MACHINES FOR WASHING AND DEGREASING PARTS

ECOLINE-TECHNO

RUSSIAN PRODUCER OF WASHING MACHINES SINCE 2000

Ecoline® offers non-waste, environmentally friendly machines for degreasing in non-flammable solvents and Multifunctional machines for preparing surfaces in aqueous solutions (degreasing, etching, phosphating, passivation, etc.). Areas of application: electroplating, powder painting, engineering.

Ecoline was founded in 1995. The equipment produced by the company meets the latest economic and environmental standards.

To meet the modern needs of cleaning parts and coatings application company Ecoline offers non-waste, environmentally friendly machines for degreasing in non-flammable solvents and Multifunctional machines for preparing surfaces in aqueous solutions (degreasing, etching, phosphating, passivation, etc.).

The equipment for washing is used to clean parts before electroplating, painting, for washing oxygen equipment, parts of pressure gauges, before thermal diffusion galvanizing, cleaning engines and in machine building.

Clients of the company are more than a hundred of industrial enterprises in more than forty cities of Russia, as well as Ukraine, Belarus and Kazakhstan.

INDUSTRIAL DESIGN AND MANUFACTURE OF WASHING MACHINES WORKING ON WATER SOLUTIONS

DEVELOPMENT AND MANUFACTURE OF WASHING MACHINES WORKING WITH THE APPLICATION OF NON-SOLVENT SOLVENTS ON DEAD-END CYCLE

SERIAL AND SPECIALIZED EQUIPMENT

DEVELOPMENT OF THE TECHNOLOGIES OF WASHING THE SHAWLES TO SOLVE VARIOUS TECHNOLOGICAL PROBLEMS

START-UP WORK, WARRANTY AND POST-WARRANTY SERVICE

SUPPLY OF CONSUMABLE MATERIALS, SOLVENTS, SERVICE PRODUCTS JOINTLY WITH DOW SAFECHEM

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DEGREASING MACHINES IN SOLVENTS AND PERCHLORETHYLENE

MACHINES FOR WASHING PARTS IN WATER SOLUTIONS

WASHING MACHINES
For workshops SM-38, SM-80

ADVANTAGES

The machine body, tanks, pipelines, pump, stop valves, loading basket are made of non-magnetic stainless steel AISI 304 with a thickness of at least 1.5 mm

All machines of the "SM" series are equipped with a large viewing window with illumination

Stainless steel coarse filter 500 μm is included in the basic equipment.
Access without tools

Removable bottom of the operation chamber for cleaning and maintenance of the storage tank, access without tools

For high-quality cleaning of parts, flat jet nozzles Spraying Systems are used (Germany)

There are various options for configuration and size

TECHNICAL DATA SHEET

Characteristics	Units	SM-38	SM-80
Maximum load	kg	70	150
Dimensions of the loading container, (diameter of the platform)	mm	380	800
Container height	mm	300	500
Storage tanks			
Tank capacity	l	40	90
Heating (option)	kW	2	4
Spraying system			
Nozzle outlet pressure	bar	2.1	2.3
Pump capacity	kW	0.55	1.1
Pump output	l/min	80	100
Power supply specifications			
Voltage / frequency	V/Hz	380V, 50Hz	380V, 50Hz

Equipment configuration

Basic configuration

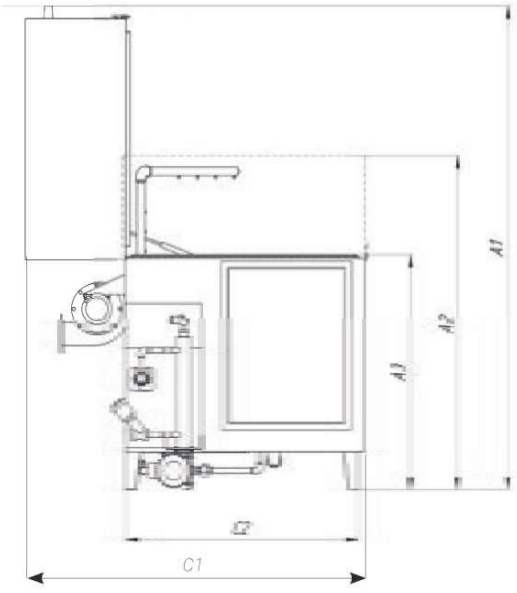
- Timer 0-60 min.
- Basket rotation drive - reactive
- Stainless steel loading basket
- Tanks, pipelines, connecting and shut-off valves made of stainless steel
- Lower jet collector
- Upper jet collector (l - shaped)
- Coarse filter on the drain from the operation chamber
- Washing solution minimum level sensor

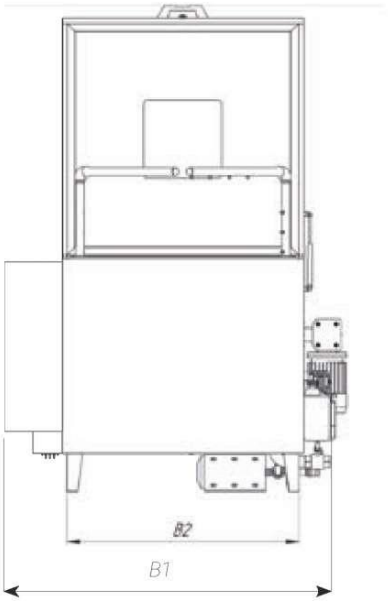
ADDITIONAL OPTIONS

- Heating up to 70 ° C
- Basket rotation electric drive
- Washing solution working level monitoring
- Disk oil separator
- External thermal insulation
- Drainage pump
- Blowing parts with compressed air
- Vapor removal fan
- Hour counter
- Overflow alarm
- Programmable control system

Dimensions

Model		SM-38	SM-80
Height	A1	1,420	1,860
	A2	1,050	1,285
	A3	900	900
Width	B1	6,600	1,310
	B2	440	890
Depth	C1	650	1,310
	C2	460	900
Basket diameter	D	380	800
Installation weight, kg (without washing solution)		**100**	**250**





INDUSTRIAL JET WASHING MACHINES MPP-250, MPP-350

Loading platform completely rolls out from the operation chamber for top loading;

The machine body, tanks, pipelines, pump, stop valves, loading basket are made of non-magnetic stainless steel AISI 304 with a thickness of at least 2.0 mm

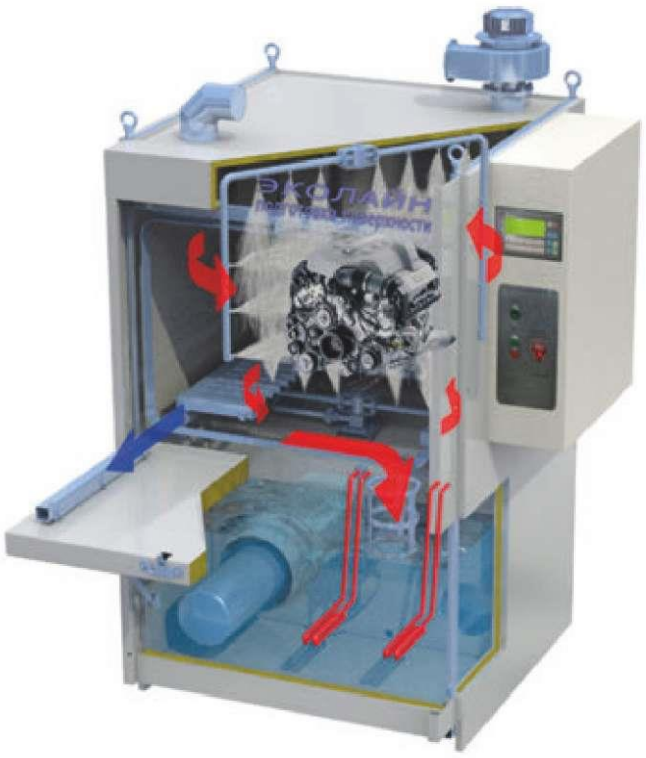
Stainless steel coarse filter 500 μm is included in the basic configuration, convenient access to the filter for cleaning without the use of tools;

Removable bottom of the operation chamber for cleaning and maintenance of the storage tank, access without tools (in one-tank version);

For high-quality cleaning of parts, flat jet nozzles Spraying Systems are used (Germany)

The electric drive of the upper nozzle ramp in the MPP-350 machines in the basic configuration;

Various variants of a scope of supply;



Basic configuration

- Pressure of the washing solution at the nozzle outlet 2 bar
- Programmable process control system
- Loading parts from the top
- Roll-in platform
- Loading table with guides
- Tanks, pipelines, connecting
- and stainless-steel stop valves
- Rotating lower collector
- Rotating upper collector (u-shaped)
- Coarse filter on the drain from the operation chamber
- Level sensor in tanks
- Washing solution temperature up to 60°C

ADDITIONAL OPTIONS

- Pressure of the washing solution at the nozzle outlet 5 bar
- Washing solution temperature up to 90°C
- Basket for parts
- Upper cleaning collector adapted to the customer's parts
- Tank for additional treatment stage Finishing rinsing from the water pipe, direct separate drain
- Parts drying system
- Exhaust fan
- Water condensation system evaporated during drying
- Automatic water filling system
- Oil separator (gravitational)
- Oil separator (disc)
- Viewing window in the operation chamber with illumination
- Fine filtration system of solutions of 5-50 microns, bag filter, filter element volume 3.5 liters (per tank)

MACHINES FOR WASHING PARTS IN WATER SOLUTION

TECHNICAL DATA SHEET

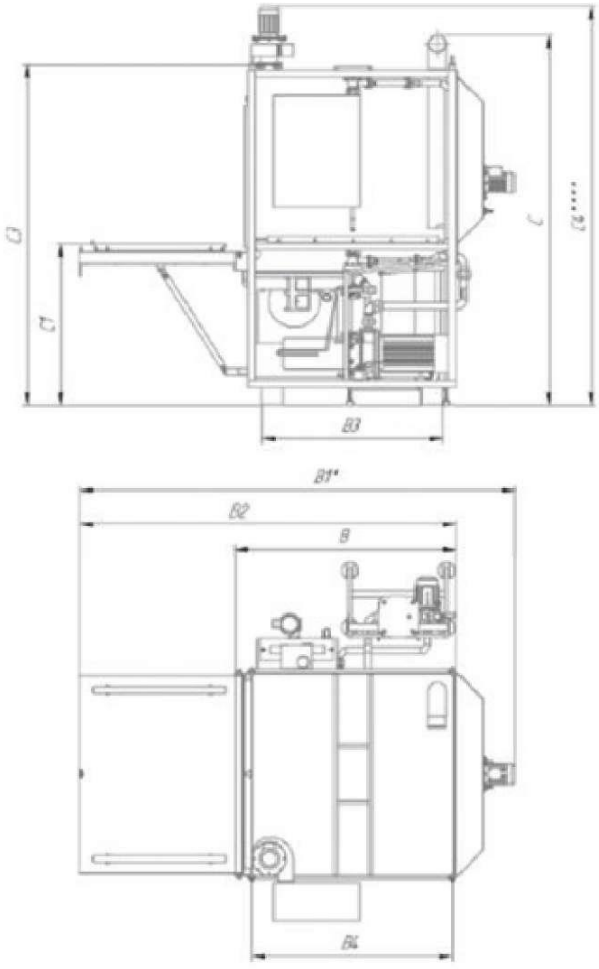
Characteristics	Units	MPP-200	MPP-350
Maximum load	kg	200	300
Dimensions of the loading container, (diameter of the platform)	mm	800	1,000
Container height	mm	500	700
Storage tanks		**1-3**	**1-3**
Tank capacity	l	130	200
Heating (option)	kW	5	10
Nozzle outlet pressure	bar	2.5	2.5

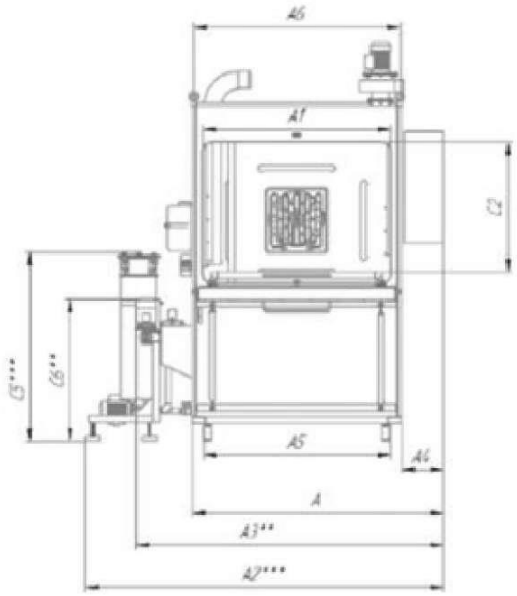
MACHINES FOR WASHING PARTS IN WATER SOLUTIONS

Dimensions

Model		MPP-250	MPP-250-2	MPP-350	MPP-350-2
Height	A	1,250	2,200	1,500	2,500
	A1	860	860	1,090	1,090
	A4	250	250	250	250
Width	B	1,050	1,050	1,300	1,300
	B1 (with dryer)	2,100	2,100	2,530	2,530
	B2	1,750	1,750	2,200	2,200
Depth	C	1,900	1,900	2,100	2,100
	C1	940	940	940	940
	C2	600	600	750	750
	C4	2,200	2,200	2,300	2,300
Rotating system of injectors		**900**	**900**	**1,100**	**1,100**

DIMENSIONAL DRAWING





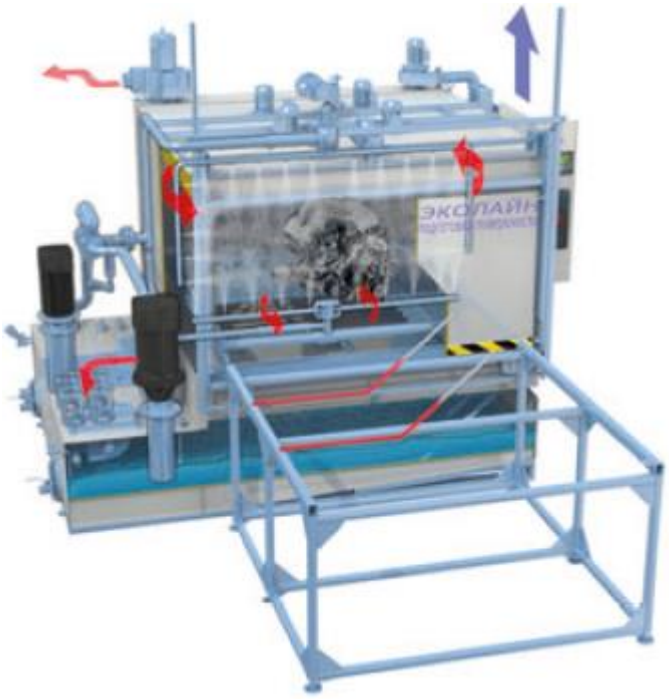
INDUSTRIAL JET WASHING MACHINES MPP-500, MPP-1000

- Simplicity of service - convenient sliding door of the washing chamber with electric drive, safe two-hand control;
- Stainless steel loading platform completely rolls out from the operation chamber for top loading to a stationary or sub-loading charging table (depending on the configuration);
- The machine body, tanks, pipelines, pump, stop valves, loading basket are made of non-magnetic stainless steel AISI 304 with a thickness of at least 2.0 mm
- The bottom of the storage tanks is made of non-magnetic stainless steel 3.0 mm thick;
- The bottom of the operation chamber and storage tanks has a slope for easy cleaning and maintenance;
- Large hatches for cleaning and maintenance of storage tanks;
- Mounting flange of electric heaters is located above the level of the washing solution, so that they can be replaced without draining the water and washing solutions;
- Stainless steel coarse filter 500 μm is included in the basic configuration, convenient access to the filter for cleaning without the use of tools;
- For high-quality cleaning of parts, flat jet nozzles Spraying Systems are used (Germany)
- The electric drive of the upper nozzle ramp in the base configuration;
- Various variants of a scope of supply;

MACHINES FOR WASHING PARTS IN WATER SOLUTIONS

Basic configuration

- Pressure of the washing solution at the nozzle outlet 4,5 bar
- Programmable process control system
- Loading parts from the top (on the loading table)
- Roll-in platform
- Loading table with guides
- Tanks, pipelines, connecting and shut-off valves made of stainless steel
- Rotating lower collector
- Rotating upper collector (u-shaped)
- Coarse filter on the drain from the operation chamber
- Level sensor in tanks
- Washing solution temperature up to 90°C



ADDITIONAL OPTIONS

- Pressure of the washing solution at the nozzle outlet 10 bar
- Basket for parts
- Movable loading table
- Upper cleaning collector adapted to the customer's parts
- Tank for additional treatment stage Finishing rinsing from the water pipe, direct separate drain
- Parts drying system
- Exhaust fan
- Water condensation system evaporated during drying
- Automatic water filling system
- Oil separator (gravitational)
- Oil separator (disc)
- Viewing window in the operation chamber with illumination
- Fine filtration system of solutions of 5-50 microns, bag filter, filter element volume 20 liters (per tank)
- Fine filtration system of solutions of 5-50 microns, sand regenerated filter, with washing automated device (per tank)
- Automatic dosing of detergent in the tank with washing solution
- Pressure control system for rinsing

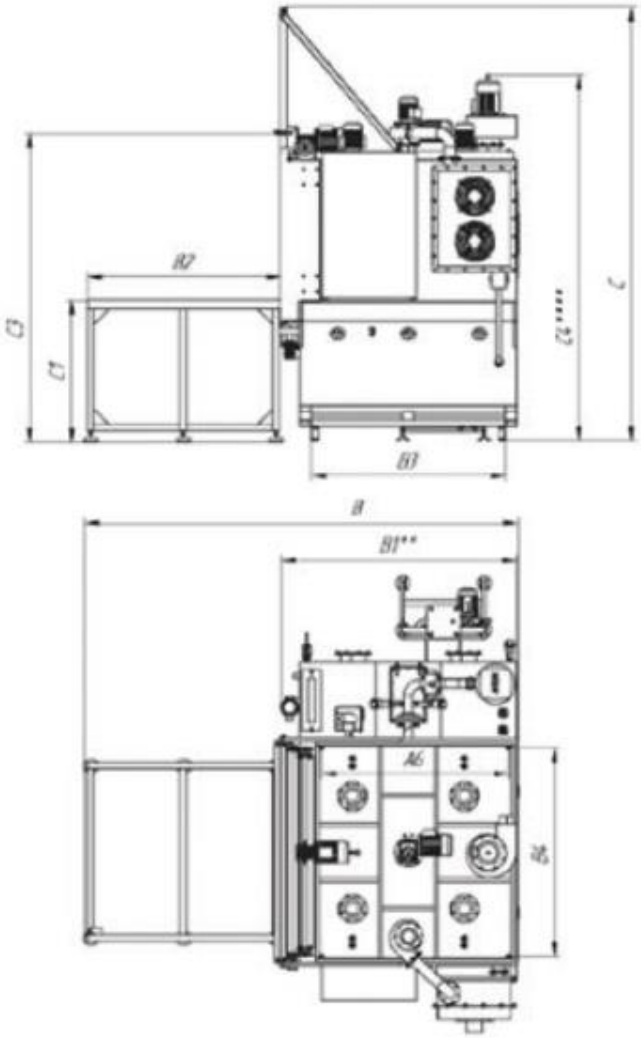
TECHNICAL DATA SHEET

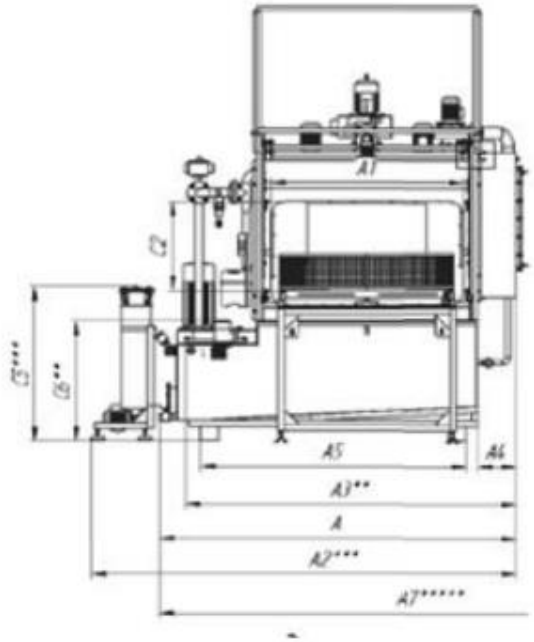
Characteristics	Units	MPP-500	MPP-1000
Maximum load	kg	700	1,000
Dimensions of the loading container, (diameter of the platform)	mm	1,200	1,750
Container height	mm	550	800
Storage tanks			
Tank capacity	l	550	800
Heating (option)	kW	15	22
Spraying system			
Nozzle outlet pressure	bar	4.5	4.5
Pump output	l/min	350	550
Pump capacity	kW	4.5	11

MACHINES FOR WASHING PARTS IN WATER SOLUTION

DIMENSIONS

Model		MPP 500	MPP 500-2	MPP 1000	MPP 1000-2
Width	A	2,500	2,700	2,900	3,300
	A1	1,320	1,320	1,950	1,850
Depth	B	3,000	3,000	4,100	4,100
	B1*	1,620	1,620	2,100	2,100
	B2	1,330	1,330	1,810	1,810
	B3	1,340	1,340	1,950	1,950
	B4	1,435	1,435	2,030	2,030
Height	C	3,000	3,000	3,700	3,700
	C1	980	980	1,070	1,070
	C3	2,150	2,150	2,560	2,560
	Installation weight, kg	**1,800**	**2,000**	**2,200**	**2,500**





WASHING MACHINE SERIES MSP-50/100/150

DESCRIPTION

Operation chamber has a sliding door with an electric drive and pressing to the seal. The machine can be equipped with a loading table with a roller table. On request, the machine can
have from 1 to 3 storage tanks for various technological operations (degreasing, phosphating, passivation, rinsing with water, drying with hot air, vacuum drying)

For each stage of treatment, the operator can set the following automatic treatment modes:

- Jet treatment;
- Jet treatment with immersion in washing solution;
- Rotation of the basket with parts with immersion in washing solution;
- Swaying the basket (tilt angle can be adjusted) with immersion in the washing solution;
- The basket is in a fixed position.

Intended use

It is designed for jet-immersion washing and degreasing of parts with modes of swaying or rotating the basket with parts around the horizontal axis.

Scope of application

High-quality washing of critical parts of complex configuration, including washing parts with blind holes;

Washing of parts and assembly units of hydraulic and pneumatic devices, in production or maintenance;

- Washing of body parts after casting and stamping;
- Wash metalware in bulk in baskets with rotation;

ADVANTAGES

Maximum efficiency - all possible types of treatment are realized in the installation: jet, submerged, basket rotation, basket swaying, possibility of combining. Treatment of parts takes place in one chamber without the need to move parts between stages, in automatic mode without the operator's participation; ease of maintenance - a convenient sliding door of the electric-powered washing chamber, easily accessible dirt filters (coarse cleaning), the bottom of the working chamber and storage tanks has a large inclination for cleaning;

quality materials and accessories - stainless steel AISI 304-316, automation SIEMENS, Delta Electronics, Grundfoss pumps, spray nozzles Spraying Systems, ultrasonic equipment Telsonic Ultrasonic.

WASHING EQUIPMENT SCOPE OF SUPPLY

- Pressure of the washing solution at the nozzle outlet 4 bar
- Coarse filter on the drain from the operation chamber
- Sliding loading hatch with electric drive
- The system of rotation (swaying) of parts, rotation speed, reverse, swing angle is set from the operator panel
- Loading parts from the top
- Automatic maintenance of liquid temperature in tanks with solutions
- Tanks, pipelines, connecting and shut-off valves made of stainless steel
- Level sensor in tanks
- Programmable control system, operator panel

- Heating up to 60°C

ADDITIONAL OPTIONS

- Pressure of the washing solution at the nozzle outlet 10 bar
- Parts drying system
- Vacuum drying system
- Additional basket for parts
- Tank for additional treatment stage
- Heating up to 90°C
- Vapor removal fan
- Water condensation system evaporated during drying, does not require connection to ventilation
- Oil separator (gravitational)
- Oil separator (disc)
- Viewing window in the operation chamber with illumination
- Fine filtration system of solutions of 5-50 microns, bag filter, filter element volume 3.5 liters (per tank)
- Fine filtration system of solutions of 5-50 microns, bag filter, filter element volume 20 liters (per tank)
- Ultrasound emitter
- Separator of oil and mechanical impurities (centrifugal)
- Automatic replenishment of water in the tank Automatic replenishment of detergent in the tank with washing solution
- Pressure control system for rinsing

TECHNICAL DATA SHEET

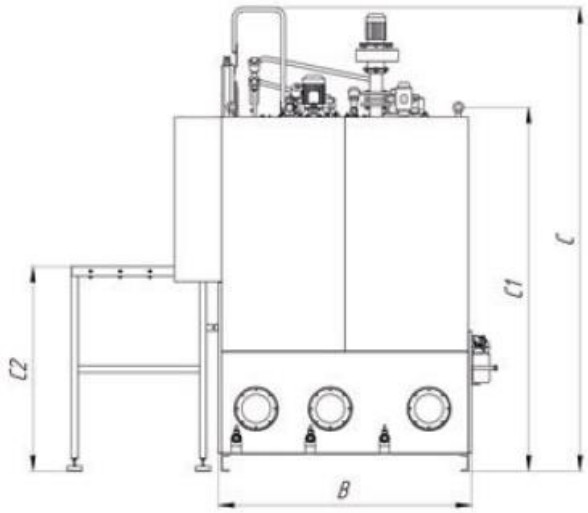
Specification	MSP-50	MSP-100	MSP-150
Size of the loading basket, mm	500x250x250	700x350x350	700x350x350
Weight of simultaneously washed parts, not more than kg	50	150	300
Overall dimensions of the machine, mm	1,600x1,000x1,700	1,800x1,600x1,800	2,400x1,200x2,100
Height of the receiving table of the washing chamber from the floor, mm	850	1,000	1,000
Number of wash cycles per hour	3-5	3-5	3-5
Washing pressure, bar	4	4	4
Volume of the washing/rinsing storage tank, l	250	400	500
Heating of washing/rinsing tank, kW	5	7.5	10

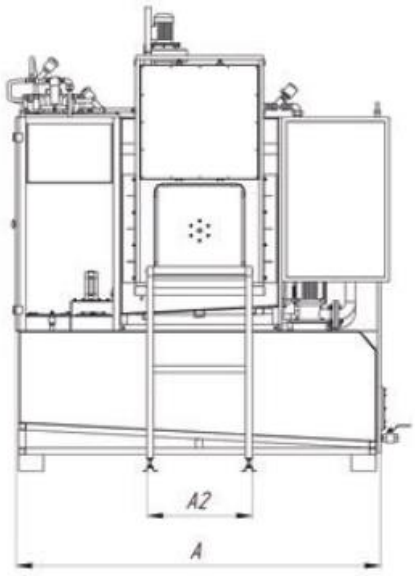
MACHINES FOR WASHING PARTS IN WATER SOLUTIONS

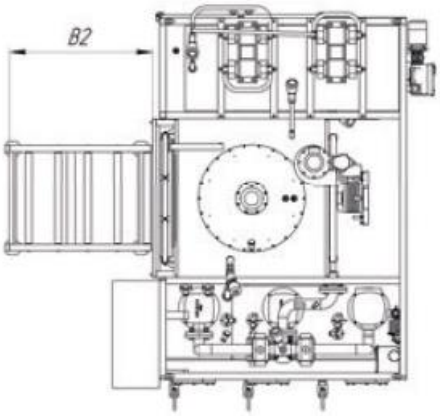
Dimensions

Model		MSP-50	MSP-50-2	MSP-50-3	MSP-100	MSP-100-2	MSP-100-3	MSP-150-2	MSP-150-3
Height	A	1,600	1,600	1,600	2,000	2,000	2,000	2,400	2,400
	A2	340	340	340	440	440	440	640	640
Width	B	1,300	1,400	1,500	1,300	1,450	1,600	1,300	1,500
	B2	715	715	715	820	820	820	910	910
Depth	C	2,000	2,000	2,000	2,200	2,200	2,200	2,600	2,600
	C1	1,950	1,950	1,950	2,150	2,150	2,150	2,550	2,550
	C2	1,050	1,050	1,050	1,100	1,100	1,100	1,200	1,200
Number of tanks		1	2	3	1	2	3	2	3
Weight of installation (excluding refueling washing solutions), kg		**800**	**900**	**990**	**950**	**1,100**	**1,250**	**1,450**	**1,650**

DIMENSIONAL DRAWING







TUNNEL WASHING MACHINES

Jet washing machine of the through type is designed for washing parts in mass production.
The number of treatment stages (washing, rinsing, passivation, drying) depends on the equipment of the machine and the characteristics of the solutions used.
The technology of cleaning the parts, using detergents designed for jet treatment, allows you to get clean and dry parts out of the machine. All mechanical components and parts of the machine in contact with water and detergent solutions are made of stainless steel.

TECHNICAL DATA SHEET

Technical data sheet*	AP-25	AP-50	AP-150
Dimensions of the opening WxH, mm	250x250	550x350	1,600x250
Conveyor speed, meters per minute	1-6	1-6	1-6
Loading height of parts, mm	900	900	900
Length of the conveyor in the loading zone, mm	250	250	250
Length of the conveyor in the unloading zone, mm	250	250	250
Washing (or rinsing) section with recirculation			
Volume of storage tank, l	350	550	750
Heating of storage tank, kW	10	15	22
Pressure at the nozzle outlet during washing, bar	3.0	3.0	3.0
Pump, kW	2.2	3.0	4.5
Technical data sheet*	**AP-25**	**AP-50**	**AP-150**
Section dimensions	1,200x1,250x1,640	1,600x1,560x1,740	2,300x1,560x2,500
Rinsing section from the water main with a separate drain			
Volume of storage tank, l	-	-	-
Water supply from the shop (customer), pressure, bar / flow, l/min	2.5/15	2.5/20	2.0/50
Section dimensions	1,200x1,250x1,640	1,600x1,560x1,740	2,300x1,560x2,500
Drying section with heating of air			
Heating of air, kW	15	20	20
Air pump, kW	2.2	4.5	5.5
Section dimensions	1,200x1,250x1,640	1,600x1,560x1,740	2,300x1,560x2,500

TUNNEL WASHING MACHINES

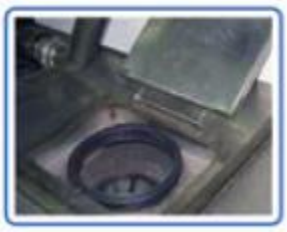
TRANSPORT SYSTEM (CONVEYOR)

The conveyor belt is made of a strong stainless chain with open cells of at least 15x15 mm and has additional supports - rollers, which allows to withstand a load of not less than 100 kg per meter of conveyor length. The conveyor is driven by a worm gear motor and has a tensioning station. The conveyor speed can be adjusted in the range of 1-6 m / min.

JET WASHING SECTION

The parts are washed with jets of washing solution from the nozzles in the washing zone. The nozzles are directed so that the jets of the cleaning solution act on all parts of the surface of the parts, if necessary, additional nozzles are installed to treat the exposed parts of the surface of the part (holes, undercuts, etc.). The washing solution from the collector of the washing chamber enters the filter basket of the storage tank. The washing chambers have convenient hatches for visual inspection and maintenance.

- The bottom of the working chamber has slopes along the entire plane for good drainage of solutions and elimination of deposits formation;
- The tambour zones on both sides of the jet wash zone prevent the ingress of solutions into neighboring chambers and into the working area;

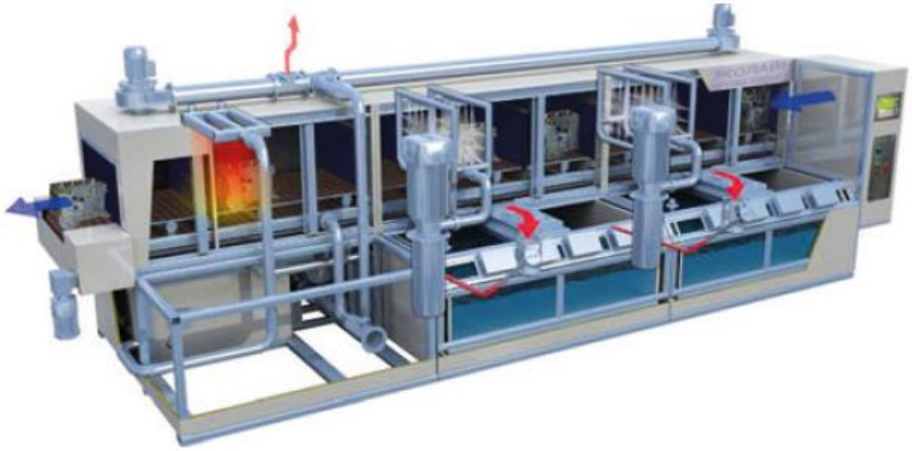


- The filter basket is made of stainless mesh, it provides a preliminary filtration of the cleaning solution up to 0.5 mm. The basket has convenient access for regular cleaning;
- The bottom of the tanks is made with a slope for the convenience of periodic cleaning;
- Special nozzles made of stainless steel with a flat stream from Spaying systems are used;

TANKS WITH WASHING SOLUTION

Each part washing section is equipped with a storage tank for storing the cleaning solution.

- Mounting of heaters and sensors is done above the liquid level for ease of maintenance;
- Vertical helical pumps GRUNDFOS made of stainless steel;
- Each tank is equipped with a heating system for cleaning solutions and liquid level control;
- Pipes for draining and replenishing solutions;



DRYING PARTS WITH HOT AIR

In the drying zone, the parts are blown with a stream of hot air, which is heated by passing through the electric heater block.
The air temperature is set on the control panel up to 110 ° C. The vapors are vented or trapped by a vapor condensation system (optional).
Blowing of parts comes from the slot diffusers located on top and bottom of the parts (2 from the bottom, 2 from the top).

AIR CURTAIN AT THE ENTRANCE AND EXIT OF THE CONVEYOR

To eliminate the release of vapors of the washing and rinsing solutions in the loading zone and in the unloading zone, an air curtain (airlock) is provided. Airlocks are equipped with an air curtain to prevent moisture condensation from the air flows at the inlet and outlet of the washing tunnel.

MACHINE CONTROL SYSTEM

It is built on the basis of industrial controller and operator panel, it allows programming special treatment modes for individual parts or types of parts. It includes protection of pumps from dry start-up, protection against drops and power failures in the company's mains. Thermoregulators allow you to control the temperature in the tanks and air when drying.

ADDITIONAL OPTIONS

- **Fine filtration of washing and rinsing solutions** - up to 5 μm
- **Continuous separation of oil in the bath**
- **Automatic replenishment of tanks from the water supply.** The machine is connected to the water supply system of the enterprise. Replenishment of the bath with washing solution is performed automatically through a solenoid valve controlled by a solution sensor in the bath.
- **A system for tanks drainage using a pump.** Tanks for washing and washing solutions after shutting off the ball valves can be pumped out by activating the appropriate pumps.
- **Only the washing solution is recommended to be changed.** Water (washing solution) from the wash tank is pumped to the detergent solution tank, followed by the addition of the required amount of detergent concentrate. The washing tank is filled with fresh water.
- **Automatic dosing of detergent in the tank with washing solution** The washing solution is carried away with the parts in the tank with the rinsing solution. The system automatically adds the concentrate of the washing solution in the required proportion.

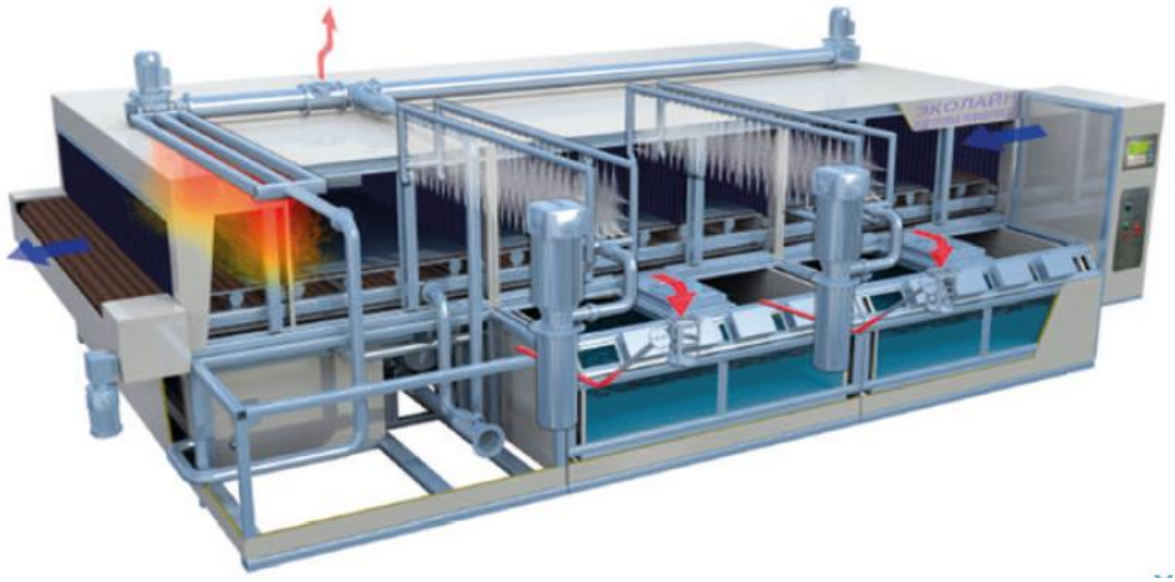
AUTOMATIC MACHINE
For the degreasing of metal sheets, including aluminum

Jet washing machine of the tunnel type is designed for the re-opening of aluminum sheets, as well as sheets of titanium, steel, and other non-ferrous metals and their marking. The washable sheets are loaded onto the washing machine conveyor using the manipulator supplied. A washing pressure of 8 bar with a large flow of liquid, the use of special nozzles with a flat jet guarantees a high quality of washing. The conveyor has a slope of 5 degrees to improve the efficiency of the runoff of the cleaning liquid and the drying of the sheet surface.

MACHINE HAS THE FOLLOWING STAGES OF TREATMENT

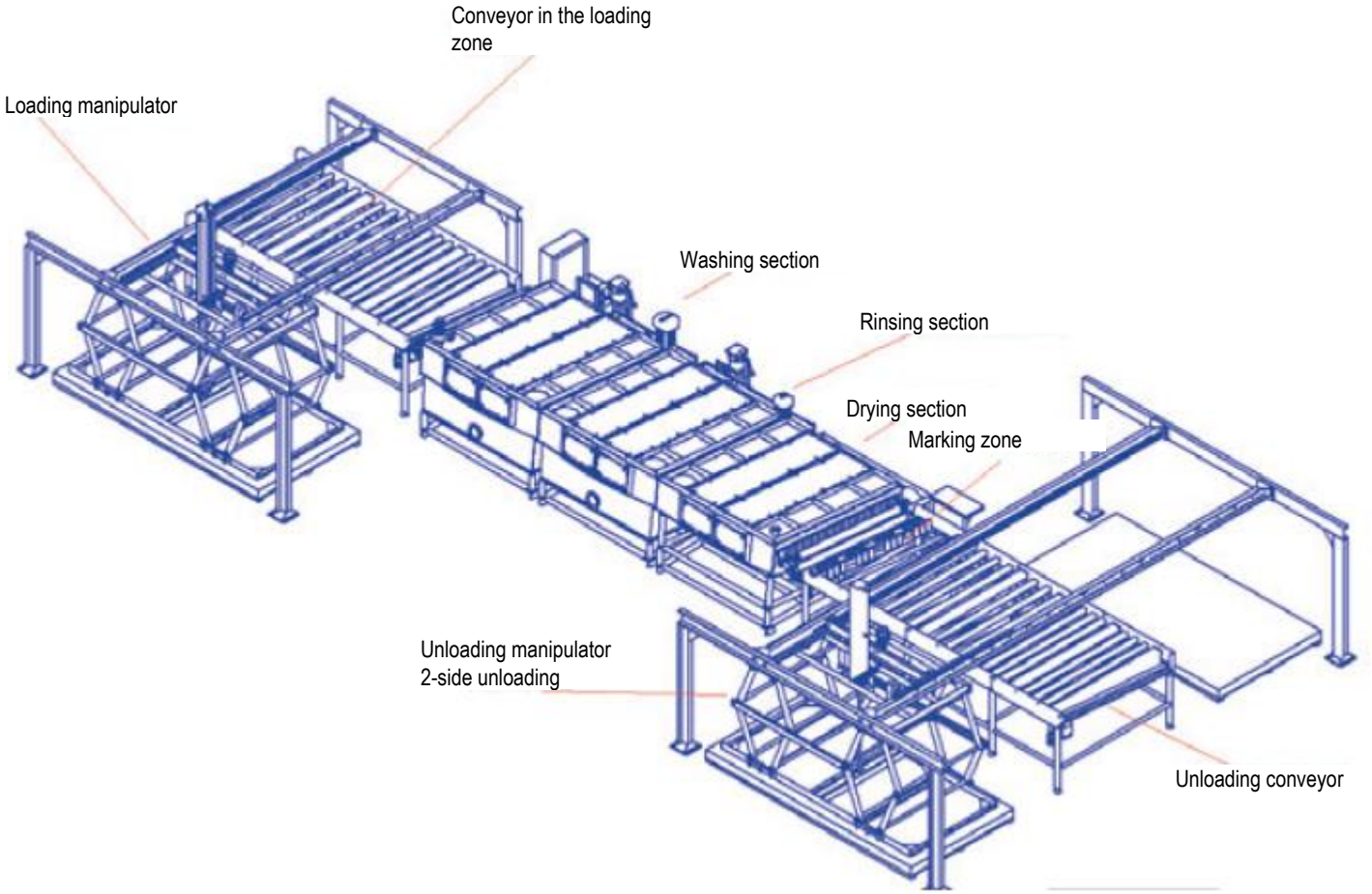
- Loading sheet on the conveyor; *
- Washing in alkaline solution;
- Removal of surplus solution from the surface;
- Rinsing;
- Removal of excess water;
- Drying; *
- Marking; *
- Unloading on the table. *

** Loading / unloading systems, markings are additional options*



TECHNICAL DATA SHEET

Specification	
Dimensions of the opening WxH, mm	2,000x200
Conveyor speed, meters per minute	50
Loading height of parts, mm	1,600x1,000x1,700
Length of the conveyor in the loading zone, mm	4,000
Length of the conveyor in the unloading zone, mm	4,000
Dimensions of installation	Depending on the supply scope. On request
Washing and rinsing section with recirculation	
Volume of storage tank, l	2 x 1,250
Storage tank electric heating up to 90°C, kW	90 + 60
Pressure at the nozzle outlet during washing/rinsing, bar	8.0/4.5
Pump output with washing/rinsing, l/min	600/320
Pump, kW washing/rinsing	11.0/4.0
Drying section with heating of air	
Air pump, kW	22.5



FRONT LOADING MACHINES MT SERIES

Intended use

It is intended for degreasing of long parts, as well as hardware and accessories in a container.

WORKING TANK

The working tank of the machine has a cylindrical or rectangular (as agreed) shape and is loaded through a sealed hatch located at its end (front loading). The equipment of the working tank can include a perforated drum with a drive - a rotation system (optional).

LOADING

Loading / unloading of the machine is done manually from the loading table. Long pieces are loaded by stacking on each other with spacers (1 -2 mm, if the machine is equipped with a rotation system, and it is supposed to be used, then spacers are not required). Hardware and accessories are preloaded into containers, which are subsequently pushed into the working tank of the machine. The weight of the container with parts is 15-20 kg, the containers are reloaded during the washing of the previous batch of parts.

INSTALLATION TYPE	MT-35	MT-75	MT-150
Working chamber dimensions, mm	D300x500**	D300x1,000**	D300x2,000**
Dimensions of installation, (LxWxH), mm	850x1,300x1,800	1,500x1,300x1,800	2,300x1,150x1,800
Treatment time, min.	25	25	25
Maximum load, kg	25	50	100
Maximal productivity, kg / hour	50	100	200
Reserve tank capacity, l	35	100	200
Operating voltage, V	380	380	380
Average energy consumption, kWh / h	5	7	12

FRONT LOADING MACHINES MKS SERIES

Operation chamber has a sliding door with an electric drive and pressing to the seal. The machine can be equipped with a loading table with a roller table. On request, the machine can have from 1 to 3 storage tanks for maximum cleanliness of the parts

For each stage of treatment, the operator can set the following automatic treatment modes:

- Jet treatment;
- Jet treatment with immersion in washing solution;
- Rotation of the basket with parts with immersion in washing solution;
- Swaying the basket (tilt angle can be adjusted) with immersion in the washing solution;
- The basket is in a fixed position.

ADVANTAGES:

- The system of rotation / shaking of parts is included in the basic equipment;
- The machine is equipped with a mesh basket with a clamping cover, adjustable in height and eliminating collision of parts during rotation;
- The coarse filter of large capacity on the drain from the working chamber is included in the basic configuration;
- Increased by 25% solvent distillation performance is included in the basic configuration. The solvent works without replacement indefinitely;
- The energy consumption is reduced by 30% thanks to the distillation system with heat recovery and thermal insulation of the tanks;
- Fine mechanical filters remove contamination from 1 μm;
- More convenient loading when the machine is equipped with a loading table with a roller conveyor.
- All possible types of treatment are realized in the installation: jet, submerged, basket rotation, basket swaying, possibility of combining. The treatment of parts takes place in one chamber without the need to move parts between stages, in automatic mode without the operator's participation;
- Easy maintenance - easily accessible dirt filters (coarse cleaning), the bottom of the working chamber and storage tanks has a large inclination for cleaning;
- Quality materials and accessories are stainless steel AISI 304-316, automation SIEMENS, Delta Electronics, nozzles Spraying Systems, ultrasonic equipment Telsonic Ultrasonic.

DEGREASING MACHINES IN SOLVENTS

WASHING EQUIPMENT SCOPE OF SUPPLY

- Pressure of the washing solution at the nozzle outlet 4 bar
- Coarse filter on the drain from the operation chamber
- Sliding loading hatch with electric drive
- Drying system for parts with condensation of solvent vapor
- System of rotation (shaking) of parts
- Loading parts from the top
- Stainless steel basket for parts
- Pre-filtration of solutions on the drain from the washing chamber
- Automatic maintenance of liquid temperature
- Tanks, pipelines, connecting and shut-off valves made of stainless steel
- Level sensor in tanks
- Programmable process control system
- Solvent regenerator, 4 kW

ADDITIONAL OPTIONS

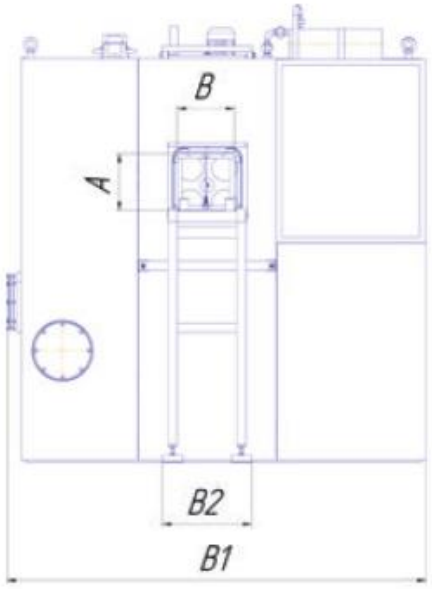
- Loading table with rollers
- Additional basket for parts
- Solvent regenerator, 8 kW
- Fine filtration system of solutions of 5-50 microns, bag filter, filter element volume 3.5 liters (per tank)
- Ultrasonic emitter 0.5 kW
- Ultrasonic emitter 1.6 kW
- Vacuum drying system
- Vacuum drying system 50 mbar
- Vacuum drying system 5 mbar
- Solvent vapors adsorption system
- Refrigeration unit
- System for treating parts in solvent vapor
- The system of additional forced heating during drying
- Pressure control system for rinsing

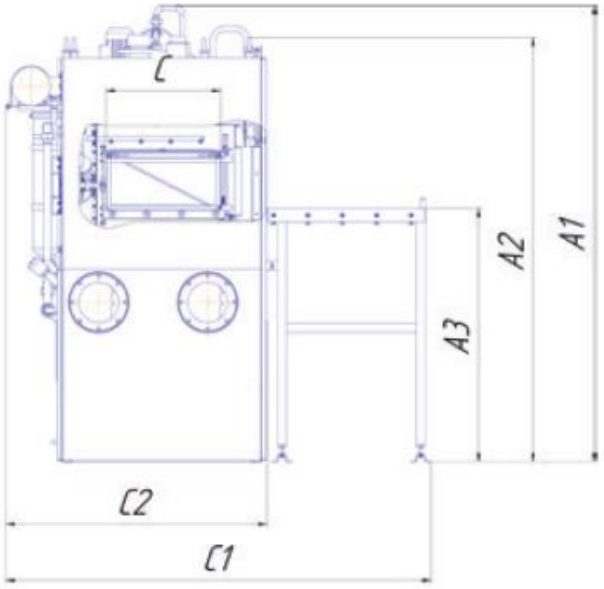
TECHNICAL DATA SHEET

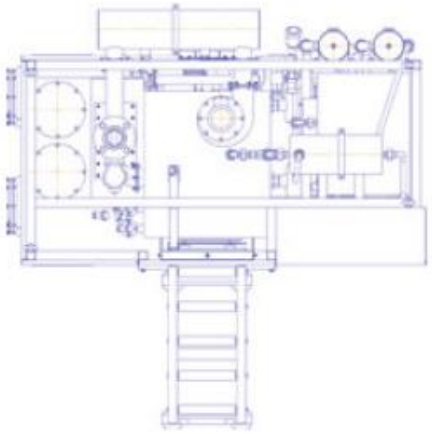
Specification	MKS-10	MKS-50	MKS-100	MKS-150
Size of the loading basket, mm	350x200x125	500x250x250	700x350x350	750x500x500
Weight of simultaneously washed parts, not more than kg	20	50	150	300
Overall dimensions of the machine, mm	1,160x800x1,600	1,600x1,000x1,700	1,800x,1,600x1,800	2,140x1,200x2,100
Height of the receiving table of the washing chamber from the floor, mm	800	850	1,000	1,000
Number of wash cycles per hour	2	2	2	2
Washing pressure, bar	2.5	2.5	2.5	2.5
Volume of the washing/rinsing storage tank, l	90	180	250	400
Heating of washing/rinsing tank, kW	2	5	10	15

Dimensions

Model		MKS 10	MKS 50	MKS 100	MKS 150
Basket size	A	125	250	350	500
	B	200	250	350	500
	C	350	500	700	750
Height	A1	1,600	2,100	2,100	2,100
	A2	1,600	1,850	1,850	1,850
	A3	1,100	1,100	1,100	1,100
Width	B1	1,160	1,720	1,720	1,720
	B2	400	350	450	600
Depth	C1	1,300	1,750	2,150	2,200
	C2	800	1,150	1,350	1,400
Weight of installation (excluding refueling washing solutions), kg		**350**	**400**	**450**	**500**







MACHINES WITH VERTICAL LOADING SERIES MR

All-purpose machine is designed for degreasing of various parts, incl. hardware and accessories in the container.

The working tank of the machine has a rectangular shape and is loaded through the upper opening of the working tank sealed with a lid (top loading). The equipment of the working tank can include a perforated drum with a drive - a rotation system

Loading / unloading of the machine is done manually in perforated baskets or using a telpher. The weight of the container with parts, with manual loading, is 15-20 kg.

TECHNICAL DATA SHEET

Installation type	MP-150	MP-500	MP-1000
Working chamber dimensions (LxWxD)	840x420x350	1,500x700x550	2,200x700x550
Treatment time, min	30	30	30
Maximum load, kg	250	500	750
Maximal productivity, kg / hour	400	1,300	1,500
Reserve tank capacity, l	260	1,050	1,200
Hatch opening actuator	Manual	Pneumatic actuator	Pneumatic actuator
Operating voltage, V	380	380	380
Power consumption, kW	7	9	12
Overall dimensions of the installation, mm	1,580x1,470x1,270	2,480x2,200x2,300	3,200x2,200x2,300

MACHINES FOR LARGE-SIZED PARTS SERIES SA

The multipurpose machine is designed for degreasing various parts.

The working chamber is of rectangular shape with a pressurized loading hatch on the front surface. The chamber has a sliding platform and a loading table which allow to load or hang the products from the outside.

** The overall dimensions of the working chamber are determined by the customer in accordance with the volume corresponding to the type of installation in agreement with the manufacturer.

TECHNICAL DATA SHEET

Installation type	CA-1000	CA-3000	CA-5000
Working chamber overall dimensions (LxWxD), mm	On request ***	On request ***	On request ***
Chamber volume, l	1,000	3,000	5,000
Treatment time, min.	15-40	15-40	15-40
Reserve tank capacity, l	150	300	500
Supply voltage, V	380	380	380
Power consumption, kW	8	12	18

AUTOMATIC INSTALLATION FOR DEGREASING MANOMETERS

Installation for degreasing ready-mounted manometers (internal cavity of the sensor) with a system of treatment with liquid solvent, in solvent vapors and vacuum drying.

The installation operates in an automatic mode with the use of non-flammable organic solvents chloride or fluoric (perchlorethylene, trichlorethylene, khladon, refrigerants, forane, etc.) in a closed cycle.

The machine is designed for simultaneous degreasing from one to three pressure gauges connected to the unit collector. The approximate productivity of the machine is 50 pcs. of manometers per shift. The treatment cycle lasts 10-20 minutes.

ADVANTAGES:

- Low consumption of expensive solvents due to vapor condensation and regeneration systems;
- Ecological and hygienic cleanliness;
- Fire and explosion safety;
- High and stable quality due to absence of human factor;

DESCRIPTION OF THE INSTALLATION'S OPERATION CYCLE:

WASHING

1. Vacuuming the internal cavities of sensitive elements of manometers.
2. Filling of internal cavities of manometers' sensitive elements with solvent.
3. Vacuuming the internal cavities of the sensing elements of manometers to remove the solvent containing oil from the manometers.

Vacuum-fill-solvent cycles can be repeated sequentially from 1 to 50 times to obtain a guarantee of fat removal.

OPERATING PROCEDURE

1. The manometer in the assembly is fixed in the holder of the working collector in the amount of 1 pc. The operator starts the treatment.
2. Deactivating the fat-free manometer by the sound and light signal of the unit.

DETERGENTS AND CONSUMABLE MATERIALS

SERVICE ELEMENTS SAFECHEM

MAXICHECK test kits
Stabilizer concentrates **MAXISTAB**
Laboratory research
Training on the handling of solvents, advice on chemical and technical issues

	Trade name	Intended use	Packing, measurement units
Perchlorethylene	OPER MC (metal cleaning)	Degreasing of metal parts, including cleaning coolants	1 kg supplied in barrels of 200 l - 330 kg
	Dowper solvent	Dry cleaning of clothes	1 kg supplied in barrels of 200 l - 330 kg
	Dowper MC in SAFE- TAINER system	Degreasing of metal parts, including cleaning coolants	1 kg supplied in containers of 200 l - 330 kg
Stabilizers of solvents	MAXISTAB DK-2N	Stabilization of perchlorethylene, trichlorethylene	1 liter
	MAXISTAB DK-2N	Stabilization of perchlorethylene, trichlorethylene	10 liters
	MAXISTAB DJ-1N	Stabilization of perchlorethylene, trichlorethylene	1 liter
Test kits	MAXICHEK Alkali	Control of the state of perchlorethylene, trichlorethylene	1 pack
	Packing with spare unit I (II, III) for Alkaline test kit MAXICHECK	Control of the state of perchlorethylene, trichlorethylene	1 pack
Utilization of perchlorethylene waste	Acceptance of waste containing perchlorethylene for disposal		200 l barrel
Modified alcohols and Hydrocarbon solvents	DOWCLENE™ 1601	Degreasing of metal parts, including cleaning coolants	200 l barrel
	DOWCLENE™ 1611	Degreasing of metal parts, including cleaning coolants	200 l barrel
	DOWCLENE™ 1621	Degreasing of metal parts, including cleaning coolants	200 l barrel

DETAILS OF PARTS SURFACE POLLUTION

Group	Examples	Physico-chemical properties	Source of pollution
Inorganic pollutants			
Metals are insoluble in water and	Shavings and dust of simple metals	Insoluble in water and organic solvents. Soluble in acids and less often in alkaloids.	Engineering products
Non-metals	Graphite	Insoluble in water, organic solvents, acids and alkaloids. Destroyed only by the action of active oxidants	Graphite-containing lubricant or metal ore
Oxides and hydroxides of metals	Ai(oh)3, fe2o3	Insoluble or slightly soluble in water with decomposition. Soluble in acids.	Metal parts
Sulfur compounds, phosphides, silicates	Cus, fep etc.	Partially soluble in water with decomposition. Soluble in acids	Metal parts
Salts	Feci3, fe2(so4), nacl	As a rule, soluble in water. Enhance corrosion.	Traces of etching
Organic pollutants			
Hydrocarbons	Paraffin	Insoluble in water and mineral oils. Soluble in organic solvents.	Lubricants, Anticorrosive additives and lubricants, etc.
Lower aliphatic acids	Lactic acid, butyric acid	Accelerate corrosion by forming salts. Insoluble in water, but soluble in solvents	Products of human body evaporation
Fat acids and their glycerides	Oleic acid, stearic acid, oxidation products	Prevent the adhesion of tissues. Insoluble in water and slightly soluble in organic solvents. Soluble in alkaline solutions.	Traces of cleaning pastes and any oils
Amorphous carbon	Carbonization of organic substances	Very sticky stuff. Soluble in water and solvents.	Different sources of pollution.

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