

ECO-BLASTER IBIX 25/28 USE AND MAINTENANCE MANUAL



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FOREWORD

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IMPORTANT NOTE

BEFORE CARRYING OUT ANY OPERATION ON THE MACHINE, THE APPOINTED MACHINE OPERATORS AND TECHNICIANS SHOULD CAREFULLY READ THE INSTRUCTIONS CONTAINED IN THIS MANUAL AND COMPLY WITH THEM IN CARRYING OUT THEIR WORK. SHOULD YOU HAVE ANY DOUBTS CONCERNING THE INSTRUCTIONS PROVIDED, PLEASE CONTACT OUR AFTER-SALES SERVICE FOR THE REQUIRED EXPLANATIONS.

1.1 GENERAL INFORMATION

This is the instruction manual for:

MACHINE TYPE:BLASTERSERIES AND TYPE:IBIX 25YEAR OF CONSTRUCTION:......

This user manual contains the main information regarding the machine storage, handling, installation, use, supervision, maintenance and disassembly.

This manual makes an integral part of your machine and should be kept with care until the machine dismantling

at the end of its working life, in order to allow future reference and updating.

Should this copy of your user manual become damaged to the point that it can no longer be used, another copy may be requested from



by specifying the machine type, serial number or job number indicated on the machine data plate.



This manual refers to the machine condition at the time of its supply and may not be considered inadequate only because later updates have been introduced to reflect newly acquired experience. **IBIX** reserves the right to update its products and manuals without any obligation to inform the users of previously supplied machinery.

However, courtesy notification of any proposed manual and/or machine updating can be expected. Our Customer care service is however always available to supply on request any information regarding machine updates.

IBIX shall not be held responsible for any incorrect use of its supplied machines, including:

a) wrong use of the machine or use of the machine by poorly trained personnel;

b) use of the machine not in compliance with the applicable regulations;

c) wrong installation;

d) incorrect power supply;

e) severely incorrect maintenance;

f) unauthorised intervention or modifications;

g) use of non-original spare parts or spare parts not suitable for the machine model concerned;

h) failure to comply with the supplied instructions, wholly or in part;

i) unexpected events.

1.2 GENERAL INFORMATION ON MACHINE USE

- This manual has been prepared for the purpose of supplying the user with general information regarding the machine and with the maintenance directions judged necessary for its smooth operation.
- Before carrying out any machine installation, maintenance and repairing operations, thoroughly read this Manual as it contains all the necessary information to correctly use the machine by preventing accidents and injuries.
- The inspection and maintenance schedules prescribed by this manual should always be intended as the minimum required to guarantee the machine efficiency, safety and working life under normal operation conditions. However, constant supervision is recommended to be able to take immediate action in the event of a breakdown.
- All scheduled maintenance, checks and general cleaning should be carried out while the machine is stopped and disconnected from the air supply system.
- Warning: any machine modification or alteration not authorised by the machine manufacturer and any safety system modification or alteration shall cancel any manufacturer's guarantee and safety liabilities.

1.3 GENERAL PRECAUTIONS ON MACHINE USE

The following recommendations are part of the normal behavior that machine workers should adopt during work. Therefore, when designing and building the machines, the machine manufacturer has assumed that these recommendations are known to the machine workers. It is the user's responsibility to inform and train the machine workers to make sure that these recommendations become known to the personnel in charge of operating the eco-blaster.



- Do not allow machine servicing by unauthorised personnel.
- DO NOT START THE MACHINE IF IT IS OUT OF ORDER.
- Before using the machine, make sure that any condition likely to affect safety has been removed as required.
- Make sure that all the machine guards and other protections are in place and that all the safety devices are present and in working order.
- Make sure that no unauthorised persons are within the work area.
- All the workers involved in any machine work phase must wear safety goggles, mask, headgear and gloves.
- Always comply with all the prescribed obligations, prohibitions and warnings during machine use.
- Never leave the machine unattended.
- Never use the machine under the influence of alcohol, drugs, medicines or extreme tiredness. A clear head is an essential precondition to operate the machine safely and effectively.
- The machine is a pressure equipment and must be submitted to periodical controls and tests while working according to the existing law.

1.4 PICTOGRAMS RELATING TO THE "OPERATOR QUALIFICATION"



- [A] **Operator:** worker trained and authorised to operate the machine. In order to understand the instructions (text and pictures) supplied, the operator must have (or acquire through suitable education and training) the following characteristics:
 - sufficiently good general and technical knowledge to read and understand the parts of the manual concerning his or her tasks and to correctly understand its drawings and diagrams;
 - ability to read and understand symbols, pictograms and screen displays;
 - knowledge of the main safety, accident prevention and technological rules;
 - global knowledge of the machine and its setting on the job-site or in the factory to be able to tackle any emergency situation (ways out, fire-fighting systems etc...);
 - specific knowledge of the machine field of application.
 - The operator's tasks are: machine start, machine operation and machine stop.
- **[B]** Mechanical maintenance engineer: skilled technician able to operate the machine under normal operating conditions, to operate it with a hold-down control when the machine protections are turned off, and to carry out any required adjustments, maintenance and repairs on mechanical parts.
- **[C]** Manufacturer's technician: skilled technician made available to the manufacturer to carry out complex operations in special situations or according to agreements with the user. The tasks of a manufacturer's technician are of a mechanical nature.

1.5 PICTOGRAMS RELATING TO SAFETY

The safety pictograms used on the machine and/or in this manual are listed here below:



Note: any parts of text preceded by this symbol contain important information/prescriptions.



Caution: any parts of text preceded by this symbol contain important information/prescriptions concerning safety in particular.



Obligation to wear safety shoes: the presence of this symbol means that the operator must wear protective shoes.



Obligation to wear safety gloves: the presence of this symbol means that the operator must wear protective gloves.



Obligation to wear safety goggles: the presence of this symbol means that the operator must wear safety goggles.



Obligation to wear a face mask:

the presence of this symbol means that the operator must wear a protective mask.



Obligation to wear ear protectors: the presence of this symbol means that the operator must wear ear protectors against noise.

1.6 APPLIED STANDARDS

The following is a non-exhaustive list of Standards applied to our Eco-Blaster design, manufacturing and testing.

REFERENCE LEGISLATION: Machinery Directive 2006/42 / EC Directive and subsequent amendments.

- DIRECTIVE 2013/35 / EU of the Worker Protection from Electromagnetic Fields
- 2006/42/EC Machinery Directive
- Regulation no. 305/2011
- 2014/35/EU Low Voltage
- REGULATION (EU) 2016/425
- Directive 1999/34/EC
- Directive 2014/68/EU: Pressure Equipment Directive P.E.D.
- UNI EN ISO 12100 Safety of machinery General principles for design Assessment risk and risk reduction.
- UNI EN 349: Safety of machinery Minimum distance for safety-related parts of control Systems
- Hydraulics UNI EN ISO 4413
- AD-2000 MERKBLATT: Design

1.7 PATENTS AND TRADEMARKS

IBIX Special Cleaning[®] and IBIX[®] logo are registered trademarks of IBIX[®] SRL.

- IBIX[®] is a worldwide registered trademark.
- HELIX[®] is a worldwide registered trademark.

- The IBIX® eco-blasters are IBIX® SRL exclusive PATENTS

-The HELIX® vortex technology is an IBIX® SRL exclusive patents



ECO-BLASTER IBIX 25

2 PRESENTATION

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2 PRESENTATION

2.1 GENERAL INFORMATION



The **IBIX eco-blaster** has been designed and built to carry out environment-friendly sandblasting, micro-blasting and cleaning without generating any dust. This machine is extremely versatile and enables to treat several types of surface. Its low weight (obtained thanks to a structure fully made from aluminium) makes it especially easy to handle.

Main units:



| POS. | DESCRIPTION | | |
|------|---------------------------------------|--|--|
| 1 | CARRYING HANDLE FITTED WITH NUTS | | |
| 2 | BLASTING MATERIAL FILLER PLASTIC PLUG | | |
| 3 | BLACK SCREW CAPS FOR IBIX | | |
| 3A | BLASTING MATERIAL TANK | | |
| 3B | FOOT SUPPORTS | | |



| POS. | S. DESCRIPTION | | | |
|------|----------------------------------|--|--|--|
| 4 | PRESSURE REGULATOR | | | |
| 4A | AIR ADJUSTMENT CONTROL | | | |
| 4B | PRESSURE GAUGE | | | |
| 4C | AIR FILTER | | | |
| 4D | CONDENSATE DRAINING VALVE | | | |
| 9 | COMPRESSED AIR QUICK CONNECTION | | | |
| 10 | ANTICONDENSATE FILTER | | | |
| 11 | CONDENSATE DRAINING VALVE | | | |
| 12 | KIT H2O (OPTIONAL) | | | |
| 13 | PRESSURE RELIEF VALVE | | | |
| 14 | BLASTING MATERIAL FILLING FUNNEL | | | |
| 14A | QUICK EXHOUST VALVE | | | |



| / | DESCRIPTION | | | |
|-----|--|--|--|--|
| 15 | SCREW ADJUSTMENT MIXING MEDIA / AIR | | | |
| 16 | ABRASIVE MIXING VALVE WITH STEEL HOSEPIPE FITTING | | | |
| 17 | ABRASIVE MIXING VALVE WITH TUNGSTEN CARBIDE HOSEPIPE FITTING | | | |
| 18 | ABRASIVE MIXING VALVE WITH QUICK CONNECT HOSEPIPE FITTING | | | |
| 18A | PROTECTIVE SHEATH QUICK CONNECT | | | |
| 19 | 19 SANDBLAST HOSE | | | |
| 19A | EXTENSION TUBE (included in TRILOGY) | | | |
| 20 | TWIN AIR CONTROL HOSE | | | |
| 21 | RILSAN HOSE NOZZLE H2O (OPTIONAL) | | | |
| 22 | WHEELS | | | |



| POS. | DESCRIPTION | | |
|------|--------------------|--|--|
| 23 | SAFETY BUTTON | | |
| 24 | STANDARD DRY GUN | | |
| 25 | H2O GUN (OPTIONAL) | | |



| POS. | DESCRIPTION | | |
|------|--|--|--|
| 26 | HELIX GUN (OPTIONAL) | | |
| 27 | GLOVE FOR GUN PROTECTION (included in TRILOGY) | | |

2.2 DATA PLATE

Please exactly quote your machine **Model**, **Serial number** and **Year of Construction** to facilitate our After-Sales Service accurate and prompt responses.

Always quote this information whenever you contact our After-Sales Service or whenever you order spare parts.

This information is contained in the data plate installed on your machine.

For no reason should the information indicated in the plate be altered.



The illustration shows where the data plate is located and what it looks like. Your machine serial number should be quoted whenever you contact the manufacturer for inquiries or to order spare parts.

2.3 CHARACTERISTICS

It is the designer's duty to fix limits and apply more severe restrictions regarding the presence of personnel and the work area.

The machine should be operated by trained personnel aware of the machine characteristics and of the contents of this manual.

The machine operates in the manual mode and should be worked by a single operator.

2.4 OPERATING PRINCIPLE



The work process can be outlined as follows:

compressed air coming from the air compressor feeds the eco-blaster after a pneumatic actuator is controlled which enables the main air valve to feed compressed air into the blasting material tank. The pneumatic actuator, receiving air from the twin air hose, is controlled by the remote-controlled gun trigger. Pressure inside the tank will push the blasting material towards the blasting material/air mixing valve. The blasting material/compressed air mix is pushed through the abrasive-proofed hose all the way to the gun, and out of the gun through a tungsten carbide nozzle.

2.5 TECHNICAL SPECIFICATIONS

| Structure: |
|----------------------------------|
| Working pressure: |
| Particle size: |
| Remote control hose length: |
| Standard nozzle size: |
| Blasting material tank capacity: |
| Installed machine max height: |
| Installed machine max length: |
| Installed machine max width: |
| Packaging (box) dimensions: |
| Machine weight (empty tank): |
| Handle vibrations: |
| Cleanable surfaces: |

fully made from aluminium $0.2 \div 7.5$ bar $(2.9 \div 109 \text{ psi})$ $38 \ \mu\text{m}$ up to 1400 μm (0.001496 up to 0.055 in.) 10 m (30 ft.) $5.5 \ \text{mm}$ (7/32") $24.8 \ \text{I}$ (6.6 gallons – 0.88 ft³) 990 mm (39.97 in.) 426 mm (16.77 in.) 316 mm (16.37 in.) 920 x 530 x 410 mm (36.22x20.87x16.14 in.) ~38 Kg (~83.77 lbs.) 1.157 m/s₂ (air) and 1.186 m/s₂ (water) steel, aluminum, stainless steel, wood, marble, glass concrete, masonry, stone, composite materials, etc.

2.6 INFORMATION ON THE MACHINE WORKING NOISE



The operators in charge of operating the machine must always wear hearing protectors while the machine is running (in addition to all the other mentioned personal protection devices).

The machine noise levels depend on the type of air compressor used and on the selected working pressure.

2.7 AIR CONSUMPTION AT NOZZLE

Air consumption is expressed in litres per minute.

| Nozzle | 4 bar (58 psi) | 5 bar (72.5 psi) | 6 bar (87 psi) | 7 bar (101.5 psi) | 8 bar (116 psi) |
|-----------------|------------------|------------------|------------------|-------------------|-------------------|
| 2.5 mm (3/32") | 255 (9 cfm) | 281 (9.92 cfm) | 305 (10.77 cfm) | 327 (11.54 cfm) | 348 (12.28 cfm) |
| 3.0 mm (1/8") | 368 (12.99 cfm) | 406 (14.33 cfm) | 440 (15.53 cfm) | 472 (16.66 cfm) | 502 (17.72 cfm) |
| 3.5 mm (9/64") | 502 (17.72 cfm) | 553 (19.52 cfm) | 600 (21.18 cfm) | 644 (22.73 cfm) | 684 (24.15 cfm) |
| 4.0 mm (5/32") | 657 (23.19 cfm) | 725 (25.59 cfm) | 786 (27.75 cfm) | 843 (29.76 cfm) | 896 (31.63 cfm) |
| 4.5 mm (11/64") | 835 (29.48cfm) | 920 (32.48 cfm) | 998 (35.23 cfm) | 1070 (37.77 cfm) | 1137 (40.14 cfm) |
| 5.0 mm (3/16") | 1036 (36.57 cfm) | 1141 (40.28 cfm) | 1237 (43.67 cfm) | 1326 (46.81 cfm) | 1409 (49.74 cfm) |
| 5.5 mm (7/32") | 1262 (44.55 cfm) | 1390 (49.07 cfm) | 1506 (53.16 cfm) | 1614 (56.97 cfm) | 1714 (60.50 cfm) |
| 6.0 mm (1/4") | 1516 (53.51 cfm) | 1669 (58.92 cfm) | 1807 (63.79 cfm) | 1936 (68.34 cfm) | 2055 (72.54 cfm) |
| 6.5 mm (17/64") | 1803 (63.65 cfm) | 1983 (70 cfm) | 2145 (75.72 cfm) | 2296 (81.05 cfm) | 2437 (86.03 cfm) |
| 7,0 mm (9/32") | 2264 (79.92 cfm) | 2478 (87.47 cfm) | 2671 (94.31 cfm) | 2851(100.64 cfm) | 3019 (106.57 cfm) |

Calculations performed according to the ISO 5167 standard

The indicated air consumption data are referred to the maximum theoretical air flow that can be reached. To obtain these results, a compressor able to deliver these amounts must be used, increased by a precautionary 15-20% usually lost in the passage from the compressor to the nozzle.

For IBIX 25, a minimum 3/4" blasting material hose should be used.

Spot-blasting can be carried out by using much smaller amounts of air than what is indicated in the table here above.

2.8 BLASTING MATERIALS TO USE – TIPS AND SUGGESTIONS

ONLY THE BLASTING MEDIA SOLD BY IBIX SRL ENSURE THE PROPER FUNCTIONING AND ARE THE ONLY RECOMMENDED FOR THEIR SPECIFIC USE.

For most applications, the best results with IBIX machines are obtained by using the natural mineral abrasive material **GARNET**.

Garnet is an Australian natural mineral consisting of extremely hard grains of ALMANDITE which enable the material to be re-used; in addition, this material is not CRUMBLY therefore it will not break up and produce dust, unlike sand.

It undergoes multiple washing cycles to remove any impurities and for this reason it will not produce dust during work (unless it is used on concrete). No special precautions are required during work: oxygen masks are not necessary, although protective masks are useful. This natural mineral does not contain any free silica or ferrite (causing rusting right after iron-blasting). Garnet also offers advantages in the disposal phase as it is compliant with environment protection-regulations and with the ISO 11 626 standard.

Garnet is sold in 25 Kg (55 lbs) bags and is available in 6 different particle sizes measured in mesh (from the finest to the coarsest):

| Mesh | Grain size |
|-------|------------|
| 350 | (fine) |
| 200 | (fine) |
| 120 | (medium) |
| 80 | (medium) |
| 30/60 | (coarse) |
| 20/40 | (coarse) |



The GARNET particle size should be chosen according to the type of work to carry on. To have more information on the characteristics of blasting media and on their suggestions, please refer to the technical sheet of each abrasive, available on our web page www.ibix.it.

Wood - Particle sizes of 80 or 120 mesh are recommended. In certain cases, however, other GARNET particle sizes should be used such as 30/60 or 20/40 mesh or even 200 mesh for restoration and cleaning of very delicate surfaces.

Stone - The particle sizes most commonly recommended for cleaning stone are 120 or 200 mesh to remove graffiti or for soft cleaning. However, other particle sizes (30/60 or 20/40 mesh) can be used for different jobs, such as bush-hammering or polishing of small areas. For the delicate, time-worn stone of statues and other architectural structures, or for polished surfaces which must be left unaltered (e.g. brilliant marble), spherical calcium carbonate (CARBONART_®) is recommended.

Marble - GARNET should not be used on polished (brilliant) marble. The recommended products in this case are sodium bicarbonate or spherical calcium carbonate (CARBONART®) to be applied with an optional water sprayer to avoid damaging the treated surface. If the treated surface is naturally matt and graffiti removal is necessary, GARNET can be used in the particle sizes 350/200/120 mesh. GARNET, however, should be used in this case after carrying out low-pressure tests.

Glass - To remove graffiti or dirt from glass surfaces, water-soluble sodium bicarbonate is used, while to opacify a surface and obtain either "positive" or "negative" decorations, the naturally abrasive GARNET mineral can be used. The right particle size should be selected according to the desired type of finish.

Iron - To remove rust or paint, the naturally abrasive GARNET mineral in particle sizes such as 20/40, 30/60 or 80 mesh can be used, to obtain clean surfaces with the ideal degree of roughness to allow good adhesion of the painting product used. The right particle size should be selected according to the desired type of finish.



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DANGERS AND PROTECTION

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3 DANGERS AND PROTECTION



3.1 NOT PERMITTED AND NOT RECOMMENDED USES

The IBIX eco-blaster should be used for the applications recommended by the manufacturer (please see chapter 2).

In particular, the system should not be even partially used:

- without its protective guards and/or with cut-off, faulty or missing safety devices;
- if it has not been correctly installed;
- in an explosive atmosphere or wherever there is a fire risk;
- to work materials with characteristics different from the specified ones;
- in dangerous conditions or in the event of machine malfunction;
- for uses not recommended for the machine or by untrained personnel;
- for uses against the applicable standards;
- in case of severely inadequate maintenance;
- after carrying out unauthorised modifications or repairs;
- in total or partial disregard of the given instructions.



A SPECIFIC WRITTEN DECLARATION BY IBIX IS NECESSARY FOR ANY DEROGATION TO THE INDICATIONS LISTED ABOVE.



Any modification not explicitly authorised by the manufacturer that modifies the predicted functionality and the risks and/or creates additional risk, will be the full responsibility of the person performing.

Any modifications carried out without the manufacturer's authorisation, also imply the loss of validity of any form of guarantee issued by the manufacturer and of the statement of compliance according to the PED Directive 2006/42/CE.

3.2 Accident-preventing devices

To ensure the optimal security conditions for the user, the machine is equipped with the following safety devices:

- [A] Security button: this is a security button on the gun which prevents the release of air+inert in case of accidentally pressure on the trigger. Therefore, to run the gun, the operator must press first the security button and then the trigger. This procedure allows the release of air+inert by the nozzle on the gun. The release of the trigger causes the prompt return of the button in its security position and stops the inert release.
- [B] Security valve: located next to the pressure reducer, it lets air out of the blasting material tank if pressure becomes too high inside the tank (> 8.5 bar; > 123 psi).



IMPORTANT NOTE: ALWAYS VERIFY THE CORRECT FUNCTIONING OF SECURITY DEVICES TO PREVENT THE POSSIBLE RISKS RELATED TO THE MACHINE USE. THE SAFETY VALVE IS COMPLIANT WITH CAT. IV – DIRECTIVE 97/23/CE. PERIODIC CHECKS AND SUBTITUTION OF THE SAFETY VALVE MUST BE DONE IN COMPLIANCE WITH THE DIRECTIVE 97/23/CE.



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4 LIFTING, HANDLING AND STORAGE



4.1 LIFTING AND HANDLING

Machine lifting and handling must be carried out cautiously to prevent falls or overturning. The machine has been fitted with special wheels (A) to allow simple, safe handling. Move the machine by holding it by its special handle (B) slightly tilting the machine with caution.



BEFORE MOVING THE MACHINE ON ITS WHEELS, ALWAYS MAKE SURE THAT THE MACHINE IS DISCONNECTED FROM ITS AIR SUPPLY SYSTEM AND THAT THE BLASTING MATERIAL HOSE AND TWIN AIR HOSE HAVE BEEN COILED UP AND ARE SAFELY ANCHORED TO THE MACHINE. IT IS STRICTLY FORBIDDEN TO LET THE BLASTING MATERIAL HOSE AND TWIN AIR HOSE DRAG ON THE FLOOR DURING MACHINE HANDLING.





The machine is purchased by the Customer is contained in its special protective packaging (carton). The machine is equipped with a handle for handling purposes which must be fitted by the Customer (see Chapter 5 - paragraph 5.2).

As the machine total weight is higher than 25 Kg (55 lbs), by the terms of the Law Decree 626/94 the machine cannot be manually handled by a single operator.



In any case, comply with the work place health and safety regulations in force in the machine Country of use!

4.2 STORAGE

If the machine is not used for prolonged periods of time, we recommend to store it at a covered location sheltered from bad weather and aggressive chemicals.

The machine should be stored away with empty tank, clean hoses and circuit. Make sure that the anti-condensate filter cups and the pressure reducer do not contain any liquid. Wrap the hoses in plastic sheets to protect them against external agents.

We recommend to remove the nozzle and keep it in a safe place wrapped in *pluriball* packaging paper. The machine should be stored indoors at suitable temperature ($0^{\circ}C$ to $60^{\circ}C - 32^{\circ}F$ to $140^{\circ}F$).

4.3 PACKAGING DISPOSAL



To dispose of packaging materials, comply with the applicable standards in the machine Country of use.

However, follow these general rules:

- any packaging materials should be collected separately and brought to special recycling bins;
- any metal parts contained in the machine must be removed and sent to a foundry for recycling.



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INSTALLATION

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5 INSTALLATION



5.1 INSTALLATION AREA TO BE SET UP BY THE USER

Before starting to work the user should make sure that:

- there aren't any unauthorised persons within the selected work setting;
- there aren't any foreign objects hindering the installation work or making it unsafe.

5.2 IBIX ECO-BLASTER PACKAGE OPENING & ASSEMBLY



The machine is delivered to the Customer contained in its special packaging (carton) [1] with some disassembled parts (lifting handle and filling lid).

PACKAGE OPENING:

- Place the box on the floor [2], use a cutter to cut the tape joining the bottom flaps.
- Stand up the box again with open flaps and remove the packaging by the special handles [3].
- Release the machine from its preformed wrapping [4].



<u>To install the transport handle and plug</u>: introduce the handle [K] into the safety ring [L] provided on the plug chain and in the special nuts [M]. Introduce the handle into the two holes in the top part of the machine and lock it with the special nuts [N]. Use a suitably sized hex nut wrench to tighten.



5.3 WARNINGS AND RECOMMENDATIONS BEFORE STARTING UP

- 1. Before controlling compressed air supply, make sure that the air hose connection is compatible with the coupling on the anti-condensate filter.
- 2. To check that your IBIX is operating correctly, start it up for the first time with an empty tank.
- 3. To operate the machine, make sure that the safety spring is inserted in its special housing below the starter trigger.
- 4. On starting up the machine, the abrasive material adjustment screw control should be kept turned off and then gradually turned on until the required abrasive delivery flow rate is obtained.
- 5. After work, it is always advisable to empty the machine tank (for more information check chapter 7 Maintenance).



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6 START-UP......page 30

6 START-UP

- 1. Insert the special funnel **(A)** in the hole on top of the machine, open the blasting material bag making sure that there aren't any loose pieces of paper, then fill up the tank until flush with the bottom free edge of the aluminium door kept open by the funnel.
 - 2. Remove the funnel and screw the lid back on **(B)** to stop any air release that could prevent the put on pressure of the tank and to protect the filling hole from any external element entry.
 - 3. Connect the compressed air supply system to the quick coupling (C) provided in the anticondensate filter, making sure that the fitting is correctly connected to prevent incidents during the put on pressure of the machine.
 - 4. While keeping the trigger pressed (D), after pushing the security button (E), adjust your working pressure by lifting the pressure regulator handle (F) and cause it to turn clock-wise (to the right) to bring the pressure to the required value. The pressure gauge needle (G) will turn to reach that value. To lock the adjuster to the required pressure value, press its control handle (F) downwards.
 - 5. Adjust the amount of blast in the mix by adjusting the special control screw **(H)** (turn clockwise to decrease the percentage of blasting material mixed with air; turn counter clockwise to increase the percentage of blasting material mixed with air). A good adjustments of the air/inert mixing is obtained when an continuous and light inert flow comes out from the nozzle.
 - 6. If the optional water kit is installed on the IBIX, engage the water delivery pipe in the quick lock (I) installed with the water kit.
 - 7. After reaching the required operating pressure and the required air/blasting material mix,begin the operation. If the optional water kit is available, the tap (J) must be turned on.



IT IS STRICTLY FORBIDDEN TO WORK WITHOUT THE PRESCRIBED PERSONAL PROTECTION DEVICES.



During work, always keep slightly open the condensate draining valve provided below the anti-condensate filter to eliminate the water in the compressed air collected after filtering.

Do not fill completely the tank to avoid that the inert goes into the pressure regulator, risking to damage it. IBIX suggests to fill the tank at 3/4 of its capacity.





ECO-BLASTER IBIX 25

7 MAINTENANCE

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7 MAINTENANCE



BEFORE CARRYING OUT ANY MAINTENANCE, ALWAYS MAKE SURE THAT THE ECOBLASTER IS UNPLUGGED FROM THE AIR SUPPLY SYSTEM AND DOES NOT STILL CONTAIN COMPRESSED AIR IN ITS CIRCUITS.



Carefully read this section of the manual before carrying out machine maintenance and adjustment operations; this will guarantee better safety conditions for the personnel in charge of maintenance operations and more reliable results.

Please follow our recommendations below during each assembly and disassembly phase.

For safety issues, please refer to chapter 1.

To ensure safe conditions during maintenance, remember that:

- 1. Machine maintenance should be exclusively carried out by qualified, specially authorised personnel.
- 2. Any operation should only be carried out after stopping the machine and disconnecting it from the air compressor.
- 3. Before restarting the machine, make sure that:
 - all the replacement spare parts have been installed;
 - any foreign objects (cloths, tools etc...) have been removed from the machine;
 - all the protection systems have been correctly re-installed.
- 4. Before restarting the machine, make sure that there aren't any persons within the machine work range.
- 5. Do not use tools, cleaning equipment etc. while the machine is in operation.
- 6. Never place any body parts, limbs or fingers in any machine openings or hollow parts while the machine is in operation.
- 7. Do not alter the machine frame in any way (by drilling holes in it, cutting it etc.) as this might damage mechanical parts which would affect the whole structure.
- 8. The machine should be regularly inspected and maintained to keep its technical, operating and safety conditions unaltered.
- 9. It is forbidden to carry out maintenance, cleaning and repairing operations on:
 - a machine in operation;
 - a machine not correctly positioned on the floor.
- 10. Before carrying out any maintenance, cleaning and repairing operation, remember to wear the prescribed personal protection devices.
- 11. The protection and safety devices provided on the machine may only be removed for working purposes (i.e. to carry out maintenance and/or adjustments).
- 12. If whoever is in charge of carrying out maintenance has doubts as to the correct procedure to follow, even after reading the instructions contained in the manual, he or she should contact the Manufacturer or an authorised After-sales centre to obtain the required information.

7.1 TECHNICAL INFORMATION TO ENSURE GOOD MAINTENANCE

To ensure effective maintenance:

- only use original spare parts;
- comply with the (preventive and routine) maintenance schedule prescribed by the manual: the time recommended between one service and the next is the longest acceptable time. Therefore, it should not be exceeded but can be shortened;
- effective preventive maintenance requires constant machine observation and inspections.

7.2 GENERAL POST-MAINTENANCE TIPS



- After carrying out machine maintenance and before restarting the machine, always:
 - check that any parts that had been replaced and/or the tools used to carry out maintenance have been removed from the machine;
 - check that all the guards and protection devices which may have been removed during
- maintenance are back in place, in working order and correctly positioned and adjusted;
 check that any pneumatic connections disconnected during maintenance have been reconnected;
- check the efficiency of the safety devices.

Only after maintenance completion and after carrying out all the required replacements may the normal machine operating conditions be restored.

7.3 ROUTINE MAINTENANCE

7.3.1 Daily checks



<u>General cleaning</u>: Blow-clean all the machine external parts with compressed air. <u>Gun cleaning</u>: Blow-clean the trigger section of the gun with compressed air to eliminate any residual grain that could block the mechanism.

<u>Nozzle cleaning</u>: to clean the nozzle, screw out the locking nut (1) at the extremity of the gun or of the lance, extract the nozzle (2), clean it and replace it by making sure that the previously loosened nut is re-tightened hard. To replace the nozzle just repeat the same procedure inserting a new nozzle or a nozzle with a different diameter instead of the other.

Always empty the tank at the end of work and discharge the remaining inert in the gun to avoid blocks in the passages and valves.



Handle with care all the tungsten carbide components because they are very fragile













7.3.2 Weekly checks

<u>Anti-condensate filter cleaning</u>: Check for condensate inside the anti-condensate filter [1]. If necessary, open the manual-discharge plug [A] placed underneath the cup [C] of the filter. Blow-clean the filter [E] and the internal pin [F] with compressed air from the inside to the outside.

<u>Blast delivery adjustment screw seat cleaning</u>: To clean the seat of the blasting material adjustment screw, screw out and remove the nut **[M]**. Now clean the removed part and the hole accepting the nut **[M]** with compressed air. Replace the nut **[M]** and the adjustment screw.

<u>Blasting material/air mixing valve cleaning</u>: To clean the blasting material/air mixing valve, screw out the 4 nuts **[M]** and blow-clean the removed part with compressed air. After this, replace the galvanised block being careful not to damage the screw and the screw seat threads.



7.3.3 Replacing the twin hose

The twin hose connects the gun to a valve in the lower part of the eco-blaster. Two other hoses go from this valve to the main air valve, located below the protective guard. The figure shows that the 4 hoses in question are in 4 different colors (red and black for the twin hose, white and blue for the main air valve hoses). If one or more of these hoses have to be replaced, the same arrangement and the same color-coding should be maintained (red to blue, white to black).



To disconnect the hose without damaging the 2 parts, it is necessary to press the valve where the hose enters, then carefully pull the hose.



7.3.4 Gun maintenance

Good maintenance of the gun and all its parts is essentially important to guarantee efficient gun operation.

Disassemble the gun by screwing out its screws **[P]**. Screw out the nozzle locking the nut **[R]** and estract the nozzle **[Q]**. Screw out the nozzle-holder **[T]** from the gun and check the condition of the inert hose **[U]** and of the valve **[V]**. Replace the pneumatic valve if necessary. If you have an HELIX gun, check the helix **[Z]**.





7.4 UNSCHEDULED MAINTENANCE





UNSCHEDULED MAINTENANCE SHOULD BE EXCLUSIVELY CARRIED OUT BY THE MANUFACTURER OR SKILLED TECHNICIANS OR BY OTHER PERSONNEL AUTHORISED BY THE MANUFACTURER.

- 1. In normal operating conditions, the machine does not require any maintenance or servicing other than the routine maintenance recommended in the manual.
- 2. Any other service is considered "unscheduled maintenance".
- 3. Unscheduled maintenance operations must be carried out by personnel with an indepth, specialised knowledge of the machine and all its parts. In no case may a routine maintenance engineer carry out unscheduled maintenance, either personally or through his/her appointed persons.
- 4. In any case, the routine maintenance engineer is bound to promptly inform the Manufacturer that an event has occurred which makes unscheduled maintenance necessary, by indicating its cause and action.

7.5 TROUBLESHOOTING

| FAULT | POSSIBLE CAUSE | SOLUTION |
|--|--|--|
| No air delivery from the nozzle | Compressor disconnected or turned off | Connect the compressor to the IBIX machine and turn it on |
| | Pressure reducer control turned fully off | Turn on the control to the required setting |
| | Nozzle obstructed by foreign matter | Clean nozzle |
| | Blasting material particle size too coarse | Replace nozzle |
| The nozzle delivers air only without any blasting material | The machine is empty: no more blasting material in the tank | Full the tank with blasting material |
| | The adjustment valve on the lower plate is jammed | Remove the blast adjustment screw and clean it |
| | The blasting material flow adjustment screw is turned off | Turn the adjustment screw until reaching the required amount of blasting material |
| | Blasting material particle size too coarse | Replace nozzle |
| | The blasting material is damp or contains foreign matters | Empty and clean the machine and fill it with clean, dry blasting material |
| Discontinuous blasting material flow | Blasting material flow adjustment screw open too wide | Turn off the adjustment screw until reaching the required amount of blasting material |
| The required cleaning results cannot be obtained | Incorrect air/blasting material mix | Adjust the pressure reducer to the required pressure |
| | Blasting material hose punctured or cracked | Replace hose |
| | Unsuitable nozzle for the chosen application | Replace nozzle with a suitable one |
| | Unsuitable blasting material or particle size for the chosen application | Replace the blasting material used with another material suitable for the required results |
| Gun air leaking | The air control hoses on the start/stop control have been exchanged | Disconnect the air control hoses and exchange their positions |
| Tank overpressure (> 8.5 bars - > 123 psi) | Malfunction of the safety valve | Replace the safety valve (see also par. 3.2) |



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8 SYSTEM CONCEPT

H₂O GUN GUN HELIX

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1. SYSTEM CONCEPT

8.1 IBIX H2O

IBIX have developed a new selective cleaning System even better performing and more versatile. Thanks to its added low-pressure automatic water spraying function, IBIX H₂O allows low-pressure washing to be combined with controlled carbonate (Calcium Carbonate, and Sodium Bicarbonate).

8.2 IBIX H2O for conservative restoration and urban recovery

The new IBIX H₂O System can be used in two different ways i.e. standard dry operation with mineral or vegetable blasting materials or low-pressure spraying of atomised water mixed with blasting materials. Unlike other, more traditional technologies, the IBIX H₂O System will mix water and carbonates directly at the nozzle, which minimises the spray water requirement. Additionally, fine water spraying will considerably reduce residues and consequently, decrease job-site running costs.

In conservation restoration jobs, the 'wet' operating mode enables to effectively respond to all the conservative and selective cleaning requirements of stone facings or stone, marble and masonry structures and architectural elements that are especially delicate or show forms of decay or alteration hard to treat by dry cleaning.

Controlled spraying enables to remove unwanted deposits and alterations caused by the chemical and physical degradation brought about by organic traffic pollutants, selectively and without damaging the treated surfaces that are thus restored to their pasty glory.

Final rinsing can be done by simply turning off the outflow of blasting material and using the same IBIX spray gun with water nozzle to obtain a controlled pressure, adjustable water jet. This will optimise the operating time and equipment use time.

IBIX H₂O is also highly effective in urban recovery for the removal of graffiti from building walls. Using IBIX H₂O in particular allows stone, brick and concrete walls soiled by street writers to be

cleaned without leaving any marks – usually still visible on surfaces after treatment with traditional methods. Using IBIX H₂O to spray a sodium bicarbonate and water mix is especially effective to clean graffiti off glazing, anodised aluminium profiles and bright, non porous marble surfaces.

Easy rinsing (by using the same IBIX machine) avoids having to bring large pieces of equipment to the jobsite.

8.3 IBIX H2O for industrial applications

The integrated water spraying and sodium bicarbonate blasting function is very effective to clean stainless steel or aluminium structures or to remove unwanted deposits - hard to get rid of with traditional methods and non-etching chemical products. The IBIX H₂O method – totally natural and eco-friendly – will solve any problem linked with industrial maintenance in indoor environments, where strict environmental protection and work place accident prevention regulations must be complied with.

The effectiveness of sodium bicarbonate, with its natural detergent and hygienising properties, combined with the cleaning power of water delivered in a controlled, easily adjustable jet, make of IBIX H₂O the ideal solution for all industrial maintenance requirements.

8.4 IBIX with HELIX gun.

Helix is a special technology able to give a rotatory motion to the abrasive exiting the gun of the IBIX cleaning system.

In this way the impact of the abrasive on the surface is not vertical but tangential so that the abrasion is more gentle and respectful of the treated surface, increasing at the same time the contact area and the machine effectiveness.

The Helix gun reduces significantly the air flow necessary for the functioning of the micro aero-abrasive system and this allows to highlight the potentialities of IBIX devices, which have always been known for their small dimension, light weight, ecology and affordable price.

The Helix patent has been developed in particular for the restoration field and it is ideal for wood and all materials that need to be treated gently.

8.5 HELIX System.

Compared to traditional nozzles the patented new-generation HELIX® system offers, for the same nozzle dimensions, an increased tangential contact area, maintaining the action of the media on a given surface. This makes it possible to increase the distance of the operator from the treated surface, minimising invasiveness without losing the regularity and evenness of cleaning and avoiding the need for operators to make constant corrections, which can result in definitive loss of the substrate being treated.

The heart of the patented HELIX® system exploits a combination of the Venturi effect, generated by a special configuration of the outlet cone, with a device that induces a helical rotary movement, in order to considerably reduce the air volume required to operate the machine. This has made it possible to enhance the capacity of IBIX® equipment, which has always been known for its compact dimensions, lightness, low compressed air and media consumption, which, in addition to economic savings, leads to ease of operation on the worksite and extremely easy transport and handling. The use of special wear resistant steels and the absence of mechanical moving parts means that the new HELIX® nozzle stands out for its durability even when the use of very hard minerals like almandine garnet, corundum, etc. is necessary.

8.6 General points

A cleaning system using dry and wet micro-air-abrasion IBIX® equipment with controlled low pressure projection of specific calcium carbonate based aggregates for cleaning artistic artefacts, of extremely fine grain size (from 120 to 350 Mesh) and hardness less than 3 Mohs, or spherical almandine garnet (hardness 7.5 Mohs,) or vegetal blasting materials, or with sodium bicarbonate for non porous, scratchable, and glossy surfaces; hardness to be selected on the basis of the type of substrate and form of degradation being treated.

Operating pressure using compressed cooled and dehumidified air adjustable starting from 0.2 bar. Micrometric adjustment of the compressed air/aggregate/vaporized water mixture. Light, ergonomic application gun with interchangeable hard metal nozzles and internal aperture of diameters from 1 to 4.5 mm cylindrical or conical, or with helical vortex technology for a HELIX® tangential-rotating abrasive action, particularly recommended for use on decorative elements, friezes, mouldings, and recesses. Distance from the artefact variable on the basis of the surface condition and the operating pressure.

Opening and closing the valve [A] you can decide whether or not to use water in our system.



8.7 GENERAL INFORMATION

The IBIX ECO BLASTERS can be fitted with a device enabling to use spray water to abate any dust produced during work, especially when highly volatile blasting materials are used to carry out extremely delicate cleaning of porous and/or severely damaged stone materials, also in historical buildings.

The device consists of a tap/mixer kit integral with the main air control valve and directly operated by the spray gun trigger, and of a mixer-sprayer nozzle fitted to the gun end part to form an integral part of the nozzle.

The device uses water straight out of the water mains; after installation, it is directly controlled by the spray gun trigger like in standard machines.



IF THE KIT IS NOT ORIGINALLY INSTALLED ON THE MACHINE BUT IS RETROFITTED AT A LATER STAGE, INSTALLATION MUST BE CARRIED OUT BY QUALIFIED PERSONNEL AT AN AUTHORISED AFTER-SALES CENTRE!

8.8 INSTALLATION

 Install the female part of the 3/4" quick lock (A) to connect the pipe used to feed water to the machine (not included in the standard supply) to the water mains.



 Cause the two couplings to engage by applying a light pressure until a click noise is heard indicating that the two couplings have engaged.

Install the mixer nozzle on the gun nozzle holder ring as shown here below, then tighten the two locking screws (**B**) with a screw driver and connect the black water delivery Rilsan pipe (**C**) to its special pipe holder (**D**) by applying pressure with your fingers (**E**).



8.9 OPERATION

- Adjust the machine before operation according to the material to treat and the type of blasting material used (as explained in previous manual chapters).
- Turn on the tap (C) to start water delivery.
- Begin operation.



- To turn off the device and continue to work without water, simply turn off the tap.



DO NOT WASTE WATER! WHEN THE WATER SPRAY IS NOT USED OR DURING DOWN TIME, ALWAYS TURN OFF YOUR ECO BLASTER AND MAINS WATER TAPS!



TO DRAW WATER OFF THE MAINS, COMPLY WITH ANY REGULATIONS APPLICABLE IN THE VARIOUS COUNTRIES IN WHICH THE MACHINE IS USED. HOURLY CONSUMPTION CHANGES ACCORDING TO THE TYPE OF WORK.



CLEAN THE NOZZLE UNIT FREQUENTLY!

8.10 FAULTS, CAUSES AND REMEDIES

| FAULTS | CAUSES | REMEDIES |
|--------------------------------------|---|---|
| No water from nozzle | No connection to water mains | Connect to mains |
| | Tap turned off | Turn on tap |
| | Blocked nozzle | Clean nozzle |
| | Damaged nozzle | Replace nozzle |
| | Damaged tap | Replace tap |
| | Low pressure | Ensure that Rilsan pipes are well connected to Y coupling and to the T coupling of the water delivery system |
| | Nozzle water feeding pipe not well connected | Check that Rilsan pipes all the way into coupling |
| Inefficient water spray | Damaged internal OR | Replace OR |
| | Adjustment screw provided on bottom plate blocked | Remove and clean blast mat. adj. screw |
| | Blast. mat. adj. screw turned off | Screw out adjust. screw until obtaining required blasting material quantity |
| Water coming out b/w nozzle parts | Damaged internal OR | Replace OR |



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9 WARNINGS AND PRECAUTIONS ABOUT THE ABRASIVE HOSE

| 9. ' | WARNINGS | AND | PRECAUTIONS | ABOUT THE | ABRASIVE HOSE |
|------|----------|-----|-------------|-----------|----------------------|
|------|----------|-----|-------------|-----------|----------------------|

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| | |

9.1 FORWARD

Rubber hoses are designed taking into account their intended use.

The life of a hose is dependant on many factors which can affect its normal life. An improper use of the hose may affect or even jeopardize the product safety and or cause damage to other people.

Therefore, the user is required to carry out preventive maintenance measures, also for his/her own interest, in particular when high operating pressures and the use of aggressive media are involved. In any case, when signs are detected which may indicate a reduced function of the hose, replace the hose or at least check it appropriately.

These recommendations are a minimum level of action by the user and are to be considered as a suggestion by IBIX.

9.2 Radius of curvature

Hose installations with hose radius smaller than the minimum radius of curvature greatly reduce the hose life. Furthermore, it is necessary to prevent hose bends immediately after the hose fittings.

9.3 Torsion

Save as otherwise indicated, abrasive hoses are not designed to work when in torsion.

9.4 Traction

Tractive efforts must fall within the limits specified by the hose manufacturer. If you have any doubts on the suitability of the abrasive hose when used in traction, contact the manufacturer beforehand.

9.5 Bending

Some users are accustomed to interrupt the flow of media by bending the abrasive hose. This habit is not recommended by hose manufacturers, because the hose reinforcement is submitted to specific stress which may cause premature bursting.

9.6 Abrasive media

To achieve optimal operating life, abrasive hoses should be kept as straight as possible, except for the strictly necessary bending areas. In case of such necessary bends, the radius of curvature should be as wide as possible. Too narrow radius of curvature or sinuous areas will certainly result into quick and localized wear and tear of the inner body of the hose.

9.7 Instructions about the position of the abrasive hose

The figures below show how the abrasive hose should be positioned, in order to prevent anomalous wear and tear during the blasting operations.

Figures (1)-(3) and (2)-(4) show what to do and what not to do.

Figure (1) shows that the hose bend should be as gentle as possible.

Obviously, keeping the hose straight is always the best and ideal working condition.

Figure (2) shows what should never be done in order to prevent anomalous wear of the abrasive hose.





Figure (3) shows the correct position of the abrasive hose.

The abrasive hose should be always kept straight and the ideal condition is to keep it on the operator's shoulder.

Figure (4) shows improper handling of the hose by the operator, because if the abrasive hose is kept in this way, the hose will have too many narrow and abrupt bends thus increasing its abrasion and wear. IBIX recommends the operator to keep to figures (1) and (3) in order to extend the average life of the abrasive hose.





9.8 Replacement of the abrasive hose

Check the abrasive hose at regular intervals for any signs of wear and tear. Should the abrasive hose become soft, this means that it has likely worn out – disconnect the abrasive hose from its fitting, cut it and inspect the cross section. If the noble rubber section has worn out, replace the abrasive hose without delay.







Operations to carry out when replacing the abrasive hose from the gun (1) of the IBIX Eco-blaster:

a) Unscrew the ring nut (7A) take out the nozzle (7B).

b) Unscrew the nozzle-holder (7) from the abrasive hose (8).

c) Unscrew the screw (5) of the gun safety button.

d) Unscrew the two screws (2) and pull them out completely.

e) Insert a screwdriver into the housing of the small tube (2A) to take it out, and to do so gently hit the screwdriver using a rubber hammer

f) After removing the parts (2) and (2A) as shown in the figure, extract the hose cover (6) as shown in the figure.

g) You can now extract hose (8) from the hose cover (6) pulling it out gently.

The procedure to follow for H2O guns (3) and HELIX (3A) is the same as with DRY guns.

CAUTION: the H2O nozzle should not be dismounted completely, just unscrew the ring nut (7C) from the abrasive hose (8).

CAUTION: for the Helix nozzle, unscrew only HOSEPIPE FITTING (7F)

Before unscrewing part (7C) and part (7F), ensure to extract the H2O (water) hose (7D) after pushing the ring nut (7E) with your fingers.







The figures above (1-2-3) show the three abrasive valve fixing and connecting options.

With reference to options shown in figure 2 (steel fitting) and in figure 3 (tungsten fitting), release the hose jubilee clip (8) and pull out the hose.

With reference to option shown in figure 1 (quick connect fitting) unscrew the screws (9) pull them out completely from the detail (9A).

Turn the abrasive hose (8) anticlockwise to extract it.

To install the new abrasive hose, repeat the disassembly operations conversely until the new hose has been installed.

9.9 Conformity declaration n.493 ABR ORINOCO HP 14x25

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|--|---|--|--|
| Conf | armity Doclarat | ion (in acc. To 19) | 0/IEC 17050 1) |
| Conn | Jinney Declarat | | |
| N°: 493/2015 | IBIX S.R.L. | | |
| Issued by : | IVG COLBAG | CHINI spa | |
| Address : | via Fossona, 1 | 32 – 35030 Cervare | se S. Croce (PADOVA) |
| | | | |
| Declaration object: : | Hose type: AB | R ORINOCO HP ø 14x | 25 mm. Yours re.: 340308060-1 |
| As delivered with our Ir | voice n.16166 dated | 01/12/2015, the above | Hoses are in accordance to the |
| requirements as per the | e following documents | : | |
| Documents | Title | | Edition/Issue date |
| Order n.0000328 | IBIX S.R.L. | | 19.05.15 |
| C.O. n.8379 | IVG Confirmatio |)n | 20.05.15 |
| | | | |
| Additional information: Application: particularly a quarz sand, cast steel sho risks of static electricity. Standards: abrasion loss | brasion resistant softwall I t, corundum, glass. It is m of the tube according to IS | hose, used for the delive anufactured with antistat SO 4649: 40+/-5mm ³ . Ex | ry of higly abrasive media such as ic rubber compound that prevents the ceeds the ISO 3861:2008. |
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