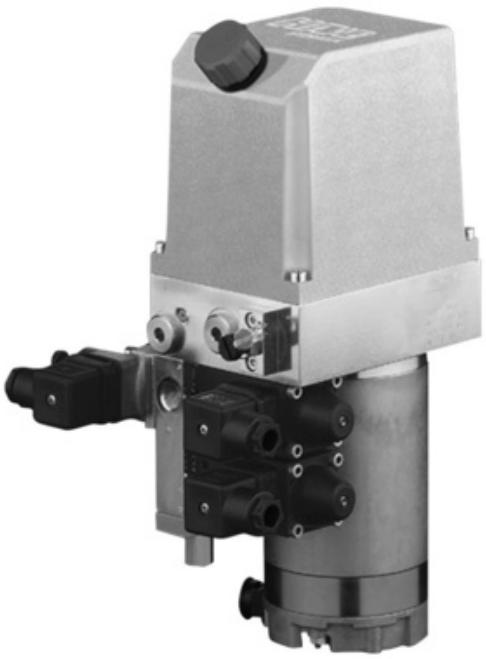
Compact hydraulic power pack type NPC

Product documentation

For short-term and standby mode

Operating pressure p_{max}:	750 bar
Displacement volume $V_{g\ max}$:	0.76 cm^3/rev
Usable volume V_{use}:	0.65 l



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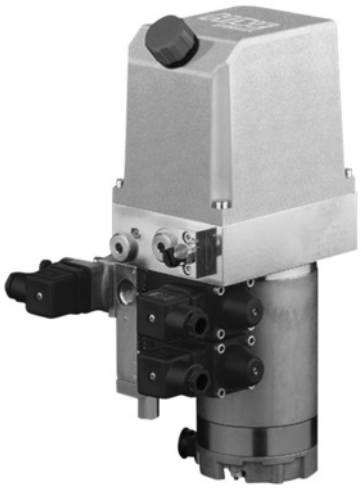
1 Overview of compact hydraulic power pack type NPC

Compact hydraulic power packs are a type of hydraulic power pack. They are characterised by a highly compact design, since the motor shaft of the electric drive also acts as the pump shaft. Compact hydraulic power packs are designed to supply hydraulic systems with pressure fluid.

The compact hydraulic power pack type NPC consists of the tank, the integrated DC motor and the radial piston pump directly attached to the motor shaft. This design results in a very small installation package and makes it easy to transport the hydraulic power pack. The pump carrier comes with integrated pressure-limiting valve as standard. By directly mounting valve banks, compact control systems can be set up quickly and easily.



Compact hydraulic power pack type NPC

Features and benefits

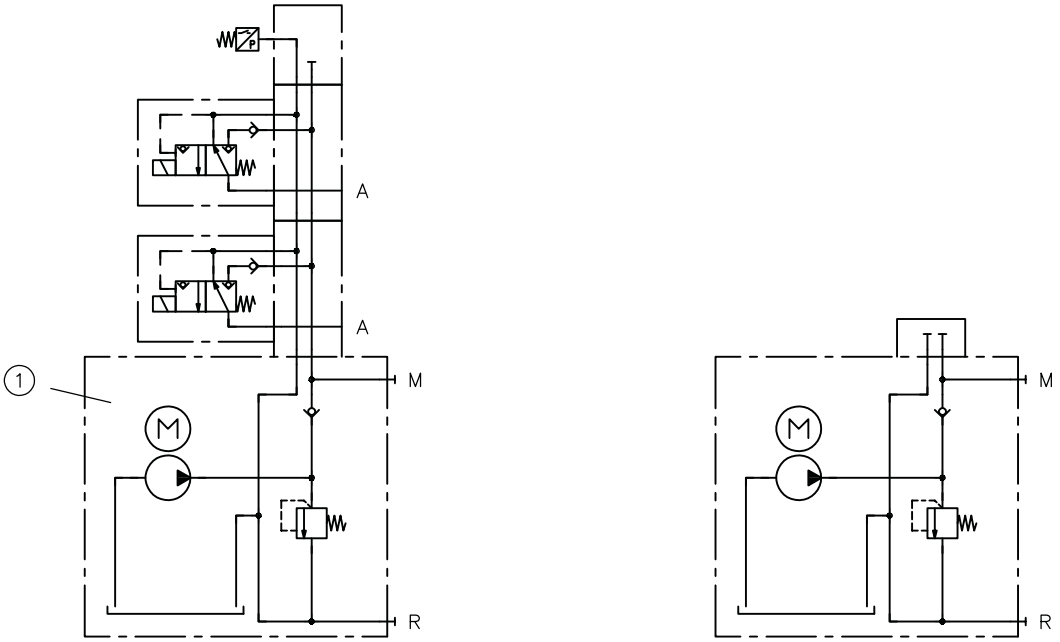
- Suitable for nominal operating mode S3 (short period operation)
- 12 V to 24 V DC
- Long service life and high reliability
- Vertical and horizontal installation possible
- Resource-saving due to small oil filling volume

Intended applications

- Hydraulic tools
- Brakes for wind power plants
- Winch controls
- Hydraulic fixtures

2 Available versions

Circuit symbol



1 Basic pump

Ordering example

NPC 11 NPC 12	/0,31 /0,4	- 1/320 - 2/750	- R - R	- 24 - 12	- BWH 1 - NN - 33 - G 24 - BWH 1 - 1

2.6 "Mounting units (direct mounting of valve banks)"

2.5 "Motor voltage"

2.4 "Check valve"

2.3 "Pressure-limiting valve with pressure setting"

2.2 "Delivery flow coding"

2.1 "Basic type and size"

2.1 Basic type and size

Type	Description	Nominal power approx. (kW)
NPC 11	Vertical version	0,3
NPC 12		0,6
NPC 11 L	Horizontal version	0,3
NPC 12 L		0,6

2.2 Delivery flow coding

Delivery flow coding		displacement volume V_g (cm³/rev)	No-load flow Q_0 (lpm)	Pressure p_{max} (bar)
NPC 11	0,2	0,09	0,27	750
	0,31	0,14	0,42	640
	0,44	0,2	0,59	450
	0,61	0,28	0,83	320
	0,87	0,36	1,07	250
	1,05	0,46	1,36	190
NPC 12	0,4	0,15	0,45	750
	0,65	0,24	0,71	660
	0,94	0,34	1,02	470
	1,28	0,46	1,39	350
	1,71	0,6	1,81	270
	2,14	0,76	2,29	210

2.3 Pressure-limiting valve with pressure setting

Coding	Description
1/...	Fixed
2/...	Adjustable

DAMAGE
The pressure-limiting valve can already open at p_{max} - 10%.

2.4 Check valve

Coding	Description
Without coding	w/o check valve
R	with check valve in P

2.5 Motor voltage

Coding	Description
G 12	Nominal voltage 12 V DC
G 24	Nominal voltage 24 V DC

2.6 Mounting units (direct mounting of valve banks)

Type	Comment
BWN 1 **BWH 1**	see documentation D 7470 B/1
VB 01	see documentation D 7302

DAMAGE
When using a valve bank separated by distance, you can utilise ports M and R in the pressure-merging manifold as P(M) and R(R). Close off the hydraulic power pack with an end plate instead of the valve bank.

3 Parameters

3.1 General data

Designation	Constant pump for short period operation with DC motor
Design	Valve-controlled 3-cylinder radial piston pump
Installation position	Vertical, horizontal
Ports/connections	In accordance with mounting units
Cleanliness level	Recommended purity grade according to ISO 4406, see oil recommendations D 5488/1
Temperatures	Environment: approx. -40 to +60 °C, hydraulic fluid: -25 to +80 °C, pay attention to the viscosity range. Start temperature: down to -40 °C is permissible (take account of the start viscosities!), as long as the steady-state temperature is at least 20 K higher during subsequent operation. Biologically degradable hydraulic fluids: note manufacturer specifications. With consideration for the seal compatibility, not above +70°C.
Oil filling	Fill volume 1.0 l; usable volume 0.65 l

3.2 Pressure and volumetric flow

Operating pressure	p_{max} = 750 bar
Flow rate (no load)	See load-dependent characteristic line, Chapter 3.4

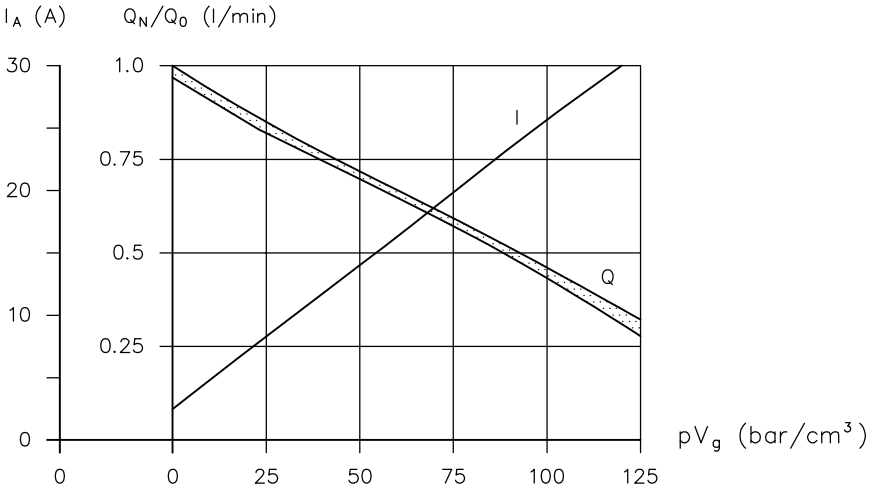
3.3 Electrical data

Type	NPC 11		NPC 12	
Nominal voltage U_N	12 V	24 V	12 V	24 V
Nominal power P_N	0.25 kW	0.3 kW	0.6 kW	0.6 kW
Nominal current I_N	35 A DC	22 A DC	70 A DC	35 A DC
Rated speed n_N	3200 rpm	3200 rpm	4000 rpm	4000 rpm
Electrical connection	Flat plug (2x) 6.3 mm x 0.8 mm		cable length 2 m	
Protection class	IP 44		IP 44	
Insulation material class	F		F	
Permissible load duration	1 p_{max}: Duty cycle ≤ 10%		1 p_{max}: Duty cycle ≤ 10%	
	0.5 p_{max}: Duty cycle ≤ 20%		0.5 p_{max}: Duty cycle ≤ 20%	
	0.3 p_{max}: Duty cycle ≤ 30%		0.3 p_{max}: Duty cycle ≤ 30%	
Recommended cable cross section	--	--	2x 4 mm²: (≤ 35 A)	--
	--	--	--	2x 6 mm²: (< 35 A)

3.4 Characteristic lines

Actual current consumption and delivery flow characteristic of an NPC 11

Type	Max. current consumption values I_{max} (A)			
	NPC 11		NPC 12	
MPE	12 V	24 V	12 V	24 V
4	26	15	65	25
5	41	23	102	49
6	50	28	106	52
7	52	30	110	53
8	53	31	114	55
9	52	30	88	42



pV_g hydraulic work (bar/cm³); I_A motor voltage (A)

3.5 Weight

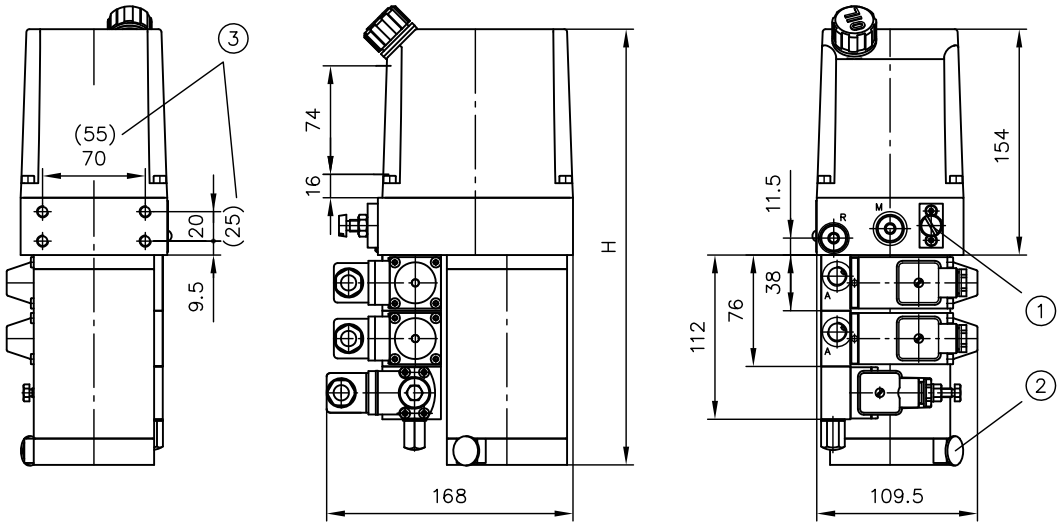
NPC 11	= 6.0 kg
NPC 12	= 8.0 kg

4 Dimensions

All dimensions in mm, subject to change.

Vertical version

Example with valve bank type BWN 1 or BWH 1



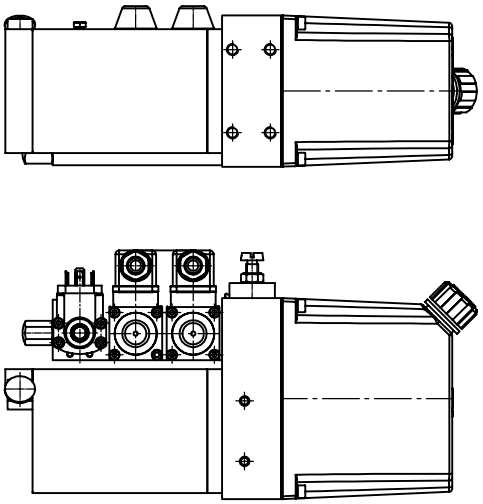
1 Pressure-limiting valve
2 Electrical connection
3 Values in brackets apply for NPC with gear pump

Type	H	Ports (ISO 228-1) M, R
NPC 11	297	G 1/4
NPC 12	357	G 1/4

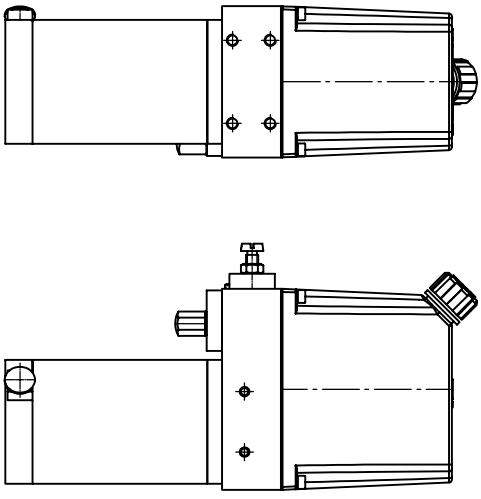
Horizontal version

(Dimensions, see vertical version)

Example with valve bank type BWN 1 or BWH 1



Example without valve bank



5 Installation, operation and maintenance information

Observe the document B 5488 “General operating instructions for assembly, commissioning, and maintenance.”

5.1 Intended use

This product is intended exclusively for hydraulic applications (fluid technology).

The user must observe the safety measures and warnings in this document.

Essential requirements for the product to function correctly and safely:

- ► All information in this documentation must be observed. This applies in particular to all safety measures and warnings.
- ► The product must only be assembled and put into operation by specialist personnel.
- ► The product must only be operated within the specified technical parameters described in detail in this document.
- ► All components must be suitable for the operating conditions when using an assembly.
- ► The operating instructions for the components, assemblies and the specific complete system must also always be observed.

If the product can no longer be operated safely:

1. Remove the product from operation and mark it accordingly.
   ✓ It is then not permitted to continue using or operating the product.

5.2 Assembly information

The product must only be installed in the complete system with standard and compliant connection components (screw fittings, hoses, pipes, fixtures etc.).

The product must be shut down correctly prior to disassembly (in particular in combination with hydraulic accumulators).

⚠ **DANGER**

Sudden movement of the hydraulic drives when disassembled incorrectly

Risk of serious injury or death

- ► Depressurise the hydraulic system.
- ► Perform safety measures in preparation for maintenance.

5.3 Operating instructions

Observe product configuration and pressure/flow rate.

The statements and technical parameters in this document must be strictly observed.
The instructions for the complete technical system must also always be followed.

DAMAGE

- ► Read the documentation carefully before usage.
- ► The documentation must be accessible to the operating and maintenance staff at all times.
- ► Keep documentation up to date after every addition or update.

⚠ **CAUTION**

Overloading components due to incorrect pressure settings.

Risk of minor injury.

- Pay attention to the maximum operating pressure of the pump and the valves.
- Always monitor the pressure gauge when setting and changing the pressure.

Purity and filtering of the hydraulic fluid

Fine contamination can significantly impair the function of the product. Contamination can cause irreparable damage.

Examples of fine contamination include:

- Swarf
- Rubber particles from hoses and seals
- Dirt due to assembly and maintenance
- Mechanical debris
- Chemical ageing of the hydraulic fluid

DAMAGE

New hydraulic fluid from the manufacturer may not have the required purity.

Damage to the product is possible.

- ► Filter new hydraulic fluid to a high quality when filling.
- ► Do not mix hydraulic fluids. Always use hydraulic fluid that is from the same manufacturer, of the same type, and with the same viscosity properties.

For smooth operation, pay attention to the cleanliness level of the hydraulic fluid (cleanliness level see Chapter 3, "Parameters").

Additionally applicable document: D 5488/1 Oil recommendations

5.4 Maintenance information

Check regularly (at least once a year) by visual inspection whether the hydraulic connections are damaged. If external leakages are found, shut down and repair the system.

Clean the surface of the device regularly (at least once a year) (dust deposits and dirt).

References

Additional versions

- Valve bank (directional seated valve) type BWN and BWH: D 7470 B/1
- Valve bank (directional seated valve) type VB: D 7302

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