

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



ZE Series

Reservoir Capacity:

1.2 - 10.3 gallons

Flow at Rated Pressure:

40 - 200 in³/min

Motor Size:

1.0 - 7.5 hp

Maximum Operating Pressure:

10,000 psi

Z **Tough**
Dependable
Innovative
CLASS ■

- High-efficiency pump design – higher oil flow and by-pass pressure
- High-strength, molded electrical box protects electronics, power supplies and LCD readout and stands up to harsh industrial environments
- IP54 protection and isolation class
- Back-lit LCD provides self test, diagnostic and read-out capabilities never before offered on an industrial pump (included on pump with electric valves, optional on other models)
- Totally enclosed, fan-cooled industrial electric motors for extended life
- User adjustable relief valve built-in on manual and solenoid valves. Oil ports on valves are 3/8" NPTF
- Steel fan guard on all electric motors
- Full sight oil level glass on 2.6, 5.2 and 10.3 gallons reservoirs, oil level indicators on 1.2 and 1.8 gallons reservoirs.
- 40 micron filter breather with splash guard
- Durable steel reservoirs.



◀ Rail wheel pulling using RACH-aluminum cylinder powered by ZE-Series pump.



Speed Chart

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

Page:  409



Locking Valves

For applications requiring positive load holding, VM-Series valves (except VM32) are available with a pilot operated check valve **VM33L**

and **VM43L**. This provides hydraulic locking of the load until the valve is shifted into the retract position.

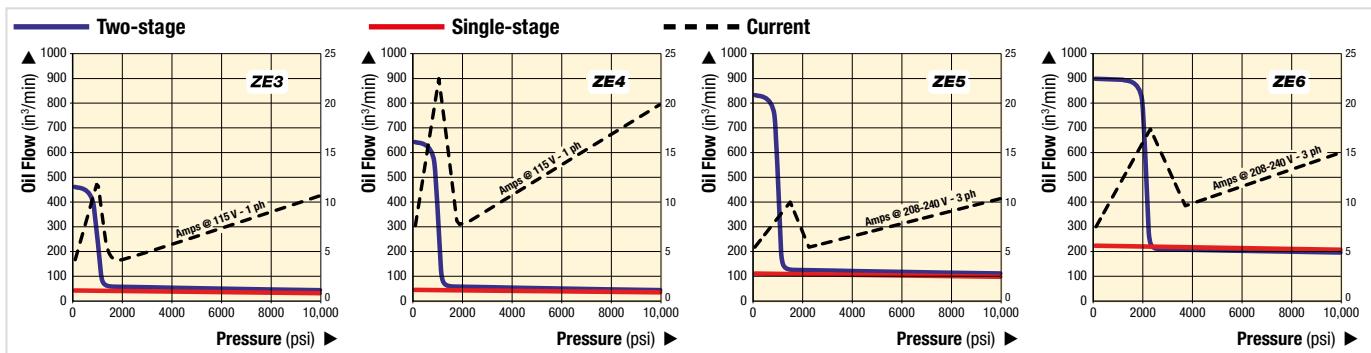


Assisted Return Pumps with Venturi Valve Technology

ZU4 and ZE-Series pumps feature Venturi Valve Technology to accelerate single-acting gravity and spring-return cylinder retraction speeds. See valve type in ordering matrix and details in section Directional Control Valves.

Page:  128

ZE-Series, Specifications & Dimensions



▼ ZE-SERIES PERFORMANCE CHART

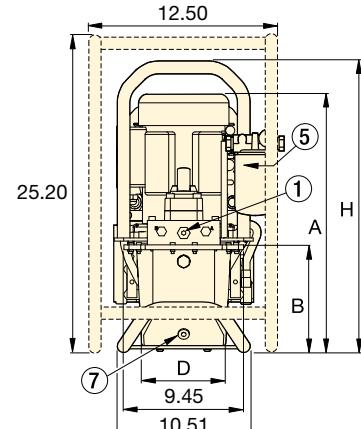
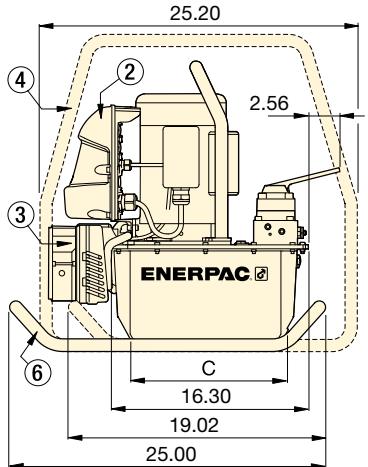
Pump Series	Output Flow Rate at 60 Hz *				Pump Unit	Available Reservoir Sizes (gal)	Motor Size (hp **)	Relief Valve Adjustment Range (psi)	Sound Level (dBA)					
	low pressure		high pressure											
	at 100 psi	at 700 psi	at 5,000 psi	at 10,000 psi										
ZE3	43	43	42	40	Single-stage	1.2, 1.8, 2.6, 5.2, 10.3	1.0	1000-10,000	75					
	450	385	42	40	Two-stage									
ZE4	64	64	62	60	Single-stage	1.2, 1.8, 2.6, 5.2, 10.3	1.5	1000-10,000	75					
	650	600	62	60	Two-stage									
ZE5	128	126	123	120	Single-stage	2.6, 5.2, 10.3	3.0	1000-10,000	75					
	850	825	123	120	Two-stage									
ZE6	220	215	210	200	Single-stage	2.6, 5.2, 10.3	7.5	1000-10,000	80					
	900	890	210	200	Two-stage									

* Oil flow will be approximately 5/6 of these values at 50 Hz. ** at 1750 RPM and 3450 RPM for 7.5 hp.

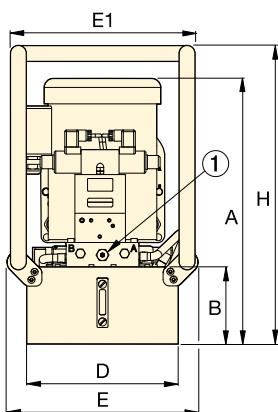
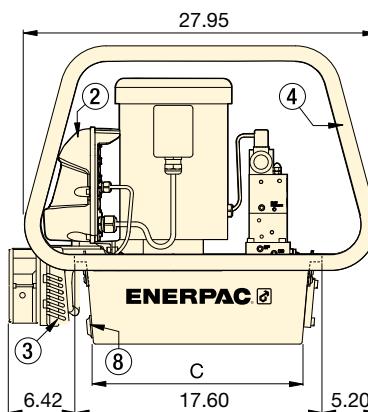


Single or Two-Stage

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.



ZE-Series Pumps with 1.2 - 1.8 gallons reservoir



ZE-Series Pumps with 2.6, 5.2 and 10.3 gallons reservoir

① User adjustable relief valve on all manual and solenoid valves. $\frac{3}{8}$ " NPTF on A and B ports; $\frac{1}{4}$ " NPTF on auxiliary ports.

② Electric Box

③ Heat Exchanger

④ Roll Cage

⑤ Return Line Filter

⑥ Skid Bar

⑦ Magnetic Oil Drain

⑧ Oil Drain / Oil Level & Temperature Switch

Reservoir Size (gal)	ZE-Series Pump Dimensions (in)							
	A	B	C	D	E	E1	H	
1.2	18.0	5.6	11.0	6.0	—	—	20.2	
1.8	18.0	5.6	11.0	8.1	—	—	20.2	
2.6	21.0	6.2	16.5	12.0	15.1	14.6	23.6	
5.2	22.0	7.1	16.5	16.6	19.7	19.2	24.6	
10.3	25.5	10.6	15.7	19.9	22.7	22.5	28.1	

▼ STEP 1: Select a pump from the Pump Ordering Matrix

The functionality of the pump can be determined by the model number. Utilize the guide below to select the best pump for the application from the pump ordering matrix.

Z	E	4	4	20	M	B	-	F	H
1 Product Type	2 Motor Type	3 Flow Group	4 Valve Type	5 Reservoir Capacity	6 Valve Operation	7 Voltage	8 Factory Installed Accessories		
1 Product Type									
Z = Pump Class									
2 Prime Mover									
E = Induction electric motor									
3 Flow Group									
3 = 40 in ³ /min @ 10,000 psi									
4 = 60 in ³ /min @ 10,000 psi									
5 ¹⁾ = 120 in ³ /min @ 10,000 psi									
6 ¹⁾ = 200 in ³ /min @ 10,000 psi									
4 Valve Type									
0 = No valve, with cover plate									
1 = 3/2 Dump valve VE32D									
2 = 3/2 manual VM32									
3 = 3/3 manual VM33 or electric VE33									
4 = 4/3 manual VM43 or electric VE43									
6 = 3/3 manual locking valve VM33L with pilot operated check									
8 = 4/3 manual locking valve VM43L with pilot operated check									
10 ⁶⁾ = 3 way/3 position manual Venturi valve VM33VAC									
11 ⁶⁾ = 3 way/3 position electric Venturi valve VE33VAC									
5 Reservoir Capacity									
04 = 1.2 gal (not available on ZE5, ZE6)									
08 = 1.8 gal (not available on ZE5, ZE6)									
10 = 2.6 gallons									
20 = 5.2 gallons									
40 = 10.3 gallons									
6 Valve Operation									
D = Dump solenoid valve with pendant and LCD									
L = Manual valve with LCD Electric (without pendant)									
M = Manual valve, without pendant or LCD									
N = No valve, no electric box									
S = Solenoid valve, with pendant and LCD									
7 Motor Voltage									
Single phase motor (not on ZE5, ZE6)									
B ¹⁾ = 115V, 1 ph, 50-60 Hz									
E = 208-240V, 1 ph, 50-60 Hz with European SCHUKO Plug									
I = 208-240V, 1 ph, 50-60 Hz with USA Nema 6-15 plug									
Three phase motor ³⁾									
G = 208-240V, 3 ph, 50-60 Hz									
J = 460-480V, 3 ph, 50-60 Hz									
W = 380-415V, 3 ph, 50-60 Hz									

▼ STEP 2: Factory Installed Accessories

Select factory installed accessories and add to the pump model number after the hyphen. The example above shows that a **Return Line Filter (F)** and **Heat Exchanger (H)** have been added to the pump.

8 Factory installed accessories include the following:

F = Return Line Filter	P = Pressure Switch ²⁾
G = Pressure Gauge ⁴⁾	R = Roll Cage
H = Heat exchanger ²⁾	S = Single-stage pump unit ⁵⁾
K = Skid Bar	T = Pressure transducer ²⁾ ⁴⁾
L = Level/Temperature switch ²⁾	U = Foot switch ²⁾
N = Lifting Eyes (no reservoir handles) ⁷⁾	

¹⁾ 115-volt pumps are supplied with 15-Amp plug for intermittent use.
20-Amp circuit recommended for frequent full pressure use.

²⁾ These accessories (H, L, P and T) require LCD electrical package. Level/Temperature switch (L) not available on 1.2 or 1.8 gallons reservoir. Pressure switch option (P) only available on manual valves without locking valve. The LCD electrical package can accept either a pressure switch or pressure transducer, but not both.

³⁾ Pump with 3-phase motors without Electric Box shipped without cord, motor starter or overload protection.

⁴⁾ Pressure gauge (G) not available on pump models with pressure transducer. Pressure transducer provides digital pressure readout on LCD display.

⁵⁾ Not available on pumps with Venturi Valve Type 10 or 11.

⁶⁾ Not available on ZE3-Series pumps.

⁷⁾ Lifting eyes (N) not available on reservoir capacities 04 or 08.

▼ ZE-SERIES PUMP MODELS

No Valve, with coverplate, no electric box

Manual Valve without Electric Box or LCD

- Ideal choice for most applications
- Manual valve control, for both single-acting or double-acting applications
- Venturi Valve Technology (VM33VAC) for faster retract of single-acting cylinders
- Manual motor control
- On/off switch on 1-phase electric motor.

Solenoid Dump Valve, Electric Box and LCD

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

Solenoid 3-position Valve with Electric Box

- Ideal for production and lifting applications
- All valves are 3-position for Advance-Hold-Retract
- Venturi Valve Technology (VE33VAC) for faster retract of single-acting cylinders
- Push-button control pendant with 10 ft. cord controls the valve and motor.

ZE-Series, Pump Ordering Matrix

S/A or D/A ¹⁾	Hold	Valve Type ²⁾	Reservoir Capacity (gal)	ZE3-Series (1.0 hp) Output Flow Rate at 10,000 psi: 40 in ³ /min		ZE4-Series (1.5 hp) Output Flow Rate at 10,000 psi: 60 in ³ /min		ZE5-Series (3.0 hp) Output Flow Rate at 10,000 psi: 120 in ³ /min		ZE6-Series (7.5 hp) Output Flow Rate at 10,000 psi: 200 in ³ /min	
				Model Number ³⁾ B = 115 V, 1 ph	(lbs)	Model Number ³⁾ B = 115 V, 1 ph	(lbs)	Model Number ³⁾ W = 400 V, 3 ph	(lbs)	Model Number ³⁾ W = 400 V, 3 ph	(lbs)
—	—	—	1.8	ZE3008NB (I, E, W, J, G)	99	ZE4008NB (I, E, W, J, G)	95	—	—	—	—
—	—	—	2.6	ZE3010NB (I, E, W, J, G)	99	ZE4010NB (I, E, W, J, G)	108	ZE5010NW (J, G)	119	ZE6010NW (J, G)	158
—	—	—	5.2	ZE3020NB (I, E, W, J, G)	126	ZE4020NB (I, E, W, J, G)	135	ZE5020NW (J, G)	146	ZE6020NW (J, G)	185
—	—	—	10.3	ZE3040NB (I, E, W, J, G)	177	ZE4040NB (I, E, W, J, G)	186	ZE5040NW (J, G)	197	ZE6040NW (J, G)	236
S/A	—	VM22	5.2	—	—	ZE4720MB (E, W)	143	—	—	—	—
S/A	—	VM32	1.2	ZE3204MB (E)	85	—	—	—	—	—	—
S/A	—	VM32	1.8	ZE3208MB (I, E, W, J, G)	91	ZE4208MB (I, E, W, J, G)	100	—	—	—	—
S/A	—	VM32	2.6	ZE3210MB (I, E, W, J, G)	104	ZE4210MB (I, E, W, J, G)	113	ZE5210MW (J, G)	124	ZE6210MW (J, G)	163
S/A	—	VM32	5.2	ZE3220MB (I, E, W, J, G)	131	ZE4220MB (I, E, W, J, G)	140	ZE5220MW (J, G)	151	ZE6220MW (J, G)	190
S/A	●	VM33	1.2	ZE3304MB (E)	86	—	—	—	—	—	—
S/A	●	VM33	1.8	ZE3308MB (I, E, W, J, G)	92	ZE4308MB (I, E, W, J, G)	101	—	—	—	—
S/A	●	VM33	2.6	ZE3310MB (I, E, W, J, G)	105	ZE4310MB (I, E, W, J, G)	114	ZE5310MW (J, G)	125	ZE6310MW (J, G)	164
S/A	●	VM33	5.2	ZE3320MB (I, E, W, J, G)	132	ZE4320MB (I, E, W, J, G)	141	ZE5320MW (J, G)	152	ZE6320MW (J, G)	191
S/A	●	VM33	10.3	ZE3340MB (I, E, W, J, G)	183	ZE4340MB (I, E, W, J, G)	192	ZE5340MW (J, G)	203	ZE6340MW (J, G)	242
S/A	●	VM33VAC	1.8	—	—	ZE41008MB (I, E, W, J, G)	101	—	—	—	—
S/A	●	VM33VAC	5.2	—	—	ZE41020MB (I, E, W, J, G)	141	ZE51020MW (J, G)	153	ZE61020MW (J, G)	192
S/A	●	VM33VAC	10.3	—	—	—	—	ZE51040MW (J, G)	203	ZE61040MW (J, G)	242
S/A	●	VM33L	1.8	ZE3608MB (I, E, W, J, G)	92	—	—	—	—	—	—
S/A	●	VM33L	5.2	ZE3620MB (I, E, W, J, G)	136	ZE4620MB (I, E, W, J, G)	145	—	—	—	—
S/A	●	VM33L	10.3	ZE3640MB (I, E, W, J, G)	187	ZE4640MB (I, E, W, J, G)	196	—	—	—	—
D/A	●	VM43	1.2	ZE3404MB (E)	86	—	—	—	—	—	—
D/A	●	VM43	1.8	ZE3408MB (I, E, W, J, G)	92	ZE4408MB (I, E, W, J, G)	101	—	—	—	—
D/A	●	VM43	2.6	ZE3410MB (I, E, W, J, G)	106	ZE4410MB (I, E, W, J, G)	114	ZE5410MW (J, G)	125	ZE6410MW (J, G)	164
D/A	●	VM43	5.2	ZE3420MB (I, E, W, J, G)	132	ZE4420MB (I, E, W, J, G)	141	ZE5420MW (J, G)	152	ZE6420MW (J, G)	191
D/A	●	VM43	10.3	ZE3440MB (I, E, W, J, G)	183	ZE4440MB (I, E, W, J, G)	192	ZE5440MW (J, G)	203	ZE6440MW (J, G)	242
D/A	●	VM43L	1.8	ZE3808MB (I, E, W, J, G)	96	—	—	—	—	—	—
D/A	●	VM43L	5.2	ZE3820MB (I, E, W, J, G)	136	ZE4820MB (I, E, W, J, G)	145	ZE5820MW (J, G)	156	ZE6820MW (J, G)	195
D/A	●	VM43L	10.3	ZE3840MB (I, E, W, J, G)	187	ZE4840MB (I, E, W, J, G)	196	ZE5840MW (J, G)	207	ZE6840MW (J, G)	246
S/A	—	VE32D	1.2	ZE3104DB (I, E, W, J, G)	94	—	—	—	—	—	—
S/A	—	VE32D	1.8	ZE3108DB (I, E, W, J, G)	100	ZE4108DB (I, E, W, J, G)	109	—	—	—	—
S/A	—	VE32D	2.6	ZE3110DB (I, E, W, J, G)	114	ZE4110DB (I, E, W, J, G)	122	ZE5110DW (J, G)	136	ZE6110DW (J, G)	175
S/A	—	VE32D	5.2	ZE3120DB (I, E, W, J, G)	140	ZE4120DB (I, E, W, J, G)	149	ZE5120DW (J, G)	163	ZE6120DW (J, G)	202
S/A	—	VE32D	10.3	—	—	ZE4140DB (I, E, W, J, G)	199	ZE5140DW (J, G)	213	ZE6140DW (J, G)	252
S/A	●	VE33	1.2	ZE3304SB (I, E, W, J, G)	106	—	—	—	—	—	—
S/A	●	VE33	1.8	ZE3308SB (I, E, W, J, G)	112	ZE4308SB (I, E, W, J, G)	121	—	—	—	—
S/A	●	VE33	2.6	ZE3310SB (I, E, W, J, G)	125	ZE4310SB (I, E, W, J, G)	134	ZE5310SW (J, G)	148	ZE6310SW (J, G)	186
S/A	●	VE33	5.2	ZE3320SB (I, E, W, J, G)	152	ZE4320SB (I, E, W, J, G)	161	ZE5320SW (J, G)	174	ZE6320SW (J, G)	213
S/A	●	VE33	10.3	ZE3340SB (I, E, W, J, G)	203	ZE4340SB (I, E, W, J, G)	212	ZE5340SW (J, G)	225	ZE6340SW (J, G)	264
S/A	●	VE33VAC	1.8	—	—	ZE41108SB (I, E, W, J, G)	115	—	—	—	—
S/A	●	VE33VAC	5.2	—	—	ZE41120SB (I, E, W, J, G)	155	ZE51120SW (J, G)	168	ZE61120SW (J, G)	207
S/A	●	VE33VAC	10.3	—	—	—	—	ZE51140SW (J, G)	219	ZE61140SW (J, G)	258
D/A	●	VE43	1.2	ZE3404SB (I, E, W, J, G)	106	—	—	—	—	—	—
D/A	●	VE43	1.8	ZE3408SB (I, E, W, J, G)	112	ZE4408SB (I, E, W, J, G)	121	—	—	—	—
D/A	●	VE43	2.6	ZE3410SB (I, E, W, J, G)	125	ZE4410SB (I, E, W, J, G)	134	ZE5410SW (J, G)	148	ZE6410SW (J, G)	186
D/A	●	VE43	5.2	ZE3420SB (I, E, W, J, G)	152	ZE4420SB (I, E, W, J, G)	161	ZE5420SW (J, G)	174	ZE6420SW (J, G)	213
D/A	●	VE43	10.3	ZE3440SB (I, E, W, J, G)	203	ZE4440SB (I, E, W, J, G)	212	ZE5440SW (J, G)	225	ZE6440SW (J, G)	264

¹⁾ S/A or D/A = For use with Single-Acting or Double-Acting cylinders and tools. ²⁾ Additional details can be found in the Directional Control Valve section.

³⁾ "B" suffix model numbers shown are 115 VAC, 1-phase, 50/60 Hz. "W" suffix model numbers shown are 400 VAC, 3-phase, 50/60 Hz. Other voltages available as shown.

Replace "B" voltage suffix with selected voltage character. Model number order example: ZE4108DE is 230 VAC, 1 phase, 50/60 Hz. See Ordering Guide page 108 for voltage descriptions.

NOTE: Voltage options K (440 VAC, 3-phase, 50/60 Hz) and R (575 VAC, 3-phase, 60 Hz) are available on select models. Contact your local representative for availability.

NOTE: Valve operation "L" available on pumps with manual valve. Substitute "M" for "L" valve operation. Example: ZE3608LB.



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.

²⁾ When used with optional pressure transducer.

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



Level & Temperature Switch (L) 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 2.6, 5.2 and 10.3 gallons reservoirs.



Return Line Filter (F)

- 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	Fixed Temperature Signal (°F)	Operating Temperature (°F)	Max. Pressure (psi)
ZLS-U4	75	40 - 230	150

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



Roll Cage (R)

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



Skid Bar (K)

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



Foot Switch (U) ⁷⁾

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

⁷⁾ 15 V, requires Electric Box.

Accessory Kit Number	Fits on reservoir size:	(lbs)
ZRC-04	1.2 and 1.8 gallons ⁵⁾	12.1
ZRC-04H	1.2 and 1.8 gallons ⁶⁾	14.3
ZRB-10	2.6 gallons	13.2
ZRB-20	5.2 gallons	13.2
ZRB-40	10.3 gallons	13.2

⁵⁾ For pump without heat exchanger

⁶⁾ For pump with heat exchanger.

Accessory Kit Number	Fits on reservoir size:	(lbs)
SBZ-4	1.2 and 1.8 gallons ⁵⁾	4.9
SBZ-4L	1.2 and 1.8 gallons ⁶⁾	5.5

⁵⁾ For pump without heat exchanger

⁶⁾ For pump with heat exchanger.

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



Pressure Transducer (T)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.

¹⁾ 24 V, requires Electric Box.

Pressure Switch (P)²⁾

- Controls pump, monitors system
- Adjustable pressure 500-10,000 psi
- Includes glycerine-filled 15,000 psi pressure gauge G2536L
- Accuracy $\pm 1.5\%$ of full scale.

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

ZE Series



Reservoir Capacity:

1.2 - 10.3 gallons

Flow at Rated Pressure:

40 - 200 in³/min

Motor Size:

1.0 - 7.5 hp

Maximum Operating Pressure:

10,000 psi

Accessory Kit Model Number	Adjustable Pressure Range (psi)	Switch-point repeatability	Deadband (psi)
ZPT-U4	1015 - 10,000	$\pm 0.5\%$	50

Accessory Kit Model Number	Switch-point repeatability	Deadband (psi)	Oil Ports (NPTF)
ZPS-E3	$\pm 2\%$	115 - 550	3/8"



Heat Exchanger (H)³⁾

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

³⁾ 24 VDC, requires electric box.

Pressure Gauge (G)

- Minimize risk of overloading to ensure long life of equipment
- ø 2.15 inch face diameter, glycerine-filled
- Dual scale in bar and psi.

Note: Pressure Gauge not available on pump models with pressure transducer. The pressure transducer provides digital pressure read-out on LCD-display.

Accessory Kit Number	Fits on reservoir size:	(lbs)
ZHE-E04	1.2 and 1.8 gallons	9.0
ZHE-E10	2.6; 5.2 and 10.3 gallons	9.0

Accessory Kit Model Number	Description
G2536L	0 - 15,000 psi, 0 - 1000 bar



ZPT-U4 Pressure Transducer

More durable against mechanical and hydraulic shock than analog gauges.

- Digital pressure read-out provides accuracy of 0.5% of full scale.
- Easy-viewing variable rate display automatically varies increments between 45, 200, 510 and 2100 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 [950 kJ].

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