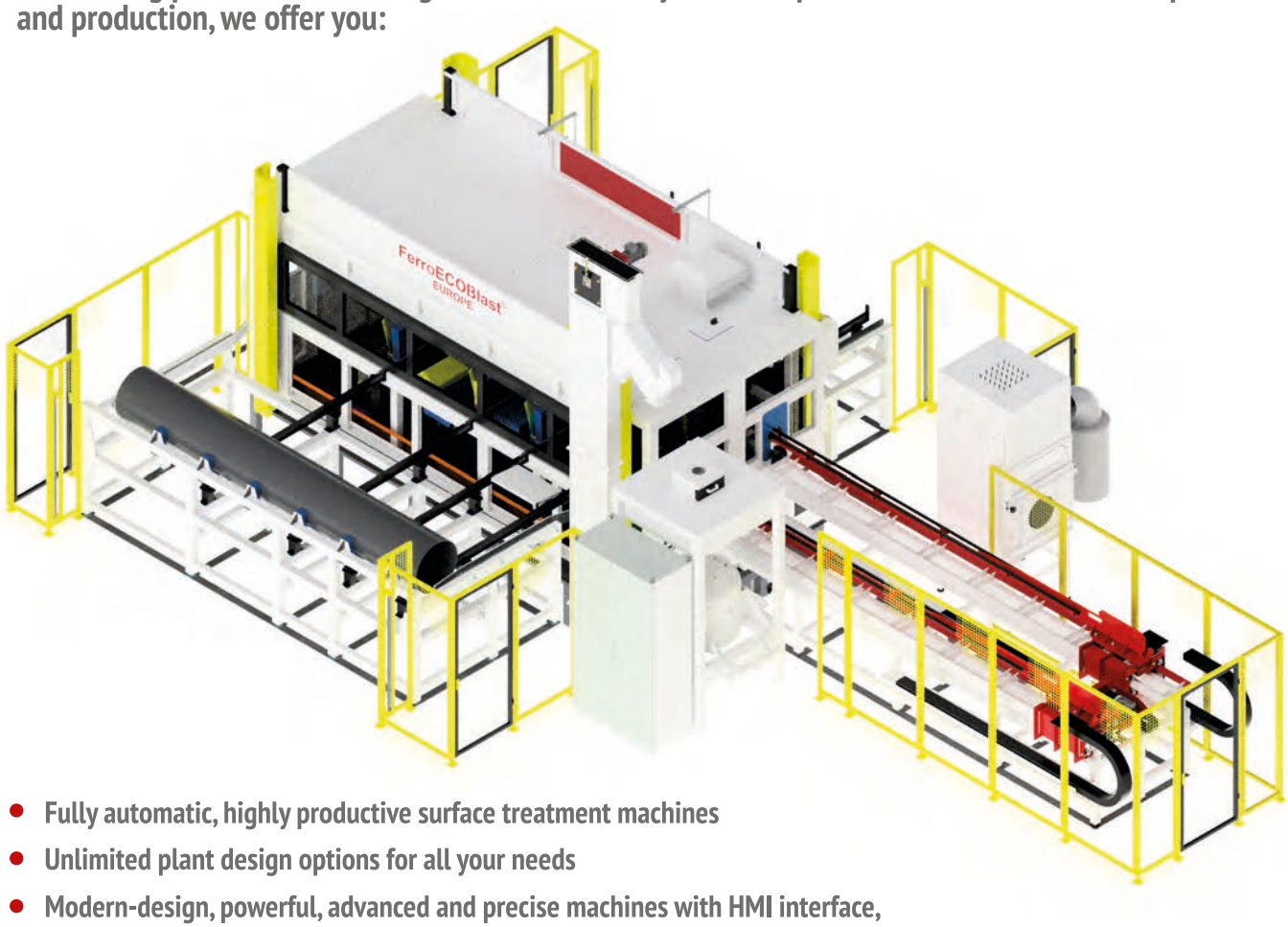
FerroECOBlast®
EUROPE
since 1964

INNOVATIVE AND CUSTOM - MADE

INTERNAL BLASTING SOLUTIONS FOR PIPES

IN CHEMICAL, OIL & GAS INDUSTRIES

Having a pipe with an excellent, well-prepared inner surface before coating is crucial for painting and coating processes. Producing on more than 55 years of experience with our own development and production, we offer you:



- Fully automatic, highly productive surface treatment machines
- Unlimited plant design options for all your needs
- Modern-design, powerful, advanced and precise machines with HMI interface, complemented by simple user-friendly software
- Solutions for delicate threaded pipes for heavy-duty industrial pipes and pipelines

ADVANCED SURFACE TREATMENT TECHNOLOGY ferroecoblast.com

AIR BLASTING | SHOT PEENING | WET BLASTING | PAINT STRIPPING | 3D PRINT POST-PROCESSING | DRY ICE & SNOW CLEANING
SODA BLASTING | ULTRA HIGH PRESSURE WATER JETTING | MEDICAL INDUSTRY SOLUTIONS | ENAMELING & COATING SOLUTIONS

FerroČrtalič is a leading company in development solutions and production machinery for surface treatment technologies.

Our philosophy is tracking the novelties and constant development through innovations and research, which enables us to put ourselves on the top of the suppliers of technological solutions in air blasting, shot peening and industrial surface cleaning technologies.
We are present on all important exhibitions in the world and we attend and held lectures about surface treatment technologies and solutions, to be as close as possible with our clients.

Reshaping the surface treatment industry with constant R&D

We are a solution provider

Dedicated to a superior Customer experience

- Over 55 years of know-how, tradition of innovation and excellence
- More than 1.000 successfully installed custom-made solutions worldwide
- Highly motivated, educated and experienced team
- On-site laboratory and modern research center
- Excellent after-sales activities
- Satisfied customers in the most demanding global companies

ISO 9001 BUREAU VERITAS Certification
CERTIFIED SINCE 1996

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ECOLOGICAL SURFACE TREATMENT 100% ECO FRIENDLY PRODUCT FerroECOBlast

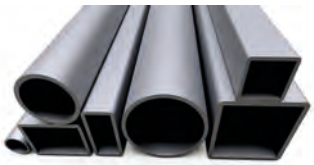
WHAT IS THE DIFFERENCE BETWEEN PIPES & TUBES

People often use the terms "TUBE" and "PIPE" interchangeably, thinking they essentially mean the same thing. Of course, this is not the case; there is, in fact, a significant difference between those two terms:

PIPES

PIPE is the name for a round pipe intended for the flow of liquids and gases, designated by the nominal diameter of the inside of the pipe (ID = DN or NPS), which roughly and quickly determines the size and estimated flow rate.

TUBES



The term "TUBE" means any shape of pipe, which may be round, oval, square or any other closed shape and can be used for various purposes, from structural support to conveyors of liquids, pellets, bulk materials, cement, steel shot, etc.

INSIDE SURFACE PREPARATION WHY & HOW?

Sand/shotblasting the inside of pipes is one of the key techniques for ensuring better surface protection in the production of pipelines for the oil, gas, and other industries. To secure high quality of the final pipe coating, the processes of pre-heating, blasting, dust removal, and occasionally acid washing or high-pressure washing with simultaneous phosphatizing are used for getting pipes ready for the application of coating.

Today, several sandblasting processes are being used, depending on the quantity, pipe size, and the possibility of processing outdoors or in an industrial plant.

External or OUTSIDE blasting of pipes is carried out exclusively using turbine blasting, except for elbows, connections and some special applications that require brushing or air blasting.

Sandblasting as a means of INTERNAL surface treatment is carried out with pressure air blasting systems, which not only removes dirt deposits, corrosion, limescale or welding slag but also reduces internal surface stresses and creates perfect roughness, which is crucial for excellent adhesion of any kind of protective coating.

An optimal coating begins with great surface preparation

IN GENERAL, THERE ARE TWO DISTINCT TYPES OF SYSTEMS FOR INTERNAL BLASTING OF PIPES:

MANUALLY OPERATED UNITS

HOLLO-BLAST and SPIN-BLAST internal blasting pipes

Mostly used, standardized, easy-to-use solution for the inside blasting of pipes, primarily out in the field. With the pipe firmly on the ground or on supports, the nozzle is manually operated along the inside of the pipe.

For smaller pipe diameters, the blasting of internal surfaces is carried out using a specially designed "mushroom" nozzle type (360°), named Hollow-Blast or Circle-Blast nozzle.

For larger diameters, two rotating nozzles, driven pneumatically or electrically, rotate and blast the inside of the tube in a spiral pattern. These nozzles, named "Spin-Blast", are mostly used for medium to large pipe diameters.
Since these types of nozzles are mostly used for blasting out in the field, they connect to a standard Pressure Blast machine. Ordinary sand is typically used for blasting, which creates a lot of dust at the far end of the pipe, where only some simple, inadequate extraction/filtration unit is often installed, if at all.

Today, for environmental reasons, contractors increasingly use steel grit, which is collected and recycled in the recycling towers above the blast pot. Steel grit can be reused up to 1000 times.

The most common, so-called "Spin or Spinner blast" and the "Hollow blast or Circle blast", nozzle units are generally operated manually and connected to a standard pressure blast machine.

The worker pushes the nozzle on the centering guide to the end of the pipe and begins to blast, simultaneously, slowly and evenly pulling the nozzle out towards himself. These systems can use centering pins or centering trolleys, typically fitted with three adjustable wheels, to keep the unit centered against the pipe's inner wall as the abrasive, applied centrally through the "Spin or Hollow"-type nozzles, is blasting the whole inside wall of the pipe.

Our machines are designed for any type of pipes corresponding to ASME B36.10M-2018.

SEMI-AUTOMATIC UNITS

Motorized Push & Pull system – built-in.

Very useful motorized "Push & Pull" systems are often used to ensure steady movement of the nozzle during blasting. They pull the blasting nozzle steadily out of the pipe so as to ensure an excellent blasted surface inside of the pipe.

We offer two options:
Portable Push & Pull System
for manual blasting out in the field.

Built-in Push & Pull System
as part of automatic single or double Inside Pipe blasting machines.

THE TABLE SHOWS THE TYPES OF NOZZLES SUITABLE FOR INDIVIDUAL PIPE DIAMETERS TO BE BLASTED:

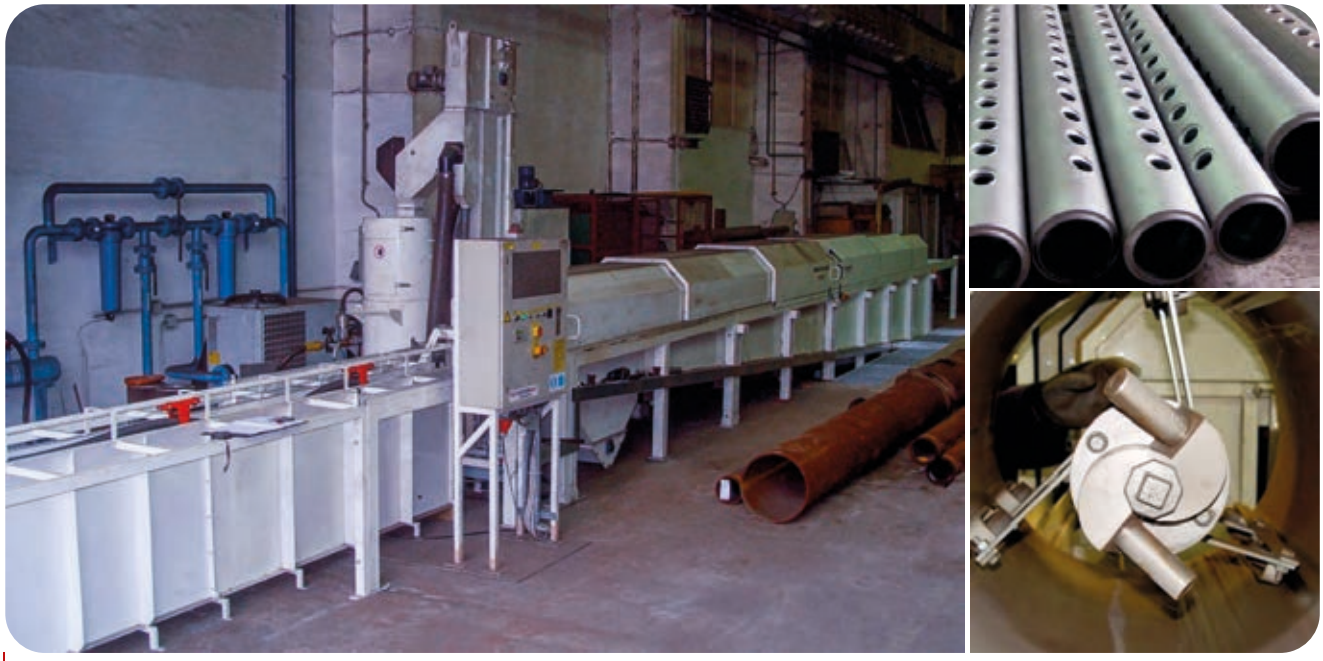
Type	Pipe ID (")	Pipe ID (mm)
Hollo-Blast Jr.	¾–2	19–60
Hollo-Blast	2–12	50–300
Spin-Blast SB-1	8–36	190–900
Spin-Blast SB-2	36–60	900–1500

HIGH-PRODUCTIVITY SYSTEMS

Automatic, HIGH-PRODUCTIVITY machines are essential for the industrial production of gas pipes and oil pipelines in terms of surface preparation prior to applying internal coating. A heavy pipe is laid down on the rollers in the PIPE-BLASTING Machine and rotates during sandblasting, while the holder – with two or more side nozzles – travels evenly along the inside of the pipe, blasting its inner surface. Low maintenance and wear – the most economical solution.

Thanks to their design, these machines allow for fast, reliable and high-quality preparation of pipes with minimal operating costs and almost no maintenance. These machines are often designed to handle two or more pipes at the same time on the same machine.

PIPEBLAST 60-340-6000 ECO AND 120-640-12000 ECO



Our standard heavy-duty internal single-pipe blasting machine, covering pipe diameters ranging from 60 to 640 mm and lengths of up to 12 m.

A pipe is loaded onto a V-shaped bed using a crane, and after positioning, the blasting head is placed inside the pipe to complete the process automatically.

After the operator closes the sliding cover, the blasting head quickly travels to the end of the pipe and starts blasting automatically. The built-in Push & Pull system pulls the nozzles at controlled speed into the base position. After the blasting, a quick blow-off cycle with the same nozzle head is carried out to clean out all the remaining abrasive. The machine is equipped with an abrasive collection and transfer system, which takes the used abrasive to the recycling tower, cleans it, and automatically fills the pressure vessel – this way, during pipe exchange, the blasting machine gets ready for a new pipe blasting cycle.

Complete control, operation and safety of the machine are controlled by the main CPU unit; the operator only enters the basic details of the pipe being processed, supervises the operation, and keeps an eye on the quality and quantities.

FULLY CONTROLLED AUTOMATED HEAVY-DUTY PIPE INBLAST MACHINE

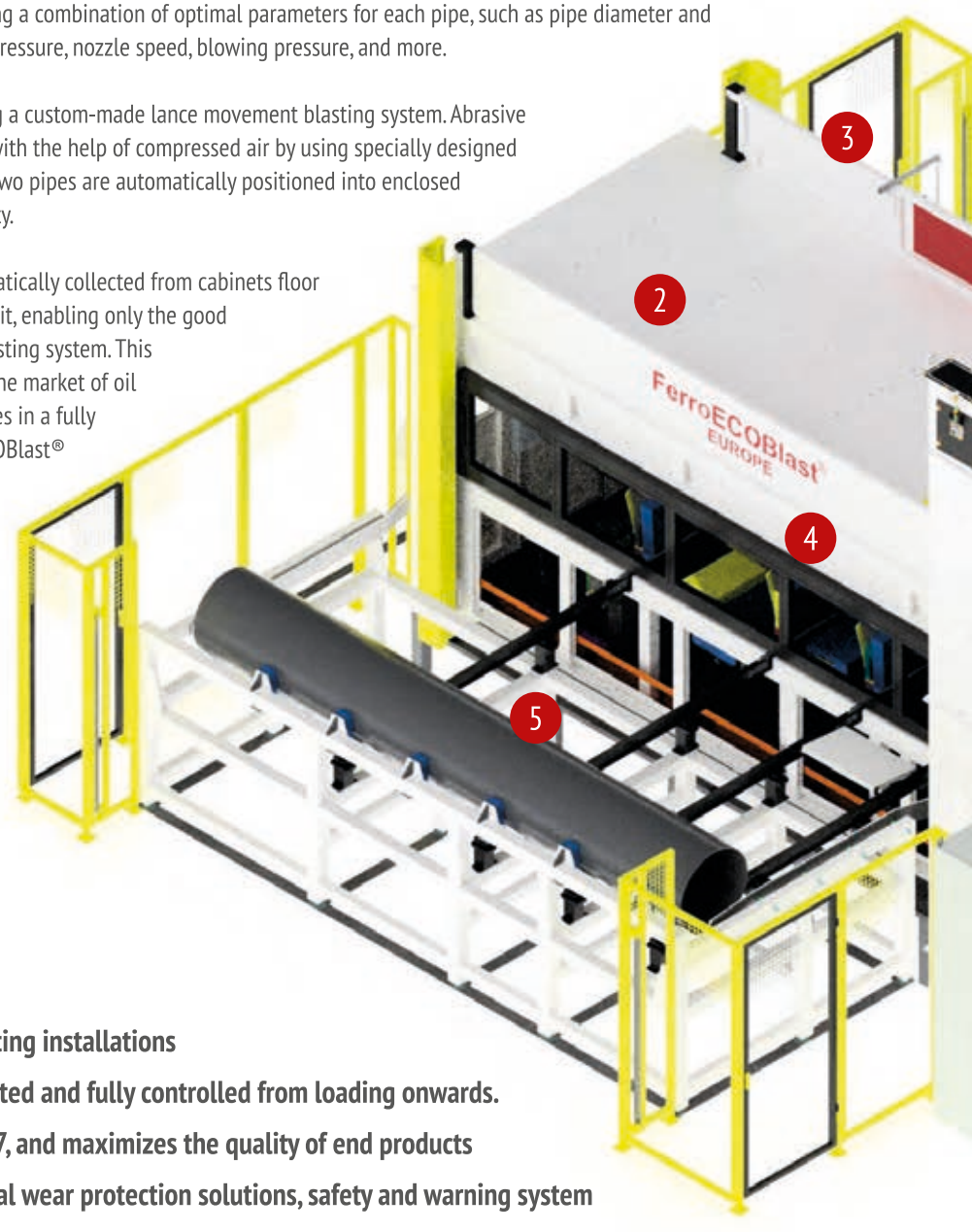
With unique built-in solutions for uniform surface roughness and cleanliness.

Standard pipe inblast installations by FerroECOBlast® Europe are suitable for processing pipes with diameters ranging from 100 mm up to 700 mm and lengths ranging from 4.0 m or less and up to 12 m or more. Other dimensions and custom-built machines are also available on request.

This unique solution delivers a fully automated and controlled blasting process, where constant quality, process repeatability and high productivity are ensured by setting a combination of optimal parameters for each pipe, such as pipe diameter and length, pipe rotation speed, sandblasting pressure, nozzle speed, blowing pressure, and more.

The inside surface of pipes is blasted using a custom-made lance movement blasting system. Abrasive stream covers the inside surface of pipes with the help of compressed air by using specially designed nozzle types. During this process, a set of two pipes are automatically positioned into enclosed chambers, ensuring the highest productivity.

Blasting media in continuously and automatically collected from cabinets floor and recycled through the air separation unit, enabling only the good media to be filled back to the pressure blasting system. This product line presents unique solution on the market of oil and gas industry, with all combined features in a fully automated and high productivity FerroECOBlast® Europe inside-blasting machines.



- **In-line integration into new and existing installations**
- **Automatization – completely automated and fully controlled from loading onwards.**
- **100% repeatability, system runs 24/7, and maximizes the quality of end products**
- **Rigid blasting machine with additional wear protection solutions, safety and warning system**
- **High productivity – achieving the shortest cycle time and increasing operational capacities**
- **Flexibility and user-friendly operation**
- **Cost reduction – minimal manual input means substantial cost savings for the customer. Constant reuse of abrasive materials**
- **Environmentally friendly – replacing unhealthy chemical process, meets HSE standards**
- **Easy maintenance – machine is self-diagnosing (troubleshoot pop-ups) and designed for fast service operation**
- **Remote control access to our 24/7 service support**

1 | Automated loading ramp

2 | Blasting chamber with unique abrasive outlet protection

3 | Pipe length and diameter control measuring device

4 | Pipe lifting, positioning and rotating built-in mechanism with wear protection

5 | Unloading ramp with soft-end

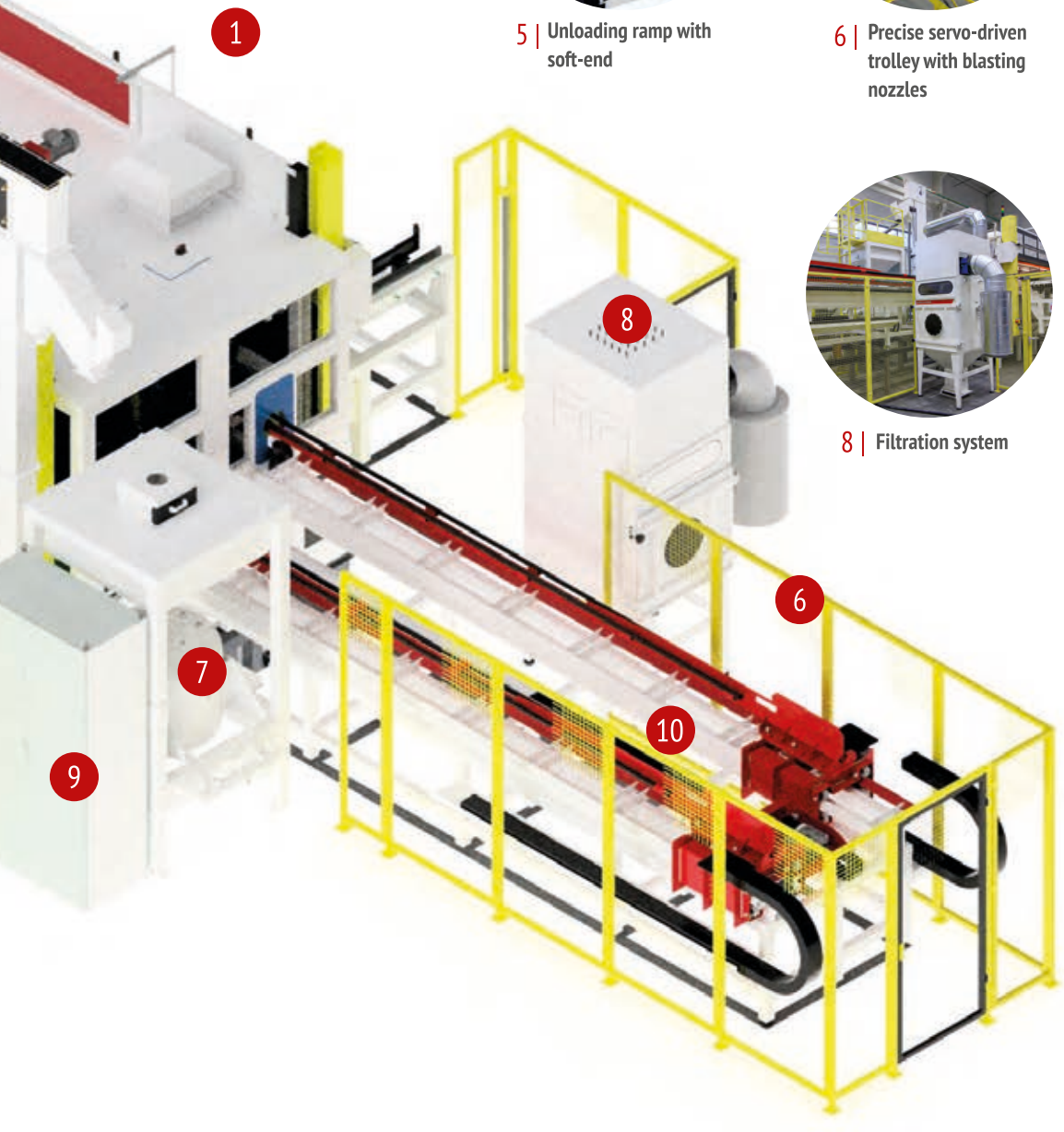
6 | Precise servo-driven trolley with blasting nozzles

7 | Complete blasting medium recovery and self-filling pressure blasting system

8 | Filtration system

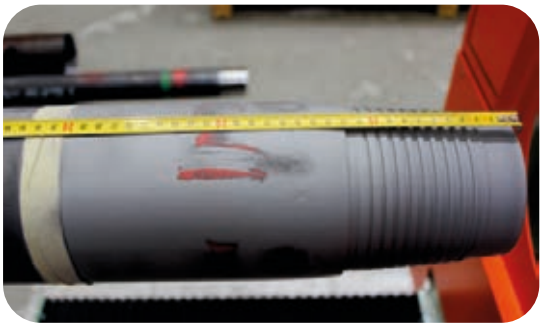
9 | Electric control box with a large touch screen panel and customized software based on Industry 4.0 technology

10 | Customized curved nozzles



BLASTING OF TUBING THREADS – INSIDE & OUTSIDE

When laying hundreds of kilometres of pipelines for the distribution of various media such as gas, petroleum products, water or chemicals, pipes are either welded together, fitted with flanges for connecting valves, or finished with threads and couplings. These may be threads on pipes used in drilling for water or oil, or threads for joining pipes in gas or oil pipelines.



A sandblasting-like process can significantly improve the properties of threads and allow threads to run smoothly and without jamming, in addition to greatly extending the lifetime of joints and eliminating pipe breakage at the thread. This is achieved by using controlled threading processes with special low-abrasive agents, and our machines are well suited to this operation – as single machines or even in a tandem setup, with one machine at either end of the pipe. Machines are fixed at a distance equal to the pipe's length and automatically slide, along their own rails, onto pipe ends simultaneously, without any intervention from the operator. One pipe can be blasted in just 10 to 25 seconds!

Depending on the type of pipe, external and internal threads can be blasted on the same machine. Each machine is equipped with a pipe guide, which automatically stops in the event of an incorrect pipe dimension and warns the operator of the fault.

Integral parts of this type of machines are multi-nozzle blasting system, located close to the working cabinet, filter-recovery unit for specific low-abrasive media, and electric control box with a CPU and a touch screen panel. Two blasting cabinets simultaneously travel on the rails and finishing both pipe-ends in fully automatic cycle.

Fixed position

SPECIAL AP

BLASTING OF SURFACES INSIDE COUPLINGS

Alongside the surface treatment of pipe-end threads, it is also necessary to think about special connecting elements. Those precision-cut internal threads have a conical sealing on conical abutment joints so as to ensure good-quality, reliable and sealed pipeline joints. FerroECOBLast has developed a unique, high-performance machine for automatic sandblasting of couplings of all sizes. The Coupling BLAST 65/210 ECO machine is designed specifically for automatic blasting of couplings from the inside and provides automatic loading and unloading of workpieces.

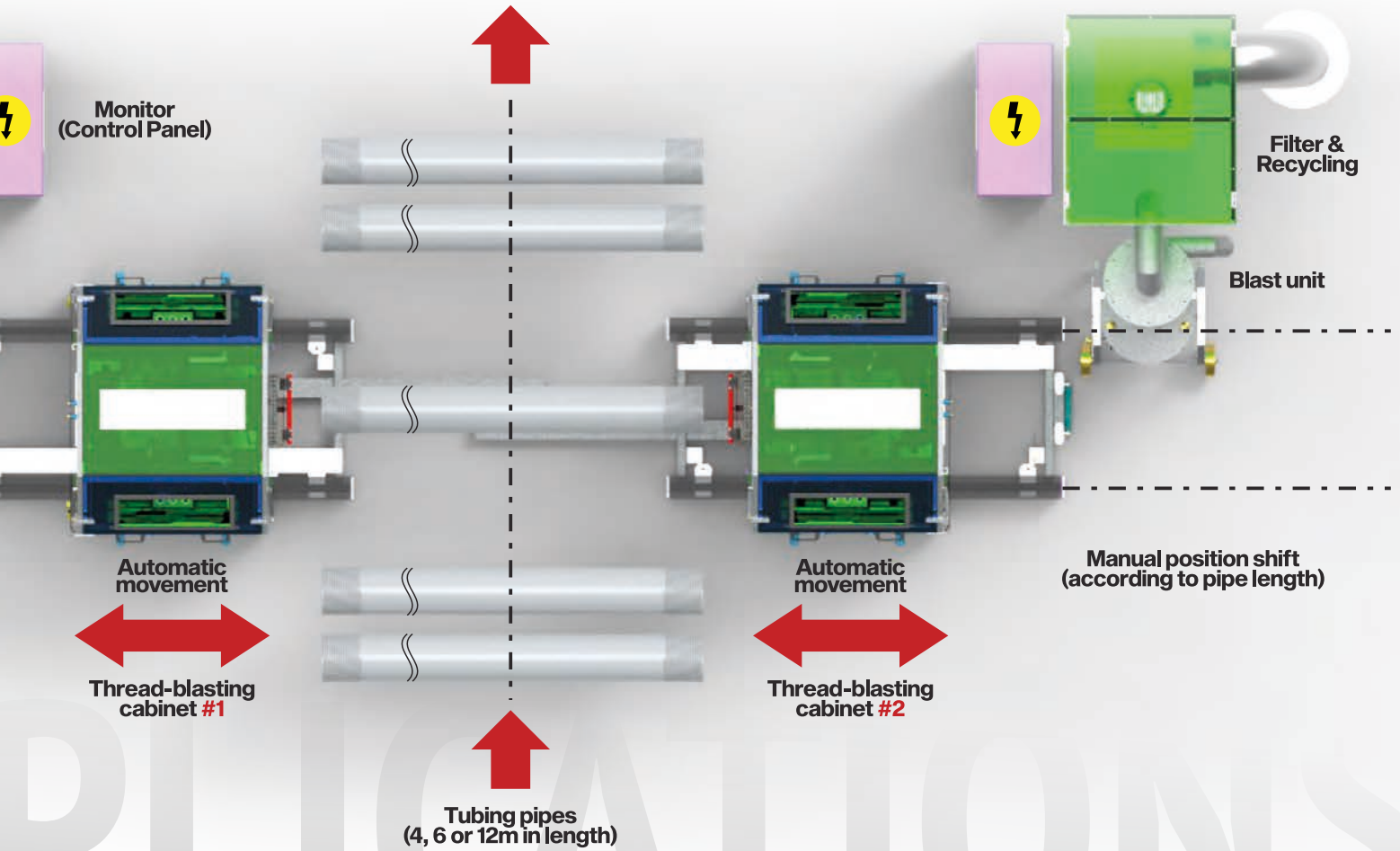
The couplings are loaded into a buffer at the inlet side and rolled to the workstation one by one, where they are individually positioned between two evenly rotating rubber rollers. Two blasting guns, attached to a motorized holder, travel inward through the entire coupling and sandblast it – each from its own side, at a 45° angle.

Complete inner surfaces are processed fast, at a high level of repeatability and under full control. After each cycle is completed, workpieces are automatically gently rolled into another container. The machine is fully automatic to allow the sandblasting and cleaning to run without interruptions, while at the same time the abrasive is automatically cleaned up and loaded back directly into the system. The machine's main operating parameters are controlled by a PLC unit equipped with an HMI screen panel and LAN connectivity for remote access diagnostics.

For special coupling designs, our product range also includes various types of horizontal and vertical satellite automatic blasting machines.

HIGH - PRODUCTIVITY LINE

FOR INTERNAL AND EXTERNAL BLASTING OF TUBING THREADS



PRECISE BLASTING OF SPECIAL PIPES AND ROLLERS

As part of machines and solutions for external and internal sandblasting of pipes, we have developed an automatic machine for the automatic sandblasting of the exterior surfaces of machined special-purpose pipes which require precise roughness within tight tolerance limits and a matte or anti-reflective surface finish.

This machine type is characterized by its high capacity and precise, remarkably uniform sandblasting of the surface to the prescribed roughness. Loading is done manually or automatically by a special loading system with soft-plastic liners and stoppers, which requires no intervention from the operator.

Two systems are mostly used:

Pipes rotate between conical holders, and two or more nozzles with a soft and controlled abrasive stream travel parallel to the pipe at a precise distance. Those pipes/rollers are mostly used in printing and copy machines, as well as some other applications for aesthetic or technological reasons. There are also many applications in the defence industry, where pipes are typically treated from the inside using a special round abrasive for better sliding properties, or from the outside using a fine sharp-edged abrasive in order to prevent light reflecting from them.

Blow off section | Fine, precise blasting section.

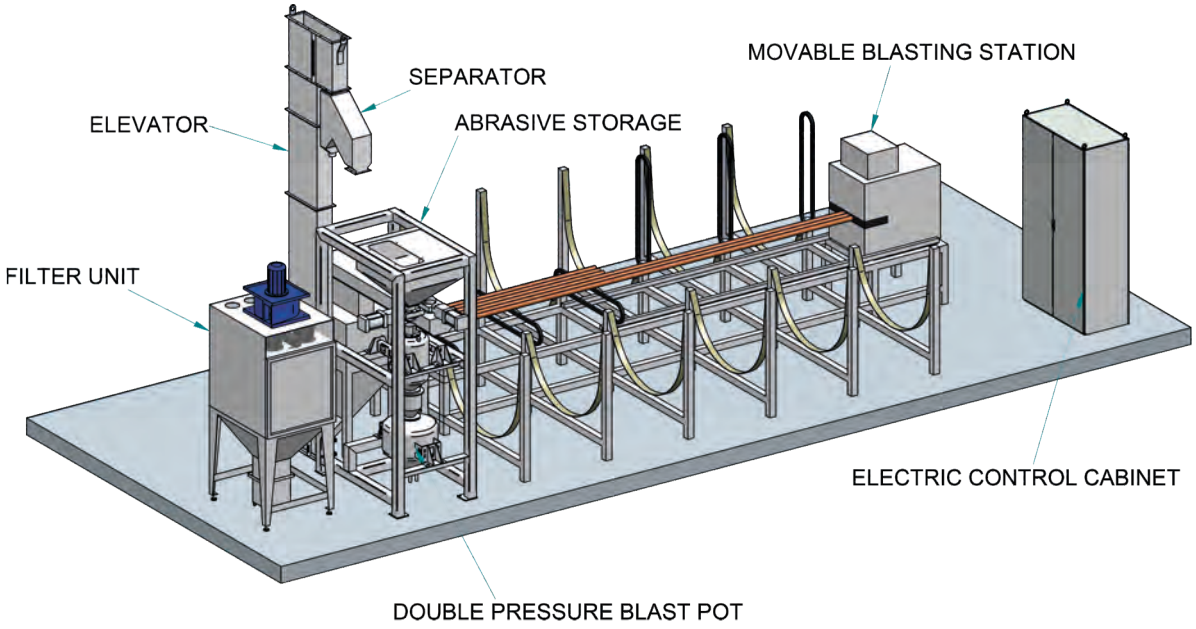
Selective loading ramp with Diabolo roller conveyor

SPECIAL AP

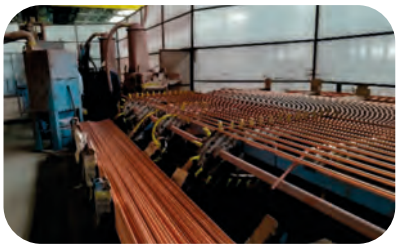
INSIDE CLEANING / DECARBONIZING OF COPPER PIPES

Modern industry today uses special designs and dimensions of pipes, made of a wide variety of materials such as copper, aluminium alloys, titanium, and more. The purpose of these pipes is specific, and the cleanliness of the pipes' interior is absolutely essential. Mechanical cleaning successfully replaces chemical cleaning processes – primarily to help reduce the ecological impact on the environment.

In most cases, the interior needs to be cleaned of oxide residues caused by elevated temperatures, as well as carbonization caused by drawn-in cold or by pulling a pipe through metal tools within the right tolerance limits and with an extensive use of different formulas of lubricants. Copper pipes are known to be widely used in medicine, for conveying gases and liquids, and must be cleaned of the carbon that forms on the pipes' inner surfaces. Contaminated layers commonly appear on titanium pipes, and it is sometimes necessary to remove oxides and contaminants from the inside of aluminium pipes before applying internal protective coating...



FerroECOBlast® Europe has been tackling these problems for several decades and helps its customers solve such problems with its series of special machines that feature unique solutions in terms of abrasive jet cleaning technology itself, as well as a proper level of process automation and manipulation. We provide solutions that meet all the above requirements, and our experts offer optimal plant for the automation of pipe loading and sorting by internal surface treatment, all according to the level of required cleanliness, planned quantities, and efficiency of the entire process and available resources. In response to the ongoing development in the gas, chemical and liquid industries, we are also looking for new approaches and can provide each customer with the most advanced and cost-effective solution.



PLICATIONS

INTERNAL PIPE BLASTING SOLUTIONS

ARE APPLICABLE FOR :

- SANDBLASTING, CLEANING, AND HARDENING OF THREADS AT THE END OF PIPES AND COUPLINGS
- PRECISION SURFACE TREATMENT OF ALUMINIUM PIPES (UNIFORMING, SILKING)
- CLEANING AND DECARBONIZATION OF COPPER PIPES
- SOLUTIONS FOR PIPES IN CHEMICAL, OIL & GAS INDUSTRIES
- SOLUTIONS FOR DELICATE PIPES OR FOR HEAVY-DUTY INDUSTRIAL PIPES AND PIPELINES

MANUAL AND SEMI-AUTOMATIC ABRASIVE BLASTING OF PIPES

On-site blasting, de-rusting, cleaning and roughening before painting / coating. Using a Push & Pull device for the manual and semi-automatic surface treatment process.

FULLY AUTOMATED SANDBLASTING OF PIPES FOR CHEMICAL, OIL & GAS INDUSTRIES

Highly productive heavy-duty machines for pipes of any size and length. Fully automated and controlled Blasting/Cleaning close-loop process with integrated loading systems.

SURFACE TREATMENT OF TUBING THREADS ON PIPES AND INSIDE COUPLINGS

Fine and precise blasting of threads on pipe ends increases their longevity, makes thread screwing-on softer, and provides excellent sealing of joints. Outstanding industrial solutions with two-mirror Blasting/Peening machines positioned on pipe ends.

INSIDE SURFACE TREATMENT OF COPPER PIPES & COILS

Final cleaning and de-carbonizing of inside surfaces of straight copper pipes and coils on fully automated and controlled machines, ensuring consistent quality, process repeatability and high productivity.

DELICATE & SPECIAL TUBES

Solutions for delicate pipes and pipelines made from aluminium, titanium, or any other exotic material (Plastic, Carbon, ...), for special purposes, high-pressure applications, also available in ATEX, or explosion-proof versions.

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Today, there is no pipe or gas company without proper surface treatment of pipes, threads and couplings!

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