Enerpac Hydraulic Pumps & Directional Valves



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.

ENERPAC





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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PAC. @

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
	Lightweight Hand Pumps Exclusively from Enerpac	155 in ³	.15 (in ³ /stroke)	P		70 ►
<u></u>	ULTIMA Steel Hand Pumps Low-Pressure Hand Pumps	453 in ³ 200 in ³	.29 .58 (ins/stroke)	P P		72 74
Manual	Foot Pump For Hands-Free Operation	38 in ³	.15 (in ³ /stroke)	Р		76
2	Multifluid Hand Pumps Pumping Fluids up to 14,500 psi	_	1.28 (in ³ /stroke)	MP	-	77
	Ultra-High Pressure Hand Pumps Pressure up to 40,000 psi	60 in ³	.15 (in ³ /stroke)	P/11		78
Battery	Battery Powered Hydraulic Pump Cordless Hydraulic Power	120 in ³	15	XC		80 >
	Economy Series Compact and Portable	1 gal.	20	PU		82
Electric	Submerged Series Powerful and Low-Noise	1.5 gal.	20	PE		86
Elec	Z-Class Portable and Powerful	10 gal.	60 200	ZU ZE		90 > 96 >
	8000-Series The Maximum Flow Pump	25 gal.	462	PE		102
	Air Hydraulic Pumps Single and Twin-Air Motor	80 in ³ 2 gal.	8 9	PA PAM		104 1 05 1
Air	Turbo II Air Hydraulic Pumps Compact Air Over Hydraulic	305 in ³	10	PA		106▶
<	XA-Series Air Hydraulic Pumps Control and Ergonomics	122 in ³	15	XA	43	108
	ZA4 Air Hydraulic Pumps The Standard for Air-Hydraulic Pumps	10 gal.	80	ZA		110
Gasoline	ZG5/ZG6 Gasoline Hydraulic Pumps Gas Powered High-Flow Pumps	10 gal.	200	ZG5/ ZG6		112 > 114 >
Gasc	8000-Series Gasoline Pumps For the Largest Jobs	25 gal.	1.5 (gal/min)	EGM		115▶
ed	Level Lift System Multi-point Lifting & Lowering	5 gal.	_	LL	400	116▶
Controlled	Split Flow Pump Multi-point Lifting & Lowering	40 gal.	1.5 (gal/min)	SFP		118
ပိ	Synchronized Lifting System Computer Controlled Monitoring for Precise Lifting	66 gal.	1.25 (gal/min)	EVO		120▶
	Directional Control Valves				T	123

P-Series, Lightweight Hand Pumps

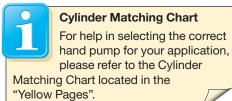


▼ Pumps shown, from top to bottom: P-802, P-842, P-202, P-142



- · 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

Exclusively from Enerpac



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1

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 \(^{1}\)6-20 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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lacktriangle P-392 in action with RC-256 cylinders.

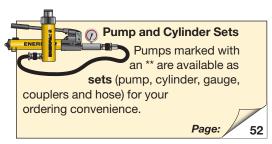


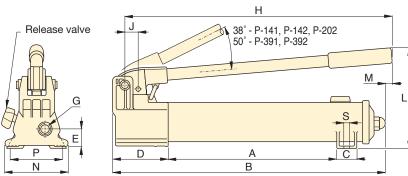
Pump Type	Usable Oil Capacity	Model Number		e Rating*	Oil Displa per S	troke	Max. Handle Effort	
	(in³)		1st stage	2 nd stage	1st stage	2 nd stage	(lbs)	
Single	20	P-141	N/A	10,000	N/A	.055	72	
speed	55	P-391	N/A	10,000	N/A	.151	85	
	20	P-142**	200	10,000	.221	.055	78	
_	55	P-202	200	10,000	.221	.055	63	
Two speed	55	P-392**	200	10,000	.687	.151	93	
opocu	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.

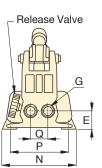
^{***} For use with double-acting cylinders.

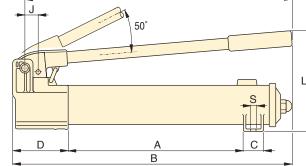
Lightweight Hand Pumps





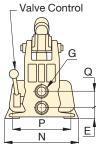
P-141, P-142, P-202, P-391, P-392

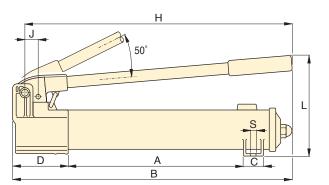




Η

P-802





P-842

P Series



Reservoir Capacity:

20-155 in³

Flow at Rated Pressure:

.055-.15 in³/stroke

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.

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GA45GC Gauge Adaptor

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge,

adaptor block and coupler.

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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						Dime	ensions (in)							Weight	Model
Stroke																Number
(in)	Α	В	С	D	Е	G	Н	J	L	M	N	Р	Q	S	(lbs)	
.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	-	-	ı	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	-	-	ı	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	%"-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***

P-Series, ULTIMA Steel Hand Pumps



▼ 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

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.



GA45GC Gauge Adaptor

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge,

adaptor block and coupler.

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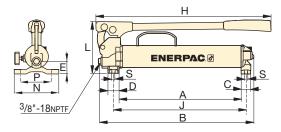
▼ In the absence of a power supply, the P-80 Hand Pump offers a powerful solution.



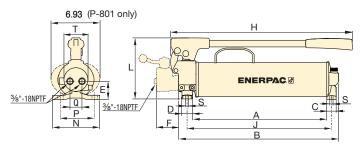
Pump Type	Usable Oil Capacity	Model Number		e Rating*	per S	acement stroke	Max. Handle Effort	
	(in³)		1st stage	2 nd stage	1st stage	2 nd stage	(lbs)	
Single	41	P-39	N/C	10,000	N/C	.15	85	
	41	P-77	500	10,000	1.00	.15	88	
_	134	P-80**	500	10,000	1.00	.15	77	
Two- speed	250	P-801	500	10,000	1.00	.15	77	
эрсси	134	P-84***	500	10,000	1.00	.15	77	
	453	P-462	200	10,000	7.69	.29	110	1
	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.

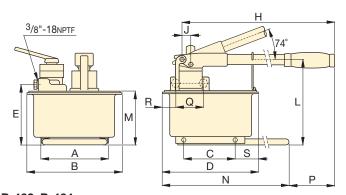
Steel Hand Pumps



P-39, P-77



P-80, P-801, P-84



P-462, P-464

P Series



Reservoir Capacity:

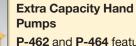
47-453 in³

Flow at Rated Pressure:

.15 - .29 in³/stroke

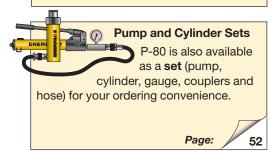
Maximum Operating Pressure:

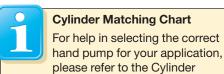
10,000 psi



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.





Matching Chart located in the

"Yellow Pages"

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Piston Stroke		Dimensions (in)														Weight	Model Number	
(in)	Α	В	С	D	Е	F	Н	J	L	М	N	Р	Q	R	S	Т	(lbs)	
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***

P-Series, Low Pressure Hand Pumps

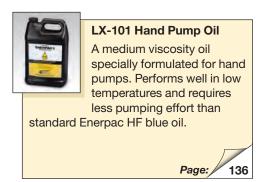


▼ Shown from left to right: P-25, P-51, P-18



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





GA45GC Gauge Adaptor

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge,

adaptor block and coupler.

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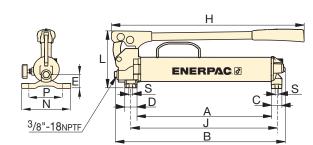
▼ P-18 hand pump used for locking the rotating table for marble polishing.



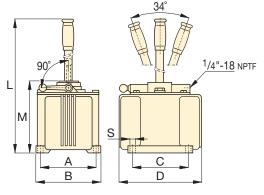
Pump Type	Usable Oil Capacity	Model Number	Pressure Rating	Oil Displace-	Max. Handle	
				ment per Stroke	Effort	
	(in³)		(psi)	(in³)	(lbs)	
	18	P-18	2,850	0.16	34	
Single-	200	P-25	2,500	0.58	60	
speed	200	P-50	5,000	0.29	60	
	50	P-51	3,000	0.25	61	

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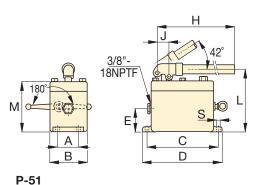
Low Pressure Hand Pumps



P-18



P-25, P-50



P **Series**



Reservoir Capacity:

18-200 in³

Flow at Rated Pressure:

.16-.58 in³/stroke

Maximum Operating Pressure:

2,500-5,000 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.

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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				Weight	Model Number									
(in)	Α	В	С	D	Е	Н	J	L	М	N	Р	S	(lbs)	
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
 - Aluminum 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 Series

Reservoir Capacity:

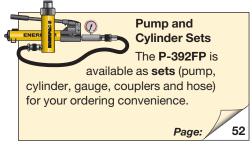
38 in³

Flow at Rated Pressure:

.151 in³/stroke

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.

24.1

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



	7.8
Release valve 1.2	4.
3/8"-18NPTF	8.1

Usable Oil Capacity	Model Number	Rat	sure ting si)	per S	lacement Stroke n³)	Max. Handle Effort	Piston Stroke	Weight
(in³)		1st stage	2nd stage	1st stage	2nd stage	(lbs)	(in)	(lbs)
30	P-392FP *	200	10,000	.687	.687 .151		1	16

^{*} Available as set, see note on this page.

Multifluid Hand Pumps

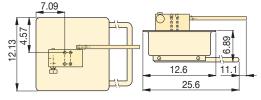
▼ Shown: **MP-110**



- 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

Pump Usable Model Pressure Oil Displacement Max. Piston Weight Rating Type Oil Number per Stroke Handle Stroke Capacity **Effort** (in3) (isq) 2nd 1st 1st 2nd (lbs) (in) (lbs) (in^3) stage stage stage stage **MP-110** 500 1500 1.28 1.04 14.5 3.2 99 MP-350 500 5000 3.2 .43 99 1.04 14.5 Two Speed MP-700 500 10.000 3.2 .18 1.04 14.5 MP-1000 500 14,500 3.2 1.04 14.5

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

MP Series

Reservoir Capacity:

2 gal. (optional)

Flow at Rated Pressure:

.12-1.28 in³/stroke

Maximum Operating Pressure:

1,500-14,500 psi



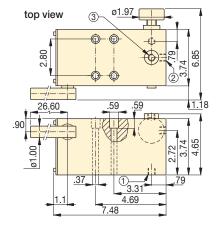
Optional Reservoir Kit

The two-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.



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

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

P/11 Series, Ultra-High Pressure Hand Pumps



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



- 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

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.



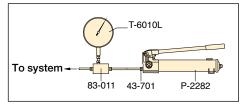
Test System Gauges

Ideal for monitoring pressure in your hydraulic circuit, Test System Gauges, such as the T-6010L, are available with

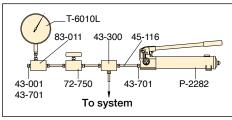
cone threads or NPTF threads and in a

variety of pressure ranges.

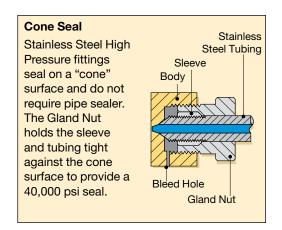
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▲ Typical Test System



▲ Test System with Gauge and Snubber



Pump Type	Usable Oil Capacity	Model Number	Rat	sure ing* si)	per S	acement troke	Max. Handle Effort	
	(in³)		1st stage	2nd stage	1st stage	2nd stage	(lbs)	
Two-speed	60	P-2282	200	40,000	.99	.037	106	
Single-speed	45	11-100	N/C	10,000	N/C	.152	120	
Siligie-speed	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	0	.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	0	.38" cone	43-400
Cross	V. Co	.38" cone	43-600
Gland Nut with Sleeve	90	.38" cone	43-701
Gauge Connector	D	.25" cone	43-704
Tubing	-	4" tube, O.D38" * 8" tube, O.D38" * 12" tube, O.D38" *	45-116 45-126 45-136
	RNING: Maximur	n working pressure: 10,000 psi o	
Adaptor		.38" F cone to 1/4" M NPTF	41-146
		.38" F cone to %" M NPTF	41-166
Adaptor		.38" F cone to ½" F NРТF	41-246 41-266
Adaptor		.38" M cone to %" F NРТF	41-366

Note: .25" cone fittings use $\% \mbox{\ensuremath{\$^{"}}}\mbox{-18 threads, } \% \mbox{\ensuremath{\$^{"}}}\mbox{\ensuremath{$"}}\mbox{\ensuremath{$"}}\mbox{\ensuremath{$"}}\mbox{\ensuremath{-16}}\mbox{\ensuremath{$threads}}\mbox{\ensuremath{$"}}\mbox{\ensuremath$

* 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 Sto Ultra-high Profeature all sta

Stainless Steel Construction

Ultra-high Pressure Fittings feature all stainless-steel construction except adaptor

41-366, which features nickel plated carbon steel construction.



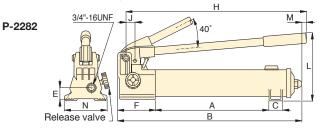
Ultra-High Pressure pumps DO NOT have an internal safety pressure relief valve.

11-100*, 11-400 Optional T-Series gauge and fitting

1/4"
20UNC

H
A
B

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



Piston Stroke						Dir	nensions	(in)						Weight	Model Number
25.000															
(in)	А	В	С	D	E	F	Н	J	L	М	N	S	Т	(lbs)	
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

XC-Series, Cordless Hydraulic Pump



▼ 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-lon 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 electric or air powered pumps
- Available in both single-acting and double-acting valve configurations



Performance of a Powered Pump Portability of a Hand Pump



GA45GC Gauge Adaptor

Protect yourself from system overloading by simply ordering one part number for a pre-assembled gauge,

adaptor block and coupler.

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



28-Volt Battery

The XC-28V with Lithiumlon 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

■ Power and simplicity for the toughest jobs.

¹⁾ Accessories must be ordered separately.

Cordless Hydraulic Pump

XC-Series Cordless Hydraulic Pump

The XC-Series cordless pump is ideal for jobs that require a combination of portability, speed, and safety. These cordless pumps are perfect for remote locations without access to power, but also indoors where trip hazards, ergonomics or size is a concern. The XC-Series cordless pump is compatible with all Enerpac hydraulic tools and small to medium sized cylinders.

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.

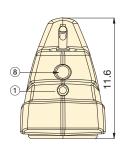
*Actual number of cycles per charge will vary depending on condition of tool, battery and ambient conditions.

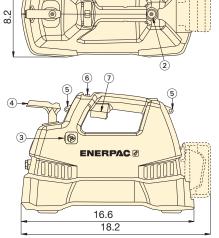
Battery life with double-acting tools is approximately 75% of that for comparable, single-acting tools.





- 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
- 8 Inlet "Retract" Port (double-acting models only)





Capacity	Model Number	Outp	ut Flow	Rate	Valve Function	Charger Voltage	Weight
		(in³/min)					
(in³)		No Load	2000 psi	10,000 psi		(VAC)	(lbs)
60	XC-1201MB	125	30	15	3-way, 2-pos.	115	21.9
120	XC-1202MB	125	30	15	3-way, 2-pos.	113	23.8
60	XC-1201ME	125	30	15	3-way, 2-pos.	230	21.9
120	XC-1202ME	125	30	15	0 way, 2 poo.	200	23.8
60	XC-1201M*	125	30	15	3-way, 2-pos.		21.9
120	XC-1202M*	125	30	15	, a,, 2 poo.	_	23.8
60	XC-1401MB	125	30	15	4-way, 3-pos.	115	22.3
120	XC-1402MB	125	30	15	,,	113	24.2
60	XC-1401ME	125	30	15	4-way, 3-pos.	230	22.3
120	XC-1402ME	125	30	15	, , , , , , , , , , , , , , , , , , ,	230	24.2
60	XC-1401M*	125	30	15	4-way, 3-pos.		22.3
120	XC-1402M*	125	30	15			24.2

^{*} Batteries and charger not included.





Reservoir Capacity:

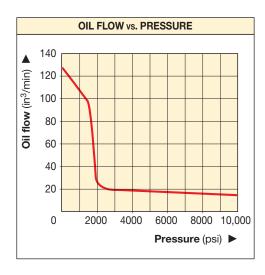
60-120 in³

Flow at Rated Pressure:

15 in³/min.

Maximum Operating Pressure:

10,000 psi



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



PU-Series, Economy Electric Pumps



▼ Shown: PUJ-1200B



- 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

An Economy Pump, PUJ-1200B, is used with an RCS-302 to reposition a Scissor lift to simplify maintenance.



Heavy on Performance, Light on Weight



Hoses

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

specify only Enerpac hydraulic hoses.

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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.

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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".

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

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Economy Electric Pumps



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 generatordriven 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 cord controls the motor operation
- Manual valves provide advance/ retract tool control

PU **Series**



Reservoir Capacity:

0.5-1.0 gal.

Flow at Rated Pressure:

20 in³/min.

Motor Size:

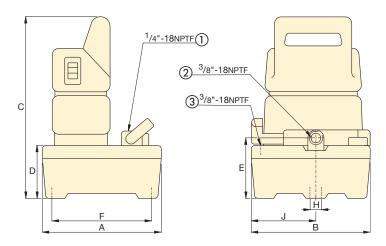
.5 hp

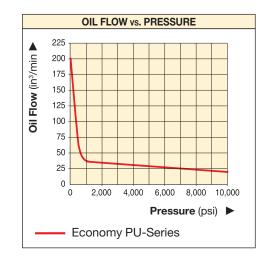
Maximum Operating Pressure:

10,000 psi



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





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

Output Flow Rate		Valve Type	Current Draw	Motor Voltage	Sound Level				Dimens	sions (in)			Weight	Model Number*
(in ³ /	min)														
1st stage	2 nd stage		(Amps)	(VAC)	(dBA)	Α	В	С	D	Е	F	Н	J	(lbs)	
200	20	D **	9.5	115	85	9.62	9.62	14.25	4.00	4.72	8.00	.40	5.25	26	PUD-1100B
200	20	Dump **	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	9.5	115	85	9.62	9.62	14.25	4.00	4.72	8.00	.40	5.25	26	PUD-1300B
200	20	and Hold	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,	9.5	115	85	9.62	9.62	14.25	4.00	4.72	8.00	.40	5.25	24	PUJ-1200B
200	20	2-pos.	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,	9.5	115	85	9.62	9.62	14.25	4.00	4.72	8.00	.40	5.25	29	PUJ-1400B
200	20	3-pos.	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.

PE-Series, Submerged Electric Pumps



▼ 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 maintenance on this machine.

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 87 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 singleacting 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.







* 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	Model Number* 115 VAC, 1 ph	Weight
				(gal)		(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

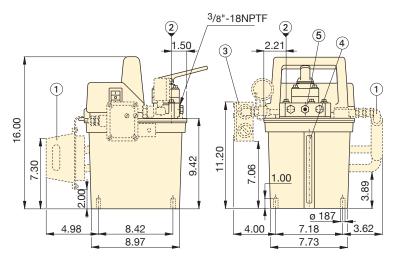


◆ For full features see page 84.

	Submerged Pump Performance										
Motor Size	Pressure Rating			put Rate**	Motor Electrical Specifications*	Sound Level	Relief Valve Adjustment Range				
	(p	si)	(in³/	min)							
(hp)	1 st stage	2 nd stage	1 st stage	2 nd stage	(Amps @ Volts-Ph-Hz)	(dBA)	(psi)				
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				

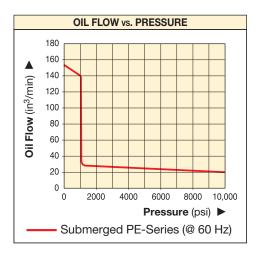
^{*} At bypass and maximum pressure. See matrix footnotes on next page for Hz limitations.

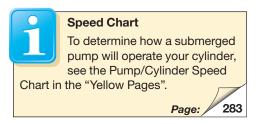
^{**} All flow data at 60 Hz, 50 Hz data will be 5/6th this number.



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







This PED-1101B Submerged pump quickly and quietly powers Enerpac's hydraulic Nut Cutter in this 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 84, you can easily build your custom submerged pump here.

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



1 Product Type

 \mathbf{P} = Pump

2 Motor Type

E = Electric motor

3 Pump Type

 \mathbf{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

 $\mathbf{B} = 115 \, \text{V}, 1 \, \text{Ph}, 60 \, \text{Hz}^{\, 1)}$

 $\mathbf{D} = 115 \text{ V}, 1 \text{ Ph}, 60 \text{ Hz}^{-1}$

with heat exchanger

 $E = 230 \text{ V}, 1 \text{ Ph}, 50 \text{ Hz}^{2}$

 $\mathbf{F} = 230 \text{ V}, 1 \text{ Ph}, 50 \text{ Hz}^{2}$

with heat exchanger

I = 230 V, 1 Ph, 60 Hz

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.

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

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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.

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

Z-Class Pumps



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.





Heavy-duty bearings

An Innovation in Pump Design

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

Oil Flow

Z-Class

Available in one flow range for universal motor and four 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.

Electric

Rate Motor Consump-Engine Pump @ 10,000 Size Size** tion Series* iza (in³/min) (hp) (scfm) (ft.lbs) ZE3 40 1.0 96 60 ZE4(T) 1.5 96, 240 60 ZU4(T) 1.7 90, 236 80 ZA4(T) 100 110, 242 ZG5 100 112 120 ZE5(T) 3.0 96, 240 200 ZE6 7.5 96 200 ZG6 17 114

Air Motor

Gasoline

Page:

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 six 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 singleand double-acting applications and high speed

^{*} ZE4T, ZU4T, ZA4T and ZE5T-Series are Torque Wrench Pumps.

^{**}ZG5 is available in two 4-cylce engine sizes: 7.1 Ft.lbs Honda and 8.5 Ft.lbs Briggs & Stratton.

ZU-Series, Electric Pumps



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





- 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 a number of diagnostic and readout capabilities never before offered on a portable electric pump
 - pump usage information, hour and cycle counts
 - self-test, diagnostic and read-out capabilities
 - pressure readout and auto-mode pressure settings

EXERPAC 6

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

▼ COMMON PUMP MODELS

For technical information and other options see next page.

BASIC PUMP TYPES

Select the model that suits your application. For special requirements contact your Energac office.

Manual Valve

- Ideal choice for most applications
- Manual valve control, for single-acting or double-acting applications
- Motor control on shroud

Manual Valve with Pendant

- 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

- 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

- 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

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ZU-Series, Electric Pumps



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 Pro Electric Pump to power small to large-sized cylinders or hydraulic tools, or wherever highspeed, 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.

· Digital (LCD) display features a built-in hour meter and shows selfdiagnostic, 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	Func		Valve Type ²⁾	Pump Control	Usable Oil Capacity		Model Numbe 115 VAC ³⁾ 1 Phase	r	Pro Product Weight
									(gal)	Classic	STD Electric	Pro Electric	With Oil ⁴⁾ (lbs)
		•		•		•	VM22	Manual	1.0	ZU4704RB	ZU4704MB	ZU4704LB	59
		•		•		•	VM22	Manual	2.0	ZU4708RB	ZU4708MB	ZU4708LB	69
	(53)	•		•	•	•	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
		•		•		•	VM32	Remote (Man.)	1.0	ZU4704PB	ZU4204JB	Z U4204KB	60
		•		•		•	VM32	Remote (Man.)	2.0	ZU4708PB	ZU4208JB	ZU4208KB	70
		•		•		•	VM32	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
	KO 🔔	•		•		•	VE32D	Remote	5.0	N/A	N/A	ZU4120DB	112
							_	_	_	_	_	_	-
							_	_	-	_	_	_	-
							_	_	_	_	_	_	-
\neg		•		•	•	•	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
	KO?		•	•	•	•	VE43	Remote	2.0	N/A	N/A	ZU4408SB	85
			•	•	•	•	VE43	Remote	5.0	N/A	N/A	ZU4420SB	124
							_	_	-	-	_	_	-
							_	_	_	-	_	_	-
							_	_	_	-	-	-	-
							_	_	_	-	-	-	-

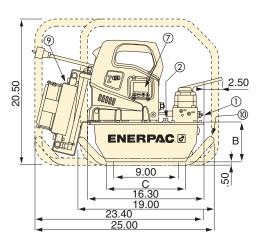
- CE conformity marking only applies to pumps with an "E" suffix. "E" voltage versions also meet all requirements of the European EMC-Directive.
- See valves section for technical information on valve types.
- See custom order matrix for other voltage options.
- Subtract 3 lbs. for STD Electric models.

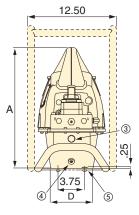
ZU Series, Specifications and Dimensions

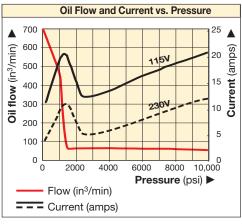


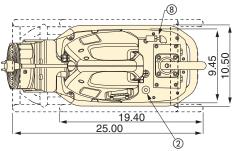
	ZU4 Performance										
Motor Size			Flow Rate /min)		Motor Electrical Specification	Sound Level	Relief Valve Adjustment Range				
(hp)	100 psi	700 psi	5000 psi	10,000 psi	(volts-ph-Hz)	(dBA)	(psi)				
1.7	700	535	76	60	115-1-50/60 230-1-50/60	85-90	2,000-10,000				

ZU-4 Series with 1 and 2 gallon reservoirs



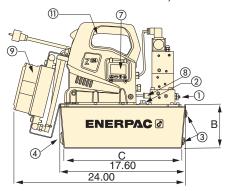


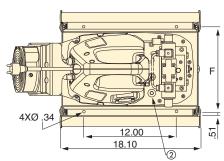




ZU-4 Series with 2.5, 5.0 and 10.0 gallon reservoirs

(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



- (7) Back-lit LCD Electric
- ® Pressure transducer
- Heat exchanger
- (10) Skid bar
- (1) Handle guard installed on all 2.5, 5, and 10-gallon reservoirs
- (2) Reservoir handles included on all 2.5, 5 and 10-gallon pumps



Increased output flow and extended brush life increase productivity for posttensioning applications.

Pump Dimensions (in)								
Usable Reservoir Capacity								
(gal)	Α	В	С	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 91, you can easily build your custom ZU4 Series pump here.

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



Product Motor Flow Valve Reservoir Valve Voltage
Type Type Group Type Size Operation

Options and Accessories

1 Product Type

Z = Pump Series

2 Motor Type

U = Universal electric motor

3 Flow Group

 $4 = 60 \text{ in}^3/\text{min} @ 10,000 \text{ psi}$

4 Valve Type (see page 128 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)
- 10 3 way/3 position manual, Venturi-Valve (VM33VAC)
- 11 3 way/3 position electric, Venturi-Valve (VE33VAC)

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 94 for possibilities)

- **F** = Filter
- $G = 0-15,000 \text{ psi gauge } (2\frac{1}{2})^{1}$
- **H** = Heat exchanger
- K = Skidbar (1 and 2 gallon reservoirs only)
- L = Level/temp switch ^{2) 3)}
- N = No reservoir handles (includes lifting eyes)
- R = Roll cage
- T = Pressure transducer 2)
- 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".

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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 skid bar.



Torque Wrench Pumps

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

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Assisted-Return Pumps

To improve productivity and plunger retraction, Enerpac offers valve configurations designed to accelerate your cylinder retraction speeds, ZU4

and ZE-Series pumps feature Venturi valve technology to facilitate the faster return of single-acting gravity return cylinders.
See details on www.enerpac.com

ZU-Series Factory Installed Options & Accessories





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	Switch- point repeatability	Dead- band
	(psi)		(psi)
ZPT-U4 *	50-10,000	± 0,5%	50

^{*} Add suffix T for factory installation.

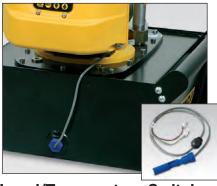


Foot Switch

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

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

^{*} Add suffix **U** for factory installation.



- 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

2200	
	Hoses Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the
	integrity of your system, specify only Enerpac hydraulic hoses. Page: 132
evel/Temperature Switch	
voi/ i chipciatale owiton	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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Model Number	Operating Temperature	Maximum Pressure	Weight
	(° F)	(psi)	(lbs)
ZLS-U4	40-230	150	.11

^{*} Add suffix **L** 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.
SBZ-4 *	1-2 gal. w/o heat exchanger	4.9
SBZ-4L *	1-2 gal. with heat exchanger	5.5

 * Add suffix \mathbf{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 93 for ordering matrix.

ZU4-Series Options	Fac	tory Insta	lled	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	Н	Н	Н	ZHE	ZHE	ZHE		
Pressure Gauge	G	G	G	G	G	G		
Pressure Transducer	-	-	Т	-	-	ZPT-U4		
Level/Temperature Switch	_	-	L	-	-	ZLS-U4		
Foot Switch	_	-	U	-	-	ZCF-2		
1) Skid Par not in combination with Poll Cago								

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	Maximum Oil Flow	By-pass Setting		
	(psi)	(GPM)	(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	Maximum oil flow	Voltage
Btu/h	(psi)	(GPM)	(VDC)
900	900	7.0	12

^{*} At GPM at 70 °F ambient temperature.



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





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 *

Se	SIC PUMP CONFIGURATIONS lect your ZE pump model here for most	Pump Type		l with nder				Valve** Model Number	Useable Oil Capacity	
	plications. For special requirements, see a ZE Pump ordering matrix.						•		(gal)	
	Manual Valve without electric box or LCD		•	_	•	_	•	VM32	2.0	
	Ideal choice for most applications		•	_	•	•	•	VM33	2.0	
7	Manual valve control, for both single-acting or	<u> </u>	•	_	•	•	•	VM33	5.0	
CONTROL	double-acting applications		•	_	•	•	•	VM33	10.0	
6	Manual motor control On/off switch on 1-phase electric motor		_	•	•	•	•	VM43	2.0	
В	On/on switch on 1-phase electric motor		_	•	•	•	•	VM43	5.0	
VALVE			_	•			•	VM43	10.0	
	Manual Valve with electric box and LCD		•	_	•	_	•	VM32	2.0	
MANUAL	Ideal choice for most applications		•	_	•	_	•	VM32	2.5	
3	Manual valve control, for both single-acting or double-acting applications		•	_	•	•	•	VM33	5.0	
Z	Manual motor control		•	_	•	•	•	VM33	10.0	
			_	•	•	•	•	VM43	5.0	
			_	•	•	•	•	VM43	10.0	
	Solenoid Dump Valve with electric box and LCD	0	•	_	•	_	•	VE32D	1.0	
_	Ideal for punching, crimping and cutting		•	_	•	_	•	VE32D	2.0	
8	For use when load holding is not required		•	_	•	_	•	VE32D	2.5	
눌	Push-button control pendant with 10-ft. cord		•	_	•	_	•	VE32D	5.0	
CONTROL	controls the valve and motor		•	_	•	_	•	VE32D	10.0	
W	Solenoid 3-position Valve with Electric Box		•	_	•	•	•	VE33	2.0	
VALVE	and LCD		•	_	•	•	•	VE33	2.5	
E V	Ideal for production and lifting applications		•	_	•	•	•	VE33	5.0	
REMOTE	All valves are 3-position for Advance-Hold-Retract		_	•	•	•	•	VE43	2.0	
E	Push-button control pendant with 10-ft. cord Push-button control pendant with 10-ft. cord		_	•	•	•	•	VE43	2.5	
C	controls the valve and motor		_	•	•	•	•	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.

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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

ZE3 Series (1.0	' '	ZE4 Series (1.5		ZE5 Series (3.0) hp)	ZE6 Series (7.5	. ,
Output Flow Rate		Output Flow Rate		Output Flow Rat		Output Flow Rat	
10,000 psi: 40 in ³ /	min Wt.	10,000 psi: 60 in ³ /	min Wt.	10,000 psi: 120 in	Wt.	10,000 psi: 200 in	Wt.
Number	(lbs)	Number	(lbs)	Number	(lbs)	Number	(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





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

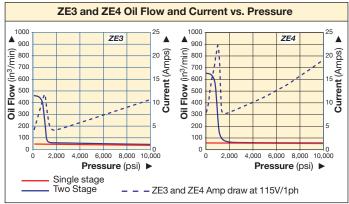
as testing or clamping.

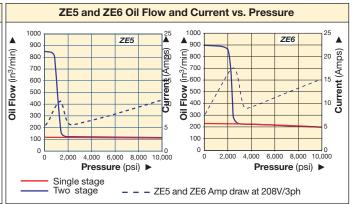
Two-stage pumps have an increased output flow at low pressure to allow fast movement towards the load, for reduced cycle times and increased productivity. To specify a single-stage pump, place the letter "S" at the end of the model number.

For example: ZE5320LG-S

ZE-Series, Specifications and Dimensions





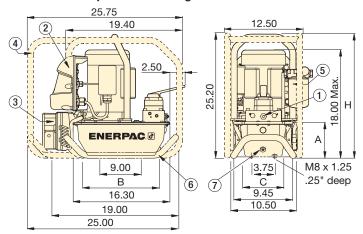


▼ PERFORMANCE CHART

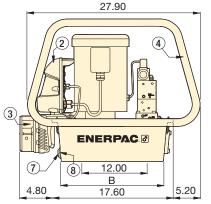
Pump Series	Operation		. `	min)		Available Reservoir Sizes (useable oil)	Motor Size				Relief Valve Adjustment Range	Sound Level
		100 psi	700 psi	5,000 psi	10,000 psi	(gal)	hp	RPM	(psi)	(dBA)		
750	Single-stage	43	43	42	40	1, 2, 2.5,		4750	1000-10,000	75		
ZE3	Two-stage	450	385	42	40	5, 10	1.0	1750	1000-10,000	75		
754	Single-stage	64	64	62	60	1, 2, 2.5,	1.5	1750	5 1750	1000-10,000	7.5	
ZE4	Two-stage	650	600	62	60	5, 10	1.0			1.0	1700 1000 10,000	1000-10,000
755	Single-stage	128	126	123	120	0.5.5.10	3.0	1750	1000-10,000	7.5		
ZE5	Two-stage	850	825	123	120	2.5, 5, 10	0.0	1730	1000-10,000	75		
756	Single-stage	220	215	210	200	2.5, 5, 10	7.5	7.5 3450	1000-10.000	80		
ZE6	Two-stage	900	890	210	200	2.0, 0, 10	7.5 0450		.5 5-55 1000-10,000			

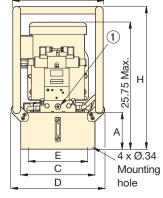
Output flow rate is listed at 60 Hz. Flow rate will be approximately 5/6 of these values at 50 Hz.

ZE-Series Pumps with 1 and 2 gallon-reservoir



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





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
- ® Oil Level/Temperature Switch (Optional)

Reservoir Size (useable oil)		ZE-Series Pump Dimensions (in)						
(gal)	Α	В	С	D	D1	Е	Н	
1.0	5.6	11.0	6.0	-	-	ı	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	23.6	
5.0	7.1	16.5	16.6	19.7	19.2	15.6	24.6	
10.0	10.6	15.7	19.9	22.7	22.5	18.9	28.1	

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 97, you can easily build your custom ZE Series pump here.

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



1 2 3 4 5 6 7
Product Motor Flow Valve Useable Valve Voltage
Type Type Group Type Oil OperaCapacity tion

Options and Accessories

1 Product Type

Z = Pump Class

2 Prime movers

E = Induction Electric Motor

3 Flow Group

 $3 = 40 \text{ in}^3/\text{min } @ 10,000 \text{ psi}$

 $4 = 60 \text{ in}^3/\text{min } @ 10,000 \text{ psi}$

5 = $120 \text{ in}^3/\text{min} @ 10,000 \text{ psi}^{1)}$ **6** = $200 \text{ in}^3/\text{min} @ 10,000 \text{ psi}^{1)}$

4 Valve Types

0 = No valve w/cover plate

= 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)

9 = 4 way/3 position manual w/ power seating (VM43-LPS)

10 = 3-way/3-position manual, Venturi-Valve (VM33VAC)

11 = 3-way/3-position electric, Venturi-Valve (VE33VAC)

5 Useable Oil Capacity

 $04 = 1.0 \text{ gallon}^{2}$

08 = $2.0 \text{ gallon}^{2)}$

10 = 2.5 gallon

20 = 5.0 gallon

40 = 10.0 gallon

6 Valve Operation

= Dump valve (w/ pendant and LCD)

= Manual valve

(w/o pendant, w/ LCD)

M = Manual valve ⁶⁾ (w/o pendant or LCD)

N = No valve ⁶⁾

(no electrical box)S = Solenoid valve

(w/ pendant and LCD)

W = No valve

(w/o pendant and LCD)

7 Voltages

Single Phase

 $\mathbf{B} = 115 \text{V 1 ph } 50\text{-}60 \text{Hz}^{3)}$

 $\mathbf{E} = 115 \text{V 1 ph } 50-60 \text{Hz}^{3)}$

E = 208-240V 1 ph 50-60 Hz European Plug

I = 208-240V 1 ph 50-60 Hz USA Plug

Three Phase 6)

 $\mathbf{M} = 190-200 \text{V 3ph } 50-60 \text{Hz}$

G = 208-240V 3ph 50-60Hz

W = 380-415V 3ph 50-60Hz

 $\mathbf{K} = 440 \text{V 3ph } 50-60 \text{Hz}$

J = 460-480V 3ph 50-60Hz

 $\mathbf{R} = 575 \text{V 3ph } 60 \text{Hz}$

8 Options and Accessories

(see page 100 for possibilities)

F = Filter

 $G = 0-15,000 \text{ psi gauge } (2^{1}/2^{**})^{6}$

H = Heat exchanger

K = Skid bar (1 and 2 gal. reservoirs only)

L = Level/temp switch 4)

N = No reservoir handles (includes lifting eyes)

R = Roll cage

S = Single stage

T = Pressure transducer 4) 7)

U = Foot switch 4)

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.



Assisted-Return Pumps

To improve productivity and plunger retraction, Enerpac offers valve configurations designed to accelerate your cylinder retraction speeds, ZU4

and ZE-Series pumps feature Venturi valve technology to facilitate the faster return of single-acting gravity return cylinders.
See details on www.enerpac.com

ZE-Series, Options & Accessories





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
- 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 Tempera- ture (°F)	Max. Pressure (psi)
ZLS-U4 *	75	40 - 230	150

 $[\]mbox{\ensuremath{^{\star}}}$ Add suffix $\mbox{\ensuremath{^{L}}}$ 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	Maximum Oil Flow	By-pass Setting		
	(psi)	(GPM)	(psi)		
ZPF *	200	12.0	25		

 $\mbox{\ensuremath{^{\star}}}$ Add suffix $\mbox{\ensuremath{^{F}}}$ 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

	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 Repeat- ability	Dead- band (psi)
ZPT-U4 *	50-10,000	± 0,5%	50

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



Pendants 4)

- For pump types with valve operation "W" (No Valve, with Electric Box, without pendant)
- 4) 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 glycerin 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	Switch-	Deadband	Oil		
Kit	point		Ports		
Model	Repeat-				
number	ability	(psi)	(NPT)		
ZPS-E3 *	± 2%	115-550	3/8"		

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



Heat Exchanger 5)

- Removes heat from bypass oil to provide cooler operation
- Stabilizes oil viscosity, increasing oil life, and reduces wear of pump and other hydraulic components
- 5) 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 99 for ordering matrix.

ZE-Series Options		tory alled		ssory its	
	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	-	Н	-	ZHE	
Pressure Gauge 2)	G	G	-	-	
Pressure Switch 3)	-	Р	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.
- 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.

8000-Series Electric Pumps



▼ 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.

Page:



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:

■ 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.

PE Series



Reservoir Capacity:

25 gal.

Flow at Rated Pressure:

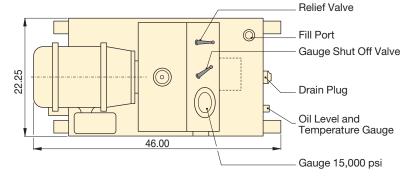
2.0 gal/min.

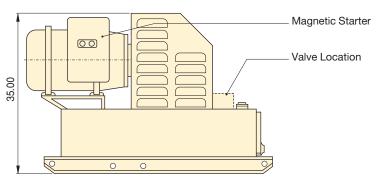
Motor Size:

12.5 hp

Maximum Operating Pressure:

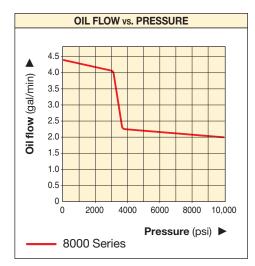
10,000 psi





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".
	Page: 283



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

^{*} Consult Enerpac for availability of other voltages.

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:

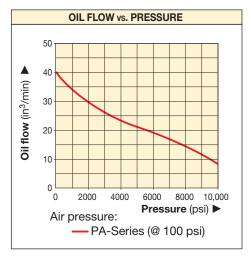
10,000 psi

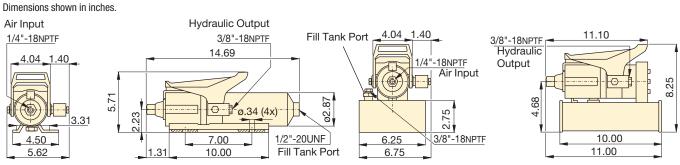


PC-66 Reservoir Conversion Kit

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





PA-133 PA-1150

Used	Usable	Model	Pressure	Output Flow Rate		Valve Function	Air	Air	Sound	Weight
with Cylinder	Oil Capacity	Number	Rating	(in³/min)			Pressure Range*	Consump- tion	Level	
	(in³)		(psi)	No load	Load		(psi)	(scfm)	(dBA)	(lbs)
Single-	36	PA-133	10,000	40	8	Advance/Hold/Retract	60-120	9	85	12
acting	80	PA-1150	10,000	40	8	Advance/Hold/Retract	60-120	9	85	18

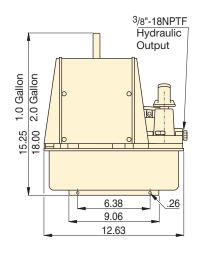
^{*} Recommended Regulator-Filter-Lubricator: RFL-102

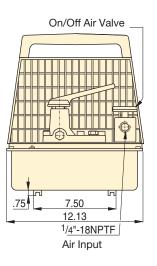
PAM-Series, Air Hydraulic Pumps

▼ Shown: **PAM-1041**



- 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





PAM Series

Reservoir Capacity:

1.0-2.0 gal.

Flow at Rated Pressure:

9 in³/min.

Maximum Operating Pressure:

10,000 psi



Locking Valves

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

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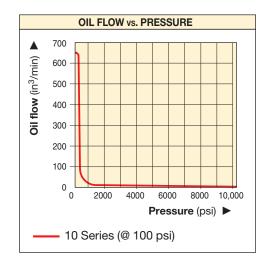


Remote Air Valve

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

Model number 1)

VA-2



Used with Cylinder	Usable Oil Capacity	Model Number (with Shroud)	Pressure Rating	Output Flow Rate (in³/min)		Valve Function	Valve Model	Air Pressure Range*	Air Consumption	Sound Level	Weight
	(gal)		(psi)	1st stage	2 nd stage			(psi)	(scfm)	(dBA)	(lbs)
Single-	0.7	PAM-1021	10,000	650	9	Adv/Hold/Ret	VM-2	60-120	18	87	50
acting	2.0	PAM-1022	10,000	650	9	Adv/Hold/Ret	VM-2	60-120	18	87	60
Double-	0.7	PAM-1041	10,000	650	9	Adv/Hold/Ret	VM-4	60-120	18	87	50
acting	2.0	PAM-1042	10,000	650	9	Adv/Hold/Ret	VM-4	60-120	18	87	60

^{*} Recommended Regulator-Filter-Lubricator: RFL-102

PA-Series, Turbo II Air Hydraulic Pumps



▼ 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

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:

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▼ Easily operated by hand or by foot.

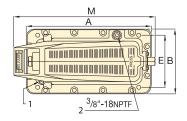


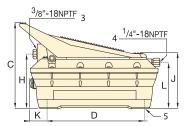


Used with Cylinder	Usable Oil Capacity (in³)	Model Number	
	127	PATG-1102N*	
Single-	230	PATG-1105N	
acting	127	PARG-1102N	
	230	PARG-1105N	
Double-	127	PAMG-1402N	
acting	230	PAMG-1405N	

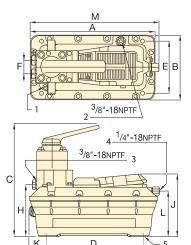
^{*} Available as set. See note on next page.

Turbo II Air Hydraulic Pumps

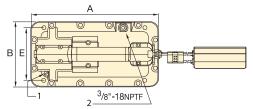


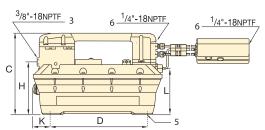






PAMG-1402N and PAMG-1405N





PARG-1102N and PARG-1105N

- 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	Output Flow Rate (in³min)		Model Number	Valve Function	Air Pressure Range	Air Con- sumption	Sound Level
(psi)	No load	Load			(psi)	(scfm)	(dBA)
10,000	60	10	PATG & PAMG	Advance/	40-125	12	76
10,000	51 ¹⁾	6 ¹⁾	PARG	Hold/	40-125	12	76
10,000	482)	5 ²⁾	TAIIG	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:

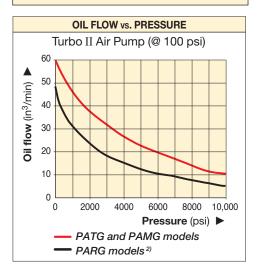
10,000 psi



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.

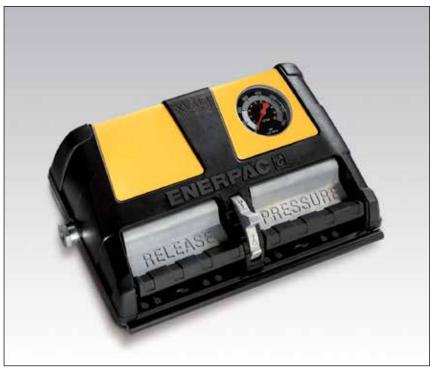


				С	Dimensions						Weight	Model Number
Α	В	С	D	Е	F	Н	J	К	L	M	(lbs)	
12.33	6.49	8.29	9.04	4.00	-	5.15	5.75	1.65	4.43	13.62	18	PATG-1102N*
15.60	7.92	8.22	9.04	4.00	-	5.08	5.75	3.28	4.41	17.20	22	PATG-1105N
12.33	6.49	7.88	9.04	4.00	-	5.15	_	1.65	4.43	_	22	PARG-1102N
15.60	7.92	7.88	9.04	4.00	_	5.08	_	3.28	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

XA-Series, Air Driven Hydraulic Pumps



▼ 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.



Control 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.



"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.

Air Driven Hydraulic Pumps



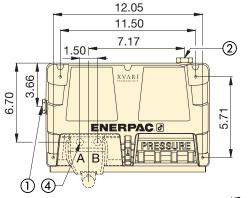
PRODUCTION APPLICATION

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 capabilities to apply the mandatory precise stroke and force.

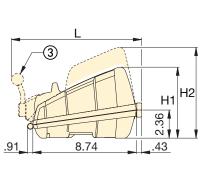
▼ XA-SERIES PERFORMANCE CHART

	Maximum Pressure	Out Flow (in³/r	Rate	Pump Series	Valve Function	Dynamic Air Pressure
	(psi)	No load	Load			(psi)
ĺ	10,000	120	15	XA1	Advance/Hold/Retract	30-125



13.82

- 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



XA **Series**



Reservoir Capacity:

61-122 in³

Flow at Rated Pressure:

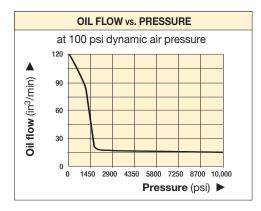
15 in³/min.

Air Consumption:

10-35 scfm

Maximum Operating Pressure:

10,000 psi





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	Usable Oil	Model	Pressure	3-Way,	4-Way,		Dimensions (in)		
Cylinder Tool	Capacity (in³)	No. 1)	Gauge	3-Position Valve	3-Position Valve	H1	H2	L	(lbs)
Single-	61	XA11 ²⁾	_	•	_	5.98	_	_	19.0
acting	122	XA12 ²⁾	_	•	_	-	6.69	-	22.4
Single-	61	XA11G	•	•	_	5.98	_	_	19.4
acting	122	XA12G	•	•	_	_	6.69	_	22.9
Double-	61	XA11V	-	_	•	5.98	-	10.98	22.3
acting	122	XA12V	_	_	•	-	6.69	10.98	25.7
Double-	61	XA11VG	•	-	•	5.98	-	10.98	22.7
acting	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 52.

ZA-Series Air Hydraulic Pumps

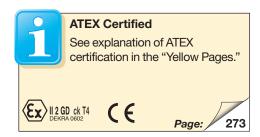


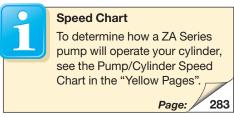
▼ Shown: ZA4208MX, ZA4420MX



- 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









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: 118

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

Used with	Usable Oil	Valve Model	Valve Function	Model Number	Output Flow Rate ¹⁾				
Cylinder	Capacity	Number ²⁾				(in³/	/min)	T	
	(gal)				100 psi	700 psi	5,000 psi	10,000 psi	
0: 1	1.0		A -l /	ZA4204MX	850	675	110	80	
Single- acting	1.75	Manual VM32	Advance/ Retract	ZA4208MX	850	675	110	80	
aog	5.0	VIVIOZ	Hetract	ZA4220MX	850	675	110	80	
	1.0			ZA4404MX	850	675	110	80	
Double-	1.75	Manual	Advance/	ZA4408MX	850	675	110	80	
acting	2.5	Manual VM43	Hold/	ZA4410MX	850	675	110	80	
	5.0	VIVITO	Retract	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:



Product Motor Flow Valve Usable Valve Voltage Type Type Group Type Oil Operation Capacity Options

1 Product Type

Z = Pump class

2 Motor Type

A = Air motor

3 Flow Group

 $4 = 80 \text{ in}^3/\text{min}@10,000 \text{ psi}$

4 Valve Type

0 = No valve with cover plate

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 = Skid bar*

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.

ZASeries



Reservoir Capacity:

1.0-10.0 gal.

Flow at Rated Pressure:

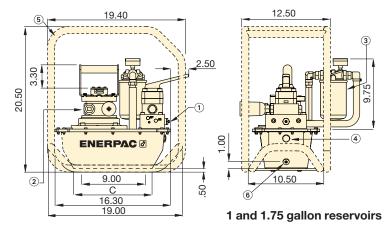
80 in³/min.

Maximum Operating Pressure:

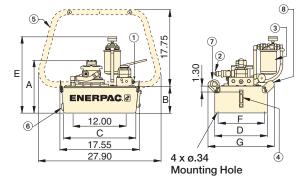
10,000 psi

- (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

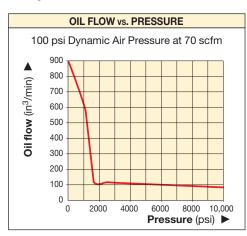
Skid Bar (Model No. SBZ-4) (optional)



		Di	mensions (ir	٦)			Weight (incl. oil)
							(IIICI. OII)
Α	В	С	D	Е	F	G	(lbs)
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



2.5, 5, 10 gallon reservoirs



ZG5/ZG6 Gasoline Hydraulic Pumps



▼ Shown: ZG5420MX-R



- 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
- ZG5 is available in two 4-cycle engine sizes: 7.1 ft.lbs Honda and 8.5 ft.lbs Briggs & Stratton





Speed Chart

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

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Elevation can affect the performance of any gasoline engine. ZG-Series pumps are designed to develop rated performance at elevations up to 4921 ft.

For applications above this elevation please consult your Enerpac office.



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.

▼ SELECTION CHART

Used with Cylinder	Usable Oil Capacity	Valve Model Number	Valve Function	Model Number with Roll Cage			Flow Rate /min)		Sound Level	Motor Manufacturer*	
	(gal)				at 100 psi	at 700 psi	at 5000 psi	at 10,000 psi	(dBA)	(ft-lbs)	
Single-	2.5	VM33		ZG5310MX-R	700	650	110	100	88 - 93		
Acting	5.0	VIVIOO		ZG5320MX-R	700	650	110	100	88 - 93]	
Double-	2.5	\/\\\\		ZG5410MX-R	700	650	110	100	88 - 93	Honda	
Acting	5.0	VM43	Advance/	ZG5420MX-R	700	650	110	100	88 - 93		
Single-	2.5	\/\\\	Hold/	ZG5310MX-BR	400	380	110	100	91 - 95		
Acting	5.0	VM33	Retract	ZG5320MX-BR	400	380	110	100	91 - 95	Briggs &	
D	2.5	\/N.4.40		ZG5410MX-BR	400	380	110	100	91 - 95	Stratton *	
Double- Acting	5.0	VM43		ZG5420MX-BR	400	380	110	100	91 - 95	Stration	
Acting	10.0	VM43L		ZG5840MX-BR	400	380	110	100	91 - 95		

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

Gasoline Hydraulic Pumps

CUSTOM BUILD YOUR ZG AIR PUMP

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



Product Motor Flow Valve Usable Valve Voltage Group Oil Operation Type Type Type Capacity

Options

1 Product Type

Z = Pump class

2 Motor Type

G = Gasoline Engine

3 Flow Group

- $5 = 100 \text{ in}^3/\text{min}@10,000 \text{ psi}$
- 6 = 200 in³/min@10,000 psi (see page 114)

4 Valve Type

- **0** = No valve with coverplate ¹⁾
- **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) 8 = 4-way, 3-position, locking (VM43L)

5 Usable Oil Capacity (Reservoir Size)

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)

B = Briggs & Stratton gasoline engine

= Return Line Filter

= 15,000 psi gauge

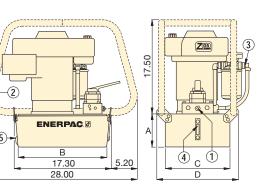
= No reservoir handles (includes lifting eyes; 2.5, 5, 10 gallon only)

R = Roll bars

Ordering Example

Model Number: ZG5420MX-FR

This is a 10,000 psi hydraulic pump, with a 4/3 manual valve, 2.5 gallon reservoir, with a 7.1 ft-lbs Honda gasoline engine pump, return-line filter and roll bar.



- 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)
- 4 Oil Level Gauge
- (5) Oil Drain

Relief Valve Adjustment Range	Reservoir Size	Z	G5 Dime	nsions (ii	Weight	Model Number with Roll Cage	
(psi)	(gal)	Α	В	С	D	(lbs)	
	2.5	6.1	16.5	12.0	15.1	113.6	ZG5310MX-R
1000-	5.0	7.1	16.3	16.6	19.7	140.9	ZG5320MX-R
10,000	2.5	6.1	16.5	12.0	15.1	113.6	ZG5410MX-R
	5.0	7.1	16.3	16.6	19.7	141.0	ZG5420MX-R
	2.5	6.1	16.5	12.0	15.1	111.0	ZG5310MX-BR
1000-	5.0	7.1	16.3	16.6	19.7	138.3	ZG5320MX-BR
10.000	2.5	6.1	16.5	12.0	15.1	111.1	ZG5410MX-BR
10,000	5.0	7.1	16.3	16.6	19.7	138.4	ZG5420MX-BR
	10.0	10.6	15.7	19.8	21.9	189.6	ZG5840MX-BR

ZG5 Series



Reservoir Capacity:

2.5 - 5 - 10 gal.

Flow at Rated Pressure:

100 in³/min.

Engine Size:

7.1 and 8.5 Ft.lbs

Maximum Operating Pressure:

10,000 psi



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.

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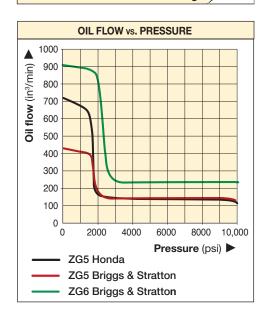


ZG6-Series 17.0 Ft-lb Pump

The ZG6 pump has a 200 in3/min. oil flow at 10,000 psi, Briggs & Stratton 4-cycle gasoline engine with electric

start and 12 volt charge output for accessories.

Page:



¹⁾ For remote valve mounting order BSS1090 high pressure connecting plate.

ZG6 Gasoline Hydraulic Pumps



▼ Shown: **ZG6440MX-BCFH**



ZG6 Series

Reservoir Capacity:

10 gal.

Flow at Rated Pressure:

200 in³/min.

Engine Size:

17.0 Ft.lbs

Maximum Operating Pressure:

10,000 psi



- Features Z-Class high-efficiency pump design:
 - higher oil flow and bypass pressure
 - patented balanced rotating pump components to reduce vibration
 - replaceable piston check valves that increase service life of pump components
- 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 allows transport over uneven terrain and features collapsible handles
- Dual forced-air heat exchangers stabilizes hydraulic oil temperature
- Roll cage for easy portability and hoisting, protects pump
- 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.



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.

Used with Cylinder	Usable Oil Capacity (gal)	Valve Model Number	Valve Function	Model Number	Motor Manufacturer*	Motor Size (Ft.lbs)	Weight (lbs)
Double-Acting	10.0	VM43	Advance/Hold/Retract	ZG6440MX-BCFH	Briggs & Stratton	17.0	334.0

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8000-Series Gasoline Pumps

▼ Shown: EGM-8418



- 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

EGM Series

Reservoir Capacity:

25 gal.

Flow at Rated Pressure:

1.5 gal/min.

Motor Size:

18 hp

Maximum Operating Pressure:

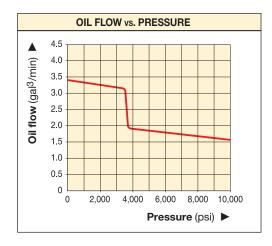
10,000 psi

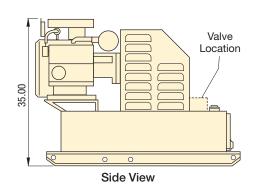


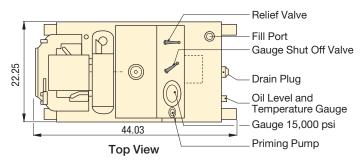
Locking Valves

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

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Used with Cylinder	Usable Oil Capacity	Model Number		re Rating	Output Flow Rate (gal/min)		Valve Type	Valve Function	Sound Level	Weight
	(gal)		1st stage	2 nd stage	1st stage	2 nd stage			(dBA)	(lbs)
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

LL-Series, Level Lift System



▼ Shown: Level Lift System



The Safe, Easy Solution for Multi-Point Lifts



Level Lift System

Enerpac's **Level Lift** is offered as a fully configured system including pump, hoses, gauges, and cart. *Excludes hydraulic cylinders*.



Pendant

The **Level Lift System** features an easy-to-use 3-button pendant control.



Gauges

Gauges are conveniently located on the cart for easy monitoring by the operator.

- Lifts and lowers uneven loads*
- Robust solution for demanding field use conditions eliminates the need for electronics or sensors at each lift point
- Controls up to four lift points
- Single point of control reduces risk of operator miscommunication
- Simple, intuitive, easy-to-operate design

Patents pending

*Requires cylinders with matching effective areas



 Level Lift System provided a safe, fast lifting solution during the rebuild of an off-highway vehicle.

Level Lift System

How Level Lift Works

When the Level Lift System is operated, uneven loads are moved evenly, during both lifting and lowering operations.

The output flow from the pump is directed to the Level Lift Valve via the Lift/Lower valve. The Level Lift valve contains small pistons, which on each cycle, send a fixed volume of oil to each cylinder as it is lifting or lowering.

This allows each cylinder to be raised or lowered by the same amount regardless of the distribution of the weight, or the resulting pressure on each cylinder each cylinder must have the same effective area.

LL **Series**



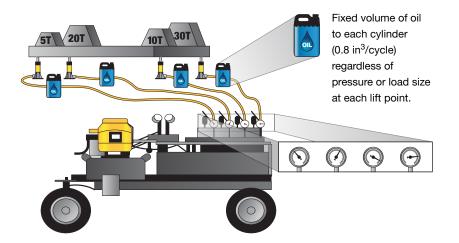
Number of Lift Points:

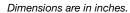
4 points

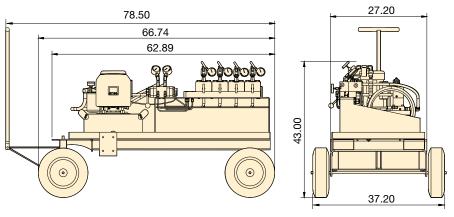
Maximum Operating Pressure:

10,000 psi

Level Lifting and Lowering of Uneven Loads







Model Number	Voltage	Oil Displacement (Per cycle of Level Lift Valve)	Wt.
		(in³)	(lbs)
LL4CE	208-240V, 1 ph, 50 Hz	0.80	651
LL4CB	115V, 1 ph, 60 Hz	0.80	651

Cart Features

- · Field proven, preprogrammed ZE4 semi-automated pump with 5-gallon reservoir
- Pendant control
- · Simple Lift/Lower Valve (for lifting and lowering)
- Stores four, 50-foot long x 3/8" internal diameter hoses (included)
- Built-in forklift runners for easy transportation
- Large diameter pneumatic tires for easy maneuverability and positioning
- · Cart-locking mechanism to prevent unintended movement



Cylinder Compatibility

The Level Lift System is compatible with a wide range of Enerpac single-acting cylinders.

Not recommended for use with cylinders lower than 10-ton capacity or LPL, RSM and RCS-Series Cylinders.

Contact Enerpac for further details.

SFP-Series, Split-Flow Pumps

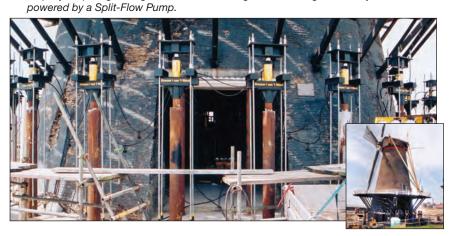


▼ SFP421SJ and SFP404SJ (Gauges and retract valves not shown)



- 2, 4, 6 or 8 split-flow outlets
- Individual or simultaneous operation of valves, with advance/hold/retract function
- Joystick (manual) controlled or pendant (solenoid) controlled valves
- Flow per outlet ranging from 20 to 305 in³/min at 10,000 psi
- For double- and single-acting cylinders
- Adjustable pressure relief valve per circuit
- Reservoir: 5, 10 or 40 gallons
- All models include pressure gauges

▼ Step-by-step stage lifting an old windmill using double-acting RR-506 cylinders



Multiple Outlets with Equal Flow for Lifting and Lowering

Typical Split-Flow Pump Applications

For lifting and lowering applications on multiple points, Split-Flow Pumps are a far better alternative than using independently operated pumps. Where synchronization of maximum 4% is acceptable, Split-Flow Pumps are a safe and economical solution.

The SFP-Series pumps feature both single and synchronized multiple outlet control either through joystick or pendant operation.

Application examples:

- · Bridge deck lifting for bearing maintenance
- Stage lifting in construction and shipbuilding
- Skidding to move structures and buildings
- · Levelling of constructions like wind turbines



solenoid valves include a remote pendant with selector switches for each individual outlet, allowing

single or multiple cylinder operation.



Hoses and Couplers

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

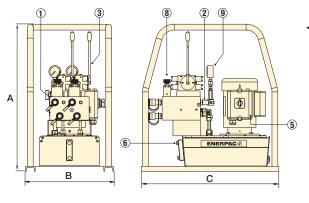
Enerpac System Components.

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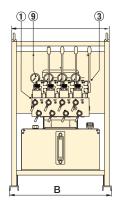
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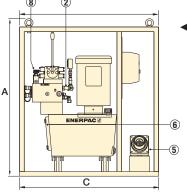
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10,000 psi, Split-Flow Pumps

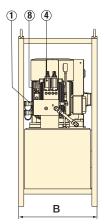


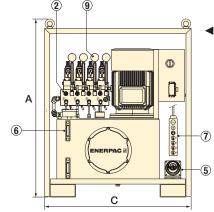
■ SFP-Series with 5-gallon reservoir (shown with two split-flow outlets)





SFP-Series with 10 gallon reservoir (shown with 4 split-flow outlets)





SFP-Series with 40-gallon reservoir (shown with 4 splitflow outlets)

SFP Series



Reservoir Capacity:

5, 10 or 40 gallons

Split Flow Outlets:

2, 4, 6 or 8 outlets

Flow at Rated Pressure:

20 - 305 in³/min

Maximum Operating Pressure:

10,000 psi

- 1) Manifold with split-flow outlets and CR-400 couplers
- ② Adjustable pressure relief valve per circuit
- (3) Manual 4/3 control valves with joysticks
- (4) Solenoid 4/3 control valves (24 VDC)
- (5) Power Receptacle
- (6) Oil sight gauge(s)
- 7 Remote control pendant with 16 ft. cord
- (8) Flow control valve
- (9) Hydraulic gauge



Lifting Cylinders

For a complete line of Enerpac cylinders, see the Cylinder and Lifting Products in our catalog.

Page:

Number of Split Flow	Reservoir Size	Oil Flow per Outlet @	4/3 Valve	Pump Model Number 4/3 Valve Operation Advance/Hold/Retract		Motor Size 460 V - 3ph 60 Hz			
Outlets	(gal)	10,000 psi (in ³ /min)	Manual (Joystick)	24 V Solenoid (Pendant)	(hp)	А	В	С	(lbs)
	5	20	SFP 202MB	-	1.0*	29.5	17.7	27.5	190
2	10	94	SFP213MJ	SFP213SJ	7.5	40.1	26.0	35.4	529
	40	203	SFP 228MJ	SFP228SJ	10	54.0	23.8	44.5	1076
	40	305	SFP 242MJ	SFP242SJ	15	54.0	23.8	44.5	1160
	10	33	SFP404MJ	SFP404SJ	7.5	40.1	26.0	35.4	529
4	40	65	SFP409MJ	SFP409SJ	7.5	54.0	23.8	44.5	1047
-	40	101	SFP414MJ	SFP414SJ	10	54.0	23.8	44.5	1076
	40	153	SFP421MJ	SFP421SJ	15	54.0	23.8	44.5	1160
6	10	33	SFP604MJ	SFP604SJ	7.5	40.1	26.0	35.4	529
3	40	94	_	SFP613SJ	15	54.0	31.7	47.2	1213
8	40	94	_	SFP813SJ		54.0	31.7	47.2	1300

^{* 115}V-1 ph, 60 Hz

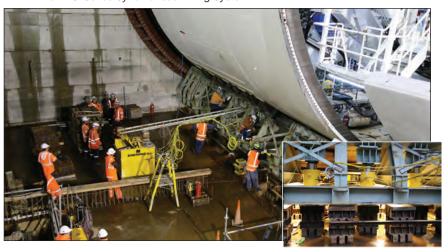
EVO-Series, Synchronous Lifting Systems



▼ EVO-8 (shown with 4 cylinders and stroke sensors, (sold separately)



- Lifting system to control 4, 8 or 12 lifting points (12 points for Standard EVO only)
- Intuitive user interface provides easy set-up and control with multiple lifting options
- Accuracy of up to 0.040 in (1 mm) between leading and lagging cylinders
- For use with standard single- or double-acting cylinders
- Built in warning and stop alarms for optimum safety
- Available with several flow options for optimal lifting speed
- ▼ Shown: 3600-ton tunnel boring machine lowered and tilted into its starting position with the EVO-Series Synchronous Lifting System.



The Multi-Functional Synchronous Lifting System



Ease of Operation

- A single operator controls the entire operation
- User friendly interface: visual screens, icons, symbols and color coding



Lifting Cylinders

For a complete line of Enerpac cylinders, see the cylinder and lifting products in our catalog.

Page:



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:

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Enerpac's family of EVO Synchronous Lifting Systems provides precision control suitable for most lifting/lowering

applications. Custom systems tailored to unique project requirements are also available.

The Standard EVO Synchronous Lift System

It's a comprehensive self-contained design that features simple to use software that is extremely efficient at completing basic to complex applications.

The Basic EVOB Synchronous Lift System

Leveraging Enerpac's market leading Z-Class pumps and components from the standard EVO, the EVOB offers an economical solution to basic applications requiring stroke only control for a maximum of 8 lifting points.

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Synchronous Lifting Systems

CUSTOM BUILD YOUR OWN SYNCHRONOUS LIFTING SYSTEM

▼ This is how a SyncLift model number is built up.



1 Product Type

EVO = Standard SyncLift System **EVOB** = Basic SyncLift System

2 Lift Points

4 = 4 Lift Points 8 = 8 Lift Points

12 = 12 Lift Points (EVO only)

3 Flow Group (in³/min) 60Hz

EVO

21 = 153

40 = 293

EVOB

05 = 40

08 = 60 **16** = 120*

*only available with 3 Ph motor

4 Voltage 1)

EVO

380 = 380-415 V, 3 Ph, 50-60 Hz **460** = 460-480 V, 3 Ph, 50-60 Hz

EVOB

B = 115 V, 1 Ph, 50-60 Hz **E** = 208-240 V, 1 Ph, 50-60 Hz **G** = 208-240 V, 3 Ph, 50-60 Hz **W** = 380-415 V, 3 Ph, 50-60 Hz **J** = 460-480 V, 3 Ph, 50-60 Hz

 $\mathbf{R} = 575 \, \text{V}, 3 \, \text{Ph}, 60 \, \text{Hz}$

5 Options

W = Weighing (Only available with the EVO Standard SyncLift System)

Weighing option includes load cell inputs with special programming for calibration and center of gravity.

Ordering Examples:

Model Number: EVO821460W

EVO has 8 lift points, 153 in³/min, and voltage is 460-480 V, 3-Phase, 50-60 Hz with weighing option.

Model Number: EVOB408B

EVOB has 4 lift points, 60 in³/min, and voltage is 115 V, 1-Phase, 50-60 Hz.

EVO Series



Reservoir Capacity:

10 or 66 gallons

Number of Lifting Points:

4, 8 or 12

Accuracy:

0.040 inch

Motor Size:

1-10 hp

Maximum Operating Pressure:

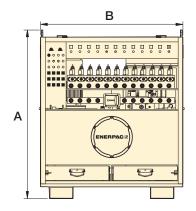
10,000 psi

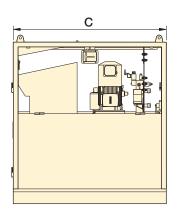
Contact Enerpac! Contact the Enerpa

Contact the Enerpac office nearest to you for advice and technical assistance in the

layout of your ideal solution or visit us on the web:

enerpac.com/contact-us.





Series	Reservoir Capacity	A	В	С	Motor Size	Weight
	(gal)	(in)	(in)	(in)	(hp)	(lbs)
EVO	66	63.37	54.07	55.00	5-10	3000
EVOB	10	48.57	34.00	32.43	1-3	610

▼ Synchronous lift system used to lift a 1000-ton building.



^{1) 115} VAC supply voltage required for pumps with G, J, R suffixes. 230 VAC supply voltage required for pumps with W suffix.

Custom Hydraulic Pumps



Enerpac offers a wide variety of hydraulic pumps for all your custom needs.

Hydraulic pumps are at the heart of any hydraulic system. Different systems require different flow, pressure and control. Enerpac offers a wide variety of hydraulic pumps from small hand-operated pumps to large gasoline powered pumps. Still many applications require a customized pump to operate

the system. These may include larger reservoir capacity, custom valve configurations or added electrical controls.

Enerpac also specializes in power units and controls used for synchronous lifting/lowering of multiple jacking points.



 Private labeled electric torque wrench pumps for OEMs.



Custom pumps with control packages.



 Pumps with custom valve manifolds and circuits.

OVERVIEW



 Custom hydraulic pump for a bridge deck launching system.

CUSTOMIZABLE FEATURES:

- Reservoir and Frame
- Valve Configurations
- Controls
- Oil Types
- Seals
- Pressure and Flow
- Coolers and Heaters
- Paint
- Motor Type
- Human Machine Interface (HMI)

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Directional Control Valves Section Overview

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 Energac 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.

ENERPAC.

	Valve Type	Series		Page
	Pump-Mounted Directional Control Valves	VM, VE	Total	124
	Remote-Manual Directional Control Valves	VC	S. C.	126
	Valve Dimensions	VC, VM, VE		127
)	Modular/Solenoid Operated Directional Control Valves	VE	A P	128 ▶



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.

Page:



Valving Help

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

Page:



Pump Mounted Directional Control Valves



▼ 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 loadholding 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	Single-acting ONLY	3-Way 3 Position, Tandem Center, Venturi Return Assist	
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 ONLY	3-Way 3 Position, Tandem Center, Venturi Return Assist	
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	
ror remote val\	e applications,	see page 126.	

For remote valve applications, see page 126.

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.

Mod Nur	del nber	Hydraulic Symbol	Sc	Weight		
			Advance	Neutral	Retract	(lbs)
VM	22		P		P	5.6
VM	32	P	P		A T T	5.6
VM	33		P	P	A P	6.7
VM	33VAC	GAX GPX	P	P	A T T	7.5
VM	43		P	P T T	A B	6.8
VM	33L		P	P	P	10.7
VM	43L		P	P	A B	10.8
VE	32	P	A T P	P P		8.7
VE	32D	P A A	AAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA		A P	8.7
VES	33VAC	GA THE	A P	A	A P	22
VES	33	- III	A A	A A	A	20.3
VES	33-115	P ST	P	T	T P	20.3
VE	43		B	B	B	20.3
VE ²	43-115	for product dimens	FA T	P T	P T	20.3

See page 127 for product dimensions.

VM,



Flow Capacity:

4.5 gal/min.

Maximum Operating Pressure:

10,000 psi



Assisted Return Pumps

To improve productivity and plunger retraction, Enerpac offers valve configurations designed to accelerate your cylinder retraction speeds. ZU4

and ZE-Series pumps feature Venturi valve technology to facilitate the faster return of single-acting gravity return cylinders. See details on www.enerpac.com



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

Remote Manual Directional Control Valves



▼ 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.

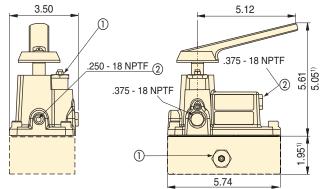
 Advance/Hold/Retract operation for use with single-acting or double-acting cylinders

Valve Operation	Used with Cylinder	Valve Type	Model Number	Hydraulic Symbol	S	chematic Flowpa	ith	Weight (lbs)
					Advance	Hold	Retract	
Manual	Single Acting	3-Way, 3 Position, Tandem Center	VC-3	A	A T	A. T.	A	6.4
Manual	Single Acting	3-Way, 3 Position, Tandem Center, Locking	VC-3L	A PT	PJ	***	*	10.3
Manual	Single Acting	3-Way, 3 Position, Closed Center	VC-15	A PT	A	A.t.	A L	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	A B P T	A T	A A	A T	6.4
Manual	Double Acting	4-Way, 3 Position, Tandem Center, Locking	VC-4L		P B B	B **	PJ	10.3
Manual	Double Acting	4-Way, 3 Position, Closed Center	VC-20	A B P T	A 1	A,ŧ.	A.	6.4
Manual	Double Acting	4-Way, 3 Position, Closed Center, Locking	VC-20L		P	B B	P B T	10.3

Return line kit included with remote valves

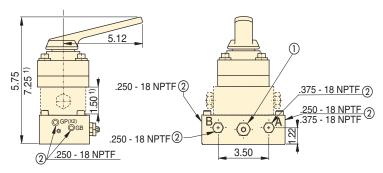
Directional Control Valves Dimensions





VM22, VM32

1) VM22 only

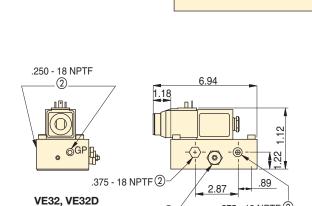


VM33, VM33L

VM43, VM43L

5.69

1) VM33L and VM43L only



(1)

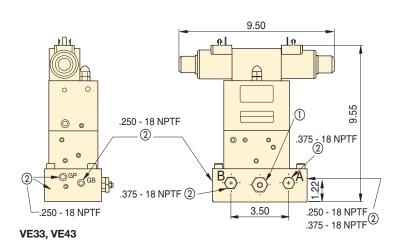
VC3, VC3L, VC-15, VC15L, VC-4, VC4L, VC20, VC20L

.375 - 18 NPTF

2) VC3L, VC15L, VC4L and VC20L only

3.00

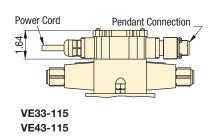
.250 - 20 UNC (2x)



1.38

3.00

 4.49^{2}



.375 - 18 NPTF ②

- (1) User Adjustable Relief Valve
- ② Auxiliary Port

VC, VM,





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.

Solenoid Operated Modular Valves



▼ 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	Α	A B
4-Way, 3-Position (4/3) Closed Center	Double-acting	В	A B T T T T
4-Way, 3-Position (4/3) Tandem Center	Double-acting	С	A B P T
4-Way, 3-Position (4/3) Float Center	Double-acting	D	A B P T
4-Way, 2-Position (4/2) Crossover Offset	Double-acting	E	W A B Z Z P T
3-Way, 3-Position (3/3) Tandem Center	Single-acting	F	A P T
3-Way, 3-Position (3/3) Closed Center	Single-acting	G	A TTTTP
2-Way, 2-Position (2/2) Normally Closed	System	H*	A W T T Z
2-Way, 2-Position (2/2) Normally Open	Un-loading	K*	B T Z
4-Way, 2-Position (4/2) Float Offset	Double-acting	M	A B T Z P T
3-Way, 2-Position (3/2) Normally Open	Single-acting	Р	A W T

^{*} 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?

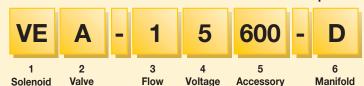
With over 1,300 possible model numbers, Enerpac has the perfect valve for you. Use the "chart" to build your own valve for the specific application you require. This is the complete guide to all the Modular valves that are available.

Solenoid Operated Modular Valves

CUSTOM BUILD YOUR MODULAR VALVES

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

Capacity



1 Product Type

Operated

Valve

VE = Solenoid Operated Valve

Flow

Path

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

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.

VE Series

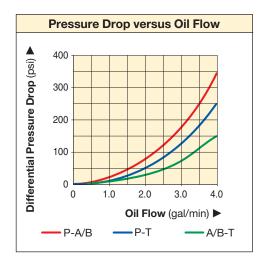


Flow Capacity:

4 gal/min.

Maximum Operating Pressure:

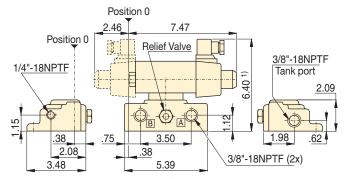
10,000 psi



Example: VEA-15600-D

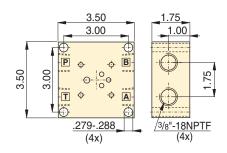
VEA-15600-D is a Modular Valve

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 Pump Mounted 1) add 1.85 inch for each Accessory Valve

Maximum Operating Pressure		Amperage Draw	1	Seal Material	Valve Plug
(psi)	24 VDC	115 VAC 230 V 60 Hz 60 Hz			
0 - 10,000	N/A Inrush	3.6 A Inrush	1.8 A Inrush	Buna-N,	DIN
0 - 10,000	2.5 A Holding	1.0 A Holding	.5 A Holding	Polyure- thane	43650



Modular Valve Remote Mount Manifold