

ASCO DRY ICE BLASTING TECHNOLOGY

APPLICATION FOUNDRIES



Online cleaning of a hot ingot mould



Core box cleaning in a grey cast iron foundry

Like in many industries, also in foundries the cleaning of moulds and tools is of utmost importance. Particularly optimal cleaning of ingot moulds and core boxes becomes increasingly more important, because it increases not only the quality but also productivity and costs can be optimized.

ASCO has successfully developed an innovative cleaning process which is perfectly suited for the foundry industry. The **ASCO dry ice blasting technology** offers the following advantages:

- **Gentle:** Moulds and tools are not damaged, the product quality is improved.
- **No dismantling of moulds and tools:** Expensive shut-down time is reduced to a minimum. Even hot ingot moulds can be cleaned on-line without being cooled down remarkably.
- **No secondary waste:** The blasting material, dry ice, turns to gas as soon as it hits the surface. Thus, there is no blasting media or chemical substances to be disposed of. Work conditions are improved because dry ice blasting does not charge the staff with additional dust contrary to sand or granular blasting.
- **Dry:** No danger of corrosion and that electrical components could be damaged.
- **Environmentally friendly:** No secondary waste, no solvents or other chemical substances.

These are the reasons why car-manufacturers and many other well-known foundries have put their trust in the **ASCOJET dry ice blasting system** for years.

How can this cleaning method be used?



Online cleaning of a hot ingot mould



With the **ASCO dry ice blasting technology** production downtimes are avoided.



Cleaning of a core box in the automotive industry

The **ASCO dry ice blasting system** offers the usual option of cleaning dismantled moulds in cabins or to perform the cleaning operation directly on the mounted hot moulds. Many gravity die casting foundries use the second option to avoid expensive production stops, and to attain higher quality thanks to more frequent cleaning. The moulds are not damaged, because the blasting material is virtually non-abrasive.

In practice, cleaning is nowadays done more often to completely avoid aluminium residues on the mould's surface. For instance, manufacturers of high quality aluminium rims clean the moulds at every shift change using dry ice blasting. The cleaning process can be carried out directly on the mould (which has a temperature of up to 350 °C) without noticeably reducing the temperature of the mould. After 20 to 30 minutes, production can be restarted.

With traditional blasting using sand or glass beads, the cleaning process is delayed for as long as possible, which often leads to aluminium residue on the mould's surface. The time required for the removal of the moulds and the subsequent cleaning then amounts to several hours.



Removal of release agent from a PU core box

Also the cleaning of the core boxes (coldbox and hotbox) is easier and faster with the **ASCO Dry Ice Blasting system**. The usual cleaning time of several hours is reduced to a few minutes. Particularly because abrasive blasting material cannot be used with coldbox moulds (plastic), dry ice blasting is ideal for this purpose.

Please contact our application specialists for any further information you may need. They will also be pleased to be at your service for consulting in general, presentations or instructions.

The ASCO-Team

www.ascoco2.com



Cleaning of built-in hot moulds

The Process

Dry ice is produced from liquid CO₂. Inside an **ASCO** dry ice pelletizer, the liquid carbon dioxide is expanded under controlled conditions to form dry ice snow (approx. -79°C), which then is pressed through an extruder plate. The result is dry ice pellets with a diameter of 3 or 1.7 mm.

The dry ice pellets are fed into the **ASCO dry ice blasting unit**, then conveyed to the blasting gun via compressed air to reach a nominal speed of approx. 300 m/s before shot onto the surface to be cleaned.

Due to the sudden thermo shock when the dry ice hits the object and the generated kinetic energy the coating to be removed comes off the base material. Immediately after impact, the dry ice pellets sublime into the atmosphere leaving behind a clean, dry surface. The only thing left behind is the coating/dirt removed from the surface and no residual blasting media has to be disposed of. Since the hardness of the pellets is only approx. 2 Mohs, the cleaning is virtually non-abrasive and the surface quality is maintained. Also the thermoshock has no influence on the surface quality of moulds and tools.



The complete solution

As leading provider of complete dry ice blasting solutions, **ASCO's** aim is to find tailor-made solutions for individual customer requirements. The extensive **ASCO** product and service range consists of:

- Dry ice blasting units
- Dry ice pelletizers
- Dry ice containers
- CO₂ gas detectors
- Manifold accessories
- Specially developed guns or nozzles
- Blasting cabins
- Automated cleaning solutions
- Building up your in-house dry ice production



Dry Ice Blasting Unit
ASCOJET 1208



Dry Ice Blasting Unit
ASCO Nanojet



Dry Ice Blasting Unit
ASCOJET 1701



Dry Ice Blasting Unit
ASCOJET Combi blaster 1708



Dry Ice Blasting Unit
ASCOJET 2008 Combi Pro

ASCO not only introduces you to the **ASCO dry ice blasting technology** but also helps with integrating dry ice cleaning into the production process and continually optimizing it.

ASCO has a worldwide network of independent **ASCO** partners who can provide you locally with dry ice pellets.

In case of an increased demand for dry ice we will be pleased to offer you an economical calculation for your in-house dry ice production to optimize on cost and quality.

Our product range contains dry ice pelletizers with production capacities from 30 to 700 kg/hr.



Dry Ice Pelletizer
A55P

Production capacity 55 kg/hr
for 3 mm pellets



Dry Ice Container
AT240

Pellets capacity approx. 240 kg
Weight empty approx. 54 kg