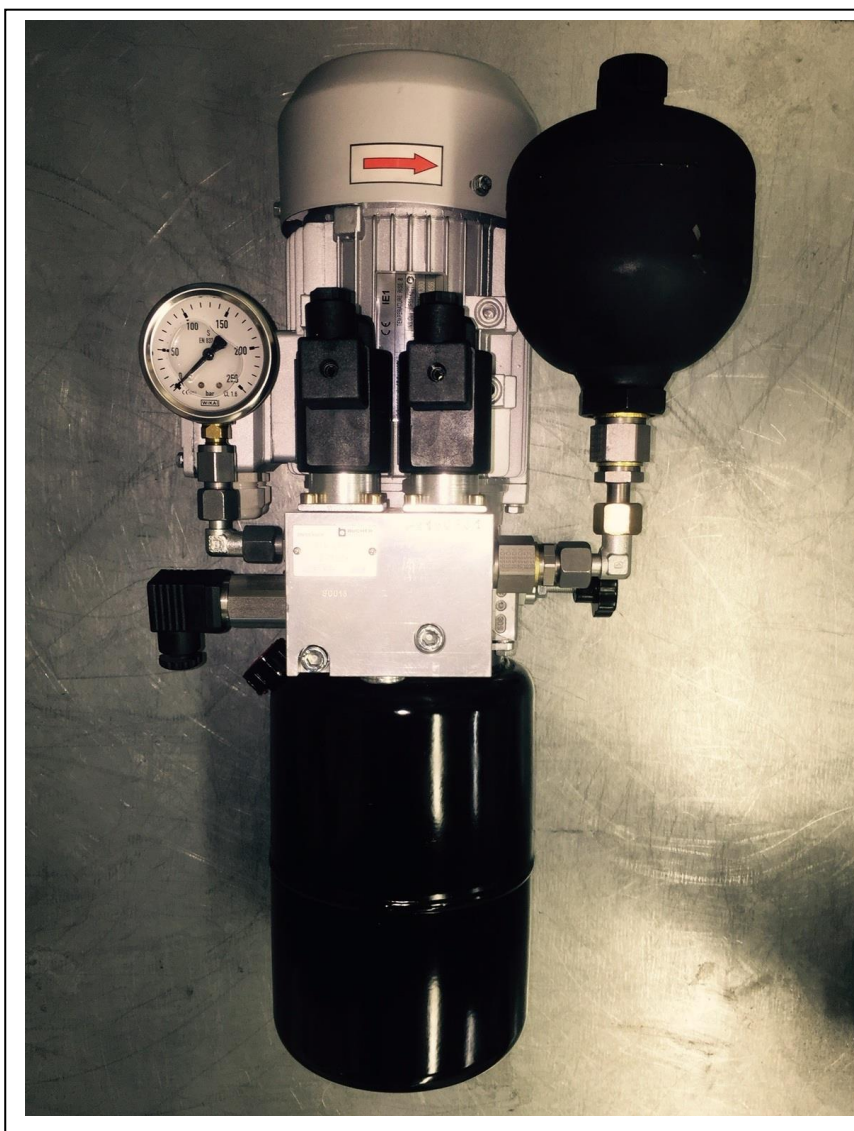


HYDRAULIC UNIT UH-2B TREBU FOR EMERGENCY BRAKES

Instructions for adjustment and maintenance



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1.0 GENERAL.

1.1 HYDRAULIC POWER UNIT GENERAL DESCRIPTION.

The hydraulic unit is designed to operate fail safe disc brakes.

The hydraulic power unit consists of following main components:

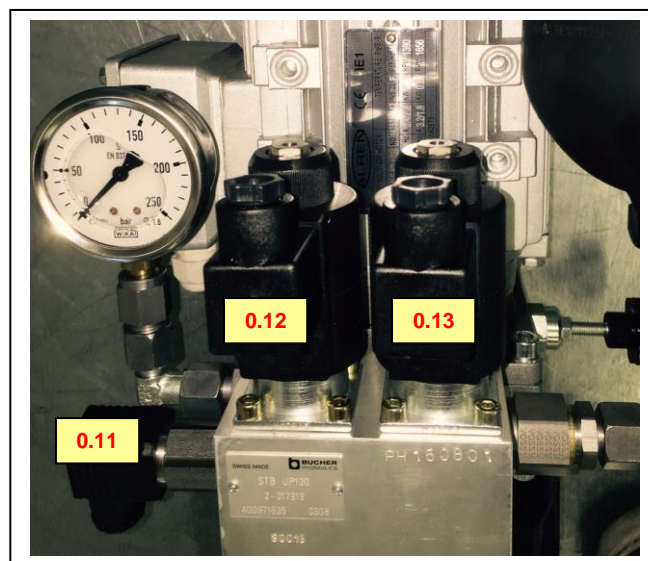
- Oil reservoir capacity 5 litres.
- Pump-motor assembly.
- Manifold including valves and pressure switch.
- Suction filter.
- Air breather.
- Accumulator.

Pressurise hydraulic system:

The gear pump has a capacity of 2,1 l/min at 1500 RPM. For activating the disc brakes both valves (pos. 0.12 and 0.13) should be energised. The pressure inside the system will increase to the set value of pressure switch pos. 0.11. The pressure switch will command the electric motor to stop. The hydraulic pressure will remain 210 bar. Due to possible internal leakage inside the valves pos. 0.12 and 0.13 the pressure might decrease to 190 bar, (hysteresis of pressure switches is 10%), which command has to start the electric motor again.

Normal function:

The brakes close when the valves 0.12 and 0.13 are de-energised.





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1.2 0,75 LITRE ACCUMULATOR.

Furthermore the hydraulic system is equipped with 1 hydraulic accumulator. The capacity of this accumulator is 0,75 litre, pre charged at 150 bar.

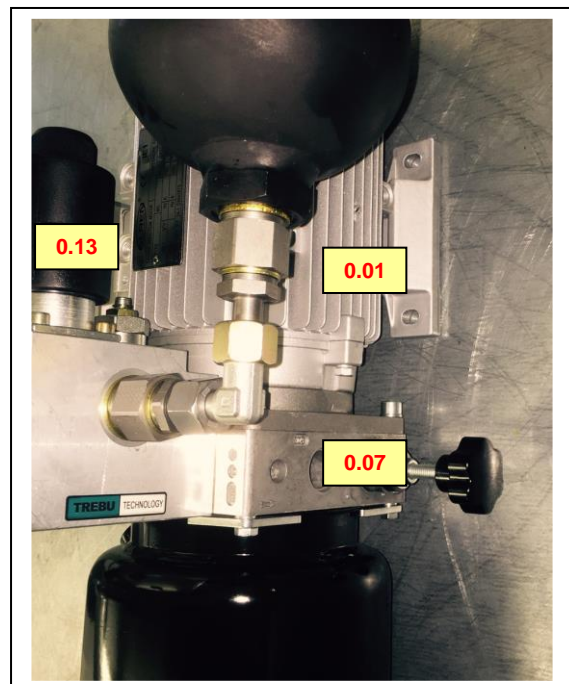
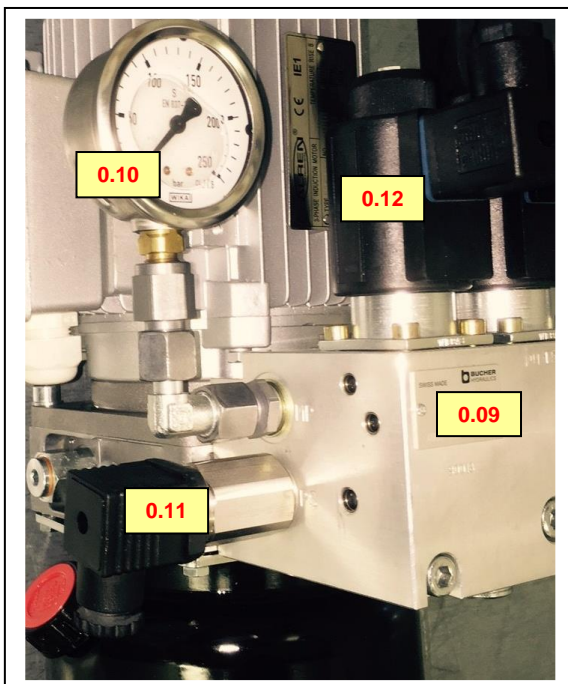
The accumulator is to reduce the numbers of start/stops of motor/pump and to open the brake(s) more rapidly. The velocity of opening the brakes can be adjusted by flow-check valve Pos. 0.14.

1.3 START UP CONDITIONS.

Before starting up verify the oil level in the reservoir.

Pressurise hydraulic system to create working condition:

- Start electric motor pos. 0.01, pressure increases to set value of pressure switch 0.11.
- When the set value is reached of pressure switch 0.11 electric motor 0.01 is shut off.
- Energise valve 0.12 and 0.13 to open the brake(s).
- When during operating the brakes the pressure decreases under 190 bar, electric motor will start again.

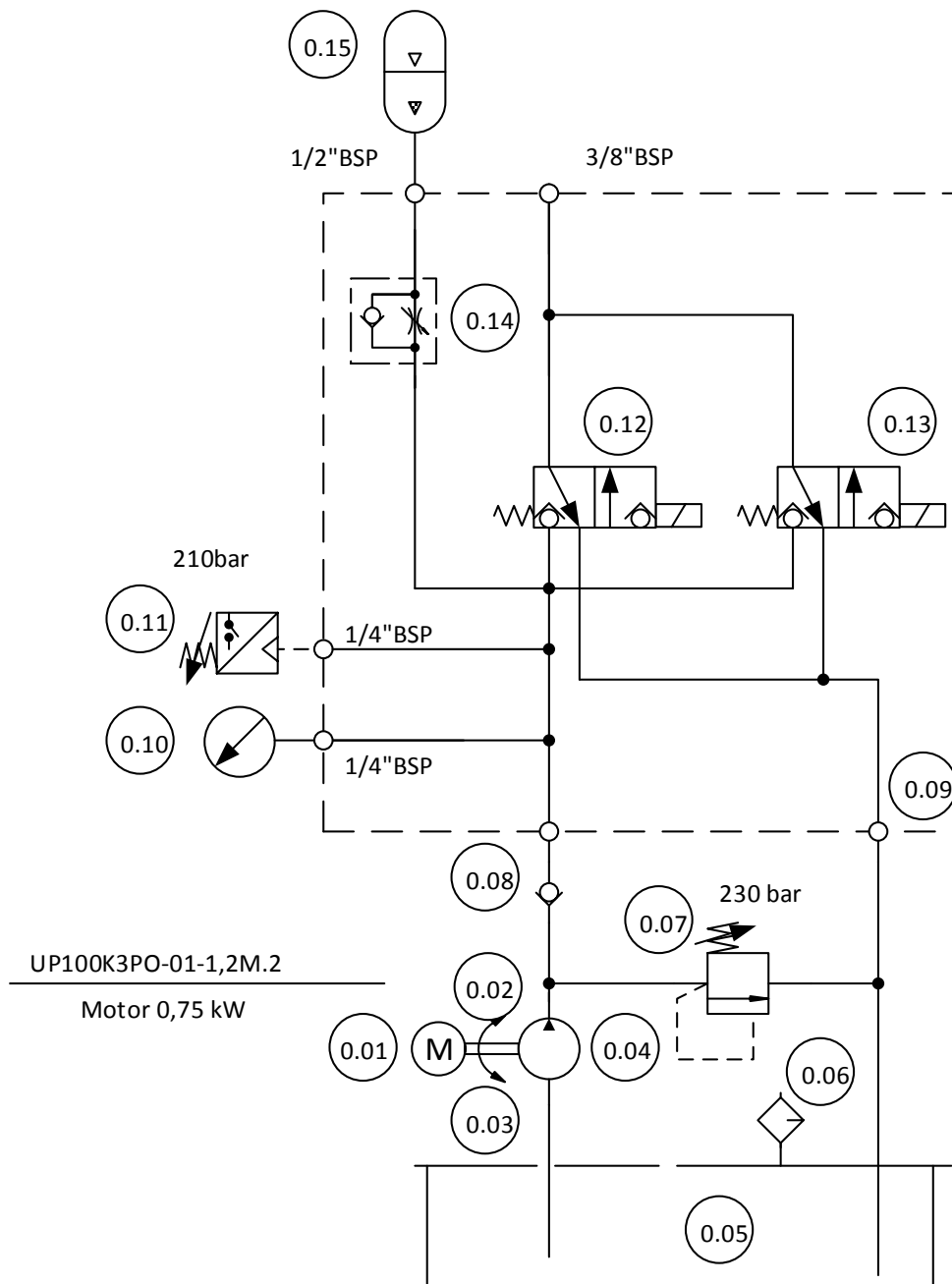




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2.0 INSTALLATION.

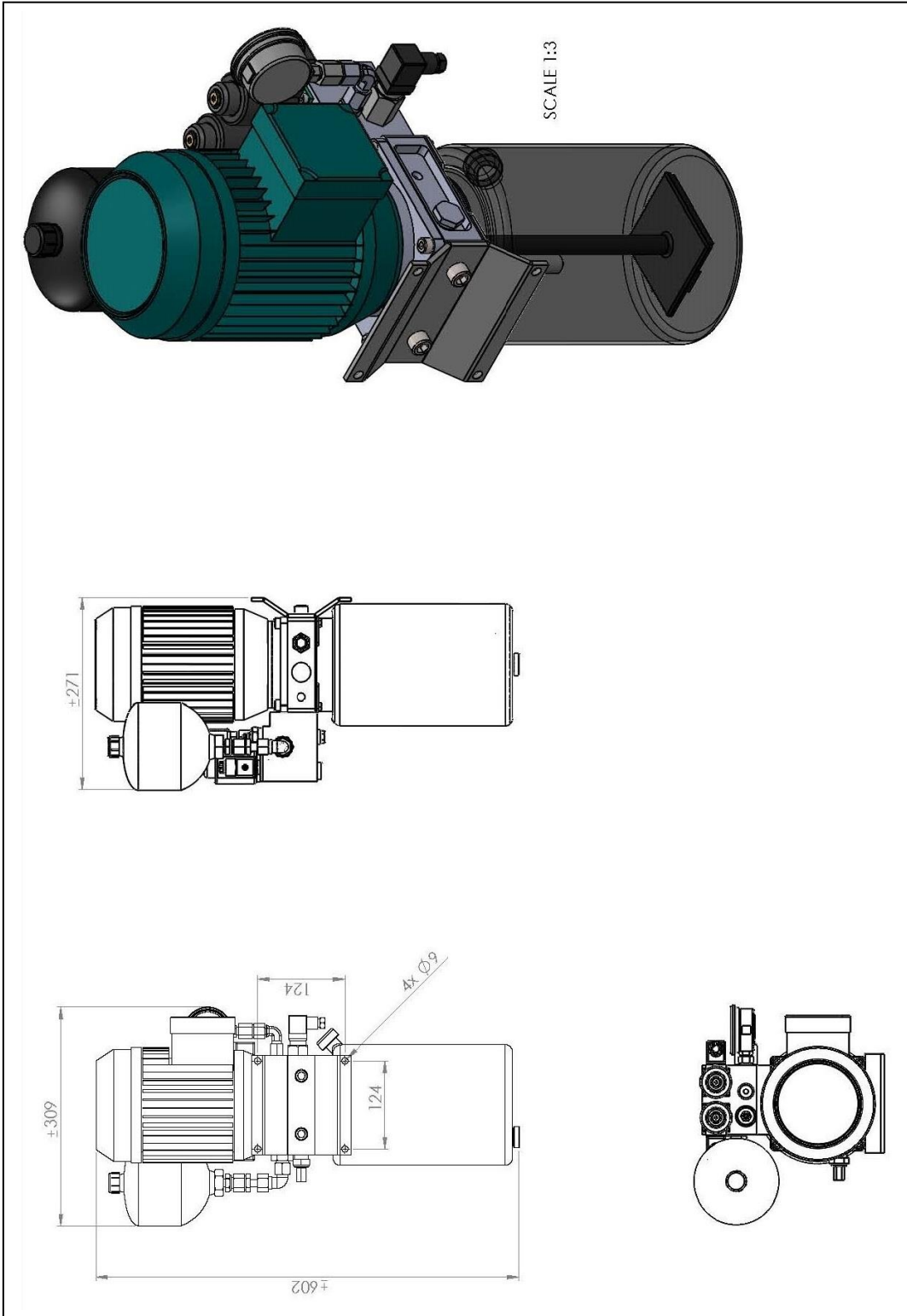
2.1 HYDRAULIC DIAGRAM PE071810.1.





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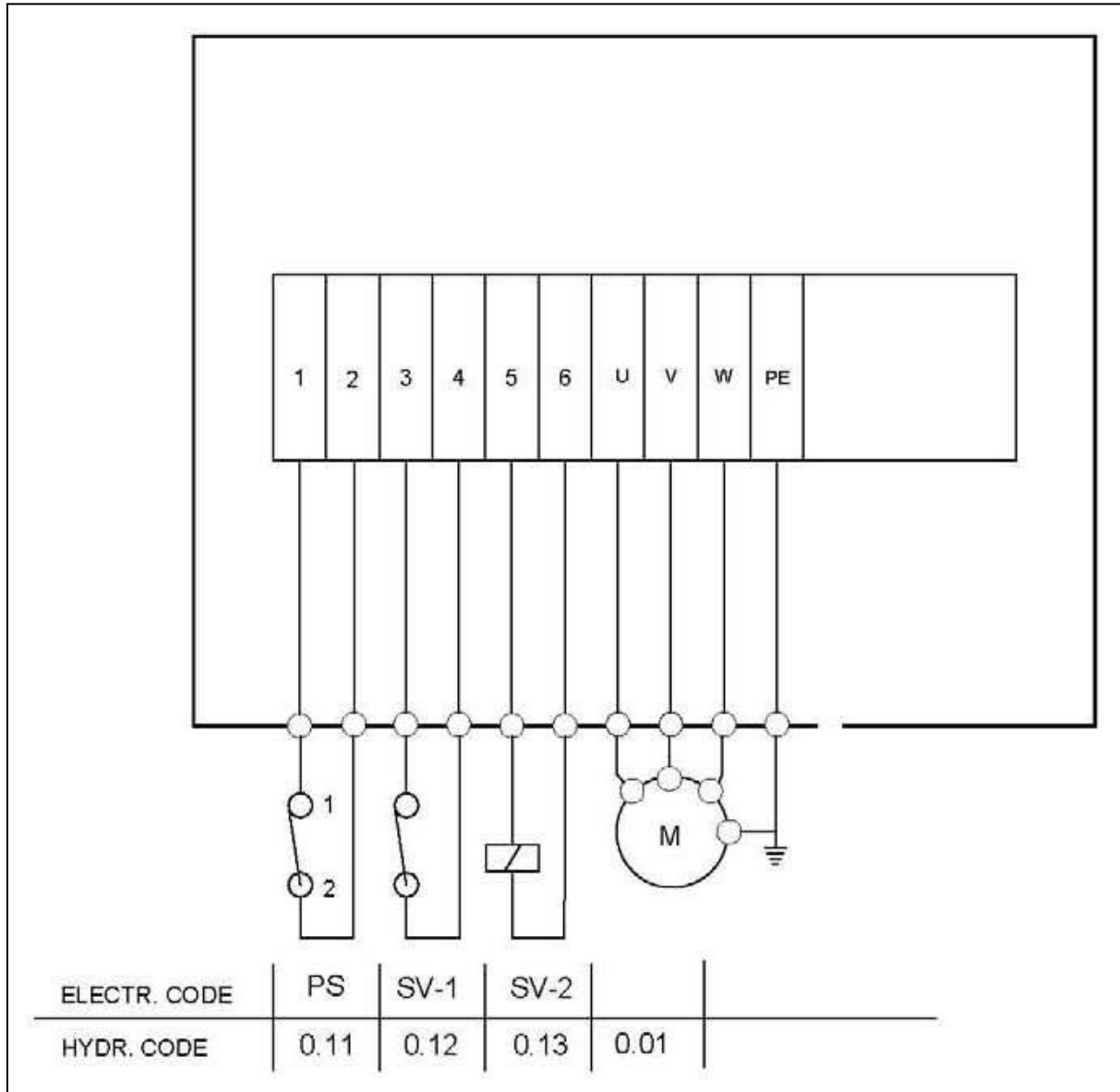
2.2 ASSEMBLY DRAWING PE071810.2.





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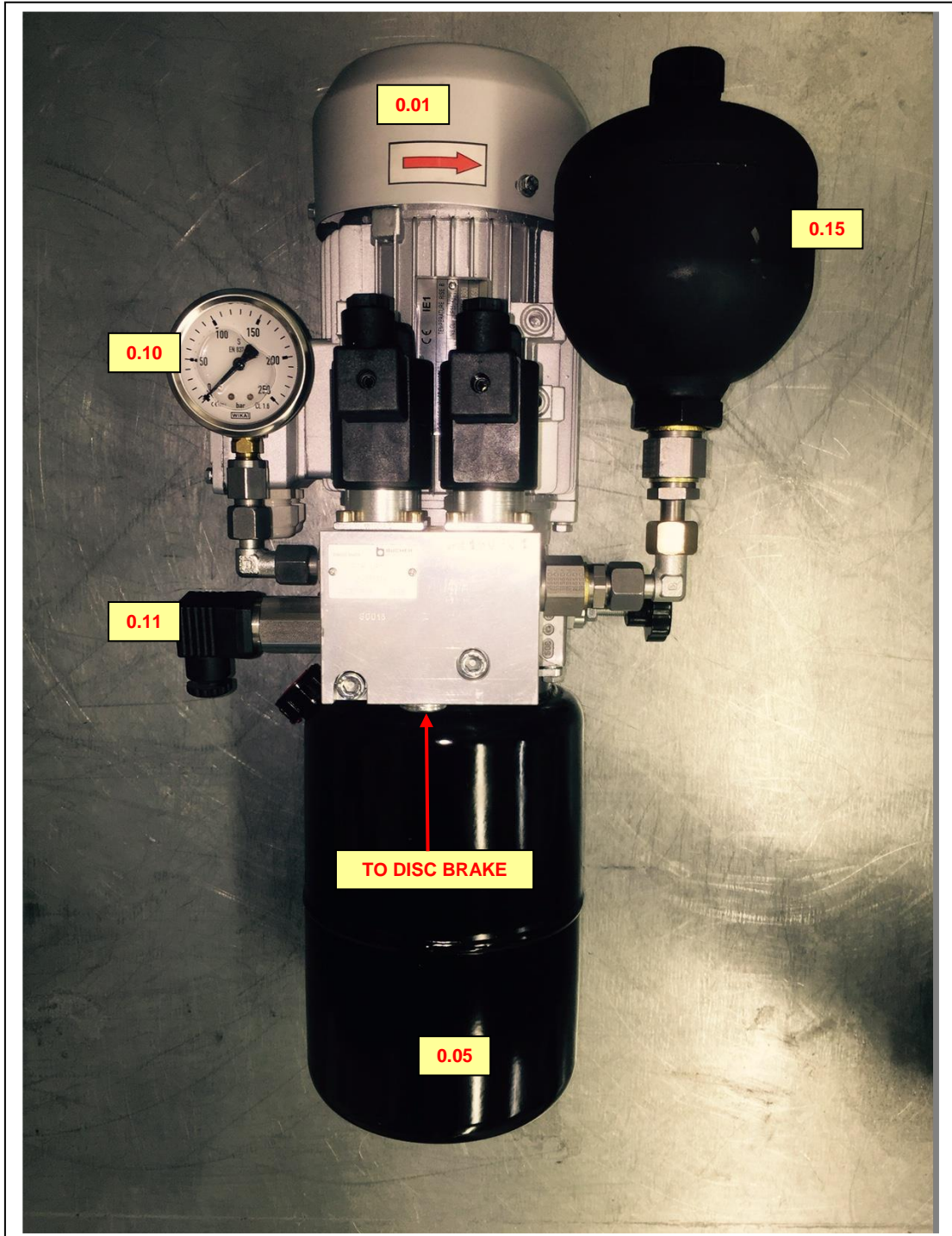
**2.3 ELECTRICAL DIAGRAM PE-071810.3. CONNECTING OF
HYDRAULIC UNIT UH-2B DRAWING PE071810.1.**





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2.4 PHOTOS HYDRAULIC UNIT UH-2B DRAWING PE071810.1.





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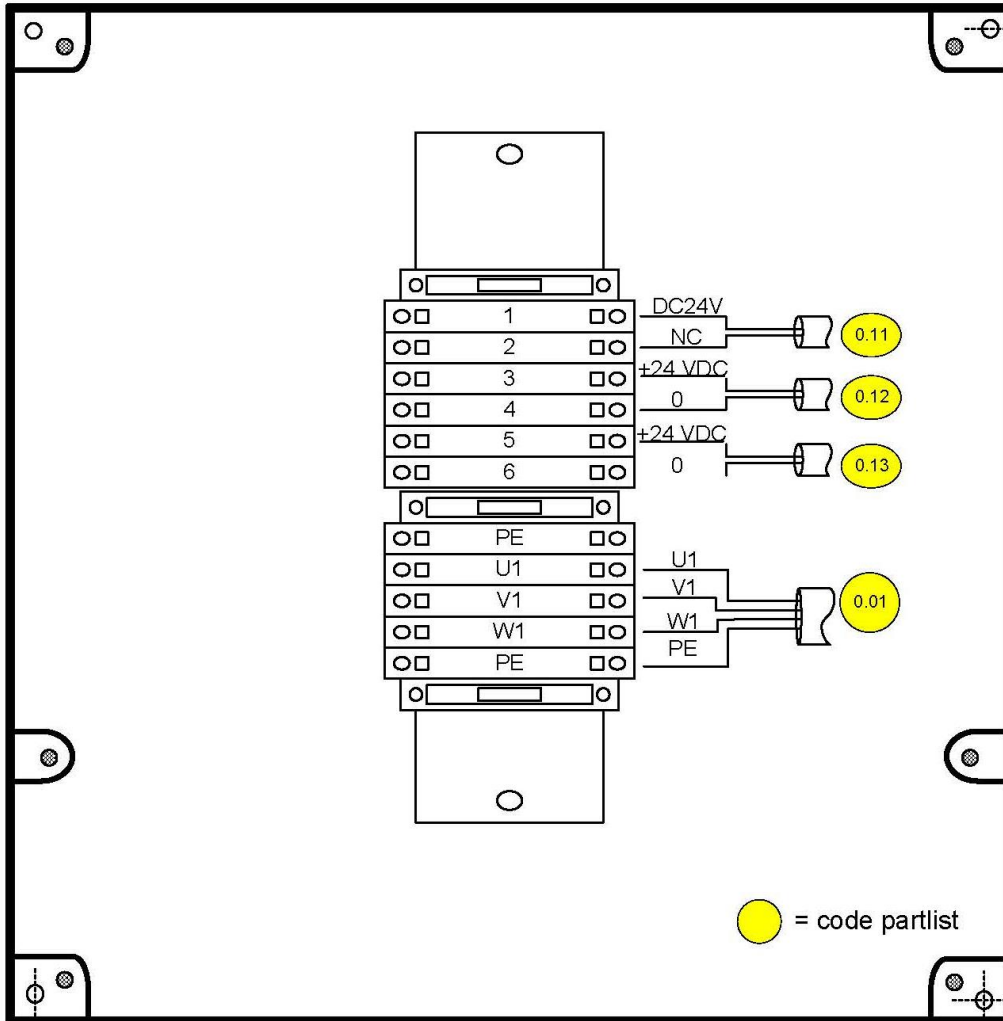
2.5 PART LIST HYDRAULIC UNIT UH-2B DRAWING PE071810.1.

POSITION	QUANTITY	DESCRIPTION	TYPE
0.01	1	Electric motor	TA 80, 0,75kW-50/60 Hz-230/400 VAC
0.02	1	Coupling	E131
0.03	1	Base hydraulic group	UP100K3
0.04	1	Pump	AP100/1,2 S 409
0.05	1	Reservoir	L050R-01
0.06	1	Air filter	TP SF.3/8 G.S. ASTA
0.07	1	Pressure relief valve	VM01 HDM10T211-320
0.08	1	Check valve	RS3/817
0.09	1	Manifold	400671635
0.10	1	Gauge	213.53.050/063
0.11	1	Pressure switch	PSP300WR14 (preset at 210 bar)
0.12	1	Electric valve 3/2	W1DCA8-***VAC/VDC
0.13	1	Electric valve 3/2	W1DCA8-***VAC/VDC
0.14	1	Check valve	RDB-06
0.15	1	Accumulator	SBO210-0,75E1/663U-210AK150 (precharge at 150 bar)
0.16*	1	*Optional electric box	Plastic
0.17*	1	*Optional electric box	Metal



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2.6 OPTIONAL. ELECTRICAL CONNECTION BOX DRAWING
PE071810.4.

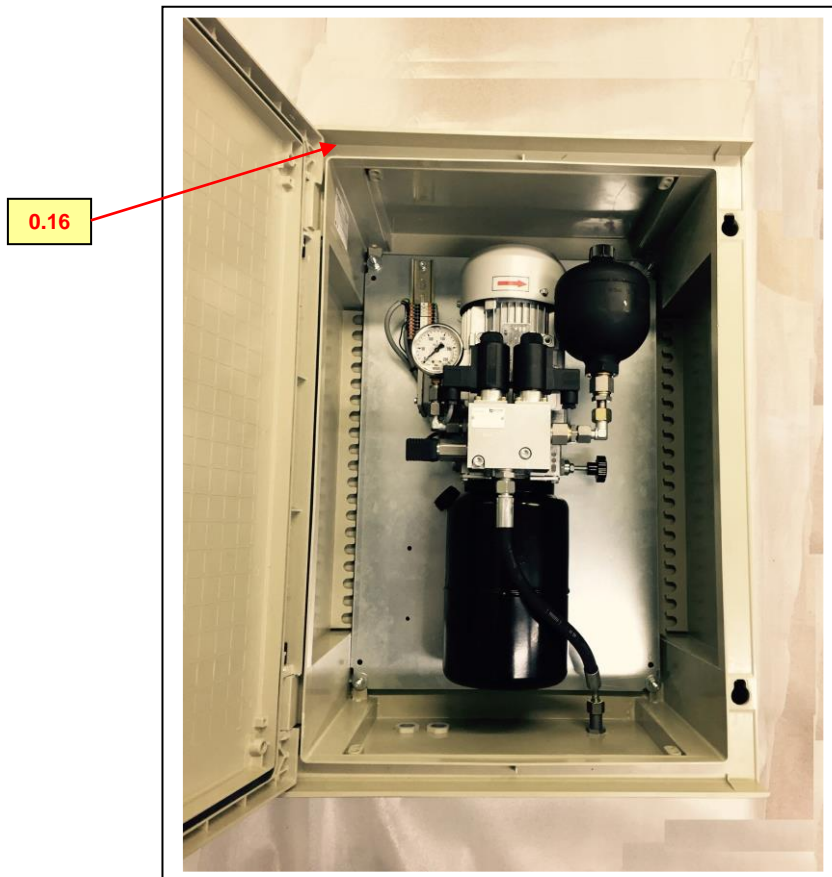




HYDRAULIC UNIT UH-2B TREBU FOR EMERGENCY BRAKES Instructions for adjustment and maintenance

2.7 OPTIONAL. PLASTIC OR METAL PROTECTION BOX DRAWING PE071810.5.

We supply optional a plastic or metal protection box to ensure a minimum exposure to harsh external influences such as dust, humidity, explosion etc. Below is an example of the plastic protection box.



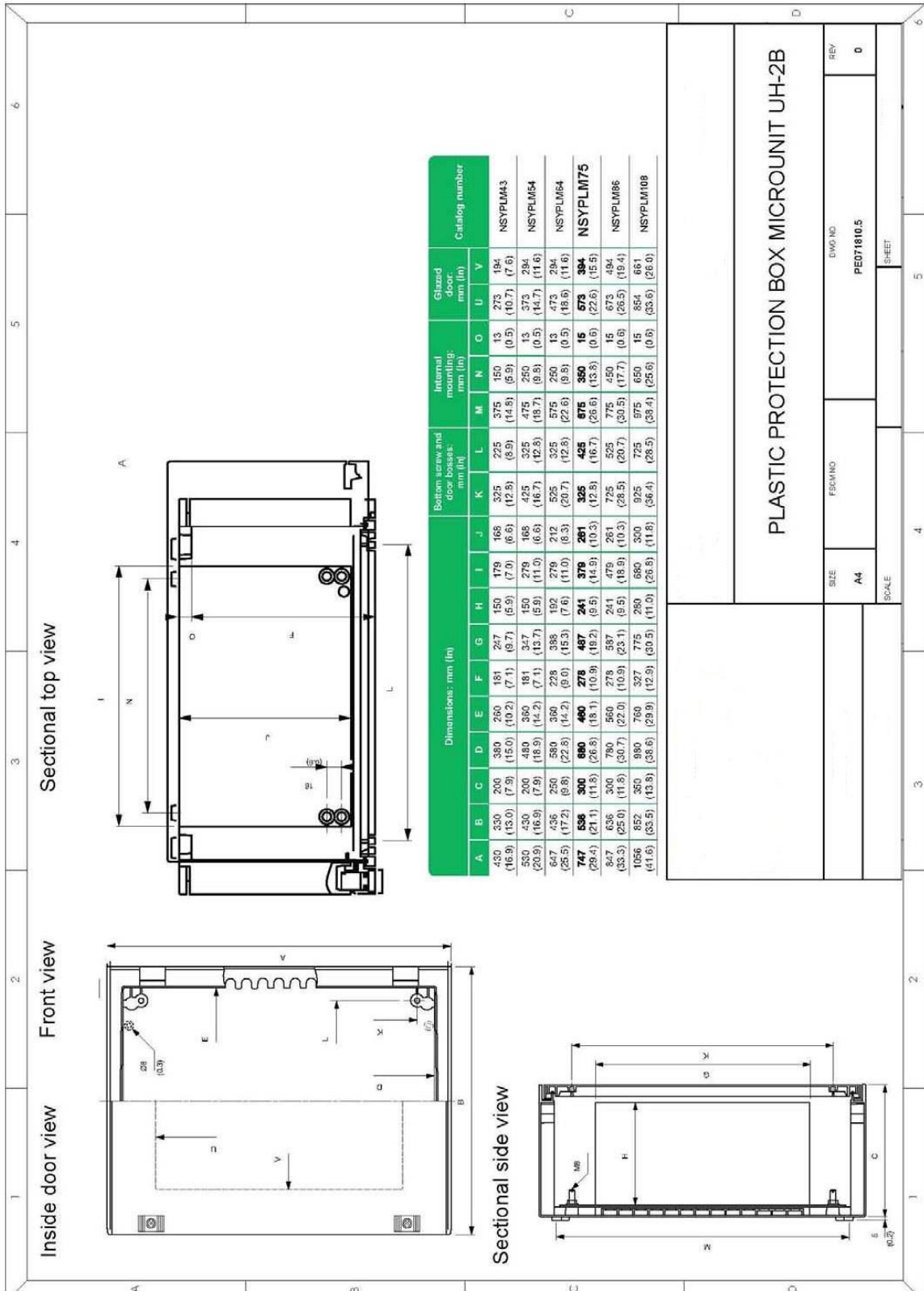
The box is equipped with 2 cable glands suitable for a 24 V and 220/380V cable (cable gland PG16). Furthermore the box is equipped with a hydraulic hose connection (12L) to ensure quick installation.





HYDRAULIC UNIT UH-2B TREBU FOR EMERGENCY BRAKES

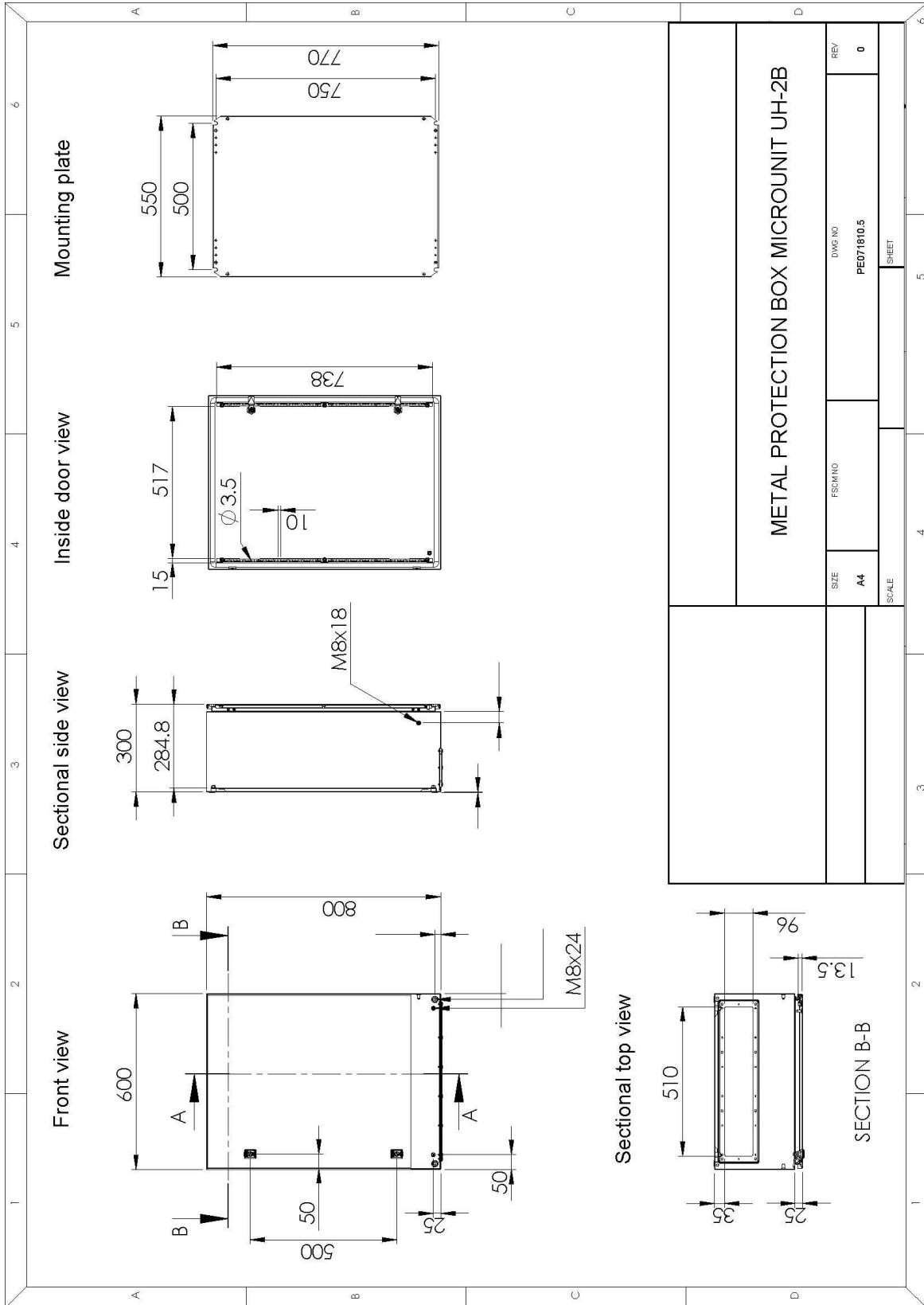
Instructions for adjustment and maintenance





HYDRAULIC UNIT UH-2B TREBU FOR EMERGENCY BRAKES

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HYDRAULIC UNIT UH-2B TREBU FOR EMERGENCY BRAKES Instructions for adjustment and maintenance

3.0 PRESSURE AND FLOW SETTINGS.

All necessary values, to operate the complete system, have been adjusted in the manifold mounted on the hydraulic power unit according the following values:

Pressures:

The hydraulic system is equipped with pressure switch pos. 0.11, which limits the working pressure of the system on 210 bar. When, due to a brake action, or internal leakage the pressure decreases to 190 bar, the pump will start and built up pressure to 210 bars. To limit the maximum pressure, in case of malfunction of pressure switch pos. 0.11, the system is equipped with a pressure relief valve (pos. 0.07), adjusted to 230 bar.

4.0 OIL SPECIFICATIONS.

The higher the performance required from the hydraulic installation, the more important it is to consider the oil grade carefully. It is explicitly recommended not to mix oils from different sources. Besides the quality, the viscosity is very important depending upon the circuit consideration. Generally speaking, a centistokes viscosity from 29,3 Cst to 52,9 Cst at 50 °C is applicable. However, this choice is based upon the temperature at which the circuit is used. The higher the circuit stabilisation temperature is, the higher the viscosity should be.

A viscosity, which is too low, may cause a drop in equipment performance (pump capacity) and premature wear of components, as there is not enough lubrication.

If the viscosity is too high, this may cause cavitation of the pumps at start up at low temperatures. It will create large pressure drops in the system and increase the reaction times of the system.

Whenever the system is subject to substantial temperature variations, it is necessary to consider using hydraulic oil with a high viscosity index.

Standard the hydraulic units should be filled with **mineral hydraulic oil** with an ISO VG 46 oil, according DIN 51519, ISO 3448. This hydraulic oil has been chosen due to an average ambient temperature between -10°C and + 30°C.

→IMPORTANT: In case these values are different from above, the hereafter mineral oils should be used:

Ambient temperature	Average oil temperature	Type of oil
-10°C / + 30°C	-10°C / + 50°C	ISO-VG-46
-20°C / + 20°C	-20°C / + 40°C	ISO-VG-32
0°C / + 50°C	0°C / + 70°C	ISO-VG-68
-40°C / + 60°C	-40°C / + 70°C	Shell artic 32 mineral oil/ Mobil Unavis HVI 26



**HYDRAULIC UNIT UH-2B TREBU
FOR EMERGENCY BRAKES
Instructions for adjustment and maintenance**

5.0 STARTING UP.

5.1 FILLING UP WITH HYDRAULIC OIL.

For filling of the hydraulic reservoir with hydraulic oil the air breather cover has to be dismantled from the reservoir.

Fill up the reservoir with approximately 5 litres.
After filling the reservoir, mount the air breather cover back on reservoir.

5.2 DIRECTION OF ROTATION OF ELECTRIC MOTOR.

Electric motor (pos. 0.02):

Start the electric motor pulse wise and check if the direction of rotation is according the arrow on the electric motor.

5.3 BLEEDING THE HYDRAULIC SYSTEM.

Start the electric motor (pos.0.01) of the main system.
Stop the electric motor when the pressure has reached app. 25 bars.
Unscrew the hydraulic couplings slightly one by one on the disc brakes and bleed the system until no air is coming out anymore from:

Disc brakes
Accumulator

In case the pressure drops at the gauge to 15 bar due to bleeding the system, increase the pressure to 25 bars again by starting the electric motor.

After bleeding the system tighten the couplings of the pipes and hoses thoroughly.

Start the electric motor of the main system and increase the pressure to 100 bars. Check all couplings for visual leakage. In case there is no leakage increase the system pressure until the maximum pressure. Check again the oil quantity in the reservoir.



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6.0 MAINTENANCE.

6.1 MAINTENANCE SCHEDULE.

Description	after 24 hours test	every 6 months	every 12 months
Tighten all couplings of pipes and hoses	XXXXXX		XXXXXX
Check hydraulic installation for visual leakage	XXXXXX	XXXXXX	XXXXXX
Change air filter element			XXXXXX
Check precharge accumulator pos. 0.15 precharge 150 bar			XXXXXX
Take an oil sample for analyse quality			XXXXXX



**HYDRAULIC UNIT UH-2B TREBU
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6.2 TROUBLE SHOOTING.

General causes for malfunction of the hydraulic system:

Problem	Cause / Remedy
High noise level of the pump.	Verify oil level. Viscosity of the oil is too high. Operating temperature is too low. Leakage in suction line. Worn shaft seal of the pump. Worn or damaged parts inside the pump.
No pressure in the system.	Oil level too low, add oil. Wrong direction of rotation of the pump. Relief valve does not function. Accumulator bleeding valve 1.14 is open. Excessive leakage in the system.
Brake does not operate.	Pump does not operate. Seat valves do not shift- no supply. -Damaged solenoid. -Damaged seat valve. Mechanical block. Operating pressure too low. Damaged seals in brake.
Too low speed of the system.	Air in the hydraulic system. Oil level too low. Viscosity of the oil too high (low temperature). Pre-charge accumulator(s) is incorrect. Pump is worn. Dirt in orifices or flow control valve.
Temperature increase too high.	Pressure relief valve is operated continuously. Pressure switch does not operate. Abnormal leakage in the system.
High frequency start/stop electric motor.	Pressure relief valve 1.05 is leaking. Valve 1.11 does not close. Low or no pre-charge accumulator.
Pump does not start.	Motor relays inside junction box overloaded.



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7.0 ONGOING IMPROVEMENT PLAN.

ANTEC S.A. will be pleased, in its continuous improvement process, to receive any suggestion or advice in order to improve this manual. Please send any comments to the sales department's e-mail: sales@antecsa.com.

ANTEC S.A. wishes to express its gratitude for the trust that you have placed in our product and we would like to invite you to visit our internet webpage to get to know our wide range of products.

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