



todesco
SPRAYING INNOVATION

INNOVER
the finishing system never seen before



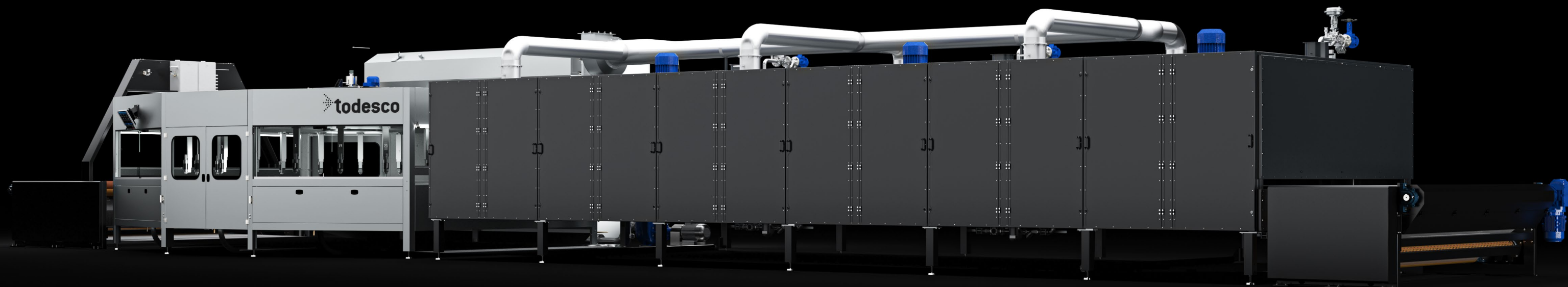
INNOVER
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What can be still invented in leather finishing? Everything

We asked ourselves the same things that those who work in leather finishing ask themselves every day: how to increase productivity, reduce maintenance times, and color consumption?

We thought about it, we designed, we tried it and we did it all over again.
And we found a way.

A system that changes the way leather is finished, the production process, and the way to save money.



The safe choice of the best tanneries

The new technologies applied on Innover make it the system with the highest efficiency existing on the market today, and with a transfer efficiency higher than 75%

Over 90% of the world's leading tanneries in the production of leather for car interiors and the best groups specialized in the production of upholstery leather, use Innover as the main machinery in the painting process.

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Spray booth

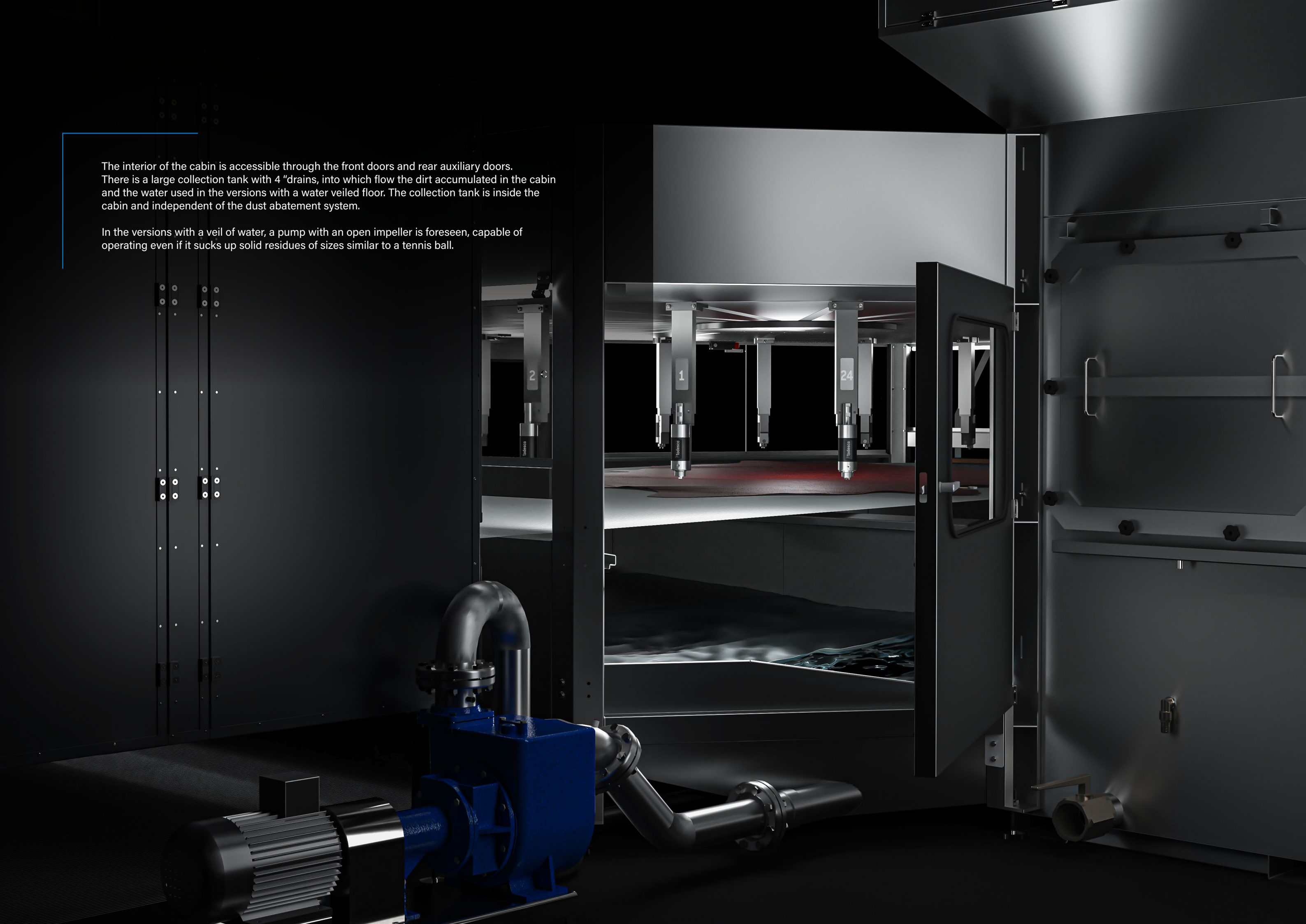
The Innover spray booths are made of AISI 304 stainless steel, they are strong and finished with care and attention to detail.

The innovative positioning of the smoke suction fan, directly connected inside the cabin, ensures a homogeneous flow of air. The main suction is placed on the median of the conveyor belt instead of below. The advantage? The dispersed particles of the color never settle on the hides and turbulence is minimized to prevent any affecting the spray flames.

Versions with external air recovery are possible, which guarantees significant savings in thermal energy. The air extracted from the dust abatement device systems is conveyed through special outlets in the cabin roof, directly from outside the building. This avoids expelling previously heated or cooled air.

The interior of the cabin is accessible through the front doors and rear auxiliary doors. There is a large collection tank with 4 "drains, into which flow the dirt accumulated in the cabin and the water used in the versions with a water veiled floor. The collection tank is inside the cabin and independent of the dust abatement system.

In the versions with a veil of water, a pump with an open impeller is foreseen, capable of operating even if it sucks up solid residues of sizes similar to a tennis ball.



Rotary carousel

Available in versions with 16 arms (for 2,200 mm conveyors) and 24 arms (for 3,400 mm and 3,800 mm conveyors), the rotary carousel is the beating heart of Innover.

Minimal color overload on the outer sides of the skin

All Todesco rotary carousels have a ratio between carousel diameter and the conveyor belt of 1.41, a measure that makes the color overload due to the tracking effect, negligible.

Patented design

Guns are not a problem, they are the solution.

We have increased the number of arms and guns according to a mathematical formula that we have studied and patented.

Multiple guns create huge benefits and flexibility in using a spray system.

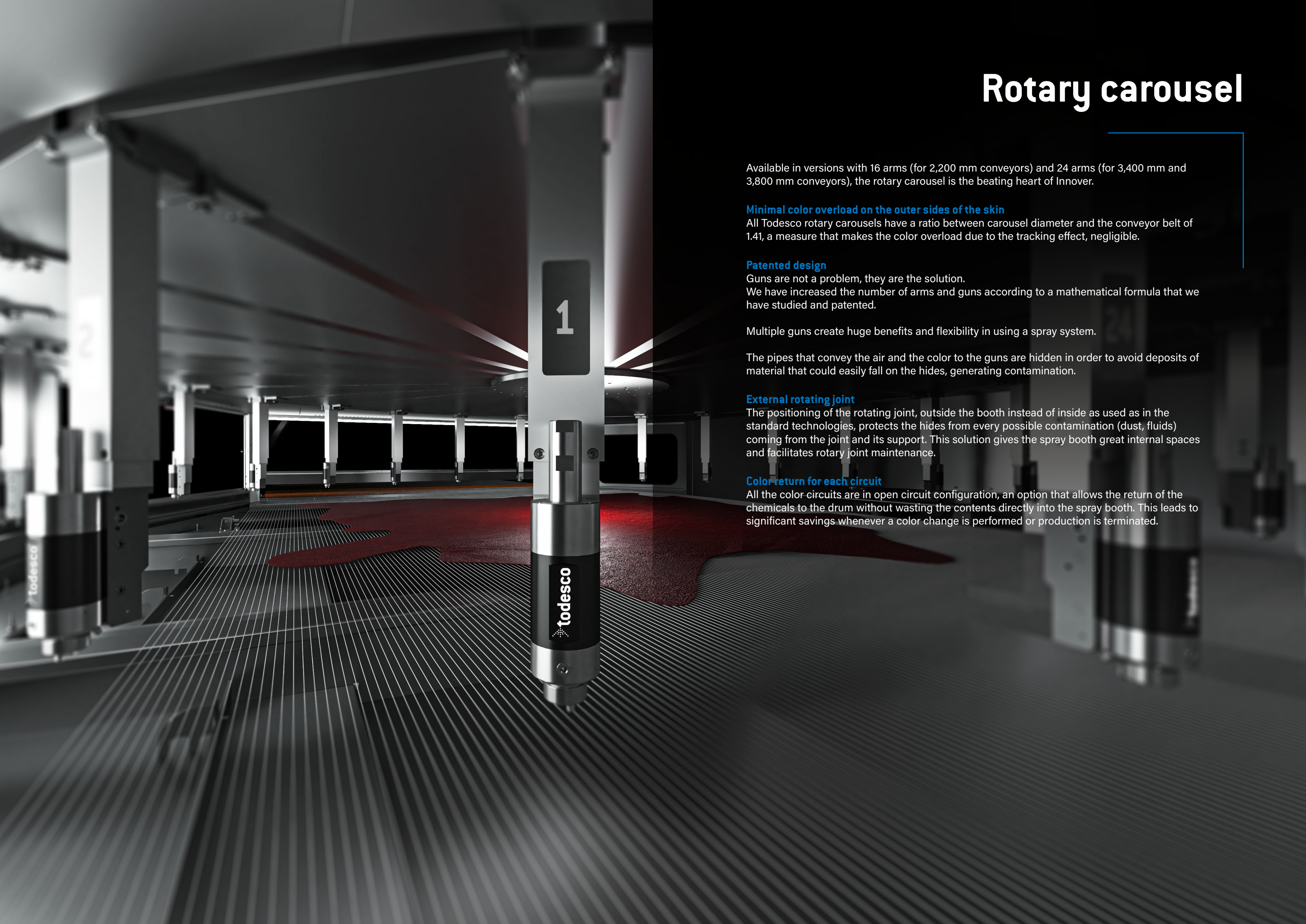
The pipes that convey the air and the color to the guns are hidden in order to avoid deposits of material that could easily fall on the hides, generating contamination.

External rotating joint

The positioning of the rotating joint, outside the booth instead of inside as used as in the standard technologies, protects the hides from every possible contamination (dust, fluids) coming from the joint and its support. This solution gives the spray booth great internal spaces and facilitates rotary joint maintenance.

Color return for each circuit

All the color circuits are in open circuit configuration, an option that allows the return of the chemicals to the drum without wasting the contents directly into the spray booth. This leads to significant savings whenever a color change is performed or production is terminated.





Pinion - fifth wheel transmission without chain

The transmission of motion between the engine and the carousel takes place through a system consisting of a pinion and a fifth wheel. This solution is extremely reliable, totally maintenance-free, and gives a precise, fluid and stable movement of the carousel. Fifth wheel and pinion do not require calibration as is the case due to the chain slack, normally used on standard machinery.



HV-03: the most advanced spray gun in the World

HV-03 is the most advanced HVLP gun on the market and it is installed only on Innover carousels and cabins.

The regulation of the quantity of product is automatic thanks to a very high precision flow regulator integrated in the gun body.

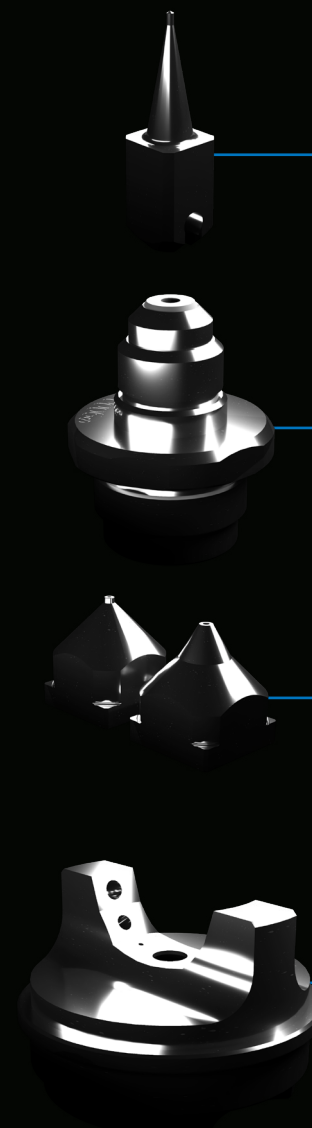
It is ideal for finishing the leather dedicated to the car interiors, aviation and upholstery. range of sprayed chemicals on leather 0.8 - 18 g / ft². Atomization pressure range 0.1 - 0.35 bar.

More guns, more speed, less downtime. Yes, you can.

We have eliminated the spring for closing the gun in the absence of the command from the solenoid valves.

The result? Incredibly fast response times, up to 15 times less than traditional guns.

With the patented "TWIST" system, the removal of the atomizing heads is very fast and allows complete and effective cleaning even during the working phases.



Needle tips

In AISI 304 stainless steel and separated from the rod, therefore easily interchangeable without having to disassemble the gun.

Nozzles

In AISI 304 stainless steel. The head is interchangeable, while the main body is single and standard. The needle tip insists on a PTFE gasket, for this the nozzle outlet orifice, never wearing out. The nozzle is very easy to clean and there is no risk of damaging it when using brushes with a metal core.

Nozzle heads

The particular design of the nozzle heads gets the maximum stabilization of the color flow of color and minimizes the backward pressures due to the atomization air. The measures (mm) are available: 0.7 / 0.8 / 1.0 / 1.2

Atomizers

In AISI 304 stainless steel, benefits of a significantly longer life than traditional brass or bronze products. Thanks to an absolute precision in construction, with dimensional tolerance in the order of μm , the balancing of the air flows is precise, and this guarantees extraordinarily homogeneous and stable flames.

VS-07

VS-07 is the patented color-change valve through which it is possible to create a multi-circuit color distribution system.

VS-07 is the indispensable element to implement the quick color change functions.

It is made of AISI 304 stainless steel with a particular system of pistons without gaskets to grant an incredible long last.

Up to three color circuits for maximum flexibility during production.

A separate independent circuit for washing all components: guns, product regulators, and pipes.

14 mm passageways to eliminate blockages and fillings.



DRS rotary joint

The DRS rotary joint is available in versions with 1, 2, or 3 color circuits (in open circuit configuration) plus an auxiliary way for the washing circuit and up to 4 air ways.

The sections of the two passages for the atomization air are 1", to ensure the ideal volume for the use of low-pressure guns.

The central shaft is in AISI 304 stainless steel, coated in white ceramic with a roughness of $Ra < 2\mu m$, while the external rings are in GHA-treated aluminum (anodizing with silver salts) which is absolutely resistant to corrosive chemical agents.

The DRS device uses special energized gaskets - Enerseal - that seal even when worn.

Economizzatori

VISION

Absolute reading accuracy

Vision is the spraying process control system, conceived and entirely developed in Todesco. The system recognizes the shape of the hides on which to spray the chemical product, through the reconstruction of over 100 frames per second taken by two HD cameras.

Vision's reading accuracy is absolute since it is not subject to the step between the photodiodes as happens in systems that use a standard reading bar.

Electronic devices are far from the conveyor belt of the spray line and therefore immune to deposits of dust, color and neglect.

Duration over time

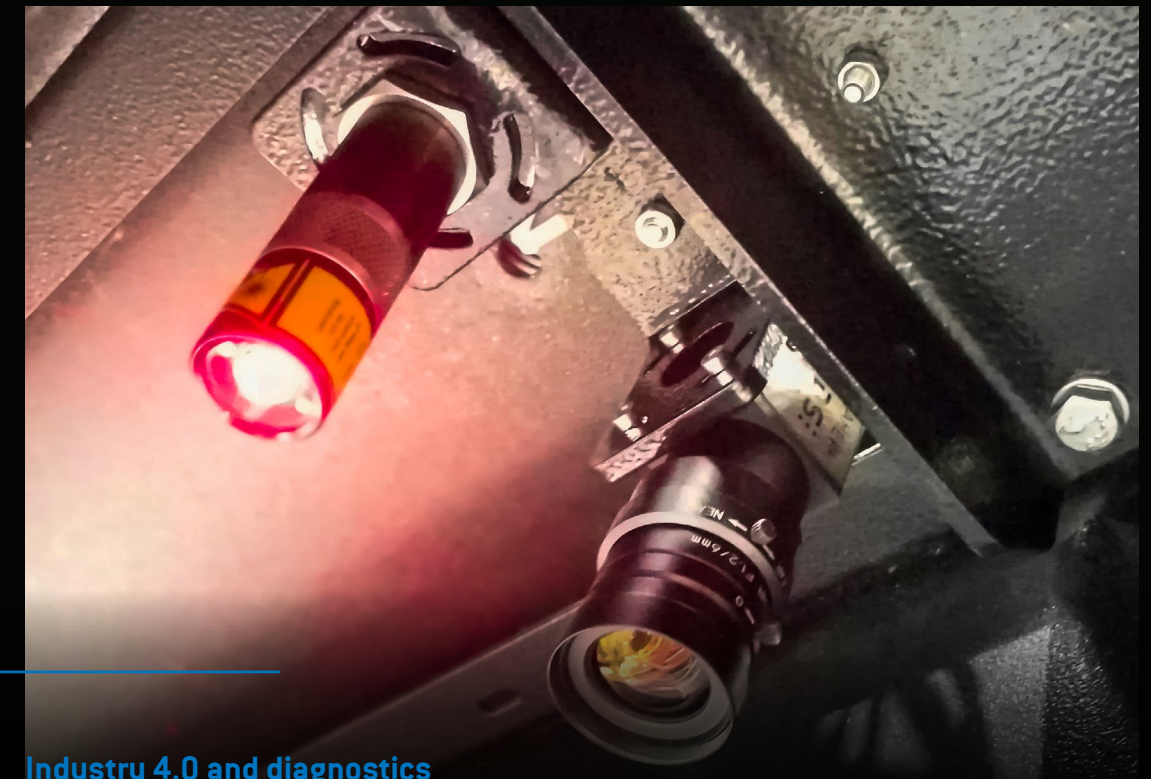
The Vision system works with an industrial PC and therefore does not suffer from hardware obsolescence.

The Vision software, created in Todesco, is "user friendly" and communicates with an OPC-UA, compatible with the most modern SCADA architectures. The constant software updates for the implementation of new functions are installed remotely, as is the remote diagnosis, assistance in use and resolution of any problems.

Processes under control

Vision allows the automatic management of three autonomous color circuits and a separate washing circuit. Includes quick color change and autonomous washing functions of the guns and of the distribution circuits in the machine. The working parameters and the recipes can be set for each item and can only be modified by accessing with a second level password, reserved for the responsible supervisor.

Thanks to the interface with the Statwatch system, it is possible to monitor all the production performances of the machine and the set right actions to improve the use of the spray booth.



Industry 4.0 and diagnostics

All Todesco devices are created to be suitable for Industry 4.0 requirements.

All Todesco devices can communicate via VPN and be monitored in real time. Compatibility with corporate ERP and SCADA systems is possible through the SQL, MQTT and OpcUa languages.



Dust abatement device

DEP-04 (or 05 for small cabin sizes) is the most advanced version of the exhausted air purification systems produced in Todesco, with an abatement capacity up to 99,93%.

Entirely made in AISI 304 stainless steel, thanks to the three blast chilling stages, it is one of the most efficient machines actually available on the market.

1 Mixing and decanting with water

The contaminated air inside the spray booth is sucked in by the main turbine and is immediately mixed with the water delivered by the spray nozzles. Due to the centrifugal effect, the color / water mixture impacts the walls around the impeller and decays. The high speed of the dry particles and water droplets increases the mixing between the two.

2 Settling and separation of powders

A stage of Ω metal filters retains a high quantity of drops, which fall by gravity into the settling tank. The "S" filters force the continuous change of the direction of the humid air towards the outlet. Passing through the metal circuits, the percentage of water contained in the outlet mixture is less than 1%.

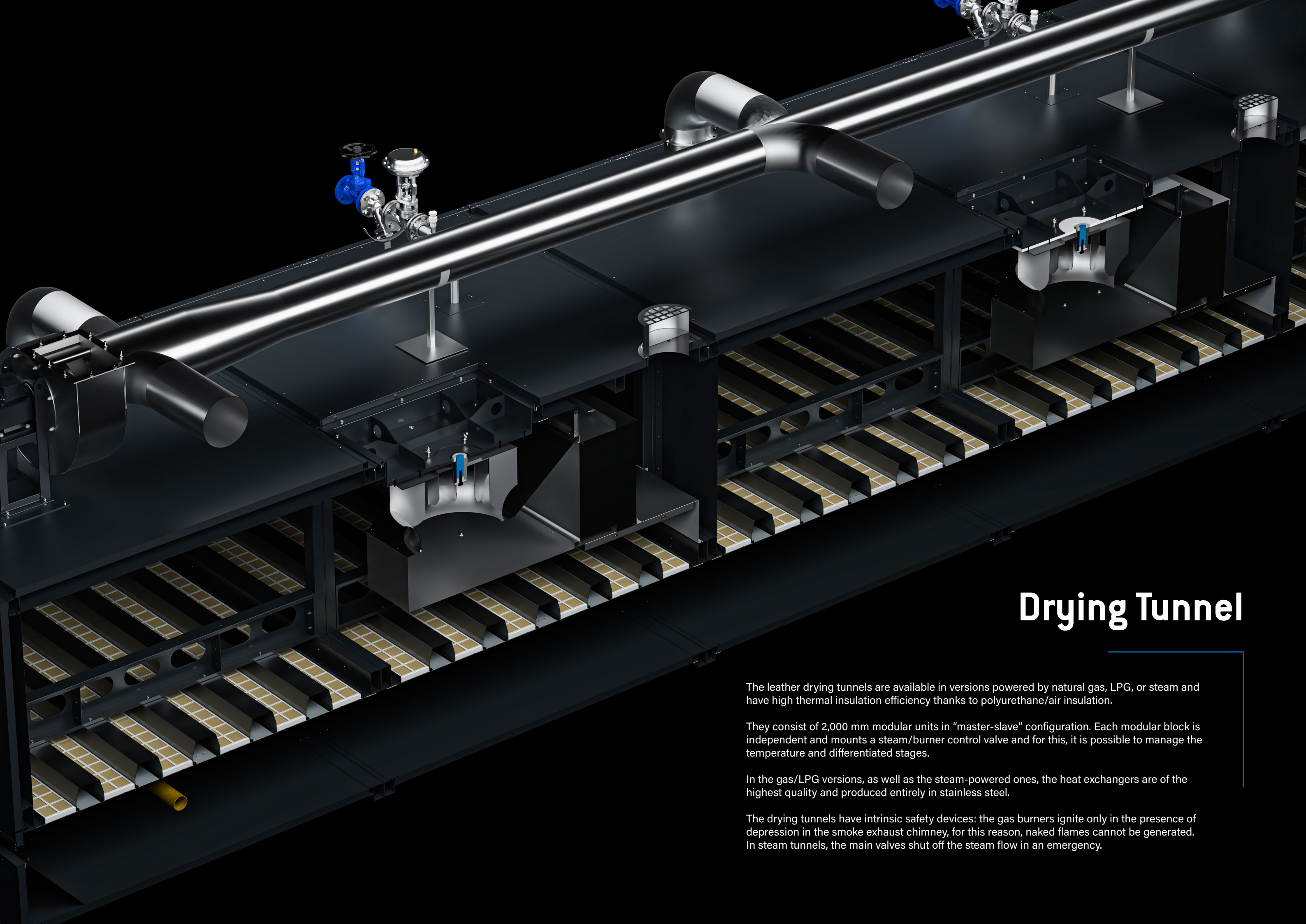
3 Final filtering

The last stage of filtration consists of absolute polyester filters that permanently block the dried molecules still present in the outlet air.

Turbine features

Motor power	15 kW	
Maximum capacity	25000 m ³ / h	<i>nominal 18.000 m³ / h</i>
Pressione massima	115 kgf / m ²	
Water recirculation pump		
Electric power	1,5 kW	
Maximum flow rate	500 l / min	
Capacity of settling tank	1.700 l	<i>with automatic loading and level control with internal capacity</i>
Fluid discharge size	4"	
Material	AISI 304 stainless steel	
Impeller in steel coated with PTFE treatment		
Abatement capacity	> 99,93%	





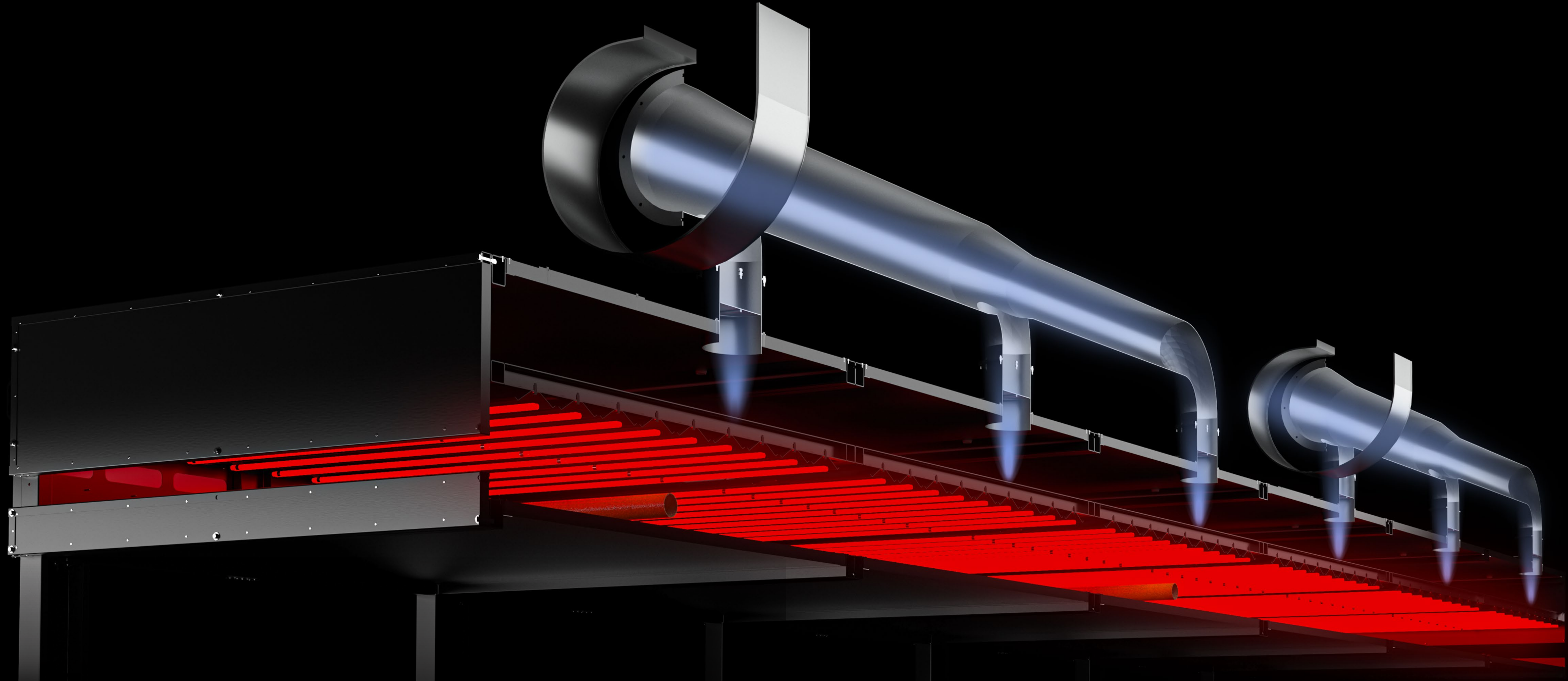
Drying Tunnel

The leather drying tunnels are available in versions powered by natural gas, LPG, or steam and have high thermal insulation efficiency thanks to polyurethane/air insulation.

They consist of 2,000 mm modular units in "master-slave" configuration. Each modular block is independent and mounts a steam/burner control valve and for this, it is possible to manage the temperature and differentiated stages.

In the gas/LPG versions, as well as the steam-powered ones, the heat exchangers are of the highest quality and produced entirely in stainless steel.

The drying tunnels have intrinsic safety devices: the gas burners ignite only in the presence of depression in the smoke exhaust chimney, for this reason, naked flames cannot be generated. In steam tunnels, the main valves shut off the steam flow in an emergency.



IR Tunnel

It is the ideal solution when a steam generator or a dedicated gas line (LPG or methane) is not available and the electricity comes from alternative sources to fossil fuel.

The drying of the hides is monitored in real-time as it is regulated on the grain temperature, detected by special laser sensors. Specific electronic controllers allow a precise modulation of the power of the lamps, variable according to the temperature of the hide's surface.

The infrared lamps are made with a double gold coating of the upper part, in order to obtain maximum reflectance and higher energy efficiency.

The air and humidity inside the tunnel are conveyed outside through a dedicated suction system designed to allow internal air circulation which largely limits the deposit of evaporation mixtures on the lamps and, being always filtered, precludes any deposits of dust on the hides.



Management systems

First quality electrical switchboards

The electrical switchboards of all Todesco machines are made with first-rate components, guaranteeing a high-quality standard.

The electrical and physical sizing of the equipment, cables and their interfacing is performed in full compliance with the requirements imposed by the IEC and CE standards. On all switchboards there is a phase control system and safety devices for 24 V signals with electronic control that does not require the use of fuses.

The in-line motors are controlled by inverters to each of which a filter is applied in dedicated input and output to minimize electrical noises and to reduce harmonics fed into the network to negligible values.

The switchboards are fitted with a heating system on board for temperature and humidity control, special cooling fans in case of high ambient temperatures and an integrated UPS to keep the economizer active in the event of a power failure (necessary to be able to wash the circuits even in the absence of power supply).

Control and communication

Energy saving

Each Todesco line includes the Power Safe function, that is a program aimed to save energy if the machinery is not in production. The rules that determine the reduction of the speed of the motors or their stop, the partial or total shutdown of the drying tunnels, the closing of the steam valves or the turning off the infrared lamps, as well as the activation of the stand-by state of the machine, can be defined by the operator and can be modified according to each specific situation.

Sensor package

Todesco automation systems provide for the applicability of up to 60 sensors of various kinds. The user has the possibility, without having to integrate new components on the switchboard, to control parameters such as: measurement of fluids (chemical product, water, steam, air used), temperature sensors inside the drying tunnels, detectors of the temperature on the grain of the leather, analysis of the state of the filters installed in the dust abatement systems.



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