

HE POWER PACKS

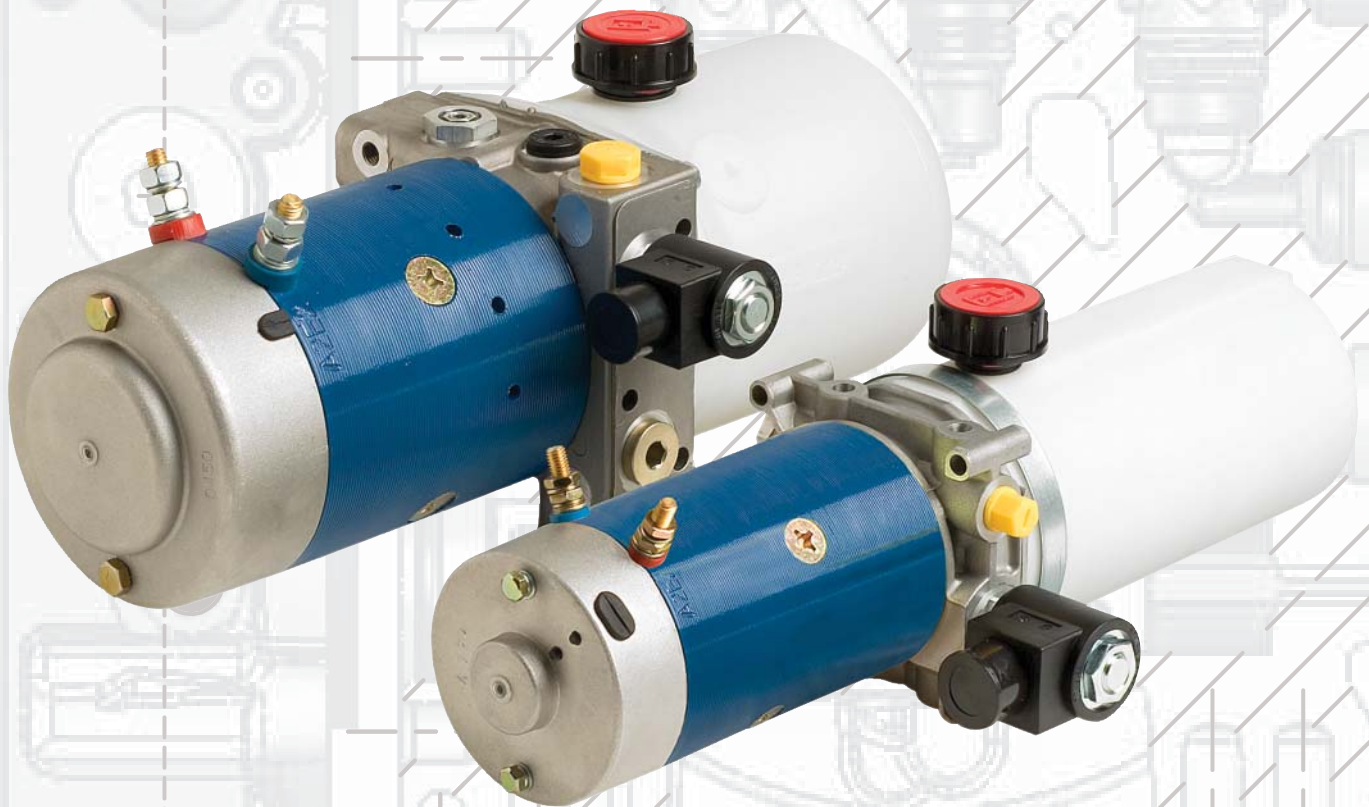
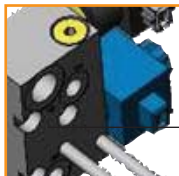
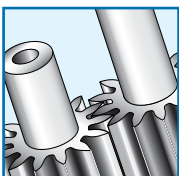
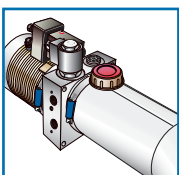


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The right to modifications for technical improvements is reserved.



THE POWER OF HE

Concentric (formerly Haldex) is one of the world's leading manufacturers of hydraulic power packs. In recent years, we have focused on strategically important markets, and the result is a new series of high performance hydraulic power packs. The HE series represents a further development of the universal technical platform developed by Concentric, worldwide.

HE Power Packs are optimized for demanding applications. They are designed for use in trucks operating in harsh climates, or for heavy materials handling with long service intervals. Applications that demand high performance and superb quality. We have also prioritized customers' wishes for greater flexibility and better cost-efficiency.

The result is an extremely versatile platform, which uses standard components and can handle most of the applications the market demands. It lets you cut your stock of hydraulic components down to a minimum and radically reducing the need for specially

developed components.

HE Power Packs make it easier to build short series of special applications cost efficiently.

Concentric (www.concentricAB.com), headquartered in Stockholm, Sweden, is an innovator in flow control and fluid power, supplying proprietary systems and components for trucks, buses and industrial vehicles, worldwide. With 1,156 employees and sales of 1,977 million Swedish Kronor, Concentric AB is listed on the Stockholm Stock Exchange.

The company operates globally and enjoys global advantages: secure supply lines, close contact with customers on development and a universal technical platform that will always fit your product -- no matter where in the world it is manufactured.

The New He2200 High Flow Adaptor

The He2000 has for many years been a success. The performance and flexibility together has created a wide customer base.

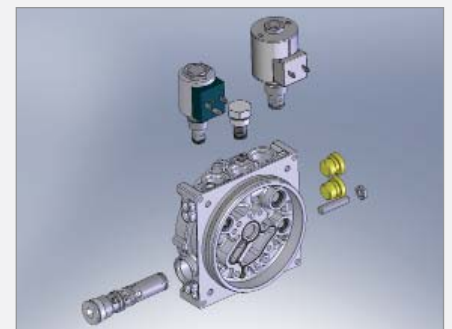
The need for more sophisticated systems at the same envelope size is one of the elements that is the basis for the He II adaptor.

Within the envelope size of an He2000 we have made it possible to integrate up to 3 cartridge valves for single acting, 2 x single acting or double acting functions directly into the adaptor without external manifolds.

Additionally, larger flow control valves can be mounted to accept higher return flows at eg lowering at high speed. The relief valve can easily be adjusted from the outside.

In the He2200 version, the pump and motor are equipped with splined drive shafts that improve the life of each, especially at applications with many starts and stops.

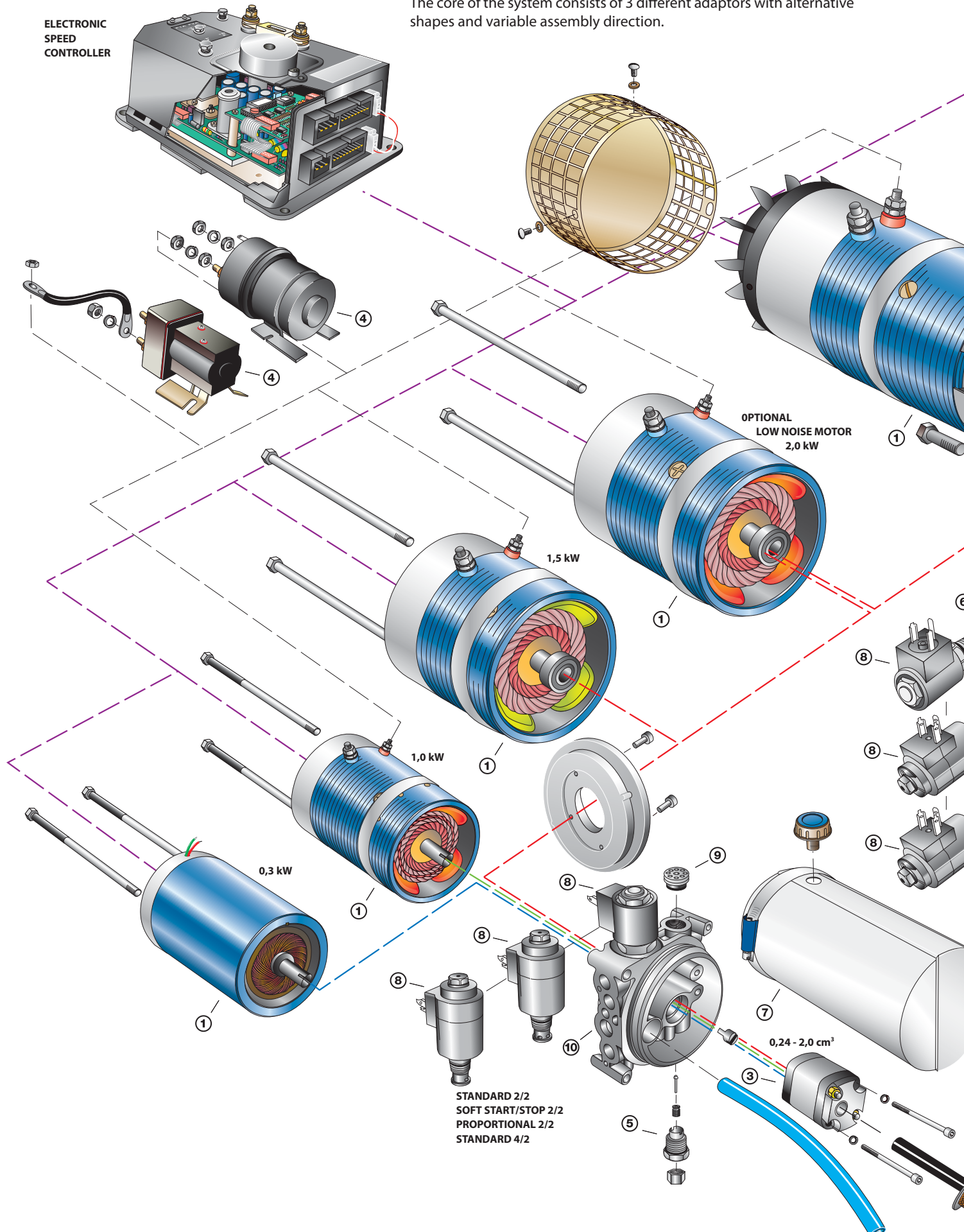
All in all, the He2200 offers a cost and space efficient solution and improved performance.

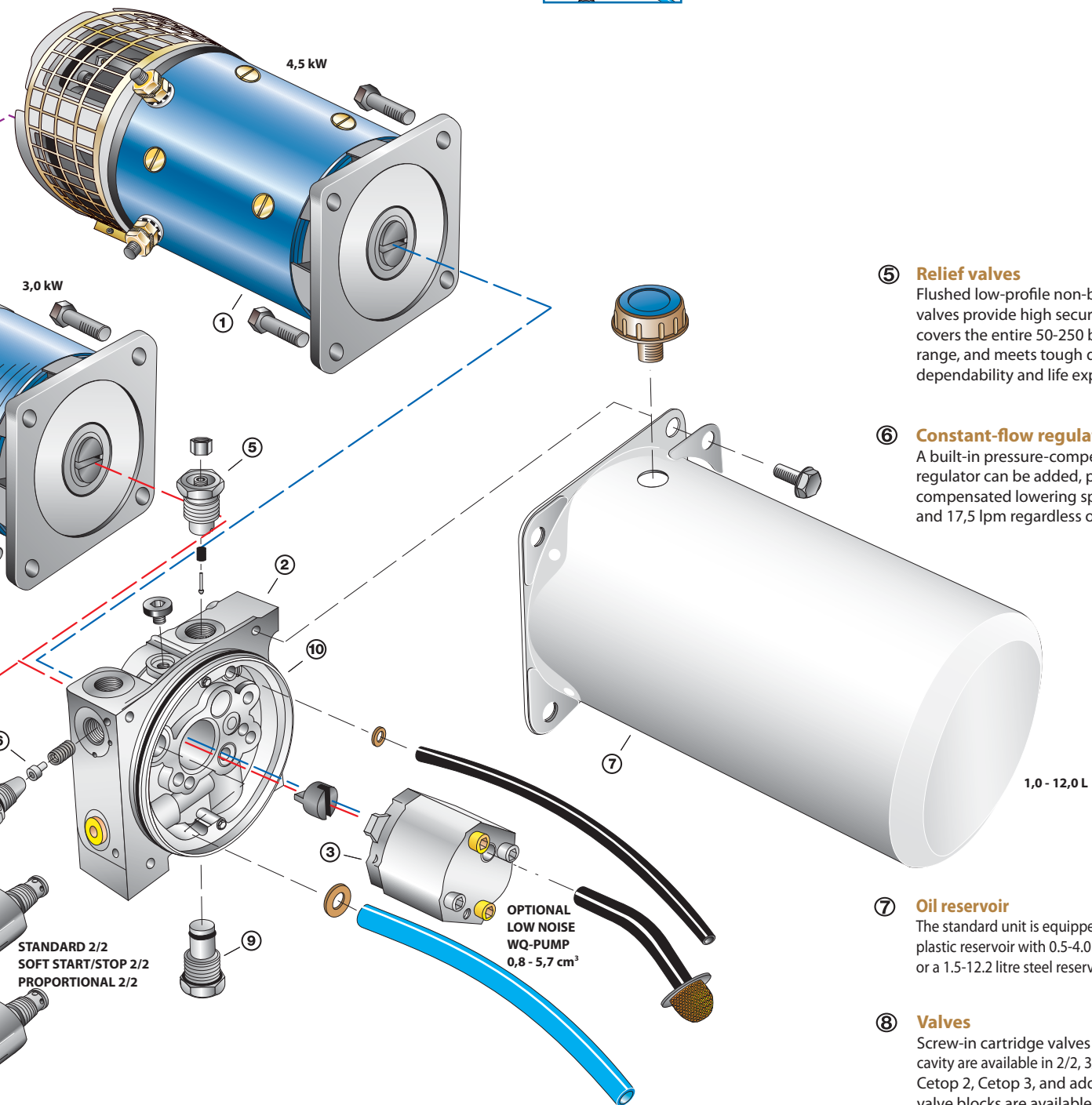
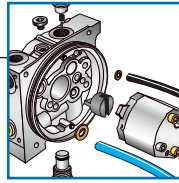


Pictures above are used with the kind permission of Scania and Jan Knodt.

HE POWER PACK CONCEPT

The HE Power Pack is based on a versatile platform that allows you to combine 80-134 mm motors (0.3-4.5 kW) with a variety of pumps (0.24-5.7 cc/rev). A unit can individually control several hydraulic cylinders. The core of the system consists of 3 different adaptors with alternative shapes and variable assembly direction.





① Motors

DC motors, 12/24/48 volt. Efficient motors with long service life, long service interval and low power consumption. Special **noise reduced motors (LSM)** available.

② AC Operation

Flanges for 71/80/91/100 B14 AC motors permit the installation of motors rated at 0.25-4 kW/1500 rpm or 0.37-4 kW/2800 rpm. **AC mounting only with HE 2000 adaptor.**

③ Pump

Pressure-balanced gear pumps of our own design are extremely efficient, with low noise. Special **noise reduced pumps (WQ)** available.

④ Start switch

Start switch with high IP protection class and silverplated contacts meets tough demands for a long, problem-free service life.

⑤ Relief valves

Flushed low-profile non-blocking relief valves provide high security. One model covers the entire 50-250 bar setting range, and meets tough demands for dependability and life expectancy.

⑥ Constant-flow regulator

A built-in pressure-compensated flow regulator can be added, providing pressure compensated lowering speed between 2 and 17,5 lpm regardless of load.

⑦ Oil reservoir

The standard unit is equipped with a transparent plastic reservoir with 0.5-4.0 litre usable volume, or a 1.5-12.2 litre steel reservoir.

⑧ Valves

Screw-in cartridge valves with a standard cavity are available in 2/2, 3/2, or 4/2 versions. Cetop 2, Cetop 3, and additional cartridge valve blocks are available for up to 4 individual functions.

⑨ Check valve

⑩ Adaptors

Three different adaptors with two alternative mounting directions: the smaller He1000 adaptor, the larger He2000 and He2200.

The following pages contain more information on the HE power range. If you have any questions, please do not hesitate to contact our local sales office or distributor, or any of our factories.

HE ADAPTORS AND VALVES

- He1000
- He2000
- He2200

The HE series is based on three different adaptors with two alternative mounting directions: the smaller He1000 adaptor, the larger He2000, and the new He2200 High Flow.

The He1000 is designed for use with 80 mm and 112 mm motors.
Pump sizes: 0.24-2.0 cc/rev.

The He2000 is designed for use with 112 mm, 125 mm and 134 mm motors.
Pump sizes: 0.8-5.7 cc/rev.

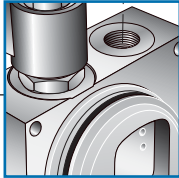
The He2200 High Flow is designed for use with 112 mm, 125 mm and 134 mm motors.
Pump sizes: 0.8-5.7 cc/rev.

With the HE 1000, 2000 and 2200 adaptors, the unit can be used as a pump motor unit

only, be equipped with directly mounted or block-mounted cartridge valves or be equipped with block-mounted Cetop 2 or Cetop 3 valves.

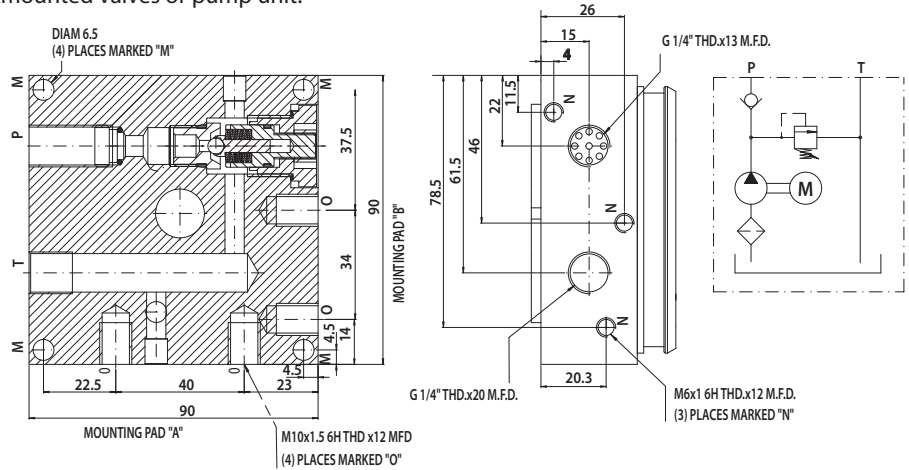
All adaptors have a check valve, and most models can be equipped with an integrated pressure-compensated constant-flow regulator.

Please note that adaptors are shown from the pump side on the following pages.

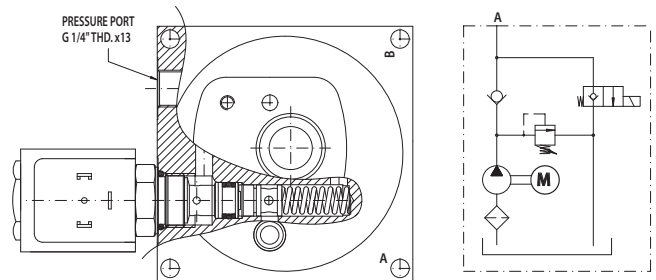


ADAPTOR He1000

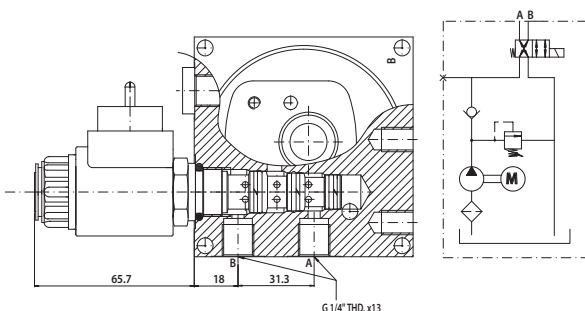
- AA000 Adaptor prepared for blockmounted valves or pump unit.



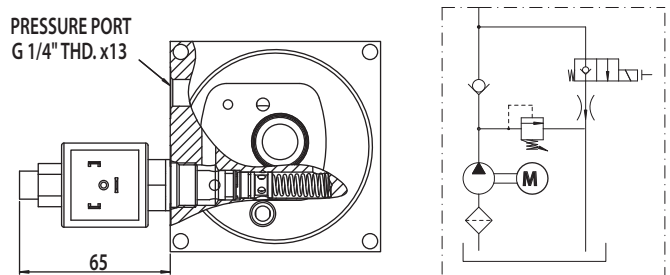
- AE012 Adaptor with 12 or 24 VDC, 2/2 cartridge valve, normally closed. Standard DIN 43650 connection or optional "Kostal" or "AMP junior" connections. Normally open valve is available as an option.
- AE024
- AE230

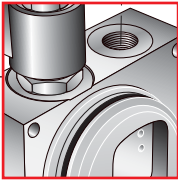


- AL012 Adaptor with 12 or 24 VDC, 4/2 cartridge valve integrated in adaptor.
- AL024
- AL230



- AO012 Adaptor with 12 or 24 VDC, 2/2 cartridge valve, normally closed and manual override. Standard DIN 43650 connection or optional "Kostal" or "AMP junior" connections.
- AO024
- AO230

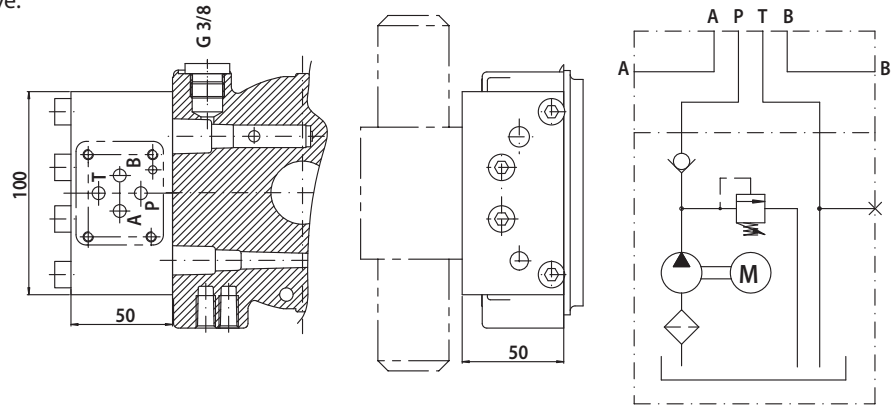




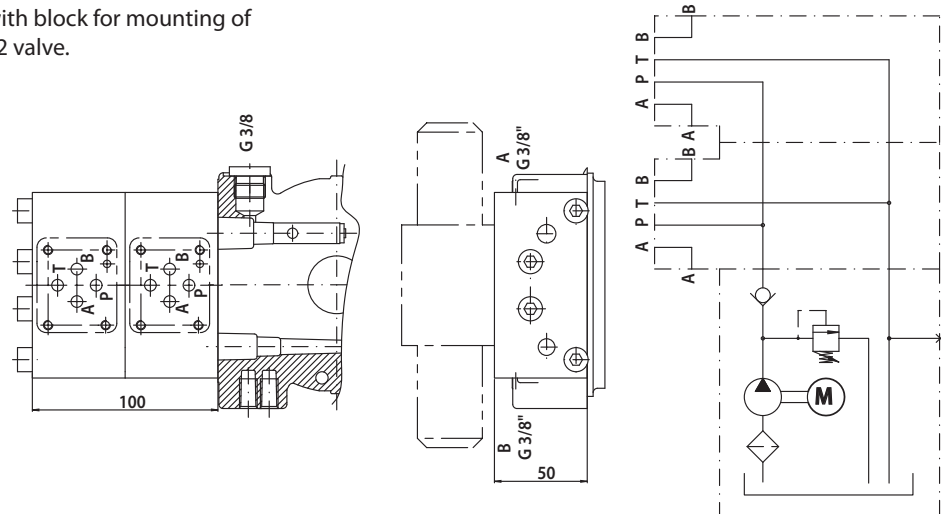
ADAPTOR He1000



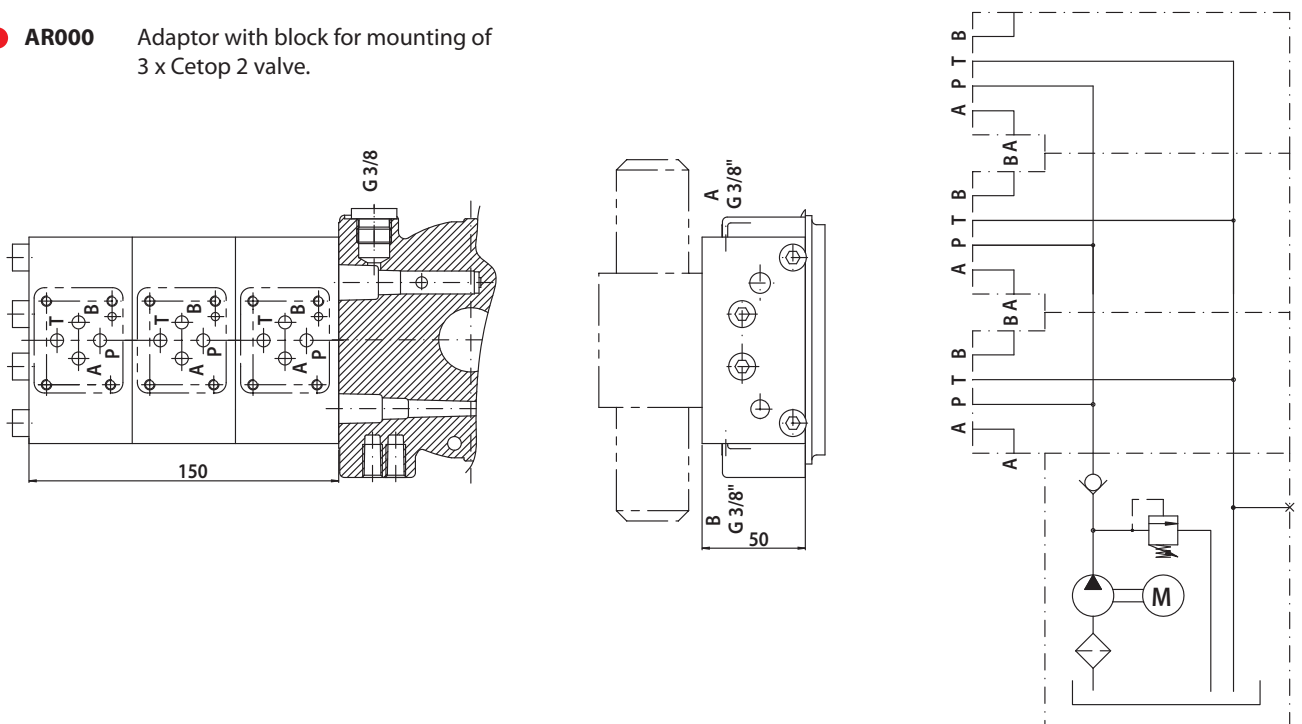
- **AP000** Adaptor with block for mounting of 1 x Cetop 2 valve.

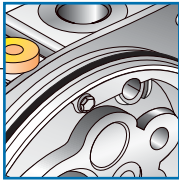


- **AQ000** Adaptor with block for mounting of 2 x Cetop 2 valve.



- **AR000** Adaptor with block for mounting of 3 x Cetop 2 valve.

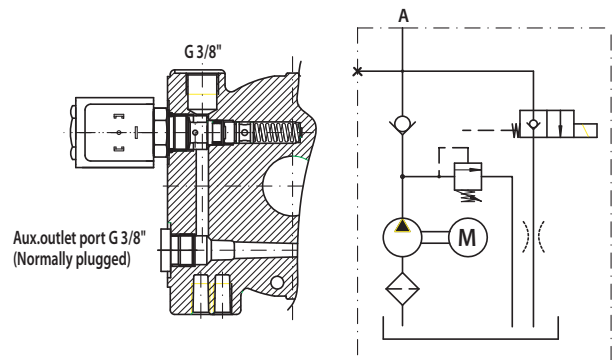
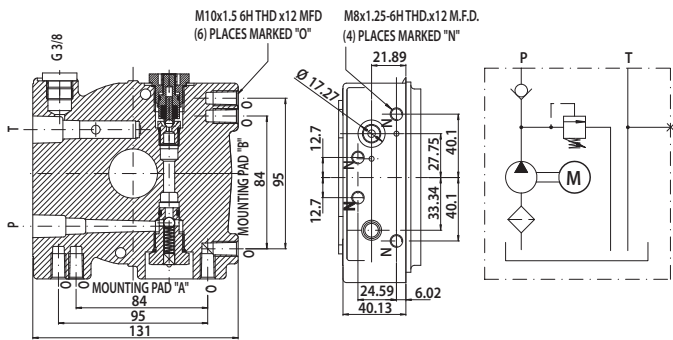




ADAPTOR He2000

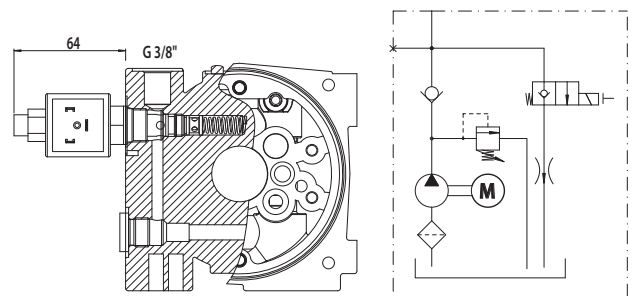
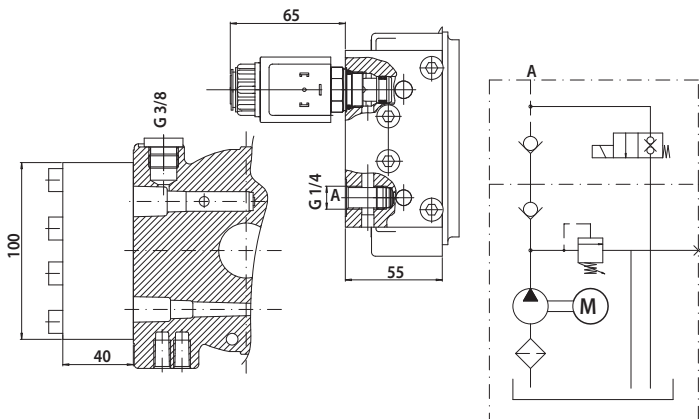
- **AA000** Adaptor prepared for block-mounting of external valves.

- **AE012** Adaptor with 12 or 24 VDC, 2/2 cartridge valve, normally closed. Standard DIN 43650 connection or optional "Kostal" or "AMP junior" connections. Normally open valve or manual override is available as an option.
- **AE024**
- **AE230**

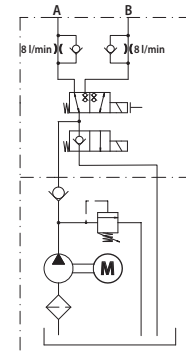
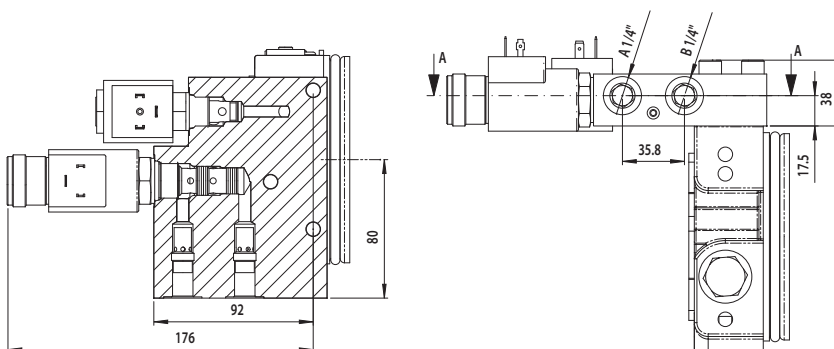


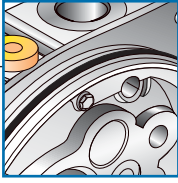
- **AF012** Adaptor with 12 or 24 VDC, block-mounted 2/2 cartridge valve.
- **AF024**
- **AF230**

- **AO012** Adaptor with 12 or 24 VDC, 2/2 cartridge valve, normally closed and manual override. Standard DIN 43650 connection or optional "Kostal" or "AMP junior" connections.
- **AO024**
- **AO230**



- **AS012** Adaptor with 12 or 24 VDC, cartridge valves, 2/2 normally closed, 3/2 and 2 x flow restrictor valves.
- **AS024**

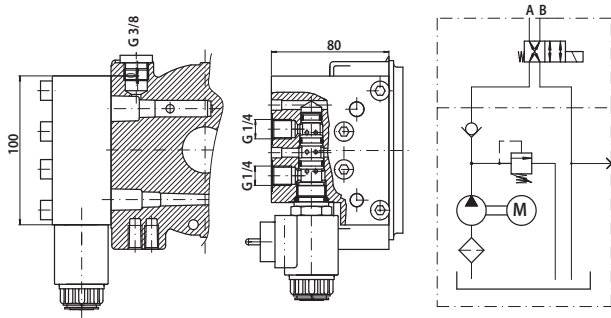




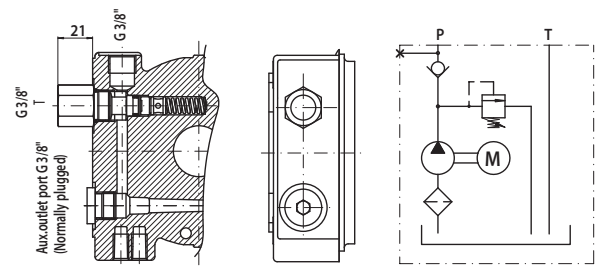
ADAPTOR He2000



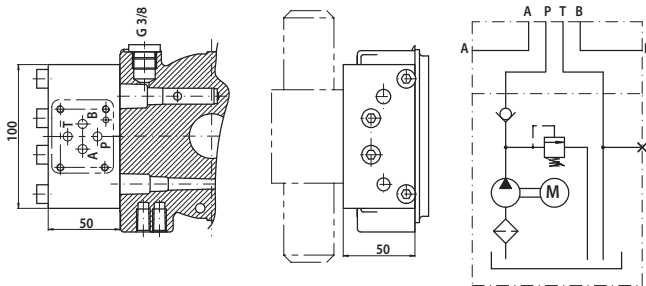
- **AL012** Adaptor with 12 or 24 VDC block-mounted 4/2 cartridge valve.
- **AL024**
- **AL230**



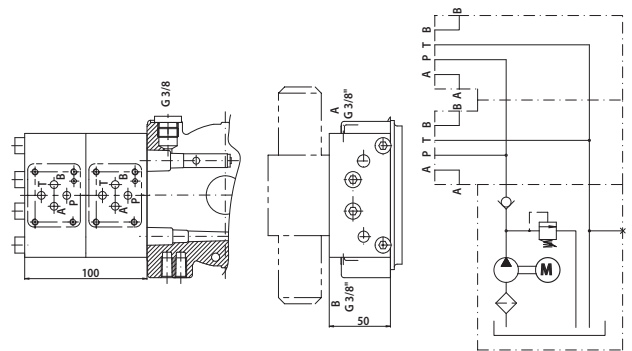
- **AN000** Adaptor as pump/motor unit with pressure and return line port.



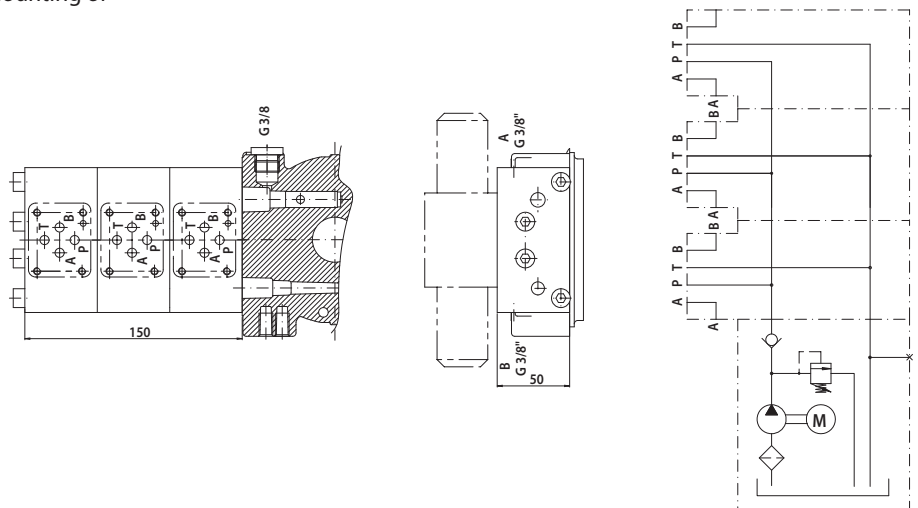
- **AP000** Adaptor with block for mounting of 1 x Cetop 3/NG 6 valve

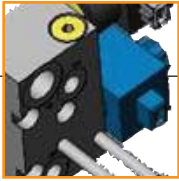


- **AQ000** Adaptor with block for mounting of 2 x Cetop 3/NG 6 valve



- **AR000** Adaptor with block for mounting of 3 x Cetop 3/NG 6 valve





THE NEW He2200 HIGH FLOW ADAPTOR

● He2200 High Flow Adaptor

The need for more sophisticated systems at the same envelope size is one of the elements that is the basis for the He2200 High Flow Adaptor.

Within the envelope size of an He2000, Concentric has made it possible to integrate up to 3 cartridge valves for single acting, 2x single acting or double acting functions directly into the adaptor without external manifolds.

Additionally, larger flow control valves can be mounted to accept higher return flows at eg lowering at high speed. The

relief valve can easily be adjusted from the outside.

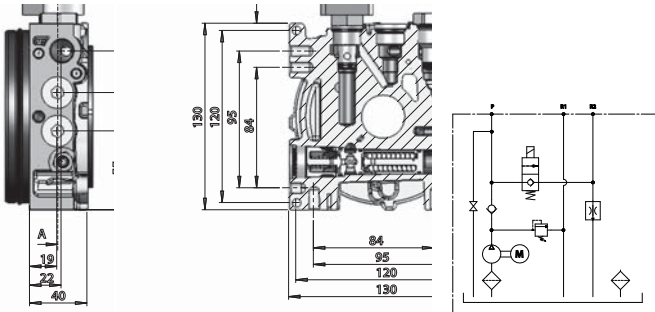
In the He2200 high flow version, the pump and motor are equipped with splined drive shafts that improve the life of each, especially at applications with many starts and stops.

All in all, the He2200 high flow version offers a cost and space efficient solution and improved performance.

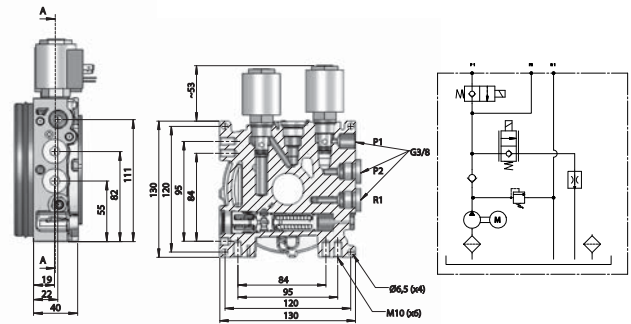
Please note that adaptors are shown from the pump side on the following pages.

ADAPTOR He2200 HIGH FLOW

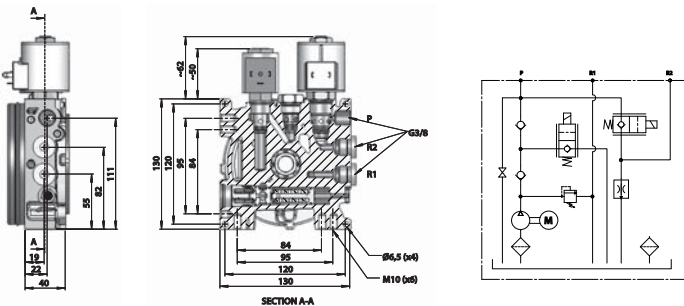
- **BE000** Adaptor with 12 or 24 VDC, 2/2 cartridge valve, normally closed.
- **BE012**
- **BE024**



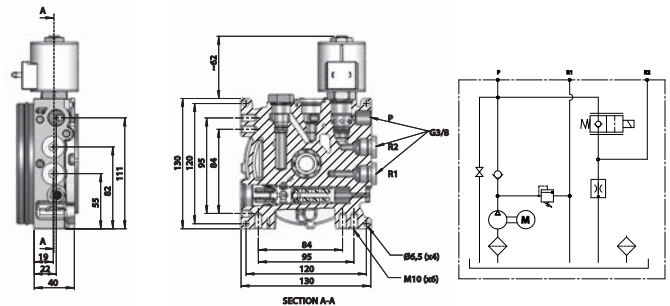
- **BF000** Adaptor with 12 or 24 VDC, 2/2 cartridge valve, 1 x lowering proportional valve, normally closed.
- **BF012**
- **BF024**



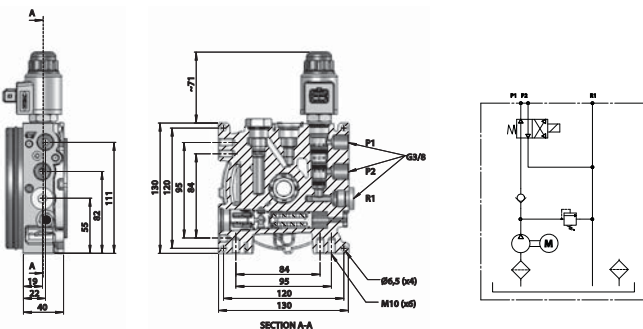
- **BG000** Adaptor with 12 or 24 VDC, 2x integrated proportional valve for shunt off function at lift and lowering, normally closed.
- **BG012**
- **BG024**



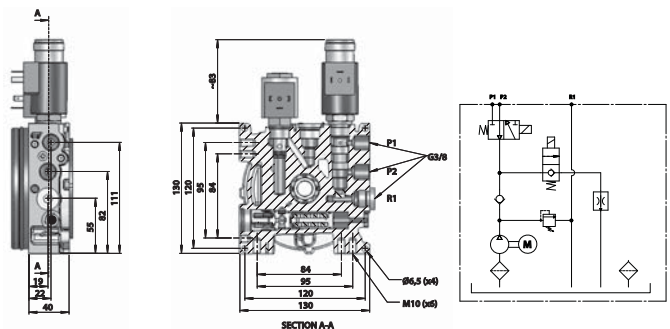
- **BH000** Power up/gravity down made for rpm controlled lifting and proportional lowering.
- **BH012** Adaptor with 12 or 24 VDC, normally closed.
- **BH024**

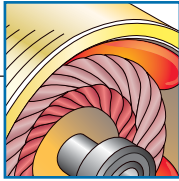


- **BL000** Adaptor with 12 or 24 VDC.
- **BL012**
- **BL024**



- **BM000** Power up/gravity down for 2 single acting functions. Adaptor with 12 or 24 VDC. 3/2 valve for function selection.
- **BM012**
- **BM024**





HE PUMPS AND DC MOTORS

The HE series is equipped with motors for 12,24 or 48 VDC. These motors provide extremely high power output and meet tough load requirements. A thoughtful basic design and long-lasting carbon brushes cut down on maintenance

requirements. All motors are manufactured by Concentric to ensure maximal system optimization, performance and quality. **He2000 adaptor can also be equipped with flanges for AC-motor mounting.**

MAKE THE OPTIMAL CHOICE OF PUMP AND MOTOR

On the following pages, you will find our range of DC motors and pumps.

Important parameters to consider in choosing the correct unit are flow in l/min, pressure in bars, and duty cycle. In some cases, allowable amp consumption is a factor too, due to restricted battery capacity.

Our curves permit easy comparison at a constant voltage measurement.

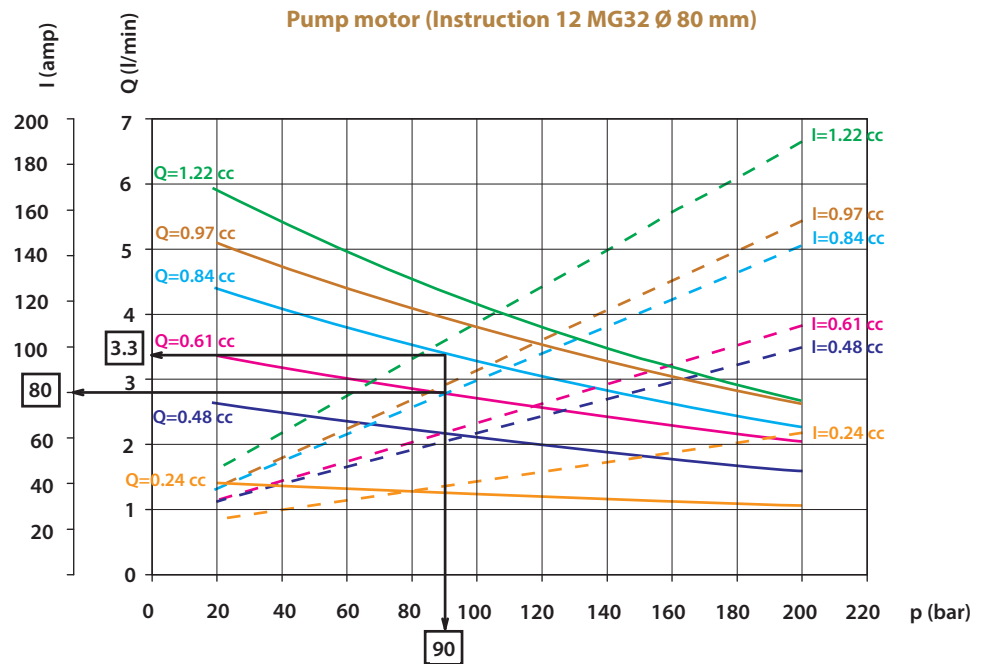
How to read the curves:

When pressure and flow are determined, the amperage can be read from the pump/motor curve. The amperage is then transferred to curve 2.

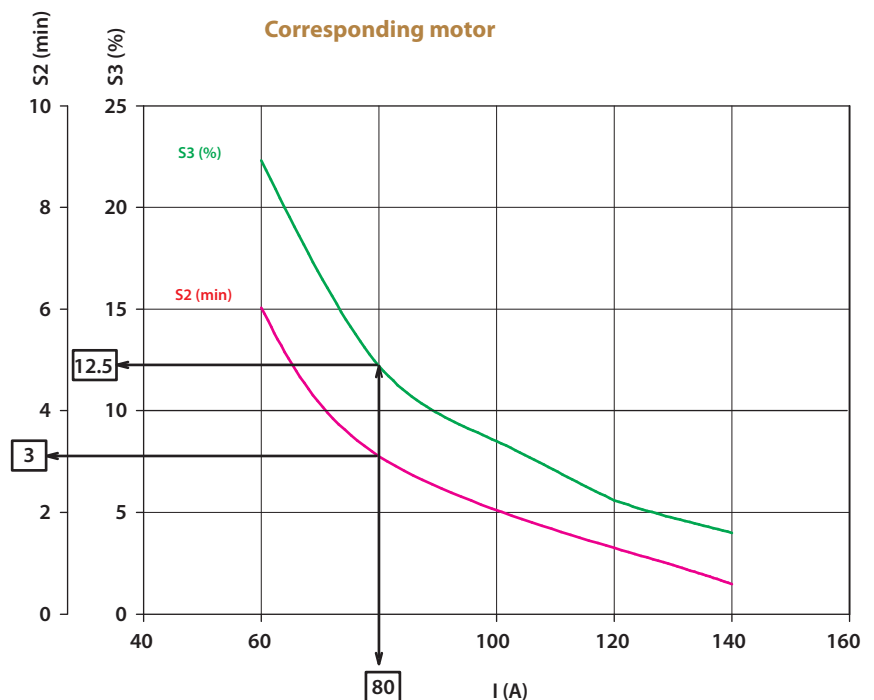
The amperage corresponds to an S2 and an S3 value. These values represent two ways of calculating duty capability.

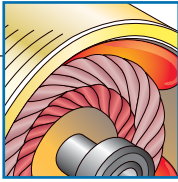
S2 is the number of minutes a unit can operate at a certain workload before reaching the maximum allowable temperature. After this, the unit must cool down until the motor temperature is less than 2°C from the ambient temperature before the same S2 value can be applied again.

S3 is the maximum time in % per 10 minute period that a unit can work at a certain pressure/workload. For example an S3 value of 30% = 3 min. for each 10 min. period, over and over again.



Example: 3,3 l/min at 90 bar and 80 amp on pump motor curve above gives S2 = 2,8 min and S3 = 11% at corresponding motor curve below.





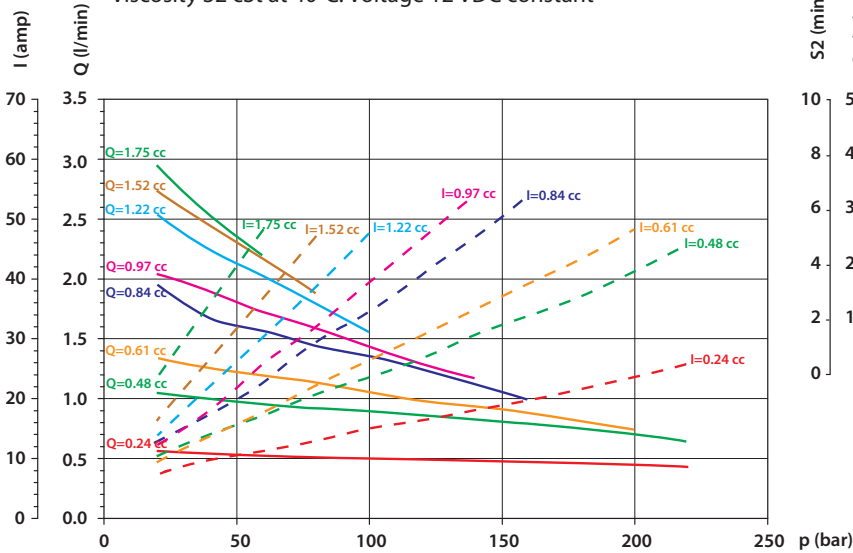
HE PUMPS AND DC MOTORS



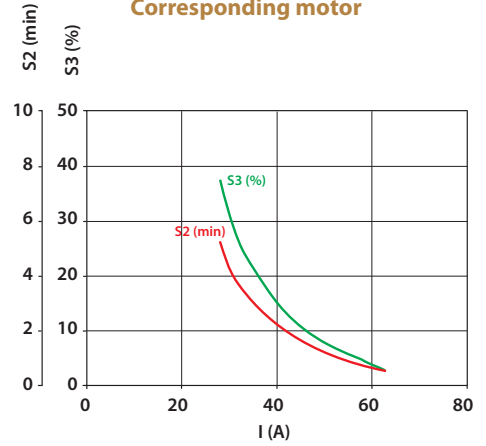
12MH82-HE

He1000 MH pump motor 12V DC Ø 84 mm

Viscosity 32 cSt at 40°C. Voltage 12 VDC constant



12MH82-HE-S2 & S3 Corresponding motor



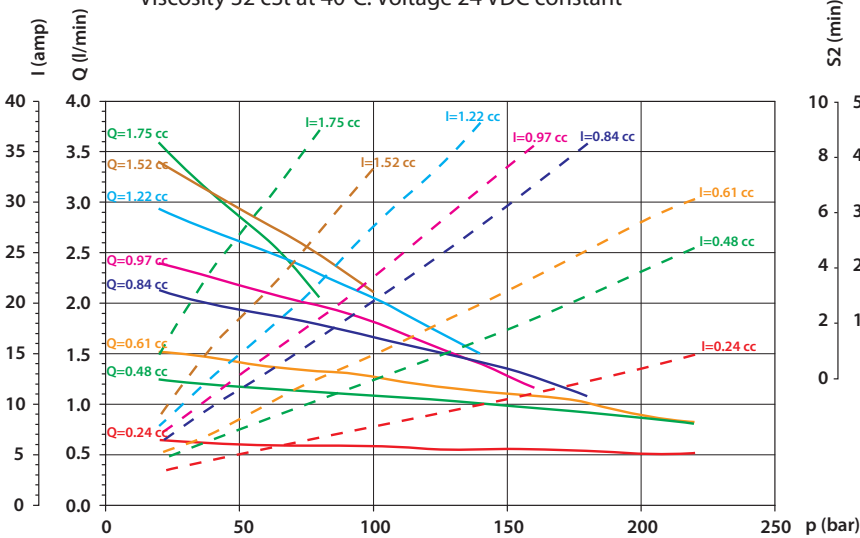
Code	Pump
02	0,24 cc
05	0,50 cc
06	0,60 cc
08	0,80 cc
10	1,00 cc
12	1,25 cc
15	1,50 cc
18	1,75 cc

Code	Motor
01	12MH82HE

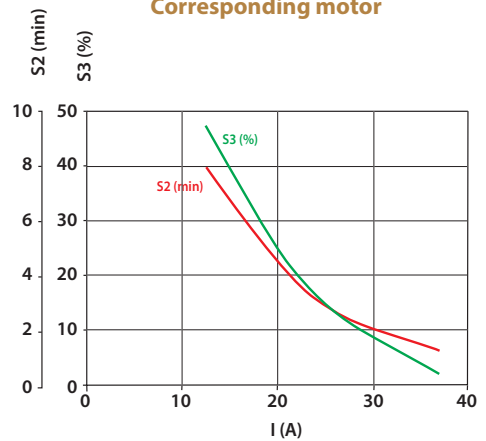
24MH82-HE

He1000 MH pump motor 24VDC Ø 84 mm

Viscosity 32 cSt at 40°C. Voltage 24 VDC constant

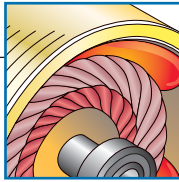


24MH82-HE-S2 & S3 Corresponding motor



Code	Pump
02	0,24 cc
05	0,50 cc
06	0,60 cc
08	0,80 cc
10	1,00 cc
12	1,25 cc
15	1,50 cc
18	1,75 cc

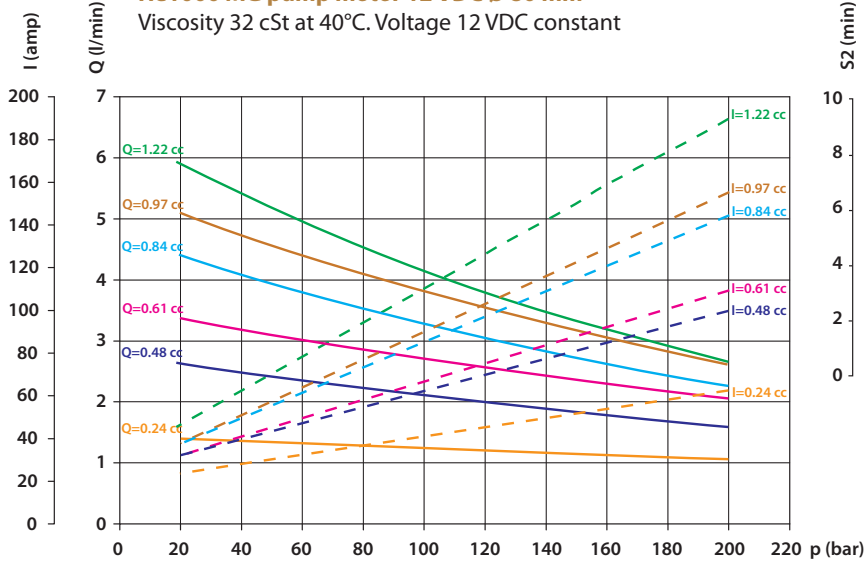
Code	Motor
02	24MH82-HE



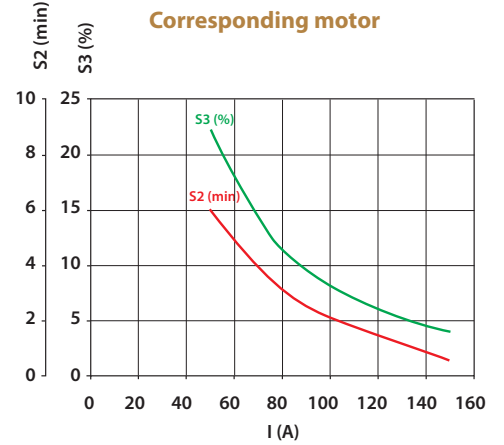
HE PUMPS AND DC MOTORS

12MG32(T)HE

He1000 MG pump motor 12 VDC Ø 80 mm
Viscosity 32 cSt at 40°C. Voltage 12 VDC constant



12MG32-HE-S2 & S3 Corresponding motor

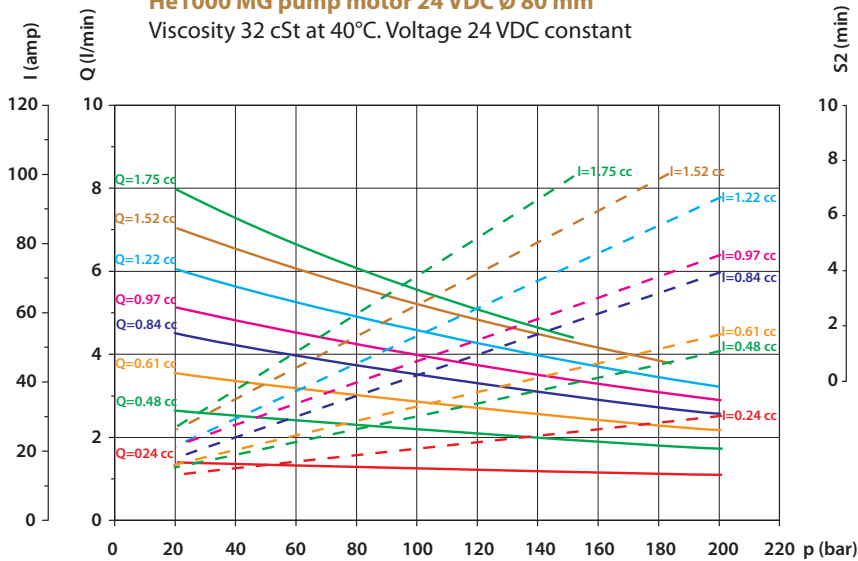


Code	Motor
10	12MG32-HE
11	12MG32THE

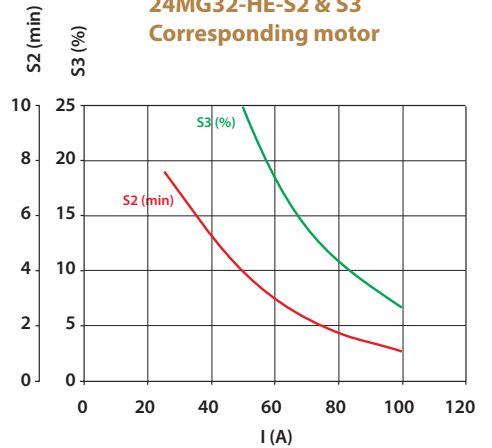
Code	Pump
02	0,24 cc
05	0,50 cc
06	0,60 cc
08	0,80 cc
10	1,00 cc
12	1,25 cc

24MG32(T)HE

He1000 MG pump motor 24 VDC Ø 80 mm
Viscosity 32 cSt at 40°C. Voltage 24 VDC constant

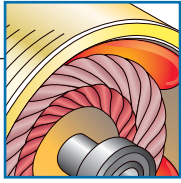


24MG32-HE-S2 & S3 Corresponding motor



Code	Motor
15	24MG32-HE
16	24MG32-THE

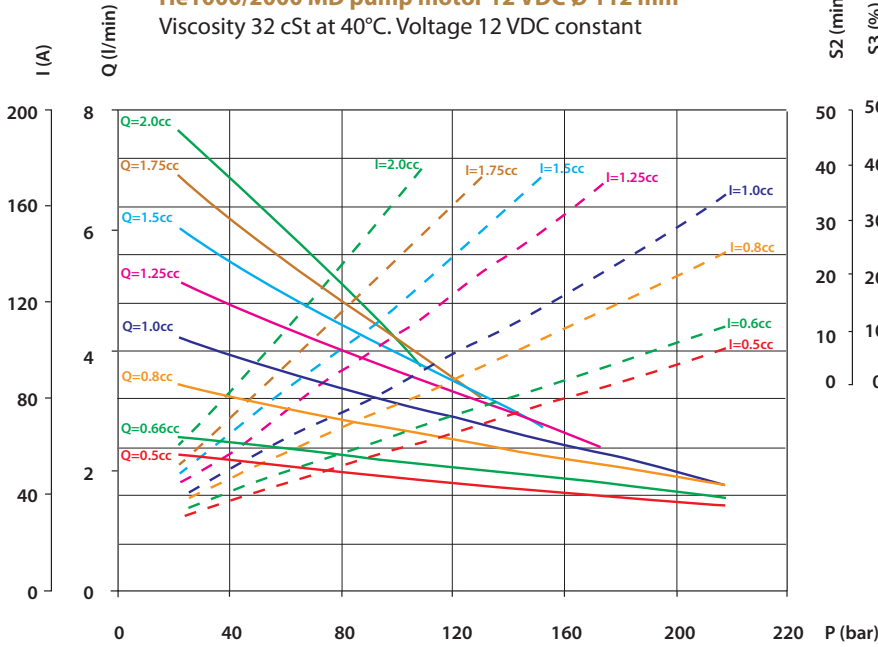
Code	Pump
02	0,24 cc
05	0,50 cc
06	0,60 cc
08	0,80 cc
10	1,00 cc
12	1,25 cc
15	1,50 cc
18	1,75 cc



HE PUMPS AND DC MOTORS

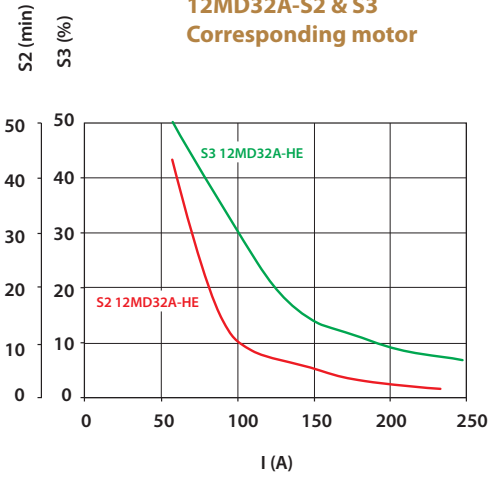


12MD32(T)HE
He1000/2000 MD pump motor 12 VDC Ø 112 mm
 Viscosity 32 cSt at 40°C. Voltage 12 VDC constant



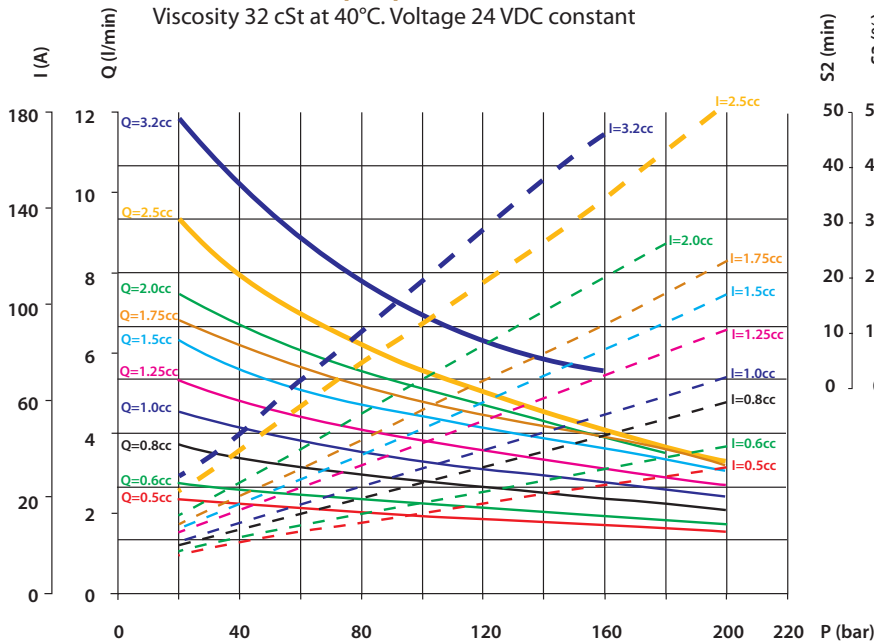
Code	Motor
22	12MD32A

12MD32A-S2 & S3
Corresponding motor



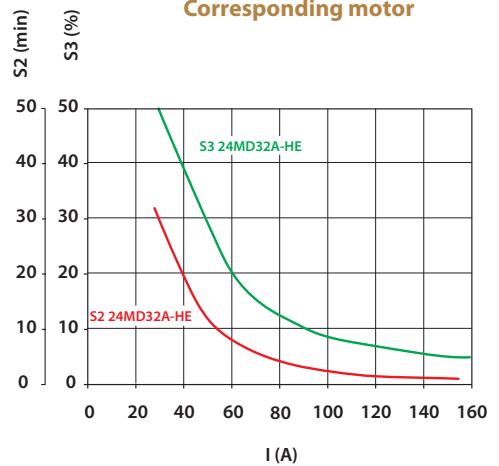
Code	Pump	Code	Pump
02	0,24 cc	18	1,75 cc
05	0,50 cc	20	2,00 cc
06	0,60cc	26	2,50 cc
08	0,80 cc	32	3,20 cc
10	1,00 cc	37	3,80 cc
12	1,25 cc	43	4,30 cc
15	1,50 cc	48	4,80 cc
16	1,60 cc	57	5,70 cc

24MD32(T)HE
He1000/2000 MD pump motor 24 VDC Ø 112 mm
 Viscosity 32 cSt at 40°C. Voltage 24 VDC constant

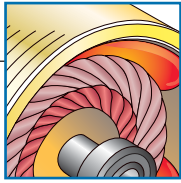


Code	Motor
32	24MD32A

24MD32A-S2 & S3
Corresponding motor

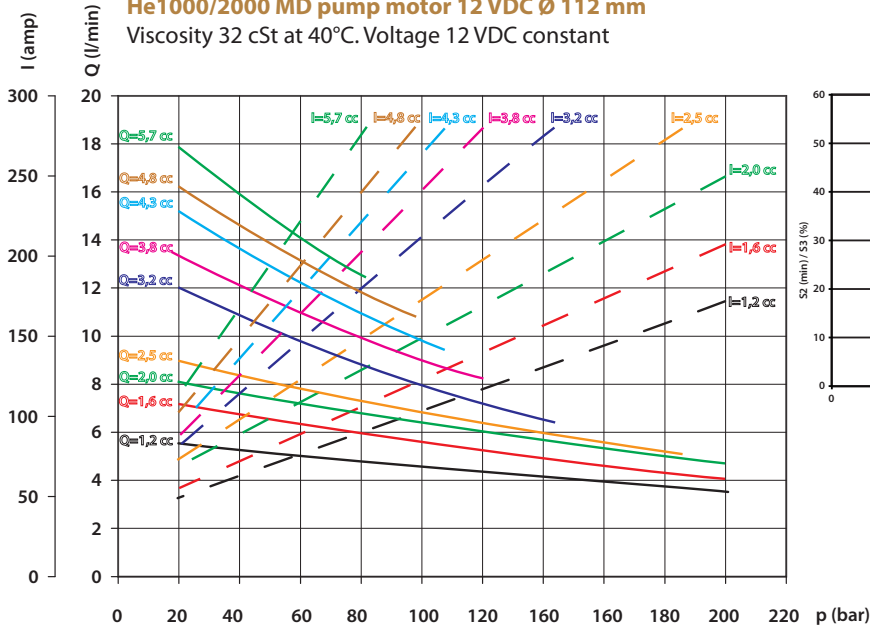


Code	Pump	Code	Pump
02	0,24 cc	18	1,75 cc
05	0,50 cc	20	2,00 cc
06	0,60 cc	26	2,50 cc
08	0,80 cc	32	3,20 cc
10	1,00 cc	37	3,80 cc
12	1,25 cc	43	4,30 cc
15	1,50 cc	48	4,80 cc
16	1,60 cc	57	5,70 cc

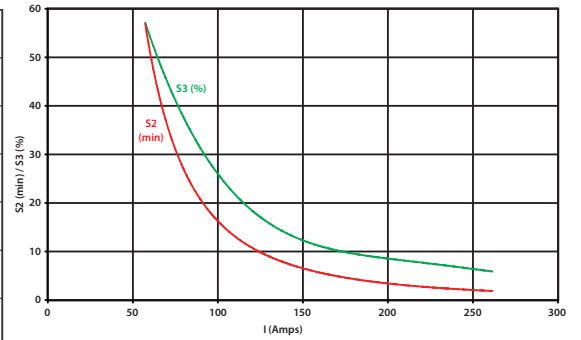


HE PUMPS AND DC MOTORS

12MD12(T)WA
He1000/2000 MD pump motor 12 VDC Ø 112 mm
 Viscosity 32 cSt at 40°C. Voltage 12 VDC constant



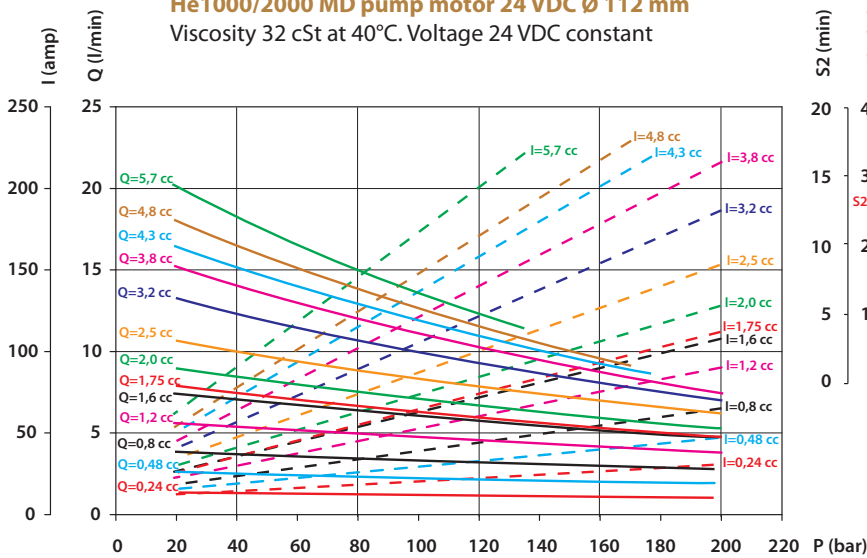
12MD12(T)WA-S2 & S3
Corresponding motor



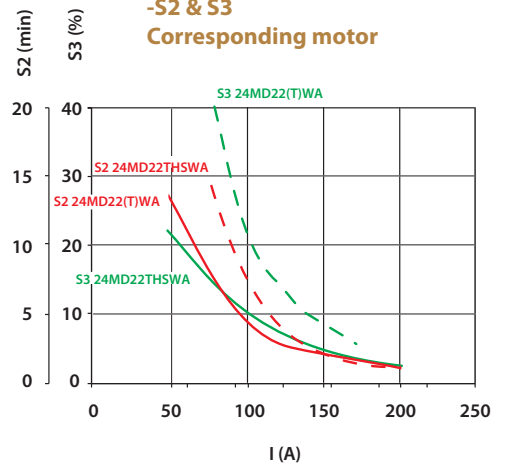
Code	Motor
20	12MD12WA
21	12MD12TWA
27	12MD12THSWA

Code	Pump	Code	Pump
02	0,24 cc	18	1,75 cc
05	0,50 cc	20	2,00 cc
06	0,60 cc	26	2,50 cc
08	0,80 cc	32	3,20 cc
10	1,00 cc	37	3,80 cc
12	1,25 cc	43	4,30 cc
15	1,50 cc	48	4,80 cc
16	1,60 cc	57	5,70 cc

24MD22(T)WA/24MD22THSWA
He1000/2000 MD pump motor 24 VDC Ø 112 mm
 Viscosity 32 cSt at 40°C. Voltage 24 VDC constant

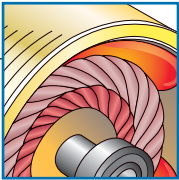


24MD22(T)WA/24MD22THSWA
-S2 & S3
Corresponding motor



Code	Motor
25	24MD22WA
26	24MD22TWA
28	24MD22THSWA

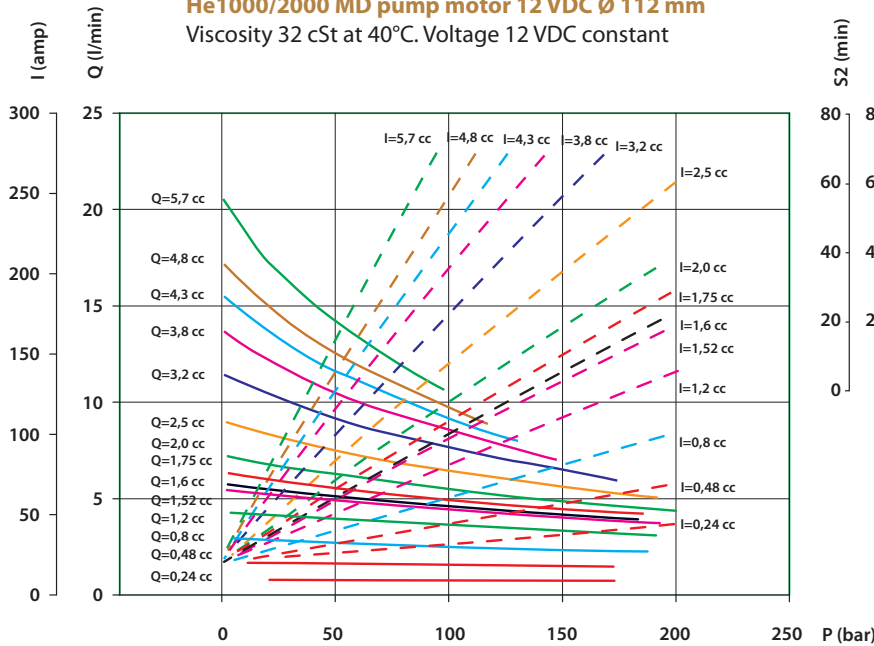
Code	Pump	Code	Pump
02	0,24 cc	18	1,75 cc
05	0,50 cc	20	2,00 cc
06	0,60 cc	26	2,50 cc
08	0,80 cc	32	3,20 cc
10	1,00 cc	37	3,80 cc
12	1,25 cc	43	4,30 cc
15	1,50 cc	48	4,80 cc
16	1,60 cc	57	5,70 cc



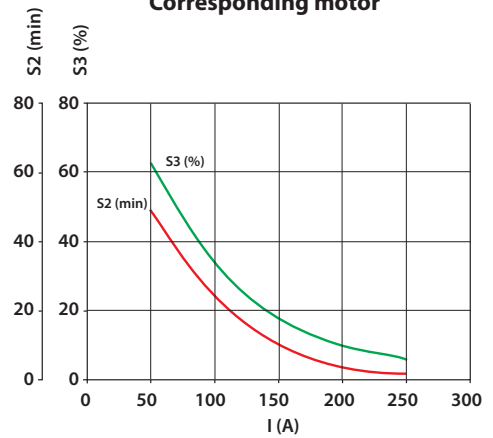
HE PUMPS AND DC MOTORS



12MD12LS(T)WA
He1000/2000 MD pump motor 12 VDC Ø 112 mm
 Viscosity 32 cSt at 40°C. Voltage 12 VDC constant



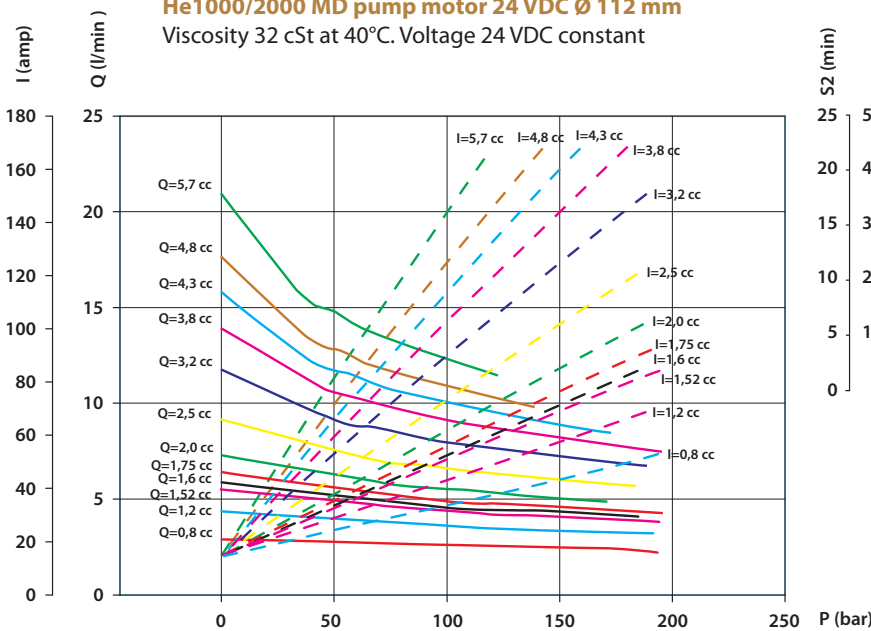
12MD12LS(T)WA-S2 & S3
Corresponding motor



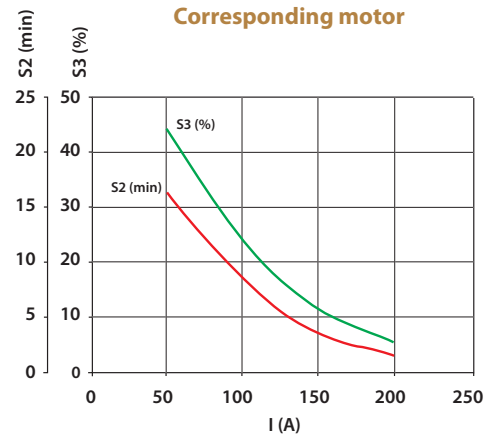
Code	Pump
12	1,2 cc
16	1,6 cc
20	2,0 cc
25	2,5 cc
32	3,2 cc
38	3,8 cc
43	4,3 cc
48	4,8 cc
57	5,7 cc

Code	Motor
29	12MD12LSTWA

24MD22LS(T)WA
He1000/2000 MD pump motor 24 VDC Ø 112 mm
 Viscosity 32 cSt at 40°C. Voltage 24 VDC constant



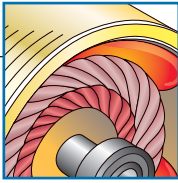
24MD22LS(T)WA-S2 & S3
Corresponding motor



Code	Pump
12	1,2 cc
16	1,6 cc
20	2,0 cc
25	2,5 cc
32	3,2 cc
38	3,8 cc
43	4,3 cc
48	4,8 cc
57	5,7 cc

Code	Motor
30	24MD22LS(T)WA

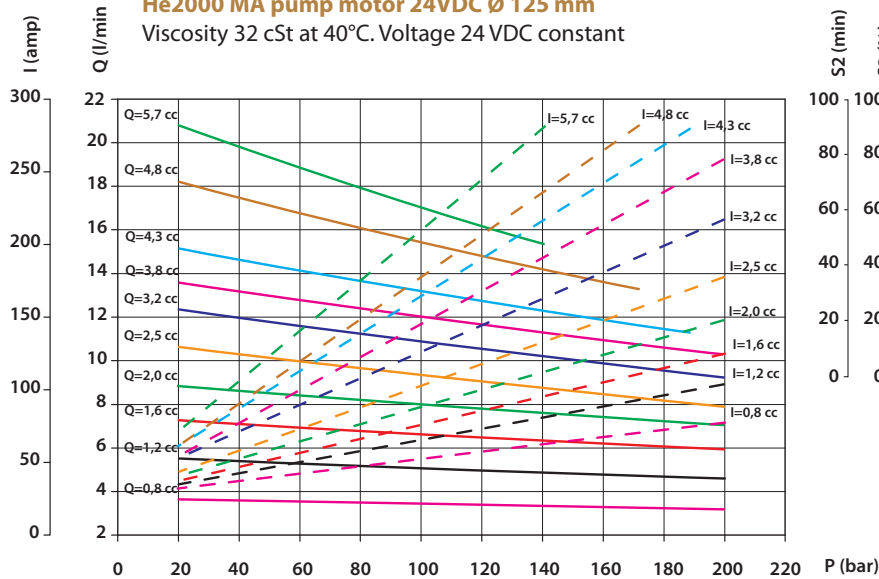
WQ pumps available.



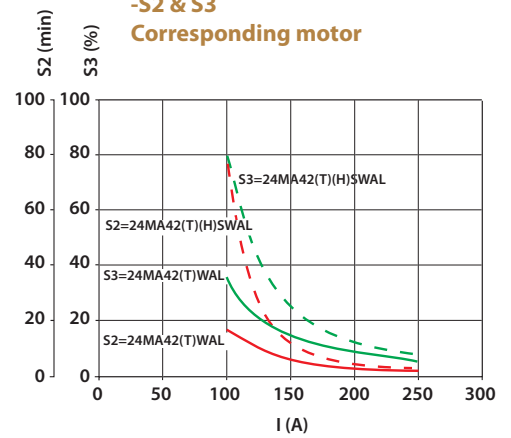
HE PUMPS AND DC MOTORS



24MA42(T)WAL/24MA42(T)(H)SWAL
He2000 MA pump motor 24VDC Ø 125 mm
 Viscosity 32 cSt at 40°C. Voltage 24 VDC constant



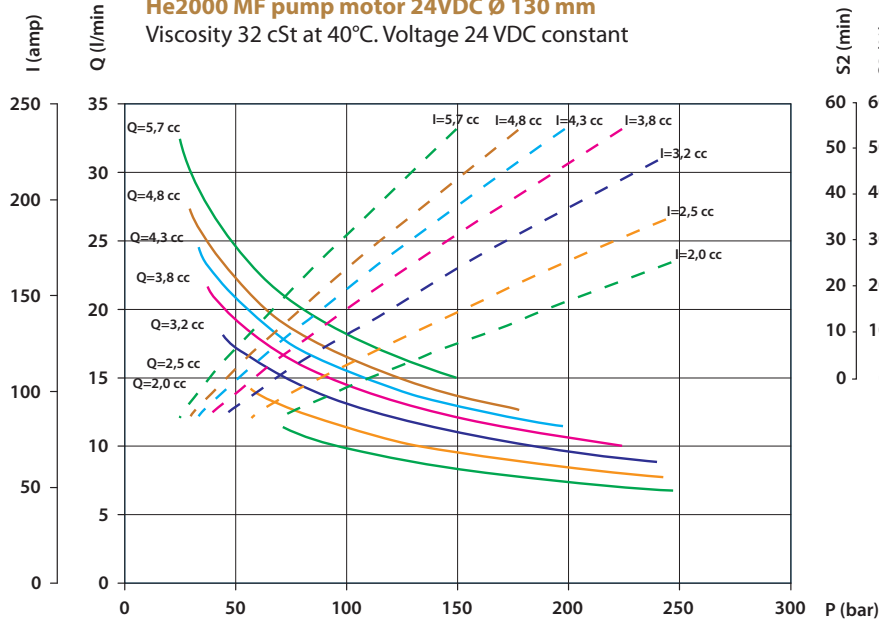
24MA42(T)WAL/24MA42(T)(H)SWAL
-S2 & S3
Corresponding motor



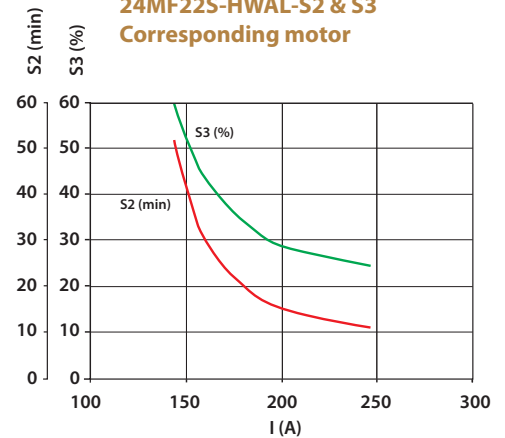
Code	Motor
35	24MA42-HSWAL
36	24MA42THSWAL
45	24MA42-WAL
46	24MA42TWAL

Code	Pump
12	1,2 cc
16	1,6 cc
20	2,0 cc
25	2,5 cc
32	3,2 cc
38	3,8 cc
43	4,3 cc
48	4,8 cc
57	5,7 cc

24MF22S-HWAL
He2000 MF pump motor 24VDC Ø 130 mm
 Viscosity 32 cSt at 40°C. Voltage 24 VDC constant

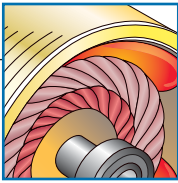


24MF22S-HWAL-S2 & S3
Corresponding motor



Code	Motor
31	24MF22S-HWA

Code	Pump
20	2,0 cc
25	2,5 cc
32	3,2 cc
38	3,8 cc
43	4,3 cc
48	4,8 cc
57	5,7 cc

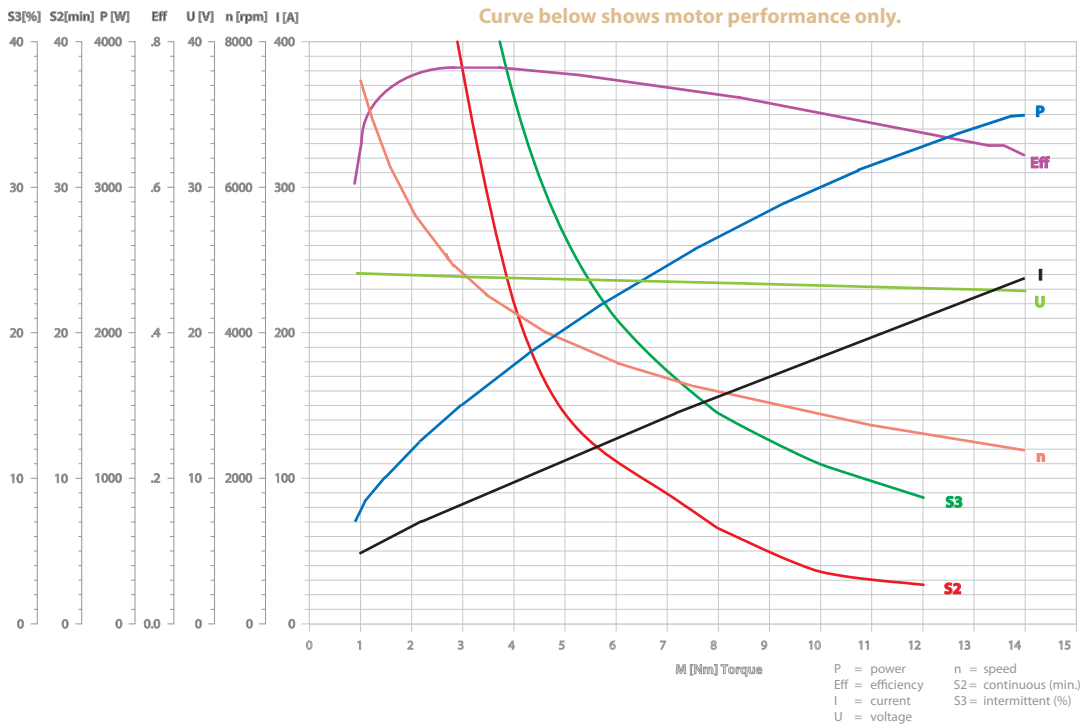


HE PUMPS AND DC MOTORS



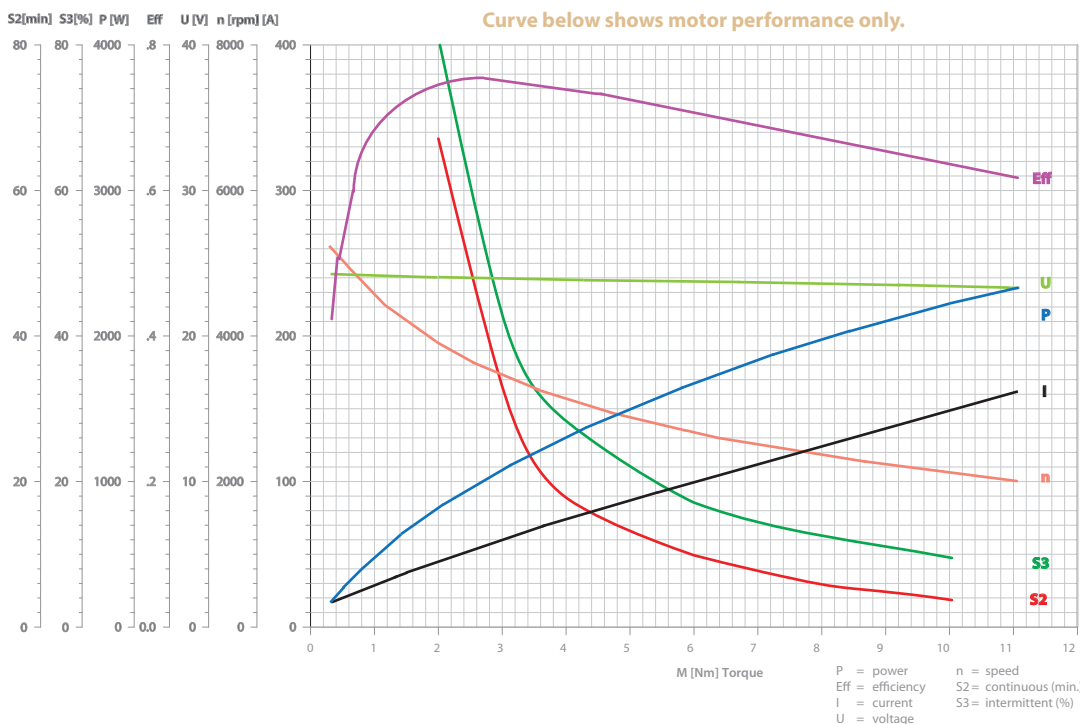
To size a motor correctly, calculate "hydraulic power": $P(\text{kW}) = p(\text{Bar}) \times Q(\text{L}/\text{min}) \div 600$. Look in the diagram and find the torque $M(\text{Nm})$ and rpm for the calculated power. Then calculate "pump displacement" $D(\text{cm}^3/\text{rpm})$ for your needed working pressure $p(\text{Bar})$: $D(\text{cm}^3/\text{rpm}) = (M(\text{Nm}) \times 2\pi \times 10 \times 9) \div p(\text{bar})$. From the result, choose the closest, smaller, displacement of the standard pumps. Then check the flow $Q(\text{L}/\text{min})$ for the chosen pump $Q(\text{L}/\text{min}) = ((n/\text{rpm}) \times D(\text{cm}^3/\text{rpm})) \div 900$. From that reference, check the curves below for motor speed, current draw, S2 and S3 performance. S2 is the number of minutes a unit can operate at a certain workload before reaching the maximum allowable temperature. The unit must cool down until the motor temperature is less than 2°C from the ambient temperature before the same S2 value can be applied again. S3 is the maximum time in % per 10 minute period that a unit can work at a certain pressure/workload. For example, an S3 value of 30% = 3 min. for each 10 min. period, over and over again.

He2000 24MD22S-WALX2 He2200 24MD22S-HEX2 He2000 MD pump motor 24VDC Ø 112 mm

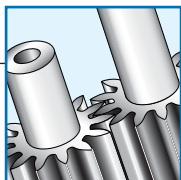


Code	Motor
33	24MD22S-WALX2
28	24MD22S-HEX2

He2000 24MD22-WALX He2200 24MD22-HEX He2000 MD pump motor 24VDC Ø 112 mm



Code	Motor
34	24MD22-WALX
30	24MD22-HEX



TECHNICAL INFORMATION



	Symbols	Equations	Common units
Flow	Q	$Q = 0,06 \times V \times A$	l/min
Operating pressure	p	$p = \frac{F}{0,1 \times A}$	bar
Internal diameter, hydraulic cylinder	d		mm
Area of hydraulic cylinder	A	$A = \frac{\pi \times d^2}{4}$	mm ²
Piston force	F		N
Piston speed	V		m/s
Power requirement for motor	P	$P = \frac{p \times Q}{600 \times \eta_{tot}}$	kW
Pump displacement	D		cm ³ /rev
Torque requirement	M	$M = \frac{D \times p}{62,8 \times \eta_{mek}}$	Nm

PUMP INFO

Max pressure	p ₁	230 bar
Intermittent	p ₂	255 bar

Allowable fluids HL or HLP hydraulic oils according to DIN 51524.

Biogradable fluids eg. Statoil Bio Pa. Before using other types of fluids, contact factory.

Recommended viscosity 40-16mm²/s. Permissible cold start viscosity is 2000mm²/s.

Contact factory before using fluids outside this range.

Temperature min -25°C, max +80°C.

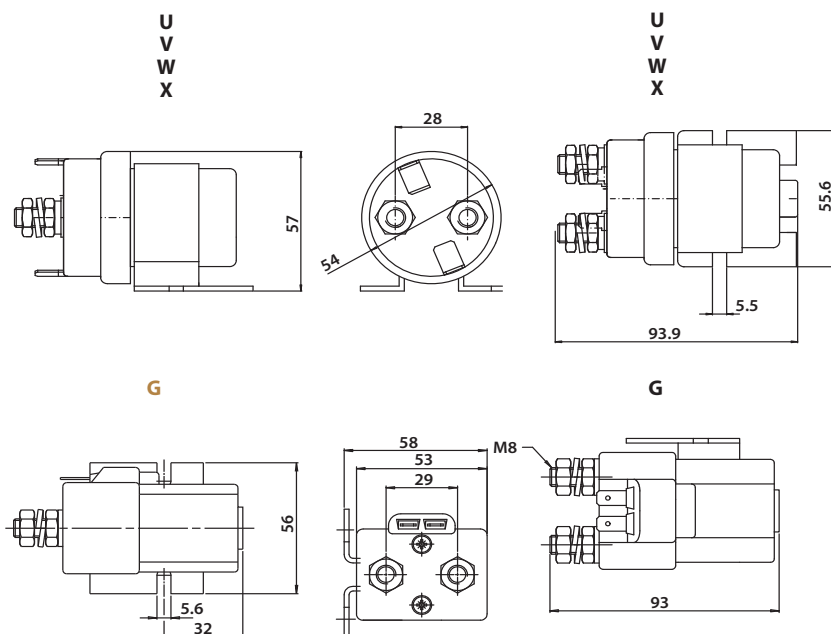
Fluid cleanliness We recommend a cleanliness according to IS4406/1986 Code 18/14 or better to achieve optimal performance and lifetime.

When operating outside these limits, see recommendations in "Allowable fluids".

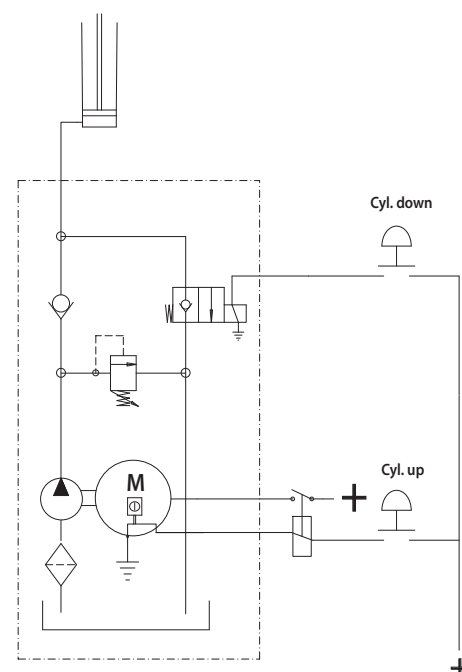
START SWITCHES

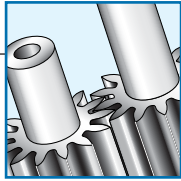
Dimensional drawing
12/24 VDC start switch

Code	Start switch
A	None
U	12VDC, MG and MH motor Ø80
V	24VDC, MG and MH motor Ø80
W	12VDC, MD and MA motor Ø112
X	24VDC, MD and MA motor Ø112
G	24VDC, MA motor, Heavy duty Ø125



TYPICAL CIRCUIT



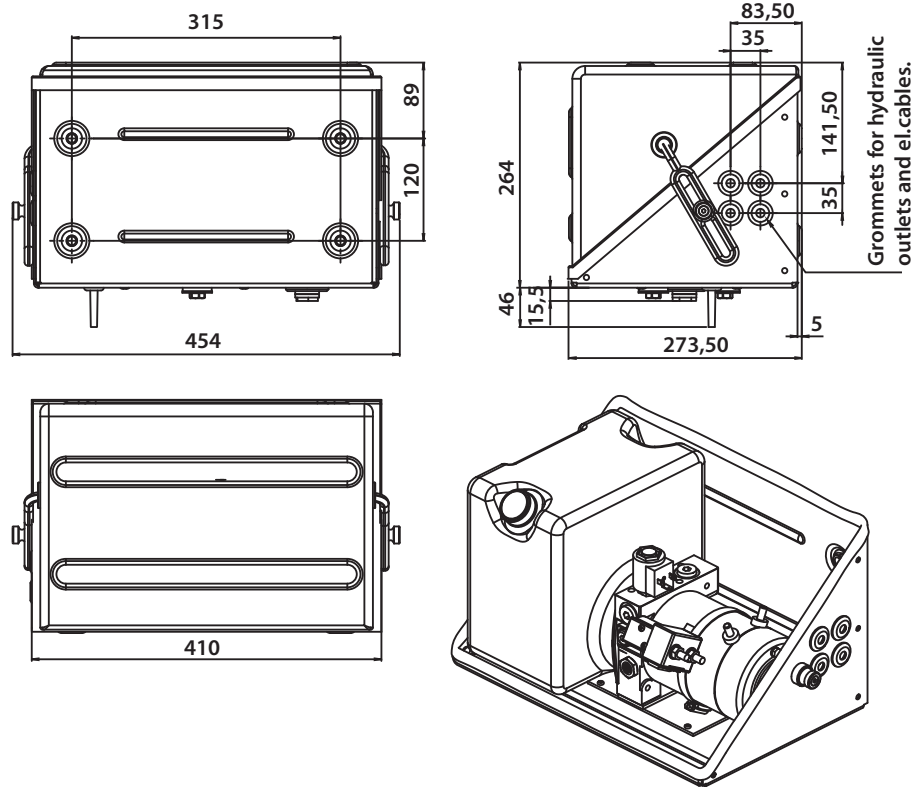


TECHNICAL INFORMATION

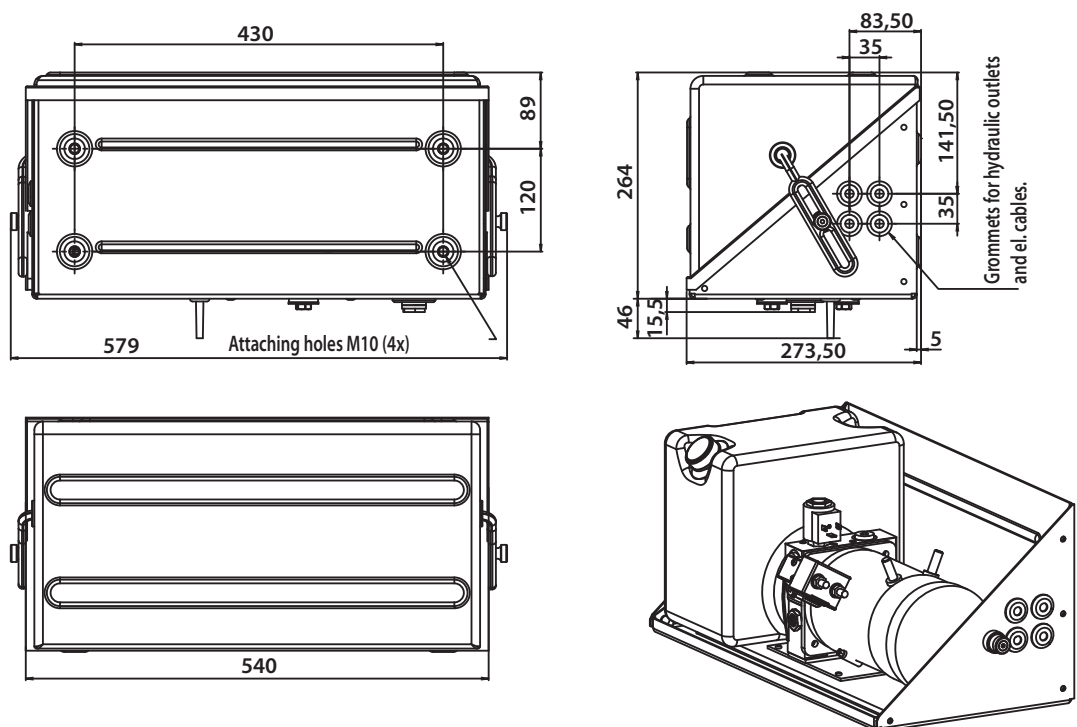
HE-BOX POWER PACKS

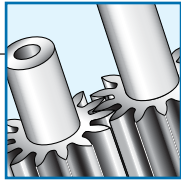
From the well-known and well-reputed Hesselman Classic (made by Concentric) the New HE-Box Power Pack is developed. The base concept is the HE Power Pack, which, with a box in steel/TPE combination, is a hydraulic unit for easy mounting, tough conditions, and high serviceability.

HE POWER PACK with box 1 or 2 kW Performance



HE POWER PACK with box 1, 2 or 3 kW Performance



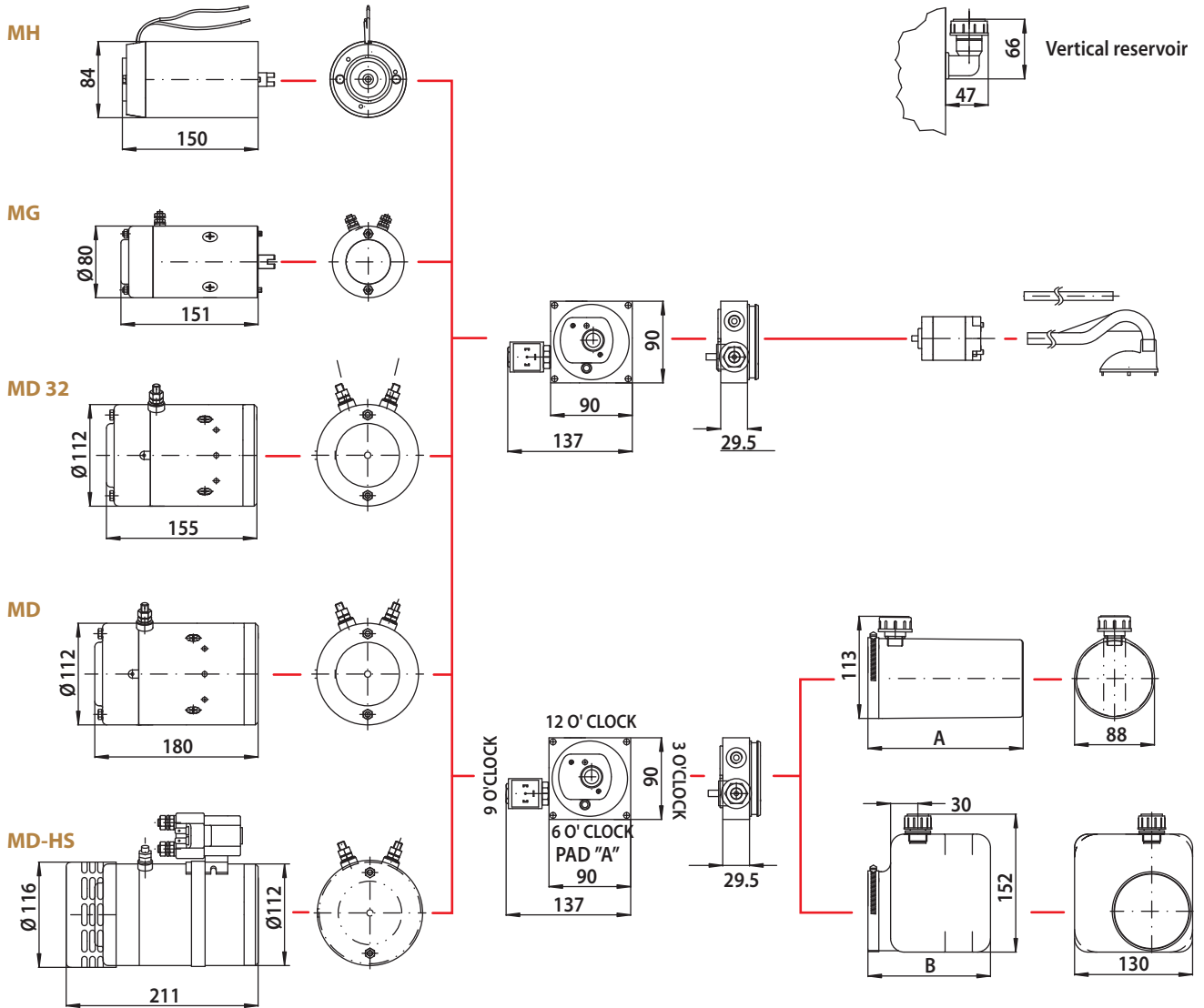


TECHNICAL INFORMATION



He1000

Dimensional drawing for power unit 12/24 VDC



Reservoir, length He1000

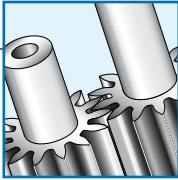
Reservoir Type	Codes		Reservoir, length (mm)
	Horizontal V	Vertical V	
Cylindrical	AA V=0,5 l	AB V=0,5 l	A=172
Cylindrical	AC V=0,7 l	AD V=1,0 l	A=249
Rectangular	AE V=1,0 l	AF V=1,0 l	B=129
Rectangular	AG V=1,4 l	AH V=1,7 l	B=164
Rectangular	AJ V=2,0 l	AK V=2,1 l	B=199
Rectangular	AL V=3,0 l	AM V=3,8 l	B=299

(V=Usable volumes in litres)

Weights, ~kg He1000

Basic version and add-on's	Kg
Standard He1000 80mm	5
Standard He1000 112mm add-on (diff 80mm - 112 mm)	+3.7
Add-on Cetop block He1000	+0.47/pc
Add-on HE Box 400mm (box + cover)	+6.4
Add-on HE Box 520mm (box + cover)	+7.5

Basic version incl. plastic reservoir 1 l, 2/2 cartridge valve, start solenoid. AC version excl motor and start solenoid. Weights also excludes oil and are approximate and depending on version of pumps, reservoirs and valving.

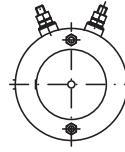
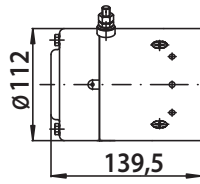


TECHNICAL INFORMATION

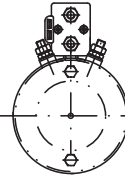
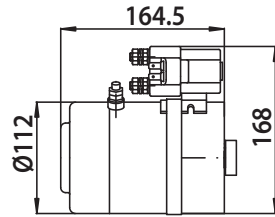
He2000 / He2200

Dimensional drawing for power unit 12/24 VDC

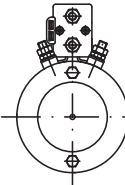
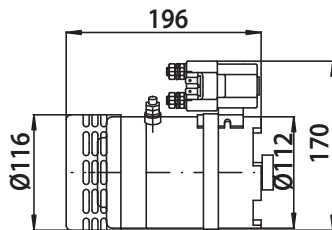
MD 32



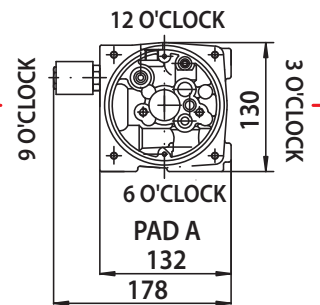
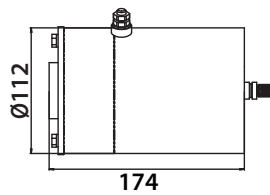
MD



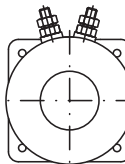
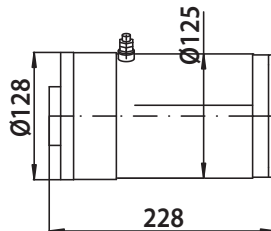
MD-HS



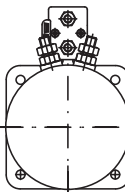
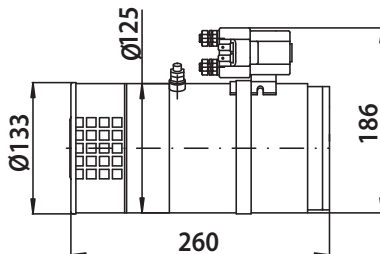
MD-HEX



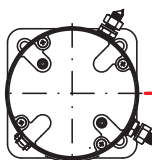
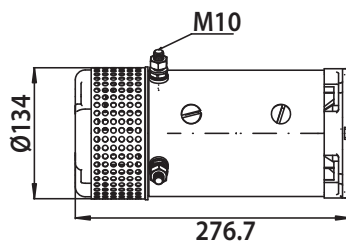
MA

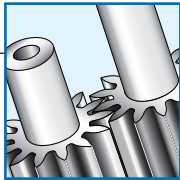


MA-HS

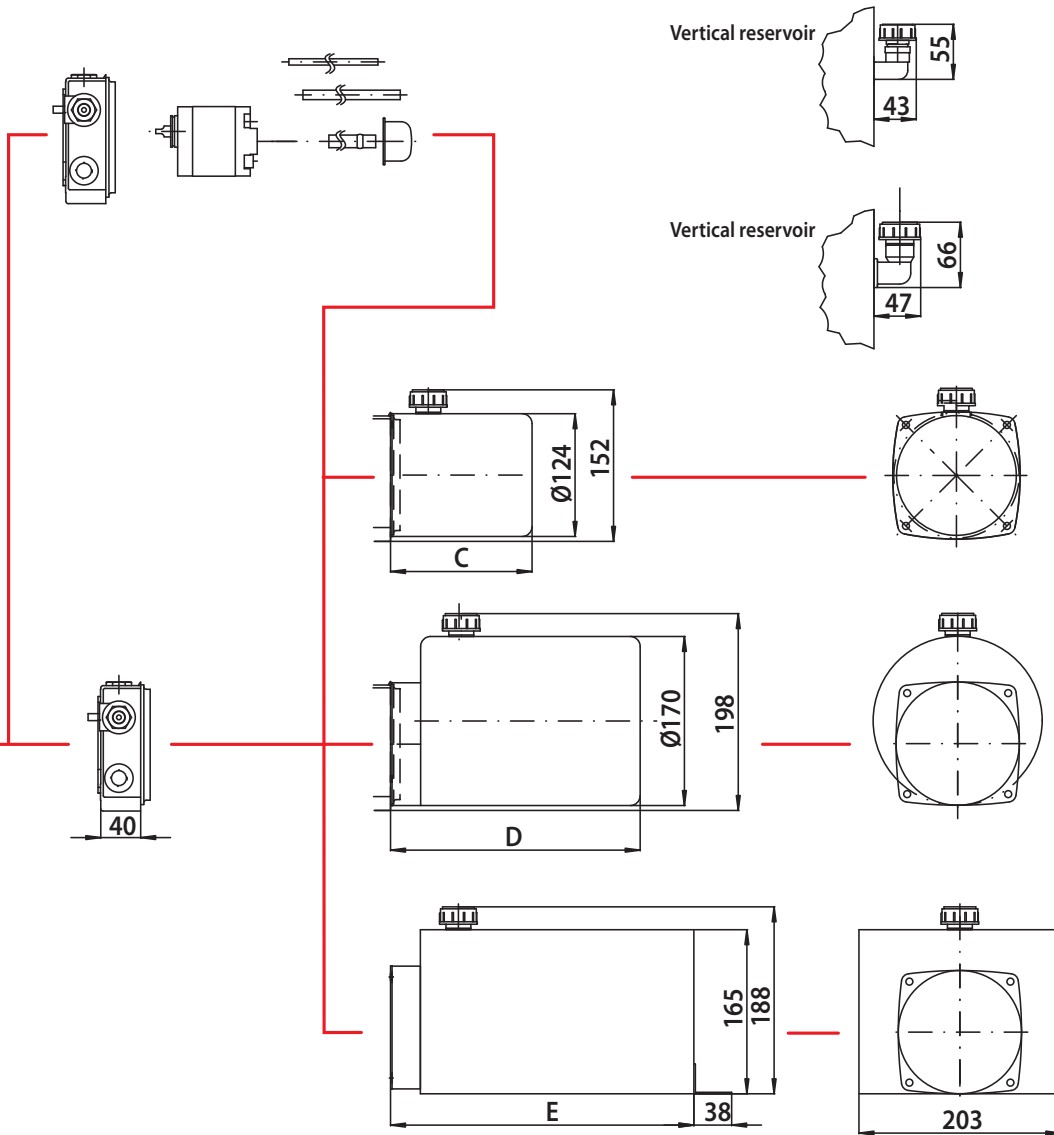


MF





TECHNICAL INFORMATION



Reservoir, length He2000

Reservoir Type		Codes		Reservoir, length (mm)
		Horizontal V	Vertical V	
124 Plastic	Cylindrical	BA V=1,0	BB V=0,9	C=143
124 Plastic	Cylindrical	BC V=1,6	BD V=1,3	C=191
124 Plastic	Cylindrical	BE V=1,8	BF V=1,8	C=230
124 Steel	Cylindrical	BG V=1,5	BH V=1,5	D=230
124 Steel	Cylindrical	BJ V=2,8	BK V=2,9	D=306
170 Steel	Cylindrical	BL V=3,4	BM V=2,0	D=219
170 Steel	Cylindrical	BN V=5,6	BO V=4,4	D=328
170 Steel	Cylindrical	BP V=6,2	BQ V=5,6	D=397
165x203 Steel	Rectangular	BR V=6,3	BS V=7,0	E=306
165x203 Steel	Rectangular	BT V=10,6	BU V=12,1	E=471

(V = Usable volume in litres)

Weights, ~kg He2000

Basic version and add-on's	Kg
Standard He2000 112mm	9.5
Standard He2000 125mm add-on (diff 112mm-125mm)	+4.8
Standard He2000 AC (add-on Standard-112mm motor + AC flange and connector)	3
Add-on Cetop block He2000	+0.7/pc
Add-on HE Box 400mm (box + cover)	+6.4
Add-on HE Box 520mm (box + cover)	+7.5

Basic version incl. plastic reservoir 1 l, 2/2 cartridgevalve, start solenoid. AC version excl motor and start solenoid. Weights also excludes oil and are approximate and depending on version of pumps, reservoirs and valving.



Example of Order Code Structure:

He2 - AE024 - 43 - 150 - B - 25 - BE - 6 - W - 2 - AA - 0 - A - 00 - 00

Sect:

I II III IV V VI VII VIII IX X XI XII XIII XIV XV

Sect I	Code	He2000 Adaptor Size	He2000 kit no.	HE Box
	He2	He2000 adaptor		.
II	Code	He2000 Coil volt.+ valve type		
	AA000	Adaptor Kit	1303404	.
	AE012	Valve Kit 12V 2/2 norm closed	1303386	.
	AE024	Valve Kit 24V 2/2 norm closed	1303387	.
	AE230	Valve Kit 230V 2/2 norm closed	1303389	.
		Adaptor Kit	1303405	.
	AF012	Valve Kit 12V 2/2 norm closed in block	1303406	.
	AF024	Valve Kit 24V 2/2 norm closed in block	1303407	.
	AF230	Valve Kit 230V 2/2 norm closed in block	1303409	.
		Adaptor Kit	1303404	.
		Valveblock Kit	1303410	.
	AG012	Valve Kit 12V 2x 2/2 norm closed in block	1303411	.
	AG024	Valve Kit 24V 2x 2/2 norm closed in block	1303412	.
	AG230	Valve Kit 230V 2x 2/2 norm closed in block	1303414	.
		Adaptor Kit	1303404	.
	AL012	Valve kit 12V 4/2 in block	1303392	.
	AL024	Valve kit 24V 4/2 in block	1303393	.
	AL230	Valve kit 230V 4/2 in block	1303395	.
		Adaptor kit	1303404	.
		Valveblock kit	1303423	.
	AT000	Adaptor Kit	1303404	.
		Manually oper. 2/2 release valve in block	1303424	.
	AN000	Adaptor kit	1303405	.
		Port plug kit	1303425	.
	AO012	Valve kit 12V, code AE with manual override	1303396	.
	AO024	Valve kit 24V code AE with manual override	1303397	.
	AO230	Valve kit 230V code AE with manual override	1303399	.
		Adaptor kit	1303405	.
	AP000	Adaptor kit	1303404	.
		Cetop block, head	1303426	.
	AQ000	Adaptor kit	1303404	.
		Cetop block, head	1303427	.
		Cetop block, 1 pcs	1303428	.
	AR000	Adaptor kit	1303404	.
		Cetop block, head	1303429	.
		Cetop block, 2 pcs	1303430	.
	AS012	Adaptor kit	1303404	.
		Valve kit 12V 3/2 and 2/2 in block	1303704	.
		Valve block kit	1303706	.
	AS024	Adaptor kit	1303404	.
		Valve kit 24V 3/2 and 2/2 in block	1303705	.
		Valveblock kit	1303706	.
III	Code	He2000 Pump		
	08	0,8 cm3	1303435	.
	12	1,2 cm3	1303436	.
	16	1,6 cm3	1303437	.
	20	2,0 cm3	1303438	.
	26	2,5 cm3	1303439	.
	32	3,2 cm3	1303440	.
	38	3,8 cm3	1303441	.
	43	4,3 cm3	1303442	.
	48	4,8 cm3	1303443	.
	57	5,7 cm3	1303444	.
	80	1,2 cm3 WQ	1303619	.
	81	1,6 cm3 WQ	1303620	.
	82	2,0 cm3 WQ	1303621	.
	83	2,5 cm3 WQ	1303622	.
	84	3,2 cm3 WQ	1303623	.
	85	3,8 cm3 WQ	1303624	.
	86	4,3 cm3 WQ	1303625	.
	87	4,8 cm3 WQ	1303626	.
	88	5,7 cm3 WQ	1303627	.
IV	Code	He2000 Relief valve		
	***	Setting 50-250 bar, eg 150 bar (3 digits)	1303525	.
V	Code	He2000 Flow control valve		
	A	None		.
	E	4 l/min	1303448	.
	K	8 l/min	1303450	.
	M	10 l/min	1303453	.
	N	11 l/min	1303451	.
	R	15 l/min	1303452	.
	B	17,5 l/min	1303601	.
VI	Code	He2000 Motor		
	22	12MD32A Ø 112 mm	1303707	.
	32	24MD32A Ø 112 mm	1303709	.
	20	12MD12-WA Ø 112 mm	1303462	.
	21	12MD12TWA (Therm.sw.) Ø 112 mm	1303463	.
	25	24MD22-WA Ø 112 mm	1303464	.
	26	24MD22TWA (Therm.sw.) Ø 112 mm	1303465	.
	35	24MA42-HSWAL Ø 125 mm fan	1303470	.
	36	24MA42THSWAL (Therm.sw.) Ø 125 mm fan	1303471	.
	45	24MA42-WAL Ø 125 mm	1303476	.

Sect VI	Code	He2000 Motor	He2000 kit no.	HE Box
	27	12MD12THSWA (with fan) Ø 112 mm	1303602	.
	28	24MD22THSWA (with fan) Ø 112 mm	1303603	.
	29	12MD12LSTWA (Therm.sw.) Ø 112 mm	1303604	.
	30	24MD22LSTWA (Therm.sw.) Ø 112 mm	1303605	.
	31	24MF22S-HWA Ø 134 mm	1303606	.
	33	24MD22S-WALX2	1303914	.
	34	24MD22-WALX	1303915	.
	50	AC flange B14-71	1303480	.
	51	AC flange B14-80	1303481	.
	52	AC flange B14-90	1303482	.
	53	AC flange B14-100	1303483	.
VII	Code	He2000 Reservoir		
	BA	1,0 l usable, horizontal, cyl., plastic	1303496	.
	BB	0,9 l usable, vertical, cyl., plastic	1303497	.
	BC	1,6 l usable, horizontal, cyl., plastic	1303498	.
	BD	1,3 l usable, vertical, cyl., plastic	1303499	.
	BE	1,8 l usable, horizontal, cyl., plastic	1303500	.
	BF	1,8 l usable, vertical, cyl., plastic	1303501	.
	BG	1,5 l usable, horizontal, cyl., steel	1303502	.
	BH	1,5 l usable, vertical, cyl., steel	1303503	.
	BJ	2,8 l usable, horizontal, cyl., steel	1303504	.
	BK	2,9 l usable, vertical, cyl., steel	1303505	.
	BL	3,4 l usable, horizontal, cyl., steel	1303506	.
	BM	2,0 l usable, vertical, cyl., steel	1303507	.
	BN	5,6 l usable, horizontal, cyl., steel	1303508	.
	BO	4,4 l usable, vertical, cyl., steel	1303509	.
	BP	6,2 l usable, horizontal, cyl., steel	1303510	.
	BQ	5,6 l usable, vertical, cyl., steel	1303511	.
	BR	6,3 l usable, horizontal, rect., steel	1303512	.
	BS	7,0 l usable, vertical, rect., steel	1303513	.
	BT	10,6 l usable, horizontal, rect., steel	1303514	.
	BU	12,1 l usable, vertical, rect., steel	1303515	.
	BV	5,2 l usable reservoir-kit He2000 in a box	1303628	.
VIII	Code	He2000 Motor terminal screw pos.		
	0	12 o'clock to pad A		.
	3	Terminal bolts at 3 o'clock to pad A		.
	6	Terminal bolts at 6 o'clock to pad A		.
	9	Terminal bolts at 9 o'clock to pad A		.
IX	Code	He2000 Start switch		
	A	None		.
	W	12V Ø 112 mm	1303702	.
	X	24V Ø 112 mm	1303703	.
	G	24V Ø 125 mm heavy duty, SW80PL	1303523	.
X	Code	He2000 Start switch position		
	0	12 o'clock to pad A		.
	2	Relative to motor terminal		.
	3	3 o'clock to pad A		.
	6	6 o'clock to pad A		.
	9	9 o'clock to pad A		.
	A	No switch		.
XI	Code	He2000 Tube kit		
	AA	Tube kit included in reservoir kit		.
XII	Code	He2000 Breather position		
	0	12 o'clock to pad A		.
	1	10,30 o'clock to pad A		.
	3	3 o'clock to pad A		.
	6	6 o'clock to pad A		.
	9	9 o'clock to pad A		.
XIII	Code	He2000 Coil/Lever pos on valve		
	A	12 o'clock = Toward motor		.
	B	3 o'clock = Away from center of adaptor		.
	C	6 o'clock = Toward reservoir		.
	D	9 o'clock = Toward center of adaptor		.
	N	None		.
XIV	Code	He2000 Access 1		
	00	No accessories		.
	03	Handpump	1303524	.
	28	HE box 400 mm	1303607	.
	28	Cover to 400 mm box	1303608	.
	28	Box assembly kit	1303609	.
	29	HEQ box 400 mm	1303610	.
	29	Cover sound absorbed 400 mm box	1303611	.
	29	Box assembly kit		.
	30	HE box 520 mm box	1303613	.
	30	Cover to 520 mm box	1303614	.
	30	Box assembly kit	1303615	.
	31	HEQ box 520 mm	1303616	.
	31	Cover sound absorbed 540 mm He-box	1303617	.
	31	Box assembly kit		.
XV	Code	He2000 Access 2		
	00	No accessories		.

He2200 POWER PACK CODE KEY



Example of Order Code Structure: He22 - BE024 - 73 - 150 - K - A - 25 - BA - 3 - W - 6 - AA - 0 - A - 00 - 00

Sect: I II III IV V VI VII VIII IX X XI XII XIII XIV XV XVI

Sect I	Code	He2200 Adaptor Size	He2200 kit no.	HE Box
	He22	He2200 adaptor		-
II	Code	He2200 Coil volt.+ valve type		
	BA000	Adaptor kit	1303786	
	BE012	Valve kit 12V 2/2 NC	1303386	
	BE024	Valve kit 24V 2/2 NC	1303387	
		Adaptor kit	1303756	
	BF012	Valve kit 12V 2/2 + 2/2 proportional	1303787	
	BF024	Valve kit 24V 2/2 + 2/2 proportional	1303788	
		Adaptor kit	1303757	
	BG012	Valve kit 12V 2x 2/2 proportional	1303789	
	BG024	Valve kit 24V 2x 2/2 proportional	1303790	
		Adaptor kit	1303758	
	BH012	Valve kit 12V 2/2 proportional	1303791	
	BH024	Valve kit 24V 2/2 proportional	1303792	
		Adaptor kit	1303759	
	BL012	Valve kit 12V 4/2	1303392	
	BL024	Valve kit 24V 4/2	1303393	
		Adaptor kit	1303760	
	BM012	Valve kit 12V 2/2 + 3/2	1303704	
	BM024	Valve kit 24V 2/2 + 3/2	1303705	
		Adaptor kit	1303761	
III	Code	He2200 Pump		
	08	0,8 cm ³ 1303766	.	
	12	1,2 cm ³	1303767	.
	16	1,6 cm ³	1303768	.
	20	2,0 cm ³	1303769	.
	26	2,5 cm ³	1303770	.
	32	3,2 cm ³	1303771	.
	38	3,8 cm ³	1303772	.
	43	4,3 cm ³	1303773	.
	48	4,8 cm ³	1303774	.
	57	5,7 cm ³	1303775	.
	80	1,2 cm ³ WQ	1303776	.
	81	1,6 cm ³ WQ	1303777	.
	82	2,0 cm ³ WQ	1303778	.
	83	2,5 cm ³ WQ	1303779	.
	84	3,2 cm ³ WQ	1303780	.
	85	3,8 cm ³ WQ	1303781	.
	86	4,3 cm ³ WQ	1303782	.
	87	4,8 cm ³ WQ	1303783	.
	88	5,7 cm ³ WQ	1303784	.
IV	Code	He2200 Relief valve		
	***	Setting 50-250 bar, eg 150 bar (3 digits)	1303785	.
V	Code	He2200 Flow control valve 1 (only applicable in combination with Adaptor code BE, BF and BM)		
	A	None	.	.
	E	4 l/min	1303448	.
	K	8 l/min	1303450	.
	M	10 l/min 1303453	.	.
	N	11 l/min 1303451	.	.
	R	15 l/min 1303452	.	.
	B	17,5 l/min	1303601	.
VI	Code	He2200 Flow control valve 2 (only applicable in combination with Adaptor code BG, BH and BL)		
	A	None	.	.
	**	Setting 10-35 l/min, eg 12 litres (2 digits)	.	.
VII	Code	He2200 Motor		
	20	12MD12-HE	1303762	.
	22	24MD22-HE	1303763	.
	24	24MA42-HE	1303764	.
	26	24MF225-HE	1303465	.
	28	24MD225-HEX2	1303912	.
	30	24MD22-HEX	1303913	.

Sect	Code	He2200 Reservoir	He2200 kit no.	HE Box
VIII	Code	He2200 Reservoir		
	BA	1,0 l usable, horizontal, cyl., plastic	1303838	
	BB	0,9 l usable, vertical, cyl., plastic	1303839	
	BC	1,6 l usable, horizontal, cyl., plastic	1303840	
	BD	1,3 l usable, vertical, cyl., plastic	1303841	
	BE	1,8 l usable, horizontal, cyl., plastic	1303842	
	BF	1,8 l usable, vertical, cyl., plastic	1303843	
	BG	1,5 l usable, horizontal, cyl., steel	1303844	
	BH	1,5 l usable, vertical, cyl., steel	1303845	
	BJ	2,8 l usable, horizontal, cyl., steel	1303846	
	BK	2,9 l usable, vertical, cyl., steel	1303847	
	BL	3,4 l usable, horizontal, cyl., steel	1303848	
	BM	2,0 l usable, vertical, cyl., steel	1303849	
	BN	5,6 l usable, horizontal, cyl., steel	1303850	
	BO	4,4 l usable, vertical, cyl., steel	1303851	
	BP	6,2 l usable, horizontal, cyl., steel	1303852	
	BQ	5,6 l usable, vertical, cyl., steel	1303853	
	BR	6,3 l usable, horizontal, rect., steel	1303854	
	BS	7,0 l usable, vertical, rect., steel	1303855	
	BT	10,6 l usable, horizontal, rect., steel	1303856	
	BU	12,1 l usable, vertical, rect., steel	1303857	
	BV	5,2 l usable reservoir-kit He2000 in a box	1303858	.
IX	Code	He2200 Motor terminal screw pos.		
	0	12 o'clock to pad A		
	3	Terminal bolts at 3 o'clock to pad A		
	6	Terminal bolts at 6 o'clock to pad A		
	9	Terminal bolts at 9 o'clock to pad A		.
X	Code	He2200 Start switch		
	A	None	.	.
	W	12V Ø 112 mm	1303702	.
	X	24V Ø 112mm	1303703	.
	G	24V Ø 125 mm heavy duty, SW80PL	1303523	.
XI	Code	He2200 Start switch position		
	0	12 o'clock to pad A		
	2	Relative to motor terminal		
	3	3 o'clock to pad A		
	6	6 o'clock to pad A		
	9	9 o'clock to pad A		.
	A	No switch		.
XII	Code	He2200 Tube kit		
	AA	Tube kit included in reservoir kit	.	.
	AB	Tube kit for adapter codes BA, BE, BF, BG, BH	1303859	.
XIII	Code	He2200 Breather position		
	0	12 o'clock to pad A		
	1	10.30 o'clock to pad A		.
	3	3 o'clock to pad A		
	6	6 o'clock to pad A		
	9	9 o'clock to pad A		
XIV	Code	He2200 Coil/Lever pos on valve		
	A	12 o'clock = Toward motor	.	.
	B	3 o'clock = Away from center of adaptor	.	.
	C	6 o'clock = Toward reservoir	.	.
	D	9 o'clock = Toward center of adaptor	.	.
	N	None	.	.
XV	Code	He2200 Access 1		
	00	No accessories		.
	03	Handpump	1303793	.
	28	HE box 400 mm	1303607	.
	28	Cover to 400 mm box	1303608	.
	28	Box assembly kit	1303609	.
	29	HEQ box 400 mm	1303610	.
	29	Cover sound absorbed 400 mm box	1303611	.
	29	Box assembly kit	.	.
	30	HE box 520 mm box	1303613	.
	30	Cover to 520 mm box	1303614	.
	30	Box assembly kit	1303615	.
	31	HEQ box 520 mm	1303616	.
	31	Cover sound absorbed 540 mm He-box	1303617	.
	31	Box assembly kit	.	.
XVI	Code	He2200 Access 2		
	00	No accessories		.

Readers notes:

PRODUCT RANGE

HE Powerpacks

12/24/48 VDC 0.3 – 4.5 kW and
0.75 – 3 kW AC modular power packs

HE Box Powerpacks

12/24/48 VDC modular powerpacks
in weatherproof boxes

Pressure Switches

5 - 350 bar, connecting/disconnecting

W100 Hydraulic pumps

0,5 - 2,0 cc 227 bar

W300 Hydraulic pumps

0,8 – 5,7 cc 230 bar

W600 Hydraulic pumps / motors

3 – 12 cc 276 bar

W900 Hydraulic pumps / motors

5 – 31 cc/section 276 bar

Calma The new quiet pumps

6,2 - 23,7 cc/section 250 bar

WQ900 The quiet pumps

5 - 23 cc/section 230 bar

WP900X Hydraulic pumps

16 - 31 cc/section 276 bar

W1500 Hydraulic pumps / motors

19 - 50 cc/section 276 bar

F12 FERRA Heavy duty pumps

16 - 41 cc/section 276 bar

F15 FERRA Heavy duty pumps

19 - 50 cc/section 276 bar

F20/F30 (LS) Hydraulic pumps / motors

23 – 161 cc/section 276 bar

GPA Internal Gear pumps

1,7 – 63 cc/section 100 bar

GC Hydraulic pumps / motors

1,06 – 11,65 cc/section 276 bar

D Hydraulic pumps

3,8 – 22,9 cc/section 207 bar

H Hydraulic pumps

9,8 – 39,4 cc/section 207 bar

II-Stage Hydraulic pumps

4,2 – 22,8 cc/section 276 bar

Rotary Flow Dividers

3,8 – 13,3 cc/section 300 bar

Transmission pumps

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