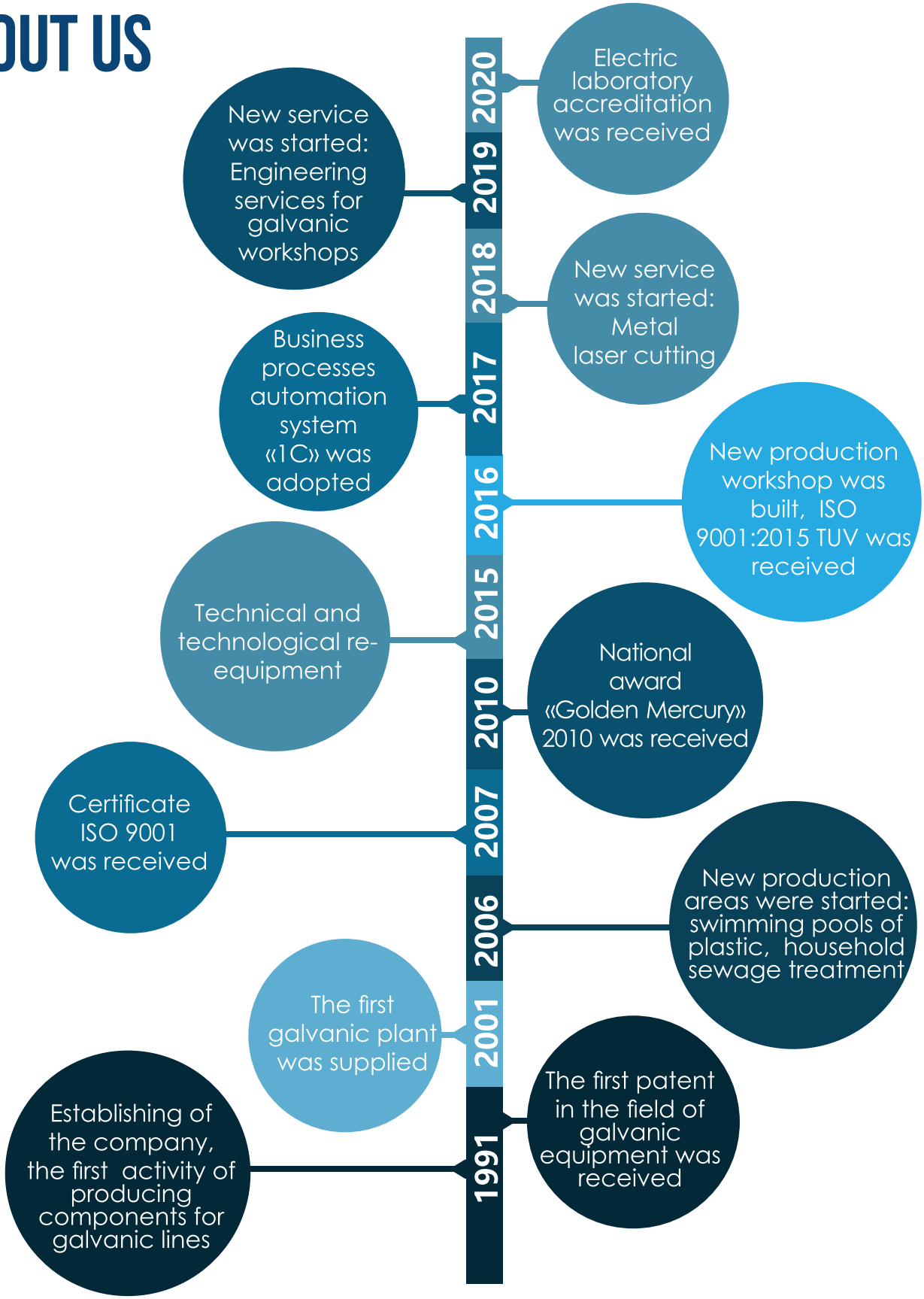
oliplast

MANUFACTURER OF GALVANIC AND ECOLOGICAL EQUIPMENT

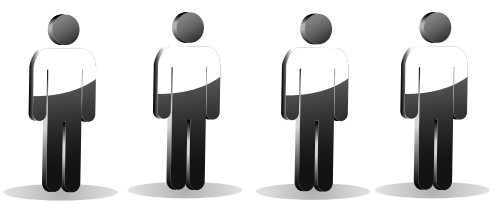
CONTENTS

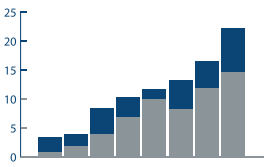
ABOUT US



Always Moving Forward!

250
employees develop
the equipment

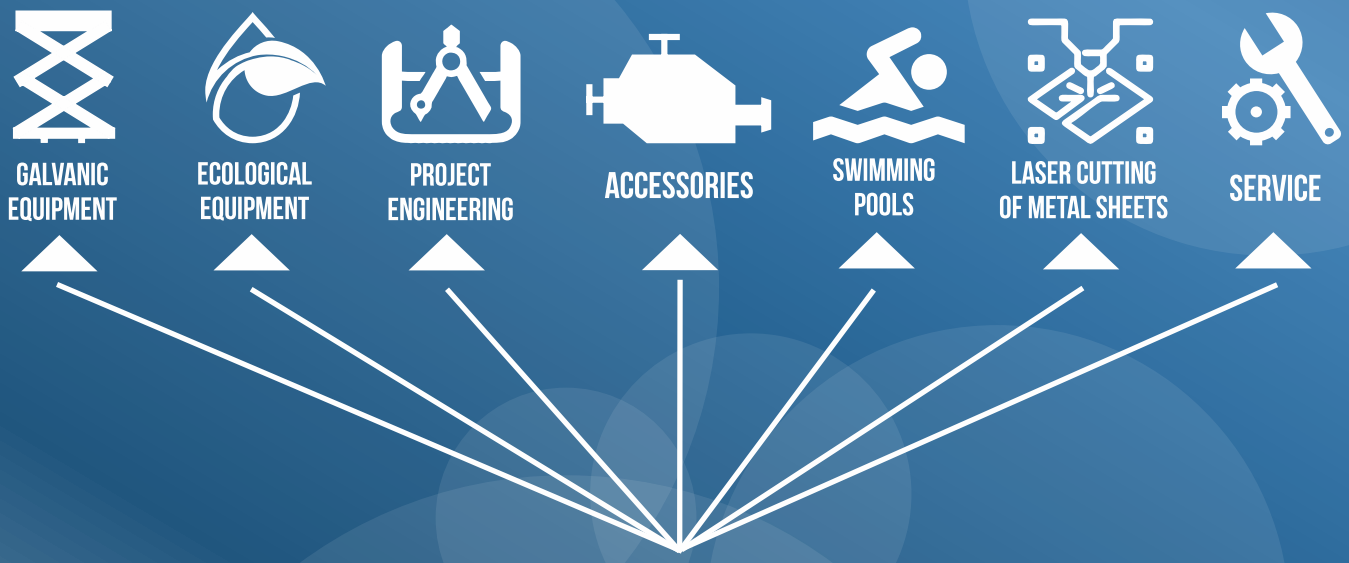




Company's
growth rate
is higher than
market average rate

The equipment
complies
with present
environmental standards

POLIPLAST



ACTIVITY FIELDS

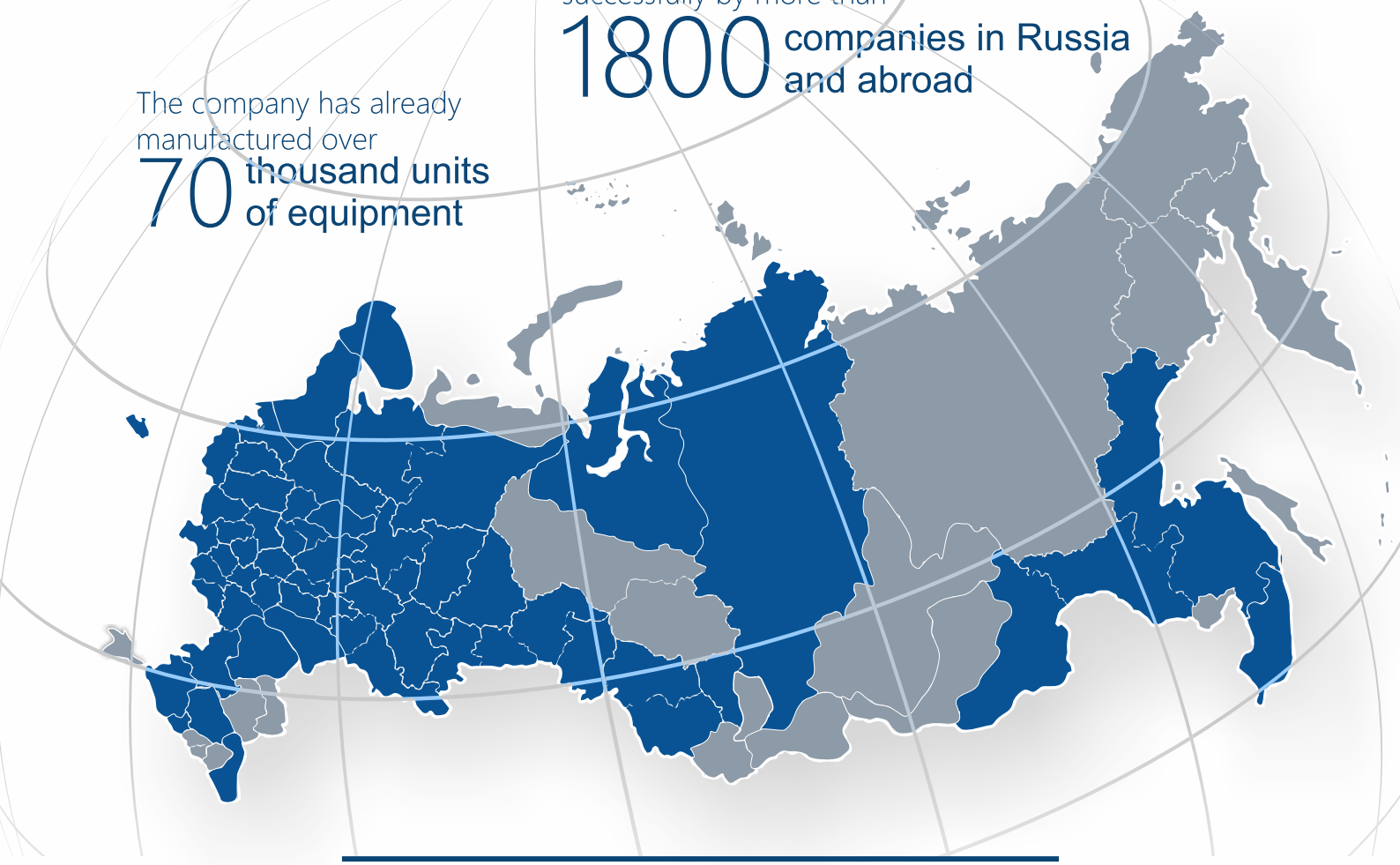
Poliplast (Ltd.) is a Russian manufacturer of galvanizing and environmental equipment. The enterprise is ready to offer its clients full cycle works in electroplating workshops such as design and engineering, manufacturing of equipment, installation and start-up. The company has a vast experience in supplying "turn-key" galvanizing plants, wastewater treatment plants for industrial and household use, water pretreatment, ventilation systems and automatic control systems. The firm provides service for all produced equipment.

Poliplast equipment is used successfully by more than

1800 companies in Russia and abroad

The company has already manufactured over

70 thousand units of equipment



REGIONS OF SUPPLIES

Leading corporations that successfully operate our equipment

КОНЦЕРН ПВО АЛМАЗ-АНТЕЙ

Ростех

РОСКОСМОС

ВЕРТОЛЕТЫ РОССИИ

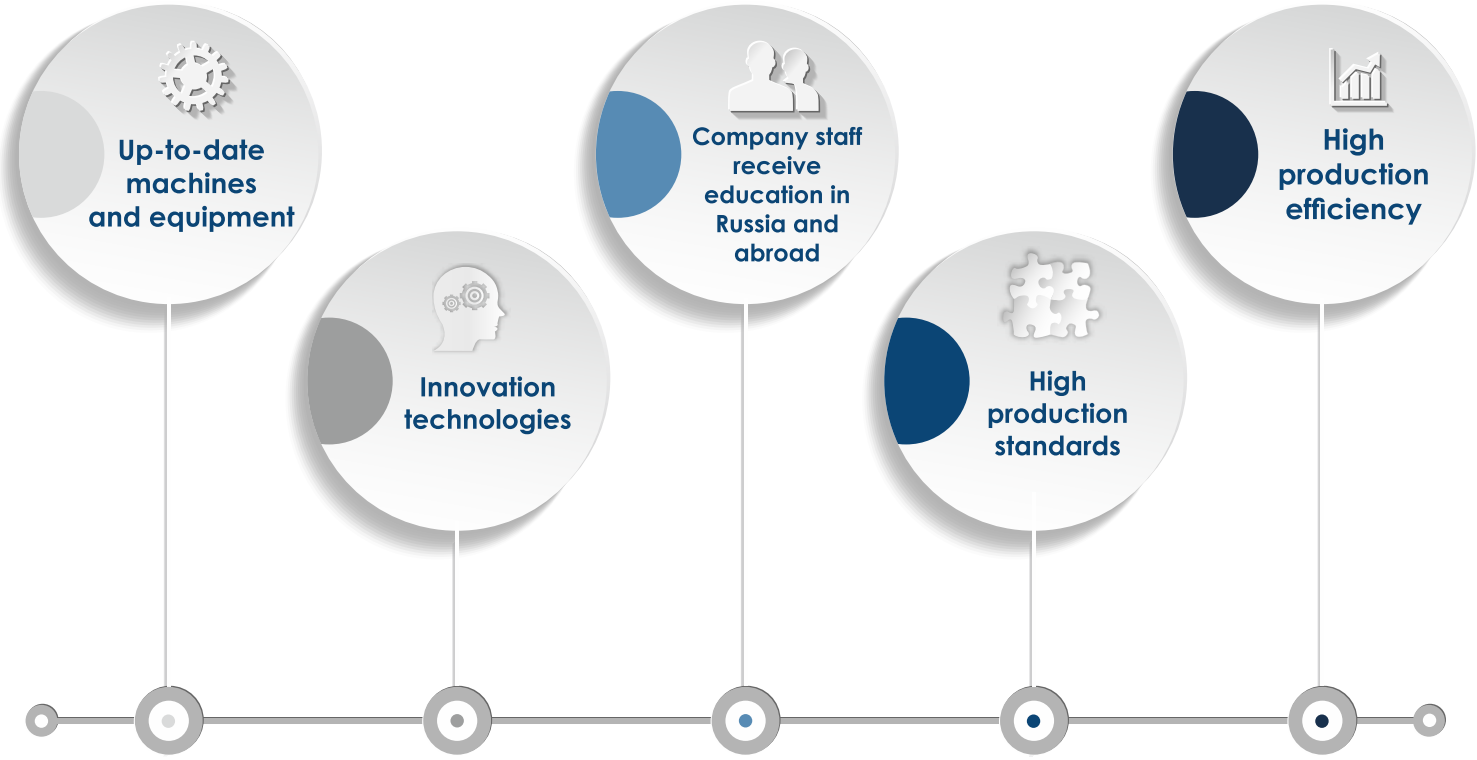
ОСК ОБЪЕДИНЕННАЯ СУДОСТРОИТЕЛЬНАЯ КОРПОРАЦИЯ

РОСАТОМ

ОАО КОНЦЕРН СОЗВЕЗДИЕ

РАКЕТНО-КОСМИЧЕСКАЯ КОРПОРАЦИЯ ЭНЕРГИЯ ИМЕНИ С.П. КОРОЛЕВА

PRODUCTION CAPABILITIES



Poliplast has exhibited stable growth and currently occupies a leading position in the Russian galvanizing equipment market for many years .

The company's production potential provides for the company's growth and contribution to the national economy. We go on, not stopping at our achievements, implement innovative technologies, use advanced machines and equipment, and are committed to the highest quality of our galvanizing equipment.

The company's competitiveness depends directly on the skills of the staff involved in the implementation of our contracts.

Poliplast's staff includes more than 200 highly competent specialists. Our engineering and production personnel receive education in Russia and abroad. Personnel upgrading programs are an unalienable part of our company's staffing policy.

The hands-on staff directly involved in the manufacturing and assembly of galvanizing equipment have education certificates of leading European companies, e.g. Simona (Germany), Agru (Austria), Airtec (Germany), Mazurczak (Germany), KraftPowercon (Sweeden), Hendor (The Netherlands).

AMADA Laser

The laser cuts and engraves metallic pieces in the metalworking shop

PRODUCTION EQUIPMENT

Most well-known international trademarks which equipment are used at our factory

AMADA

LEISTER

ALTENDORF®

Ingenia

WEGENER International GmbH

BIGZEE

MACHINES AND EQUIPMENT

Our galvanizing equipment is manufactured using the following equipment that ensures the highest production efficiency and quality:

1. AMADA CNC Sheet Bending Press

The AMADA sheet bending press complies with all the advanced requirements and standards and is intended for bending and shaping of up to 4 mm thick metallic sheets. The AMADA press ensures the maximum bending accuracy and provides for any bending configurations. The CNC system reduces the piece manufacturing time and facilitates technical documentation development. Working with this equipment we've reached a fundamentally new level of press operator safety due to the incorporated laser safety system.

2. WEGENER Sheet Welding Machine

This welder is equipped with a bending machine for manufacturing ventilation air ducts and rounded tanks from plastic sheets.

The plastic sheets are rolled and seam welded in compliance with the DVS standards of the German Welder Manufacturers Association.

3. INGENIA Automatic Welding Machine.
This is a special welder for fully automatic welding of rectangular tanks. The welder is equipped with a 90° sheet butt welder.
The INGENIA thermoplastic polymer butt welder is CNC controlled and is reliable in all applications.
Its welding cycle is fully automatic. The main welding process parameters are stored in a database connected to the PLC controlled machine. The machine is suitable for welding all types of standard thermoplastic materials: PE-HD, PE 63/80/100, PP-H/-B/-R, PVC-U and PVDF. The sheet width is up to 40 mm. The INGENIA welder is designed in compliance with the DVS standards of the German Welder Manufacturers Association.

4. BigZee CNC Cutting and Engraving Machine.
This machine is intended for high-speed shaped cutting of various materials including plastics, allows manufacturing complex shaped equipment parts by cutting a single piece and ensures high reliability and good product appearance due to almost seamless cutting.

5. Amada ENSIS AJ CNC Laser Cutting Machine.
This is a machine for uninterrupted high-speed high-quality cutting that allows manufacturing complex shaped and contoured pieces from different materials with the following thickness limitations: 12 mm for stainless steel, 25 mm for carbon steel and 12 mm for copper (brass). This machine prevents piece deformation and hence does not require further mechanical treatment.

METALLIC STRUCTURE PAINTING

Metallic structures undergo corrosive environment exposure in the galvanizing shop that causes degradation of the appearance and properties of products.

Extension of the metallic structure service life requires good corrosion protection. Therefore careful surface preparation, choice of high-quality chemically resistant primers and paints, and their application technology become of primary importance.

Metallic structures and equipment parts are painted in the following sequence:

- surface preparation with a shot blasting machine (portable dustless abrasive shot blasting system);
- surface dust removal;
- surface priming (Germany): 2 layers;
- application of a two-component epoxy base enamel (Germany): 2 layers.

The enamel is resistant to corrosive environments that include high temperature, salt solutions, alkaline solutions, acid solutions (hydrochloric, phosphoric and sulfuric) and various gases.

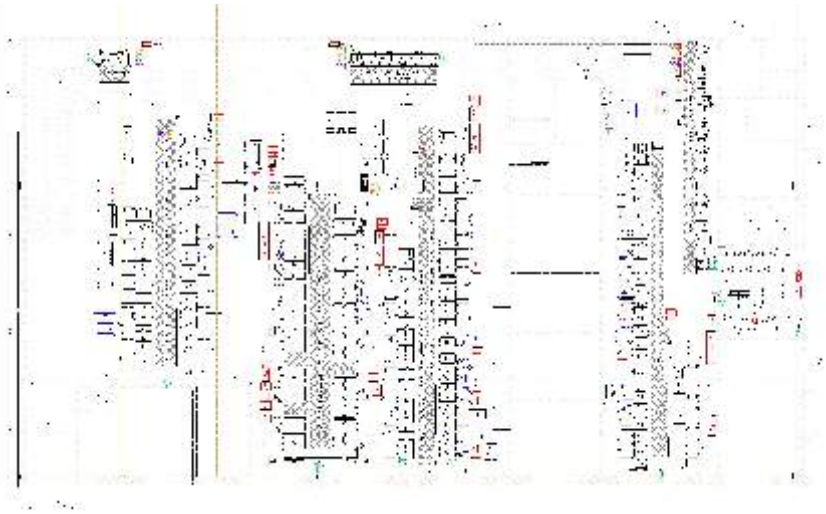
The thickness of the protective layer is 110–170 um.

To additionally protect the galvanizing tank surfaces from corrosion, we coat them with chemically resistant primer/enamel (Germany). The material is applied in a humidity and temperature controlled air environment. This procedure is followed by 100 % coat thickness control with an electronic thickness gage.

DEVELOPMENT STAGES OF EQUIPMENT

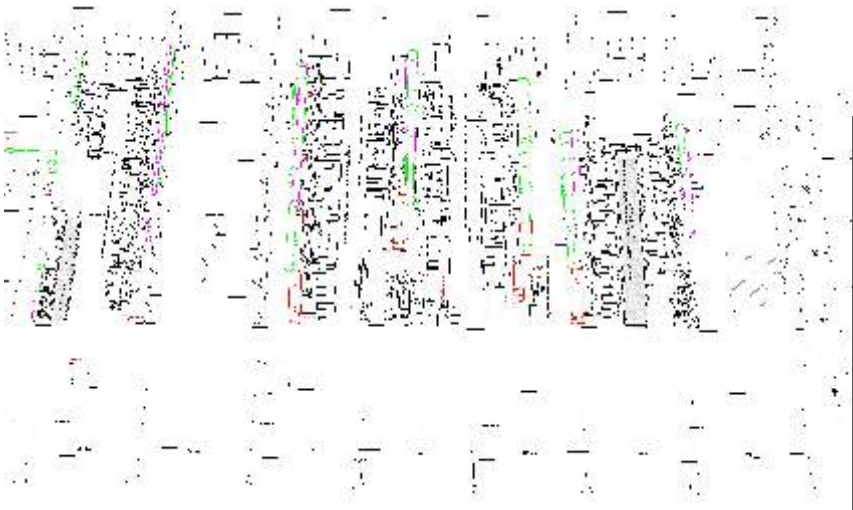
Stage 1

Personnel arrival to the site, workshop dimensions taking and primary process equipment layout to suit the existing premises.



Stage 2

3D modeling. Analysis of the mutual arrangement of the galvanizing equipment and process lines. Model post processing.



Stage 3

Final 3D model processing followed by Customer project approval.

COMPLEX SOLUTIONS

Ventilation system

Lateral exhausts, assembled outside air ducts, fans, exhaust airflow cleaners

Metallic structures

Automatic arm positioner pathways, height-adjustable pole frame, equipment supports

Control system

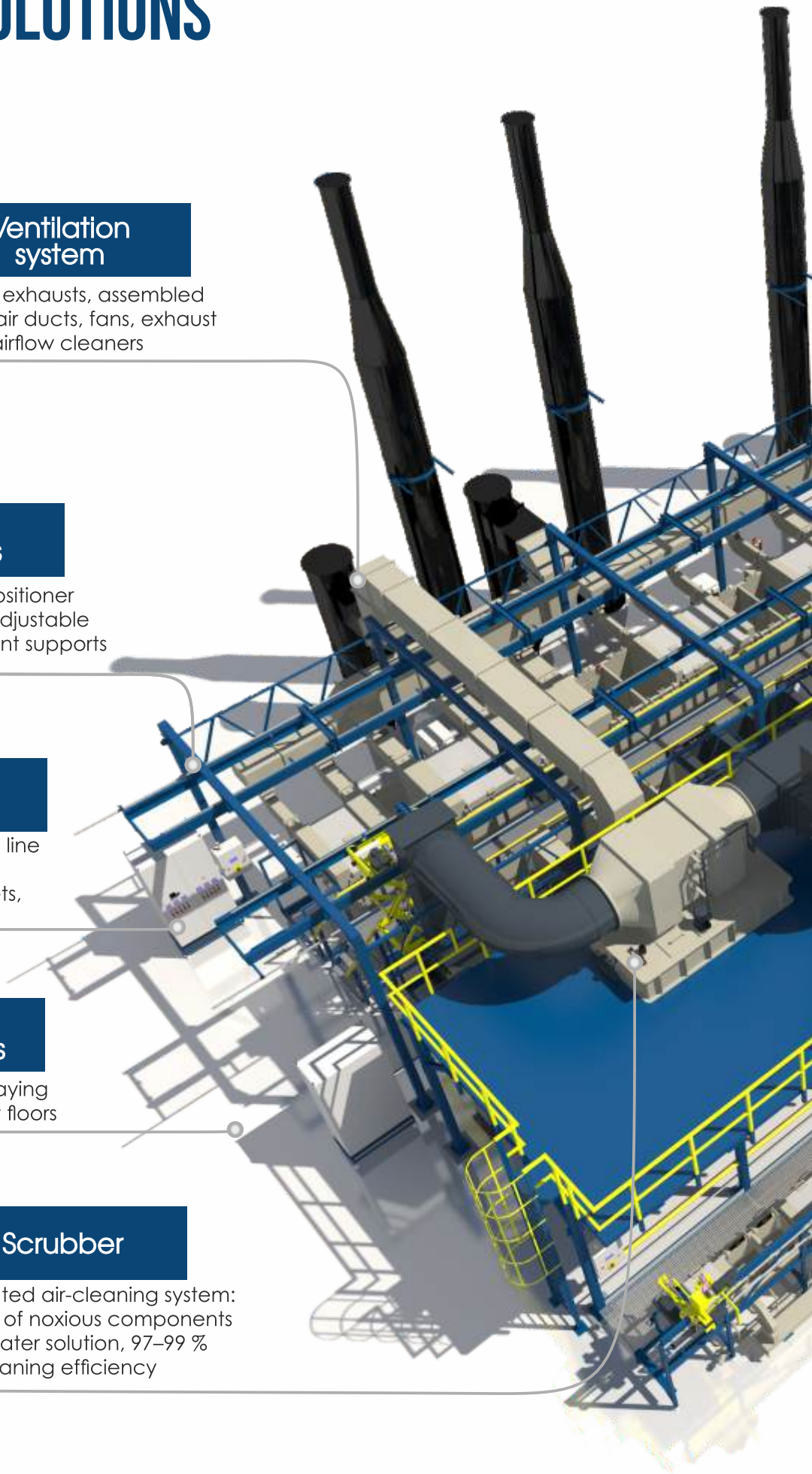
Automatic process line control system, electrical cabinets, switchgears

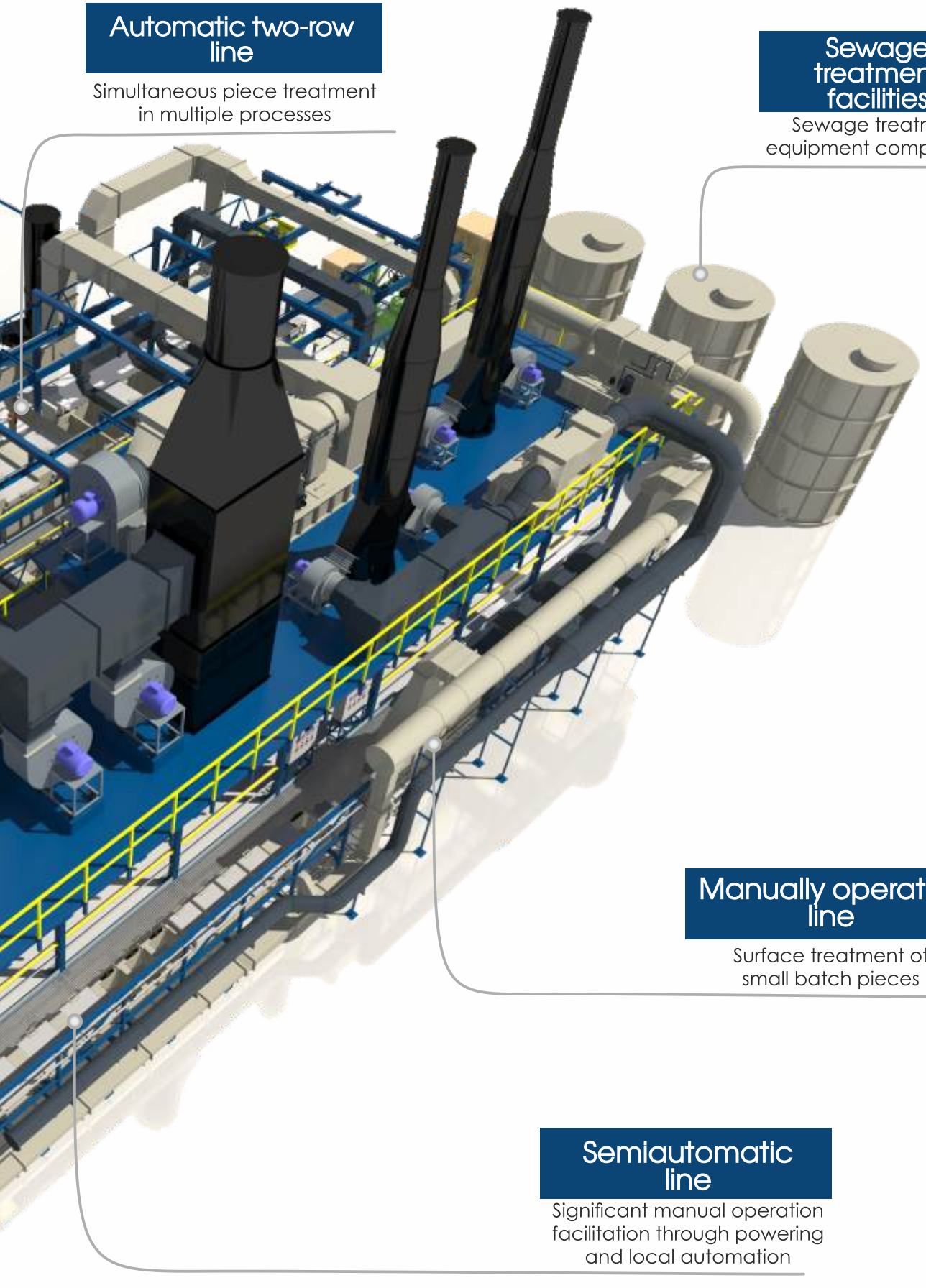
Chemically resistant floors

Manufacturing and laying of chemically resistant floors

Scrubber

Contaminated air-cleaning system: absorption of noxious components with a water solution, 97–99 % cleaning efficiency





Automatic two-row line

Simultaneous piece treatment in multiple processes

Sewage treatment facilities

Sewage treatment equipment components

Manually operated line

Surface treatment of small batch pieces

Semiautomatic line

Significant manual operation facilitation through powering and local automation

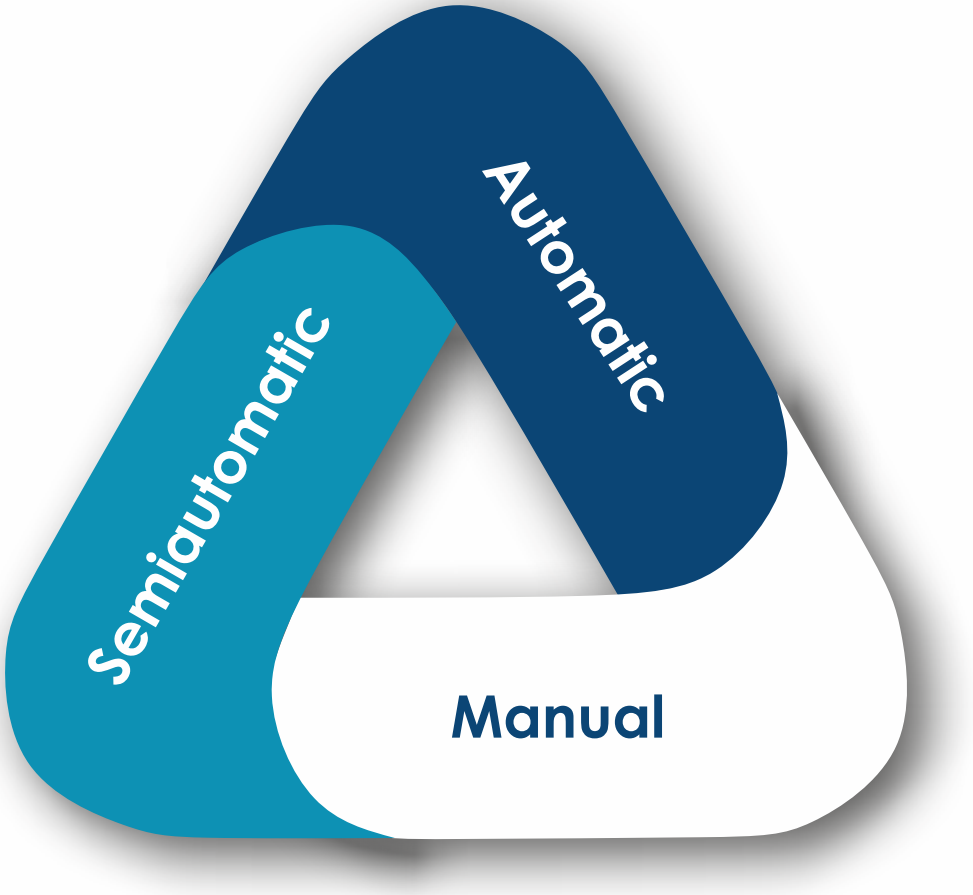
OUR COMPANY'S COMPLEX SOLUTIONS

Poliplast offers a complex approach that includes project documentation development, supply of galvanizing equipment and sewage treatment facilities, water pretreatment systems, ventilation and air conditioning systems, and laying of chemically resistant floors. Our partners are leading Russian and foreign manufacturers.

Our services include supplies of different types of sewage treatment facilities, e.g. with draining to the municipal drainage system or with treated sewage recycling, as well as tanks and pumps.

We supply water pretreatment systems of different cleaning categories and capacity depending on facility requirements. Water pretreatment systems are chosen based on the Customer's source water data. If necessary, our experts can examine source water quality by sampling it at the Customer's premises. We design, manufacture, and install inlet and exhaust ventilation systems. Our ventilation systems can be equipped with heat regenerators and 97–99 % air cleaning efficiency scrubbers.

We permanently improve our production processes and seek new solutions in design, manufacturing, installation, and integrated customer approach.



GALVANIC LINES

Poliplast manufactures various types of galvanizing lines:

- Automatic lines
- Semiautomatic lines
- Manually operated lines

To achieve the required parameters of pretreated pieces and coating application, we equip galvanizing lines with various auxiliary equipment: tank agitation systems, heaters, heating and cooling control systems, batching systems, cathode rod agitators, solution surface oil skimmers, local ventilation systems, rectifiers, filtering systems, pumps, solution chillers, etc.

The composition and design of the equipment depend on the Customer's process parameters, number of coating types, list of processed piece types, and many other requirements.

03

AUTOMATIC LINES

Automatic and semiautomatic galvanizing coating lines increase process operation efficiency, improve product quality, and exclude low efficient manual work, the latter advantage being of special importance for severe and hazardous industrial operation conditions.

Poliplast production lines comply with the highest Russian and European quality standards.

The main advantage of our automatic lines is multitasking, i.e. the possibility of processing pieces simultaneously in multiple processes and combining the application of multiple coating types in one line.

Automatic lines can be hanging, drum, or combined.

- Automatic line control systems provide the following control:
- automatic arm positioners;
- automatic galvanizing tank covers;
- solution level control devices;
- rinsing tank water replenishers;
- tank temperature control devices;
- bubbling control devices;
- loading/unloading lifts;
- rectifiers calculating required current/voltage parameters depending on the number and/or total area of pieces in a load;
- filtering systems;
- solution component batchers;
- chillers;
- oil and grease separators;
- exhaust fans;
- ventilation filters.

The automatic control system provides the following control modes: Setup, Manual, Semiautomatic, and Automatic.

In the Automatic mode the pieces are treated in the process line tanks following one of the selected programs (preset in the process database). Automatic arm positioners provide for automatic piece treatment without the operator's intervention, the latter only having to load a cell and command the automatic control system when the loading cell is ready.

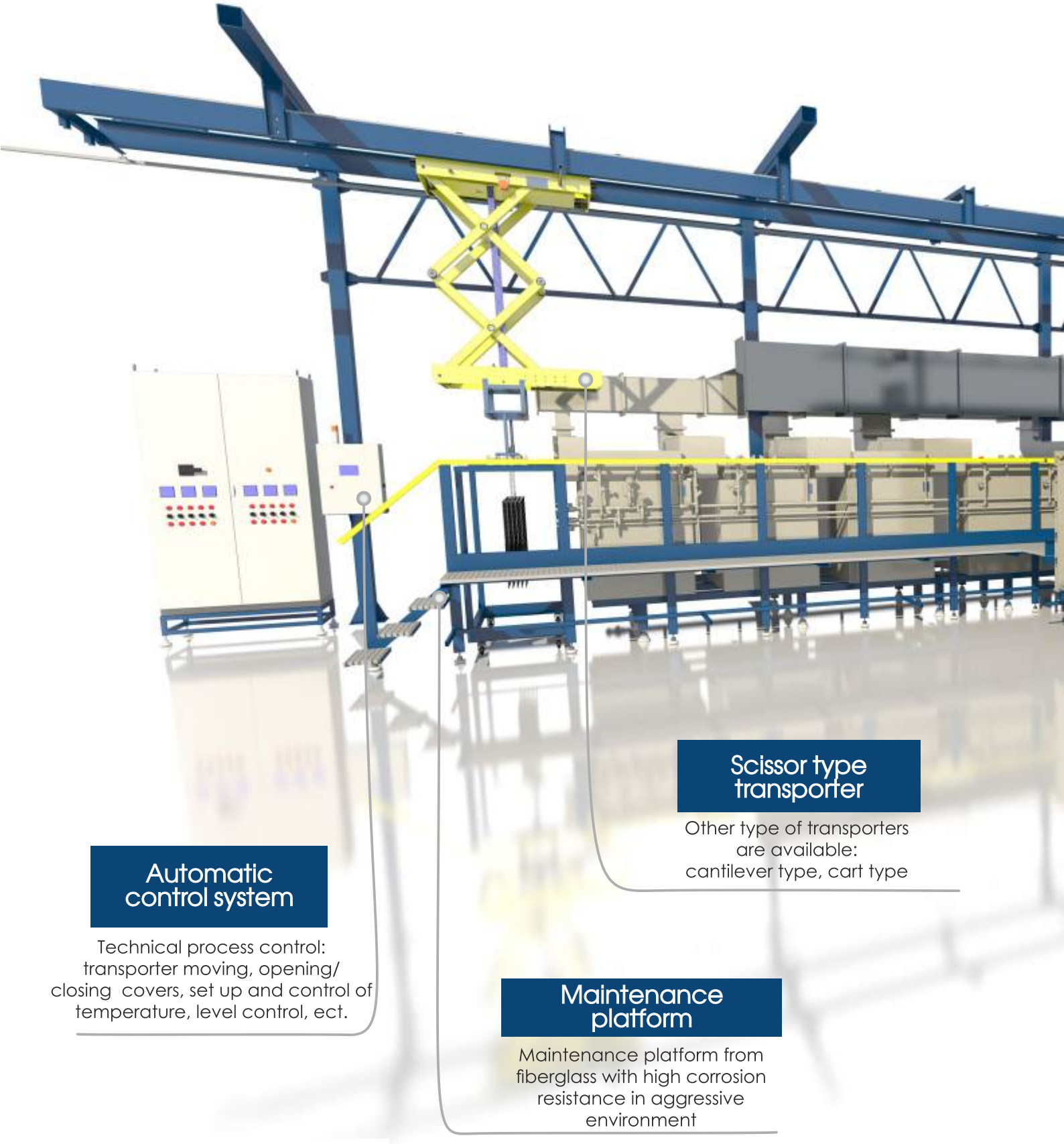
The types of processed pieces can be input either alphanumerically from the loading remote control panel keyboard or by barcode scanning. The automatic control system allows controlling input data correctness.

A process completion protocol is generated for each load of pieces after processing. This protocol contains all the required data on the processed loads including the main process parameters (exposure time, current, voltage, and solution temperature). The reports and protocols can be stored for arbitrary time.

The automatic control system may have a timer mode providing for preliminary tank heating before the beginning of each working shift.

The automatic line control system is located in the control system cabinet and in the local automation cabinets that are installed in the galvanizing shop and have the IP54 protection class.

STRUCTURE OF GALVANIC LINE



Scissor type transporter

Other type of transporters are available: cantilever type, cart type

Automatic control system

Technical process control: transporter moving, opening/ closing covers, set up and control of temperature, level control, ect.

Maintenance platform

Maintenance platform from fiberglass with high corrosion resistance in aggressive environment

SIMONA · MUNK · KRAFT POWERCON · progalvano · SIEMENS · RÖCHLING

Fibrolux · FESTO · HOKA · SEW EURODRIVE · Linnhoff & Partner

Filtering systems

Periodical or uninterrupted electrolyte filtering

Rectifiers

Electrochemical tanks equipped with rectifiers

Heaters

Tanks fitted with electric heaters or heating coils

hendor MAZURCZAK AIRTEC lafonte.eu FIP

FORMECO AQUAFLOT Asio DELTA CAMOZZI RITTAL


02

SEMIAUTOMATIC LINES

The main function of semiautomatic lines is to facilitate the manual work of handling heavy and/or large dimension pieces between tanks. Furthermore, semi-automatic lines allow increasing the production output through processing more pieces in one load.

The lines of this type are fitted with hoists, i.e. transporters or telfer cranes that are operated from remote controls.

The design of semiautomatic lines is largely similar to that of automatic ones. The difference is that semiautomatic lines are operated from remote controls. Still there is the possibility to install separate (local) automation systems to be operated independently without connecting to the global control system. These systems may include e.g. heating and/or cooling control systems, addition batching control systems, rinsing and process tank water replenishing control systems, cathode rod agitation control systems, solution surface oil skimming systems, solution regeneration systems, showering systems, etc.

MANUALLY OPERATED LINES

Manually operated lines are intended for operation with galvanizing equipment installed at local work sites, shops, and laboratories having small batch or single piece galvanizing tasks. Necessary conditions for the installation of manually operated lines are small piece dimensions and weight.

Unlike for powered and automatic lines, tank arrangement in manually operated lines is not necessarily linear. Galvanizing tanks can be arranged arbitrarily depending on convenience and available space.

Manually operated lines can be fitted with various bell and drum galvanizing tanks.

For convenience and safety, manually operated tanks may be additionally fitted with enclosures, illumination, covers with rectifier locking, etc.

Manually operated lines may include some of the automation components such as heating and/or cooling control systems, automatic water or solution replenishing systems to compensate tank depletion, batching systems, etc.

RINSING TANKS

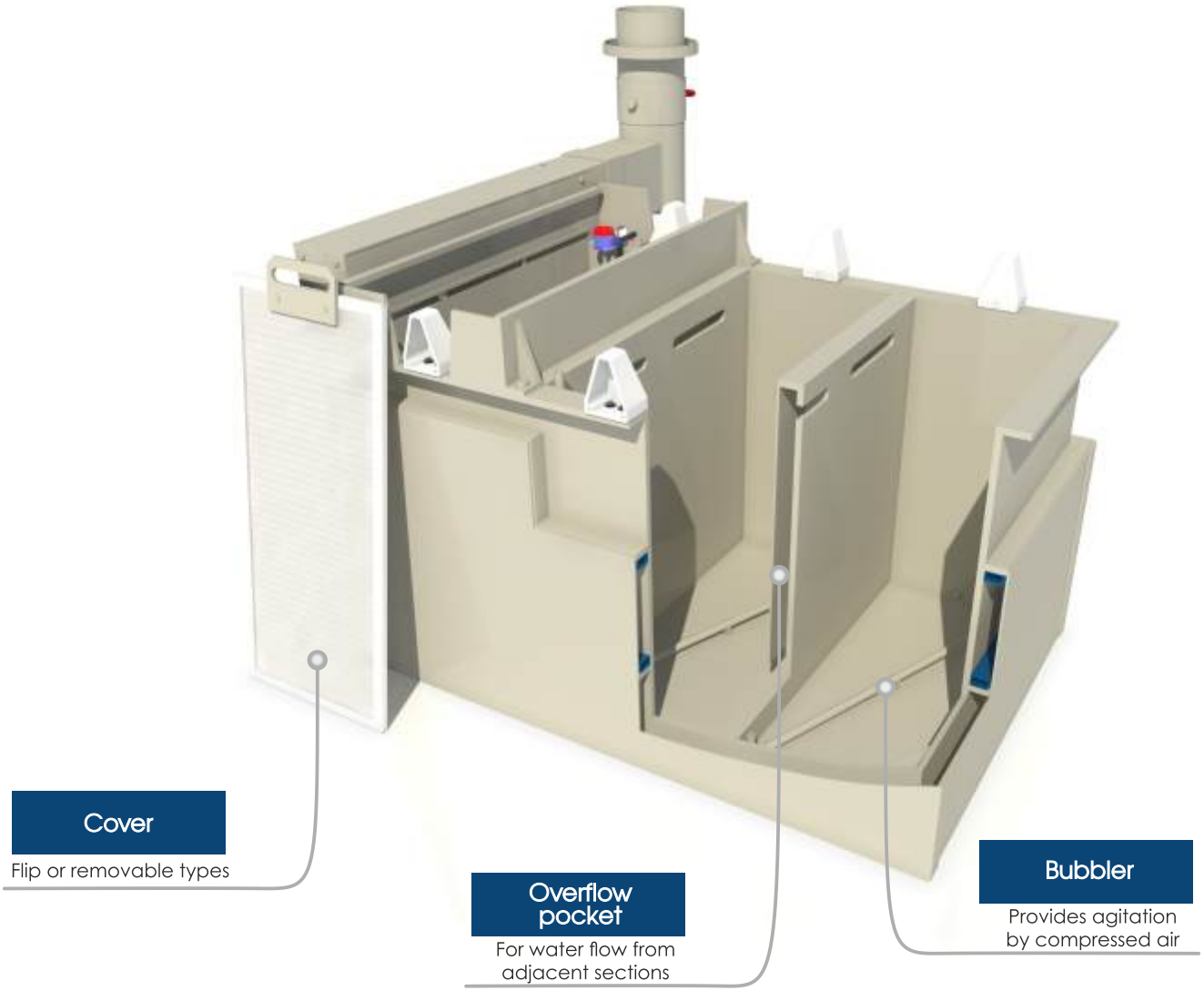
Rinsing tanks are intended for cleaning the surfaces of processed pieces from dirt and solution and electrolytes remaining after coating application, degreasing, pickling and other processes.

Rinsing tanks can be single-stage or multistage (direct flow and opposite flow).

The use of multistage opposite flow rinsing tanks significantly reduces rinsing water consumption without compromising piece-rinsing quality.

Depending on the required temperature mode, rinsing tanks can be cold, warm, and hot. Water temperature in multistage rinsing stage tanks may differ depending on process requirements, e.g. the first stage can be warm and the second one can be hot.

Tanks consist of a body, overflow pocket, bubbler for higher agitation efficiency, and feeding pipe and drainage ports with valves. Furthermore rinsing tanks can be fitted with additional jet rinsing machines in the piece lifting section (the showering system). Warm and hot rinsing tanks are further fitted with covers, heaters and temperature and level gages. Warm and hot rinsing tank bodies are heat insulated.



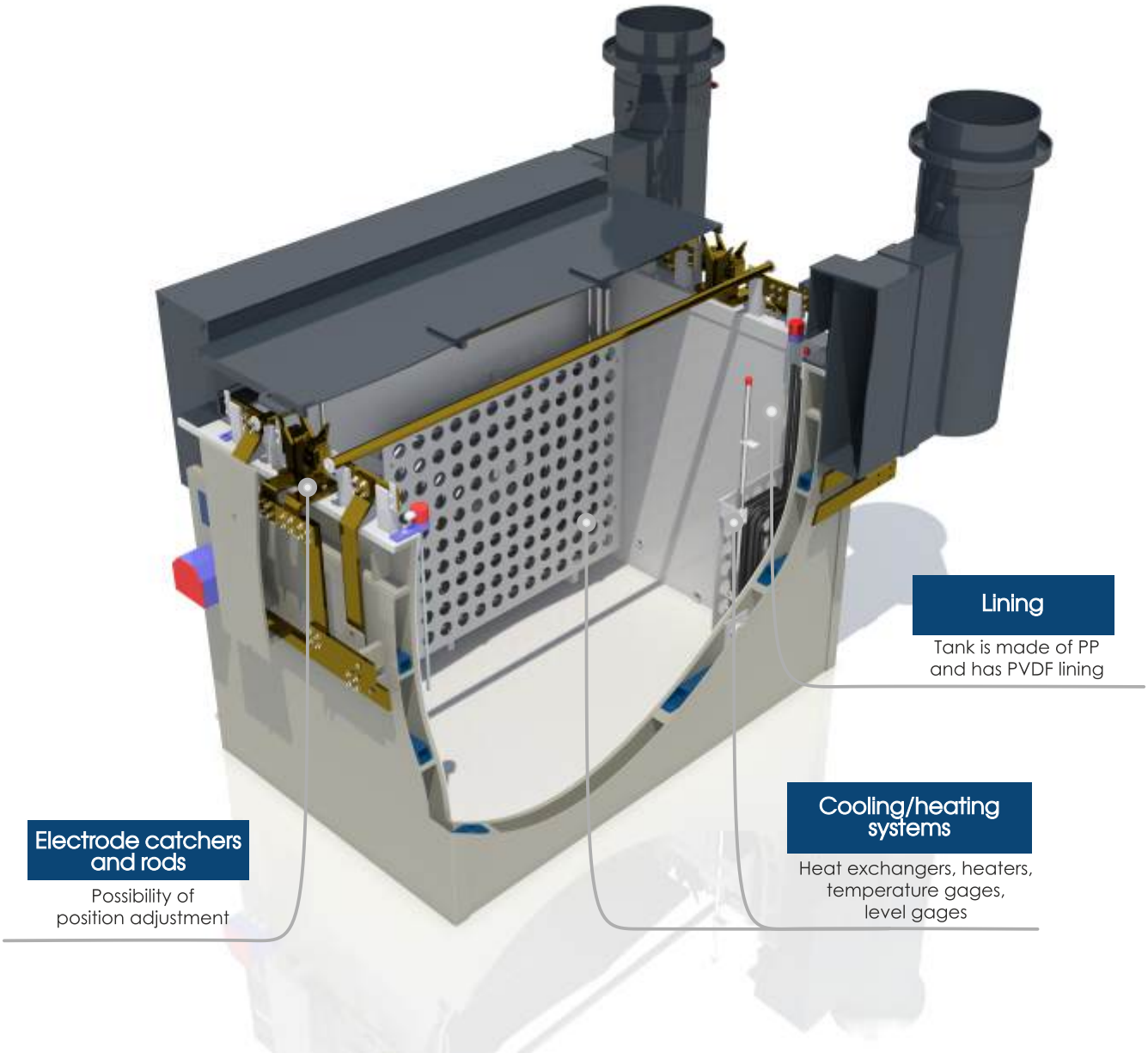
ELECTROCHEMICAL TANKS

Electrochemical tanks are intended for the electrochemical treatment and coating of pieces (electrochemical degreasing, poor coat removal, chrome, zinc, cadmium, copper, nickel and silver plating, and other process tanks).

The tank body and heat exchanger materials are chosen based on the composition, component concentration, and design working temperature of the solution (electrolyte).

Depending on process requirements, tanks can be equipped with heaters and heat exchangers, heating and/or cooling control systems with level and temperature gages, heat insulation, electrode rod positioning systems, lateral exhausts, covers, water supply pipes, drainage ports with valves, etc.

The tank design allows connecting chillers, filtering systems, chemically resistant pumps, ejector systems, and other equipment.

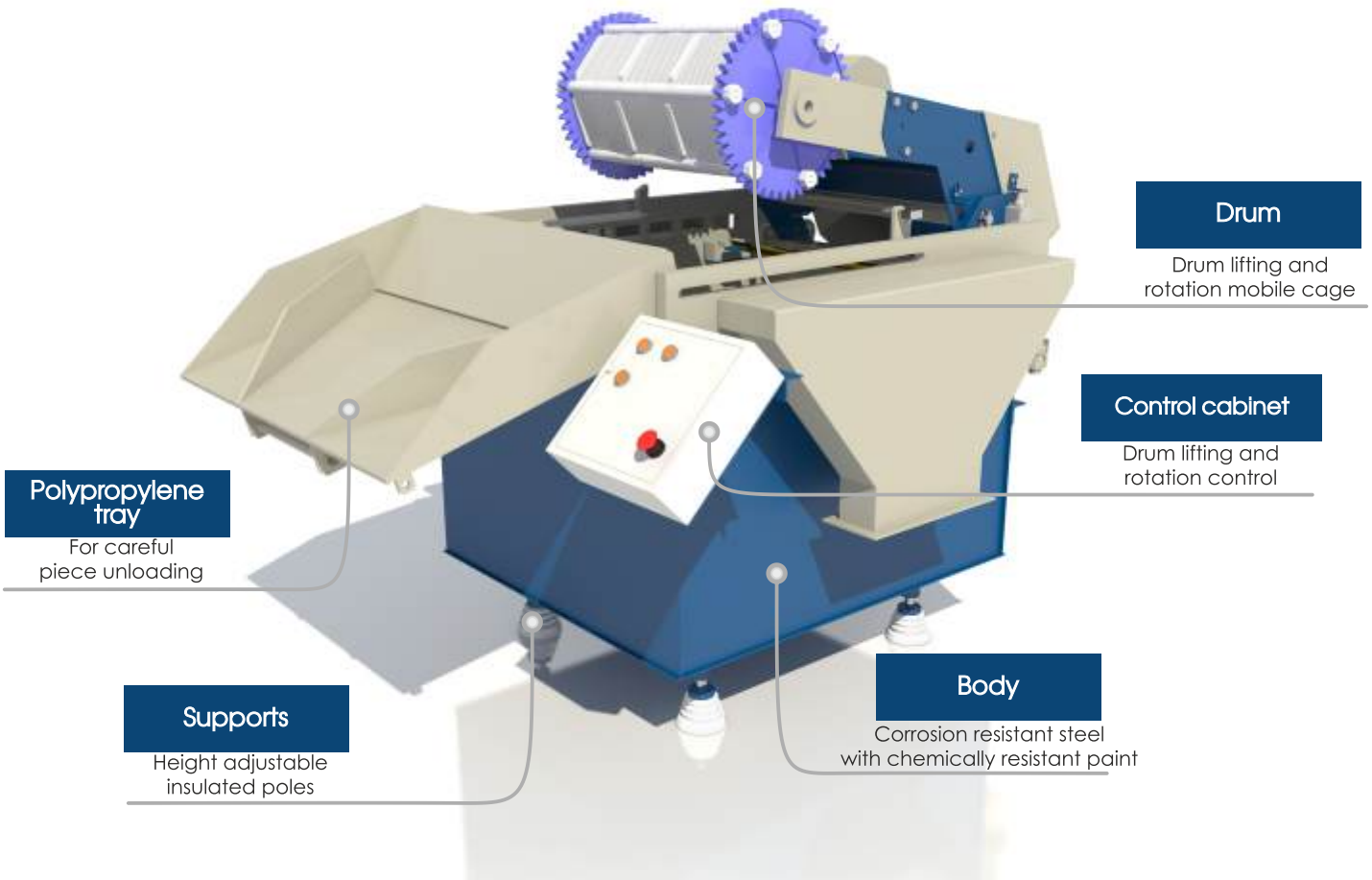


DRUM TANKS

Drum tanks are intended for galvanizing bulk loaded small pieces.

Drum tanks consist of:
- carbon steel electrolyte tank with polypropylene sheet lining and chemically resistant paint outside;
- mobile drum cage;
- polypropylene cover that is also used as a piece unloading tray.

Technical parameters/ Model	ВБ-600
Overall dimensions of the unit	2310x1400x2270
Inner dimensions of the bath	1040x900x650
Bulk volume of processed parts, dm3	10 – 14
Weight of parts, kg, max	30
Length of the drum, mm	610
Electrolyte temperature, C, max	+ 80
Supply voltage, V	36, 3Ph~50 Hz
Consumed electric power, kW	0,36
Maximum current load per cathode, A	300
Drum rotation frequency, rpm, max	11
Drum perforation, mm	1,0×1,0 or 2,8×2,8
Weight of equipment, kg, max	300

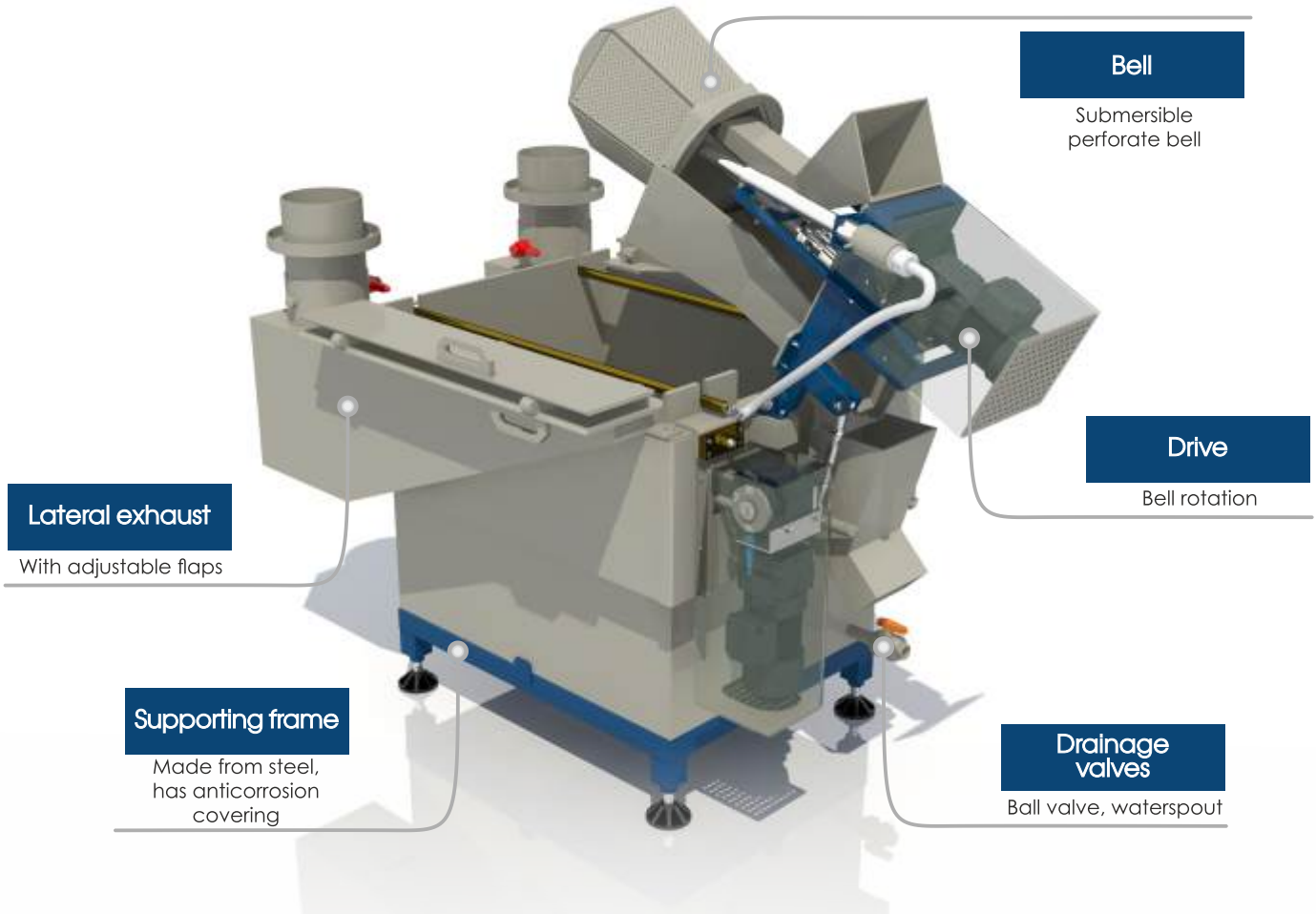


BELL TANKS

Bell tanks are intended for galvanizing bulk loaded small pieces. Bell tanks consist of a plastic body, driven submersible perforate bell, lateral exhausts, piece unloading tray, and cover also used as a loading tray. The tank body is made from polypropylene produced by Simona AG, Germany. Customized tanks can be manufactured at a special request. 2-bell tank modifications are available. Spare drives with bells can be supplied.

Tanks are fitted with drainage ports and valves and may have heat exchangers (coils) for heating or cooling, electric heaters and anode rods with cell holders. The bell rotation control panel is mounted on the tank body. The bell and its drive are pivoted to the tank body with hangers. The bell contains a cathode connected to a DC source.

Technical parameters/ model	BK-15	BK-25	BK-40	BK-63
Overall dimensions of the unit	2000x1310x1770	2000x1310x1770	2000x1310x1770	2230x1440x1870
Inner dimensions of the bath	940x720x700	940x720x700	940x720x700	1080x1000x700
Volume of the bell, dm3	15	25	40	63
Bulk volume of machined parts, dm3	1,5 – 4,5	3 – 7	4 – 10	10 – 22
Weight of parts, kg, max	5	10	15	25
Working volume of electrolyte, dm3	400	400	400	600
Solution level*, mm, max	150	150	150	150
Electrolyte temperature, C, max	+ 80	+ 80	+ 80	+ 80
Supply voltage, V	36, 3Ph~50 Hz	36, 3Ph~50 Hz	36, 3Ph~50 Hz	36, 3Ph~50 Hz
Consumed electric power, kW	0,18	0,30	0,30	0,36
Maximum current load per cathode, A	300	300	300	300
Voltage at the cathode, V	12 – 24	12 – 24	12 – 24	12 – 24
Bell rotation frequency, rpm, max	11	11	11	11
Bell perforation, mm	Ø1,0 or Ø3,0	Ø1,0 or Ø3,0	Ø1,0 or Ø3,0	Ø1,0 or Ø3,0
Weight of equipment, kg, max	200	250	250	420



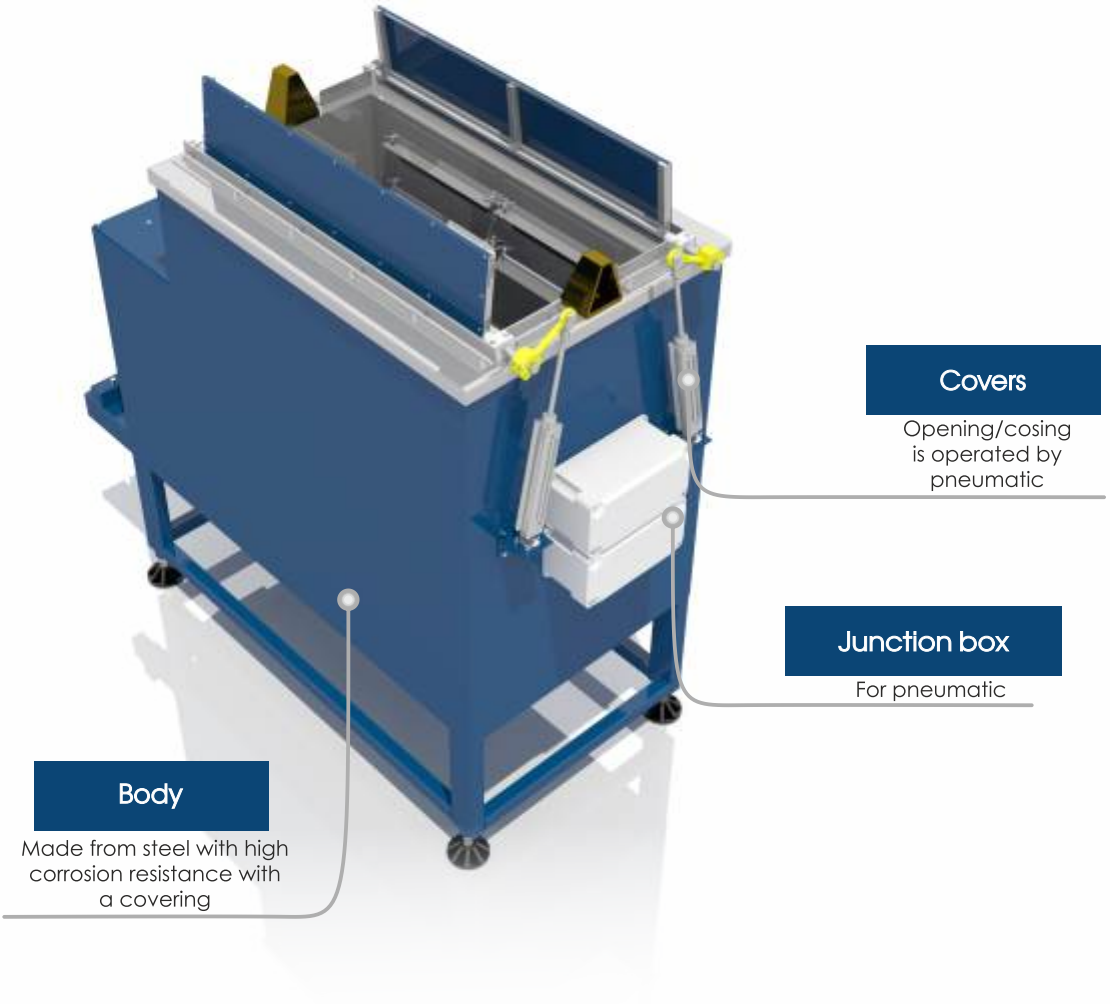
DRYING CHAMBERS

Pieces are dried by heated air blowing. The air is heated by steam or electric heaters and delivered to the drying chambers by fans.

Drying chambers have a carbon steel body and stainless steel outer wall. All the drying chambers have non-flammable heat insulation and fans and are installed on height adjustable insulated poles.

The drying chamber can be fitted with a cover if drying pieces at above 80 °C if necessary. At the Customer's request drying chambers of automatic lines can be equipped with pneumatic drives. Automatic cover opening/closing is operated by the automatic line control system.

Small pieces are dried in centrifuges after processing in drum tanks. Drying ovens are used for dehydration and other high temperature processes.



DRUM CARRIAGES

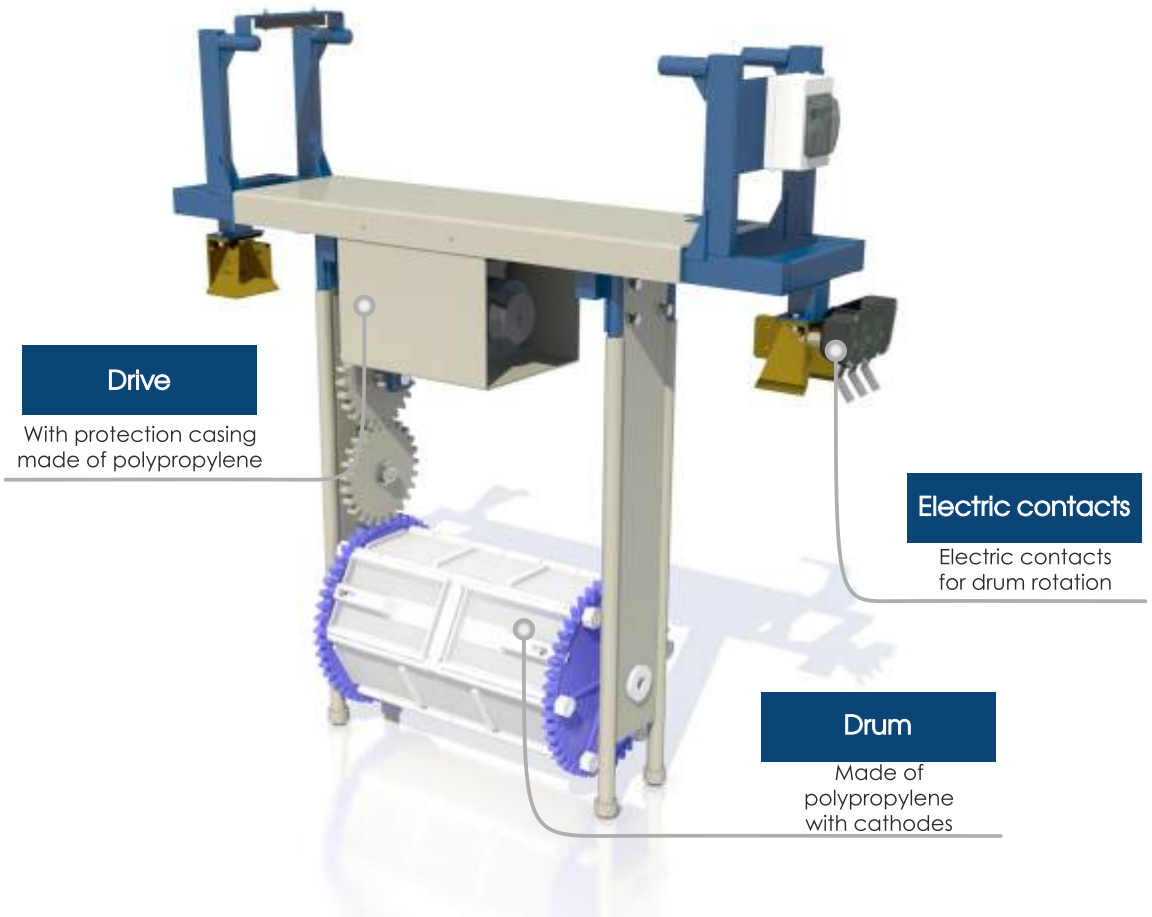
Drum carriages are intended for the galvanizing bulk loaded small pieces. Carriages can be operated in automatic and powered galvanizing lines. Carriages consist of a frame with drum rotation drive, polypropylene drum, and cathodes mounted thereon.

The carriage frame is made from stainless steel. Poliplast polypropylene drum are installed on carriages. Two drums can be installed at a special request. The drive torque is transferred to the drum through a gear.

The carriage has:

- DC contacts for cathode connection;
- drum rotation electric motor power supply contacts connected to the tank power inlet;
- automatic drum rotation electric motor switch.

Technical parameters/ model	
Maximum temperature of working solution, °C	80
Drum volume, dm³	as per request
Bulk volume of workpieces, dm³	25 – 35% of drum volume
Drum rotation frequency, rpm, max	11
Drum perforation, mm	1,0x1,0 или 2,8x2,8
Diameter of drum sprocket, mm	400
Maximum cathode current, A	as per request
Supply voltage, V	36, 3Ph~50 Hz
Consumed electric power, W	120 – 180



TRANSPORTERS

Since 2009 Poliplast manufactures 150, 250, and 490 kg capacity scissor type transporters. The positioners are moved vertically with scissor type gears and polyester fiber belts. The belt loading capacity is at least 5 times that of the automatic arm positioned.

Along with scissor type transporters, there are 150 kg capacity cantilever type transporters and 1000 kg capacity cart type transporters. All the transporters are equipped with wireless remote controls. Exact positioning is provided by laser distance gages.

Transporters can be fitted with ventilation boxes and automatic covers for increasing ventilation efficiency. Solution splashing during piece transportation in transporters is avoided with drop trays. The tray is operated automatically by the automatic line control system. The collected splashed solution is delivered to drainage through special trays installed along the galvanizing lines.

GALVANIZING DRUMS

Galvanizing drums are intended for the processing of bulk loaded small pieces and used in drum carriages in powered and automatic lines as well as in standalone drum tanks.

Drums are prism shaped containers composed of single polypropylene sections and having butt mounted toothed wheels for drum rotation. The toothed wheels are mounted on the prism shaped container with polypropylene clamps or titanium clamps for drums in excess of 1000 mm in length. One of the sidewalls has removable covers for piece loading into the drum.

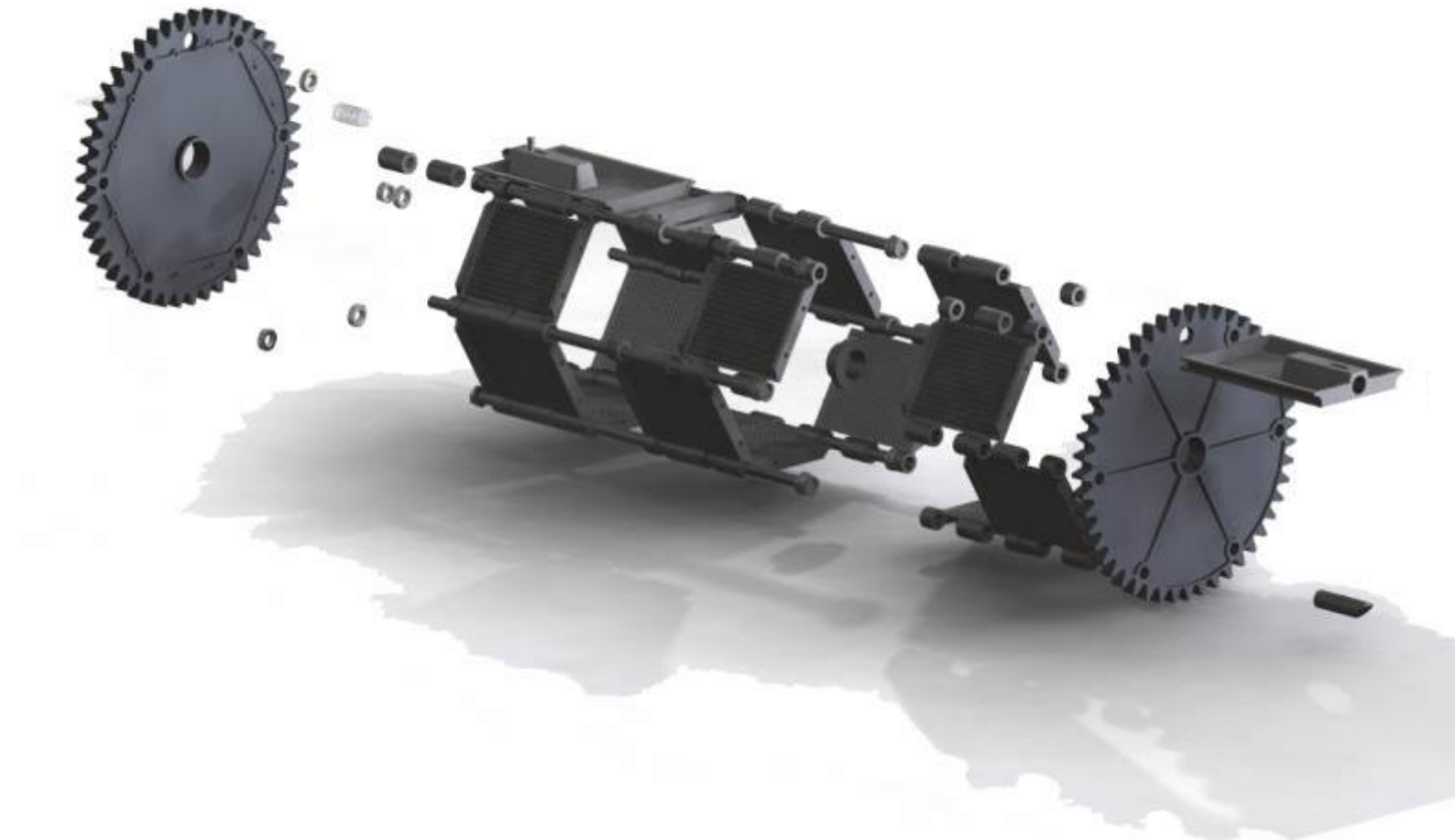
The perforated drum sections have 1.0 x 1.0 and 2.8 x 2.8 mm standard cells with studs on the inner surface for preventing flat piece sticking. The inner drum space can be divided into multiple sections with bulkheads.

The polypropylene drums can be used in most processes with < 80 °C operating temperatures.

Stainless steel drums can be supplied at a special request.

	Standard length*	Max. loading	Perforation (mm)	Operating tempretarur	External dimentions
Models of galvanizing drums	430	20	1,0x1,0 or 2,8x2,8	less then 80C	430 × ø 397
	610	30			610 × ø 397
	680	35			680 × ø 397
	790	40			790 × ø 397
	835	45			835 × ø 397
	1200	60			1200 × ø 397

** It is possible to produce a drum with not standard length in accordance with customers requirements*



PORTABLE DRUMS

BP-1.5 and BP-1.3 portable drums are used in manually operated lines for processing bulk loaded pieces with 1.5 and 3 kg capacities respectively. Portable drums can be used for zinc, cadmium, nickel, silver, gold, etc. plating at process temperatures of within 80 °C.

Portable drums consist of polypropylene sidewalls with titanium studs, reduction electric motors, polypropylene enclosures, two DC contacts, handles and two copper hooks.

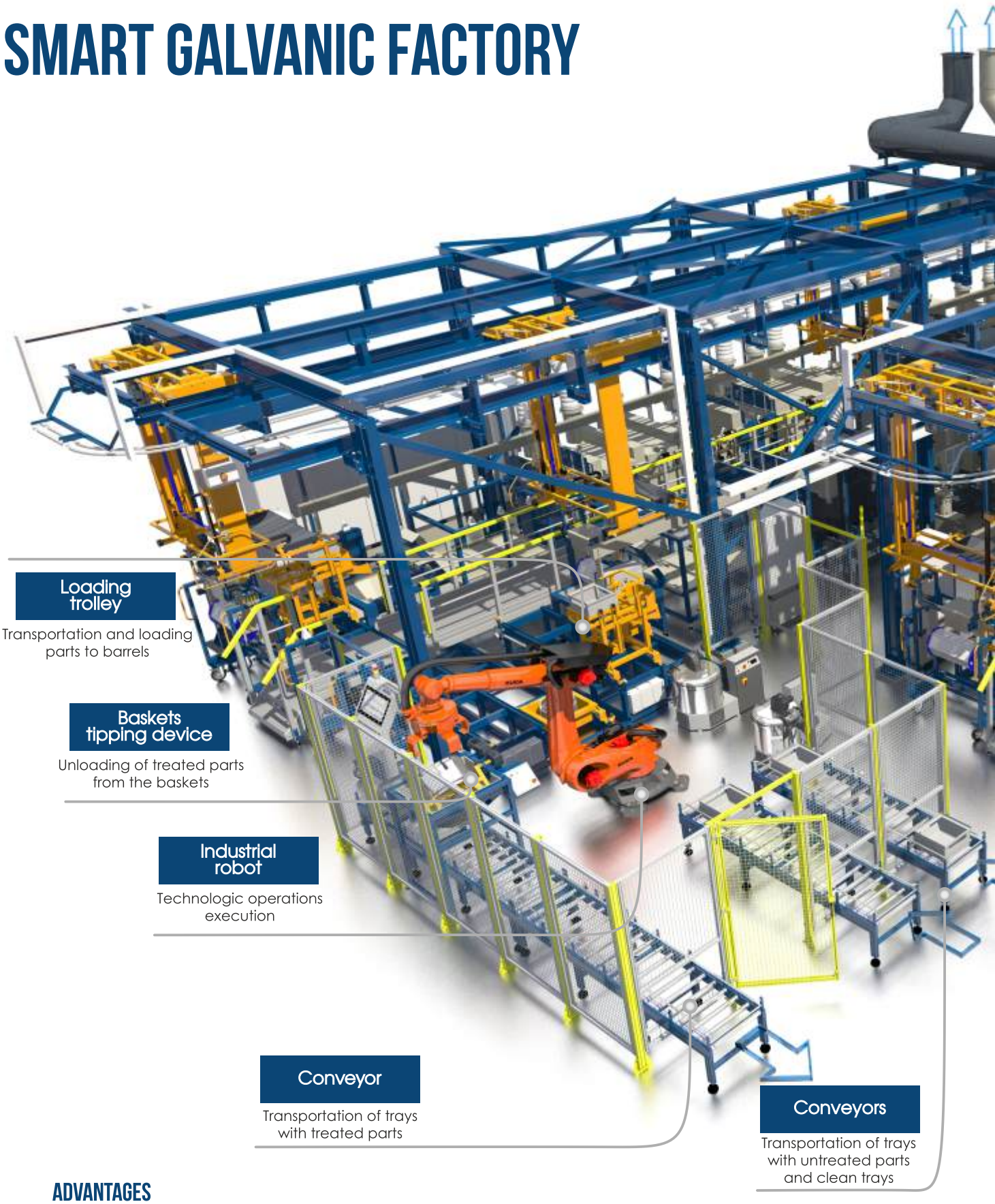
The drum enclosure is a hexagonal prism in which one of the faces is the lid. The enclosure has butt mounted toothed wheels which also act as the drum side walls and transfer the torque from the electric motor through a parasitic toothed wheel.

The drum is hanged on a galvanic tank rod with DC contacts to which flexible cathodes are connected for current supply to the processed pieces.

The power supply of BP-1.5 and BP-1.3 portable drum electric motors must be provided from step-down transformers or other 12 or 24 VDC power sources.

Technical parameters	**БП-1,5**	**БП-3**
Dimentions of the drum (working part), mm	177x160	280x160
Perforation straight holes, mm	1,0 or 2,8	1,0 or 2,8
Empty drum weight, kg, up to	6	7
Maximum drum loading, kg	1,5	3
Drum rotation frequency, rpm	11	11
Supply voltage of the drive motor, V DC	12 or 24	12 or 24

SMART GALVANIC FACTORY



Loading trolley
Transportation and loading parts to barrels

Baskets tipping device
Unloading of treated parts from the baskets

Industrial robot
Technologic operations execution

Conveyor
Transportation of trays with treated parts

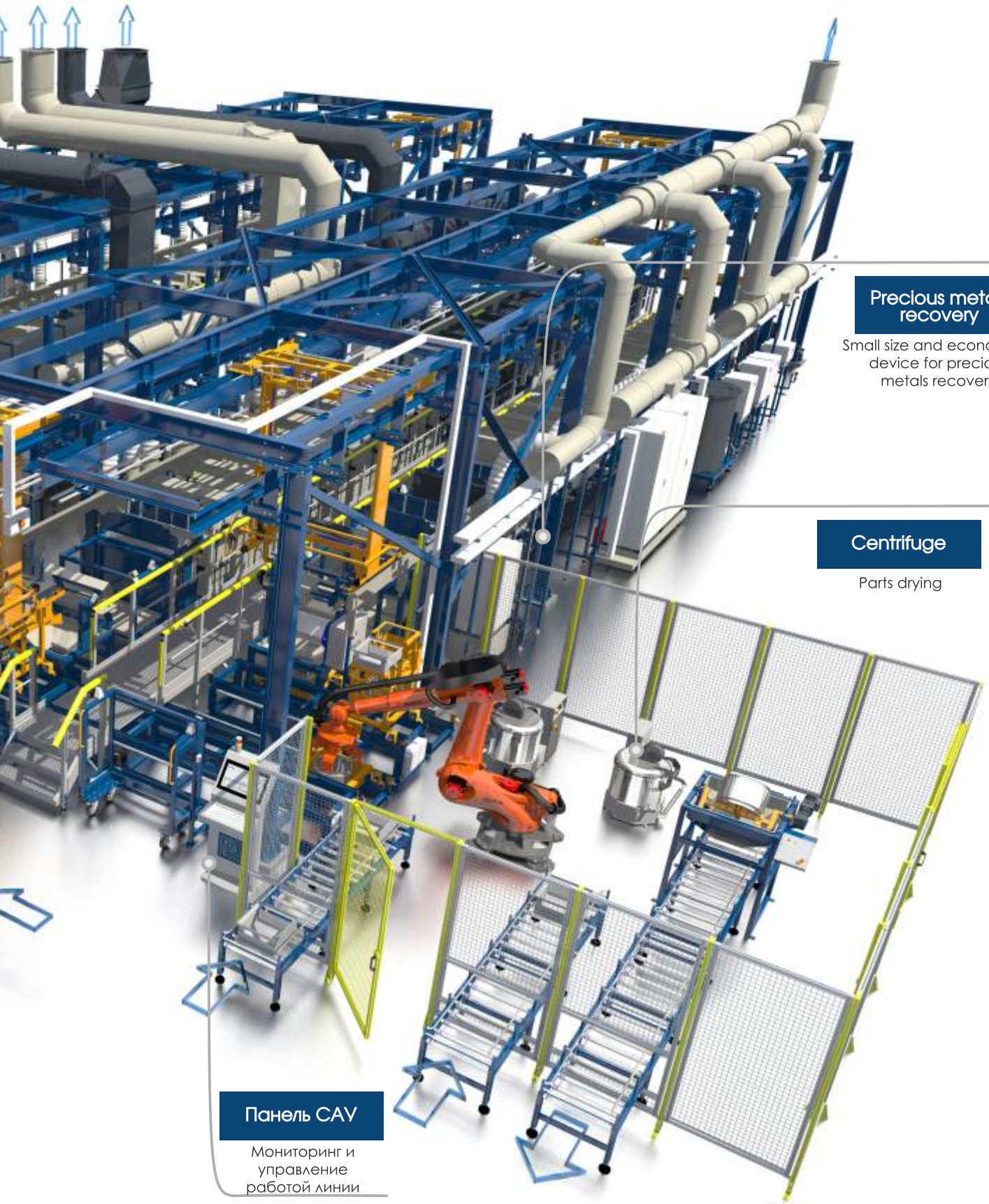
Conveyors
Transportation of trays with untreated parts and clean trays

ADVANTAGES

Automation
Full automation of galvanic workshop

Autonomic system
Performance on a high autonomic level

Absence of operational delay
Minimal operational delay, non-stop operation



Precious metals recovery

Small size and economical device for precious metals recovery

Centrifuge

Parts drying

Панель CAV

Мониторинг и управление работой линии

Costs minimization

Minimization of manpower resources

70% Minimization of discharges

Closed loop type of waste water treatment units, returns up to 70% of water

Precious metals regeneration

Precious metals are caught from waste water

ROBOTIZATION IN ELECTROPLATING INDUSTRY

Polyplast (Ltd.) is actively involved in the development of industrial robots in the electoplating industry and their integration into automated galvanic lines. The company already has experience in delivering automated workshops where the coating process takes place without any manpower intervention.

Automated electroplating workshops with industrial robots can save our customers money, work non-stop in the harmful environment of the workshops, and have a high accuracy.

Such automated workshops can work around the clock without any human involvement. For operation of such workshops the program created according to the technological process of coating parts is needed.

Sequence of operations

1 The robot loads the tray with the received parts onto the trolley. The trolley has the device for loading parts from the tray into the drum.

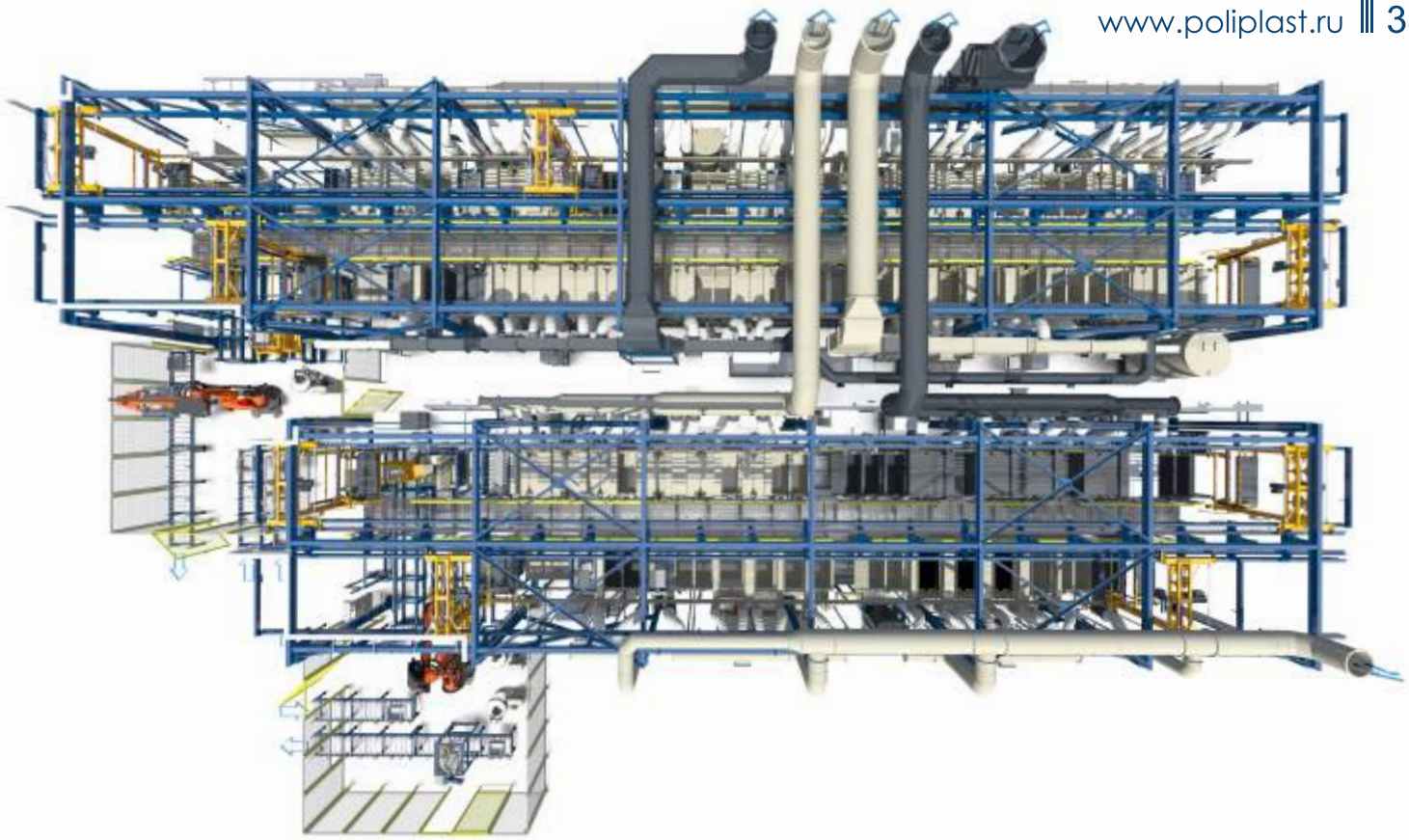
2 A trolley v
parts from
moved in
the robot

6 The robot picks up a clean tray from the conveyor and places it on the another conveyor for unloading parts from the basket.

5 The cart
loading
positions
pick up th
it on a con

7 The transporter moves the drum, with treated on the galvanic line parts, to the robot operation area. The robot opens the drum's lids, and the processed parts are unloaded into the basket.

8 The baske
robot's op
take the b
the centrif



with a device for loading
n the tray into the drum is
a line to the position with
to open the drum lids.

3 The robot opens the lid of the barrel, turns over the tray and load the parts to the barrel.

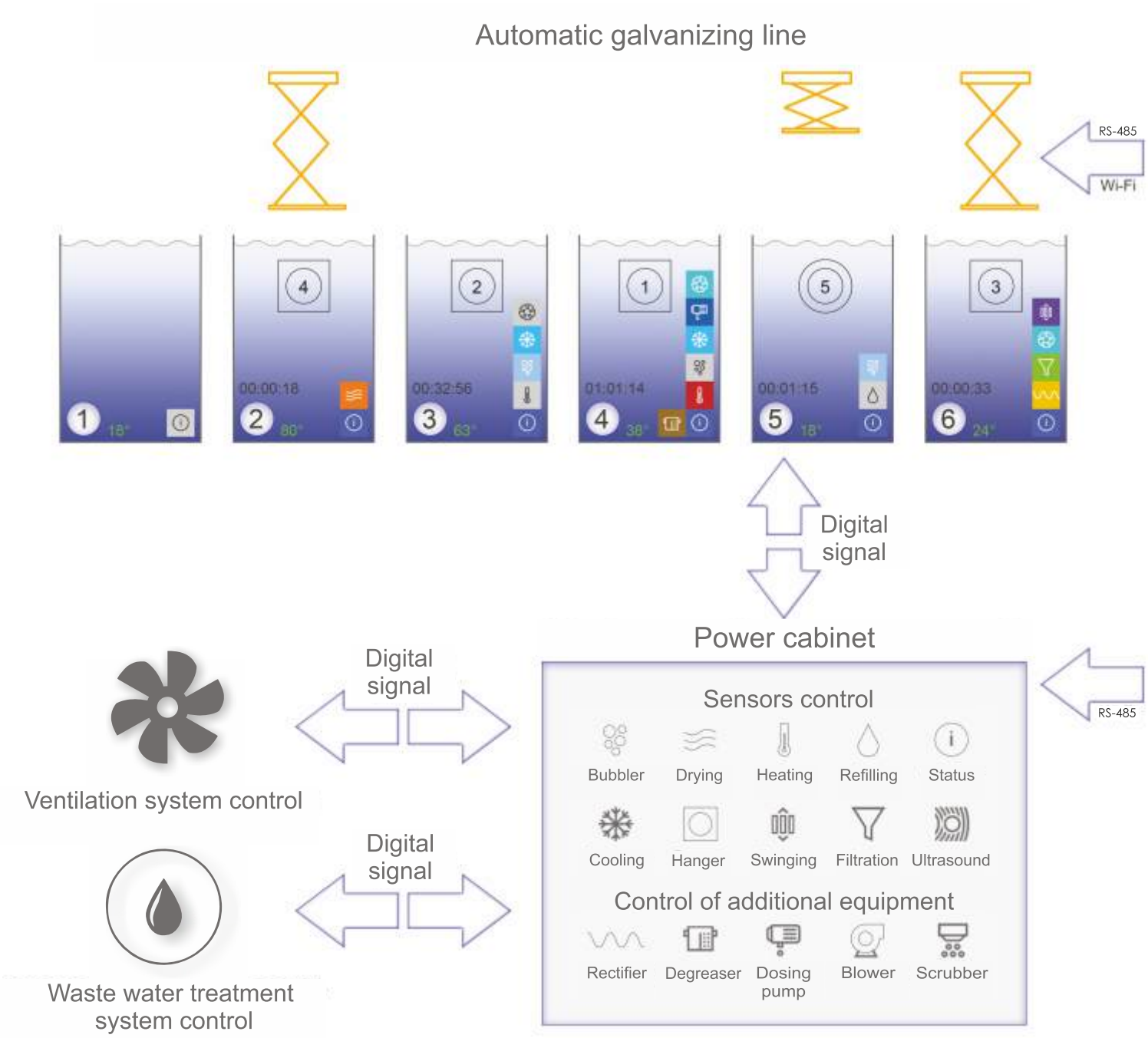
with the device for
parts is sent to the
to the robot. The robot
e empty tray and place
nveyor for transmission.

4 The robot closes the lid of the barrel, then the transporter takes the barrel and move it to the line for treatment in accordance with technical posses.

et with parts is moved to
peration zone. The robot
basket and transport it to
fuge

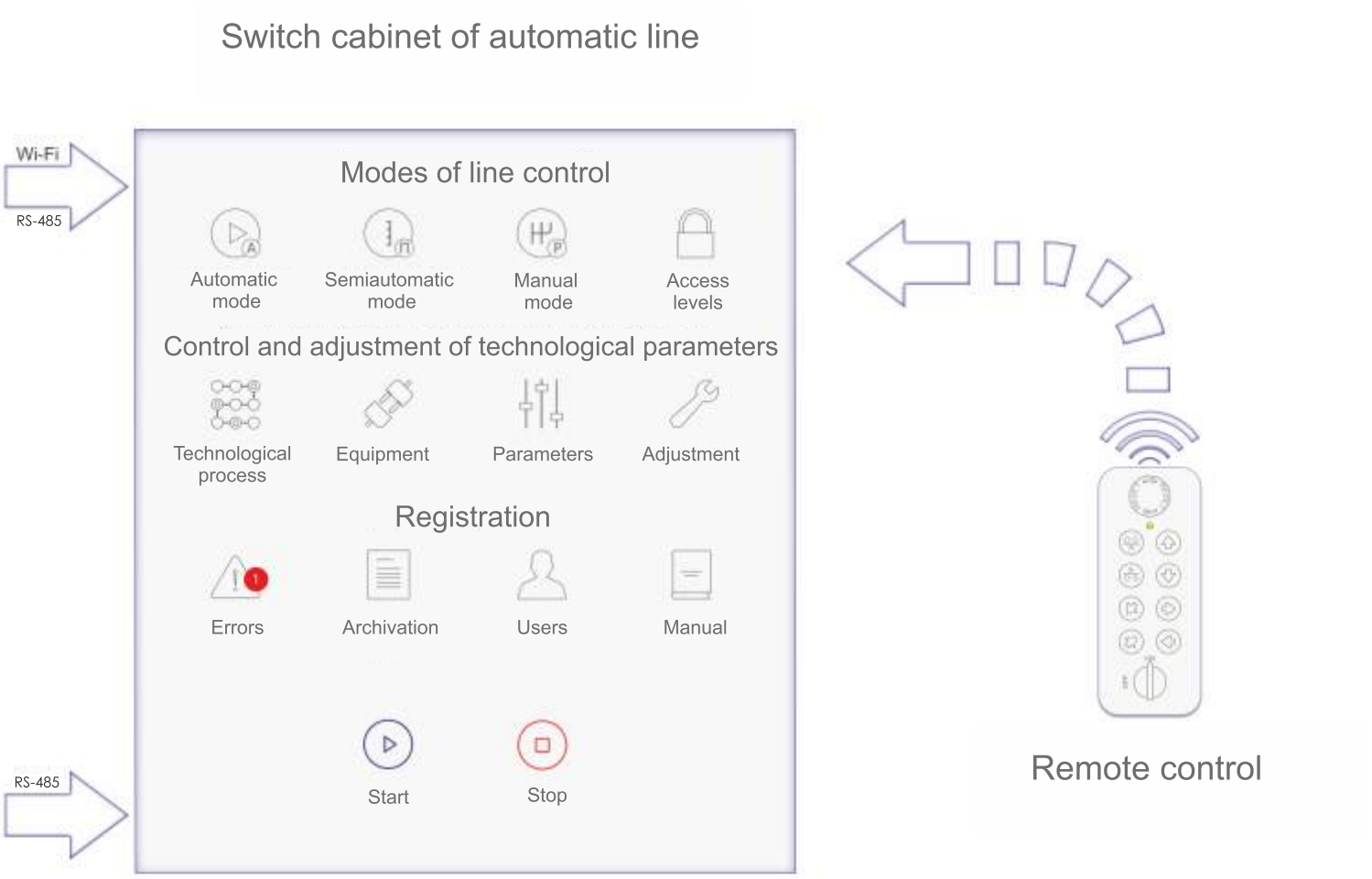
9 After drying in the centrifuge the robot moves the basket to the tipping device. The basket is unloaded and the parts go to the clean trays. Then the conveyor moves parts to the storage.

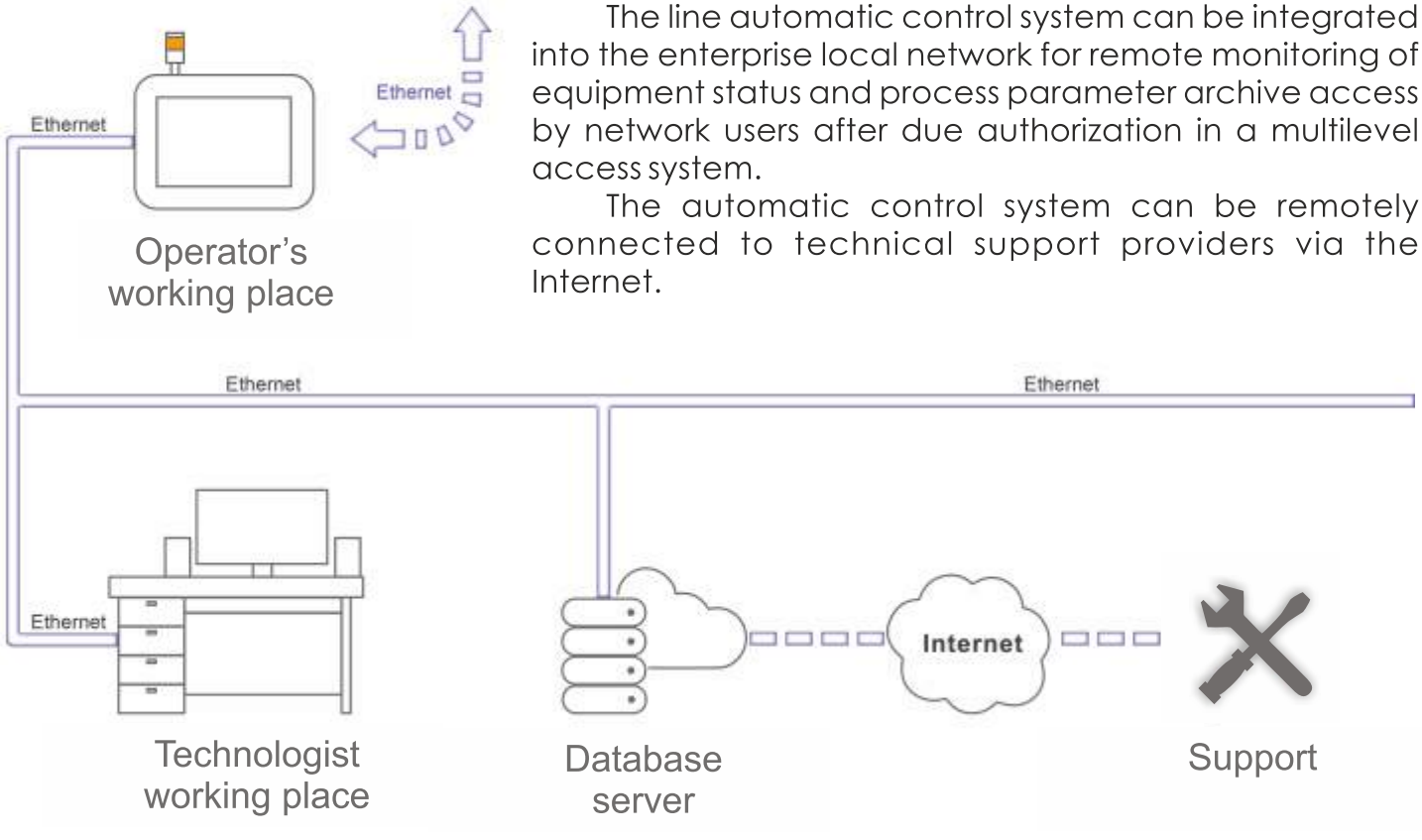
AUTOMATION CONTROL SYSTEMS



During piece processing the operator's PC displays the following information:

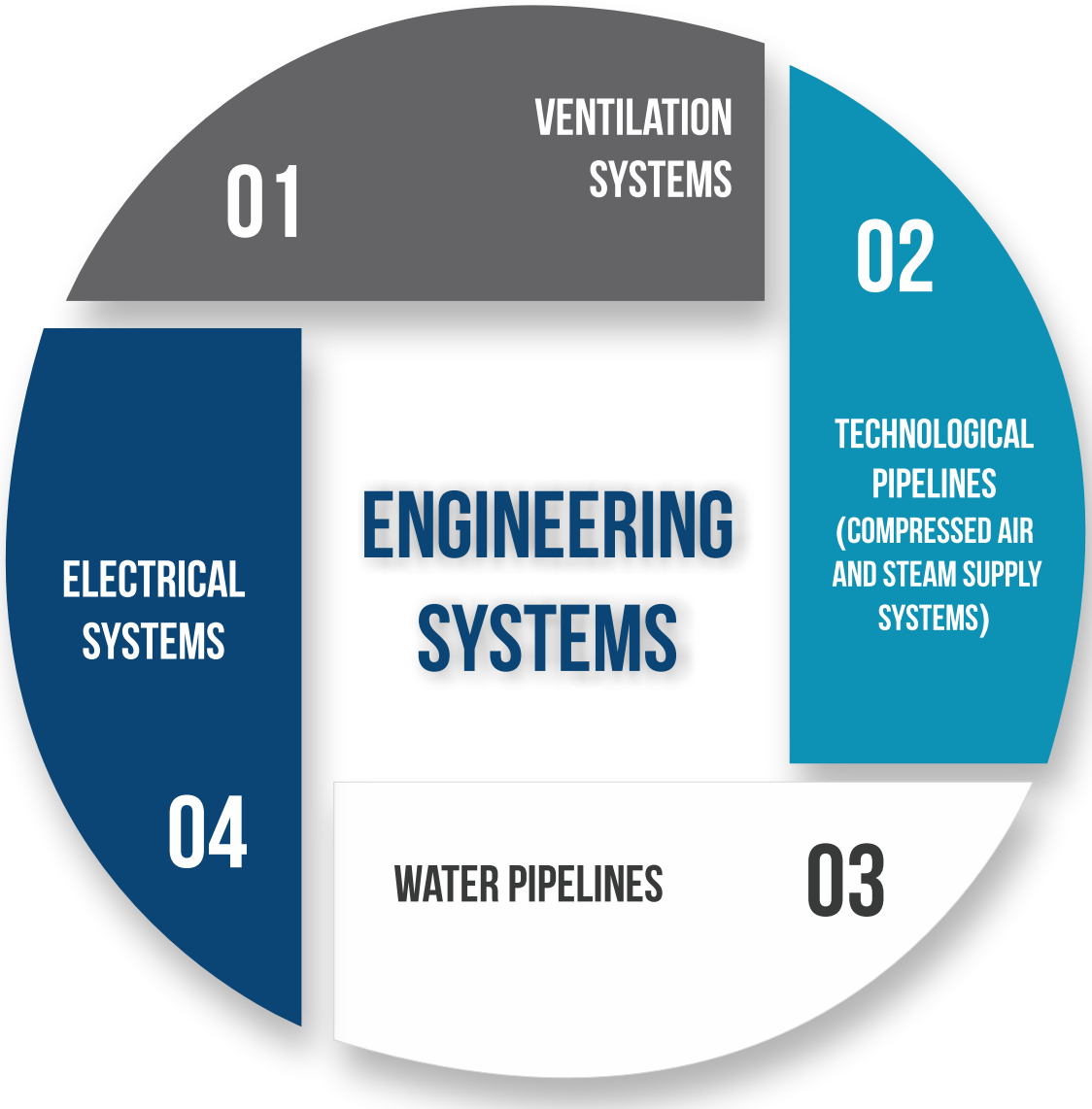
- Current galvanizing line status;
- Equipment status visualization;
- Transporter's current position and movement between process stages;
- Current loading cell positions with detailed data on load date, time and number, and list of processed pieces;
- Real time tank process parameter monitoring (temperature, current, voltage, water consumption, etc.);
- Tank process parameter graphical visualization in the form of time charts.





The line automatic control system can be integrated into the enterprise local network for remote monitoring of equipment status and process parameter archive access by network users after due authorization in a multilevel access system.

The automatic control system can be remotely connected to technical support providers via the Internet.



Poliplast galvanizing lines are equipped with ventilation, water pipelines, compressed air and steam supply systems, and switchgear

01 Exhaust and inlet ventilation systems, air flow cleaning.

VENTILATION SYSTEMS

02 Steam distribution pipeline. Compressed air supply pipeline.

TECHNOLOGICAL PIPELINES (COMPRESSED AIR AND STEAM SUPPLY SYSTEMS)

03 Equipment piping for water supply and rinsing water and solution drainage.

PROCESS PIPELINES (WATER SUPPLY SYSTEMS)

04 Electrical cabinets with startup and protection devices, wiring for all line consumers.

ELECTRICAL SYSTEMS

Ventilation Systems
The systems include tank lateral exhausts, assembled in-shop air ducts with poles and hangers and outdoor air ducts. Ventilation system components are made from high quality materials supplied by SIMONA AG and AGRU KunststofftechnikGmbH (Austria).

Electrical Cabinets
Electrical cabinets contain startup and protection devices of all the electrical equipment installed in the line, solution heating controls, automatic solution temperature and level controls and visible and audible level solution depletion alarms. Manufactured on the basis of IP54 cabinets supplied by RITTAL (Germany).

The equipment has the following piping:
- tank water supply pipelines;
- pipelines for drainage collecting and diverting to sewage, providing if necessary separation of different transported liquids.

The lines are equipped with low and high-pressure compressed air supply pipelines for piece blow drying, bubbling for higher agitation efficiency and other systems.
The lines are equipped with heat insulated steam pipelines if tank solution is steam heated.

WATER PRETREATMENT

The most water in galvanizing processes is consumed for rinsing and for process and auxiliary solutions. The quality and quantity of water consumed by industrial; galvanizing processes are determined by the production capacity and comply with GOST 9.314-90.

GOST 9.314-90 specifies that second category water supply is required for most rinsing procedures in industrial galvanizing. Third category water supply is required for most process solutions. Water categorization for solution and rinsing tanks is determined by individual process requirements. Depending on source water composition, water pretreatment plants may include source water expansion and distribution units, preliminary cleaning units (mechanical cleaning, deironing, aeration, charcoal filtering, etc.), reverse osmosis plants, ion exchange resin cleaners and clean water expansion and distribution units.

SEWAGE TREATMENT FACILITIES

The galvanizing industry is among the most hazardous environment of contamination sources, mainly for surface water sources and underground aquifers, and produces large quantities of solid waste, mainly if sewage treatment reactants are used. These galvanizing facilities generate large quantities of hazardous sewage due to the presence of acids, alkali and heavy metals.

Sewage treatment facilities are intended for treatment of sewage coming from the following sites:

- galvanizing coating shop equipment;
- gas cleaning plants;
- industrial floor cleaning.

Poliplast pays special attention to safe and environmentally friendly equipment operation and has vast experience in supplying sewage treatment facilities complying with water cleanliness regulatory requirements (GOST 9.314-90).

REVERSE OSMOSIS PLANTS

Poliplast offers reverse osmosis water pretreatment plants. These systems are used in combination with other 2nd and 3rd category water pretreatment units as per GOST 9.314-90 used in the galvanizing industry. Reverse osmosis plants are fitted with preliminary water filters required for mechanical impurity and turbidity removal. Water is then supplied to reverse osmosis membrane modules.

In the membrane modules water is divided into clean water and concentrate. Clean water is supplied to the process expansion tank. The concentrate is diverted to drainage or for further disposal.

Reverse osmosis plants are operated by the automatic control system based on level gage signals received from the clean water expansion tank.

Reverse osmosis units are equipped with automatic rinsing systems activated at the beginning and at the end of the filtering cycle.

The reverse osmosis membrane capacity is maintained by semiautomatic chemical cleaning of the membranes with a special solution 1–2 times per month.

ION EXCHANGE COLUMNS

Ion exchange treatment removes heavy, alkaline and alkaline-earth metal salts, free mineral acids, and alkali and some organic materials from sewage.

For this purpose sewage is treated with synthetic ion exchange resins (ionites) which molecules contain mobile ions (cations or anions).

The ion exchange method is suitable mostly for sewage with a total salt content within 300 mg/l. Local ion exchange treatment is the most economically efficient.

The sewage ion exchange treatment includes sequential cationite and anionite treatment stages.

Saturated ionites are regenerated. Solutions obtained after ionite regeneration (eluates) are sent for further treatment.

Ion exchange columns are often the main components of treatment systems that may additionally include sand and charcoal filters, expansion tanks, pump stations and other equipment. These systems are equipped with process control systems providing for automatic system operation and regeneration.

SCRUBBERS

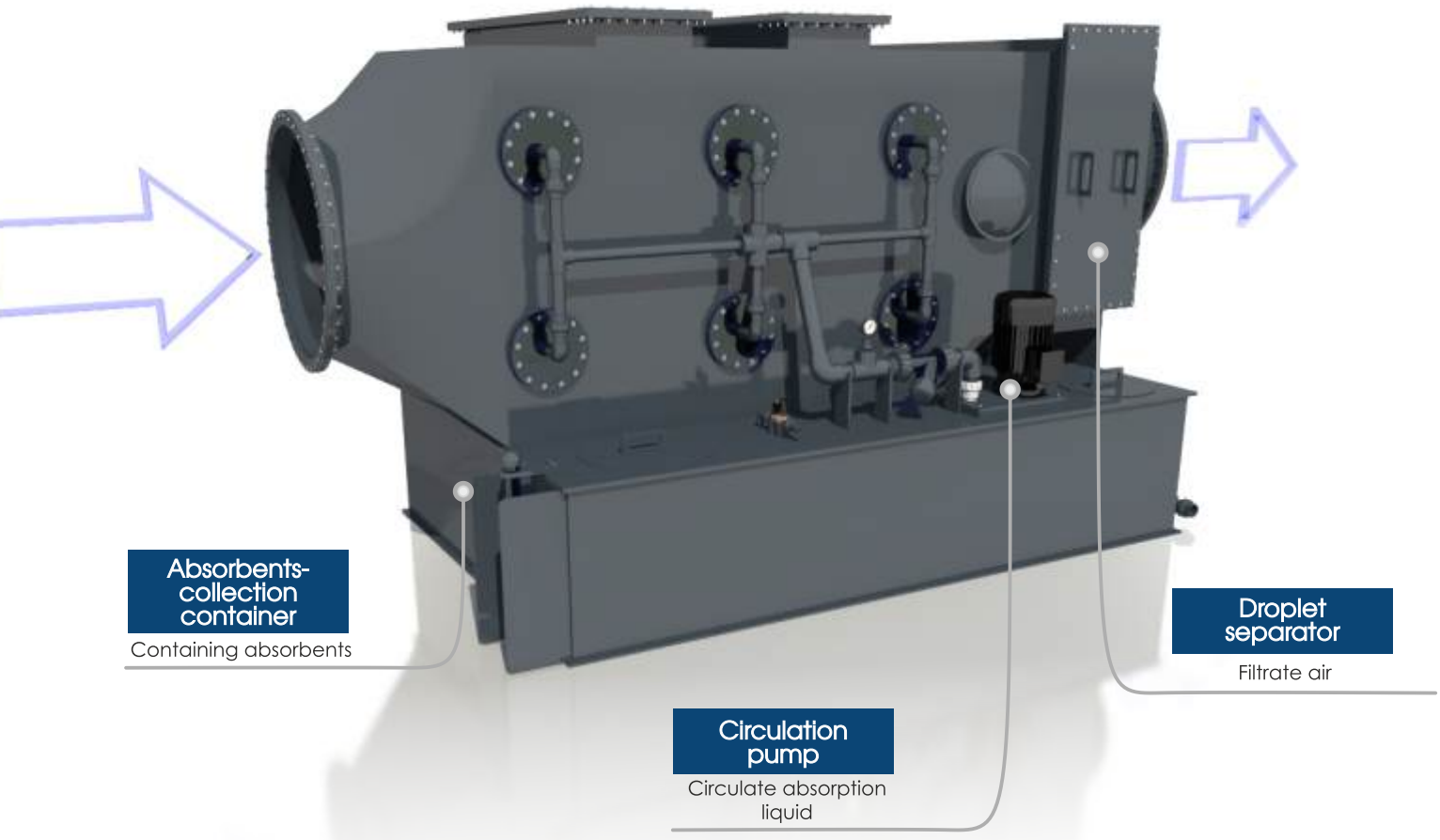
Scrubbers are industrial plants for cleaning exhaust air from hazardous impurities contained in the form of aerosols and gases. Contaminated inlet air is cleaned with scrubbers using absorption liquids, e.g. water or special solutions. Contaminated liquid is supplied for disposal to treatment facilities via pipeline systems.

The wet airflow cleaning method has a high cleaning efficiency, i.e. 97–99 %.

Scrubbers are made from plastics: polypropylene (PP), polyvinylchloride (PVC), polyvinyldifluoride (PVDF) and polyethylene (PE) sheets. Specific materials are chosen based on process operation parameters.

Scrubbers are equipped with automatic control cabinets providing absorption liquid level control, batching, pH measurement, and water replenishment.

Additionally, scrubbers can be equipped with conductivity measurement systems and automatic desalination systems.



CYANIDE DISSOLUTION PLANTS

Cyanide dissolution plants are intended for the safe preparation of cyanide solutions by pinning the loaded cyanide salt containing steel barrels and dissolving cyanide salts in pressurized chambers (reactors) in automatic mode.

The equipment contains cyanide solution preparation reactors, pinning and dissolution machines, and filtering plants.

The cyanide dissolution plant is controlled by Siemens S7 based software.

This control allows for choosing the quantity of liquid to be supplied, solution temperature, batcher operation time, and batching and controlling component activation sequence.

Salt containing barrels are handled, installed and removed with telfer cranes.

Cyanide solution preparation sites are equipped with a drum (barrel), equipment and fittings as well as neutralizing tanks and rinsing tanks.

CERTIFICATES AND PERMISSIONS


CERTIFICATE

for the management system
according to ISO 9001:2015

LLC Poliplast

Certificate of
Certified quality system
ISO 9001:2015

Conclusion on
production equipment
in Russian territory


ЕАС

ТАМОЖЕННЫЙ СОЮЗ
ДЕКЛАРАЦИЯ О СООТВЕТСТВИИ

Declaration of
conformity
for galvanic lines


СВИДЕТЕЛЬСТВО
О РЕГИСТРАЦИИ ЭЛЕКТРОЛАБОРАТОРИИ

002523

Certificate for
electrolaboratory
registration


СВИДЕТЕЛЬСТВО

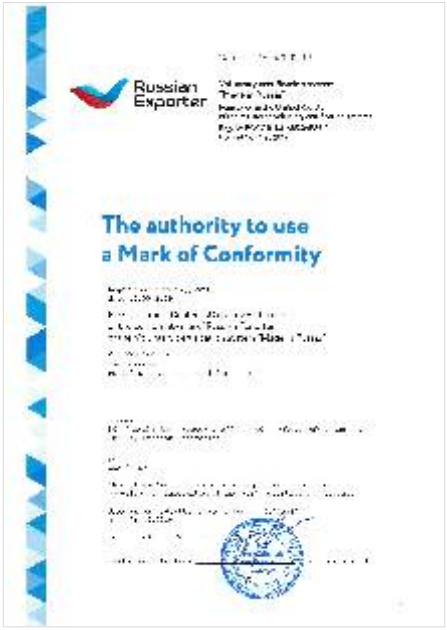
Certificate for
welding technology


СВИДЕТЕЛЬСТВО

Certificate for
project engineering

LICENSE AND PATENTS

Licence for usage of the classified information



“Made in Russia” certification Mark of conformity

“Made in Russia” certification Certificate of conformity

Patent №2416575 for invention «Method of civil sewage treatment»

Patent №2415767 for invention «Transporter for galvanic line»

Patent №2704868 for invention Automated plant of

PATENTS AND DEALER CERTIFICATES

Patent №146550
for utility model
«Maintenance platform»

Patent №2715272
for invention
«Galvanizing barrel»

Patent №2416575
for utility model
«Unit for civil
sewage treatment »

Dealer certificate
Kraft Powercon (AB)

Dealer certificate
Hendor

Dealer certificate
Mazurczak

DEALER CERTIFICATES

Our ref.: Official distribution partner of FORMECO s.r.l.

Dear Sirs,

We are writing to inform you that the company Poliplast Ltd. (registered office in 180004 Pskov, Oktyabrsky Ave., 50) is an official distributor in Russia for our water treatment evaporators. Through the professional technical and commercial activities of Poliplast Ltd. in Russia you have access to a large range of highly innovative products and original spare parts.

Yours faithfully,

Formeco S.r.l.
export department

Dealer certificate
Formeco (S.r.l)

WRS

LETTER OF AUTHORIZATION

This is to certify that WRS S.R.L. entitles Poliplast Ltd. as sole distributor in the territory of Russia.

Authorization Number: WRS-RU-20
Authorized Range: Sales & technical support of all dosing pumps and instruments.
Authorized Region: Russia
Duration Of Authority: Jan 2020 – Dec 2020

Certified by CEO of WRS S.R.L.:

W R S S.R.L.
Sede Legale:
Via Borromei, n° 2
20123 MILANO

Dealer certificate
WRS (S.r.l)

AIRTEC MUEKU GMBH

To Whom It May Concern:

This letter is to confirm that company Poliplast Ltd., represented by the General Director Andrey Konstantinov, represents exclusively company AIRTEC MUEKU GmbH (Germany), in the territory of Russia for all direct sales and service of its products.

Yours sincerely,

Co-owner
AIRTEC MUEKU GmbH

Dealer certificate
Airtec Mueku (Gmbh)

Asio

CERTIFICATE
СЕРТИФИКАТ

ООО "ПОЛИПЛАСТ"

ASIO, spol. s r.o.

Dealer certificate
ASIO (s.r.o.)

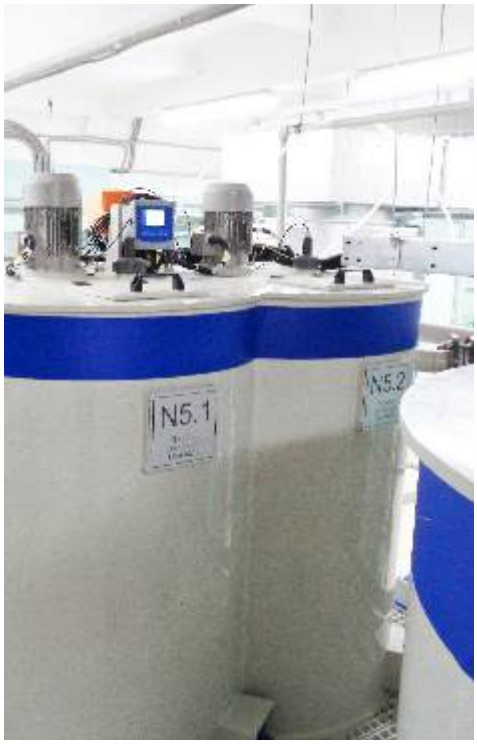








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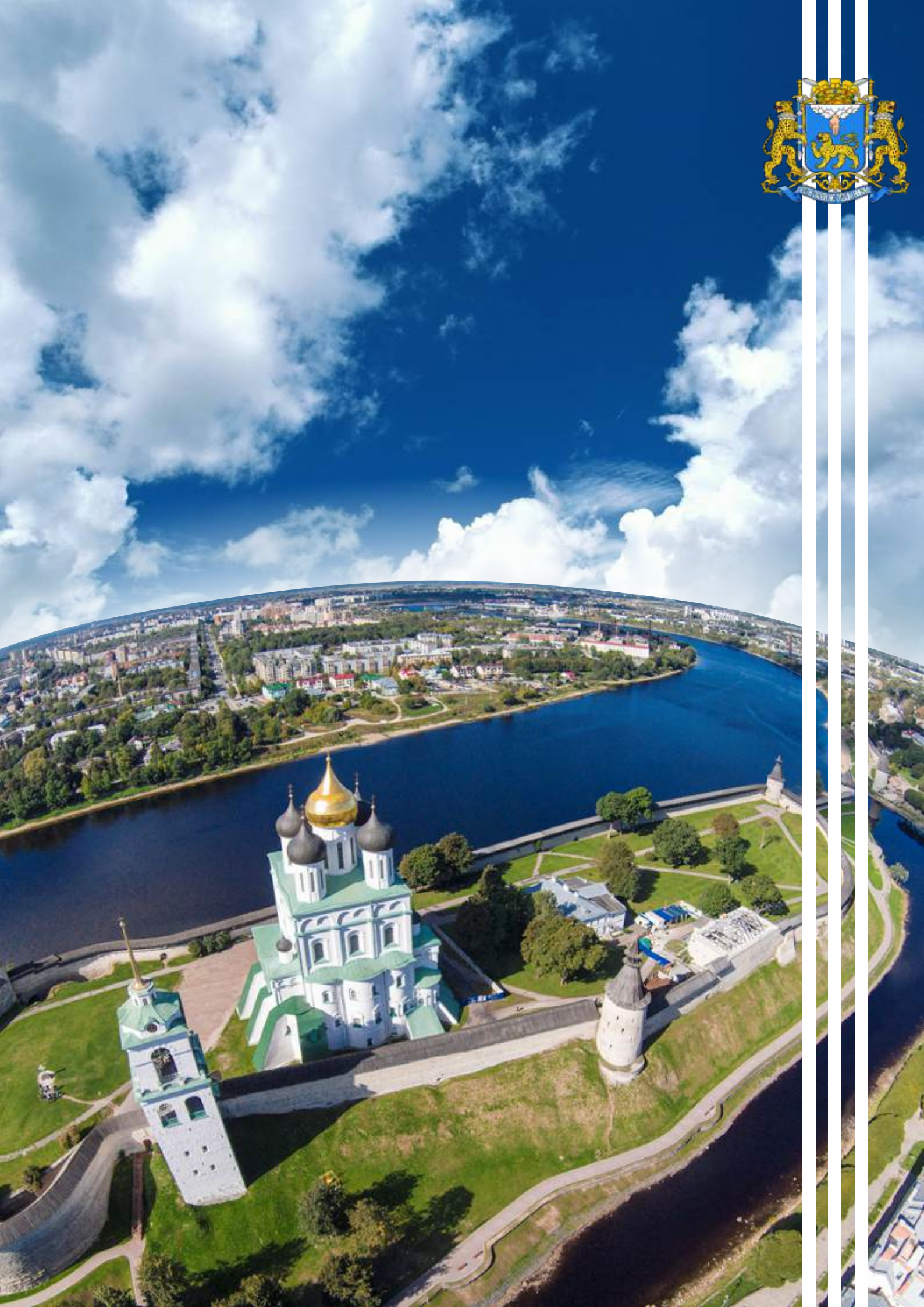
FOR NOTES



Poliplast, Ltd.
180004, Russia, Pskov, Oktyabrskiy prospect, 50,1001
+7 (8112) 72-53-15
+7 (8112) 66-36-50

e-mail: marketing@galvanica.ru
www.poliplast.ru