

# CRYOCLEAN<sup>®</sup> Snow

Putting you in pole position for automotive cleaning – automatically.

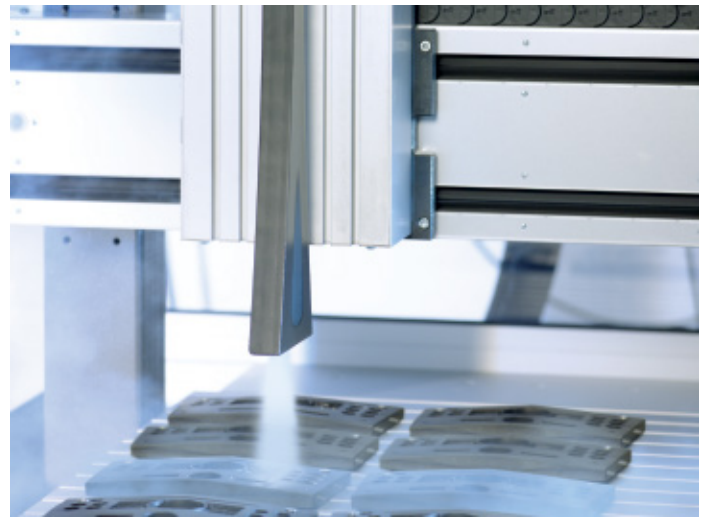
Cleaning is a key – and often challenging – step in the automotive production workflow. Manufacturers need a fast, effective, non-residual way to remove dirt, grease and other unwanted substances from car parts, infrastructure and tools. Support for automation is also a key success factor in the drive to meet rising productivity targets. In addition, many operators are looking for more eco-friendly alternatives to conventional automotive cleaning processes, many of which rely on hazardous substances.

At Linde, we have developed effective cleaning solutions that balance the need for efficiency with environmental protection by using carbon dioxide at cryogenic temperatures. Our dedicated CRYOCLEAN solutions for the automotive industry combine productivity gains with flexibility. You can choose the cleaning method best suited to your needs – whether dry ice snow, dry ice pellets or blasting systems with additives. CRYOCLEAN Snow not only supports automation, it guarantees exceptional results in record time – keeping your automotive process flow on the fast track to success.





Cleaning of bumper



Cleaning of radio cover

## A better clean

CRYOCLEAN is the ideal treatment option both before and after welding, bonding and painting of plastics and metals. In addition, we are constantly working on new innovations designed to increase the cleaning efficiency of dry ice blasting and extend CRYOCLEAN to new automotive cleaning challenges.

### Examples of efficient CRYOCLEAN cleaning applications

<b>Car component:</b>	Bumpers, airbag covers, emblems, radiator grills, switches, engines, mirror housings, radio covers, interior fascia, door handles, rear axles, electrical components, engine components, headlights
<b>Equipment:</b>	Tools and moulds for injection moulding, PUR foaming, aluminium casting, rubber and tyres, machinery and plant, coating lines and robots, heating systems, conveyor belts, welding lines
<b>Contaminants:</b>	Release agent residues, grease, oil film, dust, fingerprints, smoke residues, obsolete paint, residues of moulded material

## End-to-end offering

CRYOCLEAN snow uses liquid carbon dioxide (CO<sub>2</sub>) accelerated by pressurised air to produce CO<sub>2</sub> snow particles. The cleaning effect is generated by the kinetic energy of solid CO<sub>2</sub> particles, embrittlement of the dirt and the sublimation effect of solid CO<sub>2</sub>. We deliver a lot more than mere carbon dioxide, however.

We provide tailored, dedicated supply concepts for CRYOCLEAN installations, extending from gas supply and storage systems through supply lines to pressure and temperature control systems. Our supply system based on our patented PRESUS® pressure booster was specifically designed to meet the most exacting pressure and temperature control needs of snow blasting.

### BOC Limited

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## Benefits at a glance

- Ecological – replacement of environmentally harmful solvents and positive impact on energy usage
- Cost-efficient – reduction in running costs compared with a water- or solvent-based cleaning system
- Time-efficient – no additional drying processes required after completion of cleaning
- Fast – cleaning time down from several minutes with wet washing to less than one minute in the case of bumpers, for instance
- Compact – only a fraction of the space needed for wet washing is required
- Predictable – elimination of residual moisture problems and drying steps associated with wet washing
- Economical – targeted cleaning action rather than cleaning the entire surface
- Automated – elimination of the risk and expense of human errors
- Flexible – rapid start-up and option of ramping capacity up or down on demand
- Stable – precise control over all process parameters
- Approved – most automotive manufacturers have already issued specifications for cleaning with carbon dioxide snow

## Experience counts

Our dedicated experts provide advice and support to all the main automotive OEMs and global suppliers. We are continuously expanding our expertise in cryogenic cleaning procedures to secure even greater quality, cost and productivity gains.

We offer tests at our centres of excellence and can run trials at your site to work out the ideal hardware and supply configuration for your individual cleaning challenges.

Talk to your local Linde representative today to discover how we can help optimise and automate your automotive cleaning processes.