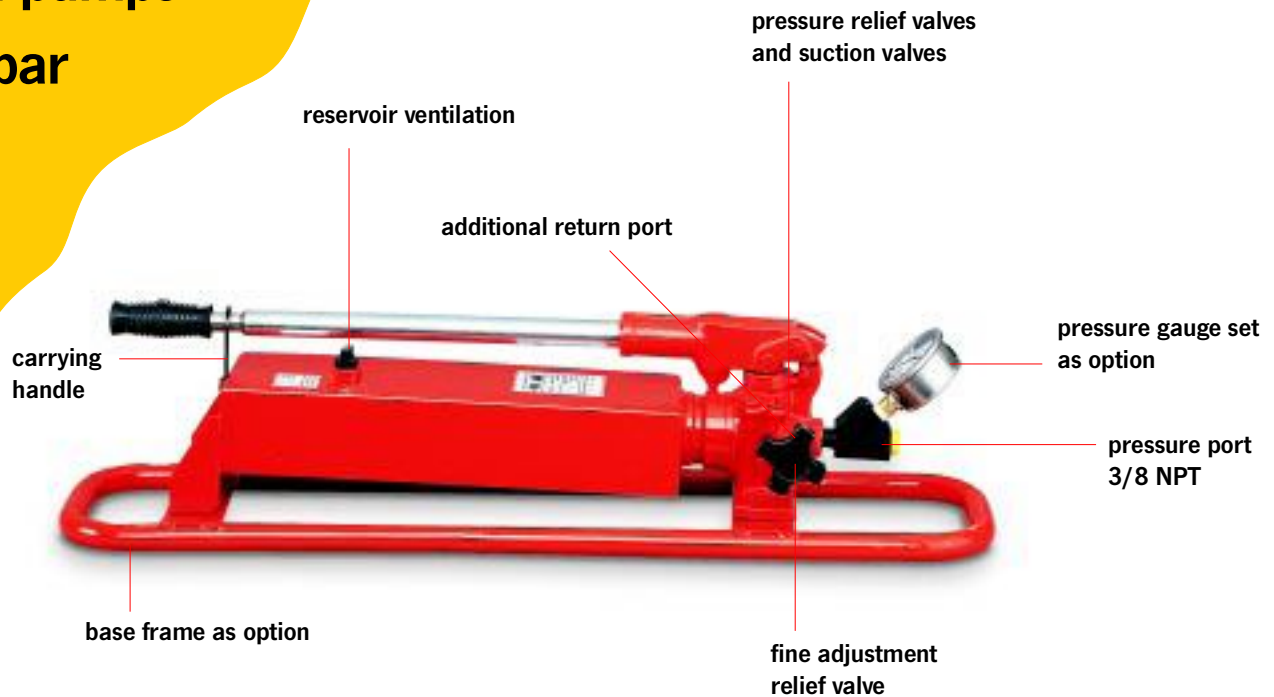


## Hand pumps 700 bar



### Build-up and description of the Yale hand pumps

Hand pumps are the most common power source within the area of “High Pressure Hydraulic Tools”. For this reason our hand pumps have been carefully designed and equipped with many details which make the pumps very versatile and handy in every-day applications.

#### Relief valve / hand wheel

The fine adjustment relief valve in connection with the large hand wheel allows by millimeter increments lifting and lowering even of the highest loads. The fact that sometimes hundreds of tons are controlled by this hand wheel, underlines the importance of this detail.

#### Sturdy “all-metal-design”

The robust pump head and the absence of any plastic parts result in long service life and easy maintenance over many years. Plastic reservoirs filled with oil can represent a fire danger in connection with welding or similar work.

#### Carrying handle

Hand pumps in general are often carried around. All Yale hand pumps are equipped with a convenient carrying handle.

#### Pressure relief valves

All Yale hand pumps are equipped with two pressure relief valves. They are easily adjustable from outside in those cases where pumps must be re-adjusted or a lower operating pressure should not be exceeded.

#### Reservoir ventilation

All hand pumps are equipped with a reservoir ventilation plug. This ensures perfect suction of hydraulic oil and allows you to use the total oil capacity of the reservoir.

#### Two-stage output

All Yale hand pumps have two-stage design (except HPS - 1/0,7). This allows an increased speed and efficient working during unloaded conditions of the hydraulic cylinder. The switch-over from the low pressure to the high pressure stage is done automatically.

#### Delivered “ready to use”

All Yale hand pumps are supplied “ready to use“ incl. hydraulic oil.

#### “Easy-maintenance-design”

There is no need to disassemble the Yale hand pumps in case of service work. All parts like suction and pressure valves, seals, packings etc. are accessible from the outside.

### All hand pumps have the same design

The same design (build-up) for all Yale hand pumps with the exception of the reservoirs allows the interchangeability of all components. Therefore spare part stocks can be kept to an absolute minimum. Only one spare part kit is necessary to service all hand pumps.

### Excellent suction properties

Yale hand pumps suck and displace 100 % of their volume per stroke. This results both in a high efficiency as well as a rapid cylinder movement.

### Interchangeability

All Yale hydraulic cylinders, hand pumps and other components are fully interchangeable and can be combined with all other 700 bar hydraulic lines. All components have the standard oil port and same coupler parts.

### Additional “return oil port“

All Yale hand pumps are equipped with a return port to the reservoir. This detail is very advantageous as many hand pumps are integrated in more complex hydraulic circuits.

### Base frame

On request you can get base frames for the most common hand pumps. These base frames add to the stability and protection of the hand pumps, in particular when used in the field or on a construction site (see page 27).

### Pressure gauges

Appropriate pressure gauges with the corresponding adaptors are shown on page 47.



### Hand pump type: HPH...

with integrated pressure gauge GGY - 631 and gauge adaptor set GA - 704

## Hand pumps for double-acting cylinders with relief valve and 4/2-way directional valve (in combination)

Unlike conventional pumps, all Yale hand pumps of the type HPH (with 4/2-way directional valve for double acting cylinders) include a precision relief valve in addition to the directional control valve. Manual directional control valves switch over abruptly, thus causing undesired pressure surges in the system under load. The additional relief valve in all HPH-hand pumps allows a precise lowering of the load without any pressure shocks.

### Further advantage of this design:

The pressure gauge shows the pressure as pushing and as pulling force.

**Selection chart “cylinder/hand pumps“  
please find on page 74**

## Hand pumps 700 bar

HPS  
HPH



from top:  
HPS - 2/4,  
HPS - 2/2 with GYA - 63,  
HPS - 2/0,7,  
HPS - 2/0,3

### Hand pumps for single-acting cylinders with relief valve (hand wheel)

Model	Reservoir volume cm <sup>3</sup>	Displacement		Weight kg
		1. stage cm <sup>3</sup>	2. stage cm <sup>3</sup>	
HPS - 1/0,7	700	-	2,0	7,0
HPS - 2/0,3	300	5	1,0	3,5
HPS - 2/0,7	700	11	2,0	7,0
HPS - 2/2	2000	11	2,0	10,0
HPS - 2/4	4000	11	2,0	13,0
HPS - 2/6,5	6500	11	2,0	21,0
HPS - 2/10	10000	11	2,0	27,0

Typical combinations,  
speed and selection charts on pages 71 to 77.  
Dimensions on page 82.

### Hand pumps for single-acting and double-acting hydraulic cylinders

Yale hand pumps are easy to use and operate independently of any external energy source. They are designed for maximum 700 bar system pressure and will allow each Yale hydraulic cylinder to utilize its maximum capacity.

The two stage system reduces pumping time. Stage 1 allows rapid piston travel under no load or light load conditions. The pump automatically switches to stage 2 when the piston is loaded and a higher force is required.

The Yale hand pump is an all-steel construction designed for rough use and has a high-efficiency pumping action. The handle can be locked for easy carrying. The large and easy to control return valve allows the operator to precisely control the return stroke. Other standard features include a large and easy to control hand wheel, air bleeding and oil filling plug, large support feet for stability, tilted tank to increase usable oil volume and ergonomic handle grip.

#### Features

- operating pressure 700 bar
- two stage operation with automatic switch-over (except HPS - 1/0,7)
- large reservoir volumes
- with pressure relief valves, adjustable from the outside
- fine adjustable relief valve (handwheel)
- robust all-steel construction
- HPH pumps are equipped with a 4-way control valve plus a precision-adjustable relief valve
- oil port thread 3/8 NPT
- incl. oil filling
- for pressure gauges with corresponding adaptors see page 46 and 47.

## Hand pumps for double-acting cylinders with 4-way valve and relief valve (hand wheel)

Model	Reservoir volume cm <sup>3</sup>	Displacement		Weight kg
		1. stage cm <sup>3</sup>	2. stage cm <sup>3</sup>	
HPH - 2/0,7	700	11	2,0	8,0
HPH - 2/2	2000	11	2,0	11,0
HPH - 2/4	4000	11	2,0	14,0
HPH - 2/6,5	6500	11	2,0	22,0
HPH - 2/10	10000	11	2,0	28,0



from top:  
HPH - 2/4,  
HPH - 2/2 with GA - 704 and GGY - 631,  
HPH - 2/0,7

## Base frames for hand pumps

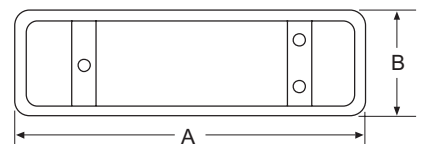
These base frames add to the stability of your hand pump, in particular when used in the field or on a construction site where hand pumps are frequently operated on uneven and soft ground.

At the same time the hand pumps are protected from sand, humidity and possible damage.

The assembly of the base frames is very easy; just three holes have to be bored to mount the frame to the hand pump.



Model	suitable for hand pumps	Dimensions/mm		Weight kg
		A	B	
HPB - 0,7	HPS - 1/0,7 + HPS - 2/0,7 + HPH - 2/0,7	730	190	1,2
HPB - 2	HPS - 2/2 + HPH - 2/2	765	190	1,3
HPB - 4	HPS - 2/4 + HPH - 2/4	885	190	1,8
HPB - 6	HPS - 2/6,5 + HPH - 2/6,5	910	190	1,9



## Hand pumps

1500 bar

2000 bar



### Mini hand pump 1500 bar

This high pressure pump is particularly designed to pressurize special components like hydraulic nuts, bolt tensioning cylinders, hydraulic safety couplers or similar systems.

The pump is equipped with a pressure limiting valve which discharges to the atmosphere.

The pump can be set to any pressure between zero and 1500 bar.

The pressure gauge is standard and allows permanent pressure control.

Due to a reservoir below the pump can be operated in any position (hand held design).



### Hand pumps 2000 bar TWZ series

These high-performance hand pumps allow a very rapid pressure build-up due to their two stage design. Both pressure stages are equipped with a limiting valve which can easily be adjusted from outside.

#### Applications

High pressure hand pumps are used for special applications like pressurizing hydraulic nuts and safety couplings, hydrostatic testing, bolt tensioners, high pressure oil injection for bushing removal, pretensioning of anchors, for test applications in laboratories and as a power source within test stands and propeller press systems.

Model	Pressure max. bar	Reservoir volume cm <sup>3</sup>	Displacement		Oil port	Pressure gauge	Pressure gauge Model:	Gauge adaptor Model:	Pressure relief valve	Weight kg
			1. stage cm <sup>3</sup>	2. stage cm <sup>3</sup>						
HPS - 1/1500	1500	160	–	0,3	G 1/4	standard	GGY - 639	–	yes	2,6
TWZ - 0,7	2000	700	8	0,6	M22 x 1,5	optional	GGY - 2500	GA - 2000	yes	7,0
TWZ - 1,3	2000	1300	13	1,0	M22 x 1,5	optional	GGY - 2500	GA - 2000	yes	9,0
TWZ - 2,3	2000	2300	31	1,6	M22 x 1,5	optional	GGY - 2500	GA - 2000	yes	16,0

### Foot pump 700 bar

Used to operate single-acting hydraulic cylinders, especially for repeated applications, such as checking of welding samples, pressing of connection components (crimping), actuating of clamping devices, as well as for all applications, where it is necessary to keep hands free. The pump can be used everywhere, as it is independent of an external energy source and is easily portable. An extremely good stability guarantees a comfortable and safe operation up to the highest pressure. It is a "real" foot operated pump, as the return stroke of the connected hydraulic cylinder is released by foot control.

#### Features

- operating pressure max. 700 bar
- two-stage displacement
- absolute stability due to large base plate
- minimized labour fatigue
- operating pressure adjustable
- valves accessible from the outside
- return stroke of cylinder also controlled by foot operation
- oil port 3/8 NPT



Model	Pressure max. bar	Displacement		Reservoir volume cm <sup>3</sup>	Weight kg
		1. stage cm <sup>3</sup>	2. stage cm <sup>3</sup>		
FPS - 2/0,5	700	11,0	2,0	500	7,0

Pressure gauges, adaptors and hydraulic hoses on pages 47 to 49.

#### Accessories for hand pumps series TWZ (2000 bar)



Pressure gauge  
Model: GGY - 2500  
see page 46



Pressure gauge adaptor  
Model: GA - 2000  
see page 47



Adaptor  
Model: FY - 201  
(M 22 x 1,5 to G 1/4)  
see page 51



High pressure hose  
Model: HH - 2001-20  
max. pressure: 2000 bar  
see page 51

## Air-driven motor pumps

### PAY



### Mini hydraulic pumps

with compressed air driven motor 700 bar

These mini-pumps are driven by an air-powered motor and can be connected to any supply source of compressed air. These compact low-cost pumps can operate all single-acting or double-acting hydraulic cylinders up to a max. operating pressure of 700 bar.

Due to large reservoirs, large cylinders or multiple cylinders can be operated.

The use of an inline air filter-lubricator is recommended.

The hydraulic pressure can be infinitely adjusted on the regulator of the air-lubricator unit. The air-driven motor guarantees 100 % explosion protection.

Pumps for double-acting hydraulic cylinders are equipped with an additional 4-way control valve type VHH - 4/3.

The connected hydraulic cylinder is controlled - **advance - stop - return** - by the universal pedal, which can be either hand or foot-operated.

Model	for cylinder	Reservoir volume l	Max oil pressure bar	Oil displacement l/min	Requested air pressure bar	Air consumption l/min	Oil port	Air port	Weight kg
PAY - 6	single-acting	1,5	700	0,85 to 0,08	7	560	3/8 NPT	1/4 NPT	6,3
PAY - 6-5	double-acting	5,0	700	0,85 to 0,08	7	560	3/8 NPT	1/4 NPT	12,0
PAY - 64	single-acting	1,5	700	0,85 to 0,08	7	560	3/8 NPT	1/4 NPT	7,5
PAY - 64-5	double-acting	5,0	700	0,85 to 0,08	7	560	3/8 NPT	1/4 NPT	13,0

### Control of cylinder motion

- pedal in neutral position – motor stands still, cylinder stands, pressure is held
- pedal depressed – motor starts, cylinder advances, pressure is built-up
- pedal pushed forward – motor stands still, pressure is released, cylinder retracts

## Compact electric motor pumps portable, 700 bar

These light-weight but powerful two-stage pumps are particularly designed for maintenance and repair jobs. Depending on their type, they can either operate single-acting or double-acting hydraulic cylinders.

The ideal combination of manual operated valve and remote pendant control provides the operator with ample freedom of motion and ensures a safe "holding of the load".

The remote pendant control (1,8 m) is used to start the motor even under full load.

The function for both manual valves is as follows:

**- advance - stop - return -**

With their light weight and convenient carrying handle, these pumps can be easily transported.

Pumps are equipped with thermal overload protection and are supplied with hydraulic oil.



PY - 04/2/5/2M

PY - 04/2/5/4M

## Operation of the power pump model PY - 04/2/5/2 M

The 2/2-way manual valve operates together with a pilot operated unloading valve, so that the two valve positions result in the following two control possibilities:

1. cylinder holds pressure after motor stop
2. cylinder automatically retracts after motor stop

Model	equipped with control valve:
<b>PY - 04/2/5/2 M</b>	2/2-way valve in connection with a built-in automatic valve to control single-acting cylinders
<b>PY - 04/2/5/4 M</b>	4/3-way valve to control double-acting cylinders

Technical data	
pressure, max.	: 700 bar
displacement (two-stage)	
no load	: 4,0 l/min
under load	: 0,23 l/min
reservoir, usable	: 6,5 l
connecting valve	: 0,37 kW - 230 V-1Ph
remote pendant control	: 24 V low voltage
rpm	: 2800
protection	: IP 50
weight, approx.	: 24 kg

## Mini-hydraulic power packs

### PY - 03



PY - 03/2/4 M 230

PY - 03/2/2 M 230

PY - 03/2/2 E 230

### Mini-electric hydraulic pumps portable, 700 bar

These two-stage mini pumps are the ideal power packs for small and medium sized hydraulic tools. Examples are: Stamping or punching tools, hydraulic cutters, hydraulic puller sets, crimping tools, nut splitters etc. Furthermore these portable power packs are suitable for all standard maintenance and assembly jobs to pressurize hydraulic cylinders with intermediate operation.

Due to the light weight and the ergonomically designed handle the pumps can be easily carried from job to job. Depending on the individual model these power packs can operate single-acting or double-acting hydraulic cylinders. The ideal combination of solenoid valve with remote pendant control of the electric motor offers practical operation. By using the push-button box (with 2 m cable) the solenoid valve is controlled and the motor is switched on and off, even under full load.

#### Control functions

Hydraulic cylinder: - **advance** - **stop** - **retract** -

#### Features

- pressure max. 700 bar
- compact design, light-weight,
- sturdy "full-metal" construction
- for intermittent operation
- two-stage output (oil flow)
- 3 different control valves:  
2/2-way solenoid directional valve, or 2/2-way manual relief valve (hand wheel), or 4/3-way manual directional valve (all in combination with motor start-stop pendant control)
- reservoir: 3,0 liter, usable: 2,0 liter
- incl. hydraulic oil
- electric motor can start under full load
- power supply 230 V-50 Hz, 0,35 kW (available also in 110 V)
- control voltage 24 Volt / protection: IP 50
- oil port 3/8 NPT

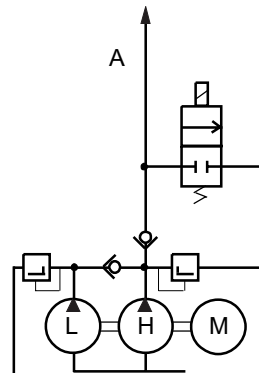
Model	for Cylinder	Pressure max. bar	Displacement		Power supply V	Valve control		Motor remote control	Reservoir size l	Weight kg
			1. stage l/min	2. stage l/min		manual	solenoid remote			
<b>PY - 03/2/2 E 230</b>	single-acting	700	2,0	0,2	230V	-	+++	+++	3,0	12,0
<b>PY - 03/2/2 M 230</b>	single-acting	700	2,0	0,2	230V	+++	-	+++	3,0	12,0
<b>PY - 03/2/4 M 230</b>	double-acting	700	2,0	0,2	230V	+++	-	+++	3,0	12,0
<b>PY - 03/2/2 E 110</b>	single-acting	700	2,0	0,2	110V	-	+++	+++	3,0	12,0
<b>PY - 03/2/2 M 110</b>	single-acting	700	2,0	0,2	110V	+++	-	+++	3,0	12,0
<b>PY - 03/2/4 M 110</b>	double-acting	700	2,0	0,2	110V	+++	-	+++	3,0	12,0

**PY - 03/2/2 E 230**  
**PY - 03/2/2 E 110**

Operation: for single-acting hydraulic cylinders

- push button 1: motor starts, cylinder advances, pressure is built up.
- neutral : motor rests, pressure is held.
- push button 2: solenoid valve is activated, pressure is built up, cylinder advances.

For applications where a smooth pressure relief is required (e.g. lifting and lowering of loads, straightening etc.) a throttle-check valve (VSM - 21) should be used.



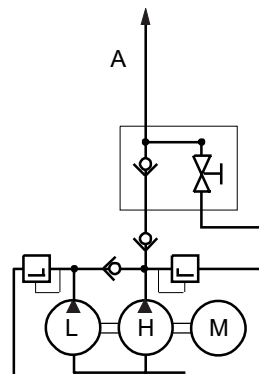
**with 2/2-way solenoid directional valve**

**PY - 03/2/2 M 230**  
**PY - 03/2/2 M 110**

Operation : for single-acting hydraulic cylinders

- push button : motor starts, cylinder advances, pressure is built up.
- neutral : motor rests, pressure is held

By use of the hand wheel the pressure can be released smoothly and the cylinder retracts.



**with 2/2-way relief valve (hand wheel)**

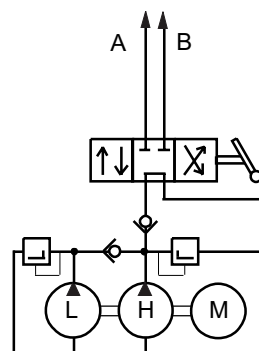
**PY - 03/2/4 M 230**  
**PY - 03/2/4 M 110**

Operation : for double-acting hydraulic cylinders

- push button : motor starts, depending on the position of the lever of the 4/3-way valve the cylinder advances or retracts, pressure is built up.

neutral : motor rests, pressure is held

To retract the cylinder the 4/3-way valve has to be switched and the electric motor must be started.



**with 4/3-way manual valve**

## Heavy duty hydraulic power packs



PY - 07/3/20/3 E



PY - 11/3/30/4 M

### Electric hydraulic power packs

Series: PY- 07, PY- 11, PY- 22

Yale hydraulic power packs are easy to operate as they are ready assembled and easy to control. The use of power packs is always recommended when:

- jobs have to be done in a time-saving and efficient way,
- repeating jobs have to be finished off,
- quick cylinder cycles have to be achieved,
- large oil volumes in connection with high tonnage cylinders have to be transmitted.

#### Two-stage oil flows

The standard Yale power packs are equipped with two-stage pumps, which means that a low pressure stage fills the connected hydraulic cylinder quickly up to a pressure of 50 bar.

The high pressure stage is activated automatically from 50 bar up to 700 bar, while the low pressure stage is discharged back to the reservoir.

This economic solution avoids heating-up, saves energy and keeps the power packs compact.

#### Hydraulic oil

All power packs are designed to be operated with standard hydraulic oil (specification ISO VG 32).

For certain operating conditions the viscosity class of the hydraulic fluid can be varied.

All power packs are supplied including oil.

#### Oil cooler

For certain applications, especially when power packs are continuously operated and the oil temperature could exceed 60° C, the use of an oil cooler is recommended.

#### Do you need to operate a “single-acting“ or “double-acting“ hydraulic cylinder?

The directional control valve has to correspond to the a.m. functional principle of the hydraulic cylinder to be operated. Depending on these principles the power packs are equipped with a:

- 3/3-way valve to operate single-acting hydraulic cylinders (connection with one hydraulic hose) or
- 4/3-way valve to operate double-acting hydraulic cylinders (connection with two hydraulic hoses)

The directional control valves are available either as “manual“ or “solenoid“ operated valves.

#### Control and operation

The motion control of the connected hydraulic cylinder is done by operating the directional valve.

## Operation of the directional valves

Depending on the way of operation, there are "manual" or "solenoid" operated valves.

Manual valves are controlled by shifting the operating lever and represent the economic way of control. These valves have 3 lever positions:

- **advance** - **hold** - **retract** -

## Solenoid valves

offer a lot of advantages and are controlled by means of a pendant remote control box. This makes the operator independent from the power pack and makes it easy for him to monitor the job.

The solenoid valves are controlled by two push buttons - **advance** - **hold** - **retract** - In neutral position - **hold** - the valves rest in pressureless circuit. Pressure and force of the connected cylinder are held without pressure drop.

The complete electrical set-up (with 24 V control) belongs to the scope of delivery.

Solenoid valves allow a very ergonomic operation and offer a quick and precise switching (millimeter-wise) of the connected hydraulic cylinder.

## Pressure-less circuit

In neutral position all directional valves rest in "pressureless circuit" which means that the oil flow coming from the rotating pump is guided back to the reservoir without creating any pressure build-up.

## Special solenoid valve configurations

Some applications require a special valve configuration, e.g. the independent control of several hydraulic cylinders from a single power pack.

In such cases the complete valve build-up and electrical control is made to the customer's requirements.

## "Pressure-Guard" power packs

By using a electro-hydraulic pressure switch and a special electric control, power packs can "self-control" their pre-adjusted pressure.

In applications where the pressure (load) should be applied over a very long period, the connected power pack is switched on and off automatically and replaces the pre-set pressure in case a pressure drop has occurred.

## Trolleys

For all power packs we offer a cart-frame for flexible movement from job to job.

Cart-frames are equipped with 2 fixed and 2 swivel castors (see page 37).

## Features

- long-life power packs, designed for heavy duty applications
- suitable for all jobs in workshops and on construction sites where hydraulic force is required; supplied ready to use
- two-stage displacement, which means quick piston advance under no-load condition and automatic switch-over into high-pressure stage
- available with manual or solenoid operated directional valves
- Solenoid valves with 3 m remote control box (with 2 push-buttons) and pressure set valve as standard. Adjustable from 0 - 700 bar
- 24 V - low voltage control includes a sturdy metal electric control box and "ready to use" set up
- on-off motor switch and 3 m motor connecting cable, oil level gauge, and oil filler/reservoir ventilation plug
- all power packs are supplied with a glycerine-damped pressure gauge type GGY - 631
- low noise level due to standard motors with 1450 rpm
- further motor voltages and reservoir sizes on request



**Mini-hydraulic power pack  
Model PYE - 03/3/10/3 M**

single-stage, compact, economic  
with manual directional valve

Selection chart see next page.

## Two-stage electric hydraulic power packs, 700 bar

Model	Reservoir sizes				Directional control valve				Motor power kW	Displacement, two-stage	
	10 l	20 l	30 l	50 l	manual operated valve 3/3-way	4/3-way	solenoid operated valve 3/3-way	4/3-way		l / min 0 - 50 bar	l / min 50 - 700 bar
PY - 07/3/10/3 M	+++	-	-	-	+++	-	-	-	0,75	6,0	0,6
PY - 07/3/10/4 M	+++	-	-	-	-	+++	-	-			
PY - 07/3/20/3 M	-	+++	-	-	+++	-	-	-			
PY - 07/3/20/4 M	-	+++	-	-	+++	-	-	-			
PY - 07/3/20/3 E	-	+++	-	-	-	-	+++	-			
PY - 07/3/20/4 E	-	+++	-	-	-	-	-	+++			
PY - 11/3/20/3 M	-	+++	-	-	+++	-	-	-	1,1	8,5	1,0
PY - 11/3/20/4 M	-	+++	-	-	-	+++	-	-			
PY - 11/3/30/3 M	-	-	+++	-	+++	-	-	-			
PY - 11/3/30/4 M	-	-	+++	-	-	+++	-	-			
PY - 11/3/20/3 E	-	+++	-	-	-	-	+++	-			
PY - 11/3/20/4 E	-	+++	-	-	-	-	-	+++			
PY - 11/3/30/3 E	-	-	+++	-	-	-	+++	-			
PY - 11/3/30/4 E	-	-	+++	-	-	-	-	+++			
PY - 22/3/30/3 M	-	-	+++	-	+++	-	-	-	2,2	18,0	2,1
PY - 22/3/30/4 M	-	-	+++	-	-	+++	-	-			
PY - 22/3/50/3 M	-	-	-	+++	+++	-	-	-			
PY - 22/3/50/4 M	-	-	-	+++	-	+++	-	-			
PY - 22/3/30/3 E	-	-	+++	-	-	-	+++	-			
PY - 22/3/30/4 E	-	-	+++	-	-	-	-	+++			
PY - 22/3/50/3 E	-	-	-	+++	-	-	+++	-			
PY - 22/3/50/4 E	-	-	-	+++	-	-	-	+++			

### Code explanation

- Directional valve : 3 = for single-acting, 4 = for double-acting cylinder, M = manual valve, E = solenoid valve
- Reservoir size : in liters (other reservoir sizes on request)
- Motor voltage : 3 = 380-420 V-3 Ph (Euro-voltage), 2 = 230 V-1 Ph, (other voltages on request)
- Motor power : 07 = 0,75 kW, 11 = 1,1 kW, 22 = 2,2 kW, 30 = 3 kW, 55 = 5,5 kW, 75 = 7,5 kW, 110 = 11 kW
- Type of motor : PY = electric motor, PAY = air motor, PGY = petrol driven motor (4 cycle)

## Single-stage electric hydraulic power packs, 700 bar

Model	Reservoir sizes				Directional control valve				Motor power kw	Displacement l / min 0 - 700 bar
	10 l	20 l	30 l	50 l	manual controlled valve 3/3-way	4/3-way	solenoid controlled valve 3/3-way	4/3-way		
PYE - 03/3/10/3 M	+++	-	-	-					0,35	0,3
PYE - 03/3/10/4 M	+++	-	-	-					0,35	0,3
PYE - 07/3/10/3 M	+++	+++	+++	+++					0,75	0,6
PYE - 07/3/10/4 M	+++	+++	+++	+++					0,75	0,6
PYE - 11/3/20/3 M	-	+++	+++	+++					1,1	1,0
PYE - 11/3/20/4 M	-	+++	+++	+++					1,1	1,0
PYE - 22/3/20/3 M	-	-	+++	+++					2,2	2,1
PYE - 22/3/20/4 M	-	-	+++	+++					2,2	2,1

All  
valve and reservoir combinations  
available

## High performance electric hydraulic power pumps, 700 bar, single-stage

Model	Reservoir sizes			Directional control valve				Motor power kw	Displacement l / min 0 - 700 bar
	70 l	100 l	150 l	manual controlled valve 3/3-way	4/3-way	solenoid controlled valve 3/3-way	4/3-way		
PYE - 40-1/3/70/4 M	+++	-	-					4,0	2,7
PYE - 55-1/3/70/4 M	+++	-	-					5,5	4,0
PYE - 75-1/3/100/4 M	-	+++	-					7,5	6,0
PYE - 110-1/3/150/4 M	-	-	+++					11,0	8,0
PYE - 180-1/3/150/4 M	-	-	+++					18,0	12,0

All  
valve and reservoir combinations  
available

### Hydraulic power pack with protection cage

This power pack is specially designed for general lifting applications in construction areas. Equipped with an optimized valve configuration, including 4-way manual directional valve VHP - 4/3-1, safety-check valve VSM - 21, pressure relief valve VPR - 3 and 2 pressure gauges for permanent load control.



### Hydraulic power pack with 4-way manifold MY - 44-GYA

The most economic way for a “pressure-independent” and individual control of 4 single-acting hydraulic cylinders. The additionally mounted safety-check valve VSM - 21 avoids uncontrolled pressure drops and the built-in throttle valve allows a precise (millimeterwise) lowering even of the highest loads. Four pressure gauges allow a permanent reading of the individual loads. On request, the power packs can be equipped with a handy cart-frame to make the operation flexible. This type of power pack can be supplied in all sizes of the PY and PYE series.



### Hydraulic power pack with 4-times solenoid valve

The quadruple solenoid valve block ensures a “pressure-independent” and individual control of 4 double-acting hydraulic cylinders. Solenoid valves offer several well known advantages such as: ergonomic and safe control by pendant remote control, exact load hold, precise and quick switch characteristics and many more.



### Double-hydraulic power pack

In order to realise very high oil flows, two independent pump systems can be combined in one large reservoir. A gear pump ensures an extremely high oil flow up to 250 bar while the high-pressure stage is generated by a high performance radial piston pump. Each pump is equipped with its own solenoid control valve so that the individual oil flows can be generated or discharged on request.



## Multiple-flow power packs

### PMF



PMF - 15/3/40/4 x 3 M

**All power packs can be supplied with a protection frame suitable for on-site operation. Also cart-frames with 2 fixed and 2 swivel castors are available on request.**

## Multiple-flow hydraulic power packs

Multiple-flow hydraulic pumps can advance 4 cylinders with the same speed in the same time by injecting equal amounts of hydraulic oil into each individual cylinder. This principle allows a synchronized lifting of machines or similar loads from a central point. Even under different loading conditions the cylinders advance in synchronisation. A levelling of a lopsided load is easily possible by an individual control of each single cylinder.

The lifting phase is initiated by a push-button remote control box and can be interrupted and continued at any time.

All connected cylinders can be controlled individually or jointly (synchronous).

Lowering of the load is done by operating the directional valve in connection with the throttle valve individually for each circuit.

The multiple-flow pumps can drive all kinds of hydraulic cylinders, machine jacks or stage lifts.

### Features

- 4-point synchronized lift due to 4 equal, independent and individual oil flows
- 4 manually operated directional valves, or 4 solenoid directional valves allow an individual or joint control of all 4 connected cylinders (easy levelling of a load possible)
- safe load hold due to check valve in each circuit
- one-man central operation
- motor on-off switch by means of a pendant remote control box in connection with manual valves, or 8-button remote control box to operate the solenoid valves.

### Scope of delivery

For each of the four circuits the "ready to use" supply includes: glycerine-damped pressure gauge, 3-way control valve, safety-check valve, a female coupler-half as connecting port.

Furthermore: hydraulic oil, carrying handles, motor on-off switch, motor connecting cable, pendant remote control, electro-box with transformer and motor relays, oil level gauge and oil-filler/ventilation plug.

All multiple-flow power packs are also available with 4-way directional valves in order to operate double-acting hydraulic cylinders.

## 4-multiple-flow power pack with solenoid directional valves

To advance 4 hydraulic cylinders independently and in a synchronized way by means of solenoid valves with a pendant remote control box.

This principle provides a high degree of flexibility for the operator who can control the whole process from a central point. The solenoid valves in connection with safety-throttle valves allow a precise control of all connected hydraulic cylinders.

The motion can be interrupted and continued at any time. This configuration can be supplied in all performance stages of the series PMF.



PMF - 15/3/40/4 x 4 E

### Multiple flow hydraulic power packs

Model	Pressure bar	Displacement l/min	Valve control		Motor remote control	Reservoir size litre	Power-supply
			manual	solenoid			
<b>PMF - 15/3/40/4 x 3 M</b>	4 x 700	4 x 0,3	•	–	•	40	1,5 kW-400V-3Ph
<b>PMF - 15/3/40/4 x 3 E</b>	4 x 700	4 x 0,3	–	•	–	40	1,5 kW-400V-3Ph
<b>PMF - 30/3/40/4 x 3 M</b>	4 x 700	4 x 0,6	•	–	•	40	3,0 kW-400V-3Ph
<b>PMF - 30/3/40/4 x 3 E</b>	4 x 700	4 x 0,6	–	•	–	40	3,0 kW-400V-3Ph
<b>PMF - 110/3/100/4 x 3 M</b>	4 x 700	4 x 2,1	•	–	•	100	11,0 kW-400V-3Ph
<b>PMF - 110/3/100/4 x 3 E</b>	4 x 700	4 x 2,1	–	•	–	100	11,0 kW-400V-3Ph

**PMF multiple-flow power packs can also be supplied with 4-way valves (to control double-acting cylinders) in all a.m. performance stages.**