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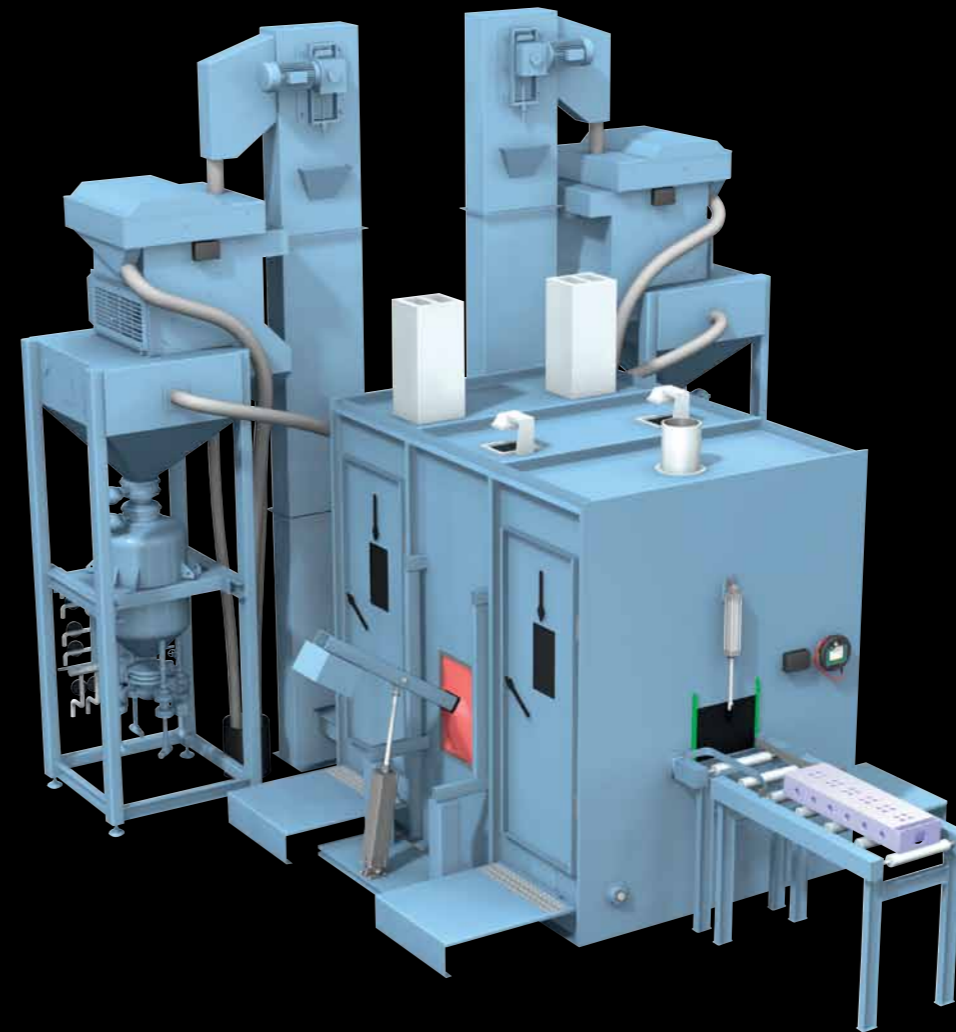
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Advanced Internal Cleaning Machine – AIC



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shaping industry

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Advanced Internal Cleaning Machine (AIC)



The Advanced Internal Cleaning Machine (AIC) from Wheelabrator is the first of its kind, increasing efficiency and repeatability, improving quality and reducing process times.

This machine is principally used for blasting the bores and water jacket apertures of cylinder heads, crankcases, motor blocks and similar complex castings. Wheelabrator offers a variety of configurations for this machine for a broad range of parts.

Various workpiece or nozzle lifting and lowering devices are integrated depending on the arrangement of the bores and apertures to be blasted.

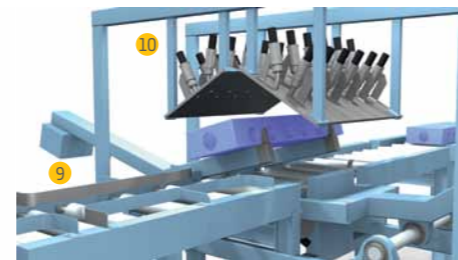
Several simultaneously working blast stations are arranged in a series determined by the

desired production rate. After blasting, the bores and workpieces are cleaned of abrasive either by compressed air or swivelling the part.

The machine can be delivered as a stand alone unit where workpieces are lifted to the nozzles or where nozzles move towards the workpiece, or with a fully automated transport system integrated in a production line.

The AIC machines follow the Module8 principles.

The transport system can be adapted, or if necessary replaced, by other transport devices depending on the requirements for internal blasting.



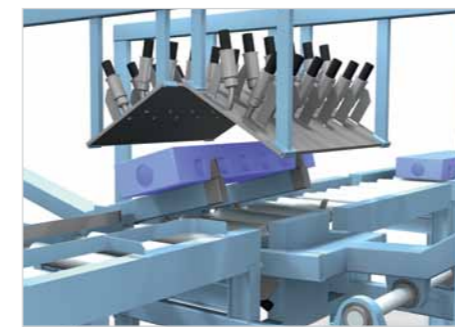
Key:

1. Transport system
2. Blasting facility
3. Windsifter – separator
4. Coarse particle screen with discharge
5. Mechanical abrasive transport
6. Cabinet housing
7. Maintenance doors
8. Sluice slides
9. Lifting/lowering station
10. Blast nozzle holder
11. Lighting
12. Control panel

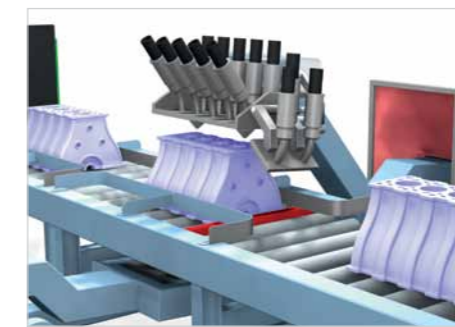
Advantages at a glance:

- Thorough cleaning of internal surfaces, bores and apertures
- Complete process control system to achieve repeatability
- Traceability of process parameters
- Swap over of tools improves flexibility and cost per part
- Easy maintenance features lower operating costs and increases uptime and utilisation
- Global support to ensure uptime and optimum performance
- Wheelabrator's experience and stability reduces your risks
- High quality parts maintain uptime and process security

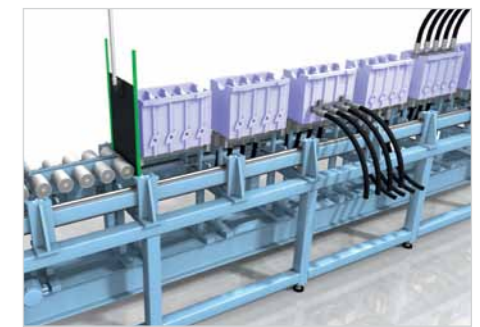
Technical Data



AIC 1



AIC 2

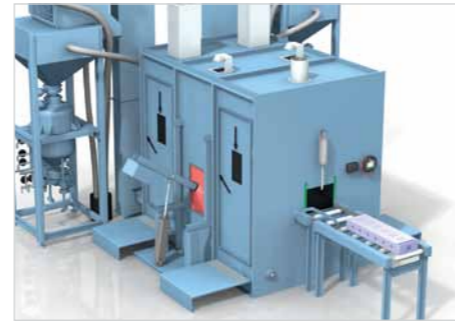
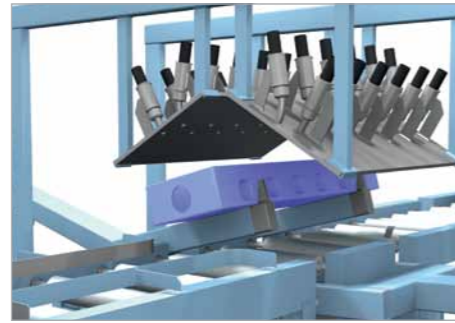


AIC 3

	AIC1	AIC2	AIC3
Workpieces			
Motor block	–	A	▲
Cylinder Heads	▲	A	A
Hydraulic Valves	–	▲	A
Vacuum Pumps	–	▲	A
Workpiece Dimensions Max.			
Approx. Length – width – height [mm]	1200 x 400 x 250	1200 x 400 x 250	980 x 380 x 700
Weight max. [kg]	240	240	300
Reachable Areas without Realignment			
Top	0	0	0
Bottom	0	–	0
Sides	0	0	0
Faces	–	0	0
Additional Functions			
Parallel Processes	0	0	0
Integration of Emptying Station	0	0	0
Integration in Automatic Line	0	0	0

▲ Preferred 0 Optional A Available

Features



Blast nozzles

For every bore and aperture type and position on the workpiece, different blast nozzles are needed.

Wheelabrator Group offers a range of straight and curved standard blast nozzles blasting into the bores.

For special applications where these nozzles are not sufficient, Wheelabrator Group can develop customised blast nozzles.

For the direct treatment of internal areas, stationary or rotating blast lances are also used.

The blast lances are moved into the bores so that a targeted and direct blasting of the internal area is possible.

Blast lances can be used for bores and apertures to a minimum size of 5mm.

Workpiece nozzle handling

Due to the modular construction of the AIC machines, they can be easily adapted to suit various workpieces, blast applications and throughputs.

For the internal blasting of cylinder heads, workpiece pivoting devices are used which move the cylinder heads towards the stationary nozzles, and the abrasive outflow from the interior bores is significantly aided. Pivoting nozzles at the bottom allow the simultaneous blasting of bores on the underside.

However, during motor block blasting, the nozzles or lances are pivoted onto or into the bores and apertures. Combinations of both systems in one machine are also possible.

Depending on the desired throughput several parallel working systems are installed one after the other.

Three fully automated transport systems are available which take the workpieces into, through the machine and on to the next part of the process.

Cabinet housing

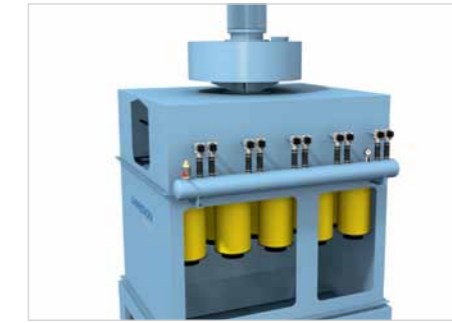
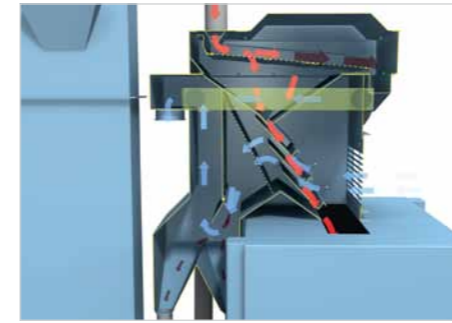
The cabinet housing is made from screwed panels, which allow the easy adaptation of the cabinet to the requirements of the blast machine, the number of blast stations, waiting positions, cleaning stations, and so forth.

The housing is spaciouly designed so that it can be accessed for maintenance, modification and set up work.

The inner walls are lined with special rubber which serves not only as wear protection, but also reduces the noise level, often meaning that a further noise insulating enclosure is unnecessary.

The roof of the machine is accessible and used for the installation of the integrated Y-pieces for the blast hoses.

Features



Abrasive reclamation

For the Advanced Internal Cleaning machines, a new multistage separator is used with coarse particle separator and automatic discharge. The vibrating coarse particle screen separates coarse particles like burrs and foundry sand from the abrasive.

The coarse particles are automatically directed through a downpipe into a waste bin.

The individually adjustable stages of the 3-stage separator, fine particles and scrap grains from the abrasive. Subsequent relief chambers make sure that as little good abrasive as possible goes into the waste.

This type of abrasive reclamation helps to ensure a constant blast result.

Machine dust extraction

During the blasting process, dust and undersized abrasive is generated by rust and scale removed from the workpieces. The undersized abrasive is separated in the abrasive cleaner which is individually adjusted to the different abrasive sorts and sizes. The appropriate negative pressure is generated by a cartridge filter where size and volumetric flow is adapted to the machine size or to the number of blast nozzles.

A baffle swing plate preceding the filter unit separates undersized abrasive (protection against unnecessary wear of the filter cartridge), and it is additionally certified as a spark separator and an important element for the adherence of the ATEX legislation. The installed cartridge filters work with automatic cleaning by compressed air pulses, which are adjustable in their intensity and duration. All elements on the filter are free from ignition sources.

Abrasive

Round steel shot is the most commonly used abrasive for the internal blasting of castings. Due to its weight, this abrasive can be sufficiently accelerated for the passage through the whole length of the apertures without being hindered by numerous collisions with the walls. This abrasive therefore has a sufficient blasting efficiency even in long apertures.

The used abrasive grain size is dependent on the size and length of the apertures and the permissible roughness. However, more often, cut wire is used. This is more expensive, but has the essential advantage of less scrap grains which significantly reduces the abrasive loss and the expenses of abrasive reclamation.

About Wheelabrator



As the world's leading surface preparation company, Wheelabrator offers a complete range of equipment, services and parts. Leading companies in the foundry, automotive, aerospace, energy, marine, rail, construction and many other industries have used Wheelabrator Group's products and services to improve productivity and profitability for over 100 years. With approximately 15,000 active customers in nearly 100 countries and an estimated 50,000 machines in the field, Wheelabrator continues to use the experience of having the largest installed base in the industry to deliver the best solution for the customer.

Wheelabrator's approach to solving customers' operating challenges is unique in the industry. Using insight gained from thousands of different applications across a variety of different industries, Wheelabrator's technical experts work closely with customers to design specific solutions to meet their operating needs. 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 are standard items 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, which includes DISA, together we offer a global service of parts forming (moulding), preparation (shot blast) and coating solutions.

We have:

- 5 technology centres, based in Canada, France, Germany, Denmark and Switzerland
- 5 manufacturing plants in India, China, USA, Czech Republic and Poland
- A local service support network globally
- Over 100 years experience in both moulding and shot blasting equipment
- More than 50,000 surface preparation machines in the global marketplace
- Broadest range of surface preparation products available in the marketplace
- Quality products that deliver flexible solutions with consistent performance
- All round service from product development through installation to servicing and maintenance from a Wheelabrator dedicated global team: Wheelabrator Plus

Wheelabrator Plus



Wheelabrator Plus is the after-market service, support and supply division of Wheelabrator Group.

With its **Equipment Modernisation Programmes**, Wheelabrator Plus is focussed on using the latest surface preparation technology to ensure maximum performance of blast machines to drive for maximum profit whilst keeping your costs down.

To meet product specifications within agreed timescales and budget requirements is key for a successful relationship with you. The **Wheelabrator Plus service and maintenance programme** enables you to increase machine performance and to minimise costs by reducing downtimes. Wheelabrator Plus offers varying levels of maintenance contracts which are exactly customised to your needs. The contract is dependent on your production requirements and the effect of machine downtimes. From periodic inspections with status reports including maintenance recommendations up to the complete service package - Wheelabrator Plus always has the right solution for you.

The international presence of Wheelabrator Plus ensures the provision of a tailored service to meet your needs worldwide and thus guarantees best possible performance in surface preparation technology.

Wheelabrator Plus offers its service in different modules:

Standard: Bi-monthly, quarterly or six monthly visits with full inspection of machinery.

Premium services: Weekly, monthly, bimonthly or quarterly visits, full inspection of machinery, adjustment and same day parts fitting with a detailed follow-up report.

Machine check/inspection: Flexible visits as and when necessary, full inspection of machinery and LEV checks followed by a detailed report and quotation for recommended maintenance works.

Safety and environment check: Visits according to individual agreement, to include LEV checks to ensure machinery complies with the current legislation.

All inclusive: Wheelabrator Plus engineers produce and review maintenance schedules tailored to the individual company, with a fixed price contract inclusive of all parts and labour.

