Dry Ice Cleaning in the Plastics Industry

Cold Jet®
the force of nature

coldjet.com

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Now You See It, Now You Don't

The Magic of Dry Ice Cleaning in Plastic & Rubber Molding

Welcome to Cold Jet!

Plastics and Rubber processors are under great pressure to increase the productivity of their equipment, improve the quality of their parts and reduce costs. This can be a balancing act between using the most effective technologies and working within a tight budget.

The magic of dry ice begins with the fact that Cold Jet tends to make things disappear – particularly, molding problems. Dirty mold cavities and vents account for numerous issues, including short shots, burns, sticking parts, plate-out, splay, weld lines, contamination, blemish and flash.

Mold cleaning remains a critical component of producing quality products. Cleaning mold cavities and vents of resin off-gasses, cured material or mold release agents can prevent the molding problems mentioned above. Cleaning is often delayed because traditional methods cause extended downtime and often involve the use of chemicals or mechanical means that are harmful to employees, abrasive to the tooling and can wear away critical mold tolerances.

We understand this problem and offer solutions to clean molds more often, faster, cheaper and non-abrasively, in a sustainable, environmentally responsible manner. Cold Jet's Dry Ice Environmental Cleaning and Surface Preparation (ECaSP) systems present a proven solution to accomplish productivity, quality and cost reduction initiatives that many plants are pursuing.

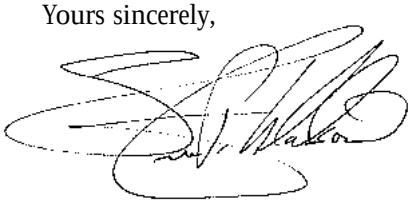
Many molders have initiated proven manufacturing management methodologies such as LEAN, 5S and Total Productive Maintenance (TPM). TPM programs are striving to improve the Overall Equipment Effectiveness (OEE) of their equipment. Dry ice cleaning solutions assist molders in achieving these objectives.

Dry ice is also utilized in our industry to deburr and deflash plastic parts. Thermoset parts will always have flash (sometimes thermoplastic parts as well), and the part geometries do not always lend themselves to tumbling. Our solutions are often completely automated.

We also offer solutions with on-demand dry ice production and blasting for the surface preparation/cleaning of plastic parts prior to painting. Cold Jet systems are designed for easy integration into existing automated paint line systems. They replace aqueous cleaning methods and the associated problems that come with wet cleaning: large floor space needed for drying oven, high operation costs for a drying oven and water reclamation system and scrap parts that do not dry thoroughly.

Thank you for your interest in our technologies and solutions. As you explore this brochure, you will discover the numerous problems that dry ice is solving in our industry. We look forward to working with you on your next dry ice cleaning project. Should you have any questions, or if we can be of assistance in any way, please do not hesitate to contact us.

Yours sincerely,



Steve Wilson

Cold Jet®

Global Business Unit Manager – Plastics, Rubber & Composites

We are Cold Jet

The global experts in environmentally sustainable cleaning, surface preparation and cold chain management solutions.

Dry Ice Cleaning

Cold Jet has developed the most efficient dry ice blast cleaning technology available. Our environmentally responsible systems are used for cleaning, surface preparation and parts finishing. Designed with unrivaled innovation, unmatched performance and based on years of customer input, our systems let you clean better and with less effort, thus increasing productivity and profit.

Dry Ice Production

Our dry ice manufacturing technology offers the greatest level of reliability and the highest quality of extruded dry ice. Dry ice production systems are fully automated, provide the best output to footprint ratio, offer dry ice on demand and pass UL, USDA, FDA and CE standards.

Integrated Dry Ice Cleaning

Our dry ice cleaning systems are ideal for production integration. Cold Jet's integrated systems combine a pelletizer unit with one or more blasting system for continuous or fully automated use. They are custom-engineered to meet our customer's specific requirements.

Distinct Solutions in Diverse Industries

- Aerospace
- Automotive
- Composites
- Contract Cleaning
- Disaster Remediation
- Electric Motor
- Food & Beverage
- Foundry & Metal Forming
- General Maintenance
- Historic Restoration
- Oil & Gas
- Medical Device Manufacturing
- Packaging
- Plastics
- Power Generation
- Printing
- Restoration
- Textile
- Transportation
- Wood

Local Company with a Global Presence

We are local. Everywhere. With 13 service centers located in 10 countries - and with the largest install base of human technical resources - when you need us, we will be there. The Cold Jet customer support team is available 24/7 to provide the personal service your business demands.

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Romania Russia Serbia Slovakia Slovenia Sweden
Turkey

Asia Pacific

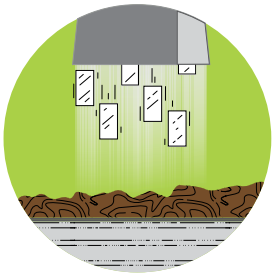
Australia India Indonesia Japan Malaysia Singapore
New Zealand Philippines Thailand Vietnam

What is Dry Ice Cleaning?

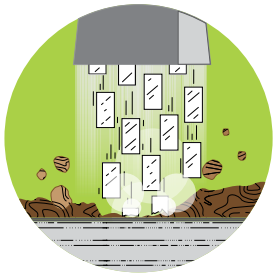
Environmentally Responsible Cleaning & Surface Preparation

How it Works

Dry ice cleaning is similar to sand, bead and soda blasting in that it prepares and cleans surfaces using a media accelerated in a pressurized air stream. It differs in that dry ice cleaning uses solid CO_2 pellets, MicroParticles, or diamond shaped particles which are blasted at supersonic speeds and sublimate on impact, lifting dirt and contaminants off the underlying substrate.

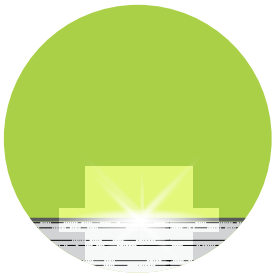


DRY ICE IS ACCELERATED BY COMPRESSED AIR THROUGH A NOZZLE AT SUPERSONIC SPEEDS.



THE TEMPERATURE (-79°C/-109°F) OF THE DRY ICE CAUSES THERMODYNAMIC SHOCK. THIS HELPS BREAK THE BOND BETWEEN THE SURFACE AND THE CONTAMINANT.

ONCE THE DRY ICE COLLIDES WITH THE SURFACE, IT SUBLIMATES - CAUSING A MINI CO_2 EXPLOSION, LIFTING AWAY THE CONTAMINANT.



BECAUSE DRY ICE IS NON-ABRASIVE AND TURNS TO GAS, YOU ARE LEFT ONLY WITH A CLEAN SURFACE - NO SECONDARY WASTE.

Why it's Better

The unique characteristics of dry ice make it the perfect cleaning media. Dry ice is non-abrasive, non-conductive and will not damage surfaces or equipment. It sublimates on impact, leaving behind no secondary waste. It is non-toxic and safe for employees.

These attributes make dry ice cleaning an efficient, cost effective and environmentally responsible cleaning solution.

Dry Ice Cleaning is Effective & Safe

Dry ice is made of reclaimed CO_2 and does not produce more CO_2 or add additional greenhouse gases to the atmosphere. The EPA, FDA and USDA approved media does not release harmful gases or generate secondary waste. It is safe, nontoxic and reduces or eliminates employee exposure to the use of dangerous chemical cleaning agents. Dry ice cleaning is truly and completely environmentally responsible.

Leading the way in dry ice innovation since 1986

Cold Jet®

the force of nature

DRY ICE BLASTING REINVENTED

AERO₂® SERIES

AERO2 SERIES INNOVATION

PRECISION, VERSATILITY, POWER

The Aero2 Series provides you with performance options.
Choose the machine that is best suited for your unique application.

AERO2 SERIES ESSENTIALS OF INNOVATION

PARTICLE CONTROL SYSTEM (PCS)

Choose between 28 particle sizes

SMART DRY ICE 4.0 – IOT CONNECTIVITY

Remote monitoring and diagnostics

QUIET & DURABLE

Reduce noise and endures rough environments

EFFICIENT

Clean with less air and less dry ice

AUTOMATION & INTEGRATION READY

Dry Ice blaster with automation capability

Plastics Industry Overview

The Cold Jet Difference

Dry ice environmental cleaning and surface preparation systems allow for cleaning tools on-line, while they are at operating temperatures, thus increasing machine uptime, mold asset life and profitability. Dry ice is proven to clean molds better, while reducing cleaning time up to 75% without causing mold wear.


Cold Jet
MICROCLEAN

Increase Productivity, Improve Product Quality

Maintaining clean mold cavities and vents is a major concern for plastic part manufacturers in meeting today's high quality standards. The build-up of unwanted surface residue from either the product mix itself, mold releases or the labeling process can create various problems, ranging from product release ("knock out") to inferior product quality and possible tool damage. Flash on the product also creates challenges for manufacturers. Mold halves leave a parting line in the final product, and that parting line, or flash, must be removed to preserve product quality.

Proven Applications

Blow Mold
Compression Mold
Extrusion Die
Injection Mold
Plastic Injection Screw Barrel
Plate-out and Off Gassing
Thermoform Mold
Urethane Molds and Overspill

Product Finishing

Deburring Machined Parts
Deflashing & Surface / Parting
Gloss Leveling
Line Vents

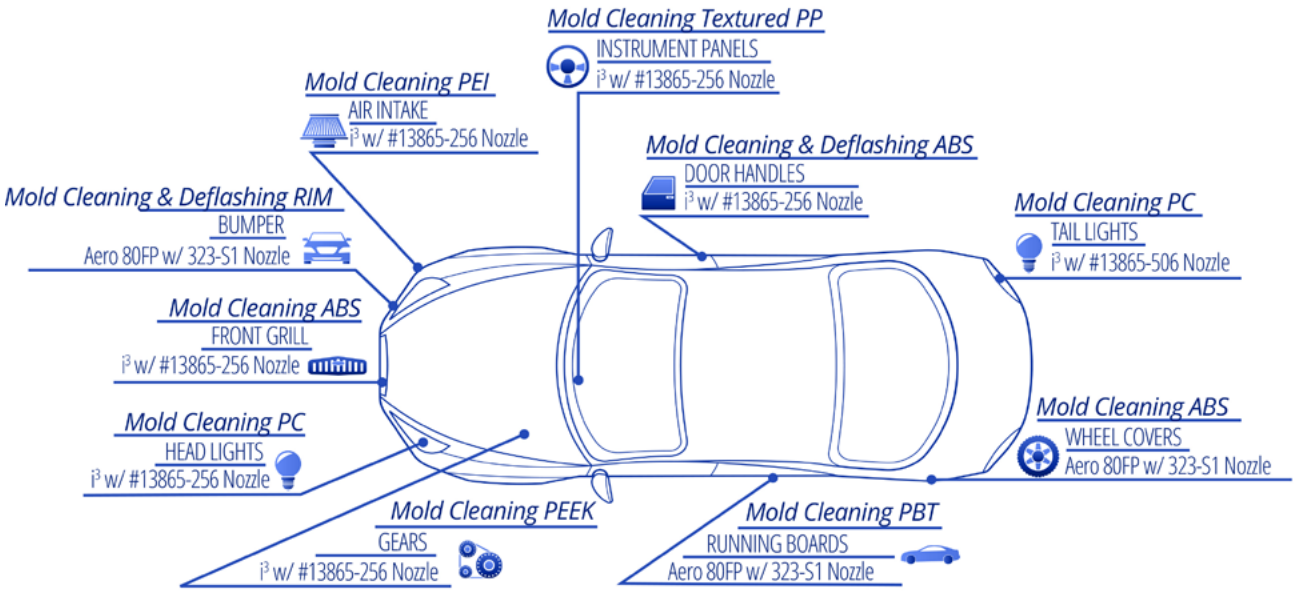
Traditional cleaning and deflashing methods involve tedious and ineffective manual processes using chemicals and hand tools. Cold Jet's alternative cleaning process provides a non-abrasive and environmentally responsible method that allows molds and product to be cleaned in a fraction of the time, allowing increased cycles between preventive maintenance. In addition, molds can be cleaned hot and in-place, without water, chemicals or the creation of secondary waste.

Key Benefits

Improve product quality | Reduce scrap | Reduce production downtime | Reduce cleaning time and labor costs | Clean in-place; no disassembly required | Non-abrasive; no damage to product or equipment | Environmentally responsible; no secondary waste

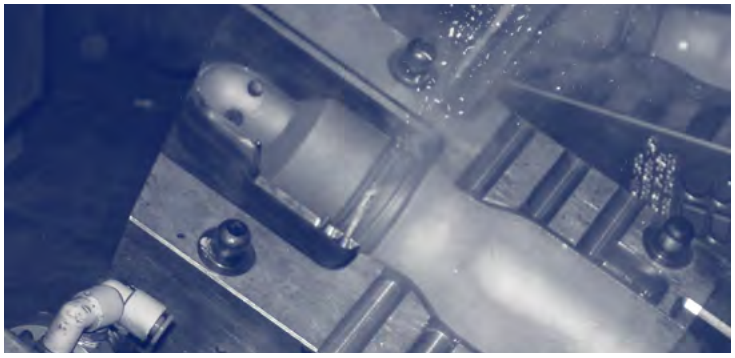
Automotive Mold Cleaning

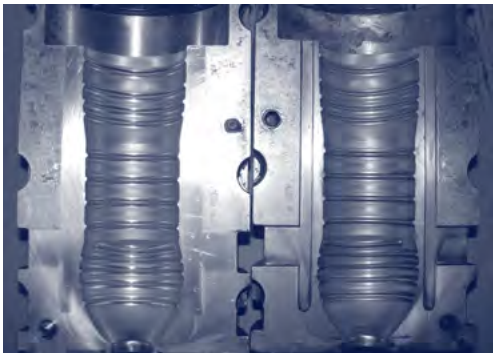
Cold Jet's ECaSP systems have helped automotive molders reduce annual costs and meet stringent industry demands: 6-Sigma, Kaizen, 5S, TPM (Total Productive Maintenance). Our systems enable molders to optimize their manufacturing process by cleaning contaminants from cavities, vents and hard-to-reach places faster, better and more economically than traditional methods. This can reduce cleaning times by as much as 75% and decrease annual mold cleaning costs by as much as $50,000.



Blow Mold Cleaning

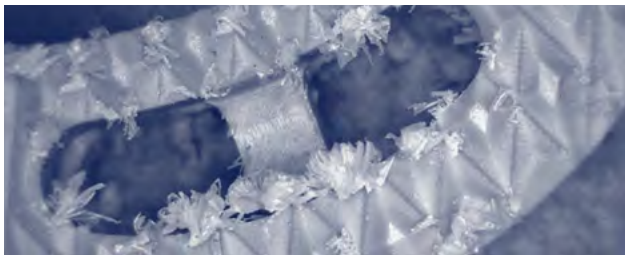
Cold Jet's environmentally responsible blow mold cleaning systems can reduce mold cleaning time up to 75% while also increasing productivity and product quality. The system utilizes shaved dry ice Microparticles or diamond shaped particles, which allows molds to be cleaned hot and in-place. The non-abrasive method requires no chemicals, and produces no secondary waste. The specially designed nozzles and applicator allow for cleaning in hard-to-reach spaces to ensure a complete clean every time. A quicker clean means more production time and the thorough clean allows consistent quality products and less scrap. As a result, Cold Jet dry ice blast cleaning helps your facility become more profitable.

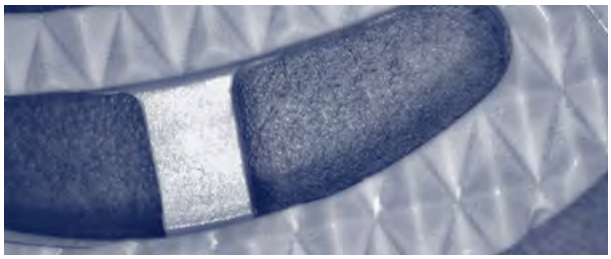




Deflashing & Deburring

Cold Jet's ECaSP systems were developed to improve quality and reduce operating costs for manufacturers with parts that have flash or burrs. Our automated systems eliminate the need for manual deflashing or deburring, thus improving part quality, increasing productivity and lowering cost. Our systems can safely remove flash and burrs from a variety of materials: PEEK, PBT, Acetal, Nylon, LCP, ABS, UHMWPE, Nitinol, etc. without causing part surface damage.





Extrusion Line Cleaning Solution

In the arena of flexible packaging – such as blown film lines – cleaning the dies, sizing ring and collapsing tower is critical in order to maintain output and quality. Oftentimes, an additive or slip agent is compounded into the resin to increase the output of the extruder. This additive will off-gas, leaving a waxy substance on the tower. Dry ice cleaning is a non-abrasive method that can quickly remove the contaminant while minimizing line downtime.

The cooling rolls in the sheet extrusion business are one of the most important aspects of the line. Cleaning with dry ice helps take care of your rolls so that they can work effectively. It is also important to be cautious when cleaning to avoid disfiguring them, whether they are embossed or not.

LSR & LIM Mold Cleaning

Because silicones flash very easily, molds for these high performance thermoset elastomers are manufactured to critical tolerances, often +/- .0002 inches. Protecting the critical dimensions on parting lines and sealing surfaces, as well as the mold surface finish, is vital. It is also important to keep the vents open in order to evacuate the air

out of the mold prior to injection – this helps to produce high quality molded parts.

With Cold Jet dry ice cleaning, you can clean molds in the machine at processing temperature (typically 250-400 degrees Fahrenheit), without causing mold wear – thus increasing production capacity and improving product quality.

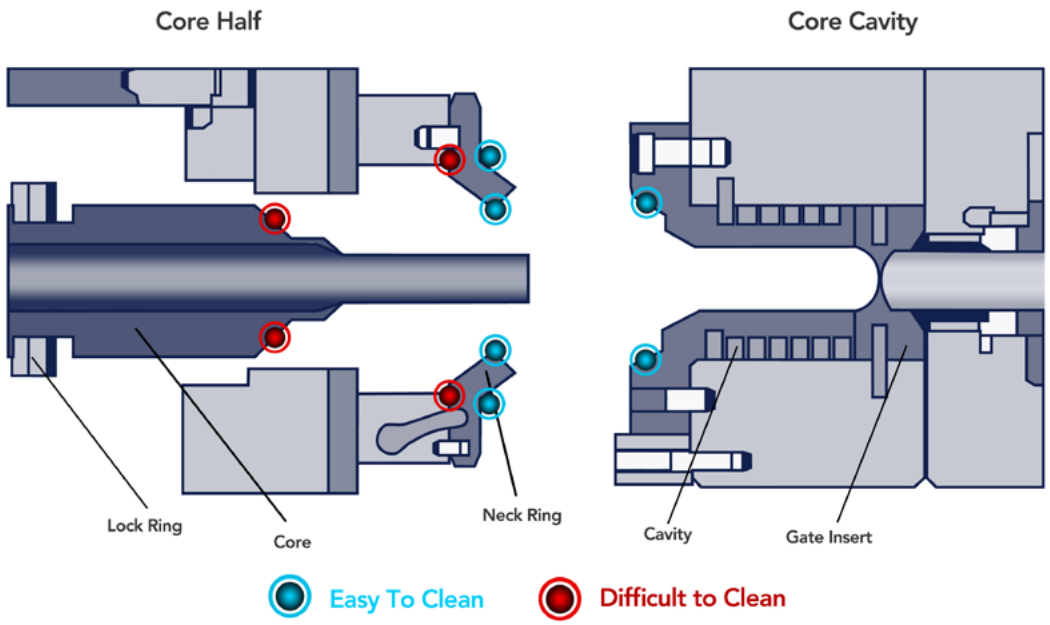
Medical Device Mold Cleaning & Deburring

Cold Jet's systems have helped medical industry manufacturers meet stringent industry process demands for quality and consistency. Our systems enable manufacturers to optimize their process by cleaning contaminants from cavities, vents and hard-to-reach places. This is done without the use of chemicals, which eliminates chemical residue on the mold and ensures that products are delivered without flaws.

PET Preform Mold Cleaning

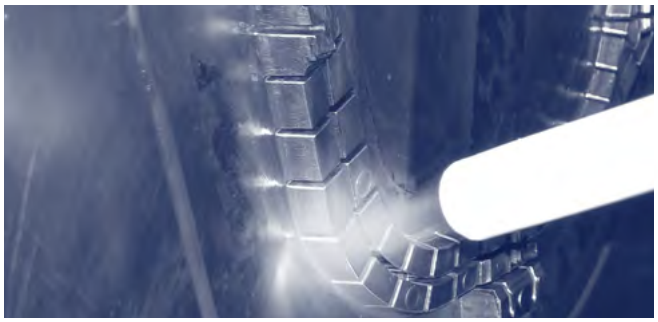
Cold Jet's systems have helped packaging molders meet stringent productivity demands. Our systems help molders clean faster, better and more economically, increasing production capacity and improving product quality. Mold cleaning times can be reduced up to 75% with Cold Jet.

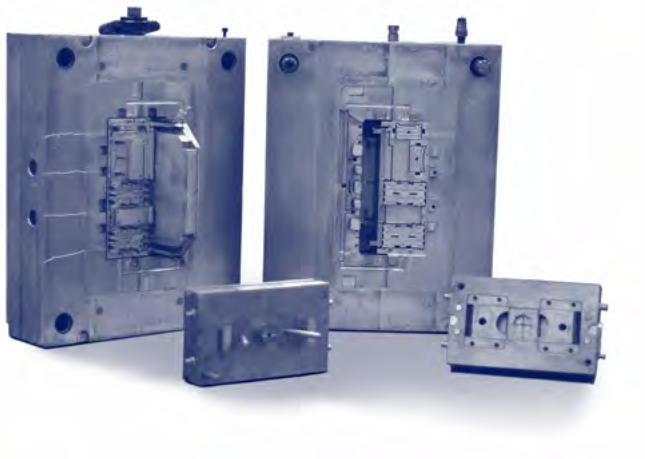
Dry ice cleaning technology allows molds, lock rings, cores and gate inserts to be cleaned without the disassembly of the stripper plate and while the mold is still in the press. The system also cleans blow molding machines, palletizing equipment, conveyor belts and glue machines.



Technical Mold Cleaning

Molders are very familiar with the requirements of precision (high-tolerance) and micro-molding parts and the difficulties that come with them. Keeping small orifices, micro-cavity production molds - as well as the deep, complex geometry of micro tools - clean is a critical concern when manufacturing high tolerance plastic parts. Dirty molds cause vents to fill up and cause a variety of molding problems: burns, short shots, foreign particles, flash and plate-out. After the vents fill, a sticky and sometimes abrasive off-gas is forced between other close-fitting tooling. Mold damage can also occur from trapped air "dieseling" or "jetting" due to clogged vents.





Rubber Industry

Keep the lines running with more efficient mold cleaning

A major problem faced by rubber molders is mold fouling. Buildup of cured material and mold release agents causes sticking molds, blemishes and unwanted flash on final parts, making them unusable and requiring line shutdown for cleaning.

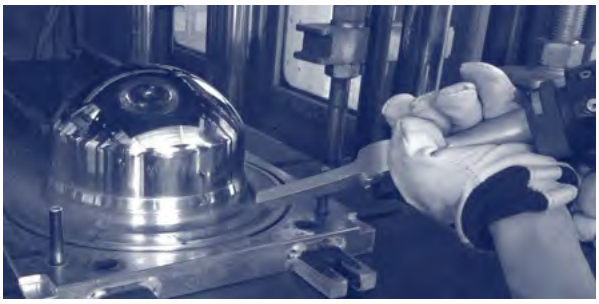
Proven Applications

Blow Mold
Compression Mold
Injection Mold
Lift Press
Metal Bonded Mold
Tilt-back Press

Traditional cleaning methods such as manual scraping, glass bead blasting or ultrasonic cleaning can be time consuming, ineffective, damaging to molds and result in high labor and material costs. Dry ice blasting offers an in-place, online, quick and effective way to clean without damaging expensive molds.

Key Benefits

Eliminate production shutdown | No mold disassembly | Reduce product scrap
Non-abrasive; no impact damage or mold erosion | Reduce cleaning time and labor costs up to 75%
Environmentally responsible; no secondary waste



Composite Tool Cleaning

In-place, non-abrasive & environmentally responsible

Cold Jet dry ice cleaning extends the life of a mold by eliminating the need for harsh chemicals, wire brushes and coarse pads. It is a non-abrasive mold cleaning solution that protects the critical dimensions and geometric shapes of parting lines and sealing surfaces and preserves the mold surface finish.

There are a variety of materials utilized in the composite tooling industry, from epoxies and urethanes to aluminum and steel, including Teflon-coated tools and tools that are highly polished. It can also safely remove a variety of residual process contaminants from the molds, including mold release agents, epoxy, Teflon tape, silicone, phenolic, carbon, graphite and many more without damaging the tooling.

Proven Applications

Compression Molding
Resin Transfer Molding
Extrusion
Pre-pregging
Wet-layup

Key Benefits

Reduce production downtime | Reduce cleaning time and labor costs
Environmentally responsible; no secondary waste | Non abrasive; no damage to product or equipment
Clean tooling in place

Removal of Frekote®

Industry Leaders Benefiting from Cold Jet

Providing Global Satisfaction Since 1986

Cold Jet's cutting-edge design and innovation of dry ice blasting and production technology has led the way for thousands of customers worldwide to realize an impressive return on investment, as well as a substantial increase in productivity.

Join the Industry Leaders

Case study sampling

Autotest

PROBLEM

When painting interior and exterior plastic parts in the automotive industry, high quality and efficiency standards must be met. Autotest utilized power washing, which led to lower product quality. With geometrically complex parts, water accumulates in cavities, leaving visible water stains, which leads to parts being rejected.

SOLUTION

Cold Jet COMBI 120H

RESULTS

- Improved part quality.
- Reduced scrap.
- Automated and continuous cleaning process enabled increased efficiency.

"With dry ice cleaning, the quality of our finished parts increased greatly. Power washing leads to varnishing and stains on the parts, while dry ice cleaning eliminates this." - Oliver Bolk, Managing Director, Autotest Iggingen GmbH

Electrolux

PROBLEM

During the refrigerator manufacturing process, insulator foam is injected into the shell of the unit, which can leak and leave foam remnants on the surface of the product. To remove this, chemicals and hand tools were used. This was labor intensive and risked decreasing product quality. If the product was scratched, it would be discarded as scrap.

SOLUTION

Cold Jet i³ MicroClean®

RESULTS

- Reduced scrap and maintenance costs while reducing overall risk.
- Productivity and time savings improved.
- Alignment with company's environmental initiatives.
- Improved part quality.
- Recuperated cost of machine based on scrap savings alone.

"The i³ MicroClean system is more efficient with relation to the quality and speed of the cleaning process. It has improved our business."
- László Koncsek, Lean Specialist, Electrolux

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Hans Geiger

PROBLEM

For each mold, 96 cavities had to be cleaned by hand. One mold required 20 man-hours of cleaning and two employees. The complex crevices and angles on the mold led to difficulty in cleaning the entire unit. This method also led to the risk of the mold being damaged.

SOLUTION

Cold Jet i³ MicroClean

RESULTS

- Maintenance cycles reduced by 50%.
- Machine utilization increased while costs were greatly decreased.
- Risk of damage to the mold eliminated.
- Return on investment in one year.

"Dry ice cleaning is very effective at removing coatings from tools and even helps when burnings occur. For certain coatings, we could reduce maintenance cycles up to 50%." - *Hans Kolb, Process Engineer, Hans Geiger*

Diehl

PROBLEM

Mold cleaning is a challenge with a very small, 0.8 gram light injection-molded part with filigree contours. By using a dry ice cleaning system with MicroParticles, they optimized product quality, efficiently cleaned the mold and saved 400 hours of cleaning time per annum.

SOLUTION

Cold Jet i³ MicroClean

RESULTS

- Cleaning time is reduced from 16 hours to 1 hour. Resulted in a time saving of around 400 hours per year.
- 10% production capacity increase. Production increased by nearly 500,000 parts per year.
- The investment was amortized in 1.5 years.

"The results of the cleaning and abrasiveness tests were so convincing that we rented such a device at Cold Jet ... in order to be able to work immediately." - *Nicolas Hofmann, Process Engineer in Plastics Manufacturing, Diehl Metal Applications GmbH*

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Silgan Plastics

PROBLEM

For a 72 cavity mold, it would take 2-3 hours to clean by hand. It was also difficult to clean the entire mold and access areas behind the slides and neck rings. Mold cleaning led to increased downtime and added costs, while exposing employees to harmful chemicals and solvents.

SOLUTION

Cold Jet i³ MicroClean & Aero 30

RESULTS

- Cleaning time reduced from 2-3 hours to 45 minutes.
- Improvement of product quality, while decreasing machine downtime.
- Maintenance room staff reduced to single person.
- Environmental and worker safety initiatives achieved.

"The time savings alone have been phenomenal. We have been able to clean our equipment better and faster while still online. We no longer have to worry about working dangerously close to hot equipment, our environment and safety managers are happy and we have dramatically reduced the products we buy and use for cleaning." - *Joe Pond, Setup Supervisor, Silgan Plastics*

TE Connectivity

PROBLEM

Utilizing conventional cleaning methods, such as hand scraping and sand blasting, led to the mold cleaning process being lengthy and laborious for TE Connectivity. It also raised the possibility of the molds being damaged during disassembly and during the cleaning process itself.

SOLUTION

Cold Jet i³ MicroClean

RESULTS

- Cleaning time reduced from 6-12 hours to just one hour, cutting daily cleaning time by 80%.
- Labor reduced from multiple people to one person.
- Return on investment in only one month.
- Worker safety was enhanced by eliminating use of chemicals.

"In addition to cleaning our molds faster and more frequently, we no longer need a team of people to help us disassemble, clean and reassemble molding equipment." - *Jan Schotte, Process Technology – Plastics, TE Connectivity*

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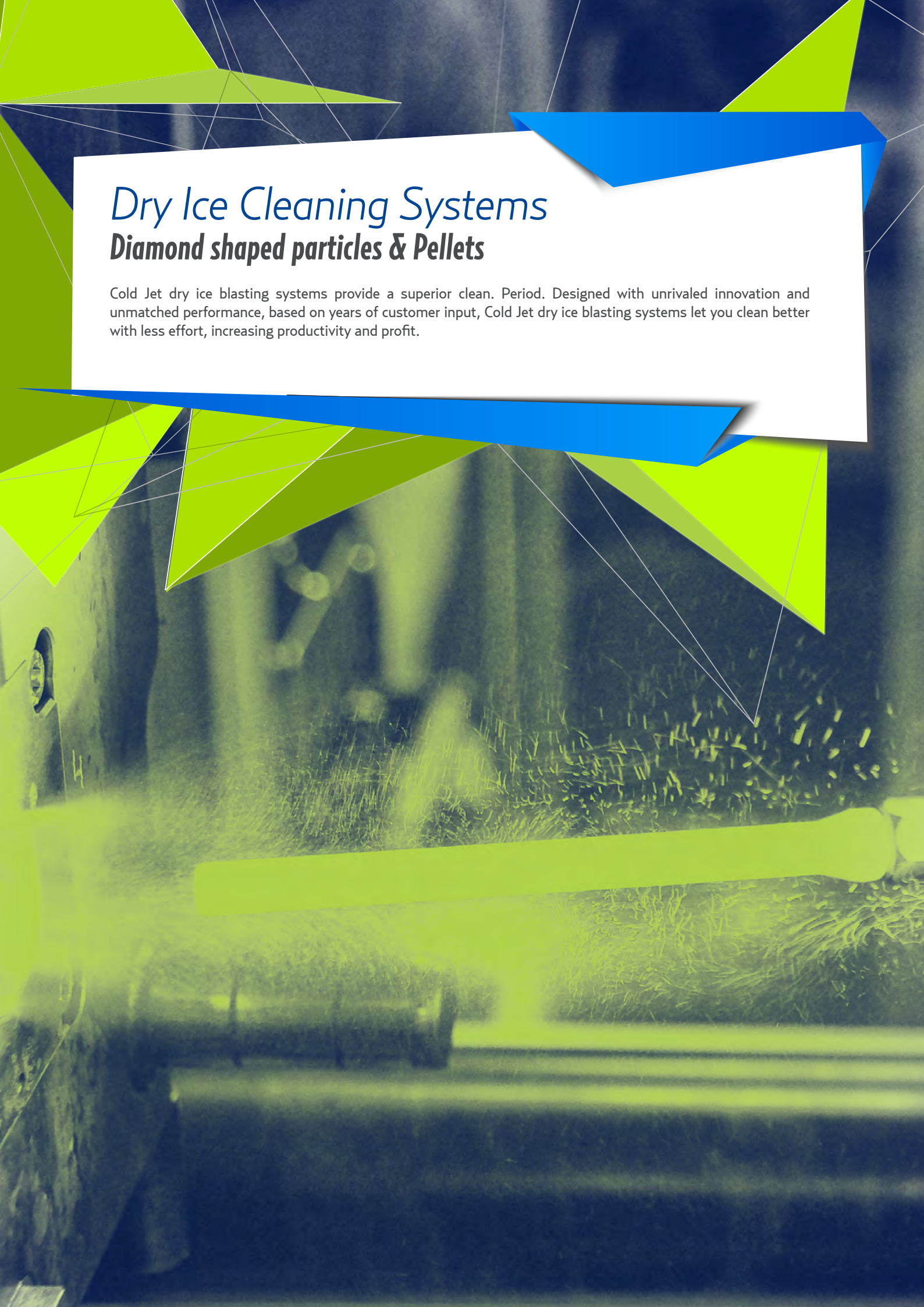
Injection Molding Machine (IMM) Payback Example

Dry ice cleaning compared with manual cleaning

MOLD CLEANING	*48 CAVITY IMM*	*96 CAVITY IMM*	*144 CAVITY IMM*
Production Maximum (Hours / Year)	8,400	8,400	8,400
Time Saving per Week with CJ	1.5	2.0	2.5
Time Saving per year with CJ	78	104	130
Efficiency Improvement with CJ	0.9%	1.2%	1.5%
Extra Hours Production	78	104	130
Mold Cycles per Hour	360	360	360
Extra Preforms Made per Year	1,347,840	3,594,240	6,739,200
Profit per Preform	€ 0.0036	€ 0.0036	€ 0.0036
Profit per Year from Extra Production	€ 4,912	€ 13,098	€ 24,559
Payback-time per IMM in Months	89	33	18
Payback-time per 5 IMM in Months	18	7	4

Example calculated based on: Maximum production, pre-set mold cycle time, estimated profit per preform, etc.
Not taken in consideration: savings by labor cost, reduced repair costs, extended equipment life time



Dry Ice Cleaning Systems

Diamond shaped particles & Pellets

Cold Jet dry ice blasting systems provide a superior clean. Period. Designed with unrivaled innovation and unmatched performance, based on years of customer input, Cold Jet dry ice blasting systems let you clean better with less effort, increasing productivity and profit.

Cold Jet®

AERO₂®

DRY ICE BLASTING REINVENTED

PCS 60

PCS = PARTICLE CONTROL SYSTEM

THE NEW STANDARD IN DRY ICE BLASTING

DESIGNED FOR VERSATILITY & PRECISION

SELECT 28 DINSTINCT PARTICLE SIZES (3MM - 0.3MM)

MACHINE DIMENSIONS

Length x Width x Height:
99 cm (39 in) x 48 cm (19 in) x 114 cm (45 in)
Weight: 114 kg (251 lb)

POWER REQUIREMENTS

Input Voltage: 110/230V AC (50/60 Hz)
AMPS: 4.3

Compliant with the EU Machinery Directive (CE) and UL Design Standards

HOPPER CAPACITY

27 kg (60 lb)

HMI DISPLAY

7" LCD Color Screen

FEED RATE

Variable - up to 1.8 kg/min (4 lb/min)

DRY ICE PARTICLE SIZE

Input: 3mm; Output: 3mm - 0.3mm
Utilizes 28 distinct dry ice particle sizes

BLAST PRESSURE RANGE

20 - 145 psi (1.4 - 10 bar)

COMPRESSED AIR SUPPLY

40 - !45 psi (2.8 - 10 bar)

NOZZLE AIR CONSUMPTION

12 - 100 cfm (0.3 - 2.8 m^3/min) at 80 psi (5.5 bar)

BLAST FLOW PATH

3/4" Straight Through Tubing

SUREFLOW

Thumper, Ramrods, Electric Vibrator
"Always-On" Hopper Agitation
Isolated Hopper

CLEAN WITH MORE CONTROL USING THE PCS 60

VERSATILE
FOR ALL APPLICATIONS

The Cold Jet PCS® 60 utilizes finely controlled particles of dry ice as a blasting medium, via our proprietary and patented Particle Control System™ (PCS)

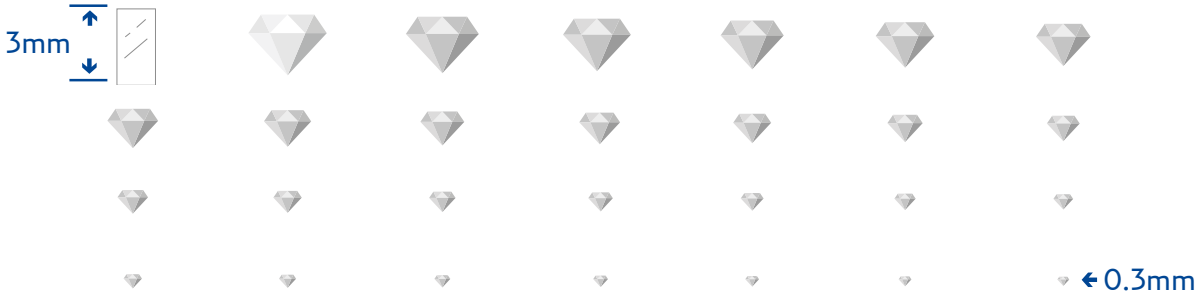
Accepts 3mm pellets as input and, via the PCS, precisely cuts the dry ice into diamond shaped particles in the exact dimensions chosen by the operator

Choose dry ice particle size from 3mm to 0.3mm and every size in between

The user has complete control and can fine-tune the most effective setting for each unique application

PARTICLE CONTROL SYSTEM (PCS)

CHOOSE BETWEEN 28 DIAMOND SHAPED PARTICLE SIZES



Cold Jet®

AERO₂®

DRY ICE BLASTING REINVENTED

PLT 60

PLT = PELLET BLASTER

THE NEW STANDARD IN DRY ICE BLASTING

DESIGNED FOR POWER BLAST UP TO 250 PSI

MACHINE DIMENSIONS
Length x Width x Height:
99 cm (39 in) x 48 cm (19 in) x 114 cm (45 in)
Weight: 106 kg (233 lb)

POWER REQUIREMENTS
Input Voltage: 50/60 Hz (110/230V AC)
AMPS: 4.3

Compliant with the EU Machinery Directive (CE) and UL Design Standards

HOPPER CAPACITY
27 kg (60 lb)

HMI DISPLAY
7" LCD Color Screen

FEED RATE
Variable - up to 2.7 kg/min (6 lb/min)

DRY ICE PARTICLE SIZE
Input: 3mm ; Output: 3mm

BLAST PRESSURE RANGE
1.4 - 17.2 bar (20 - 250 psi)

COMPRESSED AIR SUPPLY
2.8 - 17.2 bar (40 - 250 psi)

NOZZLE AIR CONSUMPTION
1.4 - 4.7 m^3/min (50 - 165 cfm) at 5.5 bar (80 psi)

BLAST FLOW PATH
1" Straight Through Tubing

SUREFLOW
Thumper, Ramrods, Electric Vibrator
"Always-On" Hopper Agitation
Isolated Hopper

CLEAN WITH POWER USING THE PLT 60

BLAST WITH MORE POWER

With PLT machines, you can blast with up to 17.2 bar (250 PSI) of pressure

Optimized for high performance nozzles

Designed for applications that require more aggression

Blast with 3mm dry ice pellets only for a more aggresive clean

Integrated Cleaning Systems

COMBI Systems, Aero Series & Integrated System Solution

Integrated cleaning systems are cost effective solutions with superior cleaning performance and minimal space requirements. Integrated systems provide continuous, uninterrupted and completely automated operations. Each Cold Jet integrated system is custom engineered to meet specific customer requirements.

Integrated Cleaning Systems

COMBI Systems

COMBI 120H
up to 120 kg/hr | 264 lbs/hr

COMBI 350H
up to 350 kg/hr | 772 lbs/hr

Fully automatic machine for dry ice production and dry ice blasting

Several Functions in One:

- Pelletizer unit
- Dry ice blasting unit (one unit for COMBI 120H & two units for COMBI 350H)
- Cutter unit ensures the right pellet size
- Distribution system ensures availability of pellets when needed
- I/O Box for integration in plant control units and automation process
- Optional control for two separate distribution systems to facilitate the connection of several nozzles
- Optional system for heating blasting air to avoid condensation on nozzles
- Optional control for up to four heated nozzles (COMBI 350H only)

Unique Features:

- Stainless steel enclosure reduces noise level below 75 db(A) and protects machine components
- Fully automated, one-button operation
- Sub Cooling Technology increases CO_2 utilization
- 15" multi touch built-in control panel
- Quick startup reduces downtime and loss of valuable CO_2
- Shutdown function removes dry ice from the hopper
- Cold Jet *CONNECT*
- Compact footprint

Integrated Cleaning Systems

AERO$_2$ Series

AUTOMATION & INTEGRATION

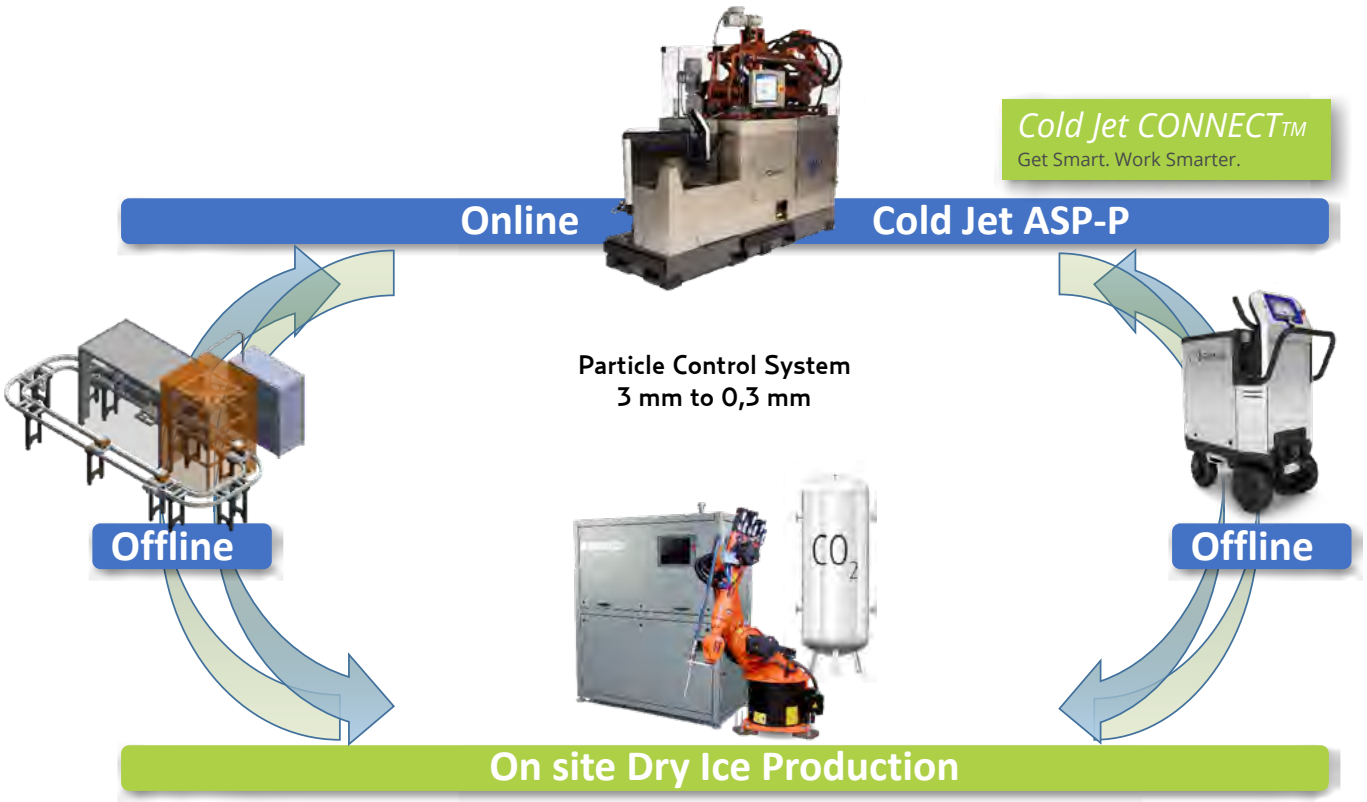
Integrate select Aero$_2$ machines with a dry ice production unit for continuous blasting

Easily connect to a robot or any other PLC-controlled automation system via an optional accessory package

Seamlessly transition from an integrated unit to manually controlling the machine

Integrated System Solution

Cold Jet ASP-P



ASP-P, Cold Jet's Automated Surface Preparation Solution for the Plastic Industry

Inline mold cleaning key benefits:

- Less air, less ice, more coverage
- Eliminate production shutdown
- Clean online & offline
- No disassembly of molds
- Eliminate reassembly damage and scrap
- Reduce product scrap
- Reduce cleaning time
- Labor cost reduction up to 75%
- No secondary waste
- Environmentally responsible

World-Class Customer Service

Available when you need us.

Our Customer Service team is always ready to help keep your critical blasting and production equipment up and running.

The Cold Jet customer support team of technicians is available 24 hours a day, 7 days a week, providing the personal service that your business demands.

We are local. Everywhere. With service centers around the globe, our technicians are always within reach. Cold Jet has 13 service centers located in 10 countries around the world and the largest install base of human technical resources. When you need us, we will be there.

Our services range from answering your technical support questions and helping you find the right accessories for your unique cleaning application to assisting with spare parts orders and providing preventative maintenance options.

No other dry ice blasting company offers you this level of customer service:

- Global Service Centers
- Troubleshooting Support
- 24-hours a day / 7-days a week Technical Support
  - Europe +32 (0) 1353 9655
  - Germany +49 (0) 6551 9606 14
- Preventative Maintenance Inspections
- Project Management
- Installation & Training
- Spare Parts and Accessories

learn more at coldjet.com

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