

4.0 Direct Drive Jollytap with touch screen panel

INSTRUCTIONS MANUAL





ATTENTION!

BEFORE connecting the tapping unit, read this instruction manual very carefully,
especially the warnings on page 1

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WARNINGS

NO



- Do not disconnect or connect the cables when the tapping unit is working or it is connected to power supply
- Never make changes to the panel or tapping unit
- Do not disassemble the tapping unit, never touch or stand near to the tapping unit when it is connected to power supply (except during tap changing operation)
- Do not connect a panel to a tapping unit with different serial nr. (see page 4 "installing")



Unplug the machine or press the emergency button before touching it. Never approach the device while it is rotating



Do not perform mechanical work on the tapping unit or panel



Do not connect other equipment to the panel



Do not place the panel on vibrating surfaces



Maintenance must be performed only by authorized staff

YES



Always use lubricant in threading process



The panel must always be closed when working



Protect the panel and the motor from liquids, dust and shavings



Max. operating temperature 80°

DTAP Direct Drive Tapping Unit

INTRODUCTION

The Bordignon tapping unit DTAP is an electronic device designed for making cold forming and cutting threadings both in dies and automation systems. This threading equipment is made of an electronic control panel with touch screen and a tapping unit with a direct drive motor inside.

THE CONTROL PANEL (FIG. 1)

Power supply: 230 V AC 50-60 Hz / Safety: Thermal protection 80° / Weight: approx 11 Kg

The panel touch screen and internal PLC allow the following functions and controls:

- Setting a threading program by entering parameters such as: tap speed (RPM), maximum and minimum torque and threading depth (number of revolutions);
- Saving a threading program;
- Changing of the tap;
- Viewing the tap speed, the torque and threading time of the last thread made;
- Viewing the data usage history;
- Viewing the alarms;
- Checking the wear and tear of the tap;
- Motor diagnostic;
- Automatic approach of the tap to the hole;
- Setting left hand threading;
- Lubrication control;
- Oil level control.

External components of the panel (FIG.1):

- A.** Power supply 230 V AC 50-60 Hz
- B.** Power switch
- C.** Socket for the following connections:
 - START: Start signal to be connected to the press cam (min. 5 degrees) by a relay or any other switch
 - ALARM: N.O. or N.C. alarm, max. 6 A/250 V AC. Every external alarm must be power supplied independently
 - OIL E.V.: Connection to the electrovalve which controls the lubrication system and the oil level
 - END OF CYCLE SIGNAL
 - EXTERNAL EMERGENCY SYSTEM: connection to an external emergency device
- D.** Connection to the tapping unit;
- E.** Air pressure control: compressed air inlet - pipe dia.: 6 mm;
- F.** Emergency button: this button removes power from the motor in order to prevent dangerous motions. When the button is depressed, the only usable element is the descending valve, which allows the replacement of the tap.
To activate the emergency button, press it. To deactivate it, turn it counterclockwise and release it.



FIG. 1

THE TAPPING UNIT (FIG. 2)

Bordignon tapping unit (FIG.2) is supplied in three different models (pages 26-27-28). This unit performs the threading and it is connected to the electronic control panel by an electric wire. It has a direct drive motor which allows direct transmission to the spindle and it works independently of the die stroke and with any angle. During the threading operation, the tap descends and makes the threading according to the speed set by the panel but returns much faster so that production time can be improved.

REF. N°	THREAD		MAX. RPM	WEIGHT (KG)
DTAP 1	M2-M5	M6*	4000	3,3
DTAP 2	M4-M6	M8*	2000	5
DTAP 3	M6-M8	M10*	1800	7,6

* upon request, for few materials only



FIG. 2

For a good performance of the tapping unit, remember that:

1. Tapping unit and control panel must always have the same serial number;
2. The tap must be well aligned to the hole;
3. The round cap on the upper part of the tapping unit must be well secured and in position;
4. Tapping unit must be fastened by 4 screws and 2 pins;
5. The piece to thread must be fastened;
6. During the threading process, the tap must be lubricated using neat oil specifically intended for threading;
7. The unit should be protected from liquids.

FUNCTIONING

The threading equipment must be connected to a START signal (FIG. 3) which gives the impulse to the control panel. When the impulse reaches the control panel the working process starts: the motor speed increases and the electrovalve of the pneumatic system gets excited so that the tap starts descending.

As the tap enters the prehole, the control device starts counting the number of revolutions of the tap (threading depth).

After the tap descent, the motor reverses the direction and the tap gets unscrewed at the maximum speed.

The control system checks the threading conditions at every single thread and signal anomalies if:

- Threading time is too long;
- Thread depth has not been reached;
- Torque is too high or too low;
- Temperature is too high;
- Motor is under stress;
- Prehole is missed.

In the above circumstances an alarm sign will be displayed on the touch screen of the panel. By pressing on it the operator will get some useful information to understand and solve the problem (see pages 7 to 9 "alarms").



FIG. 3

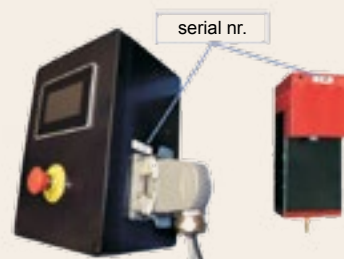
for connection see page 4
of the wiring diagram

INSTALLING

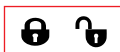
1. Place the tapping unit and align it carefully to the hole. Secure it in position with 4 screws and 2 pins (see dimensions and position on pages 26-27-28);
2. Connect the tapping unit socket into the plug D (FIG.1) of the control panel. The serial number of the tapping unit and serial number of the panel must be the same. The serial number is printed on the back of the tapping unit and on the right side of the panel;
3. Connect the compressed air to the panel with a 6 mm pipe (E - FIG. 1). The air pressure should be as follows:
M2 = 2 BAR
M3 - M4 = 3 BAR
M5 - M6 = 4 BAR
M8 or bigger = 5-6 BAR
4. Make wire connections on socket C (FIG. 1): **Start signal** and other desired connections such as: **electrovalve for lubrication, alarm to the press, end of cycle signal, external emergency system**. Follow instructions on page 4 of the wiring diagram attached to this manual;
5. **Connect the control panel to power supply 230 V AC 50-60 Hz.**



**NEVER CONNECT PANEL AND TAPPING UNIT
WITH DIFFERENT SERIAL NUMBER!**



ACCESSING FUNCTIONS WITH A PASSWORD



The touch screen on the panel may display a locked or unlocked padlock (FIG. 6). By pressing on this symbol the operator will see a page designed to enter passwords which allow access to some functions (FIG. 4).

USER, SUPER USER, OPTIONALS and MAINTENANCE boxes (FIG. 4) will change colour from grey to green according to the entered password and enabled functions. See following TABLE 1.

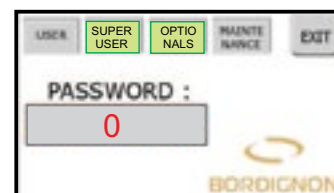


FIG. 4

		PASSWORD	PADLOCK	FUNCTIONS
USER	☐ On ☐ Off	1111		On/off Change of tap
SUPERUSER	☐ On ☐ Off	12345*		Set up Service
OPTIONALS	☐ On ☐ Off	upon request		Right-left threading Thread checker (D-TC) Automatic pressure regulator (D-APR) Storage usb key (D-USB) Return speed
MAINTENANCE	☐ On ☐ Off	not available		Maintenance (manufacturer only)

* Super User password can be modified following instructions on page 12

TABLE 1



ATTENTION! Access to SET UP and SERVICE menu, which will be explained in the following paragraphs, requires the padlock to be unlocked

Manufacturer recommends locking the padlock again using password 1111, after setting the threading program.

SET UP

1. Turn general switch B (FIG. 1) on and wait a few seconds until the display shows the first page (FIG. 5);
2. Press ENTER;
3. Check that EMERGENCY button on the panel has been released;
4. Turn the machine on by pressing OFF (FIG. 6). Wait a few seconds until the hourglass disappears and the display shows "ON" (FIG. 7).
Warning: every time the machine is turned on, the device performs one clockwise and one counterclockwise rotation. Keep away from the device;
5. Check that the padlock has been unlocked (FIG. 7). To unlock it, see instructions on page 4;
6. Insert the tap into the tapping unit following instructions on paragraph "change of tap" - pag. 7;
7. Press "SET UP" (FIG. 7);
8. Press "SPEED RPM" (FIG. 8). Enter the tap speed (in RPM = revolutions per minute) on the digital keyboard. Minimum and maximum speed allowed will be displayed top right (FIG. 9).
I.e: in FIG. 9 the parameter that has been entered is 2000 RPM which is a value between min. 100 and max. 4000. Press ENTER to confirm;
9. Press "THREAD DEPTH" (FIG. 8) and enter the number of revolutions of the tap needed to reach the desired thread depth. Example: 6.0. Press ENTER;
10. Select the thread type on the slider (FIG. 8). Example: M6-8;
11. Press NEXT (FIG. 8) to view the page shown in FIG. 10. The spindle in the tapping unit will now make a rotation to get ready for the threading;
12. Get ready for the threading test: place the tapping unit and align it very carefully to the prehole. Lubricate the tap with specific oil for threading.
Important: the threading must be done under the best conditions: right prehole diameter (pag. 30), good tap-hole alignment, lubrication with threading oil. The tap must be in good conditions;
13. Make several test threads in different holes, pressing START CYCLE (FIG. 10) for each one of them;
14. Press EXIT.



NEVER APPROACH THE DEVICE: When turning the machine on / During settings / While pressing START

The **threading test** is very important because it allows the system to calculate the torque value (% torque thread) during the threading process and to set a minimum and a maximum torque limit (FIG. 10). Whenever the tapping unit exceeds the minimum or maximum torque limit, the machine stops and the display shows an alarm signal. More information on torque value in next paragraph.

TORQUE CONTROL

The "Torque %" value displayed on the panel touch screen (FIG. 7) during the threading process, depends on the absorption of current during the thread performing. This is a very useful parameter for controlling the threading process: an anomalous absorption of current means that the unit is not working at its best.

Entering torque parameters in the SET UP menu: The "% torque thread" value in FIG. 10 is determined by the system during the threading test (steps 12-13 of the SET UP paragraph). This test allows the PLC in the panel to read the absorption of current during the threading operation and to show the correspondent value which is the "% torque thread". At the same time the system also calculates the minimum (% torque thread - 25%) and maximum torque (% torque thread + 50%) limits (FIG. 10).

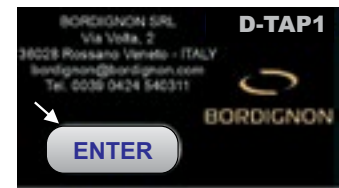


FIG. 5

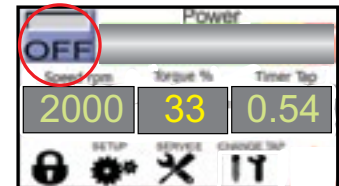


FIG. 6

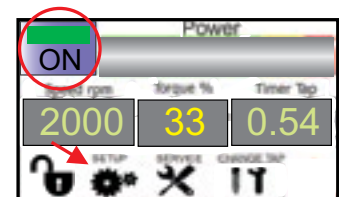


FIG. 7

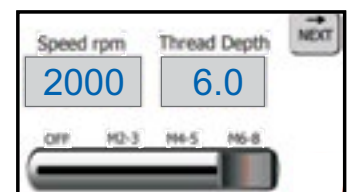


FIG. 8



FIG. 9

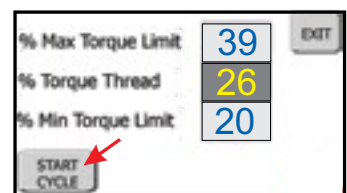


FIG. 10

Whenever the tapping unit exceeds the minimum or maximum torque during the threading process, the machine will stop and an alarm  will be displayed on the touch screen (FIG. 11).

Min. % torque: Exceeding this limit during threading process could mean that prehole diameter is too large, that the tap got broken, that the piece to thread is missing, that the tap has not entered the hole.

Max. % torque: Exceeding this limit while threading could mean that the tap has got worn out, that there is not enough lubricant or that the prehole is too small.

Min. and max. torque parameters can also be changed by the operator in SET UP menu, pressing on "% max. torque limit" or "% min torque limit" (FIG. 10) and entering the new parameters on the digital keyboard.

Example:

Set initial parameters:

Torque % = 26

max. % torque limit = 39

min. % torque limit = 20

Let us suppose that after a certain amount of threadings, the tap gets worn out increasing the absorption of current during the threading operation (see red circles in FIG. 11). When "% torque value" = 40 (value beyond the settled MAX. % torque), the machine stops and the display shows an alarm signal. After checking the tap conditions, the operator may change the wornout tap or, if the tap is still usable, increase the max. torque parameter on page shown in FIG. 10 in the SET UP menu.

THREADING TIME

Threading time is calculated by the control system of the electronic panel. Whenever the threading is not completed in the time set by the control system, the display will show an alarm. See TABLE 2 - pages 8-9.

During the threading process, the display in the panel (FIG. 12) always shows:

- The input tap speed;
- The torque produced during last thread;
- The time required to perform the last thread.

LUBRICATION

Lubrication is one of the most important factors in obtaining a well-made thread. During the threading process, the tap must be lubricated using neat oil specifically intended for the threading. Care must be taken to correctly direct the oil stream as indicated in FIG. 13.



ATTENTION!

1. Do not modify the machine's circuitry in any way. Attempting to do so may compromise the circuitry and cause malfunctions or accidents;
2. Any necessary operations on the machine's circuitry must be performed exclusively by trained and authorized personnel;
3. If any noises or anything unusual should be noticed, halt the machine immediately, perform a thorough check, and, if necessary, send it in to be repaired;
4. The greatest caution is advised in every phase of the machine's operation in order to prevent injury to persons, objects, or to the machine itself.
5. The machine must only be used for threading.
6. Do not attempt to force the machine to higher performance levels than those it was designed for.

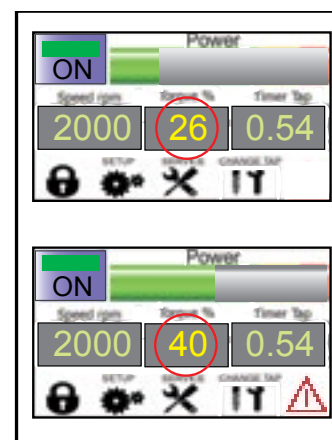


FIG. 11

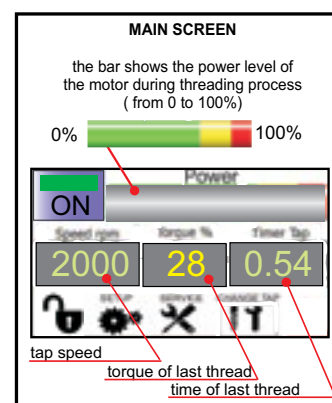


FIG. 12

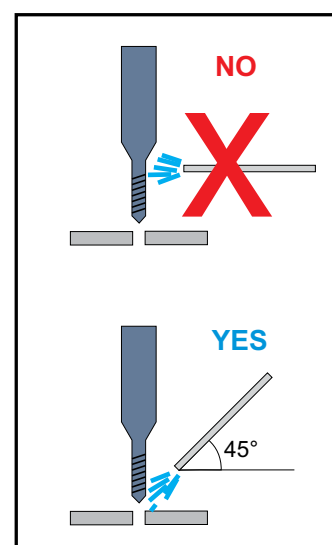


FIG. 13

CHANGE OF TAP



(This operation must be performed by one operator only)

Before starting the following procedure, make sure that nobody is using or moving (or may use or move) the press and the tapping unit.

To change the tap the operator can choose one between the two following procedures:

Procedure A:

- Press the EMERGENCY button F on the panel (FIG. 1);
- Move away from the device;
- Press on **CHANGE TAP** (FIG. 14). The signal will start blinking;
- Make sure that the tapping unit is still and that the tap descends;
- Unscrew the nut (n) holding the shaft (r). FIG. 15;
- Remove the tap (m) together with the nut (n). FIG. 15;
- Unscrew the nut (n);
- Change the tap and follow the inverse procedure;
- Press **CHANGE TAP** (FIG. 14);
- Release the Emergency button F on the panel;
- Press OFF on the touch screen to turn the machine ON.

Procedure B:

- Press the EMERGENCY button F on the panel (FIG. 1);
- Unscrew the screws in the round cap situated on top of the tapping unit and remove it (FIG. 16). The spindle will be pushed up by the spring inside the machine
- Remove the spindle;
- Unscrew the nut (n) holding the shaft (r). FIG. 15;
- Remove the tap (m) together with the nut (n). FIG. 15;
- Unscrew the nut (n);
- Change the tap and follow the inverse procedure;
- Secure and screw the round cap (FIG. 16) back into the tapping unit;
- Release the EMERGENCY button F on the panel;
- Press OFF on the touch screen to turn the machine ON.



EMERGENCY BUTTON (F - FIG.1)

In emergencies, or where directed by the manual, press the emergency button on the panel. To turn the emergency button off, turn it counterclockwise and release.

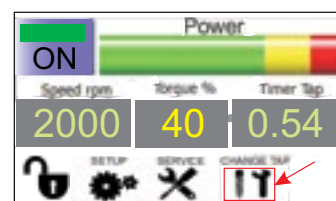


FIG. 14

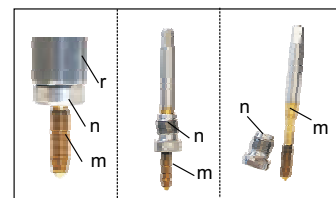


FIG. 15

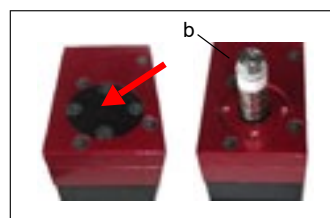


FIG. 16

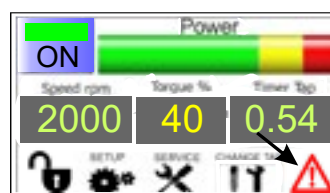


FIG. 17

Id	Description
A02	emergency pressed
EXIT INFO RESET	

FIG. 18

A01	A02	A03	A04	A05	A06
A07	A08	A09	A10	A11	A12
A13	A14	A15	A16	A17	A18
A19	A20	A21	A22	A23	A24
BACK					

FIG. 19

ALARMS



While working, there may be some circumstances under which the threading system stops and the touch screen shows a blinking alarm sign (FIG. 17 - lower right). To understand what this can be due to, the operator must press the alarm sign first and, in the following page, the INFO box (FIG. 18). A list will appear displaying the alarm in red colour (FIG. 19). By pressing the red box, the operator will get some trouble shooting information (TABLE 2 - pages 8-9).

Once the problem has been solved, press RESET and then EXIT to keep working. The alarm or the system to stop the die has to be connected to the socket on the side of the control panel (FIG. 1 - page 2): one wire must be connected to a COM contact and the other wire to a N.O. or N.C. contact (see page 4 of the wiring diagram attached to this manual).

Any external alarm must be power supplied independently.

TROUBLE SHOOTING

A 01	Power OFF	— Press "off" on main page to turn the tapping unit on Warning! last thread may not be completely performed.
A 02	Emergency pressed	— Release emergency button — Check external emergency, if any Warning! last thread may not be completely performed.
A 03	Drive fault	— Press reset; — Serial number of panel and tapping unit don't match — If alarm persists, turn power switch off and on — If alarm persists contact the reseller for repair Warning! last thread may not be completely performed.
A 04	Hole not found	— Check tap-hole alignment. Check tap, punch and hole conditions — Check air pressure — Check electrovalve not faulty — Press reset Warning! last thread may not be completely performed.
A 05	Double start signal	— Double start impulse during threading process: start impulse must be given at end of threading cycle Warning! last thread may not be completely performed.
A 06	Max. torque reached	— Check wear and tear of the tap: Replace tap if worn out, otherwise increase " % max. torque limit" on "set up" menu — Check lubrication Warning! last thread may not be completely performed.
A 07	Min. torque not reached	— Check damages on tap — Check air pressure — Check electrovalve not faulty — Check prehole too big % min. torque limit" can be changed ("set up" menu) Warning! last thread may not be completely performed
A 08	Low oil level	— Add lubricant; — Air low pressure (min. 3-4 bar).
A 09	No load torque too high	— Remove obstacles if tap or tap holder don't run free - Repeat set up ("set up" menu) — If damaged bearing: send to reseller for repair
A 10	Overload	— Tap holder impacted — If the tap has seized up, press emergency button and take the tap off manually or by pressing "start reverse cycle" button ("service" menu)
A 11	Drive not ready	— Press reset. If the alarm persists, turn the power switch off and on.
A 12	Tap cycle too long	— Remove obstacles if tap or tap holder don't run free; — Tap holder impacted — Check prehole too small — Check for anomalies on the piece to thread Warning! last thread may not be completely performed.
A 13	Motor overheating	Motor temperature > 80° C! — Let the motor cool down. No need to turn it off — Remove external heat sources — Remove dirt from air outlet Warning! last thread may not be completely performed

A 14	I2t too high	Motor under stress: — Decrease number of cycles per minute (start impulse frequency); — Decrease rpm of the tap; — Check lubrication and prehole dimensions. Warning! last thread may not be completely performed.
A 15	Cycle diagnostic	Engine fault: — Reset and repeat diagnostic — If the alarm persists, contact reseller for repair
A 16	End lot production	— Reset counter and enter new data ("service" menu: counters)
A 17	Press emergency button first!	— Press emergency button before changing the tap
A 18	Tap speed too high	— Speed for this threading cycle may be too high: reduce speed parameter (rpm) in "set up" menu
A 19	D-TC sensor is damaged or disconnected	— Push D-TC sensor manually and check change of colour on the D-TC icon on panel touch screen: Grey= sensor down, green= sensor up — Connect the D-TC sensor
A 20	Tap has not been detected by D-TC sensor	— Increase thread depth on "set up" menu — D-TC sensor is too far from the piece to thread. Move it to the right distance
A 21	Thread is too deep	The tap has pushed the D-TC sensor 5 revolutions more than necessary Decrease the thread depth on "set up" menu

TABLE 2

SERVICE

The "SERVICE" key (FIG. 20) gives access to many functions:

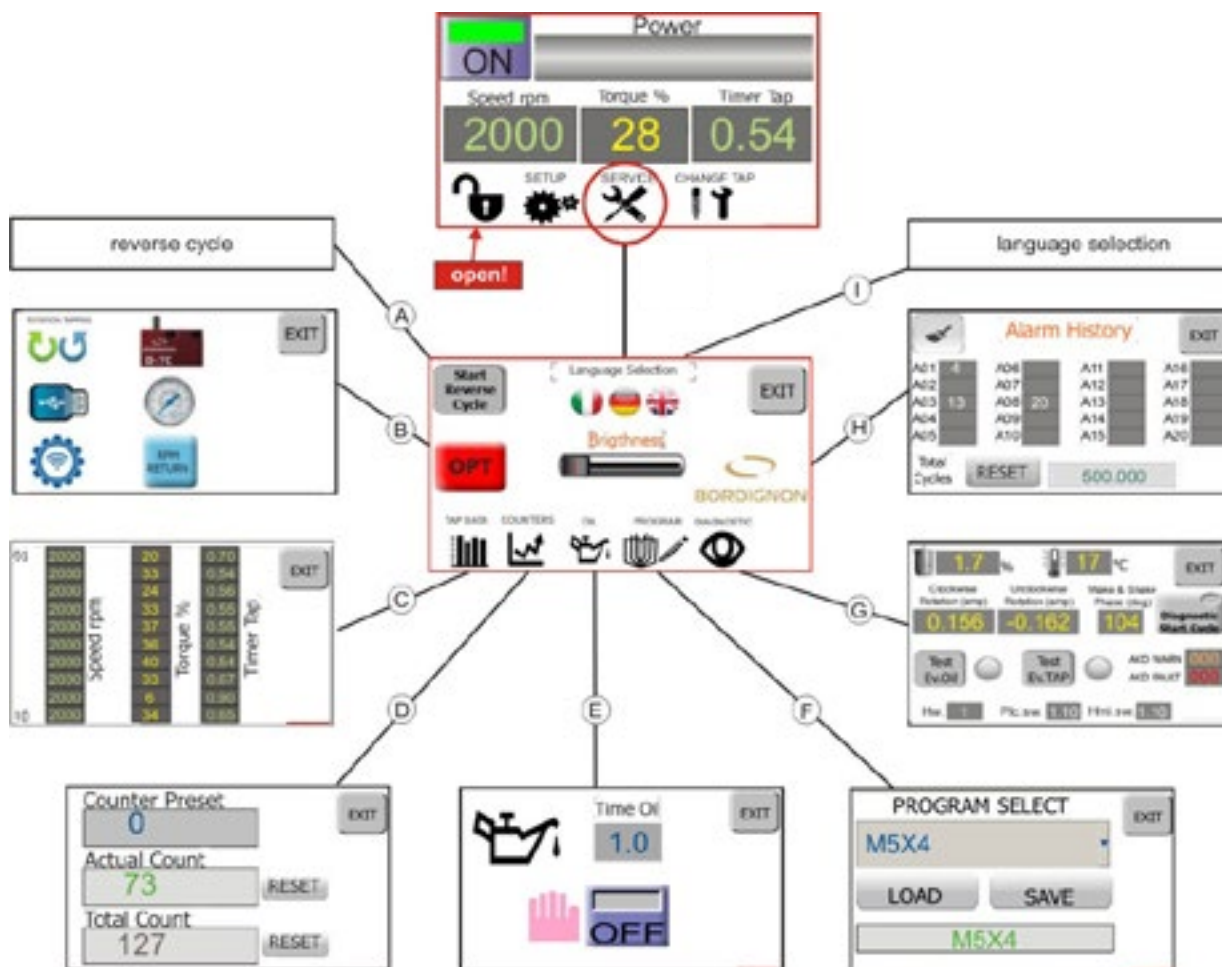


FIG. 20



ATTENTION! to access to the SERVICE functions the padlock must be unlocked. See TABLE 1 - page 4.

A) START REVERSE CYCLE

This function is useful when the tap is broken or it has seized up and needs to be extracted from the piece. The tapping unit will start a reverse cycle making 20 revolutions at slow speed (the colour of the button will turn orange).

B) OPTIONAL

Access to special devices and functions (pages 14 to 19).

C) TAP DATA

Speed, torque and threading time of the last 10 threads made.

D) COUNTER

This function allows the user to perform a set quantity of threads and to keep total or partial count records. This is a very useful function when a production lot is required. The tapping unit automatically stops when the set number of threads has been performed. The display which refers to this function, shows the following boxes:

- **Counter preset** to insert number of pieces to thread;
- **Actual count** gives the number of threads made during the working program;
- **Total count** adds to the above actual count, the number of threads made on previous programs since last data clearing;
- N. 2 reset keys for data clearing.

Setting a production lot:

The "counter preset" box allows the user to enter a number >0 of threads to be performed. Once the parameter has been entered the operator can press EXIT and begin the threading process. When the last thread of the program has been made the machine will stop and an alarm will be displayed on the touch screen panel.

By pressing the alarm sign, the operator will get the message "A16: end of production lot".

Press RESET to get the machine to work again. The tapping unit is now ready for another production lot.

If "counter preset"=0, the tapping unit will work normally with no quantity limit.

The "RESET" keys next to the "actual count" and "total count" boxes are used for clearing count data and get ready for new ones.

E) OIL

This function allows to turn ON/OFF the lubrication system and to control it by entering the lubrication time.

— **Manual lubrication** : Enter "0" in the lubrication time box and keep pressing "ON" as long as the lubrication is needed.

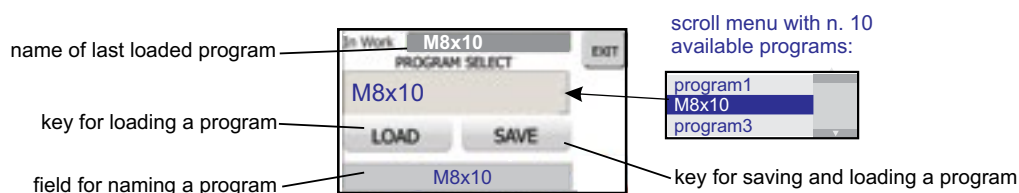
— **Automatic lubrication**: Enter a time parameter in "time oil". Press ON. The lubrication will last the entered time at every single cycle.

Remember that the tap lubrication is one of the most important conditions to obtain a good performance in threading process and a long lasting tap. Special oil for threading is highly recommended.

For connecting the lubrication system, see instructions on page 4 of the wiring diagram attached to this manual.

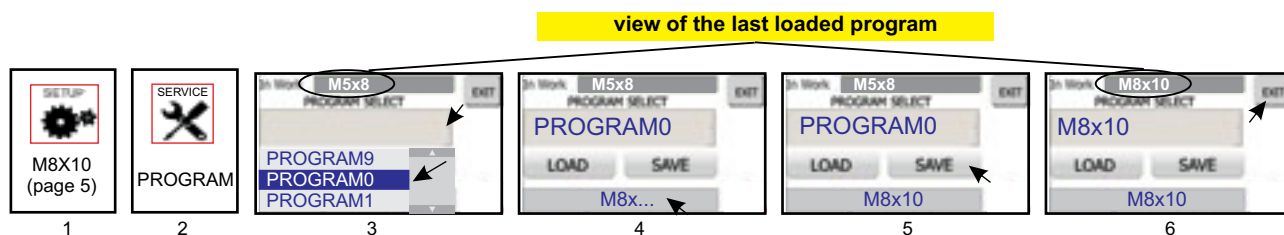
F) PROGRAM

This function allows storage and backup of threading settings. The page displays the following information:



Saving a new setting:

1. Carry out set up (paragraph "SET UP" - page 5);
2. From main menu, press SERVICE and then PROGRAM;
3. Tap Program Select box and select the program where the new settings will be saved;
4. Enter the name of the new program in the lower box;
5. Press SAVE : the new program will be saved and loaded;
6. Make sure that previous name in the "in work" field has changed into the new name. Press EXIT.

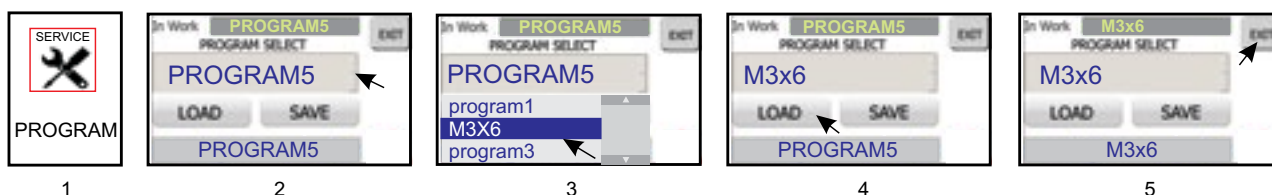


Loading a program:

1. From main screen, select SERVICE and then PROGRAM
2. Tap "Program Select"
3. Scroll and select the program from the menu
4. Press LOAD
5. Make sure that the program has been loaded: the name should appear in green characters on top. Press EXIT.



ATTENTION! In case the loaded program has a different rotation (left/right threading) than the previous one, the panel must be turned off and on before starting the threading process otherwise it won't change the direction.

**G) DIAGNOSTIC**

This function allows to perform an engine check-up by pressing DIAGNOSTIC START CYCLE (the button will show a flashing red light). Once the check-up is complete, the screen will display the following data: value regarding motor performance, temperature, power consumption during clockwise and counterclockwise rotation, engine timing degrees. The **E.v. oil** e **Test E.v. Tap** keys allow the operator to check the functioning of the electrovalves which control the lubrication and the tapping unit. By pressing **E.v. oil** the operator should see an oil stream coming out from the lubrication outlet and by pressing **Test E.v. Tap**, the tap holder of the tapping unit should descend.

H) ALARM HISTORY

It displays the alarm history and the total amount of threads made by the machine. This information may be very helpful to identify anomalies during the threading process.

The BRUSH icon allows to clear the alarm history and the RESET button allows to clear the number of cycles.

I) LANGUAGE SELECTION

This function allows to select the language in which alarm list is displayed: italian, english and german.

BRIGHTNESS

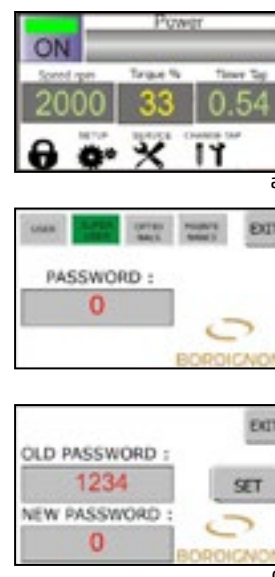
Brightness of the screen can be adjusted using the **BRIGHTNESS** slider in the SERVICE menu.

CHANGE OF SUPER USER PASSWORD

Super User password that enable SET UP and SERVICE functions can be changed following these steps:

- If the padlock icon in the display is closed (fig. a), press the icon  and type the current password to enter into SUPER USE mode. The box SUPER USE will turn green (Fig. b)
- Press Bordignon logo on the display. A page for setting a password will appear (Fig. b)
- Press box "new password" (Fig. c). A keyboard will appear. Type the new password and then press ENTER.
- Once the password has been entered, press SET (Fig. c) until it turns green. The box on top will now show the new password. Press EXIT
- Close the padlock typing 1111. Press EXIT

In case of lost password, contact the reseller



DISPOSAL OF COMPONENTS AND MATERIAL

If the need arises to scrap the machine, its parts must be disposed of separately. The materials that make up the machine are the following:

- Steel, aluminium and other metals;
- Plastic;
- Electric wires, motor and other electric components.

D-TC: Through hole tapping control sensor

OPTIONAL

This device is provided on demand to those who wish to obtain an added check of tapping success. The D-TC sensor is activated by the tap during the final descent phase, as illustrated in FIG. 2. When the cylinder in the device descends by 1 mm, the sensor sends an impulse to the control panel, which detects the success of the tapping operation.

The D-TC sensor also causes the immediate retreat of the tap if it descends more than five turns more than is necessary. This capability makes it a useful control instrument if an excessive number of turns is accidentally programmed.

Anomalies such as incomplete tapping, excessive depth, or sensor failure will be displayed by the control panel with the alarms A20, A21, or A19 (page 9).

USAGE:

1. Position the sensor beneath the piece to be tapped and aligned with the tap. The distance from the piece must allow the tap to push the D-TC cylinder by 1 to 15 millimeters at the end of the descent (FIG. 2)
2. Press SERVICE in the main frame of the control panel touch screen (FIG. 3);
3. Press "OPT" (FIG. 4)
4. Connect the D-TC device to the panel outlet (FIG. 1). The green light on the D-TC icon signals that the device has been connected (FIG. 5)
5. Press the D-TC icon (FIG. 5)
6. Press the Password frame (FIG. 6) to access the keyboard (FIG. 7). Type and press ENTER to confirm. On the next page press EXIT (FIG. 6). The ✓ mark which will now appear beside the icon (FIG. 8) DOES NOT signal that the device is active, but only that it is now possible to manage it.
7. Now press the D-TC icon. A page will open from which it will be possible to activate (ON) or deactivate (OFF) the device (FIG. 9-10). Press EXIT to end.



FIG. 1

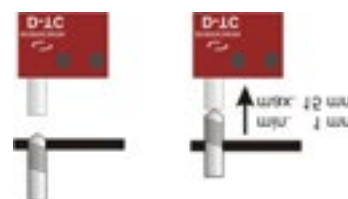


FIG. 2

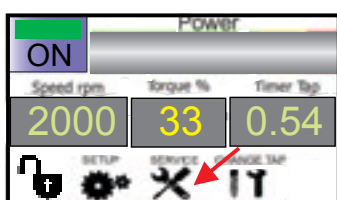


FIG. 3



FIG. 4



FIG. 5

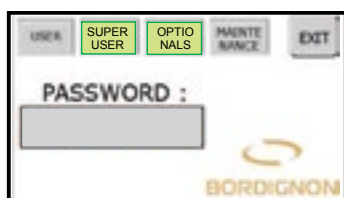


FIG. 6



FIG. 7



FIG. 8



FIG. 9



FIG. 10

D-USB: USB drive for data reading

OPTIONAL

A USB device for the saving of data regarding the last 10,000,000 cycles performed by the tap. The data saved in the USB drive must be transferred into a PC which will be able to visualize the following information for the last 10,000,000 cycles performed: date, time, tap type, tap depth, tapping speed and time, machine strain, and number of alarms.

This instrument makes quality control easier, offers greater control on the tapping process, and can be useful for the swift identification of anomalies.



FIG. 1

USAGE:

1. Press SERVICE in the main frame of the control panel touch screen (FIG. 2);
2. Press "OPT" (FIG. 3)
3. Press the USB icon (FIG. 4)
4. Press the Password frame (FIG. 5) to access the keyboard (FIG. 6)
5. Type password **44680** and press ENTER to confirm. On the next page press EXIT (FIG. 5)
The ✓mark which will now appear beside the icon (FIG. 7) DOES NOT signal that the device is active, but only that it is now possible to manage it
6. Now press the USB icon to access the management page (FIG. 8)
Note: The emergency button must be pressed to proceed. If it is not, the panel will signal this requirement (FIG. 9);
7. Insert the USB drive into its port on the panel (FIG. 1)
Warning: "log" files contained in the USB drive must be deleted from the PC before new data can be stored.
The blue color of the USB icon on the display panel signals that the device has been connected (FIG. 10)
8. If necessary, set the date and time in the lower right frame by pressing the field to be modified and using the arrows beside it (FIG. 10)
9. Press the blue USB icon (FIG. 10) and wait until the hourglass turns off. The data regarding the last 10,000,000 cycles will be saved in files containing 10,000 cycles each. Press EXIT to end.
Warning: if the red wastebasket icon (FIG. 10) is pressed, all data will be deleted from the panel memory
10. Remove the USB drive and insert it into its port on the PC
11. Check that the USB drive contains the files "Dtap-log" and "DTAP LogConverter". Double click DTAP LogConverter and wait until the data file **Dtap-log** (FIG. 11) is converted into the readable file **BSDTap** (FIG. 12).
Conversion can take several minutes. The converted log files will be divided in files with 1 million lines each. This is due to the limitations of Excel or similar programs used to open cvs files
12. Save the BSDTap file on the PC and open it in one of the following ways:
 - Excel or similar program
 - Notepad

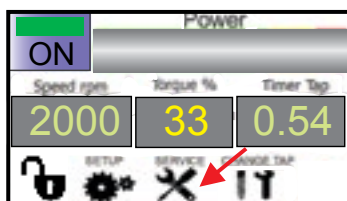


FIG. 2



FIG. 3



FIG. 4

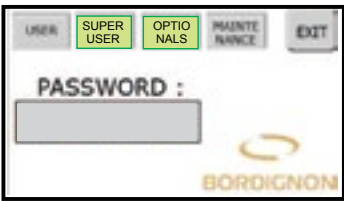


FIG. 5



FIG. 6



FIG. 7

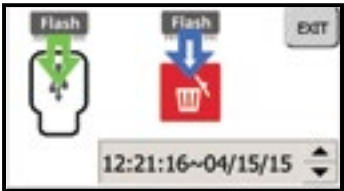


FIG. 8



FIG. 9



FIG. 10

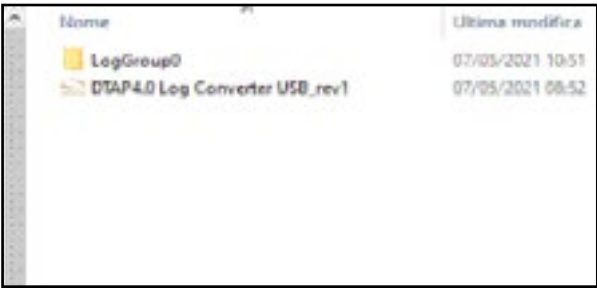


FIG. 11

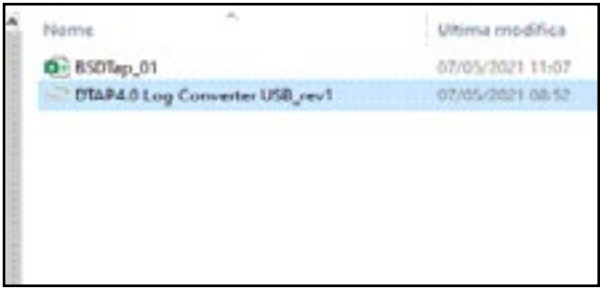


FIG. 12

D-APR: Automatic pressure regulator

OPTIONAL

The D-APR automatic pressure regulator connected to the tap control panel allows the automatic adjustment of the air to a certain pressure.

USAGE:

1. Set the pressure to minimum 6 BAR by the manual pressure regulator (FIG. 1)
2. Press SERVICE in the main frame of the control panel touch screen (FIG. 2)
3. Press "OPT" (FIG. 3)
4. Press the Manometer icon (FIG. 4)
5. Press the Password frame (FIG. 5) to access the keyboard (FIG. 6). Type and press ENTER to confirm. On the next page press EXIT (FIG. 5)
The ✓ mark which will now appear beside the icon (FIG. 7) DOES NOT signal that the device is active, but only that it is now possible to manage it
6. Press the Manometer icon (FIG. 7) now to access the management page (FIG. 8)
7. Press the central box (FIG. 8) to access the keyboard which will allow the desired pressure to be set (FIG. 9). The top right display shows the minimum and maximum consented values, as well as the last parameter entered. After setting, press ENTER to confirm
8. Press EXIT to end.

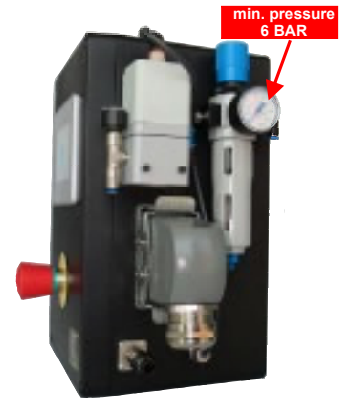


FIG. 1

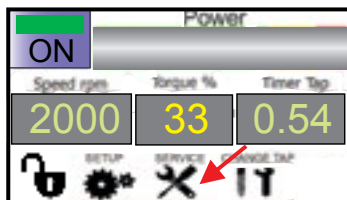


FIG. 2



FIG. 3



FIG. 4

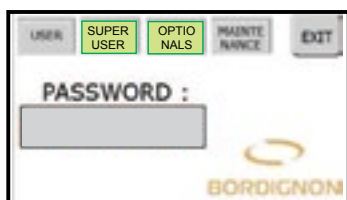


FIG. 5



FIG. 6



FIG. 7



FIG. 8

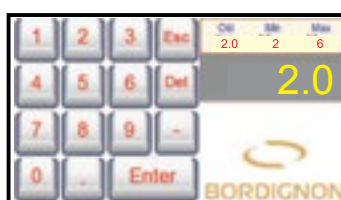


FIG. 9

Right and left tapping

OPTIONAL

The panel allows the tapping direction (left or right) to be decided:

1. Press SERVICE in the main frame of the control panel touch screen (FIG. 1)
2. Press "OPT" (FIG. 2)
3. Press the "Rotation Tapping" icon (FIG. 3)
4. Press the Password frame (FIG. 4) to access the keyboard (FIG. 5)
Type and press ENTER to confirm. On the next page press EXIT (FIG. 4)
The ✓ mark which will now appear beside the icon (fig. 6) DOES NOT signal that the function is active, but only that it is now possible to manage it
5. Press the "Rotation Tapping" icon (FIG. 6) now to access the management page (FIG. 7), which will allow left tapping to be activated (ON) or deactivated (OFF). Press EXIT to end
6. Turn off and on the control panel before starting threading process.

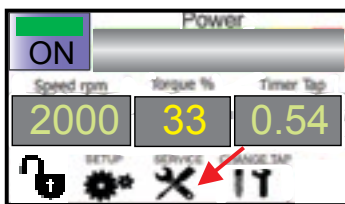


FIG. 1



FIG. 2



FIG. 3

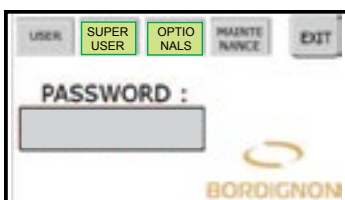


FIG. 4



FIG. 5

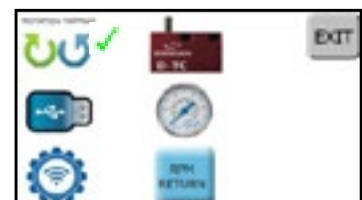


FIG. 6



FIG. 7

Change of return speed of the tap

OPTIONAL

The panel allows to change the return speed of the tap:

1. Press SERVICE in the main frame of the touch screen (FIG. 1).
2. Press "OPT" (FIG. 2)
3. Press the "RPM RETURN" icon (FIG. 3)
4. Press the Password frame (FIG. 4) to access the keyboard (FIG. 5)
Type and press ENTER to confirm. On the next page press EXIT (FIG. 4)
The ✓ mark which will now appear beside the icon (FIG. 6) DOES NOT signal that the function is active, but only that it is now possible to manage it
5. Press the "RPM RETURN" icon (FIG. 6) now to access the management page (FIG. 7) and press the central frame to access the keyboard (FIG. 8)
6. Insert the speed (RPM) as needed considering the maximum and minimum values written at the top right of the display (FIG. 8). Press ENTER to confirm
7. Press "EXIT" to end (FIG. 9).

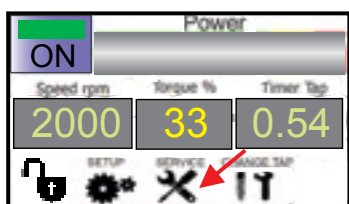


FIG. 1



FIG. 2



FIG. 3

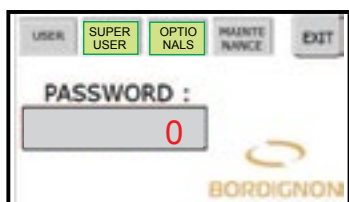


FIG. 4



FIG. 5



FIG. 6

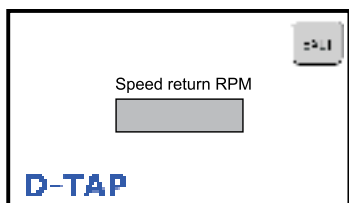


FIG. 7

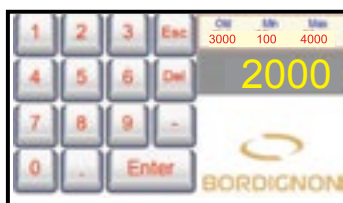


FIG. 8

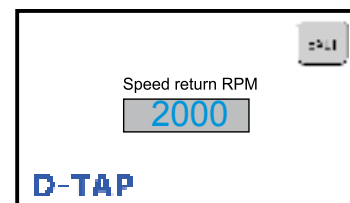


FIG. 9

4.0 Functions and configurations

DTAP 4.0

4.0 technology allows the DTAP threading system to be connected to any PC work station through the Company network (Fig. A). Thanks to this connection, the PC will be able to see and scroll the panel screens and get information about the threading in progress (speed, time, torque, set up, performance of the last 10 threads, state of the motor, etc)



FIG. A

NETWORK CONFIGURATION

To enable the above mentioned connection, follow the following steps:

- On the main screen, press the Service icon (pag. 10) and then the OPT icon to access the Optionals page (fig. 1)
- Press the round WIFI icon to access the page that allows to enter the parameters of the company network
- Enter password **48024**
- Connection to the network can be done in 2 ways:
 - DHCP: DHCP server automatically assigns the IP address. For this choice, select YES in the USE DHCP box (Fig. 2). The IP ADDRESS box will always display the ID address that has been automatically assigned
 - Static IP: For this choice, select NO in the USE DHCP box (Fig. 2). Manually type IP ADDRESS – SUBNET MASK and GATEWAY address codes of the company network (Fig. 2). Press Apply.



FIG. 1

CONNECTION TO THE 4.0 PANEL VIA BROWSER

- First of all, set up the tapping unit panel in order to be connected to the Company network (see previous paragraph)
- Open any browser and enter the IP code of the panel on the address bar

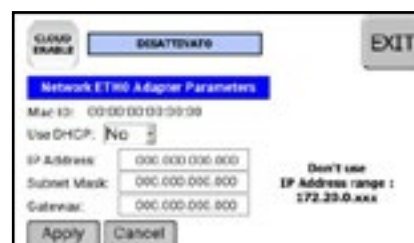


FIG. 2

- In the login form that will appear, enter the credentials listed below and press SIGN IN (Fig. 3)

Username: WebUser

Password: 1234



FIG. 3

SUGGESTING A PROGRAM TO OPERATOR FROM THE PC WORK STATION

Network link gives the possibility to suggest a program to the operator. This can be done from the "Program" page in the Service menu (pag. 10)

i.e. a program different from the one in operation can be suggested to the operator by following the following steps

- Press central box (Fig. 4). A drop-down menu will appear
 - Select a program from the menu (Fig. 5)
 - Press "Suggest" (Fig. 6). The name of the program that has been suggested will now appear on the box next to the "SUGGEST" button. At the same time it will also be displayed in the control panel of the threading unit.
- Other than suggesting a program it's also possible to write an order reference by typing it in the box "Order Code" (Fig. 6) and then confirming it with SAVE

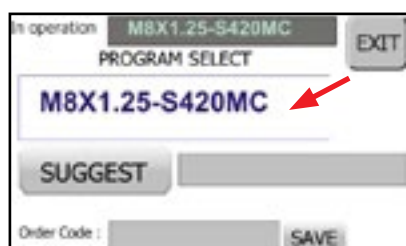


FIG. 4

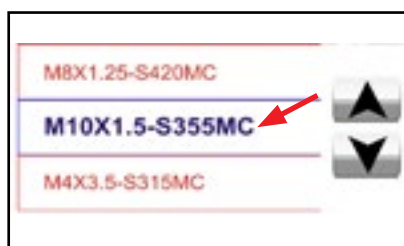


FIG. 5

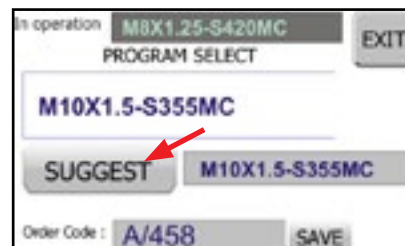


FIG. 6

As soon as above steps have been done, in the panel screen the operator will immediately see the suggested program and the order reference if any (Fig. 7). To accept and load the program, operator must simply press "LOAD" and the display will be automatically be updated with information that refers to the suggested program (Fig. 8)

Operator also may communicate an order reference code to the PC work station by typing it in the Order Code box.

The "SAVE" button (Fig. 7) must be used only to change the name to the program. To do this, follow instructions on page 11

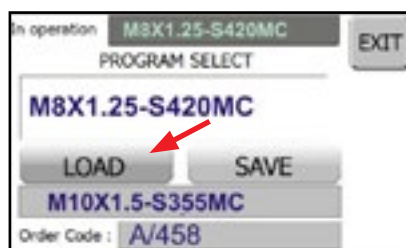


FIG. 7

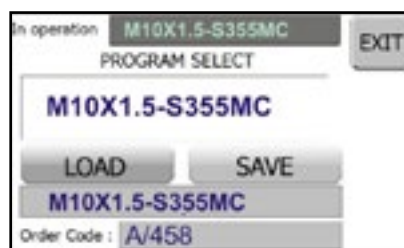


FIG. 8

TELEASSISTANCE

Panel can be connected in order to receive teleassistance from the manufacturer.

To receive on line assistance, connect to the Company network (see paragraph "Network configuration" on pag. 20) and enable this function by tapping "CLOUD ENABLE" icon which will immediately turn green color (Fig. 9)

Provide Mac ID code (Fig. 9) to the manufacturer so that connection can start. Once remote assistance has finished, press "CLOUD ENABLE" icon to disable the connection.

Please note that teleassistance will be disabled if the panel is switched off

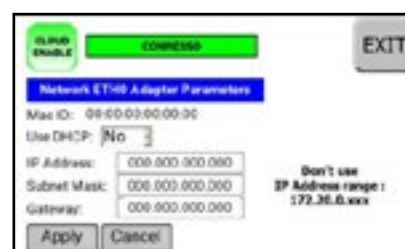


FIG. 9

4.0 Log converter

DTAP 4.0

As an alternative to the DUSB optional (Pag. 15) , LOG files can also be downloaded directly from the computer connected to the same LAN as the DTAP panel

The program has a simple graphic interface (Fig. 10) where you can enter the IP address of the control panel of the threading unit.

The IP address is displayed on network settings page (fig. 11). See page 20



FIG. 10

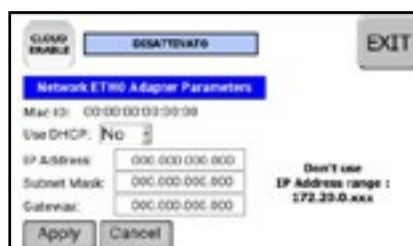


FIG. 11

FUNCTIONING

- Enter the IP address of the panel and then press Download (Fig. 10)
- Select the save folder (Fig. 12) and type the name of the log file that has been converted (.csv)
- Press SAVE (fig. 12)

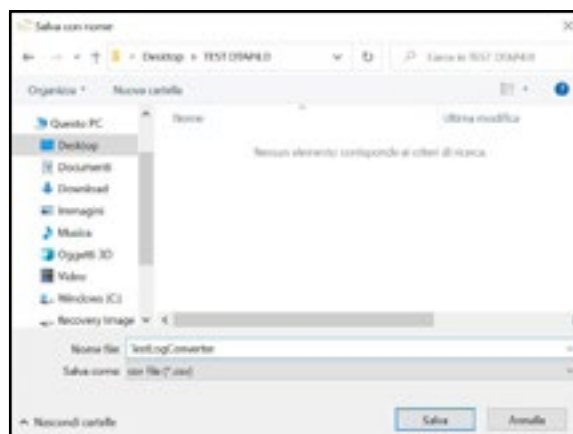


FIG. 12

The DTAP4.0 panel can store up to 10 millions of cycles

The log files that have been converted will be divided in files with 1 million lines each. This is due to the limitations of Excel and Calc (Open Office) that are used to open the converted files (.csv)

The program will make a copy of the SD inside the panel and will proceed in elaborating the files. State of advancement will be displayed in the progress bar and in "File download" and "File Elaborated" fields (Fig. 10)

CSV files can be opened with any program that can read them as Notepad, Excel, Calc or they may be taken as a data source in a Business Intelligence program as QlikView or PowerBi to make summary dashboards of the production process.

Since above said procedure involves the conversion of all cycles inside the SD card, the cycles should be deleted from the SD card after saving them in the PC folder. This way, every conversion procedure will take a short time since the files to be converted will be only the ones following the last conversion made.

To cancel all data in the SD card, follow steps 1-2-3-4-5 of the instructions on pag. 15. Press red icon with waste basket on the display and then EXIT.

4.0 OPC-UA viewer

DTAP 4.0

The OPC-UA-VIEWER is a program that allows a real time monitoring of the threading in progress. To use this function , type Name, IP address and Serial No. in the home screen of the supplied program (Fig. 13)

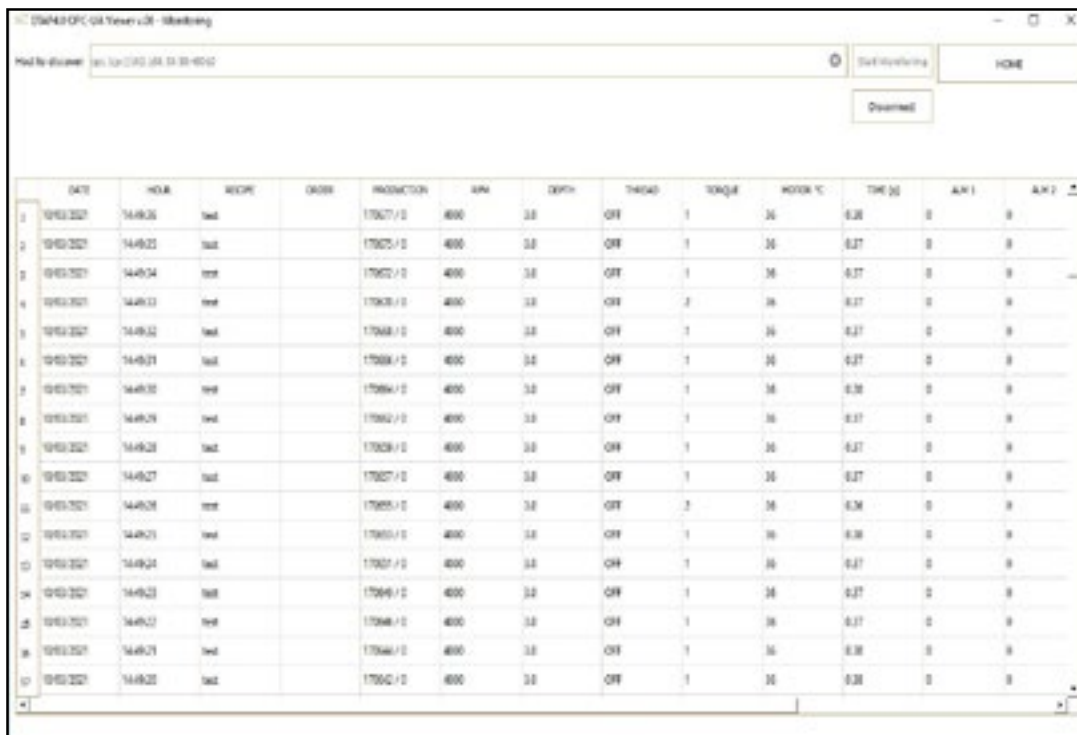


FIG. 13

Once the fields have been filled in, press "Save". The panels that have been entered can be now be selected from the "Machines List" drop-down menu

This program allows to save the information (Name, IP address and Serial n.)of more than one panel. Panels must have names different one from the other

To cancel the information that refers to a panel, select the panel from "Machines list" drop-down menu and tap "Delete". To make a real time monitoring of a panel being selected from "Machines list" menu, tap "Connect". A page will then open displaying in real time a list of the last 100 threads being performed (Fig. 14).



	DATE	HOUR	RECPE	ORDER	PRODUCTION	RPM	DEPTH	THREAD	TORQUE	MOTOR °C	TIME (S)	A.M.1	A.M.2
1	10/03/2021	14:49:26	test		17067 / 0	4000	3.0	OFF	1	36	0.28	0	0
2	10/03/2021	14:49:23	test		17065 / 0	4000	3.0	OFF	1	36	0.27	0	0
3	10/03/2021	14:49:24	test		17062 / 0	4000	3.0	OFF	1	36	0.27	0	0
4	10/03/2021	14:49:23	test		17063 / 0	4000	3.0	OFF	2	36	0.27	0	0
5	10/03/2021	14:49:22	test		17068 / 0	4000	3.0	OFF	1	36	0.27	0	0
6	10/03/2021	14:49:21	test		17068 / 0	4000	3.0	OFF	1	36	0.27	0	0
7	10/03/2021	14:49:20	test		17066 / 0	4000	3.0	OFF	1	36	0.28	0	0
8	10/03/2021	14:49:19	test		17062 / 0	4000	3.0	OFF	1	36	0.27	0	0
9	10/03/2021	14:49:20	test		17068 / 0	4000	3.0	OFF	1	36	0.27	0	0
10	10/03/2021	14:49:27	test		17067 / 0	4000	3.0	OFF	1	36	0.27	0	0
11	10/03/2021	14:49:28	test		17065 / 0	4000	3.0	OFF	2	36	0.28	0	0
12	10/03/2021	14:49:25	test		17065 / 0	4000	3.0	OFF	1	36	0.28	0	0
13	10/03/2021	14:49:24	test		17067 / 0	4000	3.0	OFF	1	36	0.27	0	0
14	10/03/2021	14:49:23	test		17066 / 0	4000	3.0	OFF	1	36	0.27	0	0
15	10/03/2021	14:49:22	test		17068 / 0	4000	3.0	OFF	1	36	0.27	0	0
16	10/03/2021	14:49:21	test		17066 / 0	4000	3.0	OFF	1	36	0.28	0	0
17	10/03/2021	14:49:20	test		17062 / 0	4000	3.0	OFF	1	36	0.28	0	0

FIG. 14

For monitoring more than one machine at the same time, go back to the main screen and select (or enter) the panel to be monitored. Then press "Connect" and a new page as the previous one will open

OPC-UA global variables

DTAP 4.0

The following list shows the global variables that are accessible through OPC-UA protocol. These variables are useful for interfacing the control panel to the Company's management software

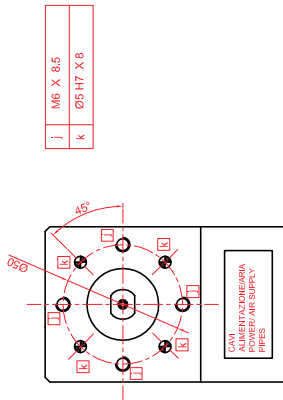
VARIABLE NAME	VARIABLE TYPE	PERMISSION	DESCRIPTION
%MaxTorqueLimit	int	Read	% max. torque limit of the thread
%MinTorqueLimit	int	Read	% min. torque limit of the thread
%TorqueThread	int	Read	% current torque
Actual_Count	int	Read	Counting of cycles performed
ActualRecipeNumber	int	Read	Number of the recipe currently loaded
ActualRecipe	string [32]	Read	Recipe currently loaded
Counter_Preset	int	Read/Write	Number of cycles left to do
MaxTrqLastCycle	int	Read	Max torque detected during last cycle (%)
MotorTemperature_Degree	int	Read	Current temperature of the motor (°C)
Order_Code	string [32]	Read/Write	Order code
Setted_Speed	int	Read	Set threading speed (RMP)
SuggestedRecipeNumber	int	Read/Write	Number of the recipe suggested to the machine
SuggestedRecipe	string [32]	Read	Recipe suggested to the machine
Thread_Depth	int	Read	Set number of revolutions of the thread (displayed x10)
Thread_Slider	int	Read	Selector of thread range. See description in next table
TimeLastCycle	int	Read	Duration time of last cycle (milliseconds)
TimeOil	int	Read	Time of lubrication cycle (milliseconds)
Total_Count	int	Read	Total count of all cycles made
WordAlarm1	int	Read	Word alarm 1. See description in page 25
WordAlarm2	int	Read	Word alarm 2. See description in page 25
Hour	int	Read	Current time
Minute	int	Read	Current minutes
Second	int	Read	Current seconds
Day	int	Read	Current day
Month	int	Read	Current month
Years	int	Read	Current year

THREAD_SLIDER VALUE	DESCRIPTION
0	OFF
1	M2 - M3
2	M4 - M5
3	M6 - M8

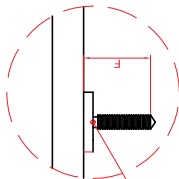
DTAP 4.0

ALARM CODE	VARIABLE	BIT MASK	DESCRIPTION OF THE ALARM
A01	WordAlarm1	0001	Power OFF
A02	WordAlarm1	0002	Emergency pressed
A03	WordAlarm1	0004	Driver fault
A04	WordAlarm1	0008	Hole not found
A05	WordAlarm1	0010	Double START signal
A06	WordAlarm1	0020	Max. torque reached
A07	WordAlarm1	0040	Min. torque not reached
A08	WordAlarm1	0080	Oil level
A09	WordAlarm1	0100	No load, torque too high
A10	WordAlarm1	0200	Overload
A11	WordAlarm1	0400	Drive not ready
A12	WordAlarm1	0800	Tap cycle too long
A13	WordAlarm1	1000	Motor overheating
A14	WordAlarm1	2000	I2T too high
A15	WordAlarm1	4000	Cycle diagnostic
A16	WordAlarm1	8000	End lot production
A17	WordAlarm2	0001	Press emergency button first!
A18	WordAlarm2	0002	Tap speed too high
A19	WordAlarm2	0004	D-TC is damaged or disconnected
A20	WordAlarm2	0008	Tap has not been detected by D-TC sensor
A21	WordAlarm2	0010	Thread is too deep
A22	WordAlarm2	0020	
A23	WordAlarm2	0040	
A24	WordAlarm2	0080	
A25	WordAlarm2	0100	
A26	WordAlarm2	0200	
A27	WordAlarm2	0400	
A28	WordAlarm2	0800	
A29	WordAlarm2	1000	
A30	WordAlarm2	2000	
A31	WordAlarm2	4000	
A32	WordAlarm2	8000	

VISTA INFERIORE
LOWER VIEW

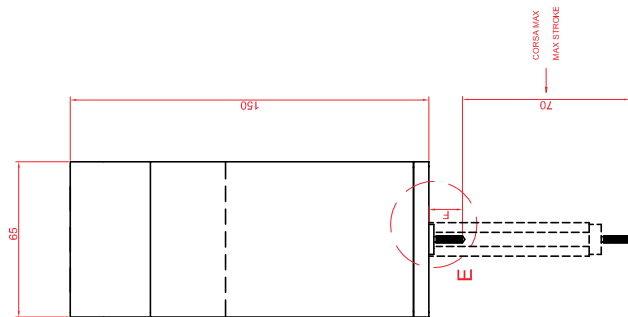


DETTAGLIO "E"
DETAIL
Scala 2:1
Scale 2:1

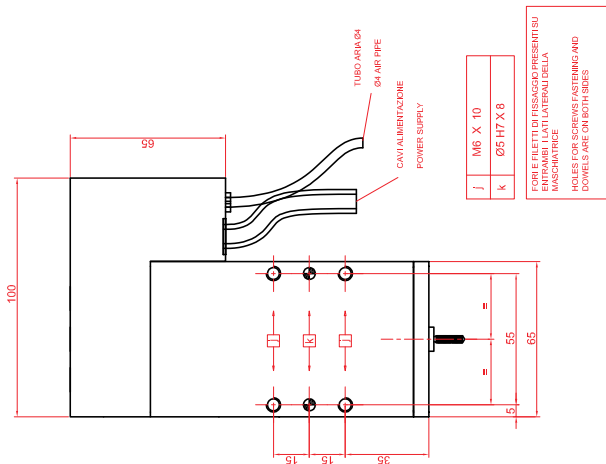


PUNTO INSERIMENTO MASCHIO
VALIDO PER FILE 3D
CLICK HERE TO CHANGE TAP IN 3D
FILE

VISTA FRONTALE
FRONT VIEW



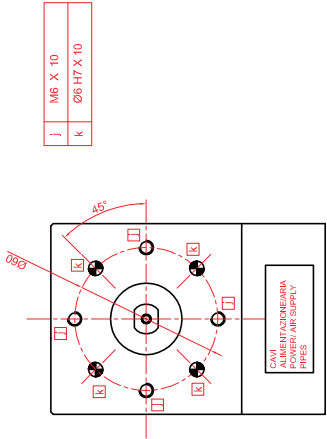
VISTA LATERALE
SIDE VIEW



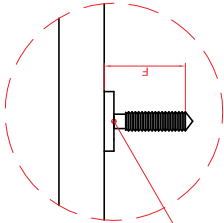
Ø MASCHIO Ø TAP	"F" (mm)
M2	12
M2.5	12
M3	14
M3.5	16
M4	17
M5	18
M6	20

	DENOMINAZIONE PRODOTTO: DTAP1	DISEGNATORE: Lupo Thomas
BORDIGNON SRL Rovato - Veneto - Italy		APPROVATORE: Bordignon Shrone
		DATA: 01-10-2013
		SCALA: 1:1
		REV: 1
		FORMATO FOGLIO: A1
		NOTE: 1. TUTTI I DIMENSIONI DI PROIEZIONE SONO IN MILLIMETRI. 2. I DIMENSIONI DI PROIEZIONE SONO IN MILLIMETRI. 3. I DIMENSIONI DI PROIEZIONE SONO IN MILLIMETRI. 4. I DIMENSIONI DI PROIEZIONE SONO IN MILLIMETRI.

VISTA INFERIORE
LOWER VIEW

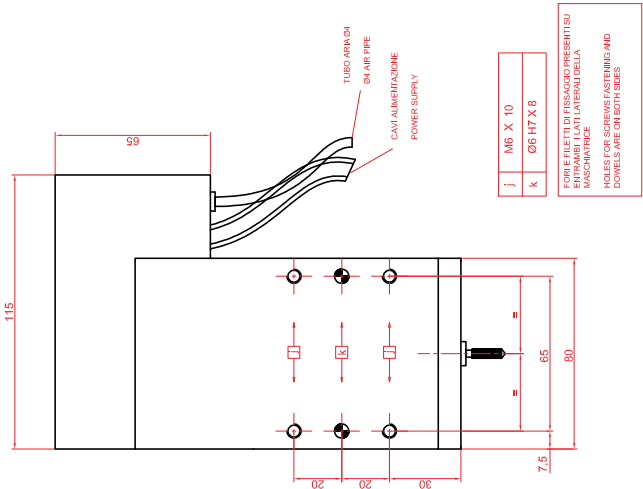


DETTAGLIO "E"
DETAIL
Scala 2:1
Scale 2:1

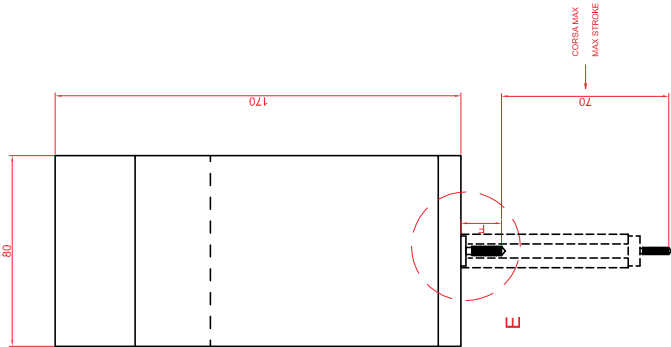


PUNTO INSERIMENTO MASCHIO
VALIDO PER FILE 3D
CLICK HERE TO CHANGE TAP IN 3D
FILE

VISTA LATERALE
SIDE VIEW



VISTA FRONTALE
FRONT VIEW



Ø MASCHIO	"F" (mm)
M4	17
M5	18
M6	20
M8	22

**BORDIGNON SRL**
Rosauro Veneto - IT - Italy

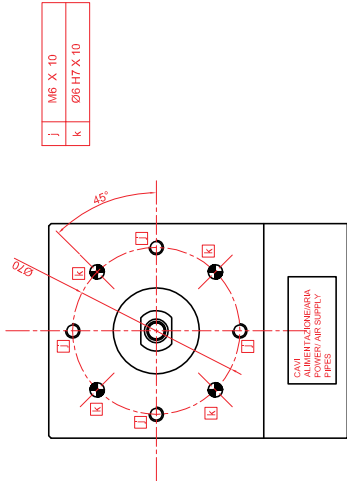
INFORMAZIONE PRODOTTO:
DTAP2

DESIGNATORE : Lago Thomas
APPROVATORE : Bordignon Shrone
DATA : 01-06-2013
SCALA : 1:1
REV : 1
FORMATO FILE: AI

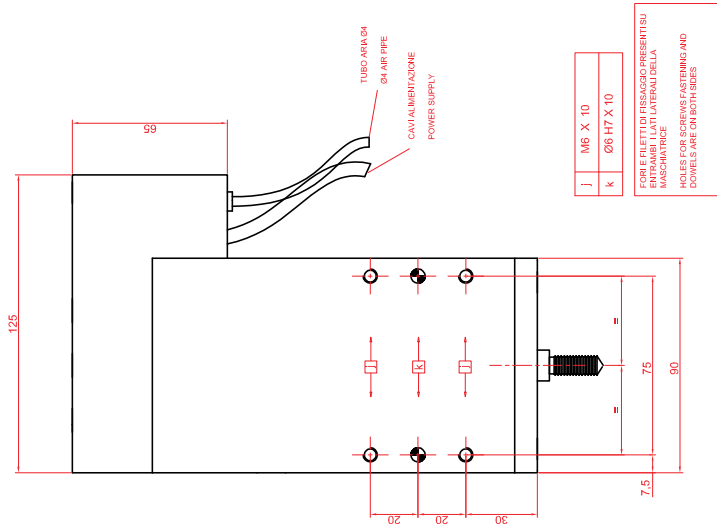

A SOCIETÀ ITALIANA DI PRODUZIONE DI QUALITÀ
BORDIGNON SRL È CERTIFICATA PER IL SISTEMA
DI GESTIONE DELLA QUALITÀ E LA CERTIFICAZIONE DI ISO 9001
PER IL PRODOTTO DI BORDIGNON SRL

ISO 9001:2015
CERTIFICAZIONE

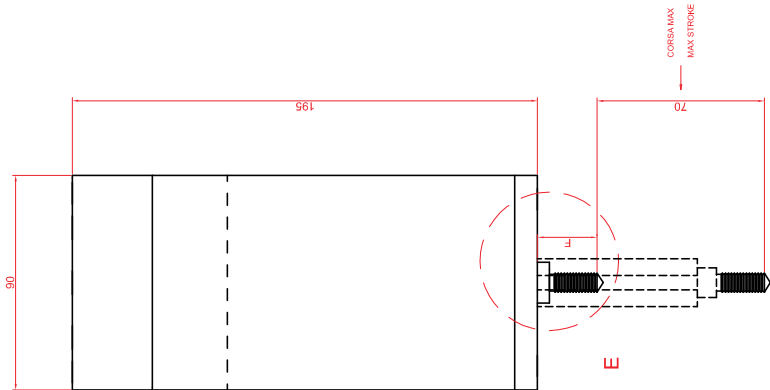
VISTA INFERIORE
LOWER VIEW



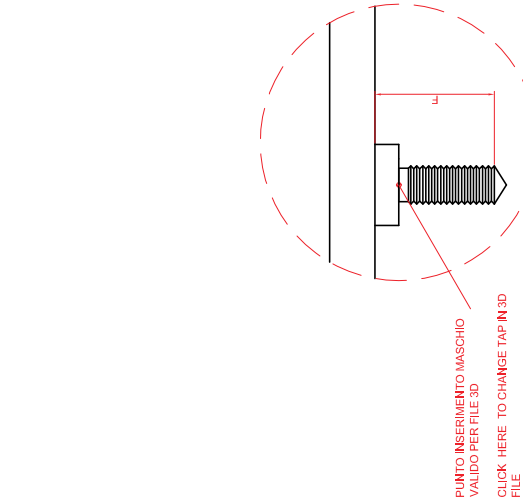
VISTA LATERALE
SIDE VIEW



VISTA FRONTALE
FRONT VIEW



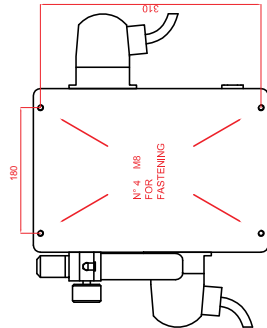
DETTAGLIO
DETAIL



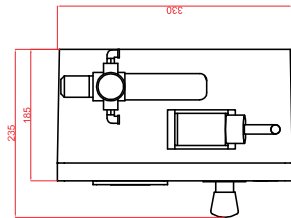
Ø MASCHIO	"F" (mm)
M6	25
M8	25
M10	30

 BORDIGNON SRL ROSSANO VENEZO - VI - Italy DIREZIONE GENERALE VIA S. GIUSEPPE 10 37060 ROSSANO VENEZO (VI) TEL. 0444/960011 FAX 0444/960012 E-MAIL: info@bordonion.it	DISEGNATORE: Lago Thomas
	APPROVATORE: Bordinion Simone
	DATA: 05-05-2019
	SCALE: 1:1
	REV.: 2
	FORMATO FOGLIO: A1
DEDICAZIONE PRODOTTO: DTAP3	
NOTE: IL PRODOTTO È DA MONTARE SULLA STRUTTURA DI SUPPORTO. IL MONTAGGIO DEVE ESSERE EFFETTUATO CON LA MANIPOLAZIONE MANUALE.	

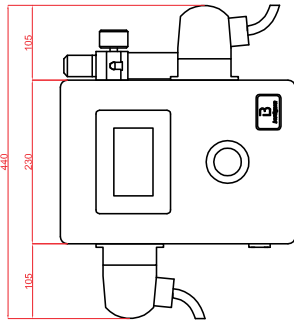
VISTA DIETRO
REAR VIEW



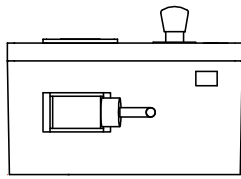
VISTA LATERALE
SIDE VIEW



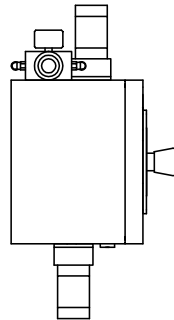
VISTA FRONTALE
FRONT VIEW



VISTA LATERALE
SIDE VIEW



VISTA SUPERIORE
UPPER VIEW



 BORDIGNON SRL Rovato Veneto - VI - Italy	DENOMINAZIONE PRODOTTO: PANNELLO DTAP		DISEGNATORE: Luigi Thomas
			APPROVATORE: Bordignon Simone
			DATA: 08/07/2014
			SCALA: 1:1
			REV: 1
QUESTA SCELTA INIZIALE DI TOLLERANZA CONFERMA IL LIVELLO DI PRECISIONE DELLA REALIZZAZIONE DALLA BORDIGNON SRL			

Preholes for cold forming threading

THREAD	PITCH	TAP TOLERANCE	PREHOLE * (min. suggested Ø)	RPM mild materials	RPM inox/high tensile streght mat.
M2	0,40	ISO2 (6H) ISO3 (6G)	1,85 1,85	3500	1750
M3	0,50	ISO2 (6H) ISO3 (6G)	2,80 2,80	3000	1500
M3.5	0,60	ISO2 (6H) ISO3 (6G)	3,25 3,25	2800	1400
M4	0,70	ISO2 (6H) ISO3 (6G)	3,70 3,70	2500	1200
M5	0,80	ISO2 (6H) ISO3 (6G)	4,65 4,65	2000	900
M6	1,00	ISO2 (6H) ISO3 (6G)	5,60 5,65	1500	700
M8	1,25	ISO2 (6H) ISO3 (6G)	7,45 7,50	1000	500
M10	1,50	ISO2 (6H) ISO3 (6G)	9,35 9,40	800	400

Use cold forming threading oil only

* For inox or high resistance steel, increase the prehole of 0,05 mm

EC DECLARATION OF CONFORMITY
in accordance with European Directive 2006/42 EC – annex IIA



The producer **BORDIGNON s.r.l.** - Via Volta, 2 – 36028 Rossano Veneto – VI - Italia hereby declares that:

- equipment Tapping unit
- model DTAP
- serial n°

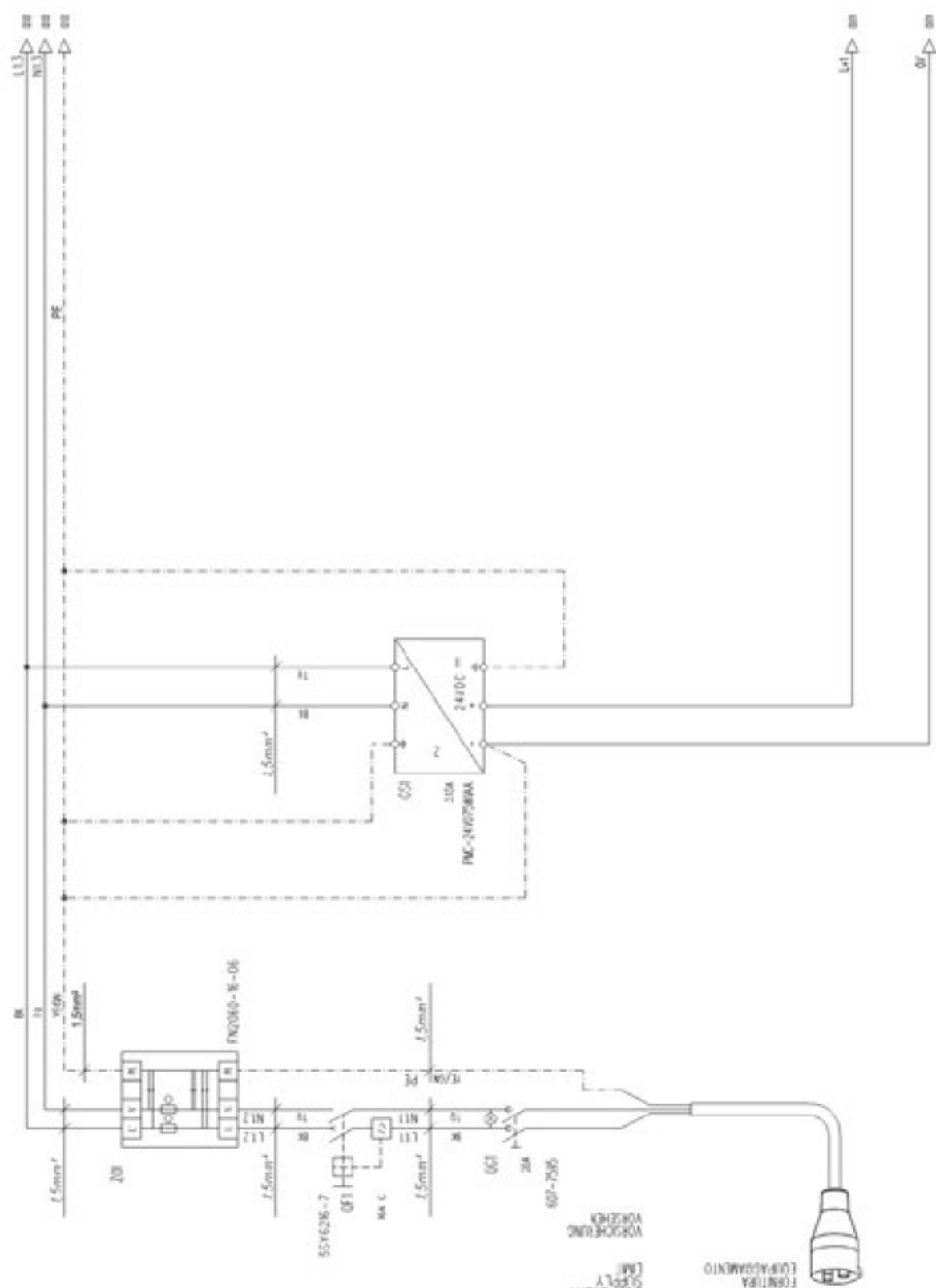
is in accordance with the following Directives:

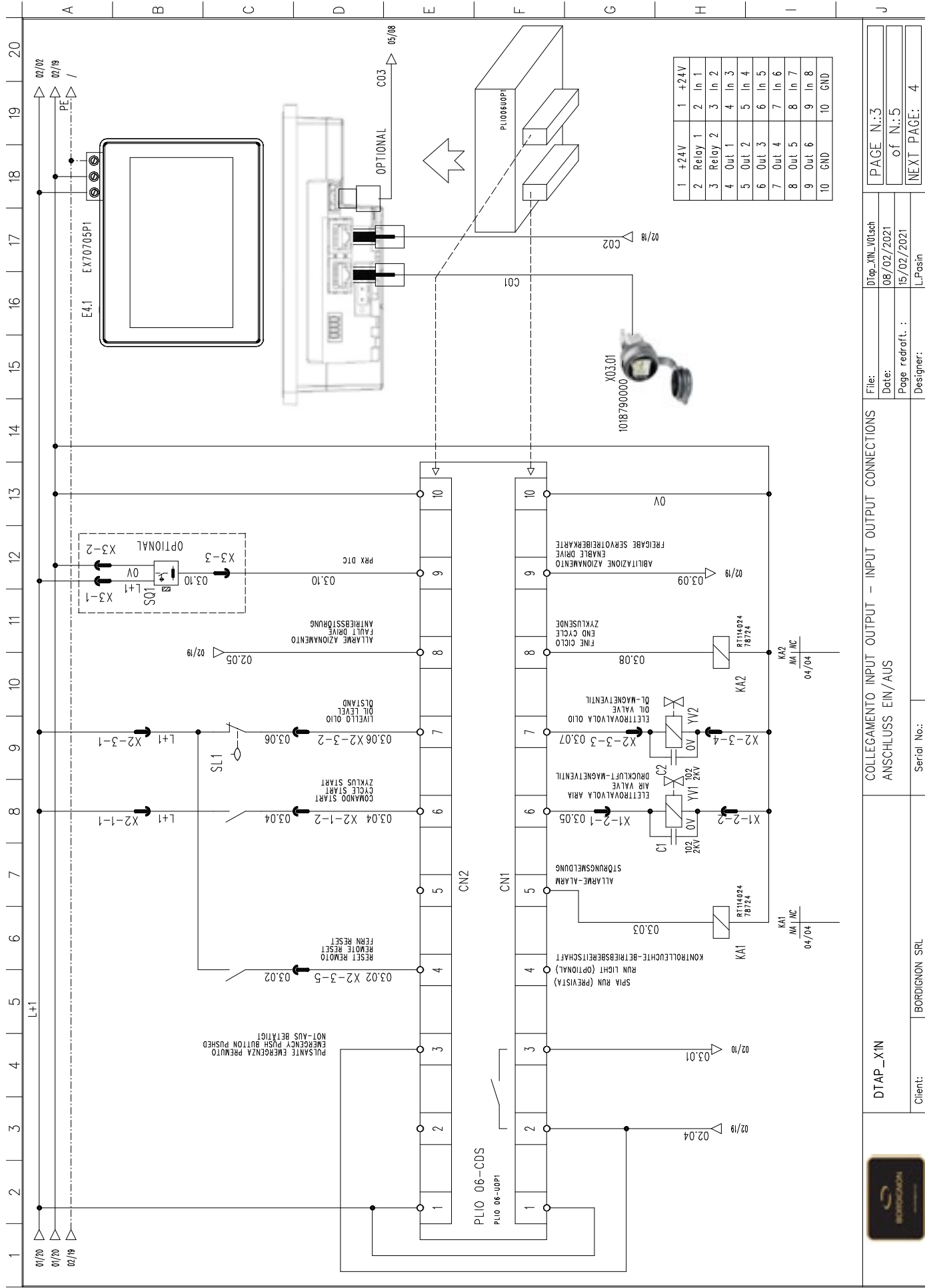
- 2006/42 EC the machinery directive;
- 2014/35 EC the low voltage directive;
- 2014/30 EC the electromagnetic directive.

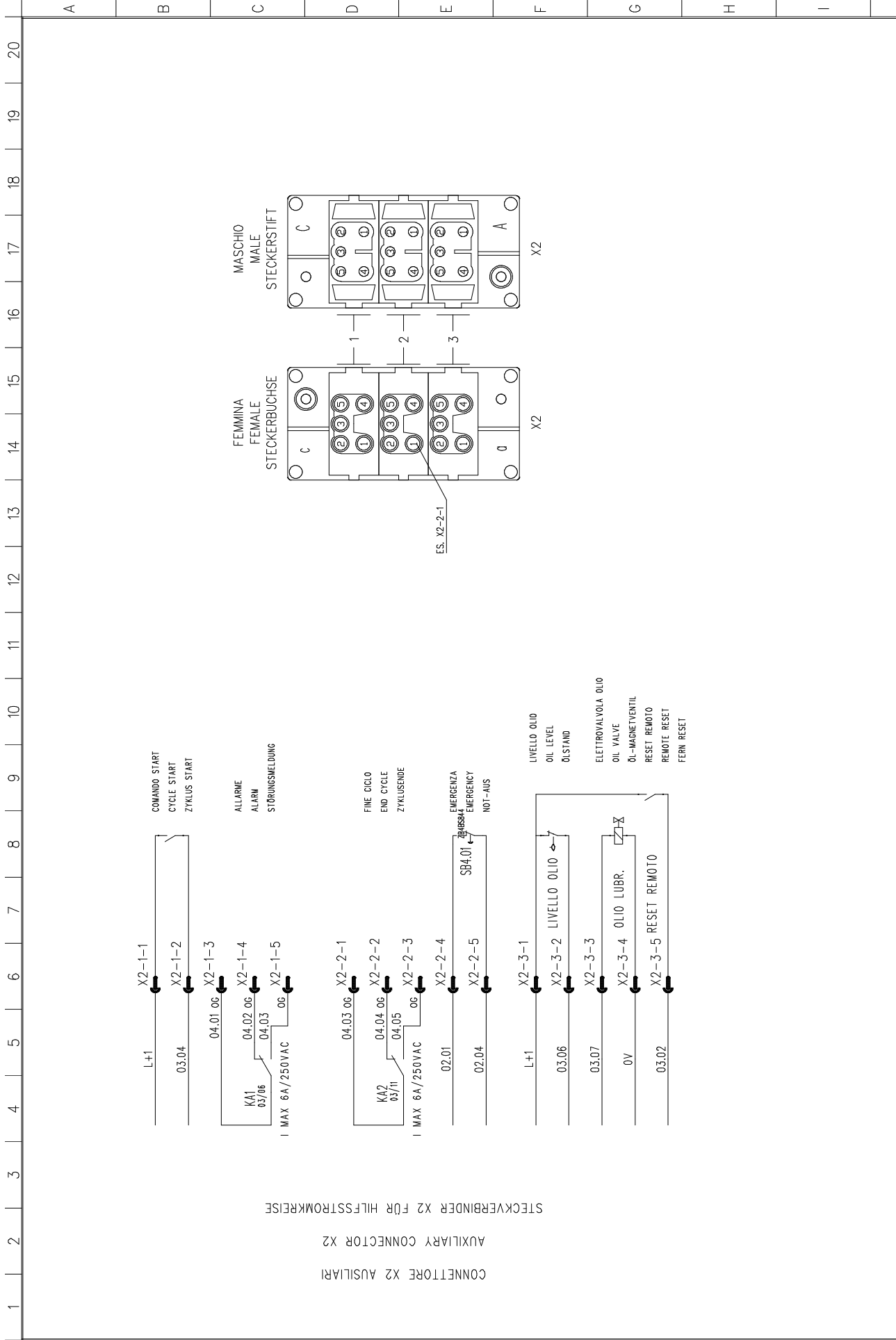
The person authorized to compile the technical file is Mr. Simone Bordinon – Company BORDIGNON s.r.l.

Rossano Veneto,


Simone Bordinon
BORDIGNON SRL







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DTAP_XIN

CONNETTORI – CONNECTORS – STECKVERBINDER

File: DTap_XIN_V01.sch

Date: 08/02/2021

Page redraft. : 15/02/2021

Designer: L.Pasin

PAGE N.:4

of N.:5

NEXT PAGE: 5

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bordignon@bordignon.com

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b.simone@bordignon.com

Bordignon Srl reserves the right to make modifications to the technical data of this manual, without prior notice.