

CLL-Series, Lock Nut Cylinders

ENERPAC
 Hydraulic Technology Worldwide

▼ Shown from left to right: CLL-5010, CLL-502, CLL-1006



- Single-acting, load return
- Safety Lock Nut for mechanical load holding
- Special synthetic coating for improved corrosion resistance and lower friction for smoother operation
- Withstands sideload forces up to 5% of rated cylinder capacity without scoring
- Overflow port functions as a stroke limiter
- Interchangeable, hardened grooved saddles are standard
- CR-400 coupler and dust cap included on all models

▼ For this curved bridge, CLL-cylinders were used to support the concrete beams, to level the pierhead and to place 4000 ton slide bearings between pier and pierhead.



To Secure Loads Mechanically



Saddles

All CLL cylinders are equipped with bolt-on removable grooved saddles. For information on optional

tilt saddles, see selection chart at next page.

Page: 53



Gauges

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

System Components Section for a full range of gauges.

Page: 119



Low Height - High Tonnage

When low height with high force is required, Pancake Cylinders with lock nut offer the solution to lift the first few centimetres.

Page: 22


▼ CLL cylinder, mechanically locked, after positioning the curved bridge.



Single-Acting, Lock Nut Cylinders

▼ QUICK SELECTION CHART

For complete technical information see next page.

Cylinder Capacity	Stroke	Model Number	Cylinder Effective Area	Oil Capacity	Collapsed Height	
ton (kN)	(mm)		(cm ²)	(cm ³)	(mm)	(kg)
50 (496)	50	CLL-502	70,9	355	164	15
	100	CLL-504	70,9	709	214	20
	150	CLL-506	70,9	1064	264	25
	200	CLL-508	70,9	1418	314	30
	250	CLL-5010	70,9	1773	364	35
	300	CLL-5012	70,9	2127	414	40
100 (929)	50	CLL-1002	132,7	664	187	30
	100	CLL-1004	132,7	1327	237	39
	150	CLL-1006	132,7	1991	287	48
	200	CLL-1008	132,7	2654	337	56
	250	CLL-10010	132,7	3318	387	64
	300	CLL-10012	132,7	3981	437	73
150 (1390)	50	CLL-1502	198,6	993	209	53
	100	CLL-1504	198,6	1986	259	66
	150	CLL-1506	198,6	2979	309	78
	200	CLL-1508	198,6	3972	359	92
	250	CLL-15010	198,6	4965	409	104
	300	CLL-15012	198,6	5958	459	117
200 (1859)	50	CLL-2002	265,6	1330	243	83
	150	CLL-2006	265,6	3989	343	117
	300	CLL-20012	265,6	7995	493	170
250 (2562)	50	CLL-2502	366,1	1832	249	116
	150	CLL-2506	366,1	5496	349	162
	300	CLL-25012	366,1	10995	499	234
300 (3193)	50	CLL-3002	456,2	2281	295	173
	150	CLL-3006	456,2	6843	395	233
	300	CLL-30012	456,2	13740	545	323
400 (3919)	50	CLL-4002	559,9	2800	335	250
	150	CLL-4006	559,9	8399	435	327
	300	CLL-40012	559,9	16800	585	441
500 (5118)	50	CLL-5002	731,1	3653	375	367
	150	CLL-5006	731,1	10959	475	466
	300	CLL-50012	731,1	21930	625	617
600 (5983)	50	CLL-6002	854,8	4277	395	446
	150	CLL-6006	854,8	12830	495	562
	300	CLL-60012	854,8	25650	645	737
800 (8238)	50	CLL-8002	1176,9	5882	455	709
	150	CLL-8006	1176,9	17645	555	870
	300	CLL-80012	1176,9	35370	705	1110
1000 (10260)	50	CLL-10002	1466,4	7329	495	949
	150	CLL-10006	1466,4	21986	595	1141
	300	CLL-100012	1466,4	43980	745	1430

CLL Series



Capacity:

50-1000 ton

Stroke:

50-300 mm

Maximum Operating Pressure:

700 bar



Higher Capacities

1500 and 2000 ton models are available on request.

Additional Stroke Lengths

Models above 150 ton are also available with standard stroke lengths of 100, 200 and 250 mm. Please contact Enerpac for ordering information.



Lifting an Unbalanced Load?

See our 'Yellow Pages' for multi-cylinder set-ups.

Page: **113**



Speed Chart

See the Cylinder Speed Chart in our 'Yellow Pages' section to determine the approximate cylinder speed.

Page: **117**



Optional features

To add optional features to your cylinders, add the following suffix to the end of the model number.

Spring return

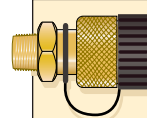
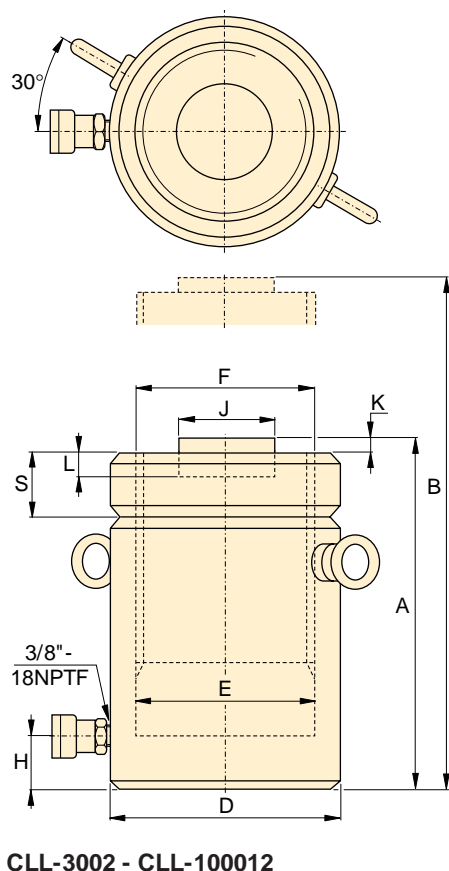
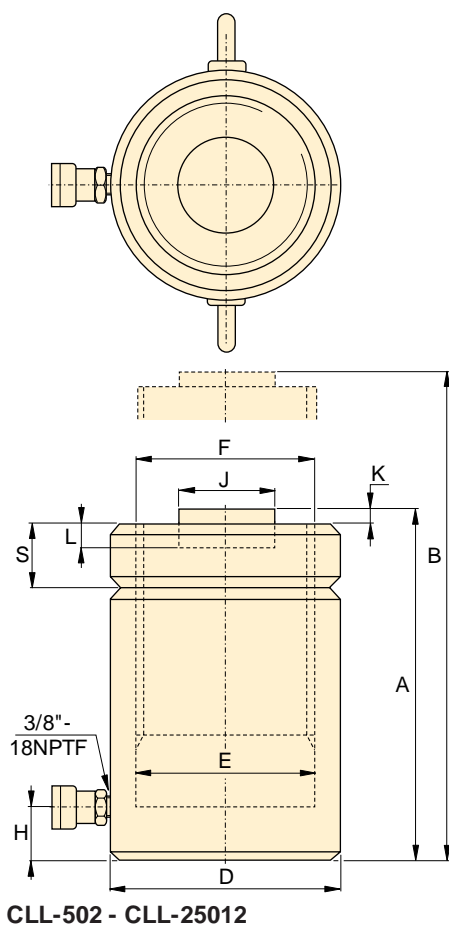
E001

Example:

- For CLL-5006 cylinder with spring return, order: **CLL-5006E001**

Technical specifications for these features are available from Enerpac.

CLL-Series, Lock Nut Cylinders

ENERPAC 
 Hydraulic Technology Worldwide


Couplers Included!

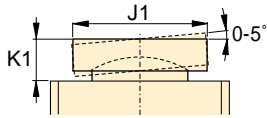
CR-400 couplers included on all models. Fit all HC-Series hoses.

◀ For full features see previous page.

Cylinder Capacity ton (kN)	Stroke (mm)	Model Number	Cylinder Effective Area (cm ²)	Oil Capacity (cm ³)
50 (496)	50	CLL-502	70,9	355
	100	CLL-504	70,9	709
	150	CLL-506	70,9	1064
	200	CLL-508	70,9	1418
	250	CLL-5010	70,9	1773
	300	CLL-5012	70,9	2127
100 (929)	50	CLL-1002	132,7	664
	100	CLL-1004	132,7	1327
	150	CLL-1006	132,7	1991
	200	CLL-1008	132,7	2654
	250	CLL-10010	132,7	3318
	300	CLL-10012	132,7	3981
150 (1390)	50	CLL-1502	198,6	993
	100	CLL-1504	198,6	1986
	150	CLL-1506	198,6	2979
	200	CLL-1508	198,6	3972
	250	CLL-15010	198,6	4965
	300	CLL-15012	198,6	5958
200 (1859)	50	CLL-2002	265,6	1330
	150	CLL-2006	265,6	3989
	300	CLL-20012	265,6	7995
250 (2562)	50	CLL-2502	366,1	1832
	150	CLL-2506	366,1	5496
	300	CLL-25012	366,1	10995
300 (3193)	50	CLL-3002	456,2	2281
	150	CLL-3006	456,2	6843
	300	CLL-30012	456,2	13740
400 (3919)	50	CLL-4002	559,9	2800
	150	CLL-4006	559,9	8399
	300	CLL-40012	559,9	16800
500 (5118)	50	CLL-5002	731,1	3653
	150	CLL-5006	731,1	10959
	300	CLL-50012	731,1	21930
600 (5983)	50	CLL-6002	854,8	4277
	150	CLL-6006	854,8	12830
	300	CLL-60012	854,8	25650
800 (8238)	50	CLL-8002	1176,9	5882
	150	CLL-8006	1176,9	17645
	300	CLL-80012	1176,9	35370
1000 (10260)	50	CLL-10002	1466,4	7329
	150	CLL-10006	1466,4	21986
	300	CLL-100012	1466,4	43980

Single-Acting, Lock Nut Cylinders

Optional Tilt Saddle *



Capacity:


50-1000 ton

Stroke:

50 - 300 mm

Maximum Operating Pressure:

700 bar
CLL Series


Coll. Height A (mm)	Ext. Height B (mm)	Outs. Dia. D (mm)	Cyl. Bore Dia. E (mm)	Plunger Dia. (threaded) F (mm)	Base to Adv. Port H (mm)	Standard Saddle Dia. J (mm)	Saddle Protr. from Plgr. K (mm)	Depth of Plunger Hole L (mm)	Lock-nut Height S (mm)	 (kg)	Model Number	* Optional Tilt Saddle		
												Saddle Dia. J1 (mm)	Saddle Height K1 (mm)	Saddle Model Number
164	214	125	95,0	Tr 95 x 4	30	71	2	13	36	15	CLL-502	71	24	CAT-100
214	314	125	95,0	Tr 95 x 4	30	71	2	13	36	20	CLL-504	71	24	CAT-100
264	414	125	95,0	Tr 95 x 4	30	71	2	13	36	25	CLL-506	71	24	CAT-100
314	514	125	95,0	Tr 95 x 4	30	71	2	13	36	30	CLL-508	71	24	CAT-100
364	614	125	95,0	Tr 95 x 4	30	71	2	13	36	35	CLL-5010	71	24	CAT-100
414	714	125	95,0	Tr 95 x 4	30	71	2	13	36	40	CLL-5012	71	24	CAT-100
187	237	165	130,0	Tr 130 x 6	30	71	2	13	44	30	CLL-1002	71	24	CAT-100
237	337	165	130,0	Tr 130 x 6	30	71	2	13	44	39	CLL-1004	71	24	CAT-100
287	437	165	130,0	Tr 130 x 6	30	71	2	13	44	48	CLL-1006	71	24	CAT-100
337	537	165	130,0	Tr 130 x 6	30	71	2	13	44	56	CLL-1008	71	24	CAT-100
387	637	165	130,0	Tr 130 x 6	30	71	2	13	44	64	CLL-10010	71	24	CAT-100
437	737	165	130,0	Tr 130 x 6	30	71	2	13	44	73	CLL-10012	71	24	CAT-100
209	259	205	159,0	Tr 159 x 6	39	130	2	25	44	53	CLL-1502	130	20	CAT-200
259	359	205	159,0	Tr 159 x 6	39	130	2	25	44	66	CLL-1504	130	20	CAT-200
309	459	205	159,0	Tr 159 x 6	39	130	2	25	44	78	CLL-1506	130	20	CAT-200
359	559	205	159,0	Tr 159 x 6	39	130	2	25	44	92	CLL-1508	130	20	CAT-200
409	659	205	159,0	Tr 159 x 6	39	130	2	25	44	104	CLL-15010	130	20	CAT-200
459	759	205	159,0	Tr 159 x 6	39	130	2	25	44	117	CLL-15012	130	20	CAT-200
243	293	235	184,0	Tr 184 x 6	50	130	2	25	50	83	CLL-2002	130	20	CAT-200
343	493	235	184,0	Tr 184 x 6	50	130	2	25	50	117	CLL-2006	130	20	CAT-200
493	793	235	184,0	Tr 184 x 6	50	130	2	25	50	170	CLL-20012	130	20	CAT-200
249	299	275	216,0	Tr 216 x 6	50	150	2	25	56	116	CLL-2502	150	21	CAT-250
349	499	275	216,0	Tr 216 x 6	50	150	2	25	56	162	CLL-2506	150	21	CAT-250
499	799	275	216,0	Tr 216 x 6	50	150	2	25	56	234	CLL-25012	150	21	CAT-250
295	345	310	241,0	Tr 241 x 6	59	139	5	25	60	173	CLL-3002	195	75	CAT-300
395	545	310	241,0	Tr 241 x 6	59	139	5	25	60	233	CLL-3006	195	75	CAT-300
545	845	310	241,0	Tr 241 x 6	59	139	5	25	60	323	CLL-30012	195	75	CAT-300
335	385	350	267,0	Tr 266 x 6	70	159	5	25	70	250	CLL-4002	225	85	CAT-400
435	585	350	267,0	Tr 266 x 6	70	159	5	25	70	327	CLL-4006	225	85	CAT-400
585	885	350	267,0	Tr 266 x 6	70	159	5	25	70	441	CLL-40012	225	85	CAT-400
375	425	400	305,0	Tr 305 x 6	80	179	5	25	80	367	CLL-5002	250	91	CAT-500
475	625	400	305,0	Tr 305 x 6	80	179	5	25	80	466	CLL-5006	250	91	CAT-500
625	925	400	305,0	Tr 305 x 6	80	179	5	25	80	617	CLL-50012	250	91	CAT-500
395	445	430	330,0	Tr 330 x 6	85	194	5	25	85	446	CLL-6002	275	96	CAT-600
495	645	430	330,0	Tr 330 x 6	85	194	5	25	85	562	CLL-6006	275	96	CAT-600
645	945	430	330,0	Tr 330 x 6	85	194	5	25	85	737	CLL-60012	275	96	CAT-600
455	505	505	387,0	Tr 387 x 6	100	224	5	25	100	709	CLL-8002	320	123	CAT-800
555	705	505	387,0	Tr 387 x 6	100	224	5	25	100	870	CLL-8006	320	123	CAT-800
705	1005	505	387,0	Tr 387 x 6	100	224	5	25	100	1110	CLL-80012	320	123	CAT-800
495	545	560	432,0	Tr 432 x 6	110	249	5	25	110	949	CLL-10002	360	136	CAT-1000
595	745	560	432,0	Tr 432 x 6	110	249	5	25	110	1141	CLL-10006	360	136	CAT-1000
745	1045	560	432,0	Tr 432 x 6	110	249	5	25	110	1430	CLL-100012	360	136	CAT-1000

SLS-Series, Synchronous Systems

ENERPAC 
Hydraulic Technology Worldwide

▼ Typical layout for a 4 points synchronous lifting system.



- 4 to 64 points, load and stroke monitored and controlled
- Capacities from 10 up to 1000 ton per lifting point
- Up to 1 mm accuracy over full plunger stroke
- PLC-control unit with user-friendly touch screen
- Automatic data storage and read-out for reporting and graphical representation
- System secured with warning and stop features to achieve optimal safety.

System Options:

- Load and force measurement
- Load cells for precise force measurement up to 0,1% of full scale
- Digital stroke sensors for:
 - up to 0,1 mm accuracy over full stroke
 - up to max. 1 km distance between control unit and lifting points
- Two-axis tilting control to level structures
- Oil heater or heat exchanger for extreme conditions.

Controlled Hydraulic Movement



Typical Synchronous Lifting Applications

- Bridge lifting and repositioning
- Bridge launching
- Lifting and lowering of heavy equipment
- Leveling of existing structures and buildings
- Structural testing
- Lifting and weighing of oil platforms
- Tunnel jacking and pushing.

See www.enerpac.com for more application information.



Heavy Lifting Cylinders

For a complete line of double-acting cylinders see the Enerpac Cylinder Overview.

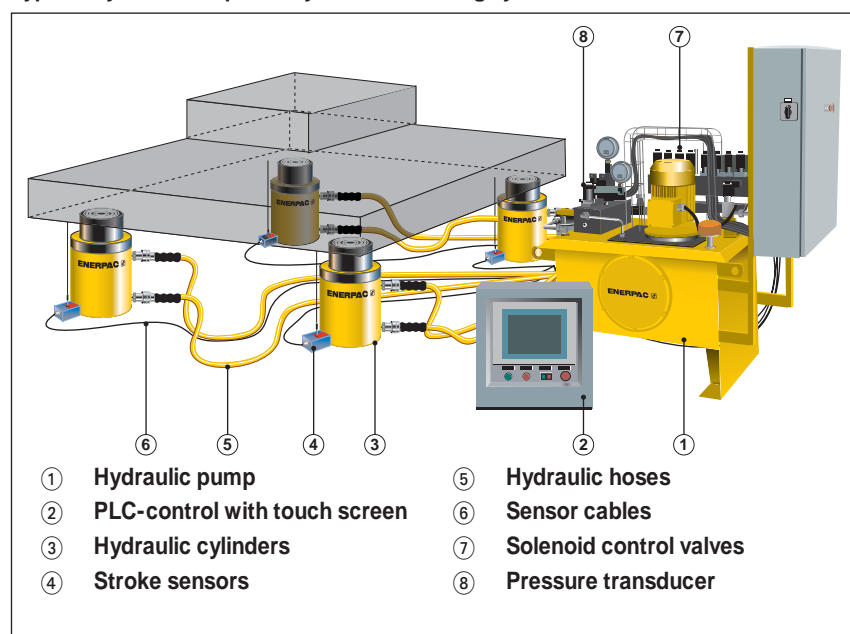
Page: 7

▼ One of the world's first and largest lifting jobs for maintenance of a 3500 ton mining dragline was successfully done with an Enerpac synchronous hydraulic system: exact aligning of bearings on the rail on which this dragline rotates.



Multiple Points Synchronous Lift System

Typical layout for a 4 points synchronous lifting system.



SLS Series



Capacity Per Lifting Point:
10 - 1000 ton

Maximum Stroke:
5000 mm

Accuracy Over Full Stroke:
Up to 0,1 mm

Maximum Operating Pressure:
700 bar



◀ Bridge lifting and launching system. The load is balanced on groups of CLL-Series lock nut cylinders. The hydraulic lifting, launching and balancing movements are synchronized with PLC-control.



Contact Enerpac!

Contact your distributor or the Enerpac office nearest to you for advice and technical assistance in the layout of your ideal Lift System. You can also ask Enerpac for assistance by e-mail at info@enerpac.com.

▼ Enerpac synchronous lifting system with PLC-control unit used to lift temporary support towers during launching of the Millau Viaduct in France.



Basic & Premium System Management & Control Features

X = Standard, O = Optional

Features	Basic	Premium
Analog stroke sensors	X	X
Digital stroke sensors	—	O
Stroke controlled movement	X	X
Load controlled movement	—	X
Max. accuracy (depends on components)	± 1,0 mm	± 0,1 mm
Recording capabilities	—	X
Graphical representation	—	O
Intercommunication capabilities	—	O
Sensor cables	X	X
Alarms	Basic	Premium
Stroke limitation	X	X
Load limitation	—	X
Low oil level	—	X
Oil filter warning	—	X
Oil temperature warning	—	X

BLS, SL-Series, Stage-Lift Systems

ENERPAC 
Hydraulic Technology Worldwide

▼ 250 ton Double-Acting Aluminium Stage-Lift Cylinder (with optional stroke sensor)



- Allows heavy duty lifting over long distances
- PLC-controlled synchronized stage-lifting
- Double-acting jacks with solid plunger design using Enerpac RAR, RR and CLRG-Series
- Double-acting jacks with hollow plunger design using Enerpac RRH-Series
- Lifting capacities from 10 to 1000 ton per lift point

Solution For Longer Distances



Stage-Lift Systems

Stage-Lift Systems overcome the usual limitation of lift height imposed by the cylinder's plunger stroke length. Large objects can be lifted, held and lowered for maintenance where other lifting methods are impractical.

Typical Stage-Lift Applications

- Tank jacking and lowering
- Lifting of buildings and structures
- Synchronized jacking
- Ship lifts

See www.enerpac.com for more application information.



Synchronous Systems

When lifting an unbalanced load Enerpac PLC-controlled Synchronous Systems can be the solution with multiple lift point capabilities from 4 to 64 points.

Page: 54

▼ PLC-controlled hydraulic movement: Enerpac stage -lift systems lift and lower the umbrella deck on the world's largest concrete block builder with 0,01 mm accuracy, provided by 30 hydraulic climbing units in an integrated hydraulic system.



▼ Each climbing unit consists of two 70 tons double-acting cylinders and two 20 tons locking cylinders.



Double-Acting, Stage-Lift Systems

▼ This 55 meters long absorber was hydraulically lifted and lowered prior to transportation by ship. The Enerpac PLC-controlled stage-lift system was the ideal solution because the use of cranes was not possible.



▼ Horizontal stage-lift system: These long stroke RR-Series cylinders are attached to a sliding and guiding system, pulling the arched roof assembly of Athens Olympic Stadium step by step into the final position.



BLS SL Series



Capacity Per Lift Point:

10 - 1000 ton

Stroke Per Stage:

50-1219 mm

Maximum Operating Pressure:

700 bar



Contact Enerpac!

Contact your distributor or the Enerpac office nearest to you for advice and technical assistance in the layout of your ideal Lift System. You can also ask Enerpac for assistance by e-mail at info@enerpac.com.



To avoid overload situations, cylinders should be used within 80% of their maximum capacity.



Remote Lifting

For heavy lifting in remote locations use the Enerpac ZE-series electric pump.

Page: 90



Split Flow Pumps

Multi-cylinder arrangements can be powered and fully synchronised by Enerpac split-flow pumps.

Page: 96

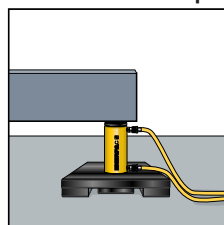


Hoses

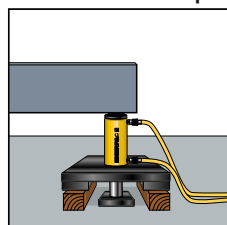
Enerpac offers a complete line of high-quality hydraulic hoses. To ensure the integrity of your system, specify only Enerpac hydraulic hoses.

Page: 120

Step 1



Step 2

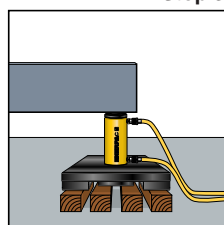


Stage-Lifting Sequence

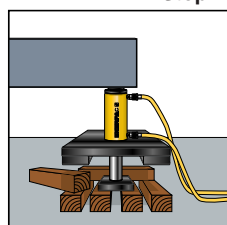
Step 1: The Stage-Lift cylinder is placed on a solid support under the load (retracted plunger).

Step 2: Plunger extends, lifting the load and giving clearance to insert two outer cribbing blocks under the spreading plate.

Step 3



Step 4



Step 3: Plunger retracts, giving clearance to position the central cribbing blocks which will support the plunger plate for the next extension.

Step 4: Plunger extends, lifting the load and giving clearance to insert two new cribbing blocks, placed crosswise under the spreading plate.

SHS-Series, SyncHoist

ENERPAC 
 Hydraulic Technology Worldwide

▼ 4 Points SyncHoist System positioning a steel roof segment



- High precision load manoeuvring, vertically and horizontally – using one crane
- Eliminates the risk of damage from oscillations of wire rope due to sudden crane starts/stops
- Vastly improving operating speed and worker safety
- Weather conditions play less critical role
- Intelligent hydraulics turn lifting into high accuracy hoisting and load positioning system
- High accuracy (+/- 1,0 mm)
- 700 bar double-acting push/pull cylinders with parachute valves for added safety in case of hose rupture or coupler damage
- Cost reduction when compared to conventional load positioning methods.

Three options for system management & control:

- Manual control: stroke control and system warning functions
- Extended manual control: stroke control, load and stroke display and system warning functions
- PLC-control: fully monitored system with programmable functions using touch screen and wireless remote control and system warning functions.



Turns Lifting with Crane into High Accuracy Hoisting and Load Positioning



Typical SyncHoist Functions and Applications

Functions

- High precision load positioning
- Pre-programmed positioning, tilting and aligning
- Counterweighing – determining centre of gravity

Applications

- Positioning of roof sections, concrete elements, steel structures
- Positioning of turbines, transformers, fuel rods
- Precise machinery loading, mill rod changes, bearing changes
- Precise positioning of pipe lines, blow out valves
- Positioning and aligning of ship segments prior to assembly

See www.enerpac.com for more application information.



Lifting an Unbalanced Load

Visit www.enerpac.com to learn more about SyncHoist.

Download the animation to see how it works step-by-step.

◀ The designs of Santiago Calatrava (architect) often require creative technological solutions. Enerpac SyncHoist System is one of them and was used for roof positioning of the Palace of the Arts in Valencia (Spain). Segments are hoisted from the ground, being positioned with four fully monitored cylinders.

SyncHoist - High Precision Load Positioning

Enerpac synchoist systems

System Load Capacity	240 ton	320 ton	440 ton
Max. handling load ¹⁾	4x60 ton	4x80 ton	4x110 ton
Number of lifting points ²⁾	4	4	4
System reach	1500 mm	1500 mm	1500 mm

Cylinder configuration

Push force @ 90 bar	10,5 ton	14,0 ton	22,0 ton
Pull force @ 700 bar	60,0 ton	80,0 ton	110,0 ton
Plunger stroke ²⁾	1500 mm	1500 mm	1500 mm

Pump single-stage

Oil flow at 700 bar	4,0 l/min	4,0 l/min	4,0 l/min
---------------------	-----------	-----------	-----------

Control options & system management ³⁾

Manual	option	option	option
Extended manual	option	option	option
PLC-control ⁴⁾	option	option	option

¹⁾ Subject to angle and position of lifting cylinders.

²⁾ Each cylinder equipped with parachute valve for added safety in event of hose/coupler damage.

Note: Enerpac SyncHoist have standard 4 lifting points. In the event that more or less lifting points are required, contact your local Enerpac representative.

³⁾ See chart below for detailed control features.

⁴⁾ Required for counterweighing (centre of gravity).

SHS Series



Capacity Per Lifting Point:

60 - 110 ton

Maximum Stroke:

1500 mm

Accuracy Over Full Stroke:

+/- 1,0 mm

Maximum Operating Pressure:

700 bar

▼ Roof lifting of the Auditorium at Tenerife at the Canary Island – Spain. A 4-points Enerpac hydraulic SyncHoist system is used for accurate roof positioning.



Three options for system management and control

Contact Enerpac for the following options.

1. Manual control

- Plunger stroke control
- System warnings for:
 - oil level, filter indication, thermal motor protection.

2. Extended manual control

- Plunger stroke control
- Load & stroke display
- System warnings for:
 - maximum cylinder load control setting
 - oil level, filter indication, thermal motor protection.

3. PLC-control

- Touch screen
- Remote wireless radio control
- Load and stroke monitoring
- Load calculations (centre of gravity)
- Pre-programmable motions and data recording
- System warnings for:
 - maximum cylinder load control setting
 - stroke and position control
 - oil level, filter indication, thermal motor protection.



Aluminium and Steel Jacks

▼ Shown from left to right: JHA-73, JH-506



JH/JHA Series

Capacity:
7-150 ton

Stroke:
76-155 mm

Maximum Operating Pressure:
700 bar

- Internal relief valve to prevent overloading
- Machined flat front and bottom surfaces permit flush alignment in tight corners
- Chrome plated plungers
- Pumping handle included
- All-directional operation on 7, 15 and 35 ton JHA-series
- Automatic by-pass port to prevent over-extension (JH-series)



Lifting Wedge and Machine Lifts

Ideal to lift the load the first few centimeters. The **LW-16** Lifting Wedge requires a very small access gap of only 10 mm.


Page: 172



Load Skates

For moving heavy loads easily and safely.

Page: 174

Style	Jack Capacity ton (kN)	Stroke (mm)	Model Number	Jack Effective Area (cm ²)	Collapsed Height (mm)	Extended Height (mm)	Bottom Plate Dimensions (W x L) (mm)	Plunger Diameter (mm)	Pump Speed	 (kg)
Conventional Jacks	7 (62)	76	JHA-73	9,6	133	209	73 x 158	30,2	Single	5,0
	15 (133)	153	JHA-156	20,3	247	401	92 x 238	41,4	Single	13,2
	35 (311)	155	JHA-356	45,6	257	412	117 x 254	54,1	Single	18,1
	75 (667)	153	JHA-756	102,6	285	439	174 x 325	114,3	Single	42,6
	150 (1335)	155	JHA-1506	197,9	327	482	241 x 407	158,8	2-Speed	95,3
Steel Jacks	30 (267)	155	JH-306	38,3	254	409	95 x 242	69,9	Single	26,8
	50 (445)	154	JH-506	62,1	260	414	127 x 258	88,9	2-Speed	40,8
	100 (890)	153	JH-1006	133,1	287	440	181 x 328	130,1	2-Speed	74,4

Steel Bottle Jacks

▼ Shown from left to right: EBJ-4GC, EBJ-50GC, EBJL-15GC, EBJ-12GC



EBJ Series

Capacity:

1,4-90,7 ton

Stroke:

77- 508 mm

Maximum Operating Pressure:

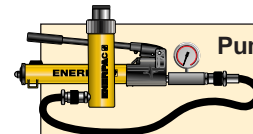
700 bar



Screw Feature

Heat treated, adjustable extension screw with cleated saddle on selected EBJ models helps adjusting and prevents slipping.


- Low handle effort reduces operator fatigue
- Fully serviceable
- Cast pump linkage and beam
- Pumping handle included on all models
- Safety relief valve to prevent overload
- Automatic bypass port to prevent over-extension
- Wiper seal for extended life
- Chrome plating on both plungers



Pump and Cylinder Sets

As an alternative to jacks where the operator is required to stand remote from the jacking point, see our range of pump-cylinder sets.

Page: 64

Jack Capacity ton (kN)	Stroke (mm)	Model Number	Additional Screw Extension (mm)	Collapsed Height (mm)	Extended Height (mm)	Bottom Plate Dimensions W x L (mm)	Plunger diameter (mm)	Pump Speed	 (kg)
1,4 (13)	457	EBJL-15GC	-	552	1009	92 x 127	22,3	Single speed	5,8
1,8 (18)	95	EBJ-2GC	70	175	340	96 x 102	22,1	Single speed	3,0
2,7 (27)	508	EBJL-3GC	-	668	1176	108 x 140	28,4	Single speed	10,0
3,6 (36)	120	EBJ-4GC	70	195	385	105 x 112	28,2	Single speed	4,2
5,4 (53)	130	EBJ-6GC	80	210	420	114 x 120	34,0	Single speed	5,5
7,3 (71)	140	EBJ-8GC	80	220	440	119 x 125	38,1	Single speed	6,2
10,9 (107)	155	EBJ-12GC	80	240	475	130 x 135	43,2	Single speed	8,0
10,9 (107)	77	EBJS-12GC	43	155	275	130 x 135	43,2	Single speed	6,6
13,6 (133)	150	EBJ-15GC	80	240	470	138 x 145	48,0	Single speed	9,4
18,1 (178)	155	EBJ-20GC	80	250	485	145 x 155	53,0	Single speed	11,4
18,1 (178)	79	EBJS-20GC	41	165	285	145 x 155	53,0	Single speed	9,0
27,2 (267)	175	EBJ-30GC	-	285	460	150 x 190	71,1	Single speed	25,8
45,4 (445)	105	EBJ-50GC	-	240	345	190 x 255	85,1	Two speed	42,0
90,7 (890)	150	EBJ-100GC	-	310	460	240 x 300	124,2	Two speed	90,2

All EBJ-Series Jacks meet or exceed: ANSI, PALD, CE, prEN 1494: 1994 standards.

High Temperature & Corrosion Resistant Products

ENERPAC 
Hydraulic Technology Worldwide

▼ From left to right: P-142ALSS, P-392ALSS, V-152NV, V-66NV, RC-256NV, RC-106NV, RC-53NV



Cylinders

- Nickel-plated steel
- Viton® seals provide heat and chemical resistance
- Single-acting, spring return
- Collar thread, plunger thread and base mounting holes
- Plunger wiper reduces contamination, extends cylinder life

Hand Pumps

- Viton® seals provide heat and chemical resistance
- Anodized aluminium pump reservoirs and plastic encapsulated pump bodies
- Stainless steel pump pistons and inserts will not corrode or rust
- Second handle on P-142ALSS for two hand use
- Internal pressure relief valve for overload protection
- Handles lock for easy carrying

Pressure Relief and Check Valve

- Nickel-plated steel
- Viton® seals provide heat and chemical resistance
- Check valve V-66NV for load holding
- Pressure relief valve V-152NV limits pressure in hydraulic circuit

Solutions for maximum corrosion resistance in extreme environments



Applications

For use in wet environments such as food processing, pulp and paper, mining, construction and applications in high temperature or in welding areas.



Aluminium Cylinders

If you need a higher cylinder capacity-to-weight-ratio the lightweight **RAC-Series** are the perfect choice.

Page: 14



Hoses

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

Page: 120

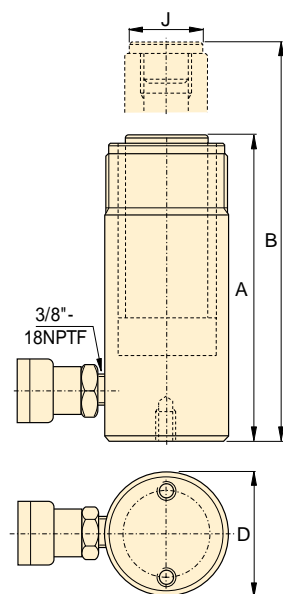


Stainless Steel Gauge

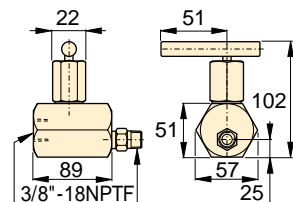
Minimize the risk of overloading and ensure long, dependable service from your equipment. The alloy steel gauge **T6003L** is the perfect choice.

Page: 130

High Temperature & Corrosion Resistant Products

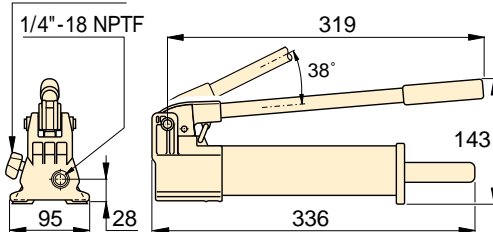


RC-Series



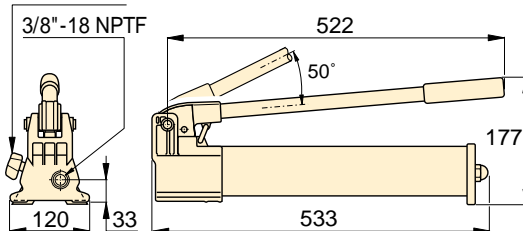
V-66NV

Release valve

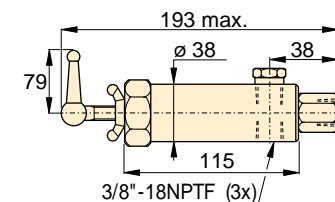


P-142ALSSS

Release valve



P-392ALSSS



V-152NV

RC P V Series



Cylinder Capacity:

5 - 25 ton

Stroke:

54 - 158 mm

Maximum Operating Pressure:

700 bar



Multifluid Hand Pumps

MP-Series corrosion resistant hand pumps for low pressure filling and high pressure testing

applications, suitable for a wide range of fluids.

Page: 74

Single-Acting Cylinders

Cylinder Capacity at 700 bar ton (kN)	Stroke (mm)	Model Number ¹⁾	Cylinder Effective Area (cm ²)	Oil Capacity (cm ³)	Collapsed Height A (mm)	Extended Height B (mm)	Outside Diameter D (mm)	Saddle Diameter J (mm)	(kg)
5 (45)	76	RC-53NV	6,5	50	165	241	38	25	1,5
10 (101)	54	RC-102NV	14,5	78	121	175	57	57	2,3
	156	RC-106NV	14,5	226	247	403	57	57	4,4
25 (232)	158	RC-256NV	33,2	525	273	431	85	85	10,0

¹⁾ For more dimensional information see page 10.



Two-Speed Hand Pumps

Pump Type	Usable Oil Capacity (cm ³)	Model Number ¹⁾	Pressure Rating (bar)		Oil Displacement per stroke (cm ³)		Max. Handle Effort (kg)	Piston Stroke (mm)	(kg)
			1st stage	2nd stage	1st stage	2nd stage			
Two Speed	327	P-142ALSS	13	700	3,62	0,90	35,4	12,7	2,1
	901	P-392ALSS	13	700	3,62	11,26	42,2-	25,4	4,1

¹⁾ For more hand pump information see page 68.



Manual Valves

Valve Type	Model Number ¹⁾	Valve Function	(kg)
Manual Check Valve	V-66NV	Load holding with cylinders	1,8
Pressure Relief Valve	V-152NV	Limits pressure in system, adjustment range 55 - 700 bar	1,6

¹⁾ For more information see page 138.



SC-Series, Single-Acting Cylinder-Pump Sets

ENERPAC
Hydraulic Technology Worldwide

▼ Shown cylinder-pump set: **SCR-1010H**



The Quickest and Easiest Way to Start Working Right Away





- Optimum match of individual components
- All sets are ready-for-use
- Sets include 1,8 m safety hose and gauge with gauge adaptor
- All hand pumps are two-speed



Speed Chart

See the Enerpac Cylinder Speed Chart in our 'Yellow Pages' section.

Page: **117**

1 Cylinder Selection (See Cylinder Section of this catalog for full product descriptions)		Set Capacity ton (kN)	Cylinder Model Number	Stroke (mm)	Collapsed Height (mm)
 Single-Acting, General Purpose Cylinders: For maximum versatility. RC-Series	Page: 8	5 (45)	RC-55	127	215
		10 (101)	RC-102	54	121
			RC-106	156	247
			RC-1010	257	349
		15 (142)	RC-154	101	200
			RC-156	152	271
		25 (232)	RC-252	50	165
			RC-254	102	215
 Single-Acting, Low Height Cylinders: Ideal where space is restricted. RCS-Series	Page: 24	50 (498)	RC-506	159	282
		10 (101)	RCS-101	38	88
		20 (201)	RCS-201	45	98
		30 (295)	RCS-302	62	117
		45 (435)	RCS-502	60	122
 Single-Acting, Hollow Cylinders: For pushing and pulling applications. RCH-Series	Page: 28	90 (887)	RCS-1002	57	141
		13 (125)	RCH-121	42	120
		20 (215)	RCH-202	49	162
		30 (326)	RCH-302	64	178
		60 (576)	RCH-603	76	247
 Pull Cylinders: For use with subassemblies and modules. BRP-Series	Page: 26	10 (105)	BRP-106C	151	587
			BRP-106L	151	541
		30 (326)	BRP-306	155	1085
		50 (505)	BRP-606	152	719

Single-Acting Cylinder-Pump Sets

SET SELECTION:

- 1 Select the cylinder
- 2 Select the pump
- 3 Find the set model number in the blue matrix

SELECTION EXAMPLE

Selected cylinder:

- RC-106, Single-Acting cylinder with 156 mm stroke

Selected pump:

- P-392, Lightweight hand pump

Set model number:

- SCR-106H

Included:

- HC-7206 hose
- GF-10B gauge
- GA-2 adaptor

SC Series



Capacity:

5-95 ton

Stroke:

38-362 mm

Maximum Operating Pressure:

700 bar

2 Pump selection ¹⁾

Accessories included

Hand Pump P-142	Hand Pump P-392	Hand Pump P-80	Foot Pump P-392FP	Turbo Air Pump PATG-1102N	Hose Model Number	Gauge Model Number	Gauge Adaptor Model Nr.
SCR-55H	—	—	—	—	HC-7206	GP-10S	GA-4
—	SCR-102H	—	SCR-102FP	SCR-102A	HC-7206	GF-10B	GA-2
—	SCR-106H	—	SCR-106FP	SCR-106A	HC-7206	GF-10B	GA-2
—	SCR-1010H	—	SCR-1010FP	SCR-1010A	HC-7206	GF-10B	GA-2
—	SCR-154H	—	SCR-154FP	SCR-154A	HC-7206	GP-10S	GA-2
—	SCR-156H	—	SCR-156FP	SCR-156A	HC-7206	GP-10S	GA-2
—	SCR-252H	—	SCR-252FP	SCR-252A	HC-7206	GF-20B	GA-2
—	SCR-254H	—	SCR-254FP	SCR-254A	HC-7206	GF-20B	GA-2
—	SCR-256H	—	SCR-256FP	SCR-256A	HC-7206	GF-20B	GA-2
—	—	SCR-2514H	—	SCR-2514A	HC-7206	GF-20B	GA-2
—	—	SCR-506H	—	SCR-506A	HC-7206	GF-50B	GA-2
—	SCL-101H	—	SCL-101FP	SCL-101A	HC-7206	GF-10B	GA-2
—	SCL-201H	—	SCL-201FP	SCL-201A	HC-7206	GF-230B	GA-2
—	SCL-302H	—	SCL-302FP	SCL-302A	HC-7206	GF-230B	GA-2
—	SCL-502H	—	SCL-502FP	SCL-502A	HC-7206	GF-510B	GA-2
—	—	SCL-1002H	—	—	HC-7206	GF-510B	GA-2
SCH-121H	—	—	—	—	HB-7206	GF-120B	GA-4
—	SCH-202H	—	SCH-202FP	SCH-202A	HC-7206	GF-813B	GA-3
—	SCH-302H	—	SCH-302FP	SCH-302A	HC-7206	GF-813B	GA-3
—	—	SCH-603H	—	SCH-603A	HC-7206	GF-813B	GA-3
—	—	SCH-1003H	—	—	HC-7206	GP-10S	GA-2
—	SCP-106CH	—	SCP-106CFP	—	HC-7206	GP-10S	GA-2
—	SCP-106LH	—	SCP-106LFP	—	HC-7206	GP-10S	GA-2
—	—	—	—	—	—	—	—
—	—	SCP-306H	—	—	HC-7206	GP-10S	GA-2
—	—	SCP-606H	—	—	HC-7206	GP-10S	GA-2

¹⁾ See the Pump Section in this catalog for full product descriptions.

Enerpac Hydraulic Pumps

ENERPAC 
Hydraulic Technology Worldwide

ENERPAC hydraulic pumps are available in over 1000 different configurations.

Whatever your high-pressure pump needs are... speed, control, intermittent or heavy duty cycle you will find an Enerpac pump suited to the application.

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



Pump Selection

For help in selecting the correct pump for your application, please review our 'Yellow Pages'.

If you require further assistance, contact the Enerpac office located near you.

Page: 110


















Torque Wrench Pumps

System matched air and electric pumps provide control to operate hydraulic torque wrenches.

Page: 206



Hydraulic Pumps Section Overview

Power Source	Pump Types	Maximum Reservoir Capacity (litres)	Max. Flow at Rated Pressure (l/min)	Max. Power Consumption	Series		Page
Manual	Lightweight Hand Pumps Exclusively from Enerpac	2,5	2,5 (cm ³ /stroke)	—	P		68 ▶
	Steel Hand Pumps	7,4	4,75	—	P		70 ▶
	Low Pressure Hand Pumps	3,3	9,50 (cm ³ /stroke)	—	P		72 ▶
	Multifluid Hand Pumps Pumping fluids up to 1000 bar	—	21,8 (cm ³ /stroke)	—	MP		74 ▶
	Foot Pump For handsfree operation	0,5	2,47 (cm ³ /stroke)	—	P		75 ▶
	Ultra-High Pressure Hand Pumps	1,0	2,49 (cm ³ /stroke)	—	P/11		76 ▶
Electric	Economy Series Compact and Portable	3,8	0,32	0,37 (kW)	PU		78 ▶
	Submerged Series Powerful and Low-Noise	5,5	0,27	0,37 (kW)	PE		80 ▶
	Z-Class Pumps ZU4-Series Portable Pumps	40	1,0	1,25 (kW)	ZU4		84 ▶ 86 ▶
	Z-Class Pumps ZE3 to ZE6-Series Stationary Pumps	40	2,73	5,60 (kW)	ZE		84 ▶ 90 ▶
	8000- and 9000-Series High Flow / Split Flow Pumps	80	8,0	9,5 (kW)	PP		96 ▶
Air	Turbo II Air Hydraulic Pumps The New Air Pump Standard	5,0	0,16	340 (l/min)	PAMG PATG PARG		98 ▶
	Air Hydraulic Pumps Single and Twin-Air Motor	1,3 8,0	0,13 0,15	255 510 (l/min)	PA PAM		100 ▶ 101 ▶
	Air Hydraulic Pumps The Multifluid Pumps with Maximum Flow	—	5,0	3000 (l/min)	PAH		102 ▶
Gaso-line	Atlas Series Your Gasoline Pump Solution	40	1,64	4,0 (kW)	PGM		104 ▶

P-Series, Lightweight Hand Pumps

ENERPAC
Hydraulic Technology Worldwide

▼ 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 aluminium pump base for maximum corrosion resistance
- Two-speed operation 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

▼ Cylinder-pump set SCR-254H used to support the construction while monitoring pressure and load with the gauge.



Exclusively from Enerpac



Cylinder Matching Chart

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

Page: 110



Speed Chart

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

Page: 117



Tank Kits:

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

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



High Temperature and Corrosion Resistant Hand Pumps

The P-142 and P-392 hand pumps are available with Viton seals, stainless steel pistons and anodized aluminium reservoir for use in extreme environments.

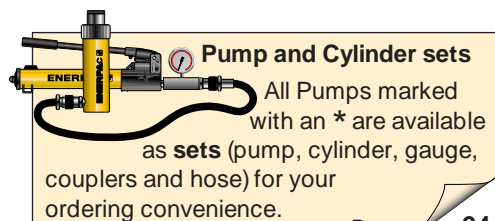
Page: 62

Pump Type	Usable Oil Capacity (cm ³)	Model Number	Pressure Rating** (bar)		Oil Displacement per Stroke (cm ³)		Max. Handle Effort (kg)
			1 st stage	2 nd stage	1 st stage	2 nd stage	
Single-Speed	327	P-141	-	700	-	0,90	32,7
	901	P-391	-	700	-	2,47	38,6
Two-Speed	327	P-142*	13	700	3,62	0,90	35,4
	901	P-202	13	700	3,62	0,90	28,6
	901	P-392*	13	700	11,26	2,47	42,2
	2540	P-802	27	700	39,33	2,47	43,1
	2540	P-842	27	700	39,33	2,47	43,1

* Available as set, see note on next page.

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

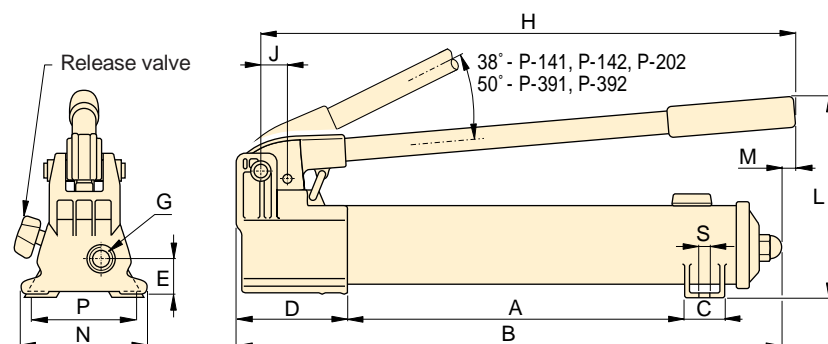
Lightweight Hand Pumps



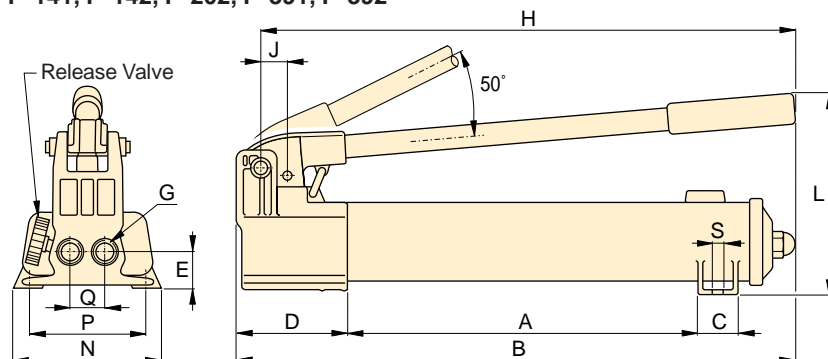
Pump and Cylinder sets

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

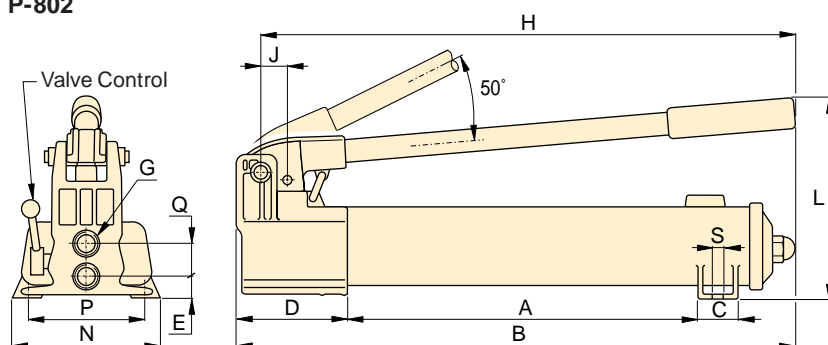
Page: 64



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



P-802



P-842

P Series



Reservoir Capacity:

327- 2540 cm³

Flow at Rated Pressure:

0,90 - 2,47 cm³/stroke

Operating Pressure:

700 bar



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: 120



Gauges

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

System Components section for a full range of gauges.


Page: 119



Foot Pump P-392FP

For handsfree operation the lightweight and robust P-392FP Foot Pump is the perfect choice.

Page: 75

	Piston Stroke	Dimensions (mm)															Model Number
	(mm)	A	B	C	D	E	G	H	J	L	M	N	P	Q	S	(kg)	
	12,7	185	336	28	85	28	1/4" -18 NPTF	319	19	143	–	95	80	–	7	2,4	P-141
	25,4	344	533	36	99	33	3/8" -18 NPTF	522	30	177	16	120	–	–	–	4,1	P-391
	12,7	185	336	28	85	28	1/4" -18 NPTF	319	19	143	–	95	80	–	7	2,4	P-142*
	12,7	344	509	36	85	28	1/4" -18 NPTF	400	19	144	16	95	–	–	–	3,4	P-202
	25,4	344	533	36	99	33	3/8" -18 NPTF	522	30	177	16	120	–	–	–	4,1	P-392*
	25,4	337	552	45	133	35	3/8" -18 NPTF	527	55	228	–	181	120	35	10	8,2	P-802
	25.4	337	552	45	133	20	3/8" -18 NPTF	527	55	228	–	181	120	36	10	10.0	P-842

P-Series, Steel Hand Pumps

ENERPAC
Hydraulic Technology Worldwide

▼ Shown from top to bottom: P-462, P-84, P-801, P-77, P-80, P-39



- Two-speed operation for reduced operator fatigue (except P-39)
- 4-way valving on the P-84 and P-464 for operation of double-acting cylinders
- External load release valve on remaining models for single-acting cylinder operation
- Internal pressure relief valve for overload protection
- Large oil capacity to power a wide range of cylinders or tools

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



The Solution for Tough Jobs



Two Speed

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



Foot Pump Conversion Kits

Convert your P-39 to foot power with the **PC-10** Kit. Includes instructions for easy conversion.



Gauges

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

System Components section for a full range of gauges.

Page: 119



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:

Page: 112

Pump Type	Usable Oil Capacity (cm ³)	Model Number	Pressure Rating** (bar)		Oil Displacement per Stroke (cm ³)		Max. Handle Effort (kg)
			1 st stage	2 nd stage	1 st stage	2 nd stage	
Single	655	P-39	-	700	-	2,62	50
Two-Speed	770	P-77	14	700	16,00	2,41	43
	2200	P-80*	25	700	16,22	2,46	47
	4080	P-801	25	700	16,22	2,46	47
	2200	P-84	25	700	16,22	2,46	47
	7423	P-462	14	700	126,20	4,75	49
	7423	P-464	14	700	126,20	4,75	49

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

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

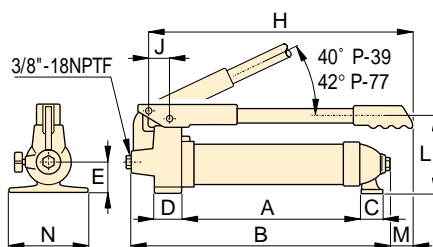
Steel Hand Pumps



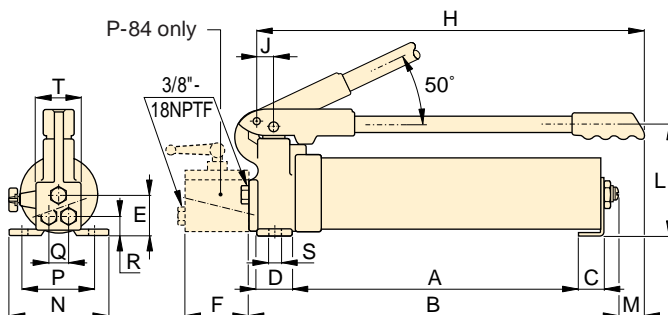
High Temperature and Corrosion Resistant Hand Pumps

Some hand pumps are available with Viton seals, stainless steel pistons and anodized aluminium reservoir for use in extreme environments.

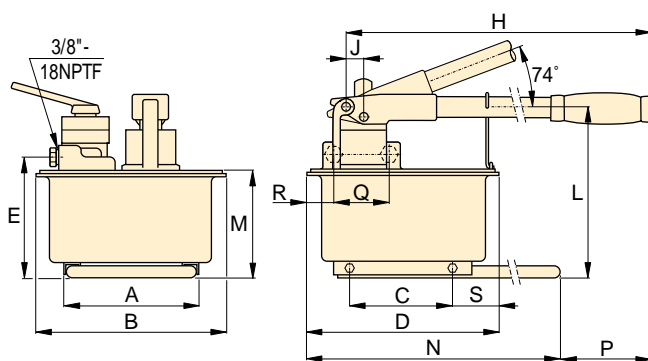
Page: 62



P-39, P-77



P-80, P-801, P-84



P-462, P-464

P Series



Reservoir Capacity:

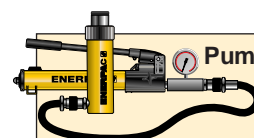
655-7423 cm³

Flow at Rated Pressure:

2,46-4,75 cm³/stroke

Maximum Operating Pressure:

700 bar



Pump and Cylinder sets

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

Page: 64



Speed Chart

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

Page: 117



Cylinder Matching Chart

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

Page: 110

Piston Stroke	Dimensions (mm)																	(kg)	Model Number
	(mm)	A	B	C	D	E	F	H	J	L	M	N	P	Q	R	S	T		
20,6	393	520	33	38	32	—	—	464	30	119	65	133	—	—	—	—	—	5,9	P-39
25,4	418	525	33	40	52	—	—	560	34	115	50	120	—	—	—	—	—	6,8	P-77
25,4	425	539	25	44	54	—	—	527	29	174	19	146	121	—	21	8	67	10,9	P-80*
25,4	659	782	25	44	54	—	—	772	29	174	—	146	121	—	21	8	67	14,1	P-801
25,4	425	539	25	44	—	64	—	527	29	174	19	146	121	38	43	8	67	13,2	P-84
38,1	210	308	163	320	195	—	—	671	25	270	175	650	92	—	—	80	—	27,7	P-462
38,1	210	308	163	320	195	—	—	671	25	270	175	650	92	89	68	80	—	27,7	P-464

P-Series, Low Pressure Hand Pumps

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



- Bi-directional pumping on the P-25 and P-50 allows operation on both handle strokes
- 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
- P-50 and P-51 pump oil in both forward and reverse handle movement improving overall efficiency, ideal when mounting space is restricted



Gauges

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

Page: 119



Foot Pump Conversion Kits

Convert your P-18 to foot power with the **PC-10** Kit. Includes instructions for easy conversion.



Foot Pump P-392FP

For handsfree operation the lightweight and robust **P-392FP** Foot Pump is the perfect choice.

Page: 75

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



Pump Type	Usable Oil Capacity (cm ³)	Model Number	Pressure Rating (bar)	Oil Displacement per Stroke (cm ³)	Max. Handle Effort (kg)
Single-Speed	295	P-18	200	2,62	26
	3277	P-25	175	9,50	27
	3277	P-50	350	4,75	27
	819	P-51	200	4,10	27

Low Pressure Hand Pumps

P Series



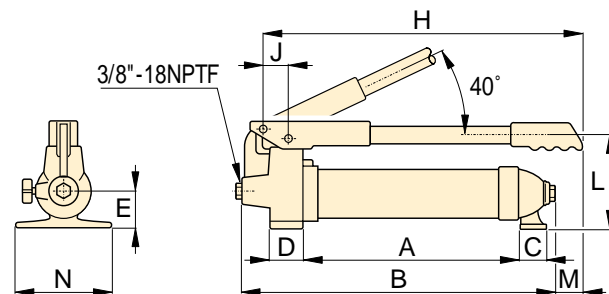
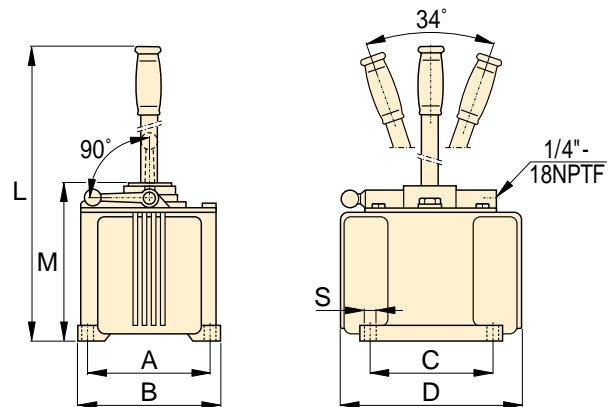
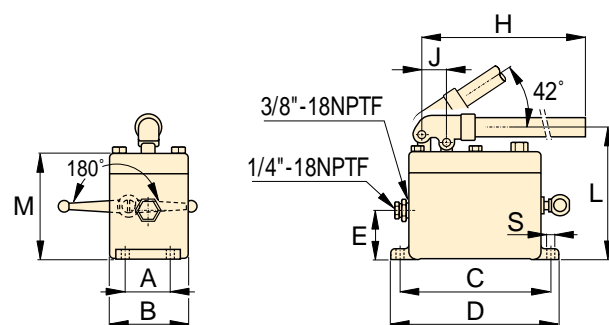
Reservoir Capacity:

295-3277 cm³

Flow at Rated Pressure:

2,62-9,50 cm³/stroke

Operating Pressure:

175-350 bar

P-18

P-25, P-50

P-51

P-25 hand pumps used with RC-serie cylinders to keep wooden layers under pressure during lamination of plates. ▶



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: 120



Multifluid Hand Pumps

Corrosion resistant hand pumps for low pressure filling and high pressure testing applications, suitable for a wide range of fluids.

Page: 74



Piston Stroke (mm)	Dimensions (mm)												Model Number
	A	B	C	D	E	H	J	L	M	N	S	(kg)	
20,6	210	327	33	38	48	216	30	111	13	133	—	5,0	P-18
38,1	152	173	152	240	—	—	—	684	200	—	10	16,3	P-25
38,1	152	173	152	240	—	—	—	684	200	—	10	16,8	P-50
25,4	52	92	181	200	57	610	29	160	129	—	9	5,4	P-51

MP-Series, Multifluid Hand Pumps

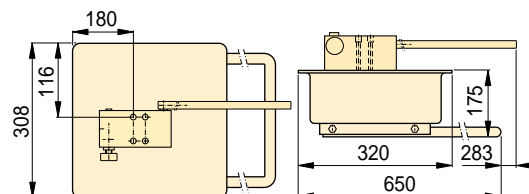
ENERPAC
Hydraulic Technology Worldwide

▼ Shown: **MP-110**



- Unbeatable corrosion resistance
- Standard supplied with Nitrile seals – can be used for a wide range of fluids such as demineralised water, oil/water emulsions, waterglycols, mineral oils
- Two speed pumps up to 1000 bar pressure
- Buna Nitrile seals can be exchanged with optional EPDM seal for use with Skydrol or brake fluids
- Impregnated aluminium anodized pump housing with stainless steel internal pumping components
- Externally adjustable pressure relief valve
- 1/4" NPTF gauge port.

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



MP-110T



MP-Series Multifluid Pumps Typical Applications

- Filling and testing of aircraft systems such as shock absorbers
- Testing of aircraft systems using Skydrol fluid
- Testing of pressure vessels
- Operation of single-acting hydraulic tools and cylinders.



Gauges

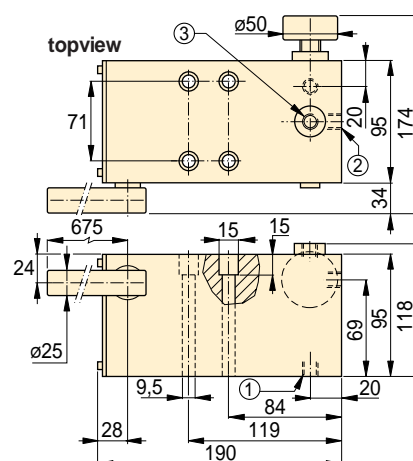
Minimize the risk of overloading and ensure long, dependable service from your equipment.

Page: **119**



Optional Reservoir Kit

The 10 litres reservoir kit **MP-10T** includes tank with skid frame, top plate with reservoir seal, suction pipe and mounting bolts. Useable oil capacity is 7,4 litres.



MP-110, 350, 700, 1000

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

Pump Type	Usable Oil Capacity (cm ³)	Model Number	Pressure Rating (bar)		Oil Displacement per Stroke (cm ³)		Max. Handle Effort (kg)	Piston Stroke (mm)	Piston Weight (kg)
			1st stage	2nd stage	1st stage	2nd stage			
Two Speed	*	MP-110	35	110	52,60	21,80	45	26,5	6,6
	*	MP-350	35	350	52,60	7,80	45	26,5	6,6
	*	MP-700	35	700	52,60	3,10	45	26,5	6,6
	*	MP-1000	35	1000	52,60	2,20	45	26,5	6,6

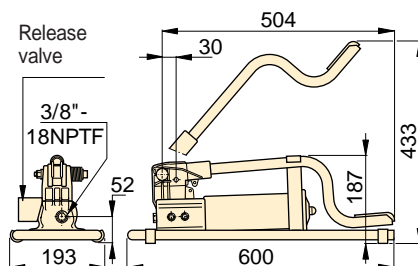
Note: MP-Pump includes 1,5 mm thick gasket for reservoir mounting.
MP-Series pumps requires the use of an external reservoir.

Lightweight Hydraulic Foot Pump

▼ Shown: P-392FP



- Robust, durable and compact
 - Steel frame for maximum stability
 - Steel pumping handle
 - Aluminium reservoir
- Foot pedal lock and lightweight construction for easy carrying
- Two-speed operation reduces foot pedal strokes as much as 78% over one-speed pumps
- Controllable load return circuit for improved control under load and faster no-load retraction of spring or gravity return single-acting cylinders
- Large release valve foot pad for easy control for slowly metering loads down
- Internal pressure relief valve for overload protection.



Usable Oil Capacity (cm ³)	Model Number	Pressure Rating (bar)		Oil Displacement per Stroke (cm ³)		Max. Handle Effort (kg)	Piston Stroke (mm)	Piston Stroke (kg)
		1st stage	2nd stage	1st stage	2nd stage			
492	P-392FP *	15	700	11,26	2,47	42	25,4	7,0

* Available as set, see note on this page.

P Series



Reservoir Capacity:

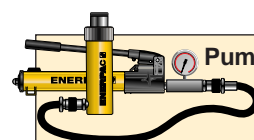
492 cm³

Flow at Rated Pressure:

2,47 cm³/stroke

Maximum Operating Pressure:

700 bar



Pump and Cylinder sets

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

Page: 64



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: 120

t. The great advantage of the P-392FP – easily operated by foot, making your hands free to handle the tool or cylinder.



P, 11-Series, Ultra-High Pressure Hand Pumps

ENERPAC
Hydraulic Technology Worldwide

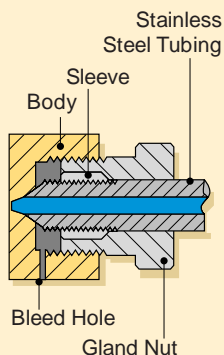
▼ Shown from left to right: 11-100, P-2282



- Two-speed operation on the P-2282 allows for faster fill operation, 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, diesters, silicones, soluble oils and petroleum
- Large release knob for improved control of pressure release
- Outlet ports are 3/4"-16 cone for 2800 bar rating
- 3/8" NPTF adaptor (partnr. C898.166) included with P-2282, for applications under 700 bar

Cone Seal

Stainless Steel High Pressure fittings seal on a 'cone' surface and do not require pipe sealer. The Gland Nut holds the sleeve and tubing tight against the cone surface to provide a 2800 bar seal.



Ultra-High Pressure up to 2800 bar



2-Way Shut-Off Valve 72-750

For 2800 bar 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.

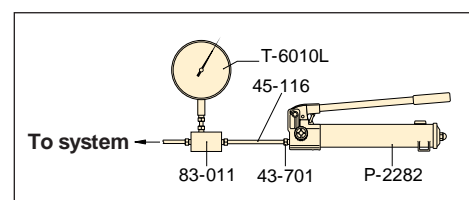


Test System Gauges

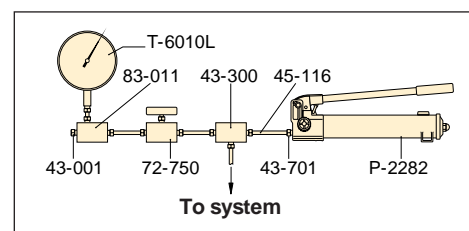
Ideal for monitoring pressure in your hydraulic circuit, Test System Gauges, such as the T6010L, are available with

cone threads or NPT threads and a variety of pressure ranges.

Page: 130



▲ Typical Test System














▲ Test System with Gauge Snubber

Pump Type	Usable Oil Capacity (cm ³)	Model Number	Pressure Rating* (bar)		Oil Displacement per Stroke (cm ³)		Max. Handle Effort (kg)
			1st stage	2nd stage	1st stage	2nd stage	
Two-Speed	983	P-2282	13	2800	16,22	0,61	48,1
Single-Speed	737	11-100	-	700	-	2,49	54,4
	737	11-400	-	2800	-	0,62	54,4

* 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 Tubings

Description	Connection	Model Nr.
2800 bar		
Gland Nut Plug	 .38" cone	43-001
Elbow	 .38" cone	43-200
Tee	 .38" cone	43-300
Gauge Tee	 .38" cone side/ .25" cone gauge port	43-301
Gauge Adaptor	 .38" cone side/ .25" cone gauge port	83-011
Coupling	 .38" cone	43-400
Cross	 .38" cone	43-600
Gland Nut with Sleeve	 .38" cone	43-701
Tubing	 100 mm tube, O.D. .38" * 200 mm tube, O.D. .38" * 300 mm tube, O.D. .38" *	45-116 45-126 45-136
700 bar only		
Adaptor	 .38F cone to 1/4" M NPTF .38F cone to 3/8" M NPTF	41-146 41-166
Adaptor	 .38F cone to 1/4" F NPTF .38F cone to 3/8" F NPTF	41-246 41-266

Note: .25" cone fittings use 9/16"-18 threads, 3/8" cone fittings use 3/4"-16 threads.

* Actual tubing lengths are 19 mm less than nominal size shown.
These dimensions make distance between centers of valves and fittings multiples of 100 mm spaces.

P/11 Series



Reservoir Capacity:

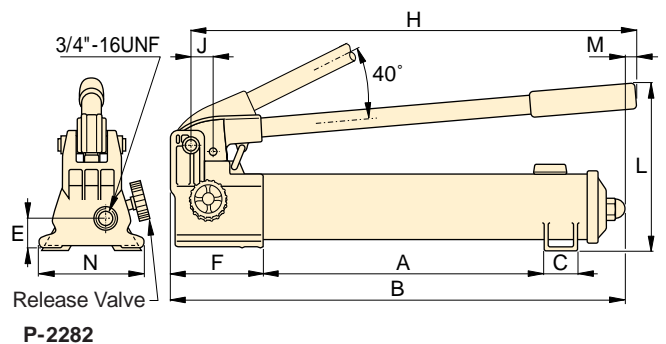
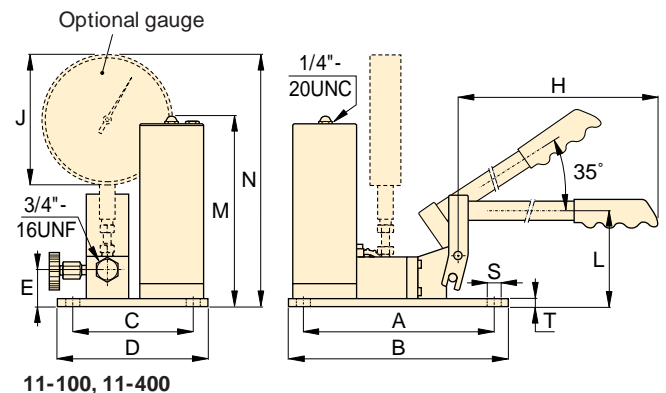
737- 983 cm³


Flow at Rated Pressure:

0,61- 2,49 cm³/stroke

Operating Pressure:

700-2800 bar



	Piston Stroke	Dimensions (mm)														Model Number
		(mm)	A	B	C	D	E	F	H	J	L	M	N	S		
	25,4	344	558	35	—	31	133	527	29	228	7	120	—	—	6,4	P-2282
	19,8	240	266	151	177	45	—	635	162	114	237	314	7	9	10,0	11-100
	19.8	240	266	151	177	45	—	635	162	114	237	314	7	9	10.0	11-400

PU-Series, Economy Electric Pumps

ENERPAC 
Hydraulic Technology Worldwide

▼ Shown: PUD-1300E



- Lightweight and compact design: 11,8 to 18,6 kg
- Large easy-carry handle for maximum portability
- Two-speed operation reduces cycle times for improved productivity
- 230 VAC 50/60-cycle universal motor will operate on voltages as low as 115 volts
- 24 VDC remote motor control, 3 m length for operator safety
- Starts under full load
- High strength molded shroud, with integral handle, protects motor from contamination and damage

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



Heavy on Performance, Light on Weight



Gauges

Minimize the risk of overloading and ensure long, dependable service from your equipment. For use with the Economy pump the following gauges are suggested:

For Pump Model Number	Gauge Model Number	Gauge Adaptor Model Nr.
PUD-1100E, 1101E	G-2536L	GA-3
PUJ-1200E, 1201E	G-2536L	—
PUD-1300E, 1301E	G-2535L	GA-3
PUJ-1400E, 1401E	G-2536L	GA-3

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

Page: 119



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: 120



Speed Chart

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

Page: 117

Pump Type (Used with cylinder)	Usable Oil Capacity (litres)	Model Number*	Pressure Rating (bar)	
			1 st stage	2 nd stage
Single-Acting	1,9	PUD-1100E	13	700
	3,8	PUD-1101E	13	700
	1,9	PUJ-1200E	13	700
	3,8	PUJ-1201E	13	700
	1,9	PUD-1300E	13	700
	3,8	PUD-1301E	13	700
Double-Acting	1,9	PUJ-1400E	13	700
	3,8	PUJ-1401E	13	700

* For 115 volt applications replace 'E' suffix with 'B'.

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

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 make it ideal for applications which require easy transport of the pump. The universal motor works well on long extension cords or generator-driven electrical power supplies.

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

PUD-1100 Series

- Provides advance-retract of single-acting cylinders
- Ideal for punching applications
- For applications not requiring load holding
- 3 m pendant controls motor and valve operation.

PUD-1300 Series

- Provides advance-hold-retract of single-acting cylinders
- Ideal for punching applications
- For applications requiring remote valve operations
- 3 m pendant controls motor and valve operation.

PUJ Series

- Available with 3- and 4-way valves for single or double-acting cylinders
- 3 m pendant controls the motor operation
- Manual valves provide advance-hold-retract tool operation.



Page: 107

PU Series



Reservoir Capacity:

1,9- 3,8 litres

Flow at Rated Pressure:

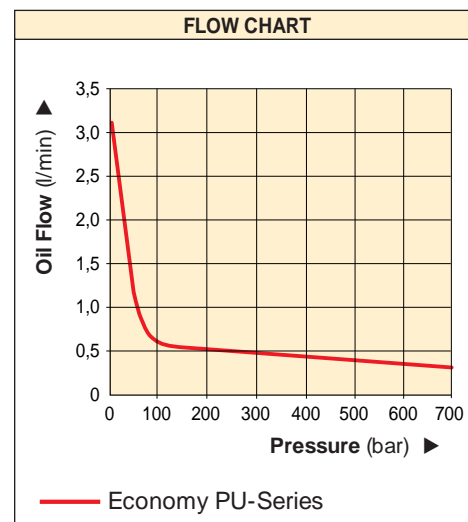
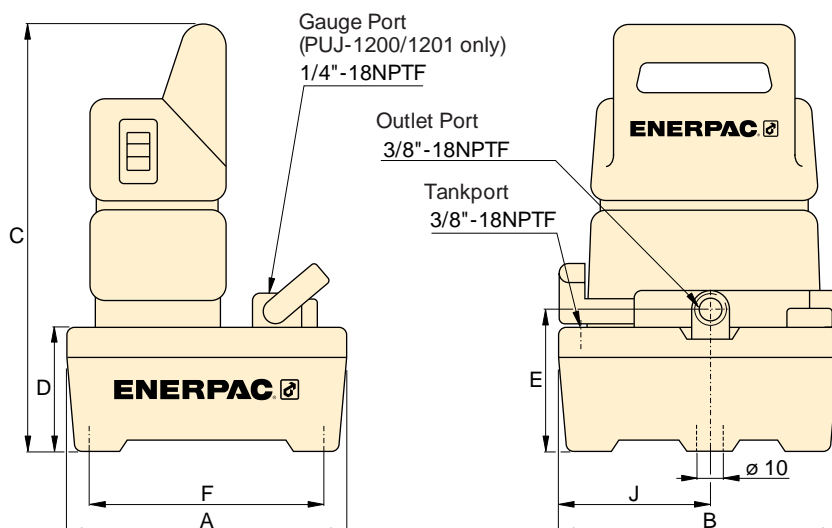
0,32 l/min

Motor Size:

0,37 kW

Maximum Operating Pressure:

700 bar



Output Flow Rate (l/min)		Valve Type	Valve Function	Current Draw (Amps)	Motor Voltage (VAC)	Sound Level (dBA)	Dimensions (mm)							(kg)	Model Number*
1 st stage	2 nd stage						A	B	C	D	E	F	J		
3,31	0,32	Dump**	Advance/Retract	3,2	230	85	244	244	362	101	119	203	133	11,8	PUD-1100E
3,31	0,32			3,2	230	85	368	309	373	105	130	323	142	17,2	PUD-1101E
3,31	0,32	3-way, 2-pos.	Adv/Hold/Retr.	3,2	230	85	244	244	362	101	119	203	133	10,0	PUJ-1200E
3,31	0,32			3,2	230	85	368	309	373	105	130	323	142	15,4	PUJ-1201E
3,31	0,32	Solenoid 3/2	Adv/Hold/Retr.	3,2	230	85	244	244	362	101	119	203	133	12,0	PUD-1300E
3,31	0,32			3,2	230	85	368	309	373	105	130	323	142	17,5	PUD-1301E
3,31	0,32	4-way, 3-pos	Adv/Hold/Retr.	3,2	230	85	244	244	362	101	119	203	133	13,2	PUJ-1400E
3,31	0,32			3,2	230	85	368	309	373	105	130	323	142	18,6	PUJ-1401E

PE-Series, Submerged Electric Pumps

ENERPAC 
Hydraulic Technology Worldwide

▼ Shown: PEJ-1401E



- Two-speed operation reduces cycle times for improved productivity
- Powerful 0,37 kW induction motor is submerged in the oil reservoir to run cooler, protect the motor, simplify the pump interface, save space and reduce noise
- Large 5,5 litres reservoir allows operation of a wide range of cylinders
- 24 VDC remote pendant control on certain models for safer operation
- Externally adjustable relief valve allows control of operating pressure without opening the pump
- 40-micron internal return line filter keeps oil clean, promoting longer pump life
- Full length side tube for easy monitoring of oil level



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

Best Performance on 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 83** 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 3 m cord controls valve and motor

PEM Series: with Manual Valve

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



PER Series: with Solenoid Valve

- Ideal for production and lifting
- All valves are 3 position for Advance-Hold-Retract
- Control pendant with 3 m 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 3 m cord for remote motor operation



PES Series: with Pressure Switch

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

* See the Valve Section in this catalog for technical information on valve types.

Submerged Electric Pumps



Submerged Pump Application

The Submerged pump is best suited to power small to medium size cylinders or hydraulic tools, or whenever 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.

Page: 110

PE Series



Reservoir Capacity:

5,5 litres

Flow at Rated Pressure:

0,27 l/min

Motor Size:

0,37 kW

Maximum Operating Pressure:

700 bar

Pump Type	Used with Cylinder	Valve Function	Valve Type*	Usable Oil Capacity (litres)	Model Number 230 VAC, 1 ph	(kg)
	Single-Acting	Advance/Retract	Dump	5,5	PED-1001E	24,9
	Single-Acting	Advance/Retract	Manual, 3-way, 2-position	5,5	PEM-1201E	24,0
	Single-Acting	Advance/Hold/Retract	Manual, 3-way, 3-position	5,5	PEM-1301E	24,0
	Double-Acting	Advance/Hold/Retract	Manual, 4-way, 3-position	5,5	PEM-1401E	24,0
	Single-Acting	Advance/Hold/Retract	Solenoid, 3-way, 3-position	5,5	PER-1301E	29,5
	Double-Acting	Advance/Hold/Retract	Solenoid, 4-way, 3-position	5,5	PER-1401E	29,5
	Single-Acting	Advance/Retract	Manual, 3-way, 2-position	5,5	PEJ-1201E	24,9
	Single-Acting	Advance/Hold/Retract	Manual, 3-way, 3-position	5,5	PEJ-1301E	24,9
	Double-Acting	Advance/Hold/Retract	Manual, 4-way, 3-position	5,5	PEJ-1401E	24,9
	Single-Acting	Advance/Retract	Manual, 3-way, 2-position	5,5	PES-1201E	28,1
	Double-Acting	Advance/Hold/Retract	Manual, 4-way, 3-position	5,5	PES-1401E	28,1

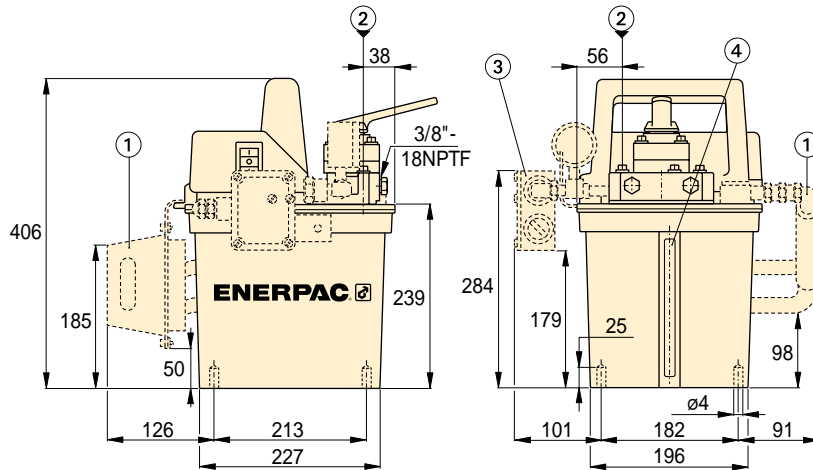
PE-Series, Submerged Electric Pumps

ENERPAC
Hydraulic Technology Worldwide

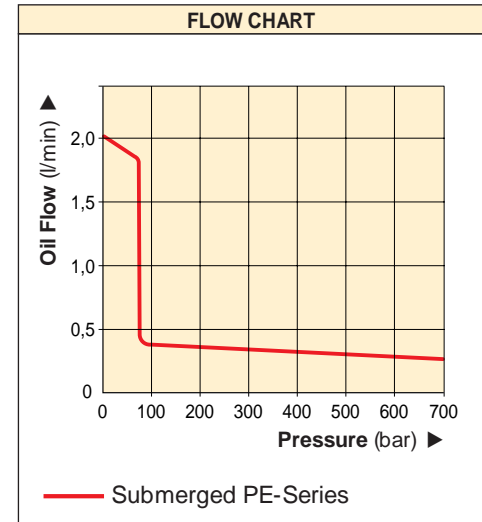
◀ For full features see previous page.

SUBMERGED PUMP PERFORMANCE							
Motor Size	Pressure Rating		Output Flow Rate		Motor Electrical Specifications*	Sound Level	Relief Valve Adjustment Range
	(bar)		at 50 Hz (l/min)				
(kW)	1 st stage	2 nd stage	1 st stage	2 nd stage	(Amps @ Volts-Ph-Hz)	(dBA)	(bar)
0,37	70	700	2,0	0,27	13 @115-1-50/60 6,75 @230-1-50/60	62-70	70-700

*At full load. See ordering matrix footnote for frequency notations.



- ① Heat Exchanger (optional for all models)
- ② Fill Port
- ③ Pressure Switch (PES-series, optional for other models)
- ④ Oil Level Indicator



Speed Chart

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

Page: 117



◀ This PED-1001E Submerged pump quickly and quietly powers a hydraulic nut cutter in this bucket maintenance application.

Submerged Electric Pumps

CUSTOM BUILD YOUR SUBMERGED PUMP

If the Submerged Pump that would best fit your application cannot be found in the chart on page 81, here you can easily build your custom submerged pump.

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

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

1 Product Type

P = Pump

2 Motor Type

E = Electric Motor

3 Pump Type

D = Dump

J = Jog

M = Manual

R = Remote (Solenoid)

S = Pressure Switch

4 Pump Series

1 = 0,37 kW, 700 bar

5 Valve Type

0 = Dump

2 = 3-way, 2-position, normally open

3 = 3-way, 3-position, tandem center

4 = 4-way, 3-position, tandem center

6 Reservoir Capacity

01 = 5,5 litres

7 Motor Voltage and Heat Exchanger

B = 115 V, 1 Ph, 50/60 Hz ¹⁾

D = 115 V, 1 Ph, 50/60 Hz ¹⁾
with Heat Exchanger

E = 230 V, 1 Ph, 50/60 Hz ²⁾

F = 230 V, 1 Ph, 50/60 Hz ²⁾
with Heat Exchanger

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

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

Ordering Example

Model Number: PER-1301E

The PER-1301E is a 0,37 kW, 700 bar, submerged electric pump, with 5,5 litres usable oil capacity, a 3-way, 3-position, solenoid remote valve and a 230 V, 1 Phase, 50/60 Hz motor.

PE Series



Reservoir Capacity:

5,5 litres

Flow at Rated Pressure:

0,27 l/min

Motor Size:

0,37 kW

Maximum Operating Pressure:

700 bar



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: 120



Gauges

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

System Components section for a full range of gauges.

Page: 119

Z-Class, Innovation in Pump Design

ENERPAC
Hydraulic Technology Worldwide

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 pump 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 and durable low-voltage pendant features sealed switches and operates on 15 Volts.



ZU4-Electric Pump

- For manual valve operation
- User adjustable relief valve on all valves
- Oil flow 1,0 l/min at 700 bar
- Skid Bar option (see page 88-89)
- Oil level sight glass or indicators
- Single phase electric motors include motor on/off switch and overload protection

ZU4-Electric Pump with LCD

- All the features of standard electric pump
- For manual and solenoid valve operation
- Back-lit LCD provides essential user information:
 - Pump usage information, hour and cycle counts
 - Low-voltage warning and recording
 - Self-test, diagnostic and read-out capabilities
 - Pressure read-out and auto-mode pressure settings (when used with optional pressure transducer)
- All options available (see page 88-89)



ZU4-Series Pump Applications

- **Portable:** 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 & tools:** for medium to large size single- and double-acting applications and high speed.

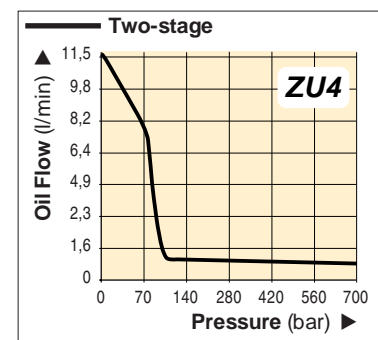
Page: 86



ZE-Series Pump Applications

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

Page: 90



▼ ZU4-SERIES PERFORMANCE CHART

Pump Series	Output Flow Rate (l/min)				Available Reservoir Sizes (useable oil) (litres)	Motor Size (kW)	Sound Level (dBA)
	low pressure at 7 bar	high pressure at 50 bar	high pressure at 350 bar	high pressure at 700 bar			
ZU4 *	11,5	8,8	1,2	1,0	4-8-10-20-40	1,25	85-90

* Two stage pump unit. Relief valve adjustment range 140-700 bar.

ZU4 & ZE-Series, Pump Types and Specifications



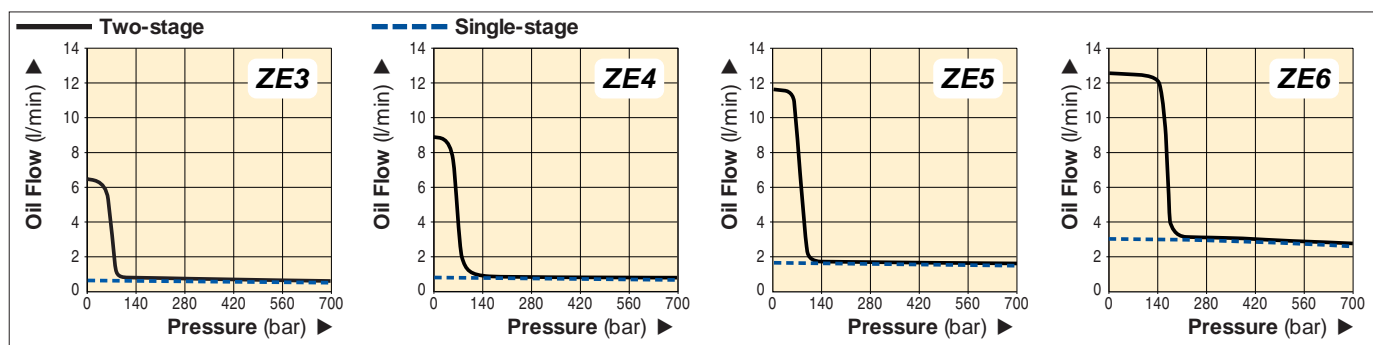
ZE-Electric Pump

- For manual valve operation
- User adjustable relief valve on all valves
- Oil flows from 0,55 to 2,73 l/min at 700 bar
- All non-electric options available (see page 92-93)
- Oil level sight glass or indicators
- Single phase electric motors include motor on/off switch and overload protection
- Carrying handles on all models.



ZE-Electric Pump with LCD-Electric Box

- For solenoid or manual valve operation
- User adjustable relief valve on all valves
- Oil flows from 0,55 to 2,73 l/min at 700 bar
- All options available (see page 92-93)
- Back-lit LCD provides essential user information:
 - Pump usage information, hour and cycle counts
 - Low-voltage warning and recording
 - Self-test, diagnostic and read-out capabilities
 - Pressure read-out and auto-mode pressure settings (when used with optional pressure transducer)
- All single and three phase units include motor control and overload protection.



▼ ZE-SERIES PERFORMANCE CHART

Pump Series	Output Flow Rate at 50 Hz * (l/min)				Pump Unit	Available Reservoir Sizes (useable oil) (litres)	Motor Size (kW)	Relief Valve Adjust- ment Range (bar)	Sound Level (dBA)
	low pressure at 7 bar	at 50 bar	high pressure at 350 bar	at 700 bar					
ZE3	0,59	0,59	0,57	0,55	Single-stage	4-8-10-20-40	0,75	70-700	75
	6,15	5,26	0,57	0,55	Two-stage				
ZE4	0,87	0,87	0,84	0,82	Single-stage	4-8-10-20-40	1,12	70-700	75
	8,88	8,20	0,84	0,82	Two-stage				
ZE5	1,75	1,72	1,68	1,64	Single-stage	10-20-40	2,24	70-700	75
	11,61	11,27	1,68	1,64	Two-stage				
ZE6	3,00	2,94	2,86	2,73	Single-stage	10-20-40	5,60	70-700	80
	12,29	12,15	2,86	2,73	Two-stage				

* Oil flow will be approximately 6/5 of these values at 60 Hz.



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.

ZU4-Series, 700 Bar Electric Pumps

ENERPAC 
Hydraulic Technology Worldwide

▼ Shown from left to right: ZU4108DE-T, ZU4420SE-H, ZU4304ME-K



- High-efficiency two-speed pump design – higher oil flow and bypass pressure, cooler running and requires 18% less current draw than comparable pumps
- Powerful 1,25 kW universal electric motor provides high power-to-weight ratio and excellent low-voltage operating characteristics
- High-strength, moulded composite shroud protects motor and electronics, while providing an ergonomic, non-conductive handle for easy transport
- Durable steel reservoirs
- LCD provides self test, diagnostic and read-out capabilities never before offered on a portable electric pump
- Designed to last and easy to service



◀ Designed to be tough, the ZU4-Series with steel reservoirs will take the abuse of today's construction sites. The ZU4908JE is the ideal pump for post tensioning applications. For post tensioning tools see page 182.

ZU4

CLASS

Tough, Dependable and Innovative



ZU4-Series Features and Options

For special requirements see factory installed features and options.

Page: 88

▼ 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 Enerpac office.

Dump Valve *)

- Ideal for punching, crimping and cutting.
- For use when load-holding is not required.

Manual Valve

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

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.

Manual Valve with Pendant *)

- For light production, lifting and post tensioning applications.
- Manual valve for single- or double-acting cylinders.
- Manual valve with power seat (VM43LPS), ideal for post-tensioning applications.

* Low-voltage control pendant with 3m. cord controls valve and motor.

www.enerpac.com

ZU4-Series, Electric Pumps



ZU4-Series Pump Applications

The ZU4-Series pump is best suited to power medium to large size cylinders or hydraulic tools, or wherever high speed, intermittent duty cycle is needed.

Patent-pending **Z-Class** technology provides high by-pass pressures for increased productivity, specifically in applications using long hose runs and high-pressure drop circuits like heavy lifting or certain double-acting cylinders and tools.

Its lightweight and compact design make it ideal for applications which require easy transport of the pump. It utilises a universal motor which will work well on long extension cords or generator driven electrical power supplies.

For further application assistance contact your local Enerpac office.



ZU4 Series



Reservoir Capacity:

4 - 40 litres

Flow at Rated Pressure:


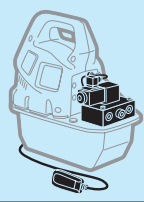
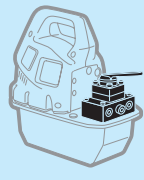
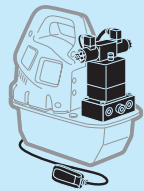
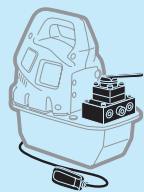
1,0 l/min

Motor Size:

1,25 kW

Maximum Operating Pressure:

700 bar

	Pump Type	For use with cylinder	Valve Function ²⁾	Valve Type ²⁾	Pump Control	Usable Oil Capacity (litres)	Model Number ¹⁾ 230 V / 1 phase ³⁾		 ⁴⁾ (kg)
							STD (Standard) Electric	LCD Electric	
	Single-Acting	Single-Acting	Advance/Retract	VE32D	Remote	4	–	ZU4104DE	28,5
	Single-Acting	Single-Acting	Advance/Retract	VE32D	Remote	8	–	ZU4108DE	33,1
							–	–	
							–	–	
							–	–	
	Single-Acting	Single-Acting	Advance/Retract	VM32	Manual	4	ZU4204ME	ZU4204LE	26,1
	Single-Acting	Single-Acting	Advance/Retract	VM32	Manual	8	ZU4208ME	ZU4208LE	31,3
	Single-Acting	Single-Acting	Advance/Hold/Retract	VM33	Manual	4	ZU4304ME	ZU4304LE	28,5
	Single-Acting	Single-Acting	Advance/Hold/Retract	VM33	Manual	8	ZU4308ME	ZU4308LE	31,7
	Double-Acting	Double-Acting	Advance/Hold/Retract	VM43	Manual	4	ZU4404ME	ZU4404LE	27,2
	Double-Acting	Double-Acting	Advance/Hold/Retract	VM43	Manual	8	ZU4408ME	ZU4408LE	31,7
	Single-Acting	Single-Acting	Advance/Hold/Retract	VE32	Remote	4	–	ZU4204SE	28,5
	Single-Acting	Single-Acting	Advance/Hold/Retract	VE32	Remote	8	–	ZU4208SE	33,1
	Single-Acting	Single-Acting	Advance/Hold/Retract	VE33	Remote	8	–	ZU4308SE	38,5
	Double-Acting	Double-Acting	Advance/Hold/Retract	VE43	Remote	8	–	ZU4408SE	38,5
							–	–	
							–	–	
	Single-Acting	Single-Acting	Advance/Retract	VM32	Remote (Man.)	4	ZU4204JE	ZU4204KE	27,2
	Single-Acting	Single-Acting	Advance/Retract	VM32	Remote (Man.)	8	ZU4208JE	ZU4208KE	31,7
	Single-Acting	Single-Acting	Advance/Hold/Retract	VM33	Remote (Man.)	8	ZU4308JE	ZU4308KE	32,2
	Double-Acting	Double-Acting	Advance/Hold/Retract	VM43	Remote (Man.)	8	ZU4408JE	ZU4408KE	32,2
							–	–	
	Double-Acting	Double-Acting	Advance/Hold/Retract	VM43LPS	Remote (Man.)	8	ZU4908JE	ZU4908KE-T	34,5

¹⁾ All models meet CE safety requirements. "E" voltage versions also meet all requirements of the European EMC-Directive.

²⁾ See pages 133-137 for hydraulic symbol of these valves.

³⁾ See custom ordering matrix on page 89 for other voltage options.

⁴⁾ Subtract 1,4 kg. for STD Electric models.

ZU4, Factory Installed Features & Options

ENERPAC 
Hydraulic Technology Worldwide


Back-lit LCD ¹⁾

- Pump usage information, hour and cycle counts
- Low-voltage warning and recording
- Self-test and diagnostic capabilities
- Information can be displayed in six different languages ²⁾

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

²⁾ English, French, German, Italian, Spanish and Portuguese.



Pressure Transducer ³⁾

- More durable than analog gauges
- More accurate than analog gauges
- Calibration can be fine tuned for certification
- Easy-viewing variable rate display
- "Set pressure" feature turns off motor at user defined pressure ⁴⁾
- Display pressure in bar, MPa or psi

³⁾ Requires LCD Electric.

⁴⁾ Or shifts valve to neutral position on pump models with VE33 and VE43 solenoid valves.



ZU4-Series Features & Options

The LCD, Pressure Transducer and Heat Exchanger are factory installed features and cannot be ordered separately. The Skidbar can be installed by customer or ordered pump mounted from factory. Refer to pages 86-87 for selection chart and page 89 for ordering matrix.



Pressure Transducer

This pressure transducer is 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 3, 14, 35 and 145 bar as rate of pressure change increases.
- "Set pressure" feature turns off motor at user defined pressure (or shifts valve to neutral on models with VE33 and VE43 solenoid valves).



Heat Exchanger ⁵⁾

- 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

⁵⁾ Requires LCD Electric. Heat Exchanger adds 4,1 kg to pump weight.



Skidbar ⁶⁾

- Provides easy two-hand lift
- Provides greater pump stability on soft or uneven surfaces
- Also available as kit (Modelnr. SBZ-4)

⁶⁾ 4 and 8 litres reservoirs only. Skidbar adds 2,2 kg to pump weight.



Heat Exchanger

Can be factory installed on ZU4-Series LCD Electric pumps.

- Extends system life.
- Stabilizes oil temperature at a maximum of 54 °C at 21 °C ambient temperature.

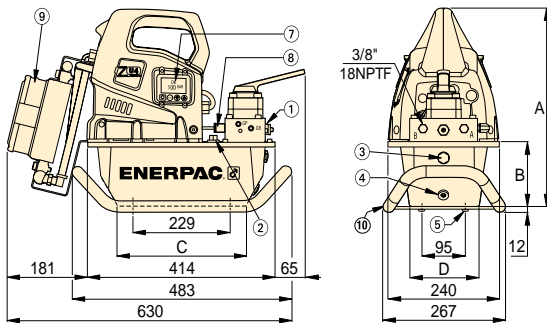
Do not exceed maximum oil flow and pressure ratings. Heat exchanger is not suitable for water-glycol or high water based fluids.

Thermal Transfer *		Maximum pressure	Maximum oil flow	Voltage
Btu/h	kJoule	(bar)	(l/min)	(VDC)
900	950	20,7	26,5	12

* At 1,9 l/min at 21 °C ambient temperature.

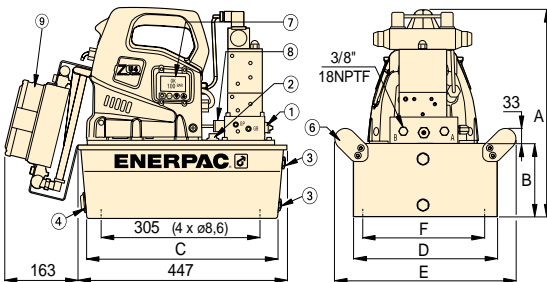
ZU4-Series, Dimensions & Ordering Matrix

ZU4-Series with 4 and 8 litres reservoirs



ZU4-Series with 10, 20 and 40 litres reservoirs

(left view shown without side handle)



ZU4 Dimensions (mm)					
	Reservoir Size (liter)				
	4	8	10	20	40
A	432	495	447	472	559
B	142	203	155	180	270
C	279	287	419	414	399
D	152	167	305	422	505
E	—	—	384	501	576
F	—	—	279	396	480

- ① User adjustable relief valve.
- ② Oil fill port SAE #10 7/8"-14 UNF-2B.
- ③ Oil level sight gauge.
- ④ Oil drain 1/2" NPTF.
- ⑤ M8, 12 mm deep.
- ⑥ Handles on all 10, 20 and 40 litres reservoirs.

Factory installed features & options:

- ⑦ Back-lit LCD Electric.
- ⑧ Pressure transducer.
- ⑨ Heat Exchanger
- ⑩ Skid Bar (Modelnr. SBZ-4). Fits 4 and 8 litres reservoirs.

ZU4 Series



Reservoir Capacity:

4 - 40 litres

Flow at Rated Pressure:

1,0 l/min

Motor Size:

1,25 kW

Maximum Operating Pressure:

700 bar

See page 84 for ZU4-Series flow diagram

▼ This is how a ZU4-Series pump model number is built up:

1	2	3	4	5	6	7	8
Z	U	4	1	04	D	E	- H K T
Product Type	Motor Type	Flow Group	Valve Type	Reservoir Size	Valve Operation	Voltage	Factory installed features and options

1 Product Type

Z = Pump Class

2 Prime Mover

U = Universal electric motor

3 Flow Group

4 = 1,0 l/min @700 bar

4 Valve Type

(see page 133-137 for valve details)

- 1** = Dump **VE32D**
- 2** = 3-way, 2-pos. manual **VM32** or electric **VE32**
- 3** = 3 way, 3 pos. manual **VM33** or electric **VE33**
- 4** = 4 way, 3 pos. manual **VM43** or electric **VE43**
- 6** = 3 way, 3 pos. manual locking valve **VM33-L** with pilot operated check.
- 8** = 4 way, 3 pos. manual locking valve **VM43-L** with pilot operated check.

5 Reservoir Size

(usable oil capacity)

- 04** = 4 litres
 - 08** = 8 litres
 - 10** = 10 litres¹⁾
 - 20** = 20 litres¹⁾
 - 40** = 40 litres¹⁾
- ¹⁾ reservoir includes side handles.

6 Valve Operation

- D** = Dump (solenoid valve with pendant and LCD Electric)
- J** = Jog (manual valve with pendant and Standard Electric i.e. without LCD)
- K** = Jog (manual valve with pendant and LCD Electric)
- L** = Manual valve with LCD Electric (without pendant)
- M** = Manual valve with Standard Electric (i.e. without LCD, without pendant)
- S** = Solenoid valve with pendant and LCD Electric.

7 Voltage

- B** = 115V, 1 phase, 50/60 Hz
 - E²⁾** = 208-240V, 1 phase, 50/60 Hz (with European plug EMC directive compliant).
 - I** = 208-240V, 1 phase, 50/60 Hz (with NEMA 5-15 plug).
- ²⁾ E-voltage meet all CE requirements.

8 Factory installed features & options

(see page 88 for details)

- H** Heat exchanger (requires pump with LCD Electric) adds 4,1 kg.
- K** Skid bar (fits 4 and 8 litres reservoir) adds 2,2 kg.
- T** Pressure transducer (requires pump with LCD Electric).

ORDERING EXAMPLES

Model Nr: **ZU4104DE-HKT**

Two stage LCD Electric pump with dump valve and 4 litres reservoir, 230V motor, heat exchanger, skidbar and pressure transducer.

Model Nr: **ZU4408JE**

Two stage STD (standard) Electric pump with manual valve with pendant (jog) and 8 litres reservoir, 230V motor.

ZE-Series, 700 Bar Electric Pumps

ENERPAC 
Hydraulic Technology Worldwide

▼ Shown from left to right: ZE3208MW, ZE5420SW-FHR



Z







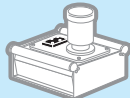
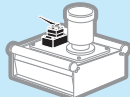

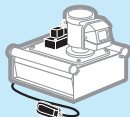
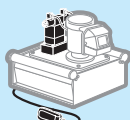
CLASS

The New Standard for Industrial Applications



Oil Level Glass

All ZE-Series pumps have an oil sight glass and steel reservoirs. Full sight oil level glass on 10, 20 and 40 litres reservoirs, oil level indicators on 4 and 8 litres reservoirs.

PUMP CONFIGURATIONS		Pump Type	Used with Tool or Cylinder		Valve Function ¹⁾			Valve ¹⁾ Model Number	Useable Oil Capacity (litres)	
For options and other model numbers see ordering matrix or contact your Enerpac office.										
Page: 										
No Valve, without Electric Box ²⁾ <ul style="list-style-type: none">For remote valves or pump mounting Enerpac VM-series valvesFor remote valve mounting order BSS1090 high pressure connecting plate.								–	4	
								–	10	
								–	20	
								–	40	
MANUAL VALVE CONTROL	With Manual Valve, without Electric Box <ul style="list-style-type: none">For single-acting or double-acting applicationsOn/off switch on 1-phase electric motor.		●	–	●	–	●	VM32	4	
			●	–	●	●	●	VM33	8	
			●	–	●	●	●	VM33L	10	
			–	●	●	●	●	VM43	20	
			–	●	●	●	●	VM43L	40	
	With Manual Valve, with Electric Box <ul style="list-style-type: none">For single-acting or double-acting applicationsOn/off switch on 1-phase electric motorAll options available.		●	–	●	–	●	VM32	4	
				●	–	●	–	●	VM32	8
				●	–	●	●	●	VM33	10
				●	–	●	●	●	VM33L	10
				–	●	●	●	●	VM43	20
			–	●	●	●	●	VM43L	40	
REMOTE VALVE CONTROL	With Solenoid Dump Valve, with Electric Box <ul style="list-style-type: none">Ideal for punching, crimping and cuttingFor use when load holding is not requiredPush-button pendant ³⁾ controls valve and motorAll options available.		●	–	●	–	●	VE32D	4	
			●	–	●	–	●	VE32D	8	
			●	–	●	–	●	VE32D	10	
			●	–	●	–	●	VE32D	20	
			●	–	●	–	●	VE32D	40	
	With Solenoid 3-position Valve, with Electric Box <ul style="list-style-type: none">Ideal for production and lifting applications3-position valves (advance/hold/retract)Push-button pendant ³⁾ controls valve and motorAll options available.		●	–	●	●	●	VE33	4	
				●	–	●	●	●	VE33	8
				●	–	●	●	●	VE33	10
				–	●	●	●	●	VE43	10
				–	●	●	●	●	VE43	20
				–	●	●	●	●	VE43	40

¹⁾ See Valve Section for hydraulic symbols and details.

²⁾ For No Valve, with Electric Box, see ordering matrix on page 95.

³⁾ Pendant includes 3 meters cord.

ZE-Series, 700 Bar Electric Pumps

- High-efficiency pump design – higher oil flow and bypass pressure, cooler running and requires 18% less current draw than comparable pumps
- High-strength, moulded 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 supply extended life and stand up to harsh industrial environment
- 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
- 40 micron filter breather with splash guard
- Durable steel reservoirs.

ZE Series



Reservoir Capacity:

4 - 40 litres

Flow at Rated Pressure:





0,55 - 2,73 l/min

Motor Size:

0,75 - 5,60 kW

Maximum Operating Pressure:

700 bar

ZE3-Series 0,55 l/min at 700 bar Two-stage pump		ZE4-Series 0,82 l/min at 700 bar Two-stage pump		ZE5-Series 1,64 l/min at 700 bar Two-stage pump		ZE6-Series 2,73 l/min at 700 bar Two-stage pump	
Model Nr. ⁴⁾	 (kg)	Model Nr. ⁴⁾	 (kg)	Model Nr. ⁴⁾	 (kg)	Model Nr. ⁴⁾	 (kg)
400V / 3 phase		400V / 3 phase		400V / 3 phase		400V / 3 phase	
ZE3004NW	36	ZE4004NW	40	—	—	—	—
ZE3010NW	45	ZE4010NW	49	ZE5010NW	54	ZE6010NW	72
ZE3020NW	57	ZE4020NW	61	ZE5020NW	66	ZE6020NW	84
ZE3040NW	80	ZE4040NW	84	ZE5040NW	89	ZE6040NW	107
ZE3204MW	39	ZE4204MW	43	—	—	—	—
ZE3308MW	44	ZE4308MW	48	—	—	—	—
ZE3610MW	50	ZE4610MW	54	ZE5610MW	59	ZE6610MW	77
ZE3420MW	60	ZE4420MW	64	ZE5420MW	69	ZE6420MW	87
ZE3840MW	85	ZE4840MW	89	ZE5840MW	94	ZE6840MW	112
ZE3204LW	42	ZE4204LW	46	—	—	—	—
ZE3208LW	47	ZE4208LW	51	—	—	—	—
ZE3310LW	51	ZE4310LW	55	ZE5310LW	60	ZE6310LW	78
ZE3610LW	53	ZE4610LW	57	ZE5610LW	62	ZE6610LW	80
ZE3420LW	63	ZE4420LW	67	ZE5420LW	72	ZE6420LW	90
ZE3840LW	88	ZE4840LW	92	ZE5840LW	97	ZE6840LW	115
ZE3104DW	44	ZE4104DW	48	—	—	—	—
ZE3108DW	49	ZE4108DW	53	—	—	—	—
ZE3110DW	53	ZE4110DW	57	ZE5110DW	62	ZE6110DW	79
ZE3120DW	65	ZE4120DW	69	ZE5120DW	74	ZE6120DW	92
ZE3140DW	88	ZE4140DW	92	ZE5140DW	97	ZE6140DW	115
ZE3304SW	49	ZE4304SW	53	—	—	—	—
ZE3308SW	54	ZE4308SW	58	—	—	—	—
ZE3310SW	58	ZE4310SW	62	ZE5310SW	67	ZE6310SW	85
ZE3410SW	58	ZE4410SW	62	ZE5410SW	67	ZE6410SW	85
ZE3420SW	70	ZE4420SW	74	ZE5420SW	79	ZE6420SW	97
ZE3440SW	93	ZE4440SW	97	ZE5440SW	102	ZE6440SW	120

⁴⁾ See custom ordering matrix on page 95 for other voltages.



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.

Page: 95



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, Factory Options & Accessory Kits

ENERPAC 
Hydraulic Technology Worldwide


Electric Box ¹⁾

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

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

²⁾ When used with optional pressure transducer.

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



Level/Temperature Switch ⁴⁾

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

⁴⁾ 24 V, requires Electric Box. Available for 10, 20 and 40 litres reservoirs.

Access- sory Kit Modelnr.	Fixed Temperature Signal (°C)	Operating Tempe- rature (°C)	Max. Pressure (bar)
ZLS-U4 *	80	5 - 110	10

* Add suffix **L** for factory installation.



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.

Access- sory Kit Modelnr.	Maximum Pressure (bar)	Maximum Oil Flow (l/min)	By-pass Setting (bar)
ZPF *	13,8	45,4	1,7

* Add suffix **F** for factory installation.



Roll Bars

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



Skid Bar


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




Foot Switch ⁵⁾

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

⁵⁾ 15 V, requires Electric Box.

Accessory Kit Nr.	Fits on reservoir	 (kg)
ZRB-04 *	4 and 8 litres	5,5
ZRB-10 *	10 litres	6,0
ZRB-20 *	20 litres	6,0
ZRB-40 *	40 litres	6,0

* Add suffix **R** for factory installation.

Access- sory Kit Nr.	For ZE-Series pumps with reservoir	 (kg)
SBZ-4 *	4-8 ltr, without heat exchanger	2,2
SBZ-4L *	4-8 ltr, with heat exchanger	3,2

* Add suffix **K** for factory installation.

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

* Add suffix **U** for factory installation.

Factory Options & Accessory Kits for ZE-Series Pumps



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.

¹⁾ 24 V, requires Electric Box.

Access- ory Kit Modelnr.	Adjustable Pressure Range (bar)	Switch- point repea- tability	Dead- band (bar)
ZPT-U4 *	3,5 - 700	± 0,5%	3,5

* Add suffix **T** for factory installation.



Pressure Switch ²⁾

- Controls pump, monitors system
- Adjustable pressure 35-700 bar
- Includes glycerine filled 1000 bar pressure gauge G2536L
- Accuracy ± 1,5% of full scale.

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

Access- ory Kit Modelnr.	Switch- point repea- tability	Deadband (bar)	Oil Ports (NPT)
ZPS-E3 *	± 2%	8 - 38	3/8"

* Add suffix **P** for factory installation.



Pendants ³⁾

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

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

Pendant Model Nr.	To be used with solenoid valve:
ZCP-1	VE32D
ZCP-3	VE32, VE33, VE43



Heat Exchanger ⁴⁾

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

Accessory Kit Nr.	Fits on reservoir	(kg)
ZHE-E04 *	4 and 8 litres	4,1
ZHE-E10 *	10, 20 and 40 litres	4,1

⁴⁾ 24 VDC, requires electric box.

* Add suffix **H** for factory installation.



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 95 for ordering matrix.

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

¹⁾ Available for 4 and 8 litres reservoirs.

²⁾ Not available on pumps with pressure transducer.

³⁾ Includes 1000 bar gauge. Only available on manual valves without locking feature.

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

⁵⁾ Available for 10, 20 and 40 litres 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 0,5% of full scale.
- Easy-viewing variable rate display automatically varies increments between 3, 14, 35 and 145 bar 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).



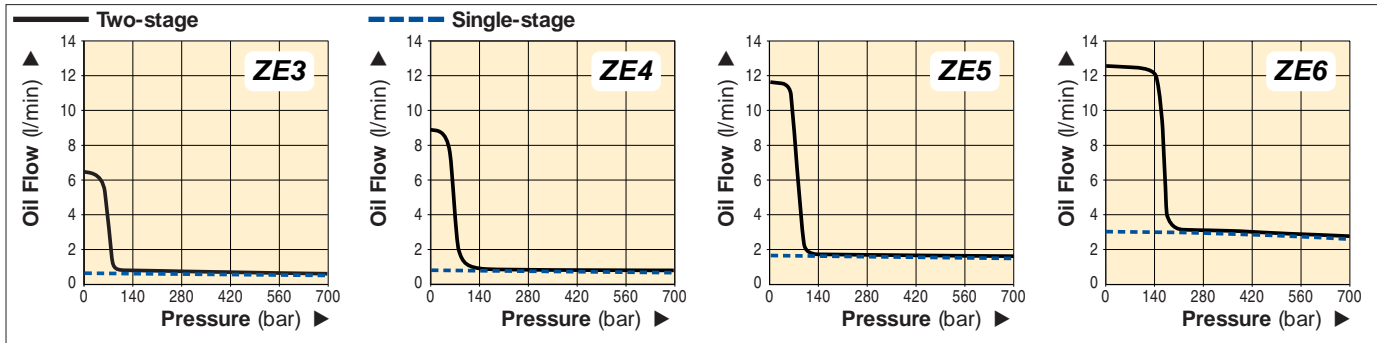
ZHE-Series Heat Exchangers

Heat exchanger stabilizes oil temperature at 54 °C at 21 °C ambient temperature. Thermal transfer at 1,9 l/min and 21 °C ambient temperature: 900 Btu/hour [950 kJ].

Do not exceed max. oil flow of 26,5 l/min and max. pressure of 20,7 bar.

Not suitable for water-glycol or high water based fluids.

ZE-Series, Specifications & Dimensions

ENERPAC 
Hydraulic Technology Worldwide


▼ ZE-SERIES PERFORMANCE CHART

Pump Series	Output Flow Rate at 50 Hz * (l/min)				Pump Unit	Available Reservoir Sizes (useable oil) (litres)	Motor Size (kW)	Relief Valve Adjustment Range (bar)	Sound Level (dBA)
	low pressure at 7 bar	at 50 bar	high pressure at 350 bar	at 700 bar					
ZE3	0,59	0,59	0,57	0,55	Single-stage	4-8-10-20-40	0,75	70-700	75
	6,15	5,26	0,57	0,55	Two-stage				
ZE4	0,87	0,87	0,84	0,82	Single-stage	4-8-10-20-40	1,12	70-700	75
	8,88	8,20	0,84	0,82	Two-stage				
ZE5	1,75	1,72	1,68	1,64	Single-stage	10-20-40	2,24	70-700	75
	11,61	11,27	1,68	1,64	Two-stage				
ZE6	3,00	2,94	2,86	2,73	Single-stage	10-20-40	5,60	70-700	80
	12,29	12,15	2,86	2,73	Two-stage				

* Oil flow will be approximately 6/5 of these values at 60 Hz.

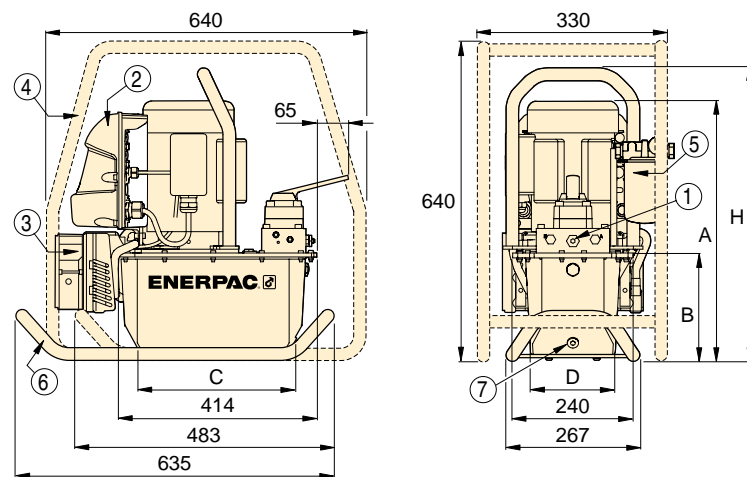


Single or Two-Stage

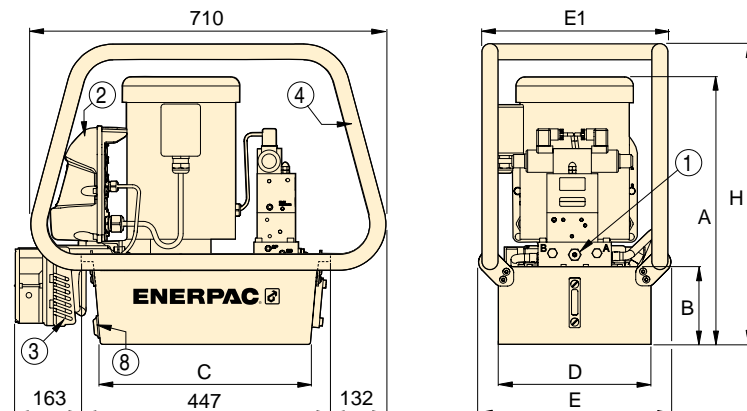
Choose single-stage pumps for

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 4 - 8 litres reservoir



ZE-Series Pumps with 10 - 20 - 40 litres reservoir

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

③ Heat Exchanger

④ Roll Bar

⑤ Return Line Filter

⑥ Skid Bar

⑦ Oil Drain

⑧ Oil Drain / Oil Level/Temperature Switch

Reservoir Size (useable oil) (litres)	ZE-Series Pump Dimensions (mm)						
	A	B	C	D	E	E1	H
4	457	143	279	152	—	—	520
8	519	205	287	168	—	—	582
10	533	155	419	305	384	340	600
20	558	180	419	422	501	490	625
40	648	270	399	505	576	572	715

ZE-Series, Pump Ordering Matrix

▼ This is how ZE-Series pump model numbers are built up:

1	2	3	4	5	6	7	8
Z	E	4	1	10	D	W	- F H L T
Product Type	Motor Type	Flow Group	Valve Type	Reservoir Size	Valve Operation	Motor Voltage	Factory installed options

1 Product Type

Z = Pump Class

2 Prime Mover

E = Induction electric motor

3 Flow Group

- 3** = 0,55 l/min @ 700 bar (0,75 kW)
- 4** = 0,82 l/min @ 700 bar (1,12 kW)
- 5¹⁾** = 1,64 l/min @ 700 bar (2,24 kW)
- 6¹⁾** = 2,73 l/min @ 700 bar (5,60 kW)

4 Valve Type

- 0** = No valve, with coverplate
- 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.

5 Reservoir Size, useable oil

- 04²⁾** = 4 litres
- 08²⁾** = 8 litres
- 10** = 10 litres
- 20** = 20 litres
- 40** = 40 litres

8 Factory installed options

- F** = Return Line Filter
- G⁶⁾** = 1000 bar gauge
- H⁷⁾** = Heat exchanger
- K** = Skid Bar (only on 4-8 litres)
- L⁷⁾** = Oil Level/Temperature Switch ⁸⁾
- N** = No reservoir handles (includes lifting eyes)
- P⁷⁾** = Pressure Switch
- R** = Roll Bar
- S** = Single-stage pump unit
- T⁷⁾** = Pressure transducer ⁹⁾
- U⁷⁾** = Foot Switch

¹⁾ ZE5 and ZE6-Series only available with 3-phase electric motors.

²⁾ 4 and 8 litres only available on ZE3 and ZE4-Series.

³⁾ 1-phase motors only available on ZE3 and ZE4-Series.

⁴⁾ 208-240V, 1 ph with European plug EMV directive compliant.

⁵⁾ Models with 3-ph motors without Electric Box shipped without cord, motor starter or overload protection.

⁶⁾ Not available on pumps with pressure transducer (T).

⁷⁾ Requires Electric Box.

⁸⁾ Not available on 4 and 8 litres reservoir.

⁹⁾ Provides digital pressure read-out on LCD-display of electric box.

¹⁰⁾ When using solenoid valve on valve type "W" order optional pendant.

All Z-Class electric pumps comply with CSA and CE requirements.



ZE Series



Reservoir Capacity:

4 - 40 litres

Flow at Rated Pressure:

0,55 - 2,73 l/min

Motor Size:

0,75 - 5,60 kW

Maximum Operating Pressure:

700 bar



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:

ZE4210ME-S

ZE4-Series pump, oil flow 0,82 l/min at 700 bar, VM32 manual valve, 10 litres reservoir, without electrical box, without pendant, 240 Volt 1-phase electric motor and single-stage pump unit.

ZE3120DW-S

ZE3-Series pump, oil flow 0,55 l/min at 700 bar, VE32D solenoid dump valve, 20 litres reservoir, with electrical box, without pendant, 400 Volt 3-phase electric motor and single-stage pump unit.



Pendants

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

8000 and 9000-Series, Electric Pumps

ENERPAC
Hydraulic Technology Worldwide

▼ Shown: PPE-9483-4



- Single-speed operation with two and four independent split-flow outlets
- Two-speed operation with high-flow outlet
- Oil delivery of each outlet remains equal regardless of pressure
- 60 litres usable oil capacity allows operation of a wide range of cylinders
- Powerful 4 and 9,5 kW motor, available in three voltage options

▼ To lift a rigid construction, four double-acting RR-2006 cylinders are powered by a 4-split electric PPE-9483-4 pump.



The Axial Piston Pump with four independant outlets



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: 120



Gauges

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

System Components section for a full range of gauges.

Page: 119



Locking Valves

Pumps with VM33 or VM43 manual valves may be ordered with locking valves. This locking feature provides

a hydraulic lock for the cylinder using pilot-operated check valves.

To order this option, just place an "L" suffix at the end of the model number. For more information, contact your local Enerpac office.

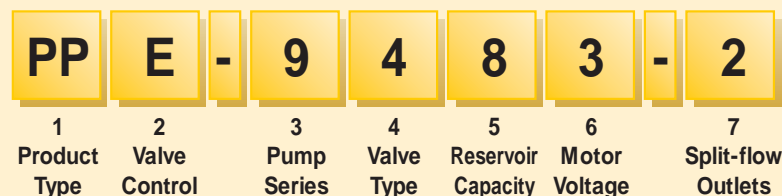
Page: 133

Pump Type	Motor Size (kW)	Usable Oil Capacity (litres)	Pump Series*	Pressure Rating (bar)		Output Flow Rate (l/min)	
				1st stage	2nd stage	1st stage	2nd stage
Two-speed	4,0	60	PPN-8000	190	700	14,5	1 x 4,2
	9,5	60	PPN-9000	300	700	14,5	1 x 8,0
Single-speed	9,5	60	PPN-9000-2	—	700	—	2 x 5,0
	9,5	60	PPN-9000-4	—	700	—	4 x 2,5

* The "N" in the model number stands for No Valve. All pump models can be ordered with Manual or Solenoid Valves. See selection chart on next page.

8000 and 9000-Series, Electric Pumps

▼ This is how 8000- and 9000-Series Pump Model Numbers are built up:



1 Product Type

PP = Power Pump

2 Valve Control

N = No Valve
M = Manual
E = Solenoid (Electrical)

3 Pump Series

8 = 8000-Series, 4 kW
9 = 9000-Series, 9,5 kW

4 Valve Type

0 = No Valve
3 = 3-way, 2-position, manual valve (VM33)
4 = 4-way, 3-position, manual (VM43) or solenoid valve (VE43)

5 Reservoir Capacity

8 = 80 litres (usable 60 ltr)

6 Motor Voltage*

3 = 400 V, 3 ph, 50 Hz
5 = 230 V, 3 ph, 50 Hz
6 = 440 V, 3 ph, 50 Hz

* In the selection chart below only 400V models (suffix 3) are shown. To order 230V or 440V models, change this suffix to 5 or 6.

7 Split-Flow Outlets

9000-Series only
2 = 2 equal flow outlets of 5,0 l/min. at 700 bar
4 = 4 equal flow outlets of 2,5 l/min. at 700 bar

PP Series



Reservoir Capacity:

80 litres

Flow at Rated Pressure:

4 x 2,5 to 8,0 l/min

Motor Size:

4,0 - 9,5 kW

Maximum Operating Pressure:

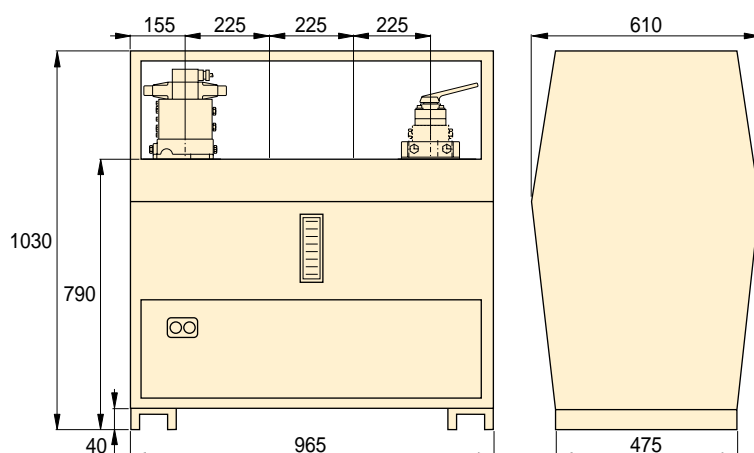
700 bar



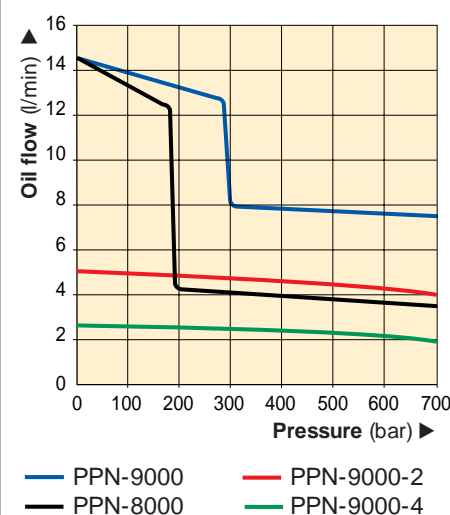
Speed Chart

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

Page: 117



FLOW CHART



Used with Cylinder*	Valve Control	Valve Function			Valve Model Number	8000-Series High-flow outlet		9000-Series High-flow outlet		9000-Series 2 Split-flow outlets		9000-Series 4 Split-flow outlets	
						Model Number	(kg)	Model Number	(kg)	Model Number	(kg)	Model Number	(kg)
—	—	—	—	—	—	PPN-8083	274	PPN-9083	303	PPN-9083-2	304	PPN-9083-4	328
•	Manual	•	•	•	VM33	PPM-8383	275	PPM-9383	316	PPM-9383-2	319	PPM-9383-4	333
•	Manual	•	•	•	VM43	PPM-8483	275	PPM-9483	316	PPM-9483-2	319	PPM-9483-4	333
•	Solenoid	•	•	•	VE43	PPE-8483	286	PPE-9483	330	PPE-9483-2	340	PPE-9483-4	372

* = Single-Acting = Double-Acting

Turbo II Air Hydraulic Pumps

ENERPAC 
Hydraulic Technology Worldwide

▼ Shown from top to bottom: PAMG-1402N, PARG-1102N, PATG-1102N, PATG-1105N



- External adjustable pressure relief valve (behind sight glass)
- Lower air consumption and operating costs
- Return-to-tank port for use in remote valve applications
- Internal pressure relief valve provides overload protection
- Quieter operation – reduced noise level to 75 dBA reduces operator fatigue
- Operating air pressure: 1,7-8,6 bar, enables pump to start at extremely low pressure
- High efficiency cast aluminium air motor
- Reinforced heavy-duty lightweight reservoir for applications in tough environments
- Air pendant for remote control operation
- Composite air piston seal allows operation on completely dry air supply.

▼ Easily operated by hand or by foot.



Setting New Standards... ... in efficiency and reliability



RFL-102 Regulator-Filter-Lubricator

Recommended for use with all Turbo air pumps.

Provides clean, lubricated air and allows for air pressure adjustment. Steel bowl guards are standard.



Large Reservoir Models

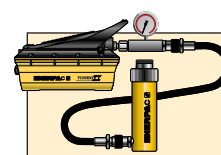
The Turbo II Air Pump is also available with an enlarged reservoir: **PATG-1105N**, **PAMG-1405N** and **PARG-1105N**.



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: 120



Pump and Cylinder Sets

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

Page: 64

Used with Cylinder	Usable Oil Capacity (cm ³)	Model Number
Single-Acting	2081	PATG-1102N*
	3770	PATG-1105N
Single-Acting	2081	PARG-1102N
	3770	PARG-1105N
Double-Acting	2081	PAMG-1402N
	3770	PAMG-1405N

* Available as set. See note at this page.

Turbo II Air Hydraulic Pumps

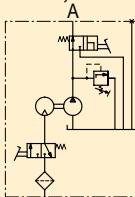


PATG-models use a foot or hand operated treadle to control air and valve functions.

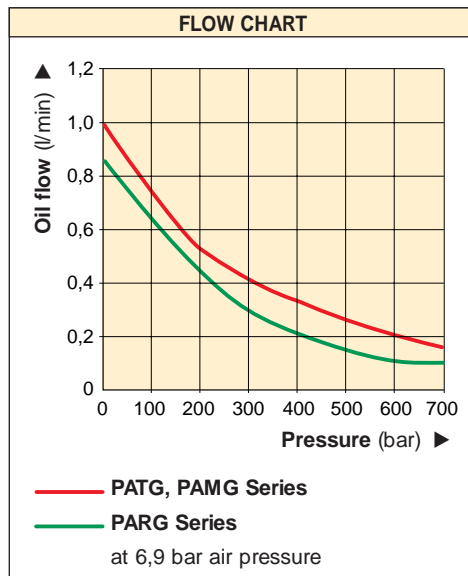
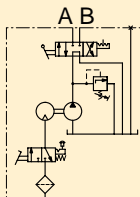
PAMG-models use a treadle with a locking feature to control air, and a 4-way manual valve to control hydraulics.

PARG-models use air pendant for remote control.

PATG, PARG



PAMG



PATG PAMG PARG Series



Reservoir Capacity:

2,5 - 5,0 litres

Flow at Rated Pressure:

0,08 - 0,16 l/min

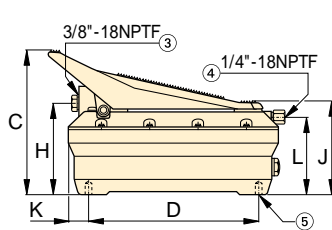
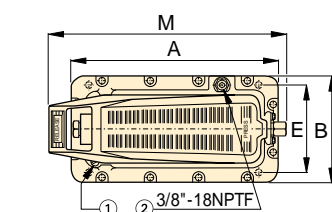
Air Consumption:

227 - 340 l/min

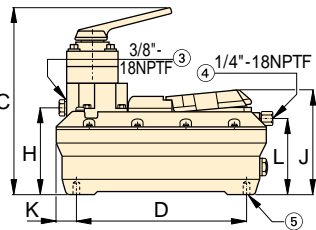
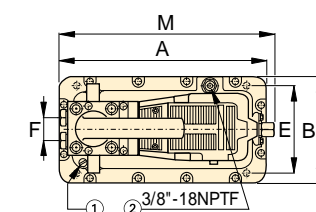
Maximum Operating Pressure:

700 bar

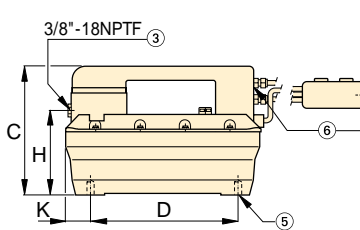
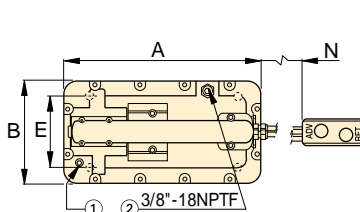
Maximum Pressure (bar)	Output Flow Rate (l/min) air supply to pump		air supply to pendant		Pump Series	Valve function	Air Pressure Range (bar)	Air Consumption air supply to (l/min) @ 5,2 bar air		Sound Level (dBA)
	No Load	Load	No Load	Load				Pump	Pendant	
700	1,00	0,16	—	—	PATG	Advance / Hold / Retract	1,7 - 8,6	340	—	75
700	0,76	0,08	0,84	0,10	PARG	Advance / Hold / Retract	2,8 - 10,3	227	285	75
700	1,00	0,16	—	—	PAMG	Advance / Hold / Retract	1,7 - 8,6	340	—	75



**PATG-1102N
PATG-1105N**




**PAMG-1402N
PAMG-1405N**



**PARG-1102N
PARG-1105N**

- ① Filtered 'Permanent' Tank Vent
- ② Return-to-Tank/Auxiliary Vent/Fill Tank Port
- ③ Hydraulic Output
- ④ Swivel Air Input with Filter
- ⑤ 4 Mounting Holes for #10 thread forming screw. Maximum depth into reservoir = 19 mm
- ⑥ Air Input with Filter on PARG models 1/4" - 18NPTF

	Valve Operation	Turbo II Dimensions (mm)													Model Number
		A	B	C	D	E	F	H	J	K	L	M	N		
														kg	
	Treadle 3/3	313	165	211	230	102	—	129	146	42	113	347	—	8,2	PATG-1102N*
		396	201	209	230	102	—	131	146	86	112	437	—	9,9	PATG-1105N
	Air Pendant 3/3	313	165	200	230	102	—	129	—	42	—	—	4500	10,0	PARG-1102N
		396	201	209	230	102	—	131	—	86	—	—	4500	11,7	PARG-1105N
	Manual 4/3	313	165	267	230	102	36	130	152	42	113	315	—	11,0	PAMG-1402N
		396	201	267	230	102	36	132	152	86	112	405	—	12,7	PAMG-1405N