Techwagonmash

COMPREHENSIVE SOLUTIONS

Shot blasting and airblast equipment

Shot blasting units

The shot blasting unit is engineered to generate a high-velocity, precisely directed abrasive stream for effective removal of rust, scale, and surface contaminants. Built with wear-resistant materials, these units deliver long-term, uninterrupted operation in demanding production environments.

- The shot blasting wheel unit is built with wear-resistant materials, ensuring reliable, uninterrupted operation over extended service life;
- A broad model range, featuring motor power from 11 to 40 kW, allows for optimal selection tailored to a wide variety of production tasks;
- The blade design enables quick and easy replacement during scheduled maintenance;
- The blast stream is fully adjustable, offering a wide regulation range for precision control;
- A direct-drive connection between the motor and turbine ensures compact equipment dimensions and significantly reduces operating noise;
- Spare parts are kept in constant stock, allowing for fast delivery and reduced downtime.

№ п.п.	Parameter	Value		
		DA-11	DA-18	DA-22
1.	Shot flow rate, kg/min	130	170	200
2.	Shot exit velocity, m/s	70 … 80		
3.	Rotor speed, rpm	2935	2935	2945
4.	Number of blades, pcs	8		
5.	Blast width at blade exit, mm	65		
6.	Installed motor power, kW	11	18,5	22
7.	Disk rotation direction (feed side)	left/right		

Shot blasting systems for sheet and structural steel

The shot blasting machine is designed for cleaning sheet and shaped rolled products from dirt, rust and scale.

Our company offers a range of shot blasting machines with an inlet window width of 800 to 3200 mm and a height of up to 800 mm. The sheet or section to be blasted is conveyed by means of a conveying device into the blast chamber, where it is automatically cleaned from all sides in a single pass.

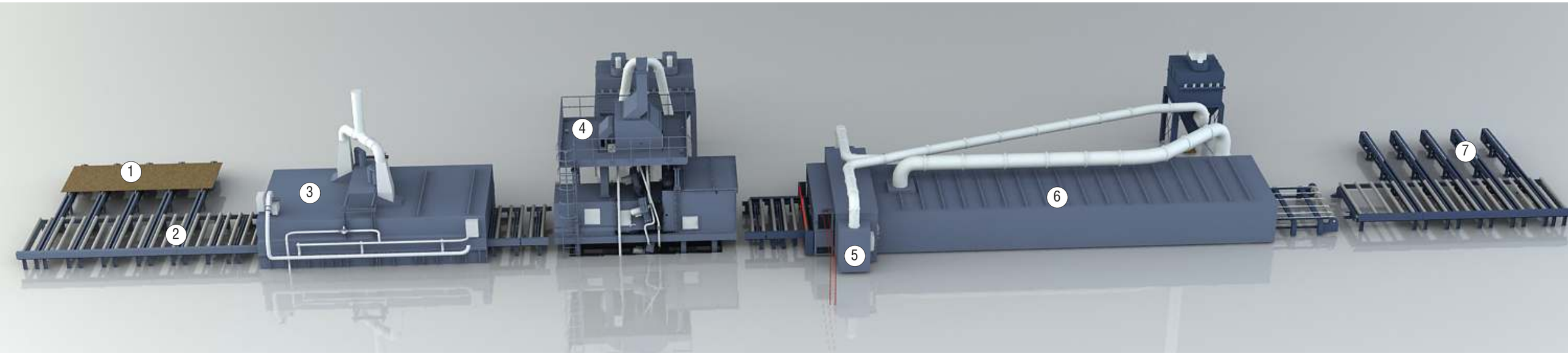
The number of shot blasting machines depends on the machine model (its size) and can be between 2 and 6. The machine is equipped with shot cleaning and circulation system, air suction cleaning unit, roller conveyors, cross conveyors. The shot blasting machine can be supplied as a separate unit or as part of a complete line of shot blasting and preservation of rolled metal products.

#	Parameter	Model			
		KD-800	KD-1600	KD-2400	KD-3200
1.	Overall dimensions of cleaned products, mm				
	width, mm	800	1600	2400	3200
	length, not less than, mm	1200	2500	2500	2500
	height, not more than, mm	350	500	500	500
2.	Rolling speed, m/min	0.8-1.5	1.2-1.5	1.2-1.5	1.0-2.5
3.	Surface roughness after blasting, μm	40-80			
4.	Number of shot blasting machines, pcs	4	4	6	6
5.	Installed power of electric motors, kW	92	116	130	210
6.	Equipment weight, tons	9.5	27	31	42
7.	Overall dimensions				
	length, mm	3800	5700	6100	8000
	width, mm	3600	5650	6200	7000
	height above the floor, mm	5100	6500	7100	6500
	depth of pit, mm	-	980	1945	1945

shot blasting machine KD-2400

Shot blasting machine KD-3200

Shot blasting machine KD-1600



1. Loading conveyor
2. Transport system
3. Drying chamber
4. Shot blasting chamber
5. Priming chamber
6. Drying chamber
7. Unloading conveyor

Shot blasting and preservation line for rolled steel

The line is designed for continuous surface preparation and corrosion protection of sheet and structural steel. It combines high-efficiency abrasive cleaning with the application of an anti-corrosion conductive primer — all within a single automated process flow.

The incoming steel is preheated in a drying chamber up to 200°C, removing moisture and oil contaminants from the surface — an essential step for ensuring coating adhesion.The material enters the blasting chamber, where it is cleaned from both sides in a single pass using multiple high-performance blast wheels. The process meets industry surface preparation standards and delivers a uniform anchor profile. In the automated paint booth, a conductive anti-corrosion primer is applied to both sides of the steel section. Paint manipulators are adjustable based on the steel's width, ensuring optimal coverage and minimal overspray. The chamber includes a high-efficiency filtration system.Final DryingThe coated steel is cured in a final drying oven. The chain conveyor system is engineered to maintain minimal contact with the freshly coated surface, preventing damage to the uncured film.

Shot blast chamber for pipe cleaning

The shot blasting machine is designed for external cleaning of pipes from dirt, rust, and scale.

High-quality surface preparation is a critical factor in ensuring long-term corrosion protection. Regardless of the type of coating applied, its protective properties will degrade if the surface is not properly prepared to Grade 1 according to GOST 9.402-80 (equivalent to Sa 2 $^{1}/_{2}$ ISO 8501-1).

Shot blasting ensures this level of cleanliness while also producing the surface roughness required for maximum adhesion between the pipe and the protective coating.The pipe blasting unit can be delivered either as a standalone machine or as part of a complete pipe insulation line with extruded polyethylene coating.

No.	Parameter	Model		
		NTP-325	NTP-630	NTP-1420
1.	Pipe diameter range, mm	57-325	57-630	630-1420
2.	Minimum pipe length, mm	7000		
3.	Pipe feed speed, m/min	0,8-1,2		
3.	Surface cleanliness grade	2 acc. GOST 9.402-80 PSA 2 $^{1}/_{2}$ ISO 8501-2		
5.	Surface roughness after blasting, μm	40-80		
6.	Installed power, kW	22	50	57
7.	Equipment weight, tons	5,4	14	18
8.	Overall dimensions, mm			
	length	3400	5400	6200
	width	3700	5100	5400
	height above floor	4500	5850	6500
	Pit depth, mm	--	--	--

Shot blasting chamber NTP-630

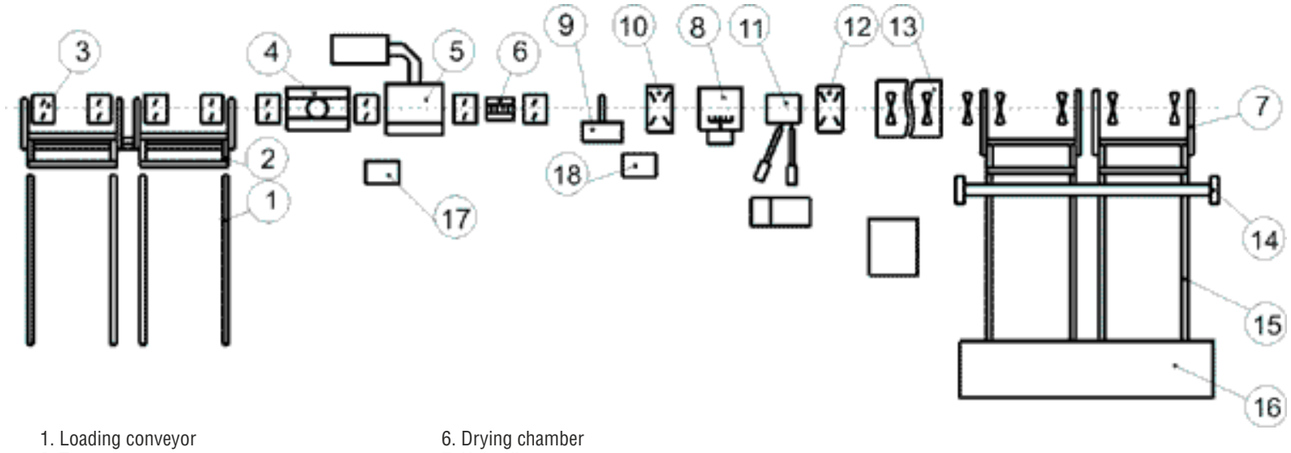
Cleaning pipes up to 325 mm

Cleaning pipes up to 1420 mm

Line for shot blasting and extruded polyethylene coating of pipes

This line is intended for drying and degreasing the external pipe surface, cleaning it from dirt, rust, mill scale, and other contaminants, followed by the application of a three-layer anti-corrosion coating consisting of an adhesive layer and a polyethylene top layer.

At present, three-layer polyethylene coating is the most effective factory-applied external anti-corrosion protection for pipes.This type of coating is widely used worldwide for the corrosion protection of pipelines intended for various purposes, including main gas pipelines, oil pipelines, product pipelines, and utility pipelines.When the appropriate insulation system is selected and all process parameters for surface preparation and coating application are strictly followed, the service life of the three-layer coating at operating temperatures up to +60 °C is at least 50 years.



1. Loading conveyor
2. Transport system
3. Drying chamber
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Compared to bitumen insulation, polymer tapes, and other currently used coatings, the technology of applying extruded polyethylene with a solid adhesive underlayer, along with the ability to perform step-by-step quality control under factory conditions, ensures significantly higher coating performance — particularly in terms of resistance to external mechanical damage, strong adhesion to the pipe surface, low water absorption and permeability. These properties contribute to the long-term (40–50 years) and failure-free operation of pipelines.

The insulation consists of a 2.5–3.0 mm thick extruded polyethylene coating applied over a solid adhesive layer made of ethylene-vinyl acetate copolymer. The adhesive layer provides strong adhesion of the coating to the steel pipe, while the outer polyethylene layer ensures the required mechanical strength.

Overhead rail conveyor shot blasting machine

Shot blasting chambers for cleaning suspended parts can be used both for medium-sized components (cleaned using a herringbone fixture) and for large-sized workpieces.

#	Parameter	DP-1700	DP-2100	DP-2500
1.	Load capacity of hanger, kg	1000	3000	5000
2.	Maximum dimensions of parts to be cleaned, mm			
	diameter	1300	1300	2500
	height	1700	2100	2500
3.	Installed power of shot blasting turbines, kW	2x11	2x15	3x18
4.	Air extraction volume, mi/h	4500	8000	14000

Shot blasting machine DP-2100

Shot blasting machine DP-1700

Shot blasting machine DP-2500

Shotblasting chamber with a turntable

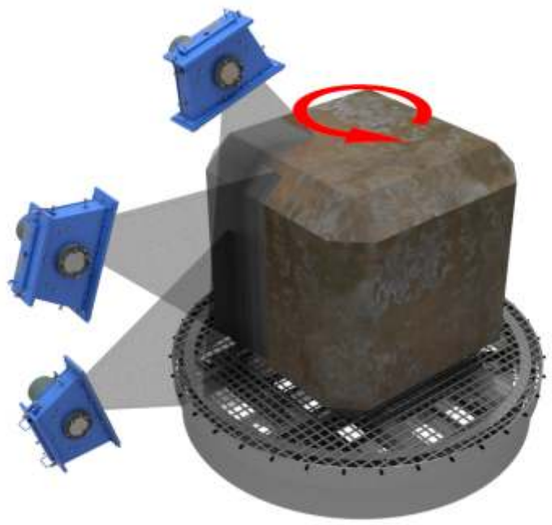
The shot blasting chamber with a turntable is a versatile solution for cleaning both large and small-sized parts.

At the customer's request, the chamber can be additionally equipped with a manual shot blasting gun, allowing the operator to clean and inspect shadowed areas that are inaccessible to the automatic shot blasting process.

The ventilation system of the shot blasting chamber is designed according to customer requirements.

For cleaning heavily soiled parts (with residual molding sand), the air purification unit features a dual filtration system (cyclones + filter cartridges).

Cleaning principle

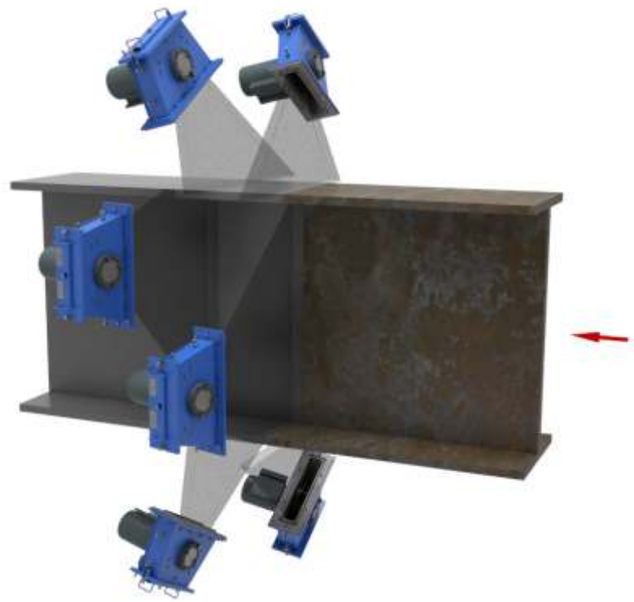


No.	Model	DPS-1500	DPS-2500	DPS-3500
1.	Table diameter (mm)	1500	2500	3500
2.	Table height (mm)	750	760	780
3.	Maximum part weight (kg)	2500	5000	8000
4.	Maximum part height (mm)	1000	1400	2000
5.	Number of shot blasting units аппаратов,	2	2	3
6.	Power of shot blasting units (kW)	2x7.5	2x11	3x18

Shot blasting chamber for cleaning welded metal structures

The shot blast chamber is designed for shot blast cleaning of welded metal structures (up to grade 2 according to GOST 9.402-80 PSA2S ISO 8501-2) in stationary conditions.

Cleaning principle

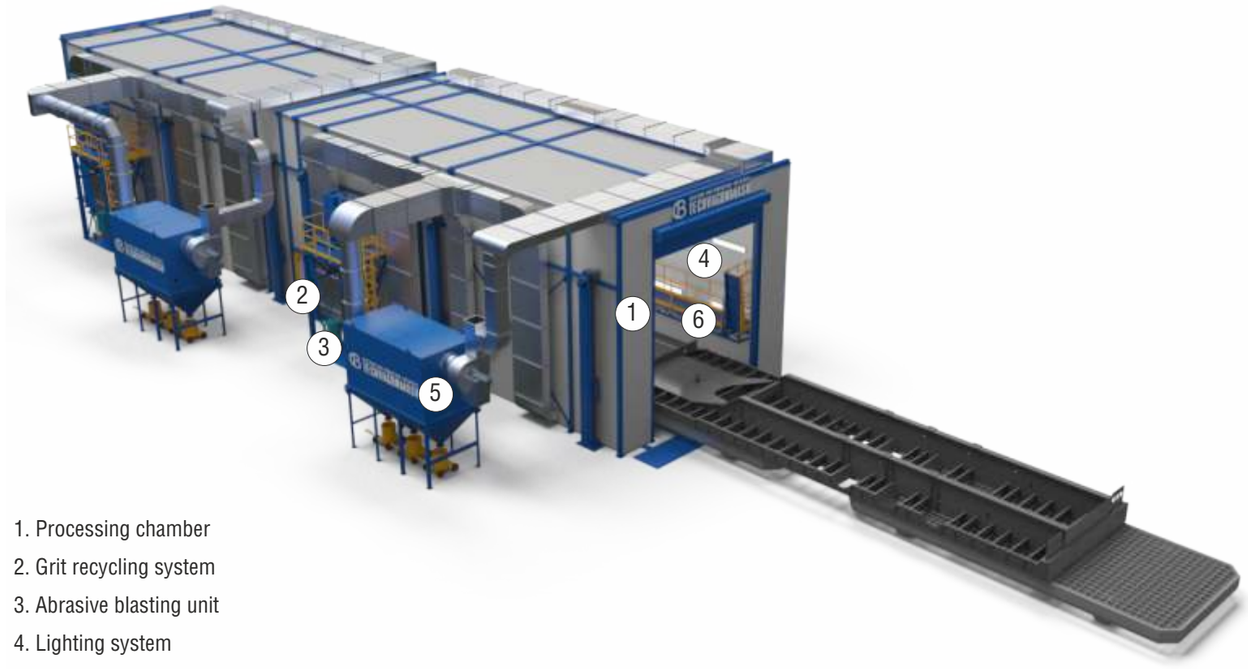


No.	Parameter	Value
1.	Overall dimensions of processed parts, mm	6000(min)x1000x1800
2.	Part transfer speed, m/min	1-1,2
3.	Surface roughness after cleaning, μm	40-80
4.	Number of shot blasting units, pcs	12
5.	Installed power, kW	160
6.	Air extraction volume, mi/h	48000
7.	Overall dimensions of the installation:	
	length, mm	8500
	width, mm	7000
	height above floor level, mm	6800
	pit depth, mm	1350
8.	Chamber weight, tons	46

Abrasive blasting chamber

Abrasive blasting chambers are used for cleaning a wide range of products from small metal structures to railway cars, containers, tanks, and more. During the cleaning process, the operator (or multiple operators) work inside the chamber, manually performing and controlling the cleaning operation.

Abrasive blasting chambers are equipped with an abrasive material collection and recycling system, a ventilation system for air extraction and filtration, and a set of protective clothing for the operator. As mechanization options, transport trolleys, transport trolleys with rotary tables, and lifting platforms for cleaning large-sized parts can be supplied.



1. Processing chamber
2. Grit recycling system
3. Abrasive blasting unit
4. Lighting system
5. Air filtration system
6. Lifting platforms

Abrasive blasting chambers are designed and installed according to individual projects, tailored to the customer's specific requirements:

Abrasive blasting chamber

Blasting units

Filtration units

Filtration units ensure the removal of dust-laden air from shot blasting or abrasive blasting chambers, its purification, and release into the atmosphere.

A cyclone filter may be used as a preliminary cleaning stage. The cyclone filter removes the majority of coarse dust, significantly extending the service life of the filter cartridges. Dust cleaning of the cartridges is performed by a short pulse of compressed air fed into the cartridge. This causes the accumulated dust to fall into the dust collection hopper, while the air filtration process continues uninterrupted.

No.	Parameter	Filter unit model			
		FU- 8	FU- 16	FU- 24	FU- 32
1.	Unit type	cartridge type with pulse cleaning			
2.	Air extraction volume, mi/h	6500	12000	18000	22000
3.	Air filtration efficiency, %	99,95			
4.	Number of filter cartridges, pcs	8	16	24	32
5.	Filter cartridge material	20% polyester, 80% cellulose			
6.	Filter cartridge area, ml	13			
7.	Compressed air pressure, Mpa	0,4 … 0,6			
8.	Fan power, kW	5,5	11	18,5	22

Filter unit mod. FU-24

Filter unit mod. FU-16

Filter cartridges

Filter unit mod. FU-32

About the enterprise

With four decades of expertise, Research-and-production enterprise «Techvagonmash» specializes in the design and manufacture of cutting-edge equipment tailored for the transport engineering sector. As the proud successor of VNIIPTivagon —the prestigious All-Union Scientific Research Institute of Railcar Engineering — Techvagonmash continues to lead innovation and set industry standards in the development of transport engineering enterprises.

Our core areas of expertise include:

- comprehensive design and outfitting of transport engineering enterprises;
- design and manufacture of specialized technological equipment for railcar production;
- technological equipment for railcar repair;
- robotic welding complexes;
- shot blasting and abrasive blasting equipment;
- paint spraying and drying booths;
- filtration and ventilation systems.

Fields of activity

Painting and drying booths

Design and manufacture of paint spraying and drying booths for coating rolling stock, heavy-duty trucks, and large welded metal structures.

Shot blasting and abrasive blasting equipment

Equipment for cleaning sheet and profile metal, pipes, welded metal structures, and large-scale castings.

Automated drilling complexes

Equipment designed for high-efficiency coordinate machining of parts without the need for preliminary marking or the use of jigs.

Operations performed include drilling, reaming, countersinking, and threading.

Robotics and automation of welding production

Design and manufacture of specialized technological equipment for the automation and robotic integration of welding processes.

Techwagonmash

COMPREHENSIVE SOLUTIONS

Research-and-Production Enterprise «Techvagonmash» LLC

39627 Ukraine, Poltava region,
Kremenchuk, prospect Poltavsky 2-D

Tel: +38 (067) 818-18-20 (WhatsApp)
+38 (050) 394-00-02

E-mail: market@tvagonm.com.ua
Web: www.tvagonm.com.ua
Our Youtube channel:
www.youtube.com/user/Techvagonmash