any position
- Powerful ½ horsepower motor and 28 volt Lithium-Ion battery deliver exceptional speed and run time
- High-strength fiberglass reinforced composite shroud for superior durability in demanding job site environments
- Cordless technology eliminates tripping hazards found in other powered pumps



Performance of a Powered Pump

Portability of a Hand Pump



G2535L Gauge

Minimize the risk of overloading and ensure long dependable service from your cordless pump.

Page: 123



Battery packs contain no cadmium, so they are environmentally friendly. Enerpac encourages recycling.



28-Volt Battery

The XC-28V with Lithium-Ion technology for maximum battery performance.



Battery Charger

1-hour quick charger.

XC-115VC	115 VAC
XC-230VC	230 VAC



Hydraulic Swivel Connector

Customer installed swivel connector for optimal orientation of the hydraulic hose.

Order model number ¹⁾ **XSC1**

¹⁾ Accessories must be ordered separately.

◀ Power and simplicity for the toughest jobs.

Cordless Hydraulic Pump



XC-Series Cordless Hydraulic Pump

The XC-Series cordless pump is ideal for jobs using small to medium size cylinders and hydraulic tools, and is compatible with over 140 Enerpac tools and cylinders. These cordless pumps combine the performance of a powered pump with the portability of a hand pump making them a perfect solution for remote applications with limited or no access to a power supply or for locations where corded solutions present trip hazards.

The Lithium-Ion battery provides superior run time, even under extreme job site conditions.*

- 279 cuts of 3/8 inch reinforcing bar using the WHC-750 cutter
- 112 lifts with the WR-5 spreader
- 44 splits on 1-inch, grade 8 nuts using the NC-3241 nut splitter
- 28 lifts of an RC-104

The XC-Series cordless pump is CSA and CE compliant.

*Actual number of cycles per charge will vary depending on condition of tool, battery and ambient conditions.



XC Series

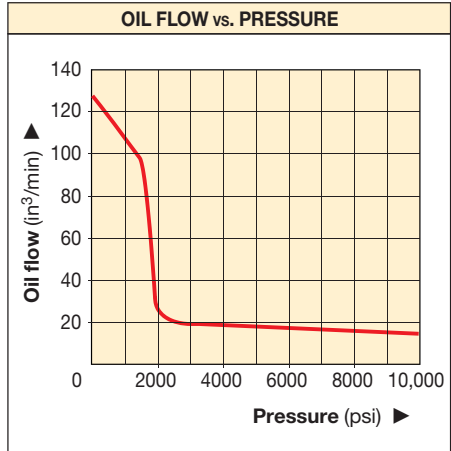
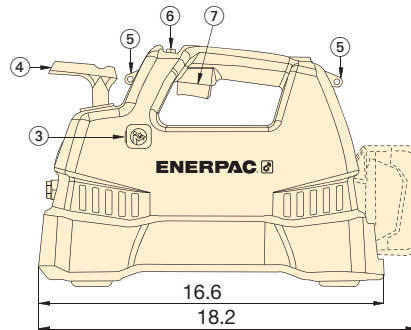
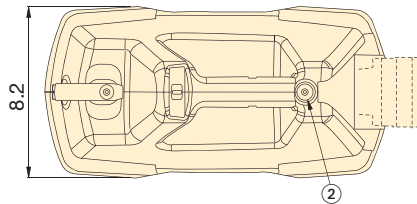
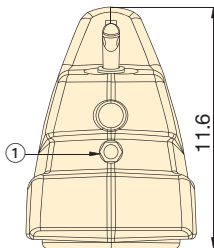


Reservoir Capacity:
60-120 in³

Flow at Rated Pressure:
15 in³/min.

Maximum Operating Pressure:
10,000 psi

- ① Outlet "Advance" Port
- ② Oil Fill (must use funnel)
- ③ User Adjustable Relief Valve Access Port
- ④ Directional Control Valve
- ⑤ Shoulder Strap Connection Points
- ⑥ Safety Lock Feature
- ⑦ On/Off Switch



▼ Take the battery pump anywhere without power cords or air hoses.



▼ SELECTION CHART

Oil Capacity (in ³)	Model Number	Output Flow Rate (in ³ /min)			Valve Function	Charger Voltage (VAC)	Weight (lbs)
		No Load	2000 psi	10,000 psi			
60	XC-1201MB	125	30	15	3-way, 2-pos.	115	21.85
120	XC-1202MB	125	30	15			23.75
60	XC-1201ME	125	30	15	3-way, 2-pos.	230	21.85
120	XC-1202ME	125	30	15			23.75
60	XC-1201M*	125	30	15	3-way, 2-pos.	-	21.85
120	XC-1202M*	125	30	15			23.75

* Batteries and charger not included.

▼ Shown: PUJ-1200B



Heavy on Performance, Light on Weight

- Lightweight and compact design
- Large easy-carry handle for maximum portability
- Two-speed operation reduces cycle times for improved productivity
- 115 VAC 50/60-cycle universal motor will operate on voltages as low as 60 volts
- 24 VAC remote motor control, 10-ft length for operator safety
- Starts under full load
- High strength molded shroud with integral handle, protects motor from contamination and damage
- Designed for intermittent duty cycle



Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. For use with the Economy pump the **G-2535L** gauge and **GA-3** gauge adaptor are suggested.

For a full range of gauges, please refer to the System Components section.

Page: 113



Speed Chart

To determine how the 0.5 hp Economy pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the "Yellow Pages".

Page: 251

▼ An Economy Pump PUJ-1200B is used with an RC-2514 to reposition a stamping die to simplify maintenance.



Used with Cylinder	Usable Oil Capacity (gal)	Model Number*	Pressure Rating (psi)	
			1 st stage	2 nd stage
Single-acting	.50	PUD-1100B	200	10,000
	1.00	PUD-1101B	200	10,000
	.50	PUD-1300B	200	10,000
	1.00	PUD-1301B	200	10,000
	.50	PUJ-1200B	200	10,000
	1.00	PUJ-1201B	200	10,000
Double-acting	.50	PUJ-1400B	200	10,000
	1.00	PUJ-1401B	200	10,000



About the Economy Pump

The Economy pump is best suited to power small to medium size cylinders

or hydraulic tools. Its lightweight and compact design makes it ideal for applications which require easy transport of the pump.

The Universal motor works well on long extension cords or generator-driven electrical power supplies.

For further application assistance refer to the "Yellow Pages".

PUD-1100 Series

- Provides advance/auto-retract of single-acting cylinders
- Ideal for punching applications

- For applications not requiring load holding
- 10-ft pendant controls motor and valve operation

PUD-1300 Series

- Provides advance/hold/retract of single-acting cylinders
- 10-foot pendant controls motor and valve operation
- Ideal for applications requiring remote valve operation.

PUJ-Series

- Available with 3- and 4-way valves for single- or double-acting cylinders
- 10-ft pendant controls the motor operation
- Manual valves provide advance/retract tool control



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* NOTE: CE conformity marking only applies to pumps with an "E" suffix.

PU Series

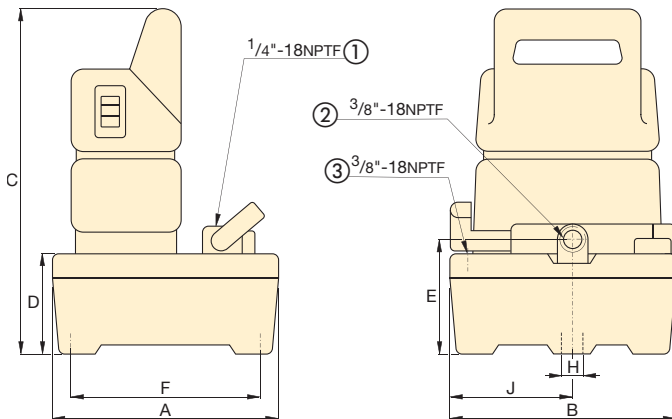


Reservoir Capacity:
0.5-1.0 gal.

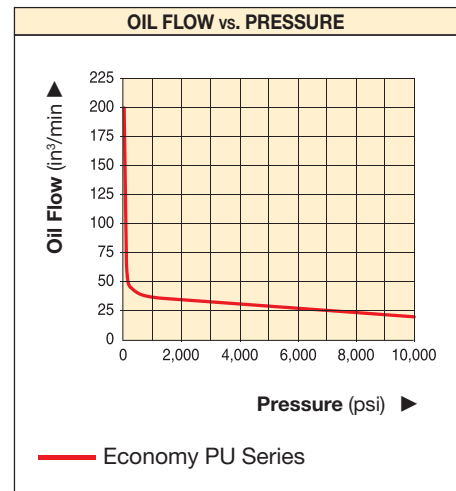
Flow at Rated Pressure:
20 in³/min.

Motor Size:
.5 hp

Maximum Operating Pressure:
10,000 psi



- ① Gauge Port (PUJ-1200/1201 only)
- ② Outlet Port
- ③ Tank Port



Output Flow Rate		Valve Type	Current Draw	Motor Voltage	Sound Level	Dimensions (in)								Weight	Model Number*
1 st stage	2 nd stage					A	B	C	D	E	F	H	J		
200	20	Dump **	9.5	115	85	9.62	9.62	14.25	4.00	4.72	8.00	.40	5.25	26	PUD-1100B
200	20		9.5	115	85	14.50	12.18	14.72	4.15	5.12	12.74	.40	5.62	35	PUD-1101B
200	20	Dump and Hold	9.5	115	85	9.62	9.62	14.25	4.00	4.72	8.00	.40	5.25	26	PUD-1300B
200	20		9.5	115	85	14.50	12.18	14.72	4.15	5.12	12.74	.40	5.62	35	PUD-1301B
200	20	3-way, 2-pos.	9.5	115	85	9.62	9.62	14.25	4.00	4.72	8.00	.40	5.25	24	PUJ-1200B
200	20		9.5	115	85	14.50	12.18	14.72	4.15	5.12	12.74	.40	5.62	31	PUJ-1201B
200	20	4-way, 3-pos.	9.5	115	85	9.62	9.62	14.25	4.00	4.72	8.00	.40	5.25	29	PUJ-1400B
200	20		9.5	115	85	14.50	12.18	14.72	4.15	5.12	12.74	.40	5.62	36	PUJ-1401B

* For 230 volt applications replace "B" suffix with "E". (CE conformity marking only applies to pumps with an "E" suffix.)

** Electric dump valve for auto-retract of cylinders.

▼ Shown: PEJ-1401B



- Two-speed operation reduces cycle times for improved productivity
- Powerful .5 hp induction motor is submerged in the oil reservoir to run cooler, protect the motor, simplify the pump interface, save space and reduce noise
- Large 1.5 gallon reservoir allows operation of a wide range of cylinders
- 24 VDC remote pendant control on certain models for safer operation
- Externally adjustable relief valve allows control of operating pressure without opening the pump
- 40-micron internal return line filter keeps oil clean, promoting longer pump life
- Full length side tube for easy monitoring of oil level



◀ The Remote Jog model of the Submerged Pump simplifies repair on this construction crane.

Best Performance for Mid-Range Cylinders and Tools

▼ SELECTION CHART

For more technical information see next page.

5 BASIC PUMP TYPES

Select the model that suits your application. For special requirements see page 73 or contact your Enerpac office.

PED-Series: with Dump Valve

- Ideal for punching, crimping and cutting
- For use when load holding is not required
- Control pendant with 10 ft. cord controls valve and motor

PEM-Series: with Manual Valve

- Ideal choice for most applications
- Manual valve control, for both single-acting and double-acting applications
- Manual motor control

PER-Series: with Solenoid Valve

- Ideal for production and lifting
- All valves are 3-position for Advance/Hold/Retract
- Control pendant with 10 ft. cord for remote valve operation

PEJ-Series: with Remote Jog

- For light production and lifting applications
- Manual valve control for single-acting or double-acting cylinders
- Control pendant with 10 ft. cord for remote motor operation

PES-Series: with Pressure Switch

- Designed for maintaining pressure applications, such as clamping, workholding and testing
- All versions include manual valves for directional control

* Contact Enerpac for details on VM style valves.

Submerged Electric Pumps



Submerged Pump Application

The Submerged pump is best suited to power small to medium size cylinders or hydraulic tools, or whenever a quiet, intermittent duty cycle is needed. With its low sound level and the addition of the optional oil cooler, the Submerged pump is suited to light production work as well.

Its lightweight and compact design also make it ideal for applications which require some transport of the pump.

For further application assistance see the "Yellow Pages" or contact your local Enerpac office.



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* NOTE: CE conformity marking only applies to pumps with an "E" suffix.

PE Series



Reservoir Capacity:

1.5 gal.

Flow at Rated Pressure:

20 in³/min.

Motor Size:

.5 hp

Maximum Operating Pressure:

10,000 psi

Pump Type	Used with Cylinder	Valve Function	Valve Type*	Usable Oil Capacity (gal)	Model Number* 115 VAC, 1 ph	Weight (lbs)
	Single-acting	Advance/Retract	Dump	1.5	PED-1101B	55
	Single-acting	Advance/Retract	Manual VMP 10000D	1.5	PEM-1201B	53
	Single-acting	Advance/Hold/Retract	Manual VMF 10000D	1.5	PEM-1301B	53
	Double-acting	Advance/Hold/Retract	Manual VMC 10000D	1.5	PEM-1401B	53
	Single-acting	Advance/Hold/Retract	Solenoid (VEF-15500D)	1.5	PER-1301B	65
	Double-acting	Advance/Hold/Retract	Solenoid (VEC-15600D)	1.5	PER-1401B	65
	Single-acting	Advance/Retract	Manual VMP 10000D	1.5	PEJ-1201B	55
	Single-acting	Advance/Hold/Retract	Manual VMF 10000D	1.5	PEJ-1301B	55
	Double-acting	Advance/Hold/Retract	Manual VMC 10000D	1.5	PEJ-1401B	55
	Single-acting	Advance/Retract	Manual VMP 10000D	1.5	PES-1201B	62
	Double-acting	Advance/Hold/Retract	Manual VMC 10000D	1.5	PES-1401B	62

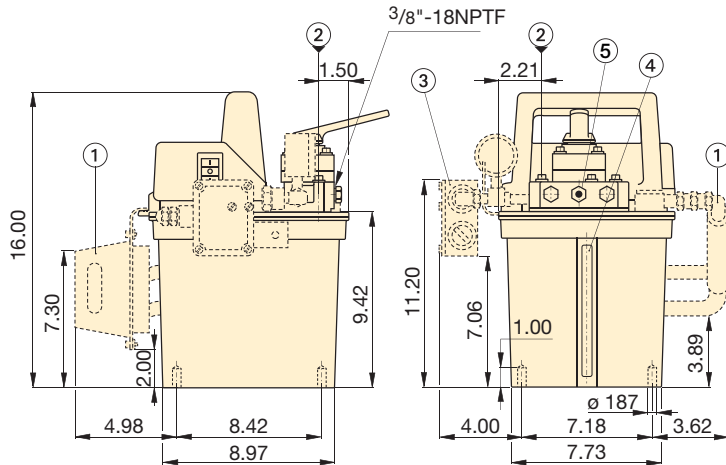
* For 230 volt applications replace "B" suffix with "E". (CE conformity marking only applies to pumps with an "E" suffix.)

PE-Series, Submerged Electric Pumps

◀ For full features see page 72.

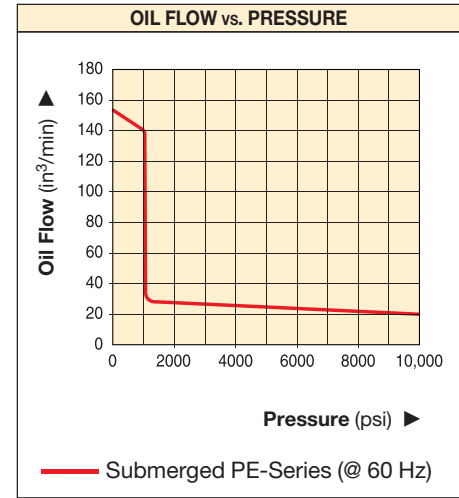
Submerged Pump Performance							
Motor Size	Pressure Rating		Output Flow Rate**		Motor Electrical Specifications*	Sound Level	Relief Valve Adjustment Range
	(psi)		(in ³ /min)				
	(hp)	1 st stage	2 nd stage	1 st stage			
0.5	1,000	10,000	150	20	13 @ 115-1-50/60 6.75 @ 230-1-50/60	62-70	1,000-10,000

* At bypass and maximum pressure. See matrix footnotes on next page for Hz limitations.
** All flow data at 60 Hz, 50 Hz data will be 5/6 th this number.



Dimensions shown in inches.

- ① Heat Exchanger (optional for all models)
- ② Fill Port
- ③ Pressure Switch (PES-Series, optional for other models)
- ④ Oil Level Indicator
- ⑤ Adjustable Relief Valve



i **Speed Chart**

To determine how a submerged pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the “Yellow Pages”.

Page: 251



◀ This PED-1101B Submerged pump quickly and quietly powers a hydraulic nut cutter in this bucket maintenance application.

Submerged Electric Pumps Ordering Matrix

CUSTOM BUILD YOUR SUBMERGED PUMP

If the Submerged Pump that would best fit your application cannot be found in the chart on page 72, you can easily build your custom submerged pump here.

▼ This is how a Submerged Pump Model Number is built up:

P	E	M	-	1	3	01	B
1 Product Type	2 Motor Type	3 Pump Type		4 Pump Series	5 Valve Type	6 Reservoir Size	7 Motor Voltage

1 Product Type

P = Pump

2 Motor Type

E = Electric motor

3 Pump Type

D = Dump
J = Jog
M = Manual
R = Remote (Solenoid)^{1) 2)}
S = Pressure switch

4 Pump Series

1 = .5 hp, 10,000 psi

5 Valve Type

0 = No valve (PER only)
1 = Dump
2 = 3-way, 2-position, normally open
3 = 3-way, 3-position, tandem center
4 = 4-way, 3-position, tandem center
5 = Modular valve (PER only)

6 Reservoir Size

01 = 1.5 gallon

7 Motor Voltage and Heat Exchanger

B = 115 V, 1 Ph, 60 Hz ¹⁾
D = 115 V, 1 Ph, 60 Hz ¹⁾
with heat exchanger
E = 230 V, 1 Ph, 50 Hz ²⁾
F = 230 V, 1 Ph, 50 Hz ²⁾
with heat exchanger
I = 230 V, 1 Ph, 60 Hz

¹⁾ Solenoid valves operate only at 60 Hz.
Can also run at 50 Hz with manual valve

²⁾ Solenoid valves operate only at 50 Hz.
Can also run at 60 Hz with manual valve

Ordering Example

Model Number: PER-1301B

The PER-1301B is a .5 hp, 10,000 psi, submerged electric pump, with 1.5 gallon usable oil capacity, a 3-way, 3-position modular, remote solenoid valve and a 115 V, 1 Phase, 60 Hz motor.

PE Series



Reservoir Capacity:

1.5 gal.

Flow at Rated Pressure:

20 in³/min.

Motor Size:

.5 hp

Maximum Operating Pressure:

10,000 psi



Hoses

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

Page: **114**



Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the

System Components section for a full range of gauges.

Page: **113**



The **PER-1301B**, **PER-1401B**, **PER-1301D** and **PER-1401D** include a Modular (solenoid) Valve and pilot operating check.

Page: **110**

Introducing the *Z-Class* power pumps from Enerpac – pumps that run cooler, use less electricity and are easy to service.



Enerpac has used the latest metallurgical, bearing and seal technologies to produce a pump whose features and benefits far surpass the electric pumps that are available today. By reducing the number of moving parts, improving flow dynamics and decreasing friction, *Z-Class* pumps will stay on the job longer, require less energy to operate and when needed, have lower service costs.

Z-Class electric pumps from Enerpac – simply the best pump you will ever use.



Z Tough.
Dependable.
Innovative.
ZCLASS

Z-Class Pumping Element — The Heart of Your Hydraulic System

Highly efficient design provides increased flow rates, reduced heat generation and a decrease in power consumption. This means improved tool speed and increased service life — which results in higher productivity and lower operating costs.

Heavy-duty bearings extend pump life by reducing friction, reducing surface-loading and lowering bearing stresses.

Pump cavity oil bath extends pump life by reducing heat, improving lubrication and reducing wear.

Self-priming, high-flow 1st stage pump increases pump performance by super-charging the 2nd stage piston pump — improving oil flow in both hot and cold weather operation.

Balanced rotating components reduce vibration creating a smoother running pump — reducing wear, friction and sound levels.

Replaceable piston check-valves increase service life of major pump components.

Ergonomic low-voltage pendant features sealed switches and operates at 24 VDC for improved operator safety.

Z-Class factory installed options & accessories

Extensive list of accessories including heat exchanger, roll-bars, skid bar, pressure transducer, return line filter and level and temperature switches, allow complete pump control over a wide range of industrial applications.

Z-Class electric pumps for your application

Available in one flow range for universal motor and 4 flow ranges for induction motor. Choose from single or two-stage models to provide the optimum cylinder and tool performance for almost any industrial application.

Pump Series	Motor Size (hp)	Flow @ 10,000 psi (in ³ /min)
ZU4	1.7	60
ZE3	1.0	40
ZE4	1.5	60
ZE5	3.0	120
ZE6	7.5	200

Back-lit LCD on select Z-Class pumps

- pump usage information, hour and cycle counts
- low-voltage warning and recording
- offers self-test and diagnostic capabilities
- information displayed in 6 languages
- pressure read-out (when used with the optional pressure transducer)
- adjustable trigger pressure setting (when used with the optional pressure transducer)



Back-lit LCD available on ZU and ZE-Series Electric Pumps ▶



ZU4 Series Pump Applications

- **Mobile:** when frequent pump transport is required and/or on remote locations
- **Universal motor:** 1-phase, runs well under poor voltage supply, using generator power supply or using long extension cord
- **Duty-cycle:** for intermittent applications
- **Cylinders and tools:** for medium to large size single and double-acting applications and high speed.



ZE Series Pump Applications

- **Stationary:** when pump remains in one location
- **Induction motor:** 1 and 3-phase for high-cycle usage
- **Duty-cycle:** for heavy-duty, extended cycle application
- **Cylinders and tools:** for medium to large size single- and double-acting applications and high speed

▼ Shown from left to right: ZU4304MB, ZU4420SB-H, ZU4304PB-K



Z Tough.
Dependable.
Innovative.
CLASS

▼ **COMMON PUMP MODELS**

For technical information and other options see next page.

- Features **Z-Class** high-efficiency pump design; higher oil flow and bypass pressure, cooler running and requires 18% less current draw than comparable pumps
- Powerful 1.7 hp universal electric motor provides high power-to-weight ratio and excellent low-voltage operating characteristics
- High-strength, molded composite shroud protects motor and electronics, while providing an ergonomic, non-conductive handle for easy transport
- Low-voltage pendant provides additional safety for the operator (remote control units)

Pro Series pump only

- LCD readout provides pressure and torque display and a number of diagnostic and readout capabilities never before offered on a portable electric pump
- AutoCycle feature provides continuous cycle operation of the torque wrench as long as the advance button is pressed (pump can be used with or without auto cycle feature)



◀ *Designed to be tough, the ZU4-Series with steel reservoirs will take the abuse of today's construction sites.*

BASIC PUMP TYPES	
Select the model that suits your application. For special requirements contact your Enerpac office.	
Manual Valve <ul style="list-style-type: none"> • Ideal choice for most applications • Manual valve control, for single-acting or double-acting applications • Motor control on shroud 	
Manual Valve with Pendant <ul style="list-style-type: none"> • For light production and lifting applications • Manual valve control for single-acting or double-acting cylinders • Low-voltage control pendant with 10-ft. cord for remote motor operation 	
Dump Valve <ul style="list-style-type: none"> • Ideal for punching, crimping and cutting • For use when load-holding is not required • Low-voltage control pendant with 10-ft. cord controls valve and motor 	
Solenoid Valve <ul style="list-style-type: none"> • Ideal for lifting applications and where remote control is required • Motor runs continuously on pumps with VE33 and VE43 valves. With VE32 valve, motor only runs during the advance function, while holding and retracting, the motor is off • Low-voltage control pendant with 10 ft. cord for remote motor and valve operation 	

ZU-Series, Electric Pumps



Z-Class – A Pump For Every Application

Patented Z-Class pump technology provides high

by-pass pressures for increased productivity – important in applications using long hose runs and high pressure-drop circuits, like heavy lifting or certain double-acting tools.

Enerpac ZU4 Hydraulic Pumps are built to power small to large-sized cylinders or hydraulic tools, or wherever high-speed, intermittent duty, remote hydraulic power is needed.

Classic Electric Pump

- The *Classic* has traditional electro-mechanical components (transformers, relays and switches) in place of solid-state electronics. The *Classic* delivers durable, safe

and efficient hydraulic power for demanding markets like construction, post-tensioning and foundation repair.

Standard Electric Pump

- For applications that do not require digital display features of the Premium Pump. Available in all manual or jog versions.

Pro Electric Pump

- Digital (LCD) display features a built-in hour meter and shows self-diagnostic, cycle-count and low voltage warning information.

Pressure can also be displayed when the pump is equipped with an optional pressure transducer.



ZU Series



Reservoir Capacity:

1.0-10.0 gal.

Flow at Rated Pressure:

60 in³/min.

Motor Size:

1.7 hp

Maximum Operating Pressure:

10,000 psi

Pump Type	Used with Cylinder	Valve Function			Valve Type ²⁾	Pump Control	Usable Oil Capacity (gal)	Model Number 115 VAC ³⁾ 1 Phase			Pro Product Weight with oil ⁴⁾ (lbs)
		Up	Down	Both				Classic	STD Electric	Pro Electric	
	●		●		VM22	Manual	1.0	ZU4704RB	ZU4704MB	ZU4704LB	59
	●		●		VM22	Manual	2.0	ZU4708RB	ZU4708MB	ZU4708LB	69
	●		●	●	VM33	Manual	2.0	ZU4308RB	ZU4308MB	ZU4308LB	70
	●		●	●	VM33	Manual	5.0	ZU4320RB	ZU4320MB	ZU4320LB	109
		●	●	●	VM43	Manual	2.0	ZU4408RB	ZU4408MB	ZU4408LB	70
		●	●	●	VM43	Manual	5.0	ZU4420RB	ZU4420MB	ZU4420LB	109
	●		●		VM22	Remote (Man.)	1.0	ZU4704PB	ZU4204JB	ZU4204KB	60
	●		●		VM22	Remote (Man.)	2.0	ZU4708PB	ZU4208JB	ZU4208KB	70
	●		●		VM22	Remote (Man.)	5.0	ZU4720PB	ZU4220JB	ZU4220KB	109
	●		●	●	VM33	Remote (Man.)	2.0	ZU4308PB	ZU4308JB	ZU4308KB	71
		●	●	●	VM43	Remote (Man.)	2.0	ZU4408PB	ZU4408JB	ZU4408KB	71
		●	●	●	VM43	Remote (Man.)	5.0	ZU4420PB	ZU4420JB	ZU4420KB	110
	●		●		VE32D	Remote	1.0	N/A	N/A	ZU4104DB	63
	●		●		VE32D	Remote	2.0	N/A	N/A	ZU4108DB	73
	●		●		VE32D	Remote	5.0	N/A	N/A	ZU4120DB	112
					–	–	–	–	–	–	–
					–	–	–	–	–	–	–
					–	–	–	–	–	–	–
	●		●	●	VE32	Remote	1.0	N/A	N/A	ZU4204SB	63
	●		●	●	VE32	Remote	2.0	N/A	N/A	ZU4208SB	73
	●		●	●	VE33	Remote	2.0	N/A	N/A	ZU4308SB	85
		●	●	●	VE43	Remote	2.0	N/A	N/A	ZU4408SB	85
		●	●	●	VE43	Remote	5.0	N/A	N/A	ZU4420SB	124
					–	–	–	–	–	–	–
					–	–	–	–	–	–	–
					–	–	–	–	–	–	–

¹⁾ CE conformity marking only applies to pumps with an "E" suffix. "E" voltage versions also meet all requirements of the European EMC-Directive.

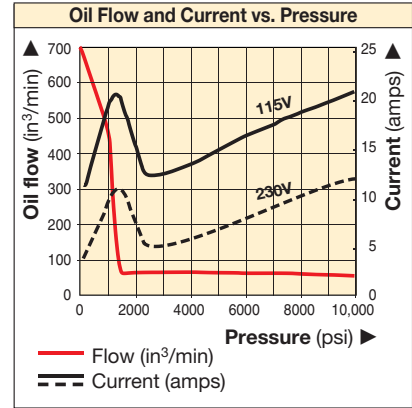
²⁾ See valves section for technical information on valve types.

³⁾ See custom order matrix for other voltage options.

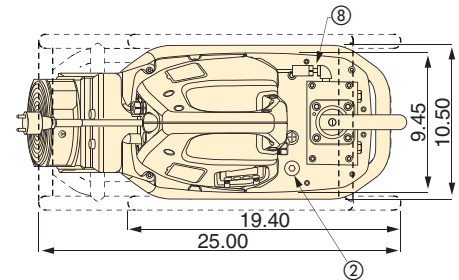
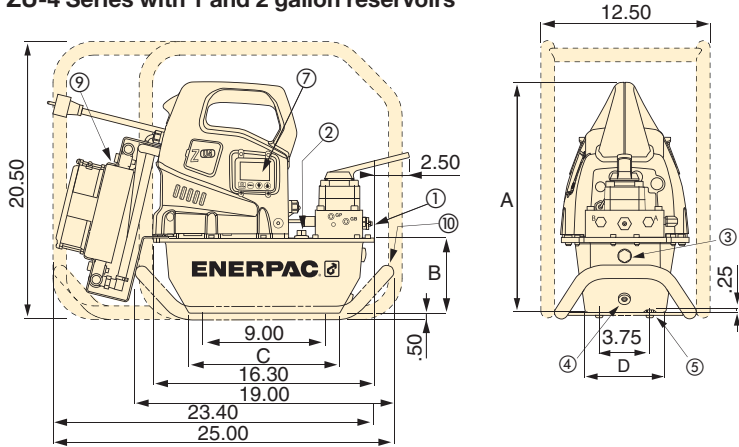
⁴⁾ Subtract 3 lbs. for STD Electric models.

ZU Series, Specifications and Dimensions

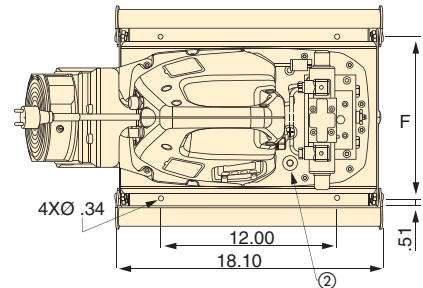
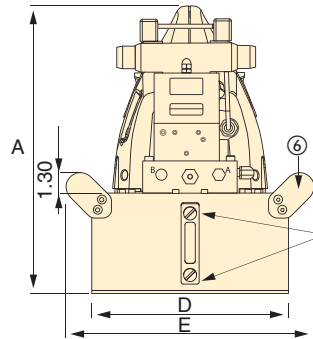
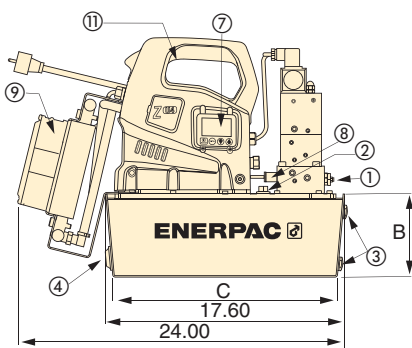
ZU4 Performance							
Motor Size (hp)	Output Flow Rate (in ³ /min)				Motor Electrical Specification (volts-ph-Hz)	Sound Level (dBA)	Relief Valve Adjustment Range (psi)
	100 psi	700 psi	5000 psi	10,000 psi			
1.7	700	535	76	60	115-1-50/60 230-1-50/60	85-90	2,000-10,000



ZU-4 Series with 1 and 2 gallon reservoirs



ZU-4 Series with 2.5, 5.0 and 10.0 gallon reservoirs (Left view shown without side handle)



- ① User adjustable relief valve
- ② Oil fill port, SAE#10
- ③ Oil level sight gauge
- ④ Oil Drain, 1/2" NPTF
- ⑤ M8 x 1.25
- ⑥ Handles on all 2.5, 5.0, and 10.0 gallon reservoirs

Factory installed features and options

- ⑦ Back-lit LCD Electric
- ⑧ Pressure transducer
- ⑨ Heat exchanger
- ⑩ Skid bar
- ⑪ Handle guard installed on all 2.5, 5, and 10 gallon reservoirs
- ⑫ Reservoir handles included on all 2.5, 5 and 10 gallon pumps



◀ Increased output flow and extended brush life increase productivity for post-tensioning applications.

Usable Reservoir Capacity (gal)	Pump Dimensions (in)					
	A	B	C	D	E	F
1.0	16.7	5.6	11.0	6.0	-	-
2.0	16.7	5.6	11.0	8.1	-	-
2.5	17.3	6.2	16.5	12.0	15.1	11.0
5.0	18.3	7.1	16.5	16.6	19.7	15.6
10.0	21.7	10.6	15.7	19.9	22.7	18.9

ZU-Series, Ordering Matrix

CUSTOM BUILD YOUR ZU4 SERIES PUMP

If the ZU4 Series pump that would best fit your application cannot be found in the chart on page 79, you can easily build your custom ZU4 Series pump here.

▼ This is how a ZU-Series pump model number is built up:

Z	U	4	4	08	L	B	-	H	K	T	
1	2	3	4	5	6	7			8		
Product Type	Motor Type	Flow Group	Valve Type	Reservoir Size	Valve Operation	Voltage			Options and Accessories		

1 Product Type

Z = Pump Series

2 Motor Type

U = Universal electric motor

3 Flow Group

4 = 60 in³/min @ 10,000 psi

4 Valve Type (see page 110 for more details)

- 1 Dump (VE32D)
- 2 3 way/2 position manual or electric (VM32 or VE32)
- 3 3 way/3 position manual or electric (VM33 or VE33)
- 4 4 way/3 position manual or electric (VM43 or VE43)
- 6 3 way/3 position locking manual w/po check (VM33-L)
- 7 3 way/2 position manual (VM22)
- 8 4 way/3 position locking manual w/po check (VM43-L)
- 9 4 way/3 position manual w/power seating (VM43-LPS)

5 Reservoir Size (useable capacity)

- 04** = 1.0 gallon
- 08** = 2.0 gallon
- 10** = 2.5 gallon (includes side handles)
- 20** = 5.0 gallon (includes side handles)
- 40** = 10.0 gallon (includes side handles)

6 Valve Operation

- D** = Dump (solenoid valve w/pendant and LCD Electric)
- J** = Jog (manual valve w/pendant and Standard Electric (i.e. w/o LCD)
- K** = Jog (manual valve w/pendant and LCD Electric)
- L** = Manual valve w/LCD Electric (w/o pendant)
- P** = Manual valve w/pendant and classic electric (i.e. w/o LCD)
- R** = Manual valve w/Classic electric (i.e. w/o LCD) [w/o pendant]
- M** = Manual valve w/Standard Electric (i.e. w/o LCD) [w/o pendant]
- S** = Solenoid valve w/pendant and LCD Electric

7 Voltage

- B** = 115V, 1 ph, 50/60Hz
- E** = 208-240V, 1 ph, 50/60 Hz (w/European plug and CE EMC compliant)
- I** = 208-240V, 1 ph, 50/60 Hz (w/NEMA 6-15 plug)

8 Options and Accessories (see page 82 for possibilities)

- F** = Filter
- G** = 0-15,000 psi gauge (2½")¹⁾
- H** = Heat exchanger
- K** = Skidbar (1 and 2 gallon reservoirs only)
- L** = Level/temp switch²⁾³⁾
- N** = No reservoir handles (includes lifting eyes)
- R** = Roll cage
- T** = Pressure transducer²⁾
- U** = Foot switch

¹⁾ Pressure gauge not available on pump models with pressure transducer

²⁾ These options require LCD electric

³⁾ Not available on 1 and 2 gallon reservoirs

ZU Series



Reservoir Capacity:

1.0-10.0 gal.

Flow at Rated Pressure:

60 in³/min.

Motor Size:

1.7 hp

Maximum Operating Pressure:

10,000 psi



Speed Chart

To determine how a "Z" pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the "Yellow Pages".

Page: **251**



Ordering Example

Model Number:
ZU4408LB-HKT

ZU4408LB-HKT is a 60 in³/min at 10,000 psi pump with a 4-way, 3-position manual valve, a 2 gal. (8-liter) reservoir, operates on 115V, 1ph, 50/60 Hz and is specified with optional LCD electrical panel, heat exchanger, pressure transducer and skidbar.



Torque Wrench Pumps

System matched air and electric pumps provide control to operate Enerpac Torque Wrenches.

Page: **202**



Pressure Transducer*

- More durable than analog gauges (against mechanical and hydraulic shock)
- More accurate than analog gauges (0.5% full scale of pump)
- Calibration can be fine tuned for certification
- “Set pressure” feature turns off motor at user defined pressure (or shifts valve to neutral on models with VE33/VE43 valves)
- Display pressure in psi, bar, or MPa

* Requires LCD Electric

Accessory Kit Model Number	Adjustable Pressure Range (psi)	Switch-point repeatability	Dead-band (psi)
ZPT-U4 *	50-10,000	± 0,5%	50

* Add suffix T for factory installation.



Level/Temperature Switch

- Ensures feedback on pump oil level and temperature
- Drop-in design allows for easy installation to pump reservoir
- Plugs directly into pump electrical enclosure
- Built-in thermal sensing shuts off pump when unsafe operating temperature is reached
- Oil level switch shuts down pump before oil reaches an unsafe operating level

Model Number	Operating Temperature (° F)	Maximum Pressure (psi)	Weight (lbs)
ZLS-U4	40-230	150	.11

* Add suffix L for factory installation.



Hoses

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

Page: 114



Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the System Components section for a full range of gauges.

Page: 113



Foot Switch

- Hands-free remote control on solenoid dump and 3-position valves
- With 10 foot cord

Accessory Kit No.	Can be used on ZU4 Pumps with
ZCF-2 *	Solenoid VE-Series valves

* Add suffix U for factory installation.



Roll Cage

- Protects pump
- Provides greater pump stability

Accessory Kit Number	Fits on Reservoir
ZRC-04 *	1 and 2 gallon ¹⁾
ZRC-04H *	1 and 2 gallon ²⁾
ZRB-10 *	2.5 gallon
ZRB-20 *	5 gallon
ZRB-40 *	10 gallon

* Add suffix R for factory installation.

¹⁾ Without heat exchanger ²⁾ With heat exchanger

Ordering Example:
Model No. ZU4208BB-QR



Skidbar*

- Provides easy two-hand lift
- Provides greater pump stability on soft or uneven surfaces
- Also available as an add-on kit (model number SBZ-4)

* 1 and 2 gallon reservoirs only

Accessory Kit No.	For ZU-Series Pumps with Reservoir	Wt. (lbs)
SBZ-4 *	1-2 gal. w/o heat exchanger	4.9
SBZ-4L *	1-2 gal. with heat exchanger	5.5

* Add suffix K for factory installation.

ZU-Series Factory Installed Options and Accessories



ZU4-Series Options

Accessory Kits can be installed by the customer.

See chart below for all possible options on ZU4-Series pumps:

- Classic Electric,
 - Standard (STD) Electric (no LCD)
 - Pro Electric (with LCD).
- Refer to page 81 for ordering matrix.

ZU4-Series Options	Factory Installed			Accessory Kits		
	Classic Electric	Standard Electric	Pro Electric	Classic Electric	Standard Electric	Pro Electric
Return Line Filter	F	F	F	ZPF	ZPF	ZPF
Skid Bar ¹⁾	K	K	K	SBZ	SBZ	SBZ
Roll Cage	R	R	R	ZRC	ZRC	ZRC
Heat Exchanger	H	H	H	ZHE	ZHE	ZHE
Pressure Gauge	G	G	G	G	G	G
Pressure Transducer	-	-	T	-	-	ZPT-U4
Level/Temperature Switch	-	-	L	-	-	ZLS-U4
Foot Switch	-	-	U	-	-	ZCF-2

¹⁾Skid Bar not in combination with Roll Cage.

ZU Series



Reservoir Capacity:

1.0-10.0 gal.

Flow at Rated Pressure:

60 in³/min.

Motor Size:

1.7 hp

Maximum Operating Pressure:

10,000 psi



Return Line Filter

- 25 micron nominal filter removes contaminants from return oil flow before allowing it back into tank
- Internal by-pass valve prevents damage if filter is dirty
- With maintenance indicator

Accessory Kit Model Number	Maximum Pressure (psi)	Maximum Oil Flow (GPM)	By-pass Setting (psi)
ZPF *	200	12.0	25

* Add suffix F for factory installation.



Heat Exchanger

- Removes heat from the bypass oil to provide cooler operation
- Stabilizes oil viscosity, increasing oil life and reduces wear of pump and other hydraulic components

Accessory Kit No. *	Can be used on
ZHE-U115	115V pumps
ZHE-U230	230V pumps

* Add suffix H for factory installation.



Heat Exchanger

- Extends system life
- Stabilizes oil temperature at a maximum of 130° F at 70° F ambient temperature.

Do not exceed maximum oil flow and pressure ratings. Heat exchanger is not suitable for water-glycol or high water based fluids.

Thermal Transfer *	Maximum pressure (psi)	Maximum oil flow (GPM)	Voltage (VDC)
Btu/h	900	7.0	12

* At GPM at 70 °F ambient temperature.

▼ Shown from left to right: ZE3304MB-K, ZE4110DB-FHR



Z-Class




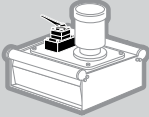
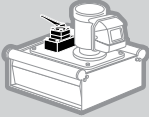
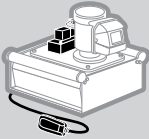

The New Standard for Industrial Applications



Oil Level Indicators

All ZE pumps feature an oil level indicator—sight glasses on the 1 and 2 gallon reservoirs and oil level gauges on the 2.5, 5 and 10 gallon reservoirs.

▼ SELECTION CHART *

BASIC PUMP CONFIGURATIONS Select your ZE pump model here for most applications. For special requirements, see the ZE Pump ordering matrix.		Pump Type	Used with Cylinder			Valve** Model Number	Useable Oil Capacity (gal)		
									
MANUAL VALVE CONTROL	Manual Valve without electric box or LCD • Ideal choice for most applications • Manual valve control, for both single-acting or double-acting applications • Manual motor control • On/off switch on 1-phase electric motor		●	—	●	—	●	VM32	2.0
			●	—	●	●	●	VM33	2.0
			●	—	●	●	●	VM33	5.0
			●	—	●	●	●	VM33	10.0
			—	●	●	●	●	VM43	2.0
			—	●	●	●	●	VM43	5.0
			—	●	●	●	●	VM43	10.0
	Manual Valve with electric box and LCD • Ideal choice for most applications • Manual valve control, for both single-acting or double-acting applications • Manual motor control		●	—	●	—	●	VM32	2.0
			●	—	●	—	●	VM32	2.5
			●	—	●	●	●	VM33	5.0
●			—	●	●	●	VM33	10.0	
—			●	●	●	●	VM43	5.0	
—			●	●	●	●	VM43	10.0	
—			●	●	●	●	VM43	10.0	
REMOTE VALVE CONTROL	Solenoid Dump Valve with electric box and LCD • Ideal for punching, crimping and cutting • For use when load holding is not required • Push-button control pendant with 10 ft. cord controls the valve and motor		●	—	●	—	●	VE32D	1.0
			●	—	●	—	●	VE32D	2.0
			●	—	●	—	●	VE32D	2.5
			●	—	●	—	●	VE32D	5.0
			●	—	●	—	●	VE32D	10.0
	Solenoid 3-position Valve with Electric Box and LCD • Ideal for production and lifting applications • All valves are 3-position for Advance-Hold-Retract • Push-button control pendant with 10 ft. cord controls the valve and motor		●	—	●	●	●	VE33	2.0
			●	—	●	●	●	VE33	2.5
			●	—	●	●	●	VE33	5.0
			—	●	●	●	●	VE43	2.0
			—	●	●	●	●	VE43	2.5
			—	●	●	●	●	VE43	5.0
			—	●	●	●	●	VE43	5.0
			—	●	●	●	●	VE43	10.0

* Models in this chart are 115 VAC, 1-phase at 50/60 Hz for ZE3-4 or 220 VAC, 3 phase at 50/60 Hz for ZE5-6. For other options, please refer to the ZE Pump ordering matrix. ** See Valve Section for technical information.

ZE-Series Electric Pumps

- Features **Z-Class** high-efficiency pump design; higher oil flow and by-pass pressure, cooler running and requires 18% less current draw than comparable pumps
- Totally enclosed, fan-cooled industrial electric motors supply extended life and stand up to harsh industrial environments
- Low-voltage pendant, on certain models, provides additional safety for the operator
- Multiple valve and reservoir configurations provide application specific models to match the most demanding industrial applications
- High-strength, molded electrical enclosure protects electronics, power supplies and LCD readout from harsh industrial environments
- LCD readout provides a number of diagnostic and readout capabilities never before offered on an industrial pump (included with electric valve models, optional on other models)
- IP54 Rating for superior dust and water protection

ZE Series



Reservoir Capacity:
1.0-10.0 gal.

Flow at Rated Pressure:
40-200 in³/min

Motor Size:
1.0-7.5 hp

Maximum Operating Pressure:
10,000 psi



User Adjustable Relief Valve

All VM and VE-Series have a user adjustable relief valve to allow the operator to easily set the optimum working pressure.



Locking Valves

For applications requiring positive load holding, VM-Series valves (except VM32) are available with a pilot-operated check valve. This provides hydraulic locking of the load until the valve is shifted into the retract position. To order this feature on your ZE-series pump see the valve type in the order matrix.

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Single-Stage or Two-Stage

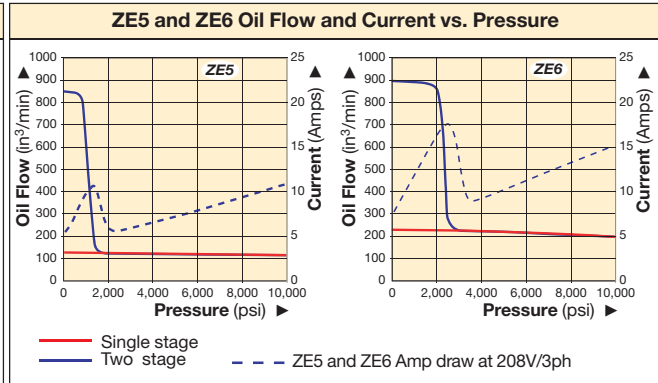
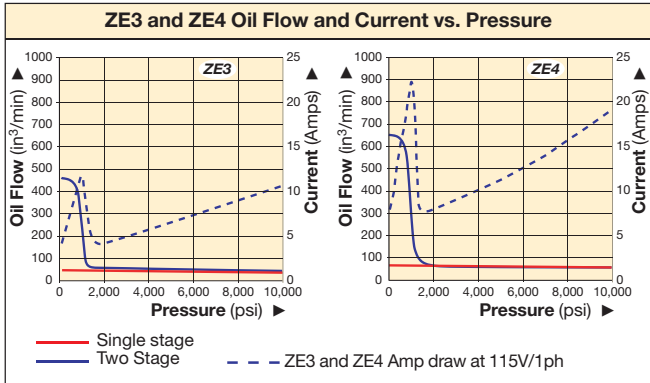
Choose single-stage pumps for applications that require constant flow regardless of pressure, such as testing or clamping. Two-stage pumps have an increased output flow at low pressure to allow fast movement towards the load, for reduced cycle times and increased productivity. To specify a single-stage pump, place the letter "S" at the end of the model number.

For example: **ZE5320LG-S**

ZE3 Series (1.0 hp) Output Flow Rate at 10,000 psi: 40 in ³ /min		ZE4 Series (1.5 hp) Output Flow Rate at 10,000 psi: 60 in ³ /min		ZE5 Series (3.0 hp) Output Flow Rate at 10,000 psi: 120 in ³ /min		ZE6 Series (7.5 hp) Output Flow Rate at 10,000 psi: 200 in ³ /min	
Model Number	Wt. (lbs)	Model Number	Wt. (lbs)	Model Number	Wt. (lbs)	Model Number	Wt. (lbs)
ZE3208MB	91	ZE4208MB	100	-	-	-	-
ZE3308MB	92	ZE4308MB	101	-	-	-	-
ZE3320MB	132	ZE4320MB	141	ZE5320MG	152	ZE6320MG	191
ZE3340MB	183	ZE4340MB	192	ZE5340MG	203	ZE6340MG	242
ZE3408MB	92	ZE4408MB	101	-	-	-	-
ZE3420MB	132	ZE4420MB	141	ZE5420MG	152	ZE6420MG	191
ZE3440MB	183	ZE4440MB	192	ZE5440MG	203	ZE6440MG	242
ZE3208LB	96	ZE4208LB	105	-	-	-	-
ZE3210LB	109	ZE4210LB	112	ZE5210LG	132	ZE6210LG	171
ZE3320LB	138	ZE4320LB	146	ZE5320LG	160	ZE6320LG	199
ZE3340LB	188	ZE4340LB	197	ZE5340LG	210	ZE6340LG	249
ZE3420LB	138	ZE4420LB	145	ZE5420LG	160	ZE6420LG	199
ZE3440LB	189	ZE4440LB	197	ZE5440LG	210	ZE6440LG	250
ZE3104DB	94	ZE4104DB	103	-	-	-	-
ZE3108DB	105	ZE4108DB	109	-	-	-	-
ZE3110DB	114	ZE4110DB	122	ZE5110DG	136	ZE6110DG	175
ZE3120DB	141	ZE4120DB	149	ZE5120DG	163	ZE6120DG	202
ZE3140DB	190	-	-	-	-	-	-
ZE3308SB	112	ZE4308SB	121	-	-	-	-
ZE3310SB	125	ZE4310SB	134	ZE5310SG	147	ZE6310SG	187
ZE3320SB	152	ZE4320SB	161	ZE5320SG	174	ZE6320SG	213
ZE3408SB	112	ZE4408SB	121	-	-	-	-
ZE3410SB	125	ZE4410SB	134	ZE5410SG	147	ZE6410SG	187
ZE3420SB	152	ZE4420SB	161	ZE5420SG	174	ZE6420SG	213
ZE3440SB	203	ZE4440SB	212	ZE5440SG	225	ZE6440SG	264

* All models in this chart are 115 VAC, 1-phase at 50/60 Hz. For other options please refer to the ZE Pump ordering matrix.

ZE-Series, Specifications and Dimensions

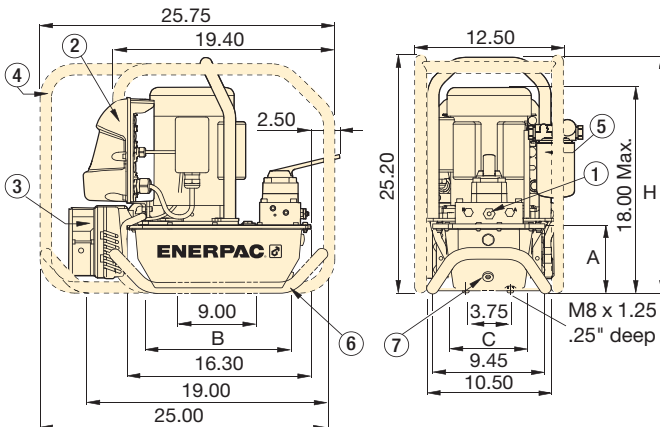


▼ PERFORMANCE CHART

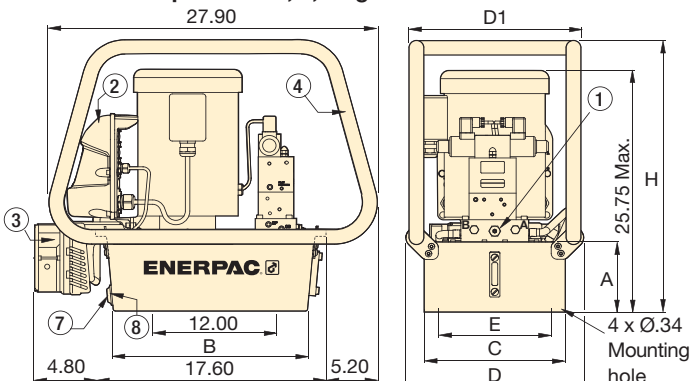
Pump Series	Operation	Output Flow Rate (in ³ /min)				Available Reservoir Sizes (useable oil) (gal)	Motor Size		Relief Valve Adjustment Range (psi)	Sound Level (dBA)
		100 psi	700 psi	5,000 psi	10,000 psi		hp	RPM		
ZE3	Single-stage	43	43	42	40	1, 2, 2.5, 5, 10	1.0	1750	1000-10,000	75
	Two-stage	450	385	42	40					
ZE4	Single-stage	64	64	62	60	1, 2, 2.5, 5, 10	1.5	1750	1000-10,000	75
	Two-stage	650	600	62	60					
ZE5	Single-stage	128	126	123	120	2.5, 5, 10	3.0	1750	1000-10,000	75
	Two-stage	850	825	123	120					
ZE6	Single-stage	220	215	210	200	2.5, 5, 10	7.5	3450	1000-10,000	80
	Two-stage	900	890	210	200					

Output flow rate is listed at 60 Hz. Flow rate will be approximately 5/6 of these values at 50 Hz.

ZE-Series Pumps with 1 and 2 gallon reservoir



ZE-Series Pumps with 2.5, 5, 10 gallon reservoir



i Single-Stage or Two-Stage Pumps

Choose single-stage pumps for applications that require constant flow regardless of pressure, such as testing or clamping.

Two-stage pumps have an increased output flow at low pressure to allow fast movement towards the load, for reduced cycle times and increased productivity.

- ① User adjustable relief valve on all manual and solenoid valves:
 3/8" NPTF on A and B ports
 1/4" NPTF on auxiliary ports
- ② Electric Box (Optional w/manual valve)
- ③ Heat Exchanger (Optional)
- ④ Roll Bar (Optional)
- ⑤ Return Line Filter (Optional)
- ⑥ Skid Bar (Optional)
- ⑦ Oil Drain
- ⑧ Oil Level/Temperature Switch (Optional)

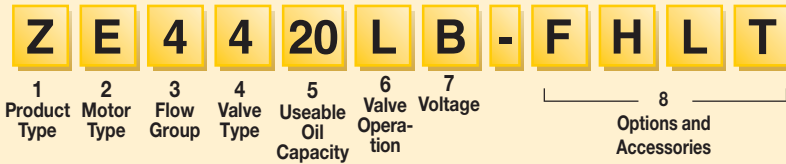
Reservoir Size (useable oil) (gal)	ZE-Series Pump Dimensions (in)					
	A	B	C	D	D1	H
1.0	5.6	11.0	6.0	-	-	20.2
2.0	5.6	11.0	8.1	-	-	20.2
2.5	6.2	16.5	12.0	15.1	14.6	11.0
5.0	7.1	16.5	16.6	19.7	19.2	15.6
10.0	10.6	15.7	19.9	22.7	22.5	18.9

ZE Series Electric Pump Ordering Matrix

CUSTOM BUILD YOUR ZE SERIES PUMP

If the ZE Series pump that would best fit your application cannot be found in the chart on page 85, you can easily build your custom ZE Series pump here.

▼ This is how a ZE Series Pump model is built up:



1 Product Type

Z = Pump Class

2 Prime movers

E = Induction Electric Motor

3 Flow Group

- 3** = 40 in³/min @ 10,000 psi
- 4** = 60 in³/min @ 10,000 psi
- 5** = 120 in³/min @ 10,000 psi¹⁾
- 6** = 200 in³/min @ 10,000 psi¹⁾

4 Valve Types

- 0** = No valve w/coverplate
- 1** = Dump (VE32D)
- 2** = 3 way/2 position manual (VM32)
- 3** = 3 way/3 position manual or electric (VM33 or VE33)
- 4** = 4 way/3 position manual or electric (VM43 or VE43)
- 6*** = 3 way/3 position locking manual w/po check (VM33L*)
- 7** = 3 way/2 position manual (VM22)
- 8** = 4 way/3 position locking manual w/po check (VM43L)

5 Useable Oil Capacity

- 04** = 1.0 gallon²⁾
- 08** = 2.0 gallon²⁾
- 10** = 2.5 gallon
- 20** = 5.0 gallon
- 40** = 10.0 gallon

6 Valve Operation

- D** = Dump valve (w/ pendant and LCD)
- L** = Manual valve (w/o pendant, w/ LCD)
- M** = Manual valve⁶⁾ (w/o pendant or LCD)
- N** = No valve⁶⁾ (no electrical box)
- S** = Solenoid valve (w/ pendant and LCD)
- W** = No valve (w/o pendant and LCD)

7 Voltages

Single Phase

- B** = 115V 1 ph 50-60Hz³⁾
- E** = 208-240V 1 ph 50-60 Hz European Plug
- I** = 208-240V 1 ph 50-60 Hz USA Plug

Three Phase⁶⁾

- M** = 190-200V 3ph 50-60Hz
- G** = 208-240V 3ph 50-60Hz
- W** = 380-415V 3ph 50-60Hz
- K** = 440V 3ph 50-60Hz
- J** = 460-480V 3ph 50-60Hz
- R** = 575V 3ph 60Hz

8 Options and Accessories (see page 88 for possibilities)

- F** = Filter
- G** = 0-15,000 psi gauge (2¹/₂"⁷⁾
- H** = Heat exchanger⁴⁾
- K** = Skidbar (1 and 2 gal. reservoirs only)
- L** = Level/temp switch^{4) 5)}
- N** = No reservoir handles (includes lifting eyes)
- P** = Pressure switch⁴⁾
- R** = Roll cage
- S** = Single stage
- T** = Pressure transducer^{4) 7)}
- U** = Foot switch⁴⁾

- 1) ZE5 and ZE6 series pumps only available with 3-phase motors.
- 2) 1 and 2 gallon reservoirs only available on ZE3 and ZE4 series pumps.
- 3) 115 volt pumps are supplied with 15 amp plug for intermittent use. 20 amp circuit recommended for frequent full pressure use.
- 4) These options require LCD electrical package. Pressure switch option only available on manual valves without locking valve. The LCD electrical package can accept either a pressure switch or pressure transducer, but not both.
- 5) Not available with 1 and 2 gallon reservoirs.
- 6) Standard Electric models with 3-phase motors are shipped without cord, motor starter or overload protection.
- 7) Pressure gauge not available on pump models with pressure transducer. Pressure transducer provides digital pressure readout on LCD display.

* Not available on ZE5 or ZE6 Series Pumps

ZE Series



Reservoir Capacity:

1.0-10.0 gal.

Flow at Rated Pressure:

40-200 in³/min.

Motor Size:

1.0-7.5 hp

Maximum Operating Pressure:

10,000 psi



Ordering Example 1

Model Number: ZE4420MB

ZE4420MB is a 60 in³/min, 10,000 psi pump with a 4 way, 3-position manual valve, a 5 gallon reservoir, operates on a 115 VAC 1 ph 50/60 Hz motor and includes standard electrical package.

Ordering Example 2

Model Number: ZE6440SG-HNU

ZE6440SG-HNU is a 200 in³/min, 10,000 psi pump with a 4 way, 3-position electric valve, a 10 gallon reservoir, operates on a 230 VAC 3 ph 50/60 Hz motor. It includes LCD electrical package and foot switch on 10 ft cord, no reservoir handles and the optional heat exchanger.



Pendants

When ordering Enerpac VE-Series solenoid valve for use on "W" type valve operation (no Valve, with Electric Box [LCD], without pendant) the pendant must be ordered separately. Pendant connection to be plugged into electric box.



Electric Box ¹⁾

- Back-lit LCD
- Pump usage information, hour and cycle counts
- Low-voltage warning and recording
- Self-test and diagnostic capabilities
- Pressure read-out ²⁾
- Auto-mode pressure setting ²⁾
- Information can be displayed in six languages ³⁾

¹⁾ Included on pumps with solenoid valves. Can be factory installed on pumps with manual valve

²⁾ When used with optional pressure transducer

³⁾ English, French, German, Italian, Spanish and Portuguese



Level/Temperature Switch ⁴⁾

- Shuts down pump before oil level reaches an unsafe level, avoiding damage due to cavitation
- Shuts down pump when unsafe oil temperature is reached
- Ideal if pump is used in remote area without visual access to oil level

⁴⁾ 24 V, requires Electric Box. Available for 2.5, 5 and 10 gallon reservoirs

Accessory Kit Model Number	Fixed Temperature Signal (°F)	Operating Temperature (°F)	Max. Pressure (psi)
ZLS-U4 *	75	40 - 230	150

* Add suffix **L** for factory installation, see ordering matrix.



Return Line Filter

- 25 micron nominal filter removes contaminants from return oil flow before allowing it back into tank
- Internal by-pass valve prevents damage if filter is dirty
- With maintenance indicator
- Replaceable filter element PF25

Accessory Kit Model Number	Maximum Pressure (psi)	Maximum Oil Flow (GPM)	By-pass Setting (psi)
ZPF *	200	12.0	25

* Add suffix **F** for factory installation, see ordering matrix.



Roll Cage

- For easy portability and hoisting
- Protects pump and electric box
- Available for all reservoir sizes

Accessory Kit Number	Fits on Reservoir
ZRC-04 *	1 and 2 gallon ¹⁾
ZRC-04H *	1 and 2 gallon ²⁾
ZRB-10 *	2.5 gallon
ZRB-20 *	5 gallon
ZRB-40 *	10 gallon

* Add suffix **R** for factory installation, see ordering matrix.
¹⁾ Without heat exchanger ²⁾ With heat exchanger



Skid Bar

- Provides easy two-hand lift
- Provides greater pump stability on soft or uneven surfaces

Accessory Kit Number	For ZE-Series Pumps with Reservoir	Weight (lbs)
SBZ-4 *	1-2 gal. w/o heat exchanger	4.9
SBZ-4L *	1-2 gal. with heat exchanger	5.5

* 1 and 2 gallon reservoirs only. Add suffix **K** for factory installation, see ordering matrix.



Foot Switch ⁵⁾

- Hands-free remote control on solenoid dump and 3-position valves
- With 10 foot cord

⁵⁾ 15 V, requires Electric Box

Accessory Kit Number	Can be used on ZE-Series Pumps with
ZCF-2 *	Solenoid VE-Series valves

* Add suffix **U** for factory installation, see ordering matrix.

ZE-Series, Factory Installed Options & Accessories



Pressure Transducer ¹⁾

- Displays pressure on LCD in bar, MPa or psi
- More accurate than analog gauge
- Calibration can be fine-tuned for certification
- Easy-viewing variable rate display
- “Set pressure” feature turns off motor at user defined pressure (or shifts valve to neutral on models with VE33/ VE43 valves)

¹⁾ 24 V, requires Electric Box

Accessory Kit Model number	Adjustable Pressure Range (psi)	Switch-point Repeatability	Dead-band (psi)
ZPT-U4 *	50-10,000	± 0,5%	50

* Add suffix T for factory installation, see ordering matrix.



Pendants ³⁾

- For pump types with valve operation “W” (No Valve, with Electric Box, without pendant)

³⁾ When ordering Enerpac VE-Series solenoid valve, the pendant must be ordered separately. Pendant connection to be plugged into electric box

Pendant Model Number	To be used with Solenoid Valve:
ZCP-1	VE32D
ZCP-3	VE32, VE33, VE43



Pressure Switch ²⁾ ³⁾

- Controls pump, monitors system
- Adjustable pressure 500-10,000 psi
- Includes glycerine filled 15,000 psi pressure gauge G2536L
- Accuracy ± 1,5% of full scale

²⁾ 24 V, requires Electric Box. Not available in combination with pressure transducer.

³⁾ Not available on LCD electronics

Accessory Kit Model number	Switch-point Repeatability	Deadband (psi)	Oil Ports (NPT)
ZPS-E3 *	± 2%	115-550	3/8"

* Add suffix P for factory installation, see ordering matrix.



Heat Exchanger ⁴⁾

- Removes heat from bypass oil to provide cooler operation
- Stabilizes oil viscosity, increasing oil life and reduces wear of pump and other hydraulic components.

⁴⁾ 24 VDC, requires electric box

Accessory Kit Model number	Fits on Reservoir	Weight (lbs)
ZHE-E04 *	1 and 2 gallon	9.0
ZHE-E10 *	2.5, 5, and 10 gallon	9.0

* Add suffix H for factory installation, see ordering matrix.



Options

Accessory Kits can be installed by customer. See chart below for options on Standard Electric (without electric box) or LCD Electric (with electric box). Refer to page 87 for ordering matrix.

ZE-Series Options	Factory Installed		Accessory Kits	
	Std. Electr.	LCD Electr.	Std. Electr.	LCD Electr.
Return Line Filter	F	F	ZPF	ZPF
Skid Bar ¹⁾	K	K	SBZ	SBZ
Roll Cage	R	R	ZRB	ZRB
Single-stage	S	S	-	-
Heat Exchanger	-	H	-	ZHE
Pressure Gauge ²⁾	G	G	-	-
Pressure Switch ³⁾	-	P	ZPS-E3	-
Pressure Transducer ⁴⁾	-	T	-	ZPT-U4
Level/Temp Switch ⁵⁾	-	L	-	ZLS-U4
Foot Switch ⁶⁾	-	U	-	ZCF-2

¹⁾ Available for 1 and 2 gallon reservoirs.

²⁾ Not available on pumps with pressure transducer.

³⁾ Includes 14,500 psi gauge. Only available on manual valves without locking feature.

⁴⁾ Electric box can accept either pressure switch or pressure transducer, but not both.

⁵⁾ Available for 2.5, 5, 10, gallon reservoirs.

⁶⁾ For control of solenoid dump and 3-position valves.



ZPT-U4 Pressure Transducer

More durable against mechanical and hydraulic shock than analog gauges.

- Digital pressure read-out provides accuracy of 5% of full scale.
- Easy-viewing variable rate display automatically varies increments between 44, 203, 508 and 2103 psi as rate of pressure change increases.
- “Set pressure” feature turns off motor at user defined pressure (or shifts valve to neutral on VE33 and VE43 valves).



ZHE-Series Heat Exchangers

Heat exchanger stabilizes oil temperature at 130° F at 70° F ambient temperature. Thermal transfer at 5 GPM and 70° F ambient temperature: 900 Btu/hour.

Do not exceed maximum oil flow of 7.0 GPM and maximum pressure of 300 psi. Not suitable for water-glycol or high water based fluids.

▼ Shown: **PEM-8418**



- Panel-mounted pressure gauge and adjustable relief valve for system pressure control
- Two-speed pump design, with high by-pass pressure, for rapid cylinder advance
- Dual voltage motor (230/460 VAC, 3 phase, 60 Hz)
- Full length reservoir sight tube with integral thermometer for ease in monitoring oil level and temperature
- Low voltage controls to protect the pump operator



The Largest Pump for the Largest Jobs



Locking Valves

Pumps with VM-4 manual valves are available with VM-4L manual valves for positive load holding. Add suffix "L" to pump model number.

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FS-34 Foot Control Switch

This 3-position switch allows hands-free control of the solenoid valve on the pump. Operates 24V and

115V valves that use the square electrical connector.



Hoses

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system,

specify only genuine Enerpac hydraulic hoses.

Page: 114

◀ With similar specifications, a gasoline powered EGM-8000 Series is shown here performing a synchronized lift.

8000-Series Electric Pumps



About the 8000 Series

The 8000 Series is the largest pump in the Enerpac line and the best choice to power most large size cylinders, multiple cylinder circuits, and applications where the need for high speed requires high flow rates.

The 8000 Series, with its large reservoir capacity, is best suited for large jobs and may be the only solution because of the required oil capacity.

For further application assistance see our "Yellow Pages", or consult your local Enerpac office.

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PE Series



Reservoir Capacity:

25 gal.

Flow at Rated Pressure:

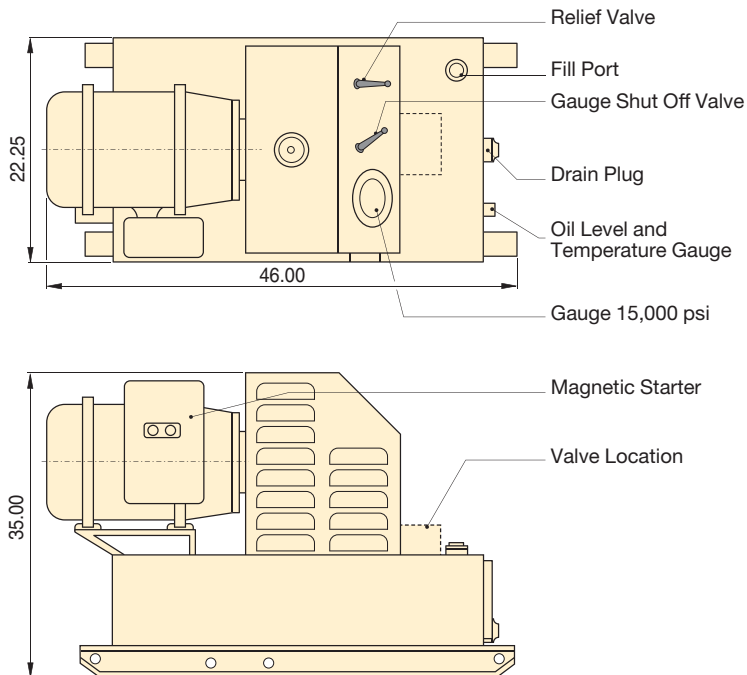
2.0 gal/min.

Motor Size:

12.5 hp

Maximum Operating Pressure:

10,000 psi



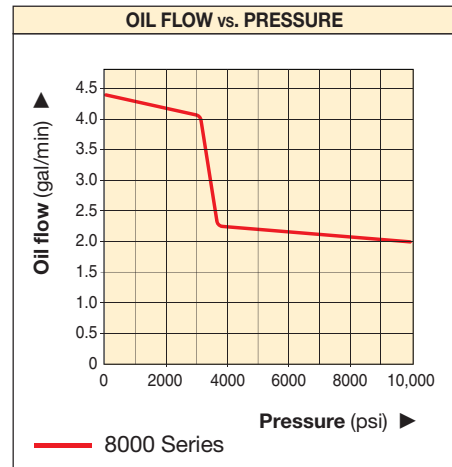
Dimensions shown in inches.



Speed Chart

To determine how an 8000 Series pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the "Yellow Pages".

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Used with Cylinder	Usable Oil Capacity (gal)	Model Number	Pressure Rating (psi)		Output Flow Rate (gal/min)		Valve Type	Valve Function	Current Draw (Amps)	Motor Voltage* (VAC)	Sound Level (dBA)	Weight (lbs)
			1st stage	2nd stage	1st stage	2nd stage						
Single-acting	18	PEM-8218	3,700	10,000	4.4	2.0	Manual (VM-2)	3-way, 2-pos.	33.0	230	78-84	720
	18	PEM-8218C	3,700	10,000	4.4	2.0			16.5	460	78-84	720
Double-acting	18	PEM-8418	3,700	10,000	4.4	2.0	Manual (VM-4)	4-way, 3-pos.	33.0	230	78-84	720
	18	PEM-8418C	3,700	10,000	4.4	2.0			16.5	460	78-84	720
	18	PER-8418	3,700	10,000	4.4	2.0	Solenoid (VE43)	4-way, 3-pos.	33.0	230	78-84	765
	18	PER-8418C	3,700	10,000	4.4	2.0			16.5	460	78-84	765

* Consult Enerpac for availability of other voltages.

▼ Shown: ZA4208MX, ZA4420MX



Z Tough. Dependable. Innovative. CLASSIC



ATEX Certified

See explanation of ATEX certification in the "Yellow Pages."



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Speed Chart

To determine how a ZA Series pump will operate your cylinder, see the Pump/Cylinder Speed Chart in the "Yellow Pages".

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Hoses

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

Page: 114

- Features Z-Class high efficiency pump design, higher oil flow and bypass pressure
- Two-speed operation and high by-pass pressure reduces cycle time for improved productivity
- Internal relief valves. One is factory set for overload protection while the second is user adjustable for pre-setting maximum system pressure
- Sight gauge on 1 and 2 gallon and level gauge on 2.5, 5 and 10 gallon reservoirs allow quick and easy oil level monitoring
- Optional heat exchanger warms exhaust air to prevent freezing and cools the oil

ZA4 Performance		
Dynamic Air Pressure Range	Air Consumption	Sound Level
(psi)	(scfm)	(dBA)
60-100	20-100	94-97

Used with Cylinder	Usable Oil Capacity (gal)	Valve Model Number ²⁾	Valve Function	Model Number	Output Flow Rate ¹⁾			
					(in ³ /min)			
					100 psi	700 psi	5,000 psi	10,000 psi
Single-acting	1.0	Manual VM32	Advance/Retract	ZA4204MX	850	675	110	80
	1.75			ZA4208MX	850	675	110	80
	5.0			ZA4220MX	850	675	110	80
Double-acting	1.0	Manual VM43	Advance/ Hold/ Retract	ZA4404MX	850	675	110	80
	1.75			ZA4408MX	850	675	110	80
	2.5			ZA4410MX	850	675	110	80
	5.0			ZA4420MX	850	675	110	80
	10.0			ZA4440MX	850	675	110	80

1) Actual flow will vary with air supply

2) See valve section for hydraulic symbols and details

ZA-Series Air Hydraulic Pump Ordering Matrix

CUSTOM BUILD YOUR ZA4 AIR PUMP

▼ This is how a ZA-Series Pump model number is built up:



1	2	3	4	5	6	7	8
Product Type	Motor Type	Flow group	Valve Type	Usable oil capacity	Valve Operation	Voltage	Options

1 Product Type

Z = Pump class

2 Motor Type

A = Air motor

3 Flow Group

4 = 80 in³/min@10,000 psi

4 Valve Type

- 0 = No valve with coverplate
- 2 = 3-way, 2-position (VM32)
- 3 = 3-way, 3-position (VM33)
- 4 = 4-way, 3-position (VM43)
- 6 = 3-way, 3-position, locking (VM33L)
- 7 = 3-way, 2-position (VM22)
- 8 = 4-way, 3-position, locking (VM43L)

5 Usable Oil Capacity

- 04 = 1.0 gallon
- 08 = 1.75 gallon
- 10 = 2.5 gallon
- 20 = 5.0 gallon
- 40 = 10.0 gallon

6 Valve Operation

- M = Manual valve
- N = No valve

7 Voltage

- X = Not applicable

8 Options

(Specify in alphabetical order)

- F = Filter
- G = 0-15,000 psi gauge (2 1/2")
- H = Heat exchanger*
- K = Skidbar*
- N = No reservoir handles (includes lifting eyes; 2.5, 5, 10 gallon only)
- R = Roll bars

* (1 and 2 gallon reservoirs only)

Ordering Example

Model Number: ZA4208MX-FHK

ZA4208MX-FHK is an air operated pump with a 3-way, 2-position manual valve, a 2.0 gallon reservoir, filter, heat exchanger and skid bar.

ZA Series



Reservoir Capacity:

1.0-10.0 gal.

Flow at Rated Pressure:

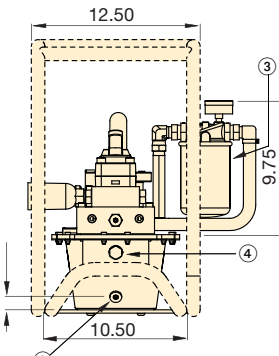
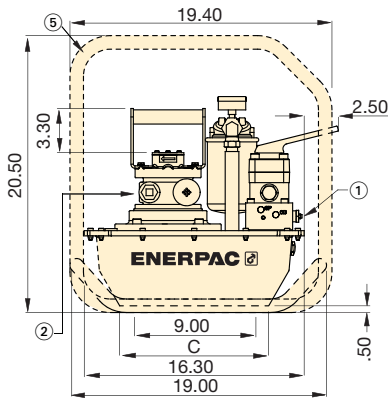
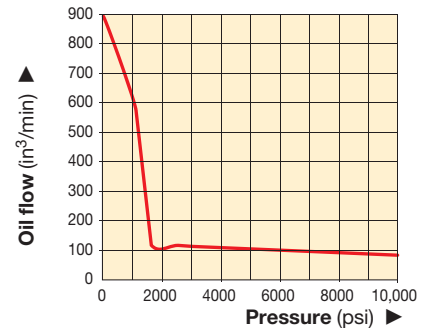
80 in³/min.

Maximum Operating Pressure:

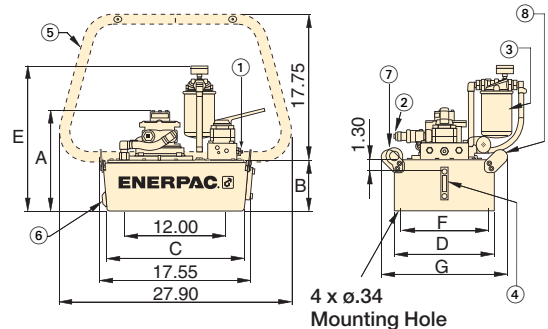
10,000 psi

OIL FLOW vs. PRESSURE

100 psi Dynamic Air Pressure at 70 scfm



1 and 1.75 gallon reservoirs



2.5, 5, 10 gallon reservoirs

Dimensions (in)							Weight (incl. oil) (lbs)
A	B	C	D	E	F	G	
11.6	5.6	11.0	6.0	15.4	-	-	65.5
11.6	5.6	11.0	8.1	15.4	-	-	75.7
13.0	7.1	16.5	16.6	16.0	15.6	18.4	112.7
11.6	5.6	11.0	6.0	15.4	-	-	66.7
11.6	5.6	11.0	8.1	15.4	-	-	76.9
12.0	6.1	16.5	12.0	16.0	11.0	15.1	87.1
13.0	7.1	16.5	16.6	16.9	15.6	18.4	113.9
16.5	10.6	15.7	19.9	20.4	18.9	23.0	164.6

- ① User adjustable relief valve on all manual valves
 - ② Air inlet 1/2" NPTF
 - ③ Return Line Filter (optional)
 - ④ Oil Sight Gauge
 - ⑤ Roll Cage (optional)
 - ⑥ Oil Drain
 - ⑦ Lifting eyes (4) (optional)
 - ⑧ Handles
- Skid Bar (Model No. SBZ-4) (optional)

▼ Shown: **XA11G**



- Higher oil flow for increased productivity
- Variable oil flow and fine metering for precise control
- Ergonomic design for less operator fatigue
- Closed hydraulic system prevents contamination and allows pump usage in any position
- Pedal lock function for retract position
- External adjustable pressure setting valve
- ATEX Certified.* Includes ground screw for explosion protection

* See explanation of ATEX Certification in "Yellow Pages."



▼ Easily operated by foot. No need to fully lift up foot - rest body weight on heel, resulting in a hands-free and stable working position.



XVARI[®] TECHNOLOGY

Productivity and Ergonomics



Optional Pressure Gauge

Integrated gauge with calibrated scale reading in psi, bar and MPa for actual pressure reading.



Optional 4-Way 3-Position Valve

For powering double-acting hydraulic cylinders and tools.



Optional 1/2 Gallon Reservoir

Double oil capacity for powering larger hydraulic cylinders and tools.



Pedal Safety Guard

Customer installed frame protects both pedals against accidental activation.

Order model number ¹⁾

XPG1



"Joy-stick" Lever Kit

Customer installed set of handles for manual operation of both pedals.

Order model number ¹⁾

XLK1



Hydraulic Swivel Connector

Customer installed swivel connector for optimal orientation of the hydraulic hose.

Order model number ¹⁾

XSC1

¹⁾ Accessories must be ordered separately.

XVARI® Technology, Air Driven Hydraulic Pumps



XVARI® TECHNOLOGY

Production Application

XA11 pump is used with a 13-ton hollow cylinder to compress and position diesel engine valve springs.

The operator benefits from the fine metering capacities of the XVARI® Technology to apply the mandatory precise stroke and force.

XA Series



Reservoir Capacity:
61-122 in³

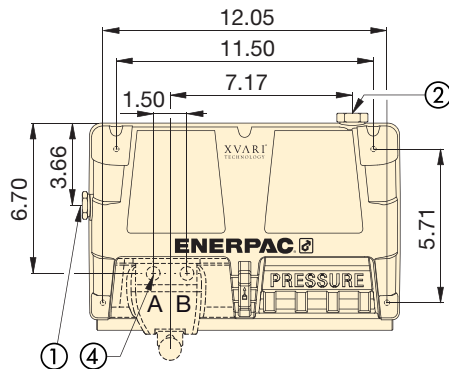
Flow at Rated Pressure:
15 in³/min.

Air Consumption:
10-35 scfm

Maximum Operating Pressure:
10,000 psi

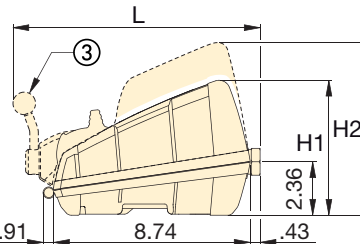
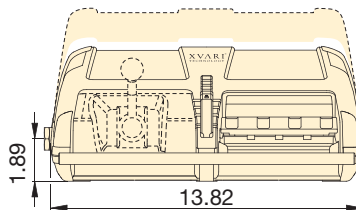
▼ XA-SERIES PERFORMANCE CHART

Maximum Pressure (psi)	Output Flow Rate (in ³ /min)		Pump Series	Valve Function	Dynamic Air Pressure (psi)
	No load	Load			
10,000	120	15	XA1	Advance/Hold/Retract	30-125



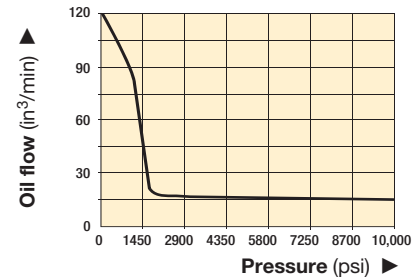
- ① 3/8"-18 NPTF Oil Outlet
- ② 1/4"-18NPTF Air Inlet
- ③ 4/3 Optional Control Valve
- ④ 3/8"-18 NPTF Oil Outlet

Dimensions shown in inches.



OIL FLOW vs. PRESSURE

at 100 psi dynamic air pressure



Regulator-Filter-Lubricator

Recommended for use with all XA-Series Air pumps. Provides clean, lubricated air and allows for air pressure adjustment.

Order model number ¹⁾

RFL102

▼ SELECTION CHART

For Use With Cylinder Tool	Usable Oil Capacity (in ³)	Model No. ¹⁾	Pressure Gauge	3-Way, 3-Position Valve	4-Way, 3-Position Valve	Dimensions (in)			Weight (lbs)
						H1	H2	L	
Single-acting	61	XA11 ²⁾	–	•	–	5.98	–	–	19.0
	122	XA12 ²⁾	–	•	–	–	6.69	–	22.4
Single-acting	61	XA11G	•	•	–	5.98	–	–	19.4
	122	XA12G	•	•	–	–	6.69	–	22.9
Double-acting	61	XA11V	–	–	•	5.98	–	10.98	22.3
	122	XA12V	–	–	•	–	6.69	10.98	25.7
Double-acting	61	XA11VG	•	–	•	5.98	–	10.98	22.7
	122	XA12VG	•	–	•	–	6.69	10.98	26.2

¹⁾ High-flow coupler CR400 and accessories must be ordered separately.

²⁾ Available as cylinder pump set, see page 54.

▼ Shown left to right: PAMG-1402N, PATG-1102N, PARG-1102N, PATG-1105N



- High efficiency cast aluminum air motor for increased life and reduced air consumption
- Fully serviceable air motor assembly
- Reinforced heavy-duty reservoir for applications in tough environments
- New generation air saver piston with rugged one-piece design reduces air consumption and operating costs
- Return-to-tank port for use in remote valve applications
- Quiet – only 76 dBA with low air consumption of 12 scfm
- Operating air pressure: 40-125 psi, enables pump to start at extremely low pressure
- Internal pressure relief valve provides overload protection

▼ Easily operated by hand or by foot.



Compact Air Over Hydraulic



RFL-102 Regulator-Filter-Lubricator

Recommended for use with all air pumps. Provides clean, lubricated air and allows for air pressure adjustment. Steel bowl guards are standard.

Order model number ¹⁾

RFL102



Large Reservoir Models

The Turbo II Air Pump is also available with a larger reservoir: **PATG-1105N**, **PAMG-1405N**, and **PARG-1105N**.



Hoses

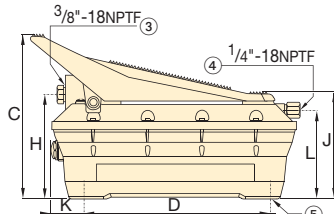
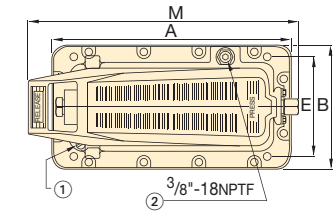
Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

Page: **114**

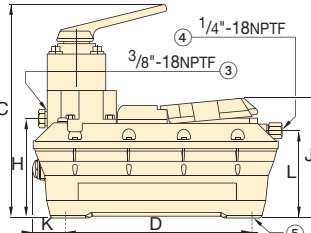
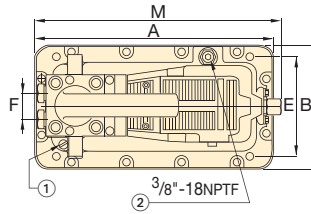
Used with Cylinder	Usable Oil Capacity (in ³)	Model Number
Single-acting	127	PATG-1102N*
	230	PATG-1105N
	127	PARG-1102N
	230	PARG-1105N
Double-acting	127	PAMG-1402N
	230	PAMG-1405N

* Available as set. See note on next page.

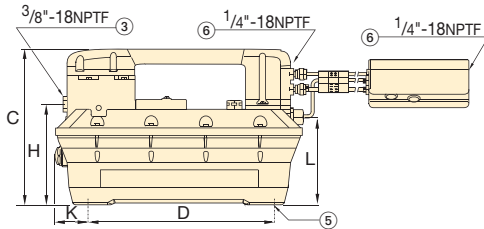
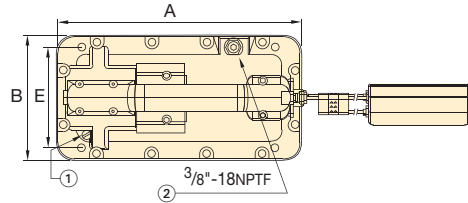
Turbo II Air Hydraulic Pumps



PATG-1102N and PATG-1105N



PAMG-1402N and PAMG-1405N



PARG-1102N and PARG-1105N

- ① Filtered "Permanent" Tank Vent
- ② Return-to-Tank/Auxiliary Vent/Fill Tank Port
- ③ Hydraulic Output
- ④ Swivel Air Input with Filter
- ⑤ 4 Mounting Holes for #10 thread forming screw. Max.depth into reservoir = .75"
- ⑥ Air Input Options

Pressure Rating (psi)	Output Flow Rate (in ³ /min)		Model Number	Valve Function	Air Pressure Range (psi)	Air Consumption (scfm)	Sound Level (dBA)
	No load	Load					
10,000	60	10	PATG & PAMG	Advance/	40-125	12	76
10,000	51 ¹⁾	6 ¹⁾			40-125	12	76
10,000	48 ²⁾	5 ²⁾	PARG	Hold/ Retract	40-125	8	76

¹⁾ Air supply connected at pendant. ²⁾ Air supply connected at pump shown on flow curve.

PATG PARG PAMG Series



Reservoir Capacity:
150-305 in³

Flow at Rated Pressure:
5-10 in³/min.

Maximum Operating Pressure:
10,000 psi



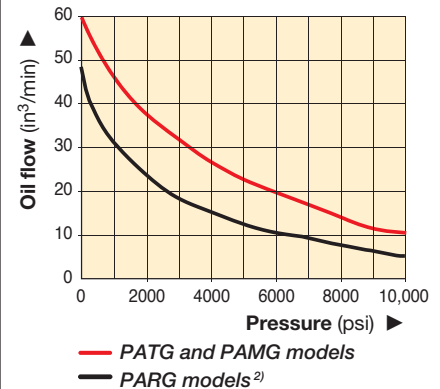
The PATG-models use a foot or hand operated treadle to control air and valve functions.

The PAMG-models use a treadle with a locking feature and a 4-way manual valve.

The PARG-models use a 15 ft. pendant hose for convenient one-man operation.

OIL FLOW vs. PRESSURE

Turbo II Air Pump (@ 100 psi)



Dimensions											Weight (lbs)	Model Number
A	B	C	D	E	F	H	J	K	L	M		
12.33	6.49	8.29	9.04	4.00	-	5.15	5.75	1.65	4.43	13.62	18	PATG-1102N*
15.60	7.92	8.22	9.04	4.00	-	5.08	5.75	3.28	4.41	17.20	22	PATG-1105N
12.33	6.49	7.88	9.04	4.00	-	5.15	-	1.65	4.43	-	22	PARG-1102N
15.60	7.92	7.88	9.04	4.00	-	5.08	-	3.28	4.41	-	26	PARG-1105N
12.33	6.49	10.50	9.04	4.00	1.42	5.23	6.00	1.65	4.43	12.60	24	PAMG-1402N
15.60	7.92	10.50	9.04	4.00	1.42	5.19	6.00	3.28	4.41	15.94	28	PAMG-1405N

PA-Series, Air Hydraulic Pumps

▼ Shown from top to bottom: PA-1150, PA-133



PA Series

Reservoir Capacity:
36-80 in³

Flow at Rated Pressure:
8 in³/min.

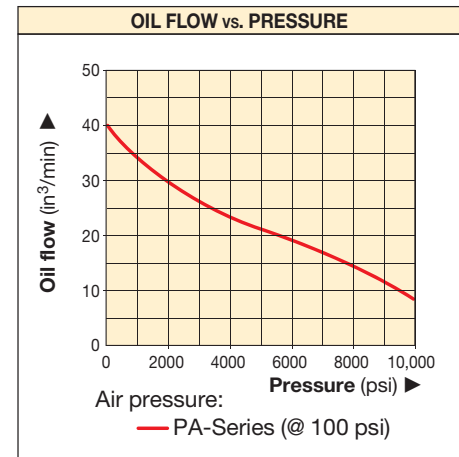
Maximum Operating Pressure:
10,000 psi



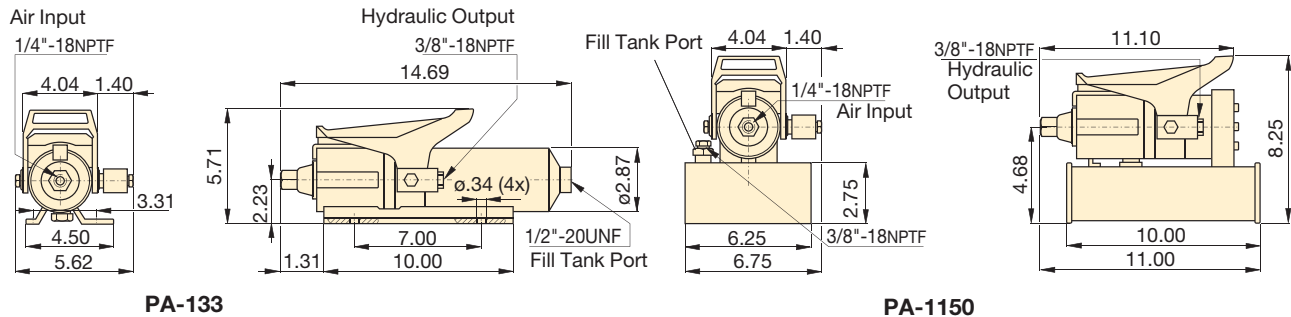
PC-66 Reservoir Conversion Kit

Double the reservoir capacity of your existing PA-133 with this easy to install conversion kit.

- Rugged construction – built for long life and easy service
- Swivel coupling simplifies hydraulic connection and pump operation
- Three-position treadle provides cylinder advance, hold and retract operation
- PA-133 operates in all positions for increased versatility in use and mounting
- Base mounting slots provided on PA-133



Dimensions shown in inches.



Used with Cylinder	Usable Oil Capacity (in ³)	Model Number	Pressure Rating (psi)	Output Flow Rate (in ³ /min)		Valve Function	Air Pressure Range* (psi)	Air Consumption (scfm)	Sound Level (dBA)	Weight (lbs)
				No load	Load					
Single-acting	36	PA-133	10,000	40	8	Advance/Hold/Retract	60-120	9	85	12
	80	PA-1150	10,000	40	8	Advance/Hold/Retract	60-120	9	85	18

* Recommended Regulator-Filter-Lubricator: RFL-102

PAM-Series, Air Hydraulic Pumps

▼ Shown: **PAM-1041**



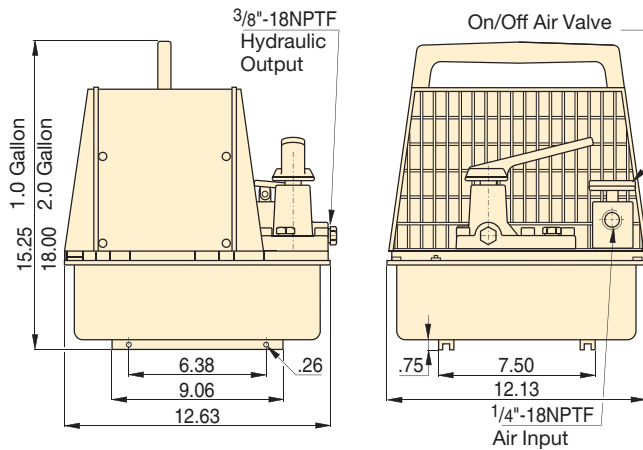
PAM Series

Reservoir Capacity:
1.0-2.0 gal.

Flow at Rated Pressure:
9 in³/min.

Maximum Operating Pressure:
10,000 psi

- Twin air motor configuration delivers high-flow performance in first stage, up to 200 psi, for rapid cylinder advance
- 1 and 2 gallon reservoirs for use with a wide range of cylinders
- Integral shroud protects air motors and provides easy portability



Locking Valves
Pumps with VM-4 manual valves are available with VM-4L manual locking valves instead. Add suffix "L" to pump model number.

Page: **108**

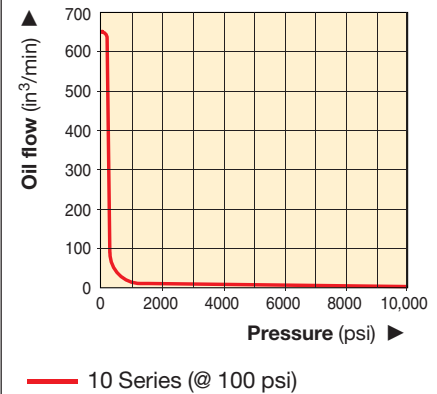


Remote Air Valve
For remote operation of PAM-10 series air pumps. Permits either hand or foot operation.

Model number ¹⁾

VA-2

OIL FLOW vs. PRESSURE



Used with Cylinder	Usable Oil Capacity (gal)	Model Number (with Shroud)	Pressure Rating (psi)	Output Flow Rate (in ³ /min)		Valve Function	Valve Model	Air Pressure Range* (psi)	Air Consumption (scfm)	Sound Level (dBA)	Weight (lbs)
				1 st stage	2 nd stage						
Single-acting	0.7	PAM-1021	10,000	650	9	Adv/Hold/Ret	VM-2	60-120	18	87	50
	2.0	PAM-1022	10,000	650	9	Adv/Hold/Ret	VM-2	60-120	18	87	60
Double-acting	0.7	PAM-1041	10,000	650	9	Adv/Hold/Ret	VM-4	60-120	18	87	50
	2.0	PAM-1042	10,000	650	9	Adv/Hold/Ret	VM-4	60-120	18	87	60

* Recommended Regulator-Filter-Lubricator: RFL-102

ZG5/ZG6 Gasoline Hydraulic Pumps

▼ Shown from left to right: ZG6440MX-BCFH, ZG5420MX-B



Z

Tough.
Dependable.
Innovative.

CLASS



User Adjustable Relief Valve

All VM-Series directional valves have a user adjustable relief valve to allow the operator to easily set the optimum working pressure.



High Pressure Hoses

Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only genuine Enerpac hydraulic hoses.

Page: 114

- Features **Z-Class** high efficiency pump design, higher oil flow and bypass pressure
- Two-speed operation reduces cycle time for improved productivity
- Full sight oil level glass on all reservoirs allow quick and easy oil level monitoring
- Sturdy wheeled cart for ZG6 allows transport over uneven terrain and features collapsible handles for easy storage
- Dual forced air heat exchangers on ZG6 stabilizes hydraulic oil temperature
- ZG5 is available in two 4-cycle engine sizes: 7.1 ft.lbs Honda and 8.5 ft.lbs Briggs & Stratton
- ZG6 has Briggs & Stratton 17 ft.lbs engine with electric start, pressurized oil and 16-amp charge output for accessories



Other Options Available

The ZG5/ZG6 pumps are available in a wide range of configurations and options. Contact Enerpac for further information.

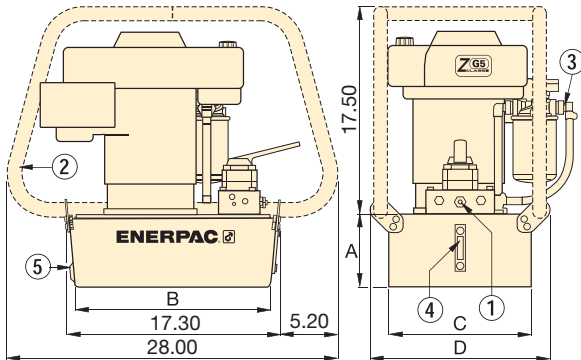
▼ SELECTION CHART

Used with Cylinder	Usable Oil Capacity (gal)	Valve Model Number	Valve Function	Model Number	Motor Manufacturer*	Motor Size (Ft.lbs)	Weight (lbs)
Single-Acting	2.5	VM33	Advance/ Hold/ Retract	ZG5310MX-R	Honda	7.1	113.6
	5.0			ZG5320MX-R			140.9
Double-Acting	2.5	VM43		ZG5410MX-R			113.6
	5.0			ZG5420MX-R			141.0
Single-Acting	2.5	VM33		ZG5310MX-BR	Briggs & Stratton	8.5	111.0
	5.0			ZG5320MX-BR			138.3
Double-Acting	2.5	VM43		ZG5410MX-BR			111.1
	5.0			ZG5420MX-BR			138.4
	10.0	VM43		ZG6440MX-BCFH		17.0	334.0

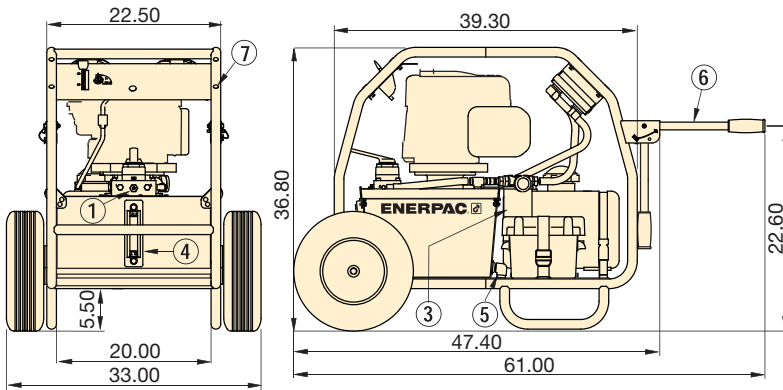
*To order Briggs & Stratton motor, place a "B" suffix in the model number.

Gasoline Hydraulic Pumps

ZG5



ZG6



- ① User adjustable relief valve on all manual valves. 3/8" NPTF on A and B ports; 1/4" NPTF on auxiliary ports.
- ② Roll Bar (optional)
- ③ Return Line Filter (optional on ZG5, Standard on ZG6)
- ④ Oil Level Gauge
- ⑤ Oil Drain
- ⑥ Collapsible handles (ZG6 only)
- ⑦ Cart (standard on ZG6 only)

ZG5/ ZG6 Series

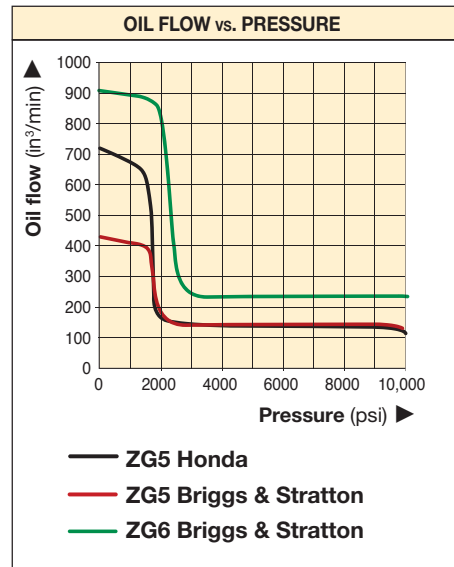


Reservoir Capacity:
2.5-10 gal.

Flow at Rated Pressure:
100-200 in³/min.

Engine Size:
7.1, 8.5 and 17.0 Ft.lbs

Maximum Operating Pressure:
10,000 psi



Motor Size		Output Flow Rate				Relief Valve Adjustment Range	Sound Level
(Ft.lbs)	RPM	(in ³ /min)					
		100 psi	700 psi	5,000 psi	10,000 psi	(psi)	(dBA)
7.1	2500	700	650	110	100	1000 - 10,000	88 - 93
8.5	3600	400	380	110	100		91 - 95
17.0	3600	900	885	225	200		91 - 95

ZG5 Dimensions (in)				
Reservoir Size	A	B	C	D
(gal)				
2.5	6.1	16.5	12.0	15.1
5.0	7.1	16.3	16.6	19.7
10.0	10.6	15.7	19.9	22.7

Atlas Series Gasoline Pumps

▼ Shown: PGM-2408R



PGM Series

Reservoir Capacity:
1-2 gallons

Flow at Rated Pressure:
40 in³/min.

Motor Size:
4.2 Ft.lbs

Maximum Operating Pressure:
10,000 psi



Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. Refer to the

System Components section for a full range of gauges.

Page: **113**

- **Patented Genesis Technology**
 - coaxial piston design ensures high performance
 - first-stage piston pump for improved efficiency
- **High by-pass pressures improve productivity**
- **All Atlas pumps feature sturdy roll cage for use in tough environments**
- **Four-cycle Honda motor**

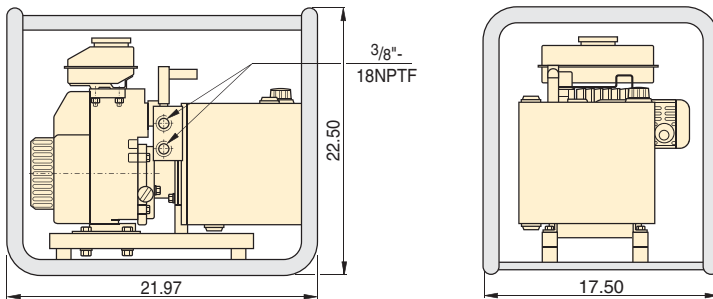


Hoses

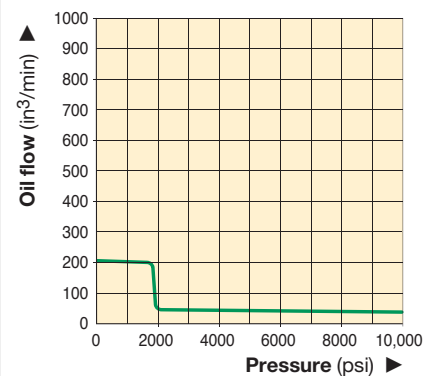
Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system,

specify only genuine Enerpac hydraulic hoses.

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OIL FLOW vs. PRESSURE



Used with Cylinder	Usable Oil Capacity (gal)	Model Number	Output Flow Rate** (in ³ /min)		Pressure Rating (psi)	Valve Type	Valve Function	Motor Manufacturer	Motor Size (Ft.lbs)	Weight (lbs)
			1 st stage	2 nd stage						
Single-acting	1.0	PGM-2304R*	200	40	10,000	3-way, 3-position	Advance/ Hold/Retract	Honda	4.2 at 3600 rpm	55
	2.0	PGM-2308R*	200	40	10,000	3-way, 3-position				72
Double-acting	1.0	PGM-2404R*	200	40	10,000	4-way, 3-position				55
	2.0	PGM-2408R*	200	40	10,000	4-way, 3-position				72

* Note: PGM-20 Series are available with a carrying handle instead of a Roll Cage. For ordering omit the 'R' from the model number.

** Nominal values—may vary based on motor speed.

8000-Series Gasoline Pumps

▼ Shown: EGM-8418



EGM Series

Reservoir Capacity:

25 gal.

Flow at Rated Pressure:

1.5 gal/min.

Motor Size:

18 hp

Maximum Operating Pressure:

10,000 psi

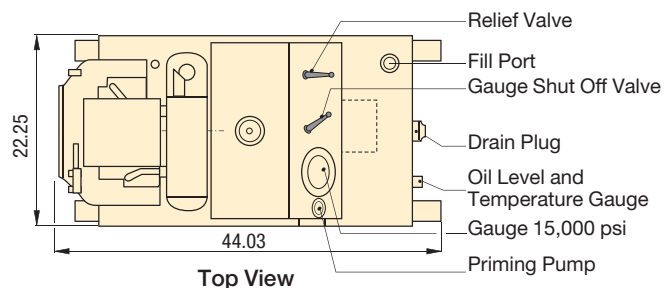
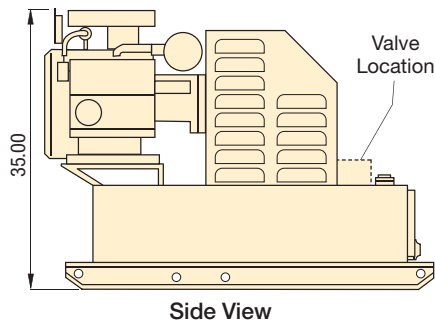
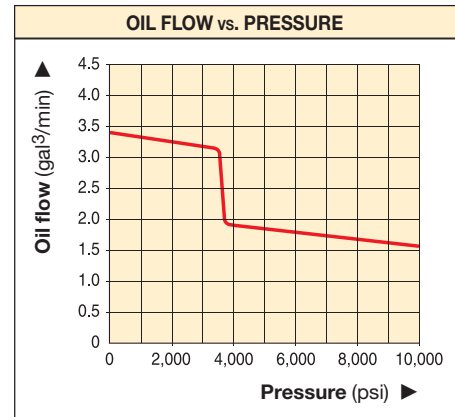


Locking Valves

Pumps with VM-4 manual valves are available with VM-4L manual valves for positive load holding. Add suffix "L" to pump model number.

Page: 108

- Industrial grade 18 hp twin-cylinder motor
- Panel mounted pressure gauge and adjustable relief valve for system pressure control
- Two-speed pump design with high by-pass pressure for rapid cylinder advance
- Built in oil temperature and oil level gauge
- External adjustable relief valve (1,200-10,000 psi) allows control of operating pressure without opening the pump
- Integral priming circuit guarantees quick starts after transport



Used with Cylinder	Usable Oil Capacity (gal)	Model Number	Pressure Rating (psi)		Output Flow Rate (gal/min)		Valve Type	Valve Function	Sound Level (dBA)	Weight (lbs)
			1 st stage	2 nd stage	1 st stage	2 nd stage				
Single-acting	18	EGM-8218	3,700	10,000	3.4	1.5	3-way, 2-pos.	Adv./Retr.	94	890
Double-acting	18	EGM-8418	3,700	10,000	3.4	1.5	4-way, 3-pos.	Adv./Hold/Retr.	94	890

ENERPAC hydraulic valves are available in a wide variety of models and configurations.

Whatever your requirements... directional control, flow control, or pressure control... you can be sure that Enerpac has the correct valve to match your application exactly.

Designed and manufactured for safe operation up to 10,000 psi, the range of Enerpac valves allows for direct pump mounting, remote mounting, manual or solenoid actuation, and in-line installation, giving you flexible solutions to control your hydraulic system.



Pressure and Flow Control Valves

For more hydraulic system control with pressure relief valves, shut-off valves, check valves and sequence valves see our "System Components" section.

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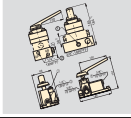

Valving Help

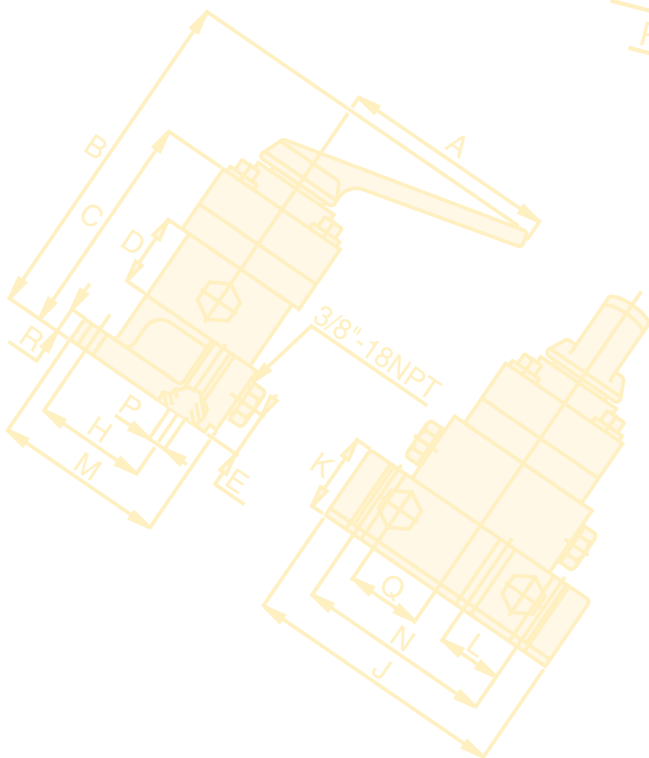
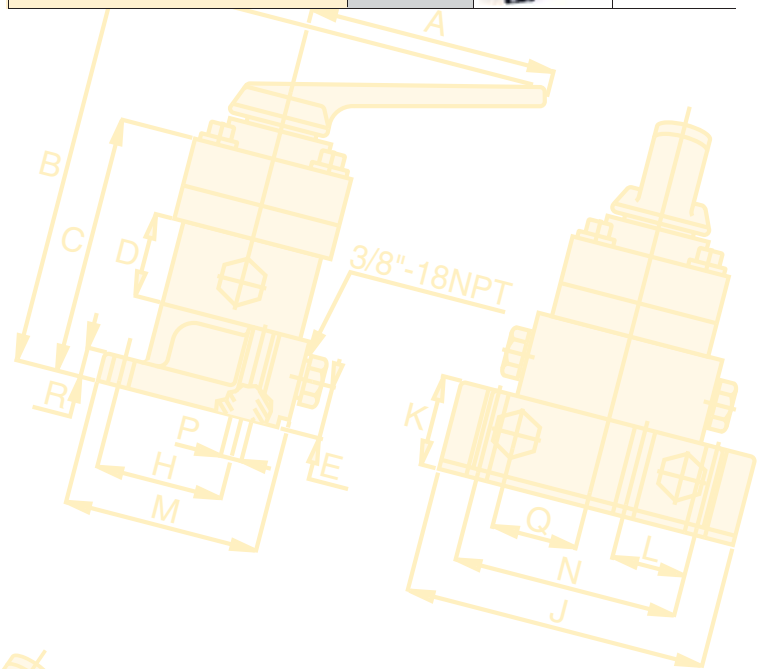
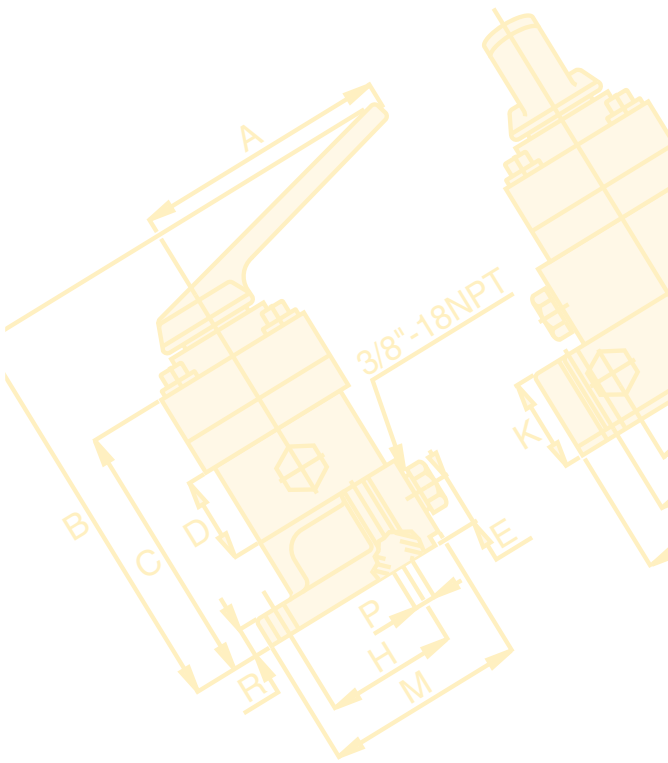
See Basic System Set-Up and Valve Information in our 'Yellow Pages'

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Directional Control Valves Section Overview

Valve Type	Series		Page
Pump-Mounted Directional Control Valves	VM, VE		106 ▶
Remote-Manual Directional Control Valves	VC		108 ▶
Valve Dimensions	VC, VM, VE		109 ▶
Modular/Solenoid Operated Directional Control Valves	VE		110 ▶



▼ Shown from left to right: VM32, VE33, VM33, VM43L, VE43-115



- Advance/Retract and Advance/Hold/Retract operation of single-acting and double-acting cylinders
- Manual or solenoid operation
- Pump mounting will retrofit on most Enerpac pumps
- Available “locking” option on VM Series valves for load-holding applications
- Standard “locking” feature on VE Series 3-position valves
- User adjustable relief valves allow the operator to easily set the working pressure

▼ ZE4420SB-FH Z-Class pump is mounted next to an Enerpac H-frame press, includes VE43 electric valve to control cylinder operation.



For Reliable Control of Single and Double-Acting Cylinders

Valve Operation	Used with Cylinder	Valve Type	
Manual	Single-acting	3-Way 2 Position	
Manual	Single-acting	3-Way 2 Position	
Manual	Single-acting	3-Way 3 Position, Tandem Center	
Manual	Double-acting	4-Way 3 Position, Tandem Center	
Manual	Single-acting	3-Way 3 Position, Tandem Center, Locking	
Manual	Double-acting	4-Way 3 Position, Tandem Center, Locking	
Solenoid 24 VDC	Single-acting	3-Way 2 Position	
Solenoid 24 VDC	Single-acting	3-Way 2 Position, Dump	
Solenoid 24 VDC	Single-acting	3-Way, 3 Position, Tandem Center	
Solenoid 115 VAC	Single-acting	3-Way, 3 Position, Tandem Center	
Solenoid 24 VDC	Double-acting	4-Way, 3 Position, Tandem Center	
Solenoid 115 VAC	Double-acting	4-Way, 3 Position, Tandem Center	

For remote valve applications, see page 108.

Pump Mounted Directional Control Valves



All valves feature several gauge ports for “system”, A port and B port pressure monitoring. User-adjustable relief valves are included on all models to allow the operator to easily set the optimum working pressure for each application. VM33 and VE43 valves include “System Check” feature, for more precise pressure holding and improved system control. The VM33 has improved porting which provides faster cylinder retraction while motor is running.

Model Number	Hydraulic Symbol	Schematic Flowpath			Weight (lbs)
		Advance	Neutral	Retract	
VM22					5.6
VM32					5.6
VM33					6.7
VM43					6.8
VM33L					10.7
VM43L					10.8
VE32					8.7
VE32D					8.7
VE33					20.3
VE33-115					20.3
VE43					20.3
VE43-115					20.3

See page 109 for product dimensions.

VM, VE Series



Flow Capacity:
4.5 gal/min.

Maximum Operating Pressure:
10,000 psi



High-Pressure Hoses

VE33-115 and VE43-115 electric valves are supplied with IC400 control station. These valves include an 8 ft. power cord, and can be used on any Enerpac pump. They require a separate 115 volt power supply to operate.



Locking Valves

For applications that require positive load holding, VM Series valves (except the VM22 and VM32 valve) are available with a pilot-operated check valve. This option provides hydraulic locking of the load until the valve is shifted into the retract position.

To order this feature, place an “L” at the end of the model number.



Pendants for VE-Series Solenoid Valves

When ordering Enerpac VE-Series solenoid valves, the pendant must be ordered separately for Z-Class pumps. Pendant connection to be plugged into electric box of pump.

To be used with solenoid valves:	Pendant
VE32D	ZCP-1
VE32, VE33, VE43	ZCP-3

▼ Shown from left to right: VC-20, VC-4L



Reliable Remote Control



Locking Valves

For applications that require positive load holding, VC and VM Series valves are available with a pilot-operated check valve. This option provides hydraulic locking of the load until the valve is shifted into the retract position.

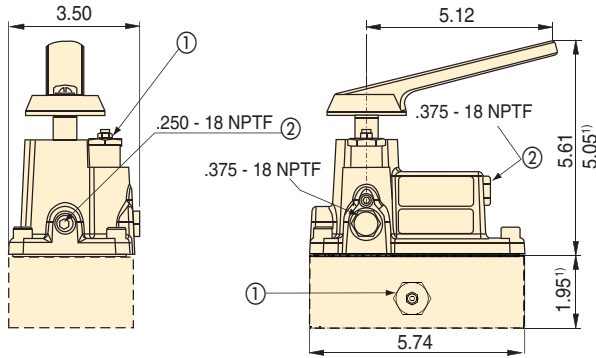
- Advance/Hold/Retract operation for use with single-acting or double-acting cylinders

Valve Operation	Used with Cylinder	Valve Type	Model Number	Hydraulic Symbol	Schematic Flowpath			Weight (lbs)
					Advance	Hold	Retract	
Manual	Single Acting	3-Way, 3 Position, Tandem Center	VC-3					6.4
Manual	Single Acting	3-Way, 3 Position, Tandem Center, Locking	VC-3L					10.3
Manual	Single Acting	3-Way, 3 Position, Closed Center	VC-15					6.4
Manual	Single Acting	3-Way, 3 Position, Closed Center, Locking	VC-15L					10.3
Manual	Double Acting	4-Way, 3 Position, Tandem Center	VC-4					6.4
Manual	Double Acting	4-Way, 3 Position, Tandem Center, Locking	VC-4L					10.3
Manual	Double Acting	4-Way, 3 Position, Closed Center	VC-20					6.4
Manual	Double Acting	4-Way, 3 Position, Closed Center, Locking	VC-20L					10.3

Return line kit included with remote valves

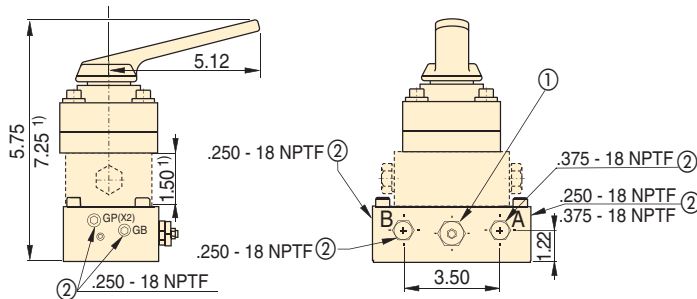
Directional Control Valves Dimensions

Valve dimensions in inches.



VM22, VM32

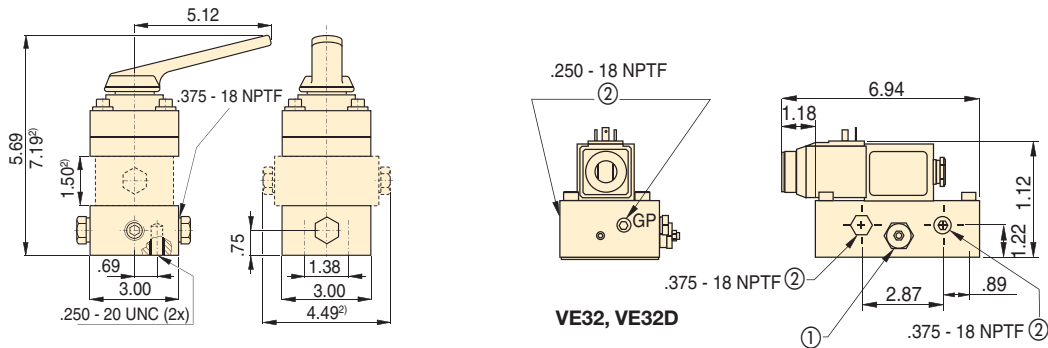
¹⁾ VM22 only



VM33, VM33L

VM43, VM43L

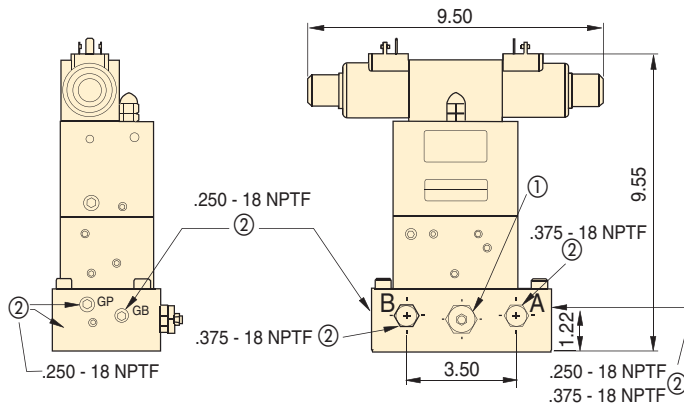
¹⁾ VM33L and VM43L only



VE32, VE32D

VC3, VC3L, VC-15, VC15L, VC-4, VC4L, VC20, VC20L

²⁾ VC3L, VC15L, VC4L and VC20L only



VE33, VE43

**VC,
VM,
VE
Series**



Flow Capacity:

4.5 gal/min.

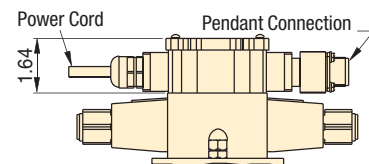
Maximum Operating Pressure:

10,000 psi



User Adjustable Relief Valve

All VM- and VE-Series have a user adjustable relief valve to allow the operator to easily set the optimum working pressure.



**VE33-115
VE43-115**

① User Adjustable Relief Valve

② Auxiliary Port

▼ Shown top to bottom: **VEC-15600D**, **VEK-15000B**, **VEC-15000B**



- Ideal for independent control of multiple cylinders or functions
- Relief valve and pilot-operated check accessory valves are stackable between manifold and valve body
- Remote and pump mounting

Valve Flow Path	Used with Cylinder	Valve Code	Hydraulic Symbol
4-Way, 3-Position (4/3) Open Center	Double-acting	A	
4-Way, 3-Position (4/3) Closed Center	Double-acting	B	
4-Way, 3-Position (4/3) Tandem Center	Double-acting	C	
4-Way, 3-Position (4/3) Float Center	Double-acting	D	
4-Way, 2-Position (4/2) Crossover Offset	Double-acting	E	
3-Way, 3-Position (3/3) Tandem Center	Single-acting	F	
3-Way, 3-Position (3/3) Closed Center	Single-acting	G	
2-Way, 2-Position (2/2) Normally Closed	System Un-loading	H*	
2-Way, 2-Position (2/2) Normally Open		K*	
4-Way, 2-Position (4/2) Float Offset	Double-acting	M	
3-Way, 2-Position (3/2) Normally Open	Single-acting	P	

* Requires use of tank port for dump or unloading.

Unmatched Combinations and Possibilities



3-Way Check Valve
Use a **VS-51** 3-way pilot operated check valve assembly to convert your 3-way modular valve into a load-holding valve.



4-Way Check Valve
Use a **VS-61** 4-way pilot operated check valve assembly to convert your 4-way modular valve into a load-holding valve.



System Pressure Control
To add system pressure control to your modular valve, order **VS-11 Relief Valve** assembly.



Bolt Kits for Accessory Valves With No Manifold
Order Bolt Kit **BK-2** when adding one of the accessory valves. Order Bolt Kit **BK-3** when adding any combination of two accessory valves.

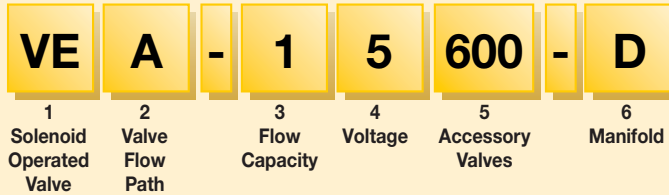
How to order one of the 1,300 possible model numbers?

With over 1,300 possible model numbers, Enerpac has the perfect valve for you. Use the "chart" to build your own valve for the specific application you require. This is the complete guide to all the Modular valves that are available.

Solenoid Operated Modular Valves

CUSTOM BUILD YOUR MODULAR VALVES

▼ This is how a Modular Valve Model Number is built up:



1 Product Type

VE = Solenoid Operated Valve

2 Valve Code

- A** = 4/3 Open Center
- B** = 4/3 Closed Center
- C** = 4/3 Tandem Center
- D** = 4/3 Float Center
- E** = 4/2 Crossover Offset
- F** = 3/3 Tandem Center
- G** = 3/3 Closed Center
- H** = 2/2 Normally Closed
- K** = 2/2 Normally Open
- M** = 4/2 Float Offset
- P** = 3/2 Normally Open

3 Flow Capacity

1 = 4 gallons per minute

4 Voltage

- 1** = 24 VDC
- 2** = 220/240 V, 1 ph, 50 Hz
- 5** = 115 V, 1 ph, 60 Hz
- 6** = 230 V, 1 ph, 60 Hz

5 Accessory Valves

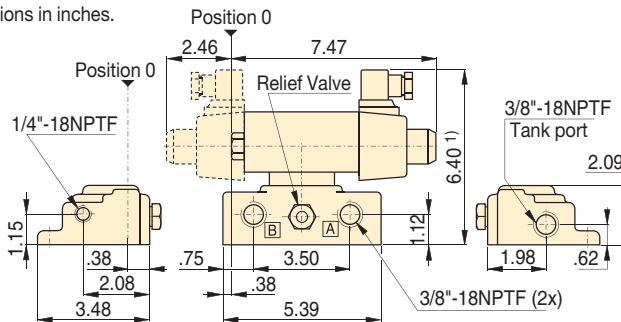
- 000** = No accessory valves
- 100** = Relief Valve only
- 150** = Relief Valve and 3-way pilot operated check valve
Only for VEF/VEG
- 160** = Relief Valve and 4-way pilot operated check valve
Only for VEA/VEB/VEC/VED
- 500** = 3-way pilot operated check valve
Only for VEF/VEG
- 600** = 4-way pilot operated check valve
Only for VEA/VEB/VEC/VED

6 Manifold

- A** = No manifold**
- B** = Remote Mounted
- D** = Pump Mounted*

* Only for valve code: **VEA/VEC/VEF**
** Must order Bolt Kit separately.

Valve dimensions in inches.



Modular Valve Pump Mounted

¹⁾ add 1.85 inch for each Accessory Valve

Maximum Operating Pressure (psi)	Amperage Draw			Seal Material	Valve Plug
	24 VDC	115 VAC 60 Hz	230 V 60 Hz		
0 - 10,000	N/A Inrush	3.6 A Inrush	1.8 A Inrush	Buna-N, Polyurethane	DIN 43650
	2.5 A Holding	1.0 A Holding	.5 A Holding		

VE Series



Flow Capacity:

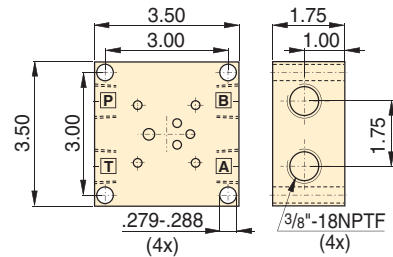
4 gal/min.

Maximum Operating Pressure:

10,000 psi

Example: VEA-15600-D

VEA-15600-D is a Modular Valve with a 4-way, 3-position open center flowpath, 115 VAC, and an integral pilot-operated check valve, for mounting on an Enerpac pump.



Modular Valve Remote Mount Manifold

Pressure Drop versus Oil Flow

