Pass-through monorail shot blast machine type C

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Norican Group is the parent company of DISA and Wheelabrator.

Pass-through monorail shot blast machine type C

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

A special feature of the continuously operating pass-through machine is the constant travelling speed of the workpieces. The ability to adapt the **moving speed** of the workpiece and the wheel power ensures that the machine can be **easily** and **smoothly** integrated into an existing production line.

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

Maximum coverage of the workpiece is achieved by the blast wheels being arranged in an **"X"** alignment, diagonally to the moving workpiece. In this formation, the leading edges of complex components, welded sections and flame-cut parts can be thoroughly blasted.

Applications

- Removal of mill and forge scale as well as rust
- Blasting of steel constructions as pre-treatment before painting
- Removal of burrs and flashes
- Increase of surface roughness
- Removal of moulding sand and residues

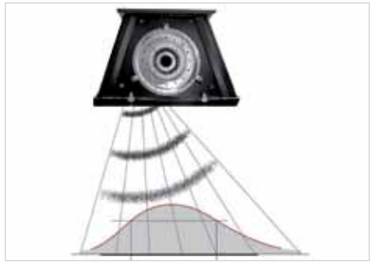
Characteristics

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

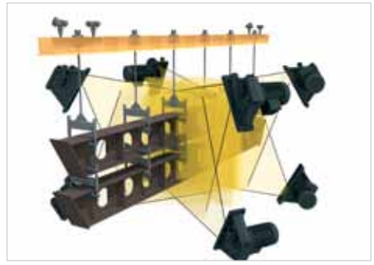
Type C

1. Workpiece carrier
2. Transport system
3. Infeed sluice
4. Abrasive reclamation unit
5. Abrasive silo
6. Abrasive control unit
7. Bucket elevator
8. Maintenance platform
9. Blast wheel
10. Outfeed sluice
11. Blow-off station
12. Blastroom

Technical data



TITAN blast wheel



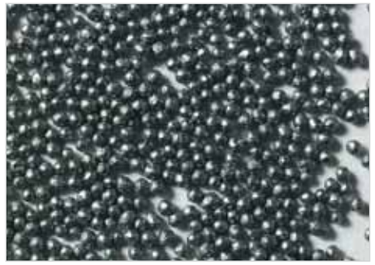
Blast pattern

Blow-off station

Pass-through monorail shot blast machine type C		DHB 5 C	DHB 7,5 C	DHB 10 C	DHB 15 C	DHB 20 C	DHB 25 C	DHB 30 C
Workpiece dimensions								
Workpiece carrier width	mm	500	750	1000	1500	2000	2500	3000
Workpiece carrier height	mm	1000	1000	-	-	-	1000	1000
	mm	1500	1500	1500	1500	-	1500	1500
	mm	1750	1750	1750	1750	-	1750	1750
	mm	2000	2000	2000	2000	2000	-	-
	mm	2500	2500	2500	2500	2500	2500	2500
	mm	-	3000	3000	3000	3000	3000	3000
	mm	-	-	-	-	3500	3500	3500
	mm	-	-	-	-	-	4000	4000
Working speed to achieve a surface of quality of B Sa 2.5 ISO 8501 *	m/min	0.5-2.5	0.5-2.5	0.5-2.5	0.5-2.5	0.5-2.5	0.5-2.5	0.5-2.5
No. of wheels x power	kW	4 x 7.5	4 x 7.5	8 x 7.5	8 x 7.5	12 x 7.5	12 x 7.5	12 x 7.5
Wheel variants	kW	4 x 11 8 x 11 (15;18.5) 12 x 11 (15;18.5) 16 x 11 (15;18.5)	4 x 11 8 x 11 (15;18.5) 12 x 11 (15;18.5) 16 x 11 (15;18.5)	8 x 11 (15;18.5) 12 x 11 (15;18.5) 16 x 11 (15;18.5)	8 x 11 (15;18.5) 12 x 11 (15;18.5) 16 x 11 (15;18.5)	12 x 11 (15;18.5) 16 x 11 (15;18.5) 20 x 11 (15;18.5)	12 x 11 (15;18.5) 16 x 11 (15;18.5) 20 x 11 (15;18.5)	12 x 11 (15;18.5) 16 x 11 (15;18.5) 20 x 11 (15;18.5)
Machine height	mm	5800 - 7000	6000 - 7500	6200 - 7500	6500 - 7800	7000 - 8300	7500 - 8700	8000 - 9000
Foundation pit required		No	No	Yes	Yes	Yes	Yes	Yes

* Each application must be confirmed by blast trials in the test centre

Special features and options



Blast media

Continuous overhead conveyor

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.

Continuous overhead conveyor

The **continuous** overhead conveyor allows the workpieces to move with **constant speed** through the machine. The conveyor consists of a chain and trolley system suspended from a monorail, and can be driven at constant speed or can be indexed.

The transport speed or index time can be coordinated to the blast wheel power and surface finish required. The system can be easily extended to suit factory layout and integrated with pre- and post-blast operations.

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

Blastroom

TITAN blast wheel

Blast cabinet

Blastroom

As an option, a **modular** blastroom can be connected directly after the pass-through monorail shot blast machine. The room can be equipped with both pressure fed blasters for touch-up work, and blow-off nozzles and suction units for abrasive removal.

Additional manual touch-up and blasting in the blastroom may be necessary if the blast wheels are unable to reach recesses due to the workpiece size and shape. The blow-off and suction of abrasive is also easily achieved, for example from parts where "pockets" of abrasive may collect.

Dust removal is carried out automatically in the central dust disposal built into the DHB-C blast machine, so an additional dust collector is not necessary in the blastroom. Abrasive cleaning is also performed in the reclamation unit of the main blast machine. For improved access to the workpieces, the blastroom can be equipped with fixed or flexible working platforms.

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.

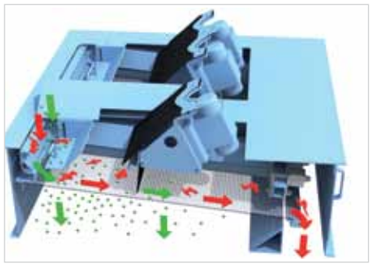
The advantage of Manganese steel: it is hardened by the impact of round abrasive from 35 HRC to more than 50 HRC, so it has extremely good wear characteristics.

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.

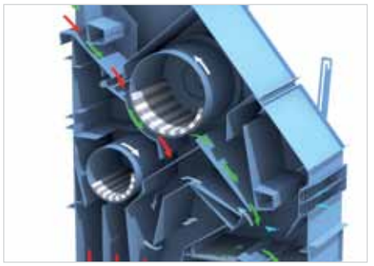
The blast cabinet can be fitted with sluices to **increase machine uptime** as they can operate during the blast cycle without interrupting the process. The sluice passages are effectively sealed with spring steel lamellas or winged doors.

Special features and options

Abrasive romoval



Vibro conveyor



Magnetic separator

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.

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