



Department of Administration
Purchasing Division
2019 Washington Street East
Post Office Box 50130
Charleston, WV 25305-0130

State of West Virginia
Solicitation Response

Proc Folder: 1983761		
Solicitation Description: Addendum 01: Electric Hydraulic Pump Jacks		
Proc Type: Agency Purchase Order		
Solicitation Closes	Solicitation Response	Version
2026-06-23 10:30	SR 0803 ESR06222600000008906	1

VENDOR
VS0000042984 RED VEST SUPPLY LLC

Solicitation Number: ARFQ 0803 DOT2600000098

Total Bid: 40013.87999999999738065525889 **Response Date:** 2026-06-22 **Response Time:** 13:47:44

Comments:

FOR INFORMATION CONTACT THE BUYER Jeromie F Lanham 304-720-7383 jeromie.f.lanham@wv.gov		
Vendor Signature X	FEIN#	DATE

All offers subject to all terms and conditions contained in this solicitation

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
1	Electric Hydraulic Pump Jack	2.00000	EA	12192.120000	24384.24

Comm Code	Manufacturer	Specification	Model #
24101600			

Commodity Line Comments:

Extended Description:

SEE ATTACHED PRICING PAGE - ATTACHMENT A, FOR ACTUAL COST

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
2	200 Ton Capacity Lock Nut Cylinder	2.00000	EA	5928.580000	11857.16

Comm Code	Manufacturer	Specification	Model #
24101600			

Commodity Line Comments:

Extended Description:

SEE ATTACHED PRICING PAGE - ATTACHMENT A, FOR ACTUAL COST

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
3	Tilt Saddle For 200 Ton Cylinders	2.00000	EA	644.160000	1288.32

Comm Code	Manufacturer	Specification	Model #
24101600			

Commodity Line Comments:

Extended Description:

SEE ATTACHED PRICING PAGE - ATTACHMENT A, FOR ACTUAL COST

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
4	45 Degree Angled Gauge Adaptor Assembly	2.00000	EA	429.230000	858.46

Comm Code	Manufacturer	Specification	Model #
24101600			

Commodity Line Comments:

Extended Description:

SEE ATTACHED PRICING PAGE - ATTACHMENT A, FOR ACTUAL COST

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
5	Heavy Duty Rubber High Pressure Hydraulic Hose	2.00000	EA	615.250000	1230.50

Comm Code	Manufacturer	Specification	Model #
24101600			

Commodity Line Comments:

Extended Description:

SEE ATTACHED PRICING PAGE - ATTACHMENT A, FOR ACTUAL COST

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Ln Total Or Contract Amount
6	High Flow Hydraulic Coupler Set	4.00000	EA	98.800000	395.20

Comm Code	Manufacturer	Specification	Model #
24101600			

Commodity Line Comments:

Extended Description:

SEE ATTACHED PRICING PAGE - ATTACHMENT A, FOR ACTUAL COST

Quotation

RED VEST SUPPLY
1656 Lynnbrook Ct.
Orient, OH 43146
Phone (888) 926-6570



DATE 06/22/26
Quotation # ARFQ-0803-
Customer ID DOT00000098
STWV

Quotation For:
STATE OF WEST
VIRGINIA

Quotation valid until: 07-22-2026

Comments or Special Instructions:

*Brochure is attached

SALESPERSON	P.O. NUMBER	LEAD TIME	SHIP VIA	F.O.B. POINT	TERMS
Nikki Baffa		6 - 8 WEEKS			Net 30 Days

QUANTITY	DESCRIPTION	UNIT PRICE	AMOUNT
2	Enerpac ZE4320LB-N - Electric Hydraulic Pump - Specs Include: • Operating Pressure: 10,000 PSI • Two-stage design rated to 10,000 PSI • 1.5 HP motor • VM33 configuration supports single-acting cylinders • VM33 Manual Valve • Multiple Valve control options available throughout ZE Series.	\$ 12,192.12	\$ 24,384.24
2	Enerpac HCL2006- Lock Nut Hydraulic Cylinder - 200 Ton Capacity • 5.91 inch Stroke Hyd Cylinder • Maximum operating pressure: 10,000 PSI • Withstands 10% side load at 90% of max. stroke.	\$ 5,928.58	\$ 11,857.16
2	Enerpac CATS-201- Tilting Saddle for High-Tonnage Cylinders - • Compatible with Enerpac HCL2006 200-Ton Lock Nut Cylinder • 5 Degree Saddle Tilt • 200 ton tilting Saddle.	\$ 644.16	\$ 1,288.32
2	Enerpac GA45GC - 45° Gauge Adapter Assembly, Max. operating pressure: 10,000 PSI • Major graduation: 2,000 PSI • Minor graduation: 200 PSI.	\$ 429.23	\$ 858.46
2	Enerpac H-9320- Heavy Duty Rubber High Pressure Hydraulic Hose - 10,000 PSI maximum operating pressure • 20-foot length • 0.38" (3/8") internal diameter • 3/8"-18 NPTF fittings on both ends.	\$ 615.25	\$ 1,230.50
4	Enerpac C-604- High-Flow Hydraulic Coupler Set - Max. operating pressure: 10,000 PSI • 3/8" size • Includes both male and female sections.	\$ 98.80	\$ 395.20

SUBTOTAL	\$ 40,013.88
TAX RATE	0.00%
SALES TAX	\$ 0.00
OTHER	-
TOTAL	\$ 40,013.88

If you have any questions concerning this quotation, contact sales@redvestsupply.com



State of West Virginia
Agency Request for Quote
Highways

Proc Folder: 1983761			Reason for Modification: Addendum 01 To attach responses to questions from vendors.
Doc Description: Addendum 01: Electric Hydraulic Pump Jacks			
Proc Type: Agency Purchase Order			
Date Issued	Solicitation Closes	Solicitation No	Version
2026-06-17	2026-06-23 10:30	ARFQ 0803 DOT2600000098	2

BID RECEIVING LOCATION

PROCUREMENT DIVISION
DIVISION OF HIGHWAYS
BLDG 6 RM 340A
1900 KANAWHA BLVD E
CHARLESTON WV 25305
US

VENDOR

Vendor Customer Code:

Vendor Name :

Address :

Street :

City :

State : **Country :** **Zip :**

Principal Contact :

Vendor Contact Phone: **Extension:**

FOR INFORMATION CONTACT THE BUYER

Jeromie F Lanham
304-720-7383
jeromie.f.lanham@wv.gov

Vendor Signature X	FEIN#	DATE
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All offers subject to all terms and conditions contained in this solicitation

ADDITIONAL INFORMATION**ADDENDUM 1**

ADDENDUM 1 IS ISSUED FOR THE FOLLOWING REASONS:

1. TO ATTACH RESPONSES TO QUESTIONS FROM VENDORS

NO OTHER CHANGES

INVOICE TO		SHIP TO	
VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER		VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER	
No City US	WV	No City US	WV

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
1	Electric Hydraulic Pump Jack	2.00000	EA		

Comm Code	Manufacturer	Specification	Model #
24101600			

Extended Description:

SEE ATTACHED PRICING PAGE - ATTACHMENT A, FOR ACTUAL COST

INVOICE TO		SHIP TO	
VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER		VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER	
No City US	WV	No City US	WV

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
2	200 Ton Capacity Lock Nut Cylinder	2.00000	EA		

Comm Code	Manufacturer	Specification	Model #
24101600			

Extended Description:

SEE ATTACHED PRICING PAGE - ATTACHMENT A, FOR ACTUAL COST

INVOICE TO		SHIP TO	
VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER		VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER	
No City	WV	No City	WV
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
3	Tilt Saddle For 200 Ton Cylinders	2.00000	EA		

Comm Code	Manufacturer	Specification	Model #
24101600			

Extended Description:
SEE ATTACHED PRICING PAGE - ATTACHMENT A, FOR ACTUAL COST

INVOICE TO		SHIP TO	
VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER		VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER	
No City	WV	No City	WV
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
4	45 Degree Angled Gauge Adaptor Assembly	2.00000	EA		

Comm Code	Manufacturer	Specification	Model #
24101600			

Extended Description:
SEE ATTACHED PRICING PAGE - ATTACHMENT A, FOR ACTUAL COST

INVOICE TO		SHIP TO	
VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER		VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER	
No City	WV	No City	WV
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
5	Heavy Duty Rubber High Pressure Hydraulic Hose	2.00000	EA		

Comm Code	Manufacturer	Specification	Model #
24101600			

Extended Description:
SEE ATTACHED PRICING PAGE - ATTACHMENT A, FOR ACTUAL COST

INVOICE TO		SHIP TO	
VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER		VARIOUS AGENCY LOCATIONS AS INDICATED BY ORDER	
No City	WV	No City	WV
US		US	

Line	Comm Ln Desc	Qty	Unit Issue	Unit Price	Total Price
6	High Flow Hydraulic Coupler Set	4.00000	EA		

Comm Code	Manufacturer	Specification	Model #
24101600			

Extended Description:
SEE ATTACHED PRICING PAGE - ATTACHMENT A, FOR ACTUAL COST

SCHEDULE OF EVENTS		
<u>Line</u>	<u>Event</u>	<u>Event Date</u>
1	TECHNICAL QUESTION DEADLINE BY 10:00AM EST	2026-06-17

SOLICITATION NUMBER: ARFQ DOT2600000098

Addendum Number: 1

The purpose of this addendum is to modify the solicitation identified as ("Solicitation") to reflect the change(s) identified and described below.

Applicable Addendum Category:

- ☐ Modify bid opening date and time
- ☐ Modify specifications of product or service being sought
- ☒ Attachment of vendor questions and responses
- ☐ Attachment of pre-bid sign-in sheet
- ☐ Correction of error
- ☐ Other

Description of Modification to Solicitation:

ADDENDUM 1 IS ISSUED FOR THE FOLLOWING REASONS:

1. TO ATTACH RESPONSES TO QUESTIONS FROM VENDORS

NO OTHER CHANGES

Additional Documentation: Documentation related to this Addendum (if any) has been included herewith as Attachment A and is specifically incorporated herein by reference.

Terms and Conditions:

1. All provisions of the Solicitation and other addenda not modified herein shall remain in full force and effect.
2. Vendor should acknowledge receipt of all addenda issued for this Solicitation by completing an Addendum Acknowledgment, a copy of which is included herewith. Failure to acknowledge addenda may result in bid disqualification. The addendum acknowledgement should be submitted with the bid to expedite document processing.

ATTACHMENT A

ARFQ DOT2600000098 Electric Hydraulic Pump Jacks

Responses to Questions from Vendors

Question 1

Can you please confirm required voltage for the electro-hydraulic pump.

Response 1

"B" suffix model numbers shown are 115 VAC, 1-phase, 50/60 Hz, CE compliant.

"I" indicates pump is available in 208-240V, 1-phase, 50/60 Hz with NEMA 6/15 plug, CE compliant.

"E" indicates pump is available in 208-240V, 1-phase, 50/60 Hz with European plug, CE compliant.

Question 2

1. Can you please explain what is meant by **"multiple valve and control options"**
2. What else would you want the pump to do?
3. It will have a manual valve to control this lock nut cylinder, but what other applications are you considering?

Response 2

1. Multiple valve and control options provide flexibility to match the pump to a wide range of pressing, punching and other operations.
2. See above.
3. When you pair a locking nut cylinder (a hydraulic jack featuring a threaded mechanical lock nut) with a manual directional control valve, you create a highly secure, reliable, and portable system for managing extreme weights. While the cylinder provides the raw lifting power and absolute mechanical load-holding (independent of hydraulic pressure), the manual valve gives the operator precise, tactile control over the oil flow.

ADDENDUM ACKNOWLEDGEMENT FORM
SOLICITATION NO.: ARFQ DOT2600000098

Instructions: Please acknowledge receipt of all addenda issued with this solicitation by completing this addendum acknowledgment form. Check the box next to each addendum received and sign below. Failure to acknowledge addenda may result in bid disqualification.

Acknowledgment: I hereby acknowledge receipt of the following addenda and have made the necessary revisions to my proposal, plans and/or specification, etc.

Addendum Numbers Received:
(Check the box next to each addendum received)

- | | |
|--|--|
| ☒ Addendum No. 1 | ☐ Addendum No. 6 |
| ☐ Addendum No. 2 | ☐ Addendum No. 7 |
| ☐ Addendum No. 3 | ☐ Addendum No. 8 |
| ☐ Addendum No. 4 | ☐ Addendum No. 9 |
| ☐ Addendum No. 5 | ☐ Addendum No. 10 |

I understand that failure to confirm the receipt of addenda may be cause for rejection of this bid. I further understand that any verbal representation made or assumed to be made during any oral discussion held between Vendor's representatives and any state personnel is not binding. Only the information issued in writing and added to the specifications by an official addendum is binding.

Red Vest Supply LLC

Company

Michael Lackey

Authorized Signature

6/22/2026

Date

NOTE: This addendum acknowledgment should be submitted with the bid to expedite document processing.

Electric Hydraulic Pump Jacks
ATTACHMENT A - ATT A 6626C036

Vendor Name : **Red Vest Supply LLC**

Vendor Instructions: Please provide a price for all Contract Items listed below. All contract lines must be bid to be considered for award. Qualifying bids will be evaluated based on the sum of the bid totals to determine the low bid Vendor that meets specifications. This is a single-vendor award one (1) time purchase contract.

Contract Item #	Estimated Quantity	Description	Description In Vendors Billing System	Unit Of Measure	Bid Price
1	2	Electric Hydraulic Pump Jack	Enerpac ZE4320LB-N - Electric Hydraulic Pump	Each	24,384.24
2	2	200 Ton Capacity Lock Nut Cylinder	Enerpac HCL2006- Lock Nut Hydraulic Cylinder	Each	11,857.16
3	2	Tilt Saddle For 200 TonCylinders	Enerpac CATS-201- Tilting Saddle for High-Tonnage Cylinders	Each	1,288.32
4	2	45 Degree Angles Gauge Adaptor Assembly	Enerpac GA45GC - 45° Gauge Adapter Assembly	Each	858.46
5	2	Heavy Duty Rubber High Pressure Hydraulic Hose	Enerpac H-9320- Heavy Duty Rubber High Pressure Hydraulic Hose	Each	1,230.50
6	4	High Flow Hydraulic Coupler Set	Enerpac C-604- High-Flow Hydraulic Coupler Set	Each	395.2
				Grand Total	40,013.88

ENERPAC 

ZE Electric Pump Series

10,000 psi



ENERPAC 
Hydraulic Technology Worldwide

Z Tough.
Dependable.
Innovative.
CLASS

Unsurpassed in technology,
design and features — only
from the market leader in
industrial hydraulic 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.



An Innovation in Pump Design

Z-Class Pumping Element

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.

ZE Series Electric Pumps

Available in 4 flow ranges and single and two-stage models, to provide the optimum cylinder and tool performance for almost any industrial application.

Pump Series	Motor Size	Flow @ Rated Pressure
ZE3	1 hp	40 in ³ /min
ZE4	1.5 hp	60 in ³ /min
ZE5	3.0 hp	120 in ³ /min
ZE6	7.5 hp	200 in ³ /min

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

Low-voltage pendant features sealed switches and operates at 15 vdc for improved operator safety.

Totally enclosed, fan-cooled industrial motor provides safe, trouble-free operation for the life of the pump.

Optional back-lit LCD

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



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



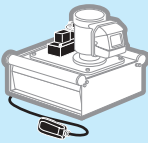
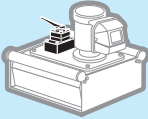
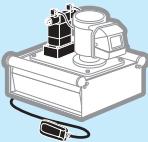
The New Standard for Industrial Applications, Z-Class



All models in the chart below are the industry's most commonly selected pump configurations. See the Z-Class pump ordering matrix for more options.

Page: 15

▼ SELECTION CHART *

BASIC PUMP CONFIGURATIONS Select your ZE pump model here for most applications. For special requirements, see the ZE Pump ordering matrix.	Pump Type	Used with Cylinder		Valve Function			Valve** Model Number	Useable Oil Capacity (gal)	
									
ZE-Series with Dump Valve • Ideal for punching, crimping and cutting • For use when load holding is not required • Push-button control pendant with 10 ft. cord controls the valve and motor		●		●		●	VE32D	1.0	
		●		●		●	VE32D	2.0	
		●		●		●	VE32D	5.0	
ZE-Series with Manual Valve • Ideal choice for most applications • Manual valve control, for both single-acting or double-acting applications • Manual motor control		●		●		●	VM32	2.0	
		●		●		●	VM32	5.0	
		●		●	●	●	VM33	2.0	
		●		●	●	●	VM33	5.0	
			●	●	●	●	VM43	2.0	
			●	●	●	●	VM43	5.0	
ZE-Series with Solenoid Valve • Ideal for production and lifting applications • All valves are 3-position for Advance-Hold-Retract • Push-button control pendant with 10 ft. cord controls the valve and motor • Includes LCD electrical package		●		●	●	●	VE33	1.0	
		●		●	●	●	VE33	2.0	
		●		●	●	●	VE33	5.0	
			●	●	●	●	VE43	2.0	
			●	●	●	●	VE43	5.0	
			●	●	●	●	VE43	10.0	

* 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 on page 15.

** See Valve Section for technical information.

ZE3 & ZE4 Electric Pump Series

- 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)

ZE3 ZE4 Series



Reservoir Capacity:

1.0 - 10 gal.

Flow at Rated Pressure:

40 - 60 in³/min

Motor Size:

1.0 - 1.5 hp

Maximum Operating Pressure:

10,000 psi



All Z-Class electric pumps are CSA and CE compliant.



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.



How to Order Single-Stage Pumps

To specify a single-stage pump, place the letter "S" at the end of the model number.

For example:

ZE5320LG-S

This is a 3.0 hp ZE5 series pump with a VM33 manual valve, 5 gallon reservoir, LCD electrical box, 220 VAC, 50/60 Hz 3-phase motor and single-speed option.

ZE3 Series (1.0 hp) Output Flow Rate at 10,000 psi: 40 in ³ /min				ZE4 Series (1.5 hp) Output Flow Rate at 10,000 psi: 60 in ³ /min			
Standard Electric		LCD Electric		Standard Electric		LCD Electric	
Model Number	Weight (lbs)	Model Number	Weight (lbs)	Model Number	Weight (lbs)	Model Number	Weight (lbs)
N/A		ZE3104DB	95	N/A		ZE4104DB	104
N/A		ZE3108DB	105	N/A		ZE4108DB	114
N/A		ZE3120DB	141	N/A		ZE4120DB	150
ZE3208MB	96	ZE3208LB	101	ZE4208MB	104	ZE4208LB	110
ZE3220MB	132	ZE3220LB	137	ZE4220MB	140	ZE4220LB	146
ZE3308MB	97	ZE3308LB	103	ZE4308MB	105	ZE4308LB	111
ZE3320MB	133	ZE3320LB	138	ZE4320MB	141	ZE4320LB	147
ZE3408MB	97	ZE3408LB	103	ZE4408MB	106	ZE4408LB	111
ZE3420MB	133	ZE3420LB	139	ZE4420MB	141	ZE4420LB	147
N/A		ZE3304SB	107	N/A		ZE4304SB	115
N/A		ZE3308SB	117	N/A		ZE4308SB	125
N/A		ZE3320SB	153	N/A		ZE4320SB	161
N/A		ZE3408SB	117	N/A		ZE4408SB	125
N/A		ZE3420SB	153	N/A		ZE4420SB	161
N/A		ZE3440SB	204	N/A		ZE4440SB	212

* 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 on page 15.

▼ Shown from left to right: ZE6440SG-HNU, ZE5420LG



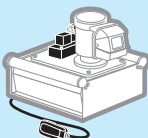
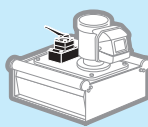
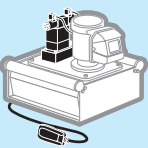
The New Standard for Industrial Applications, Z-Class



All models in the chart below are the industry's most commonly selected pump configurations. See the Z-Class pump ordering matrix for more options.

Page: 15

▼ SELECTION CHART *

BASIC PUMP CONFIGURATIONS Select your ZE pump model here for most applications. For special requirements see the ZE Pump ordering matrix.	Pump Type	Used with Cylinder		Valve Function			Valve** Model Number	Useable Oil Capacity (gal)
								
ZE-Series with Dump Valve • Ideal for punching, crimping and cutting • For use when load holding is not required • Push-button control pendant with 10 ft. cord controls the valve and motor		●		●		●	VE32D	2.5
		●		●		●	VE32D	5.0
ZE-Series with Manual Valve • Ideal choice for most applications • Manual valve control, for both single-acting or double-acting applications • Manual motor control		●		●		●	VM32	2.5
		●		●		●	VM32	5.0
		●		●	●	●	VM33	5.0
		●		●	●	●	VM33	10.0
			●	●	●	●	VM43	5.0
			●	●	●	●	VM43	10.0
ZE-Series with Solenoid Valve • Ideal for production and lifting applications • All valves are 3-position for Advance-Hold-Retract • Push-button control pendant with 10 ft. cord controls the valve and motor • Includes LCD electrical package		●		●	●	●	VE33	2.5
		●		●	●	●	VE33	5.0
				●	●	●	VE43	2.5
			●	●	●	●	VE43	5.0
			●	●	●	●	VE43	10.0
			●					
			●					

* All models in this chart are 220 VAC, 3-phase at 50/60 Hz. For other options please refer to the ZE Pump ordering matrix on page 15.

** Refer to Valve Section for technical information on page 12.

ZE5 & ZE6 Electric Pump Series

- 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)

ZE5 ZE6 Series



Reservoir Capacity:

2.5 - 10 gal.

Flow at Rated Pressure:

120 - 200 in³/min

Motor Size:

3.0 - 7.5 hp

Maximum Operating Pressure:

10,000 psi



All Z-Class electric pumps are CSA and CE compliant.



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.



How to Order Single-Stage Pumps

To specify a single-stage pump, place the letter "S" at the end of the model number.

For example:

ZE5320LG-S

This is a 3.0 hp ZE5 series pump with a VM33 manual valve, 5 gallon reservoir, LCD electrical box, 220 VAC, 50/60 Hz 3-phase motor and single-speed option.

ZE5 Series (3.0 hp) Output Flow Rate at 10,000 psi: 120 in ³ /min				ZE6 Series (7.5 hp) Output Flow Rate at 10,000 psi: 200 in ³ /min			
Standard Electric***		LCD Electric		Standard Electric***		LCD Electric	
Model Number	Weight (lbs)	Model Number	Weight (lbs)	Model Number	Weight (lbs)	Model Number	Weight (lbs)
N/A		ZE5110DG	136	N/A		ZE6110DG	176
N/A		ZE5120DG	163	N/A		ZE6120DG	203
ZE5210MG	124	ZE5210LG	132	ZE6210MG	164	ZE6210LG	172
ZE5220MG	151	ZE5220LG	159	ZE6220MG	191	ZE6220LG	199
ZE5320MG	152	ZE5320LG	160	ZE6320MG	192	ZE6320LG	200
ZE5340MG	203	ZE5340LG	210	ZE6340MG	243	ZE6340LG	250
ZE5420MG	152	ZE5420LG	160	ZE6420MG	192	ZE6420LG	200
ZE5440MG	203	ZE5440LG	210	ZE6440MG	243	ZE6440LG	251
N/A		ZE5310SG	147	N/A		ZE6310SG	188
N/A		ZE5320SG	174	N/A		ZE6320SG	214
N/A		ZE5410SG	147	N/A		ZE6410SG	188
N/A		ZE5420SG	174	N/A		ZE6420SG	214
N/A		ZE5440SG	225	N/A		ZE6440SG	265

* All models in this chart are 220 VAC, 3-phase at 50/60 Hz. For other options please refer to the ZE Pump ordering matrix on page 15.

*** Standard Electric models with 3-phase motors are shipped without cord, motor starter or overload protection.

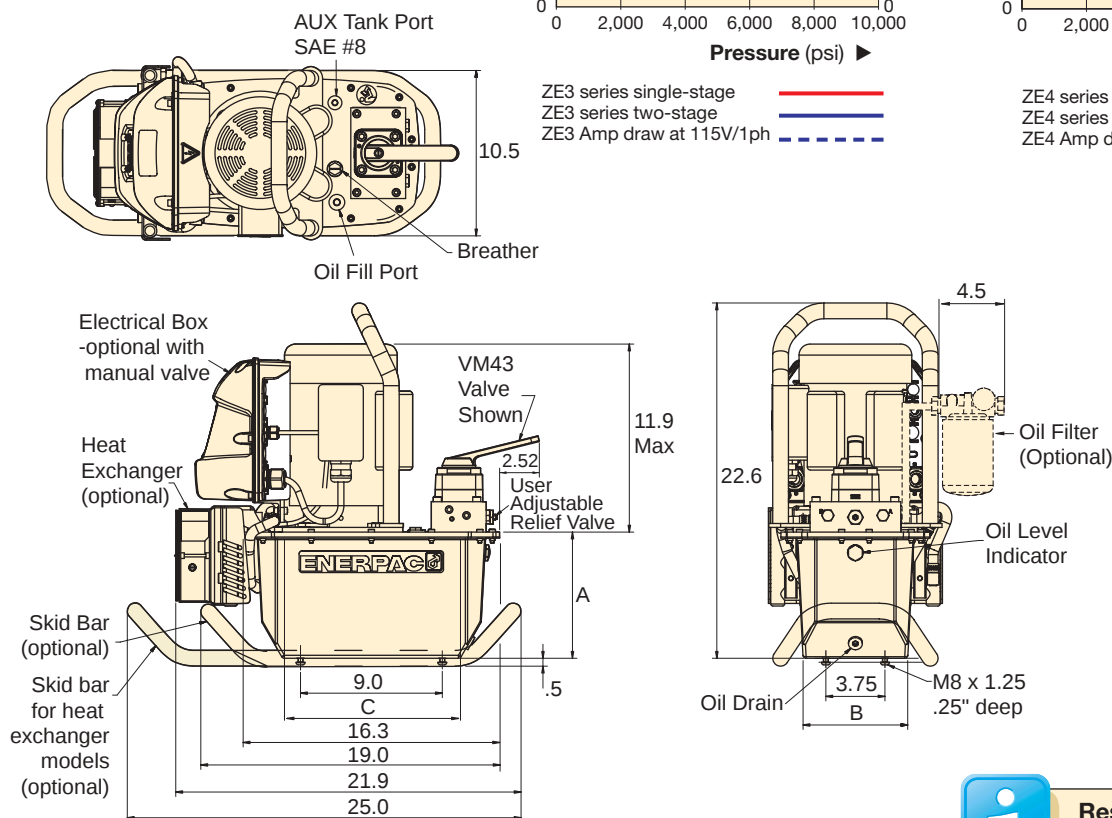
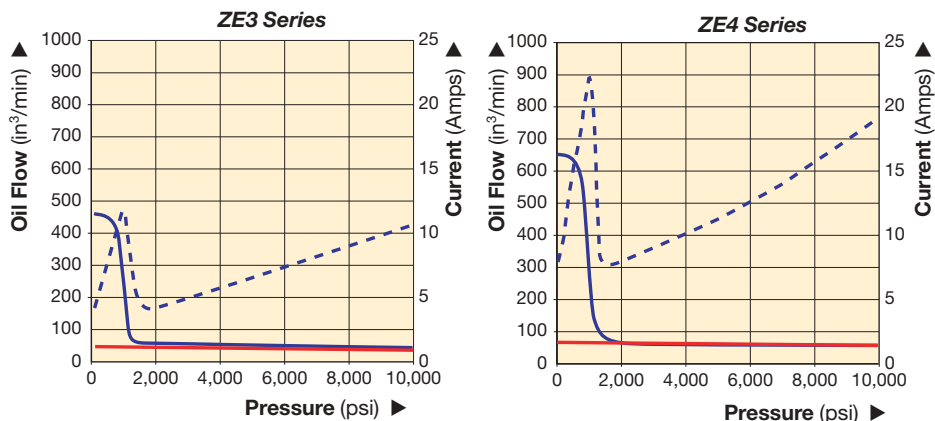
▼ PERFORMANCE CHART

ZE Pump Series	Operation	Output Flow Rate (in ³ /min)				Motor Size		Relief Valve Adjustment Range (psi)	Sound Level (dBA)
		100 psi	700 psi	5,000 psi	10,000 psi	hp	RPM		
3	Single-stage	43	43	42	40	1.0	1750	1000 - 10,000	75
	Two-stage	450	385	42	40				
4	Single-stage	64	64	62	60	1.5	1750	1000 - 10,000	75
	Two-stage	650	600	62	60				

Output flow rate is listed at 60 Hz.

Flow rate will be approximately 5/6 of these values at 50 Hz.

▼ FLOW CHARTS



Useable Oil Capacity (gal)	Dimensions ZE series (in)			Weight (lbs)	
	A	B	C	ZE3	ZE4
1.0	5.6	6.0	11.0	86	94
2.0	8.0	6.6	11.3	96	105

Pump weights are shown with LCD electric, no valves and no accessories



Reservoir information

One and two gallon reservoirs are only available with ZE3 and ZE4 series pumps. 2.5, 5 and 10 gallon reservoirs are available on all sizes of ZE series pumps.

ZE5 & ZE6 Electric Pump Series

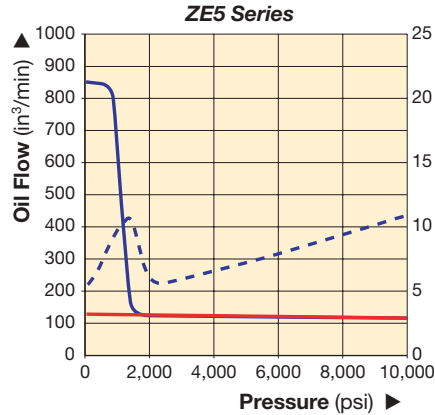
▼ PERFORMANCE CHART

ZE Pump Series	Operation	Output Flow Rate (in ³ /min)				Motor Size		Relief Valve Adjustment Range (psi)	Sound Level (dBA)
		100 psi	700 psi	5,000 psi	10,000 psi	hp	RPM		
5	Single-stage	128	126	123	120	3.0	1750	1000 - 10,000	75
	Two-stage	850	825	123	120				
6	Single-stage	220	215	210	200	7.5	3450	1000 - 10,000	80
	Two-stage	900	890	210	200				

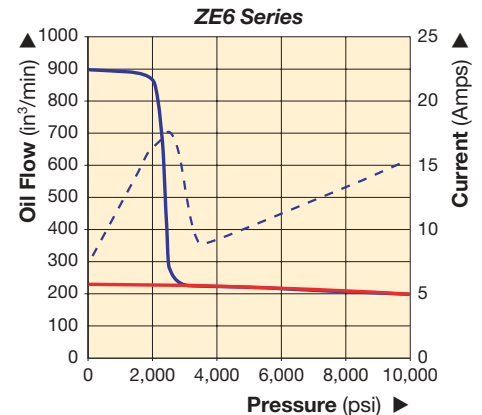
Output flow rate is listed at 60 Hz.

Flow rate will be approximately $\frac{5}{6}$ of these values at 50 Hz.

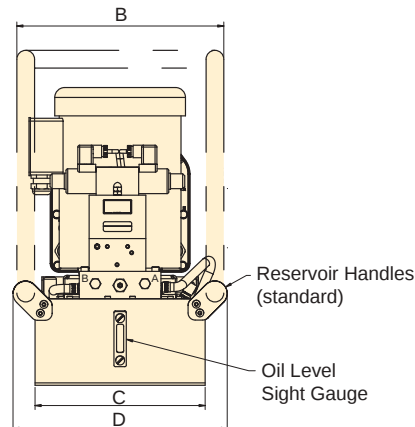
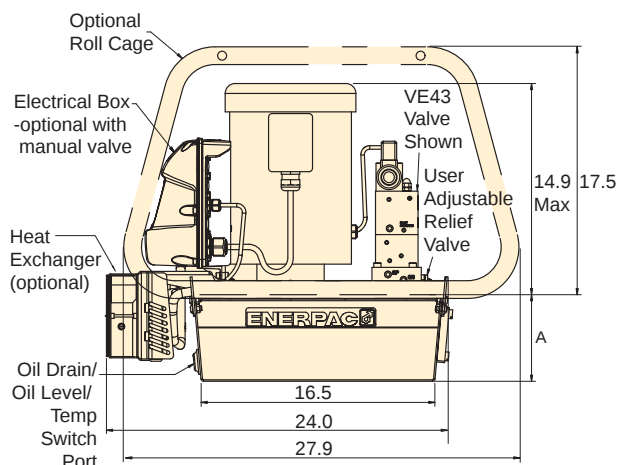
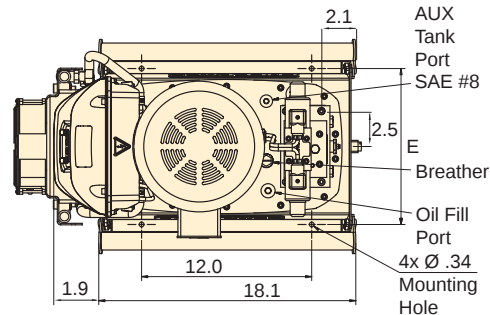
▼ FLOW CHARTS



ZE5 series single-stage ———
 ZE5 series two-stage ———
 ZE5 Amp draw at 208V/3ph - - - -



ZE6 series single-stage ———
 ZE6 series two-stage ———
 ZE6 Amp draw at 208V/3ph - - - -



Useable Oil Capacity (gal)	Dimensions ZE series (in)					Weight (lbs)			
	A	B	C	D	E	ZE3	ZE4	ZE5	ZE6
2.5	6.1	14.6	12.0	15.1	11.0	106	114	127	167
5.0	7.1	19.2	16.6	19.7	15.6	132	141	154	194
10.0	10.6	22.5	19.9	22.7	18.9	183	191	204	244

Pump weights are shown with LCD electric, no valves and no accessories.

▼ Shown: **ZPF** mounted on ZE4110DB-FHR



ZPF Series Return Line Filter

- Extends life of hydraulic components and increases system reliability
- 25 micron nominal return line filter cleans oil to increase system life
- Internal by-pass valve to prevent damage if the filter is dirty
- Kit assembles quickly and easily to Enerpac Z-Class pumps
- Replaceable filter element
- Maintenance indicator included
- A variety of installation hardware included

ZPF Series



Filtration:

25 micron

Maximum Operating Pressure:

200 psi



ZPF-Series

The oil filter kit removes contaminants from the return oil flow before allowing it back into the reservoir, reducing component damage created by oil borne contaminants.



PF25 Replacement Filter Element

For best performance, replace filter element regularly.

Nominal Filtration	Model Number	Maximum Pressure	Maximum Oil Flow	By-pass Setting	Replace-ment Filter Element	Weight
(micron)		(psi)	(GPM)	(psi)		(lbs)
25	ZPF	200	12.0	25	PF25	3.2

▼ Shown: **ZHE-E10** mounted on ZE6440SG-HNU



ZHE Series Heat Exchanger

- Extends system life
- All installation components included
- Stabilizes oil temperature at a maximum of 130° F at 70° F ambient temperature
- Stabilizes oil viscosity, increasing oil life and reduces wear of pump and other hydraulic components

ZHE Series



Transfer:

900 Btu/h

Maximum Operating Pressure:

300 psi



HE-Series

Heat exchanger removes heat from the bypass oil to provide cooler operation. This stabilizes oil viscosity, increases pump life and reduces wear of other hydraulic components.



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

Voltage	Model Number	Reservoir Size	Thermal Transfer**	Amperage Draw	Maximum Pressure	Maximum Oil Flow	Weight
		(Gal.)	(Btu/h)	(Amps)	(psi)	(GPM)	(lbs)
24 VDC	ZHE-E04	1, 2	900	.95	300	7.0	9.0
	ZHE-E10	2.5, 5, 10					

** At 0.5 GPM

ZE3-6 Series Electric Pump

▼ Shown: ZLS-U4 mounted on ZE3410SG-HL



ZLS Series Oil Level/ Temperature Switch

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

▼ Shown: ZPT-U4 mounted on ZE4110DB-FHRT



ZPT Series Electronic Pressure Transducer

- Controls pump and monitors system
- 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
- "Auto-mode" provides automatic pressure control
- Display pressure in psi, bar, or MPa

ZLS Series



Temperature/Switchpoint:

175° F

Voltage:

24 VAC / DC



ZLS Series Level/ Temperature Switch

Oil level indicator for pump reservoir. If the pump is mounted in a remote area that does not provide visual access to the external oil level sight glass, the level switch provides a signal to turn off the pump before internal damage can occur due to cavitation.

Fixed Temperature Signal (°F)	Voltage	Model Number	Operating Temperature (°F)	Thermostat Rating (Amps)	Maximum Pressure (psi)	Weight (lbs)
175	24 VAC/DC	ZLS-U4	40-230	2.6	150	0.11

ZPS-ZPT Series



Pressure Range:

50 - 10,000 psi



ZPT Series

The pressure transducer is factory installed in the "A" port on pumps supplied with valves, and in the system port on all other configurations.



ZPT-U4 transducer can control motor or valve solenoid functions. ZPS-E3 pressure switch will only control motor function.

Adjustable Pressure Range (psi)	Model Number	Electrical Specification	Deadband (psi)	Switchpoint Repeatability	Oil Ports	Weight (psi)
50-10,000	ZPT-U4	4-20 mA	50	± 0.5%	1/4" NPTF	.3
500-10,000	ZPS-E3*	24 VAC/DC	115-550	± 2%	3/8" NPTF	2.7

* Includes 15,000 psi gauge

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



- Advance/Retract and Advance/Hold/Retract operation of single-acting and double-acting cylinders
- Manual or solenoid operation
- Pump mounting will retrofit on most Enerpac pumps
- Available “locking” option on VM Series valves for load-holding applications
- Standard “locking” feature on VE Series 3-position valves

▼ 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	2 Position	
Manual	Single-acting	3 Position, Tandem Center	
Manual	Double-acting	3 Position, Tandem Center	
Manual	Single-acting	3 Position, Tandem Center, Locking	
Manual	Double-acting	3 Position, Tandem Center, Locking	
Solenoid 24 VDC	Single-acting	2 Position, Dump	
Solenoid 24 VDC	Single-acting	3 Position, Tandem Center	
Solenoid 115 VAC	Single-acting	3 Position, Tandem Center	
Solenoid 24 VDC	Double-acting	3 Position, Tandem Center	
Solenoid 115 VAC	Double-acting	3 Position, Tandem Center	



About the VM/VE Series

Enerpac's new line of VM and VE series valves include several new features and design improvements over competitive models.

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.

All of the features make it easy to see that Enerpac is the only choice for high pressure hydraulic pumps and valves.

VM and VE Series



Flow Capacity:

4.5 gal./min.

Maximum Operating Pressure:

10,000 psi

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



Push-Button Control Station

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

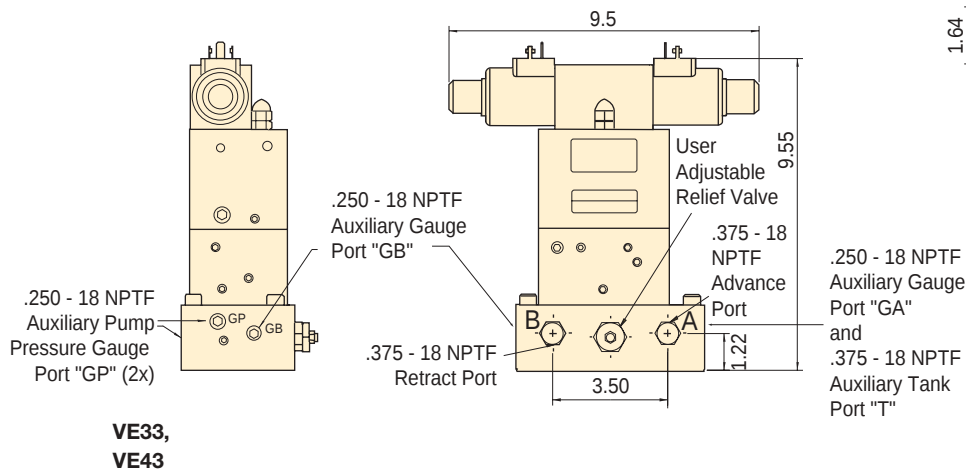
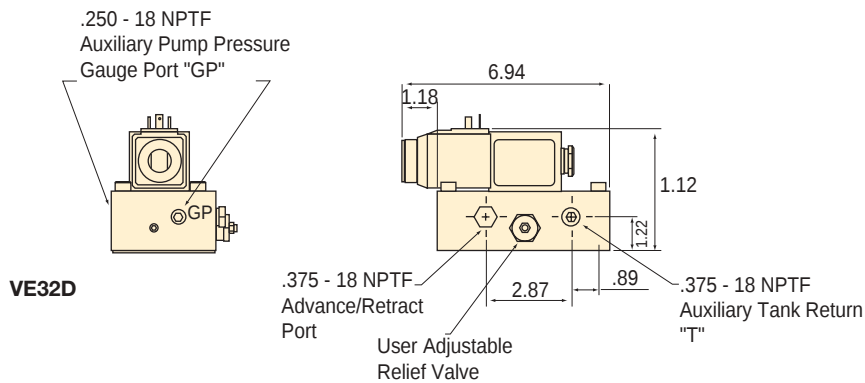
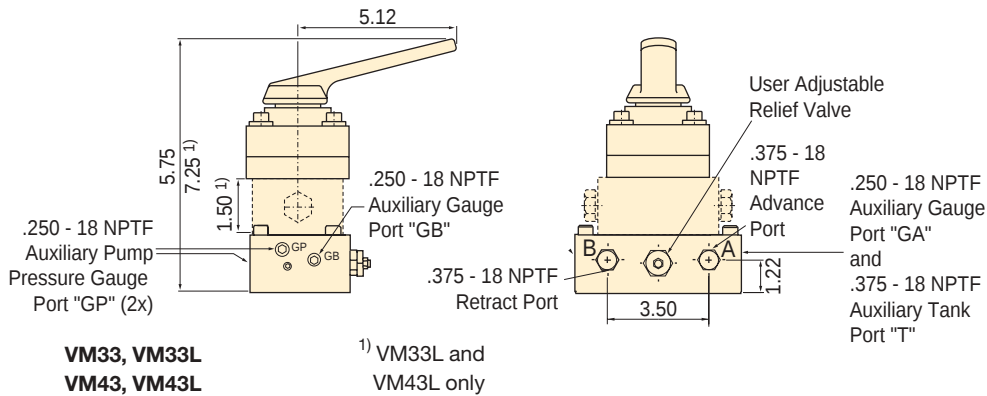
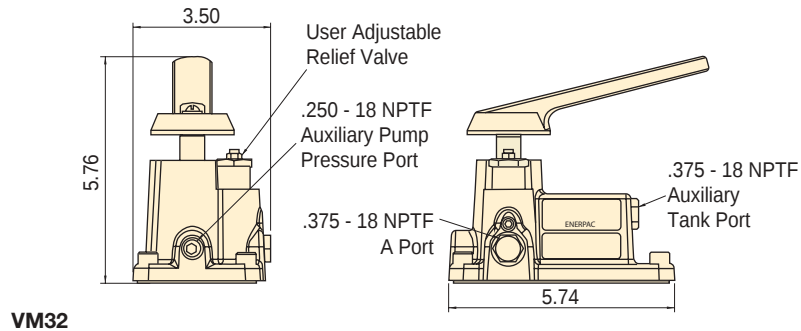


Locking Valves

For applications that require positive load holding, VM Series valves (except the 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.

Valve dimensions in inches



VM and VE Series

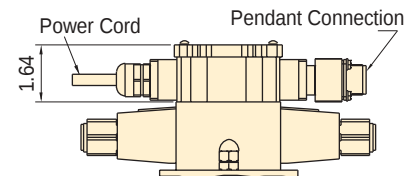


Flow Capacity:

4.5 gal./min.

Maximum Operating Pressure:

10,000 psi



ZE 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 pages 4 through 7, you can easily build your custom ZE Series pump here.

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



1 Product Type 2 Motor Type 3 Flow Group 4 Valve Type 5 Useable Oil Capacity 6 Valve Operation 7 Voltage 8 Options 8 Options 8 Options 8 Options

1 Product Type

Z = Pump Class

2 Prime movers

E = Induction Electric Motor

3 Flow Group

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

4 Valve Types

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

5 Useable Oil Capacity

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

6 Valve Operation

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

7 Voltages

Single Phase
B = 115V 1 ph 50-60Hz³⁾
E = 208-240V 1 ph 50-60 Hz European Plug
I = 208-240V 1 ph 50-60 Hz USA Plug
 Three Phase⁶⁾
M = 190-200V 3ph 50-60Hz
G = 208-240V 3ph 50-60Hz
W = 380-415V 3ph 50-60Hz
K = 440V 3ph 50-60Hz
J = 460-480V 3ph 50-60Hz
R = 575V 3ph 60Hz

8 Options (specify in alphabetical order)

F = Filter
G = 0-15,000 psi Gauge (2 1/2" ⁷⁾)
H = Heat Exchanger⁴⁾
K = Skidbar (1 and 2 gal. reservoirs only)
L = Level/temp switch^{4) 5)}
N = No reservoir handles (includes lifting eyes)
P = Pressure switch⁴⁾
R = Roll bar
S = Single stage
T = Pressure transducer^{4) 7)}
U = Foot switch⁴⁾

- 1) ZE5 and ZE6 series pumps only available with 3-phase motors.
- 2) 1 and 2 gallon reservoirs only available on ZE3 and ZE4 series pumps.
- 3) 115 volt pumps are supplied with CE and CSA approved 15 amp plug for intermittent use. 20 A 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.

ZE Series



Reservoir Capacity:

1 - 10 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.

▼ ZE6440SG-HNU pump as described in ordering example 2.



ZE Electric Pump Series



ENERPAC

The Industrial Tools Line

Cylinders

- General Purpose
- Pancake
- Aluminum Lightweight
- Low Height
- Heavy-duty
- Hollow Plunger
- Industrial
- Pull
- Jacks
- Spread

Pumps

- Manual
- Electric Driven
- Compressed Air Driven
- Gasoline Driven

System Components

- Hoses, Couplers, Oil
- Gauges, Adaptors
- Manifolds, Fittings

Valves

- 3-and 4-Way Directional
- Pressure and Flow Control

Presses

- Bench and Workshop
- Roll Frame Presses
- Arbor and C-Clamps

Pullers

- Master Puller Sets
- Multi Purpose Puller Sets
- Posi Lock® Pullers

Tools

- Maintenance Sets
- Punches
- Machine Lifts
- Load Skates
- Cutters
- Pipe Benders

Bolting Tools

- Nut Splitters
- Flange/Wedge Spreaders
- Flange Alignment Tools
- Torque Wrenches
- Torque Wrench Pumps
- Twin Safety Hoses

Specialty Products

- Long Stroke Cylinders
- Stage Lift Systems
- Synchronous Lift Systems
- Synchr. Hoisting Systems



See the Enerpac
Industrial Tools Catalog for
information about other
Enerpac high-force tools.

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