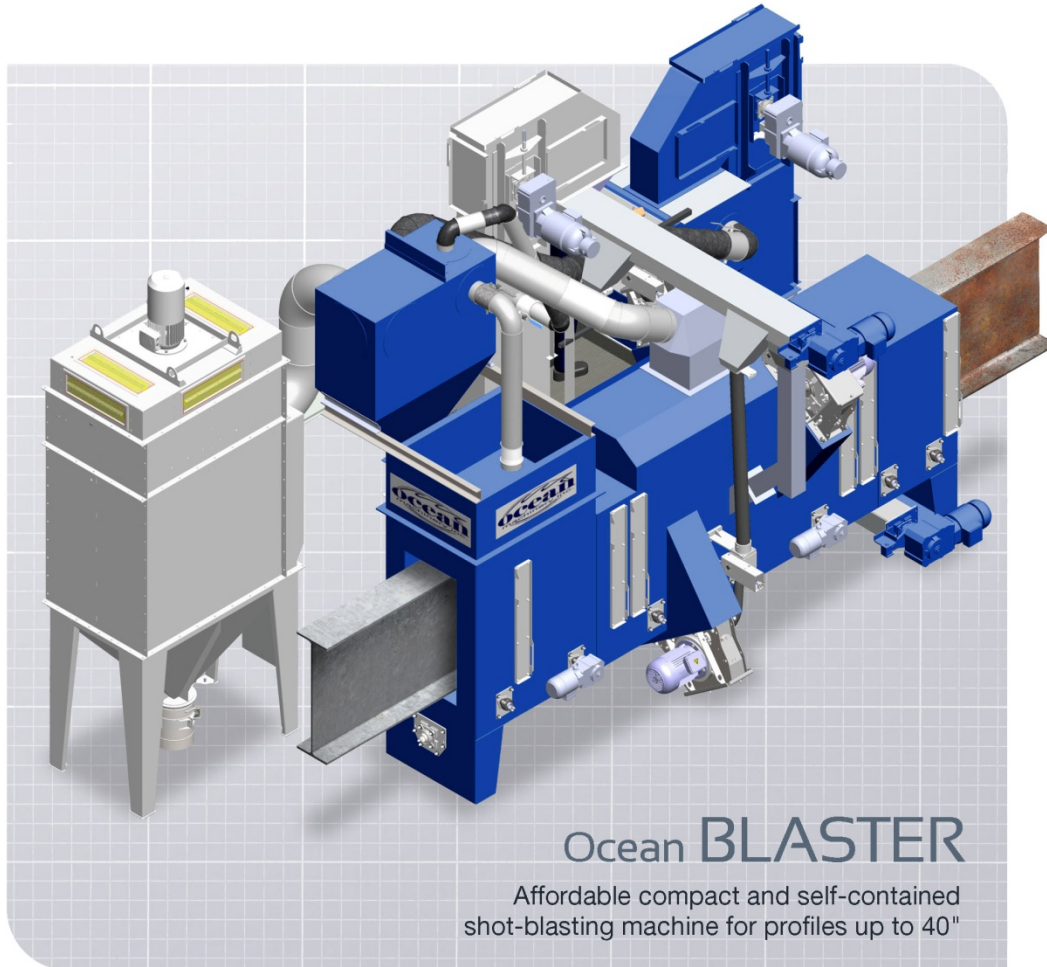




OCEAN BLASTER

COMPACT SELF CONTAINED ROLLER CONVEYOR SHOT BLAST PLANT
FOR STEEL PROFILES UP TO 40" (1000mm)



Description:

The Ocean BLASTER is a compact, self contained shot blasting machine whereby structural steel profiles are transported on a roller conveyor, through a blasting cabinet where four high speed turbine wheels propel steel shot blast media at the profiles, thereby cleaning the profiles of rust and mill scale.

Method of operation:

An inboard roller conveyor moves the work-pieces to be blasted into the airless shot blasting cabinet, and activates the light curtain. This automatically starts the high performance turbines that propel the shot blast media at extremely high velocity in a controlled direction, speed and pattern to all surfaces of the work-piece, efficiently removing rust and scale from all surfaces.

The shot blasting cabinet is sealed with wear-resistant polyurethane curtains and rubber gaskets. After their passage through the blast zone, the work-pieces enter the high performance blower unit, where all abrasive and scale is blown off, allowing clean and dirt free work-pieces to exit the machine.

The abrasive blown off the work-pieces in the blower unit is reclaimed and returned to the abrasive circuit. The rust, scale and dust is separated from the abrasive via an automatic air wash system and the purified abrasive is recirculated in a closed circuit. Via the abrasive control unit, the purified abrasive is automatically fed back to the silos that feed the high performance turbines.

All dust is contained in the shot blast cabinet by a fan creating the necessary vacuum to remove the dust and an attached air filter unit purifies the air.

The shot blasting plant is designed to handle the following work pieces:

General Data		
Max. height of profiles	40 in.	[1000 mm]
Max. width of profiles	20 in.	[500 mm]
Min. work piece height	0.5 in.	[10 mm]
Min. work piece length	80 in.	[2000 mm]
Max. weight of work piece	500 lb./ft.	[750 kg/m]

The work pieces may have to be turned and blasted again after the first blasting passage depending on the flange height of the sections.

Blast performance:

In order to achieve a cleaning level of SP10, the conveyor speed will be approximately 3-4 ft/min. (1m/min), as long as you are using good quality rounded cast steel shot around 0.9 - 1.2 mm in diameter

The speed of the work piece through the shot blast unit is dependent on

- the amount of rust and scale to be removed,
- the level of surface cleanliness required,
- the adjustment and maintenance of the blast unit, the condition of the media, and the presence of other contaminants in the media

The work pieces to be blasted have to be dry, free from emulsions, oil and fat.

At a 70% machine utilization, this translates to

- processing light steel <20lbs/linft = up to 220 tons per month*
- processing medium steel 40lbs/linft = 440 tons per month*
- processing heavy steel >60lbs/linft = more than 600 tons per month*
- **NOTE - All outputs are dependent on the weight of the steel*

Scope of delivery: Ocean BLASTER

1 Blast chamber

Robust, welded construction cabinet made of highly wear-resistant ½" thick (12.6mm) 120 MN manganese hard steel. In the zone of direct impact of the high performance turbines, the chamber is additionally lined with replaceable liner wear plates made of 3/8" thick (8mm) manganese wear resistant steel.

The chamber is sealed with an inlet and an outlet compartment. These compartments are sealed with lateral polyurethane curtains as well as rubber gaskets from above and below. This plus the vacuum created by the dust extraction system stops rust and dust particles entering the shop.

2 Roller conveyor work piece transport

The shot blast plant is provided with an internal roller conveyor that supports the steel sections as they pass through the machine. An infinitely variable frequency controlled motor drives the roller conveyors via chain drive. The conveyor speed can be adjusted between 1.3 and 6.6 ft/min (0.4 to 2.0m/min)

Roller conveyor pass line: 32" [814 mm]

Maximum work piece weight is 500 lbs/linft (750kg/m)

3 Abrasive circuit

3.1 Abrasive collection hopper

An abrasive collection hopper is mounted under the blast chamber. The integrated abrasive screw conveyor is provided with external sealed bearings at each side. In the zone of direct impact the screw conveyor is protected by an abrasive resistant manganese steel guard.

3.2 Two (2) Bucket elevator units

Two bucket elevators are used for feeding blast media to the blast wheels. The bucket elevators feature a hard wearing synthetic fiber belt with the elevator buckets screwed to the belt. Each elevator head uses a protected geared motor with integrated recoil brake, and a belt tensioning device. Belt tension is visually monitored through an inspection hatch at eye level. The lower integrated recoil brake is controlled by an electronic sensor.

3.3 Abrasive reclamation unit

The abrasive reclamation unit is designed as a cascade air separator. By means of a self-regulating flap, a constant thin veil of abrasive cascades over the whole width of the unit, allowing the extraction of dust, scale and fine grain through the air stream. The larger coarse blown-off particles are separated by an integrated deflecting separator. The separation of even bigger particles such as forge scales, burrs etc. is achieved with the use of a sieve box.

3.4 Maintenance platform

A maintenance platform and ladder are provided, enabling repair and machine adjustment at the bucket elevator and the abrasive reclamation unit.

3.5 Four (4) Abrasive control units

The abrasive control units are each mounted between the abrasive storage hopper and the high performance turbines. The abrasive control units control the volume of abrasive fed to each wheel by means of an electro-pneumatically operated valve. A control door in the housing of the unit allows visual verification of the adjustment.

3.6 Four (4) 10HP (7.5kw) AGTOS High Performance Turbines

The four Agtos High Performance Turbine Wheels are equipped with easily replaceable impeller blades. The mechanical abrasive is accelerated by the impeller wheel. The dosing sleeve on the turbine allows easy adjustment of the media projection angle from the outside. The turbine housing is completely made of highly wear resistant manganese steel and is provided with an additional robust replaceable wear resistant lining. The turbines are driven by direct mount rotary motors. A special labyrinth seal provided in the turbine housing prevents the dust and the abrasive from penetrating the motor bearing. The AGTOS High Performance Turbine is well known for its efficiency and ease of operation.

3.7 Exit Blower unit

The abrasive remaining on the work piece surfaces, after the blasting, is removed by means of a high-pressure blower unit, mounted at the exit of the blast cabinet, and this blows off the abrasive and recirculates the abrasive into the abrasive reclamation circuit. The cleaning chamber is made of sheet metal.

4 Central electrical and pneumatic switch and control circuit

The electrical control cabinet is equipped with:

- Ammeter for control of each of the four high performance turbines
- Working hour counter
- Control lamps for every operating function
- Control elements for frequently used functions
- Emergency-stop switch
- Master switch
- Speed controller for roller conveyor

The automatic operation enables the sequential start of all necessary drives. Manual sequential starting is not required.

All motors over 7Hp feature star-delta starting, and all other motors are direct switching.

The wiring is provided in accordance with the latest VDE* regulations (operating voltage 3-Ph, 400V, 50Hz, PEN; the control voltage is 1-Ph, 230V, 50Hz and 24V DC), including the wiring from the switch box to the individual motors and limit switches respectively.

All wiring from the customer's disconnect point, to the central cabinet is to be installed by the customer from below the switch box.

The Ocean BLASTER can alternatively be operated with 60Hz. In case of differing customer voltages, a transformer will be provided.

Positioning of the switch box is according to Layout Drawing 9-03143-0003-3001.

Pneumatic equipment:

Valves, pneumatic cylinders and installation of the pneumatic duct work.

4.1 Automatic operation for the shot blast machine

A PLC control unit and a light barrier are installed for the identification of the work pieces at the inlet of the shot blast cabinet. This automatically controls the starting and stopping of the shot blast action.

5 Dust collector

5.1 AGTOS Cartridge filter unit Type PF 4-12-NO-02-AN

The filter unit supplied is ignition-source-free, and has been designed and built to meet the highest international safety standards. The unit must not be installed in a “dust explosion area”.

The unit operates with automatic, continuous cleaning of the cartridges. The dust falling from the cartridges falls into a 5 gallon (20 l) dust collection bag via a hopper. The load resistance (contamination level) is visually monitored at the differential pressure display. A radial fan is mounted directly onto the filter unit roof.

Volumetric capacity:	160,000 ft ³ /h (4,500 m ³ /h)
Filtering surface:	515 ft ² (48 m ²)
Residual dust content in the exhaust air:	< 0.056 mg/ft ³ (<2 mg/m ³)

The filter unit is positioned adjacent to the shot blast machine according to Layout Drawing 9-03143-0002-3001.

All connecting duct work between the shot blast plant and the filter unit is supplied, including the deflector/separator and adjusting flaps.

5.2 Secondary filter unit

The secondary filter unit is mounted directly onto the filter roof, allowing the exhaust air to be returned to the workshop. Residual dust content in the exhaust air is maintained below 0.0281 mg/ft³ (1.0 mg/m³).

6 Installation supervision executed by *OCEAN* or *AGTOS* master mechanic

The supervision of the assembly and installation of the Ocean BLASTER ant at the customer’s site, the initial start-up and training of operators is done by an *OCEAN* or *AGTOS* factory certified technician.

7 Packing by *AGTOS* in a seaworthy container

Control cabinet packed in foil with drying agent
Drives and motors covered with foil

8 Additional installations

Inlet and outlet roller conveyor – to be supplied by the customer

These conveyors can be driven by the motor of the shot blast plant by means of a chain drive from roller to roller. Chain wheel is 3/4", 15 teeth, 3.1" (80mm) diameter

Ocean Machinery can supply a separate quote for its optional Ocean Eliminator Modular Roller Conveyors. The Ocean Eliminator material handling system comprises roller conveyors as well as cross transfers that assist in keeping material flowing through the blast cabinet

9 Initial equipment

Initial abrasive filling – to be supplied by the customer

Customer to supply approx. 4,400 lbs (2,000 kg) of steel shot comprising size S 330 to S 390

Technical Data:

Characteristics of the installed turbines:

Number of wheels	4
Diameter	15" (380mm)
Type	3.6.8
Number of blades	6
Blade width	2.16" (55mm)
Turbine drive	7.5 kW
Abrasive flow per turbine	300 lbs/min (135 kg/min)
Abrasive throwing speed	approx. 290 ft/sec (88m/sec)

Required compressed air (with cartridge filter):

Volume: dry, clean and oil-free, 60-90 psi [4-6 bar]	approx. 300 ft ³ /h [9 Nm ³ /h]
Quality, according to DIN ISA 8573-1:	
Solids content	Class 2
Water content	Class 4
Total oil content	Class 3

Total installed electrical power:

4 turbine drives, 7.5 kW each	30.0 kW
2 bucket elevator drives	6.0 kW
1 screw conveyor drive	3.0 kW
2 roller conveyor drives	1.1 kW
2 diagonal spiral conveyor drives	6.0 kW
1 filter fan drive	5.5 kW
1 blower drive	3.0 kW
Total	54.6 kW

Ocean/Agtos reserve the right to make technical modifications. Details and specifications are subject to change without notice prior to acceptance of order.