CLEANING SOLUTIONS USING CO$_2$-SNOW JETS
Introduction

The trend towards higher standards of product cleanliness has remained unbroken for many years. In a number of sectors, cleaning has become a key technology which needs to be mastered in order to achieve high product quality.

Many established cleaning techniques have reached their limits as far as cleaning accuracy, process stability and manufacturing integration are concerned.

Solution approach

The use of highly-accelerated \( \text{CO}_2 \) snow is a practicable cleaning alternative for a wide range of applications. This is due to the efficient combination of:

- Its gentle abrasive action
- The induction of thermoexpansion
- Solubility
- The rinsing effect of sublimation

1. \( \text{CO}_2 \) swivel nozzle for interior component cleaning.
2. Coupled XXL-lance each with two nozzles.
3. Wafer cleaning with mini lance.
Examples of application

Metal surface / Particles

Printer nozzle / Dried paint

Laser mirror / Fingerprints

Spin nozzle / Deposits

Scales / Laser deposits

Bond pads / Solder resists
Surface roughening

Restoration
Applications

Through new developments made by the Fraunhofer IPA, the great advantages of the CO\textsubscript{2} snow jet technique can now be used to clean internal geometries:

- Efficient cleaning action
- Localized cleaning
- Gentle, dry workpiece handling
- High degree of automation
- Good levels of system integration
- No requirement for cleaning media preparation

Our range of services

- Realization of individual cleaning tools
- Cleaning as a service
- Feasibility studies

TITLE \textit{CO}_2\textsubscript{2} snow jet cleaning using patented ultrasonic nozzle.
4 Handheld cleaning gun.
5 Cleaning lance with different jet angles.
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For further information about our range of services, solutions and consultancy, please contact our experts.

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