

EMC

HKA

Hydraulic compact power pack



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Configuration and features:

The construction of the hydraulic compact units is characterised by a high degree of reliability and low installation dimensions. EMG's extensive experience, which has encompassed the use of electro-hydraulic drives for mining, metallurgy, lifting gear and materials handling technology for more than 60 years, is incorporated in the design of these units. This has resulted in rugged components that are suitable for tough field applications, even under the most demanding environmental conditions.

Apart from the motor and hydraulic pump, the drive also includes all of the customary components of a hydraulic system, such as the valve block, equalising tank and the ability to enable manual operation. The integrated pressure regulator also ensures a time- and pressure-dependent safety cut-off of the unit.



A significant difference between these and conventional hydraulic units is the hermetic enclosure of the motor. This ensures the motor winding of the built-in motor is provided with optimum protection against harmful environmental influences. The "motor-under-oil-design" also ensures good heat dissipation and a favourable operating performance at low temperatures.

Another difference is the optional, enclosed hydraulic circuit which enables a "double encapsulation". Both measures protect important elements in the unit, thereby increasing its reliability and service life.

Thanks to its compact dimensions the drive can be connected directly to the consumer. This means hose connections and tubes can either be omitted completely or their use can be significantly reduced.

The unit and the consumer are completely filled, ventilated and tested on the manufacturer's premises. This "plug and play" solution significantly facilitates life for the user during installation and the commissioning phase.



Customer benefits:

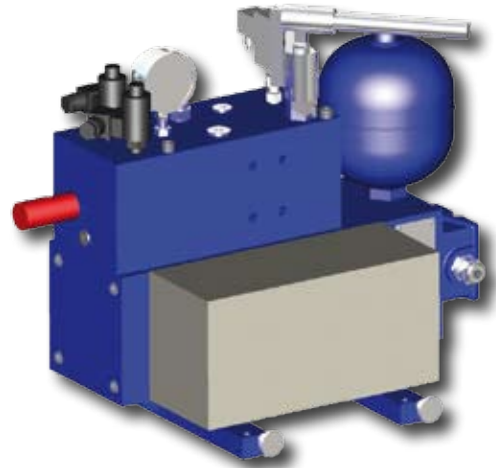
- ▶ Significant reduction of the commissioning phase
- ▶ Significant reduction of service expenditure thanks to a lifetime fill and maintenance-free operation
- ▶ "Ready for the construction site" acceptance of the complete drive at the manufacturer's premises
- ▶ Easy integration into the system controller

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Basic versions:

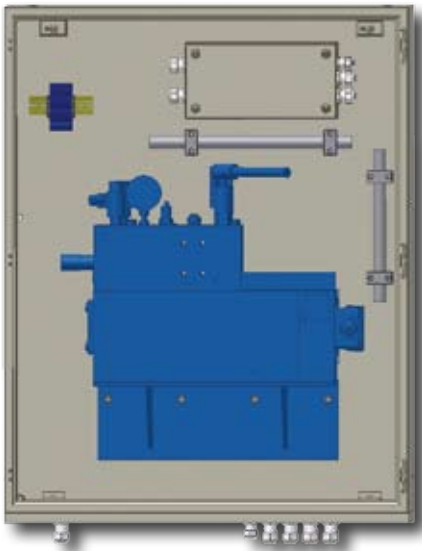
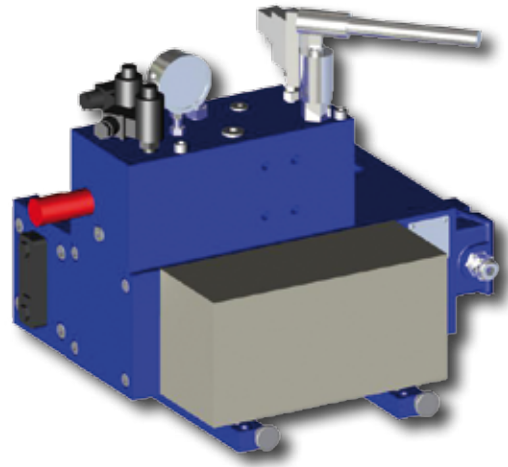
Double encapsulated design

The double-encapsulated configuration comprises the "motor-under-oil-design" and a fully enclosed hydraulic circuit. The oil volume is compensated by a membrane vessel. This ensures the exclusion of direct contact between the hydraulic medium and the environment. (Model S)



Single encapsulated design

The single-encapsulated configuration also uses the "motor-under-oil-design". The equalising tank is equipped with a ventilation filter. (Model B)

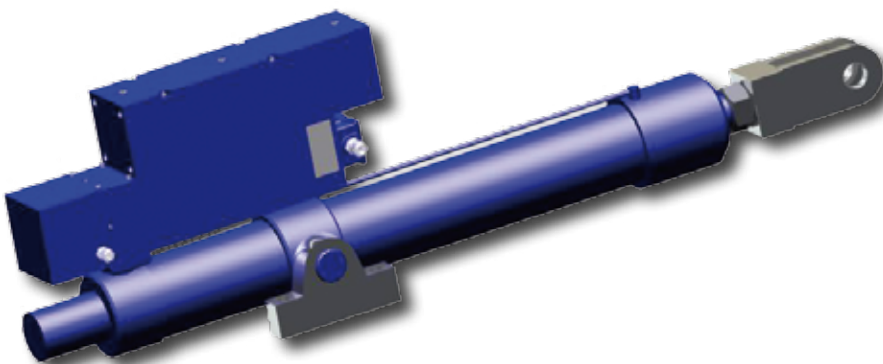


Cabinet IP55

For additional protection against dust and different temperature ranges the unit can also be supplied in an enclosed cabinet, into which all of the electrical and hydraulic connections can be routed.

Compact hydraulic linear drive

A compact hydraulic linear drive is formed from a hydraulic compact unit and a hydraulic cylinder. The configuration of the drive is individually tailored to the customer's requirements. Further information is available in a special product brochure.



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Electrical connection:

The motor and the hydraulic components are electrically wired and are ready-for-use. The circuit diagram also incorporates a protective circuit for shutting down the unit if the preset operating pressure is not reached within a specified time. Existing proximity switches are wired to the electrical junction box. The function of the unit can be monitored thanks to an analogue pressure monitoring element and position indications of the consumer.

Technical data:

- ▶ Operating voltage : 3x 220 V ... 690 V AC 50 Hz / 60 Hz
- ▶ Temperature range: -25 °C to +50 °C
- ▶ Protection type: IP56
- ▶ Operating position: horizontal
- ▶ Valve voltage: 24 V DC (others available on request)
- ▶ Pressure relief valve: mechanical, preset
- ▶ Pressure switch: electrical, changeover contact, max. 3 A, 24 V DC, IP65

Installation sizes:

	Installation size ** [BG]	Operating pressure [bar]	Flow rate* [l/min]	Power consumption [max. kW]
HKA	1	25-210	1.6	1.5
HKA	1	25-180	3.0	1.5
HKA	2	25-160	5.5	2.2
HKA	3	25-180	11.0	4.0
HKA	4	25-180	14.0	7.5

* based on 50 Hz

** see dimensional drawing

Standard components:

- ▶ Built-in motor and hydraulic pump
- ▶ Control valve (x1)
- ▶ Manometer
- ▶ Hand pump and "dead man valve"
- ▶ Pressure relief valve, preset
- ▶ Level indicator (model B)
- ▶ Electrical basic circuit (see diagram)

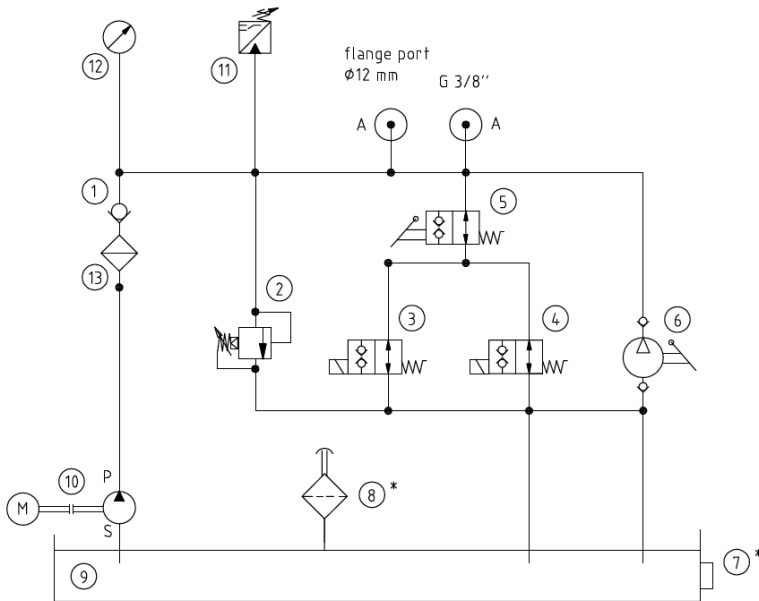
Options:

- ▶ Redundant execution of the control valve
- ▶ Analogue pressure monitoring (4...20 mA)
- ▶ High-temperature design 0 to +70 °C
- ▶ Low-temperature design -40 °C to +40 °C
- ▶ Winding monitoring with PTC resistor
- ▶ Proportional valve
- ▶ Protection type: IP66
- ▶ 24 V DC internal voltage source (others available on request)
- ▶ Alternative valve voltage
- ▶ Explosion-proof version



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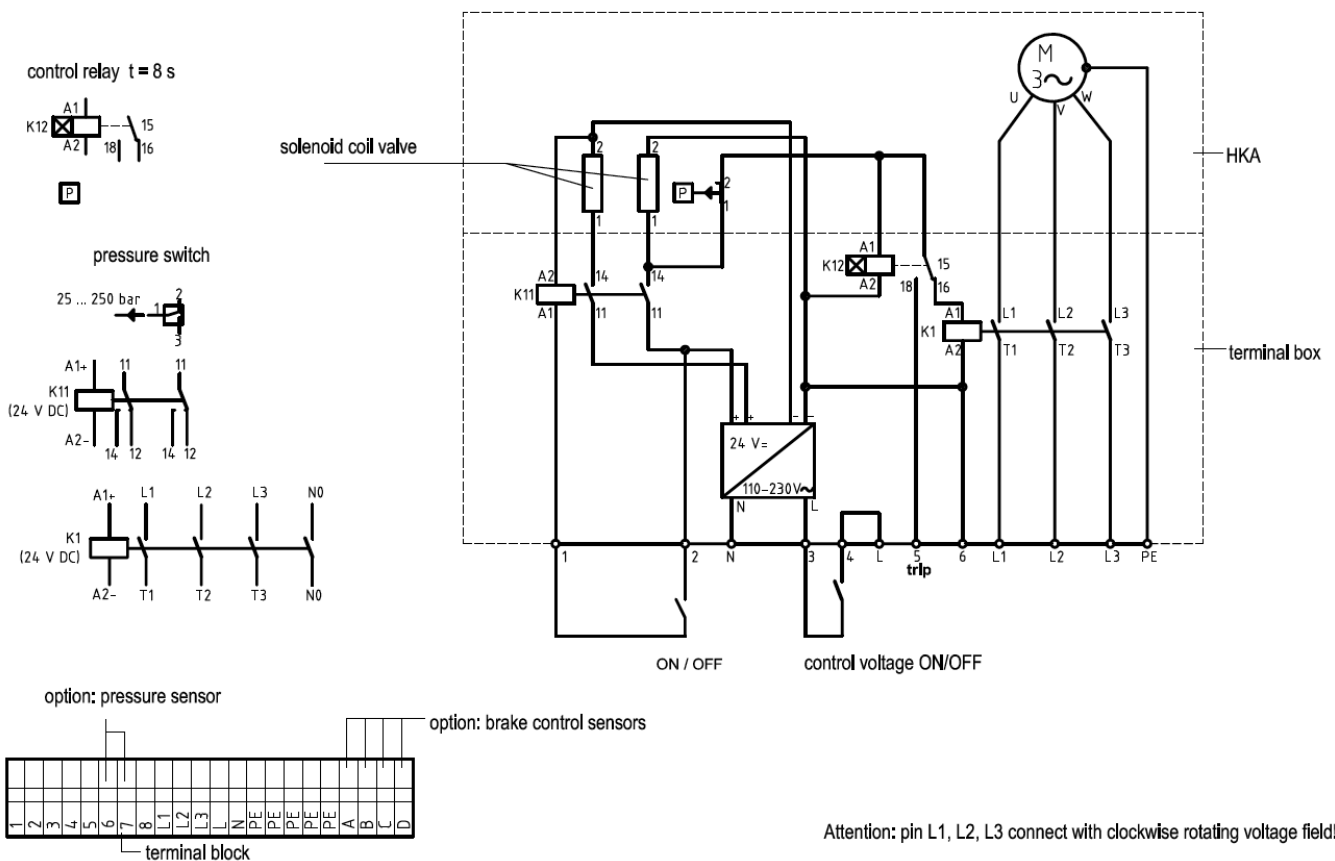
Hydraulic circuit diagram (standard configuration):



Pos.	Qty.	Designation
1	1	Return valve
2	1	Pressure relief valve
3	1	2/2 way valve
4	1	2/2 way valve
5	1	Manual 2/2 way valve
6	1	Hand pump
7*	1	Level indicator
8*	1	Air filter 1/4"
9	1	Equalising tank
10	1	Motor/pump unit
11	1	Pressure switch
12	1	Manometer NG 63
13	1	Filter screen 100 µ

* only with open equalising tank

Electric circuit diagram (standard configuration):



Attention: pin L1, L2, L3 connect with clockwise rotating voltage field!

separate control voltage L, N

connecting diagram 110-230V AC/24V DC (time relay)

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Hydraulic media:

The hydraulic fluid supply is a lifetime fill.

If the hydraulic system is undamaged, a replacement is not necessary.

	Pentosin CHF 11S	Shell Tellus T15
Pour point	-55 °C	- 42 °C
Flash point	154 °C	170 °C
Viscosity at - 40 °C	1100 cst	2000 cst
Viscosity at + 40 °C	18.7 cst	15 cst
Density at + 20 °C	0.827 kg/dm ³	0.870 kg/dm ³
Use to	700 bar	500 bar
Applicable elastomers	NBR and FKM	NBR and FKM

HKA and Brakematic®:

The combination of these two EMG products enables the hydraulic pressure to be regulated as an output variable of the unit. The configuration of a control circuit or a time-dependent control unit is possible in combination with a sensor as a reference variable and a proportional valve as an actuating element. The drive thereby combines the advantages of hydraulic actuators and electronic control.

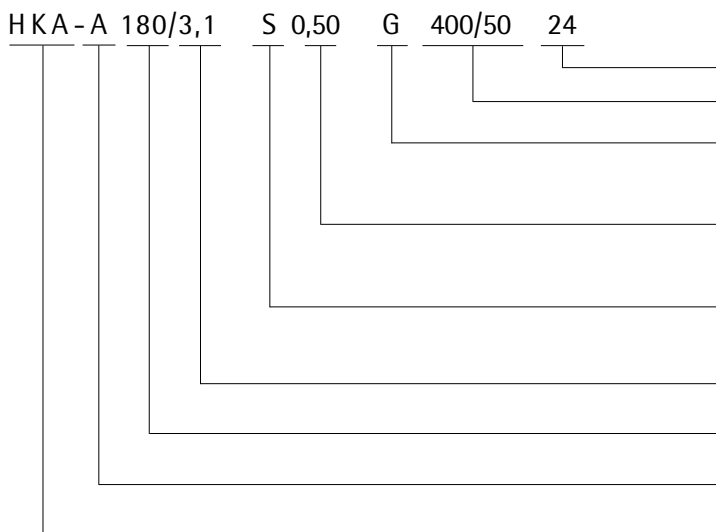
Uninterruptable power supply units ensure controlled braking, even in failure situations.

The following examples are indicative of the wide range of applications:

- ▶ Controlled braking for conveyor systems with a longitudinal or downward conveyers
- ▶ Anti-lock braking in crane trolleys
- ▶ Braking with controlled constant deceleration in cable cars and ski lifts
- ▶ Load-dependent braking
- ▶ Braking with brake-timing



Order key



Valve voltage in [V]
mains voltage [V] / frequency [Hz]

G = threaded outlet G 3/8"
F = flange outlet

Nominal volume of the storage tank [litres]

Type of storage tank:
S = closed system
B = open system

Flow rate of the hydraulic pump [l/min]

Nominal pressure in bar

Unit

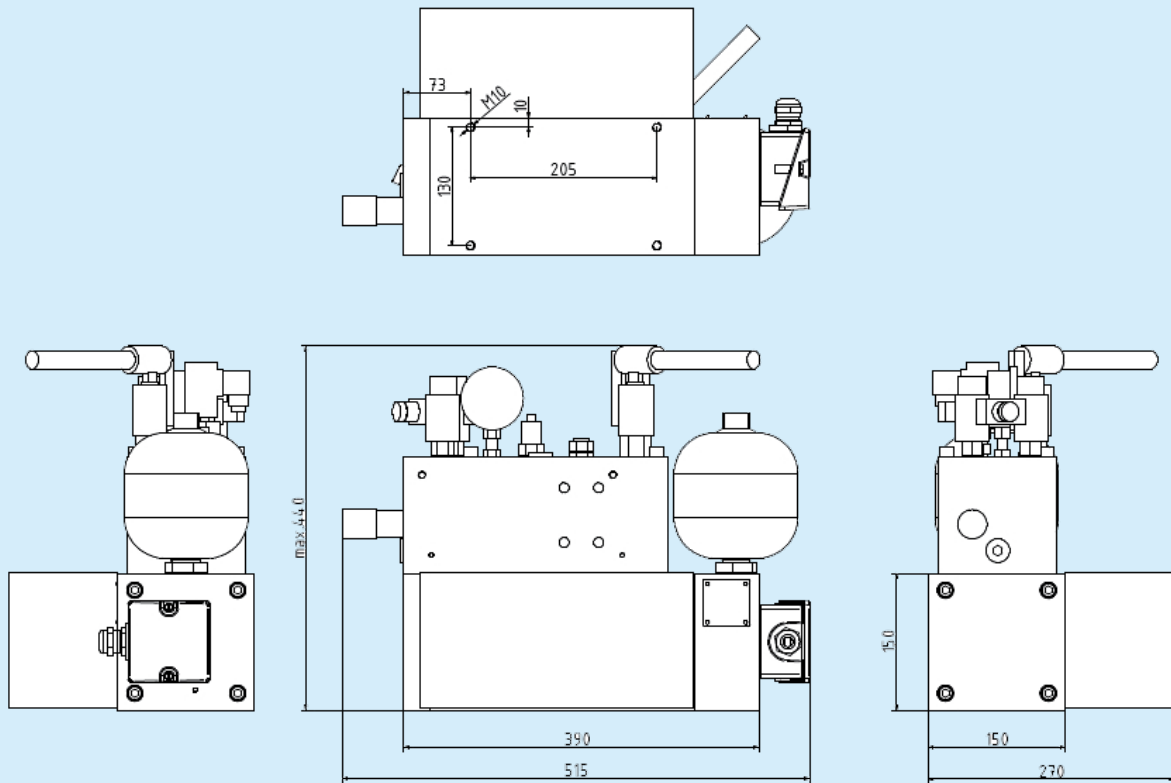
Hydraulic compact drive

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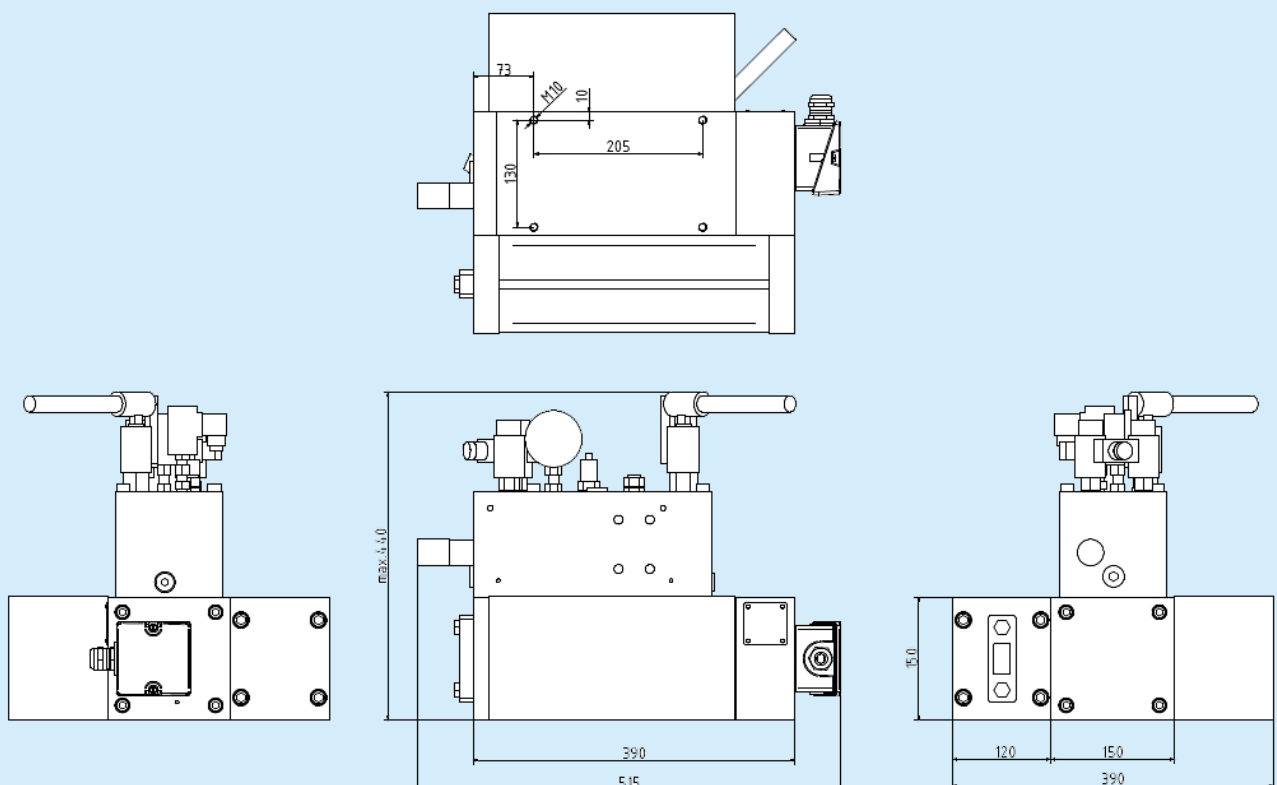
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Dimensional drawings for installation size 1:

Closed equalising tank model S



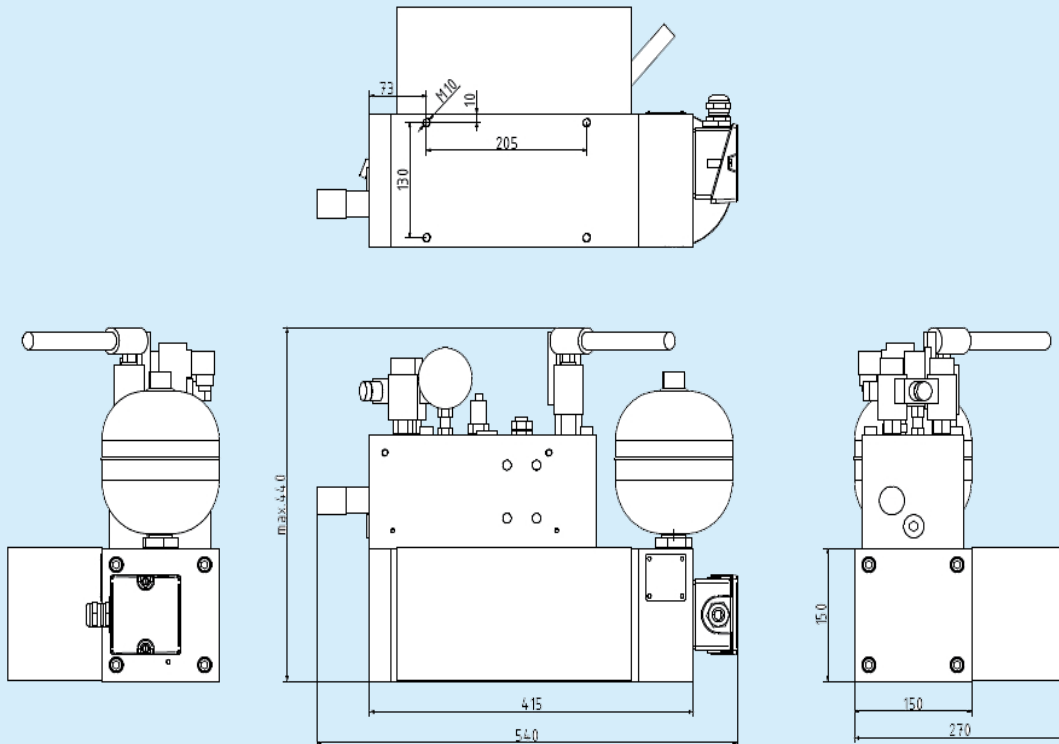
Open system with ventilation filter model B



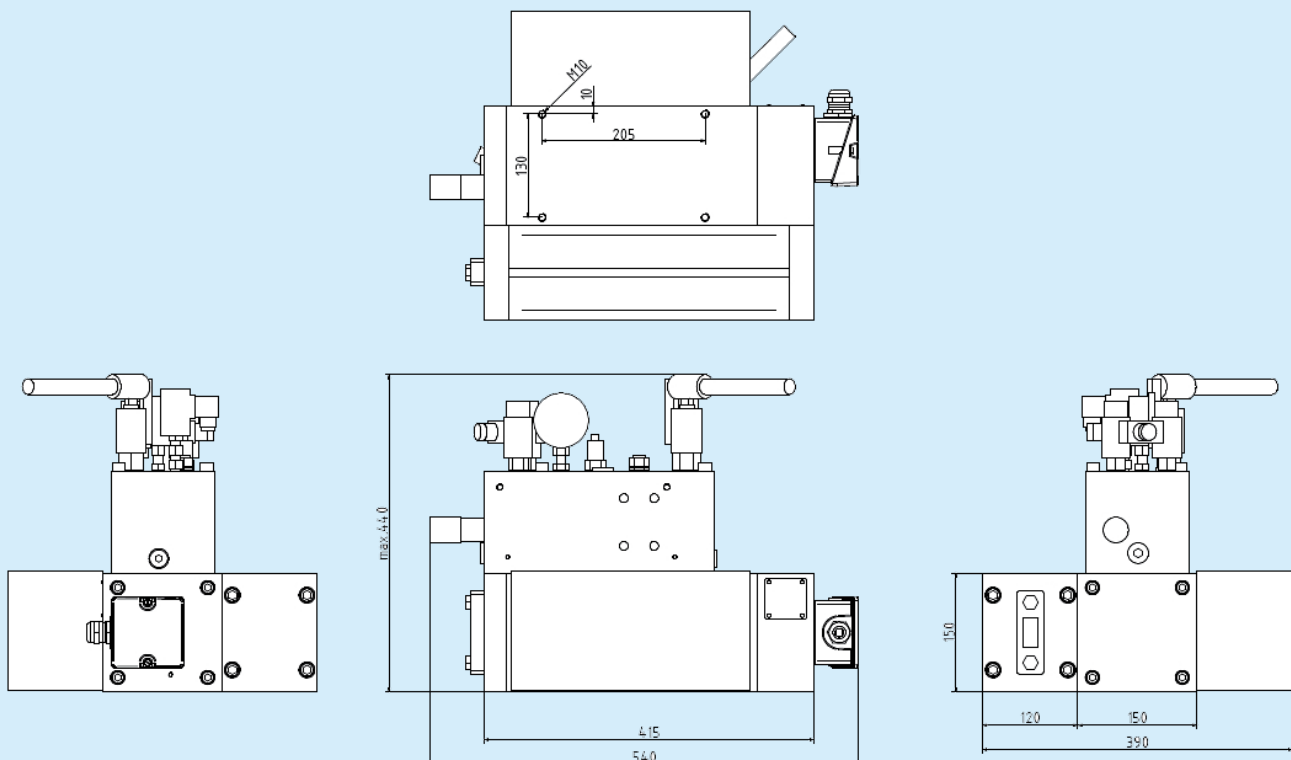
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Dimensional drawings for installation size 2:

Closed equalising tank model S



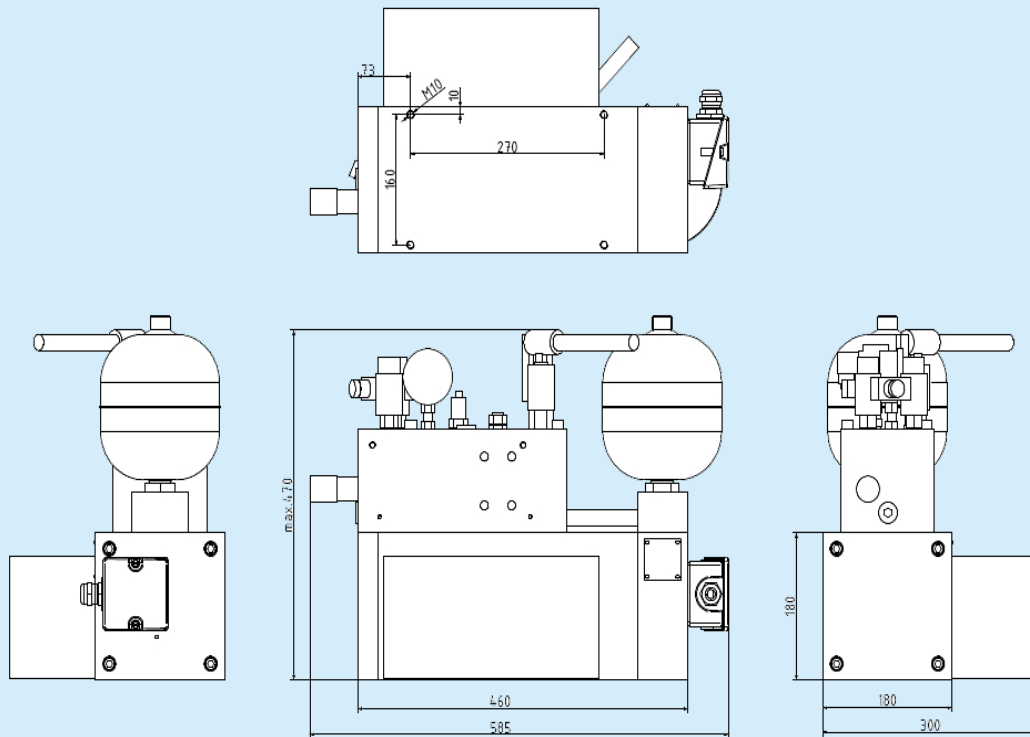
Open system with ventilation filter model B



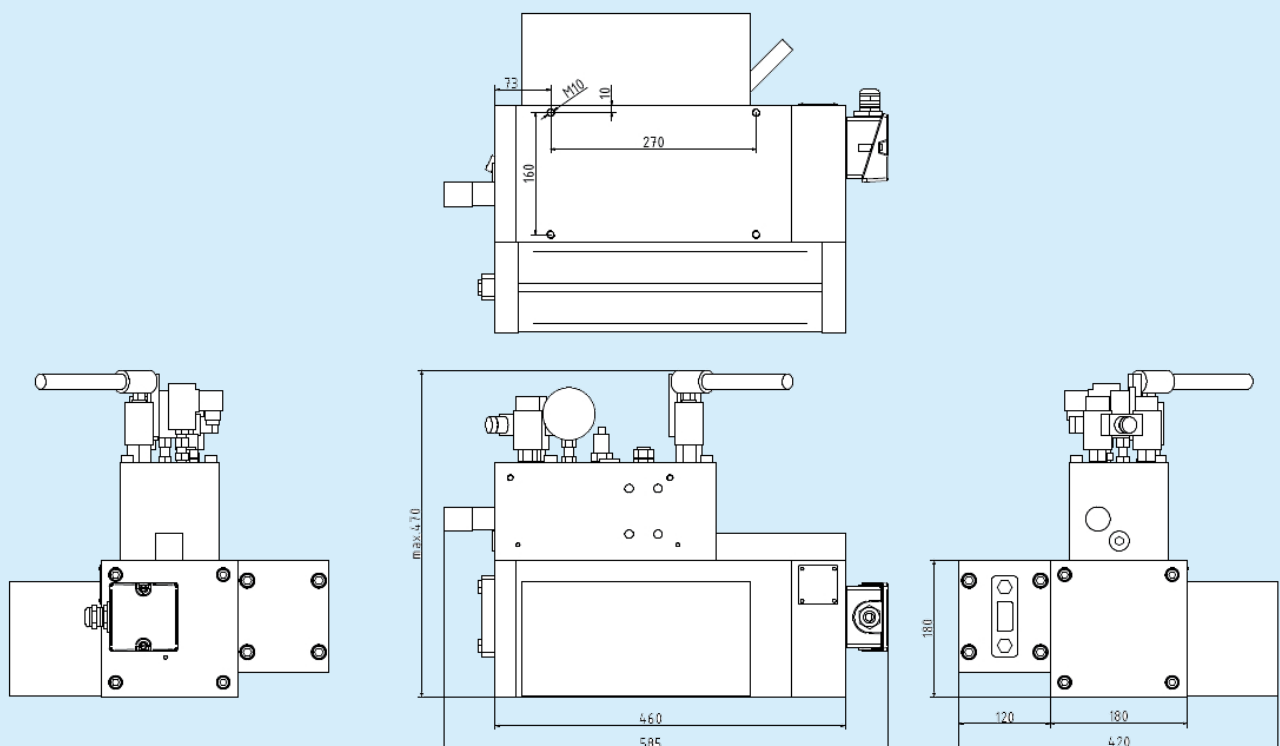
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Dimensional drawings for installation size 3:

Closed equalising tank model S



Open system with ventilation filter model B



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References:

NURSAN A. S.

Safety brake for crane hoisting gear
Iskenderun steelworks, Turkey



AMZ Aleksandrovsky Mash Zavod

Explosion-proof back-run-stop device, downward conveyer
Raspadskaya coal mine
Novokusnezsk, Russia



FAM Magdeburger Förderanlagen und Baumaschinen GmbH

Chain tensioning device on a ship unloader
Walsum Power Plant, Germany



ROMINEX S. A.

Safety brake for wheel boom, bucket-wheel excavator
Open-cast mining in Targu Jiu, Romania



Vattenfall Europe Mining AG

Belt centering device for conveyor bridge F60
Open-cast mining in Welzow, Germany





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