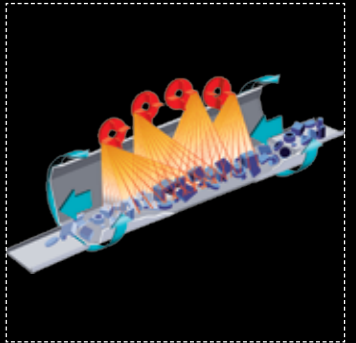
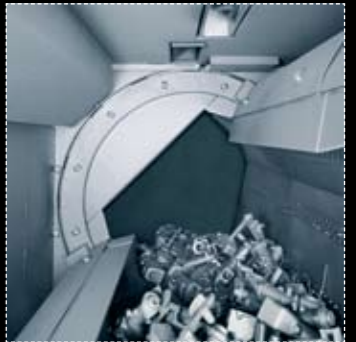
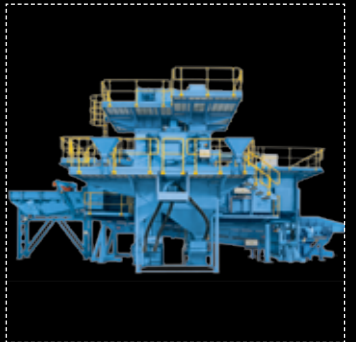




Subject to technical alterations • 03/11 • © Wheelabrator Group

# DT Through-feed blast cleaning machine



DISA Industrie AG  
Kasernenstrasse 1  
CH-8184 Bachenbülach

T: +41 44 815 4000  
F: +41 44 815 4001  
E: zurich@wheelabratorgroup.com  
www.wheelabratorgroup.com  
www.disagroup.com

Noricor Group is the parent company of DISA and Wheelabrator.

wheelabrator  
shaping industry

wheelabrator  
shaping industry

## DT Through-feed blast cleaning machine



### Automatic, continuous and dust-free blast cleaning

The through-feed blast cleaning process offers a number of distinct advantages and ensures efficient and cost effective blast cleaning. Continuous shot blast machines automate production sequences and improve the work environment. Main advantages are:

- A fully automatic production flow from the moulding line to the finishing department
- Clearly arranged production processes, improved production consistency
- Short transport distances without intermediate stocking
- Reduced operating costs, as the blast cleaning process can be integrated in an automatic production line
- Minimal floor space requirement
- Little or no need for manual handling of the pre-blast workpieces. This will help improve operator environment and eradicate hazardous workplaces

Automatic manufacturing processes require highly flexible production systems to be able to cope with changing production requirements. Flexible systems can quickly adapt to changes in production rates, lot size, finishing techniques, and market demands.

Typical applications of DT Polygon drum machines include:

- Removing sand and cores from castings
- Descaling castings and forgings
- Handling mixed and single product runs
- Cleaning clusters
- Keeping the blast cleaning performance at a consistently high level, regardless of any fluctuations in production rates

Contrary to conventional drum-type through-feed machines, the DT is equipped with a polygon-shaped trough. The blast wheels are positioned in longitudinal axis directly above

the flow of the workpieces. Advantages of this unique design are:

- High cleaning capacity short blasting times
- Optimum location of blast wheels on the machine results in optimum utilisation of the abrasive energy
- Full exposure of all workpiece surfaces to the blast stream, gentle tumbling
- Automatic material flow control, optimal filling degree of barrel and automatic adaptation of oscillating movement and abrasive throughput result in the best possible cleaning effect with minimal wear on machine components and abrasive
- No moving plant components within the blasting zone, no workpiece jamming
- Easy maintenance set up
- Easy integration into existing production lines
- Leading technology, outstanding experience

## Blast wheel



Throughfeed blast cleaning machine DT



Pre assembled plant in manufacturing shop



Cabin top of a DT 14-1050 equipped with 10 blast wheels

### 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.

- ① Wheel body
- ② Control cage
- ③ Impeller
- ④ Blade



## Principle and mode of operation



Castings within the blasting zone of the machine

The blast cleaning installation is divided into different zones:

Inlet and outlet are separated from the blast cleaning zone by rubber curtains to prevent stray abrasive.

The blast cleaning machine, which has a slight and adjustable downward tilt in the direction of the workpiece flow, consists of various subassemblies:

- Drum body and drive
- Abrasive circuit
- Abrasive cleaning and separation system
- Blast wheels

The polygon shaped trough is fitted with highly wear resistant manganese liners attached to the drum walls. Perforations in the bottom part of the liners facilitate abrasive evacuation and return.

The trough rocks back and forth about its longitudinal axis trough about 120°. The polygon shaped trough ensures gentle tumbling of the workpieces.

**Automatic adaptation to production rate** is a standard feature: The frequency of the rocking motion of the trough and the abrasive supply to the blast wheels are controlled based on pre-programmed parameters depending on the flow rate and volume of parts. This ensures optimum blast



Rocking motion of the polygon-shaped trough about its longitudinal axis for gentle tumbling of the castings



DT 20 throughfeed blast cleaning machine



The DT 14 throughfeed blast cleaning machine for economical, low-pollution, non-hazardous operation

cleaning results and minimum wear, even when the flow-rate of parts is irregular. The high power abrasive streams - aimed at parts from above - reach and thoroughly clean all surfaces and interior areas.

After passing through the blasting zone, workpieces enter the section, where – as the trough continues its rocking motion and gentle tumbling of the parts – residual abrasive is removed from inside areas of workpieces.

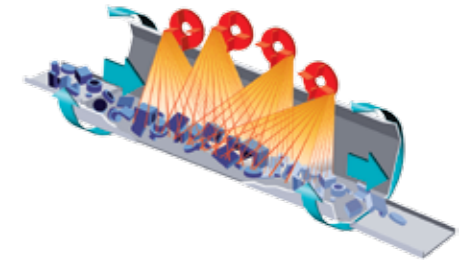
## Integration into the production line



Loading of blast cleaning machine through entrance flap



Exit side with stepped chute and abrasive return



The unique design makes it easy to integrate DT blast cleaning machines into production lines. The picture below shows a typical example of a continuous production flow, in which castings leave a vertical moulding

line and pass through the cooling and sand/castings separating stations into the blast cleaning system without any manual operation or floor transportation.

Integrated production provides the following advantages:

- Entirely automatic, continuous production flow
- Integrated cooling of castings and sand
- Recovery of moulding- and core sand during shot blasting by means of magnetic separator
- Minimal pollution through complete control and capture of dust throughout the production line right from punchout to cleaned castings



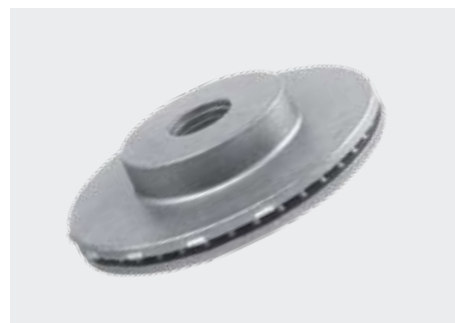
1. Moulding & pouring

2. Cooling

3. Blast cleaning

Continuous production flow from moulding to blast cleaning

## Features and benefits



### Advanced ecology, easy maintenance, high operational safety

With the DT blast cleaning machine integrated into a fully automatic production line, operators do not need to touch the workpieces until they come out of the machine completely clean. The installation can be run without operator attendance and only requires periodic inspections.

In view of today's heavy workloads, long maintenance intervals and minimal maintenance expenses are vital. Appropriate measures ensure good wear properties and complete ease of maintenance. Simple but effective sealing elements prevent leakage of shot. An efficient dust collector and a closed-loop abrasive transport system within the machine ensure a more environmentally responsible operation. The unique machine structure and easily accessible service

platforms facilitate visual inspections and routine maintenance work. Safety elements make sure that access to the shot blast chamber is only possible when the machine is switched off and the blast wheels are no longer rotating.

Original wear and spare parts along with Wheelabrator Plus servicing are the best prerequisites to keep the blast cleaning system in perfect operating condition.

### Reconditioning of abrasive, dust collection

Clean workpieces are reliant on clean abrasive: Sand, scale, heavy dust, fines and undersized abrasive have to be effectively removed. Taking the type and possible degree of impurities into account, Wheelabrator uses proven separation systems for this purpose:

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

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

## Technical Data

Max. workpiece diagonal	mm	850	980	1150
Type*		DT 14-450 DT-14-650 DT-14-850 DT-14-1050	DT 17-650 DT 17-850 DT 17-1050	DT 20-650 DT 20-850 DT 20-1050
Approx. troughput rate**	t/hr	8 to 25	15 to 33	15 to 38
Number of blast wheels**		4 to 10	6 to 10	6 to 10
Power per blast wheel	kW	37 to 45	37 to 45	37 to 45
Max. sand separation	kg/min	150	150	150
Air required for dust collection	m <sup>3</sup> /min	250 to 560	500 to 640	540 to 710

*The technical data is not binding and may be subject to change.*

*Further machine types and measurement specification sheets upon request.*

*\* Machine type depends on the diagonal dimension of the largest workpiece to be cleaned.*

*\*\* Blasting capacity and number of blast wheels depend on the bulk density and the surface condition of the workpieces to be cleaned.*

- 1 Inlet vibrating conveyor
- 2 Blast room
- 3 Blast wheels
- 4 Abrasive circuit
- 5 Belt feeder
- 6 Outlet vibrating conveyor
- 7 Vibrating conveyor

