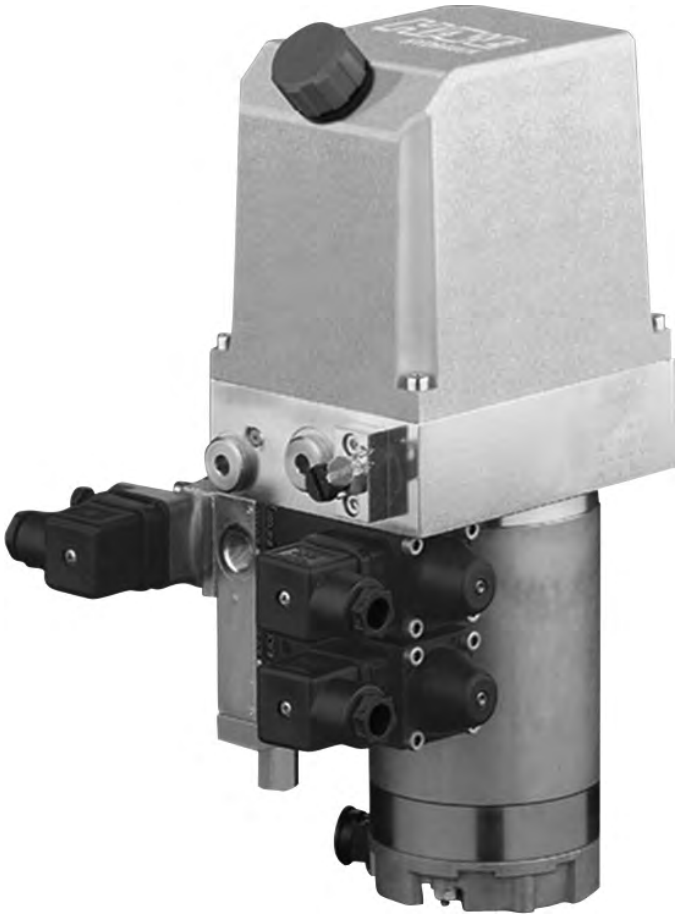
Direct current compact hydraulic power pack type NPC

Product documentation

For short-term and standby mode

Operating pressure p_{max}:	750 bar
Geometric displacement V_{max}:	0.46 cm^3/rev
Usable volume V_{use}:	0.65 l



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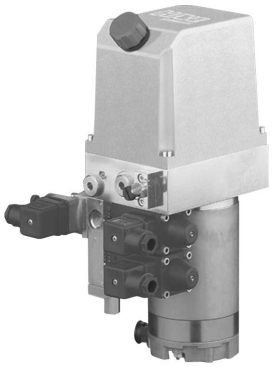
Contents

1 Overview 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 motor also acts as the pump shaft.
The ready-for-connection compact hydraulic power pack type NPC is suitable for hydraulic systems with operating mode S2. Type NPC includes a DC motor. The power pack is available in a horizontal or vertical version. Either single-circuit systems or dual-circuit systems can be selected. A radial piston pump or an external gear pump can be used as a hydraulic pump.
The compact hydraulic power pack type NPC is suitable for use as a highly compact control system, since the pressure-limiting valve is integrated and valve banks can be directly mounted.



Compact hydraulic power pack type NPC

Features and benefits:

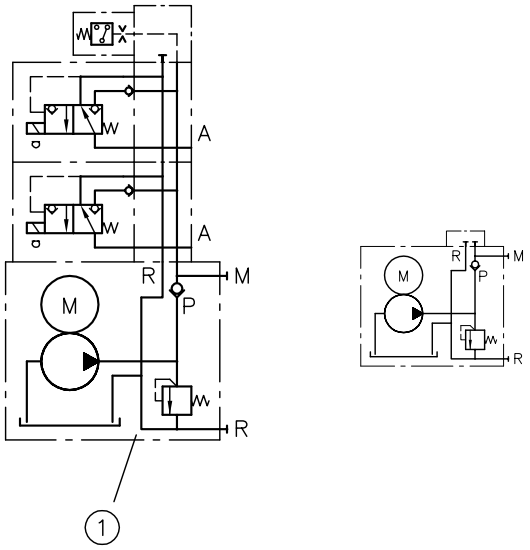
- Very low space requirements and easy to transport
- Supplied with direct current at 12V DC or 24V DC
- Particularly suited to mobile applications and construction site operation
- Long lifetime and excellent reliability achieved by using radial piston pumps
- Environmentally sound thanks to low oil fill volumes and minimum cost of disposal
- Low costs for hydraulic fluid
- Co-ordinated range of valves and accessories from the modular system

Intended applications:

- Riveting
- Brakes for wind power plants
- Hydraulic jigs
- Crimping
- Embossing

2 Available versions, main data

Circuit symbol:



1 Basic pump

Order coding 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

Attachments Table 6 Attachments

Motor voltage Table 5 Motor voltage

Check valve Table 4 Check valve

Pressure-limiting valve with pressure setting Table 3 Pressure-limiting valve with pressure setting

Delivery flow coding Table 2 Delivery flow coding

Basic type and size Table 1 Basic type and size

Table 1 Basic type and size

Coding	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

Table 2 Delivery flow coding

Version with radial piston pump

Coding		Output volume V_g (cm³/rev)	No-load volumetric flow Q_0 (lpm)	Operating pressure p_{max} (bar)
NPC 11	0,2	0.09	0.27	750
	0,31	0.14	0.42	640
	0,44	0.20	0.59	450
	0,61	0.28	0.83	320
	0,87	0.36	1.07	250
	1.05	0.46	1.36	190

Version with gear pump

Coding		Output volume V_g (cm³/rev)	No-load volumetric flow Q_0 (lpm)	Operating pressure p_{max} (bar)
NPC 11	Z 0,5	0.18	0.5	180
	Z 0,7	0.25	0.7	200
	Z 0,9	0.32	0.9	200
	Z 1,1	0.4	1.1	200
	Z 1,4	0.5	1.4	200
	Z 1,7	0.63	1.7	180
	Z 1,9	0.7	1.9	160
	Z 2,2	0.8	2.2	140
	Z 2,8	1.0	2.8	110

Version with radial piston pump

Coding		Output volume V_g (cm³/rev)	No-load volumetric flow Q_0 (lpm)	Operating pressure p_{max} (bar)
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

Version with gear pump

Coding		Output volume V_g (cm³/rev)	No-load volumetric flow Q_0 (lpm)	Operating pressure p_{max} (bar)
NPC 12	Z 0,5	0.18	0.65	180
	Z 0,7	0.25	0.9	200
	Z 0,9	0.32	1.2	200
	Z 1,1	0.4	1.5	200
	Z 1,4	0.5	1.8	200
	Z 1,7	0.63	2.2	200
	Z 1,9	0.7	2.5	200
	Z 2,2	0.8	2.9	200
	Z 2,8	1.0	3.5	180

Table 3 Pressure-limiting valve with pressure setting

Coding	Note
1/...	Fixed setting
2/...	Adjustable

Table 4 Check valve

Coding	Description
No designation	Without check valve
R	With check valve in P

Table 5 Motor voltage

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

Table 6 Attachments (direct attachment of valve banks)

Coding	Note
Type BWN 1, BWH 1	See documentation D 7470 B/1
Type VBO1	See documentation D 7302

3 Parameters

3.1 General, hydraulic and electrical

General information

Description	Constant pump for short period operation with DC motor
Design	Valve-controlled 3-cylinder radial piston pump or gear pump
Installation position	Vertical, horizontal
Ports	In accordance with mounting units
Temperatures	Ambient: approx. -40 to +60°C, oil: -25 to +80°C, pay attention to the viscosity range! Start temperature: down to -40°C is permissible (observe start-viscosity!), as long as the steady-state temperature is at least 20K higher for subsequent operation. Biologically degradable pressure 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

Pressure and volumetric flow

Operating pressure	Max. 750 bar
Volumetric flow (no load)	See load-dependent characteristic curve below

Electrical

NPC 11

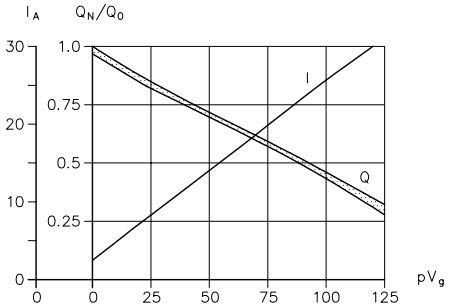
Nominal voltage	U_N	24V	12V
Nominal power	P_N	0.1 / 0.3 kW	0.1 / 0.25 kW
Nominal current	I_N	5.6 / 22 A DC	10.5 / 35 A DC

NPC 12

Nominal voltage	U_N	24V	12V
Nominal power	P_N	0.6 kW	0.6 kW
Nominal current	I_N	35 A DC	70 A DC

Rated rotation speed	n_N	3000 / 2000 rpm
Protection class		IP 44
Insulation material class		F
Electrical connection		2x flat plug 6.3x0.8
Permissible load duration	1 p_{max}	Duty cycle ≤ 10%
	0.5 p_{max}	Duty cycle ≤ 20%
	0.3 p_{max}	Duty cycle ≤ 30%
Recommended line cross section	2x 4 mm²	(≤ 35 A)
	2x 6 mm²	(< 35 A)

Actual current consumption and delivery flow characteristic



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

Weight

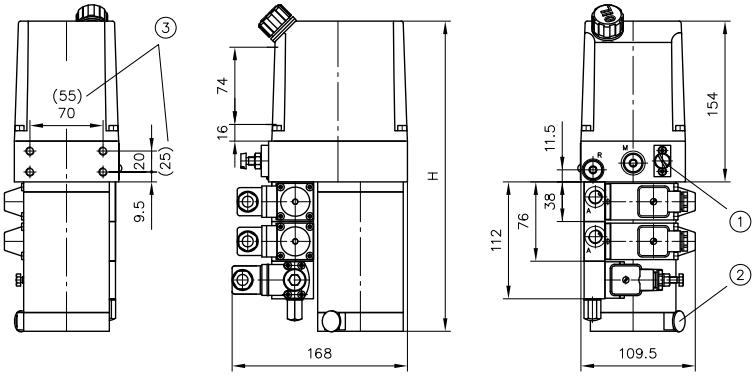
Type NPC 11	= 6.0 kg
Type NPC 12	= 8.0 kg

4 Dimensions

All dimensions in mm, subject to change.

Vertical version

Example with valve bank type BWN 1 or BWH 1



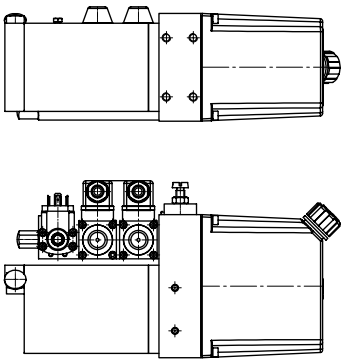
	H
NPC 11	297
NPC 12	357

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

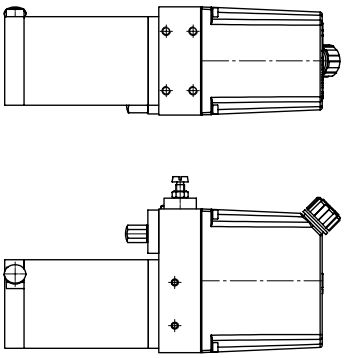
Horizontal version H

For dimension see vertical version)

Example with valve bank type BWN 1 or BWH 1.

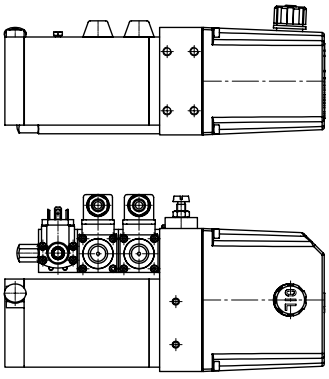


Without valve bank



Horizontal version Z

(Dimensions, see vertical version)



5 Assembly, operation and maintenance recommendations

5.1 Intended application

This hydraulic componentis exclusively intended for hydraulic applications (fluid engineering).

These hydraulic components meet demands high technical safety standards and regulations for fluid engineering and electrical engineering.

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

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 qualified personnel.
- The product must only be operated within the specified technical parameters. The technical parameters are described in detail in this documentation.
- The operating and maintenance manual of the specific complete system must also always be observed.

If the product can no longer be operated safely:

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

The hydraulic power pack must be shut down correctly prior to dismounting; this applies in particular to power packs with hydraulic accumulators.

Danger
Risk to life caused by sudden movement of the hydraulic drives when dismantled incorrectly!
Risk of serious injury or death.

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

5.3 Operating instructions

Product configuration and setting the pressure and flow rate

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

Note

- 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

Risk of injury on overloading components due to incorrect pressure settings!

Risk of minor injury.

- 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 hydraulic component. Contamination can cause irreparable damage.

Examples of fine contamination include:

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

Note

Fresh hydraulic fluid from the drum does not always have the highest degree of purity. Under some circumstances the fresh hydraulic fluid must be filtered before use.

Adhere to the cleanliness level of the hydraulic fluid in order to maintain faultless operation.
(Also see cleanliness level in Chapter 3, "Parameters").

5.4 Maintenance information

This product is largely maintenance-free.

Conduct a visual inspection to check the hydraulic connections for damage at regular intervals, but at least once per year. If external leaks are found, shut down and remedy.

Check the device surfaces for dust deposits at regular intervals (but at least annually) and clean the device if required.

Further information

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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