

- Small compact power packs used in lifting platforms, ramps and other applications
- 3 basic hydraulic circuits
- Low noise level
- High power ratio in relation to envelope dimensions
- Tank capacities from 7 to 30 L
- Possibility of building up an addition circuit in the form of horizontal stacking assembly of the size 04 or 06

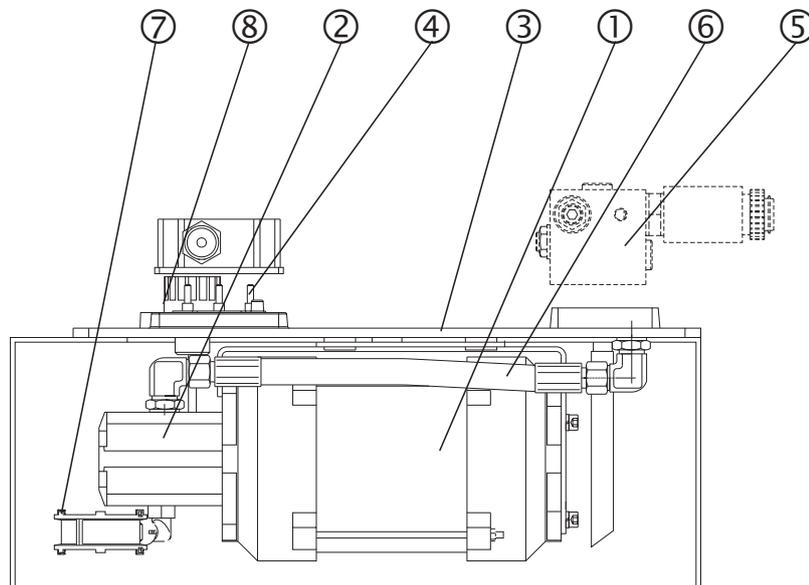
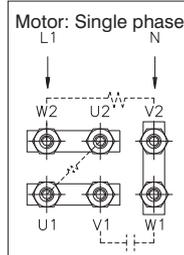
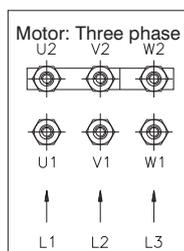


Functional Description

The under oil power packs are designed for applications which require low noise level as well as small envelope dimensions. They are supposed to work only occasionally, thus being suitable mainly for the use in lifting platforms, elevating tables and handling devices. The electric motor (1) and the pump (2) are connected through a cross coupling. The electric connection of the electric motor with the power pack terminal board is realized through a tight bushing (4) which is fixed to the tank cover. The whole drive (electric motor + pump) is flexibly suspended by means of holder on the lower side of the tank cover.

Mounted on a lug, which is situated on the upper side of the tank cover, is block (5). The fluid under pressure delivered by the pump is led to this block by hose (6). The filtration of the fluid is provided by suction filter (7). The air is filtered by an air filter which is integrated into the filling plug (10). The filling plug serves also as the scale for measuring the oil level. The block according to the hydraulic circuit S11 forms the base, on which the connecting plates of the horizontal stacking assembly (size 04 or 06) can be mounted.

PHASE - CONNECTIONS FOR CORRECT DIRECTION OF MOTOR ROTATION



Ordering Code

SPA 01 - / . - - - /

Under Oil Power Pack

Displacement of the pump

| | |
|--------------------------|-----------|
| 0,8 cm ³ /Um. | 08 |
| 1,2 cm ³ /Um. | 02 |
| 1,6 cm ³ /Um. | 16 |
| 2,1 cm ³ /Um. | 21 |
| 2,5 cm ³ /Um. | 25 |
| 3,3 cm ³ /Um. | 33 |
| 3,6 cm ³ /Um. | 36 |
| 4,4 cm ³ /Um. | 44 |
| 4,8 cm ³ /Um. | 48 |
| 5,8 cm ³ /Um. | 58 |
| 6,2 cm ³ /Um. | 62 |
| 7,9 cm ³ /Um. | 79 |

Code of the electric motor - see Tab. 1

Start-up module

- without start-up module
- with start-up module

0
M

Type of the block - see page 3

Code of the tank

| | |
|-----------|------|
| 7 | 7 L |
| 10 | 10 L |
| 20 | 20 L |
| 30 | 30 L |

Solenoid voltage

| | |
|--------------|------------------|
| 01200 | 12V DC |
| 01400 | 14V DC |
| 02100 | 21V DC |
| 02400 | 24V DC |
| 04200 | 42V DC |
| 04800 | 48V DC |
| 06000 | 60V DC |
| 10200 | 102V DC |
| 20500 | 205V DC |
| 02450 | 24V / 50 (60)Hz |
| 11550 | 115V / 50 (60)Hz |
| 23050 | 230V / 50 (60)Hz |

Nominal size of stacking assembly elements

| | |
|----------|---------------------------|
| 0 | Without stacking assembly |
| 3 | Size 03 |
| 4 | Size 04 |
| 6 | Size 06 |

Number of add-on units

| | |
|----------|---------------------------|
| 0 | Without stacking assembly |
| 1 | 1 Section |
| 2 | 2 Sections |
| 3 | 3 Sections |
| 4 | 4 Sections |
| 5 | 5 Sections |

Technical Data

| | | | |
|--|--------------------|--|-------------|
| Flow rate | L/min | Tab. 1 | |
| Working pressure | bar | Tab. 1 | |
| Max. working/peak pressure | bar | Tab. 1 | |
| Tank capacity | L | 7, 10, 20, 30 | |
| Type of the pump | | external gear pump | |
| Power of the electric motor | kW | 0,55 to 3 | |
| Load factor of the electric motor | % | 20 | |
| Type of the electric motor | | single phase | three phase |
| Voltage of the electric motor | V | 230 | 400 |
| Frequency | Hz | 50 | 50 |
| Enclosure type of the electric motor | | IP 54 | |
| Hydraulic fluid | | Hydraulic oils of power classes (HL, HLP) to DIN 51524 | |
| Viscosity range | mm ² /s | 20 ... 100 | |
| Maximum degree of fluid contamination | | Class 21/18/15 to ISO 4406 | |
| Fluid temperature range | °C | -30 ... +80 | |
| Ambient temperature max. | °C | +50 | |
| Thread of the connecting ports P, T, M, (A, B) | | G 1/4 | |
| Working position | | horizontal | |

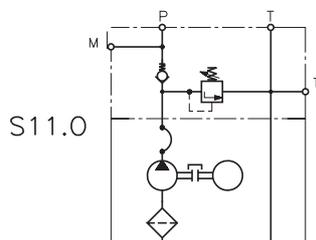
Tab. 1

| Code of the electric motor | | | Code of the pump | | | | | |
|----------------------------|-----------------------|------|-----------------------------|----------|----------|---------|---------|---------|
| | | | 08 P2.. | 12 P2.. | 16 P2.. | 21 P2.. | 25 P2.. | 33 P2.. |
| | $p_{max.}^{**}$ [bar] | | 250 | | | | | |
| R.P.M. | 400 V | kW | $Q / p_n * [L/min] / [bar]$ | | | | | |
| 1500 | 13 | 0.55 | | 1.5/175 | 2.0/130 | 2.6/100 | 3.1/85 | 4.2/65 |
| | 14 | 0.75 | | | 1.9/190 | 2.5/145 | 3.0/120 | 3.9/90 |
| | 15 | 1.1 | | | 2.1/200 | 2.8/190 | 3.3/160 | 4.4/120 |
| | 16 | 1.5 | | | | | 3.2/200 | 4.2/170 |
| | 17 | 2.2 | | | | | | |
| | 18 | 3.0 | | | | | | |
| 3000 | 30 | 0.55 | 2.2/120 | 3.2/80 | 4.3/60 | 5.6/45 | 6.7/40 | 8.9/30 |
| | 31 | 0.75 | 2.2/160 | 3.2/110 | 4.3/80 | 5.6/65 | 6.7/55 | 8.9/40 |
| | 32 | 1.10 | 2.2/200 | 3.2/165 | 4.3/120 | 5.6/95 | 6.7/80 | 8.9/60 |
| | 33 | 1.50 | | 3.2/200 | 4.3/165 | 5.6/130 | 6.7/110 | 8.9/80 |
| | 34 | 2.20 | | | 4.2/200 | 5.5/190 | 6.6/160 | 8.7/120 |
| | 35 | 3.00 | | | | | 6.4/200 | 8.5/170 |
| Um./min | 230 V | kW | $Q / p_n * [l/min] / [bar]$ | | | | | |
| 1500 | 5 | 0.55 | | 1.6/165 | 2.1/125 | 2.7/100 | 3.2/80 | 4.3/60 |
| | 6 | 0.75 | | 1.6/200 | 2.1/170 | 2.8/130 | 3.3/110 | 4.4/80 |
| | 7 | 1.10 | | | | 2.8/190 | 3.3/160 | 4.4/120 |
| | 8 | 1.50 | | | | | 3.3/200 | 4.4/165 |
| Code of the electric motor | | | 36 P2.. | 44 P2.. | 48 P2.. | 58 P2.. | 62 P2.. | 79 P2.. |
| | $p_{max.}^{**}$ [bar] | | 250 | | | 200 | | |
| R.P.M. | 400 V | kW | $Q / p_n * [L/min] / [bar]$ | | | | | |
| 1500 | 13 | 0.55 | 4.5/60 | 5.5/50 | 6.0/45 | 7.3/35 | 7.8/35 | 9.9/25 |
| | 14 | 0.75 | 4.3/85 | 5.2/70 | 5.7/65 | 6.9/50 | 7.4/50 | 9.4/40 |
| | 15 | 1.10 | 4.8/110 | 5.8/90 | 6.3/85 | 7.7/70 | 8.2/65 | 10.4/50 |
| | 16 | 1.50 | 4.6/155 | 5.6/130 | 6.2/115 | 7.4/100 | 8.0/90 | 10.1/70 |
| | 17 | 2.20 | | 5.0/200 | 5.5/190 | 6.6/160 | 7.1/150 | 9.0/120 |
| | 18 | 3.00 | | | 5.9/200 | 7.1/200 | 7.6/180 | 9.7/150 |
| 3000 | 30 | 0.55 | | | | | | |
| | 31 | 0.75 | 9.7/35 | | | | | |
| | 32 | 1.10 | 9.7/55 | 11.8/45 | 12.9/40 | 15.6/35 | | |
| | 33 | 1.50 | 9.7/75 | 11.8/60 | 12.9/55 | 15.6/45 | 16.7/40 | |
| | 34 | 2.20 | 9.5/110 | 11.6/90 | 12.7/85 | 15.3/70 | 16.4/65 | 20.9/50 |
| | 35 | 3.00 | 9.3/155 | 11.3/125 | 12.4/115 | 15.0/95 | 16.0/90 | 20.4/70 |
| R.P.M. | 230 V | kW | $Q / p_n * [L/min] / [bar]$ | | | | | |
| 1500 | 5 | 0.55 | 4.7/55 | 5.7/45 | 6.2/40 | 7.5/35 | 8.0/30 | 10.2/25 |
| | 6 | 0.75 | 4.8/75 | 5.9/60 | 6.4/55 | 7.7/45 | 8.3/45 | 10.5/35 |
| | 7 | 1.10 | 4.8/110 | 5.9/90 | 6.4/80 | 7.7/70 | 8.5/65 | 10.5/50 |
| | 8 | 1.50 | 4.8/150 | 5.9/120 | 6.4/110 | 7.7/95 | 8.5/85 | 10.5/70 |

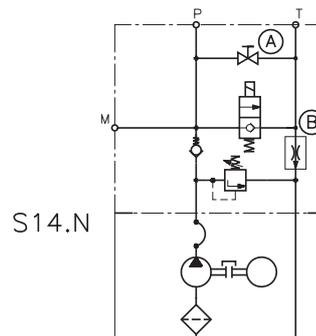
* p_n - nominal pressure = the highest working pressure allowed without time restriction

** $p_{max.}$ - maximum pressure = maximum pressure allowed for a short time - max. 20s

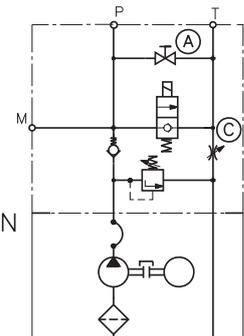
Type of the Hydraulic Circuit



S11.0



S14.N



S24.N

The hydraulic circuit S11.0 enables the power pack to be used as a simple pressure supply for general applications with the possibility to build up additional hydraulic circuits in the form of horizontal stacking assemblies of the size 04 or 06. Should the power pack be run for longer time periods, it is necessary to take the load factor of the electric motor into account.

The hydraulic circuit S14.N and S24.N enable the power pack to be used as pressure supply for lifting platforms and other devices, in which the mass of the system provides returning into the basic position. The shuf-off valve (A) enables emergency lowering of the device, should a disconnection of the supply voltage occur.

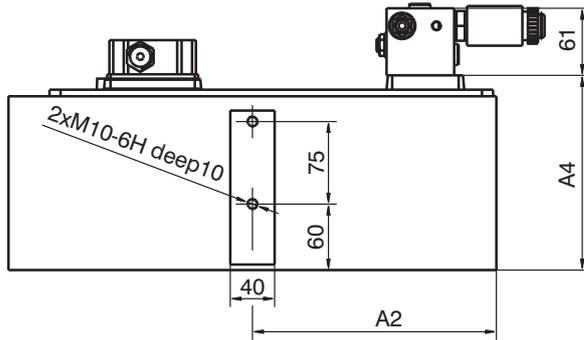
The hydraulic circuit S14.N comprises a flow control valve VSK2 (B) which is adjustable only in a certain range (see catalogue VSK2 - HA 5121). The valve is accessible after removing the block from the tank cover. If not otherwise required, a valve VSK2 is mounted into the block. The stabilized flow rate of this valve corresponds with the respective flow rate of the power pack (see Tab. 1).

The hydraulic circuit S24.N comprises a throttle valve VSV1-06 (C) without pressure compensation. This valve is accessible from outside of the block.

Valve Dimensions

Dimensions in millimeters

Steel tank

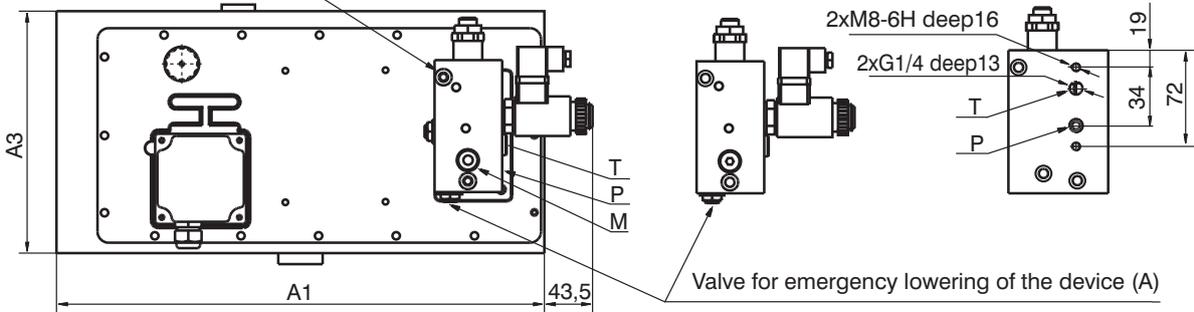


Throttle valve VSV1-06 (C)

Block S24.N

Block S14.N

Block S11



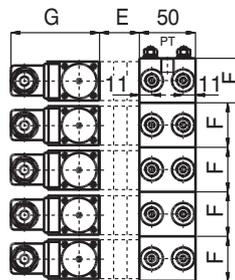
Example of horizontal stacking assembly

- possible only with hydraulic circuit S11.0

E - according to the elements used,
see datasheet 5021, 5023, 5051, 5093

F - Size 04=40 mm
Size 06=50 mm

G - Size 04=79 mm
Size 06=92 mm

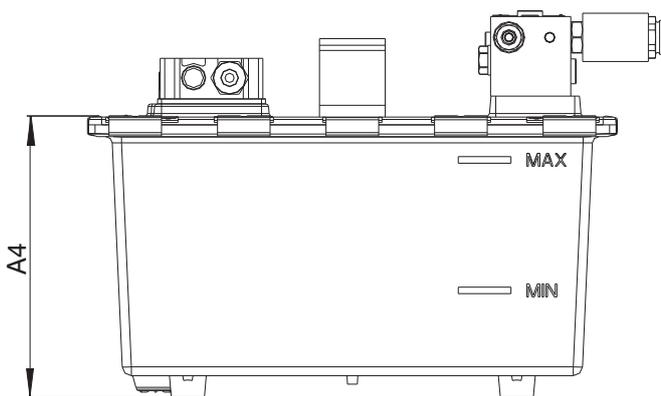


| Code of the tank | Tank capacity in [L] | Working volume [L] | A1 [mm] | A2 [mm] | A3 [mm] | A4 [mm] |
|------------------|----------------------|--------------------|---------|---------|---------|---------|
| 10 (steel) | 10 | 6 | 440 | 220 | 220 | 175 |
| 20 (steel) | 20 | 10 | 500 | 220 | 260 | 214 |
| 30 (steel) | 30 | 20 | 500 | 220 | 260 | 294 |

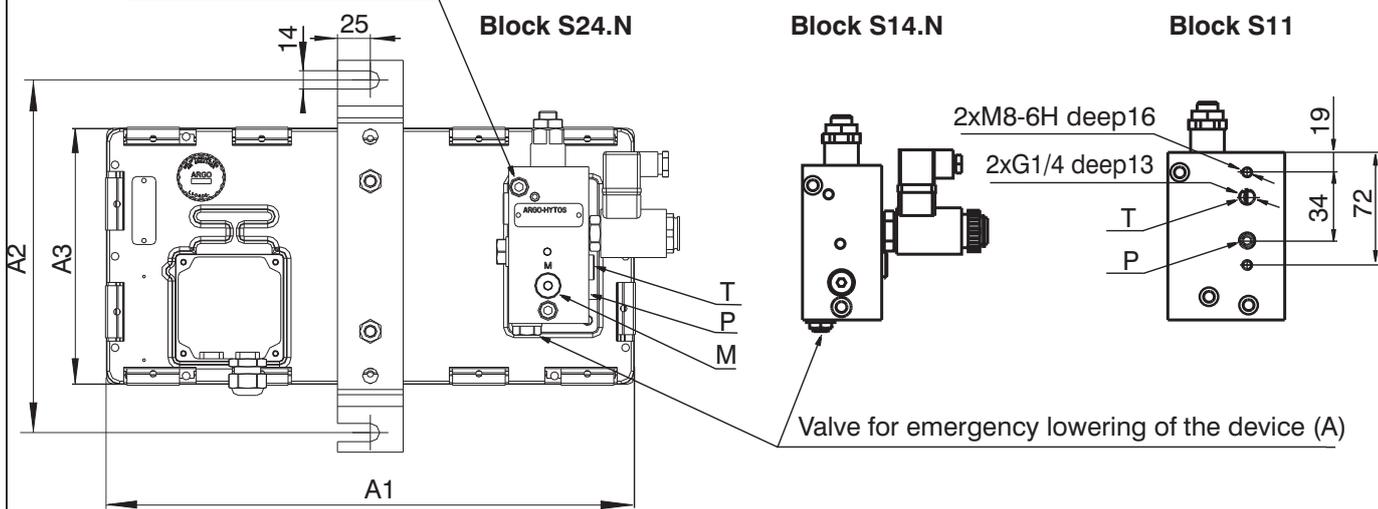
Valve Dimensions

Dimensions in millimeters

Plastic tank



Throttle valve VSV1-06 (C)



| Code of the tank | Tank capacity in [L] | Working volume [L] | A1 [mm] | A2 [mm] | A3 [mm] | A4 [mm] |
|------------------|----------------------|--------------------|---------|---------|---------|---------|
| 7 (plastic) | 7 | 4 | 401 | 270 | 196 | 215 |

Caution!

- The packing foil is recyclable.
- The technical information regarding the product presented in this catalogue is for descriptive purposes only. It should not be construed in any case as a guaranteed representation of the product properties in the sense of the law.

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