

USE AND MAINTENANCE MANUAL BC 800/W ES SP



ORIGINAL INSTRUCTIONS



WARNING!
For safety reasons these instructions must be carefully read by anyone who makes use of this equipment.

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DICHIARAZIONE DI CONFORMITA'
DECLARATION OF CONFORMITY

2006/42/CE Nuova direttiva per la marcatura CE
(Abrogazione della direttiva 98/37/CE ex 89/392/CEE)
2006/42/CE New machinery directive for the CE
(Abrogation of Directives 98/37/CE ex 89/392/CEE)

NOI – WE **OP S.r.l.**

(Nome del fabbricante o del suo mandatario stabilito nella comunità - Supplier's name)
Via del Serpente, 97 - 25131 BRESCIA
(Indirizzo completo - Address)

DICHIARIAMO SOTTO LA NOSTRA ESCLUSIVA RESPONSABILITA' CHE IL PRODOTTO :
DECLARE UNDER OUR SOLE RESPONSIBILITY THAT THE PRODUCT :

BC800/WES

(nome - name, tipo - type, modello - model / n° di serie - serial number)

• **La macchina non rientra nell'elenco contenuto nell'Al. IV della Direttiva Macchine 2006/42/CE**

The machine is not part of the list included in Ann. IV Machinery Directive 2006/42/CE.

• **La macchina rispetta i requisiti essenziali di sicurezza indicati sulla Direttiva Macchine e successive modifiche:**

The machine follows the safety requirements included in the Machinery Directive and its following modifications:

2006/42/CE
2006/42/EC

DIRETTIVA MACCHINE
MACHINE DIRECTIVE

2014/35/EU
2014/35/UE

DIRETTIVA BASSA TENSIONE
LOW VOLTAGE DIRECTIVE (LVD)

2014/30/EU
2014/30/UE

DIRETTIVA COMPATIBILITA' Elettromagnetica
ELECTROMAGNETIC COMPATIBILITY (EMC)

• **La macchina è provvista di marcatura CE**

The machine is provided with EC mark

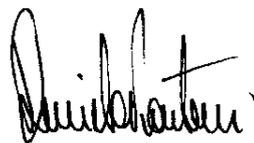
• **Norme di riferimento applicate:**

Applied references normative:

UNI EN ISO 12100:2010 CEI EN 60204-1
UNI EN ISO 12100:2010 CEI EN 60204-1

IL LEGALE RAPPRESENTANTE
THE LEGAL REPRESENTATIVE
DANIELE PIANTONI

Brescia, li



(nome e firma o timbratura della persona autorizzata)

(name and signature or equivalent marking of authorized person)

Dichiariamo che il Fascicolo Tecnico è costituito presso OP s.r.l Via del Serpente 97, 25131 BRESCIA
We declare that the technical documentation is established c/o OP s.r.l. Via del serpente 97, 25131 BRESCIA
La persona responsabile del fascicolo tecnico è il Sig. Massimo Ziliani Resp. Uffi cio Tecnico.
Our technical manager, Mr. Massimo Ziliani, is responsible for the technical dossier

SAFETY REGULATIONS



1. Always make sure that the machine is placed on a stable, safe surface and that it is not causing vibrations that, in addition to being bothersome and useless, may cause malfunctions.
2. *Leave enough room in the work area.*
3. The manufacturer is not liable for any damage caused by negligence.



4. Never use the equipment before reading the user manual and understanding its contents



5. Caution! If improperly used, the equipment may be dangerous and may cause injury to parts of the body, which must never come within the range of moving parts.

6. *Test operations are safe provided the regulations given below are complied with.*

7. Caution! It is absolutely essential that all work is carried out by one operator only
8. Never attempt to use the machine above the permitted working pressures; this might cause serious danger to the operator.
9. This manual must be given to the operator and kept. The proprietor of the equipment is responsible for it. Ensure that the operator is aware of his responsibilities.



10. Never remove or tamper with guards.

11. Before connecting to the power supply, make sure that there is adequate protection upstream of the connection against overloads and short circuits (it is advisable to have protection against excessive undervoltage as well).
12. Check that the supply voltage and frequency correspond to the rating on the machine's rating plate.
13. Use only cables, plugs and extension cables that comply with **CEI** standards; keep the power cable far from the work zone.
14. Make sure that hoses are always tested in safety conditions
15. *Always remove the plug from the socket*, before performing any work on the machine. Operations of maintenance, as well as repairs, should be performed by specialised personnel.



16. Use adequate personal protection (gloves, appropriate clothing, etc.).

17. Keep the supply cable far from the work zone.
18. Always turn off the machine while maintaining it
19. Use of the Crimping machine is permitted only to skilled adult staff (a training course is recommended for those who have never used the equipment).
20. During work, always follow all instructions given by the labels on the machine
21. Our equipment is designed with the technical safety features required; customers are advised to strictly comply with the instructions given in this manual.
22. Original spare parts must be used in order to maintain the original characteristics and the validity of the certification.
23. Once you have finished maintenance operations always re-mount the eventually removed protections before turning on the machine.
24. Use limit:
 - The machine cannot be used in explosive settings.
 - The machine cannot be used in outdoor settings.
 - Do not leave the machinery exposed to environmental agents which do not meet into protection level (IP55) of the installed components.
25. The machine presents residual risks derived from incorrect use: strictly follow the directions defined in the use and maintenance manual.
26. Do not insert animals or body parts in the operating area or in moving parts.
27. Do not insert plastic, glass or other kinds of objects in the operating area or in moving parts.
28. Do not make repairs yourself; contact the manufacturer.



READ INSTRUCTIONS FOR USE AND MAINTENANCE

USE OF THE MANUAL:

It is important to keep this manual near the machine where it can be consulted. The manual is provided to give the user a general knowledge of the machine and instructions for its use and maintenance as needed for satisfactory operation.

The manual, as required by the regulations in effect, is an integral part of the machine and must accompany it for its entire lifetime. The instructions and warnings must be read with care for safety reasons prior to installation and use. Do not make any changes in the manual, for any reason, without the prior written authorisation of the manufacturer or authorised distributor.



CAUTION:

The operator is personally responsible for respect, not only by himself but also by any others who may be exposed to the hazards presented by the machine, of all safety rules.

Before performing any operation with the machine, therefore, read this manual carefully.

It describes the procedures for safe use. Keep the manual for future consultation.

The machine is constructed in a workmanlike manner. Its duration and reliability will be all the more effective if the machine is used correctly and given regular maintenance.

The testing fluid "CUT-MAX H 05", supplied by O+P, wholly respect the community norms on the chemical products safety;

The disposal of the materials must be carried out in compliance with the laws in force.

CHARACTERISTICS OF THE BC 800/W ES TEST BENCH



MACHINE WITH NO HYDRAULIC FLUID OR SOLVENT

- **Add hydraulic fluid with this characteristics:**
 - **viscosity at 40°C : 40 mm²/s**
 - **suggested contamination class : ISO 4406 20/18/15**
 - **fluid quantity : as shown in table below**

- **For the characteristics of the solvent see the attached document (CHARACTERISTICS AND SAFETY DATA SHEET OF CUT-MAX H 05)**

This test bench has been designed to perform high-pressure tests on hydraulic hoses.

It is equipped with user-friendly control panel, and can be ordered customised with special instruments. Special care has been dedicated to the safety devices; tests can only be carried out with the testing chamber closed, and it cannot be accessed as long as there are pressurised components in the circuit.

Filling stage: a low pressure pump fills the hydraulic hose so as to eliminate all the air, after which the outlet is blocked and the pressure in the circuit begins to rise until it reaches the set value, holding the circuit at that pressure with minimum consumption.

The test bench is designed and produced in respect of the essential health and safety rules set forth by the machine directive. In particular, since the operator comes directly into contact with the machine we have done our best to:

- Eliminate sharp edges and points.
- See that the controls, though ensuring prompt, safe and univocal action, do not involve any additional hazards: actions can only occur by voluntary use of the controls.

SAFETY DEVICES: The test bench mounts some safety device to prevent the entrance in the chamber during the test operations.

Furthermore there is an emergency stop system to halt immediately the test, if necessary. Besides a pressure regulator on the pneumatic circuit maintains the multiplier action into the desired pressure range.

Briefly, the machine consists of:

A metal structural work supporting the testing chamber, which contains the air-hydraulic pump that acts as a pressure booster and the entire system for adjustment and control of the air-hydraulic system. There is also a useful compartment for accessories in the front panel.

A testing chamber fitted with transparent Lexan screens allowing visual monitoring of the operations, holds two manifolds on the inside, which serve for testing hydraulic hoses, that make it extremely simple to prepare for testing. The manifolds are positioned and fixed on the left side of the chamber.



WARNING: Please replace the protection panel should you notice cracks thereon.
For this task contact the Manufacturer or their Agent.

Pressure multiplier and fluidodynamic circuit: this is the core of the test system and is composed of electro-pneumatic controls and by the pneumo-hydraulic pressure booster; the multiplication ratio between the inlet air pressure and the outlet liquid pressure is about 1:226. The fluid used for the tests is "CUT-MAX H 05". The Technical Data Sheet for this product is enclosed with the instruction booklet listing all the technical features of the fluid used.

Control panel: this panel can be used to set tests, test pressure, test time, test time and duration of air purging operation from part to be tested; this panel can also be provided with customized features for special needs.

TECHNICAL / DIMENSIONAL DATA	BC 800/W ES
Testing chamber dimensions (WxDxH)	1900 x 1500 x 750 mm
Overall dimensions (WxDxH)	2620 x 1780 x 1530 mm
Weight	965 Kg \approx
Pressure multiplication ratio	1:226
Standard maximum testing pressure	800 bar
Instrumentation	Electric
Mains voltage	400V 50Hz 3phase
Maximum air input pressure	8 bar
Minimum air delivery rate required	1500 Nlt/min
Filling phase pump delivery rate	25 lt/min
Liquid tank capacity	250 lt
Degree of filtration	25 μ
Drive	Electric
Electric motor	2 HP B5 4P 400V 50Hz 3phase

HANDLING / TRANSPORT



WARNING

The personnel in charge of handling and transportation must pay the utmost attention in order to avoid the test bench to be submitted to shocks or stresses that would jeopardize the proper functioning of the machine, and safety of the operator.

The machine is transportable without disassembling it. In any case, it is important to pay attention to the following precautions:

In case the machine is transported, or moved, it is suggested to lift it from the bottom side by using the proper spaces located below the test chamber.

We suggest to be very careful because, since the machine, being long and narrow, can result to be unstable.

If the machine has to be shipped, ensure that it is firmly secured to the means of transport and protected against knocks, vibrations or shaking.

LIGHTING:

The bench is provided with one light fixtures that ensure good visibility of the inside of the chamber. The light go on when the master switch is turned on.



WARNING: Always make sure that the machine is placed on a stable, safe surface and that it is not causing vibrations that, in addition to being bothersome and useless, may cause malfunctions.

If the test bench is not placed on a stable and levelled surface, the bench door might not open.

PLATES AND WARNING SIGNS:

The machine is provided with warning signs and instructions that the operator must obey for his own health and safety. If signs are deteriorated and not well readable, it is necessary to substitute them with new plates.



LIMBS CRUSHING



GENERIC HAZARD



EYE PROTECTION



HEARING PROTECTION

PREVENTIVE MAINTENANCE:



WARNING:

Always remove the plug from the socket, before performing any work on the machine.

- Always, before using the test bench, check the conditions of the safety devices, connections, and hydraulic hoses. Check for oil leaks and other problems.
- Check for wear and legibility of the warning signs.
- Periodically, check the hydraulic hoses connecting to the central unit and relative couplings, and replace or repair any that need it.
- In case of bursting of the tested component, check that all the safety protections are not damaged.
- Periodically check that filters are not blocked. If necessary proceed with the substitution of the filtering cartridge.

ROUTINE MAINTENANCE – GENERAL REGULATIONS



WARNING:

Always remove the plug from the socket, before performing any work on the machine.

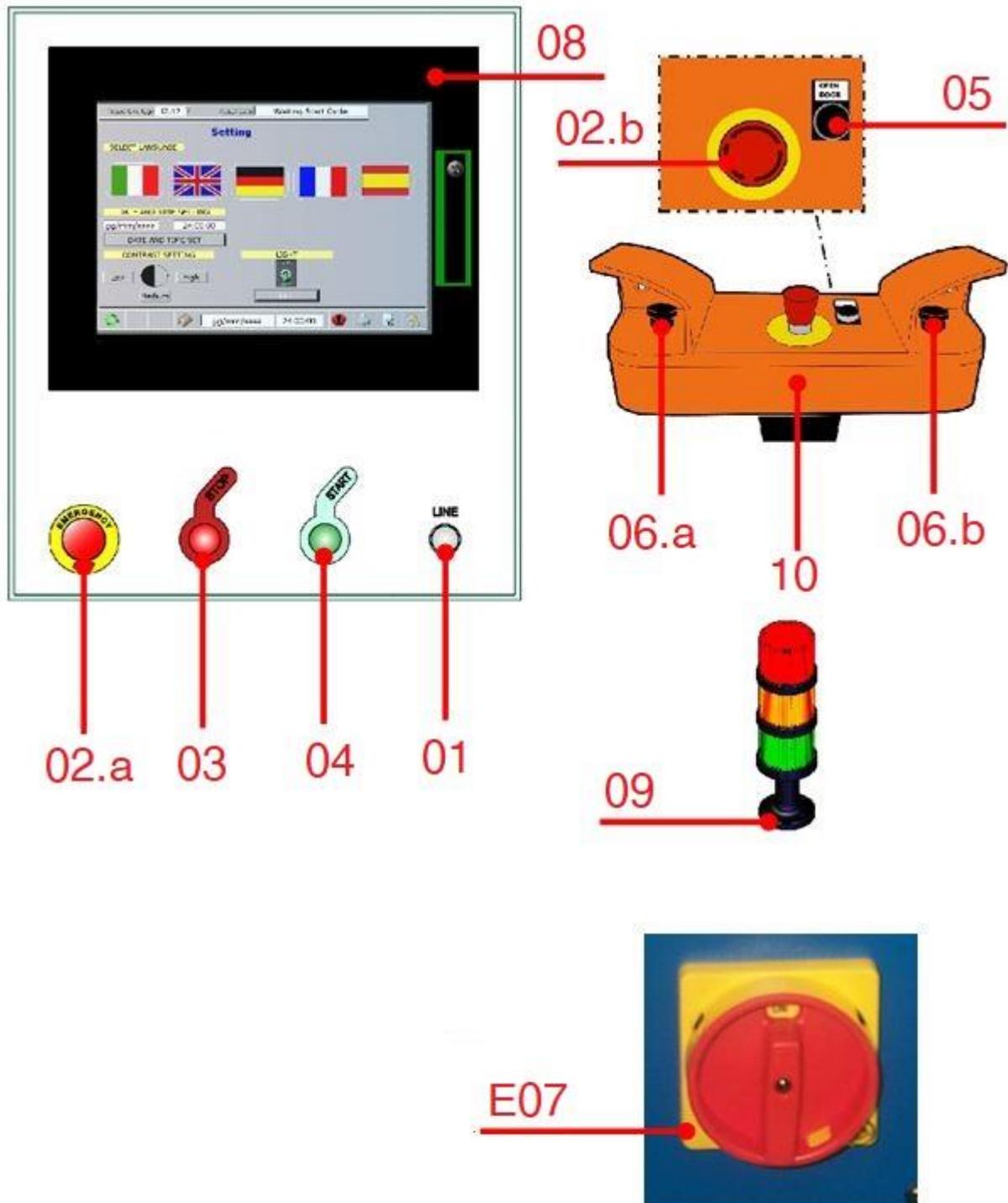
- It is important for all operations on the machine to be carried out by qualified, authorised personnel, familiar with its functions.
- Never perform any operations of cleaning, lubrication or maintenance with the machine in motion.
- We recommend wearing safety apparel such as non-skid footwear, earplugs, goggles, suitable gloves, etc.
- After terminating all operations, always re-mount any guards removed before starting the machine.
- For best results in operation of the booster pump, it is essential to use filtered but not lubricated air; the test bench is equipped with an air preparation unit, located just past the compressed air intake outlet, this unit must be kept constantly under control (for lubrication of the pneumatic parts we recommend using oil TELLUS SHELL 22 or the equivalent). The regulator of this unit has already been calibrated by **O+P**, for safety reasons; *any readjustment could jeopardise proper operation of the test bench or create a hazardous situation.*
- Periodically, clean or replace, if necessary, the filters for the system fluid; the drain filter is mounted on the lid of the tank. Loosen the fastening screws to access it, remove the lid on the filter and take the filter cartridges out. The system is provided with two additional filters, immersed in the tank, mounted on the pump intake circuit; to clean them, take the lid off the tank. The filters have a filtration power of 60 µ in intake and 25 µ on outlet.
- Replace the fluid filter, located over the tank (see pneumohydraulic diagram, position 3), every two or three months or as necessary.
- Check and replace the fluid (CUT-MAX H 05 5) for testing when it becomes too polluted. A drain tap is located on the side of the tank.
- Frequently check the conditions of the emergency stop on the control panel and safety devices for closure of the tank door.
- For any operations of maintenance on the booster pump, see the enclosed instruction manual.

SPARE PARTS

Accessories, spare parts or consumable materials must be ordered from **O+P**, always specifying the serial number and model; these data will be found on the test bench nameplate. Contact our sales office for detailed information.

CONTROL PANEL

- PICTURE 1 -



01 – “LINE” INDICATOR LIGHT

Lights to indicate that the control panel is on.

02 – “EMERGENCY” STOP BUTTONS

When a red mushroom-head button is pressed, the power supply is cut off and the pump stops immediately; to restart operation, first release the button by turning it in the direction shown by the arrow, then press the “START” button again.

03 – “STOP” BUTTON

Press to stop test. Press to stop the cycle and draining the pressure.

04 – “START ” BUTTON

Press this button after preparing the machine and making the settings (see INSTRUCTIONS FOR USE on page 25) to start the test.

05 – BUTTON “DOOR OPENING”

Press this button to open the door.

06 – BUTTONS “DOOR CLOSING”

Press these buttons to close the door.

07 – “MASTER SWITCH” (Beside the frame unit)

Turn “ON” to connect the machine to the power supply.

08 – “TOUCH SCREEN CONTROL PANEL” permits setting tests, cycle times, number of cycles and duration of air bleeding from the components being tested; this panel can be customised for specific requirements.

09 – SIGNALLING LAMP which indicates the current state of operations.

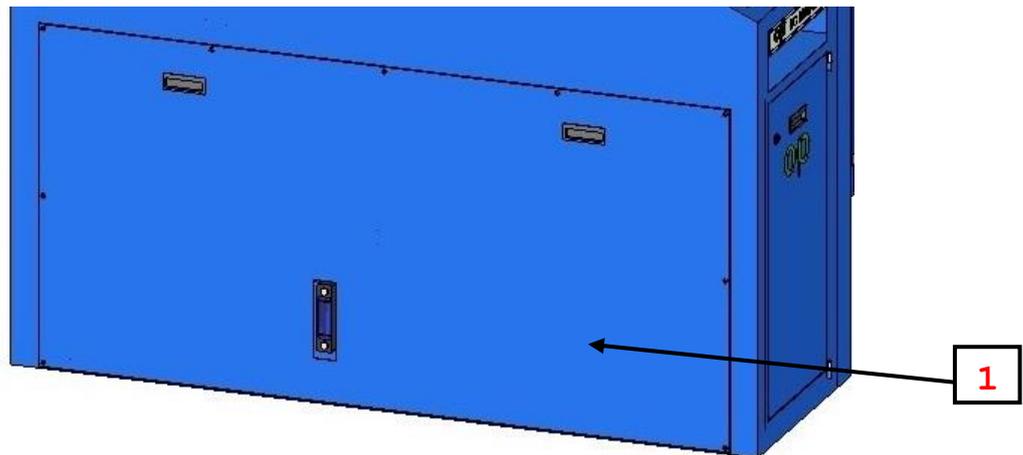
10 – “BI-MANUAL CONTROL DESK”.

PRELIMINARY CHECKS AND START-UP

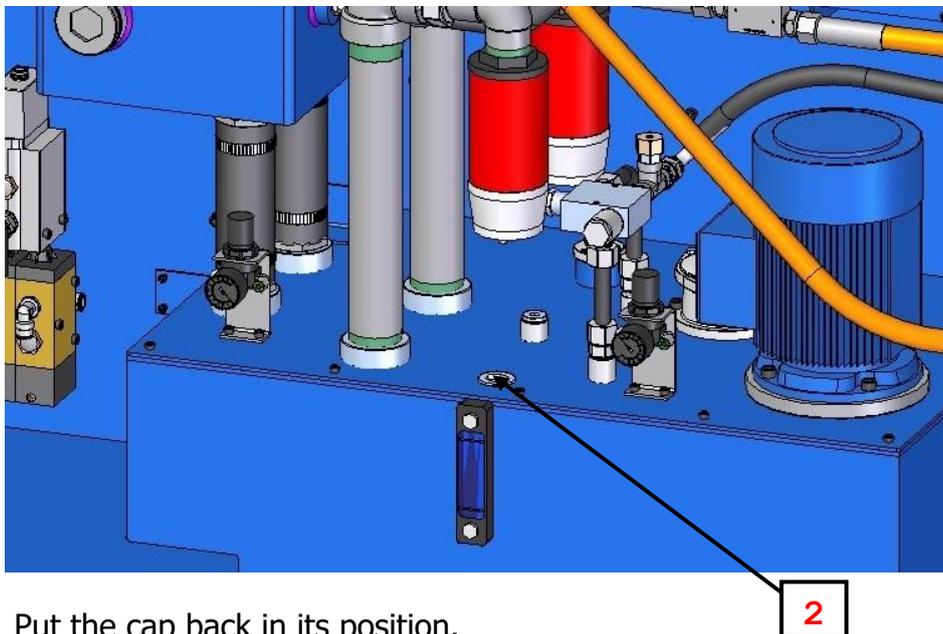
- 1) Make sure the quantity of testing fluid in the tank is enough while checking the relative level indicator; otherwise, see to the refill as explained in the following procedure:

How to fill up with testing fluid

- Remove the side panel



- Remove the cap shown in the picture below and fill up the tank with the fluid



- Put the cap back in its position.
- Put the side panel back in its position and fix it using the screws on the panel.

- 2) Make sure that the power supply is correct and connect the plug (pic. 3 item 01);

- 3) Connect the test bench to the air supply (pic. 3 item 02). For optimum bench operation, the air flow-rate available must be of 1500 Nlt/min, with a pressure of 8 bar and the pneumatic part of the circuit must always be pressurised.

INSTRUCTIONS FOR USE (testing cycle)

Before starting prefitting operations, read the following sections very carefully:

- MACHINE CHARACTERISTICS
- SAFETY REGULATIONS
- PRELIMINARY CHECKS / START-UP
- ROUTINE MAINTENANCE
- CONTROLS
- LIGHTING

For instructions on controls and adjustments, refer to the "CONTROL PANEL" section.

1. Turn the "Master Switch" (pic.1 pos.07).
2. Open the chamber door with "Opening door" button (pic1. pos.05).
3. Connect the hydraulic hose or components to testing with the connections provided on the manifolds (pic.2, item 1), using adapters if needed.
4. Close the chamber door with "Closing door" buttons (pic1. pos.06).
5. Enter the test pressure through the control panel (pic1. pos.08);
IMPORTANT: *no air should remain inside the test pipe*, therefore it is essential to set the time for filling with fluid correctly, using the appropriate timer.
6. Select the test mode, *testing parameters*.. If testing by impulses, set the number of cycles and regulate the pause and work time.
7. Press the "Start" button (pic.1 pos.04). The chamber door being locked and the test can begins with the setted parameters; if any problems arise during this stage, stop the test immediately by pressing the "Emergency Stop" button (pic.1 pos.02).
8. Press the "Stop" button (pic.1 pos.03) to stop the test (static test), or wait until the set number of cycles has been reached (impulse testing). After a very short time, to allow the liquid to drain, the tank door can be opened and the component removed. For safety, check that the *digital pressure gauges* shows that there is no pressure present before opening.

CAUTION: THE OPERATOR MUST BE VERY CAREFUL AND USE EXTREME CAUTION WHEN OPENING



AND CLOSING THE DOORS INSTALLED ON THE MACHINE, SINCE THIS OPERATION INVOLVES THE RISK OF CRUSHING THE UPPER LIMBS.

CAUTION: IT IS VERY IMPORTANT TO VENT COMPLETELY THE COMPONENT BEFORE TESTING.



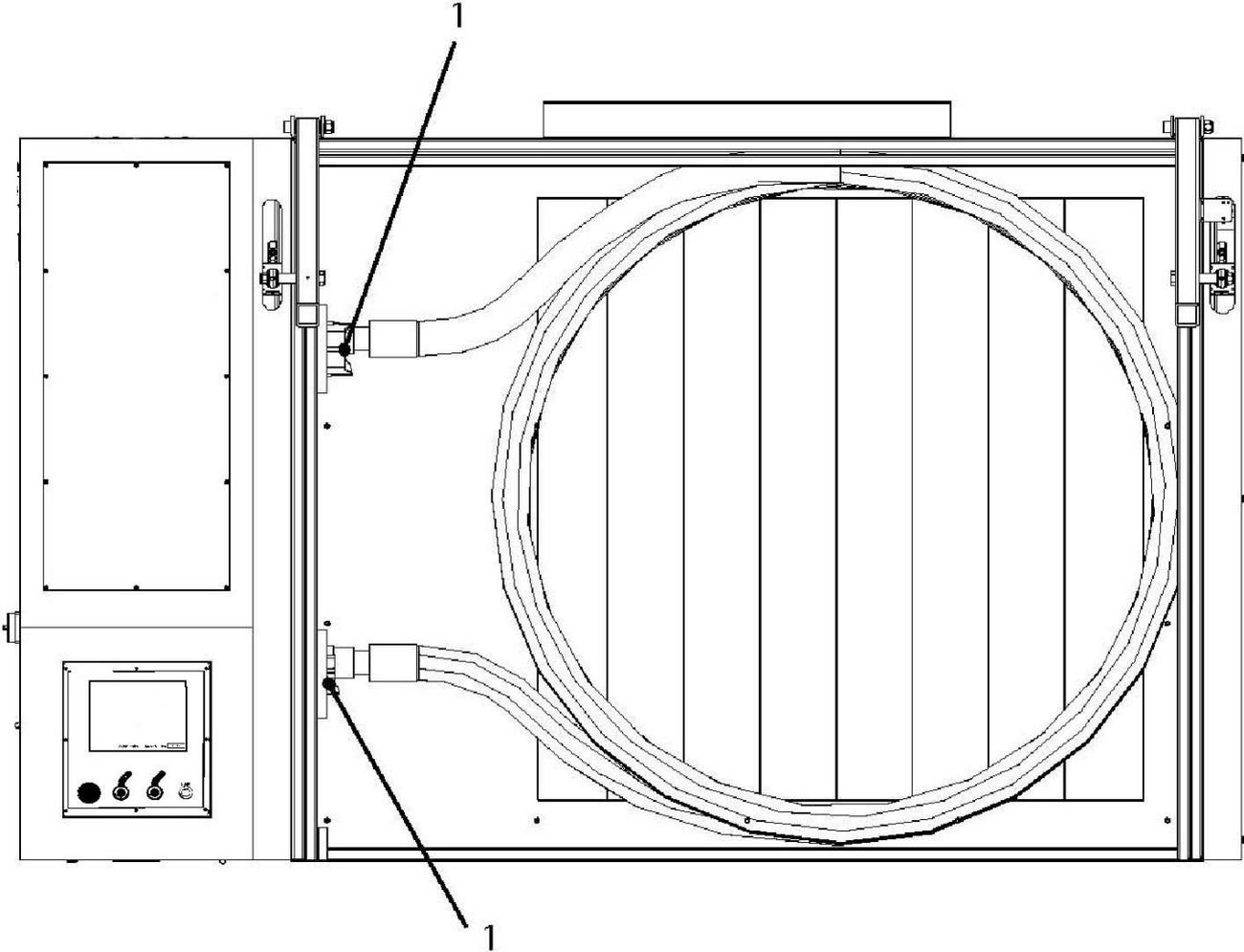
THEREFORE IT IS NECESSARY THAT THE FLUID FILLING TIME BE SET CORRECTLY.



CAUTION: TO OPERATE CORRECTLY, THE TWO MANIFOLDS MUST ALWAYS BE CONNECTED EACH OTHER, THEREFORE IT ISN'T POSSIBLE TEST A PIECE WITH ONLY ONE CONNECTION.

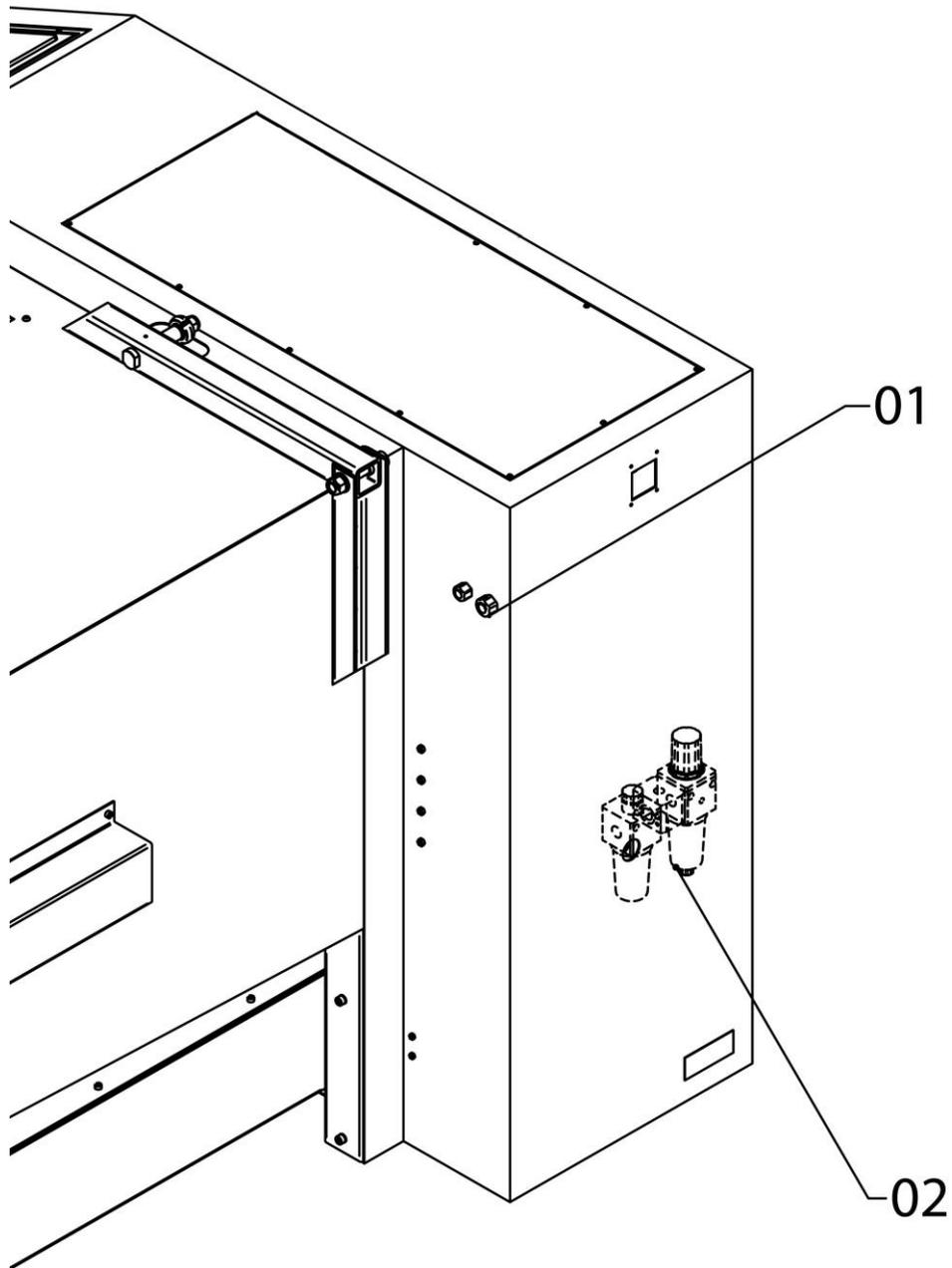
MANIFOLDS DIAGRAM

- PICTURE 2 -



CONNECTION DIAGRAM

- PICTURE 3 -



01 - Plug for electricity: connect to the power supply.

02 - Connector for air supply: connect to compressed air.

STARTING PROCEDURE

Connect the bench to the power supply

Turn the master switch in the front to the "ON" position; make sure that the door has been properly closed, otherwise the bench will not start.

At this point the green indicator light, that shows the bench tension, and the neon lights at the inside of the tank will go on.

Push the start button, on the control panel, in order to start the machine.

At this point, the operator panel software will start - wait a moment.

The initial display page will appear:



! IMPORTANT: NEVER WEAR DIRTY GLOVES OR SHARP OBJECTS AND PRESS DELICATELY BUT FIRMLY ON THE BUTTON IN ORDER TO ENSURE THE LONG LIFE AND EFFICIENCY OF THE SCREEN.

CYCLE SETTING SCREEN

- PICTURE 4 -

The screenshot displays the 'CYCLE SETTING' interface. At the top, 'Proport. Voltage' is set to 12.12 V and 'Actual state' is 'Waiting Start Cycle'. The main area is divided into 'CYCLE SETTING' and 'ITEM DATA' sections. The 'CYCLE SETTING' section contains a table of parameters and their values, along with control buttons for 'START', 'STOP', and 'STEP'. The 'ITEM DATA' section lists fields for 'Part Nr', 'Customer Part Nr', 'Description', 'Order Nr', and 'Operator', each with a text input field. A large grid area on the right is currently empty, with 'Dilate' and 'Compress' buttons above it. At the bottom, there are navigation icons and a status bar showing 'gg/mm/aaaa' and '24:00:00'.

Parameter	Value	Unit
Step nr.	1234	Nr
Filling Time	1234	Sec
Working Pressure	1234	Bar
Working time	1234	Sec
Cycles' pause Time	1234	Sec
Cycles to execute	1234	Nr
Emptying Time	1234	Sec
Adjustment time	1234	Sec
Peak pressure	1234	

Proport. Voltage V

- **Proportional voltage:** voltage is applied to the circuit card of the proportional valve (V).

Actual state

- **Actual state:** it displays the state of the bench in every stage, in real time:
 - Waiting Start Cycle
 - Filling
 - Door Block
 - Inspection
 - Cycle Pause



Start: start of the set cycle.



Stop: end of the set cycle.



Regulations: by pressing this button, access is gained to the regulations screen.



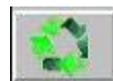
Print: by pressing this button, access is gained to the print screen.



Alarms: by pressing this button, access is gained to the alarms screen.



Recipes: by pressing this button, access is gained to the recipe screen.



Cycle setting: by pressing this button, access is gained to the cycle setting screen.



Password: an OP srl reserved area for machine testing.



Step: by pressing this button, access is gained to the settings of the cycles. Is possible setting until 10 different cycles.

By pressing the  button the last keyed in figure is deleted.

By pressing the   buttons the cursor is moved to the right or left

By pressing the  button the wrongly entered figure is deleted.

After entering the exact figure, confirm by pressing the enter  button.

Automatically, it will return to the CYCLE SETTING screen.

To make the Filling time, the working pressure, the working time, the cycles pause, the cycles to execute settings follow the same procedure described above by pressing the respective areas.

! IMPORTANT: THE BOOSTERS ARE SUPPLY BY AIR AND BEING THE COMPRESSABLE AIR, THE PEACK PRESSURE ALWAYS WILL BE A LITTLE BIT MORE THAN THE WORK PRESSURE ADJUSTED.



! IMPORTANT: MAXIMUM SETTABLE PRESSURE IS 1200 BAR. THE MINIMUM PRESSURE THAT CAN BE SET IS 100 BAR.

Cycle setting

In this area it is possible to control the cycle parameters setted before (white boxes) and at the same time to control the values in real time during the inspection stage (dark boxes). In the "Step number" box is visualized the cycle in test.

CYCLE SETTING			
Step nr.	1234	1234	Nr
Filling Time	1234	1234	Sec
Working Pressure	1234	1234	Bar
Working time	1234	1234	Sec
Cycles' pause Time	1234	1234	Sec
Emptying Time	1234	1234	Sec
Cycles to execute	1234	1234	Nr
Peak pressure	1234		

- **Data article area**

In this area it is possible to insert information related to the article being tested:

AREA 2

ITEM DATA	
Code	AaBbCcDdEeFfGg
Customer Code	AaBbCcDdEeFfGg
Name	AaBbCcDdEeFfGg
Order no	AaBbCcDdEeFfGg
Operator	AaBbCcDdEeFfGg

By pressing the key on the right of "Code" (AREA 2), automatically an alphanumerical keyboard will appear allowing us to set the information desired.

By pressing the **123** or **ABC** button the keyboard is converted from

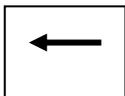
numerical to alphabetic or viceversa.

By pressing the **?\$!** button the keyboard is converted to symbol.

By pressing the buttons from  to  a decimal numerical figure is entered

By pressing the buttons from  to  the letters are entered

Press the  button to exit from the display page without confirming the keyed-in figure.

By pressing the  button the last keyed in figure is deleted.

By pressing the   buttons the cursor is moved to the right or left

By pressing the  button the wrongly entered figure is deleted.

By pressing the  button the keyboard is converted to capital or small letters.

By pressing the  button the keyboard is able to double function.

By pressing the  button a space between the value is entered.

After entering the desired name, to confirm press the enter button



Automatically, it will return to the CYCLE SETTING screen.

In order to set the customer code, name, the order number and the operator, carry out the same procedure as described above by pressing the respective boxes.

At this point the machine is ready to carry out the test.

Press the button



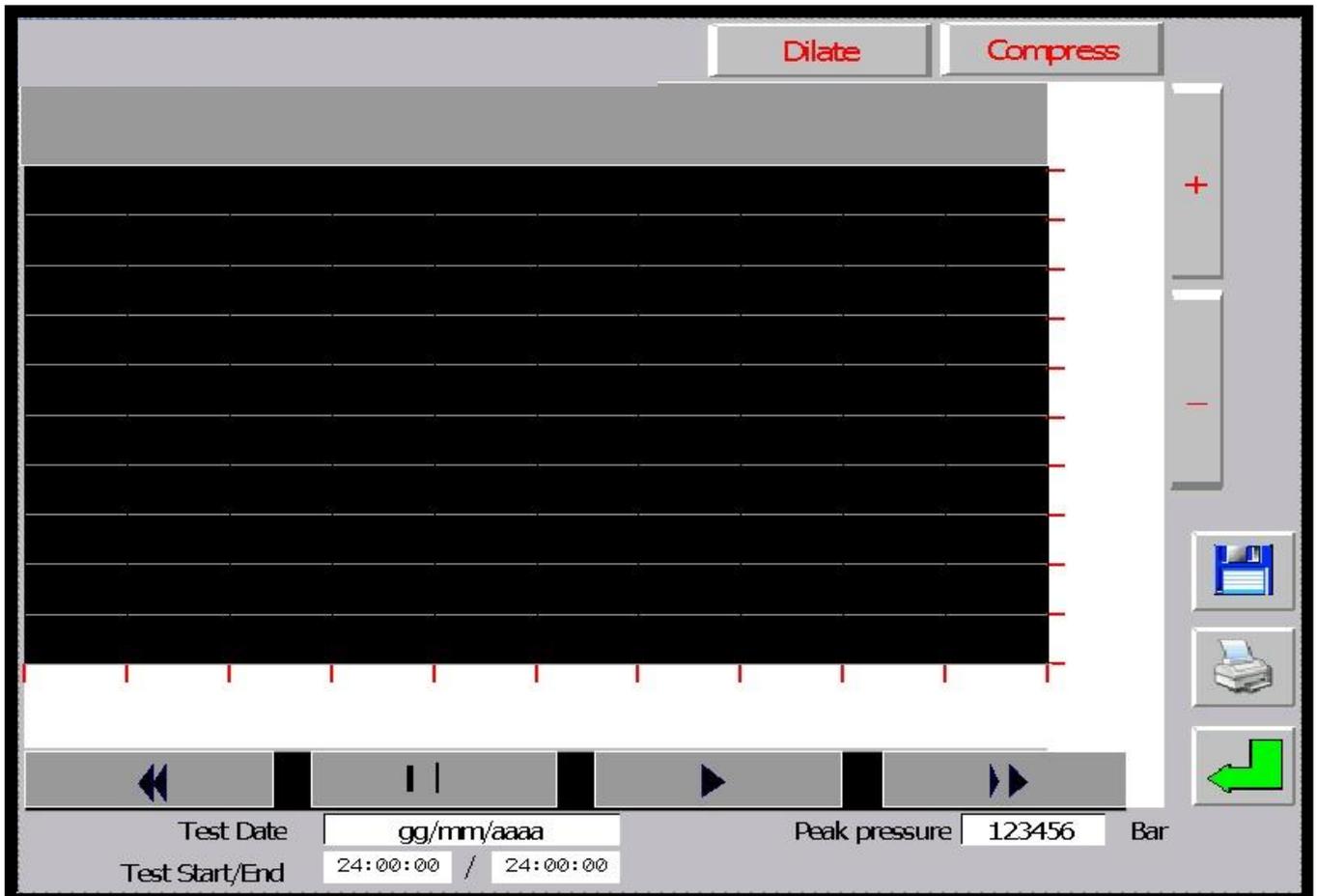
to perform the test.

 ***IMPORTANT: DURING THE CYCLE, THE MACHINE CAN BE STOPPED BY PRESSING THE **STOP** BUTTON.***



• **GRAPH AREA**

In this area the graph is visualised during the test indicating time (sec) on the X axis and pressure (bar) on the Y axis.



By pressing the button  the curve display is enlarged and consequently, the scale of seconds (axis X) is decreased.

By pressing the button  the curve display is reduced and consequently, the scale of seconds (axis X) is increased.

Press the  buttons to scroll the graph to the right or left, for put it in pause mode or restarting it.

SETTING PRESCRIPTIONS

If button  is pressed the display page picture 5 will be accessed

- PICTURE 5 -

Proport. Voltage		12.12 V		Actual state		Waiting Start Cycle					
Actual recipe		CYCLE SETTING									
123456		RESET	RESET	RESET	RESET	RESET	RESET	RESET	RESET		
		1	2	3	4	5	6	7	8	9	10
Working Pressure	Bar										
Working time	Sec										
Cycles' pause Time	Sec										
Cycles to execute	Nr										
Filling Time	Sec										
Emptying Time	Sec										
Adjustment time	Sec										
Current recipe		ITEMS DATA									
Recipe not existent		↑		Part Nr	AaBbCcDdEeFfGgH						
Recipe number		↓		Customer Part Nr	AaBbCcDdEeFfGgH						
123				Description	AaBbCcDdEeFfGgH						
				Order Nr	AaBbCcDdEeFfGgH						
				Operator	AaBbCcDdEeFfGgH						
				gg/mm/aaaa	24:00:00						

Current recipe
Recipe not existent

- **Current program** : Shows the recipe currently in use.

STORING THE NAME OF A PIPE WITH ALL ITS RESPECTIVE TEST PARAMETERS

Press the key  if you want to create a new prescription, automatically will appear the free number of prescription. You have to press  a second time for enable the white areas.

Now by pressing in white area, (pic.5, pos.1) it's possible to keyboard the name we wish to give to the prescription. (**Mandatory field**).

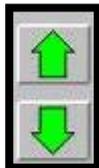
In order to set all the other parameters (Working Pressure, T. work, T. cycles pause, N. cycle, Filling time, Emptying time), to presse the other respective white areas.

After setting the prescription name with respective parameters, you can memorize it by pressing the button:



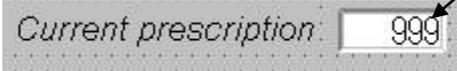
N.B.: The memory of the control panel includes storage of a maximum of 200 prescriptions.

Deletion of a prescription.

After displaying the prescriptions page pic.5, press the button  to display the types of prescriptions.

or

press the white area  and keyboard the number of prescription for select the prescription to delete.



At this point, by pressing:



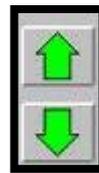
If you are sure to the disposal of prescription press the



button.

Calling a pipe in the prescription and loading the setting in the PC to perform the test.

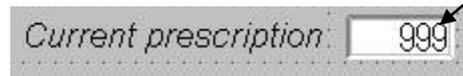
Once the prescription page pic.5 been displayed press



to display the names of the prescriptions stored.

or

select the prescription by pressing on white area



and

**WHITE
AREA**

keyboarding the number of prescription ,all its test parameters will automatically be displayed. These parameters can always be changed by pressing on the respective setting areas and then saved again by pressing:

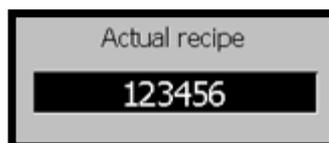


Once the prescription has been selected, press into the PLC.



to transfer all the test parameters

you can notice that in



will be display the

prescription that you want use.

Press the button



to enter the cycle window, and all of its test parameters will be

automatically visualised except the name.

These parameters can always be changed by pressing on the respective setting areas.

At this point if a check has been made to make sure that tall of the parameters are correct,

press the button



to start the test.

ALARMS

If button  is pressed the display page picture 6 will be accessed

- PICTURE 6 -



The screenshot shows a control panel interface. At the top, it displays 'Proport. Voltage' at 12.12 V and 'Actual state' as 'Waiting Start Cycle'. Below this is a section titled 'Alarms' containing a table with the following data:

Message	Date	Appearance	RTN
XxXxXxXx	gg/mm/aa	24:00	24:00
XxXxXxXx	gg/mm/aa	24:00	24:00
XxXxXxXx	gg/mm/aa	24:00	24:00

At the bottom of the screen, there is a navigation bar with several icons: a green circular arrow, a blue globe, a brown circuit board, a text input field containing 'gg/mm/aaaa', a time display showing '24:00:00', a red key icon, a printer icon, a blue document icon, and a yellow key icon. A 'Delete' button with a red 'X' icon is also visible in the bottom right corner of the main display area.

In this screen it is possible to check the active alarms.

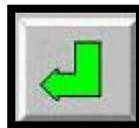
By pressing the keys   the window will scroll up and down visualising the active alarms.

- Visualisation of alarms

AREA 5

Messaggio	Data	Apparizione	RIN
XxXxXxXx	gg/mm/aa	24:00	24:00
XxXxXxXx	gg/mm/aa	24:00	24:00
XxXxXxXx	gg/mm/aa	24:00	24:00

Press in AREA 5 to visualise the description of the alarm and its possible causes. To return to the alarms window (pic. 6) press



NB. To scroll the alarms without viewing any time details, we have to push a second time on "AREA 5" and then scroll with the arrows

- Elimination of alarms

Select the alarm by pressing "AREA 5" and press the button  to eliminate the alarm message selected.

Otherwise continue to press  to cancel all alarms.

If the message is not eliminated it means that the alarm is active: see the possible causes (visualisation of alarms paragraph)

Reset the alarm and proceed with the elimination as described previously.

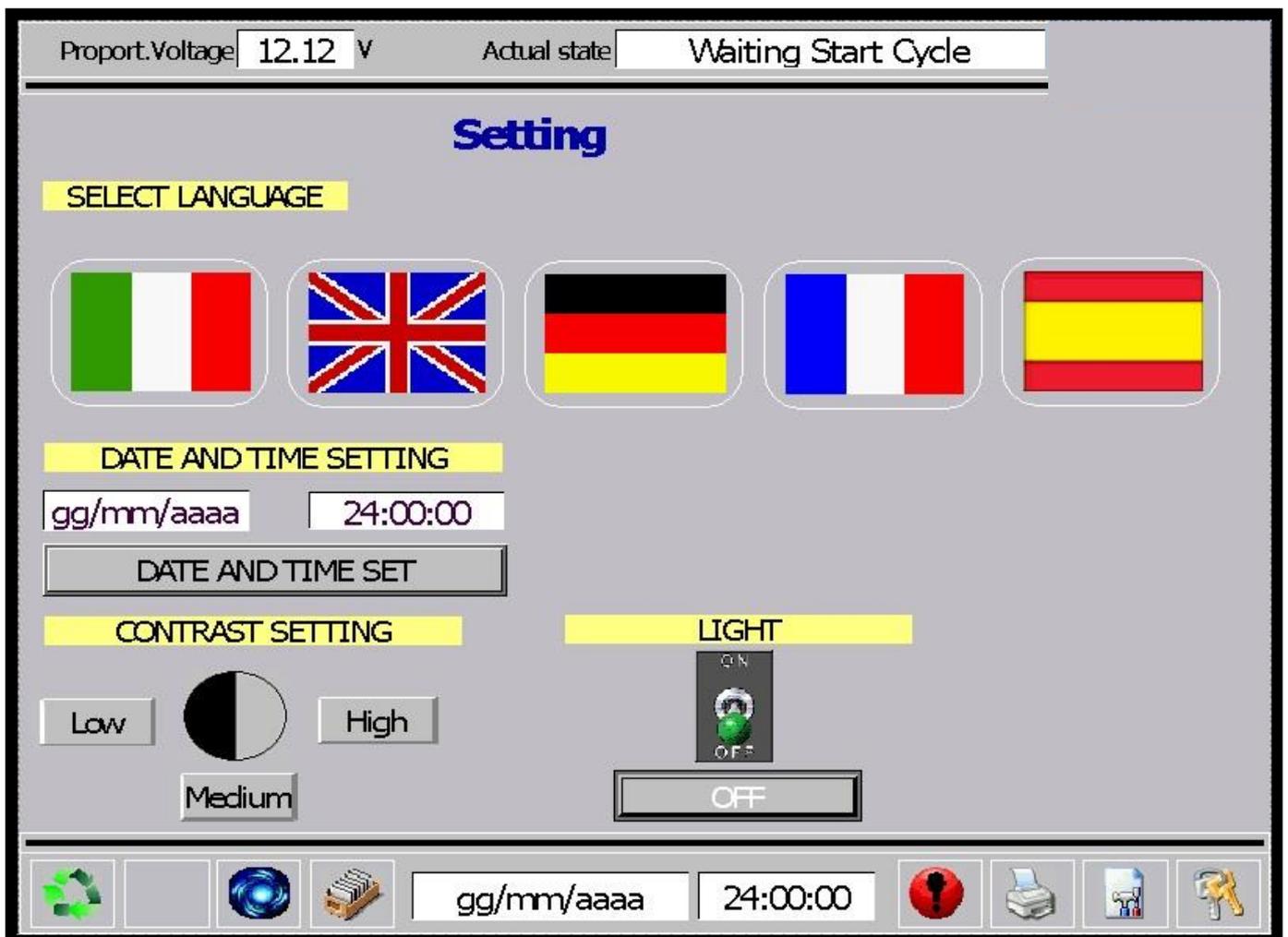
! ATTENTION: WHEN THE BUTTON  FLASHES, IT MEANS THAT ONE OR MORE ALARMS HAVE BEEN IDENTIFIED: FOR VISUALISATION PRESS THE FLASHING KEY.

SETTINGS

Language settings

If button  is pressed the display page picture 7 will be accessed

- PICTURE 7 -

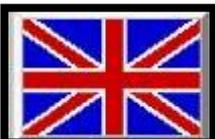


In the regulations area the following operations can be carried out:

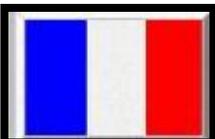
- Select language
- Date and time setting
- Contrast regulation
- ON OFF lights

Select language:

Press the  button to select the Italian language

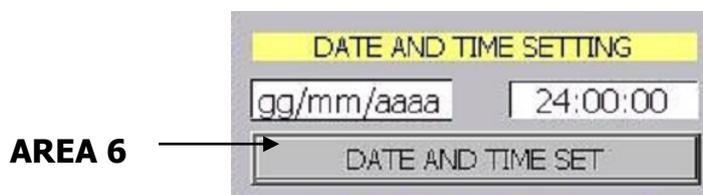
Press the  button to select the English language

Press the  button to select the German language

Press the  button to select the French language

Press the  button to select the Spanish language

Date and time setting:



From the "SETTINGS" display page (picture 7 see previous starting procedure chapter) the date and time can be set, proceeding as follows:

Press AREA 6 and a PASSWORD window will appear;

Press on the white bar and digit 1975 (see the cycles setting paragraph) and press the button

OK Or **CANCEL** to come back.

Will appear a windows which is possible to insert the date using the numerical keyboard (see cycles setting paragraph) in the following order:

dd.mm.yyyy;

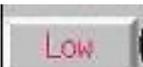
Ex. 13.10.2008

Confirm the date by pressing

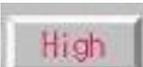


In order to change the time carry out the same operation and inserting the time in the following order: hh.mm.ss.

Contrast setting:

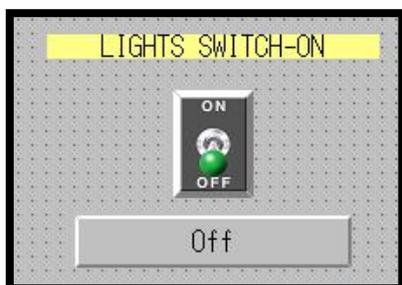
Press the  button to select the contrast if you want a low contrast.

Press the  button to select the contrast if you want a medium contrast.

Press the  button to select the contrast if you want a high contrast.

On / Off lights:

By pressing:

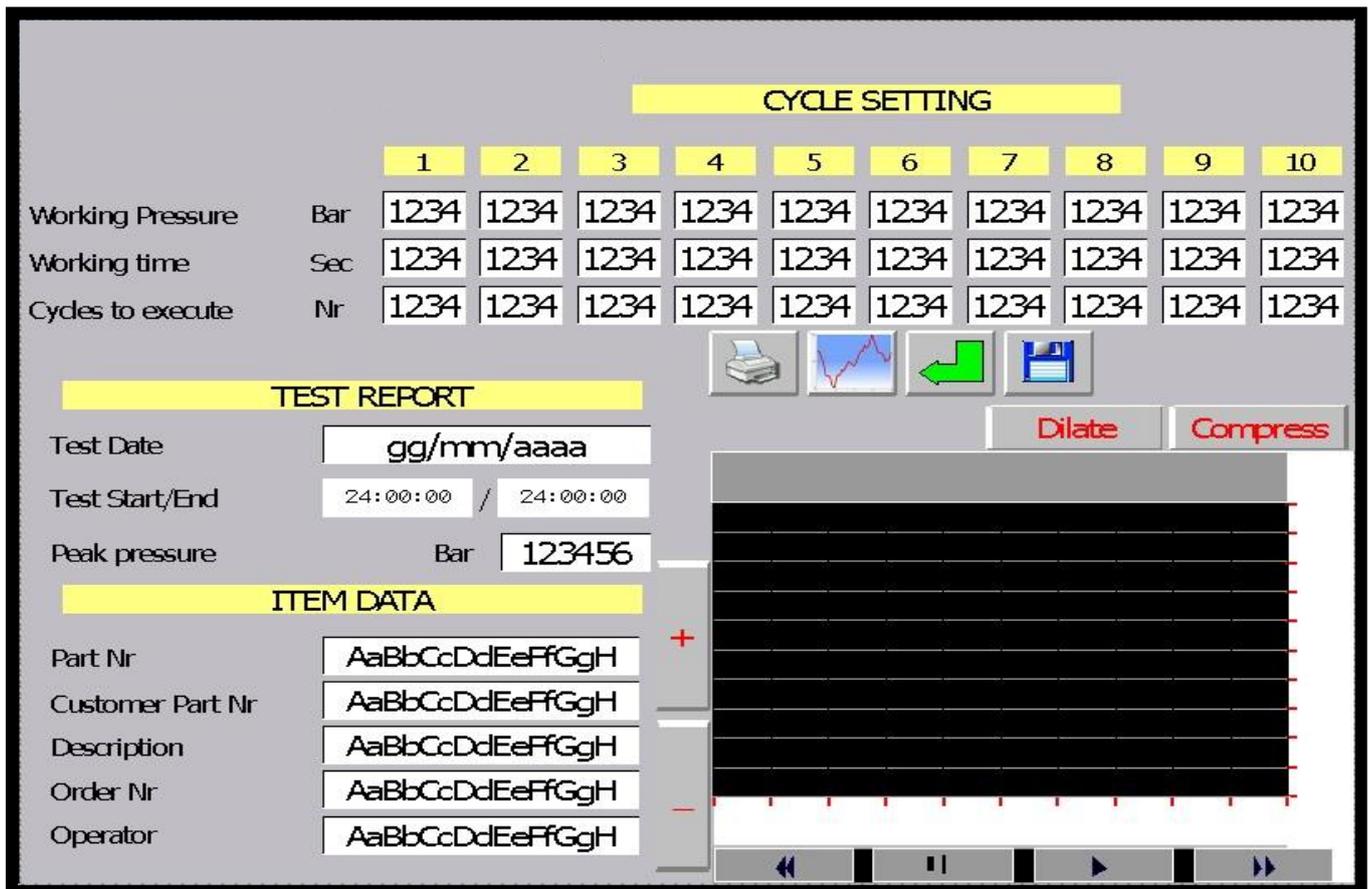


will be possible able or extinguish the lights in the test bench.

PRINT OUT OF TEST REPORT

If button  is pressed the display page picture 10 will be accessed:

- PICTURE 8 -



		1	2	3	4	5	6	7	8	9	10
Working Pressure	Bar	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234
Working time	Sec	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234
Cycles to execute	Nr	1234	1234	1234	1234	1234	1234	1234	1234	1234	1234

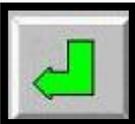
TEST REPORT

Test Date: gg/mm/aaaa
Test Start/End: 24:00:00 / 24:00:00
Peak pressure: Bar 123456

ITEM DATA

Part Nr: AaBbCcDdEeFfGgH
Customer Part Nr: AaBbCcDdEeFfGgH
Description: AaBbCcDdEeFfGgH
Order Nr: AaBbCcDdEeFfGgH
Operator: AaBbCcDdEeFfGgH

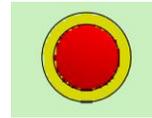
Here we can reduce, enlarge and scroll the graph curve using the same procedure described previously (see graph area paragraph) and modify the ARTICLE DATA (see article data paragraph).

Press  the button to return to the "CYCLE SETTING" display page PICTURE 5

Press the  button to print a test report.

SWITCHING OFF PROCEDURE

To switch off the machine, press the emergency button and turn the master switch, on the left side, to OFF.

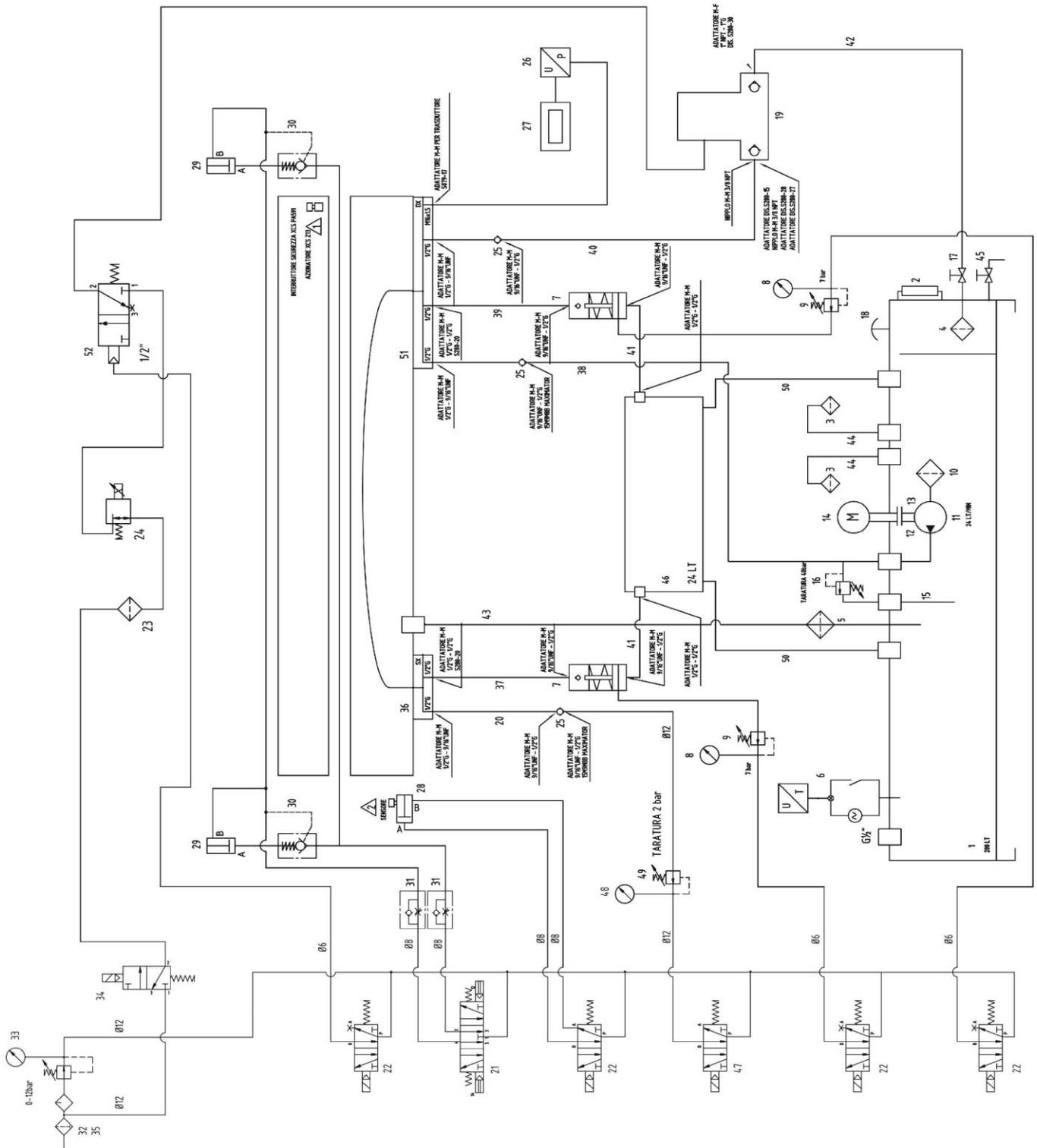


(pic.1 pos.02)

TROUBLESHOOTING

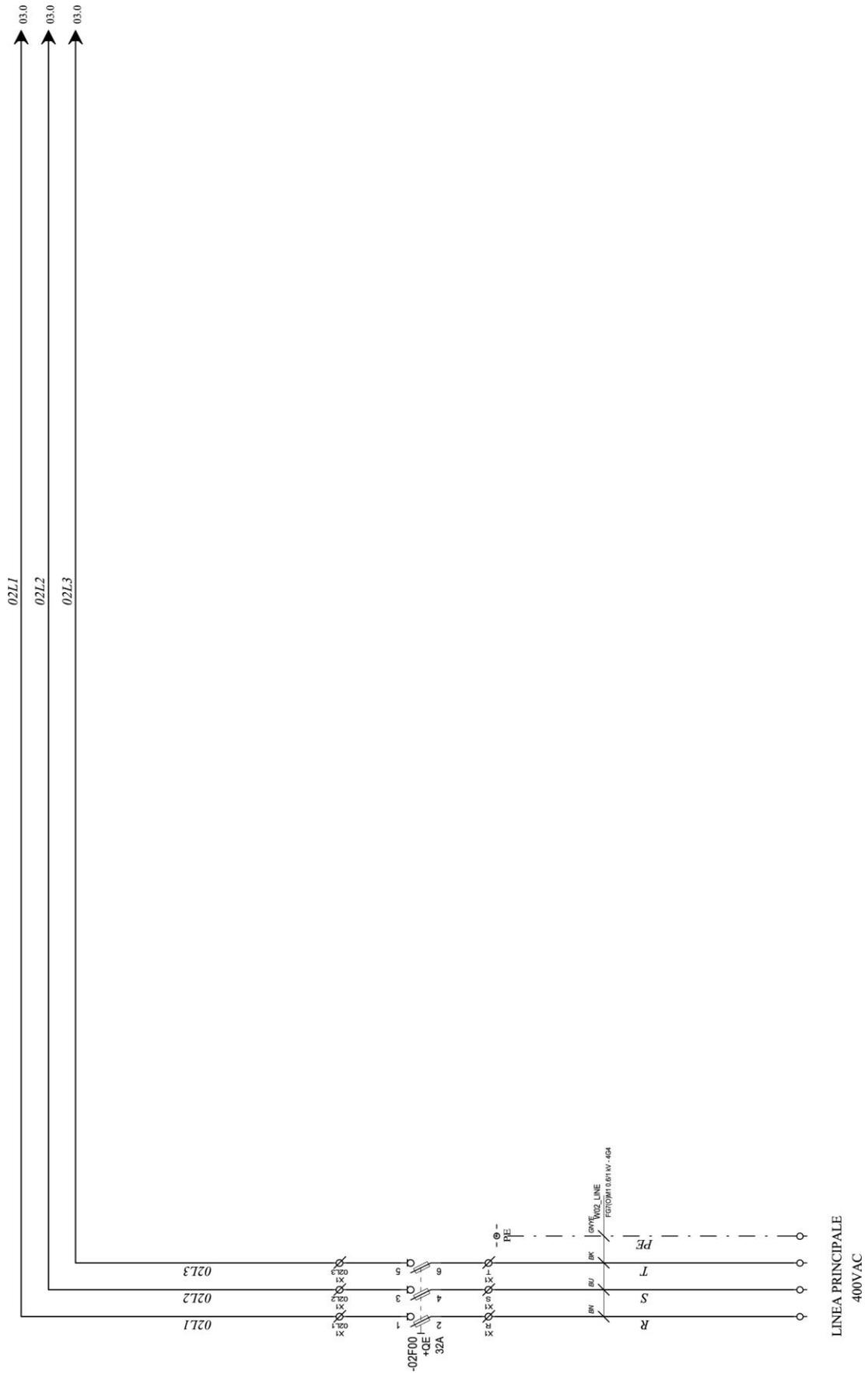
	PROBLEM	PROBABLE CAUSES	POSSIBLE REMEDIES
1	Pump does not supply required capacity	Filter clogged	Remove and clean (or replace)
		Air intake along intake hydraulis hose	Check joints for leaks
2	Pump does not supply required pressure	Pump excessively worn	Replace
		Excessive load losses in circuit	Check for possible bottlenecks
3	Leakages	Leakage of fluid from joints	Tighten joints and contact the manufacturer if necessary
4	Equipment not working	Power outage	Check the power system

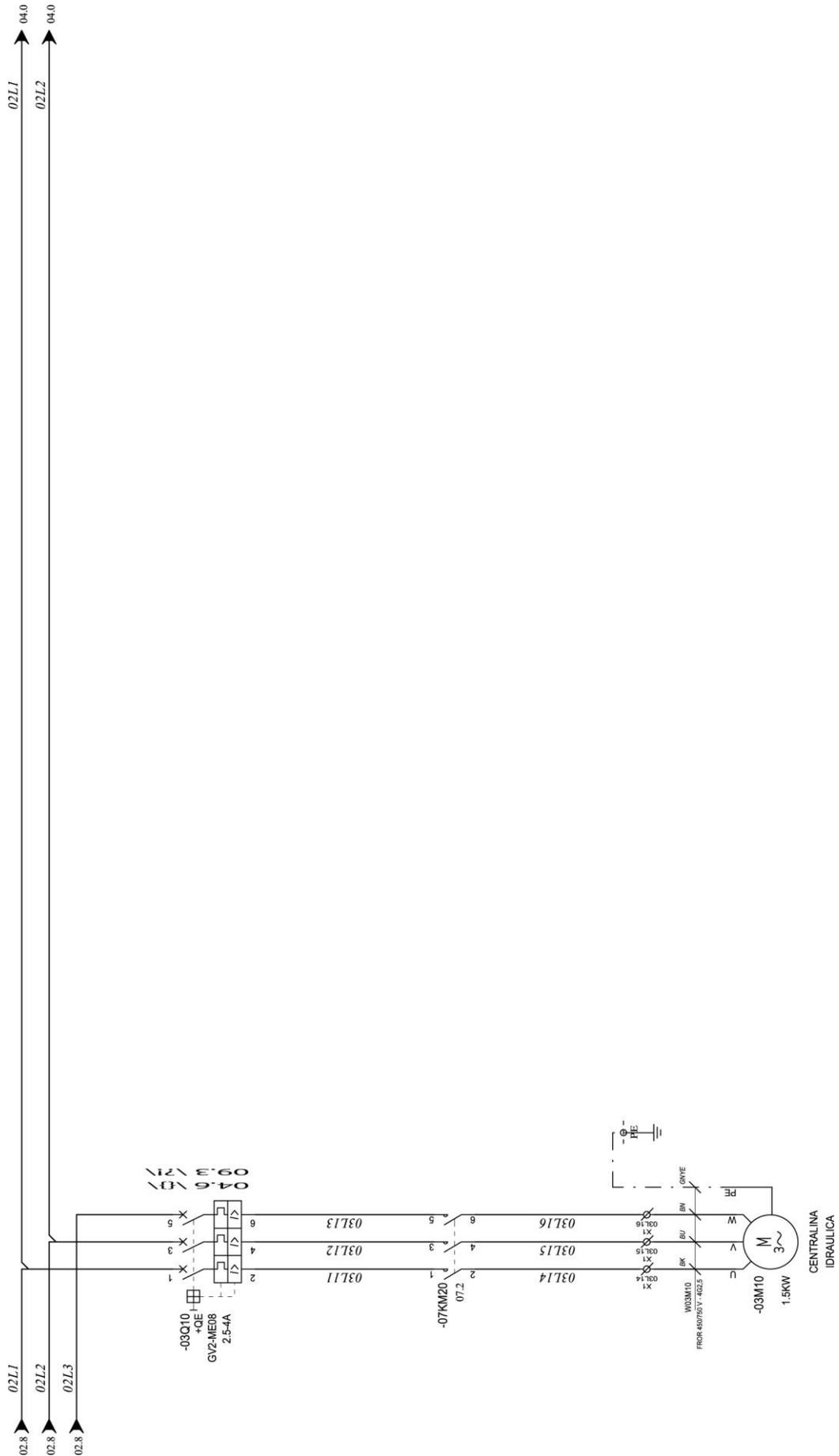
AIR-HYDRAULIC SYSTEM

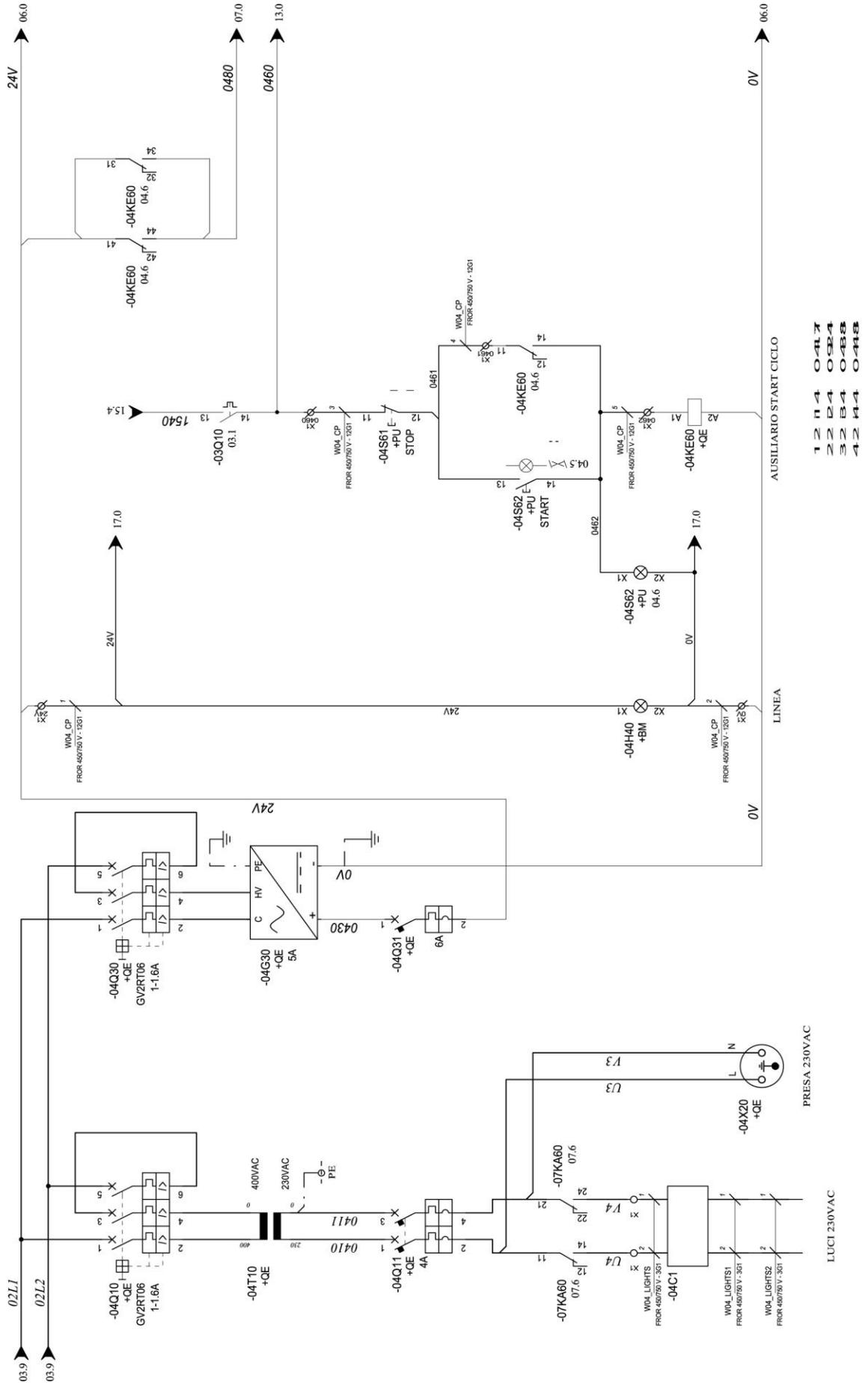


52	ELETTRICAL VALVE
51	BLOCK
50	TUBE
49	PRESSURE REDUCER
48	MANOMETER
47	SOLENOID VALVE
46	ADDIRIONAL TANK
45	CHECK VALVE
44	TUBE
43	TUBE
42	TUBE
41	HIGH PRESSURE TUBE
40	HIGH PRESSURE TUBE
39	HIGH PRESSURE TUBE
38	TUBE
37	HIGH PRESSURE TUBE
36	BLOCK
35	TAKE OFF BLOCK
34	SOLENOIDE VALVE
33	MANOMETER
32	F.R.L. GROUP FILTER+REGULATOR+LUBRIFICATOR
31	FLOW REGULATOR
30	SINGLE PILOT OPERATED CHECK VALVES
29	CYLINDER
28	CYLINDER
27	PLC
26	TRANSDUCER
25	CHECK VALVE
24	PROPORTIONAL VALVE
23	FILTER
22	SOLENOIDE VALVE
21	SOLENOIDE VALVE
20	HIGH PRESSURE TUBE
19	PNEUMOIDRAULIC PUMP
18	BREATHER PLUG
17	PNEUMATIC COCK
16	MAX PRESSURE VALVE
15	TUBE
14	MOTOR
13	STRAINER
12	JOINT
11	PUMP
10	SUCTION FILTER
9	PRESSURE REDUCER
8	MANOMETER
7	UNLOADING PNEUMATIC VALVE
6	ELETTRICAL LEVEL AND TEMPERATURE INDICATOR
5	DELIVERY FILTER
4	SUCTION FILTER
3	BREATHER FILTER
2	LEVEL INDICATOR
1	TANK

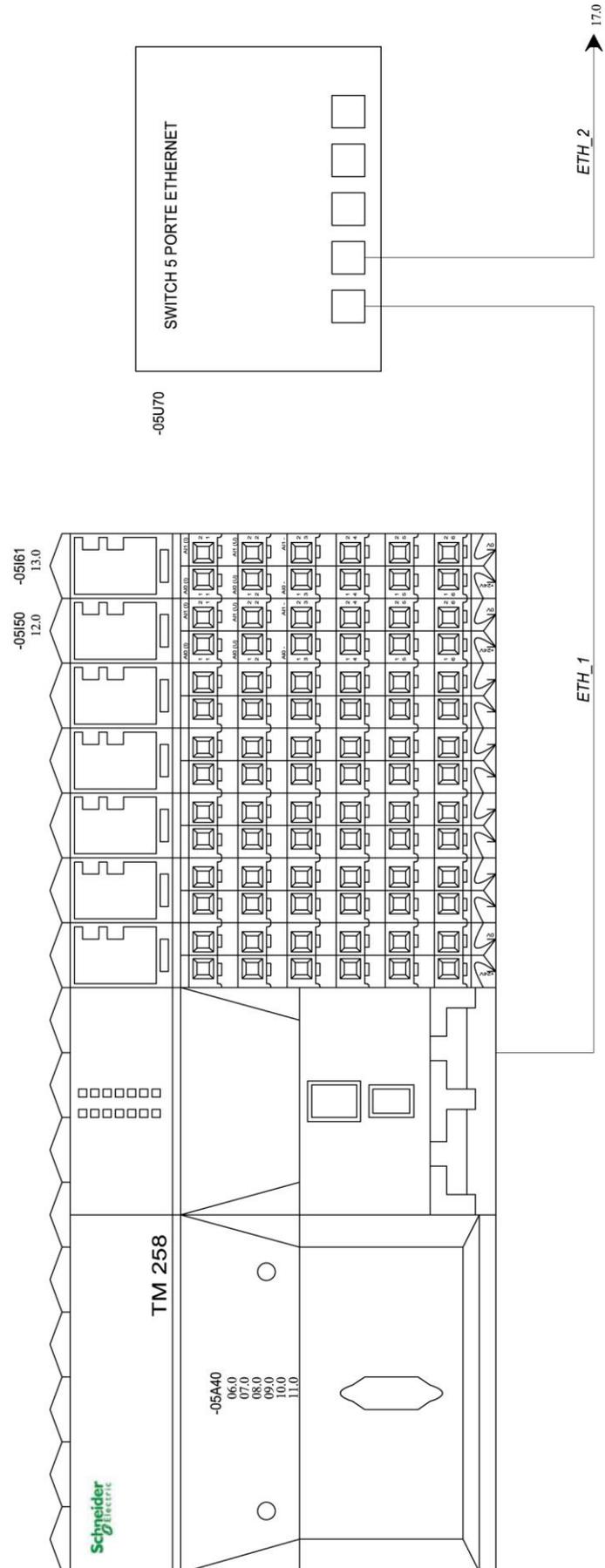
ELECTRIC SYSTEM DIAGRAMS

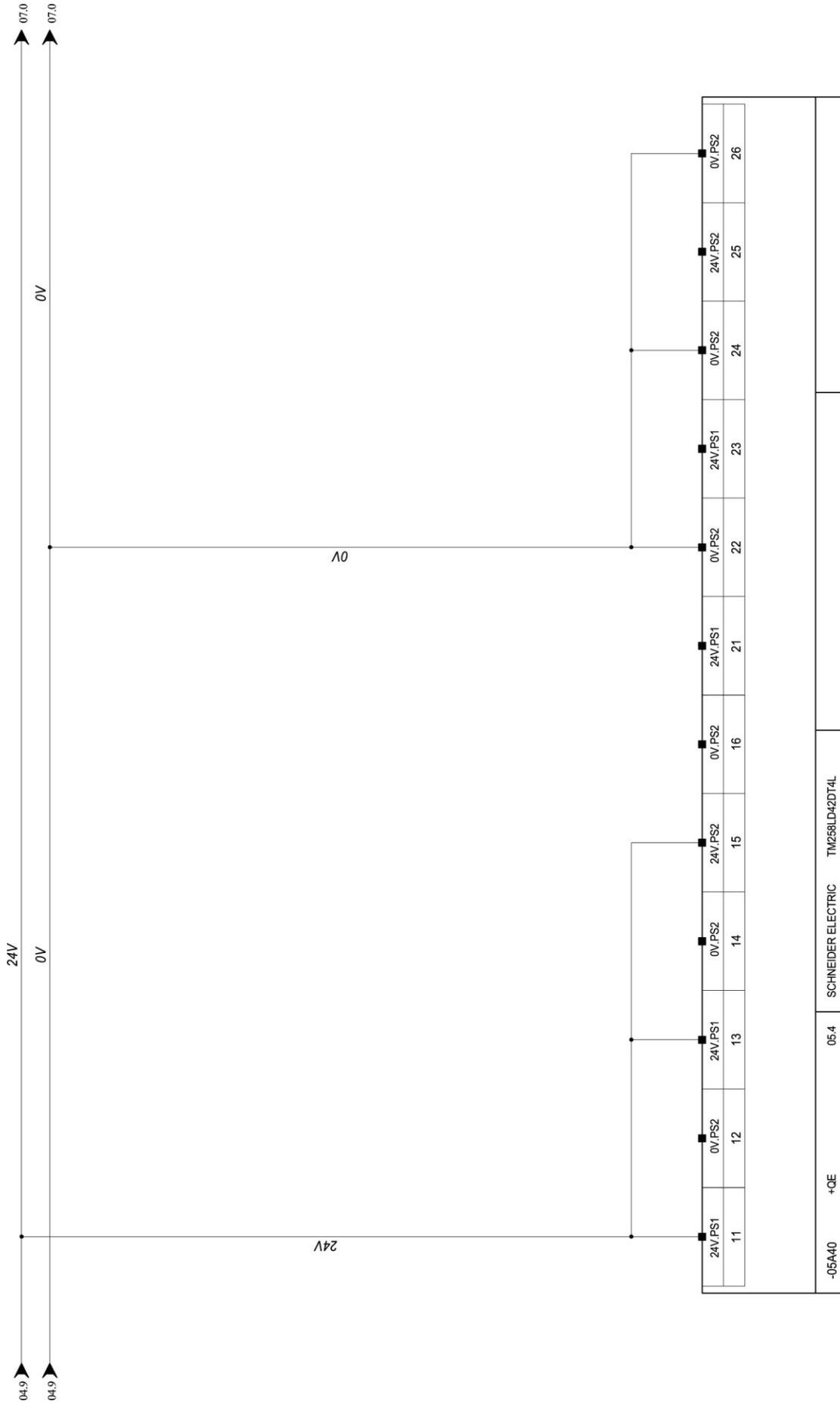


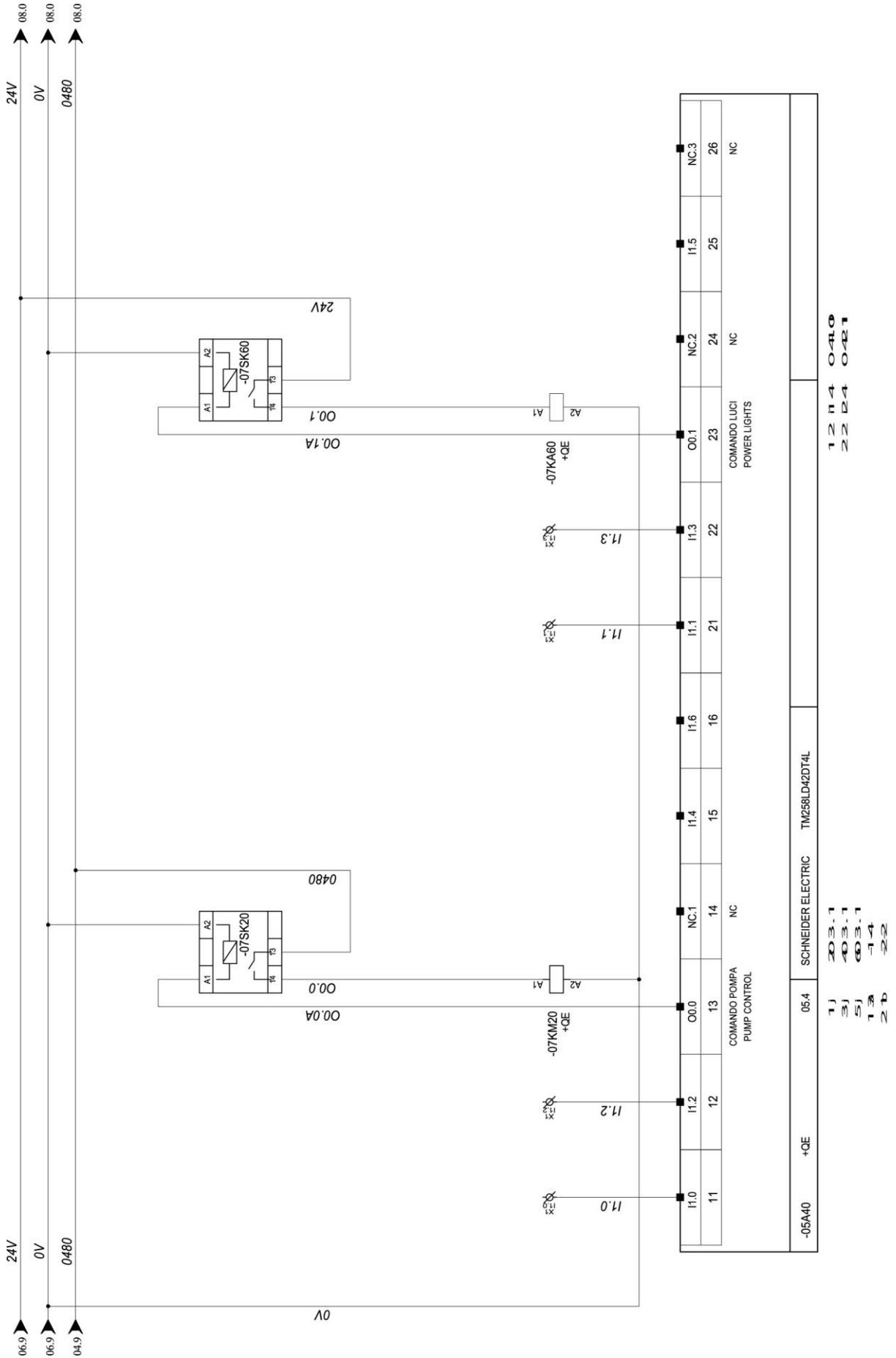


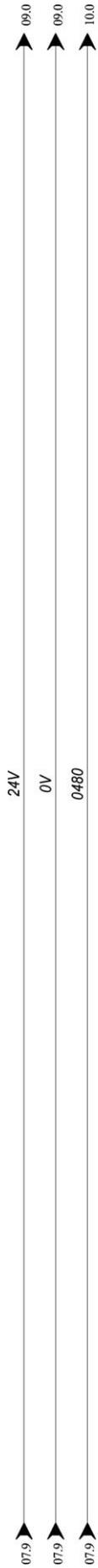


LAYOUT PLC

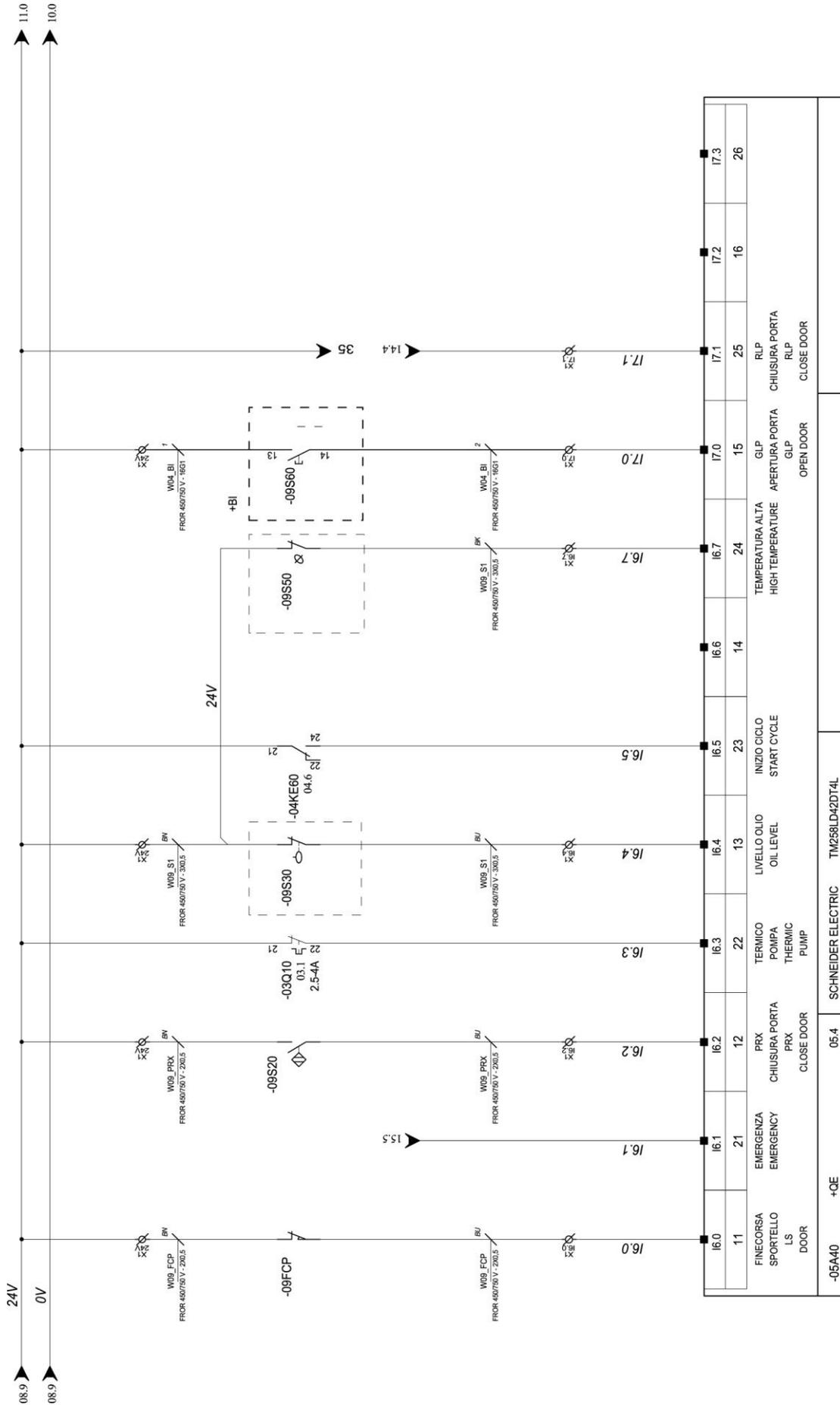


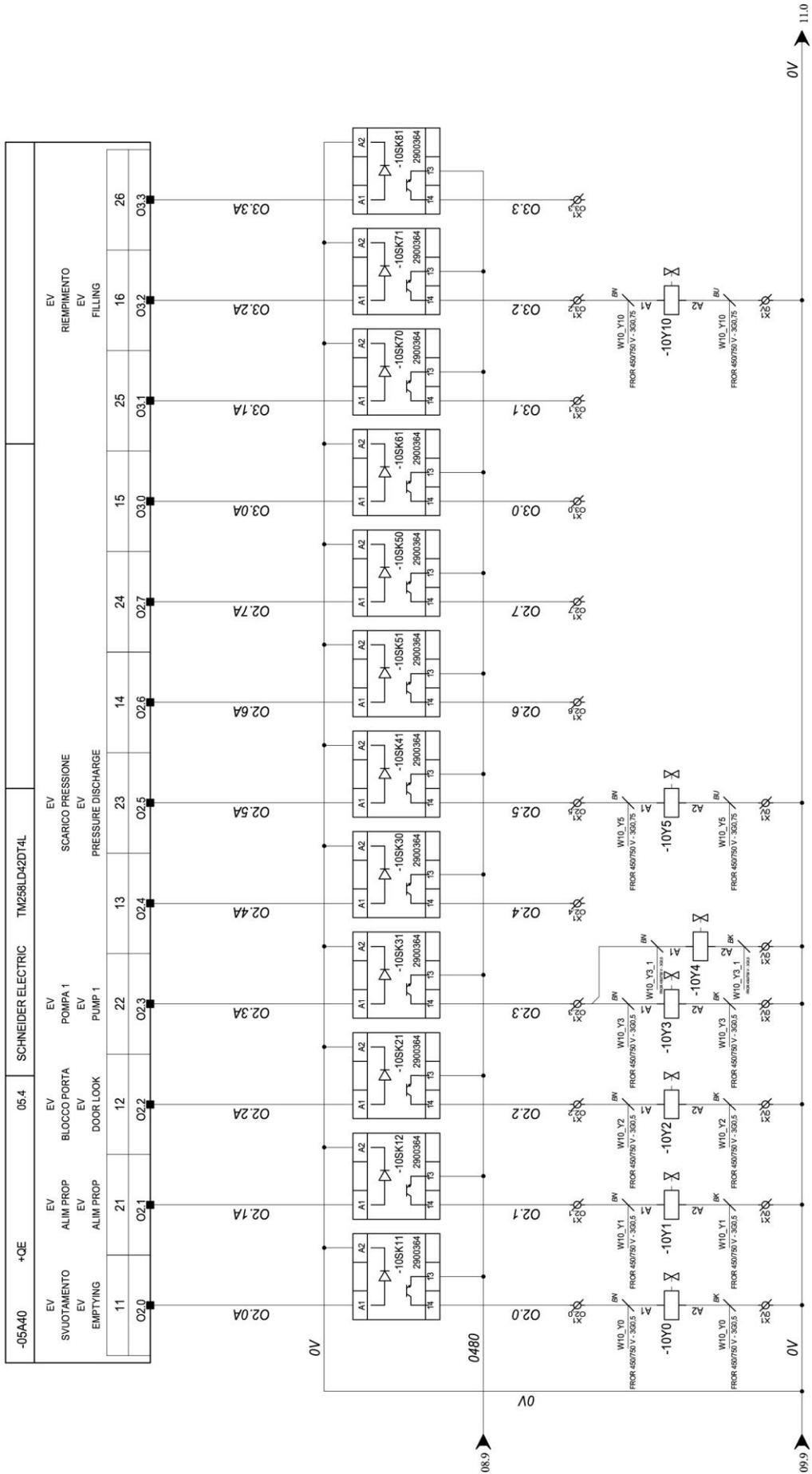


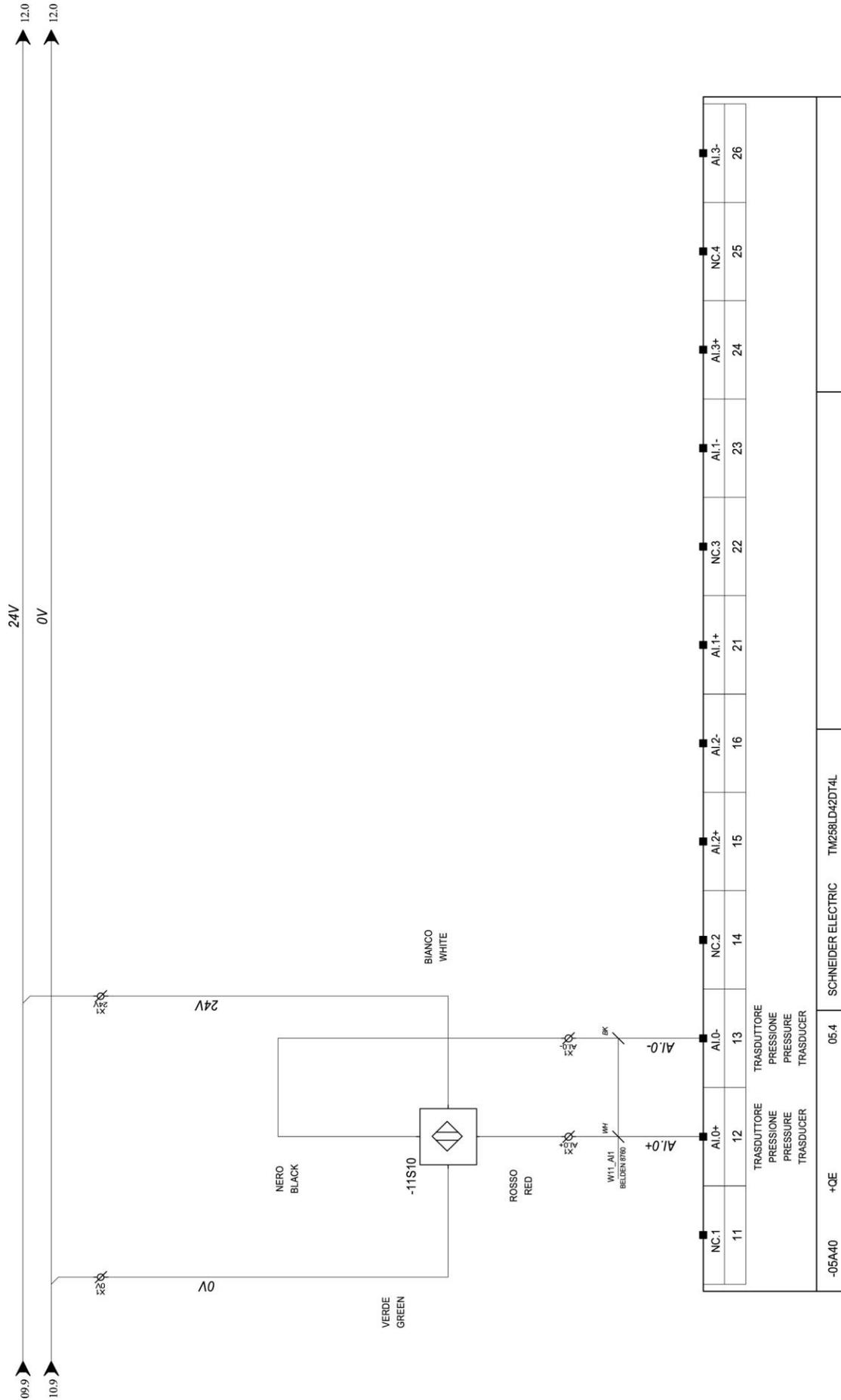




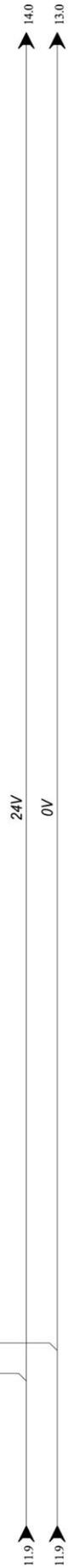
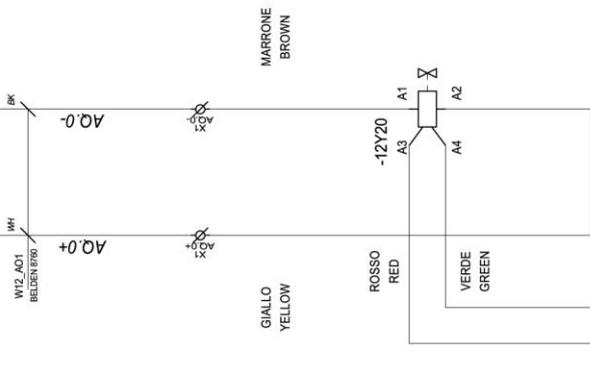
I3.0	I3.2	O1.0	NC.1	I3.4	I3.6	I3.1	I3.3	O1.1	NC.2	I3.5	NC.3
11	12	13	14	15	16	21	22	23	24	25	26
			NC						NC		NC
-05A40 +OE			05.4 SCHNEIDER ELECTRIC TM258LD42DT4L								

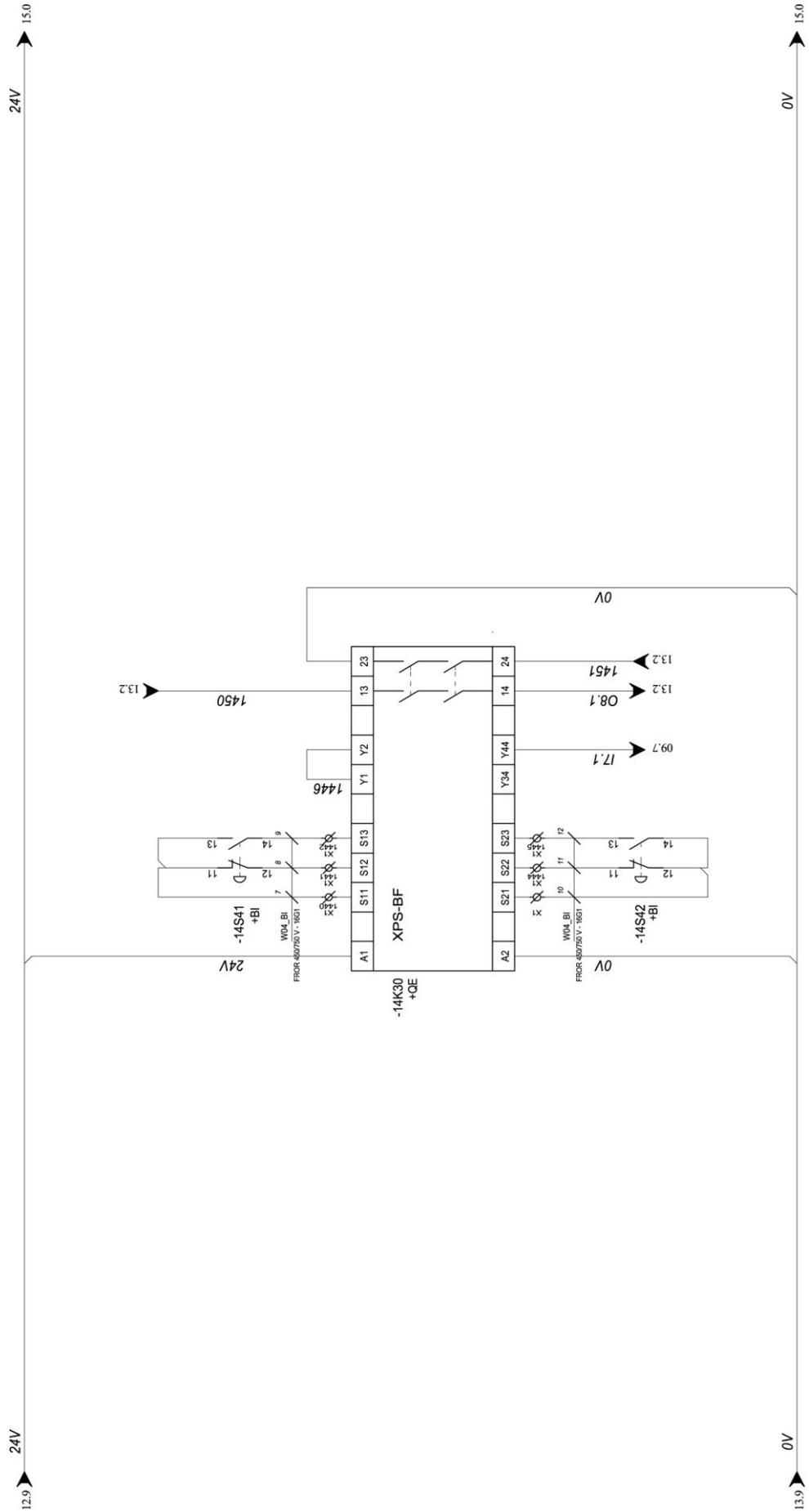


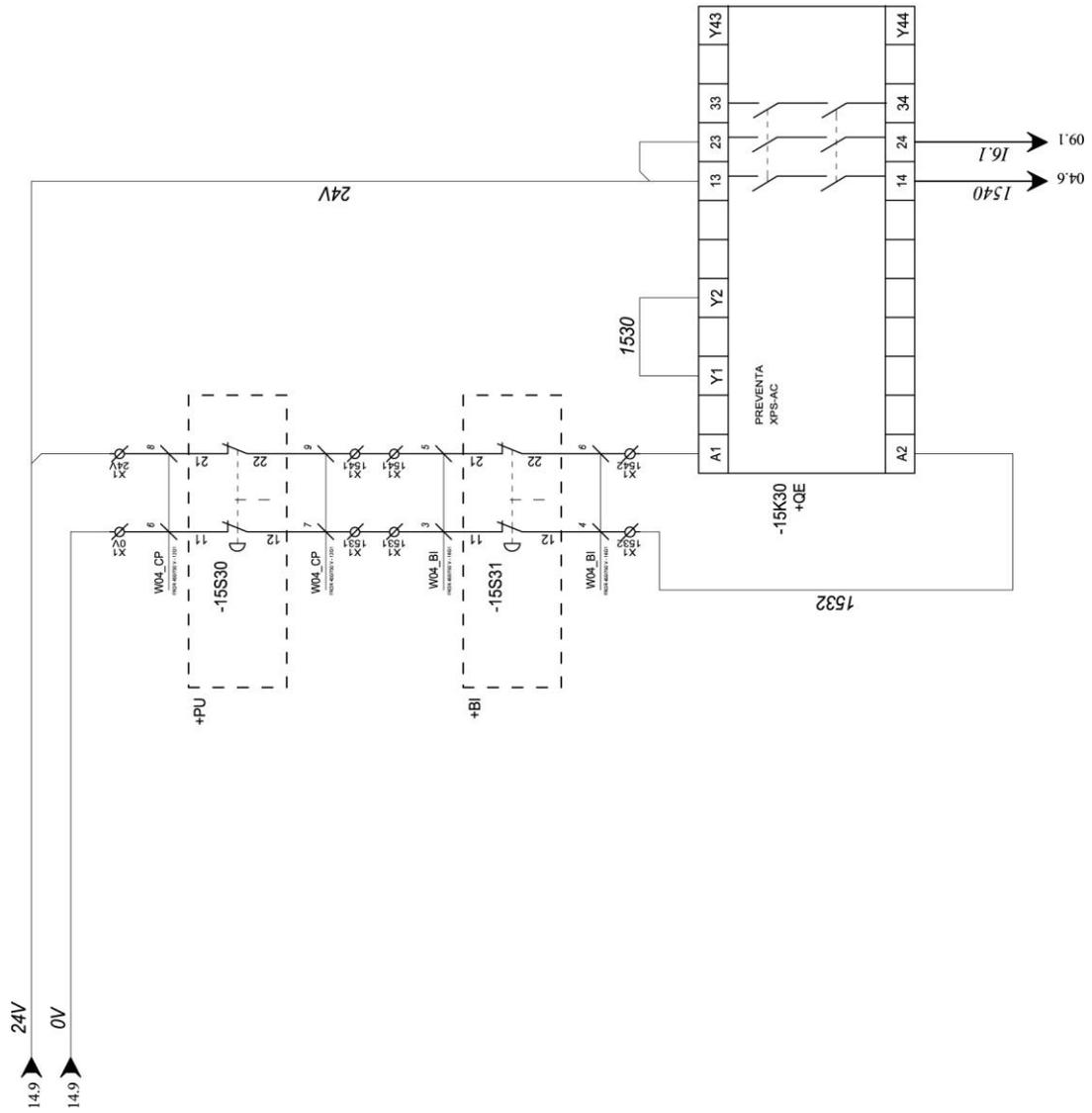


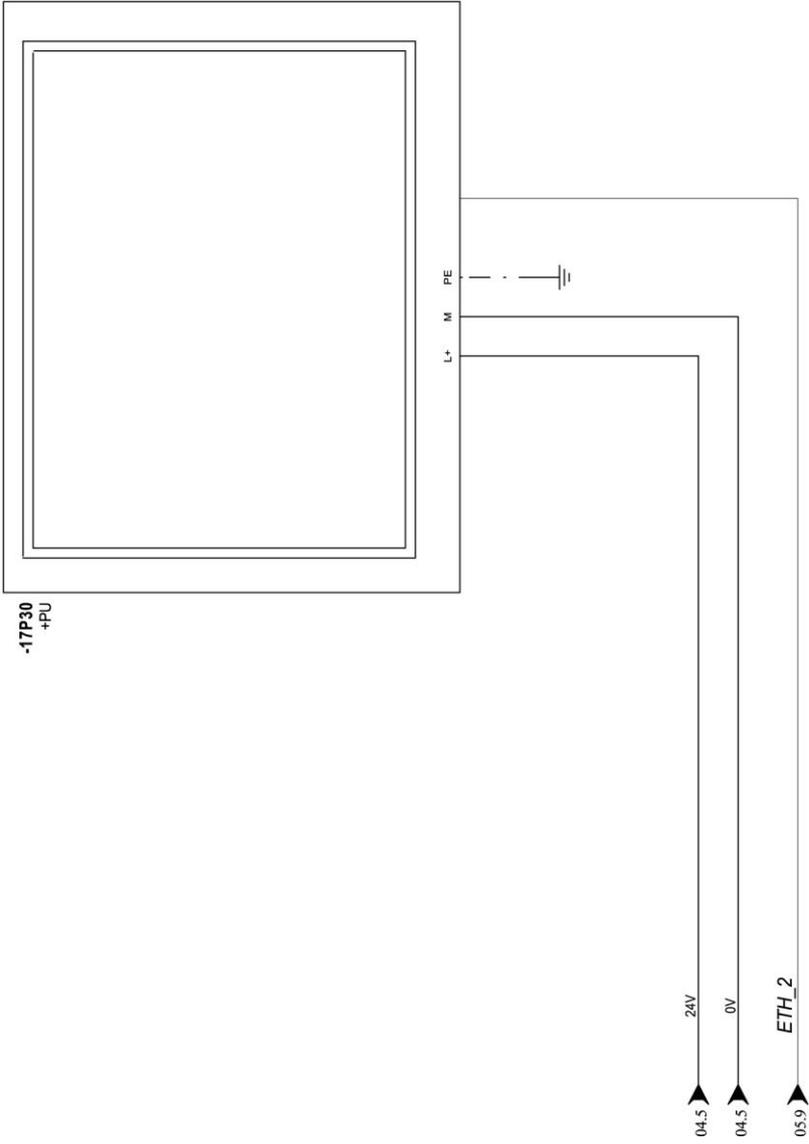


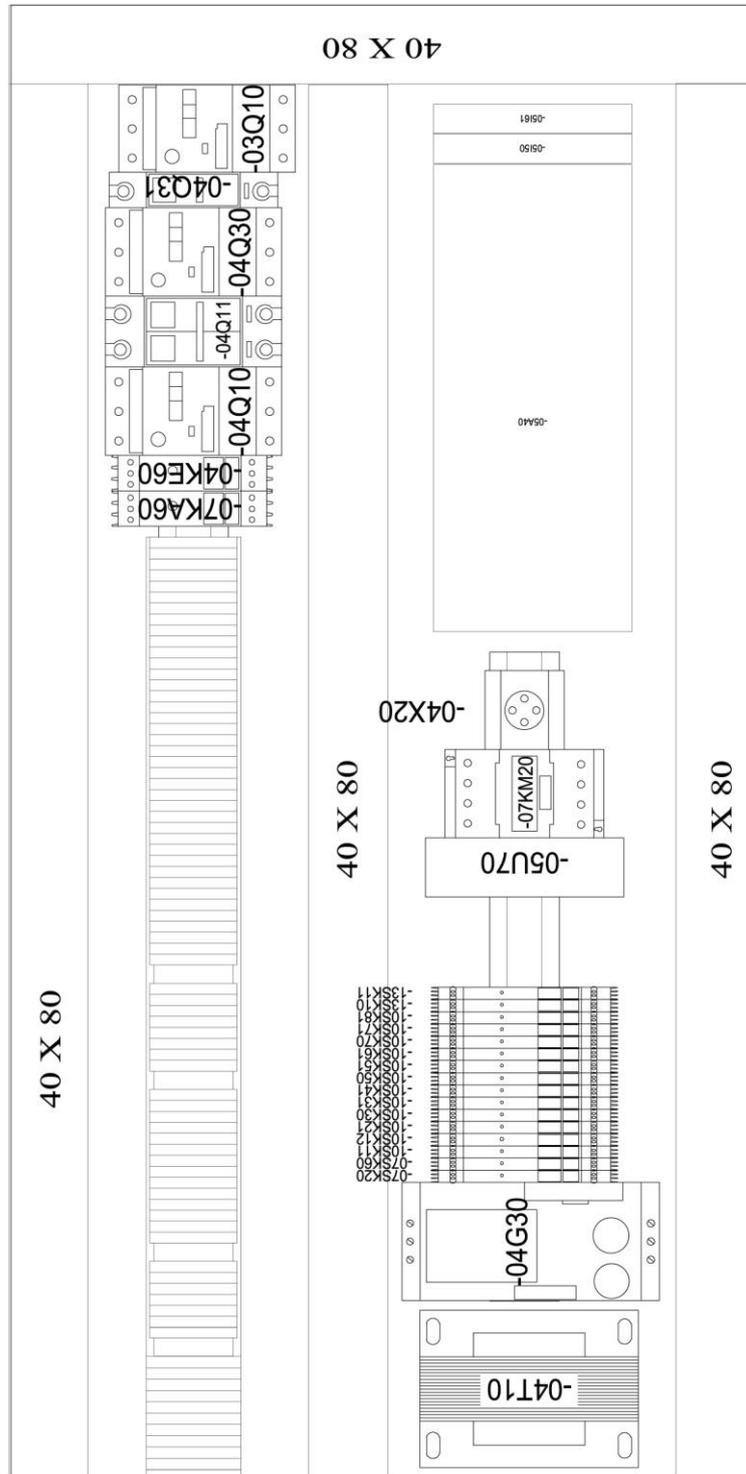
-05/50	+QE	05.6	SCHNEIDER ELECTRIC	TM5SA02L																			
VALVOLA PROPORZIONALE PROPORTIONAL VALVE					VALVOLA PROPORZIONALE PROPORTIONAL VALVE																		
11	NC.0	12	AQ.0+	13	AQ.0-	14	NC.1	15	AQ.2+	16	AQ.2-	21	AQ.1+	22	NC.2	23	AQ.1-	24	AQ.3+	25	NC.3	26	AQ.3-



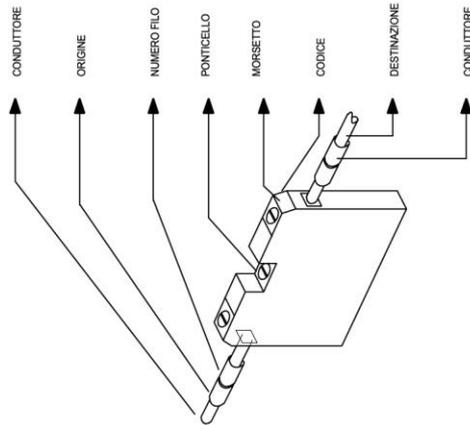








MORSETTIERA: x1
LOCALIZZAZIONE: QE



CONDUITTORE	DESTINAZIONE	CODICE	MORSETTO	PONTICELLO	NUMERO FILO	ORIGINE	CONDUITTORE
1440	14S41 - 13	3031212					14K30 - INF
6	14S41 - 14	3031212					14K30 - IN2
	1451	3031212					14K30 - 24
BK	13Y1 - A2	3031212					
11 - LIA1	11 - LIA1	3031212				11,0	
11 - LIA1	11 - LIA1	3031212				11,1	
11 - LIA1	11 - LIA1	3031212				11,2	
11 - LIA1	11 - LIA1	3031212				11,3	
BU	09FCP - 2	3031212				16,0	16 - LIA1
BU	09S20 - 2	3031212				16,2	16 - LIA1
BU	09S40 - 14	3031212				16,4	16 - LIA1
BK	09S50 - 14	3031212				16,7	16 - LIA1
2	09S60 - 14	3031212				17,0	17 - LIA1
	17 - LIA1	3031212				17,1	14K30 - 34
BN	10Y0 - A1	3031212				02,0	10SK11 - 14
BN	10Y1 - A1	3031212				02,1	10SK12 - 14
BN	10Y2 - A1	3031212				02,2	10SK21 - 14
BN	10Y3 - A1	3031212				02,3	10SK31 - 14
	10Y4 - A1	3031212					
	-	3031212				02,4	10SK30 - 14
	-	3031212				02,6	10SK51 - 14
	-	3031212				02,7	10SK50 - 14
	-	3031212				03,0	10SK61 - 14
	-	3031212				03,1	10SK70 - 14
	-	3031212				03,2	10SK71 - 14
BN	10Y5 - A1	3031212				02,5	10SK41 - 14
	-	3031212				03,3	10SK81 - 14
BN	13Y0 - A1	3031212				08,0	13SK11 - 14
BN	13Y1 - A1	3031212				08,1	14K30 - 14
	13C40 -	3031212	⇐	08S9A			08 - LIA1
	13C40 -	3031212	⇐	08S8A			08 - LIA1
	13C40 -	3031212	⇐	08S7A			08 - LIA1
VH	AI - LIA1	3031212				AI,0+	11S20 - 2
BK	AI - LIA1	3031212				AI,0-	11S20 - 3
VH	AQ - LIA1	3031212				AQ,0+	12Y20 - AZ
BK	AQ - LIA1	3031212				AQ,0-	12Y20 - A1
6	15S40 - 11	3031212				1530	15K30 - T1
7	15S40 - 12	3031212				1531	X1 - 2
7	15S41 - 11	3031212				1531	X1 - 1

BEIDEN 8760

-W12 AO1

BEIDEN 8760

-W11 A11

FROR 450/750 V - 3G0,5

-W13 Y1

LISTA CAVI / CABLE LIST

CAVO / CABLE		COMPONENTE ORIGINE COMPONENT BEGIN				COMPONENTE DESTINAZIONE COMPONENT DESTINATION			
Sigla Initial	N° Filo N° Wire	Codice Code	Sez. (mm ²)	Color/Num.	Lung. Length (m)	Sigla Initial	Ubicazione Location	Sigla Initial	Ubicazione Location
W02_LINE	T	FG7(O)M1 0.6/1 kV - 4G4	4	BK	5	- 2		X1-1	OE
	R		4	BN	5	- 2		X1-1	OE
	S		4	BU	5	- 2		X1-1	OE
W03M10	03L4	FROR 450/750 V - 4G2,5	2,5	BK	5	03M10 - U		X1-1	OE
	03L6		2,5	BN	5	03M10 - W		X1-1	OE
	03L5		2,5	BU	5	03M10 - V		X1-1	OE
W04_BI	24V	FROR 450/750 V - 16G1	1	1	5	09S60 - 13	BI	X1-1	OE
	1444		1	10	5	14S42 - 12	BI	X1-1	OE
	1445		1	11	5	14S42 - 11	BI	X1-1	OE
	17.0		1	12	5	- 13		X1-1	OE
	1440		1	2	5	09S60 - 14	BI	X1-2	OE
	1441		1	7	5	14S41 - 11	BI	X1-2	OE
	1442		1	8	5	14S41 - 12	BI	X1-2	OE
W04_CP	24V	FROR 450/750 V - 12G1	1	1	5	- 14		X1-2	OE
	0V		1	2	2	04H40 - X1	BM	X1-1	OE
	0460		1	2	2	04H40 - X2	BM	X1-2	OE
	0461		1	3	2	04S61 - 11	PU	X1-1	OE
	0462		1	4	2	04S62 - 13	PU	X1-2	OE
W04_LIGHTS	V4	FROR 450/750 V - 3G1	1	5	2	04S62 - 14	PU	X1-2	OE
	U4		1	1	2	04C1 -		X1-1	OE
W04_LIGHTS1			1	2	2	04C1 -		X1-1	OE
W04_LIGHTS2			1	1	1,5	04C1 -		- 1	
			1	2	1,5	04C1 -		- 1	
			1	1	1,5	- 2		- 1	
W09_FCP	24V	FROR 450/750 V - 2X0,5	0,5	BN	6	09FCP - 1		X1-1	OE
	16.0		0,5	BU	6	09FCP - 2		X1-2	OE
W09_PRX	24V		0,5	BN	3	09S20 - 1		X1-1	OE
	16.2		0,5	BU	3	09S20 - 2		X1-2	OE
W09_S1	16.7	FROR 450/750 V - 3X0,5	0,5	BK	2	09S50 - 14		X1-2	OE
	24V		0,5	BN	2	09S40 - 13		X1-1	OE

LISTA CAVI / CABLE LIST

CAVO / CABLE		COMPONENTE ORIGINE COMPONENT BEGIN				COMPONENTE DESTINAZIONE COMPONENT DESTINATION			
Sigla Initial	N° Filo N° Wire	Codice Code	Sez. (mm ²)	Color/Num.	Lung. Length (m)	Sigla Initial	Ubicazione Location	Sigla Initial	Ubicazione Location
W10_Y0	16.4 0V	FROR 450/750 V - 3G0.5	0.5	BU	2	09S40 - 14		X1 - 2	QE
			0.5	BK	1.5	10Y0 - A2		X1 - 2	QE
W10_Y1	O2.0 0V		0.5	BN	1.5	10Y0 - A1		X1 - 1	QE
			0.5	BK	1.5	10Y1 - A2		X1 - 2	QE
W10_Y10	O2.1 0V		0.5	BN	1.5	10Y1 - A1		X1 - 1	QE
W10_Y2	0V	FROR 450/750 V - 3G0.75	0.75	BU	1.5	10Y10 - A2		X1 - 2	QE
		FROR 450/750 V - 3G0.5	0.5	BK	1.5	10Y2 - A2		X1 - 2	QE
W10_Y3	O2.2 0V		0.5	BN	1.5	10Y2 - A1		X1 - 1	QE
			0.5	BK	1.5	10Y3 - A2		X1 - 2	QE
W10_Y5	O2.3 0V		0.5	BN	1.5	10Y3 - A1		X1 - 1	QE
		FROR 450/750 V - 3G0.75	0.75	BU	1.5	10Y5 - A1		X1 - 1	QE
W11_AI1	O2.5 0V		0.75	BU	1.5	10Y5 - A2		X1 - 2	QE
		BELDEN 8760	0.5	BK	1.5	AI - LIA1		X1 - 1	QE
W12_A01	AI.0 AI.0+		0.5	WH	1.5	AI - LIA1		X1 - 1	QE
			0.5	BK	1.5	AQ - LIA1		X1 - 2	QE
W13_CL	AQ.0 AQ.0+		0.5	WH	1.5	AQ - LIA1		X1 - 2	QE
W13_Y0	0V	FG7(O)R 0,6/1 kV - 7G1	1	1	2.5	13C40 -		X1 - 2	QE
		FROR 450/750 V - 3G0.5	0.5	BK	3	13Y0 - A2		X1 - 2	QE
W13_Y1	O8.0 1451		0.5	BN	3	13Y0 - A1		X1 - 1	QE
			0.5	BK	3	13Y1 - A2		X1 - 2	QE
			0.5	BN	3	13Y1 - A1		X1 - 1	QE

Sigla	Descrizione	Codice	Costruttore	Localizzazione	Quantità	Posizione
02F00	SEZIONATORE 3X32A CON MANOVRA ROTATIVA	3LD2203-0TK53	SIEMENS	QE	1	02.0
03Q10	MAGNETOTERMICO 2.5-4A	GV2-ME08	SCHNEIDER ELECTRIC	QE	1	03.1
03Q10	CONTATTI FRONTALI 1NO + 1NC	GV-AE11	SCHNEIDER ELECTRIC	QE	1	03.1
04C1	CUSTODIA FISSA 90°	CK03IA	ILME		1	04.0
04C1	CUSTODIA VOLANTE DRIITA	CK03VS	ILME		1	04.0
04C1	FRUTTO SPINA 3+T	CKM03	ILME		1	04.0
04C1	FRUTTO PRESA 3+T	CKF03	ILME		1	04.0
04C1	LUMILUX COMBI EL F/P 230/240V 50/60Hz 18W	72311	OSRAM		3	04.0
04Q10	MAGNETOTERMICO 1-1,6AA	GV2RT06	SCHNEIDER ELECTRIC	QE	1	04.1
04Q11	AUTOMATICO BIPOLARE C4	A9F74204	SCHNEIDER ELECTRIC	QE	1	04.1
04T10	TRASFORMATORE 400VAC/0-230VAC 500VA	TA-208503	NOR-SE	QE	1	04.1
04X20	PRESA 2P+T 16A BIV.ST.ITALIANO/TEDESCO	GW20246	GEWISS	QE	1	04.2
04X20	SUPPORTO PRESA 2P+T 16A BIV.ST.ITALIANO/TEDESCO	GW26410	GEWISS	QE	1	04.2
04G30	ALIMENTATORE 5A 24VDC	ABL8RPS24050	SCHNEIDER ELECTRIC	QE	1	04.3
04Q30	MAGNETOTERMICO 1-1,6AA	GV2RT06	SCHNEIDER ELECTRIC	QE	1	04.3
04Q31	AUTOMATICO 1P C6	A9F79106	SCHNEIDER ELECTRIC	QE	1	04.3
04H40	LAMPADA SPIA BIANCA	ZB5-AV013	SCHNEIDER ELECTRIC	BM	1	04.4
04H40	ELEMENTO LUMINOSO CON LED BIANCO 24VAC/DC	ZBV-B1	SCHNEIDER ELECTRIC	BM	1	04.4
04H40	CASTELLO PORTA CONTATTI IN PLASTICA	ZB5-AZ009	SCHNEIDER ELECTRIC	BM	1	04.4
04KE60	RELE' RSB MINIATURA 4 CONTATTI DI SCAMBIO 24VDC	RXM4AB1BD	SCHNEIDER ELECTRIC	QE	1	04.6
04KE60	ZOCOLO PER RELE' 4 CONTATTI DI SCAMBIO	RXE2M114	SCHNEIDER ELECTRIC	QE	1	04.6
04KE60	STAFFA DI MANTENIMENTO IN METALLO	RXZ400	SCHNEIDER ELECTRIC	QE	1	04.6
04S61	PULSANTE PIATTO ROSSO GH.PLASTICA D.22	ZB5-AA4	SCHNEIDER ELECTRIC	PU	1	04.6
04S61	CONTATTO - 1NC -	ZBE-102	SCHNEIDER ELECTRIC	PU	1	04.6
04S61	CASTELLO PORTA CONTATTI IN PLASTICA	ZB5-AZ009	SCHNEIDER ELECTRIC	PU	1	04.6
04S62	PULSANTE LUMINOSO VERDE GH. PLASTICA D.22	ZB5-AW333	SCHNEIDER ELECTRIC	PU	1	04.6
04S62	ELEMENTO LUMINOSO CON LED VERDE 24VAC/DC	ZBV-B3	SCHNEIDER ELECTRIC	PU	1	04.6
04S62	CASTELLO PORTA CONTATTI IN PLASTICA	ZB5-AZ009	SCHNEIDER ELECTRIC	PU	1	04.6
04S62	CONTATTO - 1NO -	ZBE-101	SCHNEIDER ELECTRIC	PU	1	04.6
05A40	M258	TM258LD42DT4L	SCHNEIDER ELECTRIC	QE	1	05.4
05I50	MODULO 2AO +-10V/0.20MA 12 BITS	TM5SA02L	SCHNEIDER ELECTRIC	QE	1	05.5
05I50	BASE BUS 24VDC	TM5ACBM11	SCHNEIDER ELECTRIC	QE	1	05.5
05I50	MORSETTIERA 12 PIN 24VDC	TM5ACTB12	SCHNEIDER ELECTRIC	QE	1	05.5
05I61	MODULO 12DO 24VDCTR 0.5A 1 WIRE	TM5SDO12T	SCHNEIDER ELECTRIC	QE	1	05.6
05I61	BASE BUS 24VDC	TM5ACBM11	SCHNEIDER ELECTRIC	QE	1	05.6
05I61	MORSETTIERA 12 PIN 24VDC	TM5ACTB12	SCHNEIDER ELECTRIC	QE	1	05.6
05U70	SWITCH 5 PORTE 10/100	59720500	EDIMAX	QE	1	05.7
07KM20	CONTACTOR 4KW 24VDC	LC1-D09BD	SCHNEIDER ELECTRIC	QE	1	07.2
07SK20	SIGNAL RELAY, WHITE RELAY TYPE	2900299	PHOENIX	QE	1	07.2
07KA60	RELE' RSB MINIATURA 2 CONTATTI DI SCAMBIO 24VDC	RSB2A080BD	SCHNEIDER ELECTRIC	QE	1	07.6

LISTA MATERIALI						
Sigla	Descrizione	Codice	Costruttore	Localizzazione	Quantità	Posizione
07KA60	BASE PER RELE' RSB 1-2 CONTATTI	RSZ1S48M	SCHNEIDER ELECTRIC	QE	1	07.6
07KA60	STAFFA DI MANTENIMENTO IN PLASTICA	RSZ R215	SCHNEIDER ELECTRIC	QE	1	07.6
07SK60	SIGNAL RELAY, WHITE RELAY TYPE	2900299	PHOENIX	QE	1	07.6
09FCP	INTERRUTTORE DI SICUREZZA	XCSPA591	SCHNEIDER ELECTRIC		1	09.1
09FCP	AZIONATORE	XCSZ13	SCHNEIDER ELECTRIC		1	09.1
09S60	PULSANTE PIATTO NERO GH.PLASTICA D.22	ZB5-AA2	SCHNEIDER ELECTRIC	BI	1	09.6
09S60	CASTELLO PORTA CONTATTI IN PLASTICA	ZB5-AZ009	SCHNEIDER ELECTRIC	BI	1	09.6
09S60	CONTATTO - 'NO -	ZBE-101	SCHNEIDER ELECTRIC	BI	1	09.6
10SK11	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	10.1
10SK12	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	10.1
10SK21	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	10.2
10SK30	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	10.3
10SK31	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	10.3
10SK41	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	10.4
10SK50	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	10.5
10SK51	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	10.5
10SK61	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	10.6
10SK70	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	10.7
10SK71	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	10.7
10SK81	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	10.8
13SK10	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	13.1
13SK11	SIGNAL RELAY, BLACK SOLID STATE	2900364	PHOENIX	QE	1	13.1
13C40	BASE + COPERCHIO	XVBC21	SCHNEIDER ELECTRIC	QE	1	13.4
13C40	ELEMENTO LUMINOSO VERDE	XVBC33	SCHNEIDER ELECTRIC		1	13.4
13C40	ELEMENTO LUMINOSO GIALLO	XVBC38	SCHNEIDER ELECTRIC		1	13.4
13C40	ELEMENTO LUMINOSO ROSSO	XVBC34	SCHNEIDER ELECTRIC		1	13.4
13C40	SUPPORTO DRITTO PER COLONNE LUMINOSE	XVBZ02	SCHNEIDER ELECTRIC		1	13.4
14K30	MODULO DI SICUREZZA COMANDO BIMANUALE	XPSBF1132	SCHNEIDER ELECTRIC	QE	1	14.3
14S41	Posto comando 2 manit+ piede - 2 pulsanti + 1 arresto emergenza	XY2SB714	SCHNEIDER	BI	1	14.4
17P30	Open BOX per Universal Panel	HMG5U2	Schneider	PU	1	17.3
17P30	TouchScreen GTU 10" TFT LED	HMDT542	Schneider	PU	1	17.3

CHARACTERISTICS AND SAFETY DATA SHEET OF CUT-MAX H 05



HOUGHTON™

Revision Date: 10-06-2015

Version 2

SAFETY DATA SHEET

SECTION 1: IDENTIFICATION OF THE SUBSTANCE/MIXTURE AND OF THE COMPANY/UNDERTAKING

1.1.

Product identifier

Product Code(s):	41008801-M
Product Code(s) (DE):	- 88010000
Product Code(s) (IT):	- CUMAH05F
Product Name	CUT-MAX H 05
Product Registration number	
Denmark	-
Norway	-
Sweden	-
EC #	
Pure substance/preparation	Contains Highly refined, low viscosity base oil (Viscosity <7 cSt @40°C), Highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C)

1.2. Relevant identified uses of the substance or mixture and uses advised against

Recommended use Neat Metalworking Oil

Uses advised against Any other purpose.

1.3. Details of the supplier of the safety data sheet

Manufacturer, Importer, Supplier

Houghton plc
Beacon Road
Trafford Park
Manchester
M17 1AF
Tel: +44 (0)161 874 5000
E-mail: MSDS@uk.houghtonglobal.com

Houghton S.A.S.
604 Bd Albert Camus,
BP 60041
69652 Villefranche sur saone
France
Tel: (0) 4 74 65 65 00
Fax: (0) 4 74 60 08 44

Houghton Iberica S.A.
Pol. Ind. Can Salvatella-TorreMateu
08210 Barbera del Valles
Barcelona
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Tel: +(34 93) 718 85 00
Fax: +(34 93) 718 93 00
msds.es@houghtonintl.com

Houghton Deutschland GmbH
Giselherstr. 57. D-44319.
Dortmund
Deutschland
Tel: +49 (0) 231/9277-0.
Fax: +49 (0)231/9277-120
MSDS@houghtonintl.com

Ragione Sociale: Houghton Italia S.p.A.
Indirizzo: Via Postiglione, 30
10024 Moncalieri (TO)
ITALY
Telefono: (+39) 011 6475811.
Fax: (+39) 0116472778.
ITTN-MSDS@houghtonintl.com

Houghton Benelux
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Fax: +31 162 458205
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30-347 Krakow
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+48 122665240
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HOUGHTON EUROPE N.V Sivuliike Suomessa
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Energivej 3
DK-4180 Sorø
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4098 Tananger
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Houghton Ukraine Ltd
Ukraine, Kiev 04213
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office@houghton.cz

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Houghton Kimya San. A.Ş
Kosuyolu Mah
Asma Dall Sok
No: 1434718 Kadıköy
İstanbul
Türkiye
Phone Number: +90 216 325 15 15

1.4. Emergency telephone number

3E Company: (+)1 760 476 3961 (Code 333938)

Austria	Notfall-Telefonnummer +43 (0) 1 406 4343
Belgium	Telefoonnummer voor +32 (0)70 245 245
Bulgaria	Телефон за спешни случаи +359 2 9154 409
Croatia	Telefon za izvanredna stanja +385 1 2348 342
Czech Republic	Telefonní číslo pro naléhavé situace +420 224 919 293
Denmark	Ring til Giftlinjen på +45 82 12 12 12
Estonia	Mürgistusteabekeskuse +372 626 93 90
Finland	Hätäpuhelinnumero +358 09 471 977
France	Numéro d'appel d'urgence +33 (0)1 45 42 5959
Hungary	Díjmentesen hívható zöld szám +36 80 20 11 99
Ireland	Emergency telephone number +353 01 809 2166
Latvia	Valsts Toksikoloģijas centra Saindēšanās un zāļu informācijas centrs +371 6704 2473
Lithuania	Neatidėliotina informacija apsinuodijus +370 5 236 20 52
Netherlands	Telefoonnummer voor +31 30 274 88 88
Norway	Nødnummer +47 22 59 13 00
Poland	112
Portugal	Número de telefone de emergência +351 808 250 143
Romania	Număr de telefon care poate fi apelat în caz de urgență +021 318 36 06 (08:00-15:00)
Slovakia	Národné toxikologické informačné centrum +421 2 5477 4166
Spain	Número de teléfono de emergencia +34 91 562 0420
Sweden	Telefonnummer för nödsituationer +46 08 33 12 31 (09:00-17:00)
Switzerland	145; 041 44 251 51 51 (www.toxi.ch)
Turkey	(+)1 760 476 3959 (Code 333938)

SECTION 2: HAZARDS IDENTIFICATION

2.1. Classification of the substance or mixture

Regulation (EC) No 1272/2008

Aspiration toxicity	Category 1 - (H304)
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2.2. Label Elements

Contains Highly refined, low viscosity base oil (Viscosity <7 cSt @40°C), Highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C)

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Signal Word
DANGER

Hazard Statements

H304 - May be fatal if swallowed and enters airways
EUH066 - Repeated exposure may cause skin dryness or cracking

Precautionary Statements - EU (§28, 1272/2008)

P301 + P310 - IF SWALLOWED: Immediately call a POISON CENTER or doctor/physician
P331 - Do NOT induce vomiting
P405 - Store locked up
P501 - Dispose of contents/ container to an approved waste disposal plant

2.3. Other hazards

No information available

- 8E-07 % of the mixture consists of ingredient(s) of unknown acute oral toxicity
- 3.8500008 % of the mixture consists of ingredient(s) of unknown acute dermal toxicity
- 3.0000008 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (gas)
- 3.0000008 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (vapor)
- 3.0000008 % of the mixture consists of ingredient(s) of unknown acute inhalation toxicity (dust/mist)

SECTION 3: COMPOSITION/INFORMATION ON INGREDIENTS

3.1. Substances / 3.2. Mixtures

This product is a mixture. Health hazard information is based on its ingredients

Chemical Name	EC-No	CAS-No	Weight %	Classification (Reg. 1272/2008)	REACH Registration Number
Highly refined, low viscosity base oil (Viscosity <7 cSt @40°C)	-	-	50% - 100%	Asp. Tox. 1 (H304) (EUH066)	-
Highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C)	-	-	10% - 25%	Asp. Tox. 1 (H304) (EUH066)	-
2,6-Di-tert-butyl-p-cresol	204-881-4	128-37-0	0% - 1%	Aquatic Acute 1 (H400) Aquatic Chronic 1 (H410)	01-2119565113-46-xxx x 01-2119480433-40-xxx x 01-2119555270-46-xxx x

Additional information

Product containing mineral oil with less than 3% DMSO extract as measured by IP 346 See Section 15 for additional information on base oils.

Full text of H- and EUH-phrases: see section 16

SECTION 4: FIRST AID MEASURES

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4.1. Description of first-aid measures

General advice	Immediate medical attention is required. Do not get in eyes, on skin, or on clothing.
Inhalation	Move to fresh air. Potential for aspiration if swallowed. Get medical attention immediately if symptoms occur.
Skin contact	Wash off immediately with soap and plenty of water. Remove and wash contaminated clothing before re-use.
Eye contact	Rinse thoroughly with plenty of water, also under the eyelids. Keep eye wide open while rinsing.
Ingestion	Do not induce vomiting without medical advice. Clean mouth with water and afterwards drink plenty of water. Aspiration hazard if swallowed - can enter lungs and cause damage. If symptoms persist, call a physician.
Protection of First-aiders	Use personal protective equipment. Avoid contact with skin, eyes and clothing.

4.2. Most important symptoms and effects, both acute and delayed

Main Symptoms May be fatal if swallowed and enters airways

4.3. Indication of immediate medical attention and special treatment needed

Notes to physician Treat symptomatically.

SECTION 5: FIRE FIGHTING MEASURES

5.1. Extinguishing media

Suitable Extinguishing Media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment: Use CO2, dry chemical, or foam, Water spray or fog, Cool containers / tanks with water spray

Extinguishing media which shall not be used for safety reasons

Do not use a solid water stream as it may scatter and spread fire

5.2. Special hazards arising from the substance or mixture

Special Hazard

In the event of fire and/or explosion do not breathe fumes. Carbon monoxide, carbon dioxide and unburned hydrocarbons (smoke). Water runoff can cause environmental damage. Thermal decomposition can lead to release of irritating gases and vapors. Cool containers / tanks with water spray.

Hazardous Decomposition Products

Incomplete combustion and thermolysis produces potentially toxic gases such as carbon monoxide and carbon dioxide

5.3. Advice for firefighters

Special protective equipment for fire-fighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear

SECTION 6: ACCIDENTAL RELEASE MEASURES

6.1. Personal precautions, protective equipment and emergency procedures

Remove all sources of ignition. Ensure adequate ventilation. Use personal protective equipment. Avoid contact with skin, eyes and clothing.

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Advice for non-emergency personnel Material can create slippery conditions.

Advice for emergency responders For personal protection see section 8.

6.2. Environmental precautions

Prevent further leakage or spillage if safe to do so. Do not flush into surface water or sanitary sewer system. Prevent product from entering drains. Local authorities should be advised if significant spillages cannot be contained.

6.3. Methods and materials for containment and cleaning up

Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust). Dike to collect large liquid spills. After cleaning, flush away traces with water.

6.4. Reference to other sections

See Section 8/12/13 for additional information

SECTION 7: HANDLING AND STORAGE

7.1. Precautions for safe handling

Ensure adequate ventilation. Do not eat, drink or smoke when using this product. Handle in accordance with good industrial hygiene and safety practice.

7.2. Conditions for safe storage, including any incompatibilities

Technical measures/Storage conditions

Keep containers tightly closed in a dry, cool and well-ventilated place. Keep away from open flames, hot surfaces and sources of ignition.

Recommended Shelf Life

No information available.

Incompatible Materials

Strong oxidizing agents, Strong acids, Strong bases

7.3. Specific end uses

Specific use(s) Neat Metalworking Oil

SECTION 8: EXPOSURE CONTROLS/PERSONAL PROTECTION

8.1. Control parameters

Chemical Name	European Union	United Kingdom	France	Spain
Highly refined, low viscosity base oil (Viscosity <7 cSt @40°C)				VLA-EC: 10 mg/m ³ VLA-ED: 5 mg/m ³
Highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C)				VLA-EC: 10 mg/m ³ VLA-ED: 5 mg/m ³
2,6-Di-tert-butyl-p-cresol		STEL: 30 mg/m ³ TWA: 10 mg/m ³	VME: 10 mg/m ³	

Chemical Name	Germany	Italy	Portugal	The Netherlands

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2,6-Di-tert-butyl-p-cresol	MAK: 20 mg/m ³ Ceiling / Peak: 40 mg/m ³ Skin		TWA: 2 mg/m ³	
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Chemical Name	Austria	Switzerland	Poland	Ireland
Highly refined, low viscosity base oil (Viscosity <7 cSt @40°C)				STEL: 10 mg/m ³ TWA: 5 mg/m ³ (Mist)
Highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C)				STEL: 10 mg/m ³ TWA: 5 mg/m ³ (Mist)
2,6-Di-tert-butyl-p-cresol	MAK: 10 mg/m ³	MAK: 10 mg/m ³		TWA: 10 mg/m ³

Chemical Name	Finland	Denmark	Norway	Sweden
Highly refined, low viscosity base oil (Viscosity <7 cSt @40°C)	TWA: 5mg/m ³ (Öljysumu)	TWA: 1 mg/m ³ (Olietåge)	TWA: 1 mg/m ³ (Oljetåke)	LLV: 1 mg/m ³ STV: 3 mg/m ³ (Oljedimma)
Highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C)	TWA: 5mg/m ³ (Öljysumu)	TWA: 1 mg/m ³ (Olietåge)	TWA: 1 mg/m ³ (Oljetåke)	LLV: 1 mg/m ³ STV: 3 mg/m ³ (Oljedimma)
2,6-Di-tert-butyl-p-cresol	TWA: 10 mg/m ³ STEL: 20 mg/m ³	TWA: 10 mg/m ³		

Chemical Name	Czech Republic	Hungary	Bulgaria	Romania
2,6-Di-tert-butyl-p-cresol			STEL: 50.0 mg/m ³ TWA: 10.0 mg/m ³	

Hydrocarbon solvent vapor mixtures which do not have substance specific occupational exposure limits may be evaluated by the Reciprocal Calculation Procedure (RCP) which assigns a recommended occupational exposure limit based on the mass composition and hydrocarbon group guidance values (GGVs). Applicable recommended occupational exposure limits are shown in the table below.

Chemical Name	RCP OEL	Manufacturer
Distillates (petroleum), hydrotreated middle 64742-46-7	RCP: TWA 1200 mg/m ³ 143ppm	

Chemical Name	RCP OEL	Manufacturer
Distillates (petroleum), hydrotreated middle 64742-46-7	RCP: TWA 1200 mg/m ³ 143ppm	
Distillates (petroleum), hydrotreated light 64742-47-8	RCP: TWA 1200 mg/m ³ 182ppm	
Naphtha (petroleum), hydrotreated heavy 64742-48-9	RCP: TWA 1000 mg/m ³	
C12-C14 isoalkanes 68551-19-9	RCP: TWA 1200 mg/m ³	
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, <2% aromatics NOT AVAILABLE	RCP C9-C15 aliphatics: 600mg/m ³	
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, <2% aromatics NOT AVAILABLE	TWA: 600 mg/m ³	
Hydrocarbons, C13-C16, n-alkanes, isoalkanes, cyclics, <0.03% aromatics NOT AVAILABLE	RCP C9-C15 aliphatics: 600mg/m ³	
Hydrocarbons, C12-C15, n-alkanes, isoalkanes, cyclics, <2% aromatics NOT AVAILABLE	TWA: 150ppm TWA: 1200 mg/m ³	
Hydrocarbons, C11-C13, isoalkanes, <2% aromatics NOT AVAILABLE	TWA: 171 ppm TWA: 1200 mg/m ³	
Hydrocarbons, C11-C12, isoalkanes, <2% aromatics NOT AVAILABLE	RCP C9-C15 aliphatics: 600mg/m ³	
Hydrocarbons, C11-C14, isoalkanes, cyclics, <2% aromatics NOT AVAILABLE	TWA: 165 ppm TWA: 1200 mg/m ³	
Hydrocarbons, C12-C16, isoalkanes, cyclics, <2%	RCP: TWA 1200 mg/m ³ 182ppm	

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aromatics NOT AVAILABLE		
Hydrocarbons, C15-C20, n-alkanes, isoalkanes, cyclics, <0.03% aromatics NOT AVAILABLE	RCP: TWA 600 mg/m ³	
Hydrocarbons, C14-C18, n-alkanes, isoalkanes, cyclics, <2% aromatics NOT AVAILABLE	RCP: TWA 600 mg/m ³	

Workers Systemic toxicity

Chemical Name	Long term - Oral exposure	Long term - Dermal exposure	Long term - Inhalation exposure	Short term - Oral Exposure	Short term - Dermal exposure	Short term - Inhalation exposure
2,6-Di-tert-butyl-p-cresol		8.3 mg/kg	5.8 mg/m ³			

Workers Local effects

Consumers Systemic toxicity

Chemical Name	Long term - Oral exposure	Long term - Dermal exposure	Long term - Inhalation exposure	Short term - Oral Exposure	Short term - Dermal exposure	Short term - Inhalation exposure
2,6-Di-tert-butyl-p-cresol		5 mg/kg	1.74 mg/m ³			

Consumers Local effects

Predicted No Effect Concentration (PNEC)

Chemical Name	Fresh water	Sea water	Fresh water sediment	Sea sediment	Soil
2,6-Di-tert-butyl-p-cresol	1.29 mg/kg	0.0004 mg/L	1.29 mg/kg		1.04 mg/kg

8.2. Exposure controls

Engineering Measures

Ensure adequate ventilation, especially in confined areas.

Personal protective equipment

Eye Protection

Safety glasses with side-shields.

Hand Protection

Protective gloves. Please observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. Also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. Barrier creams may help to protect the exposed areas of skin, they should however not be applied once exposure has occurred.

Skin and body protection

Long sleeved clothing.

Respiratory protection

No special protective equipment required. In case of mist, spray or aerosol exposure wear suitable personal respiratory protection and protective suit.

Hygiene measures

Regular cleaning of equipment, work area and clothing is recommended.

Environmental Exposure Controls

No special environmental precautions required.

Thermal hazards

None under normal use conditions

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

9.1. Information on basic physical and chemical properties

Physical state @20°C
Odor

liquid
mineral oil

Appearance
Odor Threshold

clear , yellow
Not Applicable

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Property	Values	Note
pH	Not applicable	
Melting Point / Freezing Point	No information available	
Boiling point/boiling range	No information available	
Flash point	140 °C / 284 °F	ASTM D 92
Evaporation rate	No information available	
Flammability (solid, gas)	No information available	
Flammability Limits in Air		
upper flammability limit	No information available	
Lower flammability limit	No information available	
Vapor pressure	No information available	
Vapor density	No information available	
Relative density	0.8400	g/cm3 @20°C
Solubility(ies)	Immiscible in water	
Partition coefficient: n-octanol/water	Not Applicable	
Autoignition temperature	No information available	
Decomposition temperature	No information available	
Viscosity, kinematic	5 cSt @ 40 °C	ASTM D 445
Explosive properties	Not Applicable	
Oxidizing Properties	Not Applicable	
9.2 Other information		
Viscosity, kinematic (100°C)	No information available	
Pour point	-15 °C / 5 °F	ASTM D 97
VOC Content (ASTM E-1868-10)	No information available	
VOC Content	No information available	

SECTION 10: STABILITY AND REACTIVITY

10.1. Reactivity

None under normal use conditions

10.2. Chemical stability

Stable under normal conditions

10.3. Possibility of hazardous reactions

None under normal use conditions

10.4. Conditions to avoid

Keep away from open flames, hot surfaces and sources of ignition, Heat, flames and sparks

10.5. Incompatible Materials

Strong oxidizing agents, Strong acids, Strong bases

10.6. Hazardous decomposition products

Incomplete combustion and thermolysis produces potentially toxic gases such as carbon monoxide and carbon dioxide.

SECTION 11: TOXICOLOGICAL INFORMATION

11.1. Information on toxicological effects

Product Information - Principle Routes of Exposure

Inhalation Risk of serious damage to the lungs (by aspiration)

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Eye contact None known
Skin contact None known
Ingestion Risk of product entering the lungs on vomiting after ingestion

Acute toxicity - Product Information

May be harmful if swallowed and enters airways.

Acute toxicity - Component Information

Chemical Name	LD50 Oral (Rat)	LD50 Dermal (Rat/Rabbit)	LC50 Inhalation
Highly refined, low viscosity base oil (Viscosity <7 cSt @40°C)	>2000 mg/kg	>2000 mg/kg	
Highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C)	>2000 mg/kg	>2000 mg/kg	
2,6-Di-tert-butyl-p-cresol	5000 mg/kg (Rat)	5000 mg/kg (Rabbit)	

Skin corrosion/irritation None known.
Serious eye damage/eye irritation None known.
Sensitization
Respiratory Sensitization None known.
Skin sensitization None known.
Germ Cell Mutagenicity None known.
Carcinogenicity None known.
Reproductive toxicity None known.
Specific target organ systemic toxicity (single exposure) None known
Specific target organ systemic toxicity (repeated exposure) None known
Aspiration hazard Risk of serious damage to the lungs (by aspiration).

SECTION 12: ECOLOGICAL INFORMATION

12.1. Toxicity

No special environmental measures are necessary

Chemical Name	Toxicity to algae	Toxicity to fish	Toxicity to microorganisms	Toxicity to daphnia and other aquatic invertebrates
2,6-Di-tert-butyl-p-cresol	6: 72 h Pseudokirchneriella subcapitata mg/L EC50 0.42: 72 h Desmodesmus subspicatus mg/L EC50	5: 48 h Oryzias latipes mg/L LC50		

12.2. Persistence and degradability

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The product is not readily biodegradable, but it can be degraded by micro-organisms, it is regarded as being inherently biodegradable.

12.3. Bioaccumulative potential

Chemical Name	log Pow
2,6-Di-tert-butyl-p-cresol	4.17

12.4. Mobility in soil

The product is insoluble and floats on water

12.5. Results of PBT and vPvB assessment

This preparation contains no substance considered to be persistent, bioaccumulating nor toxic (PBT). This preparation contains no substance considered to be very persistent nor very bioaccumulating (vPvB).

12.6. Other adverse effects

None known

SECTION 13: DISPOSAL CONSIDERATIONS

13.1. Waste treatment methods

Waste from Residues / Unused Products

Dispose of in accordance with local regulations

Contaminated packaging

Empty containers should be taken to an approved waste handling site for recycling or disposal. Observe all label precautions until container is cleaned, reconditioned or destroyed.

Other Data

According to the European Waste Catalogue, Waste Codes are not product specific, but application specific. Waste codes should be assigned by the user based on the application for which the product was used.

SECTION 14: TRANSPORT INFORMATION

14.1. UN-Number

Not regulated

14.2. UN proper shipping name

Not regulated

14.3. Transport hazard class

Not regulated

14.4. Packing group

Not regulated

14.5. Environmental Hazards

None

14.6. Special precautions for users

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None

14.7. Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code

Not applicable

IMDG/IMO Not regulated

ADR/RID Not regulated

ICAO/IATA Not regulated

SECTION 15: REGULATORY INFORMATION

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

The Classification, Labeling and Packaging of Substances and Mixtures (CLP) Regulation (EC 1272/2008)
Registration, Evaluation, Authorization, and Restriction of Chemicals (REACH) Regulation (EC 1907/2006)

Statutory Instruments: Control of Substances Hazardous to Health Regulations 2002. Chemicals (Hazard Information and Packaging) Regulations 2009.

Acts of Parliament: The Health and Safety at Work etc. Act 1974. Environment Protection Act 1990.

Regulation on classification, labeling, of hazardous chemicals (2002 changing 2005). Appendix VI to Regulation on classification, labeling etc. of hazardous chemicals (2002 changing 2010), list of hazardous substances (as amended). Guidelines for submission and declaration of hazardous waste (2009). Transport of dangerous goods: ADR, RID, IMDG and IATA. Administrative norms for pollution of the atmosphere, 2009.

Workplace exposure limits (EH40)

WGK Classification

Low hazard to water/Class 1

The highly refined, low viscosity mineral oils/hydrocarbons (Viscosity >7 - <20.5 cSt @40°C) contains one or more substance with the following CAS/EC numbers/REACH registration numbers:

Chemical Name	CAS-No	EC-No	REACH Registration Number
Distillates (petroleum), straight-run middle	64741-44-2	265-044-7	
Distillates (petroleum), heavy hydrocracked	64741-76-0	265-077-7	01-2119486951-26-xxxx
Distillates (petroleum), solvent-refined light paraffinic	64741-89-5	265-091-3	01-2119487067-30-xxxx
Distillates (petroleum), hydrotreated middle	64742-46-7	265-148-2	01-2119459347-30-xxxx
Distillates (petroleum), hydrotreated middle	64742-46-7	934-956-3	01-2119827000-58-xxxx
Distillates (petroleum), hydrotreated light	64742-47-8	265-149-8	01-2119456620-43-xxxx
Distillates (petroleum), hydrotreated light naphthenic	64742-53-6	265-156-6	01-2119480375-34-xxxx
Distillates (petroleum), hydrotreated heavy paraffinic	64742-54-7	265-157-1	01-2119484627-25-xxxx
Distillates (petroleum), hydrotreated light paraffinic	64742-55-8	265-158-7	01-2119487077-29-xxxx
Distillates, petroleum, solvent-dewaxed light paraffinic	64742-56-9	265-159-2	01-2119480132-48-xxxx
Distillates (petroleum), solvent-dewaxed heavy, paraffinic	64742-65-0	265-169-7	01-2119471299-27-xxxx
Lubricating oils (petroleum), C15-30, hydrotreated neutral oil-based	72623-86-0	276-737-9	01-2119474878-16-xxxx
Lubricating oils (petroleum), C20-C50, hydrotreated neutral oil-based	72623-87-1	276-738-4	01-2119474889-13-xxxx
White mineral oil (petroleum)	8042-47-5	232-455-8	01-2119487078-27-xxxx
Hydrocarbons, C14-C19, isoalkanes, cyclics, <2% aromatics	NOT AVAILABLE	920-114-2	01-2119459347-30-xxxx

The highly refined, low viscosity base oil (Viscosity <7 cSt @40°C) contains one or more substance with the following CAS/EC numbers/REACH registration numbers:

Chemical Name	CAS-No	EC-No	REACH Registration Number
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Distillates (petroleum), hydrotreated middle	64742-46-7	934-956-3	01-2119827000-58-xxxx
Hydrocarbons, C13-C23, n-alkanes, isoalkanes, cyclics, < 0.03% aromatics	64742-46-7	932-078-5	01-2119552497-29-xxxx
Distillates (petroleum), hydrotreated light	64742-47-8	265-149-8	01-2119456620-43-xxxx
Naphtha (petroleum), hydrotreated heavy	64742-48-9	265-150-3	01-2119457273-39-xxxx
Distillates (petroleum), hydrotreated light naphthenic	64742-53-6	265-156-6	01-2119480375-34-xxxx
Distillates (petroleum), hydrotreated light paraffinic	64742-55-8	265-158-7	01-2119487077-29-xxxx
Distillates (petroleum), solvent-dewaxed light paraffinic	64742-56-9	265-159-2	01-2119480132-48-xxxx
C12-C14 isoalkanes	68551-19-9	271-369-5	
White mineral oil (petroleum)	8042-47-5	232-455-8	01-2119487078-27-xxxx
C 18-C 50 branched, cyclic and linear hydrocarbons - Distillates	848301-69-9	482-220-0	01-0000020163-82-xxxx
Alkanes, C14-16	90622-46-1	292-448-0	
Alkanes, C12-26-branched and linear	90622-53-0	292-454-3	
Alkanes, C11-15-iso-	90622-58-5	292-460-6	
Hydrocarbons, C11-C14, n-alkanes, isoalkanes, cyclics, <2% aromatics	NOT AVAILABLE	926-141-6	01-2119456620-43-xxxx
Hydrocarbons, C10-C13, n-alkanes, isoalkanes, cyclics, <2% aromatics	NOT AVAILABLE	918-481-9	01-2119457273-39-xxxx
Hydrocarbons, C13-C16, n-alkanes, isoalkanes, cyclics, <0.03% aromatics	NOT AVAILABLE	934-954-2	01-2119826592-36-xxxx
Hydrocarbons, C12-C15, n-alkanes, isoalkanes, cyclics, <2% aromatics	NOT AVAILABLE	920-107-4	01-2119453414-43-xxxx
Hydrocarbons, C11-C14, n-alkanes, <2% aromatics	NOT AVAILABLE	924-803-9	01-2119485647-22-xxxx
Hydrocarbons, C11-C13, isoalkanes, <2% aromatics	NOT AVAILABLE	920-901-0	01-2119456810-40-xxxx
Hydrocarbons, C14-C18, n-alkanes, cyclics, aromatics (2-30%)	NOT AVAILABLE	920-360-0	01-2119448343-41-xxxx
Hydrocarbons, C11-C12, isoalkanes, <2% aromatics	NOT AVAILABLE	918-167-1	01-2119472146-39-xxxx
Hydrocarbons, C11-C14, isoalkanes, cyclics, <2% aromatics	NOT AVAILABLE	927-285-2	01-2119480162-45-xxxx
Hydrocarbons, C12-C16, isoalkanes, cyclics, <2% aromatics	NOT AVAILABLE	927-676-8	01-2119456377-30-xxxx
Hydrocarbons, C13-C16, isoalkanes, cyclics, < 2% aromatics	NOT AVAILABLE	918-973-3	01-2119458871-30-xxxx
Hydrocarbons, C15-C20, n-alkanes, isoalkanes, cyclics, <0.03% aromatics	NOT AVAILABLE	934-956-3	01-2119827000-58-xxxx
Hydrocarbons, C14-C18, n-alkanes, isoalkanes, cyclics, <2% aromatics	NOT AVAILABLE	927-632-8	01-2119457736-27-xxxx

15.2. Chemical Safety Assessment

No information available

SECTION 16: OTHER INFORMATION

Key or legend to abbreviations and acronyms used in the safety data sheet

Repr.-Reproduction toxicity
 Asp. Tox. - Aspiration Toxicity
 Acute Tox. - Acute Toxicity
 Aquatic Acute - Acute Aquatic Toxicity
 Aquatic Chronic - Chronic Aquatic Toxicity
 Eye Dam. - Eye Damage
 Eye Irrit. - Eye Irritation
 Skin Corr. - Skin Corrosion
 Skin Irrit. - Skin Irritation
 Skin Sens. - Skin Sensitizer
 Resp. Sens. - Respiratory Sensitizer
 STOT SE - Specific target organ systemic toxicity (Single exposure)
 STOT RE - Specific target organ systemic toxicity (repeated exposure)
 VOC - Volatile organic compounds

Full text of H-Statements referred to under sections 2 and 3

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<ul style="list-style-type: none"> • H224 - Extremely flammable liquid and vapor • H225 - Highly flammable liquid and vapor • H226 - Flammable liquid and vapor • H270 - May cause or intensify fire; oxidizer • H271 - May cause fire or explosion; strong oxidizer • H272 - May intensify fire; oxidizer • H290 - May be corrosive to metals • H300 - Fatal if swallowed • H301 - Toxic if swallowed • H302 - Harmful if swallowed • H304 - May be fatal if swallowed and enters airways • H310 - Fatal in contact with skin • H311 - Toxic in contact with skin • H312 - Harmful in contact with skin • H314 - Causes severe skin burns and eye damage • H315 - Causes skin irritation • H317 - May cause an allergic skin reaction • H318 - Causes serious eye damage • H319 - Causes serious eye irritation • H330 - Fatal if inhaled • H331 - Toxic if inhaled • H332 - Harmful if inhaled • H334 - May cause allergy or asthma symptoms or breathing difficulties if inhaled • H335 - May cause respiratory irritation • H336 - May cause drowsiness or dizziness • H340 - May cause genetic defects 	<ul style="list-style-type: none"> • H341 - Suspected of causing genetic defects • H350 - May cause cancer • H351 - Suspected of causing cancer • H360 - May damage fertility or the unborn child • H361 - Suspected of damaging fertility or the unborn child • H362 - May cause harm to breast-fed children • H370 - Causes damage to organs • H371 - May cause damage to organs • H372 - Causes damage to organs through prolonged or repeated exposure • H373 - May cause damage to organs through prolonged or repeated exposure • H400 - Very toxic to aquatic life • H410 - Very toxic to aquatic life with long lasting effects • H411 - Toxic to aquatic life with long lasting effects • H412 - Harmful to aquatic life with long lasting effects • H413 - May cause long lasting harmful effects to aquatic life • H360Df - May damage the unborn child. Suspected of damaging fertility • H360D - May damage the unborn child • H360FD - May damage fertility. May damage the unborn child • H360F - May damage fertility • H361d - Suspected of damaging the unborn child • H361fd - Suspected of damaging fertility. Suspected of damaging the unborn child • H361f - Suspected of damaging fertility • EUH066 - Repeated exposure may cause skin dryness or cracking • EUH210 - Safety data sheet available on request • EUH208 - May produce an allergic reaction
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Exposure scenario

No information available

Revision Date:

10-06-2015

Revision Note

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text.

POLYCARBONATE DATA SHEET



Version 02/2018

TECHNICAL DATA SHEET

POLYCARBONATE SHEETS, EXTRUDED – STANDARD AND UV PROTECTED - CLEAR
DIN 11963 – DIN EN 16240

GENERAL			
Property	Method	Unit	IMPEX®
Density	DIN EN ISO 1183	g/cm ³	1.2
Ball Indentation Hardness (H359/30``)	DIN EN ISO 2039-1	MPa	110
Water vapour permeability δ	EN ISO 12572	mg/m h Pa	3.8×10^{-5}
MECHANICAL			
Property	Method	Unit	IMPEX®
Flexural Modulus	DIN EN ISO 178	MPa	2000
Flexural Strength	DIN EN ISO 178	MPa	>90
Tensile Modulus	DIN EN ISO 527-2	MPa	2200
Tensile Strength	DIN EN ISO 527-2	MPa	60
Elongation	DIN EN ISO 527-2	%	80
Impact strength – Izod (notched)	DIN EN ISO 180	kJ/m ²	>10
Impact strength – Charpy (notched)	DIN EN ISO 179 179-1/1eA	kJ/m ²	>13
Impact strength – Charpy (unnotched)	DIN EN ISO 179-1	kJ/m ²	NB (No Break)
OPTICAL			
Property	Method	Unit	IMPEX®
Light Transmission (3 mm)	DIN 5036 / DIN EN ISO 13468-1	%	86
Refractive Index	DIN EN ISO 489	n_D^{20}	1.585
Solar energy transmittance (g-value)	DIN EN 410	%	3 mm – 81.7 10 mm – 78.5



TECHNICAL DATA SHEET

**POLYCARBONATE SHEETS, EXTRUDED – STANDARD AND UV PROTECTED - CLEAR
DIN 11963 – DIN EN 16240**

THERMAL			
Property	Methode	Unit	IMPEX®
VICAT Temperature (method B 50)	DIN EN ISO 306	°C	145
Heat Deflection Temperature (HDT/A)	DIN EN ISO R 75	°C	135
Specific Heat Capacity	DIN EN ISO 11357-4	J/gK	1.17
Coefficient of linear thermal expansion	DIN 53328 ISO 11359-1, -2	mm/m °C	0.065
Thermal conductivity	DIN 52612 DIN EN ISO 22007-1	W/mK	0.2
Degradation temperature	-	°C	>280
Temperature range	-	°C	-40 to +135
Max. service temperature continuous use	-	°C	115
Max. service temperature short term use	-	°C	135
Forming temperature	-	°C	180 - 210
ELECTRICAL			
Property	Methode	Unit	IMPEX®
Dielectric constant (50 Hz)	IEC 250 DIN 53483-2	-	3.0
Volume Resistivity	IEC 60093 DIN 53482	Ω.cm	10 ¹⁵
Surface Resistivity	IEC 60093 DIN 53482	Ω	10 ¹⁵
Dielectric strength	IEC 60243-1 DIN 53481	kV/mm	>30
Dissipation Factor (50 Hz)	IEC 250 DIN 53483	-	8 x 10 ⁻⁴
Comparative tracking index	DIN EN 60112:2010-05	CTI - Value	CTI – 250 <1



TECHNICAL DATA SHEET

POLYCARBONATE SHEETS, EXTRUDED – STANDARD AND UV PROTECTED - CLEAR
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OTHERS			
Property	Methode	Unit	IMPEX®
Fire performance (building product) (1.5 mm – 6 mm)	BP – VO 305/2011 DIN EN 13501-1	Classification	B – s1 – d0
Biocompatibility (skin contact)	DIN EN 10993-5	Classification	Not cytotoxic
Resistance to manual attack (steel ball) (4 – 8 – 15 mm)	DIN EN 356	Class	EN 356 – P5A
Resistance to manual attack (ax) (4 – 8 – 15 mm)	DIN EN 356	Class	EN 356 – P8B
Glazing for vehicles	StVZO_§22a (Germany)	Approval	ABG D469 ABG D2272

Remark: Technical data of our products are typical ones.
The actually measured values are subject to production variations.