



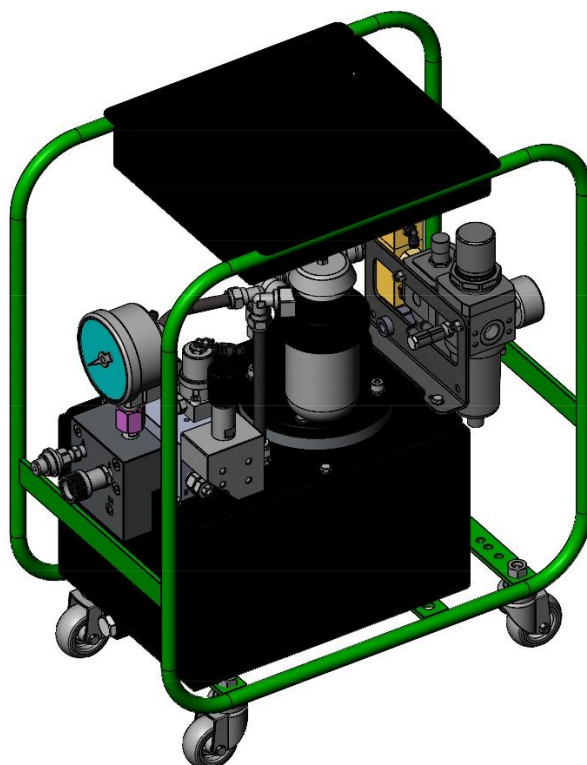
BLACKIRON
ITALY

BLACKIRON Italy

Via E. Rizzi 9/11 - 20077 Melegnano (MI)
Tel. +39 0239432304 - Fax +39 0287152020
www.blackiron.it - sales@blackiron.it

PNEUMATIC POWER PACK UNIT EXPLOSION-PROOF EXECUTION

MOD. BI-HTW-AIR-EX



INSTRUCTIONS AND MAINTENANCE MANUAL





1	INTRODUCTION.....	3
1.1	PURPOSE OF THE INSTRUCTIONS MANUAL	4
1.1.1	STORAGE INSTRUCTIONS MANUAL	4
1.1.2	METHODOLOGY FOR UPDATING THE INSTRUCTIONS MANUALE IN EVENT OF A CHANGE OF MACHINE	4
1.2	CONSULT THE INSTRUCTIONS MANUALE.....	5
1.2.1	PICTOGRAPHS RELATING TO "QUALIFIED OPERATOR"	5
1.2.2	PICTOGRAPHS RELATING TO "CONSULT THE MANUAL"	5
1.2.3	PICTOGRAPHS RELATING TO THE SECURITY OF DUTY	5
1.2.4	PICTOGRAPHS DANGER OF ANY SECURITY	Errore. Il segnalibro non è definito.
1.3	GENERAL INFORMATION	6
1.3.1	GENERAL INFORMATION OF MACHINE USING	7
1.3.2	GENERAL SAFETY.....	8
1.3.3	GENERAL PRECAUTIONS REGARDING THE USE OF MACHINES	10
1.4	WARRANTY AND TEST	11
1.5	LIMITATIONS OF COPYRIGHT AND REPRODUCTION	11
1.6	ACTION REQUEST	10
2	GENERAL FEATURES	10
2.1	PERMITTED USE.....	11
2.1.1	USE NOT PERMITTED	12
2.2	LIST OF THE MAIN COMPONENTS	13
2.3	NAME PLATE.....	14
2.4	TECHNICAL DATA	14
2.4.1	DIMENSIONS	14
2.4.2	TABLES AND CHARTS.....	15
2.4.3	INFORMATION ABOUT THE NOISE	15
2.4.4	VIBRATIONS	15
3	SAFETY RULES.....	16
3.1	PROTECTION AND SAFETY DEVICES.....	16
3.2	RESIDUAL RISK	18
3.3	OPERATOR.....	16
3.4	PICTOGRAPHS POSITIONING	19
4	COMMISSIONING	18
4.1	GENERAL INFORMATION	18
4.2	CONTROLS.....	18
4.3	OPERATION.....	19
5	TRANSPORT AND HANDLING.....	20
5.1	GENERAL INFORMATION	20
5.2	PACKING	20
5.2.1	MACHINE PACKING	20
5.3	UNPACKING	20
5.4	MACHINE HANDLING	21
5.5	DISPOSAL OF PACKING MATERIAL.....	22
6	INSTALLATION.....	22
6.1	ENVIRONMENTAL CONDITIONS OF USE	22
6.2	USER'S RESPONSABILITY	22
6.3	REQUIRED SPACE.....	23
6.4	POSITIONING	23
6.5	OIL FILLER PLUG ON THE TANK	23
6.6	CONNECTIONS	24
6.6.1	PNEUMATIC CONNECTIONS	24
6.6.2	HYDRAULIC CONNECTIONS.....	24
6.6.3	HYDRAULIC DIAGRAM	25



7	ADJUSTEMENTS	26
8	MAINTENANCE	27
8.1	GENERAL INFORMATION	27
8.1.1	MAINTENANCE FOR POTENTIALLY EXPLOSIVE ATMOSPHERE	28
8.2	CLEANING	28
8.3	ROUTINE MAINTENANCE	29
8.3.1	CHECKING THE OIL LEVEL	29
8.3.2	OIL CHANGE AND CLEAN THE TANK	30
8.4	TABLE RECOMMENDED OILS	31
8.5	EXTRAORDINARY MAINTENANCE	31
8.6	TROUBLESHOOTING	32
9	OUT OF SERVICE	34
9.1	PROVISIONS	34
9.1	ELIMINATION AND DESTRUCTION	34
10	SPARE PARTS	35
10.1	HOW TO ORDER SPARE PARTS	35
11	ANNEXES	36

1 INTRODUCTION

1.1 PURPOSE OF THE INSTRUCTIONS MANUAL

This manual is an integral part of the machine and is designed to provide all the information necessary to:

- proper awareness of safety issues; manipulation of the completed machinery, packed and unpacked, safe;
- Correct installation of the completed machinery;
- in-depth knowledge of its operation and its limits;
- its proper use in conditions of safety;
- carrying out any change of production and maintenance, in a correct and safe;
- dismantle the machine in a safe condition and in compliance with the current legislation protecting environment and health of workers.



The heads of departments, where this machine will be installed, have the obligation, according to the rules, read the contents of this document and read it to the drivers and maintenance personnel employed by the parties to compete. The time taken for the purpose will be amply rewarded by the proper operation of the completed machinery and its use in safety.

This document assumes that in plants, where it was intended for the completed machinery, are complied with applicable safety standards and hygiene.

The instructions, drawings and documentation contained in this manual are of a technical nature reserved to close the property of **BLACKIRON Italy** and can't be reproduced in any way, either in full, both partially. The customer also has the responsibility to make sure that if this document is affected by the changes **BLACKIRON Italy** only the updated versions of the manual are actually present at point of use.

1.1.1 STORAGE INSTRUCTIONS MANUAL

The manual must be kept with care and must accompany the completed machinery at all stages of property that the same may have in his life.

Storage should be favored handling it with care, with clean hands and not depositing it on dirty surfaces. It should be kept in a secure environment from moisture and heat.

They should not be removed, torn or arbitrarily changed by the parties.

The **BLACKIRON Italy**, at the request of the user, it can provide, for a fee, additional copies of the manual.

1.1.2 METHODOLOGY FOR UPDATING THE INSTRUCTIONS IN THE EVENT OF A CHANGE OF MACHINE

In the event of changes to the virtual machine installed at the customer, agreed with **BLACKIRON Italy** and involving the modification of one or more chapters of the Handbook of Instructions, it is up to **BLACKIRON Italy** referring to the distribution list this in their archives, to send to the holders of the chapters involved Instruction Manuals affected by the change with the new revision level, the new homepage and the new introduction, which sets the new level of comprehensive review of the Owner's Manual depending on the revision level of the chapters components.

It is the responsibility of the user, following the directions that accompany the updated documentation, replace all copies held in the old with the new chapters, the starting page and the introduction of those with the new revision level.







1.2 REFER TO THE MANUAL

This manual is divided into chapters and paragraphs numbered for easy reference.




On each page there are:

- Company logo on the manufacturer;
- Number and title of the chapter membership;
- Text of the document;
- Pictograms;
- Page Number.






1.2.1 PICTOGRAPHS RELATING TO "OPERATOR QUALIFICATION"

	Worker: operator with no specific skills, able to perform simple tasks on the provisions of qualified technicians.
	Conductor of the machine: operator with no specific skills, able to perform simple tasks, or the conduct of machine through the use of the controls placed on the control and loading and unloading of materials used during production, with protections installed and active; not enabled the use of machine operation mode to the hold with open caps.
	Conductor of lifting and handling: operator trained means for lifting and handling of materials and equipment (carefully following the manufacturer's instructions), in accordance to the laws in force in the country of use of the completed machinery.
	Mechanical maintenance engineer: a qualified technician able to conduct the machine under normal conditions, to make it work with maintained action control with protection disabled, to work on mechanical to make adjustments, maintenance and repairs. Typically it is not authorized to work on electrical systems in the presence of voltage.
	Electrical maintenance: a qualified technician able to conduct the machine under normal conditions and to make it work with maintained action control with disabled protections; is responsible for all electrical work adjustment, maintenance and repair. E 'can operate in the presence of voltage cabinets and junction boxes.
	Manufacturer's technician: qualified technician provided by the manufacturer to carry out complicated operations in particular situations, as agreed with the user. The skills are, as appropriate, mechanical and / or electrical and / or electronic and / or software.





1.2.2 PICTOGRAPHS RELATING TO "CONSULT THE MANUAL"

	IMPORTANT The texts marked with this symbol indicates a potential hazard and draw the operator's attention in order not to run into a series of consequences that could result in damage to the machine and / or user.
	FOR THE ENVIRONMENT The texts marked with this symbol contain warnings about the environment.
	NOTE The texts marked with this symbol contain additional information.

1.2.3 PICTOGRAPHS OBLIGATION OF ANY SECURITY

	<p>Obligation gloves: The presence of this symbol require the use of gloves for electrical insulation / heat by the operator.</p>
	<p>Obligation safety shoes: The presence of this symbol requires the use of special protective footwear by the operator.</p>
	<p>Obligation clothing accident prevention: The presence of this symbol require the use of approved clothing for accident prevention (eg overalls).</p>
	<p>Duty Face Mask: The presence of this symbol requires the use of a visor to protect the face of the operator.</p>
	<p>Obligation hearing protection: The presence of this symbol require the use of hearing protection by the operator being implied the risk of noise pollution.</p>

1.2.4 PICTOGRAPHS RELATING TO THE SECURITY OF DANGER

	<p>Danger of crushing the upper limbs and lower limbs: The presence of this symbol require special operator attention to all the mechanical components that may cause an unexpected movement or for their imprudence crushing of the upper limbs or lower limbs operator.</p>
	<p>Danger suspended loads: The presence of this symbol alerts the operator to the danger of suspended loads due to the lifting of components belonging to the completed machinery.</p>
	<p>Electric shock hazard: Report to the personnel that the described operation, if not in compliance with the safety regulations, the risk of an electric shock.</p>
	<p>Danger forklift in motion: The presence of this symbol warns the user of the dangers posed by vehicles moving in the vicinity of the completed machinery.</p>

1.3 GENERAL INFORMATION



Before carrying out any operation on the machine operators and engineers in charge should read carefully the instructions contained in this publication (and those attached) and we follow them during the execution of interventions. If you are unsure about the correct interpretation of the instructions, surveyed our CUSTOMER SERVICE to obtain the necessary clarifications.

This instruction manual refers to the machine:

PNEUMATIC UNIT BI-HTW-AIR-EX

This user's manual contains important information for storage, moving, installation, operation, monitoring, maintenance and removal of the completed machinery.

This manual is an integral part of the machine and must be carefully preserved until decommissioning of the machine in order to allow the reference to future updates. In case of damage that renders it unusable copy of the manual in its possession, the user can request a copy at:

BLACKIRON Italy

Via E. Rizzi 9/11 - 20077 Melegnano (MI)
Tel. +39 0239432304 - Fax +39 0287152020
www.blackiron.it - sales@blackiron.it

specifying the type of the completed machinery and the serial number or order number printed on the label of the machine.

The official language chosen by the manufacturer is Italian.

We accept no responsibility for translations in other languages, not in accordance with the original meaning.

This manual reflects the state of the machine at the time of delivery and can't be considered inadequate if there subsequently updated based on new experiences. The manufacturer reserves the right to update products and manuals without any obligation to update products and manuals without the obligation to inform the users of machinery previously provided. The reporting of proposals to update the manual and / or the completed machinery is to be considered a form of courtesy.

The customer service is at your disposal to provide, upon request, information about the updates made to the virtual machine.

1.3.1 GENERAL INFORMATION ON THE USE OF PARTLY COMPLETED MACHINE

- This manual has been designed to provide the user with a general knowledge of the completed machinery and maintenance instructions deemed necessary for its proper functioning.
- Before performing any operation almost boobymachine, read the manual, as it contains all the information necessary for the proper use of the machine and prevent accidents.
- The frequency of inspection and maintenance required by the manual is always intended as the minimum necessary to ensure the efficiency, safety and durability of the completed machinery in normal working conditions, supervision must, however, be consistent and you will have to act quickly event of faults.
- All routine maintenance, inspections and general cleaning should be performed with the partly-stationary machine disconnected from the power supplies of energy.

1.3.2 GENERAL SAFETY

Before operating the machine, read the instructions in this manual carefully and follow the instructions in this document.

The manufacturer has made the greatest effort in designing this machine, as far as was possible, **INTRINSICALLY SAFE**. He also has all the protections deemed necessary, and finally he accompanied by sufficient information for it to be used safely and correctly.

To this end, in each chapter, and when necessary, for any MANmachine INTERACTION, have been shown the following information:

- Minimum qualifications required of the operator
- No. of workers required
- State of the completed machinery
- Residual Risks
- Suitable personal protective equipment required or recommended
- Prevention of human errors
- Bans / obligations relating to misconduct reasonably foreseeable



This information must be strictly adhered to.

The user can usefully complement the information provided by the manufacturer with additional work instructions, obviously not in conflict with the information in this manual, in order to contribute to the safe operation of the completed machinery.

For example, you should be very careful wearing clothing that almost everyone who spoke on the machine:

- Avoid the use of clothes with handles that can be attached to parts of the completed machinery;
- Avoid using ties and other loose pieces of clothing;
- Avoid wearing bulky rings that may catch your hands to organs of the completed machinery.

When necessary in the manual will be specified further recommendations on preventive measures by the user, the following personal protective equipment, information to prevent human errors and prohibitions relating to behavior not allowed reasonably foreseeable.

However, it is essential to follow carefully the following instructions:

- It is absolutely forbidden to operate the equipment with guards quasi-stationary and / or mobile dismantled;
- It is forbidden to perform any type of operation without the safety devices turned on;
- Cleaning operations should be carried out with the air separation devices dissected;
- Do not modify for any motive parts of the completed machinery; in case of malfunction due to a failure to comply with the above, the manufacturer is not liable for the consequences. We recommend that you request any changes directly to the manufacturer.
- Clean the panels of the machines, panels and controls, with soft and dry cloth or tissue moistened with a mild detergent solution; Do not use any type of solvent, such as alcohol or benzine, as these may damage the surface;
- Place the machine as specified at the time of the order; see diagrams provided by the manufacturer; otherwise are not liable for any inconvenience.



Stay clear of loads supported by hydraulics. When using a cylinder, hydraulic, to raise or lower a load, should never be used as a permanent support. After each lift or lowered, the load mechanically.



USE ONLY RIGID FOR THE SUPPORT OF LOADS. Choose from steel or wood blocks are capable of supporting the load. Never use a hydraulic cylinder as a shim or spacer in any lifting or pressing.



To avoid personal injury, keep hands and feet away from the hydraulic cylinders during use.



The maximum operating pressure in a circuit, should never exceed that of the component to the lower pressure. To check the pressure in a circuit, install a pressure gauge that allows you to keep controlled dangerous back pressure which affect their life.



Avoid damaging the hose. Avoid sharp bends and kinks hoses. Sharp bends in the pipe causing bottlenecks that can lead to dangerous back pressure which affect their life.



DO NOT squeeze the hoses. The crushing or collision with heavy objects may damage the internal metal spiral reinforcement. Applying pressure to a damaged hose may cause it to rupture.



Do not use the hose or the swivel to lift the equipment. Use the handholds or other means of transport safer.



Protect all hydraulic components from heat. Excessive heat will soften the seals, gaskets and hose, resulting in oil leaks. For proper operation, the oil temperature must not exceed 65 ° C [150 ° F]. Protect hoses and cylinders from weld spatter.



Do not handle pressurized hoses. Spray oil under pressure can penetrate the skin causing serious injury. If the oil is injected under the skin, see a doctor immediately.



Use only hydraulic applications in a coupled system. Never use hydraulic applications with hydraulic clutches are not connected. If the application is excessively loaded hydraulics, components can collapse catastrophically causing personal injury heavy.



In the event of a fall to the ground on the remote control or barrel taken from the same board, verify that the different structures and the same remote control are intact and without cracks or fractures in order to ensure the isolation of the internal parts of the controller with respect to the environment outside potentially explosive .
In the event of breakage of this type indicate not utilize the unit but contact customer service at the manufacturer's



The maintenance of hydraulic equipment should only be performed by qualified technicians. For technical support, contact your local Authorized Service Center in your area. To protect your warranty, use only oil as described in the chapter.



Immediately replace worn or damaged parts with original spare parts. Worn parts will break causing personal injury and property damage.



Respect the National Law in force on Explosion proof. The changes and the installation must be performed by qualified personnel.



Keep your hands away from moving parts and hoses under pressure.



These units are equipped with pressure relief valves calibrated by the manufacturer. For their repair or calibration contact an authorized service center.

1.3.3 GENERAL PRECAUTIONS REGARDING THE USE OF MACHINES

The statements fall within the normal behavior that workers should take in respect of the completed machinery and, therefore, in the design and construction of the completed machinery, the manufacturer has considered the notes to the conductor.



And 'the user's duty to inform and train workers so that these instructions are brought to the attention of the personnel who work on the completed machinery.



Clean any oil or grease stains on the floor to avoid injury from slipping.

- Do not allow unauthorized personnel to work on the completed machinery.
- **DO NOT START THE MACHINE IN NEAR-FAULT.**
- Before using the completed machinery must ensure that any unsafe condition has been properly removed.
- Make sure that all guards and other protective devices are in place.
- Ensure that the area of control of the operator there are no foreign objects.
- When there is a possibility of being hit or falling from the projections of solids, etc., use goggles with side shields, helmets or gloves, if necessary.
- When you must use the prescribed personal protective equipment.



1.4 WARRANTY AND TESTING

Warranty

BLACKIRON Italy warrants this product against defects in manufacture of all parties for a period of 1 (one), the date indicated on the invoice.

The warranty is limited to replacement of defective parts.

The warranty is effective when the defective part is returned to

BLACKIRON Italy Via E. Rizzi 9/11 - 20077 MELEGNANO (MI) - Italy requires together with a copy of the purchase invoice of the completed machinery and the complaint form delivered with the same, which must be completed with the subscription purchaser, the return of the defective part.

BLACKIRON Italy reserves the right to repair or replace the part.

Are excluded from the warranty:

- Defects resulting from work on the completed machinery made by the customer without prior written permission of **BLACKIRON Italy**;
- Periodic maintenance and repair or replacement of parts subject to normal wear and tear;
- Transportation costs of the part by the customer to **BLACKIRON Italy** and vice versa, and the relative risks;
- Labor costs related to the replacement of the defective part;
- Coverage for any damage, direct or indirect, resulting from a failure in the completed machinery to its misuse (including but not limited to use for purposes other than those provided: mishandling and non-compliance with the instructions **BLACKIRON Italy** proper use and maintenance, installation and use does not comply with the technical standards and safety regulations of use, improper or incorrect installation of the software), to repairs by the customer, defects of the plant or equipment to which the completed machinery has been connected, to fortuitous events or other causes not attributable to **BLACKIRON Italy**
- Overload, use of improper fluid.
- In any case, the guarantee does not apply if the machine has been tampered with by any person not authorized by **BLACKIRON Italy**

Test

The mode of testing at the office of the Customer is agreed in the contract of sale. Under normal conditions, the test is carried out at the headquarters of **BLACKIRON Italy** Via E. Rizzi 9/11 - 20077 MELEGNANO (MI), in the presence of the Customer if provided in the sales contract or according to agreements between the parties.

1.5 LIMITATIONS OF COPYRIGHT AND REPRODUCTION

All rights reserved to the **BLACKIRON Italy**

The structure and contents of this manual may not be reproduced in part or whole without the express permission of the **BLACKIRON Italy** Nor may it be stored on any media (magnetic, magneto-optical, optical, microfilm, photocopies, etc..).

1.6 REQUEST ASSISTANCE

Requests for assistance from the Customer Technical Assistance Service must be submitted via fax to the following address:

BLACKIRON Italy

Via E. Rizzi 9/11 - 20077 Melegnano (MI)

Tel. +39 0239432304 - Fax +39 0287152020

www.blackiron.it - sales@blackiron.it

specifying:

- Type of machine, freshman, year of installation
- Defects
- Exact address of the establishment where you installed the completed machinery.

2 GENERAL FEATURES

2.1 PERMITTED USE

- The PNEUMATIC UNIT BI-HTW-AIR-EX was designed and built to be used with hydraulic applications, hydraulic torque wrenches and hydraulic cylinders up to 700 barsuitable for the working environment required by current regulations.
- The completed machinery is intended for use in the industrial sector under normal environmental conditions.
- The management of the completed machinery must be entrusted to trained personnel on the characteristics of the same and that they are informed about the contents of this manual.
- The machine is a partly automatic operation.
- As a certified ATEX 2G (in reference to EU regulation 2014/34/UE), the control unit can be used in an inert or potentially explosive classified Area 22 Zone 2.

2.1.1 USE NOT PERMITTED

It is forbidden to use even partially incomplete machine:

- Unprotected and / or safety devices turned off, or missing;
- If it has not been properly installed;
- In dangerous conditions or malfunctions;
- Improper use or use by untrained personnel;
- For use contrary to specific rules;
- In the case of incorrect or defective power;
- In the event of serious deficiencies in maintenance;
- Without wearing PPE required for the specific operation;
- Without having adequately trained, informed and trained the operator as provided for by Legislative Decree no. 81/2008 (and subsequent amendments and additions) on the safety of the workplace;
- After modifications or unauthorized access;
- With materials and / or tools other than those provided for normal operation of the completed machinery;
- With total or partial failure of the instructions.
- If you use water instead of oil, the water should have a hardness of up to 25 ° f to avoid damaging the components inside the unit.
- With oil (or water) with different characteristics from those mentioned in Chapter 6 CONNECTIONS.

Is not provided the possibility of use of the machine in one or more of the following conditions:

- At a temperature lower than -5°C and higher than 50°C;
- With relative humidity lower than 10% and greater than 95%
- At altitudes above 2000 meters above sea level;
- **in an environment classified as potentially explosive according to an area other than Zone 2 or Zone 22 and/or with characteristics different from the visible marking on the plate of the machine.**

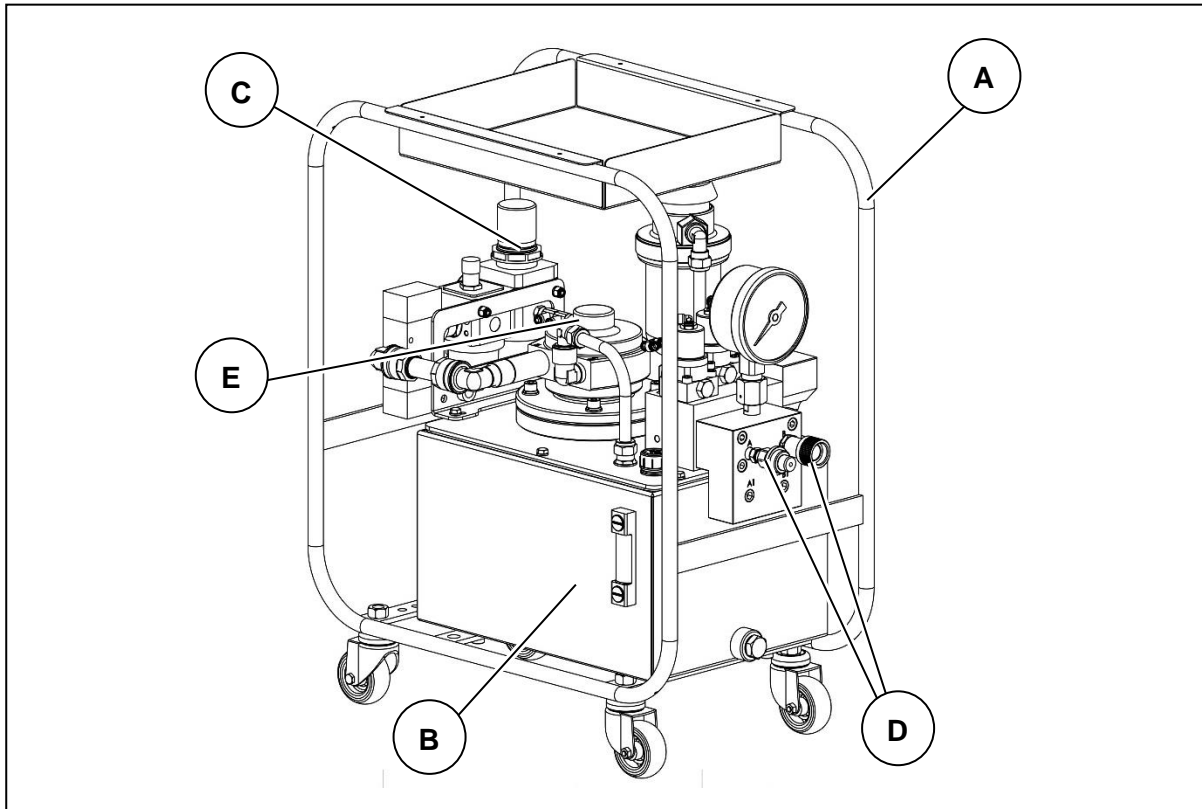


Do not use the machine without first has been linked to a machine that controls the operation



- **Any deviation from the above mentioned a specific written statement by BLACKIRON Italy**
- **Changes or modifications not authorized by the manufacturer, that alters the functionality provided by changing the risks and / or generates additional will be entirely the responsibility of those who perform such alterations.**
- **These changes, if performed without the authorization of the manufacturer, will also invalidate any form of guarantee issued.**

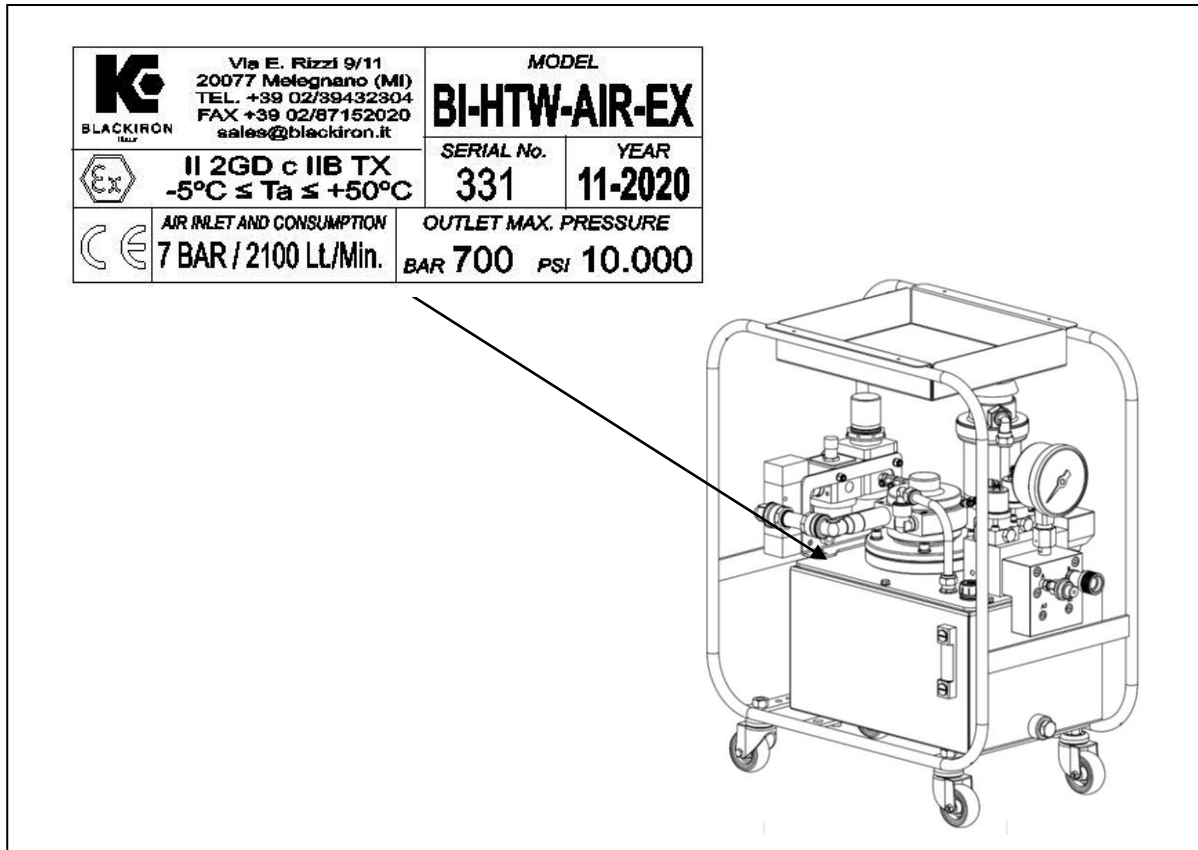
2.2 LIST OF THE MAIN COMPONENTS



- A. Frame
- B. Oil Tank
- C. Air Supply
- D. Connections flexible oil pipes
- E. Body Pump / Motor

2.3 NAMEPLATE

The identification data of the completed machinery can be detected by plaque installed on the completed machinery.



For no reason the data on the plate can be altered.



Necessary to communicate the "model" and the "type" whenever it challenges the manufacturer for information or ordering spare parts.

The nameplate contains the following data:

- A. Pump model
- B. Serial number of the pump
- C. Max air pressure
- D. Max. permitted work
- E. Year Built
- F. Marking ATEX - EX II 2GD c IIB TX
- G. Name and address of manufacturer



2.4.2 TABLES AND CHARTS

Model	BI-HTW-AIR-EX
Maximum pressure 1st stage – LP	80 bar 1.144 psi
Maximum pressure 2nd stage -HP	700 bar 10.000 psi
Oil flow rate 1st stage – LP	10 Lt/min
Oil flow rate 2nd stage - HP	0,95 Lt/min
Air inlet pressure	7 bar 100 psi
Air consumption	2100 Lt/min
Sound pressure level	80 db
Relief valve range 1st stage - LP	20 - 80 bar 286 – 1.144 psi
Relief valve range 2nd stage - HP	80 - 700 bar 1.144 – 10.000 psi
Weight	35 kg With tank Lt 10 without oil Frame Remote control
List of products purchased already suitably certified	- Air Motor, hydraulic control valve - Pneumatic valves, FR+L group, oil filler cap and oil level
Types of metals used to ensure that they can rust structure	- Stainless steel - Anodised aluminum - Carbon steel with anti-corrosion treatment of pronox - Treatment of nodular cast iron with corrosion pronox
Type of antistatic rubbers used in order to ensure the equipotential structure	- Rubber feet ELESA DVA.4-30-20-M8-20-55 - Painted steel + NBR Natural rubber 55 Shore
Maximum surface temperature reached	50 °C
Category ATEX protection	2GD

2.4.3 INFORMATION ABOUT THE NOIS

The noise level measured at 1 meter distance is 70 db.

2.4.4 VIBRATIONS

The machine does not produce vibrations which could affect the health of workers and to create disturbances to the machines nearby.

3 SAFETY RULES



IMPORTANT!

Goodwill or the use of completed machinery with guards or safety devices removed is strictly prohibited.

3.1 PROTECTION AND SAFETY DEVICES

The pumps have no protections and safety devices as they do not pose a risk to the user.

3.2 RESIDUAL RISK



A. Personal protective equipment (PPE)



If for operational reasons or maintenance you have to operate manually must always acquire the required PPE, such as:

- Earmuffs
- Gloves
- Non-slip Shoes

B. Start unexpected / accidental machine

It avoids instructing the operator to keep the focus on this type of event:

- Release the pressure and disconnect the pump from the air every time you perform maintenance;
- In the case of interventions feel directly responsible to exclude anyone from accidentally starting the completed machinery.

C. Noise

We recommend the use of headphones or earplugs to protect because of the sound pressure level of the environment in which the completed machinery is installed.

3.3 OPERATOR



During operation of the pump is not required the permanent presence of an operator, it is sufficient to check for proper operation and intervene if necessary.

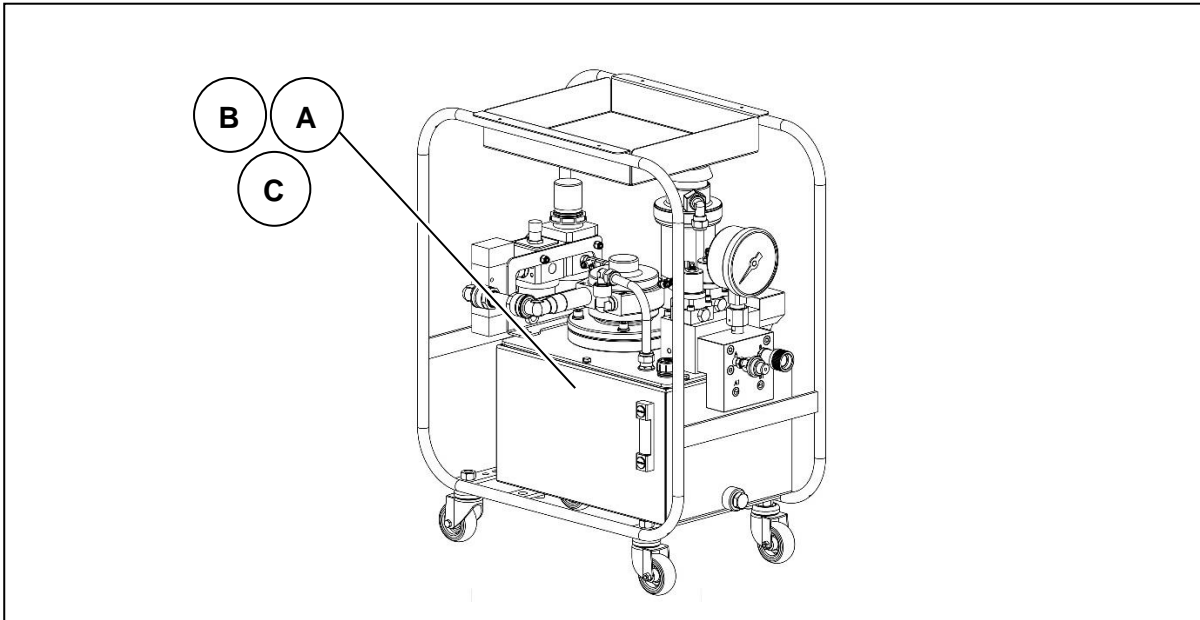





In the event of a maintenance release pressure and disconnect the pump from the air.


3.4 PICTOGRAPHS POSITIONING



The symbols for Security and messages shown below are used on the machines and along the whole of this publication to draw attention to the dangers inherent in the Operator safety of the machine and person to identify the conditions operational risk, which may cause material damage to the machine or to the partly general, or to report behaviors in order to get a good functioning of the completed machinery..



- A  **Forbidden to remove protections with the machine in operation**
- B  **Ban on oil and do maintenance with the machine in operation**
- C  **Danger of moving**

 **For no reason the pictograms placed on the machine can be altered or removed: they must still be clearly visible and legible. In the case of pictograms damaged and / or missing, replace them.**

4 COMMISSIONING



4.1 GENERAL INFORMATION



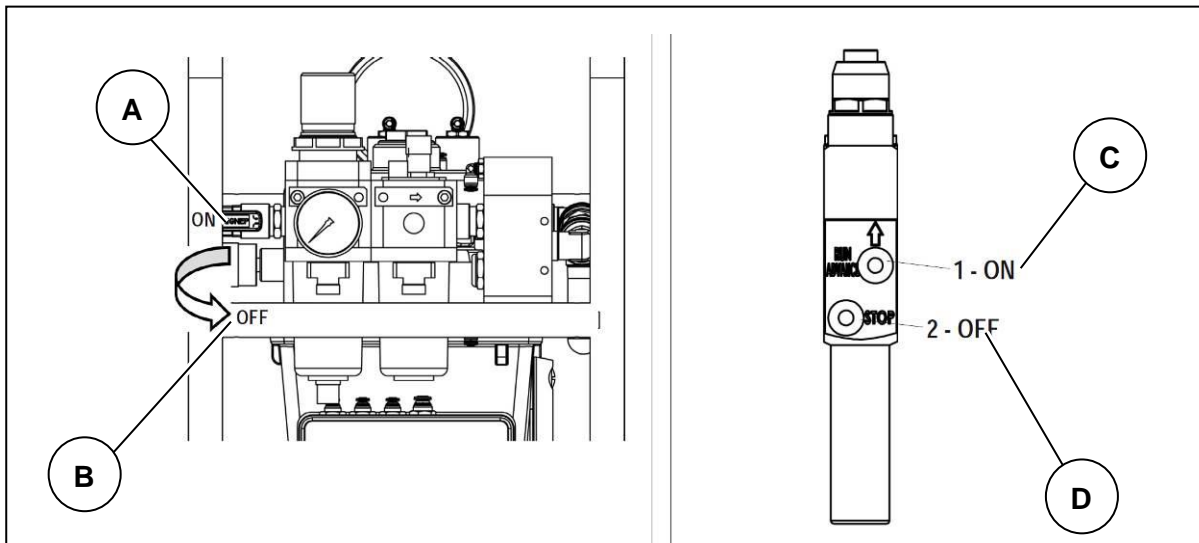
Before commissioning the machine make sure you understand the contents of this manual.

- For further clarifications and details you should contact the manufacturer.
- The charge of operating and maintenance must possess the specific skills required by this manual, as well as the psychological and physical requirements necessary and sufficient to be able to intervene on the completed machinery.
- The following paragraphs set out the arrangements for the commissioning of the completed machinery.



Before starting the pump it is necessary to check the proper grounding so that it is electrostatically discharged. In fact, electrostatic discharge phenomena could be a source of ignition of explosive dust in the environment of use of the unit ..

4.2 CONTROLS



TAP ON-OFF ON THE GROUP FR + L

A - ON - unit controlled with a remote control pendant. The unit will start when you turn on the tap to ON.



The movement of the air valve to ON NOT generate any movement of the motor and the control unit.

B - OFF - Remote control disabled. The unit does not start when you press the ON button.

C - ON button on the remote control:

- Button pressed - The motor is switched ON. The hydraulic torque wrench ADVANCE until you hold down the button.

- Push button released - The hydraulic torque wrench BACK. The motor continues to

D - OFF button on the remote control:

- Button pressed - The motor switches off immediately.



The immediate shutdown of the unit can occur if the tap on the ON-OFF FR+L unit of the control unit is turned OFF.

4.3 OPERATION



When possible, a user should only use the application and the hydraulic control unit. This can prevent accidental activation of the unit while the operator is positioning the hydraulic application.



- 1 - Check all fittings and connections to ensure they are tight and leak free.
- 2 - Check the oil level in the tank and add oil if necessary.
- 3 - Make sure that the shipping plug has been removed and which has been installed in its place the oil filler cap with vent.
- 4 - Connect the unit to the air supply. Move the ON-OFF valve of FR + L unit ON.



The movement of the air valve to ON NOT generate any movement of the motor and the control unit.

- 1 - To start the unit, press the button on the remote control. The engine will start automatically, and the application will begin to move. The application will continue to advance as long as you keep the button pressed.
- 2 - Release the button, the motor stops.
- 3 - Press the B button on the remote control to return to the application. The application will continue to advance as long as you keep the button pressed.



If the ON button is not pressed for a continuous period of 20 seconds, the timer built into the control unit will automatically stop the engine.

- 1 - With the engine stopped there is no pressure in the circuit.

See the instructions for the application of hydraulic pressure required amount required to produce the desired strength.



Refer to the instructions for the hydraulic torque wrench or application for the operation procedure.

5 TRANSPORT AND HANDLING



All lifting and handling operations must be carried out in accordance with current safety regulations and accident prevention.

5.1 GENERAL INFORMATION

The reading of this chapter assumes that, in order to ensure safe use of the completed machinery, knowledge of what is contained in section 1.4.2 "General safety instructions".

In addition, the specific requirements for safely interact with the completed machinery related to this chapter are detailed in the following paragraphs.

This chapter describes the procedures to be used to lift, move and carry almost machine-safeguarding the safety of herself and the safety of the personnel engaged for the



5.2 PACKING

5.2.1 PACKING MACHINE

All the material shipped, including component parts, has been carefully inspected before delivery to the courier.

The unit is shipped in special packaging, providing protection to the product.

5.3 UNPACKING



Unpacking techniques do not require special care:

- Open the package, remove the pump having the greatest care to avoid damage;
- Make an initial check of the pump so that no damage has occurred during transport



In the event of damage or doubt do not use the appliance, please contact your dealer



Each element of waste must be collected and dispersed in a suitable container according to the directions for the collection of waste; dispersed in the environment can be a source of pollution and danger.



If you need to proceed to a removal, transportation and / or reinstallation after testing contact the manufacturer; such procedures performed without the supervision of a BLACKIRON Italy is strictly prohibited.



Upon arrival at the destination of the packages to verify, in the presence of the carrier, and the integrity of themselves that their content.

5.4 HANDLING MACHINE



The operations of lifting, handling and transportation are the sole responsibility of technical and maintenance by trained personnel (slingers, crane operators, etc..) Coordinated by a person on the ground, expert for this task, able to make the necessary reports.

Such personnel must be thoroughly familiar with the safety regulations of a general nature in force in each country, most should know the safety rules relating to machine described in this manual.



The following instructions must be strictly observed, since such operations involve potential dangers.

Make sure that the lifting equipment, transport and handling that you intend to use have an adequate flow rate to the total weight of the machine shown in the data sheet of this manual.

5.4.1 LIFTING MACHINE



Make sure that the lifting, handling and transportation that will be used is adequate for the total weight of the completed machinery shown in the technical data in this manual. Any other system used for lifting, transporting and handling the completed machinery not included among those recommended by the manufacturer, in fact nullifies the insurance guarantee for any damages suffered by the machine and / or optional groups linked to it.

If the size of the completed machinery prevent the operator a clear view during lifting, transport and handling, use two operators that control ground potential hazards or obstacles against which it may hurt. Also make sure that there are no unauthorized personnel in the area of transport and accessories or cables connected to the virtual machine, do not prevent hazardous movements or make the movements of transport.

The machine can be lifted by two operators at the chassis.

5.5 DISPOSAL OF PACKING MACHINE



The disposal of packaging materials is a user who, for this operation, you must strictly follow the rules in force in their country of use regarding the following materials:

WOOD;
NAILS;
CARDBOARD;
CAPS HUMIDITY (plastic film).

If the user decides to keep all the parts of the case packaging for future use or to move the completed machinery must perform another place for its reuse all packaging operations as specified in this manual.

6 INSTALLATION



6.1 ENVIRONMENTAL CONDITIONS OF USE

The machine has been designed to operate in industrial environments, as certified ATEX 2GD can be used in an inert or potentially explosive classified 2/Zone Zone 22, with values of temperature and humidity within the limits set out below:

Temperature min -5 °C max +50 °C;

Humidity min. 10% up to 95%.

Lighting

The installation location of the completed machinery must have sufficient natural light and / or artificial comply with the regulations in the country of installation of the machine: it is recommended that an average illuminance of 300-500 lux / m.

The lighting must be uniform to ensure good visibility at every point of the machine and must not create dangerous glare and strobe effects.

Paving

The flooring must meet the following requirements:

- the floor must be industrial grade, smooth and perfectly flat;
- the capacity of the floor shall be such as to accommodate, in addition to any existing systems and lifting equipment needed for the installation, a mass corresponding to the total weight of the completed machinery and its components;
- the place where the soil must have a vibration-free; recommend putting a base material insulates against sound and vibration.

Sources of supply

Power sources must be direct and easily accessible.

6.2 USER'S RESPONSABILITY

The user must have:

- The local installation as required by local regulations, which govern health and safety in the workplace.

6.3 SPACE REQUIRED



Check that the clearance around the completed machinery is sufficient for a smooth execution of all maintenance operations.
The clearance may not be sufficient for the positioning of the same, which depends on the means of lifting and handling equipment used.

6.4 POSITIONING



Install or place the control unit in order to ensure that the air flow around the motor is not hindered.
Keep the machine clean to ensure maximum cooling during operation.

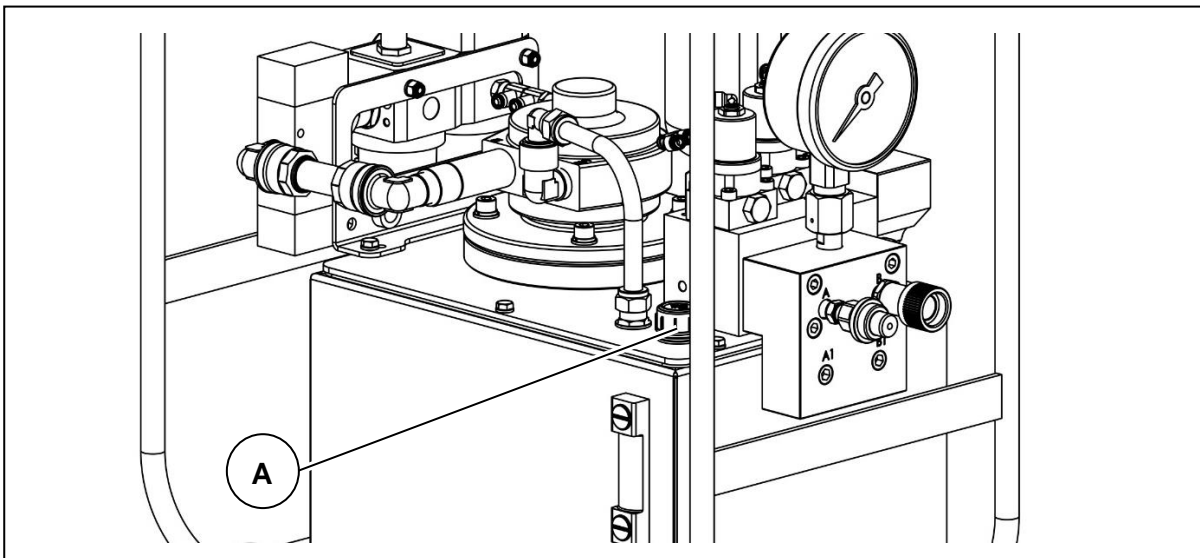


Perform the grounding of the unit.
Electrostatic discharge may be the cause of the phenomena of ignition of explosive dust in the environment of use of the controller.

6.5 OIL FILLER PLUG ON THE TANK



Above the tank lid cap is installed, only for shipping. Before using the unit, replace the shipping plug (B) with the oil filler cap with vent 1/2" BSP (A).



6.6 CONNECTIONS

6.6.1 PNEUMATIC CONNECTIONS



The control unit is equipped at the factory with an ON-OFF valve for air inlet ½ "BSP female.

- 1 - Connect the air supply line to the unit and found that there is a nominal flow rate required on the label.
- 2 - Open the air valve.
- 3 - Adjust the FR + I at a maximum pressure of 7 bar.
- 4 - Adjust the lubrication to about one drop every 5 seconds.
- 5 - Operate the unit.

6.6.2 HYDRAULIC CONNECTIONS



Use hoses marked "700 bar/3.575 psi WP". The hydraulic connection must be polarized as in the figure for the correct operation of the hydraulic torque wrench. Make sure that the hydraulic couplings are completely inserted and tightened before work.

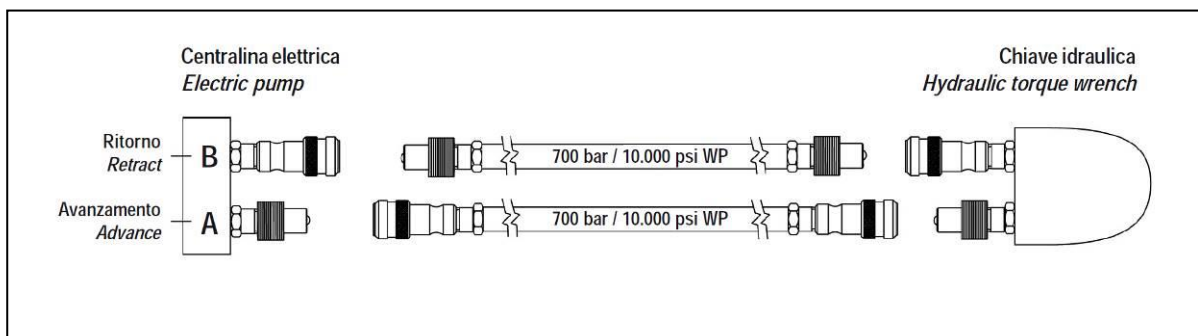
An insertion only partial of the hydraulic couplings prevent the correct operation of hydraulic application



When using multiple units with collectors, make sure that all unused hydraulic clutches have protective caps installed completely before starting the unit.



When the application is connected to the control unit, the air will remain trapped in the hydraulic circuit. Bleed the air by turning the key hydraulic and hoses straightened flat and below the unit, operate the hydraulic application without load until it moves without hesitation.

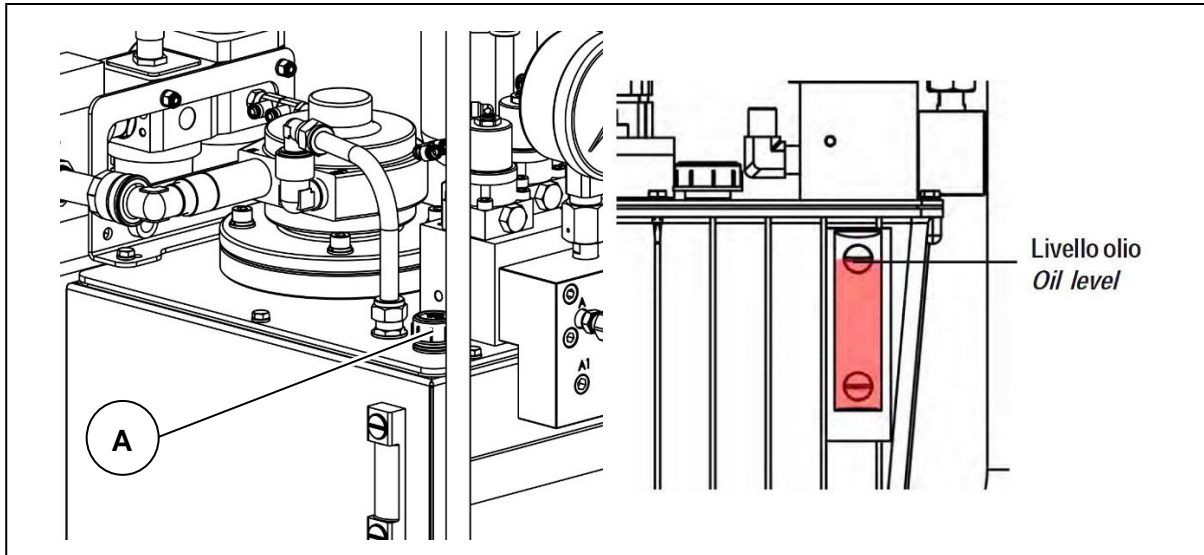


Check the oil level before starting the unit; add oil, if necessary, by removing the oil filler cap with vent $\frac{1}{2}$ "BSP from the tank cover (A).

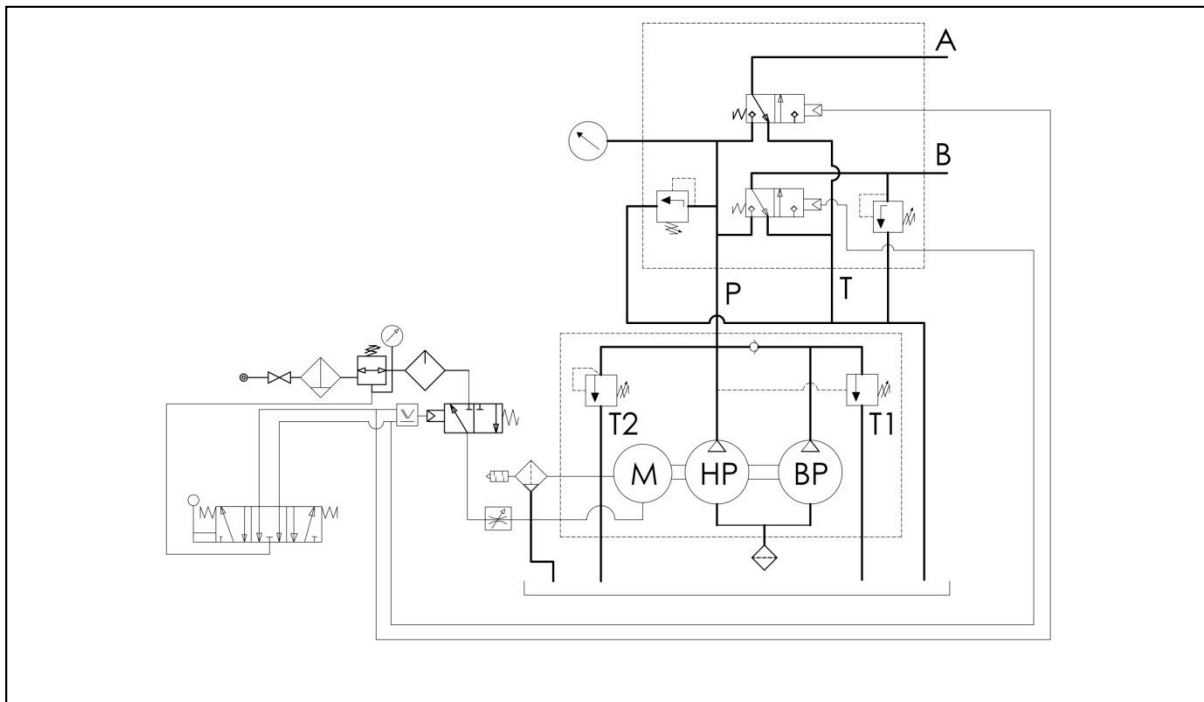
The tank is full when the oil level is as shown in the figure.



Add oil only when all components of the system are returned to rest, otherwise the system would contain more oil than there could be.



6.6.3 HYDRAULIC DIAGRAM



- A) Feed
- B) Return

7 ADJUSTEMENTS

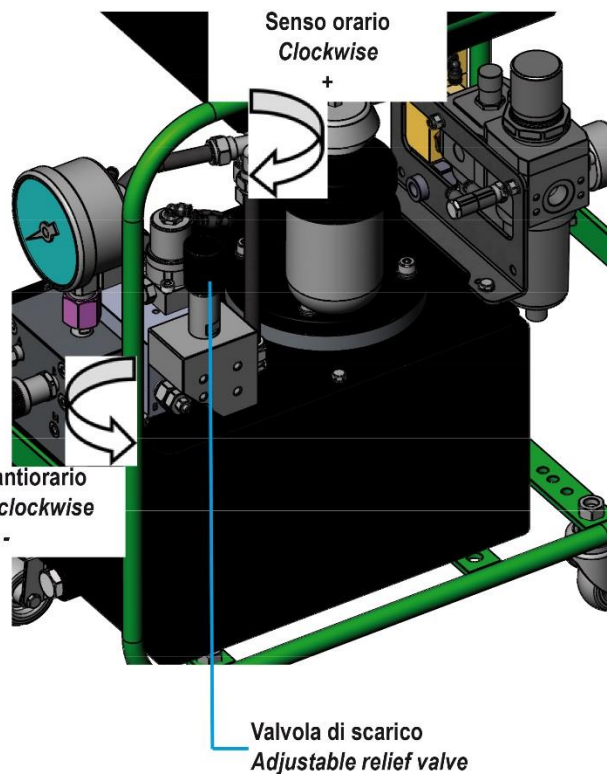


PRESSURE REGULATIONS



Make these adjustments **BEFORE** plugging the hydraulic wrench on the nut or bolt head.

The pressure setting of the control unit can be higher than that necessary to obtain the desired torque for your application. The overcoming of the required torque will cause damage to equipment and can lead to a serious injury of persons.



The units are equipped with a pneumatic valve controlled by the user.

To limit the advancement of hydraulic wrench, it can be adjusted as follows:

- 1 - Turn the drain valve clockwise until there is a slight resistance when you turn.
- 2 - Start the unit to allow the oil to heat up.
- 3 - Press and hold the ON button to create the pressure in the feed. Turn the control knob to the drain valve clockwise to increase the pressure to the desired value.



To obtain an accurate adjustment, decrease the pressure to a point below the final adjustment and then increase it slowly until it reaches the final value.

- 1 - Release the ON button on the remote control to allow the system pressure to return to the setting of the bypass port B (not editable). The motor continues to run.
- 2 - Double-check the final adjustment of the pressure, moving the valve and pressurizing the system.



The adjustment of the exhaust valve must be performed by the same person who positions the key and controls the hydraulic control unit.

8 MAINTENANCE



8.1 GENERAL INFORMATION

Qualification maintenance personnel

The operator assigned to the phases of mechanical maintenance will have to make a theoretical and practical training to prepare training plan according to the following:

- a. theoretical and practical training on all the equipment of the completed machinery;



Terms of safety during maintenance

During maintenance the maintenance mechanic is required to wear the appropriate personal protective equipment, namely:

- Safety shoes
- Protective gloves
- Wear approved accident prevention purposes

During maintenance the electrical maintenance technician is required to wear the appropriate personal protective equipment, namely:

- Insulating footwear
- Insulating gloves

Frequently inspect all components of the system for leaks or damage. Repair or replace damaged parts. As for the pneumatic components, for example, the power cord, it can be repaired or replaced only by qualified personnel in compliance with all applicable local and national regulations.

1. The maintenance of the completed machinery must only be carried out by qualified personnel and explicitly authorized. All maintenance operations must be conducted by a manager.
 2. Before performing repairs or other work on the machine, always communicate your intentions to other operators involved in the operation.
 3. All interventions must be performed in quasi-stationary machine operation, disconnected from the pneumatic.
 4. In the event that you need to perform maintenance in low-light conditions, you must obtain a portable lighting system, taking care to avoid shadowing which prevent or reduce the visibility at the point where action is taken or surrounding areas.
 5. Do not wear rings, watches, jewelry, clothing or dangling undone, such as ties, torn garments, scarves, blouses unbuttoned jackets or unzipped that could get caught in moving parts.
 6. Did not perform maintenance in the presence of water.
Avoid working in areas of high humidity. The area where you perform maintenance operations should always be kept clean and dry.
Immediately remove oil stains.
 7. Did not perform on the frame of the machine processes such as punctures, cuts, etc.. because you run the risk of damaging electrical cables and weaken the structure.
 8. During the execution of electric arc welding cater to isolate the machine metal parts involved as the ground contact of the welding can damage the electrical equipment.
 - 9 The completed machinery must be used exclusively for the purposes intended by the project and the contract for supply. For any other uses, please contact the manufacturer.
- It 'absolutely forbidden to spray, rinse or otherwise invest the completed machinery with water jets.
 - It 'absolutely forbidden to tamper with safety devices.

10. The replacement of parts, use only GENUINE PARTS.
11. Always keep clean throughout the completed machinery and the surrounding area in which it is installed.



Before starting the parlymachine, make sure that:

- a. any guards removed during maintenance operations have been correctly assembled and are efficient**
- b. all parts are properly installed and locked in place;**
- c. all foreign objects (clothes, tools, etc..) have been removed from the completed machinery.**

Do not act on incomplete machine with tools, cleaning utensils etc.. when the machine is in operation.

8.1.1 FLAME PROOF MAINTENANCE ATMOSPERES

In case of maintenance in potentially explosive atmospheres (Zone 2 or Zone 22) in which the equipment may have to operate, it is necessary that any auxiliary equipment is used for maintenance (welding equipment, drills, screwdrivers, etc..) Is suitable for the environment potentially explosive to be at the place of use of the pump.

In addition, as a result of maintenance is always necessary to provide a thoroughly clean the pump using non-aggressive detergents and non-flammable.

8.2 CLEANING



**Perform cleaningmachine almost completely isolated from sources of energy.
Never clean the completed machinery and its parts with solvents, corrosive liquids, flammable liquids or abrasive objects.**



It is good practice to keep the partly machine clean or almost in the best possible manner compatible with the environment in which it is placed, in order to avoid problem in product quality, and premature wear and damage to moving parts or to the moving parts of the completed machinery .

To clean the metal parts of the common machine does not use a jet of compressed air, use a dry cloth or paper.

Using a vacuum cleaner and with a brush, remove any dust or debris deposited inside the compartments.



Cleaning should also be ensured in order to avoid that, over time, deposits of potentially explosive dust on hot surfaces may be the cause of the phenomena of ignition.

8.3 ROUTINE MAINTENANCE



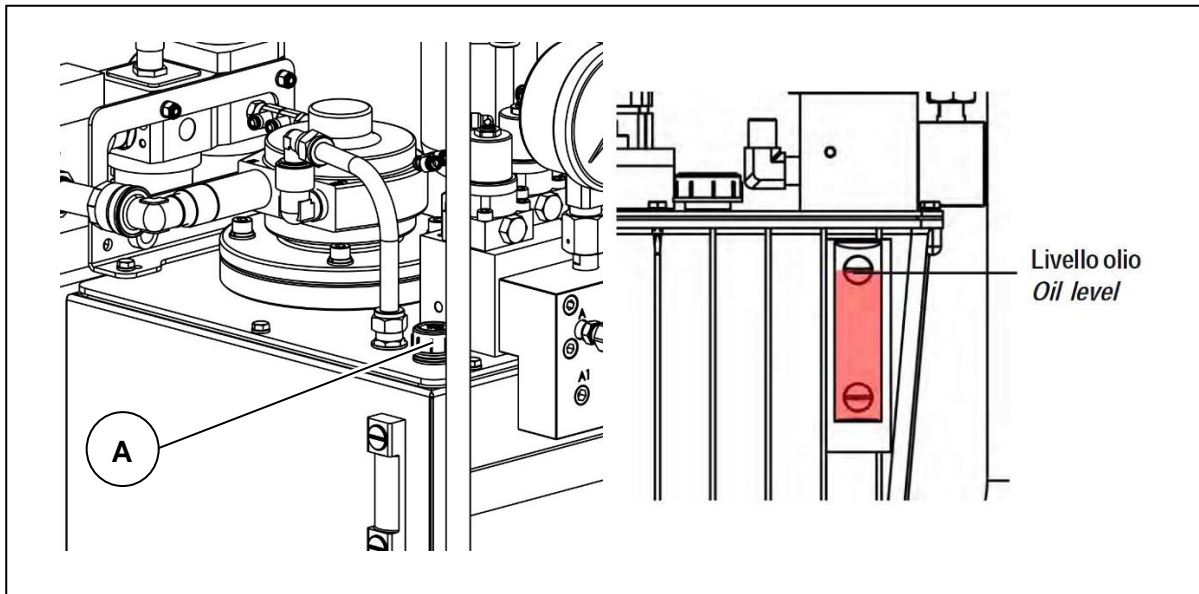
Do not work with maintenance work when the system is under pressure both hydraulic and pneumatic.

8.3.1 CHECKING THE OIL LEVEL

Check the oil level before starting, and tuck the oil, if necessary, by removing the filler plug (A). The tank is full when the oil level is as shown in the figure.



Always make sure that the hydraulic application has returned completely at rest, before adding the oil.



8.3.2 OIL CHANGE AND TANK CLEAN



The hydraulic oil has a bright yellow color. Frequently check the condition of the oil with regard to its contamination by comparing the color of the new oil is not used.

As a general rule, completely drain the oil from the tank and clean it every 250 hours of operation, or even more frequently if it is used in a dirty environment.



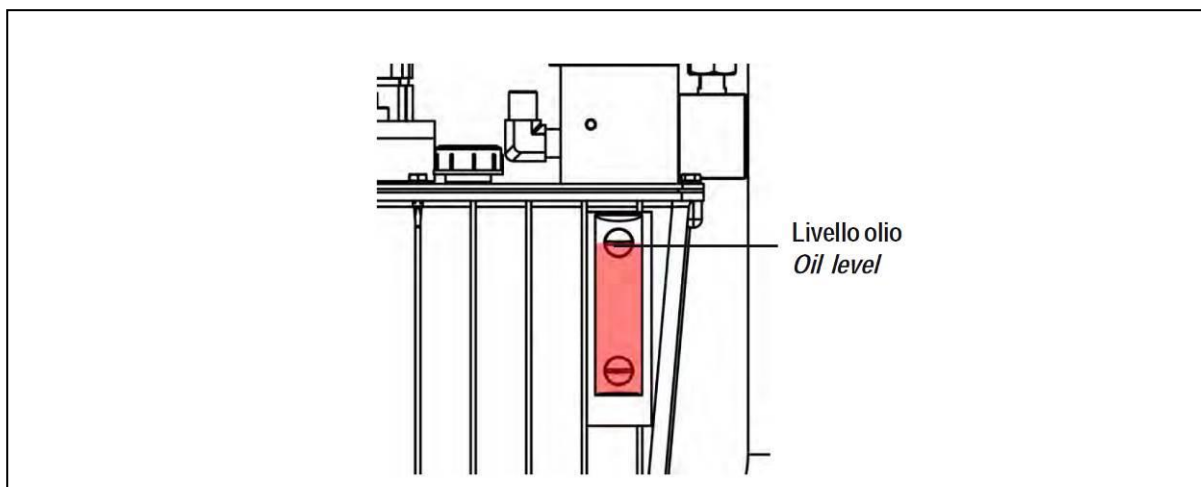
**This procedure requires you to remove the unit from the tank.
Work on a clean bench and remove the oil bringing it to the appropriate authorized collection centers.**

1 - Remove the plug and drain all the oil from the tank. Clean and reinstall the drain plug.



Collect the oil in a suitable container and dispose of according to the regulations of the country where you are located.

- 1 - Unscrew the 6 bolts that hold the cover to the tank and lift the unit out of the tank unit.
- 2 - Clean the tank and the magnet of the tank (if fitted) with a product fit for purpose.
- 3 - Check the condition of the intake filter and replace if clogged with a lot of original spare parts.
- 4 - Replace the control unit and the tank, installing a new gasket for the tank itself.
- 5 - Fill the tank with clean hydraulic oil. The tank is full when the oil level is as shown in the figure.



8.4 RECOMMENDED OILS TABLE



The unit is delivered with a full tank of high quality oil ISO VG32. If necessary, top up using oil of the same viscosity.

The standard industrial classification of ISO viscosity lubricants is indicated by the standard ISO3448, DIN51519. The value following the prefix indicates the nominal viscosity of ISO VG 40 degrees centigrade.

Guidelines for the selection of hydraulic oil:

- ISO VG32 for general applications.
- ISO VG46 systems used in tropical conditions or indoors.



Never mix oils of different brands and types

8.5 EXTRAORDINARY MAINTENANCE



The extraordinary maintenance operations are usually carried out by qualified technicians of the manufacturer.



Perform maintenance in machine completely isolated from sources of energy.



For incidents that involve substantial operations always consult the manufacturer.

8.6 TROUBLESHOOTING



Only qualified personnel should perform maintenance on the unit or components of the system. A breakdown of the system may not even be the result of a dysfunction of the control unit.

To determine the cause of the problem, the entire system must be included in a diagnostic procedure. The following information must be understood as an aid to determine if the problem exists.

For repair service, contact your local Authorized Service Center or our office assistance.

Problem	Cause	Remedy
1) The unit does not start when you press the ON button on the remote control.	1.1) There is no air supply. 1.1)	1.1) Connect the air supply
	1.2) The faucet ON-OFF FR + L unit of the control unit is in the OFF position.	1.2) Move the valve to the ON position.
	1.3) The OFF button on the remote control is pressed.	1.3) Release the OFF button on the remote control
	1.4) Damage to the remote	1.4) Check the air pressure on the gauge. .
	1.5) Low air pressure	1.5) Fix the remote control Contact an authorized service center
2) The motor stops under load.	2.1) Low air pressure	2.1)) Check the air pressure on the gauge.
3) The valve does not work.	3.1) There is no air to the unit or the pressure is too low	3.1) Connect to a power source in accordance with the rating plate.
	3.2) Hose valve disconnected or damaged	3.2) Connect, repair or replace the cable
	3.3) The valve does not work	3.3) Consult an authorized service center
	3.4)) Valve out of calibration.	3.4) Consult an authorized service center.



**INSTRUCTIONS AND MAINTENAGE MANUAL - BI-HTW-AIR-EX
PNEUMATIC POWER PACK UNIT EXPLOSION-PROOF EXECUTION**

4) The unit does not create the pressure or creates a lower pressure than the full pressure.	4.1) Direction of rotation of the motor	4.1) Check that the motor turns clockwise
	4.2) Air in the hydraulic system.	4.2) Perform air bleeding.
	4.3) Low oil level	4.3) Add oil, see chapter 8.3.1.
	4.4)) Adjustment of the exhaust valve too low.	4.4) Adjust, see chapter 7.
	4.5) Loss external to the system	4.5)) Inspect and repair or replace
	4.6)) Internal leak in the unit	4.6) Consult an authorized service center.
	4.7) Internal leak in the valve.	4.7)) Consult an authorized service center.
	4.8) Internal leakage in a system component	4.8) Consult an authorized service center
5) The controller creates the full pressure, but the application does not perform the hydraulic feed.	5.1)) The force required is greater than the capacity of applying hydraulic pressure to the maximum	5.1) Use hydraulic application with increased strength
	5.2) The extent of progress the application is restricted or blocked.	5.2) Check that the hydraulic clutches are fully engaged as mentioned in section 6.6.2
6) The hydraulic application does not return to rest	6.1) The line of the return flow is restricted or blocked	6.1) Check that the hydraulic clutches are fully engaged. Run the engine at the back
	6.2) Dysfunction of the valve	6.2) Consult an authorized service center.
7) The unit overheats.	7.1) Forward or back flow restricted	7.1) Check that the hydraulic clutches are fully engaged as mentioned in section 6.6.2.
	7.2)) Oil suction filter clogged	7.2) Replace the suction filter and clean the tank see chapter 8.3.2.
	7.3) High ambient temperatures.	7.3) Install a heat exchanger.

9 OUT OF SERVICE

9.1 PROVISIONS

In the case of provision of the pump for a long period to provide for the following steps:

- Make a general cleaning of the unit
- Empty the oil tank.

Provide coverage and deposit in sheltered environment free of moisture. It 'a good idea to wrap the pump with nylon film.

To restore control parts, fill the oil tank and a test for use by verifying the correct functioning of the pump.



This operation must be carried out by professionally qualified personnel.

9.1 ELIMINATION AND DESTRUCTION

For the disposal of completed machinery, when it is taken out of service, you have big problems of parts or materials at risk.

Once the removal of individual modules, start the breakdown of the components according to the material:

Ferrous material: frame, etc..

Plastic material: ribbons, trimmings, etc..

Electrical equipment: cables, etc..



**FOR THE ENVIRONMENT
REMOVE OIL FROM REDUCING AND REGISTER IT IN THE APPROPRIATE BOXES
FOR ENTRUST THEN TO COMPANIES SPECIALIZED FOR DISPOSAL, IN
ACCORDANCE WITH THE REGULATIONS IN FORCE IN THE COUNTRY USER.**

During the dismantling, retrieve the components that can be recovered.



**FOR THE ENVIRONMENT
ALL THE COMPONENTS OF THE ALMOSTmachine, AFTER HAVING BEEN
DIVIDED ACCORDING TO THE MATERIAL MUST BE DISPOSED OF SPECIALIZED
COMPANIES OPERATING UNDER THE LAWS APPLICABLE IN THE COUNTRY
USER.
DO NOT DISPOSE OF WASTE IN THE ENVIRONMENT.**

10 SPARE PARTS

10.1 HOW TO ORDER SPARE PARTS

And 'obligation of the Customer to purchase original spare parts. The disassembly and assembly should be performed according to the manufacturer's instructions.

Any request regarding replacement parts must be sent in writing via fax to the following address:

BLACKIRON Italy

Via E. Rizzi 9/11 - 20077 Melegnano (MI)

Tel. +39 0239432304 - Fax +39 0287152020

www.blackiron.it - sales@blackiron.it

To make it quick and safe identification of spare parts always quote the following data:

- The pump model
- The serial number of the pump
- Year of construction of pump

All these data are shown in the nameplate.

- The code number of parts required
- The required amount
- The naming of parts

All these data are shown in the list of spare parts.

It 'important to indicate, in addition, in the case of a request for an executive order pieces, the requested delivery date, shipping address and the billing address and shipping instructions, if any. Provide the name, telephone and fax of the person responsible in the future for everything related to the supply of spare parts.

Upon receipt of the order, the **BLACKIRON Italy** send an order confirmation with the indication of prices, the date of the final delivery and the conditions on the supply.

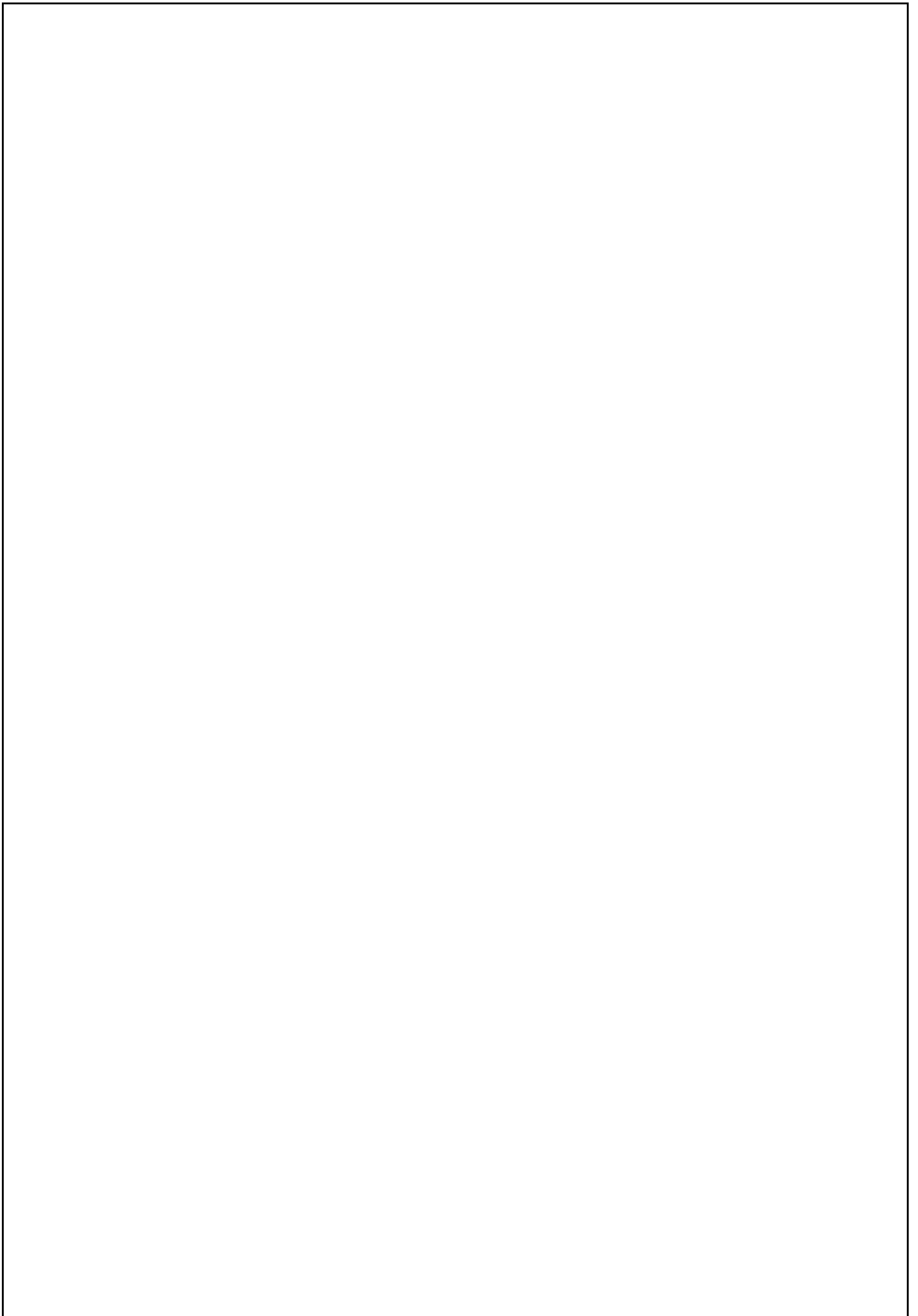


Any replacement of spare parts must be made by qualified personnel



11 ANNEXES

- Certificates of Conformity ATEX of the commercial components used





BLACKIRON
ITALY

BLACKIRON Italy

Via E. Rizzi 9/11 - 20077 Melegnano (MI)
Tel. +39 0239432304 - Fax +39 0287152020
www.blackiron.it - sales@blackiron.it