

## HAND PUMPS

Technical Catalogue

April  
2016

*web edition*





### The company

Brevini Fluid Power was established in 2003 in Reggio Emilia where it has its head office.

Brevini Fluid Power manufactures hydraulic components and application packages: a very large range suited to several operational requirements and applications thanks to a strict interaction between mechanical, hydraulic and electronic components.

Brevini Fluid Power is among the top manufacturers in Italy and a major player in Europe and in the world.

### International presence

Brevini Fluid Power operates internationally with 15 branches all over the world placed in major industrialized countries: Italy, France, Germany, England, Romania, Holland, Finland, China, India, Singapore and the United States. The network is constantly expanding by opening new branches in just a few years.

The branches are guided by managers that have an excellent knowledge of their own country.

The advantages this brings are evident:

- Reduced delivery times thanks to the branches warehouses;
- Easy customization of products and systems basing on the customer's needs, thanks to the competence and professional skills of the branches' own technical and servicing departments;
- Quick servicing;
- A ready sales staff at hand and closer to the customers, which ensures high flexibility plus experience.

The production facilities are located throughout Reggio Emilia, Ozzano Emilia (BO), Noceto (PR), Novellara (RE), Yancheng (province of Jiangsu, China) which was inaugurated in 2009 and became operative since 2010.

### Competitive Strategy

Innovation combined with the focus on customers is the strength of the Brevini Fluid Power "brand", born from the forty-year-long experiences of Aron, Hydr-App, SAM Hydraulik, Oleodinamica Reggiana, VPS Brevini and Brevini Hydraulics.

Brevini Fluid Power proposes itself as a "local hub", as it happened to BPE Electronics in 2008 and OT Oiltechnology in 2009, in order to create a new Made in Italy global player in the world of hydraulics, increasingly more integrated with electronics.

The purpose is still the development of a very large range of products forming together integrated packages able to meet various application needs. Our ten-year-long partnership relations with hundreds of customers all over the world are the best synthesis of Brevini Fluid Power's operational philosophy.

Sharing of know-how and several experiences have made Brevini Fluid Power a more global company, more incisive in international markets and closer to its customers.

### Product lines

The product lines are numerous and well-structured aimed to cover every needs: a strong basis on which to develop the engineering of application packages and complete systems. The offer is improving in the direction of a solution supplier often developed in co-design with the customer, both for the mobile and industrial sector.

**Hydr-App Product Line:** Hydraulic power packs and mini hydraulic packs (whether standard or customised), cartridge valves and solenoid valves, gear boxes and transmission components.

**S.A.M. Hydraulik Product Line:** Axial piston pumps and motors for medium and high pressure, orbital motors.

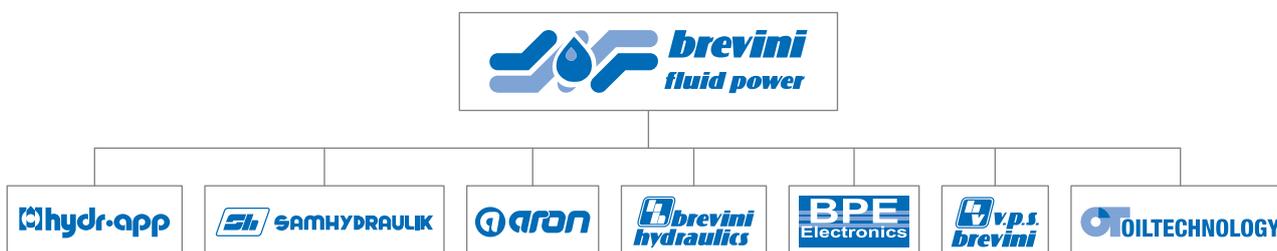
**Aron Product Line:** Directional, flow, on-off and proportional pressure control valves. Modular and cartridge valves, subplates and blocks.

**Brevini Hydraulics Product Line:** Proportional directional valves, joysticks and electronic modules.

**BPE Electronics Product Line:** Sensors, load cells, boards and electronic controls via CAN, display units, planarity indicators.

**VPS Brevini Product Line:** Mono-block and modular mobile valves.

**OT Oiltechnology Product Line:** Gear pumps and motors, flow dividers.



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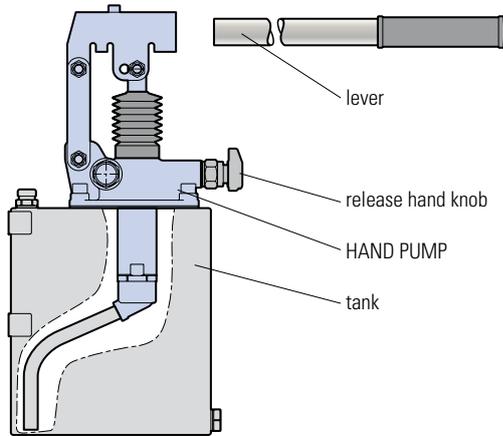
The technical features supplied in this catalogue are non binding and no legal action can be taken against such material. Brevini Fluid Power will not be held responsible for information and specifications which may lead to error or incorrect interpretations. Given the continuous technical research aimed at improved technical features of our products, Brevini Fluid Power reserves the right to make change that are considered appropriate without any prior notice. This catalogue cannot be reproduced (in whole or in part) without the prior written consent of Brevini Fluid Power. This catalogue supersedes all previous ones.

Use of the products in this catalogue must comply with the operating limits given in the technical specifications. The type of application and operating conditions must be assessed as normal or in malfunction in order to avoid endangering the safety of people and/or items.

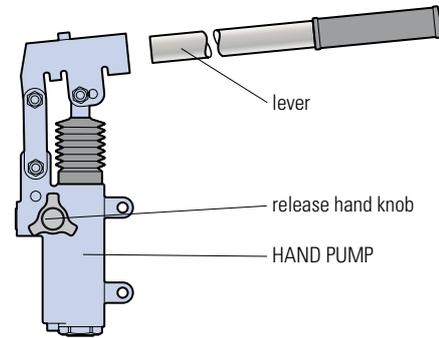
General terms and conditions of sale: see website [www.brevinifluidpower.com](http://www.brevinifluidpower.com).

The products shown on this catalog are parts of  line.

Hand pump for fixing to tank (without lever\*)



Hand pump for fixing to wall (without lever\*)



\* The lever has to be ordered separately, see page 32

Type	Displacement cm <sup>3</sup>	Tank Liter	Variants	Serie	
Fixing to tank	PM	06	S00 no S01 1 lt. S02 2 lt. S03 3 lt. S05 5 lt. S07 7 lt. S10 10 lt.	00 01 02 03 ..	2
	PMI	12			
	PMB	25			
		45			
	1PMS	20			
		30			
		40			
	2PMS	08			
		15			
	Fixing to wall	PM			
		050			

## INTRODUCTION

Hand pumps are generally employed for intermittent or emergency applications. The wide range for integrated applications with auxiliary valves allow the solution of any requirement. UNI/ISO 185 cast-iron body, high resistance lapped and nickered steel rod.

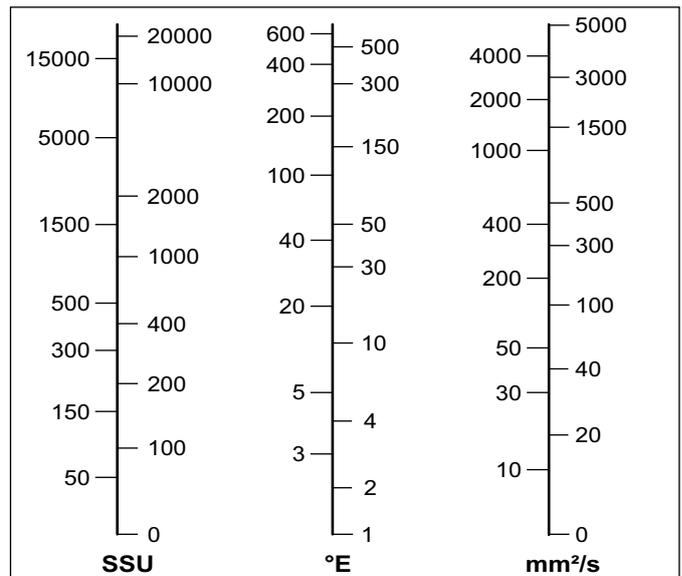
They are available in wall bracket and flangeable on tank versions with various types of pumping (in both senses or oneway). They can be supplied with steel tanks with antioil paint and capacities from 1 lt. up to 10 lt.

Read this instructions carefully before installation. All operations must be carried out by qualified personnel following the instructions.

The user must periodically inspect, based on the conditions of use and the substances used, the presence of corrosion, dirt, the state of wear and correct function of the valves.

**Always observe first the operating conditions given in datasheet of the valve.**

## CONVERSION TABLE SSU / °E / mm<sup>2</sup>/s



## HYDRAULIC FLUID

Use only mineral oil (HL, HLP) according to DIN 51524. Use of other different fluids may damage the good operation of the valve.

## VISCOSITY

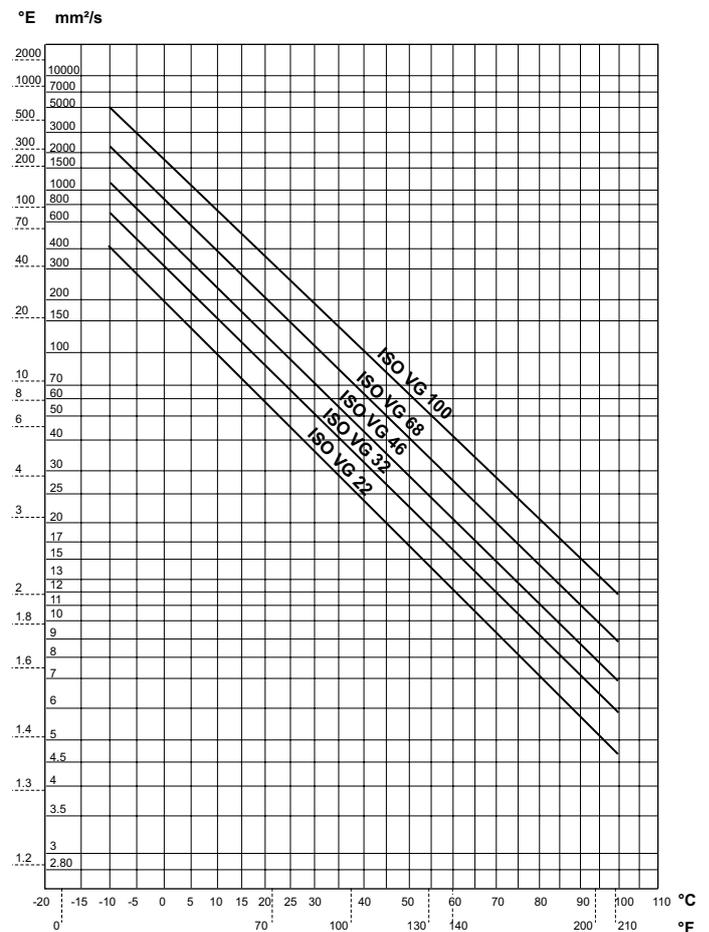
The oil viscosity must be in the range of 10 mm<sup>2</sup>/s to 500 mm<sup>2</sup>/s.

Table 1: ISO viscosity grades

Viscosity grade	Average kinematic viscosity mm <sup>2</sup> /s @ 40°C	Kinematic-viscosity limits mm <sup>2</sup> /s @ 40°C	
		min.	max.
ISO VG 10	10	9.00	11.0
ISO VG 15	15	13.5	16.5
ISO VG 22	22	19.8	24.2
ISO VG 32	32	28.8	35.2
ISO VG 46	46	41.4	50.6
ISO VG 68	68	61.2	74.8
ISO VG 100	100	90.0	110

■ = Values used in the chart "Oil viscosity according to temperature"

## OIL VISCOSITY ACCORDING TO TEMPERATURE



## CONTAMINATION

Oil contamination is the main cause of faults and malfunction in hydraulic systems. Abrasive particles in the fluid erode or block moving parts, leading to system malfunction.

However, accurate filtering does guarantee reliability and a long life to all the system's hydraulic parts. Reliable performance and long working life for all oil-pressure parts is assured by maintaining the level of fluid contamination within the limits specified in the data sheet of the pump.

Hydraulic fluid must also be cleaned properly before filling the hydraulic circuit, especially when commissioning a new system, as this is when the oil contamination generally peaks due to its flushing effect on the components, and the running-in of the pump.

The standard ISO 4406:1999 defines the contamination level with three numbers that relate with the number of particles of average dimension equal or greater than 4 µm, 6 µm e 14 µm, in 1 ml of fluid.

In following table there is a reference to recommended contamination level and correspondence with old NAS 1638 standard.

Table 2: Recommended contamination level.

Type of system Type of valve	Oil filtration recommendations		
	Cleanliness class recommended		Absolute filtration micron rating (**)
	ISO 4406 : 1999	NAS 1638 (*)	
Systems or components operating at HIGH PRESSURE > 250 bar (3600 psi) HIGH DUTY CYCLE APPLICATIONS Systems or components with LOW dirt tolerance	18 / 16 / 13	7 - 8	5
Systems or components operating at MEDIUM / HIGH PRESSURE Systems and components with moderate dirt tolerance	19 / 17 / 14	9	10
Systems or components operating at LOW PRESSURE < 100 bar (1500 psi) LOW DUTY CYCLE APPLICATIONS Systems and components with GOOD dirt tolerance	20 / 18 / 15	10 - 11	20

\* Contamination class NAS 1638: it is determined by counting the total particles of different size ranges contained in 100 ml of fluid.

\*\* Absolute filtration: it is a characteristic of each filter, it refers the size (in micron) of the largest spherical particle which may pass through the filter.

## WORKING TEMPERATURES

Ambient temperature range: -25°C to +60°C  
Fluid temperature range (NBR seals): -25°C to +75°C

## USE AND MAINTENANCE

Observe the functional limits indicated in the technical catalogue. On a periodic basis and based on the conditions of use, check for cleanliness, state of wear or fractures and correct performance of the pump.

If the O-rings are damaged, replace them with those supplied by the manufacturer.

To assure the best working conditions at all time, check the oil and replace it periodically (after the first 100 working hours and then after every 2000 working hours or at least once every year).

**Attention: all installation and maintenance intervention must be performed by qualified staff.**

## TRANSPORT AND STORAGE

The pump must be handled with care to avoid damage caused by impact, which could compromise its efficiency.

In the case of storage, keep the pump in a dry place and protect against dust and corrosive substances.

When storing for periods of more than 6 months, fill the pump with preserving oils and seal it.

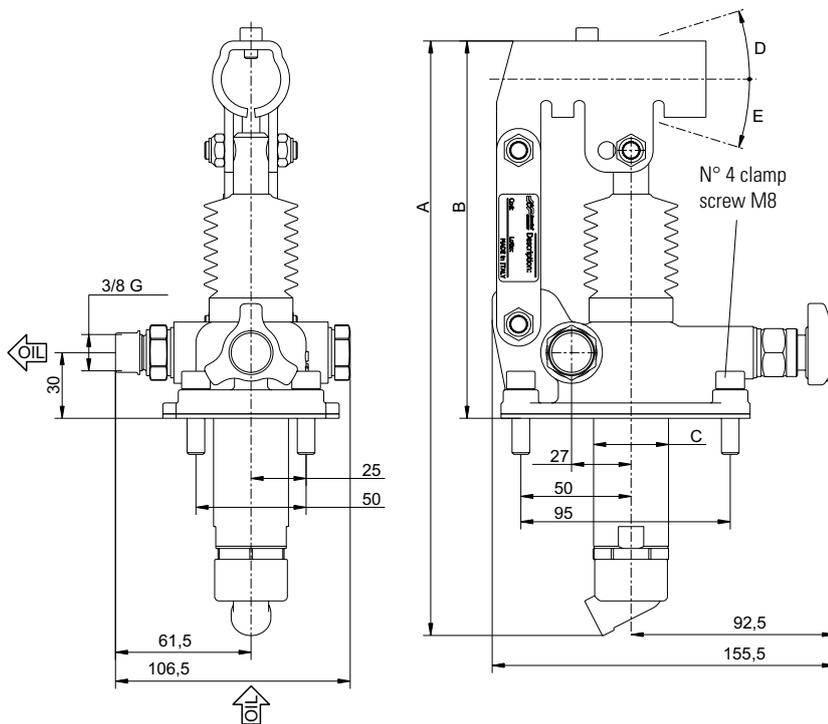
## WARRANTY AND SUPPLY CONDITIONS

For the general warranty and supply conditions, please consult the specific sales contract or the "General terms and conditions of sale" document IOP 7-2-05. Downloaded from the website: [www.brevinifluidpower.com](http://www.brevinifluidpower.com)

## CONVERSION CHART

Type	SI units		Alternative units		Conversion factor
Force	Newton	(N) [kgm/s <sup>2</sup> ]	Kilogram force	(kgf)	1 kgf = 9.807 N
			pound force	(lbf) [lbf/s <sup>2</sup> ]	1 lbf = 4.448 N
Length	millimeter	(mm) [10 m]	inch	(in)	1 in = 25.4 mm
	meter	(km) [1000 m]	yard	(yd) [3ft]	1 m = 1.0936 yd
	kilometer	(km) [1000 m]	mile	(mile) [1760 yd]	1 mile = 1.609 km
Torque	Newton meter	(Nm)	pound force.feet	(lbf.ft)	1 lbf.ft = 1.356 Nm
Power	kiloWatt (kW)	[1000 Nm/s]	horsepower	(hp)	1 kW = 1.341 hp
			metric horsepower	(CV)	1 kW = 1.36 CV
Pressure	MegaPascal	(MPa) [ N/mm <sup>2</sup> ]	bar		1 MPa = 10 bar
			psi (lbf/in <sup>2</sup> )		1 MPa = 145 psi
			ton/f/in <sup>2</sup>		1 ton/f/in <sup>2</sup> = 15.45 MPa
Flow rate	liter/min	(l/min)	UK gal/min		1 UK gal/min = 4.546 l/min
			US gal/min		1 US gal/min = 3.785 l/min
Temperature	Degrees Celsius	(°C)	Fahrenheit	(°F)	1°F = 1.8 °C+32

## HAND PUMP WITH RELEASE HAND KNOB



**With release hand knob**  
**Double acting hand pump for single acting cylinder**  
**For fixing to tank**

**Specifications:**

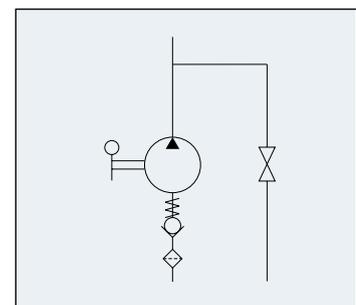
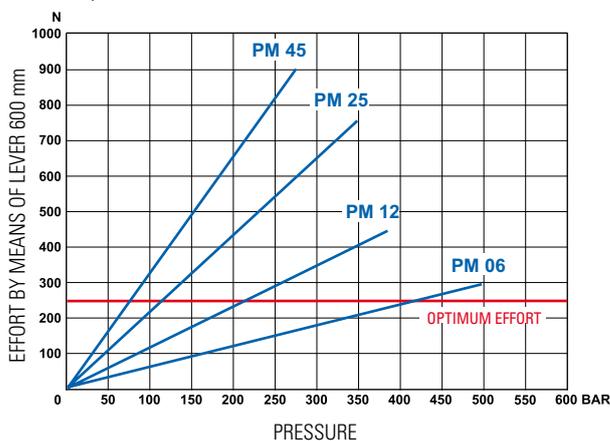
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection  $\varnothing 27$
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included

Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variant	No. serie								Optimal	Max		
PM06	S** (pag. 25)	00	2	253	166	34	26	31	6	6,970	420	500	2,90	pag. 32
PM12				253	166	34	26	31	12	12,095	220	380	2,90	
PM25				273	172	34	30	30	25	25,280	120	350	2,95	
PM45				283	172	40	45	33	45	44,532	80	280	3,00	

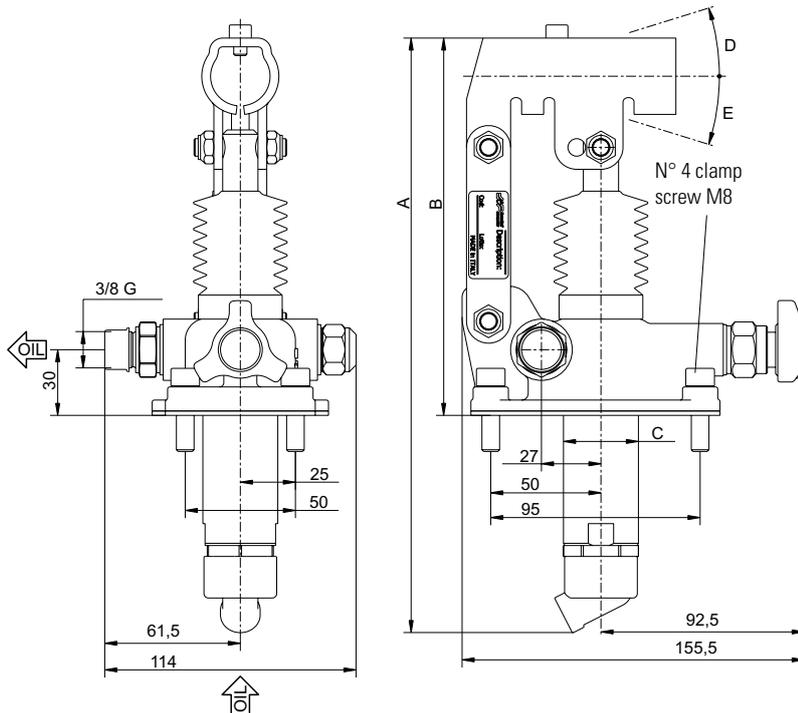
### EFFORT DIAGRAM

### HYDRAULIC DIAGRAM

pin in D (distance between centers 40 mm) PM 06 - PM 12  
 pin in E (distance between centers 51 mm) PM 25 - PM 45



## HAND PUMP WITH RELIEF VALVE AND RELEASE HAND KNOB



**With pressure relief valve**  
**With release hand knob**  
**Double acting hand pump for single cylinder**  
**For fixing to tank**

**Specifications:**

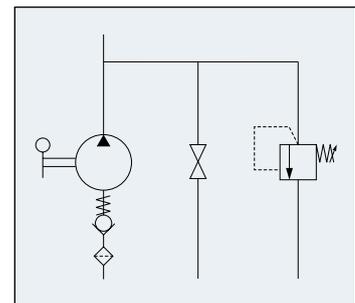
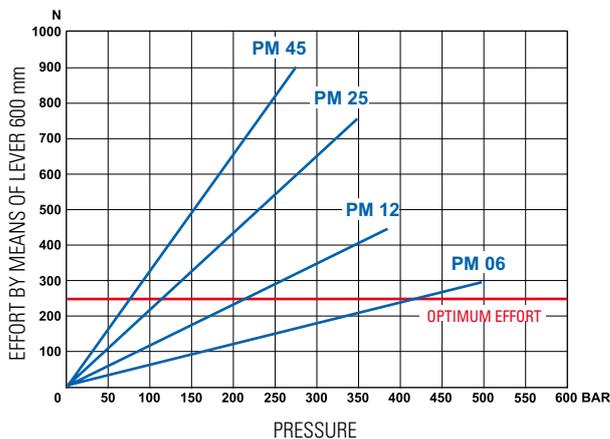
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- Pressure relief valve standard setting: 100 bar (others settings upon request).

Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variant	No. serie								Optimal	Max		
PM06	S** (pag. 25)	02	2	253	166	34	26	31	6	6,970	420	500	2,90	pag. 32
PM12				253	166	34	26	31	12	12,095	220	380	2,90	
PM25				273	172	34	30	30	25	25,280	120	350	2,95	
PM45				283	172	40	45	33	45	44,532	80	280	3,00	

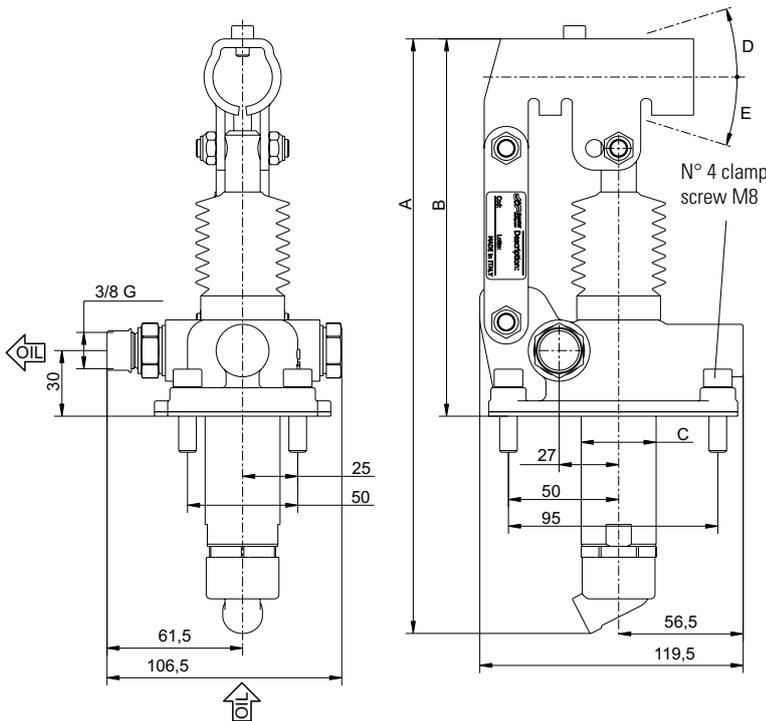
### EFFORT DIAGRAM

### HYDRAULIC DIAGRAM

pin in D (distance between centers 40 mm) PM 06 - PM 12  
 pin in E (distance between centers 51 mm) PM 25 - PM 45



## HAND PUMP WITHOUT RELEASE HAND KNOB



**Without release hand knob**  
**Double acting hand pump for single**  
**For fixing to tank**

**Specifications:**

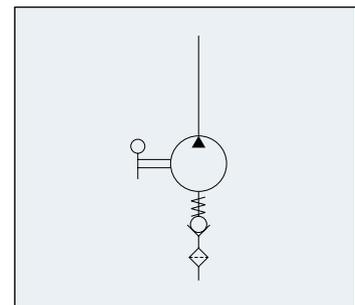
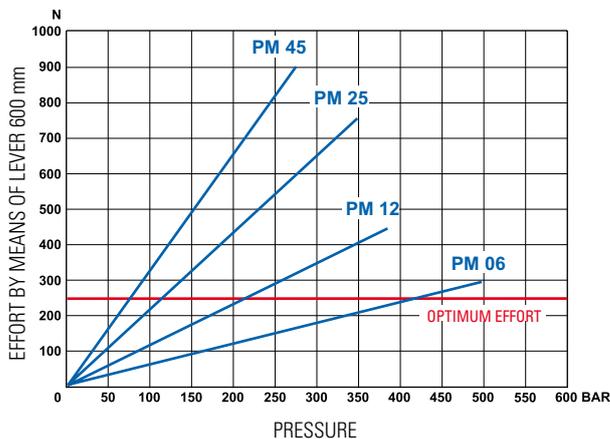
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection  $\varnothing 27$
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included

Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variant	No. serie								Optimal	Max		
PM06	S** (pag. 25)	03	2	253	166	34	26	31	6	6,970	420	500	2,90	pag. 32
PM12				253	166	34	26	31	12	12,095	220	380	2,90	
PM25				273	172	34	30	30	25	25,280	120	350	2,95	
PM45				283	172	40	45	33	45	44,532	80	280	3,00	

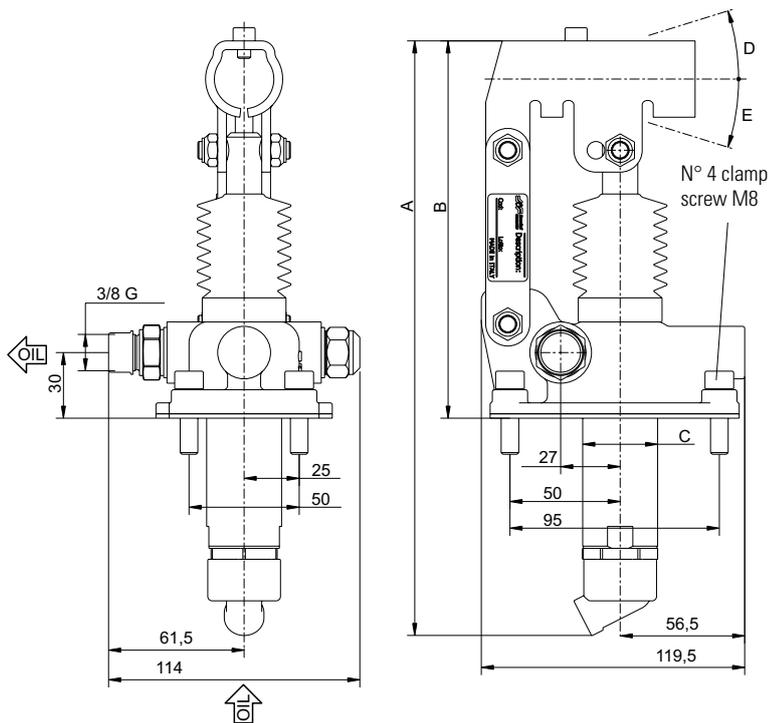
### EFFORT DIAGRAM

### HYDRAULIC DIAGRAM

pin in D (distance between centers 40 mm) PM 06 - PM 12  
 pin in E (distance between centers 51 mm) PM 25 - PM 45



## HAND PUMP WITH RELIEF VALVE WITHOUT RELEASE HAND KNOB



**Without release hand knob**  
**With pressure relief valve**  
**Double acting hand pump for single**  
**For fixing to tank**

**Specifications:**

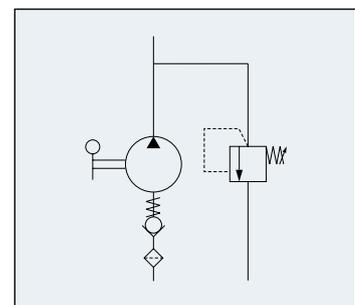
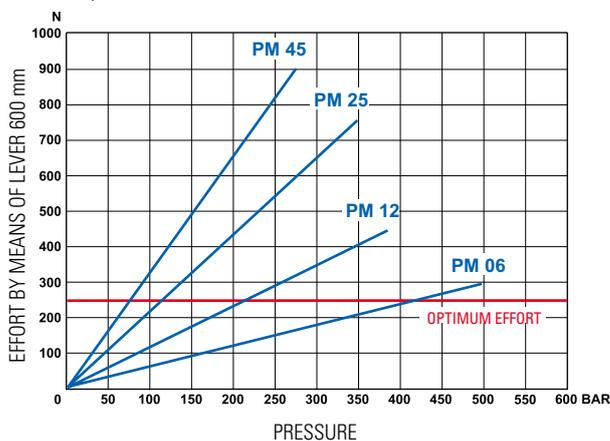
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection  $\varnothing 27$
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- Pressure relief valve standard setting: 100 bar (others settings upon request).

Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variant	No. serie								Optimal	Max		
PM06	S** (pag. 25)	14	2	253	166	34	26	31	6	6,970	420	500	2,90	pag. 32
PM12				253	166	34	26	31	12	12,095	220	380	2,90	
PM25				273	172	34	30	30	25	25,280	120	350	2,95	
PM45				283	172	40	45	33	45	44,532	80	280	3,00	

### EFFORT DIAGRAM

### HYDRAULIC DIAGRAM

pin in D (distance between centers 40 mm) PM 06 - PM 12  
 pin in E (distance between centers 51 mm) PM 25 - PM 45

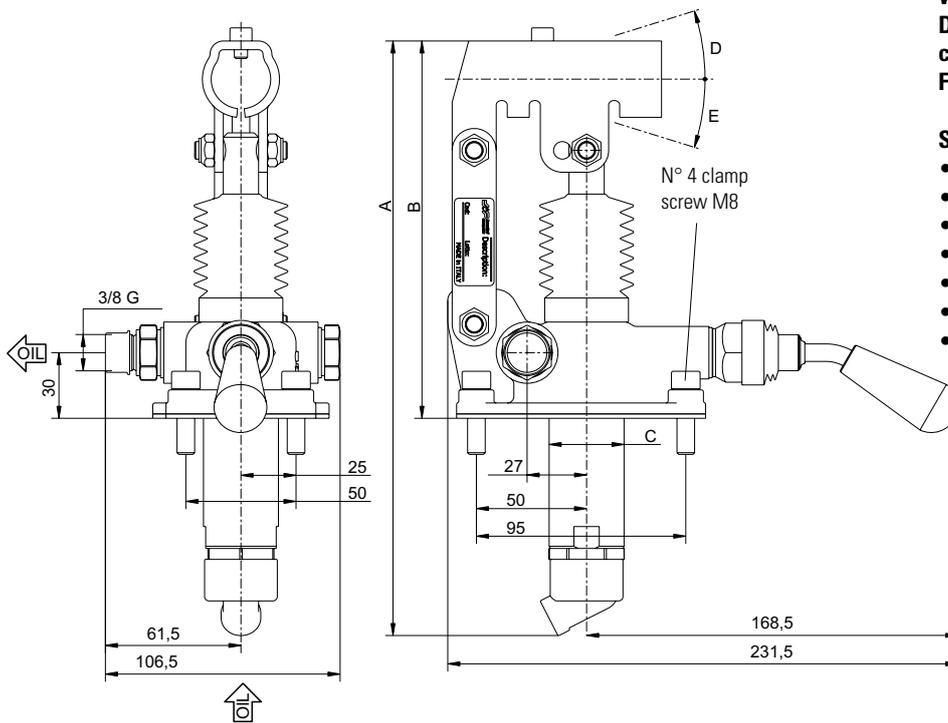


## HAND PUMP WITH NORMALLY CLOSED MANIPULATOR

**With normally closed manipulator**  
**Double acting hand pump for single acting cylinder**  
**For fixing to tank**

**Specifications:**

- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included

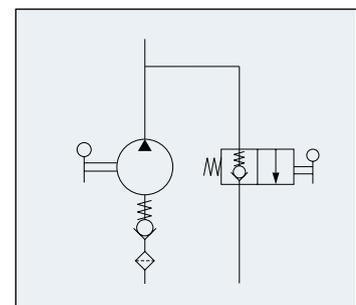
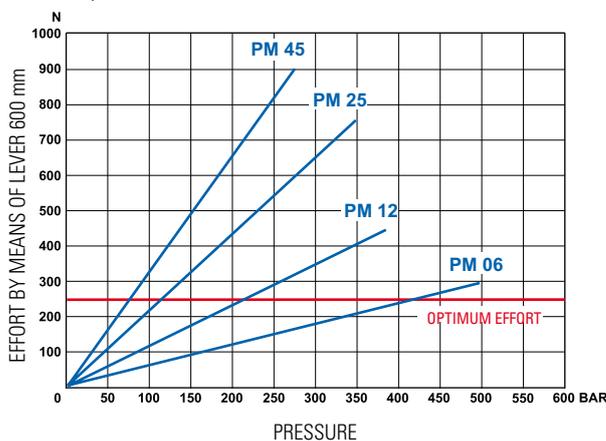


Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variat	No. serie								Optimal	Max		
PM06	S** (pag. 25)	11	2	253	166	34	26	31	6	6,970	420	500	2,90	pag. 32
PM12				253	166	34	26	31	12	12,095	220	380	2,90	
PM25				273	172	34	30	30	25	25,280	120	350	2,95	
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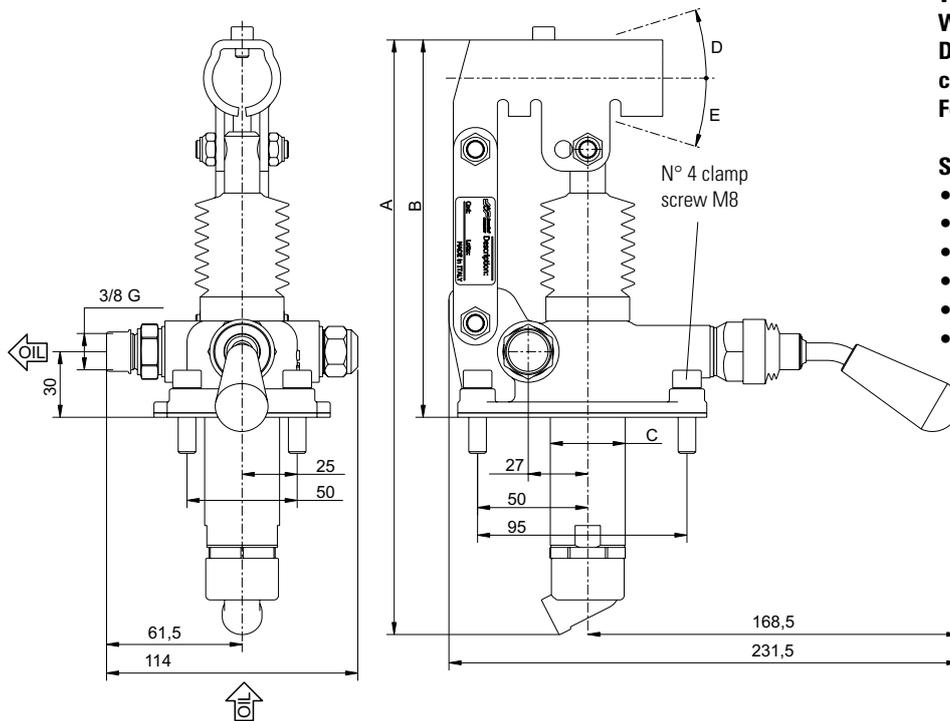
### EFFORT DIAGRAM

### HYDRAULIC DIAGRAM

pin in D (distance between centers 40 mm) PM 06 - PM 12  
 pin in E (distance between centers 51 mm) PM 25 - PM 45



## HAND PUMP WITH RELIEF VALVE AND NORMALLY CLOSED MANIPULATOR



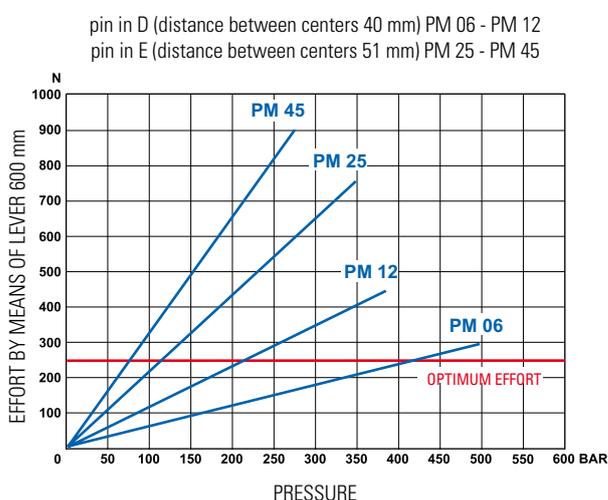
With normally closed manipulator  
 With pressure relief valve  
 Double acting hand pump for single acting cylinder  
 For fixing to tank

### Specifications:

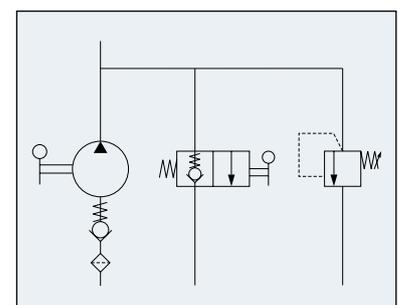
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection  $\varnothing 27$
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- Pressure relief valve standard setting: 100 bar (others settings upon request).

Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variat	No. serie								Optimal	Max		
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PM12				253	166	34	26	31	12	12,095	220	380	2,90	
PM25				273	172	34	30	30	25	25,280	120	350	2,95	
PM45				283	172	40	45	33	45	44,532	80	280	3,00	

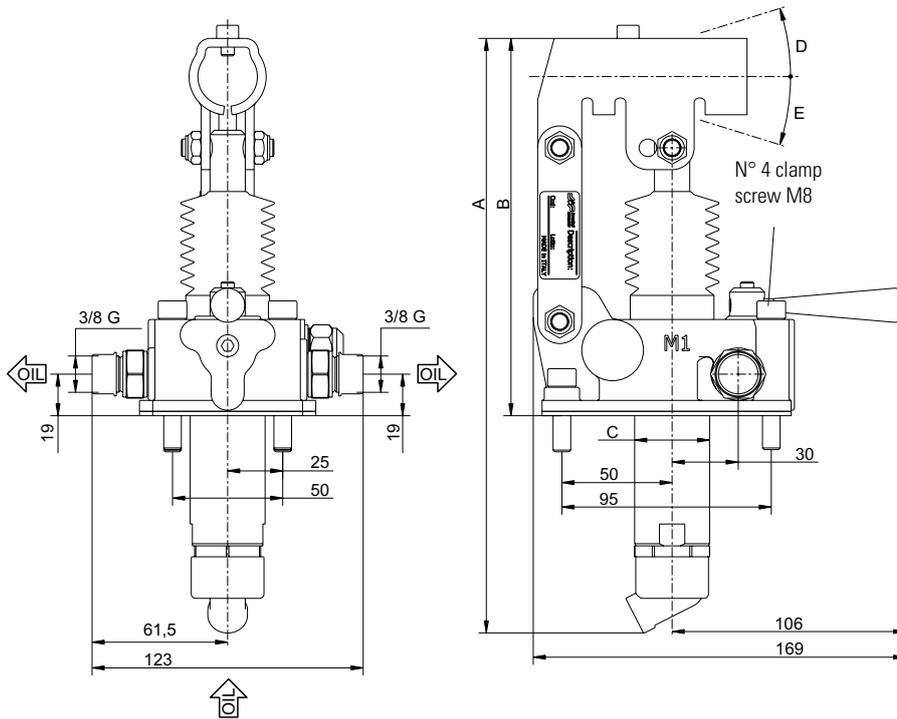
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## HAND PUMP WITH 4/3 FLOW DIVIDER CLOSED CENTRE AND PRESSURE RELIEF VALVE



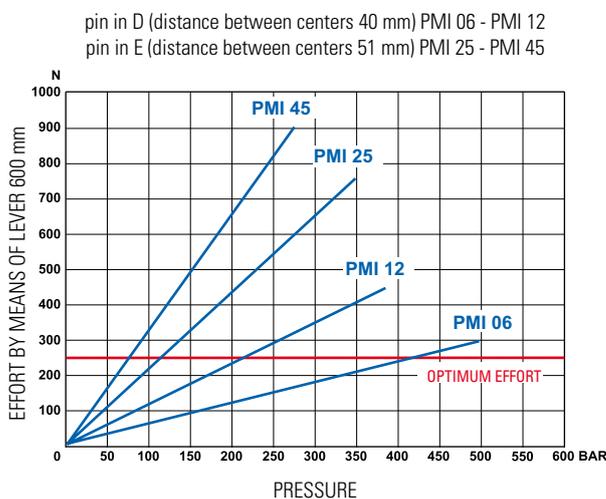
**With 4/3 flow divider closed centre**  
**With pressure relief valve**  
**Double acting hand pump for a double acting cylinder**  
**For fixing to tank**

**Specifications:**

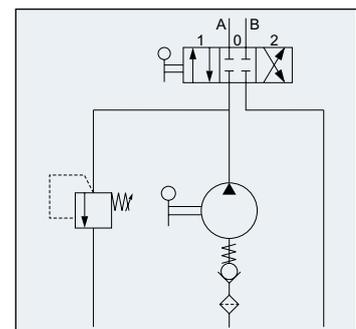
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- Pressure relief valve standard setting: 100 bar (others settings upon request).

Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variant	No. serie								Optimal	Max		
PMI06	S** (pag. 25)	04	2	253	166	34	26	31	6	6,970	420	500	3,40	pag. 32
PMI12				253	166	34	26	31	12	12,095	220	380	3,40	
PMI25				273	172	34	30	30	25	25,280	120	350	3,45	
PMI45				283	172	40	45	33	45	44,532	80	280	3,50	

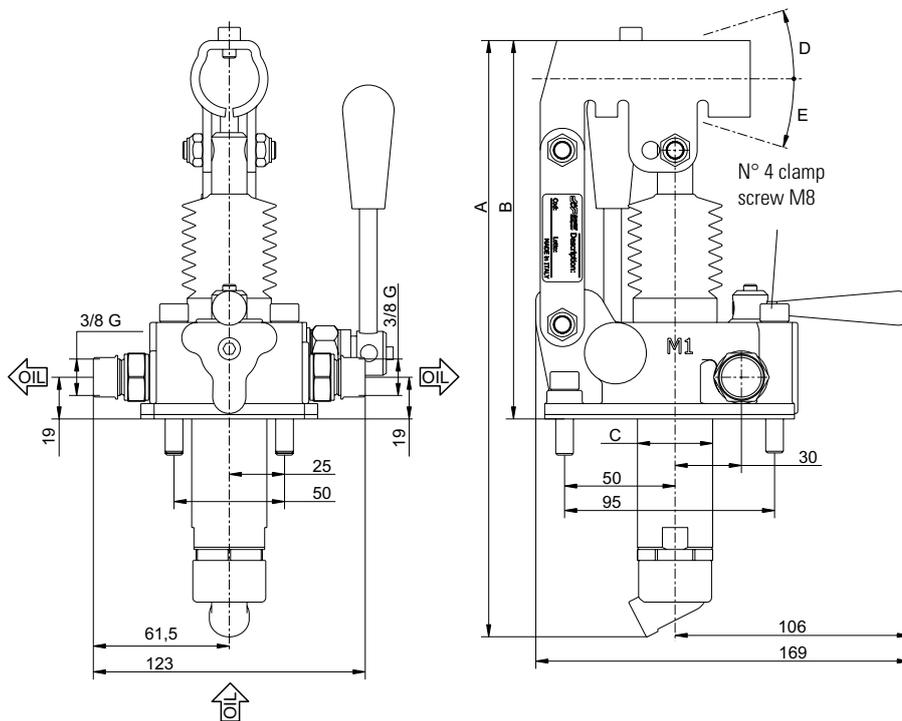
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## HAND PUMP WITH 4/3 FLOW DIVIDER CLOSED CENTRE AND RELEASE LEVER



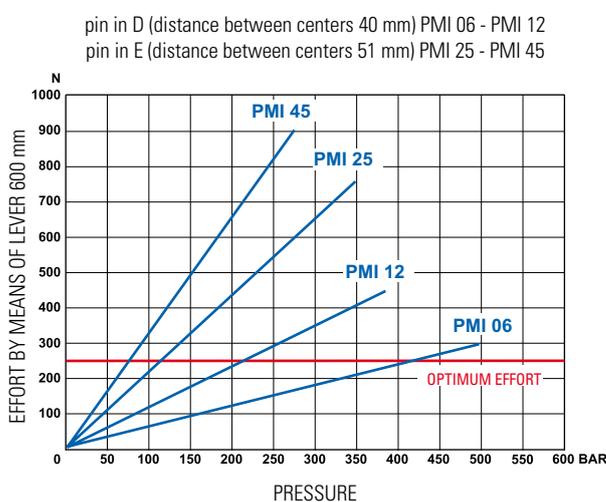
**With 4/3 flow divider closed centre**  
**With release lever**  
**Double acting hand pump for a double acting cylinder**  
**For fixing to tank**

**Specifications:**

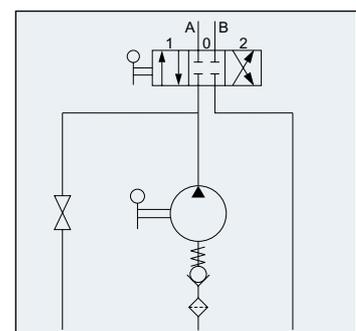
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included

Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variant	No. serie								Optimal	Max		
PMI06	S** (pag. 25)	05	2	253	166	34	26	31	6	6,970	420	500	3,40	pag. 32
PMI12				253	166	34	26	31	12	12,095	220	380	3,40	
PMI25				273	172	34	30	30	25	25,280	120	350	3,45	
PMI45				283	172	40	45	33	45	44,532	80	280	3,50	

### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM

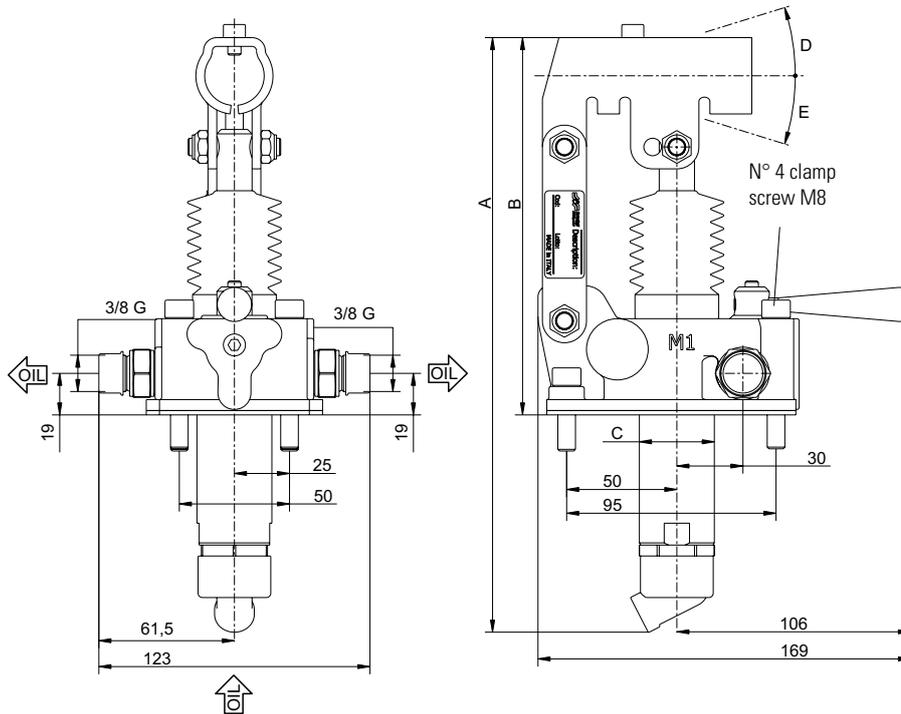


## HAND PUMP WITH 4/3 FLOW DIVIDER CLOSED CENTRE

**With 4/3 flow divider closed centre**  
**Double acting hand pump for a double acting cylinder**  
**For fixing to tank**

**Specifications:**

- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included

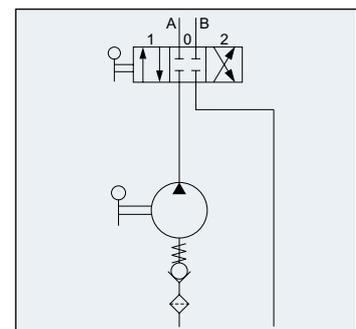
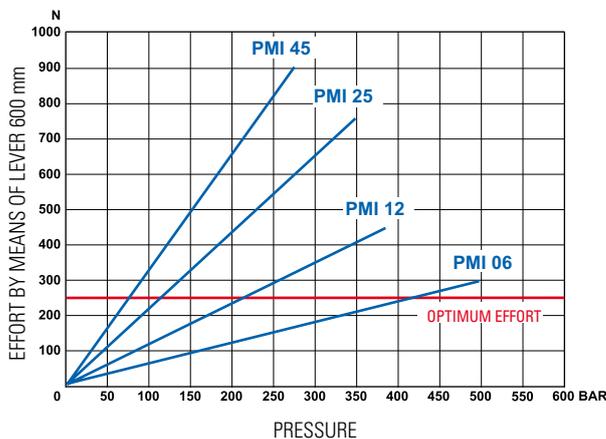


Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variant	No. serie								Optimal	Max		
PMI06	S** (pag. 25)	00	2	253	166	34	26	31	6	6,970	420	500	3,40	pag. 32
PMI12				253	166	34	26	31	12	12,095	220	380	3,40	
PMI25				273	172	34	30	30	25	25,280	120	350	3,45	
PMI45				283	172	40	45	33	45	44,532	80	280	3,50	

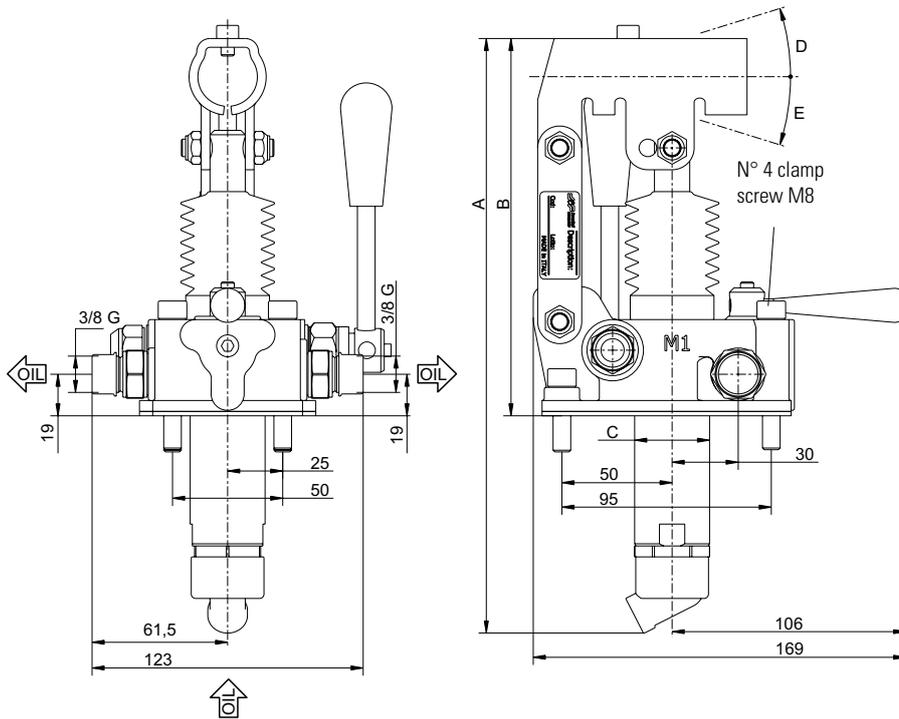
### EFFORT DIAGRAM

### HYDRAULIC DIAGRAM

pin in D (distance between centers 40 mm) PMI 06 - PMI 12  
 pin in E (distance between centers 51 mm) PMI 25 - PMI 45



## HAND PUMP WITH 4/3 FLOW DIVIDER CLOSED CENTRE RELEASE LEVER AND PRESSURE RELIEF VALVE



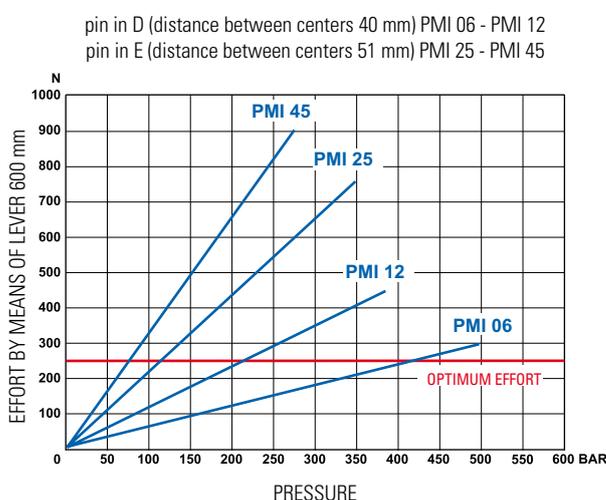
With 4/3 flow divider closed centre  
 With release lever  
 With pressure relief valve  
 Double acting hand pump for a double acting cylinder  
 For fixing to tank

### Specifications:

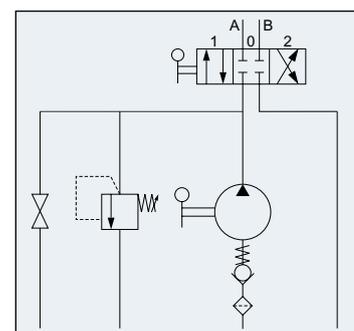
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- Pressure relief valve standard setting: 100 bar (others settings upon request).

Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variant	No. serie								Optimal	Max		
PMI06	S** (pag. 25)	06	2	253	166	34	26	31	6	6,970	420	500	3,40	pag. 32
PMI12				253	166	34	26	31	12	12,095	220	380	3,40	
PMI25				273	172	34	30	30	25	25,280	120	350	3,45	
PMI45				283	172	40	45	33	45	44,532	80	280	3,50	

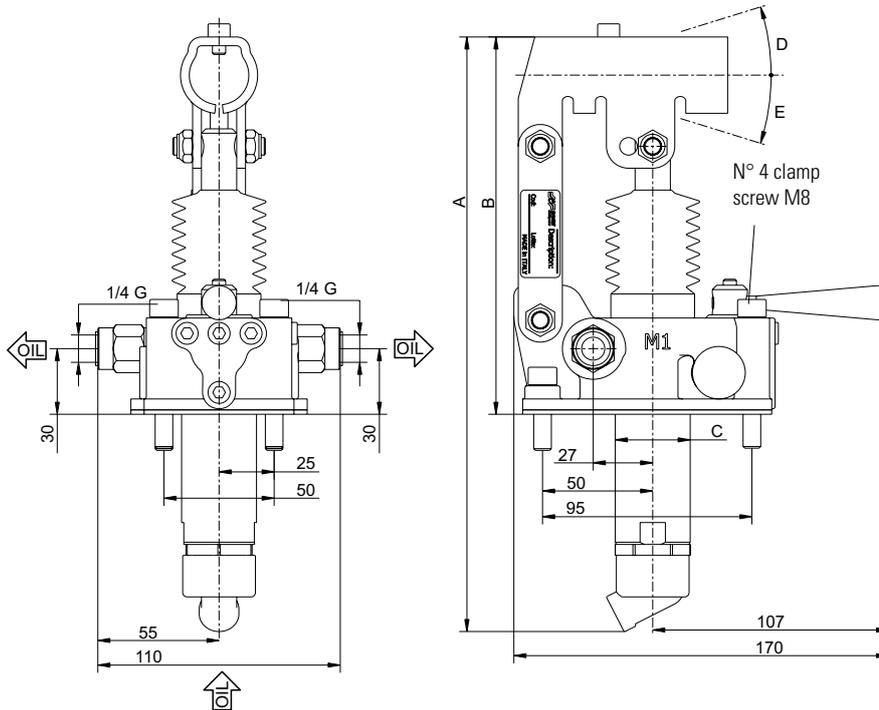
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## HAND PUMP WITH 4/3 FLOW DIVIDER, DUAL PILOT CHECK VALVE AND BRAKES



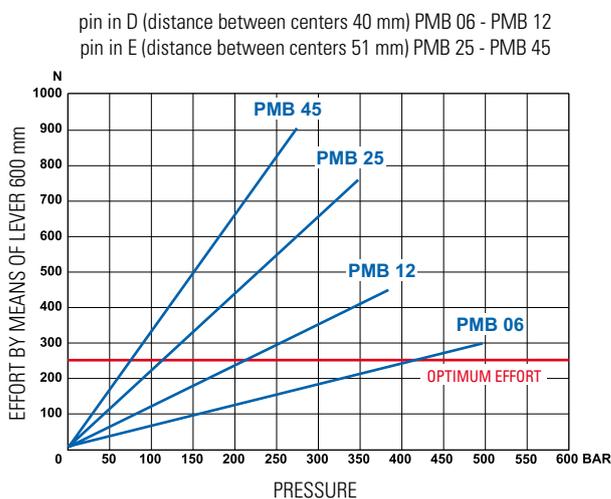
**With 4/3 flow divider**  
**With dual pilot check valve**  
**With brakes**  
**Double acting hand pump for a double acting cylinder**  
**For fixing to tank**

### Specifications:

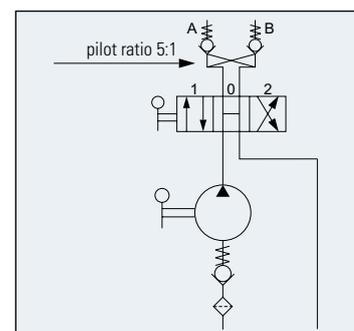
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- With hydraulic brakes to operate under 50 bar pressure.

Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variante	No. serie								Optimal	Max		
PMB06	S** (pag. 25)	00	2	253	166	34	26	31	6	6,970	420	500	3,40	pag. 32
PMB12				253	166	34	26	31	12	12,095	220	380	3,40	
PMB25				273	172	34	30	30	25	25,280	120	350	3,45	
PMB45				283	172	40	45	33	45	44,532	80	280	3,50	

### EFFORT DIAGRAM

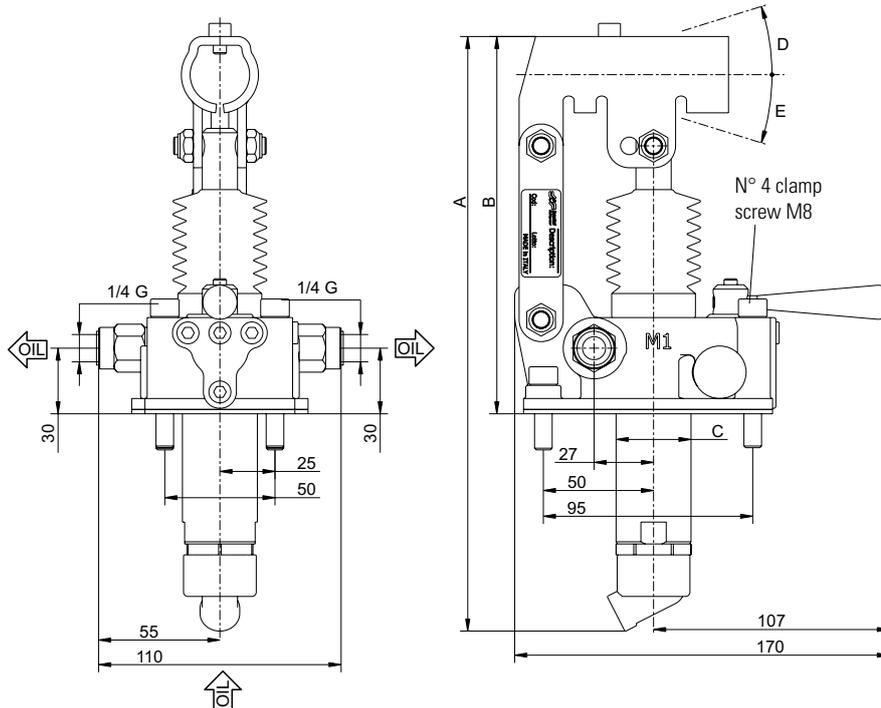


### HYDRAULIC DIAGRAM



# PMB 06/12/25/45 S\*\* 07 2

## HAND PUMP WITH 4/3 FLOW DIVIDER, DUAL PILOT CHECK VALVE, BRAKES AND PRESSURE RELIEF VALVE IN "A"



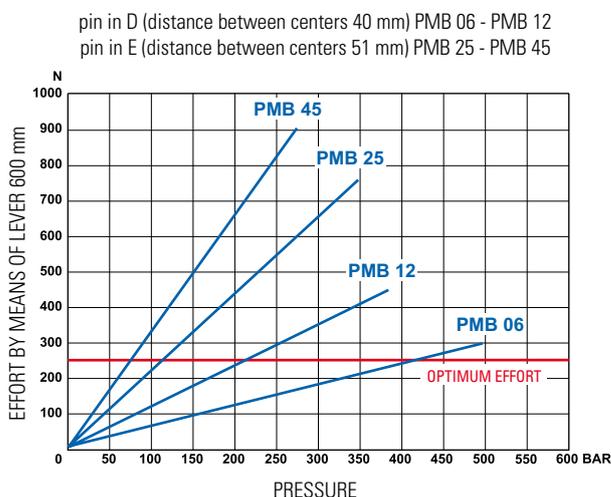
**With 4/3 flow divider**  
**With dual pilot check valve**  
**With brakes**  
**With pressure relief valve in "A"**  
**Double acting hand pump for a double acting cylinder**  
**For fixing to tank**

### Specifications:

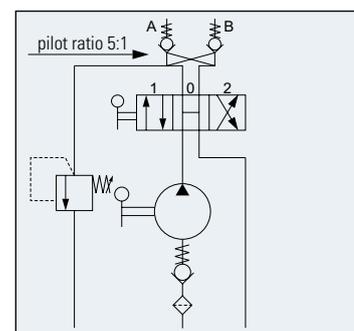
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection  $\varnothing$  27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- With hydraulic brakes to operate under 50 bar pressure
- Pressure relief valve standard setting: 100 bar (others settings upon request).

Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variante	No. serie								Optimal	Max		
PMB06	S** (pag. 25)	07	2	253	166	34	26	31	6	6,970	420	500	3,40	pag. 32
PMB12				253	166	34	26	31	12	12,095	220	380	3,40	
PMB25				273	172	34	30	30	25	25,280	120	350	3,45	
PMB45				283	172	40	45	33	45	44,532	80	280	3,50	

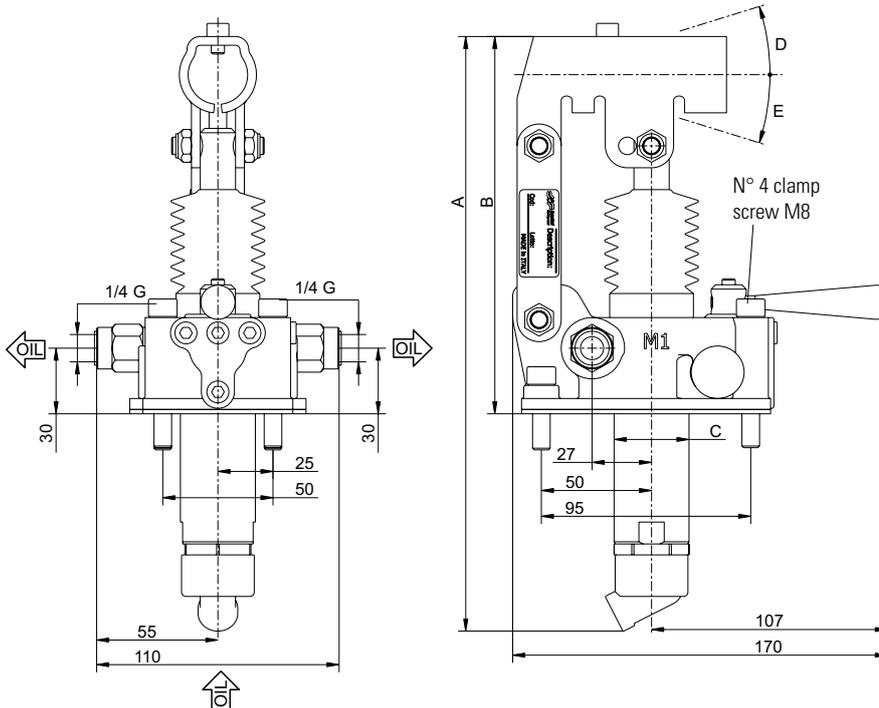
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## HAND PUMP WITH 4/3 FLOW DIVIDER, DUAL PILOT CHECK VALVE, BRAKES AND PRESSURE RELIEF VALVE IN "B"



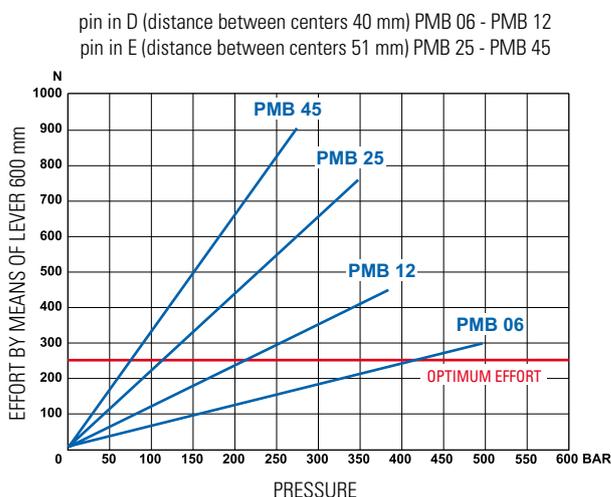
**With 4/3 flow divider**  
**With dual pilot check valve**  
**With brakes**  
**With pressure relief valve in "B"**  
**Double acting hand pump for a double acting cylinder**  
**For fixing to tank**

### Specifications:

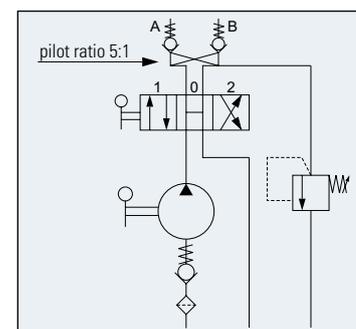
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection  $\varnothing$  27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- With hydraulic brakes to operate under 50 bar pressure
- Pressure relief valve standard setting: 100 bar (others settings upon request).

Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variants	No. serie								Optimal	Max		
PMB06	S** (pag. 25)	08	2	253	166	34	26	31	6	6,970	420	500	3,40	pag. 32
PMB12				253	166	34	26	31	12	12,095	220	380	3,40	
PMB25				273	172	34	30	30	25	25,280	120	350	3,45	
PMB45				283	172	40	45	33	45	44,532	80	280	3,50	

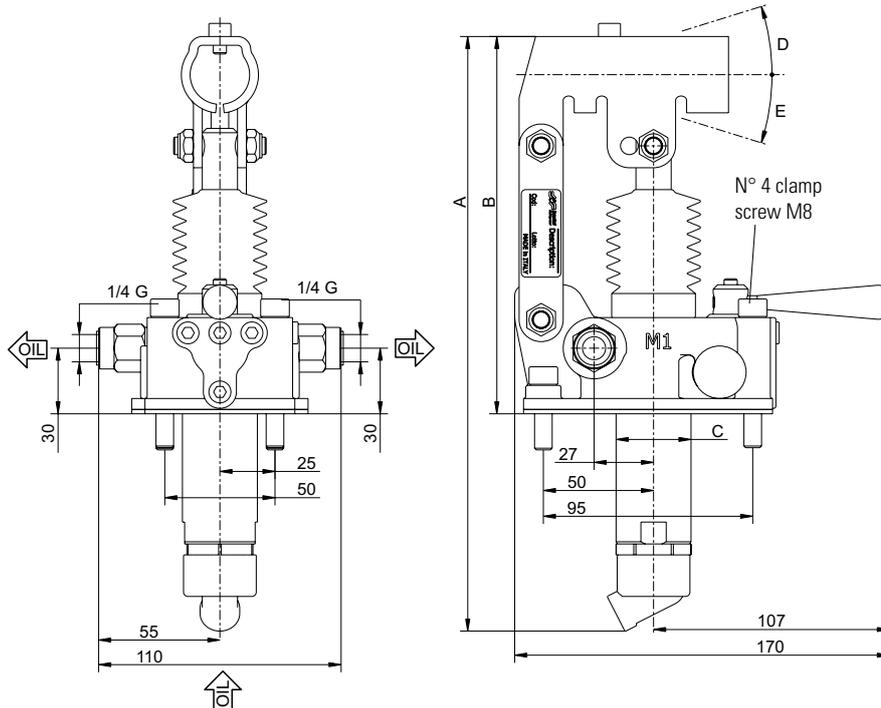
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## HAND PUMP WITH 4/3 FLOW DIVIDER, DUAL PILOT CHECK VALVE, BRAKES AND PRESSURE RELIEF VALVE IN "A" AND "B"



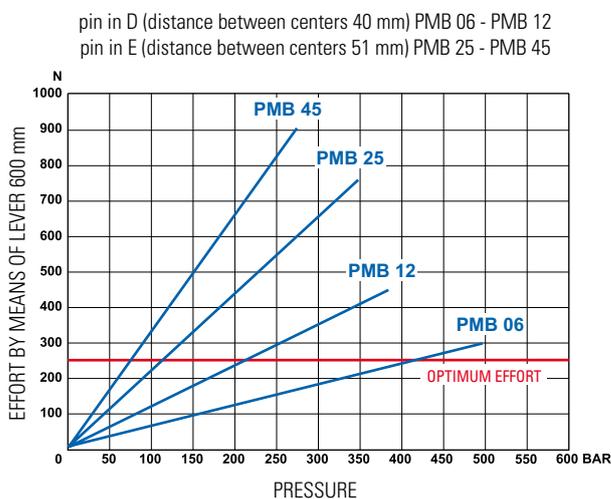
**With 4/3 flow divider**  
**With dual pilot check valve in "A" and "B"**  
**With brakes**  
**With pressure relief valve**  
**Double acting hand pump for a double acting cylinder**  
**For fixing to tank**

### Specifications:

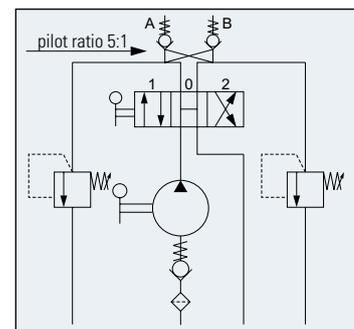
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- With hydraulic brakes to operate under 50 bar pressure
- Pressure relief valve standard setting: 100 bar (others settings upon request).

Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variante	No. serie								Optimal	Max		
PMB06	S** (pag. 25)	09	2	253	166	34	26	31	6	6,970	420	500	3,40	pag. 32
PMB12				253	166	34	26	31	12	12,095	220	380	3,40	
PMB25				273	172	34	30	30	25	25,280	120	350	3,45	
PMB45				283	172	40	45	33	45	44,532	80	280	3,50	

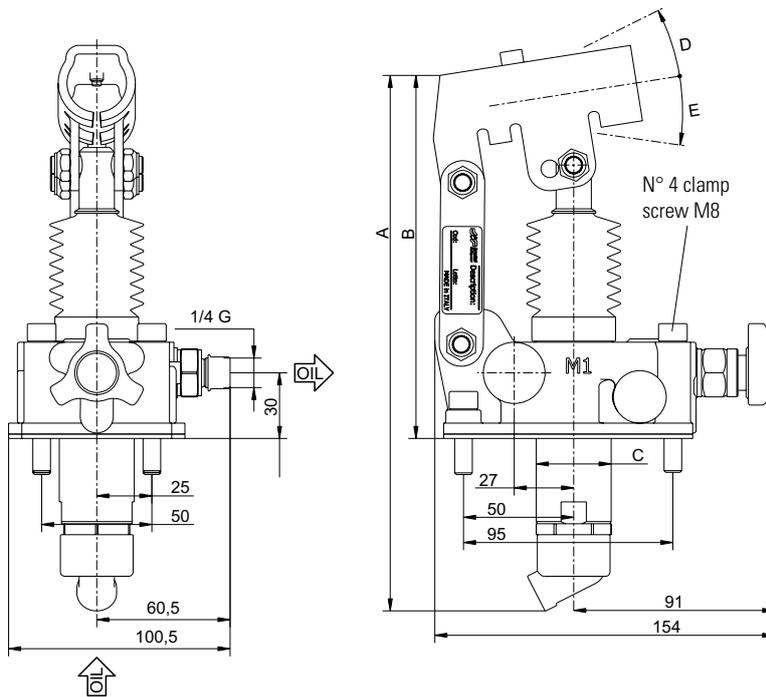
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## SINGLE ACTING HAND PUMP WITH RELEASE HAND KNOB



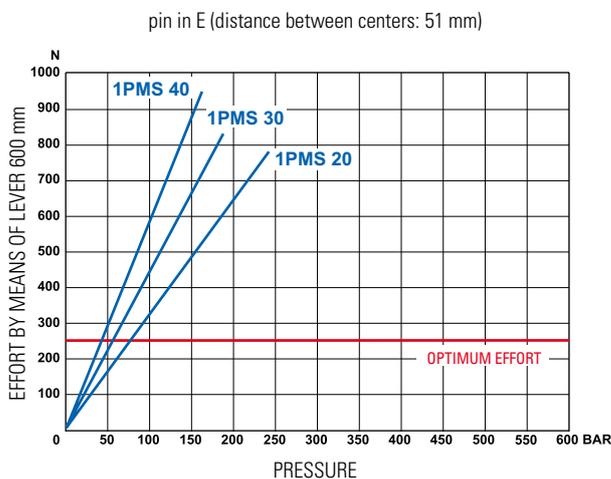
**With release hand knob**  
**Single acting hand pump for a single acting cylinder**  
**For fixing to tank**

**Specifications:**

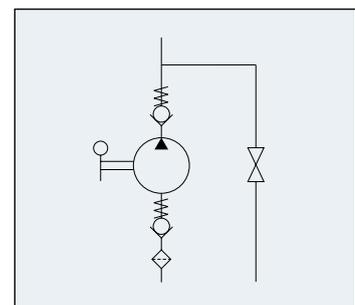
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included.

Ordering code				A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variant	No. serie								Optimal	Max		
1PMS20	S** (pag. 25)	00	2	249	167	34	35	29	20	20,527	80	240	3,10	pag. 32
1PMS30				252	167	34	38	26	30	30,262	60	185	3,20	
1PMS40				252	167	40	38	26	40	40,290	40	160	3,30	

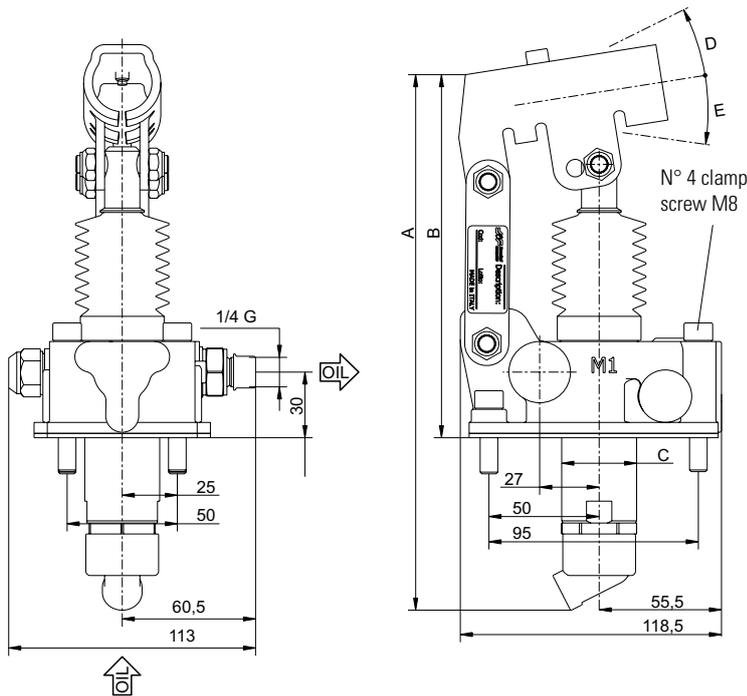
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## SINGLE ACTING HAND PUMP WITH RELEASE HAND KNOB AND PRESSURE RELIEF VALVE



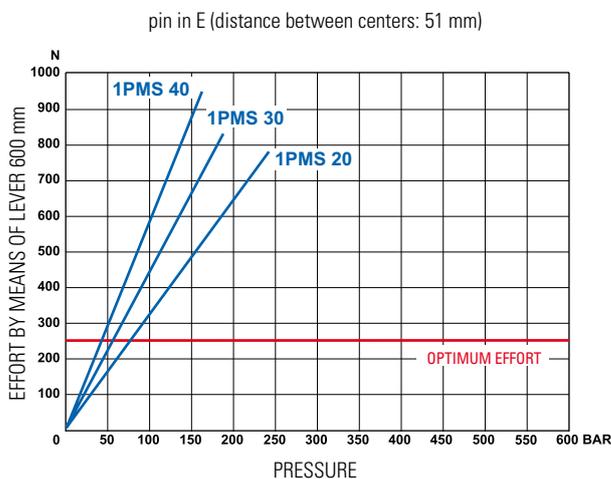
With release hand knob  
 With pressure relief valve  
 Single acting hand pump for a single acting cylinder  
 For fixing to tank

### Specifications:

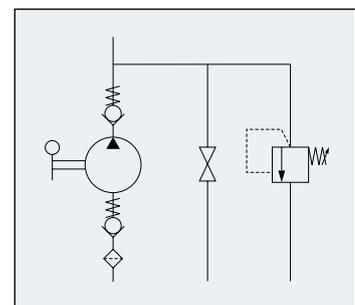
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection  $\varnothing 27$
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- Pressure relief valve standard setting: 100 bar (others settings upon request).

Type	Ordering code			A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
	Tank	Variant	No. serie								Optimal	Max		
1PMS20	S** (pag. 25)	02	2	249	167	34	35	29	20	20,527	80	240	3,10	pag. 32
1PMS30				252	167	34	38	26	30	30,262	60	185	3,20	
1PMS40				252	167	40	38	26	40	40,290	40	160	3,30	

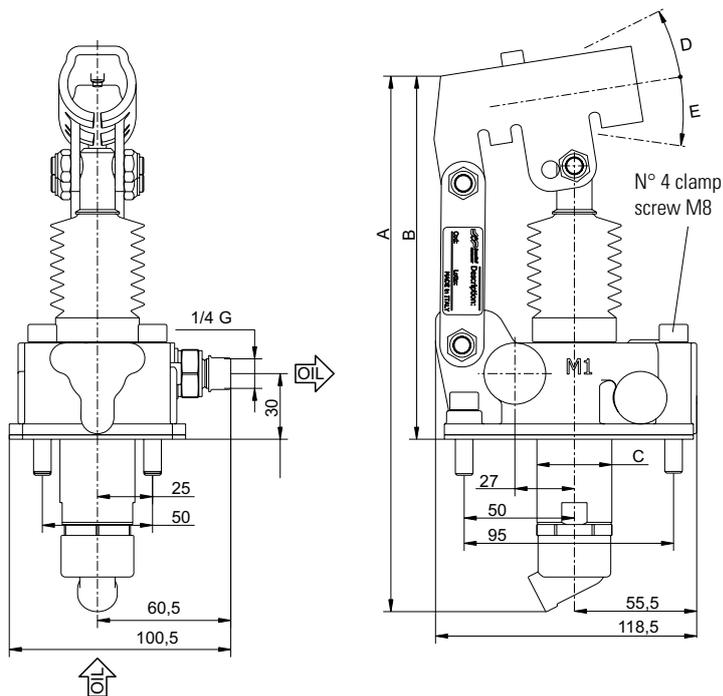
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## SINGLE ACTING HAND PUMP WITHOUT RELEASE HAND KNOB



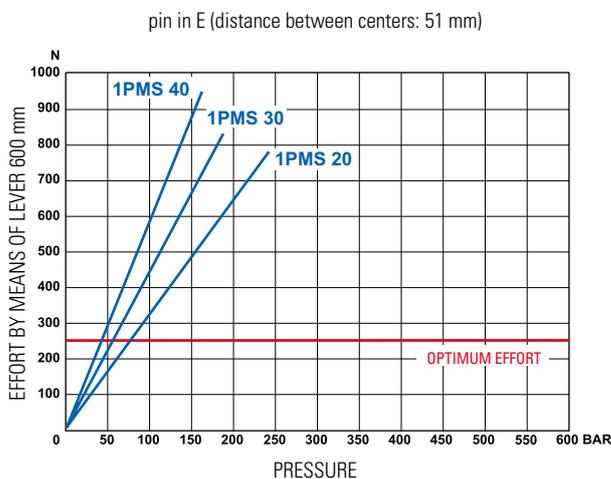
**Without release hand knob**  
**Single acting hand pump for a single acting cylinder**  
**For fixing to tank**

**Specifications:**

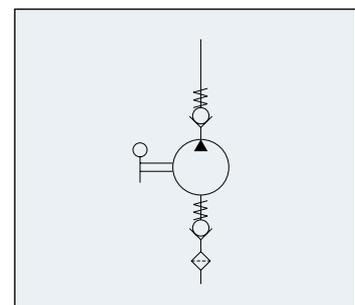
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included

Type	Ordering code			A mm	B mm	C mm	D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
	Tank	Variant	No. serie								Optimal	Max		
1PMS20	S** (pag. 25)	03	2	249	167	34	35	29	20	20,527	80	240	3,10	pag. 32
1PMS30				252	167	34	38	26	30	30,262	60	185	3,20	
1PMS40				252	167	40	38	26	40	40,290	40	160	3,30	

### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM

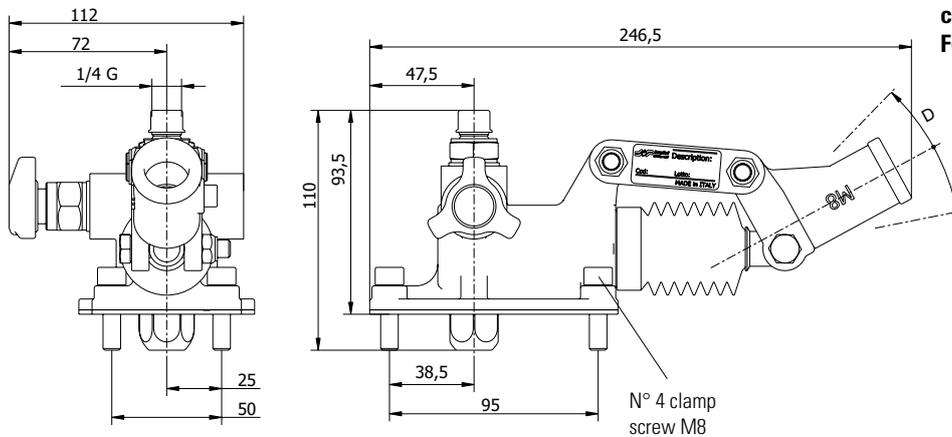


## SINGLE ACTING HAND PUMP WITH RELEASE HAND KNOB

**With release hand knob**  
**Single acting hand pump for a single acting cylinder**  
**For fixing to tank**

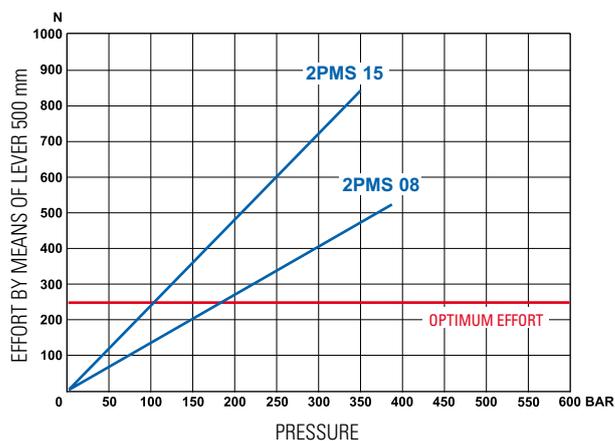
**Specifications:**

- Cast iron body
- Piston treated with Niploy
- Iron cast support lever
- Lever connection  $\varnothing 20$
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included

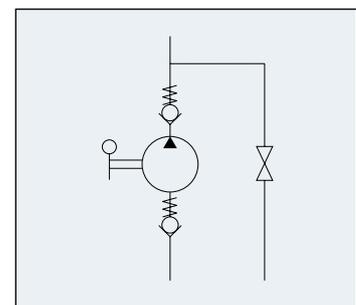


Ordering code				D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variant	No. serie					Optimal	Max		
2PMS08	S** (pag. 25)	00	2	30	26	8	8,042	180	360	3,20	pag. 32
2PMS15				30	26	15	15,205	110	350	3,20	

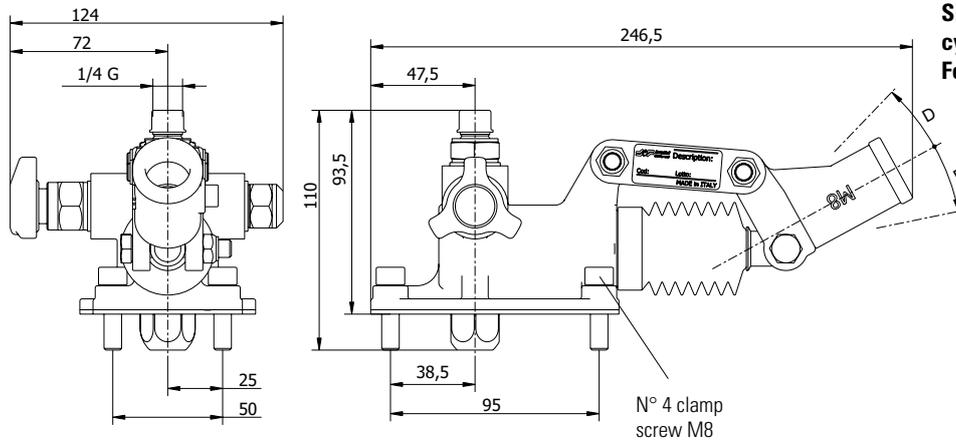
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## SINGLE ACTING HAND PUMP WITH RELEASE HAND KNOB AND PRESSURE RELIEF VALVE



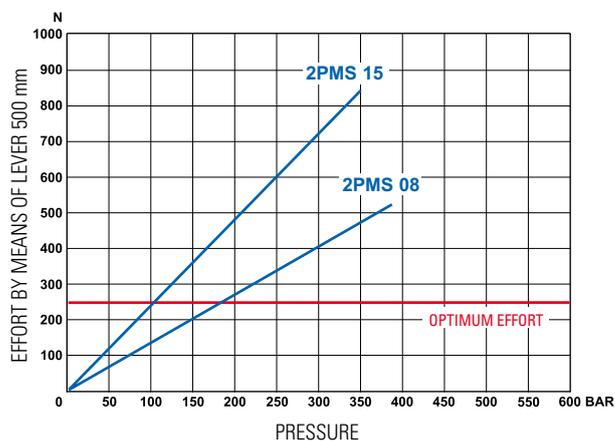
With release hand knob  
 With pressure relief valve  
 Single acting hand pump for a single acting cylinder  
 For fixing to tank

### Specifications:

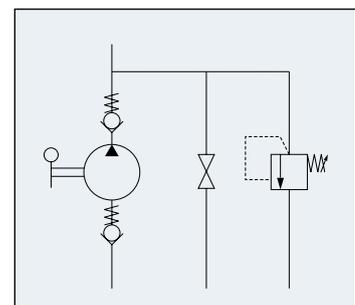
- Cast iron body
- Piston treated with Niploy
- Iron cast support lever
- Lever connection  $\varnothing 20$
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included
- Pressure relief valve standard setting: 100 bar (others settings upon request).

Ordering code				D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variant	No. serie					Optimal	Max		
2PMS08	S** (pag. 25)	02	2	30	26	8	8,042	180	360	3,20	pag. 32
2PMS15				30	26	15	15,205	110	350	3,20	

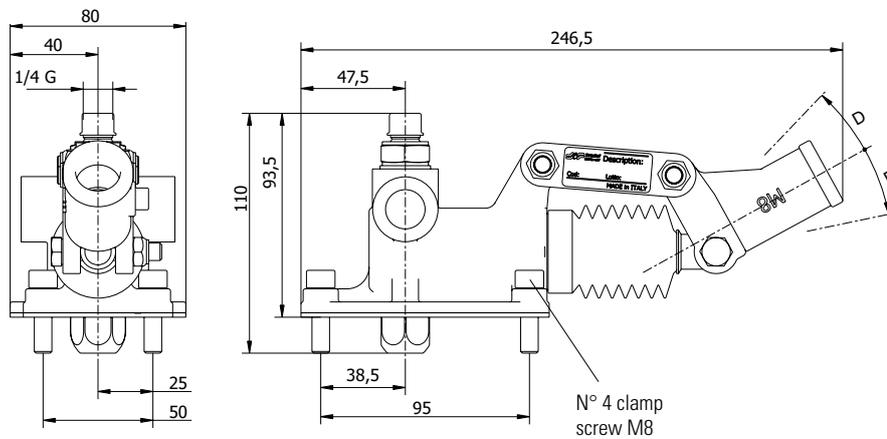
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## SINGLE ACTING HAND PUMP WITHOUT RELEASE HAND KNOB



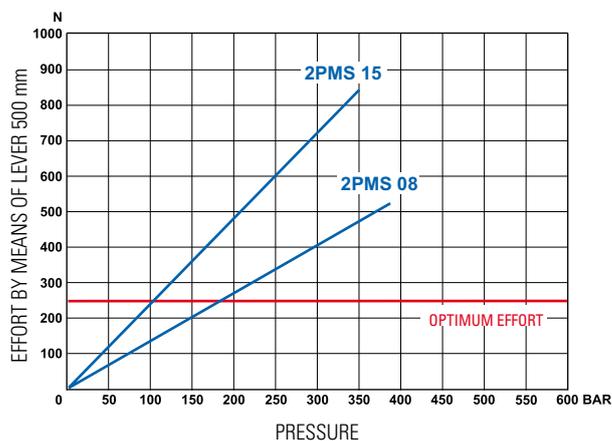
Without release hand knob  
 Single acting hand pump for a single acting cylinder  
 For fixing to tank

**Specifications:**

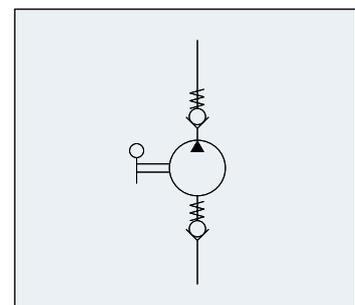
- Cast iron body
- Piston treated with Niploy
- Iron cast support lever
- Lever connection  $\varnothing 20$
- White zinc plated external parts
- Standard colour black
- Oil tank mounting kit included

Ordering code				D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Tank	Variant	No. serie					Optimal	Max		
2PMS08	S** (pag. 25)	03	2	30	26	8	8,042	180	360	3,20	pag. 32
2PMS15				30	26	15	15,205	110	350	3,20	

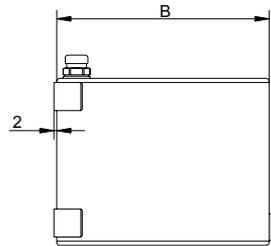
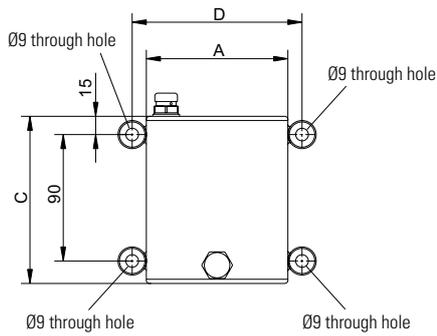
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM

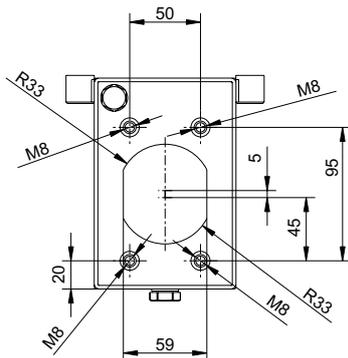


## PAINTED STEEL OIL TANKS FOR HAND PUMPS

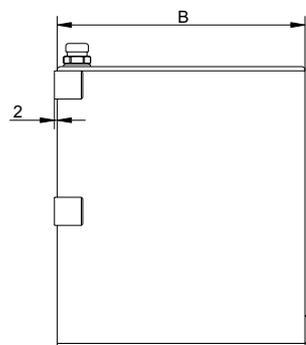
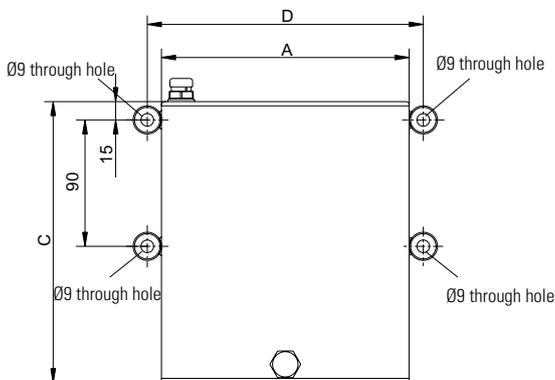


### Specifications:

- Suction pipe included
- Breather cap 1/4 G
- Release cap 1/4 G
- Standard colour black

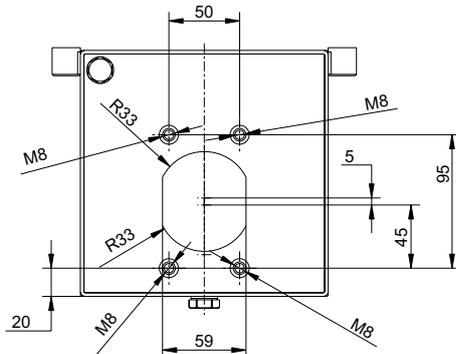


Ordering code	Capacity liters	A mm	B mm	C mm	D mm	Mass kg	Suction pipe	Tank kit
<b>S01</b>	1	100	150	120	120	2,2	Ø10 x 85 mm	SPM010001
<b>S02</b>	2	100	150	185	120	3,2	Ø10 x 114 mm	SPM020001
<b>S03</b>	3	100	150	255	120	3,7	Ø10 x 180 mm	SPM030001



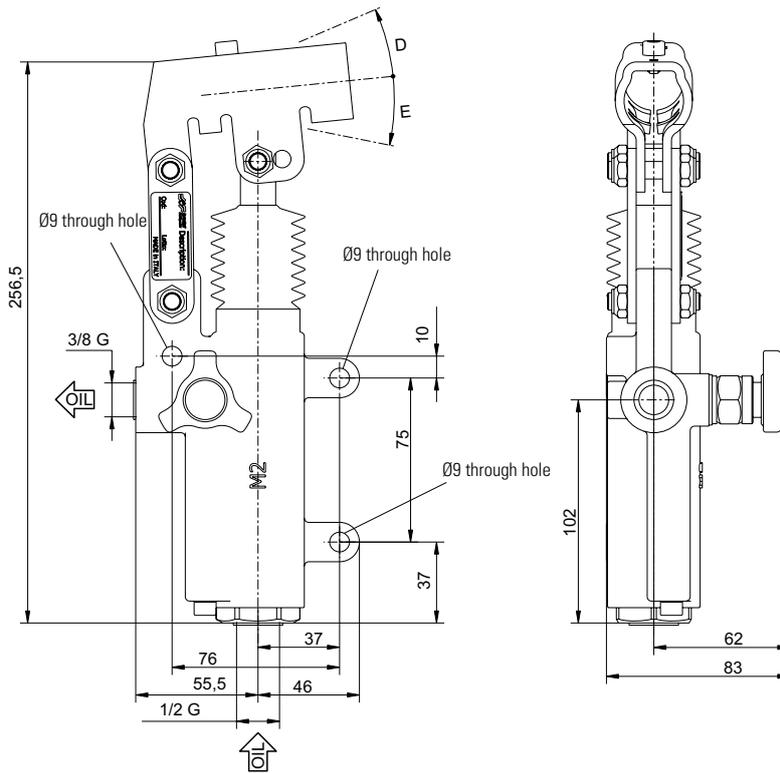
### Specifications:

- Suction pipe included
- Breather cap 1/4 G
- Release cap 1/4 G
- Standard colour black



Ordering code	Capacity liters	A mm	B mm	C mm	D mm	Mass kg	Suction pipe	Tank kit
<b>S05</b>	5	175	175	200	195	5,3	Ø10 x 156 mm	SPM050001
<b>S07</b>	7	175	175	275	195	6,6	Ø10 x 215 mm	SPM070001
<b>S10</b>	10	175	175	380	195	8,3	Ø10 x 325 mm	SPM100001

## HAND PUMP WITH RELEASE HAND KNOB



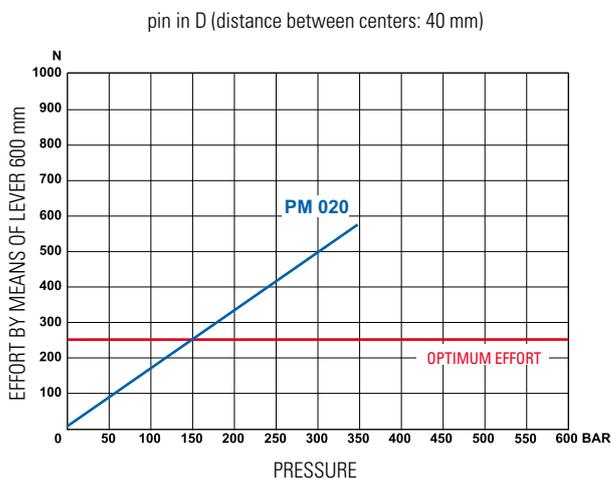
**With release hand knob**  
**Double acting hand pump for single acting cylinder**  
**For fixing to wall**

**Specifications:**

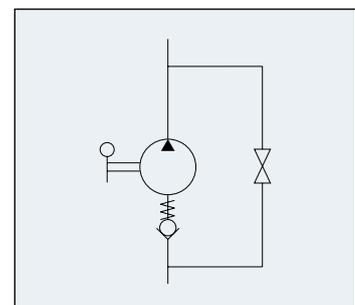
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black

Ordering code			D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Variant	No. serie					Optimal	Max		
PM020	00	2	32	30	20	20,090	150	350	2,65	pag. 32

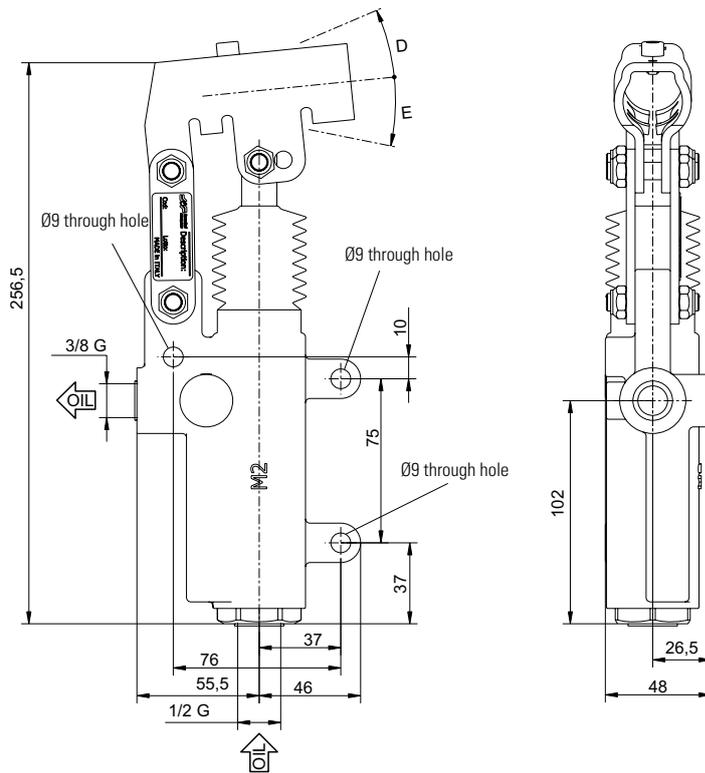
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## HAND PUMP WITHOUT RELEASE HAND KNOB



**Without release hand knob**  
**Double acting hand pump for single acting cylinder**  
**For fixing to wall**

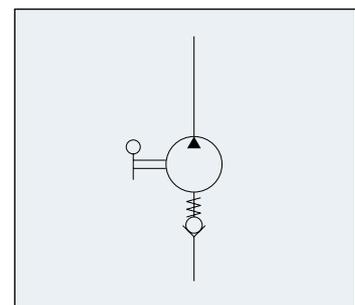
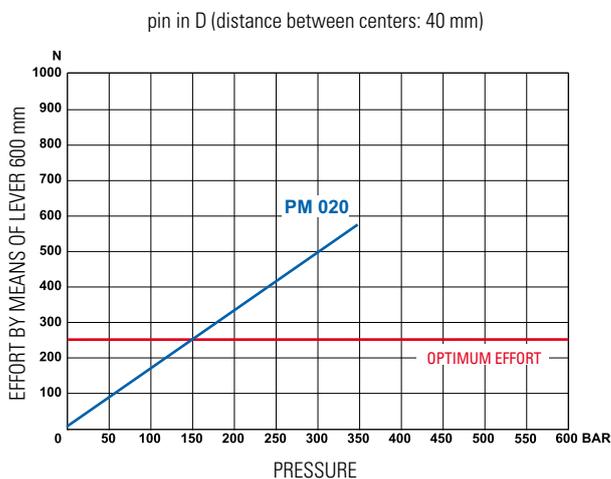
**Specifications:**

- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black

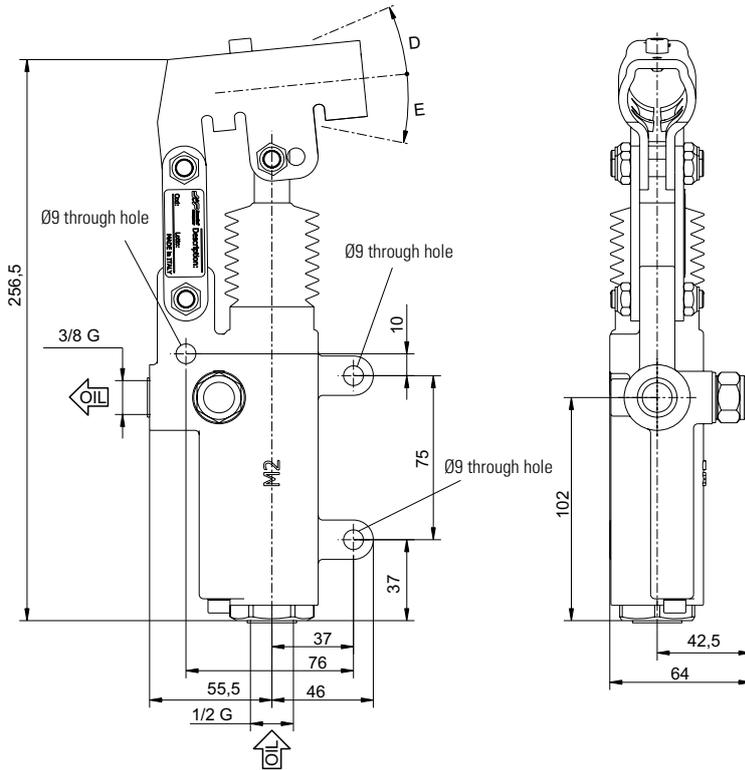
Ordering code			D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Variant	No. serie					Optimal	Max		
PM020	03	2	32	30	20	20,090	150	350	2,65	pag. 32

### EFFORT DIAGRAM

### HYDRAULIC DIAGRAM



## HAND PUMP WITH PRESSURE RELIEF VALVE WITHOUT RELEASE HAND KNOB



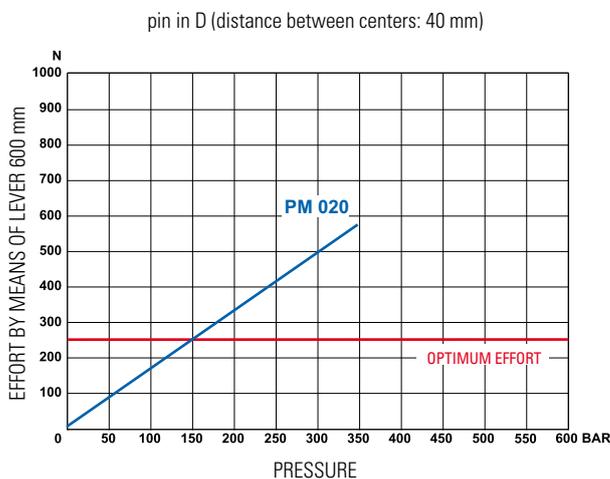
**With pressure relief valve**  
**Without release hand knob**  
**Double acting hand pump for single acting cylinder**  
**For fixing to wall**

**Specifications:**

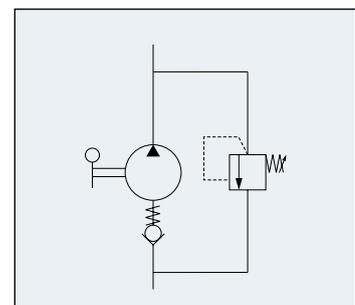
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Pressure relief valve standard setting: 100 bar (others settings upon request)

Ordering code			D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Variant	No. serie					Optimal	Max		
PM020	10	2	32	30	20	20,090	150	350	2,65	pag. 32

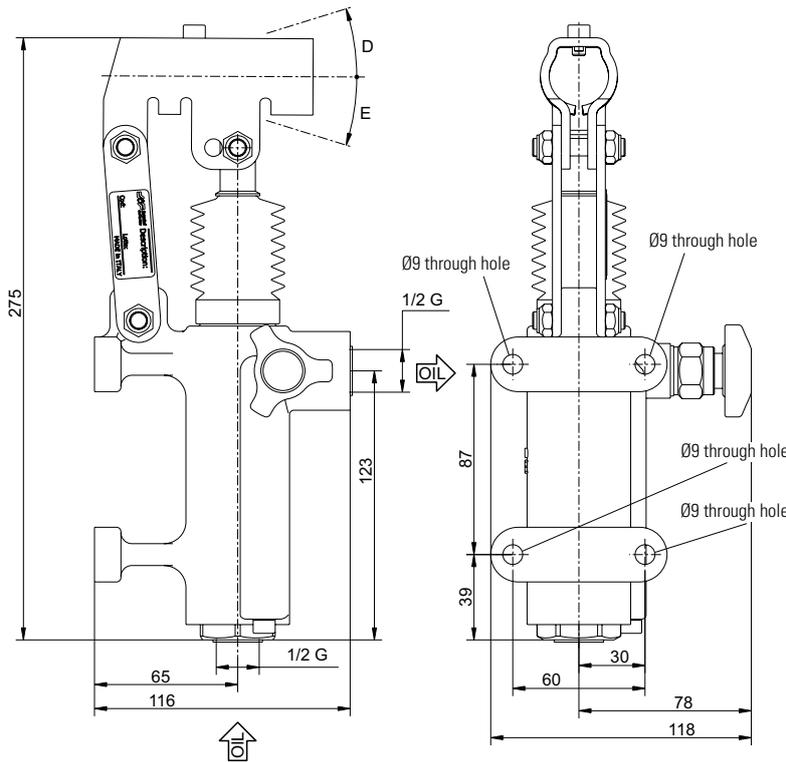
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## HAND PUMP WITH RELEASE HAND KNOB



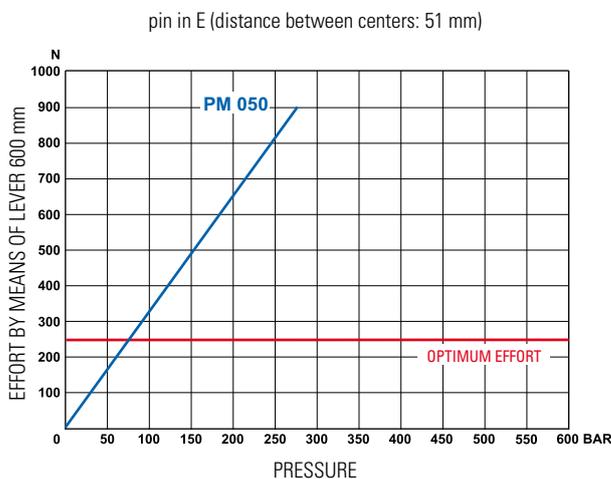
**Without release hand knob**  
**Double acting hand pump for single acting cylinder**  
**For fixing to wall**

**Specifications:**

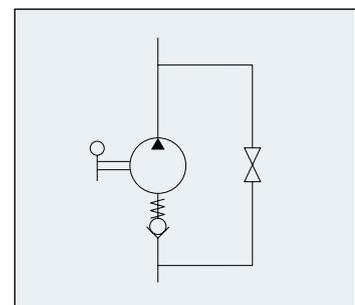
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black

Ordering code			D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Variant	No. serie					Optimal	Max		
PM050	00	2	38	37	50	43,825	80	280	3,40	pag. 32

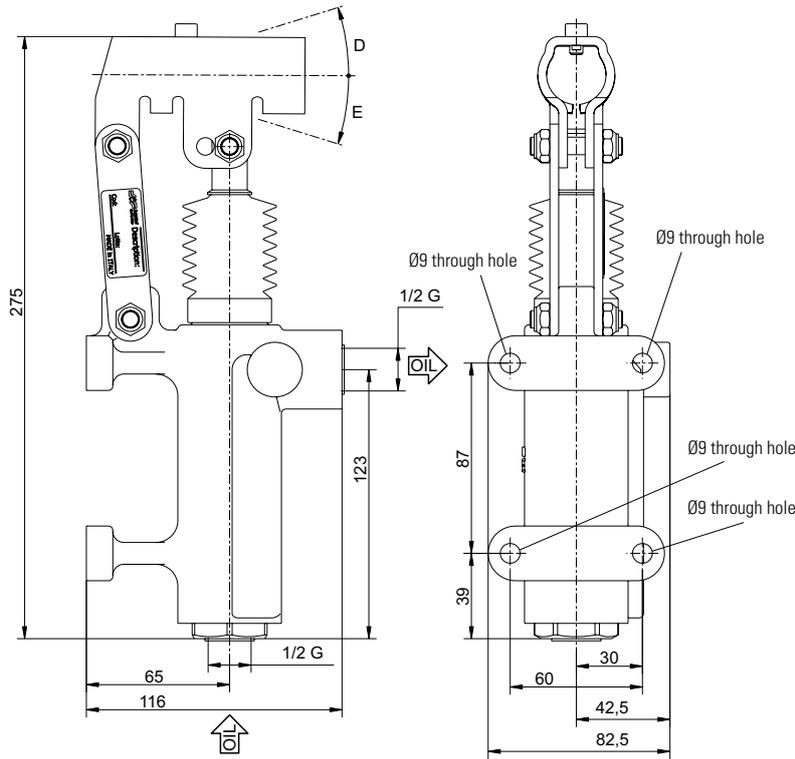
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## HAND PUMP WITHOUT RELEASE HAND KNOB



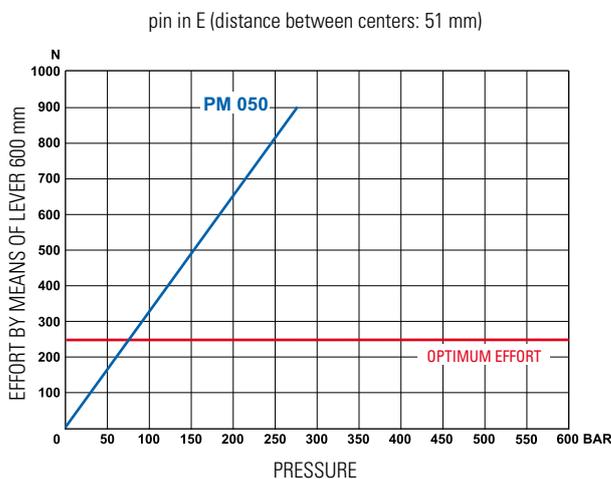
**Without release hand knob**  
**Double acting hand pump for single acting cylinder**  
**For fixing to wall**

**Specifications:**

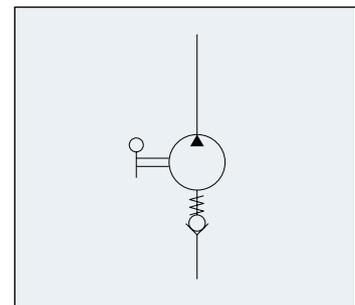
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black.

Ordering code			D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Variant	No. serie					Optimal	Max		
PM050	03 (1)	2	38	37	50	43,825	80	280	3,40	pag. 32

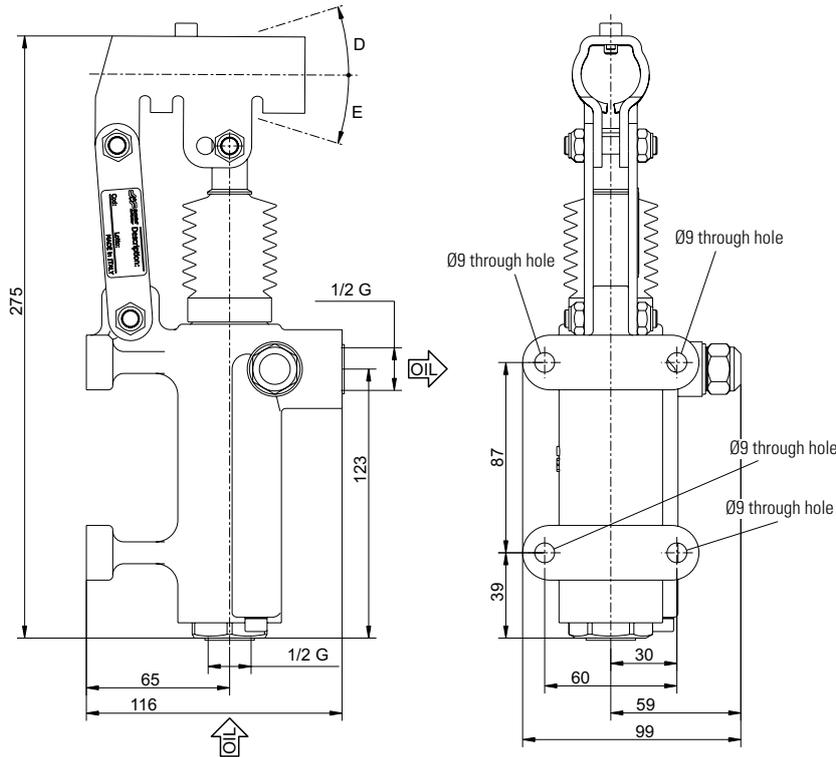
### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



## HAND PUMP WITH PRESSURE RELIEF VALVE WITHOUT RELEASE HAND KNOB



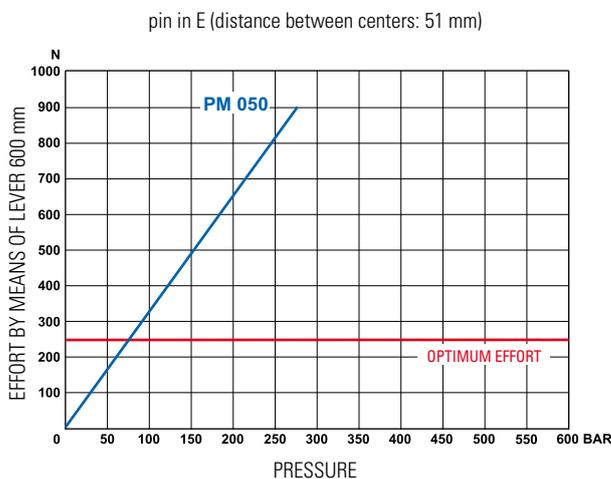
**Without release hand knob**  
**With pressure relief valve**  
**Double acting hand pump for single acting cylinder**  
**For fixing to wall**

**Specifications:**

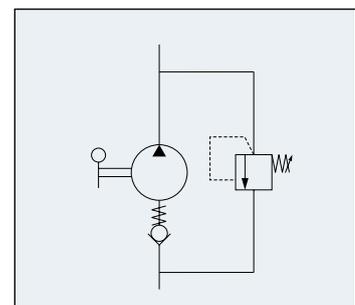
- Cast iron body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 27
- White zinc plated external parts
- Standard colour black
- Pressure relief valve standard setting: 100 bar (others settings upon request).

Ordering code			D °	E °	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg	Lever
Type	Variant	No. serie					Optimal	Max		
PM050	10	2	38	37	50	43,825	80	280	3,40	pag. 32

### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM



# Lever for hand pumps

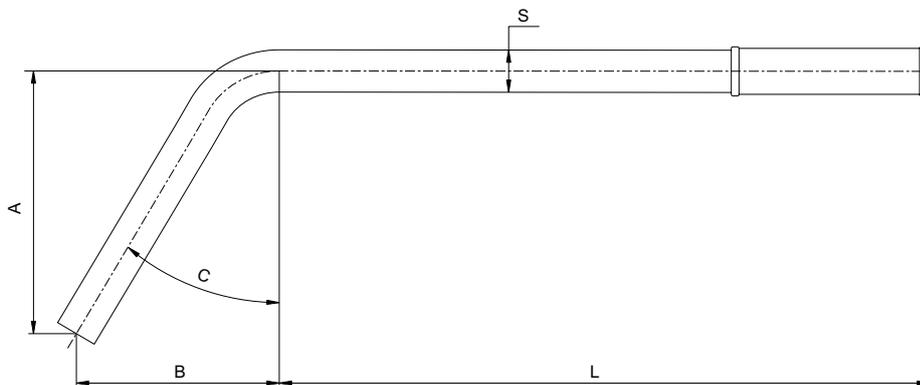
## LEVER



### Specifications:

- Black hand grip
- White zinc plated steel lever

Ordering code	S mm	L mm	Mass kg	For pump
<b>LPM270400D</b>	27	400	0,6	PM - PMI - PMB - 1PMS PM020 - PM050
<b>LPM270600D</b>	27	600	0,9	
<b>LPM270850D</b>	27	850	1,2	
<b>LPM200500D</b>	20	500	0,4	2PMS

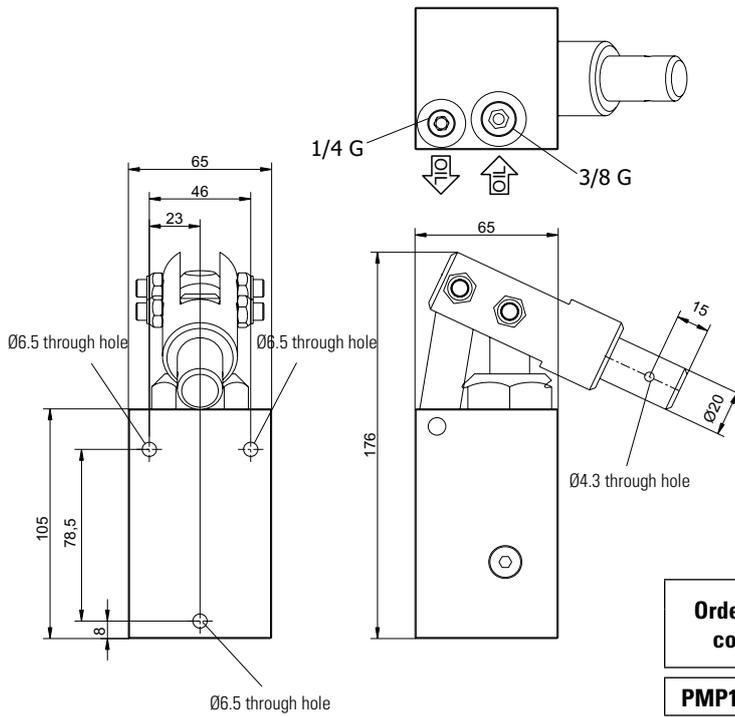


### Specifications:

- Black hand grip
- White zinc plated steel lever

Ordering code	A mm	B mm	C mm	S mm	L mm	Mass kg	For pump
<b>LPM270600P</b>	140	100	31	27	415	0,9	PM - PMI - PMB - 1PMS - PM020 - PM050

## HAND PUMP

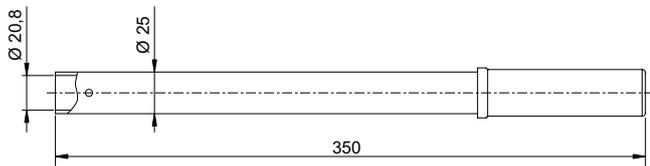


**Without release hand knob**  
**Double acting hand pump for a single acting cylinder**  
**For fixing to a wall!**

**Specifications:**

- Aluminium body
- Piston treated with Niploy
- White zinc plated support lever
- Lever connection Ø 20
- White zinc plated external parts

Ordering code	Nominal displac. cm <sup>3</sup>	Actual displac. cm <sup>3</sup>	Pressure BAR		Mass kg
			Optimal	Max	
<b>PMP120003</b>	12	12,265	100	300	2,11



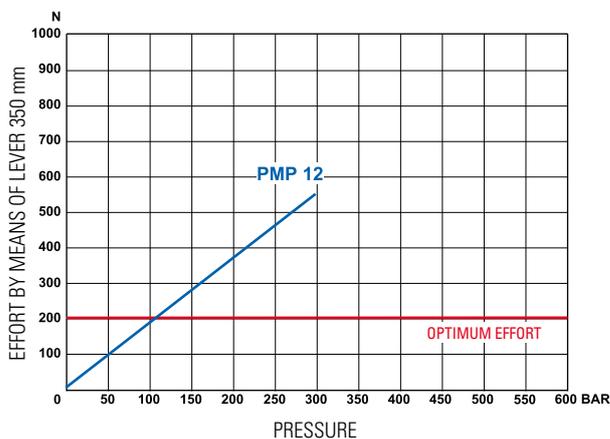
**Ordering code**

**LPM250350D**

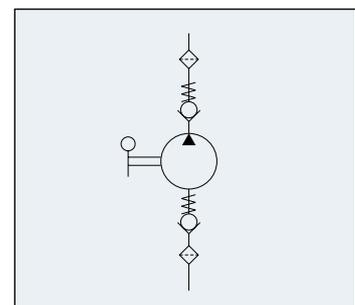
**Lever for PMP12 pump:**

- Black hand grip
- White zinc plated steel lever

### EFFORT DIAGRAM



### HYDRAULIC DIAGRAM











Code DOC00069 - Rev.02



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