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CATALOGUE

KARA Sheet Metal Shot Blasting, Painting & Dryer Line





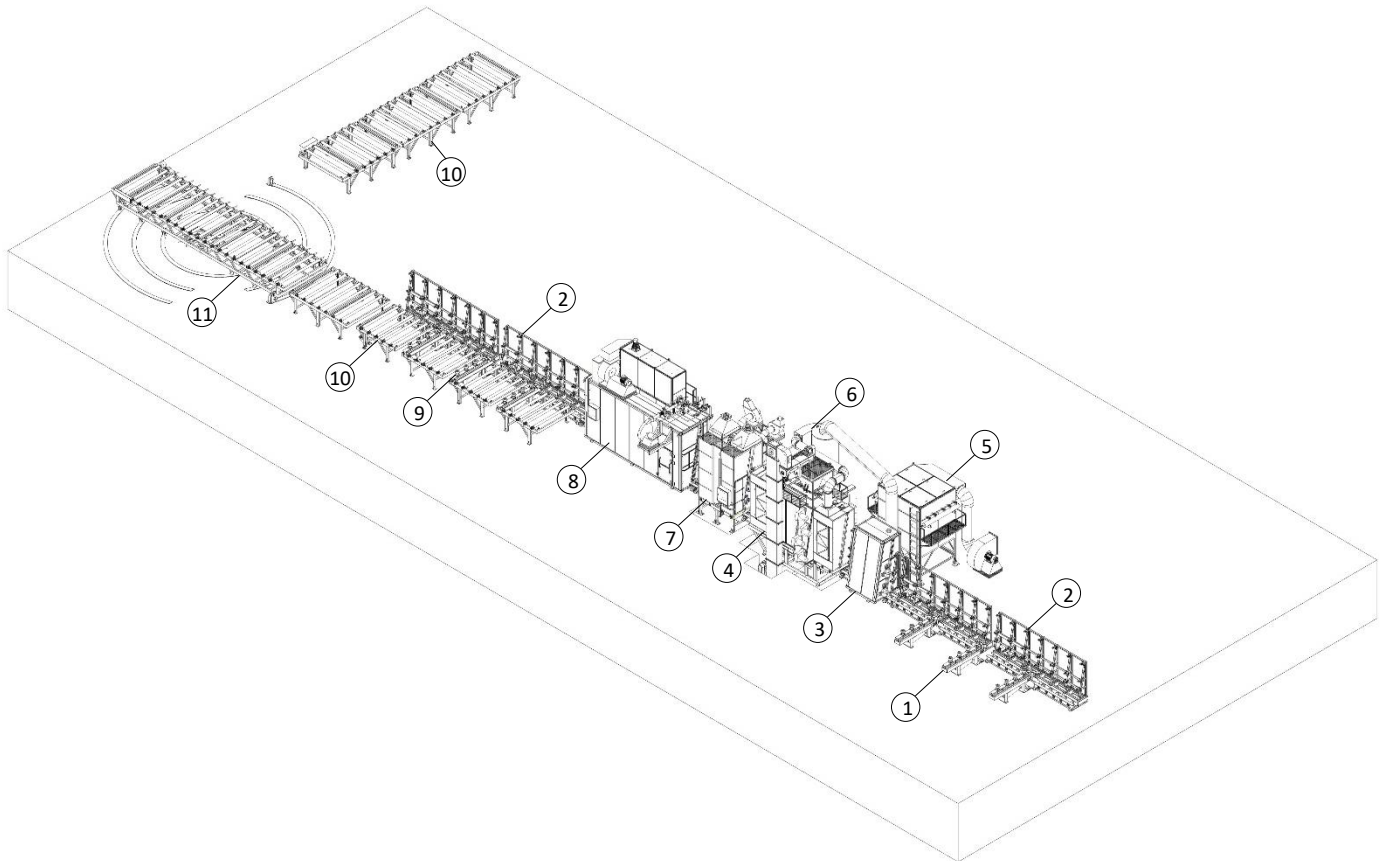
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1. Main Schematic

The set of these machines is used for shot blasting and painting a steel sheet for the initial preparation of its warehouse. This line is approximately 64 meters long and 10 meters wide, which includes the primary sheet heater, shot blasting, coloring and sheet dryer. There is also a 22-meter-long rotary table transfer system (12 rotary tables and 10-meter fixed tables) in the continuation of this line.

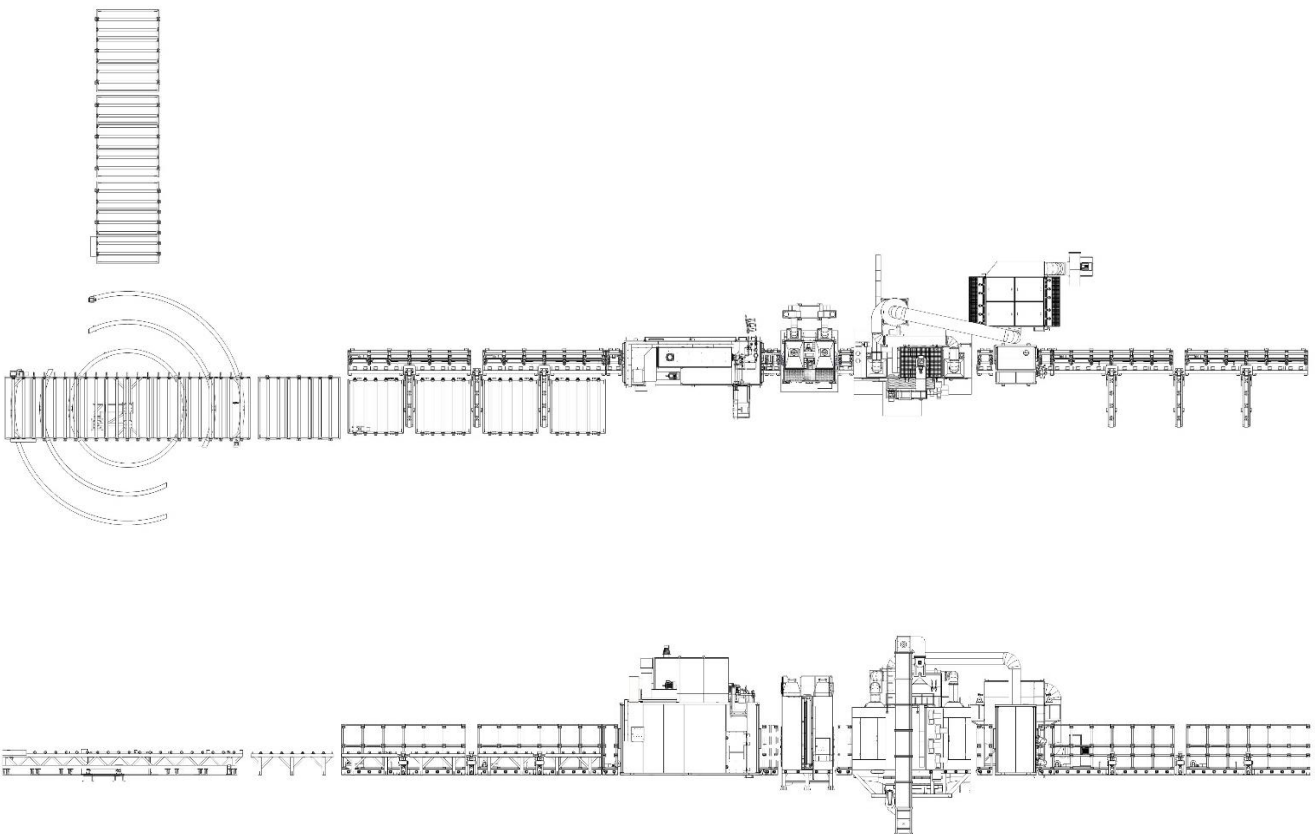


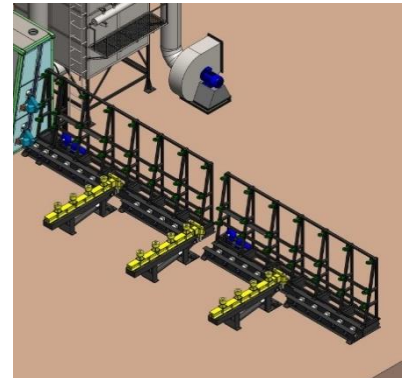
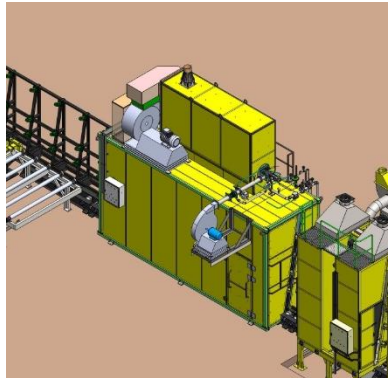
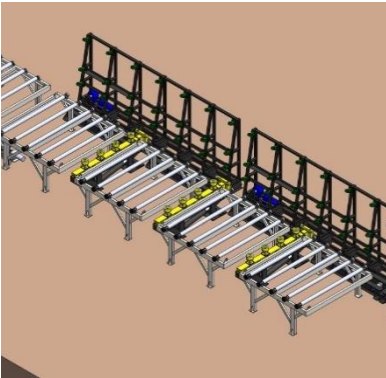
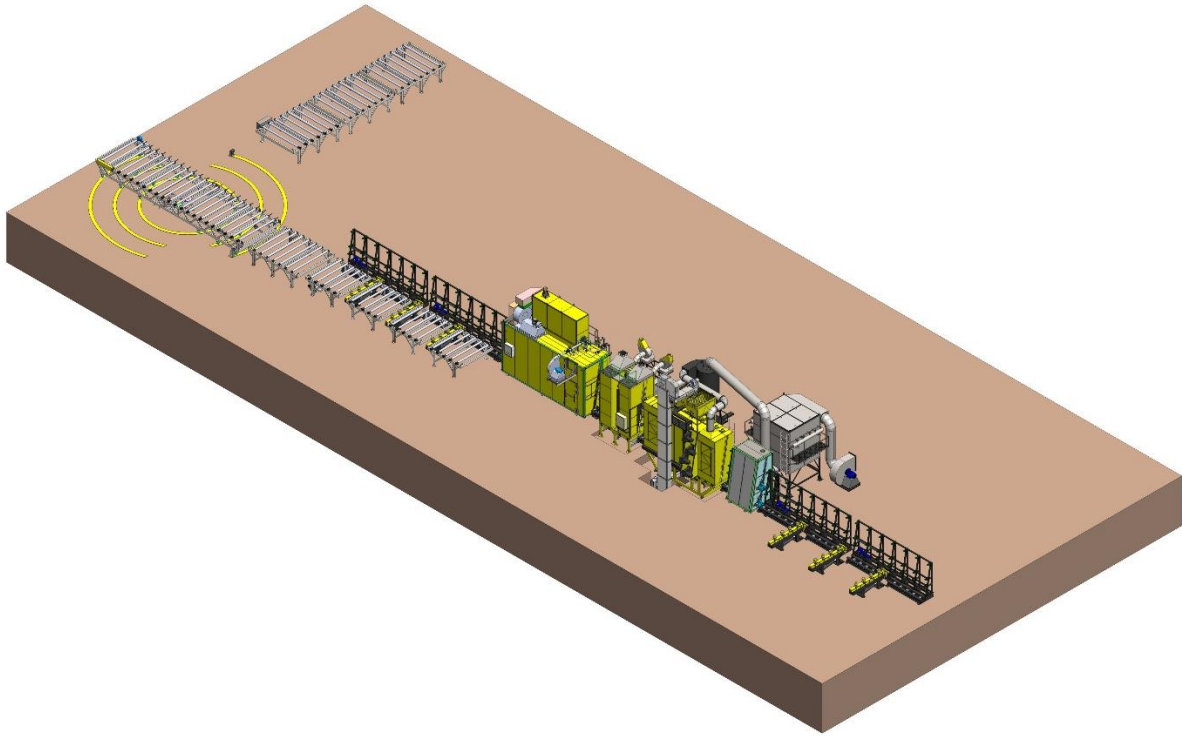
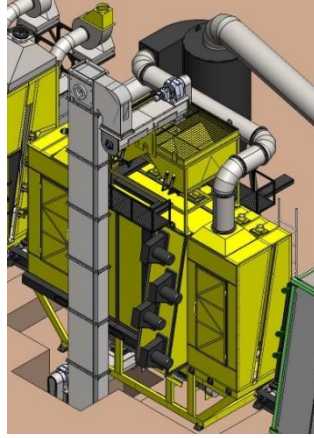
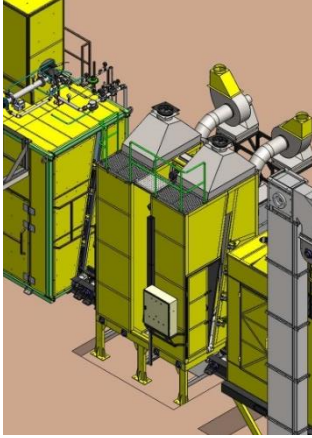
Number	Item
1	Hydraulic Positioner – Load
2	Vertical Roller Conveyor
3	Pre-Heat
4	Shot Blasting
5	Cyclone
6	Dust Collector
7	Painting Room
8	Furnace
9	Hydraulic Positioner – Unload
10	Horizontal Roller Conveyor
11	Turn Table



Line performance:

1. First, the sheet changes position by the Hydraulic Positioner to rotate from horizontal to vertical to be placed on the Vertical Roller Conveyor.
2. Now, the sheet moves into the Pre-Heat cabine before the shot blasting.
3. After heating, the sheet is transferred into the shot blasting machine.
4. The shot blasted sheet is transferred to the painting cabine.
5. Then the painted sheet moves into the dryer.
6. The dried sheet is moved to the end of the line and changed to horizontal position by the Hydraulic Positioner.
7. All these operations are done continuously.







2. Real Pictures





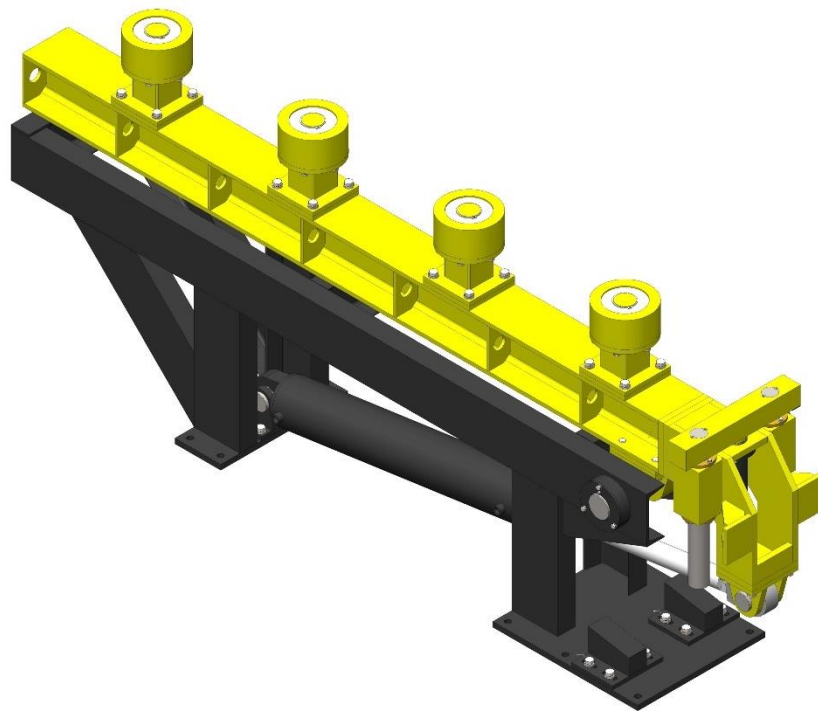






3. Hydraulic Positioner

The hydraulic positioner machine consists of three Actuator arms. This machine holds the sheet by using magnetic gripper. In the loading position, this machine changes the sheet from horizontal to vertical position, and in the unloading position, it changes the sheet from vertical to horizontal position. The model of one of the actuator arms is shown in the image.

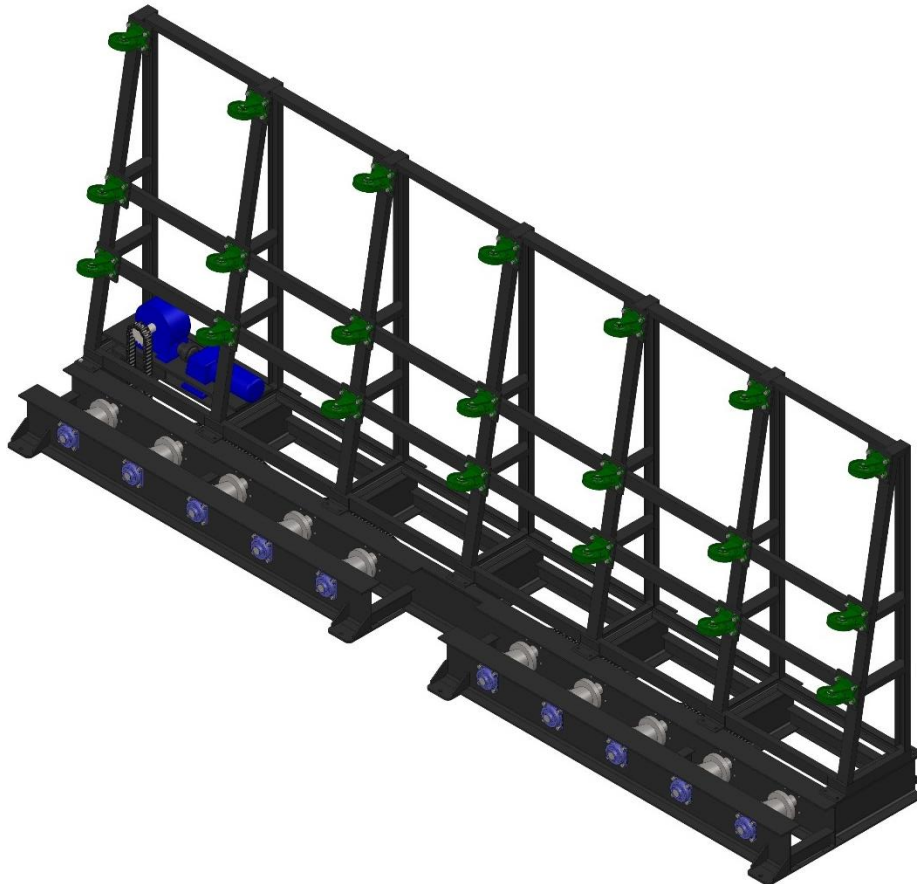


Mechanic Specifications			
Item		Value / Brand	
Machine Performance	Workpiece Type		Sheet (Steel Plate)
	Workpiece Dimensions	Length (L)	6000 mm up to 12000 mm
		Width (W)	1250 mm up to 3000 mm
		Thickness (T)	8 mm up to 30 mm
	Actuator Arm Number		3
	Arm Movement Mechanism		Angular + Hydraulics
	Angular Stroke		0 - 100°
	Arm Stopper Mechanism		Linear + Hydraulics
	Arm Gripper Type		Magnetic
	Arm Gripper Number		4 for each arm



4. Vertical Roller Conveyor

The vertical conveyor machine consists of a truss structure. This structure uses vertical casters to control the weight of the sheet and horizontal cone wheel to move the sheet along the line. The model of one of the vertical conveyor machine is shown in the figure.

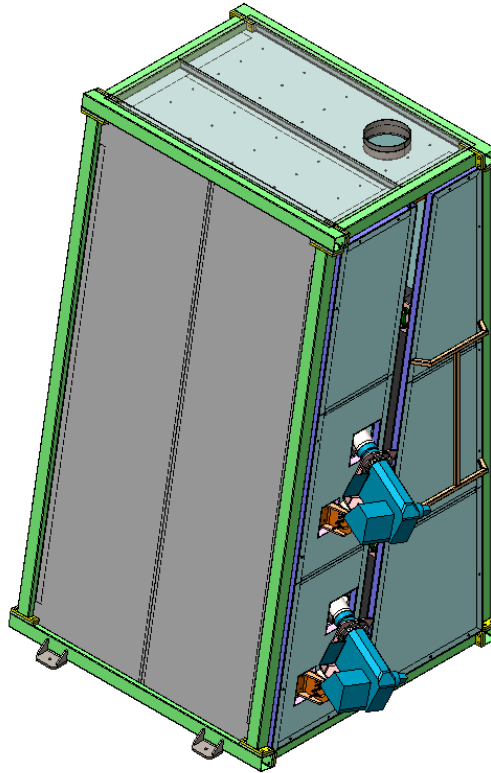


Mechanic Specifications			
Item		Value / Brand	
Machine Performance	Workpiece Type		Sheet (Steel Plate)
	Workpiece Dimensions	Length (L)	6000 mm
		Width (W)	1250 mm up to 3000 mm
		Thickness (T)	8 mm up to 30 mm
	Linear Speed		1 m/min
	Drive Mechanism		Sprocket & Chain
	Electromotor Type		AC Motor 2.2 KW
	Gearbox Type		Helical + Worm Gear



5. Pre-Heat

The preheat furnace is used for initial heating of the sheet before the blasting process. This furnace can heat the sheet up to 60 degrees Celsius. Its function is as a direct flame on the surface of the sheet. Its schematic is shown in the figure.



Mechanic Specifications			
Item		Value / Brand	
Machine Performance	Workpiece Type		Sheet (Steel Plate)
	Workpiece Dimensions	Length (L)	Free
		Width (W)	1250 mm up to 3000 mm
		Thickness (T)	8 mm up to 30 mm
	Heating Type		Direct Flame
	Fuel Type		Gasoline or Natural Gas
	Heat Capacity		65000 up to 192000 kcal/h
	Working Temperature		Max. 70°C
	Linear Speed		1 m/min
	Drive Mechanism		Sprocket & Chain
	Electromotor Type		AC Motor 2.2 KW
	Gearbox Type		Helical + Worm Gear

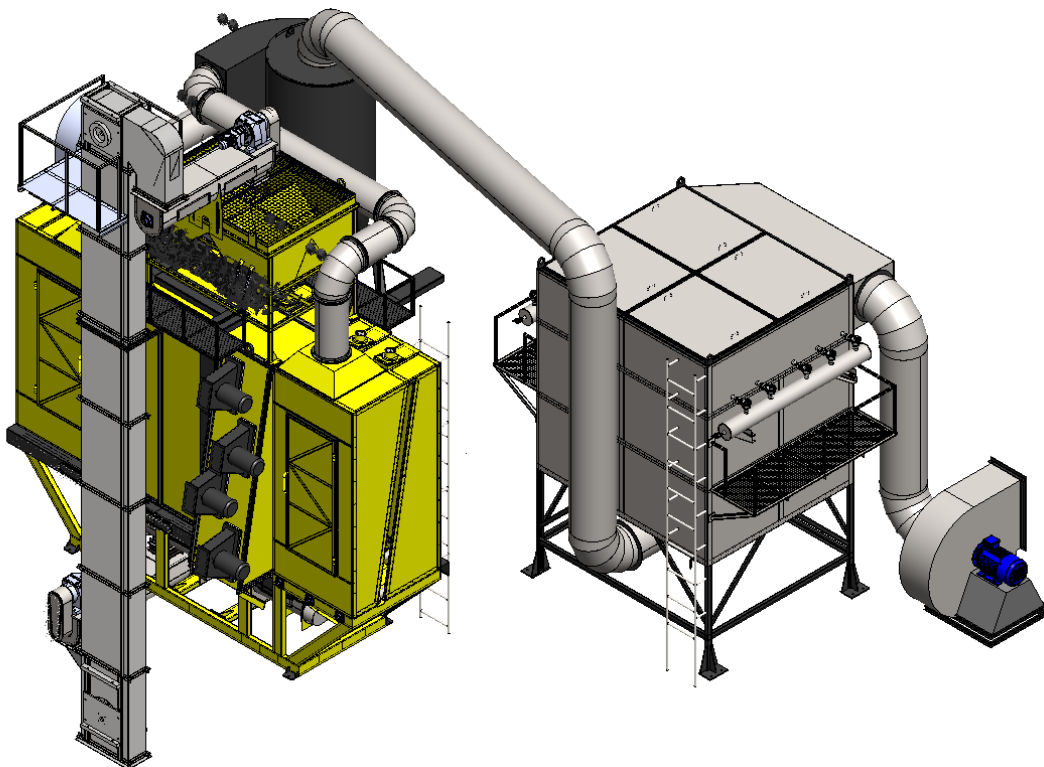


6. Shot Blasting

Vertical Steel Plate Shot Blasting Machine is a machine with different components. This machine contains several main sets and sub sets that must be assembled together. The main Sets are as follows:

- Shot Room
- Conveyors
- Elevator & Screws & Shot Tank
- Cyclone
- Dust Collector
- Pipes
- Electrical Boxes & Ducts

The Steel Plate Shot Blasting Machine allows wide working range for Sheet from diameters 0 to 3000 mm. Advanced design and top quality components enable fast and efficient blasting with top quality results. The most important feature and advantage is its user friendly software which enables quick understanding and efficient use of this machine after a short training. In the figure, all the components of a vertical sheet shot blasting machine assembled together are shown.



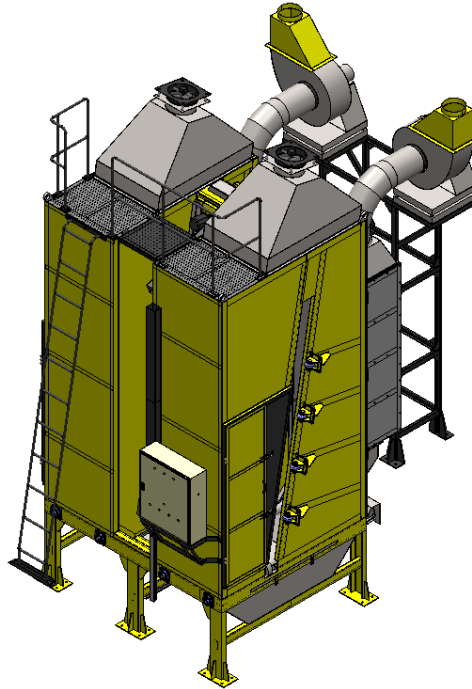


Mechanic Specification				
No.	Item			Value / Brand
1	Machine Performance	Workpiece Condition	Workpiece Type	Sheet (Steel Plate)
			Max. Weight	1250 Kg/m
			Ambient Temperature	5 - 70 [°C]
		Workpiece Dimensions	Length (L)	Free
			Width (W)	1250 mm up to 3000 mm
			Thickness (T)	8 mm up to 30 mm
		Machine Total Weight		
2	Turbine System	Number of Turbines	8 Turbines	
		Turbine Electromotor	AC Motor 3000rpm	
		Turbine Power Rate	7.5 KW	
		Turbine Protection	IP54	
3	Dust Collector System	Filters Type	Bag Filter	
		Number of Filters	120	
		Exhaust Fan	22KW – 3000rpma	
		Other Information	Compressed air tank and shocker system for dust removal (PLC)	
4	Ventilation System	Ventilation Type	Pipe + Cyclone	
		Number of Intake Vent	2	
		Number of Cyclone	1	
5	Shot Information	The Volume of Shot Tank	6 Ton	
		Surface Smoothness Grade	Sa2, Sa2+1/2	
		Shot launch Angle Setting	7°-Manual	
6	Control System	Equipped with PLC, exact timing using PLC to save the shot Equipped with over load alarm pointer of conveyer speed and direction Using sensors to detect the entry and exit of the workpiece to prioritize turbines		



7. Painting Room

The Steel Plate Painting Machine is used to paint both sides of a sheet. The type of paint is shop primer. In this machine, the coloring operation is done by using two guns that move simultaneously and parallel on each side of the sheet.

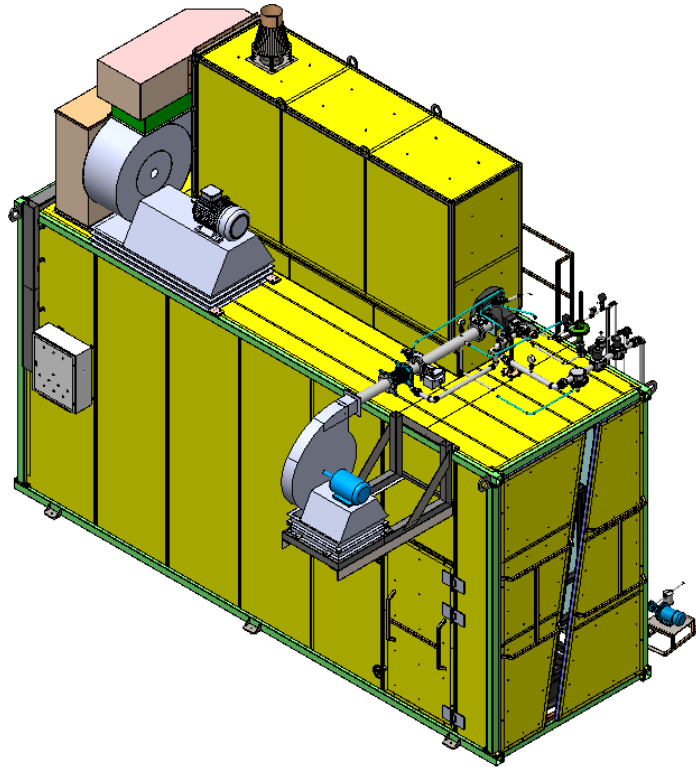


Mechanic Specifications			
Item		Value / Brand	
Machine Performance	Workpiece Type		Sheet (Steel Plate)
	Workpiece Dimensions	Length (L)	Free
		Width (W)	1250 mm up to 3000 mm
		Thickness (T)	8 mm up to 30 mm
	Number of Color Gun & Slider		2
	Color Gun Type		Airless
	Slider Type		Ball Bushing + Timing Belt
	Slider Electomotor		Servo Motor 1KW – 1000rpm
	Air Conditioner	Air Inlet	2x 350W Axial Fan
		Air Outlet	2x 1.5KW Exhaust Fan
	Linear Speed		1 m/min
	Drive Mechanism		Sprocket & Chain
	Electomotor Type		AC Motor 2.2 KW
Gearbox Type		Helical + Worm Gear	



8. Furnace

The main furnace is used to dry the sheet after the painting process. This furnace increases the temperature up to 150 degrees Celsius. The function of this furnace is indirect flame.

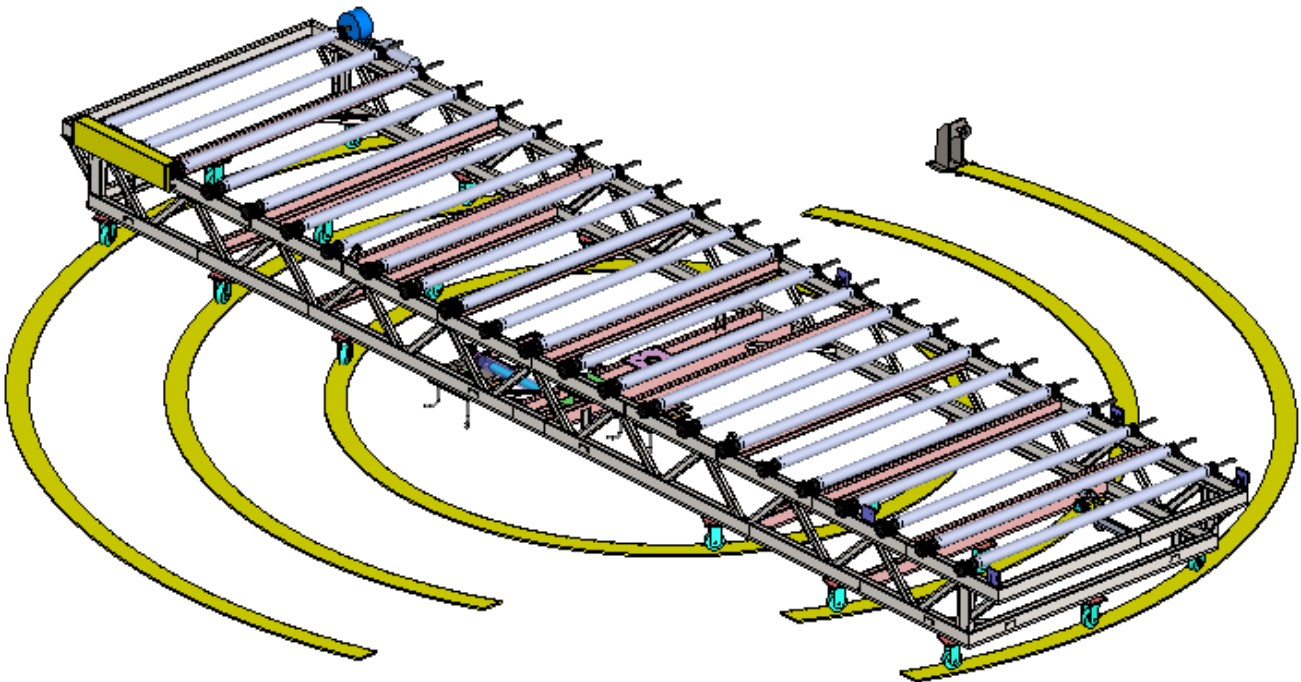


Mechanic Specifications			
Item		Value / Brand	
Machine Performance	Workpiece Type		Sheet (Steel Plate)
	Workpiece Dimensions	Length (L)	Free
		Width (W)	1250 mm up to 3000 mm
		Thickness (T)	8 mm up to 30 mm
	Heating Type		Indirect Flame
	Fuel Type		Gasoline or Natural Gas
	Heat Capacity		400000 kcal/h
	Working Temperature		Max. 150°C
	Linear Speed		1 m/min
	Drive Mechanism		Sprocket & Chain
	Electromotor Type		AC Motor 2.2 KW
	Gearbox Type		Helical + Worm Gear



9. Turn Table & Horizontal Roller Conveyor

Vertical The Turn table and horizontal Roller Conveyor line includes a series of tables with metal structures on which horizontal rollers are installed. The task of this line is to transfer the sheets to the next hall after completing all the processes. The length of this line can be different depending on the type of delivery hall.



Mechanic Specifications			
Item		Value / Brand	
Machine Performance	Workpiece Type		Sheet (Steel Plate)
	Workpiece Dimensions	Length (L)	6000 mm up to 12000 mm
		Width (W)	1250 mm up to 3000 mm
		Thickness (T)	8 mm up to 30 mm
	Linear Speed		2 m/min
	Drive Mechanism		Sprocket & Chain
	Electromotor Type		AC Motor 2.2 KW
	Gearbox Type		Helical + Worm Gear
	Turn Actuator Number		1
	Turn Mechanism		Circular + Hydraulics
Turn Stroke		0 - 90°	



10. Power Consumption

Table of power consumption of line components:

Num.	Item		Qty.	Power	Sum. Power
1	Conveyor	Electromotor	5	2.2 kw	11 kw
2	Positioner	Hydraulic Unit	2	2.2 kw	4.4 kw
3	Shotblasting	Turbine	8	7.5 kw	60 kw
		Exhaust Fan	1	15 kw	15 kw
		Blower Fan	1	11 kw	11 kw
		Elevator	1	5.5 kw	5.5 kw
		Screw	3	2.2 kw	6.6 kw
4	Painting Room	Servo Motor	2	1 kw	2 kw
5	Furnace	Blower Fan	1	5.5 kw	5.5 kw
6	Turntable	Conveyor	5	2.2 kw	11 kw
		Turning	1	5.5 kw	5.5 kw
7	Other	Etc.	1	4 kw	4 kw
Sum					142 kw



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