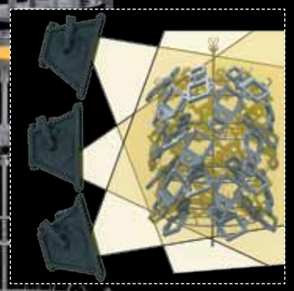
Pass-through monorail shot blast machine type D



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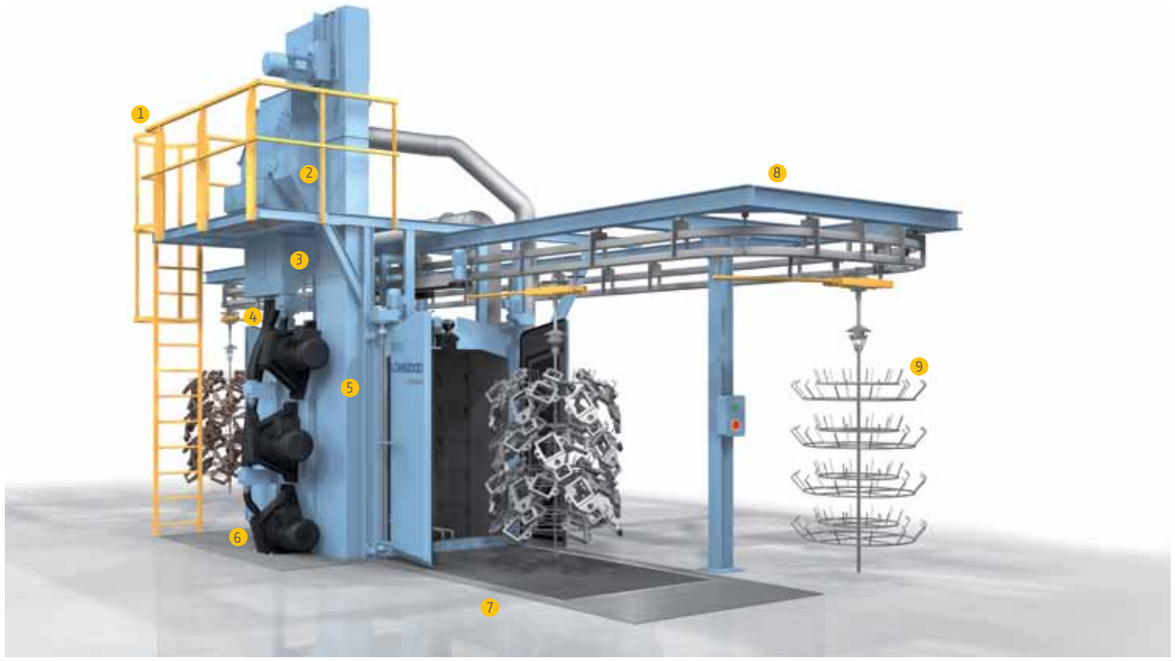
Pass-through monorail shot blast machine type D



The Wheelabrator pass-through monorail **type D shot blast machines (closed loop operation)** achieve **short blasting times** due to the combination of the latest transport technology and highly efficient blast wheels.

Workpiece changeover is carried out semi-automatically or automatically by the Power & Free system. The closed loop blast machine is provided with a rotating device on the monorail which rotates the loaded workpiece carriers in front of the turbines. This means that blast wheels need only be installed on one side of the blast cabin which lowers maintenance and energy expenses.

The abrasive is pre-accelerated very efficiently by the TITAN blast wheels, which allows for short treatment times and reduced abrasive consumption when compared to conventional blast wheels.

An extensive range of machine sizes, wheel power and optional equipment is available due to the modular construction methods employed by Wheelabrator (see chart on the right). The most suitable machine can be engineered to fit your specific requirement, application, investment and operational costs.

Process speeds and production capacities can be increased further with the modular addition of infeed and outfeed sluices, in accordance with your requirements.

Applications

- Removal of moulding sand
- Removal of mill and forge scale as well as rust
- Removal of burrs and scales
- Increase of surface roughness
- Shot peening to increase fatigue strength

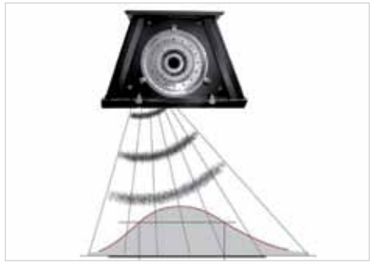
Characteristics

- Latest transport technology
- Highly efficient blast wheels
- Multiple machine sizes and variations

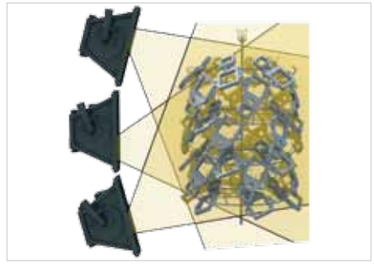
Type D

1. Maintenance platform
2. Abrasive reclamation unit
3. Abrasive silo
4. Abrasive control unit
5. Bucket elevator
6. Blast wheel
7. Abrasive collection hopper
8. Transport system
9. Workpiece carrier

Technical data



TITAN blast wheel



Blast pattern

Loaded workpiece carrier

Pass-through monorail shot blast machine type D		DHB 10 D	DHB 13 D	DHB 16 D	DHB 20 D	DHB 25 D	DHB 30 D
Workpiece dimensions							
Workpiece carrier diameter	mm	1000	1300	1600	2000	2500	3000
Workpiece carrier height	mm	1200	-	-	-	-	-
	mm	1600	1600	1600	-	-	-
	mm	2000	2000	2000	2000	2000	2000
	mm	2500	2500	2500	2500	2500	-
	mm	3000	3000	3000	3000	3000	3000
	mm				3500	3500	3500
	mm	-	-	-	-	4000	4000
Cycle time of one load of constructional components to achieve a surface of quality of B Sa 2.5 ISO 8501 *	min	3-5	4-5	5-6	5-6	6-8	6-10
No. of wheels x power	kW	2 x 7.5	3 x 7.5	3 x 7.5	3 x 7.5	4 x 11	4 x 11
Wheel variants	kW	2 x 11 (15) 3 x 11 (15) 4 x 11 (15)	3 x 11 (15) 4 x 11 (15)	3 x 11/15/18.5 4 x 11/15/18.5	3 x 11/15/18.5 4 x 11/15/18.5	4 x 15/18.5 5 x 11/15/18.5	4 x 15/18.5 5 x 11/15/18.5 6 x 11/15/18.5
Workpiece weight (permissible hook load)	kg	500 -1000	500 - 1500	800 - 2000	1000 -5000	1000 -5000	1000- 10000
Machine height	mm	4200 - 6700	5200 - 7500	6000 - 7500	6500 - 7900	7000 - 8400	7500 - 8900
Foundation pit required		No	No	Yes	Yes	Yes	Yes

* must be confirmed by blast trials in the test centre

Special features and options

Blast media

Manually operated monorail

Power & Free conveyor

The Process

The workpieces are carried on rotating hooks on the **Manually operated monorail** or conveyed automatically on a (optional) **Power & Free conveyor** to the **blast cabinet** where they are blasted by **blast wheels**. The blast cycle runs in accordance with the preset blast time. When the blast wheels stop, the door is opened and the hook exits automatically.

Standard machine: Used abrasive and fines fall through the abrasive collection hopper beneath the blast cabinet, and are transported via a screw conveyor to a bucket elevator, and to the **Abrasive reclamation unit**.

In the unit, used abrasive passes through a sieve tray which catches any uncommonly large fines, to the Abrasive silo/Airwash separator which cleans the abrasive for reuse.

Option for medium applications: For improved abrasive cleansing, e.g. separation of aluminium flashes, a vibro sieve can be installed between the reclamation unit and abrasive silo.

Option for foundry/heavy/sand applications: A **Vibro conveyor** can replace the screw conveyor, this provides an initial cleansing/ separating of sand and heavy contaminants from the used abrasive. The conveyor would ideally be installed with the optional **Magnetic separator** to remove sand in order to prolong the life of the machine. The abrasive then goes to the Airwash separator as before.

Manually operated monorail

The workpiece transport devices (hooks) are **pushed by hand to the shot blast machine**. They are automatically drawn into the blast chamber. Optionally, an automatic or manual door closure is available.

The loading/unloading of the transport devices can be performed manually at all positions outside the shot blast machine. The manually operated monorail is preferably used for small workpiece quantities with low weights.

Power & Free conveyor

Power & Free conveyors are characterised by **two rails** lying on top of each other: a drawing chain runs in the upper rail, the transport device is suspended in the lower rail. The Power & Free conveyor provides **high flexibility** in the linking of different production processes.

Due to its **robustness**, the Power & Free conveyor used by Wheelabrator is especially suitable for applications with particular strains like high dust content and high temperatures.

In operation, the Power & Free system can automate the transport process of the pass-through monorail shot blast machine, and connect it to the superior production control – for example, by integrating the blast machine between a die cutter and a crack detector. In isolated systems, the operator starts a pre-selected number of transport devices to be automatically processed.

Special features and options

TITAN blast wheel

Blast cabinet

Abrasive Removal

TITAN blast wheel

The wheel is the heart of the shot blast machine and its design determines the performance and profitability of the machine. In pass-through monorail shot blast machines, TITAN blast wheels are used as standard.

In addition to excellent blast performance and **unbeatable service life** of the main wear components due to the use of hardened tool steels, the TITAN blast wheel has a **higher wall thickness** of the wear linings compared with other wheels. This creates a hermetically sealed casing within the wheel housing and is very easy to maintain.

Many variations are available, making the TITAN blast wheel ideally adaptable to your application.

Blast cabinet

The blast cabinet of this machine is completely made of manganese steel.

The advantage of Manganese steel: it is hardened by the impact of round abrasive from 35 HRC to more than 50 HRC, so it has extremely good wear characteristics.

Wear plates around the "hot spot" provide additional protection for the cabinet. Made from 10mm thick manganese steel, they overlap, suspended on a carrying system or are screwed into the roof area. To seal the cabinet, a slot seal is integrated in the machine roof to avoid the escape of abrasive from the monorail slot. The sealing system consists of a labyrinth with a double rubber lip and additional strip brushes.

The blast cabinet can be fitted with sluices to **increase machine uptime** as they can operate during the blast cycle without interrupting the process. The sluice passages are effectively sealed with spring steel lamellas or winged doors.

Abrasive removal

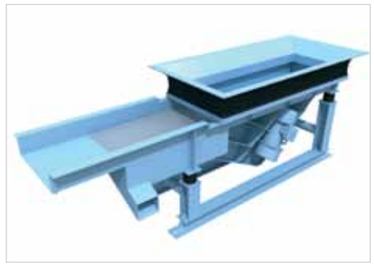
During the blast process, dust, broken abrasive and other solid particles or contaminants (fines), are generated by the rust and scale removed from the workpieces. The fines are separated in the abrasive reclamation unit which is **adjustable to the different types and sizes of blast media**.

The Abrasive reclamation unit consists of an impact separator and a cartridge filter. The impact separator removes the fines from the abrasive, and serves as a certified spark extinguisher and **meets all ATEX regulations**.

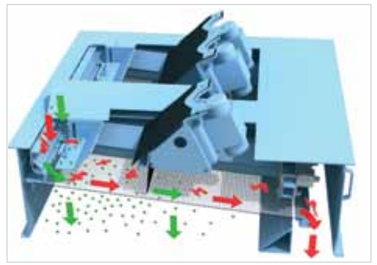
The cartridge filter provides the necessary negative pressure to remove dust. It can be installed separately beside the shot blast machine. The filter is automatically cleansed by **compressed air pulses** which are adjustable in intensity and duration. All elements of the filter unit are free from ignition sources.

Alternatively, wet filter units can be used for the necessary dust removal. This is often applied in aluminium die casting.

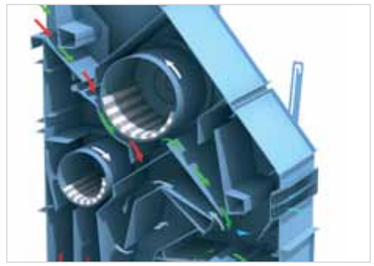
Special features and options



Vibro conveyor



Vibro sieve



Magnetic separator

Vibro conveyor

In place of the standard screw conveyor, a vibro conveyor can be used to **transport** abrasive from the blast cabinet to the bucket elevator. The sieve installed in the vibro conveyor **separates coarse fines** from the abrasive.

For dust removal, the conveyor is linked to the dust filter of the central machine.

Vibro sieve

For a blast process without interruption, a vibro sieve is used to clean abrasive.

The vibro sieve is used after the abrasive reclamation unit and **sieves coarse particles** like flashes from aluminium die casting workpieces out of the abrasive so that they do not affect the blast process.

The sieve is installed above the silo. It is driven by two vibro-motors and set in motion similar to a shaker sieve. A **targeted sieving of unwanted fines** is achieved with the mesh size adapted to the process. Fines are fed into a bin via a downhose.

Lateral **flaps** allow easy access to the sieve for **ease of maintenance**.

Magnetic separator

The magnetic separator increases your profitability by reducing machine wear and reducing abrasive consumption.

Moulding and core sand on castings is removed during the blast process. As they cause high abrasion they must be separated from the ferro-magnetic abrasive **quickly and efficiently.** This is performed in the magnetic separator.

Two rollers with adjustable magnetic fields and a sieving box separate the moulding and core sand and fines from the reusable abrasive, in this way only 0.2% of the weight remains.

This **reduces wear** and abrasive consumption and leads to **higher profitability** for you.

About Wheelabrator and Wheelabrator Plus

As the world's leading surface preparation company, **Wheelabrator** offers a complete range of equipment, replacement parts and services.

For more than 100 years, companies from the foundry, automotive, aerospace, energy, shipbuilding, railway, engineering and many other industries have been using the products and services of Wheelabrator Group. Using insight gained from thousands of different applications, Wheelabrator's technical experts work in close cooperation with customers to design specific solutions to meet their operating needs, and to increase their productivity and profitability.

With approximately **15000 active customers** in nearly **100 countries**, and over **35000 machines installed throughout the world**, Wheelabrator continues to use the experience of having the largest installed base in the industry to deliver the best solution for the customer.

This approach has been so well received by the market that approximately two thirds of Wheelabrator's surface preparation equipment sales are custom-engineered to the precise specifications of the customer. The remaining third consists of standard machines which incorporate the same level of Wheelabrator quality and reliability, but can be delivered more quickly at a competitive price.

Wheelabrator is part of the Norican Group, and offers together with its sister company DISA, a global service from moulding, to wheel- and air blasting, to coating applications.

- **5 Technology Centres** in Canada, France, Germany, Denmark and Switzerland
- **6 Manufacturing site**s in India, China, USA, Mexico, the Czech Republic and Poland plus a global service support network
- More than 100 years of experience in air and wheel blasting machines
- More than 35000 machines operating in the field
- Broadest range of products available on the market
- Quality products which provide flexible solutions to deliver consistent performance
- Full service from product development and installation, through to continued service and maintenance delivered by the global **Wheelabrator Plus** team

Wheelabrator Plus offers the largest aftermarket parts, supply, service and technical support for the surface preparation industry globally. With the capability of maintaining and upgrading surface preparation equipment from both Wheelabrator and most other brands within the industry, Wheelabrator Plus continually strives to help you to profitably meet or even exceed your customer's requirements.

Our service can be developed to fit your specific needs to ensure you have minimum downtime whilst achieving maximum productivity. Services include:

- Replacement parts
- Service contracts and inspections
- Machine maintenance
- Equipment modernisation and upgrades
- Technical support
- Training
- Equipment relocation