

# Hydraulic power packs

## HYDRAULICS



# Hydraulic power packs

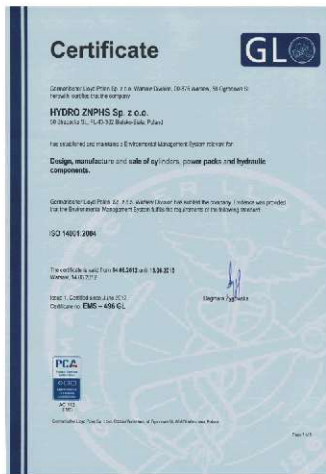


**Quality Management System**  
ISO 9001:2008

**Environmental Management System**  
ISO 14001:2004

**Certificate of Business Credibility 2011**

**European Committee for Oil Hydraulics and Pneumatics**



# Hydraulic power packs

---

**HYDRO ZNPHS Sp. z o.o.**, was established in 1988 in Bielsko-Biala. From the beginning the company was focused on the production, sale and repair of power hydraulics components. Years of experiences and customer's requirements have contributed to the gradual development of our business. As a result the company founded with really small capital and without any place of business, currently takes 8000 sq. m of usable area and employs 91 people.

Nowadays **HYDRO** focuses its business on sale and manufacturing of the power hydraulics components. Our consistent development policy carried out achievement of high level in sales and the strong market position. Established contacts with well-known and respected leaders in the hydraulic world the intensive and hard work, technical progress have contributed to professional, fast and competent custom service with the guarantee of the highest quality.

A very good knowledge of the product's sources, direct access to producers and the long-term cooperation with them allow **HYDRO** to provide high quality goods at very competitive prices. During 25 years the staff of our company has become matured, stable and professional in each section.

During our company's development, our offer increased automatically.

## **Our main fields are:**

- own production: hydraulic systems, power packs and mini power packs, hydraulic cylinders, filtration units, hose assemblies
- distribution: all components used in power hydraulics

We invest in order to develop our customer service and to offer you only a high quality product. We are planning significant investments. We hope that we will be able to even better fulfill your expectations.



**Precise and high advanced production technology.**

**The biggest and well-equipped warehouse in Poland.**

**An offer for small, medium and corporate enterprises.**

**25 years of experience in hydraulic branch and consistent development.**

**Quality management certificate ISO 9001:2008.**

**Environmental Management System ISO 14001:2004**



# Hydraulic power packs

---

## Contents:

<b>1</b>	<b>HYDRAULIC POWER PACKS - STANDARD</b>	<b>5</b>
	AH - Introduction	6
	AH - Ordering code	6
	AH - Hydraulic schemes	7
	AH - Special executions	8
	AH - Basic hydraulic characteristics	8
	AH - Hydraulic characteristics - Tab.1	9
	AH - Standard three-phase motors - Tab.2	9
	AH - Standard gear pumps - Tab.3	9
	AH - Dimensions and tank capacities - Steel execution	10
	AH - Dimensions and tank capacities - Aluminium execution	12
	AH - Examples	14
<b>2</b>	<b>HYDRAULIC POWER PACKS - COMPACT</b>	<b>15</b>
	MH - Introduction	16
	MH - Ordering code	16
	MH - Hydraulic scheme	17
	MH - Basic hydraulic characteristics	17
	MH - Tank types and capacities - Tab.2	18
	MH - Pump types and displacements - Tab.3	18
	MH - Standard three-phase motors - Tab.4	18
	MH - Hydraulic characteristics for three-phase AC motors	19
	MH - Standard DC motors - Tab.5	19
	MH - Hydraulic characteristics for DC motors	20
	MH - DC motor version - Dimensions	22
	MH - Three-phase AC motor version - Dimensions	22
	MH - Examples	23



# Hydraulic power packs - standard

---



1

## HYDRAULIC POWER PACKS - STANDARD

### TYPE AH

Main features:

- Nominal pressure 210bar
- Maximum pressure 350bar
- Electric motors up to 7,5 kW
- Steel or aluminum version
- Tank capacity from 12 to 150 l

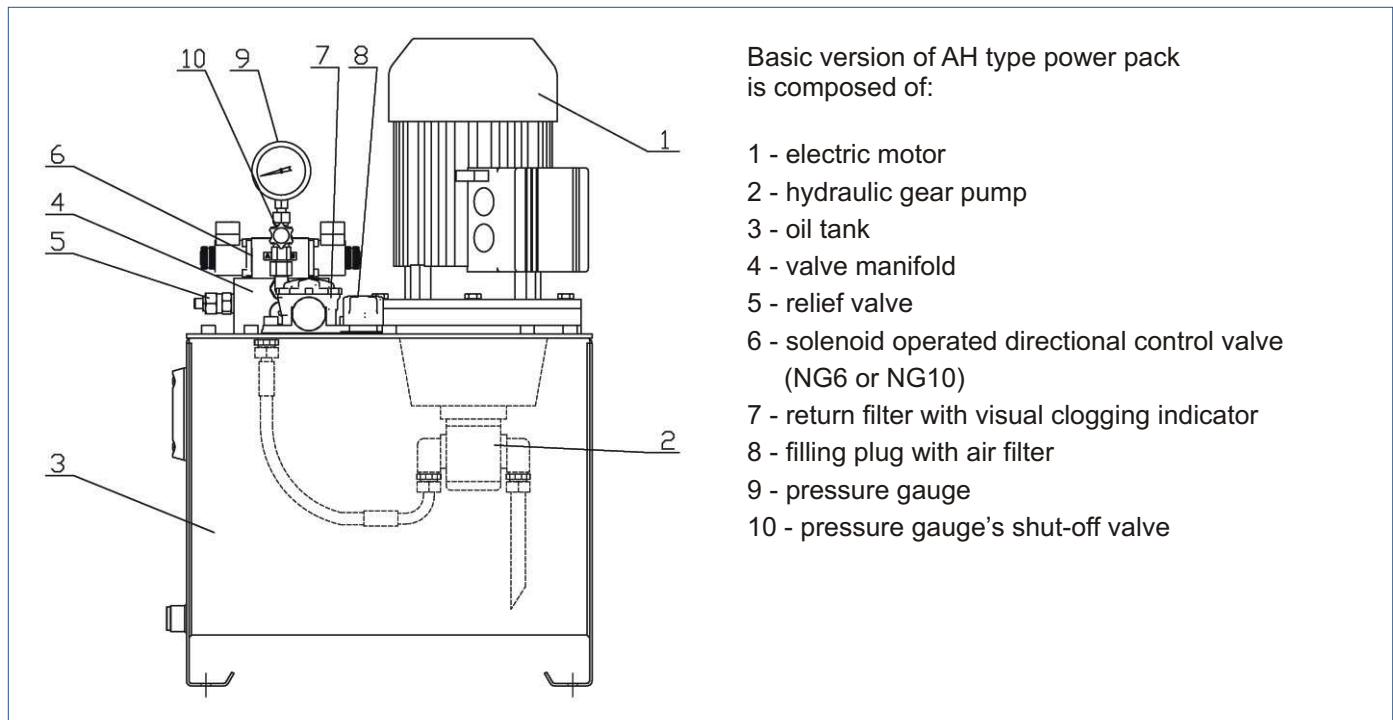
### Type AH - Introduction

#### Application:

Hydraulic power packs AH type are designed to drive and control hydraulic actuators used in mobile and industrial applications. They may be used especially in presses, lifts, cranes, elevators, platforms etc. AH type power packs are available with different assembly variants for electric motors, pumps and tanks.

#### Design:

In standard version, AH power pack is composed of vertical motor-pump unit, steel or aluminium reservoir with return filter (with visual clogging indicator), flow and pressure control valves, and solenoid operated directional valve. In order to meet requirements of specific hydraulic systems, standard version may be modified by using additional valves and blocks.



### Type AH - Ordering code

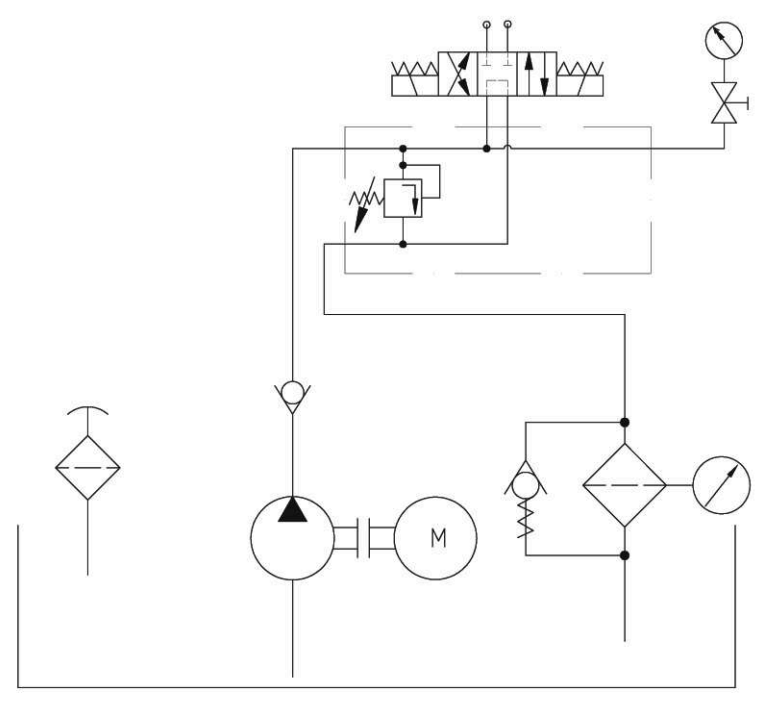
<b>AH</b>	—	<b>35</b>	—	<b>4,16</b>	—	<b>1,1</b>	—	<b>xxxx*</b>
Type		Tank capacity		Pump displacement (cm <sup>3</sup> /rev) (Tab.3)		Power of electric motor (kW)		Design number

\* Design number is a specific code describing each power unit and it is given by the Technical Department

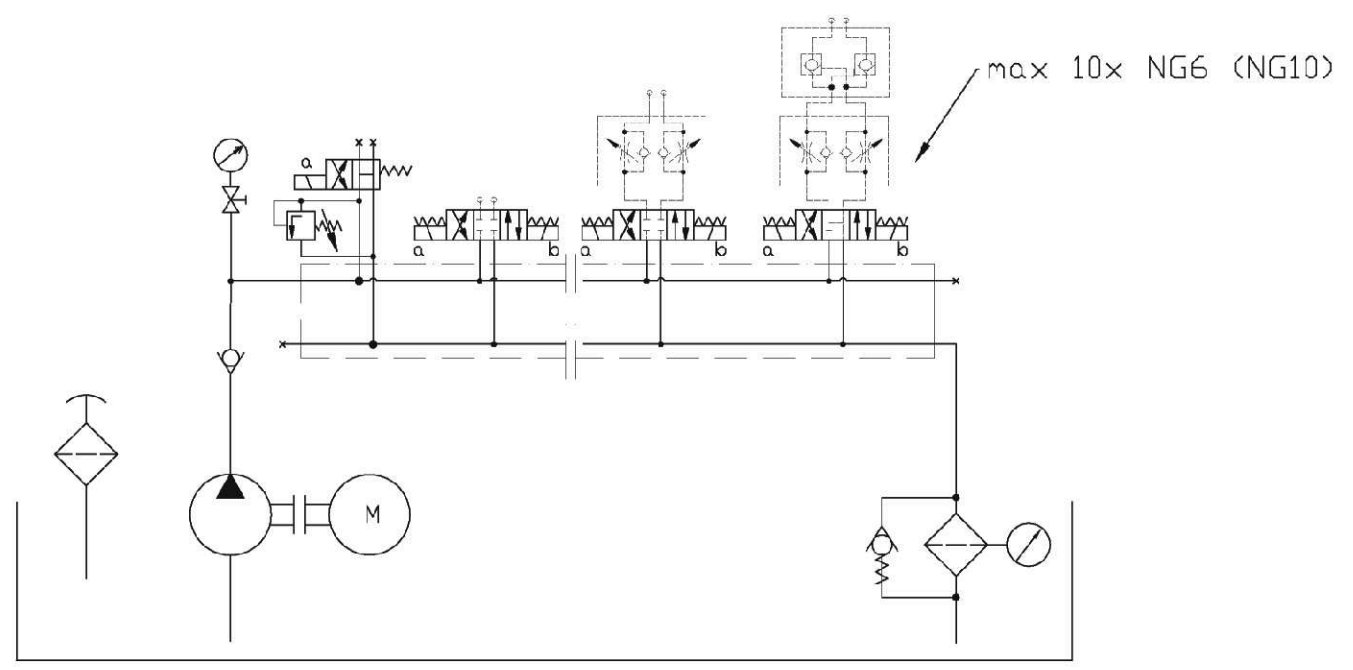


## Type AH - Hydraulic schemes

### Basic version – with one solenoid operated directional control valve



### Version with a manifold containing 2 or more solenoid operated valves



### Type AH - Special executions

Basic version may be modified by using monoblock valve or by complete removal of directional valves. On customer's demand or when it is necessary, it is possible to upgrade AH type power pack to special executions as follows:

- 1 - with proportionals
- 2 - with heat exchangers ( coolers and/or heaters)
- 3 - with multiple pumps or several independent pump units
- 4 - with fixed or variable displacement vane or piston pumps
- 5 - with additional hand pump
- 6 - with control valves in sizes: NG 16, NG25, NG 32
- 7 - with optional: pressure switches, transducers, pressure filters
- 8 - with other single-phase motor or DC motors
- 9 - with stainless steel elements

### Type AH - Basic hydraulic characteristics

<b>Installation position</b>	Horizontal, with vertical motor axis
<b>Ambient temperature</b>	-20°C - +50°C
<b>Recommended temperature</b>	30°C - 50°C
<b>Fluid temperature</b>	-15°C - 70°C
<b>Fluid</b>	Mineral oil type HLP
<b>Recommended viscosity</b>	20mm <sup>2</sup> /s – 100mm <sup>2</sup> /s
<b>Degree of fluid contamination</b>	Class 21/18/15 according to ISO 4406
<b>Electric motor</b>	4-pol., 230/400 V, 400/690 V -50Hz
<b>Pump type</b>	Gear pump
<b>Port sizes</b>	G3/8", G1/2", G3/4"
<b>Tank capacity</b>	Depending on duty cycle and flow level

### Type AH - Hydraulic characteristics - Tab.1

Pump displacement (cm <sup>3</sup> /rev)	Flow rate at 1450 rpm [l/min]	Maximum pressure [MPa] with motor power of										Suggested unit size	
		0,37kW	0,55 kW	0,75kW	1,1kW	1,5kW	2,2kW	3kW	4kW	5,5kW	7,5kW		
1,17	1,7	12	18	22									AH-20-
2,6	3,8	6	8	12	17	22							
4,16	6		5	7,5	11	14	21	23					AH-35-
6,5	9,4		3,5	4,5	7	9,5	14	19	23				
7,54	10,9			4	6	8	12	16	21	23			AH-50-
8,4	12,2				5	7	10,5	14	19	20			
10,8	15,7				4	5,5	8	11	15	15	23		AH-50-
14,4	20,9						6	8	11	13	20		
16,8	24,4						5	7	9	11	17		AH-75-
19,2	27,8							6	8	9	15		
22,8	33,1							5	7	8	13		AH-75-
26,2	38								6	6,5	11		
32,3	46,8								5	5,5	9		AH-100/ AH- 150-
38,5	55,8									5	7,5		
43,4	63										6,5		AH-100/ AH- 150-
47,2	68,4										6		
50,9	73,8										5,5		AH-100/ AH- 150-

**Attention:**

Following characteristics refer to three-phase motors (Tab.2) and gear pumps (Tab.3). For other configurations, contact our Technical Department

### Type AH - Standard three-phase motors - Tab.2

Motor power	0,37 kW	0,55 kW	0,75 kW	1,1 kW	1,5 kW	2,2 kW	3kW	4kW	5,5kW	7,5kW
Nominal voltage	230/400V 50Hz*							400/690V 50Hz*		
Motor size	71	80		90		100		112	132	
Rated speed [rev/min]	1370	1395	1395	1415	1420	1420	1420	1440	1455	1455
Dimension L <sub>max</sub>	225	252	252	299	299	331	331	352	396	396

\* For other voltages, performances, contact our Technical Department

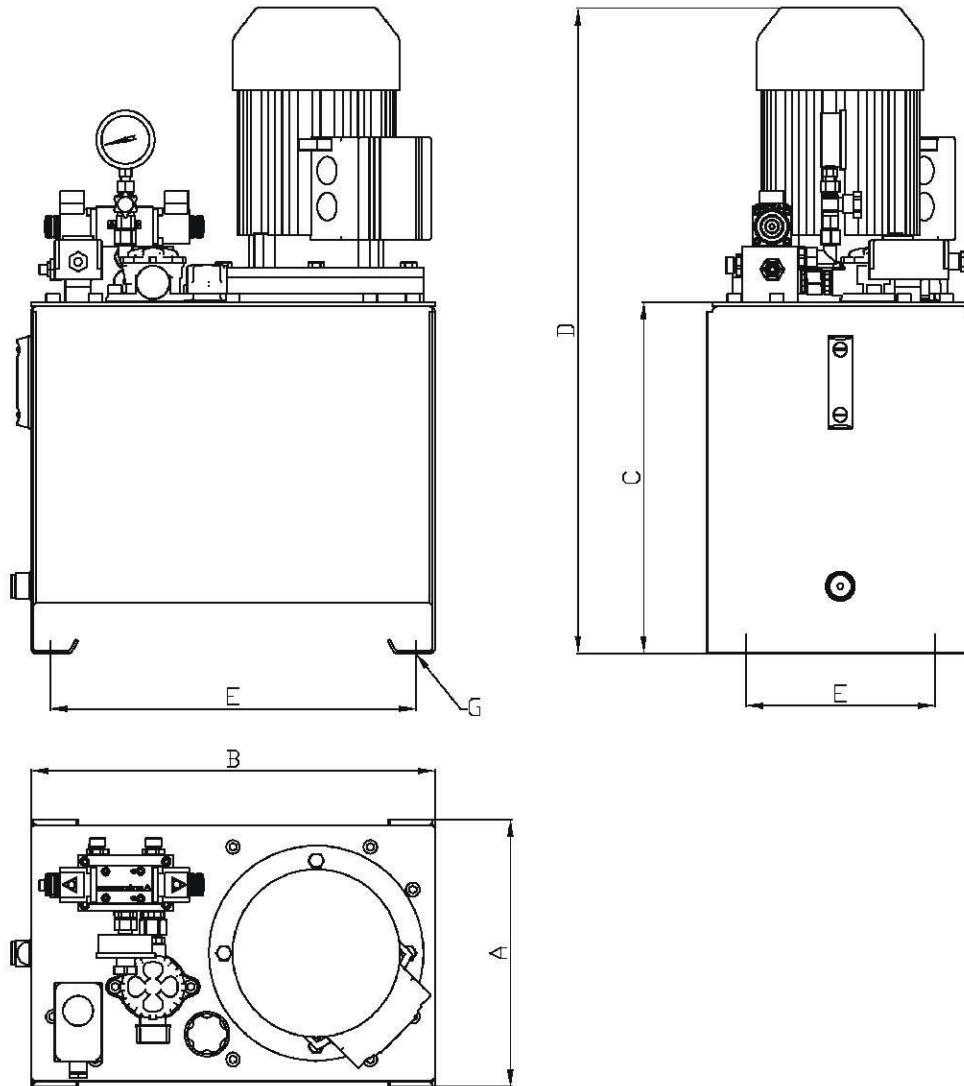
### Type AH - Standard gear pumps - Tab.3

Type	XV-1P/1,2	XV-1P/2,6	XV-1P/3,8	XV-1P/4,3	XV-1P/6,5	XV-1P/7,8	XV-2P/09	XV-2P/11	XV-2P/14
Displacement [cm <sup>3</sup> /rev]	1,17	2,6	3,64	4,16	6,5	7,54	8,4	10,8	14,4
Type	XV-2P/17	XV-2P/19	XV-2P/22	XV-2P/26	XV-3P/32	XV-3P/38	XV-3P/43	XV-3P/47	XV-3P/51
Displacement [cm <sup>3</sup> /rev]	16,8	19,2	22,8	26,2	32,3	38,5	43,4	47,2	50,9

\* For other parameters and types, contact our Technical Department

### Type AH - Dimensions and tank capacities - Steel execution

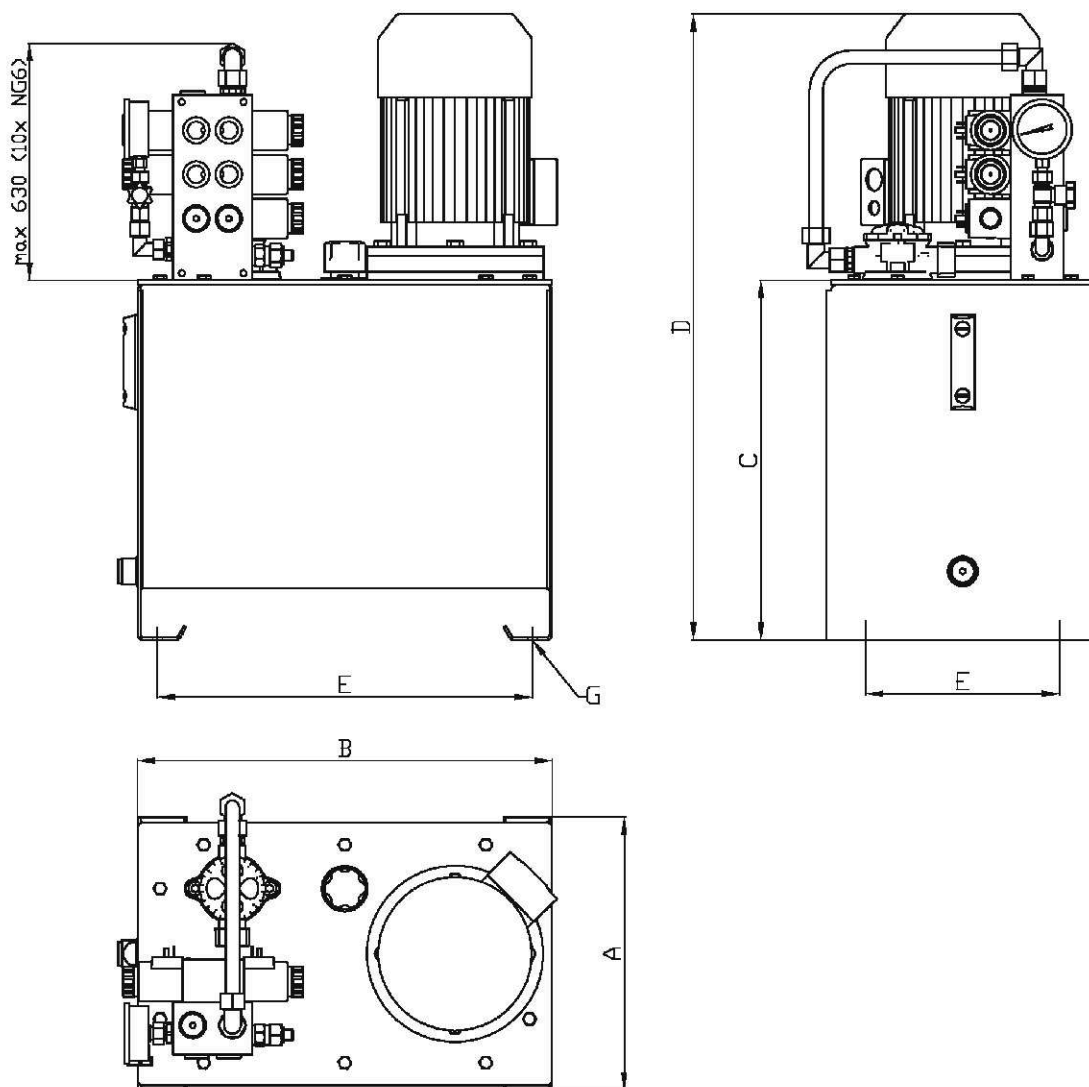
#### Basic version with one solenoid valve\*



Type	Steel execution (Tab. 1.1)							
	Capacity [l]	A	B	C	D <sub>max</sub>	E	F	G
AH-20	20	310	400	334	C+L <sub>max</sub> (tab.3.)	355	220	11
AH-35	35	310	470	409		425	220	11
AH-50	50	400	500	430		455	310	11
AH-75	85	400	550	541		505	310	11
AH-100	109	400	700	542		655	310	11
AH-150	145	500	750	632		705	410	11

## Type AH - Dimensions and tank capacities - Steel execution

### Version with two or more solenoid valves\*

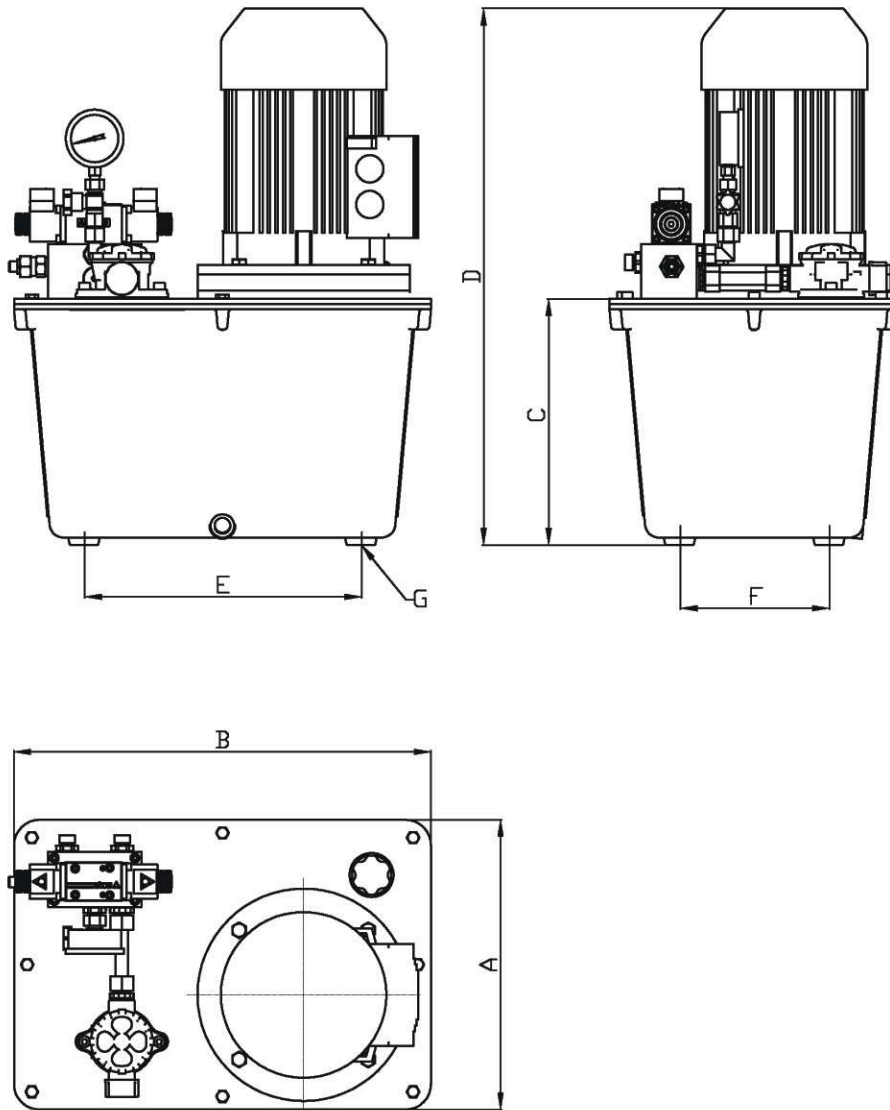


Type	Steel execution (Tab. 1.1)							
	Capacity [l]	A	B	C	D <sub>max</sub>	E	F	G
AH-20	20	310	400	334	C+L <sub>max</sub> (tab.3.)	355	220	11
AH-35	35	310	470	409		425	220	11
AH-50	50	400	500	430		455	310	11
AH-75	85	400	550	541		505	310	11
AH-100	109	400	700	542		655	310	11
AH-150	145	500	750	632		705	410	11

\* For other capacities, sizes and configurations, contact our Technical Department

### Type AH - Dimensions and tank capacities - Aluminium execution

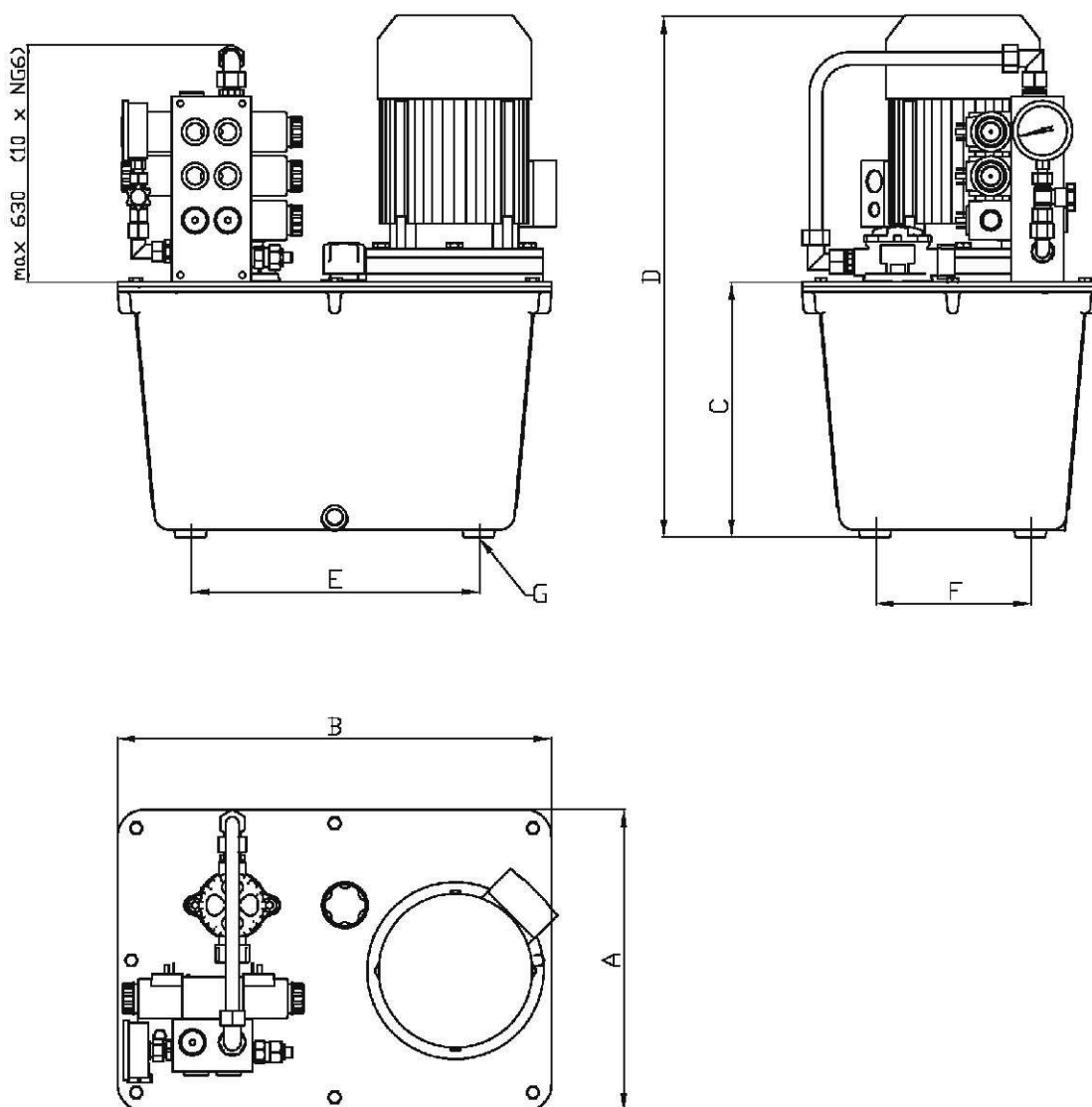
#### Basic version with one solenoid valve\*



Type	Aluminium execution (Tab. 1.2)							
	Capacity [l]	A	B	C	D	E	F	G
AH-12A	11	240	310	215	C+L <sub>max</sub> (tab.3.)	225	155	M8
AH-20A	17	288	366	245		270	192	M8
AH-30A	26	341	491	285		326	176	M10
AH-44A	40	415	515	315		341	241	M10
AH-70A	63	465	605	365		422,5	282,5	M10

## Type AH - Dimensions and tank capacities - Aluminium execution

### Version with two or more solenoid valves \*



Type	Aluminium execution (Tab. 1.2)							
	Capacity [l]	A	B	C	D	E	F	G
AH-12A	11	240	310	215	C+L <sub>max</sub> (tab.3.)	225	155	M8
AH-20A	17	288	366	245		270	192	M8
AH-30A	26	341	491	285		326	176	M10
AH-44A	40	415	515	315		341	241	M10
AH-70A	63	465	605	365		422,5	282,5	M10

\* For other capacities, sizes and configurations, contact our Technical Department

### Type AH - Examples

**Steel execution with one solenoid valve**



**Stainless steel execution**



**Aluminium execution with three solenoid valves**



**Steel execution with 1 monoblock**





# Hydraulic power packs - compact

---



2

## HYDRAULIC POWER PACKS - COMPACT

### TYPE MH

Main features:

- Nominal pressure to 21MPa
- Nominal flow rate at to 11,5 l/min
- Modular and compact design
- Multiple configurations available
- Motors for AC and DC voltages

### Type MH - Introduction

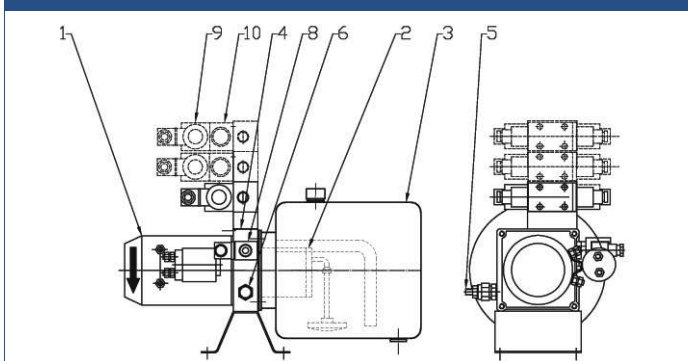
#### Application:

Hydraulic Compact power packs MH type are designed to drive and control hydraulic actuators. They are suited for operate in both industrial and mobile applications. MH type power packs are available with different assembly variants for electric motors, pumps and tanks. Modular design allows to realize thousands of configurations, optimized with small dimensions.

#### Design:

MH power pack in standard version is composed of an electric motor, a pump, a tank and a central manifold with integrated valves. Standard version may be modified by using additional modular valves, in order to realize customized hydraulic schemes.

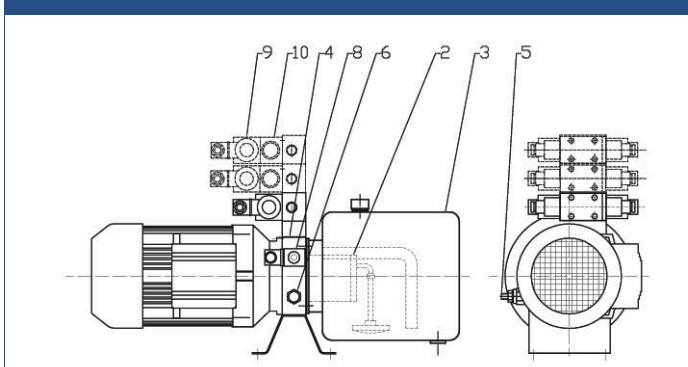
#### Version with DC motor and steel tank



Basic version of MH type power pack is Composed of:

- 1 - AC or DC motor
- 2 - Hydraulic gear pump
- 3 - Oil tank
- 4 - Central manifold
- 5 - Pressure relief valve
- 6 - Check valve
- 7 - Manometer or pressure gauge

#### Version with AC motor and steel tank



Additionally basic version may be extended by using:

- 8 - Solenoid operated on-off valve (NO or NC)
- 9 - Solenoid operated directional valves NG 6 for subplate mounting
- 10 - Modular NG6 pressure and flow control valves

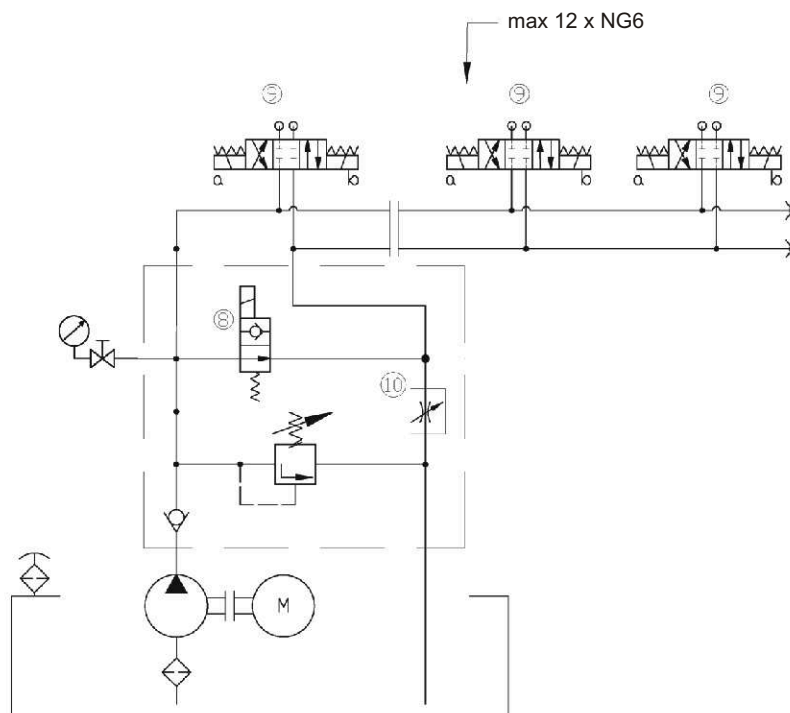
### Type MH - Ordering code

<b>MH</b>	—	<b>5S</b>	—	<b>G1,6</b>	—	<b>2,2</b>	—	<b>24DC</b>	—	<b>xxxx*</b>
Power Pack type		Tank type (Tab. 2)		Pump displacement (cm <sup>3</sup> /rev.) (Tab.3)		Power of electric motor (kW)		Nominal voltage		Design number

\* Design number is a specific code describing each power unit and it is given by Technical Department

## Type MH - Hydraulic scheme

### Basic version



**Attention:** Valves 8, 9, 10 are available as a option. For customized configuration, contact our Technical Department

## Type MH - Basic hydraulic characteristics

Installation position	Horizontal or vertical
Ambient temperature	-20°C - +50°C
Recommended temperature	30°C - 50°C
Fluid temperature	-15°C - 70°C
Fluid	Mineral oil type HLP
Recommended viscosity	20 mm <sup>2</sup> /s – 100 mm <sup>2</sup> /s
Degree of fluid contamination	Class 21/18/15 according to ISO 4406
Nominal voltage	For AC: 230/400V 50Hz For DC 12 or 24V
Pump type	Gear pump (Tab.3)
Tank capacity	Depended on flow rate and duty cycle (Tab.2)

### Type MH - Tank types and capacities - Tab.2

Material		Steel					Plastic				
Type	2,5 S	5 S	10 S	12 S	20 S	30 S	1,5 P	3 P	6 P	8 P	
Capacity	2,5 dm <sup>3</sup>	5 dm <sup>3</sup>	10 dm <sup>3</sup>	12 dm <sup>3</sup>	20 dm <sup>3</sup>	30 dm <sup>3</sup>	1,5 dm <sup>3</sup>	3 dm <sup>3</sup>	6 dm <sup>3</sup>	8 dm <sup>3</sup>	
Dimensions	L	235	300	262	380	293	423	135	250	350	375
	D	130	180	220	220	-	-	-	-	-	-
	A x B	-	-	-	-	350 x280		170x140		170x170	

\* Other tanks are available on request

### Type MH - Pump types and displacements - Tab.3

Pump types	G0,8	G1,1	G1,6	G2,1	G2,6	G3,2	G3,7	G4,2	G4,9	G6,0	G7,9
q[cm <sup>3</sup> /rev]	0,85	1,1	1,6	2,1	2,6	3,2	3,7	4,2	4,9	6	7,9
P <sub>max</sub> [bar]	210	210	210	210	210	190	190	190	170	170	160

\* Optionally 0,2- 0,6 cm<sup>3</sup>/rev and 9,8 cm<sup>3</sup>/rev and high pressure pumps are available.

### Type MH - Standard three-phase motors - Tab.4

Power	0,25 kW	0,37 kW	0,55 kW	0,75 kW	1,1 kW	1,5 kW	2,2 kW	3 kW
Nominal voltage	230/400V 50Hz*							
Motor size	71		80		90		100	
Rated speed [rev/min]	1350	1370	1395	1395	1415	1420	1420	1420
Length A**	210+20	210+20	233,5+22	233,5+22	281+32	281+32	372+58	372+58
Diameter AC	145	145	163	163	180	180	203	203

\* For other voltages contact our Technical Department

\*\* Length A consists of motor and flange lengths

## Type MH - Hydraulic characteristics for three-phase AC motors

Pump type	Rated flow at 1450rev/min	Maximum pressure [MPa] with motor power of:							
		0,25 kW	0,37 kW	0,55 kW	0,75 kW	1,1 kW	1,5 kW	2,2 kW	3 kW
G 0,8	1,16	11	16						
G 1,1	1,6	8	12	17					
G 1,6	2,32	5	8	12	16				
G 2,1	3,05		6	9	12	18			
G 2,6	3,77		5	7	10	15	20		
G 3,2	4,64			6	8	12	16		
G 3,7	5,37				7	10	14	21	
G 4,2	6,09					9	12	18	
G 4,9	7,11					8	11	15	21
G 6,0	8,7						9	13	17
G 7,9	11,46						7	10	13

\* Calculation made for three-phase motors

\*\* For single-phase motors parameters should be 10 - 15% lower (consult with our Technical Department)

\*\*\* For other pumps contact our Technical Department

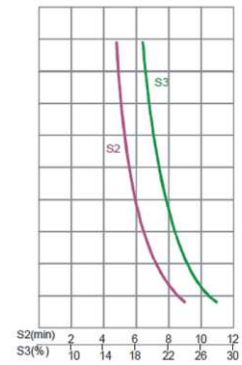
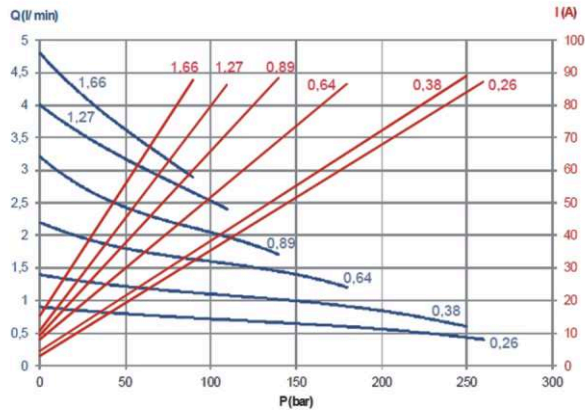
## Type MH - Standard DC motors - Tab.5

Power*	0,5 kW	0,8 kW	1,6 kW	2,1 kW	0,8 kW	2,2 kW	3 kW
Nominal voltage	12V	12V	12V	12V	24V	24V	24V
Current [A]	90	150	210	300	75	130	100
Nominal duty cycle	S2:5min S3:17%ED	S2:4min S3:10%ED	S2:5min S3:10%ED	S2:4min S3:12%ED	S2:4min S3:10%ED	S2:2,5min S3:10%ED	S2:4min S3:7,5%ED
Rated speed [rev/min]	1700	2100	2800	2400	2400	2400	3500
Length A	139	139	162	162	139	162	237
Diameter AC	80	80	114	114	80	114	125

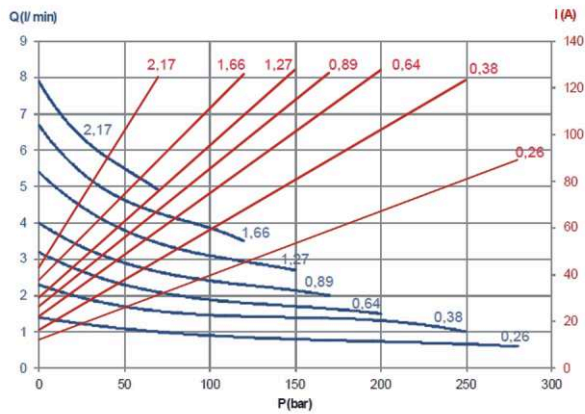
\* For motors with other power (up to 4 kW) contact our Technical Department

## Type MH - Hydraulic characteristics for DC motors

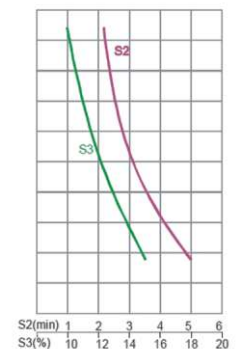
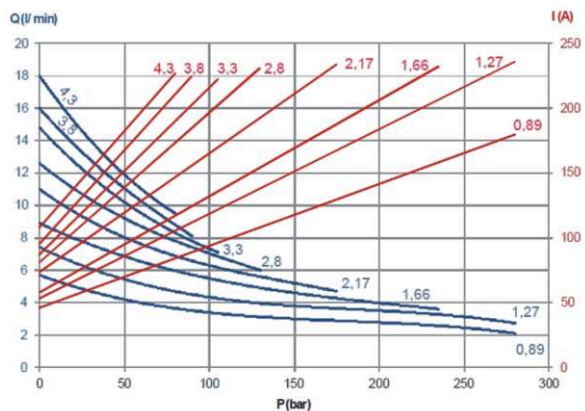
### 500W 12VDC M46C1ST05



### 800W 12VDC M46C1ST08

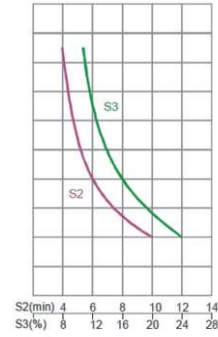
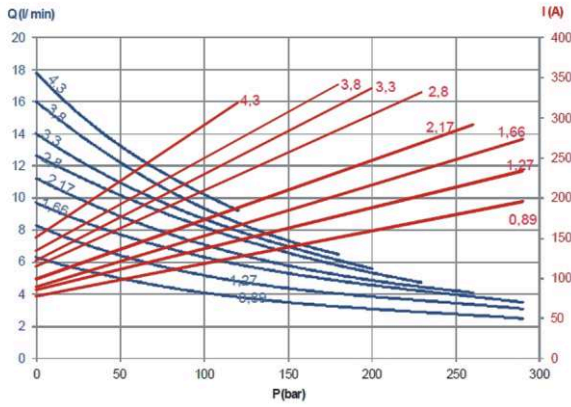


### 1600W 12VDC M46C1ST16

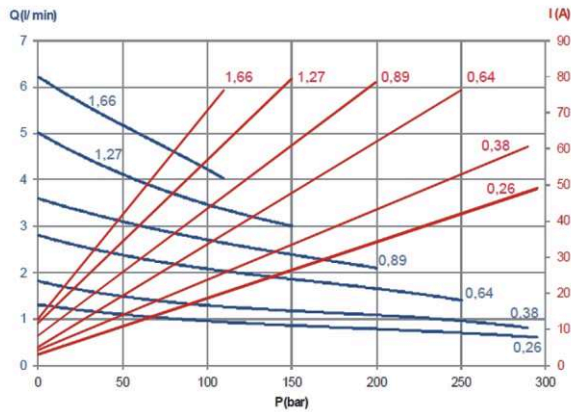


## Type MH - Hydraulic characteristics for DC motors

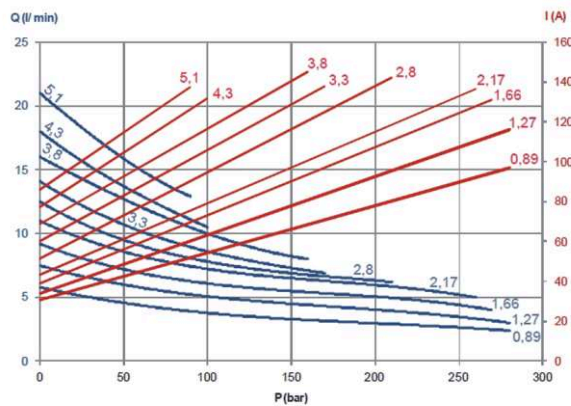
### 2100W 12VDC M46C1ST21



### 800W 24VDC M46C2ST08



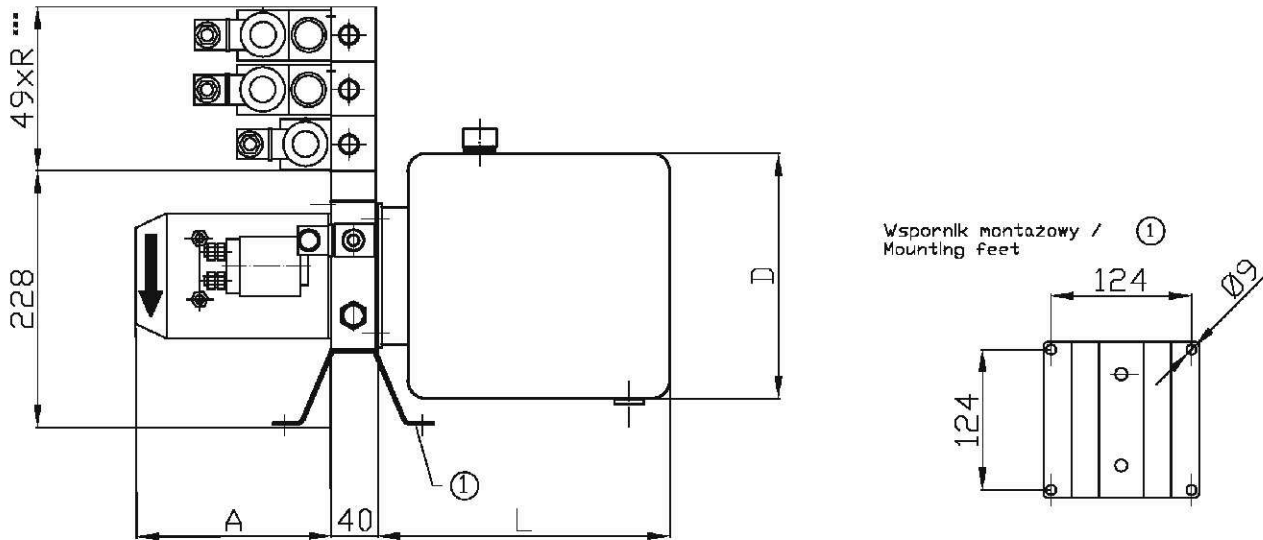
### 2200W 24VDC M46C2ST22



\* For specific parameters and duty cycles contact our Technical Department

## Type MH - DC motor version - Dimensions

### Version with: 2,5S, 5S, 10S, 12S tanks\*



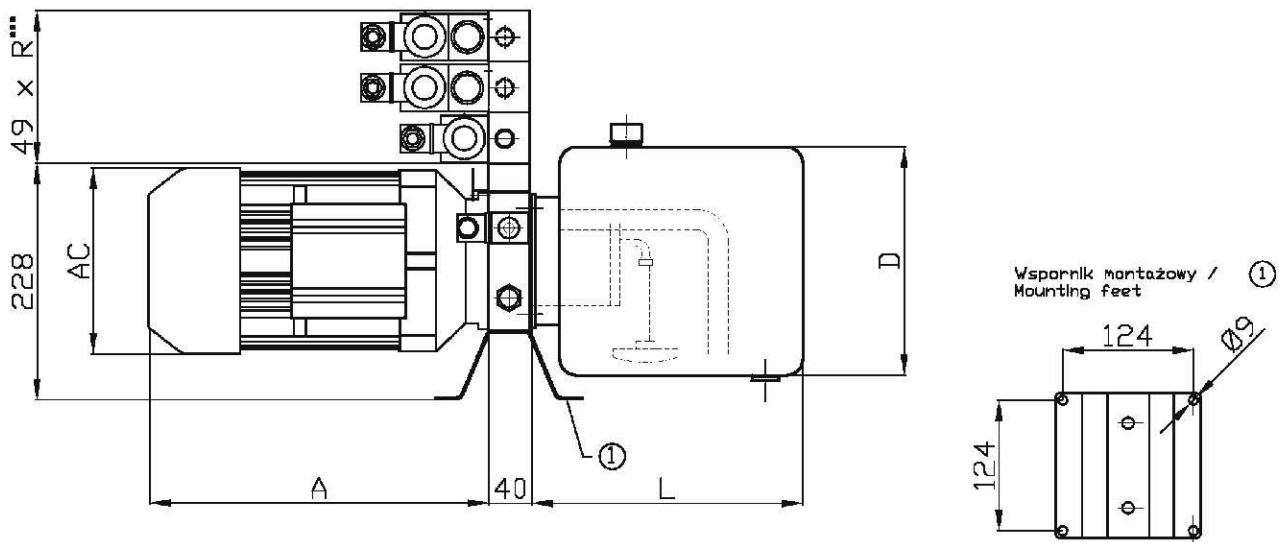
\* For tanks: 1,5P, 3P, 6P, 8P and 20S and 30S – contact our Technical Department

\*\* Dimensions A and AC - see Tab. 5

\*\*\* "R" means quantity of NG6 stations

## Type MH - Three-phase AC motor version - Dimensions

### Version with: 2,5S, 5S, 10S, 12S tanks\*



\* For tanks: 1,5P, 3P, 6P, 8P and 20S and 30S – contact our Technical Department

\*\* Dimensions A and AC- see Tab.4

\*\*\* "R" means quantity of NG6 stations



## Type MH - Examples

Version with AC motor and steel tank



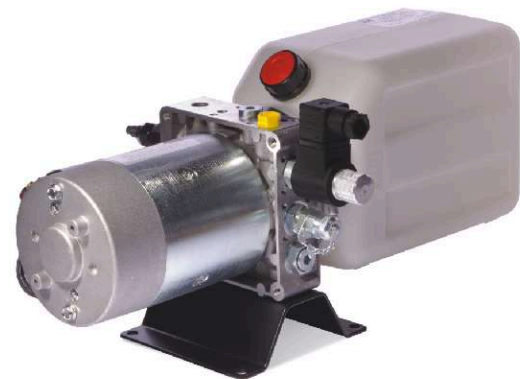
Version with AC motor and plastic tank



Version with AC motor, steel tank and modular valves



Version with DC motor and plastic tank



### Type AH - Examples

Version with DC motor and steel vertical tank



Version with one phase AC motor



# Hydraulic power packs

## Applications



**HYDRO ZNPHS Sp. z o.o.**

**Sales department and production**

ul. Strazacka 60  
43-382 Bielsko - Biala  
POLAND

**Reception desk**

tel.: 0048 33 829 56 60  
fax.: 0048 33 829 56 69

hydro@hydro.com.pl

**Production of hydraulic power packs**

tel.: 0048 33 829 56 65

**www.hydro.com.pl**