



Dry Ice Cleaning Technologies

Catalogue



OUR COMPANY

M.E.C. srl was founded in 1991 and it is the first Italian manufacturer of machines and equipment for technical cleaning with dry ice (Dry Ice Blasting – Dry Ice Cleaning). The Company produces also some prototypes with application in the cryogenic industry for very low temperatures.

M.E.C. srl is able to provide many different services, in order to find the best solution at any customers' problem.

The Company is based in Caltignaga (NO) at 30 km from Milan Malpensa Airport.



M.E.C. srl

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DRY-ICE CLEANING FROM 1991
MADE in Italy

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CLEANING TECHNOLOGY

WITH DRY ICE

- ▶ **NO** SOLVENTS
- ▶ **NOT** ABRASIVE
- ▶ **NO** WASTE INCREASE
- ▶ **CHEMICALLY** INACTIVE
- ▶ **NO** CONTAMINATION
- ▶ **SOFT** AND/OR AGGRESSIVE
- ▶ **SANITIZE** AND CLEAN (remove bacteria)
- ▶ **ELECTRICALLY** INSULATING
- ▶ **SUITABLE** FOR DANGEROUS ROOM
(Full pneumatic version)

SNOW CLEANING – SB SERIES

Dry ice snow blaster

Models

SB/NT-VH

SB/NT-M

SB/NT-A

Accessories

Air and liquid CO₂ filter

Nozzles

CO₂ SNOW GUN

Cod. SB/NT - VH

Specifications

Cleaning system with dry ice snow for automotive industry

Usable with tank or liquid CO₂ cylinder

Technical data

Consumption

Liquid CO₂ 0.4-1.5 kg/min

Compressed air 1-5 m³/min

Electric power – 0.25 kW

Pressure

CO₂ 20-80 bar

Air 2-10 bar

Quality

CO₂ with H₂O <20 ppm

Compressed air* as per ISO 8573-1 cl. 2

Feeding

CO₂ with cylinders or tank

Electric power – 230 V – 50 Hz single phase

* the compressed air must be kept clean and free of oil, foreign bodies and water

Supply

- Electro-pneumatic control unit with PLC and Touch Screen
- Blasting gun with dry ice snow from liquid CO₂
- Flat nozzle 80 mm with robot support
- CO₂ hose
- Compressed air hose



CO₂ SNOW GUN

Cod. SB/NT - M

Specifications

Portable blasting gun for dry ice snow
Usable with liquid CO₂ cylinders

Technical data

Consumption

Liquid CO₂ 0.4-1.5 kg/min
Compressed air 1-5 m³/min

Pressure

CO₂ 20-80 bar
Air 2-10 bar

Quality

CO₂ with H₂O <20 ppm
Compressed air* as per ISO 8573-1 cl. 2

Feeding

CO₂ with cylinders or tank

* the compressed air must be kept clean and free of oil, foreign bodies and water

Supply

- Blasting gun with dry ice snow from liquid CO₂
- Supersonic nozzle (flat or cylindrical)
- Liquid CO₂ hose
- Compressed air hose
- Pneumatic control box



CO₂ SNOW GUN

Cod. SB/NT-A

Specifications

Automatic blasting gun for dry ice snow
Usable with tank or liquid CO₂ cylinders

Technical data

Consumption

Liquid CO₂ 0.4-1.5 kg/min
Compressed air 1-5 m³/min

Pressure

Electric power – 0.25 kW
CO₂ 20-80 bar
Air 2-10 bar

Quality

CO₂ with H₂O <20 ppm
Compressed air* as per ISO 8573-1 cl. 2

Feeding

CO₂ with cylinders or tank
Electric power – 230 V – 50 Hz single-phase

*the compressed air must be kept clean and free of oil, foreign bodies and water

Supply

- Blasting gun with dry ice snow from liquid CO₂
- Flat nozzle 50 mm or cylindrical 10 mm
- Liquid CO₂ hose
- Compressed air hose
- Electro-pneumatic control panel



ACCESSORIES

Cod. SB/NT - 100

Compressed air filter
0.01 μm – filtering



Cod. SB/NT-101

Liquid CO₂ filter
1 μm – filtering



Cod. SB/NT-102 – B2

Supersonic flat nozzle

Material Aluminium

Usage Flat surfaces

Section 2x40 mm



PRECISION BLASTING – PB SERIES

Micro-pellets blasters

Models

PB/ALICE-A
PB/ALICE – BIK
PB/ALICE-NCJ
PB/ALICE-NCJ-B

Accessories

Blasting guns
Nozzles
Hoses

BLASTER / ALICE

Single hose / production and launch of micro-pellets

Cod. PB/ALICE-A

Specifications

The ALICE/A is a single hose precision blasting machine for the production and launching of dry ice Micro-pellets.

This machine can be used with different type of dry ice: blocks, pellets, etc.

Technical data

Operating pressure	= 2 ÷ 6 bar
Feeding pressure	= max 10 bar
Electric consumption	= 220 V 50 Hz 0.3 kW single-phase
Dry ice capacity	= 12 kg
Dry ice consumption	= 0,1 ÷ 0,6 kg/min
Quality dry ice	= every form and dimension (pellets, cylinders, etc.)
Dimensions	= 600 x 370 x h 530 mm
Weight	= 74kg
Air connection	= ½ " gas
Compressed air consumption*	= 0.8 mc/min at 5 bar
Noise level	= 82 dB (A) at 4 bar
Single hose	

*the compressed air must be kept clean and free of oil, foreign bodies and water

Supply

- Blaster "Ice-mono" with 3 m hose
- Cylindrical nozzle
- Handbook



BLASTER / ALICE

Dual hose / production and launch of micro-pellets

Cod. PB/ALICE-BIK

Specifications

ALICE/BIK is a dual hose precision blasting machine for the production and launching of dry ice Micro-pellets.

This machine is characterized by a mixer, which blends small quantities of bicarbonate with dry ice.

Technical data

Operating pressure	= 1 ÷ 8,5 bar
Feeding pressure	= max 10 bar
Electronic consumption	= 220 V 50 Hz 0.37 kW single-phase
Dry ice capacity	= 12 kg
Dry ice consumption	= 0,1 ÷ 0,6 kg/min
Quality dry ice	= pellets from Ø 3 mm and blocks
Dimensions	= 600 x 370 x h 530mm
Weight	= 78 kg
Air connection	= ½ " gas
Compressed air consumption*	= 0.8 mc/min at 5 bar
Noise level	= 82 dB (A) at 4 bar
Bicarbonate capacity	= 1.5kg
Bicarbonate consumption	= 0.2- 0.4 kg/h

* the compressed air must be kept clean and free of oil, foreign bodies and water

Supply

- "Ice-mono" blasting gun with 3 m hose
- Cylindrical nozzle
- Handbook
- Bicarbonate feeder



BLASTER / ALICE

Single hose / production and launch of micro-pellets

Cod. PB/ALICE-NCJ

Specifications

ALICE/NCJ is a precision blasting machine for the production and launching of micro-pellets with pressurized single hose.

This machine can use all type of dry ice: pellets, blocks, cylinders, tiles, etc..

ALICE/NCJ is a Patented machine ideal for the micro-mechanic, micro-electronical delicate cleaning and for all the industries where a special and precise cleaning application is required.

Technical data

Operating pressure	= 2 ÷ 6 bar
Feeding pressure	= max 10 bar
Electric consumption	= 220 V 50 Hz 0.3 kW single-phase
Dry ice capacity	= 12 kg
Dry ice consumption	= 0,1 ÷ 0,6 kg/min
Quality dry ice	= all types (pellets, cylinders, tiles, etc.)
Dimensions	= 550 x 440 x h 980 mm
Weight	= 94 kg
Air connection	= ½ " gas
Compressed air consumption*	= 0.8 mc/min at 5 bar
Noise level	= 82 dB (A) at 4 bar
Single hose	

*the compressed air must be kept clean and free of oil, foreign bodies and water

Supply

- "Ice-mono" blasting gun with 3 m hose
- Cylindrical nozzle
- Handbook



BLASTER / ALICE

Single hose / production and launch of micro-pellets

Cod. PB/ALICE-NCJ-B

Specifications

ALICE/NCJ-B is a precision blasting machine for the production and launching of dry ice micro-pellets with single hose.

ALICE/NCJ is a Patented machine ideal for the micro-mechanic, micro-electronical delicate cleaning and for all the industries where a special and precise cleaning application is required.

It is directly fed from liquid CO₂ cylinder or tank

Self-production of micro-pellets

Technical data

Operating pressure	= 2 ÷ 6 bar
Feeding pressure	= max 10 bar
Electric consumption	= 220 V 50 Hz 0.3 kW single-phase
Dry ice capacity	= 12 kg
Dry ice consumption	= 0,1 ÷ 0,6 kg/min
Quality dry ice	= liquid CO ₂ cylinders
Dimensions	= 550 x 440 x h 980 mm
Weight	= 104 kg
Air connection	= ½ " gas
Compressed air consumption*	= 0.8 mc/min at 5 bar
Noise level	= 82 dB (A) at 4 bar
Single hose	

*the compressed air must be kept clean and free of oil, foreign bodies and water

Supply

- "Ice-mono" blasting gun with 3 m hose
- Cylindrical nozzle
- Handbook



GUNS / ALICE

Specifications

Our range of accessories is characterized by several blasting guns, hoses and nozzles to suit various cleaning requirements. For any specific request, we are able to provide prototypes and to design any special accessories in order to satisfy all customers' needs.

Cod. ALI 100

Model "Ice Mono" cylindrical

Material Polyethylene / Nylon / Tufnol

Usage Multipurpose



Cod. ALI 101

Model "Ice Mono" flat

Material Polyethylene / Nylon / Aluminium

Usage Flat surfaces



NOZZLES / ALICE

Cod. ALI 081

Model Standard

Material Tufnol

Length 120 mm

Diameter 4-7mm



Cod. ALI - 006

Model Flat

Material Material

Section 2x20 mm



Model Crusher / Classifier

Cod. ALI - 007/3 0.3 mm, micro-pellets

Cod. ALI - 007/5 0.5 mm, micro-pellets

Cod. ALI - 007/8 0.8 mm, micro-pellets

Cod. ALI - 007/10 1 mm, micro-pellets

Material Aluminium Usage Delicate surfaces



Cod. ALI / 090

Model Mouldable Ø 4 mm

Material Copper

Usage Difficulties entries



PIPES / ALICE

Cod. ALI 084 – 3

Model Single hose

Length From 3 to 10 m

Material Silicone



Cod. ALI – 005

Model Air compressed hose

Length 10 m x 1/2"

Material Black rubber



DRY ICE BLASTING - SERIES MB

Pellets blasters

THE BLASTERS CAN BE WITH SINGLE HOSE OR DUAL HOSE VENTURI TECHNOLOGY AND WITH PNEUMATIC OR ELECTRO-PNEUMATIC VERSION.

Models

MB/ESZ Standard single hose

MB/AL Dual hose

MB/MONO Single hose

MB/BIK Bicarbonate powder mixer

MB/CRH Pellets crusher

Special machines

MB/PS Fully accessorised

MB/MCR Small dimensions

MB /10 With PLC and Touch screen

MB /M1 Simplified and low-cost dual hose

MB/ Duplex Dual hose and single hose combined

Unit MB/GR-BLOCK production and simultaneous launch

Accessories

Blaster guns

Nozzles

Hoses

Supplementary for Blaster

Compressed air treatment

Additional accessories

BLASTER MB / ESZ

Single hose dry ice blaster

Cod. MB/ESZ

Pneumatic version

Specifications

Pressurized single hose with supersonic nozzle

Fully pneumatic (no usage of energy power)

Technical data

Consumptions	Dry ice 40 kg/h Compressed air* 3.7 m ³ /min at 6 bar
Pressure	At work – 6 bar
Speed	Of the flow – 520 m/sec
Capacity	Pellet – 20 kg
Dimensions	300x500x750 mm
Weight	45 kg (42+3 hoses)
Connection	Aria 1 “ BSP

*the compressed air must be kept clean and free of oil, foreign bodies and water

Supply

- Microblast MB/ESZ
- “Blue” gun with 3.5 m hoses and supersonic nozzle
- Handbook and maintenance instructions



DUAL HOSE BLASTER MB/AL

Dual hose machine

Cod. MB/AL

Pneumatic or electro-pneumatic version

Specifications

MB/AL, dual hose Venturi blasting unit is a very reliable machine, which does not need any maintenance. Its reliability has been proven in numerous tests and demonstrations, including field tests and endurance tests. It has been designed to be technically very simple in order to be suitable for any users with diverse cleaning requirements.

It can be used on all the materials, also on the sensible ones.

MB/AL weighs only 35 kg, it is very light and easy to raise. Its compact size allows to be fitted even in narrow spaces.

It uses dry ice pellets with \varnothing 3 mm.

Technical data

Operating pressure	= 2.5 ÷ 8,5 bar
Dry ice capacity	= 40 kg
Dry ice consumption	= 30 ÷ 60 kg/h
Dimensions	= 300 x 420 x h 800 mm
Weight	= 35 kg
Air connection	= 1" BSP
Compressed air consumption*	= 3.1 ÷ 4.2 mc/min at 6 bar
Noise level	= 90 dB (A) – 120 dB (A) depend on the surface to be clean and the nozzle type

Dual hose Venturi system

Pneumatic functioning

* the compressed air must be kept clean and free of oil, foreign bodies and water

Supply

- "Coax" blasting gun with 3.5 m hose
- Cylindrical nozzle \varnothing 16 mm
- Handbook



Cod. MB/AL-ELT
Electro-pneumatic version



Cod. MB/AL

BLASTER MB/MONO

Single hose machine

Cod. MB/MONO

Pneumatic or electro-pneumatic version

Specifications

MB/MONO is a pressurized single hose system ideal for professionals that have specific cleaning requisites.

The dry ice tank has a capacity of 40 kg allowing the machine to be used for 45-60 minutes before refilling.

The machine weight 47 kg, it is easy to handle, use and manage.

MB/MONO – single hose, it uses dry ice pellets Ø 3 mm.

Technical data

Operating pressure	= 2.5 ÷ 10bar
Dry ice capacity	= 40 kg
Dry ice consumption	= 30 ÷ 70 kg/h
Dimensions	= 300 x 470 x h 800mm
Weight	= 47 kg
Air connection	= 1" BSP
Compressed air consumption*	= 4.5 mc/min at 6 bar
Noise level	= 90 dB (A) – 120 dB (A) depend on the surface to be clean and the nozzle type

*the compressed air must be kept clean and free of oil, foreign bodies and water

Supply

- “Mono” gun with 5 m hose
- Cylindrical nozzle Ø 12 mm
- Handbook



Cod. MB/mono-ELT
Electro-pneumatic version

Cod. MB/mono



BLASTER MB/BIK

With powder mixer

Cod. MB/BIK

Single hose and dual hose version; pneumatic and electro-pneumatic version

Specifications

MB/BIK Venturi dual hose is equipped with Powder Mixer (bicarbonate).

This machine is suitable for specific applications in the construction industry.

The Powder Mixer allows to blend dry ice with small quantities of bicarbonate, which makes lightly abrasive the dry ice action (the dry ice usually is not abrasive).

The dry ice tank has a capacity of 40 kg allowing the machine to be used for 45-60 minutes before refilling.

Its compact size allows to be fitted even in narrow spaces, without obstructing the workers movements.

MB/AL-BIK uses dry ice pellets of \varnothing 3 mm.

Technical data

Operating pressure	= 2.5 ÷ 8,5 bar
Dry ice capacity	= 40 kg
Dry ice consumption	= 30 ÷ 60 kg/h
Dimensions	= 300 x 480 x h 800 mm
Weight	= 40 kg (36+4 hoses)
Air connection	= 1" BSP
Bicarbonate consumption	= 2 ÷ 4 kg/h
Compressed air consumption*	= 3.3 ÷ 4.4 mc/min at 7 bar
Noise level	= 90 dB (A) – 120 dB (A) depend on the surface to be clean and the nozzle type

Venturi dual hose system or single hose

Pneumatic or electro-pneumatic functioning

Powder Mixer

*the compressed air must be kept clean and free of oil, foreign bodies and water

Supply

- Bicarbonate feeder
- "Coax" blasting gun with 3.5 m hose
- Cylindrical nozzle \varnothing 16 mm
- Handbook

Cod. MB/AL-BIK-ELT
electro-pneumatic version



MB/ Mono-BIK
single hose version



BLASTER MB/CRH

With crusher

Cod. MB/CRH

Single hose and dual hose version; pneumatic and electro-pneumatic version

Specifications

MB-CRH is equipped with a pneumatic crusher device, which grinds all shape of dry ice (pellets, nuggets, tiles, blocks, etc.) in order to make micro-pellets.

The dry ice tank has a capacity of 18 kg.

This machine weighs 53 kg. It is compact in size and very useful, as it has been created to facilitate those users, who have no possibilities to procure dry ice pellets, because of country specific dry ice dimensions or micro-pellets cleaning purposes.

Technical data

Operating pressure	= 2.5 ÷ 10 bar
Dry ice capacity	= 18 kg
Dry ice consumption	= 30 ÷ 50 kg/h
Dimensions	= 300 x 420 x h 800mm
Weight	= 53 kg (49+4 hoses)
Air connection	= 1" BSP
Compressed air consumption*	= 4,5 mc/min a 6 bar
Dry ice shape	= all shapes (pellets, nuggets, tiles, etc.)
Noise level	= 90 dB (A) – 120 dB (A) depend on the surface to be clean and the nozzle type

Crusher device

Venturi dual hose or single hose system

Pneumatic or electro-pneumatic functioning

*the compressed air must be kept clean and free of oil, foreign bodies and water

Supply

- "Coax" blasting gun with 3.5 m hose
- Cylindrical nozzle Ø 16 mm
- Pneumatic crusher
- Handbook



Cod. MB/MONO-CRH
Single hose version

Crusher = CRH



MB/AL-CRH Dual hose version

Special machines

Super accessorised model

Cod. MB/PS

Technical data

Operating pressure	= 2.5 ÷ 10 bar
Dry ice capacity	= 40 kg
Dry ice consumption	= 30 ÷ 70 kg/h
Dimensions	= 300 x 420 x h 800 mm
Weight	= 45 kg
Air connection	= 1" BSP
Compressed air consumption*	= 3.1 ÷ 5 mc/min at 10 bar
Noise level	= 90 dB (A) – 120 dB (A) depend on the surface to be clean and the nozzle type

Venturi dual hose system

Accessories included

- Turbine vibrator
- Grounding
- Compressed air regulation
- Quick tripping barrel
- Anti-intruder cover
- Flat barrel
- 5 m hose for guns



Mod. MB/MCR - extremely small dimension and low weight

Cod. MB/MCR

Technical data

Operating pressure	= 2.5 ÷ 8,5 bar
Dry ice capacity	= 20 kg
Dry ice consumption	= 30 ÷ 60 kg/h
Dimensions	= 300 x 420 x h 630 mm
Weight	= 35 kg
Air connection	= 1" BSP
Compressed air consumption*	= 3.1 ÷ 4,2 mc/min a 6 bar
Noise level	= 90 dB (A) – 120 dB (A) depend on the surface to be clean and the nozzle type

Venturi dual hose system

Pneumatic or electro-pneumatic functioning

*the compressed air must be kept clean and free of oil, foreign bodies and water



Mod. MB/10 – with PLC and touch screen

Cod. MB/10

Technical data

Operating pressure	= 2.5 ÷ 13 bar
Dry ice capacity	= 35 kg
Dry ice consumption	= 0 ÷ 80 kg/min
Dimensions	= 450 x 700 x h 980 mm
Weight	= 95 kg
Air connection	= 1" BSP
Compressed air consumption*	= 4,2 mc/min a 6 bar
Noise level	= 90dB(A) – 120 dB (A) dipende dall' ugello che si usa e dalla superficie che si deve pulire

Electro-pneumatic functioning



Management with PLC and touch-screen
Selectable and customizable programmes



Mod. MB/M1 - simplified, low-cost – dual hose

Cod. MB/M1

Technical data

Operating pressure	= 3.5 ÷ 8.5 bar
Dry ice capacity	= 25 kg
Dry ice consumption	= 30 kg/h
Dimensions	= Ø 400 x h 900 mm
Weight	= 36 kg
Air connection	= 3/4" BSP
Compressed air consumption*	= 2,5 mc/min a 6 bar
Noise level	= 90 dB (A) – 120 dB (A) depend on the surface to be clean and the nozzle type

Venturi dual hose system

Pneumatic functioning

*the compressed air must be kept clean and free of oil, foreign bodies and water



Mod. MB/DUPLEX-single hose and dual hose combined

Cod. MB/DUPLEX

Technical data

Operating pressure	= 2.5 ÷ 12 bar
Dry ice capacity	= 40 kg
Dry ice consumption	= 30 ÷ 70 kg/h
Dimensions	= 300 x 470 x h 800 mm
Weight	= 55 kg
Air connection	= 1" BSP
Compressed air consumption*	= 4.5 mc/min a 6 bar
Noise level	= 90 dB (A) – 120 dB (A) depend on the surface to be clean and the nozzle type

Venturi dual hose system combined with pressurized single hose
Pneumatic functioning



Mod. UNIT MB/GR-BLOCK Production and simultaneous launch

Cod. UNIT MB/GR

Technical data - BLASTER

Operating pressure	= 2.5 ÷ 8.5 bar
Dry ice capacity	= 40 kg
Dry ice consumption	= 30 ÷ 60 kg/h
Dimensions	= 300 x 420 x h 800 mm
Weight	= 35 kg (31+4 hose)
Air connection	= 1" BSP
Compressed air consumption*	= 4.2 mc/min a 6 bar
Noise level	= 90 dB (A) – 120 dB (A) depend on the surface to be clean and the nozzle type

Technical data - GR BLOCK

Pellets production	= 50-100 kg/h
Electric supply	= 0.5 KW a 220 V
Dry ice box dimensions	= 230 x 460 x h200 mm
Dimensions	= 1150 x 550 x h1200 mm
Weight	= 86 kg

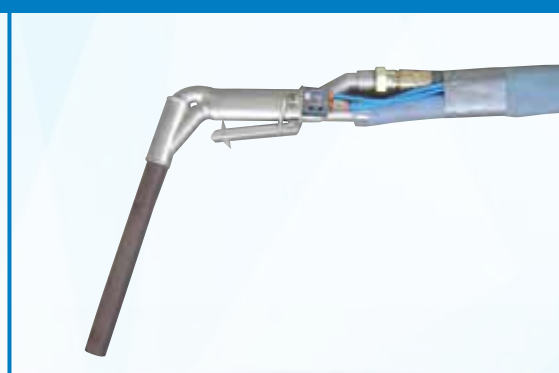


GUNS / Double hose

Cod. MB/AL – 002

Model COAX standard

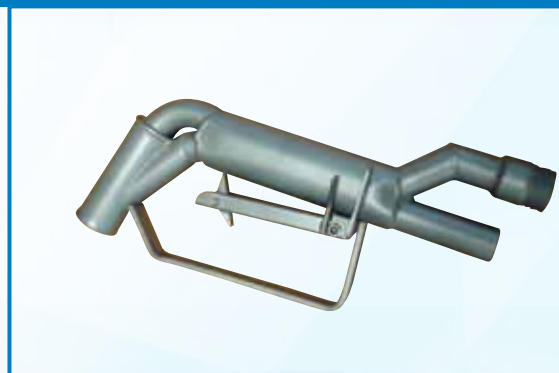
Material Acciaio Inox 304



Cod. MB/AL – 003

Model COAX double security

Material Stainless steel 304



Cod. MB/AL – 004

Model COAX long

Material Stainless steel 304

Length 1.5 mt



Cod. MB/AL – 102

Model TIX

Material Titanium and carbonic fibre
Extra-light



GUNS / Dual hose

Cod. MB/AL -A013bis

Model	90° moulds
Material	Stainless steel 304 Anti-rebound
Usage	High accessibility for moulds



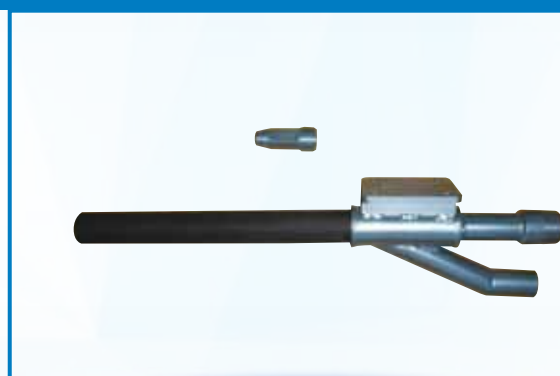
Cod. MB/BIK-100

Model	S/A – anti-abrasion gun
Material	Stainless steel 304
Usage	To be use with some abrasive



Cod. DBS – 02

Model	Robot 2 -automatic gun
Material	Stainless steel 304
Uso	Automatic systems



Cod. MB/RPG

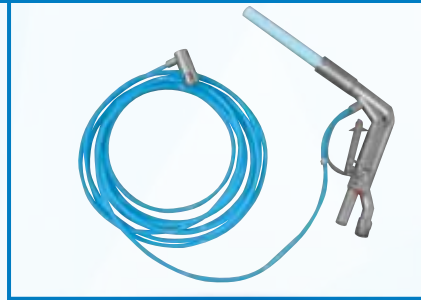
Model	Coaxial dual hose gun
Material	Aluminium
Usage	Long casting



Special applications

Powder mixer gun

Cod. MB-X1



Long gun

Cod. MB-X2



Gun with crusher

Cod. MB-X3



Gun for moulds with extension

Cod. MB-X4



Coax gun with double interchangeable nozzle flat and cylindrical

Cod. MB-X5



NOZZLES / Dual hose

Cod. MB/AL – A049

Model Cylindrical standard

Material Tufnol (phenolic resin)

Lunghezza 250 ÷ 750 mm

Usage General application



Cod. MB/AL – A049A

Modello Cylindrical standard aluminium

Material Aluminium

Lunghezza 250 mm

Usage General application



Cod. MB/AL – A011

Modello Curved 30° cylindrical

Material Stainless steel 340 / Aluminium

Length From 150 to 350 mm

Usage Tight areas



Cod. MB/AL – 048

Model Internal Venturi Nozzle (L-M-H)

Material Aluminium / Stainless steel special

Payload
L – 2200 l/min
M – 3100 l/min
H – 4200 l/min



Cod. MB/AL – A012

Model Flat nozzle

Material Alluminio

Payload 350 mm

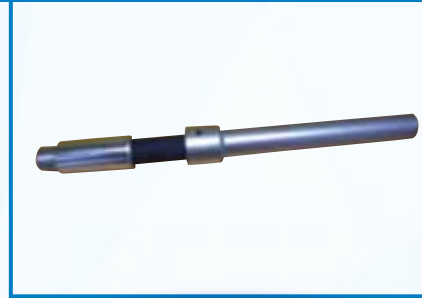
Usage For flat surfaces



NOZZLES / Dual hose

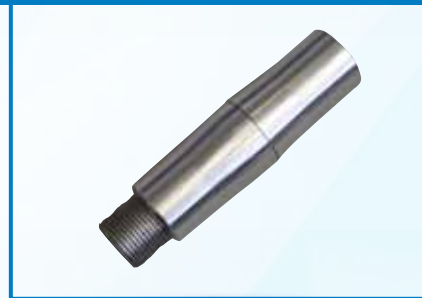
Cod. MB/BIK - 088

Model	AGA cylindrical nozzle
Material	Anti-wear rubber / Stainless steel
Usage	With abrasive mixed with dry ice



Cod. MB/MO - A017

Model	Crusher
Material	Stainless steel / aluminium
Usage	To change pellets into dry ice powder



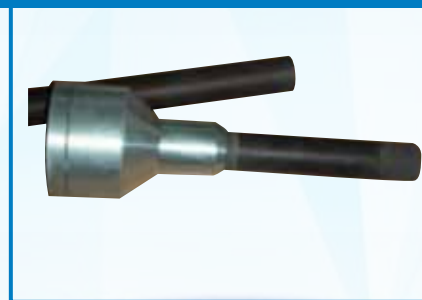
Cod. MB/AL - 027

Model	CCC - cylindrical
Material	Ultra-light carbonic fibre
Length	100 - 250 mm



Cod. MB/AL - A044

Model	Radial 360°C - Ø 80 mm
Material	Aluminium
Usage	Internal hoses



Cod. MB/AL-A045

Model	Supersonic dual hose nozzle at 90°
Material	Stainless steel
Usage	For internal pipes with big diameter



PIPES / Dual hose

Cod. MB/AL – A019 - 35

Cod. MB/AL – A019 - 50

Model Silicon hose, high flexibility
Suitable for food industry

Material Elastomer hose with fittings for
compressed air

Length 3.5 m and 5 m available up to 12 m



Cod. MB/AL - A030

Model Fire-resistant and anti-heat
insulation

Dimension Diam. 60 mm



Cod. MB/AL -A002

Model Air compressed hose 1" x 10 m



GUNS / Single hose

Specifications

Our range of accessories is characterised by several blasting guns, hoses and nozzles to suit various cleaning requirements. For any specific request, we are able to provide prototypes and to design any special accessories in order to satisfy all customers' needs.

Cod. MB/MO - 019

Model OR – Horizontal

Material Stainless steel 304 / Aluminium

Usage General



Cod. MB/AL – 027

Model VR – Vertical

Material Stainless steel 304

Usage Simplified access



Cod. MB/MO - 021 bis

Model 90° AR

Material Stainless steel 304

Usage Mould



Cod. MB/MO - 023

Model TIX

Material Titanium and carbonic fibre

Usage Ultra-light



Cod. DBS – 01

Model Robot 1 – Automatic

Material Steel / Acetalic Resin

Usage Automatic system



GUNS / **Single hose**

Cod. MB/S2 - 03

Model Vertical single hose

Material Thermoplastic
Vertical hose joint

Usage General



Cod. MB/S2 - 04

Model Horizontal single hose

Material Thermoplastic
Horizontal hose joint

Usage General with pellets' crusher



APPLICATIONS / **Special**

Gun with application on PET moulds

Cod. MB/X6

Model Pet

Material Stainless steel and copper

Usage PET moulds for bottles



Gun with rapid nozzle tripping

Cod. MB/X7

Model Pet

Material Stainless steel and copper

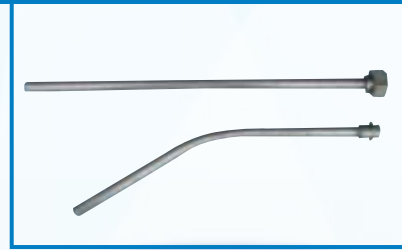
Usage Flat surfaces



NOZZLES / Single hose

Cod. MB/MO – A001

Model	Standard 250
Material	Aluminium / Stainless steel 304
Length	100- 750mm
Usage	General application



Cod. MB/MO – A004

Model	PET J
Material	Stainless steel 304 – copper
Usage	PET moulds for bottles



Cod. MB/MO – A006

Model	Flexible
Material	Silicon
Length	Up to 12 m
Usage	Heat and air conditioning pipes



Cod.: MB/MO – A013

Model	Flat
Material	Aluminium
Length	200 mm
Usage	Flat surfaces



Cod. MB/MO – A017

Model	Flat with rapid tripping
Material	Aluminium
Length	250 mm
Usage	Flat surfaces



NOZZLES / Single hose

Cod. MB/MO – A030/3

Model	Classificatory crusher
Material	Aluminium
Length	120mm
Micro-pellets dimensions	Ø 0.3 mm Ø 0.5 mm Ø 0.8 mm Ø 1 mm



Cod. MB/MO – A020

Model	AB II
Material	Aluminium
Length	400 mm
	Very low noise 89 dB (A) at 6 bar



Cod. MB/MO – A005

Model	Radial 360° - Ø 120 mm
Material	Aluminium
Diameter	80-120 mm
Length	100-1000 mm
Usage	Internal pipes



Cod. MB/MO – A005A

Model	Radial 360° - Ø 20 mm
Material	Stainless steel
Diametro	20 mm
Length	100-1000 mm
Usage	Internal pipes



Cod. MB/MO – A004K

Kit for PET moulds

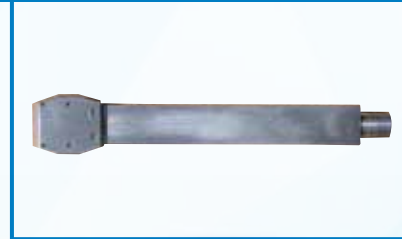


NOZZLES / **Single hose**

Special silencer

Cod. MB/X9

Low noise 91 dB (A) at 6 bar



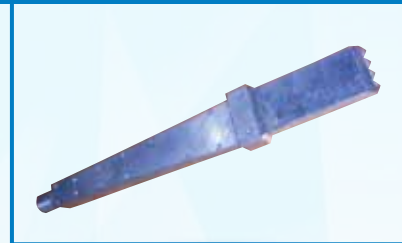
Cod. MB/X10

Very low noise 86 dB (A) at 6 bar



Cod. MB/X11

Nozzle with silencer 95 dB (A) at 6 bar



NOZZLES / **Supersonic single hose**

Cod. MB/MO – S050

Model	M2
Material	Aluminium
Flow speed	~500 m/sec



Cod. MB/MO – S051

Model	IT/AL
Material	Aluminium
Flow speed	~520 m/sec



Cod. MB/MO – S052

Model	IT/TEK
Material	Thermoplastic
Flow speed	~520 m/sec



Cod. MB/MO – S053

Model	B2
Material	Aluminium
Flow speed	~470 m/sec



Cod. MB/MO – S054

Model	PR
Material	Thermoplastic
Flow speed	~540 m/sec



Cod. MB/MO – S055

Model	Coaxial
Material	Aluminium
Pellets speed	~500 m/sec
Usage	Long launch



Cod. MB/MO – S057

Model	MT
Material	Aluminium L.350 mm
Pellets speed	~570 m/sec



PIPES / Single hose

Cod. MB/MO – A021-50

Model	Single hose pipes, suitable for food industry
Length	From 5 to 50 m
Material	Silicon



Cod. MB/AL – A002

Model	Air compressed hose 1" x 10 m
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Cod. MB/MO – A030

Model	Fire-resistant and anti-heat insulation – Ø 60 mm
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COMPLEMENTARIES

Compressed air treatment

Cod. MTA 42 – (Air dryer)

Specifications

The air dryer group MTA 42 is used when the motor-compressor or the compressed air available in the plant is not purified by H₂O and by oil.

Technical data

Operating pressure	= 16 bar max
Air flow	= 6000 l/min – 360 mc/h
Max temperature air entry	= 120 °C
Dew point	= + 3 °C
Electric power	= 1 KW at 230 V 50 Hz
Dimensions	= 1250 x 650 x h 1100 mm
Weight	= 120 kg
Air entry pipe	= 1"1/4
Air exit pipe	= 1
Filtration degree	= 0.01 µmm
Residual oil	= 0.01 mg/mc

Supply

- Air cooling system
- Refrigerator drier
- Pre-filter (oil and water)
- Condensation separator

Cod. MTA 42



ACCESSORIES

Compressed air treatment

Cod. MTA 10

Cyclone moisture separator

6 m³/min – 16 bar

Inlet 1"

Filtration 1 micron



Cod. MTA 21

Fridge dryer

6 m³/min

16 bar max

Dew point + 3°C

Power 1 kw 230 V 50 Hz

Weight 60 kg

Connections I=1 U=1"



Cod. MTA 07

Air filter, anti-condensation

4.6 m³/min

16 bar

Filtration 0.01 micron

Residual oil 0.01 mg/mc



Cod. MTA 17

Electric heater – compressed air

Capacity: 1 mc/min

Air temperature: 20-120°C

Power: 1.5 kW, 230 V 50 Hz

Air connection: ½"



ACCESSORIES / VARIOUS

Cod. MB/VR – A005

Safety kit:

Cryogenic gloves, earmuff, mask, suit



Cod. MB/VR – A008

Led lamp for gun
Battery-operated



Cod. MB/VR – A016

Electrostatic grounder for blasters
and guns



Cod. MB/VR – A017

Pressure reducer for compressed air

Capacity 6 m³/min

Pressure 0-10 bar



Cod. MB/VR-PT

Pneumatic pellets' translator
Capacity 10 kg/min



PRODUCERS

Of dry ice

PELETTIZERS

P40 MC

P60 MC

P100 E

P150 E

P300 E

Draw-plate

PRESSES

PPB 200 IS

PPB 10 MB

LABORATORY PRESSES

B/ICE

C/ICE

SPECIAL MACHINES

GR - BLOCK

CRH-C

S/ICE

CO₂ SNOW horn

DRY ICE BOXES

CRY BOX

PELETTIZERS

Maker of dry ice pellets

Cod. P40 MC

Specifications

OIL FREE: without lubrication

For alimentary and pharmaceutical usage

LIGHT SERIES

Mechanical functioning

Advantages

- Productivity: 35 kg/h
- Ideal for laboratories, hospitals, food distributors, manufactures, etc.

Technical data

Pellets dimension	= \varnothing 3 mm
Pellets length	= 5 ÷ 10 mm
Productivity	= 35 kg/h
Electric power	= 1.1 Kw
Electric supply	= 400 V - 50Hz
Dimensions	= 1000 x 360 x 530 mm
Weight	= 75 kg
Liquid CO ₂ entry pressure	= 20 bar
Liquid CO ₂ purity	= max 20 ppm of H ₂ O
Liquid CO ₂ feeding line	= insulated \varnothing 1/2"
CO ₂ exhaust line	= \varnothing 1 1/4"

Supply

- Draw-plate \varnothing 3 mm
- Handbook

Accessories

- Draw-plate \varnothing 16 mm



OIL FREE

Cod. P40 MC

PELETTIZERS

Maker of dry ice pellets

Cod. P60 MC

Specifications

OIL FREE: without lubrication

For alimentary and pharmaceutical usage

LIGHT SERIES

Mechanical functioning

Advantages

- Productivity: 55 kg/h
- Ideal for laboratories, hospitals, food distributors, manufactures, etc.

Technical data

Pellets dimension	= \varnothing 3 mm
Pellets length	= 5 ÷ 10 mm
Productivity	= 55 kg/h
Electric power	= 1.1 KW
Electric supply	= 400 V - 50Hz
Dimensions	= 1000 x 360 x 530 mm
Weight	= 75 kg
Liquid CO ₂ entry pressure	= 20 bar
Liquid CO ₂ purity	= max 20 ppm of H ₂ O
Liquid CO ₂ feeding line	= insulated \varnothing 1/2"
CO ₂ exhaust line	= \varnothing 1 1/4"

Supply

- Draw-plate \varnothing 3 mm
- Handbook

Accessories

- Draw-plate \varnothing 16 mm



OIL FREE

Cod. P60 MC

PELLETTIZERS

Maker of dry ice pellets

Cod. P100 E

Specifications

OIL FREE: without lubrication

For alimentary, pharmaceutical and industrial usage

HEAVY DUTY SERIES

Mechanical functioning

Technical data

Pellets dimension	= \varnothing 3 mm cylindrical
Pellets length	= \varnothing 5 ÷ 10 mm
Productivity	= 100 kg/h
Electric power	= 3 kW
Electric supply	= 400 V - 50Hz
Dimensions	= 1400 x 550 x 1330 mm
Weight	= 540 kg
Liquid CO ₂ entry pressure	= 12 ÷ 21 bar
Liquid CO ₂ purity	= max 20 ppm di H ₂ O
Liquid CO ₂ feeding line	= insulated \varnothing 3/4"
CO ₂ exhaust line	= \varnothing 2"

Supply

- Draw-plate \varnothing 3 mm
- Handbook

Accessories

- Draw-plate \varnothing 9 and 16 mm



OIL FREE

Cod. P 100 E

PELETTIZERS

Maker of dry ice pellets

Cod. P150 E

Specifications

OIL FREE: without lubrication

For alimentary, pharmaceutical and industrial usage

HEAVY DUTY SERIES

Mechanical functioning

Technical data

Pellets dimension	= \varnothing 3 mm cylindrical
Pellets length	= \varnothing 5 ÷ 10 mm
Productivity	= 150 kg/h
Electric power	= 3 KW
Electric supply	= 400 V - 50Hz
Dimensions	= 1400 x 550 x 1330 mm
Weight	= 580 kg
Liquid CO ₂ entry pressure	= 12 ÷ 21 bar
Liquid CO ₂ purity	= max 20 ppm di H ₂ O
Liquid CO ₂ feeding line	= insulated \varnothing 3/4"
CO ₂ exhaust line	= \varnothing 2"

Supply

- Draw-plate \varnothing 3 mm
- Handbook

Accessories

- Draw-plate \varnothing 9 and 16 mm



OIL FREE

Cod. P150 E

PELETTIZERS

Maker of dry ice pellets

Cod. P300 E

Specifications

OIL FREE: without lubrication

For alimentary, pharmaceutical and industrial usage

HEAVY DUTY series

Mechanical functioning

Technical data

Pellets dimension	= \varnothing 3 mm cylindrical
Pellets length	= 5 ÷ 10 mm
Productivity	= 300 kg/h
Electric power	= 4 KW
Electric supply	= 400 V - 50Hz
Dimensions	= 1400 x 850 x 1330 mm
Weight	= 890 kg
Liquid CO ₂ entry pressure	= 12 ÷ 21 bar
Liquid CO ₂ purity	= max 20 ppm of H ₂ O
Liquid CO ₂ feeding line	= insulated \varnothing 3/4"
CO ₂ exhaust line	= \varnothing 2"

Supply

- Draw-plate \varnothing 3 mm
- Handbook

Accessories

- Draw-plate \varnothing 9 and 16 mm



OIL FREE

Cod. P300 E

Accessories for / **PELLETIZERS**

Cod. P – 40 - 3

Interchangeable plate Ø 3 mm for
Pelletizer P 40 and P 60 MC



Cod. P – 40-16

Interchangeable plate Ø 16 mm for
Pelletizer P 40 and P 60 MC



Cod. P-100 - 3

Interchangeable plate Ø 3 mm for
Pelletizer P 100-150-300 E



Cod. P – 100 - 9

Interchangeable plate Ø 9 mm for
Pelletizer P 100-150-300 E



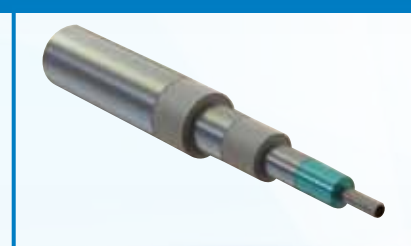
Cod. P – 100 – 16

Interchangeable plate Ø 16 mm for
Pelletizer P 100-150-300 E



Cod. P-LCO2

Thermic insulated line for CO₂
transfer
From tank to pelletizer
Diameter Ø 1/2" – 3/4"



PRESS – Reformer

Dry ice tiles and blocks producer

Cod. PPB 300 IR

Specifications

Functioning: hydraulic

Reformer press

It produces dry ice tiles and blocks using pellets

Technical data

Tile dimensions	= 125 x 250 x h20 mm
Tile weight	= 1 kg
Block dimensions	= 125 x 250 x h 50 mm
Block weight	= 2.5 kg.
Productivity	= 300 kg/h
Electric power	= 7.5 KW
Electric supply	= 400 V 50 Hz
Dimensions	= 1500 x 900 x h2400 mm.
Weight	= 1090 kg
Reformer feeding	= dry ice pellets from 3 to 16 mm

Supply

- Reformer
- Handbook



Cod. PPB 300 IR

PRESS-Manual

Dry ice tiles producer

Cod. PPB-20 MB

Specifications

Functioning: **MANUAL**

Supply: liquid CO₂ from tank or cylinder

It produces tiles from dry ice snow

Technical data

Tile dimensions	= 125 x 125 x h 20 mm
Tile weight	= 0.5 kg
Productivity	= 20 kg/h
Dimensions	= 170 x 170 x h340 mm
Weight	= 18 kg
Liquid CO ₂ entry pressure	= 12 ÷ 70 bar
Liquid CO ₂ purity	= max 20 ppm di H ₂ O
Liquid CO ₂ feeding line	= insulated Ø ¼"
CO ₂ exhaust line	= free

Supply

- Press
- Handbook



Cod. PPB-20 MB

PRESS-FOR LABORATORY

Dry ice blocks producer

Cod. B/ICE - 750

Specifications

This is an easy and economical solution for customers who have the need to produce small quantities of dry ice occasionally and directly at their premises.

The dry ice blocks producer has to be connected to the liquid CO₂ tank with dip tube.



Cod. B/ICE -750

Technical data

Weight	gr	750
Dry ice block dimension	mm	70 x 70 x h 200
Production	Nr	10 blocks with 30 kg of liquid CO ₂
Net weight of the machine	Kg	3
Machine dimension	mm	120 x 120 x h 240



Dry ice block

PRESS-for laboratory

Dry ice packs producer

Cod. C/ICE - 500

Specifications

This is an easy and economical solution for customers who have the need to produce small quantities of dry ice occasionally and directly at their premises.

The dry ice blocks producer has to be connected to the liquid CO₂ tank with dip tube.



Cod. C/ICE - 500

Technical data

Weight	gr	750
Dry ice packs dimension	mm	Diameter 100 x h 60 mm
Production	Nr	10-15 packs per hours
Net weight of the machine	Kg	1



Dry ice pack

SPECIAL MODELS

Dry ice pellets producer

Cod. GR-BLOCK

Technical data

Production	= 50 ÷ 100 kg/h
Compressed air consumption	= 20 l/min at 2 bar
Electric power	= 0.5 Kw at 220 V
Dry ice compartment dimensions	= 230 x 460 x 200 h mm
Dimensions	= 1150 x 550 x h 1200 mm
Weight	= 86 kg
Construction	= Stainless steel Aisi 304
Particle-size pellets	= 0.5- 2.5 mm



Dry ice pellets producer

Cod. CRH-C

Technical data

Production	= 20 ÷ 50 kg/h
Compressed air consumption	= 450 l/min at 6 bar
Dimensions	= 200 x 300 x h 450 mm
Weight	= 13 kg
Construction	= Stainless steel Aisi 304
Particle-size pellets	= 0.5 - 2.5 mm



Dry ice snow producer, small quantities

Cod. S/ICE

Technical data

Dry ice snow production	= 25 kg/h at 50 bar from cylinder
Dimensions	= diameter 30 x 250 mm
Weight	= 1.5 kg
Construction	= Stainless steel Aisi 304
Particle-size dry ice snow	= 0 a 300 micron
Feeding	= liquid CO ₂ cylinder with dip tube



Dry ice snow producer, big quantities

Cod. CO₂ SNOW HORN

Technical data

Dry ice snow production	= 220 kg/h at 17/50 bar from tank or from cylinders
Dimensions	= diameter 100 x 350 mm
Weight	= 2.5 kg
Construction	= Stainless steel Aisi 304
Particle-size	= from 0 to 300 micron
Feeding	= tank with dip tube or cylinder



CRYOBOX

Insulated containers for the storage of dry ice

Cod. CRY 60M Cryobox 60 kg

Material	Thermoplastic
External dimensions	400 x 850 x h380 mm
Pellets capacity kg	60
Tare kg	12
Thermal conductivity	0.42 W/m2/K



Cod. CRY 125 M Cryobox 125 kg

Material	Thermoplastic
External dimensions	570x725xh840 mm
Pellets capacity kg	125
Tare kg	40
Thermal conductivity	0.42 W/m2/K



Cod. CRY 300 A Cryobox 300 kg

Material	Thermoplastic
External dimensions	1000x800xh930 mm
Pellets capacity kg	250
Tare kg	80
Thermal conductivity	0.38 W/m2/K



Cod. CRY 500 A Cryobox 500 kg

Material	Thermoplastic
External dimensions	1200x1000xh930 mm
Pellets capacity kg	400
Tare kg	100
Thermal conductivity	0.38 W/m2/K



Cod. CRY 500 M Cryobox 500 kg

Material	Thermoplastic
External dimensions	1650x715xh970 mm
Pellets capacity kg	400
Tare kg	127
Thermal conductivity	0.42 W/m2/K



ENGINEERED SYSTEMS

SOUND-INSULATED EQUIPMENT

Silent box

Blast room

AUTOMATIC EQUIPMENT

ABS (Automatic blasting System)

MB FXX

CRYO BARRIQUES

BOX TYRES

SOUND-INSULATED EQUIPMENT SILENT BOX

Technical data

Internal useful dimensions	= 1100 x 1100 x h 1100 mm
Operating platform dimensions	= Ø 1000 mm
Dust filtration grade	= < 5 mg/mc
Sound level for the operator	= 80/85 dB(A)
Noise attenuation	= about 30 dB (A) at 7 bar
Operating platform capacity	= 400 kg
Air aspiration	= up to 1000 mc/h
Installed power	= 1.5 KW
Electric supply	= 380 V 50 Hz

Supply

- Soundproof cabin
- Rotating platform for cleaning work
- Air aspiration and filtration system
- Handbook

Accessories

- Operating platform with electrical mechanic rotation
- CO₂ level detector in the working area

MODELS

Cod. CA/SI – 1.0	Silent Box 1.0
Cod. CA/SI – 1.2	Silent Box 1.2
Cod. CA/SI – 1.5	Silent Box 1.5



Cod. CA/SI – 1.0



SOUND-INSULATED EQUIPMENT BLAST ROOM

Technical data

Useful dimensions	= 4200 x 5000 x h 3500 mm*
Doors opening	= 2500 x h 2500 mm
Air flow of dust remover	= 7000 mc/h
Dust filtration grade	= < 5 mg/mc
Noise reduction	= > 40 dB(A)
Installed power	= 7.5 KW
Electric supply	= 400 V 50 Hz

Supply

- Cabin completed with automatic dust remover
- Sequencer for filter cleaning
- Illumination system
- Handbook



Cod. CA/BR



*Other dimensions available on request
All systems are customizable according to the application

AUTOMATIC EQUIPMENT - AUTOMATIC BLASTING SYSTEM

Cod. IM/ABS

Technical data

Room useful dimensions	= 4200 x 5000 x h 3500 mm	X & Y axes translation speed	= 3 m/min
Doors opening	= 2500 x h 2500mm	Z axes translation speed	= 1 m/min
Air flow of dust remover	= 7000 mc/h	Rotating platform capacity	= 8.000 kg
Dust filtration grade	= < 5 mg/mc	Platform inclination	= 0° ÷ 45°
Noise reduction	= > 40 dB(A)	Platform rotation	= 0° ÷ 180°
Installed power	= 14 KW	Visual control system	= high solution coloured video camera
Electric power	= 400 V 50 Hz	CO ₂ detector	= alarm at 1500 ppm
Software	= PLC Allen-Bradley	Pellets diameter	= Ø 3 mm cylindrical for blasting
Cartesian reciprocator axes	= 6 degree of freedom	Pellets length	= 5 ÷ 10 mm. Ø 3 mm
Useful courses of axle X	= 2000 mm	Productivity	= 80 kg/h
Useful courses of axle Y	= 1800 mm	Electric power	= 3 KW
Useful courses of axle Z	= 500 mm	Electrical supply	= 400 V 50 Hz
Reciprocator inclination	= 0° ÷ 45°	Dimensions	= 1.750 x 550 x h 1.350 mm
Vertical wrist translation	= ± 30°	Liquid CO ₂ entry pressure	= 12 ÷ 21 bar
Horizontal wrist translation	= ± 30°	Liquid CO ₂ purity	= max 2 ppm di H ₂ O
Translating weight	= 10 kg	Liquid CO ₂ feeding line	= insulated Ø ¾"
Max power of the nozzle	= 400 N	CO ₂ exhaust line	= Ø 2

All systems are customizable according to the application

Supply

- Cabin completed with automatic dust remover
- Sequencer for filter cleaning
- Illumination system
- Cartesian reciprocator
- Rotating/inclinable platform
- Visual control system
- Commanding pulpit
- CO₂ gas detector
- Pelletizer P100E
- Draw plate Ø 3 mm
- Flexible connection P100E – Micro-blaster
- Automatic control system of pellets quantity
- Micro-blaster
- Gun with 15 m hose and cylindrical nozzle
- Handbook and maintenance instructions



Cod. IM/ABS

AUTOMATIC EQUIPMENT

Directly on the production line

Cod. IM/FXX

Benefits

- Uninterrupted operation 24h/24h
- No contact with dry ice pellets
- The only manual operation is the replacement of container, which serves as a pellet hopper system
- Pellets capacity from 20 to 80 kg/h
- System monitored and managed continuously on all physical and functional parameters
- No contact of pellets with the humidity of the air
- Venturi double hose blasting technology of dry ice pellets launching or single hose pressurized

Technology advantages

- Fully automatic machine
- Manual or controlled by a program operation
- Weighing and continuous setting of the CO₂ pellets flow (20 to 80 kg/h)
- Continuous operation for long time. A 100 kg tank had an average autonomy of 2 hours at a rate of 45 kg/h
- Interchangeable tank
- Measurement of the substrate temperature
- Integration and external control possible. Digital inputs, Profibus, on demand
- Shelf life of CO₂ pellets in the tank up to 48 hours

Applications

- Cleaning, degreasing and de-oxidation of surfaces before undergoing a surface treatment
- Cooling system integrated in the process

Cod. IM/FXX



All systems are customizable according on the application

AUTOMATIC EQUIPMENT

For the sanitization and the rejuvenation of the barrel

Cod. IM/BRQ

Technical data

Barrels treated	= Barriques 220 – 230 lt
Automatic working cycles	= n. 2 – sanitization and rejuvenation
Production	= 2.5 – 3 barrels per hour
Dry ice consumption	= 15 ÷ 20 kg/barrel
Air compressed consumption	= 4.2 m ³ /h at 7 bar
Results	= Brettanomyces and lactic bacterium elimination
Removal	= 1 mm old toasted wood
Dimensions	= 4 x 2.2 x h2 mt
Weight	= 1450 kg
Air connection	= 1" Gas
Electric connection	= 400V-3F+T
Safety	= Anti-intrusion, soundproofed, accident-prevention, anti-pollution box
Aspiration / filtration system	= Automatic
Atmosphere emission	= according to the law 152 – powder < 5 mg/m ³
Conformity certification	= CE
Microbiological certification	= CRA – CNR
Uninterrupted operation	= 24h / 24h

Characteristics

- Palletized box, loadable on van
- PLC controlled equipment and Touch Screen
- Pre-installed and customizable programs
- Single hose and dual hose blaster
- Application reciprocators at 6 degree of freedom
- Safety doors / opening
- Cycle time 20 – 25 minutes per barrel
- Manual work limited to barrel load/unload
- System fully customizable



Cod. IM/BRQ

DRY ICE

What is dry ice?

The blasting agent which consists of dry ice is the solid form of CO₂ (carbon dioxide) at a temperature of -78.5°C. CO₂ is a natural medium, which has an inherent thermal energy ready to be tapped.

At atmospheric pressure, solid CO₂ sublimates directly to vapour without a liquid phase. This unique property means that the dry ice blast medium simply disappears, leaving only the original contaminant to be disposed of. The quality degree of carbon dioxide used in blasting is the same as the one used in the food and beverage industry and has been specifically approved by the FDA, the EPA and the USDA.

The carbon dioxide is an odourless, non-toxic gas, which is used in the drinks industry as an additive in beer and mineral water. It is also used in the food industry for cooling meat, sausage, etc. Carbon dioxide is a non-poisonous, liquefied gas that is both inexpensive and easily stored at work sites.

Of equal importance, it is nonconductive and non-flammable. CO₂ is a natural by-product of several industrial manufacturing processes such as fermentation and petrochemical refining.

The CO₂ given off by the above production processes is captured and stored without losses until needed. When the CO₂ returns to the atmosphere during the blasting process, no new CO₂ is produced.

DRY ICE TYPOLOGY

Apparent high density – slow sublimation

Blocks



Tiles



Cylinders Ø 16 mm



Pellets Ø 3 mm



Dry ice snow



Apparent low density – fast sublimation

The dry ice blasting technology

How it works?

The dry ice blasting uses pellets of dry ice sprayed through a jet nozzle with compressed air to remove paints, oil, grease, dirt, ink, adhesives and other contaminants you want to remove. The frigid temperature of the dry ice (-78°C) against the dirty surface causes adhesion to shrink and loosen from the surface. On immediate impact, the dry ice evaporates into environmentally safe and innocuous CO₂ gas.

The kinetic energy

The energy associated to the mass and to the speed is transferred to the surface to be cleaned/coating removal. This is the fundamental way to work either with this dry ice cleaning method or with sand/water etc.

Thermal differential

When the dry ice pellets cold touch the surface, a small thermic difference occurs between the coating material, the contaminant and the substrate. This provokes cracks and the detaching facilitating the removal process.

Micro – Explosion

When the dry ice touches the surface and it transforms into innocuous CO₂ gas, this tends to invade the cracks and the pores penetrating into the coating/contaminant, then it warms up and it expands rapidly, like micro-explosions. This makes the coating/contaminant detaching from the substrate, favouring still further the coating removal or the cleaning process.

Sublimation

With an inferior pressure at 5.2 bar, the solid CO₂ transforms directly in gaseous state without turning into the liquid state. However, if the blasting pressure is superior at 5.2 bar ($5.2 \times 14.7 = 76.44$ psi), the CO₂ in the sublimation state will show some characteristics of the liquid CO₂ while the same reaches its “triple point”. It has been proved that the Liquid CO₂ is a strong organic solvent so it is reasonable to suppose that this solvent action can be present when the blasting pressure is superior at 5.2 bar.

TECHNICAL CLEANING

With dry ice

Equipment needed for the technical cleaning with dry ice

Compressor	Dry ice pellets
From 0.8 to 6 m ³ /min at 6 bar, depending on the Blaster type used: fixed or portable	Produced with M.E.C. pelletizers Cryogenic boxes for the pellets storage
M.E.C. Blaster	Safety accessories
Dual hose or Single hose blaster	Safety goggles, earmuff, cryogenic gloves, suit

Compressed air treatment

In order to improve the compressed air quality, it is necessary to treat it considering 3 types of impurity, which compromise the machines' durability.

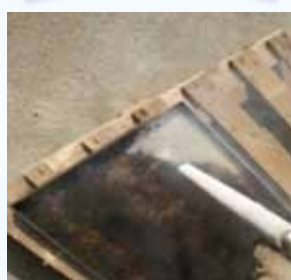
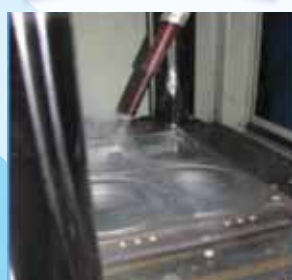
- Water quantity in the air
- Oil quantity in the air
- Solid particles in the air

CLASS	SOLID PARTICLES		QUANTITY OF WATER	QUANTITY OF OIL
	Max particles dimension (µm)	Max particles density (mg/m ³)	Max dew point under pressure (°C)	Max oil concentration (mg/m ³)
1	0.1	0.1	-70	0.01
2	1	1	-40	0.1
3	5	5	-20	1
4	15	8	+3	5
5	40	10	+7	25
6	/	/	+10	/
7	/	/	/	/

USAGE	SOLID PARTICLES		WATER DEW POINT		MAX CONTAINED OIL	
	Class	(mm)	Class	°C	Class	Mg/m ³
Mining industry	5	40	7	/	5	25
Cleaning equipment and washing	5	40	6	+10	4	5
Welding machines	5	40	6	+10	5	25
Shaping	5	40	4	+3	5	25
Pneumatic cylinders	5	40	4	+3	2	0.1
Pneumatic valves	3 ÷ 5	5 ÷ 40	4	+3	2	0.1
Packages	5	40	4	+3	3	1
Measurement instruments	2	1	4	+3	3	1
Bearings	2	1	3	-20	3	1
Sensors	2	1	2÷3	-40 ÷ -20	2	0.1
Food	2		4	+3	1	0.01
Photograph	1	0.01 ÷ 0.1	2	-40	1	0.01

Sector where to use dry ice blasting

Aeronautic	Delicate mechanical components cleaning for aeronautics
Automation	Mounting, transfer machines; belt conveyors (different types); carrier carts
Automotive	Mould for car parabola headlights; cleaning of cars, motor, gears, combustion chambers, "dry-clean" of vehicles inside part
Chemistry	Silos, containers, stocking reservoirs, chemical reactors
Electric	Electric transformers maintenance; inside electric board cleaning
Environment	Removing graffiti from walls, monuments conservative cleaning, removing "chewing-gum" from pavements; prefabricated industrial workshop inside cleaning
Food industry	Food containers, stocking reservoirs, food belt conveyors, food moulds (wafer, chocolates, cakes, etc.), metal strips for ovens (biscuits, crackers), food packaging machine (coffee, sauce, etc.); PET bottle moulds cleaning
Foundry	Pressure-fusion moulds for cast iron and aluminium (single block, head, cycle); foundry "shells" cleaning, foundry "core box" cleaning
Hi-tech	Cabin for anti-wearing layer application; gold-plating removing of quartz bell for epitaxial machines
House hold article	Moulds and lines for expanded insulator injection (refrigerators)
Internal transport	"Dry-clean" of elevator carts
Maintenance	Paint removing of signs and irremovable parts, moving stair
Mechanic	Tool machines, working centres, big fans
Motorcycle	Moulds for fibreglass articles production (safety helmet)
Naval	Ship kitchen ventilation pipes cleaning, removing anti-vegetative paint from boats
Painting	Airplane transporters, conveyors, liquid painting cabin, inside oven of plait polymerisation, phosphorous-degreasing tunnel, manufactures paint-removing
Petrol chemistry	Decontamination of titanium coated reactors
Plastic	Plastic extruder screws and filters, moulds for plastics articles
Printing	Printing press (rotogravure and flexography), rollers for printing off set
Railway	Inside railway carriage cleaning, maintenance of train electrical driving system
Rubber	Tyre moulds (gaskets, sleeves, belts, silent block)
Transportation	"Dry-clean" of inside trucks and motor vehicles, containers cleaning



DRY ICE BLASTING APPLICATIONS

Material	Surface	Equipment
Adhesive	Glass, metals, painted surfaces, plastics	Applicators, coating machines, labelling machines
Animal feed	Metals, plastics, rubbers	Bagging machines, extruders
Asbestos	Brick, concrete, metals, piping	Boilers, buildings, heaters
Biscuit	Conveyors, moulds	Baking ovens
Bitumen	Concrete, glass, metal, plastics	Construction equipment
Boiler scale	Boiler internal	Manifolds, valves
Bread	Baking tins, conveyors	Baking ovens
Carbon deposits	Commutators, electric and electronic components, metals	Electric motor windings, engine cylinder heads, generators, printed circuit boards (PCB's)
Chewing gum	Street paving	Process and packing equipment
Chocolate	Conveyors, moulds	Coating equipment
Combustion residues	Boiler membrane walls, fire tubes, flues	Burners, combustors, exhaust systems, reaction chambers
Crude oil	Holding vessel, piping	Drilling equipment, valves
Die coatings	Aluminium, steel, GRP	Casting and hot forming moulds
Fermentation residues	Vats	Distillery and brewing equipment, fermentation vessels
Fish residue	Working surfaces	Cutting and slicing equipment
Flour	Millstones, plastics, rubber, stainless steel	Milling and process equipment
Fluxes	Printed circuit board	PCB contact probes, PCB test equipment, welded surfaces
Foam residues	Cables, ducting, hydraulic hoses, mould vents	EPS and EPU processing equipment
Grease	Practically all	Acts as a degreasing process
Logos	Glass, metals, painted surfaces, plastics, rubber	Screen and tampon printed components
Mastics	Glass, metals, plastics, painted surfaces	Applications, sealed components
Meat residues	Bones, hides, metals, plastics	Animal by-products, cutting and processing equipment
Milk scale	Glass, stainless steel, plastics	Processing equipment
Mineral oils	Practically all, especially as degreasing process	Electrical and mechanical components, surfaces to be coated
Mould release agents	Low MP, alloys, aluminium, composite tooling, GRP, tool and stainless, etc.	Moulding tools and adjacent press equipment
Oil, grease and dirt	Cables, ducting, drive shafts, gears, hoses, switchgear, machine	All machines and engines especially when refurbishing
Organic growth	Ceramics, metals, stoneware, plastic	Holding tanks, water storage and purification equipment
Over spray	Glass, metal, painted surfaces, plastics, rubber	Spraying equipment, jigs, tools, etc.
Paint	Glass, metals, plastics, rubber	Conveyors, strayed components, jigs, pre-painted panels
Paper residues	Metals, plastics, painted surfaces, rubber	Printing presses
Vegetable oils	Glass, plastics, rubber, stainless steel	Mixing equipment

DRY ICE SNOW CLEANING

TECHNOLOGY

During the cleaning process with dry ice snow, the liquid CO₂ turns into solid particles of dry ice, with diameter between 1 and 100 micron, through physical and thermodynamic processes. These snow particles from dry ice have a temperature of -78.5°C. The CO₂ particles are added proportionally to the compressed air. The particle acceleration is inserted through the flow of air compressed in a special nozzle. It is possible to generate a free homogenous blast observing the conditions of the flow, the temperature and the pressure. Different blasts can be created according to the nozzle type; as per example, a circular nozzle generates a circular blast with high precision and cleaning power, whereas a flat nozzle generates a large and constant blast with efficient cleaning. These dry ice snow blasts clean and prepare the surfaces. When the CO₂ particles hit the surface, they sublime immediately.

CLEANING METHODOLOGY

The cleaning with dry ice snow allows a delicate treatment of the surfaces. The CO₂ cleaning is based on a complicated mechanical process that includes temperature, cleaning and solvent effects. The dry ice snow particles cool down the contaminant immediately, causing a separation between them and the surface. Due to the immediate sublimation of the CO₂ particles, small pressure picks are created. They release micro impurities on the surfaces and in the pores. By cleaning along the whole surface, the contaminant is removed and disposed. A precision cleaning, especially for oil and grease, is realized thanks to the physical solubility of the CO₂ organic properties. The compressed air flow helps the removal of the contaminant.

DISPOSAL

With the dry ice snow cleaning, the removed contaminants are now particles in the exhaust air. According to the application, an extractor and an exhaust filter can improve the quality of the surface, which has to be cleaned. Without a good extractor, the contaminants can be mixed with fresh air and therefore extracted and removed. The cleaning method self-converts into gaseous state, in this way only the contaminants have to be disposed.

ELECTRICAL APPLICATIONS

The M.E.C. Microblast machines are units for cleaning equipment, machineries, plants, surfaces and so on by using pellets of solid CO₂ (dry ice), blasted with an appropriate gun made on this purpose. The user's and maintenance guide supplied with the machine reports the technical data and all the using precaution; furthermore, it gives to the users different examples about "what to clean". Especially the guide does not quote that the machine can also be used on electrical boxes under tension, but it specifies the right limits for this use, that means that it is permitted to work on electrical boxes under tension until 1000 Volt (light tension) but not over.

During the cleaning of boxes with electrical tension, the operator, with all the necessary protections and instructions, will not touch the electrical components and the CO₂ is not absolutely an element of electrical transmission, and so for evident practical reasons the working's distances place the operator in a very safe area.

The Italian CEI rules, according to the European rules for the safety of the electrical plants, permit to work on electrical box with light tension, as for CEI 11/37 and 11/47 procedures. Even if they do not specify the cleaning of electrical box and in particular the CO₂ using, without requesting any particular certification on the machines employed, or on the operators, but only requesting the necessary good sense and the use of individual protections.

The laws and the Italian rules forbid works on and near machines and parts with tension over 1000 Volt.

The European CE plate on the MICROBLAST machine and the conformity declaration on the user's and maintenance guide grant that the machines follow the requisitions of 2006/42/CE, implemented in Italy with D. Lgs. N° 17 on 27th January 2010, regarding machines legislation of member states. These rules regulate the constructions of machines, the maintenance, and the purpose for which they are on the market, so that the safety and the health of the operators are granted, respecting the limits and for the purposes, he can work.

DUAL HOSE BLASTING SYSTEM

The dual hose system uses the fluid dynamic principle named "Venturi system". The dried compressed air flows inside a hose and it reaches the gun: inside this gun, a "Venturi" nozzle creates before, through a constriction, an increase of the air speed, to leave it expand after.

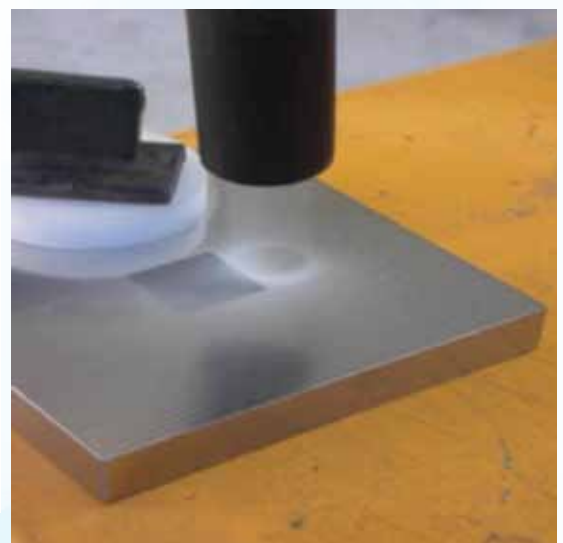
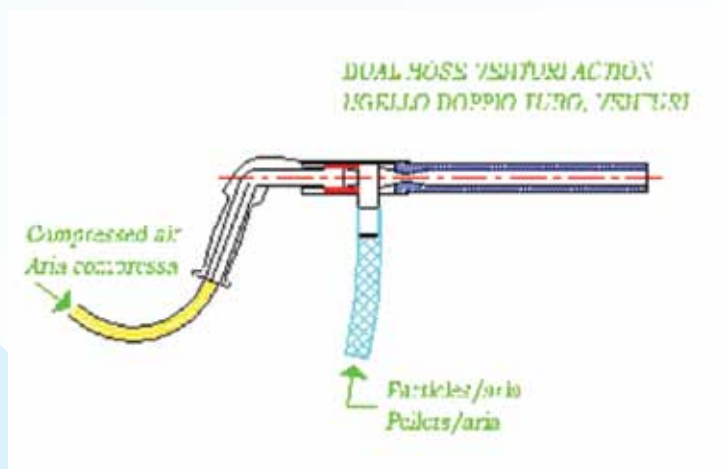
This expansion creates a vacuum and through the second hose, dry ice pellets are sucked.

Pellets and compressed air are mixed and accelerated by the blasting barrel against the object to clean. With the double hose system the proportion between the nozzle (of the Venturi system) and the blasting barrel is very precise and with a very low variance to get an optimal fluid dynamic performance and high speed. In particular the counter pressures which can be generated inside the barrel, for different construction reasons or of compressed air supply, can reduce or cancel the Venturi effect and in this way not aspirating pellets anymore or blasting them at lower speeds, therefore do not substitute the nozzle with not original ones.

Benefits

The dual hose system can be used for 80% of all applications.

- **Simple machine**
- **Reliable**
- **Maintenance almost non-existent**
- **Machine easy to use**
- **Extremely regular pellets supply (without pulse)**
- **Lower pellets consumption compared with the single hose because the pellets are conveyed through the separate pellets hose to the gun without being destroyed**
- **Usable on all the materials, also on the sensible ones**



SINGLE HOSE BLASTING SYSTEM

The single hose system uses a mechanical mixer, like a niches or holes dispenser. Pellets come in from the upper part of the distributor and this one, by turning, takes them to its lower part where the compressed air, which will take them out to the blasting gun, is injected. During this course, pellets and compressed air are mixed together inside the single-hose, and then they are accelerated inside the blasting barrel against the object to clean.

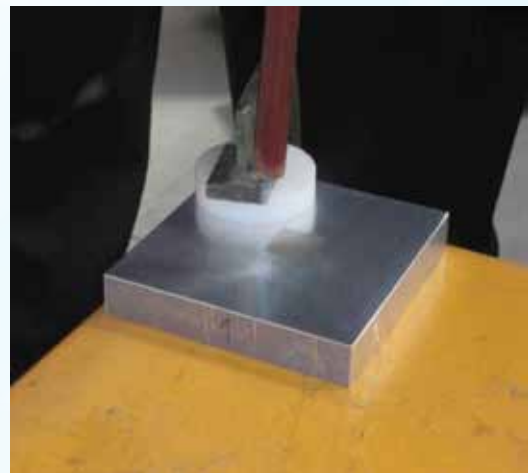
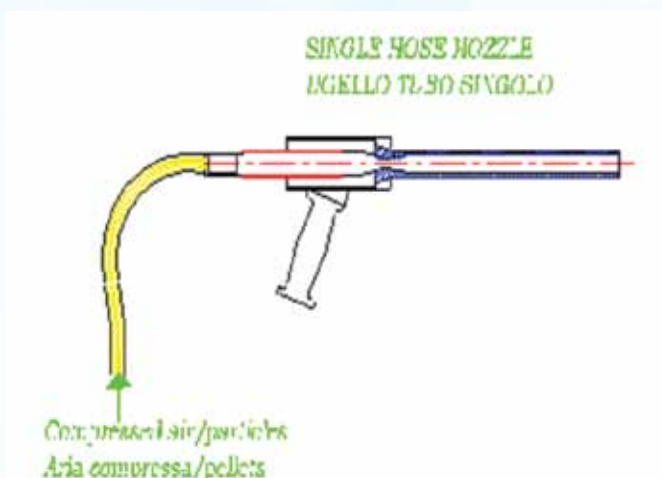
In the single hose system, since it is a pressure pushing system for the pellets, the flu dynamic nozzle/barrel balance is very stable and also the work efficiency will take advantage since any possible counter pressures created inside different blasting barrels do not modify the blasting speed and for this reason. With the single hose system it is possible to use all kind of barrels, also the most particular and special ones and with higher pressures of compressed air supply.

In the single hose system, two different type of nozzle type exists, which differ on building system:

- Subsonic nozzle with blasting speed lower than Mach 1
- Supersonic nozzle with blasting speed higher than Mach 1

Benefits

- All kind of nozzles can be used independently from the pressure of the air supply
- Length of the gun hose until 35-40 m.
- Possibility of vertical cleaning almost without aggression reduction



SANITIZATION

Dry ice is the CO₂ solid status, a gas devoid of colour, tasteless, odourless and it is available in the environment. It is non-toxic gas, cheap and easy to stock; it is not electronically and thermally conductive. The CO₂ cleaning uses dry ice pellets with high-speed airflow to remove contaminants from the surfaces without additional costs and without the treatment disadvantage of secondary waste removal. Only the removed contaminant has to be collected.

Cleaning without disassembling

Other than further cleaning methods, the CO₂ pellets have a very low temperature of -78.5°C. The cleaning occurs through thermal shock: it crystallizes the material to be cleaned and the gas expansion breaks and removes the contaminants. The contaminant temperature is lowered and therefore it becomes more fragile.

It is a “dry process” and not based on chemical substances, it does not release any residue and it allows the immediate usage of the treated surfaces. It does not damage electrical components, sensors, switches or electrical boards.

It is scientifically proofed that the dry ice is able to sterilize and disinfect rooms.

According to the law EN 556, the probability of finding survived microorganisms after the treatment is 1 out of 1 million.

It is bactericide and it inactivates the virus in the environment and therefore it is used in medical fields. It is particularly suitable to grant environmental hygiene and public health.

ADVANTAGES

Coming from the usage of this technology for the residue cleaning and for the environmental sanitization:

- 1) **Where it is requested the extraction of oil, sludge, grease, scale:**
 - a) **Avoidance of cleaning chemicals**
 - b) **Abrasion – free use**
 - c) **No residuals or powder left**
 - d) **Infiltration in holes and interstices**
 - e) **No preventive protection requested for the components**
 - f) **No need to dry the piece after the treatment**
 - g) **No downtime or disassembly needed for the pieces to be cleaned**
 - h) **No electric supply needed, the machine is autonomous**
 - i) **Lower cleaning time and savings in costs**
- 2) **Where it is requested an environmental sanitization: in addition to the characteristics mentioned above**
 - a) **It allows the immediate utilization of chairs, armchairs, sofa, reducing the waiting time after the cleaning**
 - b) **It cuts down the bacteriological pollutants and the allergenic, it grants a bactericide action useful for public health**

ADVANTAGES IN THE CO₂ USAGE:

- The substance is easy to find
- Not inflammable
- Not combustible
- Not carcinogenic
- Not corrosive
- Not reagent
- Not toxic
- Inactive gas
- Recyclable
- Abundant
- It separates immediately from the contaminants
- It is suitable for cleaning of parts incompatible with water and high temperature

Its applications are numerous: from the cleaning of typographic printing machines to the tank, and for the sanitization of aircrafts, train, buses, cars, hospitals and public rooms.

SERVICES AND SOLUTIONS

offered by M.E.C.

In order to satisfy our customers' needs, M.E.C. offers services and solutions of technical cleaning with dry ice.

Dry Ice production

M.E.C. produces and delivers dry ice high density in different shapes:

- Pellets Ø 3 mm
- Cylinders Ø16 mm
- Tiles 125 x 125 – thickness 20 mm – weight 1 kg each
- Tiles 125 x 250 – thickness 50 mm – weight 2.5 kg each
- Blocks 500 gr and 750 gr

Dry Ice supply

M.E.C. provides delivery of the Dry Ice within 24h also during Christmas time and mid – August holiday. M.E.C. does not effectuate holiday closure. Furthermore, M.E.C. coordinates delivery schedules in order to satisfy any customer needs.

CO₂ Service

The CO₂ cleaning service with dry ice offered by M.E.C. is handled either at the customer's site or in our cleaning facility. Factory-trained technicians are able to handle any customer requests and any applications event after hours and weekends.

Furthermore, M.E.C. offers an In-house CO₂ cleaning service at our facility fully equipped to handle a range of cleaning and stripping applications.

Rental

M.E.C. offers rentals services, providing the customer with the right quantity of dry ice necessary for the use of M.E.C. Blasters. For the quotation, contact M.E.C.

Assistance

M.E.C. puts at the customer's disposal the ability of its professionals for maintenance works on M.E.C. plants and cryogenic machines. M.E.C. professionals are able to:

- Handle complex installations in order to maximise the performance of the machines
- Manage regularly scheduled maintenance programs to keep your machine working at maximum efficiency
- Answer questions and provide support when customer needs it
- Provide maintenance and replacements when needed
- Provide temporary replacement machines while your system is being repaired at our factory.

Training

M.E.C. offers a Training useful for the correct use of the cryogenic machines. The training can be handle in - house or to the customer.

Maintenance Programs

M.E.C. offers to the customers regularly scheduled maintenance programs, by stipulating an annual contract with fixed rated. If during the maintenance it would be necessary to replace parts, M.E.C. guarantees the replacement as soon as possible at an additional cost.

Spare parts and accessories

M.E.C. offers a continuous support to customer, by providing useful advices to guarantee high performances to machines and equipment.

M.E.C. warehouse is complete with all accessories and spare parts in order to guarantee the delivery of them, with express courier in 24 – 48 h. Abroad, in some Countries as for example the Middle East the delivery is guaranteed in 72 h. M.E.C. professionals are able to handle the installation of spare parts when requested by the customer.



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