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# ST Apron conveyor blast cleaning machine



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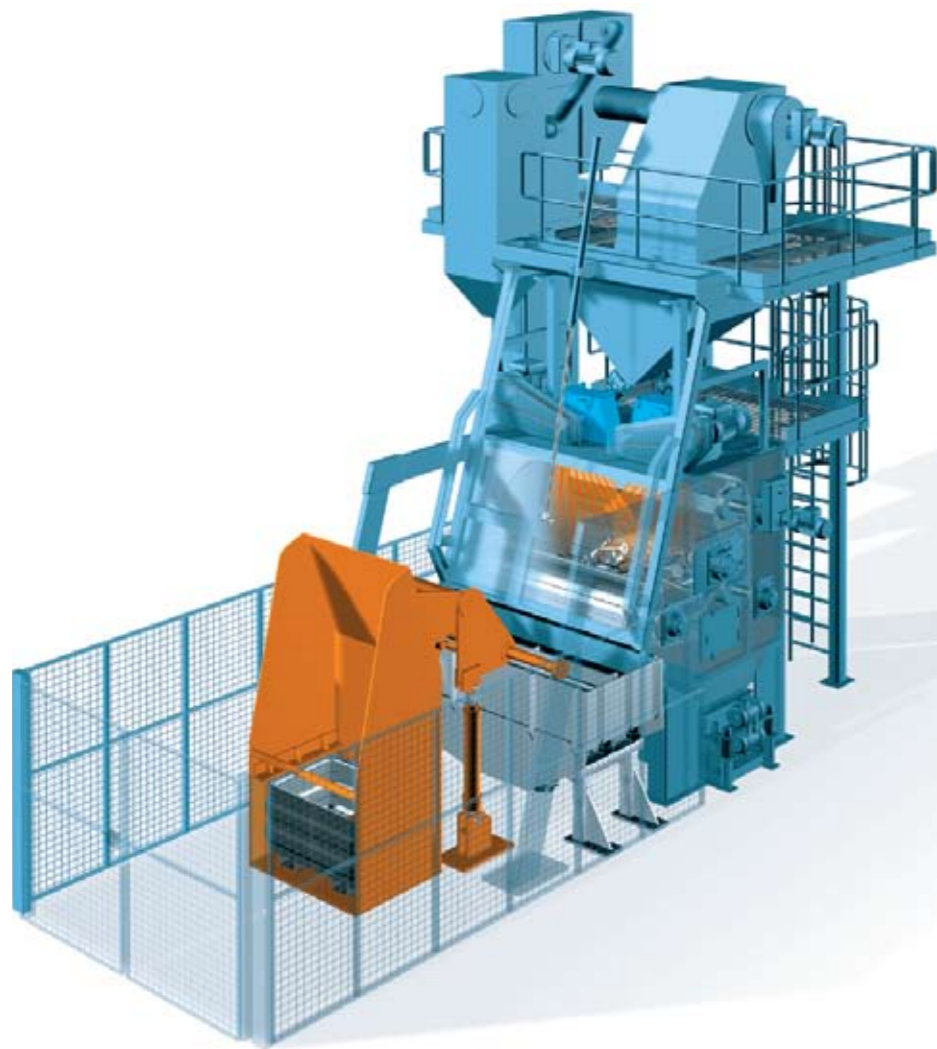
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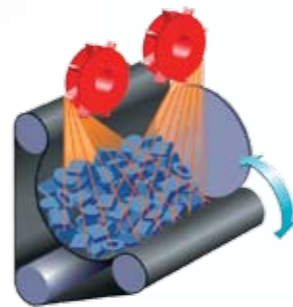
# ST Apron conveyor blast cleaning machine



Loading/unloading system



Shot blast machine with automatic loading and unloading system



## Flexible application - economical and reliable operation

Tumblast machines are proven in hundreds of applications to be reliable process technology, efficient and flexible. Their classical design offers a variety of possibilities to treat the surface of tumble-proof parts: small parts can be cleaned as reliably as large components.

### Application examples

- Desanding and decoring of castings

- Descaling of castings, forgings and heat treated parts
- Shot peening (without process security)

While the machines are basically designed for batch-type operation, they are still adaptable to different peripheral requirements and are able to accommodate a variety of equipment (loading, unloading and transport). To suit individual needs, the machines can be designed for integration in a production line to assure a continuous material flow.

## Design and sequence of operations

The loading system delivers the parts to be cleaned to the trough-shaped shot blast chamber consisting of an endless steel conveyor and lateral disks. Abrasive, burrs, scale and sand deposits separated during shot blasting drop through the perforations of the belt conveyor and are then transported by conveyors to the separator.

# Design and sequence of operations



ST-28 in a foundry



High blast cleaning performance, reliable operation



Even large parts can be perfectly shotblasted

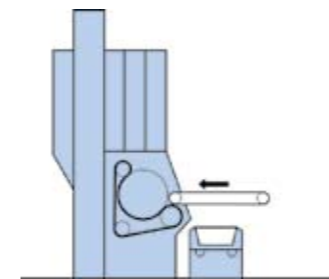
## Technical features

- Simple operating principle, compact design
- High blast cleaning performance
- Gentle turnover and tumbling of workpieces
- Full exposure of all surfaces of the workpieces to the blasting stream
- Continuous removal of abrasive

## Manual/mechanical or fully automatic loading and unloading to meet production requirements



With hydraulic loader (also available as moving loader or soft loader)



With mobile conveyor belts

Automatic loading and unloading allows for integrating apron conveyor blast cleaning machines – individually or connected in series – into fully automatic production sequences.

### Examples:

Hydraulic loader: loading by means of a conveyor belt, unloading by means of a vibratory conveyor.

Belt speeds can be adapted to the tumbling properties of the workpieces allowing for individual dwell periods during shot blasting. With the belt running in the reverse direction, clean parts are unloaded to be placed on troughs, belts or into bins.

### Shot blast chamber, apron conveyor

Both, the choice of optimum quality materials and the shape of the shot blast chamber, are of utmost importance when it comes to rendering the machine highly wear resistant.

- Large and smooth liner surfaces with as few partitions as possible serve to minimise the abrasion of the liner surfaces by abrasive
- Precisely guided apron conveyors and minimum play between mobile components inside the shot blast chamber assure troublefree machine operation

Apron conveyor blast cleaning machines from Wheelabrator are equipped with:

- A distortion-resistant rigid housing
- A proven geometry of chain links to assure uninterrupted line-up of the rugged overlapping apron conveyor bridges
- High-quality precision machined and extra hardened cast metal chain links
- Hardened and ground chain bolts assuring minimum play – even under heavy loads
- Overload protection and non-contact speed control protecting the apron conveyor drive against excessive torque

## Blast wheel



### The blast wheels: Highly efficient and precise

Wheelabrator blast wheels are known for high capacity and maximum energy efficiency. They are available in different sizes to meet individual requirements. Due to the reversibility of the blast wheel rotation, the range of applications can be considerably extended.

The throwing power of the wheels and shot impact are fine-tuned to suit specific applications and to ensure optimal energy efficiency. The amount of abrasive can be adjusted from the operator's panel. The abrasive is mechanically pre-accelerated and delivered to the blast wheel in a continuous stream, fully utilising the drive power of the motors to achieve the best blast cleaning effect.

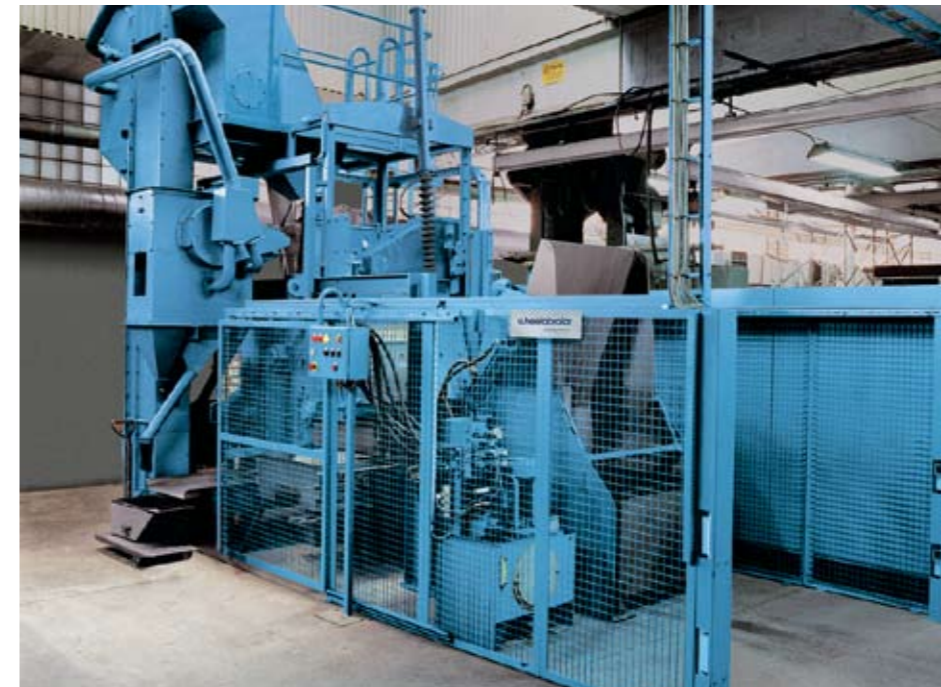
The careful arrangement of the blast wheels plus the ability to adjust the throwing angle of the abrasive, assure that workpieces are always blast cleaned in the hot spot. Machine components within the throwing range of the blast wheels are made of highly wear-resistant material to avoid excessive wear.

### Optimum impact control of the blasting stream

- During shot blasting, the workpieces are turned over evenly and homogeneously independent of their shape and size, this is the precondition for efficient and uniform treatment
- During tumbling the abrasive is continuously removed so that even the cavities can be thoroughly cleaned
- Complete abrasive removal (tumbling time after blast cleaning) is adapted to the type and nature of the workpieces and the tightly sealed shot blast chamber helps to minimise abrasive consumption



## Features and benefits



ST-g with hydraulic loader



ST-17

### Advanced ecology, simple maintenance, high degree of safety

In view of the heavy work loads of today – with Wheelabrator blast cleaning systems, often in continuous operation during three consecutive shifts – long maintenance intervals and minimum maintenance expenditures have become important factors. Suitable measures provide distinctly good wear properties and absolute ease of maintenance:

- Bearings are located outside the shot blast chamber
- The fasteners for liners protecting the walls from the blasting stream are arranged outside the shot blast chamber where they are easily accessible and not subject to wear

- Simple and easy replacement of wear parts
- A meticulous selection of materials assures a longer service life of wear parts
- Safety elements make sure that access to the shot blast chamber is only possible when the blast wheels are switched off and not rotating

### Reconditioning of abrasive, dust collection

Clean workpieces depend on clean abrasive: Sand, scale and undersized abrasive have to be reliably removed. For this purpose and taking into account the type and possible degree of impurities, Wheelabrator uses proven separation systems:

- Magnetic separators with final pneumatic cleaning for heavily contaminated abrasive (generated in combined shot blasting and decorating, and desanding plants)
- Pneumatic separators for other applications

The dust produced is completely separated using appropriate filters. Continuous dust collection assures environmentally-responsible operation and perfect functioning of the abrasive separators.

## Features and benefits

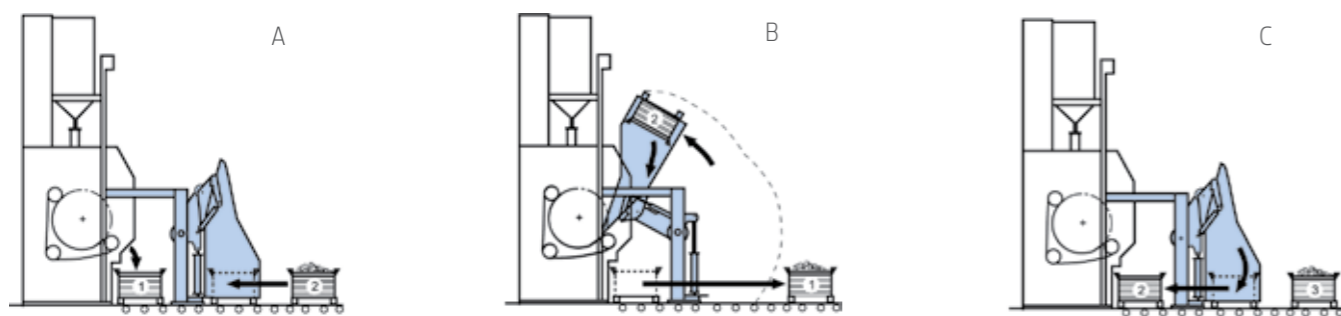


ST-28 with automatic peripheral equipment

### Hydraulic loaders

Hydraulic loaders are used for the ST-5 to ST-42 machine types and can receive the parts to be cleaned directly or using separate transport bins. The loaders can be configured to allow for integrating drum-type blast cleaning machines in continuous production lines. There are the following systems to choose from:

- Conventional tilting loaders in combination with charging boxes, vibrating or belt conveyors
- Continuous loaders: Automatic delivery of parts on roller conveyors. The unloaded bins are taken to the front of the blast cleaning machine to receive the cleaned parts. This allows parts to be tracked (see figures below)



### Technical specifications

- Rugged support structure fixed to the blast cleaning machine and the floor
- Lifting movement in two stages by means of two lateral cylinders. This allows for throughfeed operation and provides favourable conditions for an optimum distribution of thrust forces and weight (2 load application points)
- Separate and easily accessible hydraulic system

## Technical Data

Max. workpiece diagonal	mm	350	400	500	550	700	800	1000
Type		ST-5	ST-7-200 ST-9-200 ST-9-302	ST-14-200 ST-14-430 ST-14-501	ST-17-200 ST-17-430	ST-28-200 ST-28-430	ST-42-200 ST-42-430	ST-70-430
Number of blast wheels		1	1	1 (2)	1 (2)	2	2	2
Power per blast wheel	kW	15	20/22	22 (18.5)	30 (2x15)	30/37/45	45	55
Batch weight	kg	250	500/800	1 000	1 500	2 600	3 500	5 500
Capacity	dm <sup>3</sup>	140	300	400	500	850	1 300	2 000
*Weight/workpiece	kg	25	85/120	150	200	350	400	700
Separator system		P;M	P;M	P;M	P;M	P;M	P;M	M
Max. sand separation capacity	kg/min	8	10(25)	15 (70)	15 (75)	30 (150)	40 (180)	220
Approx. dimensions:								
L	mm	2 060	3 600	3 300	3 460	5 400	5 600	7 450
W	mm	2 100	2 900	3 030	3 310	4 510	4 700	6 600
H	mm	4 400	4 900	5 200	5 760	6 930	8 000	9 400

\* Depending on tumbling properties of the workpieces  
P) pneumatic  
PM) pneumatic with secondary magnetic separator  
M) magnetic

