





















Pumps and Directional Control Valves Section Overview

| Power Source | Pump Types | Maximum Reservoir Capacity | Max. Flow at Rated Pressure (in ³ /min) | Series | | Page |
|-----------------------------------|--|----------------------------|--|-------------|---|-------|
| Manual | Lightweight Hand Pumps Exclusively from Enerpac | 155 in ³ | .15 (in ³ /stroke) | P |  | 62 ▶ |
| | Steel Hand Pumps | 453 in ³ | .29 | P |  | 64 ▶ |
| | Low Pressure Hand Pumps | 200 in ³ | .58 (in ³ /stroke) | P |  | 66 ▶ |
| | Foot Pump For Hands Free Operation | 38 in ³ | .15 (in ³ /stroke) | P |  | 68 ▶ |
| | Multifluid Hand Pumps Pumping Fluids up to 14,500 psi | 38 in ³ | 1.28 (in ³ /stroke) | MP |  | 69 ▶ |
| | Ultra-High Pressure Hand Pumps Pressure up to 40,000 psi | 60 in ³ | .15 (in ³ /stroke) | P/11 |  | 70 ▶ |
| Electric | Battery Powered Hydraulic Pump Cordless Hydraulic Power | 1 gal. | 15 | BP |  | 72 ▶ |
| | Economy Series Compact and Portable | 1 gal. | 20 | PU |  | 74 ▶ |
| | Submerged Series Powerful and Low-Noise | 1.5 gal. | 20 | PE |  | 76 ▶ |
| | Z-Class Pumps, ZU4 and ZE3 to ZE6-Series Portable and Powerful | 10 gal. | 60 200 | ZU ZE |  | 82 ▶ |
| | 8000-Series The Maximum Flow Pump | 25 gal. | 462 | PE |  | 94 ▶ |
| Air | XA-Series XVARI® Technology for Productivity and Ergonomics | 122 in ³ | 15 | XA |  | 96 ▶ |
| | Turbo II Air Hydraulic Pumps Compact Air Over Hydraulic | 305 in ³ | 10 | PA |  | 98 ▶ |
| | Air Hydraulic Pumps Single and Twin-Air Motor | 2 gal. | 9 | PA PAM |  | 100 ▶ |
| | ZA4 Air Hydraulic Pumps The Standard for Air-Hydraulic Pumps | 10 gal. | 80 | ZA |  | 102 ▶ |
| | ATP-Series Air Pump High Pressure Air Pump | 1 gal. | 4 | ATP |  | 104 ▶ |
| Gasoline | Atlas Series Small and Lightweight | 2 gal. | 40 | PGM |  | 105 ▶ |
| | ZG5/ZG6 Gasoline Hydraulic Pumps Gas Powered High Flow Pumps | 10 gal. | 200 | ZG5/ ZG6 |  | 106 ▶ |
| | 8000-Series Gasoline Pumps For the Largest Jobs | 25 gal. | 1.5 (gal/min) | EGM |  | 108 ▶ |
| Directional Control Valves | | | | |  | 109 ▶ |

▼ Shown: XA11G



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

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



XVARI[®] TECHNOLOGY

Productivity and Ergonomics



Optional Pressure Gauge

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



Optional 4-Way 3-Position Valve

For powering double-acting hydraulic cylinders and tools.



Optional 1/2 Gallon Reservoir

Double oil capacity for powering larger hydraulic cylinders and tools.



Pedal Safety Guard

Customer installed frame protects both pedals against accidental activation.

Order model number ¹⁾

XPG1



"Joy-stick" Lever Kit

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

Order model number ¹⁾

XLK1



Hydraulic Swivel Connector

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

Order model number ¹⁾

XSC1

¹⁾ Accessories must be ordered separately.

XVARI® Technology, Air Driven Hydraulic Pumps



XVARI® TECHNOLOGY

Production Application

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

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

www.xvari.com

XA Series



Reservoir Capacity:

61-122 in³

Flow at Rated Pressure:

15 in³/min.

Air Consumption:

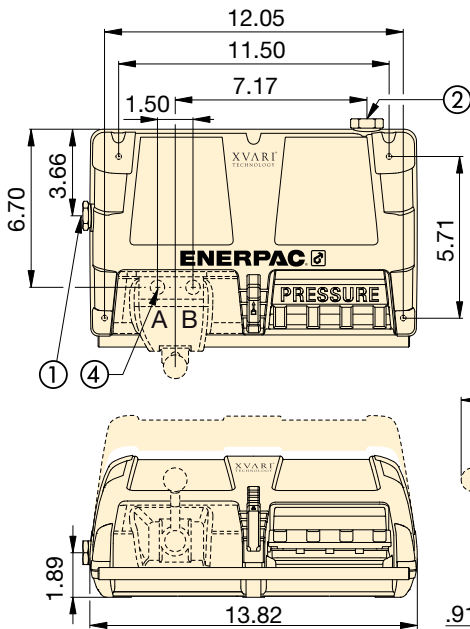
10-35 scfm

Maximum Operating Pressure:

10,000 psi

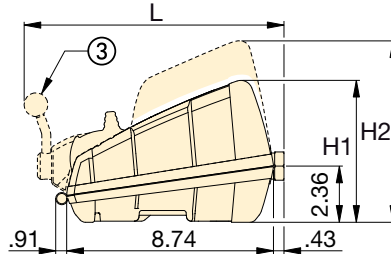
▼ XA-SERIES PERFORMANCE CHART

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



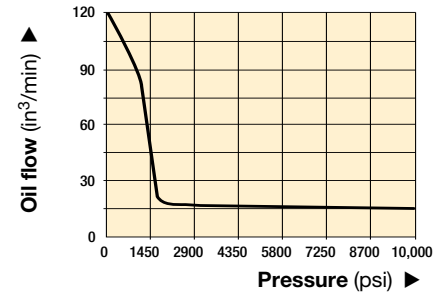
- ① 3/8"-18 NPTF Oil Outlet
- ② 1/4"-18NPTF Air Inlet
- ③ 4/3 Optional Control Valve
- ④ 3/8"-18 NPTF Oil Outlet

Dimensions shown in inches.



OIL FLOW vs. PRESSURE

at 100 psi dynamic air pressure



Regulator-Filter-Lubricator

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

Order model number ¹⁾

RFL102

▼ SELECTION CHART

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

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

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



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

▼ Easily operated by hand or by foot.



Compact Air Over Hydraulic



RFL-102 Regulator-Filter-Lubricator

Recommended for use with all air pumps. Provides clean, lubricated air and allows

for air pressure adjustment. Steel bowl guards are standard.

Order model number ¹⁾

RFL102



Large Reservoir Models

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



Hoses

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

specify only genuine Enerpac hydraulic hoses.

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

* Available as set. See note on next page.

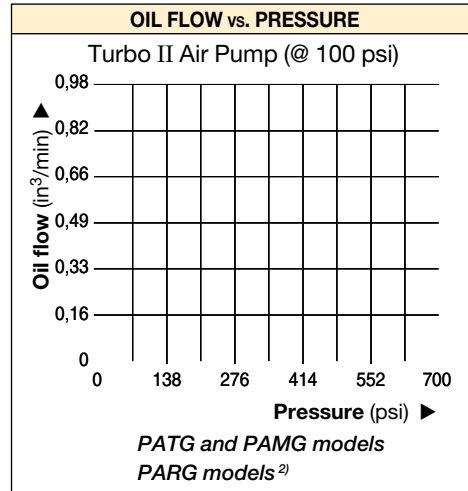
Turbo II Air Hydraulic Pumps



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.



PA Series

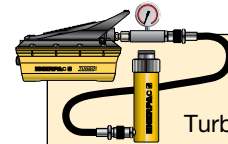


Reservoir Capacity:
150-305 in³

Flow at Rated Pressure:
10 in³/min.

Maximum Operating Pressure:
10,000 psi

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



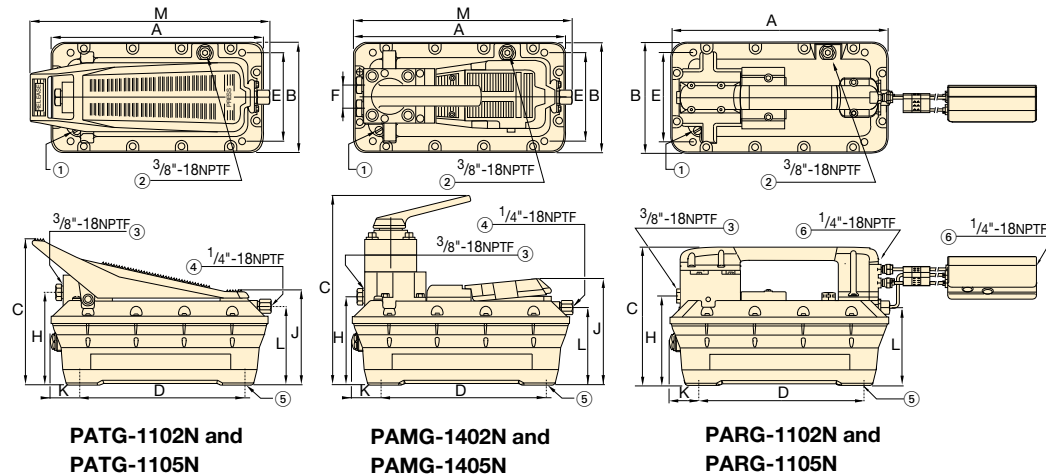
Pump and Cylinder Sets

Turbo II pumps are also available as sets (Turbo II pump, cylinder, gauge, couplers and hose) for your ordering convenience.

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¹⁾ Air supply connected at pendant.

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



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

PATG-1102N and PATG-1105N

PAMG-1402N and PAMG-1405N

PARG-1102N and PARG-1105N

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

PA-Series, Air Hydraulic Pumps

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



PA Series

Reservoir Capacity:

36-80 in³

Flow at Rated Pressure:

8 in³/min.

Maximum Operating Pressure:

10,000 psi

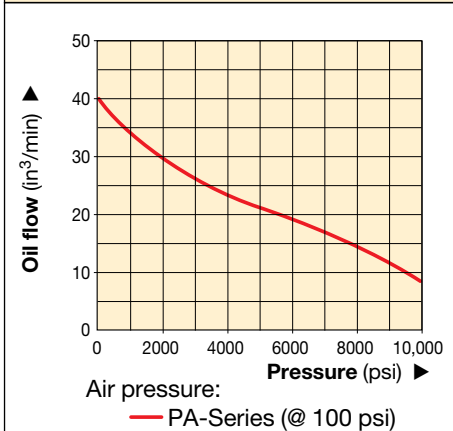


PC-66 Reservoir Conversion Kit

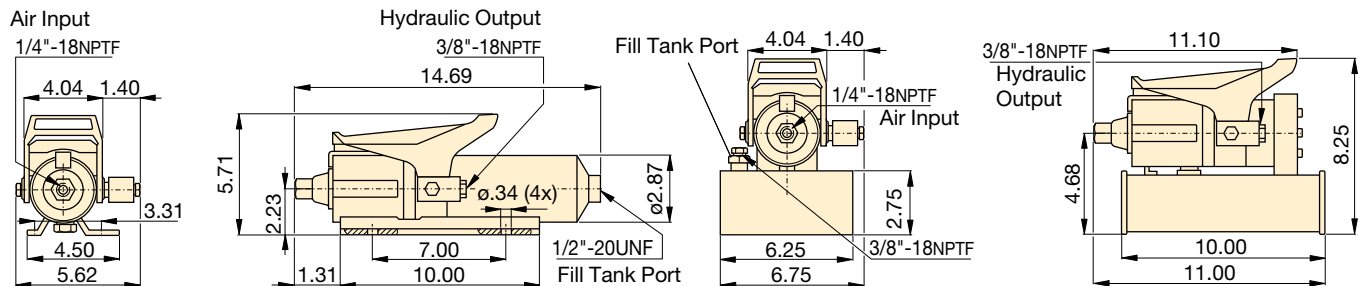
Double the reservoir capacity of your existing PA-133 with this easy to install conversion kit.

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

OIL FLOW vs. PRESSURE



Dimensions shown in inches.



PA-133

PA-1150

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

* Recommended Regulator-Filter-Lubricator: RFL-102

PAM-Series, Air Hydraulic Pumps

▼ Shown: PAM-1041



PAM Series

Reservoir Capacity:
1.0-2.0 gal.

Flow at Rated Pressure:
9 in³/min.

Maximum Operating Pressure:
10,000 psi



Locking Valves

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

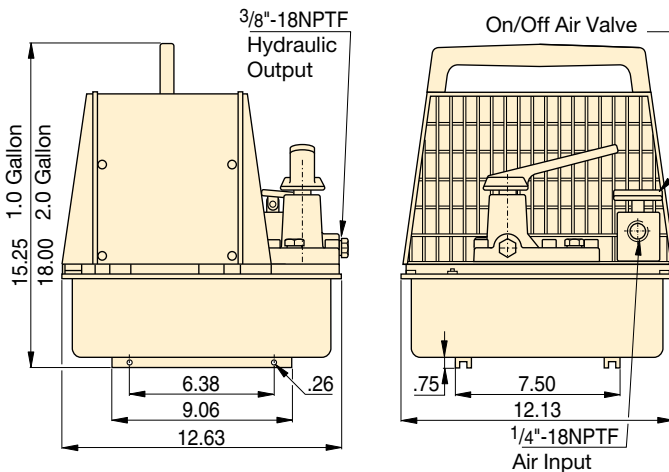
Page: 110



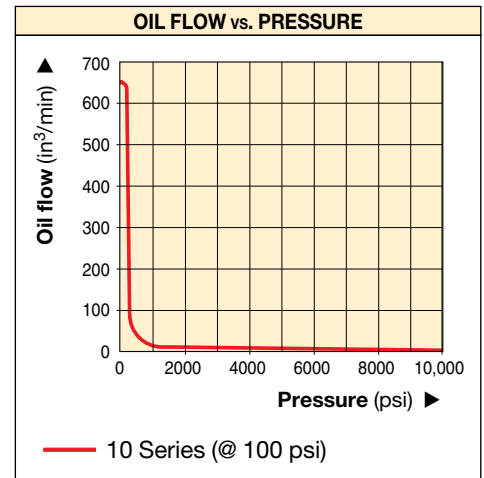
VA-2 Remote Valve

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

- 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-1022



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

* Recommended Regulator-Filter-Lubricator: RFL-102

▼ Shown: **ZA4208MX, ZA4420MX**



Z Tough. Dependable. Innovative. CLASSIC



ATEX Certified

See explanation of ATEX certification in the “Yellow Pages.”



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Speed Chart

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

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Hoses

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

specify only genuine Enerpac hydraulic hoses.

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

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

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

1) Actual flow will vary with air supply

2) See valve section for hydraulic symbols and details

ZA-Series Air Hydraulic Pump Ordering Matrix

CUSTOM BUILD YOUR ZA4 AIR PUMP

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



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

1 Product Type

Z = Pump class

2 Motor Type

A = Air motor

3 Flow Group

4 = 80 in³/min@10,000 psi

4 Valve Type

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

5 Usable Oil Capacity

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

6 Valve Operation

- M = Manual valve
- N = No valve

7 Voltage

- X = Not applicable

8 Options

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

* (1 and 2 gallon reservoirs only)

Ordering Example

Model Number: ZA4208MX-FHK

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

ZA Series



Reservoir Capacity:

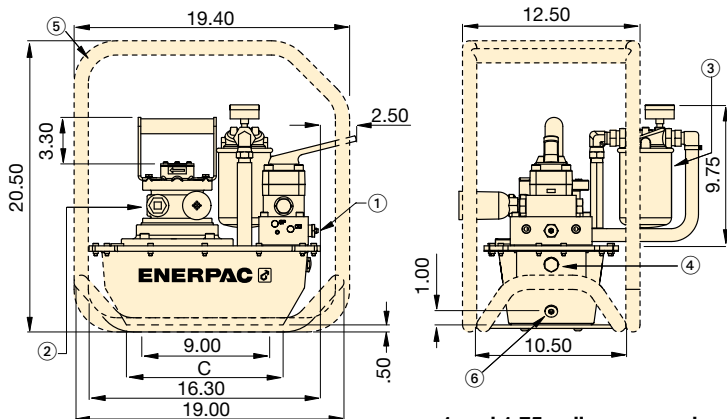
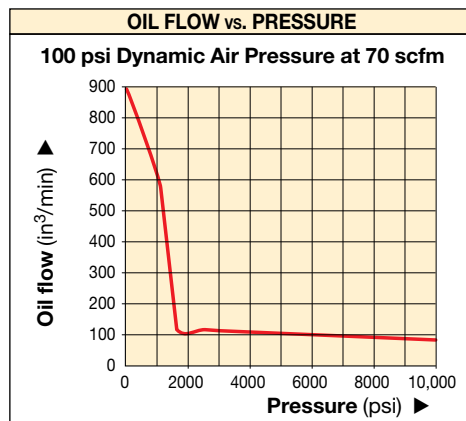
1.0-10.0 gal.

Flow at Rated Pressure:

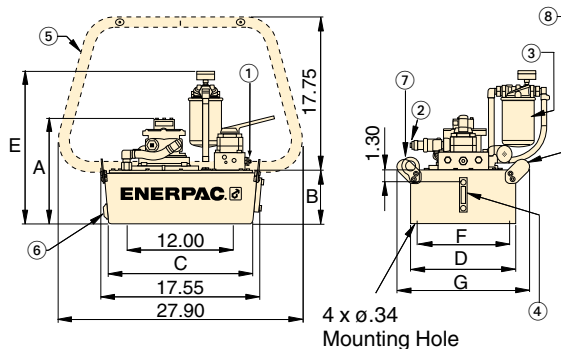
80 in³/min.

Maximum Operating Pressure:

10,000 psi



1 and 1.75 gallon reservoirs



2.5, 5, 10 gallon reservoirs

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

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

ATP-Series Air Pump

▼ Shown: ATP-1500



ATP Series

Reservoir Capacity:
1.0 gallon

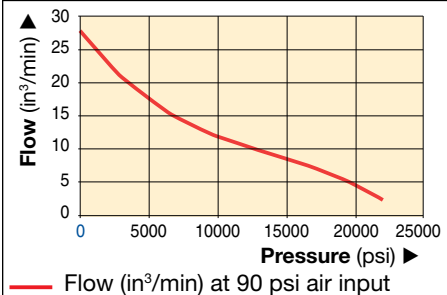
Flow at Rated Pressure:
4 in³/min.

Maximum Operating Pressure:
21,750 psi

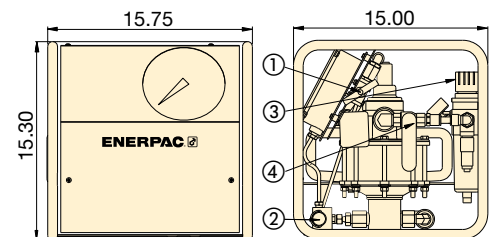


These products operate at ultra-high pressure, use only the specified fittings and hoses designed for these pressures.

OIL FLOW vs. PRESSURE



- General purpose, high pressure air driven pump unit for products requiring up to 21,750 psi hydraulic pressure
- Compact, lightweight, rugged steel frame for protection and easy handling
- Pre-lubricated pump element, does not require an airline lubricator
- Easily adjustable output pressure control
- Integrated and protected easy to read glycerin filled gauge
- Safety relief valve limits output pressure



- ① HPT Shut-off Valve
- ② HPT Out Port
- ③ Filter/Regulator
- ④ Air On/Off Valve

▼ HOSES

| Model Number | End 1 | End 2 | Length (ft) |
|--------------|--------------------|--------------------|-------------|
| HT-1503 | 1/4 BSPM 120° Cone | 1/4 BSPM 120° Cone | 3.28 |
| HT-1510 | 1/4 BSPM 120° Cone | 1/4 BSPM 120° Cone | 9.84 |
| HT-1503HR* | BH150 | BR150 | 3.28 |
| HT-1510HR* | BH150 | BR150 | 9.84 |

* Includes dust caps

▼ FITTINGS

| Description | Complete Set | Female Half | Male Half |
|---|--------------|-------------|-----------|
| Quick Disconnect Coupler* | B150 | BR150 | BH150 |
| Quick Disconnect Coupler and Adaptor Kit* | BW150AW | — | — |
| Quick Disconnect Blanking Coupler Set* | B150B | — | — |

* Includes dust caps

| Pump Type | Useable Oil Capacity (gal) | Model Number | Pressure Rating (psi) | Output Flow Rate at 0 psi (in ³ /min) | Output Flow Rate at 21,750 psi (in ³ /min) | Air Pressure Range (psi) | Air Consumption (sfcm) | Sound Level (dBA) | Weight (lbs) |
|---------------|----------------------------|-----------------|-----------------------|--|---|--------------------------|------------------------|-------------------|--------------|
| High pressure | 1.0 | ATP-1500 | 21,755 | 26 | 4 | 80-90 | 70 | 70 | 70 |