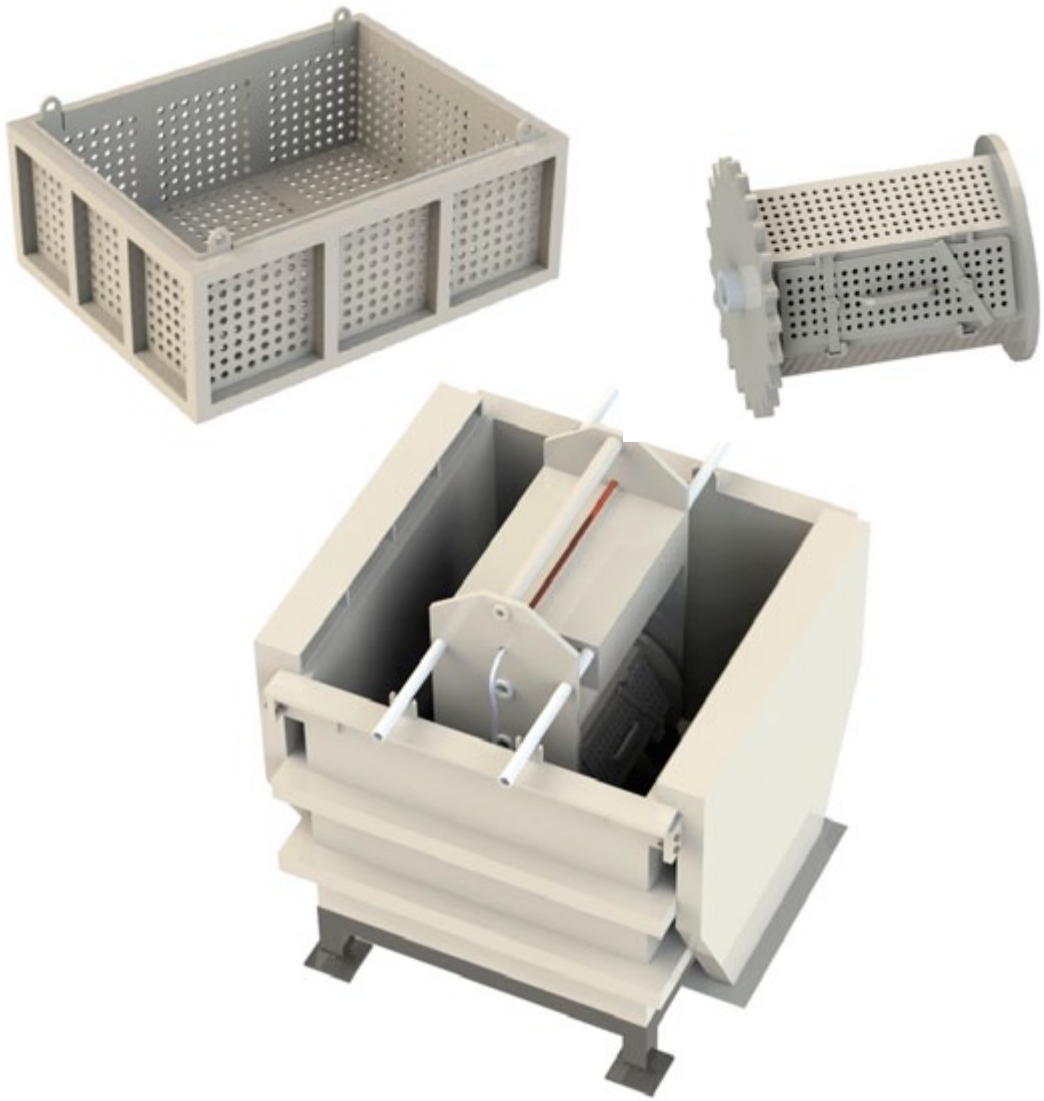
UralActiv

manufacturer of products from polypropylene



Electroplating equipment

Version № 1 - 03/2017

CONTENT

Introduction. 3
Electroplating baths....5
Electroplating baths for chromate treatment....6
Drum-type baths....7
Perforated drums....8
Bell-type baths....9
Perforated bell....10
Rinsing baths....11
Baskets....12
Additional equipment and components in electroplating industry....13
Exhaust cover for electroplating baths (cover with integrated suction unit)....13
Exhaust hoods....14
Lateral exhaust....14
Fume hoods....14
Heaters....14
Surface treatment tables for electroplating and tables for rigging....15
Bubbler in baths....15
Balls (floats) from polypropylene....15
Polypropylene flooring....15
Collecting and balancing tank 16
Chemical-resistant fans....16
Air cleaning from aggressive media....16
Report form for production of galvanic equipment....17

Introduction

The company «UralActiv» Ltd. manufactures electroplating equipment. It can be simple galvanic baths or hand operated galvanizing lines equipped with pollution control facilities, exhausting systems etc.

The equipment used in electroplating industry should have anticorrosive coating resistant to aggressive media. For this reason we offer to produce from high-quality materials: polypropylene, polyethylene, polyvinyl chloride, polyvinylidene fluoride (PP, PE, PVC, PVDF etc.). Electroplating coatings are used to protect the product surfaces from corrosion, to reconstruct sizes, to give good appearance, to advance wear resistant, to change electrical properties of facial layer etc. There are several types of protective coatings – chemical, galvanic, lacquer, enamel coatings etc.

Electroplating manufacturing processes:

Chromate treatment, zinc-plating, nickel-plating, tin plating, iron plating, copper-plating, silver-plating, cadmium-plating, brass-plating, steel oxidation (blueing), aluminium oxidation (anodizing), phosphating treatment, chemical passivating, pickling, etching, activation, washing, lacquering, brightening, blanching and other processes.

We produce plastic galvanic baths of any form and with different dimensions, and also equipment and other components for different processes of electroplating industry. At customer's option we can manufacture galvanic products of cylindrical and rectangular form, they can be of vertical and horizontal design, and also can be completed with hatches, airways, branch pipes, bends, fittings, pumps and other special equipment.

All products are manufactured in accordance with technical specification
ТУ 2291-001-95801889-2015

The main material used in electroplating is polypropylene. Polypropylene doesn't absorb smells and doesn't pass them to the liquids; it is easy to wash and has almost no incrustations. PP is an excellent dielectric material. As PP material conducts heat hardly the polypropylene reservoirs are good to keep temperature of liquids without using heat insulation. The shelf-life of polypropylene products is in several times greater than the shelf-life of products from metal.

Manufactured goods are widely used for single industrial applications, for chemical and electroplating industries.

Containers from PP sheets have lighter weight as the metallic containers with the same capacity. It is a good advantage if you need to transport containers.

The main characteristics of PP are low density, high temperature resistance, high tensile strength, chemical resistance, excellent water resistance, low friction resistance and simply processing. Due to the low weight of polypropylene and its good properties in aggressive medium the PP material is widely used and becomes an optimal solution for many different branches.

The wall's thickness and color spectrum can be changed as prior agreed

Available types of plastic:

made in Russia			
Abbreviation	**Designation**	**Temperature range, °C**	
PP-BC (ПП-БС)	polypropylene block copolymer	-40…+80	Default basic material
PP-H (ПП-Г)	polypropylene homopolymer	-5…+105	
HDPE (ПНД)	polyethylene	-50…+80	

made in Germany			
Abbreviation	**Designation**	**Temperature range, °C**	
PVC	polyvinylchloride	0…+60	
PVDF	polyvinylidene fluoride	-30…+140	
PPs	flame-resistant polypropylene	0…+100	
PP-EL-s	electrically conductive, flame-resistant polypropylene	0…+80	

Specifications of thermoplastics

The customer and/or design company choice the type of thermoplastics according to the temperature, composition and concentration of the media based on data from the table of chemical resistance thermoplastics and operation experience.

If you need the printed version of interested for you catalogue you may print it fully or only separate section or pages about product needed for you. If you are from the research institute or design office we can supply you with printed catalogue on request. For it you need to send your request on our e-mail info@uralactiv.ru including following information:

1. Name of research institute or design office
2. Your name, surname, position
3. Contact information: Phone number, e-mail
4. The name of project where you plan to use our products

Electroplating baths

There is an opportunity to design and produce all types of polypropylene galvanic baths on the bases of our company.

The material using in electroplating baths depends on set, concentration and temperature of acids to be processed. Polypropylene baths are the most functional because of their accessibility and good chemical resistance.

Available types of plastic by the production of electroplating

PP (ПП) – polypropylene (of Russian production)
PP – polypropylene (of foreign origin)
PVC – polyvinyl chloride
PVDF – polyvinylidene fluoride.

The PP electroplating baths have stiffening plates, the same of greater size have steel external frame.

The size of galvanic baths depends directly on part's dimensions to be processed, for this reason often the galvanic baths are developed and manufactured on specific customer needs. This kind of baths made from PP is suitable for most types of electroplating: polishing, chromate treatment, zinc-plating, nickel-plating, cadmium-plating, copper-plating, lacquering, brass-plating, washing and drying of parts.

Our company can produce tables for electroplating, bells, drums. Drums enable the electroplating processing of small metal products and all hardware, e.g. pegs, bolts, nails, metal fitments etc. Galvanic drum can be included in drum carriage and drum bath. There are producing drums of every size and type according to the dimensions and transport equipment of customer's galvanizing line.

Plastic electroplating baths are more reliable than metal or stainless baths, are cheaper than electroplating baths from special types of steel. They are lighter in weight, have better appearance and service life 10-50 years.

Electroplating Baths for Chromate Treatment

The chromate treatment baths are the most common baths in electroplating industry. They are used for coating of the parts with electrolytic chrome.

Chromate treatment makes the surface of the part corrosion-resisting, wear resistant, extra firm, chemical-resistant and of better decorative properties.

For example, measuring and cutting tools, punches, press forms and the other tools are coated with chrome to increase their service properties and also to restore worn-out parts.

Our company manufactures electroplating baths for chromate treatment from chemical-resistant thermoplastics: polyvinylchloride (PVC), polypropylene (PP), polyvinylidene fluoride (PVDF) - PVDF is used for inner lining of the steel or polypropylene baths.

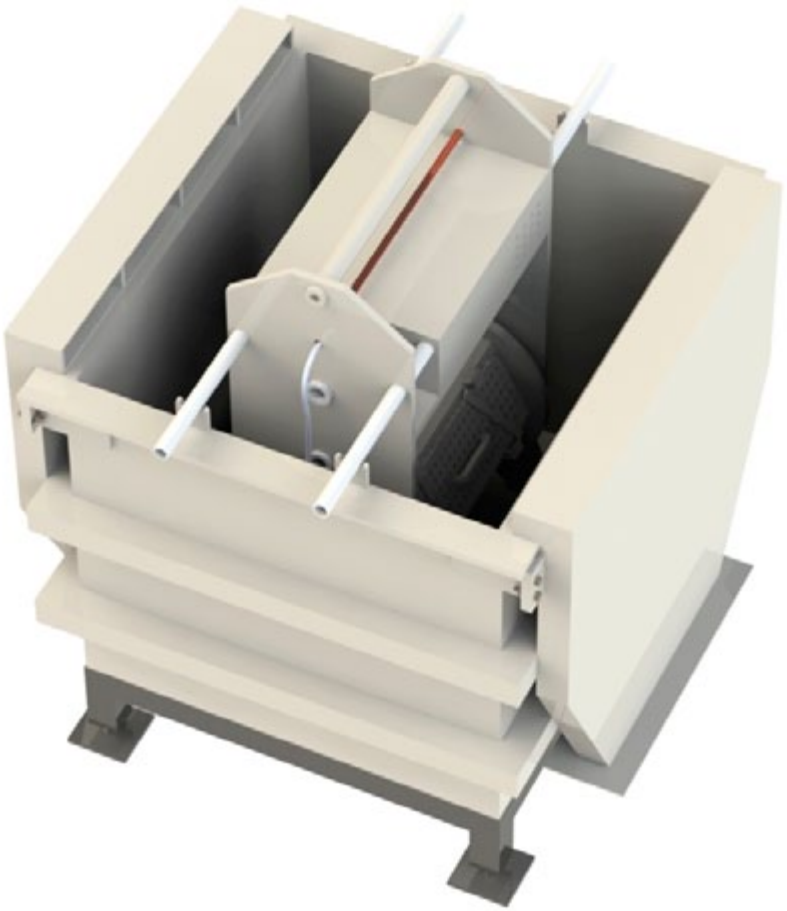
The baths for chromate treatment can be manufactured in accordance with the customer's requests (size, shape, components). Baths for chromate treatment made of PVC, PP or PVDF are usually equipped with additional components, e.g., integrated lateral exhausts, heating elements, airways, cathodes, anodes, bubblers, rod holders, covers with openings for the rods and many other accessories.

Drum-type Baths

Our company is technically equipped to manufacture drum-type baths using chemical-resistant plastics: polypropylene (PP), polyethylene (HDPE) polyvinylchloride (PVC) and others.

As a rule, in modern production the electrochemical and chemical coatings are applied on the parts in bulk. This method does not require fixing of the parts on the jigs and thus reduces cost of production.

The drum-type baths made of polypropylene are commonly used for coating of the small parts and items in bulk. There are portable and built-in drums. Polypropylene drum-type baths are constructed as the rotating perforated cylinder partially or fully dipped between anodes into polypropylene bath filled with electrolytic solution. Polymeric drum-type baths can be manufactured in accordance with the customer's requests and equipped with additional components (cathode contacts, anodes, gear motors, lateral exhausts, covers and others).



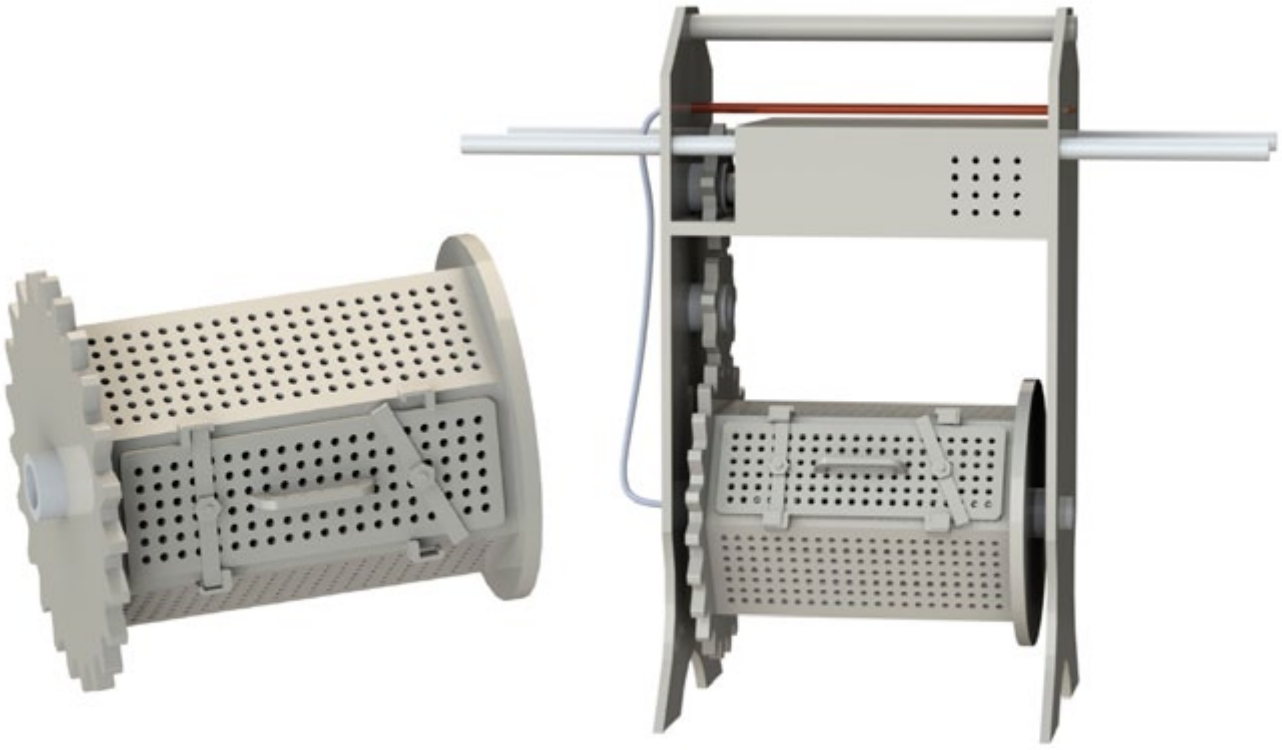
Perforated Drums

The electroplating drums are used to coat small parts. For this they are dipped into baths filled with electrolytic solution.

The drums for electroplating industry are manufactured from chemical-resistant, non-conductive polymeric materials, such as: polypropylene, polyethylene and polyvinylchloride. Polypropylene is the most popular material for manufacturing of the drums. Polypropylene drums are manufactured in the shape of hexagonal or octagonal prism with perforated lateral edges or in the shape of perforated cylinder. Perforations are made for current passage and free circulation of the electrolytic solution. Infeed and unloading of the parts is made through a loading hatch. The drum is rotated with gear drive. Gear motor drive can be fixed on a drum frame, drum carriage or external to the bath.

Polymeric drums and plastic drum carriages are used for galvanizing of the parts surface in the following technological processes: copper plating, zinc-plating, cadmium plating, nickel plating, passivating, blanching, phosphating treatment and others.

There are portable and built-in drums. The portable drums can be dipped into any electroplating bath! We can produce plastic drums and drum carriages with regard to your requests.

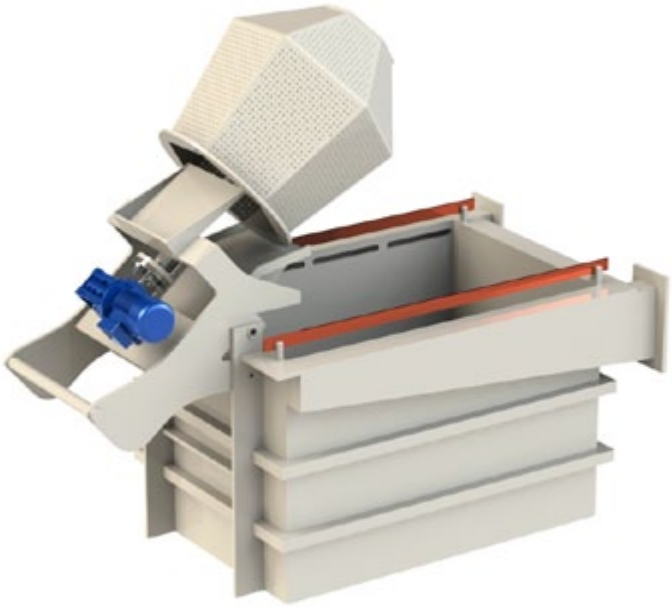


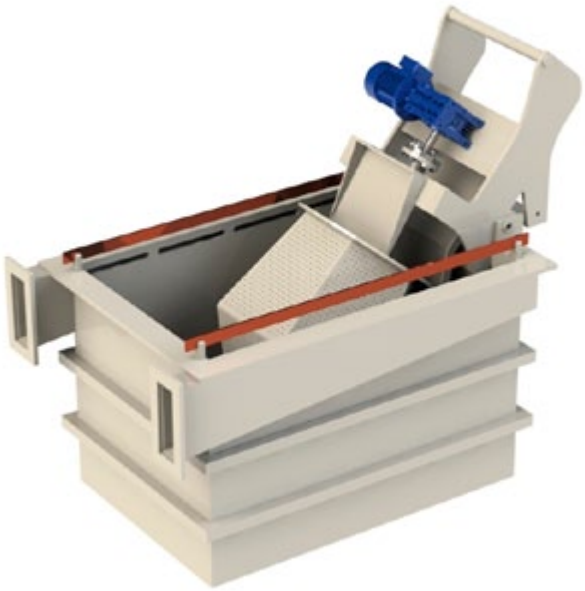
Bell Baths

In mass and serial production coating of the parts in electroplating baths is commonly made with electroplating bells. There are two types of the bell baths: baths with submersible perforated bell and baths with non-perforated overshot bell. The most common coatings made in the bell baths are zinc-plating, nickel-plating, cadmium plating, copper-plating and others. The bell baths are manufactured of polypropylene, polyvinylchloride, polyethylene and the other thermoplastics. The electroplating bell baths with submersible bell are used for coating of the parts in alkaline and acid electrolytes.

The submersible polymeric bell is fixed on a special bath frame and rotated with gear motor drive. When submersed the inclination of the plastic ball is 35-40 degrees. Infeed of the parts is made through the upper part of a polypropylene bell. The electroplating bell itself is dipped into bath with electrolytic solution and anodes with 35-40° inclination. Perforations of the polymeric bell provide current passage from anodes to the parts. Inside the bell there is a floating cathode. Infeed and unloading of the parts is handled through special hoppers.

On the customer's request the bell baths can be equipped with additional components: polymeric hoppers for unloading of the parts, lateral exhausts, rod holders, rods, covers.

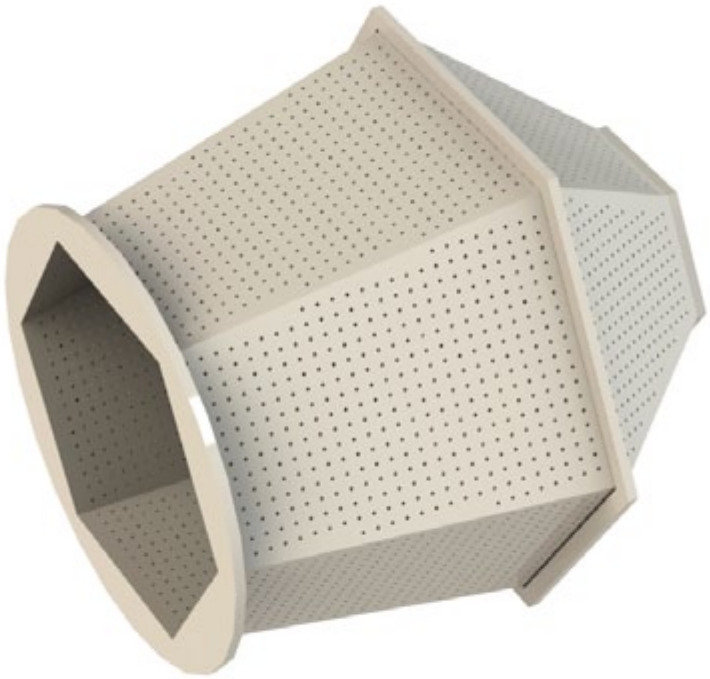




Perforated Bell

The company «UralActiv» Ltd. manufactures bells for electroplating baths. The electroplating bell is a cone shaped or pyramid shaped reservoir. There are submersible and overshot bells. The overshot bells have no perforations, the submersible bells are perforated. The bells are used for galvanic coating as reservoirs for electrolytic solution or as containers for the parts. The bells are made of non-conductive polypropylene, polyethylene, polyvinylchloride or polyvinylidene fluoride.

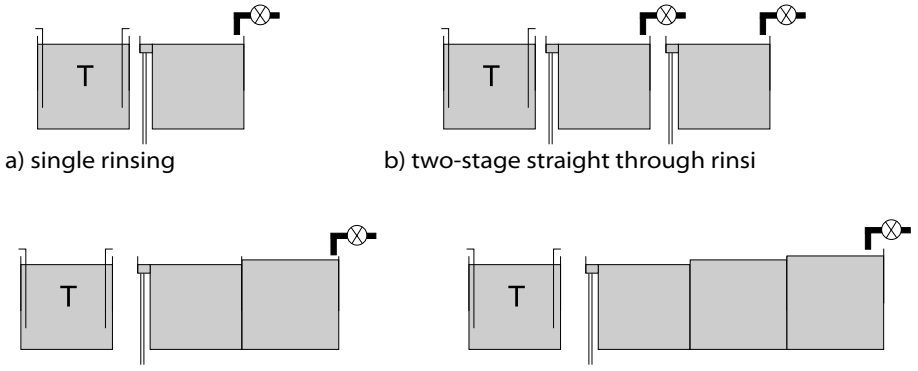
Size, configuration and diameter of perforations on the plastic perforated bell is conformed with the customer.



Rinsing baths

Rinsing baths produced from polymeric materials (principally from polypropylene) are used to rinse parts from the process solutions and electrolytes. Rinsing PP baths are used for different stages of processing of parts in electroplating, e.g. for preparation of parts for chrome plating and after chrome plating. Different washing schemes can be used to rinse parts from the process solutions and electrolytes. These schemes provide the necessary concentration of the main components in the washed water. The process of rinsing is often accompanied by a need for capture of electrolyte and other substances. Our company manufactures electroplating capturing baths also.

Plastic rinsing baths can be produced according to your size, they can be equipped with cranes, partitions, agitators, drain pockets, and steel supporting frame painted with chemically resistant paint or hermetically lined polypropylene.



a) single rinsing
b) two-stage straight through rinsi
c) two-stage rinsing
d) three-stage rinsing

Fig. 2.2. Rinsing schemes: T – process bath

Baskets

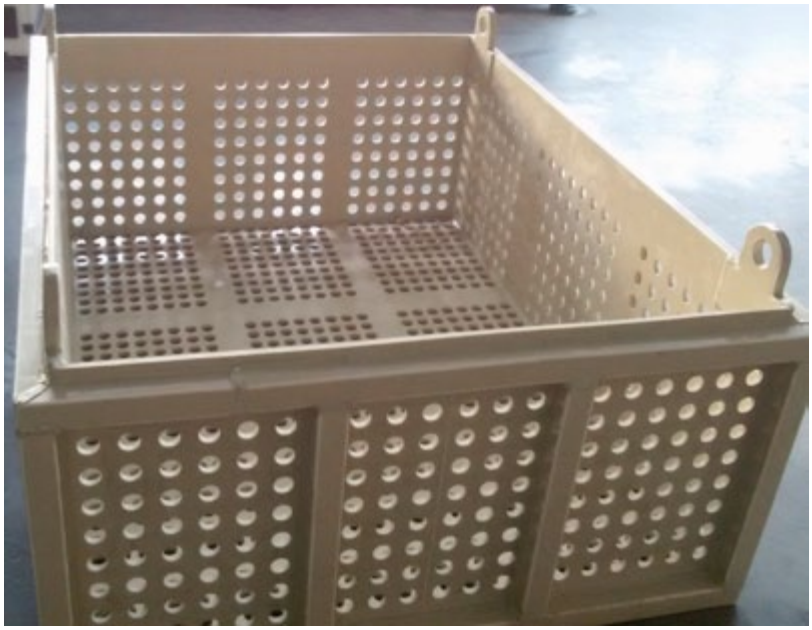
The company «UralActiv» Ltd. manufactures perforated baskets used for processing of parts and storing of anode material.

Our baskets are made of polymer materials: polypropylene, polyethylene, polyvinyl chloride etc. Dimensions, configuration of galvanic baskets are chosen in accordance with the wishes of the customer. Galvanic baskets can be strengthened with a steel pipe profile. But at the same time other steel elements have no contact with the harmful chemical media because it is possible to close these parts hermetically with plastic. It helps to avoid corrosion and leaks.

The company «UralActiv» Ltd. also manufactures metal baskets with chemically and corrosion-resistant PVC coating. Chemically-resistant PVC coatings are resistant to all organic solvents, hot and cold solutions and also to many acids and alkalis

Metal basket lined with polyvinyl chloride

Polypropylene perforated basket, in a closed steel frame



Additional equipment and components in electroplating industry

Metal coating plants belong to hazardous industry, because so much hazardous emissions are accumulated in the air by the surface treatment process and coating process. To ensure the observance of safety standards in electroplating plants it is recommended to install suction-and-exhaust ventilation especially near the equipment (local ventilation).

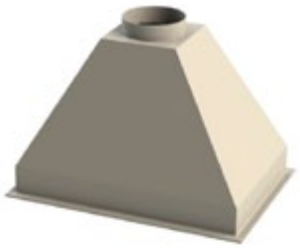
As a plastic ventilation of electroplating plants and as an additional component can be:

EXHAUST COVER FOR ELECTROPLATING BATHS (COVER WITH INTEGRATED SUCTION UNIT)

We equip electroplating baths with covers with integrated unit for suction of hazardous substances. By ordering polypropylene exhaust cover it is important to take into account that the connection to the ventilation should be done through the flexible airway. The cover can be adjusted (open-close) with electric driver or manually operated polymeric exhaust cover (counterbalance system is provided). The cover can be made from polypropylene, polyvinyl chloride, polyvinylidene fluoride, polyethylene.

EXHAUST HOODS

Exhaust hoods are installed where electroplating baths are operated. For example, under the bell baths.



LATERAL EXHAUST

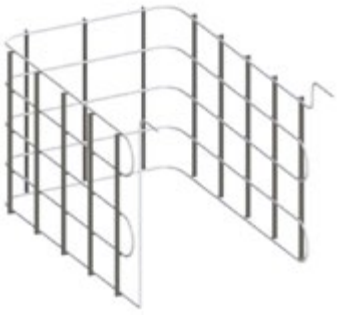
Lateral exhausts are used on the most types of electroplating equipment including bell and drum baths.

FUME HOODS

Chemical-resistant fume hoods are good to isolate rooms from the source of hazardous emissions out of the equipment which is placed inside the fume hood. The occurred inside the housing hazardous substances are removed in laboratory fume hoods together with the air.

HEATERS

We supply baths with heating elements on your request.



SURFACE TREATMENT TABLES FOR ELECRTOPLATING AND TABLES FOR RIGGING

We produce different electroplating tables from polypropylene for processing of parts and accessories. Industry table can be produced in set with baths, water supply and removal, exhaust of hazardous emissions from the working area.

BUBBLER IN BATHS

Bubbler (barbotage) is used as a pneumatic mixer of the solution. It is a system of pipes with openings.

BALLS (FLOATS) FROM POLYPROPYLENE

Plastic balls are intended to cover the solution level in electroplating baths. Floats (balls) for electroplating industry are hollow spheres made from polypropylene. Hollow PP balls formed on the liquid surface the homogeneous insulating layer.

POLYPROPYLENE FLOORING

Grid plastic flooring is intended for aggressive media. Profiled floorings are used to arrange ladders, platforms for servicing of electroplating baths, electroplating lines etc.

COLLECTING AND BALANCING TANK

There are widely used collecting tanks for waste- water balancing and waste-water reclamation, preparation of reagents, solutions etc. in electroplating industry. Balancing tanks are manufactured from polymeric materials (polypropylene, polyethylene), are equipped with agitator, motor component, drain and filler pipes.

CHEMICAL-RESISTANT FANS

Also we produce plastic fans from PP, PE, PVC etc., which are resistant to aggressive chemical media. It is important to have chemical-resistant and corrosion-resistant fan in electroplating industry.

AIR CLEANING FROM AGGRESSIVE MEDIA

To clean exhaust air from aerosols, vapors and gases of hazardous substances different devices are used such as demisters, Maksimov gas washers, fibrous electroplating filters FGV, absorbers and other cleaning units.
Our company produce these type of devices. For more information please visit our web-site http://www.uralactiv.ru section PDF-catalogues – catalogue «Gas washers».

Also our company can make lining of electroplating baths with fluoroplastic materials. Casing lining of electroplating baths protects the bath sides from the impact of chemical solutions.

Report form for production of electroplating equipment

Company:				
Contact person:				
Phone/Fax:				
E-mail:				
Product name				
Type of product: vertical or horizontal				
Place for installation				
Characteristics, mm:	Length:		Wight:	
	Height:		Diameter:	
Size of cover, mm:				
Chemical composition of medium: chemical formula, concentration and temperature of medium				
Temperature of operating place:				
Bracing rings for stability: (inside, outside):				
Inlet and outlet pipes:	Quantity:		Size:	
If it is known: Material:				
Thickness of material:				
Additional information and equipment				

Drawing of product (or freehand sketch)

UralActiv Ltd., office 304,
ul. Manevrovaya 9, 620050 Yekaterinburg, Russia
+7 (343) 253-10-21, 344-34-45, fax +7 (343) 344-34-46,
info@uralactiv.ru, http://www.uralactiv.ru