

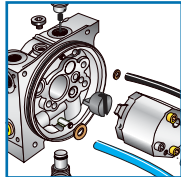
Haldex

HE POWER PACKS

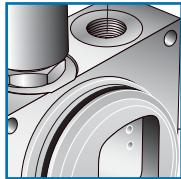


HYDRAULIC SYSTEMS DIVISION

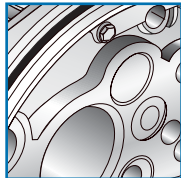
Outstanding Hydraulic Products, Service and Expertise, Worldwide



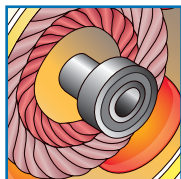
HE POWER PACK CONCEPT _____ **4 - 5**



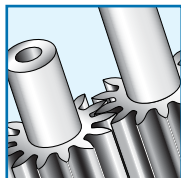
ADAPTOR HE 1000 _____ **6 - 7**



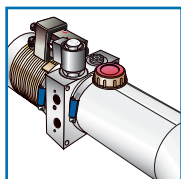
ADAPTOR HE 2000 _____ **8 - 9**



PUMPS AND DC MOTORS _____ **10 - 16**



TECHNICAL INFORMATION AND HE BOX _____ **17 - 21**



POWER PACK CODE KEY _____ **22 - 23**

The right to modifications for technical improvements is reserved.



THE POWER OF HE

Haldex Hydraulic Systems is one of the world's leading manufacturers of hydraulic power packs. In recent years, we are focused on strategically important markets such as vehicles and materials handling. The result is a new series of high performance hydraulic power packs. The HE series represents a further development of the versatile technical platform developed by Hesselman in Sweden and JS Barnes in the USA.

HE Power Packs are optimized for demanding applications. They are designed for use in trucks and construction equipment 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.

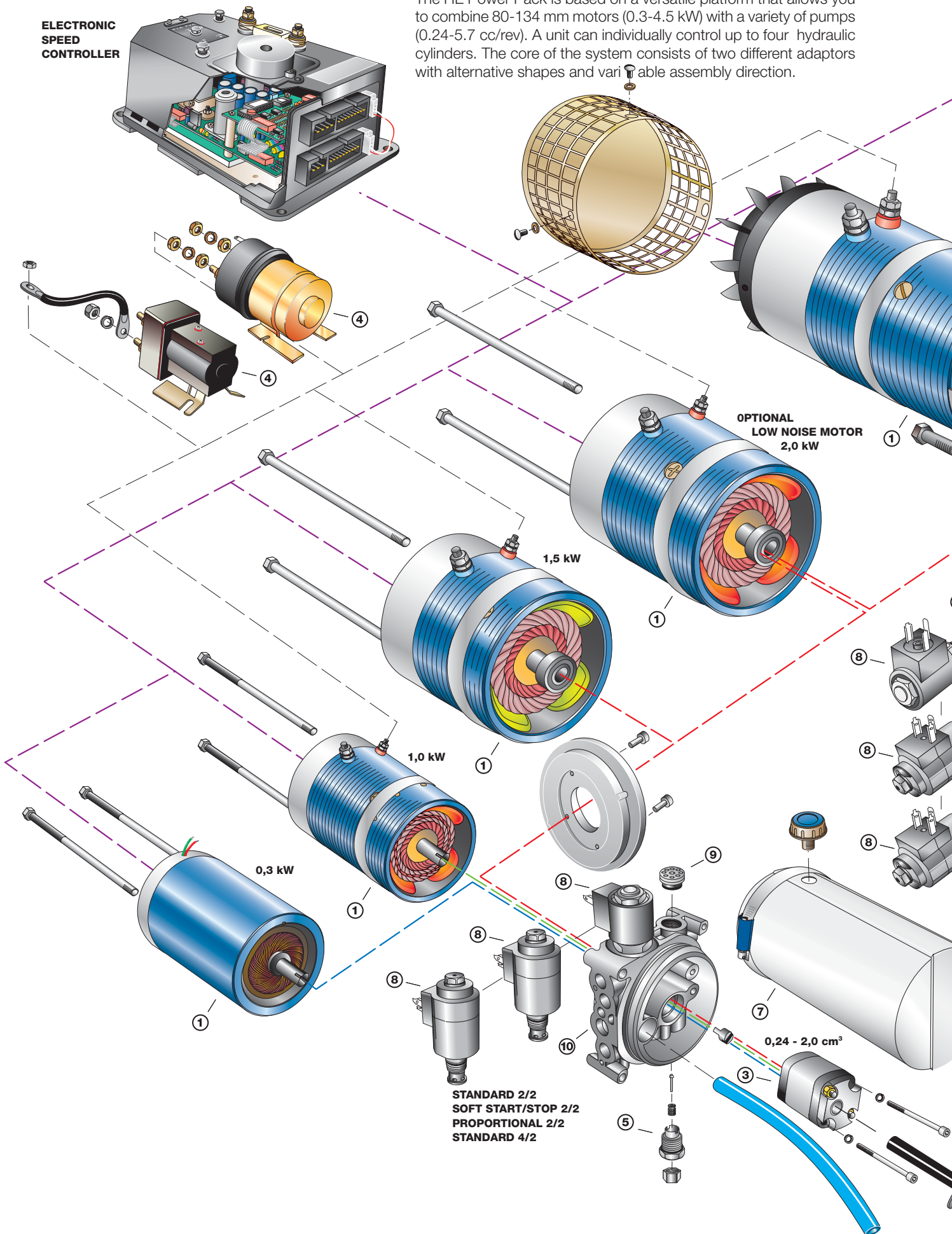
Haldex Hydraulic Systems is part of the Haldex Group. Haldex is an innovator in vehicle technology and supplies proprietary systems and components for trucks, cars and industrial vehicles worldwide.

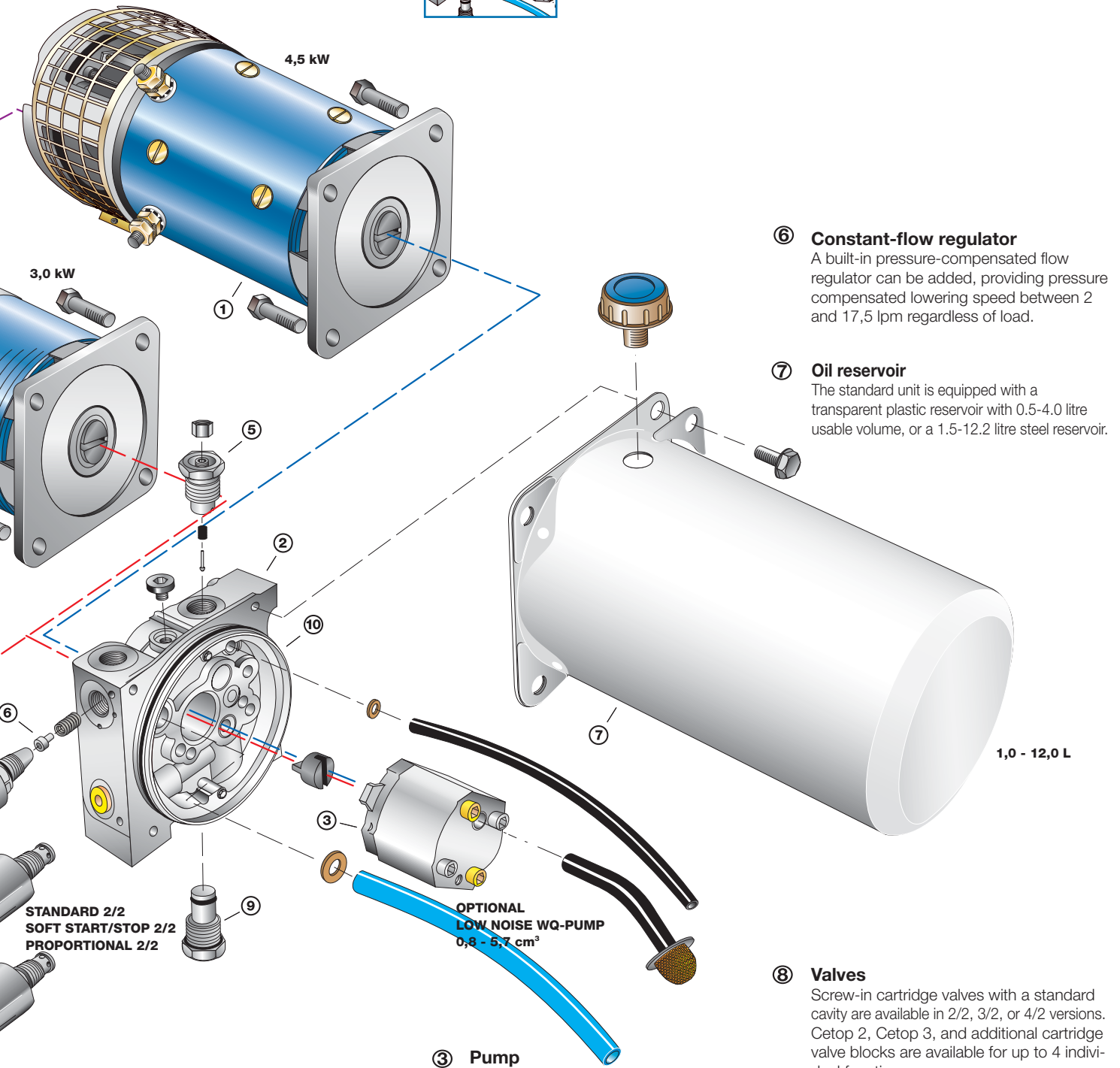
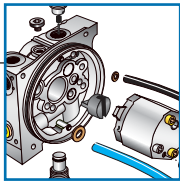
Haldex is listed on the Stockholm Stock Exchange and has yearly sales exceeding 7,1 billion Swedish Krona with 4.400 employees (www.haldex.com). The company operates globally and enjoys global advantages: secure supply lines, close contact with customers on development and a universal technical platform that will always fit your product. No matter where in the world it is manufactured.

HE POWER PACK CONCEPT

**ELECTRONIC
SPEED
CONTROLLER**

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 up to four hydraulic cylinders. The core of the system consists of two different adaptors with alternative shapes and variable assembly direction.





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.

③ Pump
Pressure-balanced gear pumps of our own design are extremely efficient, with low noise. Special **noise reduced pumps (WQ)** available.

⑨ Check valve

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.

④ Start switch
Start switch with high IP protection class and silverplated contacts meets tough demands for a long, problem-free service life.

⑩ Adaptors
Two different adaptors with two alternative mounting directions: the smaller HE 1000 adaptor and the larger HE 2000.

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.**

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.

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

● **HE 1000**

● **HE 2000**

The HE series is based on two different adaptors with two alternative assembly directions: the smaller HE1000 adaptor, and the larger HE 2000.

The HE1000 is designed for use with 80 mm and 112 mm motors.
Pump sizes: 0.24-2.0 cc/rev.

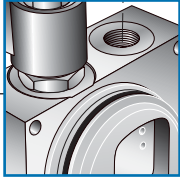
The HE 2000 is designed for use with 112 mm, 125 mm and 134 mm motors.
Pump sizes: 0.8-5.7 cc/rev.

With the HE 1000 and 2000 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.

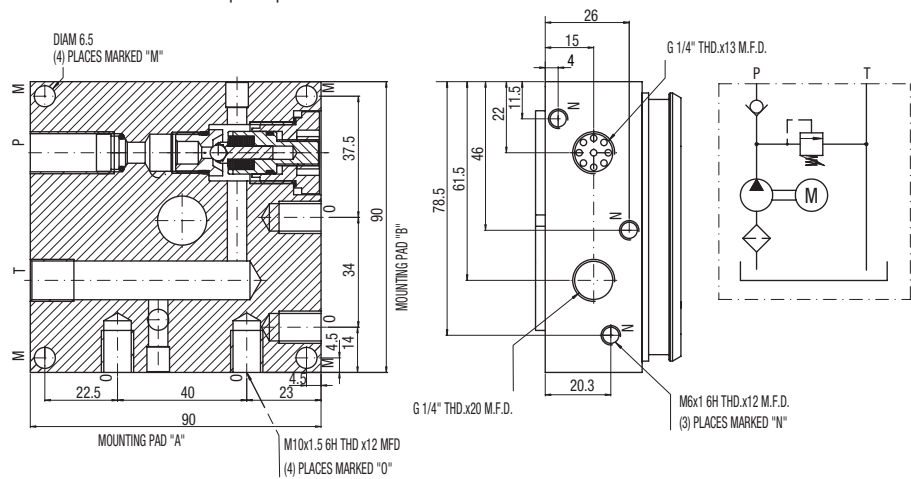
Both adaptors have a check valve, and most models can be equipped with an integrated pressure-compensated constant-flow regulator.

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

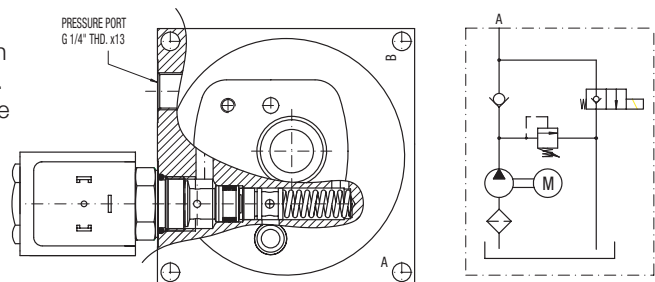


ADAPTOR HE 1000

● **AA000** Adaptor prepared for blockmounted valves or pump unit.

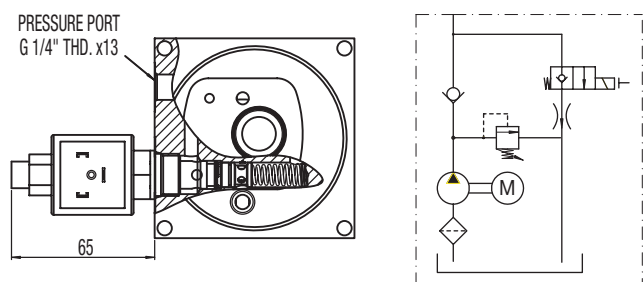
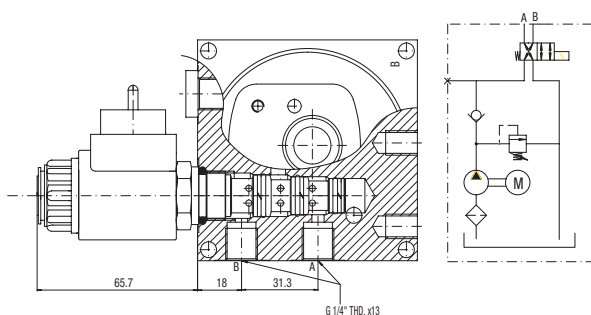


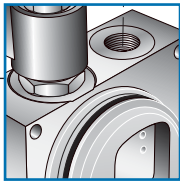
● **AE012** Adaptor with 12 or 24 VDC, 2/2 cartridge valve,
 ● **AE024** normally closed. Standard DIN 43650 connection or optional "Kostal" or "AMP junior" connections.
 ● **AE230** Normally open valve or manual override is available as an option.



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

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

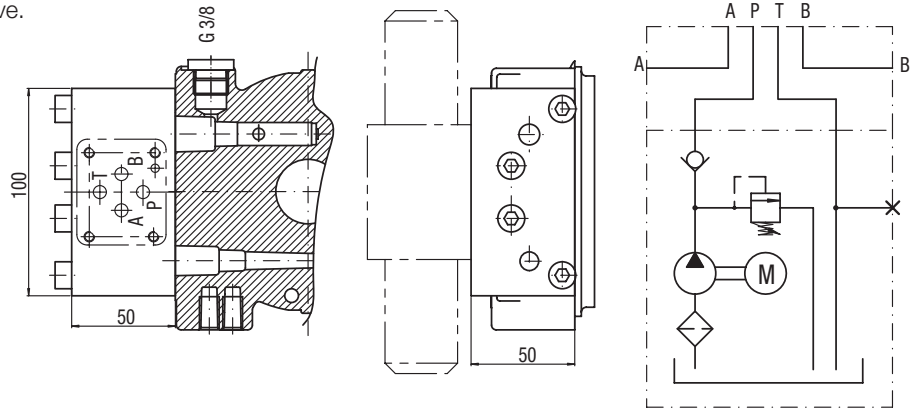




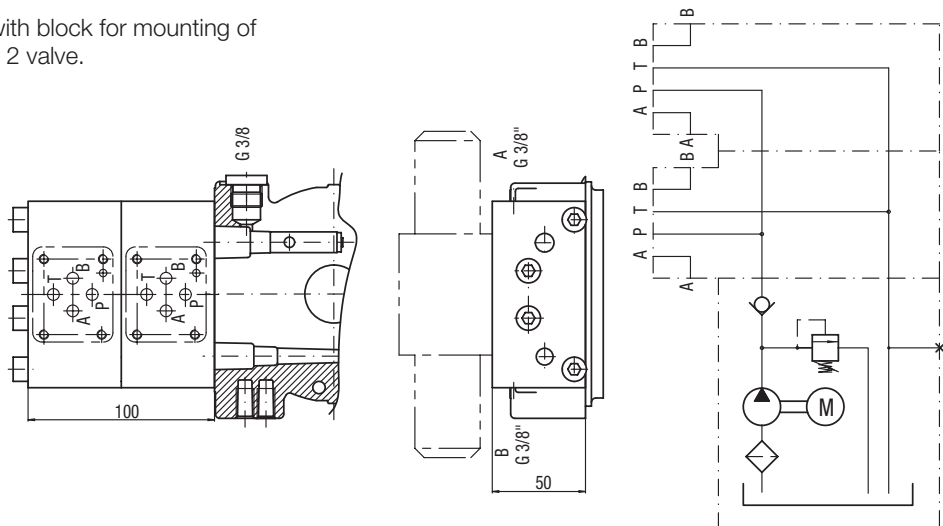
ADAPTOR HE 1000



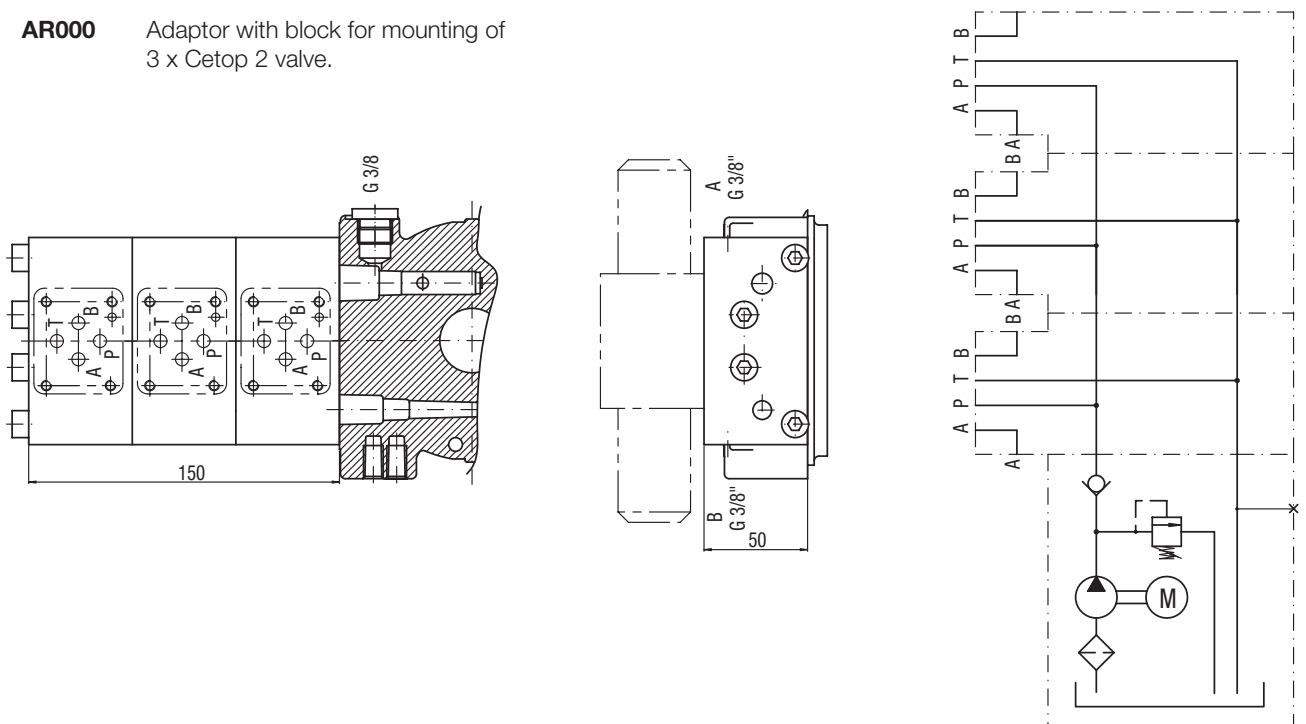
- **AP000** Adaptor with block for mounting of 1 x Cetop 2 valve.

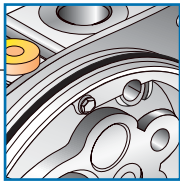


- **AQ000** Adaptor with block for mounting of 2 x Cetop 2 valve.



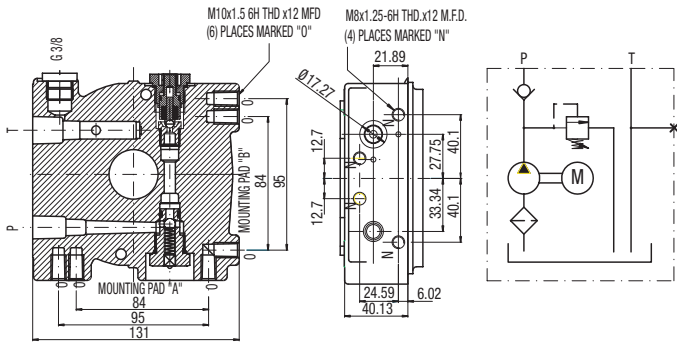
- **AR000** Adaptor with block for mounting of 3 x Cetop 2 valve.



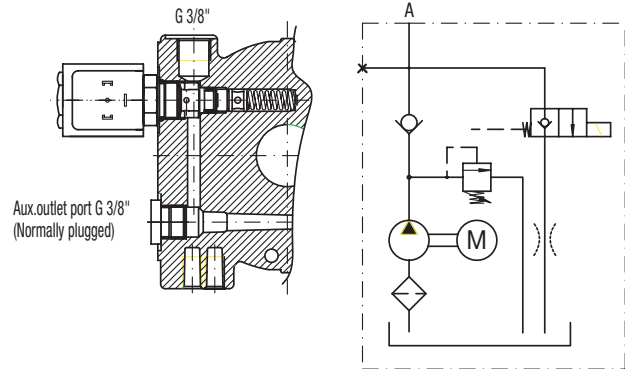


ADAPTOR HE 2000

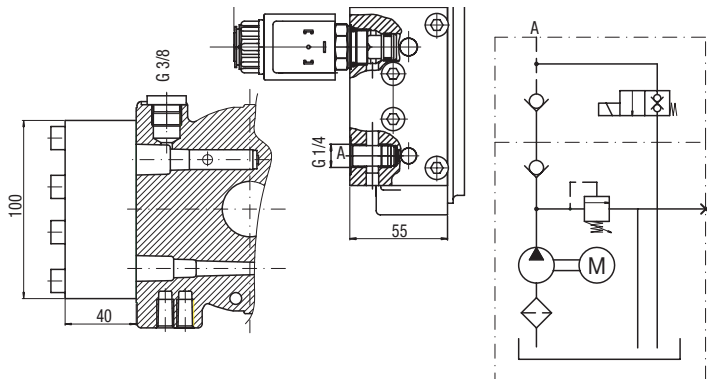
- **AA000** Adaptor prepared for block-mounting of external valves.



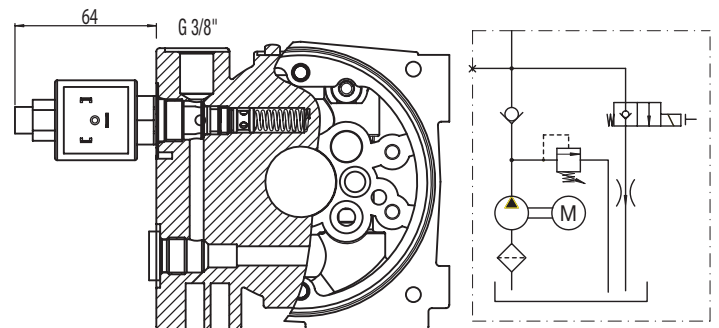
- **AE012** Adaptor with 12 or 24 VDC, 2/2 cartridge valve, normally closed. Standard DIN 43650 connection or optional "Kostal" or "AMP junior" connections. Normally open valve or manual override is available as an option.
- **AE024**
- **AE230**



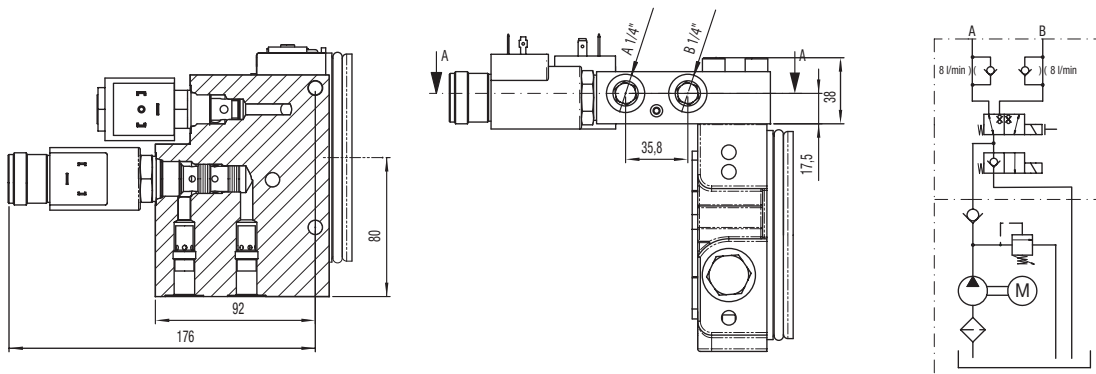
- **AF012** Adaptor with 12 or 24 VDC, block-mounted 2/2 cartridge valve.
- **AF024**
- **AF230**

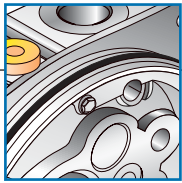


- **AO012** Adaptor with 12 or 24 VDC, 2/2 cartridge valve, normally closed and manual override. Standard DIN 43650 connection or optional "Kostal" or "AMP junior" connections.
- **AO024**
- **AO230**



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





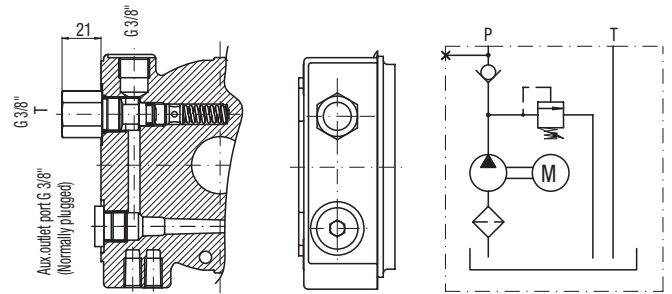
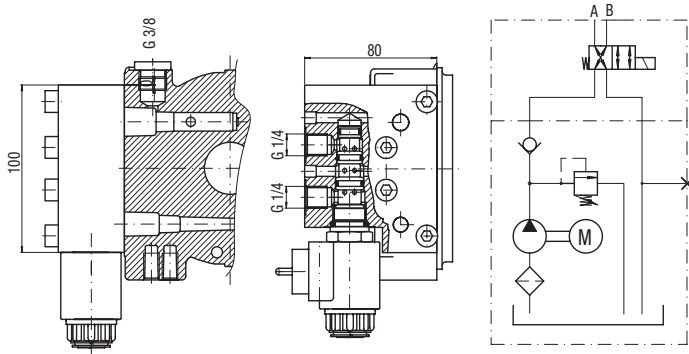
ADAPTOR HE 2000



- **AL012**
- **AL024**
- **AL230**

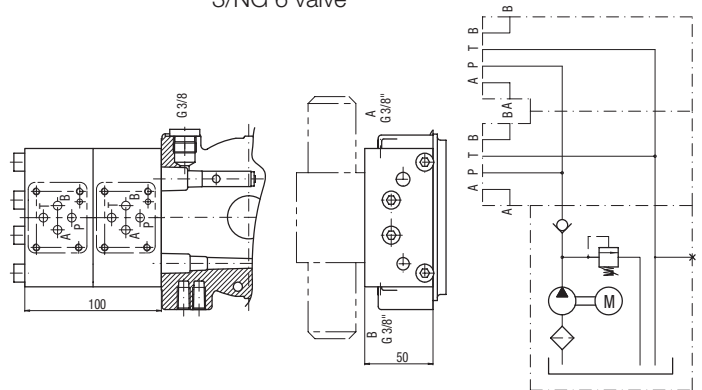
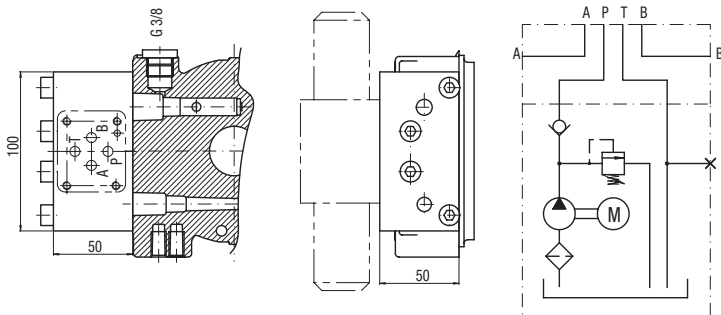
Adaptor with 12 or 24 VDC block-mounted 4/2 cartridge valve.

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

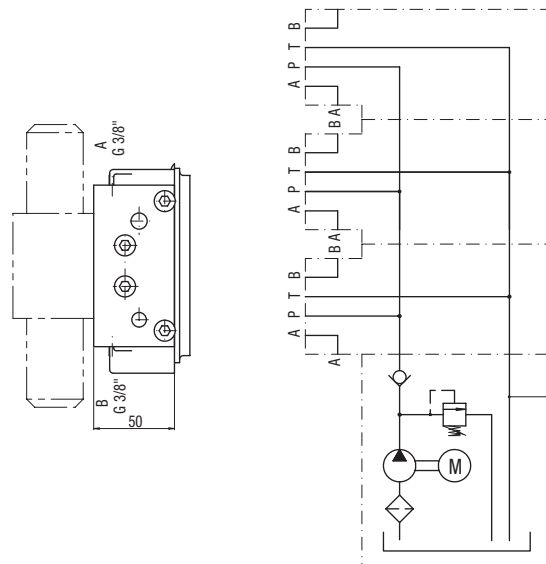
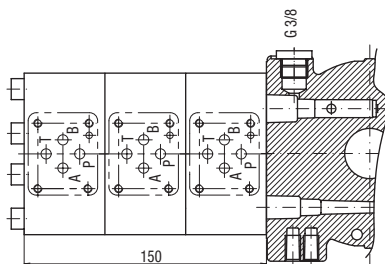


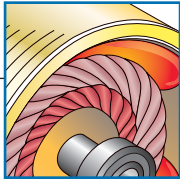
- **AP000**
- Adaptor with block for mounting of 1 x Cetop 3/NG 6 valve

- **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





HE PUMPS AND DC MOTORS

The HE series is equipped with motors for 12,24 or 48 VDC. These compound 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 Haldex Hydraulics to ensure maximal system optimization, performance and quality.

HE 2000 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, allow-able amp consumption is a factor too, due to restricted battery capa-city.

Our curves permit easy comparison at a constant voltage measurement.

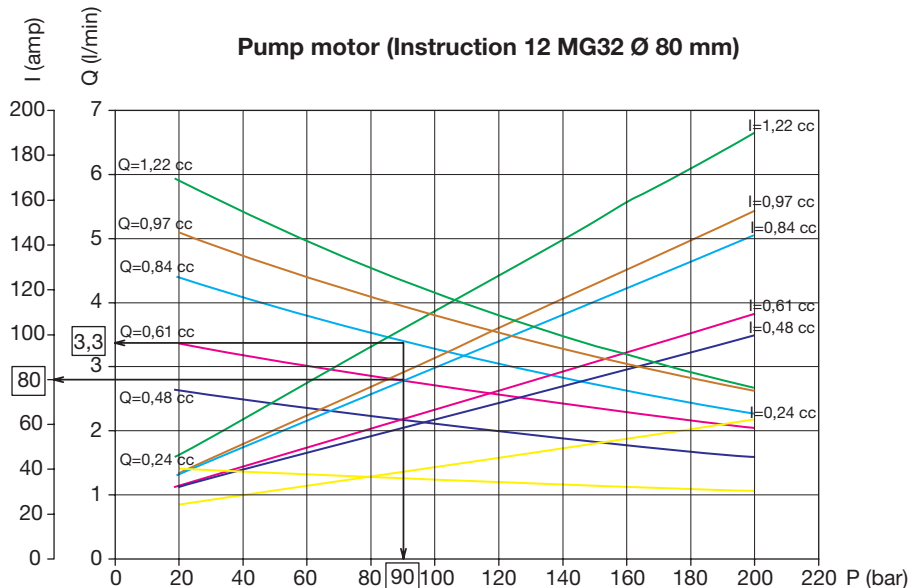
How to read the curves:

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

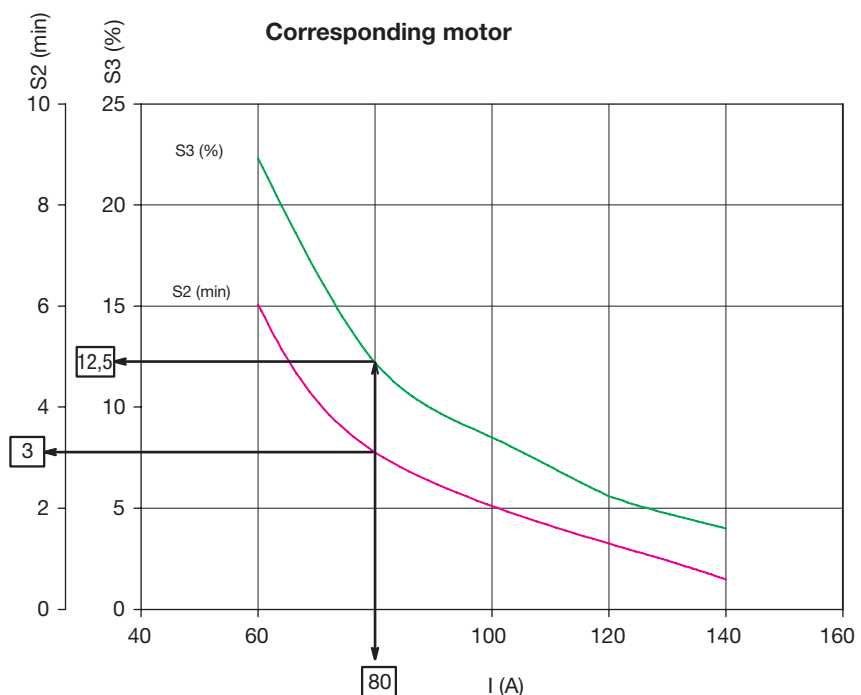
The amperage corresponds to an S2 and an S3 value. These values represent two ways of calculating duty capability.

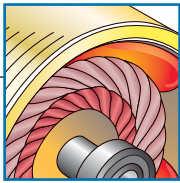
S2 is the number of minutes a unit can operate at a certain workload before reaching the maximum allowable temperature. After this, the unit must cool down until the motor temperature is less than 2°C from the ambient temperature before the same S2 value can be applied again.

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.



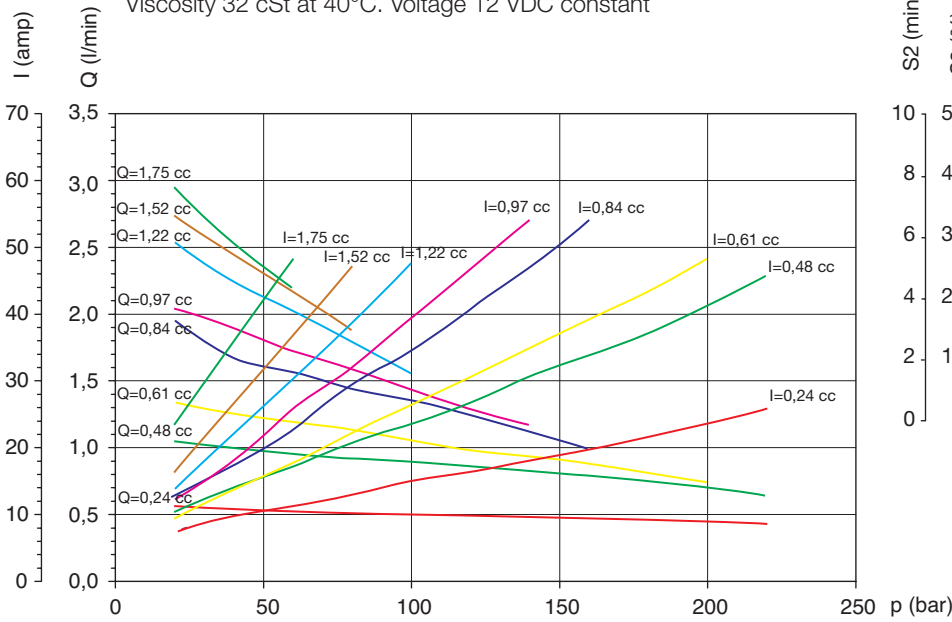
Example: 3,3 l/min at 90 bar and 80 amp on pump motor curve above gives S2 = 2,8 min and S3 = 11% at corresponding motor curve below.



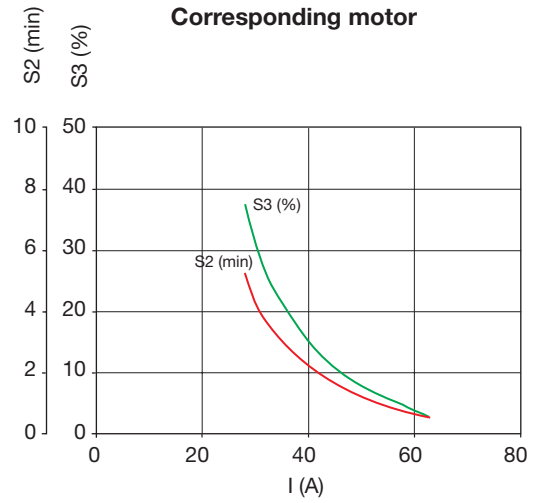


HE PUMPS AND DC MOTORS

12MH82-HE
HE 1000 MH pump motor 12V DC Ø 84 mm
 Viscosity 32 cSt at 40°C. Voltage 12 VDC constant



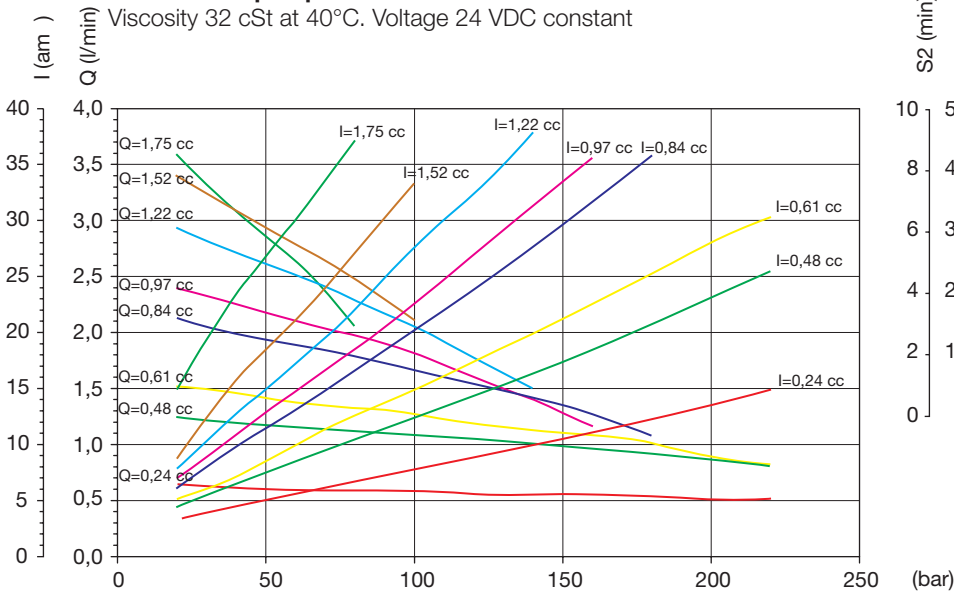
12MH82-HE-S2 & S3
Corresponding motor



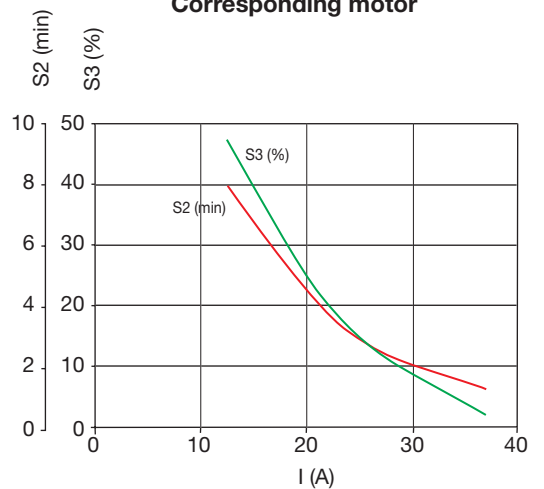
Code	Pump
02	0,24 cc
05	0,50 cc
06	0,60 cc
08	0,80 cc
10	1,00 cc
12	1,25 cc
15	1,50 cc
18	1,75 cc

Code	Motor
01	12MH82HE

24MH82-HE
HE 1000 MH pump motor 24VDC Ø 84 mm
 Viscosity 32 cSt at 40°C. Voltage 24 VDC constant

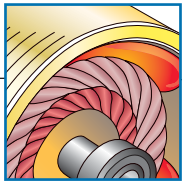


24MH82-HE-S2 & S3
Corresponding motor



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

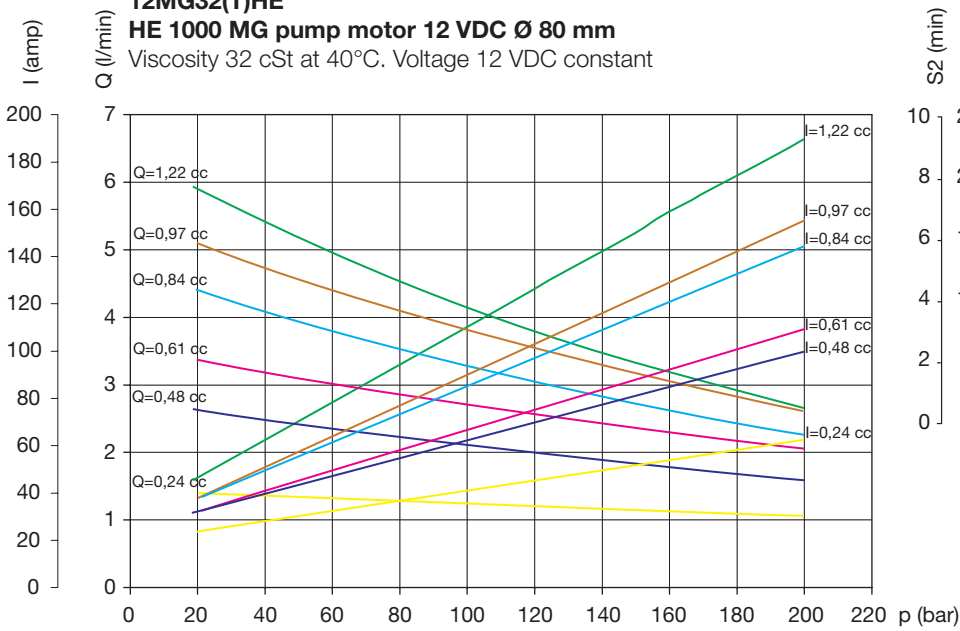


HE PUMPS AND DC MOTORS

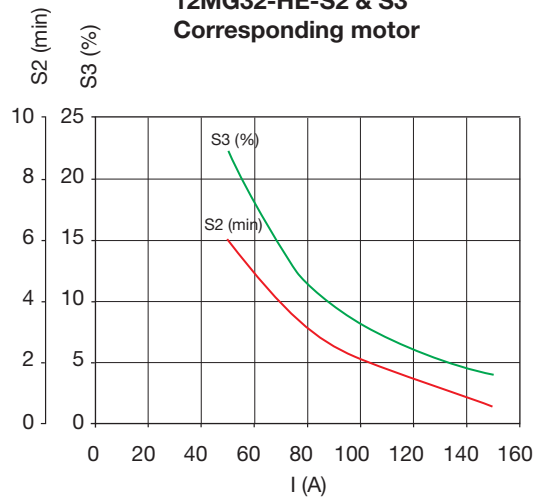
12MG32(T)HE

HE 1000 MG pump motor 12 VDC Ø 80 mm

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



12MG32-HE-S2 & S3 Corresponding motor



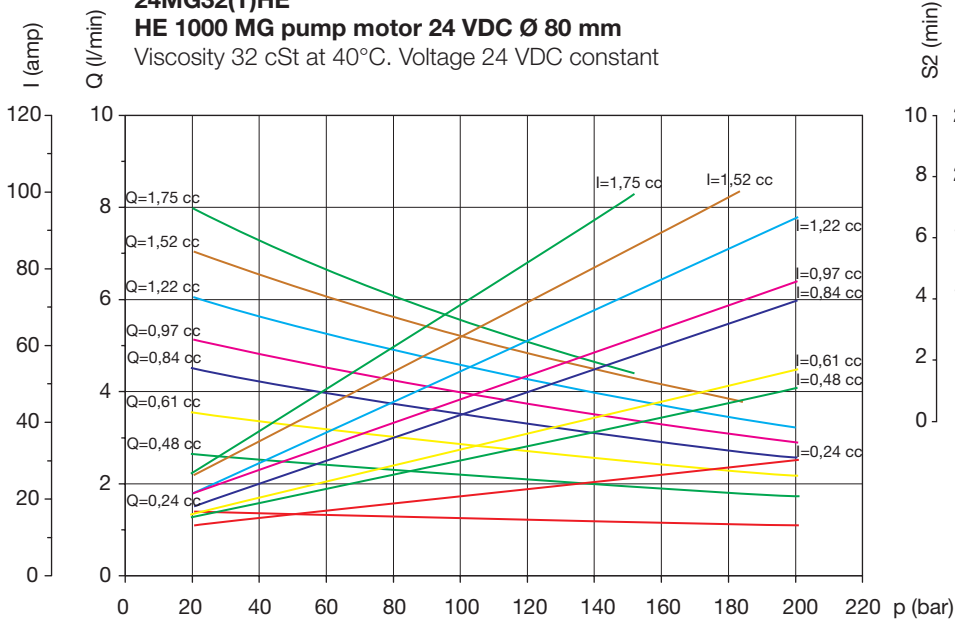
Code	Motor
10	12MG32-HE
11	12MG32THE

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

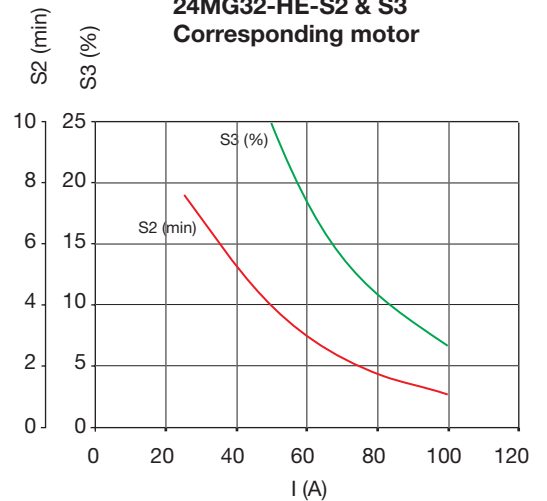
24MG32(T)HE

HE 1000 MG pump motor 24 VDC Ø 80 mm

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

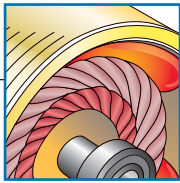


24MG32-HE-S2 & S3 Corresponding motor



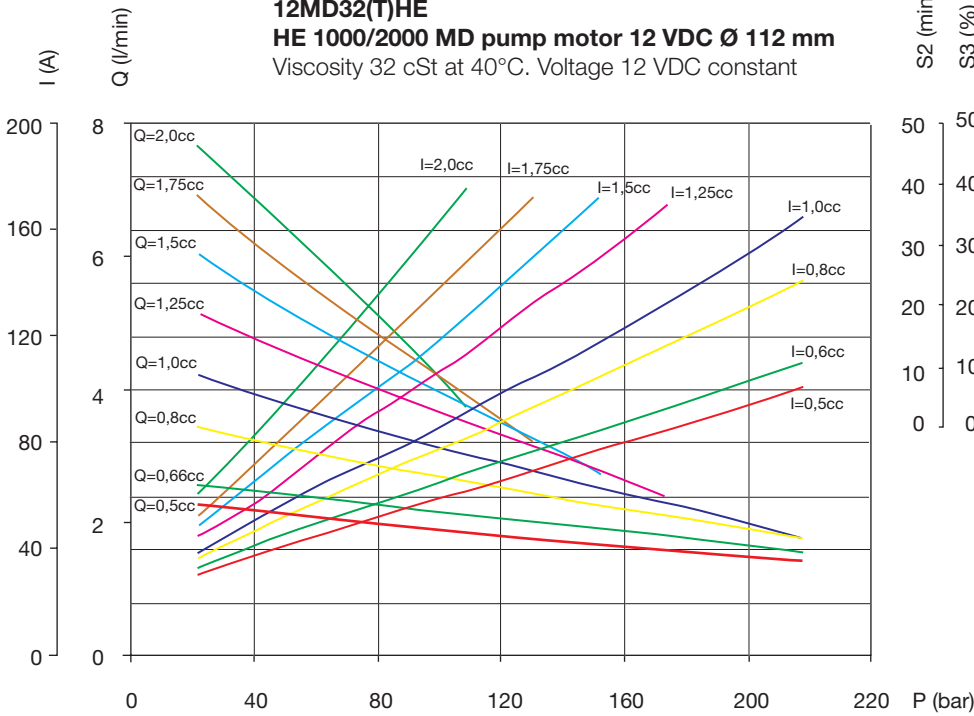
Code	Motor
15	24MG32-HE
16	24MG32-THE

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



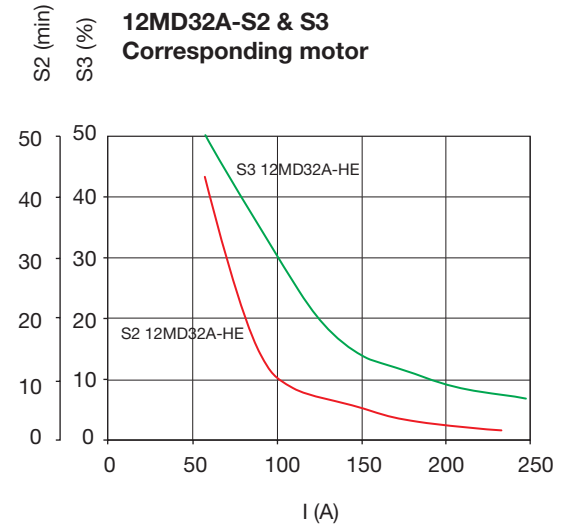
HE PUMPS AND DC MOTORS

12MD32(T)HE
HE 1000/2000 MD pump motor 12 VDC Ø 112 mm
 Viscosity 32 cSt at 40°C. Voltage 12 VDC constant



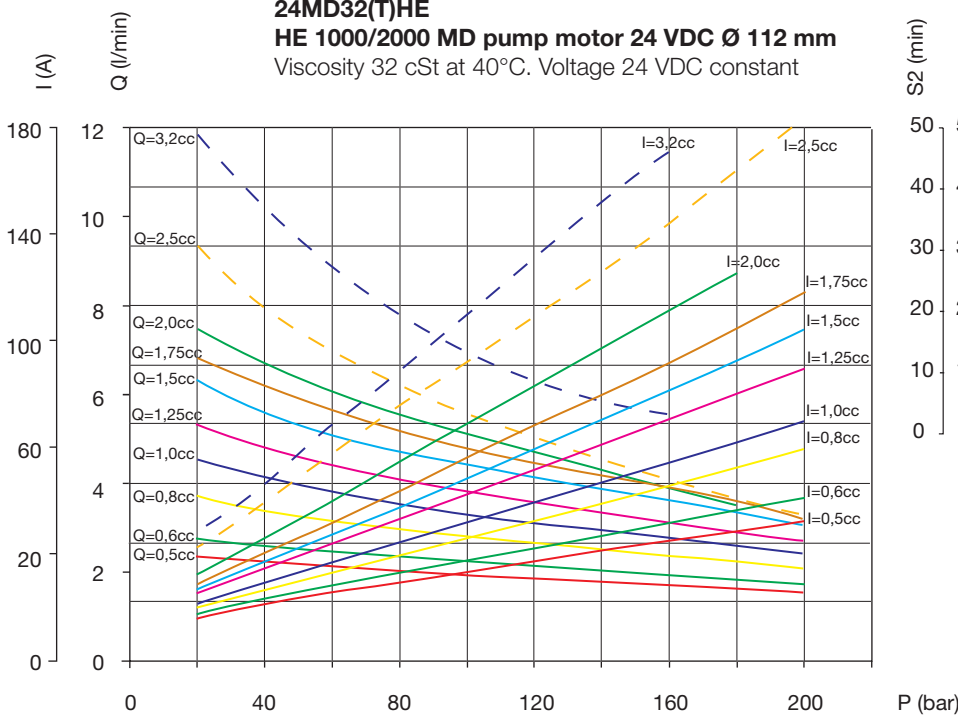
Code	Motor
22	12MD32A

12MD32A-S2 & S3
Corresponding motor



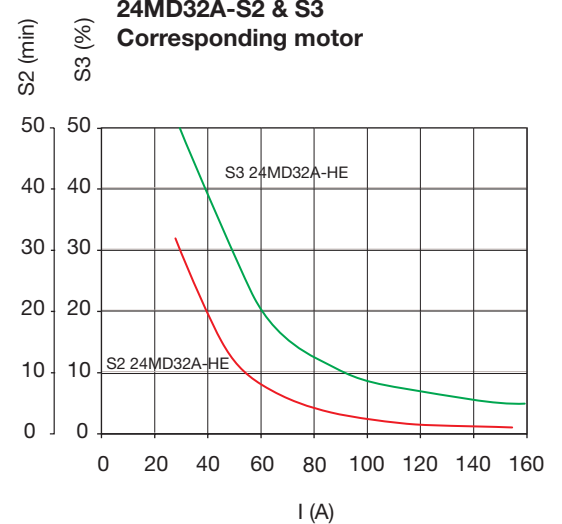
Code	Pump	Code	Pump
02	0,24 cc	18	1,75 cc
05	0,50 cc	20	2,00 cc
06	0,60cc	26	2,50 cc
08	0,80 cc	32	3,20 cc
10	1,00 cc	37	3,80 cc
12	1,25 cc	43	4,30 cc
15	1,50 cc	48	4,80 cc
16	1,60 cc	57	5,70 cc

24MD32(T)HE
HE 1000/2000 MD pump motor 24 VDC Ø 112 mm
 Viscosity 32 cSt at 40°C. Voltage 24 VDC constant

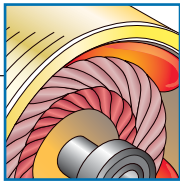


Code	Motor
32	24MD32A

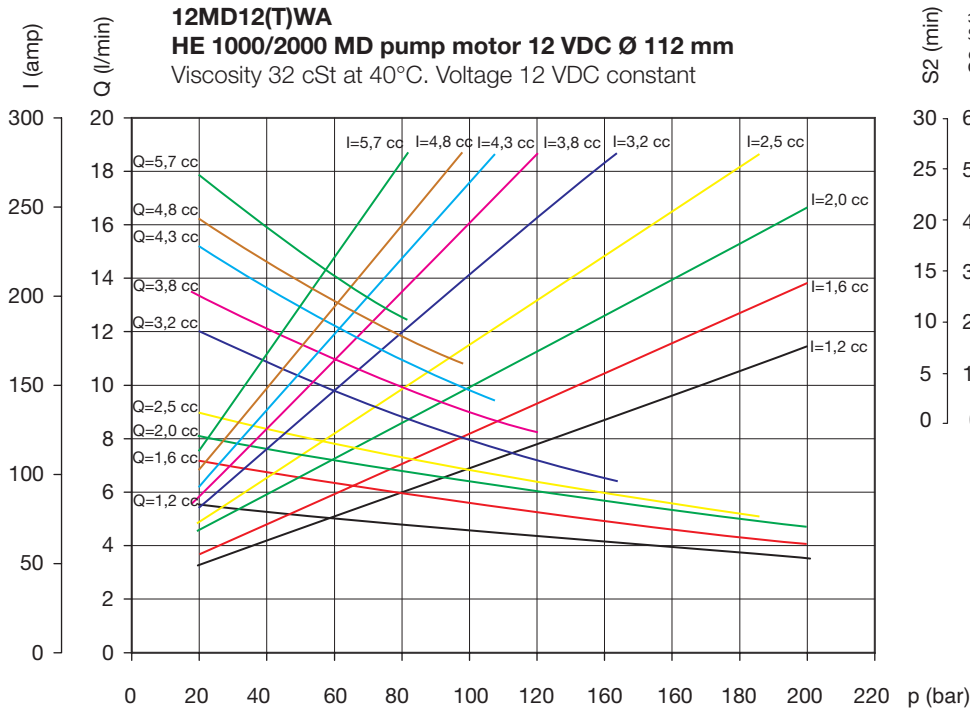
24MD32A-S2 & S3
Corresponding motor



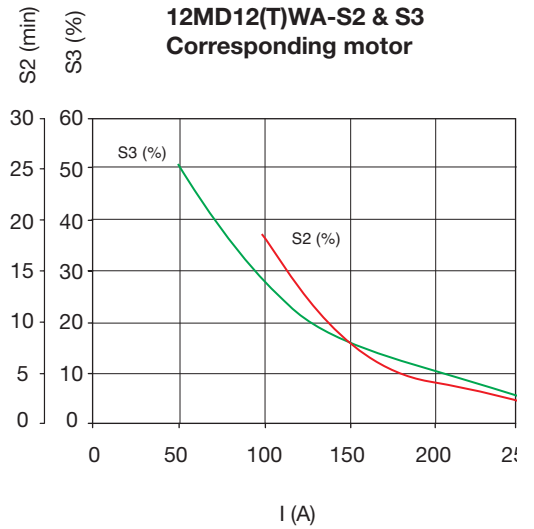
Code	Pump	Code	Pump
02	0,24 cc	18	1,75 cc
05	0,50 cc	20	2,00 cc
06	0,60 cc	26	2,50 cc
08	0,80 cc	32	3,20 cc
10	1,00 cc	37	3,80 cc
12	1,25 cc	43	4,30 cc
15	1,50 cc	48	4,80 cc
16	1,60 cc	57	5,70 cc



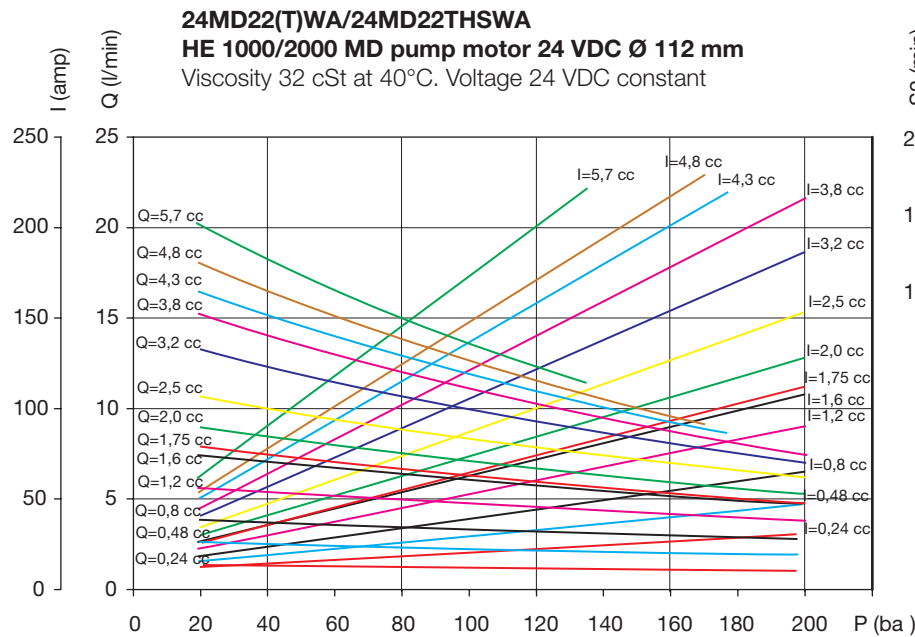
HE PUMPS AND DC MOTORS



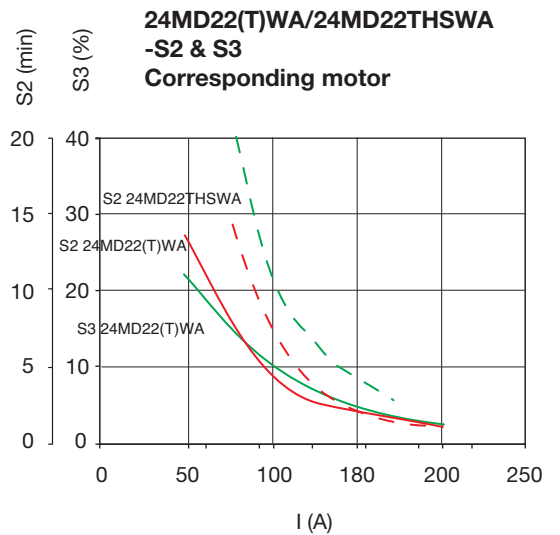
Code	Motor
20	12MD12WA
21	12MD12TWA
27	12MD12THSWA



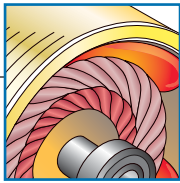
Code	Pump	Code	Pump
02	0,24 cc	18	1,75 cc
05	0,50 cc	20	2,00 cc
06	0,60 cc	26	2,50 cc
08	0,80 cc	32	3,20 cc
10	1,00 cc	37	3,80 cc
12	1,25 cc	43	4,30 cc
15	1,50 cc	48	4,80 cc
16	1,60 cc	57	5,70 cc



Code	Motor
25	24MD22WA
26	24MD22TWA
28	24MD22THSWA

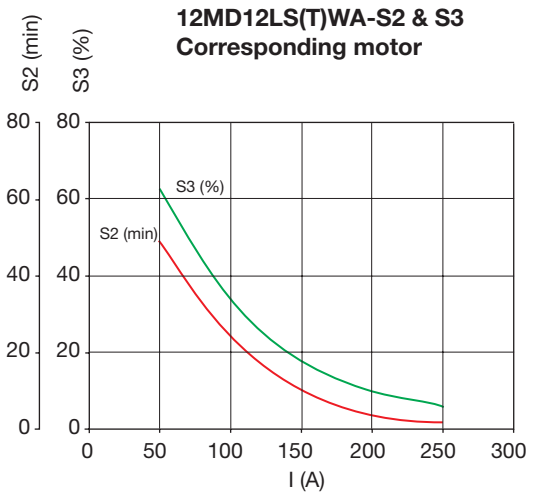
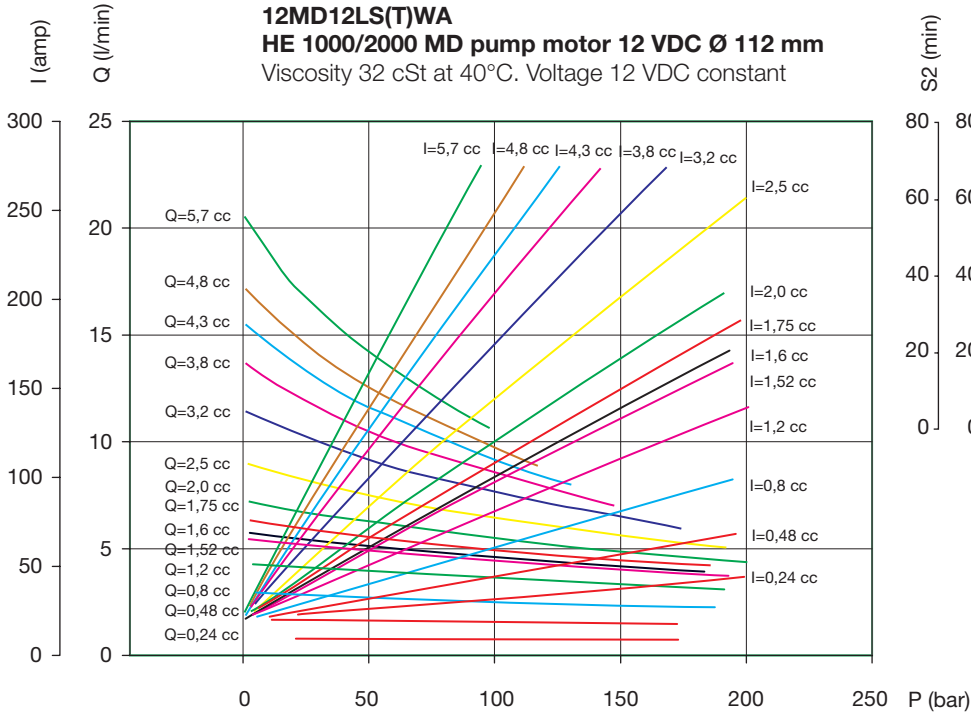


Code	Pump	Code	Pump
02	0,24 cc	18	1,75 cc
05	0,50 cc	20	2,00 cc
06	0,60 cc	26	2,50 cc
08	0,80 cc	32	3,20 cc
10	1,00 cc	37	3,80 cc
12	1,25 cc	43	4,30 cc
15	1,50 cc	48	4,80 cc
16	1,60 cc	57	5,70 cc



HE PUMPS AND DC MOTORS

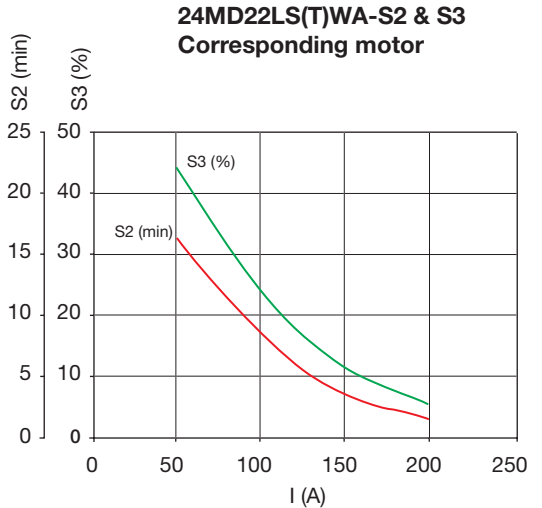
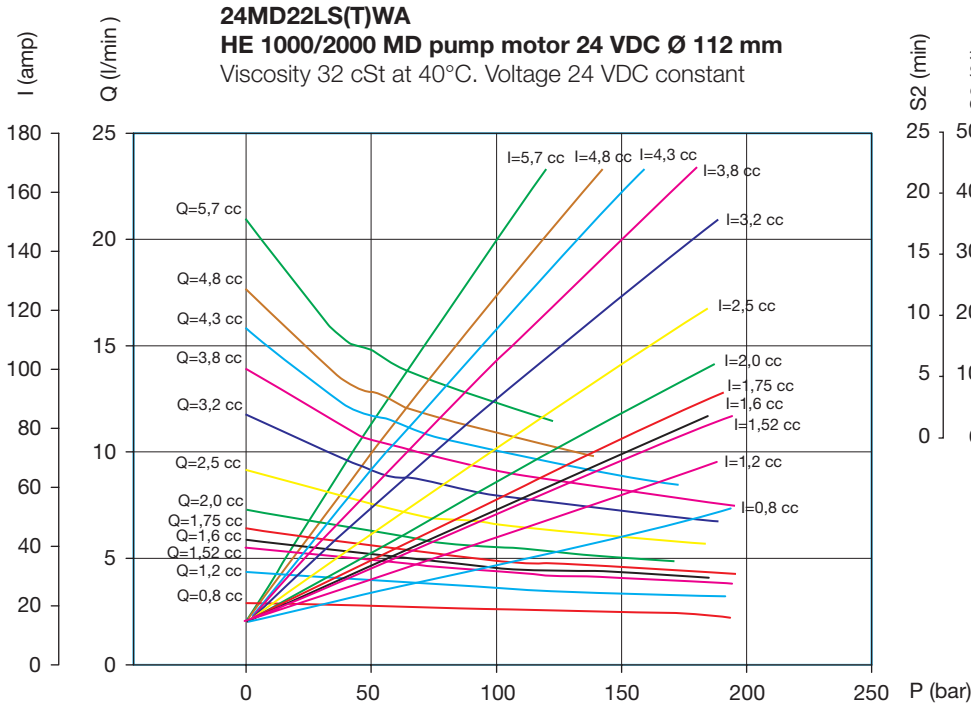
12MD12LS(T)WA
HE 1000/2000 MD pump motor 12 VDC Ø 112 mm
 Viscosity 32 cSt at 40°C. Voltage 12 VDC constant



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

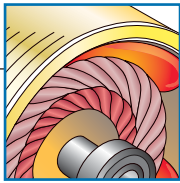
Code	Motor
29	12MD12LSTWA

24MD22LS(T)WA
HE 1000/2000 MD pump motor 24 VDC Ø 112 mm
 Viscosity 32 cSt at 40°C. Voltage 24 VDC constant



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

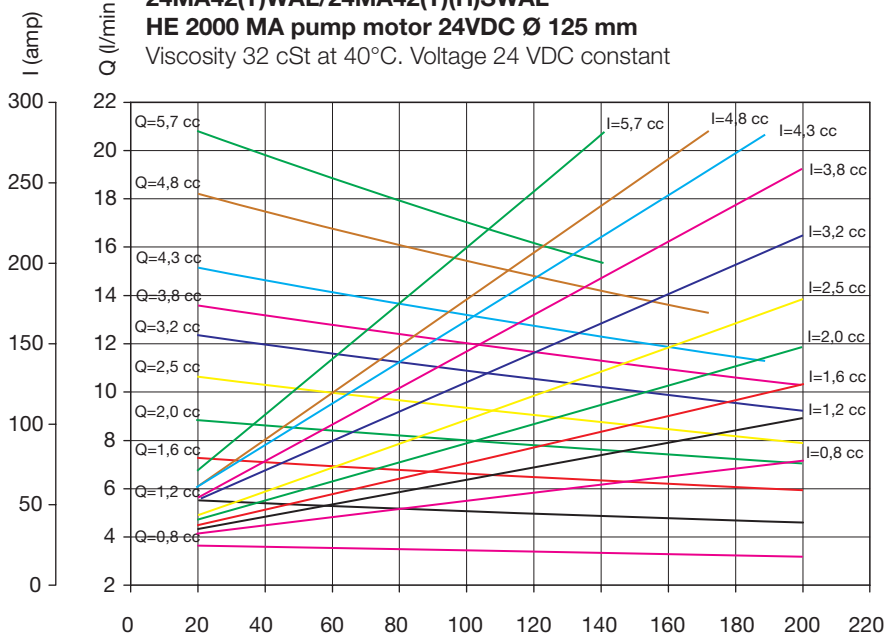
Code	Motor
30	24MD22LS(T)WA



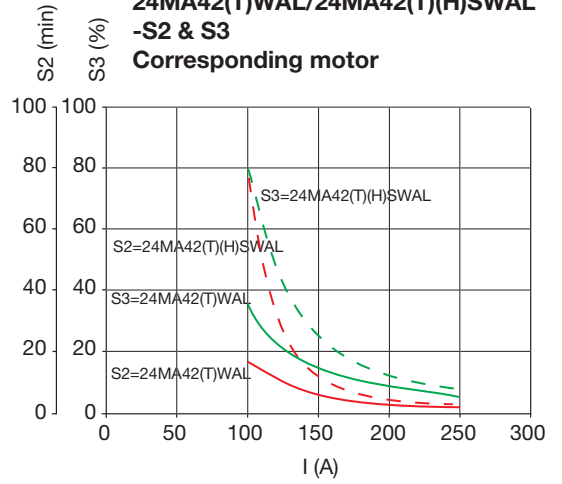
HE PUMPS AND DC MOTORS



24MA42(T)WAL/24MA42(T)(H)SWAL
HE 2000 MA pump motor 24VDC Ø 125 mm
 Viscosity 32 cSt at 40°C. Voltage 24 VDC constant



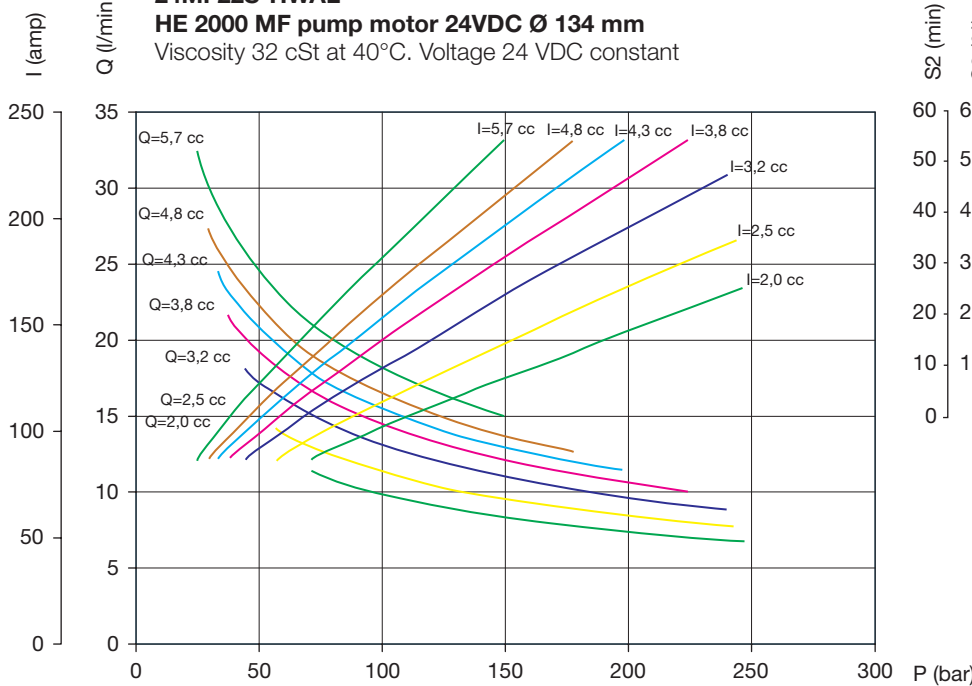
24MA42(T)WAL/24MA42(T)(H)SWAL
-S2 & S3
Corresponding motor



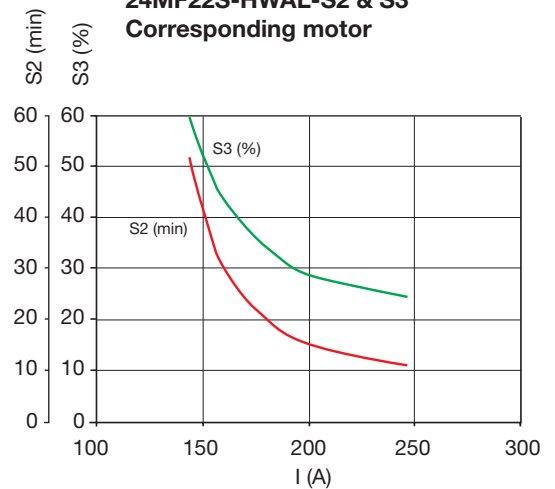
Code	Motor
35	24MA42-HSWAL
36	24MA42THSWAL
45	24MA42-WAL
46	24MA42TVAL

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
HE 2000 MF pump motor 24VDC Ø 134 mm
 Viscosity 32 cSt at 40°C. Voltage 24 VDC constant

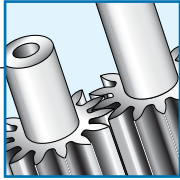


24MF22S-HWAL-S2 & S3
Corresponding motor



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



TECHNICAL INFORMATION

	Symbols	SI-units	Equations	Common units	Equations
Flow	Q	m ³ /s	$Q = v \times A$	l/min	$Q = 0,06 \times v \times A$
Operating pressure	p	Pa	$p = \frac{F}{A}$	bar	$p = \frac{F}{0,1 \times A}$
Internal diameter, hydraulic cylinder	d	m		mm	
Area of hydraulic cylinder	A	m ²	$A = \frac{\pi \times d^2}{4}$	mm ²	$A = \frac{\pi \times d^2}{4}$
Piston force	F	N		N	
Piston speed	v	m/s		m/s	
Power requirement for AC motor	P	kW	$P = p \times Q$	kW	$P = \frac{p \times Q}{600 \times \eta_{Tot}}$

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.

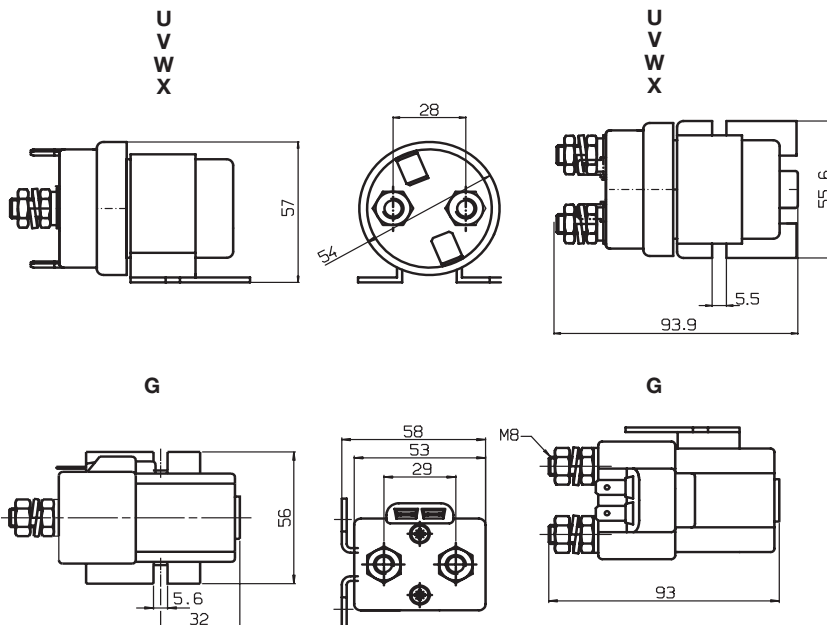
Fluid cleanliness We recommend a cleanliness according to IS4406/1986 Code 18/14 or better to achieve optimal performance and lifetime.

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

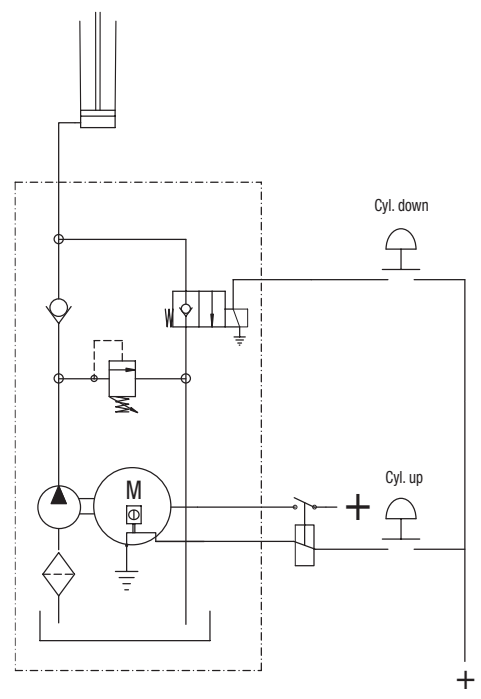
START SWITCHES

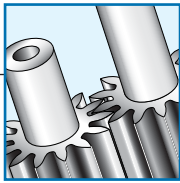
Dimensional drawing
 12/24 VDC start switch

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

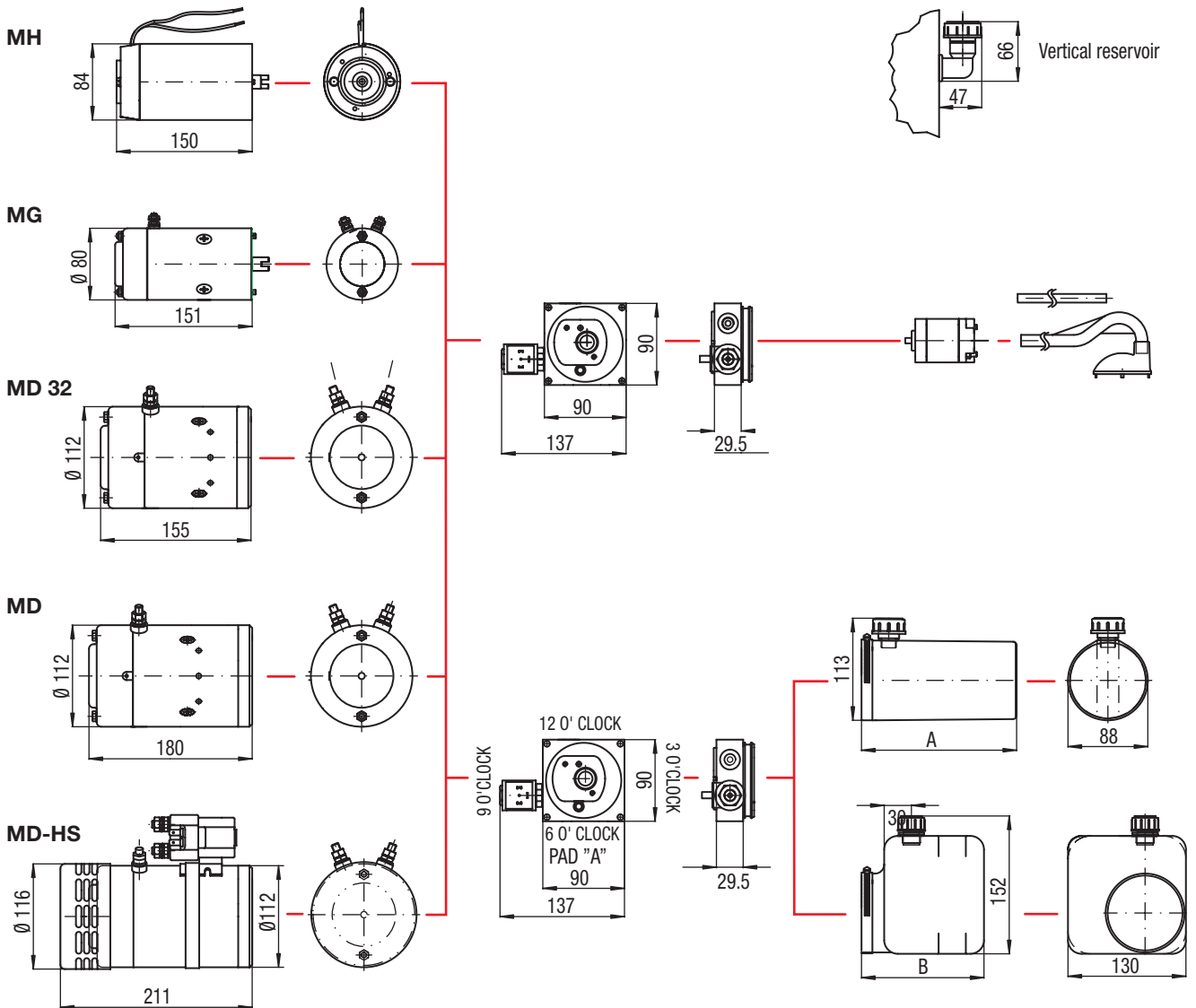




TECHNICAL INFORMATION

HE 1000

Dimensional drawing for power unit 12/24 VDC



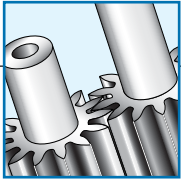
Reservoir, length HE 1000

Reservoir (V=Usable volumes)	Codes		Reservoir, length
	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

Weights, ~kg HE 1000

Basic version and add-on's	Kg
Standard HE 1000 80mm	5
Standard HE 1000 112mm add-on (diff 80mm - 112 mm)	+3.7
Add-on Cetop block HE 1000	+0.47/pc
Add-on HE Box 400mm (box + cover)	+6.4
Add-on HE Box 520mm (box + cover)	+7.5

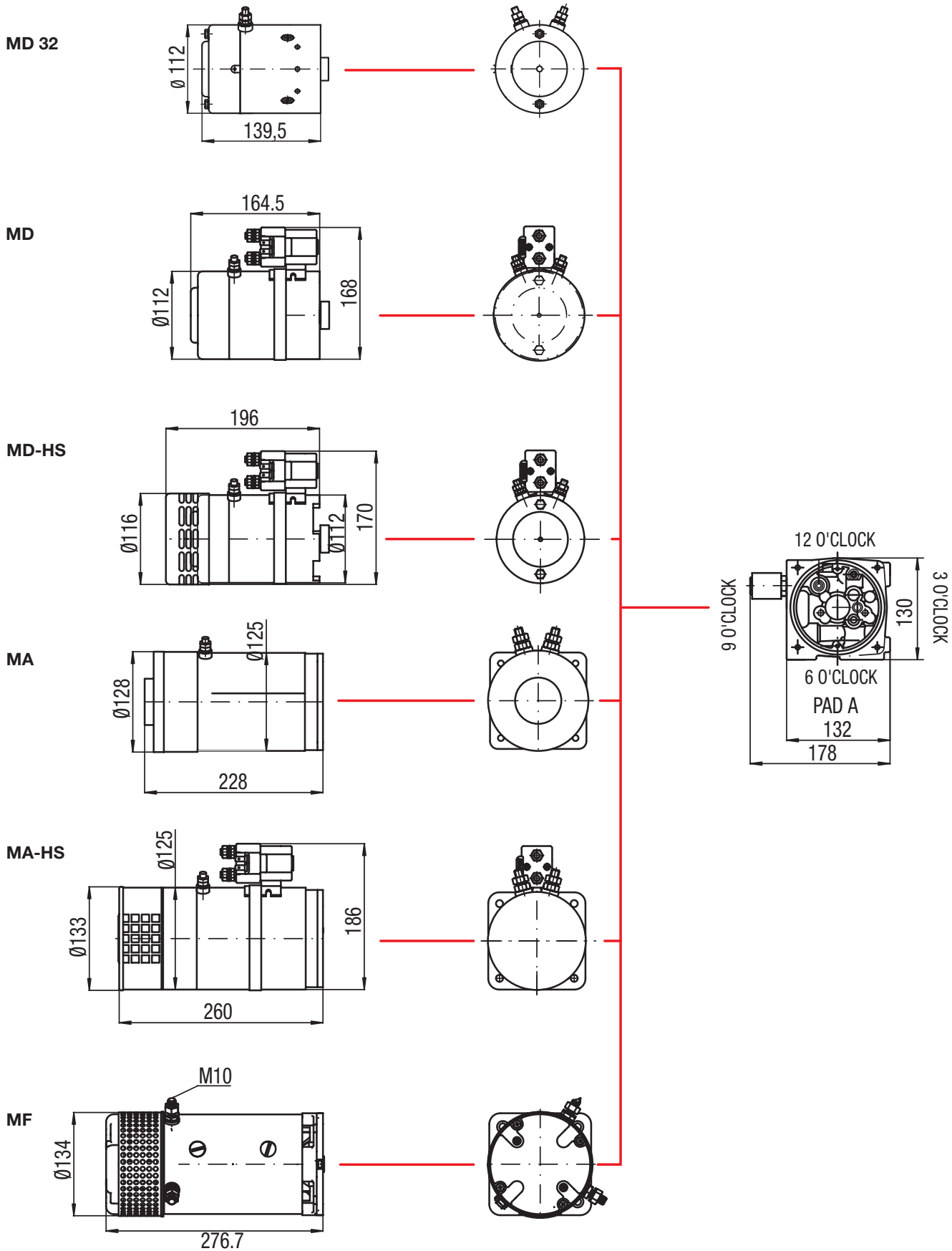
Basic version incl. plastic reservoir 1 l, 2/2 cartridgevalve, start solenoid. AC version excl motor and start solenoid. Weights also excludes oil and are approximate and depending on version of pumps, reservoirs and valving.

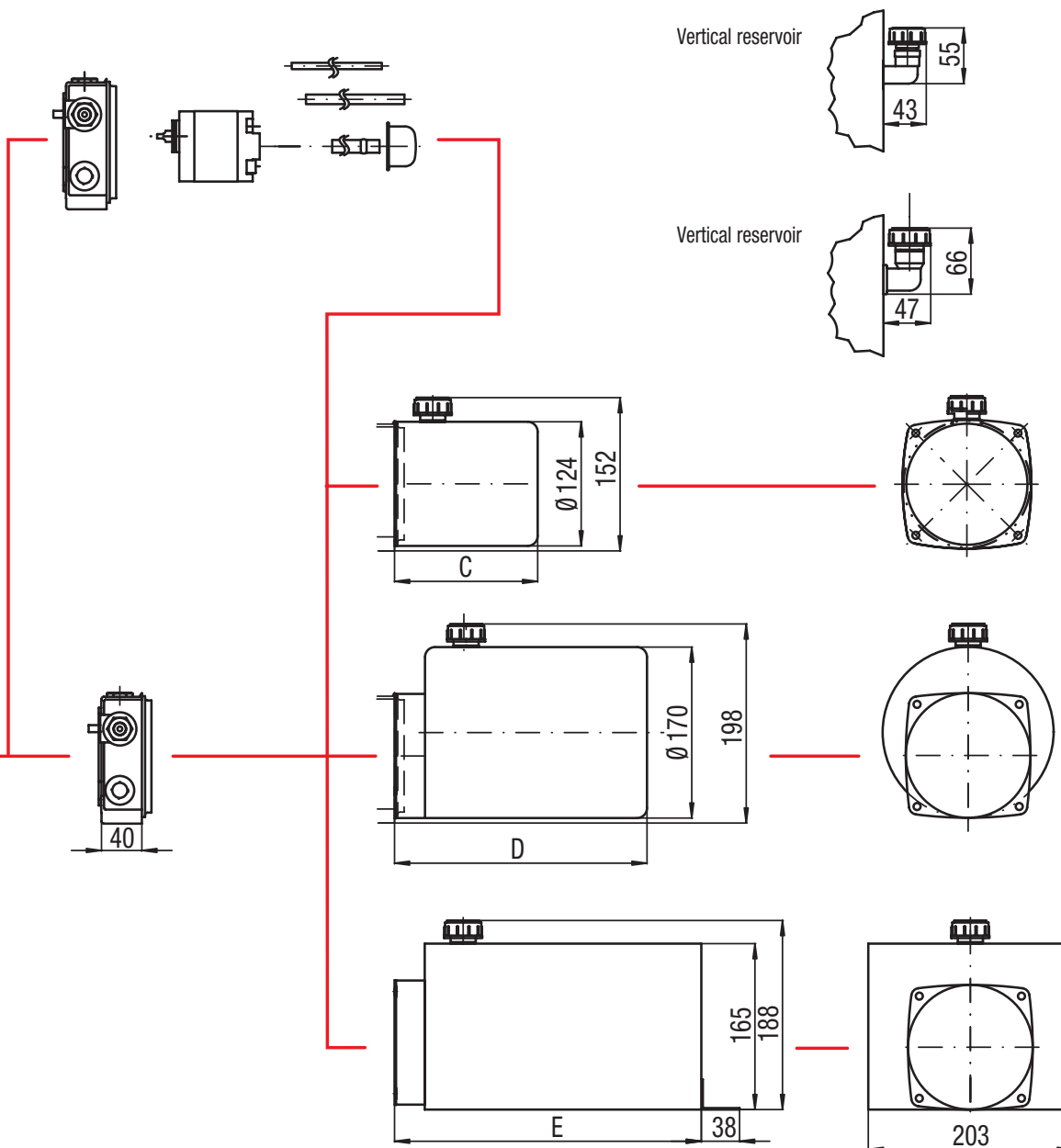


TECHNICAL INFORMATION

HE 2000

Dimensional drawing for power unit 12/24 VDC





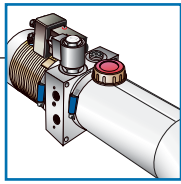
Reservoir, length HE 2000

Reservoir		Codes		Reservoir, length
V = Usable volume		Horizontal	Vertical	
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

Weights, ~kg HE 2000

Basic version and add-on's	Kg
Standard HE 2000 112mm	9.5
Standard HE 2000 125mm add-on (diff 112mm-125mm)	+4.8
Standard HE 2000 AC (add-on Standard-112mm motor + AC flange and connector)	3
Add-on Cetop block HE 2000	+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.



HE 1000/HE 2000 POWER PACK CODE KEY

To order a complete unit, simply work through the options below, creating an assembly number as shown in the example.

HE 1000 POWER PACK CODE KEY

Example of Order Code Structure: HE1 - AE024 - 05 - 150 - F - 15 - AD - 6 - C - 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	HE 1000 kit no.	HE Box
	HE1	HE 1000 Adaptor Size HE1000 adaptor	•
II	AA000	HE 1000 Coil volt.+ valve type Adaptor Kit	•
	AE012	Valve Kit 12V 2/2 norm closed	•
	AE024	Valve Kit 24V 2/2 norm closed	•
	AE230	Valve Kit 230V 2/2 norm closed	•
		Adaptor Kit	•
	AL012	Valve kit 12V 4/2 in block	•
	AL024	Valve kit 24V 4/2 in block	•
	AL230	Valve kit 230V 4/2 in block	•
		Adaptor kit	•
	AN000	Adaptor kit	•
	AO012	Valve kit 12V, code AE with manual override	•
	AO024	Valve kit 24V code AE with manual override	•
	AO230	Valve kit 230V code AE with manual override	•
		Adaptor kit	•
	AP000	Adaptor kit	•
		Cetop block, head	•
	AQ000	Adaptor kit	•
		Cetop block, head	•
		Cetop block, 1 pcs	•
	AR000	Adaptor kit	•
		Cetop block, head	•
		Cetop block, 2 pcs	•
III	Code	HE 1000 Pump	
	02	0,24 cm ³	•
	05	0,50 cm ³	•
	06	0,60 cm ³	•
	08	0,80 cm ³	•
	10	1,00 cm ³	•
	12	1,25 cm ³	•
	15	1,50 cm ³	•
	18	1,75 cm ³	•
	20	2,00 cm ³	•
IV	Code	HE 1000 Relief valve	
	***	Setting 50-250 bar, eg 150 bar	•
V	Code	HE 1000 Flow control valve	
	A	None	•
	E	4 l/min	•
	F	5 l/min	•
	K	8l/min	•
VI	Code	HE 1000 Motor	
	10	12MG32-HE Ø 80 mm	•
	11	12MG32THE (Therm.sw.) Ø 80mm	•
	15	24MG32-HE Ø 80 mm	•
	16	24MG32THE (Therm.sw) Ø 80 mm	•
	01	12MH82HE Ø 84 mm	•
	02	24MH82HE Ø 84 mm	•
	22	12MD32A Ø 112 mm	•
	32	24MD32A Ø 112 mm	•
	20	12MD12-WA Ø 112 mm	•
	21	12MD12TWA (Therm.sw.) Ø 112 mm	•
	25	24MD22-WA Ø 112 mm	•
	26	24MD22TWA (Therm.sw.) Ø 112 mm	•
	27	12MD12THSWA (with fan) Ø 112 mm	•
	28	24MD22THSWA (with fan) Ø 112mm	•
	29	12MD12LSTWA (Therm.sw.) Ø 112 mm	•
	30	24MD22LSTWA (Therm.sw.) Ø 112 mm	•

Sect VII	Code	HE 1000 kit no.	HE Box
	HE 1000 Reservoir		
	AA	0.5 l usable, horizontal, plastic	1303484
	AB	0.5 l usable, vertical, plastic	1303485
	AC	1,0 l usable, horizontal, plastic	1303486
	AD	1,0 l usable, vertical, plastic	1303487
	AE	1.5 l usable, horizontal, plastic	1303488
	AF	1.5 l usable, vertical, plastic	1303489
	AG	2,0 l usable, horizontal, plastic	1303490
	AH	2,0 l usable, vertical, plastic	1303491
	AJ	2.5 l usable, horizontal, plastic	1303492
	AK	2.5 l usable, vertical, plastic	1303493
	AL	4,0 l usable, horizontal, plastic	1303494
	AM	4,0 l usable, vertical, plastic	1303495
	AN	5,5 l usable reservoir-kit He1 in a box	1303634
VIII	Code	HE 1000 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	HE 1000 Start switch	
	A	None	
	U	12V Ø 80 mm and Ø 84 mm	1303700
	V	24V Ø 80 mm and Ø 84 mm	1303701
	W	12V Ø 112 mm	1303702
	X	24V Ø 112mm	1303703
X	Code	HE 1000 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	HE 1000 Tube kit	
	AA	Tube kit included in reservoir kit	•
XII	Code	HE 1000 Breather position	
	0	12 o'clock to pad A	
	1	01.30 o'clock to pad A	
	3	3 o'clock to pad A	
	4	04.30 o'clock to pad A	
	5	10.30 o'clock to pad A	
	6	6 o'clock to pad A	
	7	07.30 o'clock to pad A	
	9	9 o'clock to pad A	•
XIII	Code	HE 1000 Coil/Lever pos on valve	
	A	12 o'clock = Towards motor	•
	B	3 o'clock = Towards center of adaptor	•
	C	6 o'clock = Towards reservoir	•
	D	9 o'clock = Away from center of adaptor	•
	N	None	•
XIV	Code	HE 1000 Access 1	
	00	No accessories	
	28	HE box 400 mm	1303635
		Cover to 400 mm box	1303636
		Assemble kit	1303637
	29	HEQ box 400 mm	1303638
		Cover sound absorbed 400 mm box	1303639
		Box assembly kit	•
XV	Code	HE 1000 Access 2	
	00	No accessories	

HE 2000 POWER PACK CODE KEY



Example of Order Code Structure: **HE2 - AE024 - 43 - 150 - B - 25 - BE - 6 - E - 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 HE2	HE 2000 Adaptor Size HE2000 adaptor	HE 2000 kit no.	HE Box
II	Code	HE 2000 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	2Valve 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	HE 2000 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 ***	HE 2000 Relief valve Setting 50-250 bar, eg 150 bar	1303525	•
V	Code	HE 2000 Flow control valve		
	A	None		•
	E	4 l/min	1303448	•
	K	8l/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	HE 2000 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 125mm fan	1303470	•
	36	24MA42THSWAL (Therm.sw.) Ø 125mm fan	1303471	•
	45	24MA42-WAL Ø 125 mm	1303476	•

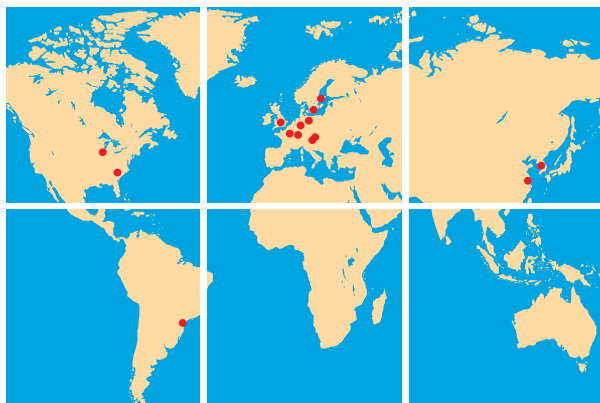
Sect VI	Code	HE 2000 Motor	HE 2000 kit no.	HE Box
	27	12MD12THSWA (with fan) Ø 112 mm	1303602	
	28	24MD22THSWA (with fan) Ø 112mm	1303603	
	29	12MD12LSTWA (Therm.sw.) Ø 112 mm	1303604	•
	30	24MD22LSTWA (Therm.sw.) Ø 112 mm	1303605	•
	31	24MF22S-HWA Ø 134 mm	1303606	
	50	AC flange B14-71	1303480	
	51	AC flange B14-80	1303481	
	52	AC flange B14-90	1303482	
	53	AC flange B14-100	1303483	
VII	Code	HE 2000 Reservoir		
	BA	0.8 l usable, horizontal, plastic	1303496	
	BB	0.8 l usable, vertical, plastic	1303497	
	BC	1.1 l usable, horizontal, plastic	1303498	
	BD	1.1 l usable, vertical, plastic	1303499	
	BE	1.5 l usable, horizontal, plastic	1303500	
	BF	1.5 l usable, vertical, plastic	1303501	
	BG	1.5 l usable, horizontal, steel	1303502	
	BH	1.5 l usable, vertical, steel	1303503	
	BJ	2.3 l usable, horizontal, steel	1303504	
	BK	2.3 l usable, vertical, steel	1303505	
	BL	3.0 l usable, horizontal, steel	1303506	
	BM	3.0 l usable, vertical, steel	1303507	
	BN	4.6 l usable, horizontal, steel	1303508	
	BO	4.6 l usable, vertical, steel	1303509	
	BQ	6.1 l usable, horizontal, steel	1303510	
	BK	6.1 l usable, vertical, steel	1303511	
	BR	7.6 l usable, horizontal, steel	1303512	
	BS	7.6 l usable, vertical, steel	1303513	
	BT	12.2 l usable, horizontal, steel	1303514	
	BU	12.2 l usable, vertical, steel	1303515	
	BV	5,5 l usable reservoir-kit He2000 in a box	1303628	•
VIII	Code	HE 2000 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	HE 2000 Start switch		
	A	None		•
	W	12V Ø 112 mm	1303702	•
	X	24V Ø 112mm	1303703	•
	G	24V Ø 125 mm heavy duty, SW80PL	1303523	•
X	Code	HE 2000 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	HE 2000 Tube kit		
	AA	Tube kit included in reservoir kit		•
XII	Code	HE 2000 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	HE 2000 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	HE 2000 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	HE 2000 Access 2		
	00	No accessories		

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Haldex is an innovator in vehicle technology and supplies proprietary systems and components for trucks, cars and industrial vehicles worldwide. Haldex is listed on the Stockholm Stock Exchange and has yearly sales exceeding 7,1 billion Swedish Krona with 4.400 employees (www.haldex.com).

PRODUCT RANGE

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

HB Powerpacks
12/24 VDC compact powerpacks

Pressure Switches
5 - 350 bar, connecting/
disconnecting

HE Box Powerpacks
12/24/48 VDC modular
powerpacks in weatherproof
boxes

W100 Hydraulic pumps
0,5 - 2,0 cc 227 bar

W300 Hydraulic pumps
0.8 – 5.7 cc 230 bar

W600 Hydraulic pumps
3 – 12 cc 276 bar

WM600 Hydraulic motors
3 – 12 cc 276 bar

W900 Hydraulic pumps
5 – 31 cc/section 276 bar

WM900 Hydraulic motors
5 - 31 cc/section 276 bar

WQ900 The quiet pump
5 - 23 cc/section 230 bar

W1500 Hydraulic pumps
19 - 50 cc/section 276 bar

WM1500 Hydraulic motors
19 - 50 cc/section 276 bar

GPA Internal Gear pumps
1.7 – 63 cc/section 100 bar

GC Hydraulic pumps
1.06 – 11.65 cc/section 275 bar

II-Stage Hydraulic pumps
4.2 – 22.8 cc/section 275 bar

Rotary Flow Dividers
3.8 – 13.3 cc/section 300 bar

G20/G30 (LS) Hydraulic pumps
23 – 161 cc/section 275 bar

Transmission pumps

Closed Crankcase Ventilation

EGR pumps

Fuel pumps