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## MACHINE : COLUMN & BOOM TYPE CB-HH-2C 4X3

## **CE SERIAL N° : 338/08W**

## **INSTRUCTION AND MAINTENANCE MANUAL**

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## **DESCRIPTION**

The BEAM WELDING machine type CB-HH-2C  $4 \times 3$  is based on the following components, with total operating lenght of 40.000 mm. on the longitudinal rails :

No. 1 Medium duty steel fabricated column with a manual slewing ring provided with Raising and Lowering saddle powered by braked motor-gear chain/pinion drive.

The slewing ring is bolted in a steel basement provided of 4 wheels for the longitudinal travel.

The traversing on the rails is realized by an variable speed AC motor – gear with Tacogenerator to ensure a constant speed even at low revolution of the motor.

- Max. Height of the column from the floor	: 5200 mm
- Max. Height under the boom	: 3000 mm
- Boom vertical raising/lowering speed	: 1000mm/min
- Base_track gauge	: 1800 mm
- Max. torches height from the floor level	: 2000 mm
- Max. carriages horizontal travel	: 2500 mm
- Min. torches distance	: 0 mm
- Max. vertical stroke arms	: 1000mm (manual adjustment)
- Column rotation	: 360° manually
<ul> <li>longitudinal speed range of the base traversing on the rails</li> </ul>	: 0.3 - 3 m/min
- servo-cooling of the motor	: by independent electric fan to ensure a constant cooling at different speed.

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- base speed control	:	by Ta shaft.	co-generator fitted on the motor
- base speed indicator	:	by dig	ital display with red figures
- Base fast speed		:	existing
- Base synchronization traversing while welding		:	existing
- Welding process		:	Submerged arc

On the above mentioned column is sliding a saddle on which is bolted a transversal beam provided with two precision guide-ways.

Two carriages is moved sliding into the guide-ways.

Each carriage is provided by a manual adjusting diving arm.

On each arm is fixed a motorized vertical slide having a stroke of 200 mm.

In the vertical slides are mounted the welding heads.

The two carriages are powered by a motor gear with dc motor, to allow speed regulation;

The carriage motor and the vertical cross slide motor is controlled by a sensor probe to achieve the automatic seam guiding in case of welding Beams.

At the bottom of the above mentioned slides the two welding heads with the mechanical and electronic seam guiding devices are located.

On the two slides are mounted :

N. 2 Lincoln Sub/Arc welding equipments, composed as follows :

- n°	2	Wire-feeders	type	NA/3S	code	K/208A
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- n° 2 Electronic control boxes code K/210-1
- n° 2 Wire-reels code K/299
- n° 2 Concentric welding torches code K/231
- n° 2 Lincoln DC/1000 power generators, mounted on the platform situated at the bottom of the Column ,with the following technical characteristics :

Input Supply Voltage	:	3 phases 400V	50	hz
Output Current	:	1000A - 44 Volts	at	100% duty cycle

- n° 2 Sets of Power and control cables

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On the flux hoppers of the welding heads is fitted :

- n° 2 Pneumatic recovery flux units operating in close circuit, including : slag screen – hose mounting bracket – vacuum hose – compressed air valve – filter.
- n° 1 Electric equipment composed of :
- n° 1 Main cabinet including relays, thermal protection, fuse holders, monitoring lamps, main switch, emergency push-button, auxiliary start/stop pushbuttons, wiring, etc.
   fixed on the side of the Column
  - n° 1 remote pendant mounted on board of the main carriage, including:
    - emergency push-button
    - up-stop-down saddle on the column
    - forward-stop-reverse base push-buttons
    - fast-low traverse speed switch
    - welding speed base adjusting potentiometer
    - left-off-right seam tracking pre-loading switch (main carriage)
    - left-off-right seam tracking pre-loading switch (second carriage)
    - joi-stick for up-down-left-right(main carriage)
    - orthogonal motor slide left/right switch(main carriage)
    - up/down left wire switch
    - up/down right wire switch
    - start/stop welding left
    - start/stop welding right
  - n° 1 remote pendant mounted on board of the **second** carriage,including:
    - emergency push-button
    - up-stop-down saddle on the column
    - left-off-right seam tracking pre-loading switch (second carriage)
    - joi-stick for up-down-left-right(second carriage)
    - up/down left wire switch
    - start/stop welding left
  - n° 2 Automatic seam guiding electronic control box
    - n° 2 Electronic welding control boxes fixed on the carriages

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To move the cables forwards-backwards to allow the base traversing on the longitudinal rails will provided:

- n°1 Chain management system to easy the Column and boom travel of 40m,along the rails comprising:
  - the input supply cables 3 phases + neutral + gnd, to connect the main cabinet and the two power supply DC/1000 from the net.
  - work power cables to connect the negative poles of the power supply to workpiece.
  - the compressed air hose to supply air to the cylinders and flux recovery from the net.

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#### **OPERATING AND MAINTENANCE MANUAL**

#### **CHAPTER 1 - GENERAL INFORMATION**

#### 1.1 The use of this manual

This manual contains all the necessary instructions to operate with safety the transport, installation, use, maintenance and turning off of the machine.

This operating manual is part of the product supplied

Its aim is to explain as detailed as possible how the machine works and to give an appropriate support for its correct use preventing from risky situations which can appear during the use of the equipment

The user must follow the indications given by this manual so that the machine can reach the use for which its been designed, specially regarding the safety rules.

The user must follow the indications given by the manual of the welding system, the voltage supply, the recovery and the compressors. The manuals of the equipment mentioned above are part of the machine's operating and maintenance manual.

CORIMPEX doesn't take any responsibility for direct or indirect harm to people, animals or objects derived from lack of attention towards the information provided here. It's the client's responsibility to make sure that these instructions, together with what has been explained and done practically by our engineers during the training period after the installation, are taken to the knowledge of those who will install and operate the machine.

#### 1.2 Conservation of the manual

To keep the equipment safe it is important to be aware of the information outlined here and to make possible the consulting in it by all the staff that will be operating the machine, even partially. The consulting in the manual should be always possible. It is therefore necessary that this manual is kept in a place that will assure its integrity during the time and that it is accessible to all the staff that will operate it and to whoever may need to use it.

The builder has the right to bring at anytime changes to the production and/or to the manual of the machine, not meaning that he will necessarily update the production and the manuals that have been already delivered.

Keep at least one copy of this manual close to where the machine will be operating. It is also important to keep another copy of it for future consultancy.

For further copies or updating please contact CORIMPEX with fax or letter:

CORIMPEX S.r.I. Ufficio Tecnico Via S. Giovanni Bosco, 32 31036 – Pezzan d'Istrana TREVISO – ITALY FAX: +39 0422832450

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#### 1.3 Technical data

The products mentioned in this manual are supplied with a "CE" label in which one can find all the necessary information for its identification accordingly to what is been required by the European Directive 98/37/EEC.

This label shows that:

- The machine \*\*\* information machine\*\*\* is defined (type of machine; license number; year of construction)
- It's been applied the "CE" label as it should have



The label SHOULDN'T BE TAKEN OUT for any reason. In case of damaging, a copy should be asked to CORIMPEX

The machine can't be commercialized without the label.

This statement should be kept and should accompany the machine in case of transfer, together with this manual.



#### ATTENTION

The machine is not provided with self illumination and for its correct use it is important that the place where it will be installed is illuminated properly.



#### ATTENTION

The machine is not provided with an integrated system for the aspiration of the smoke generated from the welding process. It is therefore the client's responsibility to put this machine to work at ventilated spaces or to adept a suitable aspiration system. For a better description of these risks please consult the next chapter and the operating manual of the welding systems installed.



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#### 1.4 Working description

#### Preparation:

Before starting the work, position the piece(s) to be welded at the machine's working area.

Fix the material to the appropriate supporting system in order to assure the stability of the piece and prevent from risks regarding the tipping or instability of the parts.

The operations involving the motion of the pieces are considered dangerous to the user. Perform these with particular attention to prevent from harm to the user itself and to people who may be around.

Before beginning any welding operation it is necessary to have read and understood the content of the operating manuals of the units used in the voltage supply and the welding control which will be necessary for the coming duty.

#### Cycle:

- Set the information regarding the welding type in the automatic control according to the process' technological parameters.
- Select the "synchronism", meaning the direction in which the welding will be done
- Finally start the welding cycle

#### 1.5 Essential requirements - directives and reference rules

The MACHINE has been designed and built according to these directives:

Directive machine 98/37/EEC and successive integrations and modifications Electro-Magnetic Compatibility Directive 92/31/EEC and successive integrations and modifications Low Voltage Directive 93/68/EEC and successive integrations and modifications

To verify the accordance with the above mentioned Norms it has been used totally or partially the following rules:

UNI EN 292-1: 1992	Machinery safety - Basic concepts, general principles of designing -
UNI EN 292-2: 1992	Machinery safety - Basic concepts, general principles of designing -
UNI EN 294: 1993	Safe distances to avoid reaching dangerous zones with upper limbs
UNI EN 349: 1994	Machinery safety – Minimum spaces to avoid the crushing of parts of the body
UNI EN 418: 1994	Machinery safety – Devices of emergency stopping, functional aspects – designing principles
UNI EN 1037: 1997	Machinery safety – Prevention from unexpected starting up of the machine
UNI EN 1050: 1998	Machinery safety – Principles for valuing risks
UNI EN 1088: 1997	Machinery safety – Safety devices associated to the repairing principles of designing and choosing

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UNI EN ISO 3746: 1997	Acoustics – determination of the power levels of the sound source through resonance pressure – Control method is a wrapping surface on a reflecting base.
CEI 60204-1: 1998	Machinery safety – Electric equipment of the machines – general rules
CEI EN 61000-6-4: 2002	Electromagnetic compatibility – general rules for emission – Industrial environment
CEI EN 61000-6-2: 2002	Electromagnetic compatibility – general rules for immunity – industrial environment

#### 1.6 Maintenance assistance of the machine

Any special or extra maintenance of the machine should be performed only by CORIMPEX's specialized staff.

Regarding ordinary maintenance, repairing and cleaning please consult the next chapters.

#### 1.7 Guaranty

When the machine is delivered the purchaser should carry out a detailed checking in order to identify possible damaging occurred during the transporting.

Claims should be made within eight days through writing communication to :

CORIMPEX S.r.I. c.a. Ufficio Tecnico Via S. Giovanni Bosco n.32 31036 Pezzan di Istrana TREVISO - ITALY

The product's guaranty, regarding fabrication defects, lasts a year from the date stamped on its label

The replacement of any part of the machine, decided after our valuation, not suitable, will be done by our company, while transporting and the labour of our staff should be completely paid by the purchaser

CORIMPEX doesn't take any responsibility for the consequences, regarding safety and functioning of the installation, that can be caused by a use not accordingly to what has been outlined here (ex.: negligence, supply with a voltage different from the one that should be used, repairing tries, changes made by non authorized staff,...)

The guaranty is not valid:

- \* Whenever the damage is identified after a mistaken operation done by the operator
- \* Whenever the damage is caused by insufficient maintenance
- \* Whenever there have been changes done to the machine and the damage have been caused by these changes, after interventions or repairing done by the user without the authorization of the CORIMPEX S.r.I or caused by the assembly of exchange pieces which aren't original.
- \* Whenever the instructions of this manual are not respected

For any controversial matters the Treviso's Court will be territorially competent

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## **CHAPTER 2 – SAFETY**

CORIMPEX's machines are designed and built according to the valid requirements. When projecting a new machine we try to predict all the dangerous situations and risks that might appear during its use, adopting therefore the adequate steps to make the machine safe.

However, the use of the machine in an inappropriate way and not according to the safety and accident prevention rules described below can be a cause of danger for people and things.

For the above mentioned reason, user is asked to read carefully this manual and particularly this chapter, avoiding then inopportune behaviour that goes against this manual's instructions.



Read carefully these rules. Whoever does not apply what is described below might submit itself to serious harm or cause it to other people, animals or things.

CORIMPEX doesn't take any responsibility for direct or indirect harm derived from lack of attention towards the information provided here.

Bring attention to the danger signs that will appear in this manual and always follow the safety devices.

That are three levels of danger:

- This sign warns the user that if the operations described are not done properly, they cause very serious harm, death or long term risk to the health. This is the maximum level of danger.
- This sign warns the user that if the operations described are not done properly, they can cause very serious harm, death or long term risk to the health. This is a level of danger lower than the one above





**3.** This sign warns the user that if the operations described are not done properly, they **can cause harm to the machine** 

This is a level of danger with a level of risk lower than the ones above





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### 2.1 Signs

The safety signs described next are found on the machine, in adequate positions, indicating the operations to be done, and indicating also unsafe or dangerous situations. The signs on the machine should be kept clean and must be immediately reprinted if they come out, become damaged or non readable.

Read carefully the meaning of the safety signs and memorize them well:



**Electrocution danger**: Under voltage equipment It is prohibited to touch the under voltage parts



It is compulsory to use safety shoes



It is compulsory to use anti-cut gloves



It is compulsory to use protective glasses



Attention, pieces in motion

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#### 2.2 Safety use

We suggest the user to read the safety prescriptions described below and to read carefully also the correspondent prescriptions brought by the operating and maintenance manual of the welding devices, the electric supplier, the recovery and the compressors, all supplied with this manual.

## **CORIMPEX** doesn't take any responsibility for direct or indirect harm derived from lack of attention towards the information provided here.

**It is prohibited** to operate the machine those who haven't read and understood perfectly what has been evidenced on this manual

It is prohibited the use of the machine before it has been fixed properly into the ground

It is prohibited to operate the machine if the place where it's in is not well ventilated

It is prohibited to operate the machine if the place where it's in is not well illuminated

It is prohibited to operate the machine unless the safety devices or guards are not installed.

It is prohibited to operate the machine the staff who is not well prepared, not competent, or not in good health

It is prohibited to move, touch or make inefficient the safety devices

It is prohibited to touch or to place itself between the pieces in motion during the working operations or the tuning of the machine

It is prohibited to pass or stop close to the machine when it is working

It is prohibited to use the machine if it is not working perfectly

It is prohibited to use the machine when even one of the safety signs is missing from the place where it had been installed form the builder. The safety or danger signs give the right indication to avoid misfortune. These signs should always be kept clean and must be immediately reprinted if they come out, become damaged or non readable.

**It is prohibited** the use in the machine of backups which are not supplied from the builder of the machine, unless there is a written authorization to do so

It is prohibited to leave the machine by itself when it's operating

It is prohibited to touch the pieces which have just been welded because it can cause burning

It is prohibited to watch the machine working without adequate protection system to the eyes

**It is prohibited** any kind of intervention, maintenance, repairing or cleaning by those who haven't read and understood perfectly the content of this manual



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**It is prohibited** to execute any kind of complex intervention or repairing which haven't been indicated between the cases brought by this manual. It is necessary that the user asks the intervention to the builder's assistance service; he will provide the necessary operations using its own staff labour

It is compulsory to keep this manual for the whole life duration of the machine

It is compulsory to control the perfect integrity of all the safety devices and the machine's structure before using it

It is compulsory to use the machine with all the safety devices working properly

**It is compulsory** that the staff that will be using this machine have been properly instructed to its use and that they have followed the training course provided by the machine's builder

It is compulsory to check, before operate the machine, that there is nobody inside the machine or in the zones considered dangerous

**It is compulsory** that the staff that will be using the machine outline physically the working area in order to avoid the traffic of other people in the zones considered dangerous

**It is compulsory** that the machine's installation is done by a qualified staff, respecting all the instructions brought by this manual

**It is compulsory** to place the machine somewhere protected from water and ice: the machine is designed and built to operate only under an adequate covering. The use of the machine is allowed only at the inside of closed places, deprived from explosion or fire danger

**It is compulsory** to check that the ground on which will be placed the machine is flat, smooth, horizontal and capable of resisting the machine's activity

**It is compulsory**, in case of irregular functioning or damaging, to press immediately the emergency button. Unplug the electric feeding and block with a padlock the general switch placed on the electric cabinet door.

It is compulsory, in case of problems with the machine, to always ask the builder, avoiding therefore improperly intervention

It is compulsory to turn off the machine and unplug the voltage from the .. when it's not being used

**It is compulsory** that the maintenance of the machine is done by authorized, qualified staff. The maintenance should be done with particular care, following the instructions brought by this manual and substituting damaged pieces. This staff should be aware of the possible risks caused from the use of the machine

**It is compulsory** to unplug the voltage before the cleaning or maintenance of the machine; it's also important to block with a padlock the general switch placed on the electric cabinet door

It is compulsory to use original spare pieces when doing maintenance and repairing interventions

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**It is advised** to those who will be using the machine to get familiar with the command devices and how they work before beginning the operation

## CORIMPEX doesn't take any responsibility for direct or indirect harm derived from improperly use and/or changes made without the builder's authorization

#### 2.3 Clothing

- Don't wear clothing made with inflammable material
- Don't wear clothing with extremities that might get hooked up by pieces in motion
- Do wear anti-cut gloves
- Do wear protective glasses
- Do wear safety shoes

#### 2.4 Remaining risks indication

The machine that has been supplied presents the following remaining risks:

#### Electric risk

The fact that the machine is fed by a connection to the electric net makes it vulnerable to a risk that can't be totally eliminated. The electric connection should be done by qualified staff or directly from CORIMPEX's staff.

DANGER: The electric connection operations should be done by qualified staff that follows the indications given by our staff. Operations done by not qualified staff can be the cause of serious risks to themselves and to the operators. Whoever is using the machine has the direct responsibility to place the machine properly and to connect it to the rest of the equipment respecting the norms of the electric, hydraulic and pneumatic fittings.

#### **Dorsal-Lumbar harm**

The loading and unloading of the pieces can be done manually. This can represent a risk of dorsallumbar harm in cases of loading with extra weight (≥30 kg). In this case the user should be properly assisted by another person or should be using adequate weightlifting devices.

#### Harm to the eyes

The welding produces rays which are highly harmful to the eyes. When the operator has to control the welding cycle he should be using adequate devices such as proper screens or eyeglasses.

#### 2.5 Dangerous zones

There are essentially three identified dangerous zones:

#### Moveable pieces' motion zone

It is the area in which the machine's moveable pieces can be moving. In these zones there is the risk of coalition, crushing and dragging.

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#### Zones closed to the welding's head

It is the zone in the immediate neighbourhood of the welding's head the risks in this zone are the same as those described for the preceding zone, added to the risks regarding the welding process: gas and steam emission, spatterns, eyesight harm. To get some more information about the welding process' risks, please consult this system's manual.

#### Zones closed to welding workpieces already made

During the cycle the system travels in order to make it possible for the welding head to follow the welding line. The parts which have just been welded keep the ustion's risk. This zone has also the same risks of the "moveable pieces' motion zone".

#### Workpieces clamping area

In this area, besides the risks described above, there can be other risks regarding the possibility of falling, the tilting of pieces that are being worked or that have to be worked. There are also risks of falling during the movement operations for loading and unloading pieces and fixing equipment During the machine's working cycle it is possible the existence of more than one of the dangerous zones described above

#### Site conditions and areas of danger

An operator must be present for the line to operate. The presence of an operator is necessary due to the fact that he/she must start and stop the welding cycle, as well as load and unload material for welding or pre-welded material, by means of an overhead travelling crane or other suitable means, in due respect of the safety regulations. The area in which the machine operates is to be considered dangerous. The operator, or any personnel who find themselves within the area of operation of the machine, runs the risk of being crushed (i.e. being crushed between the material being handled and the machine in question). For this reason, the end user must delineate the area of the machine's operation in a suitable manner and allow access to it only in the areas of the control panel and tack welding station. No-one, other than the properly trained operator, will be allowed access to the area within the machine's operating radius.

#### 2.6 Safety steps to be adopted and protections

# ATTENTION - When the machine is delivered, it is supplied with all the protection steps and all the safety devices required. Any manomission to what is described next implicates the lack of safety and therefore the declining of any responsibility of "CORIMPEX S.r.I."

The machine has been designed to operate according to different modalities. For each one of them it has been introduced the necessary safety steps in order to guarantee the work safety. If required, the machine can be provided with the following safety systems or protections. If these are not required it then becomes the user's responsibility to provide and pay for such systems.

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#### **Fixed peripharal protections**

These protections, avoiding the access to the machine's working zone, preserves the operator and other people from the following danger: crushing between the moveable parts and the pieces under work, dragging caused by the moveable parts, or the clamping devices, danger caused by the high temperature of the work pieces.

The protection is made of a metallic net fixed to a strong steel structure

#### Moveable protection interlocked to the access to the working area

The peripharal protection takes into account a certain number of accesses that varies according to the layout installation of the machine and the products to be carried out.

The opening of the protections causes the action of a micro-switch of safety which acts on the control's electric circuit causing a block of the movement of the moveable parts and the turning off of the welding processes.

The re-setting of the protection does not activate the machine again.

Until the protection is opened all the machine's commands in "AUTOMATIC" modality will remain blocked.

All the protections which permits the access to the working area can also be opened from the inside in order to avoid the risk of imprisoning.

#### Commands by an action combined with a reduced speed

Some operations must be done under a "MANUAL" modality and the user must work close to the welding elements, inside the machine's working area. In these cases the movement of the moveable parts are controlled by the operator who works at the remote pendant placed closed to the welding heads.

The activation of such commands is made by self hold switch type, always at low speed.

#### **Emergency push-button**

The main electric cabinet is provided with a red push-button at a yellow base, as well as at the remote pendant close to the welding stations.

By pushing this button the user causes the immediate stop of the movable part's movement as well as of the welding process.

The activation of the emergency stop is indicated by the blue lighting button placed at the command's panel.

The switching off of the emergency stop can be done by pushing this button, only after the emergency button has been re-setted.

#### **Electric Main Power Cabinet**

At the main electric cabinet it's installed a general switch with a door-blocking system which avoids the opening of the door when it's under voltage.

The main electric power cabinet is built and installed at the final client's workshop under CORIMPEX'S supervision.

#### Individual protection systems

When the operators have to work with the machine under a "MANUAL" or "ADJUSTING" modality they should be using the adequate individual protection systems: gloves, safety shoes, eyes' protection (please consult the welding systems' operating manual)

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## Chapter 3 – SUPPLY CONDITIONS

#### 3.1 Movement and transportation

When the product is delivered it is wrapped in order to guarantee the protection of its surface and its fitting pieces.

Pack each one of the product's pieces in order to protect them from accidental coalitions, dirty and dust. Do not move or store the packs one on top of the other.

The movement of the product, packed or not, can cause risks to the operator because of the weight of the equipment and its mechanical characteristics.

Move the packed product with the adequate lifting devices. These should have a high precaution content and should conform to the legal requirements. For the movement of the product that has not been packed it is important to use adequate lifting devices, paying special attention to avoid accidental coalition of the surfaces and the fitting pieces. For the movement of the non packed product it can be used – in cases in which it is possible to - the adequate hook, strictly following the particulars of its use. On the other hand, the non packed products, which do not have the hook should be moved with an adequate safe way.

To execute a correct stocking of the equipment delivered it is necessary to follow the indications described next:

- Avoid the stocking at opened places or in an environment with dust, humidity and vibrations
- For long periods of stocking it is also advisable to protect the parts which have been worked with adequate protections to avoid rusting

#### 3.2 The machine's installation

The working area in which the machine will be installed should be as dry as possible, well ventilated, free from chemical agents and substances which make the atmosphere potentially explosive. The place which has been previously chosen for the installation should have a free space around it in order to make easier the using and maintenance operations and to permit effective operations of loading and unloading of the components to be welded.

## CHAPTER 4 – THE MACHINE'S USE

The user must verify the parameters regarding the welding process and set these according to the production requirements CORIMPEX takes absolutely no responsibility for the quality of the welding process.

4.1 Starting up the machine and using it - Instructions for the operator

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#### 4.2 Safety

Before performing any kind of operation on the product be sure that all the necessary steps have been taken and that an accidental start can not occur, verifying therefore that the equipment or the motor from which the movement is transmitted are switched off from the feeding net.

All the operations should be done from an user that has been prepared in an adequate way, respecting all the valid requirements for safety, prevention and environmental pollution. It is necessary to think of an adequate protection of the rotating parts aiming to prevent accidental contacts. If it is verified an abnormal temperature and/or noise, the equipment should be stopped and inspected, to avoid that the situation turns into danger or damage condition.

## **CHAPTER 5 - MAINTENANCE, REPAIRING AND CLEANING**

Before beginning any sort of work on the machine be sure that there isn't electric voltage in it. The safety steps described above should be observed until the complete execution of maintenance, adjusting, registration, cleaning etc... All these operations will be explained and illustrated with practical demonstrations to the user during the training course given by our engineer. Operations of ordinary cleaning and maintenance will be also illustrated, as well as the steps to work with safety.

#### 5.1 Maintenance

In the maintenance program there are ordinary and out of ordinary interventions. In the first one the inspections, controlling and checking should be done directly by the operator and/or specialized staff capable of doing the usual factory maintenance; out of ordinary interventions are periodic and include operations of controlling and pieces'substitution; These should be performed by a staff instructed for this aim by the builder through specific courses.

To guarantee the safety during the maintenance it is necessary to respect the following prescriptions:

- It is prohibited to perform any kind of intervention, maintenance, repairing or cleaning those who haven't read and understood perfectly what has been brought by this manual
- It is prohibited to execute complex interventions of repairing and/or maintenance which haven't been indicated between the cases brought by this manual. It is necessary that the user asks the builder's assistance service for an intervention; The builder itself will make the necessary arrangements using its own staff labour
- It is prohibited to remove or manumit the safety devices
- It is prohibited to operate the machine when even just one of the safety signs has been removed from where it had been previously installed by the builder. The safety or danger signs fixed on the machine give then necessary indications to avoid risks. These signs should always be kept clean and should be substituted immediately when they have been damaged or moved from its original place, even partially.
- It is compulsory that the machine's maintenance is done by an authorized, qualified and specialized staff. The maintenance should be performed with special care, following all the instructions given by this manual and substituting the weared or damaged parts. The staff responsible for the maintenance should be informed about the possible risks caused by the use of the machine.
- It is compulsory to switch off the electrical feeding before doing any work of cleaning or maintenance on the machine; once the work is finished do block with a padlock the main switch placed at the electric cabint door.

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- It is compulsory to control periodically the integrity and the functioning of the safety devices.
- It is compulsory to use original exchange pieces during the maintenance's interventions.

#### 5.2 Ordinary maintenance

It includes all the maintenance operations which can be executed by the operator itself or by an authorized staff.

Before doing any adjusting, maintenance or repairing, the operator must have available and use all the individual protective instruments required by the safety norms such as: gloves, eyeglasses, protective shoes, etc.

The ordinary maintenance operations include the following:

- Every-day interventions performed by the operator: general visible checking, functional checking (testing of the push-buttons functions);
- Weekly interventions performed by specialized staff: visible controlling of every particular of the machine, removing safety guards or protections; checking of the moving pieces; lubricant and greasing control; checking of every electrical particular of command and control. Checking of the integrity of the feeding line and its components; checking of the efficiency and conservation situation of the structure.

Everything that has been mentioned above will be explained and performed practically on the machine during the training that will be done at the end of the machine's installation. In this occasion it will be highlighted by our engineers all the situations of anomaly, maintenance and danger and the solutions to act with absolutely safety in the problem-solving situations.

#### 5.3 Out of the ordinary maintenance

The correct use and the respect for the maintenance's instructions brought by this manual will allow a long term use of the machine in safety conditions.

Nevertheless, if it is necessary to substitute worn out or damaged pieces (bearings – rings etc.), it is essential that the user requires the intervention of CORIMPEX's technical assistance.

#### 5.4 Repairing

#### 5.5 Cleaning

For a good conservation of the equipment it is important to perform a periodic cleaning of the machine, removing work remains, welding left outs and dirty that might accumulate.

For the cleaning it should be used detergent substances, non corrosive, that does not rust the material, that does not interact with the varnish used on the machine and finally, substances which do not pollute. The staff that will perform this operation must be protected with gloves, eyeglasses and any other instrument that might be necessary for the operation.

## CHAPTER 6 - PUTTING THE MACHINE OUT OF DUTY

#### 6.1 Demolition

Once the equipment has been demolished it is necessary to destroy the machine's identification label and any other document

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#### 6.2 Product's Waste

Special care should be taken with the repairing or waste of the products inherent to the equipment's use. These precautions regard specially the following:

- The packing waste
- The work left outs
- The product's waste

These objects should be wasted according to the local legal requirements.

The urban-kind rubbish can be wasted in the rubbish bins; the rubbish of special kind should be waste according to the local legal requirements.