



PASSION FOR EXCELLENCE



STANDARD Products

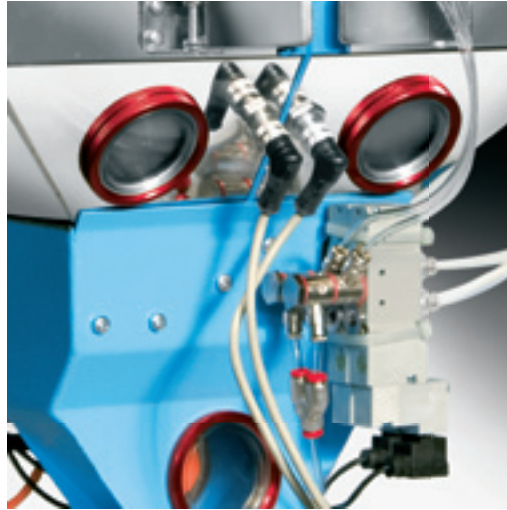
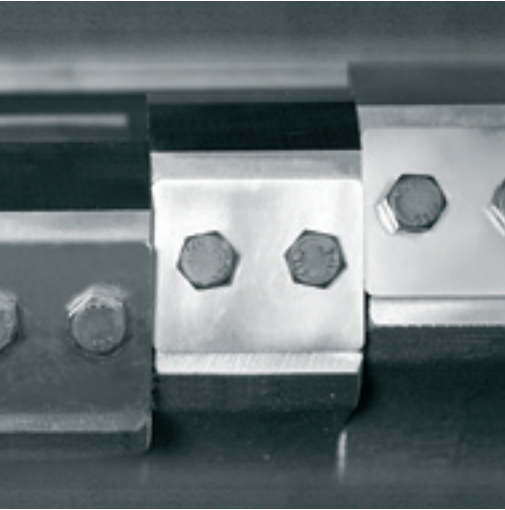
ENGLISH



PASSION FOR EXCELLENCE

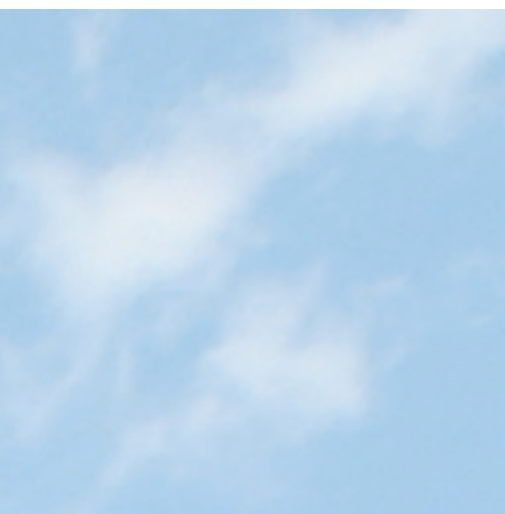
TABLE OF CONTENTS





The company	6
Certifications	8
OMS & P philosophy and ethical brand	10
OMS & P products	12
The Leonardo Project	14
Intellectual Property	16
Green Philosophy and Sustainability	18
Solutions for different sectors	20
Custom-made solutions	24
Products ranges	26
Blue & Sky Philosophy	32
Feeding & Conveying	34
Hot air drying	44
Drying	48
Grinding	74
Microdosing	80
Volumetric dosing systems	84
Gravimetric dosing	90
Storage	96
Thermo	116
Cooling	122
Centralized system - Lay out of plant	130
Moretto in the world	132

THE COMPANY



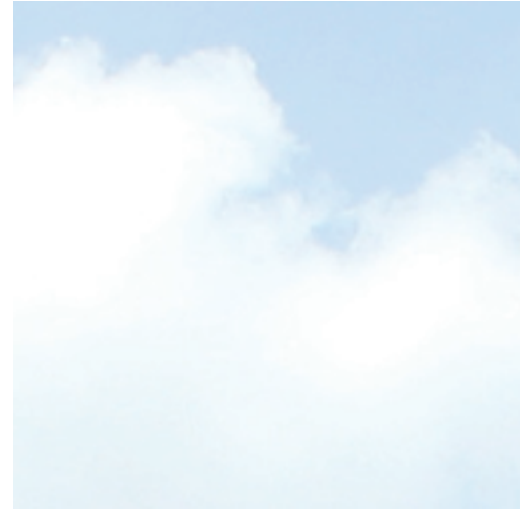


Moretto S.p.A. researches, develops and manufactures automation for the plastics processing industry. Its systems are characterized by low energy consumption and by the originality of the solutions.

People, passion and constant research generate ideas, which delivered by experienced specialists, enable them to become containers of excellence and innovation.

CERTIFICATIONS





We aim at excellence in all processes.

ISO 9001 :2008 certification is our commitment towards our customers for ensuring maximum efficiency, attention to detail and efficacy of the targets in every action and process.

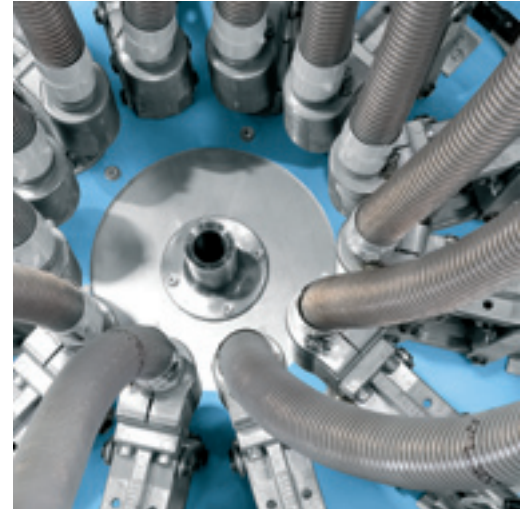
CE, PED, UL, CSA, GOST are a further confirmation of Moretto brand safety and quality.

ISO 9001 :2008



OMS & P PHILOSOPHY AND ETHICAL BRAND





Moretto Spa is a container of Italian genius, represented by its ethical brand OMS & P (Original Moretto Systems & People), which demonstrates the company's progress aimed at a "technological humanism" in order to bring back core, but often faded values, such as originality, ingenuity and centrality of the person into economic relations of our time.

Moretto S.p.A. offers solutions for different targets and standards, with services tailored to the specific and different expectations of each of them.



ORIGINAL
MORETTO
SYSTEMS
PEOPLE



OMS & P PRODUCTS



1
DOLPHIN
Automatic manifolds



2
ROTOPULSE
Precision microdoser



3
GRAVIX
Precision gravimetric dosing unit



4
VARIANT GRV
Variant Grinders



5
ROTO DUST
Dust removers



11
X DRYER XD
Drying system



12
SINCRO SX
Sincro Dryer



13
OPTICAL DRYER
On demand drying system



14
XD 600
On demand drying system



15
MPK
PET Crystallizer



22
OTX SPYRO
Original Thermal Exchanger



23
OKTOMATIK
Automatic octabins unloader



24
LIFTER
Bags manipulator



25 - 26
R - C LARGE
Receivers - Containers
High productivity
FLAKES & POWDER



27
OKTOBAG
Octabins - Big bag unloader



6
MOWIS
Supervising software



7
X DRY AIR
Mini dryers



8
DVM-H
Volumetric dosing units
for high temperature



9
DPM
Microbatch
pulsed microdoser



10
FLOWMATIK
Multi-material drying
systems



16
KRUISEKONTROL
Automatic control of
granule speed



17
QUAD
Three-phase
Loaders



18
X MAX
Modular Dryer



19
TE-KO
Temperature
controller



20
TRILOCK
Pipes coupling



21
ΣUREKA
Low energy consumption
drying system
X MAX - OTX - FLOWMATIK



28
SST SILTEX
Textile indoor
silos



29
SILCONTROL
Material decoding
system



30
ONE WIRE 6
Advanced
program for
conveying
systems

PREVIEW



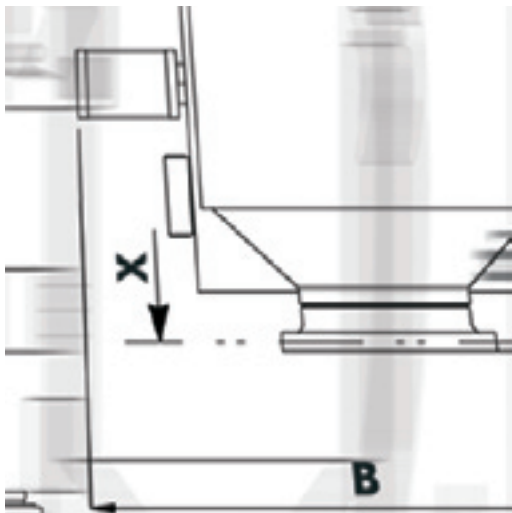
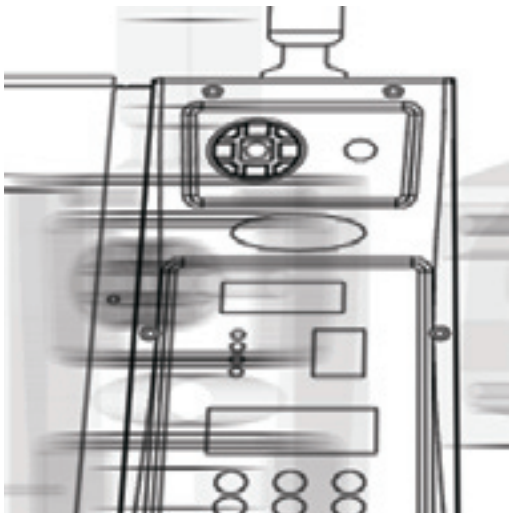
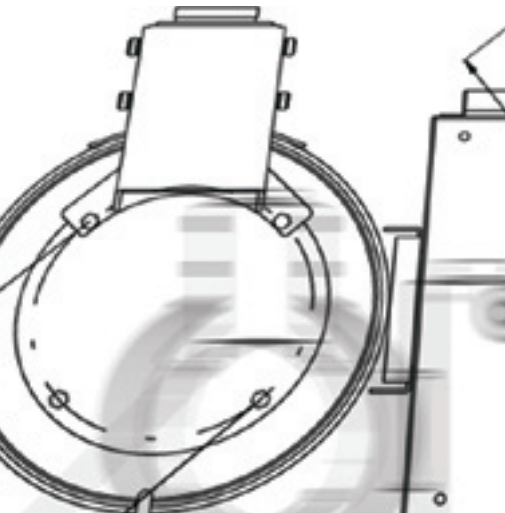
31
KASKO
High productivity
loaders

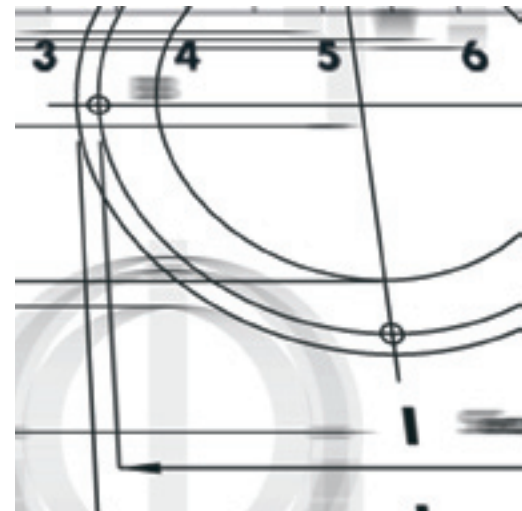
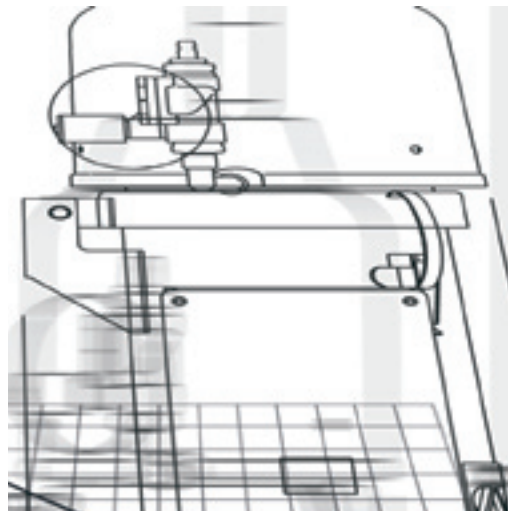
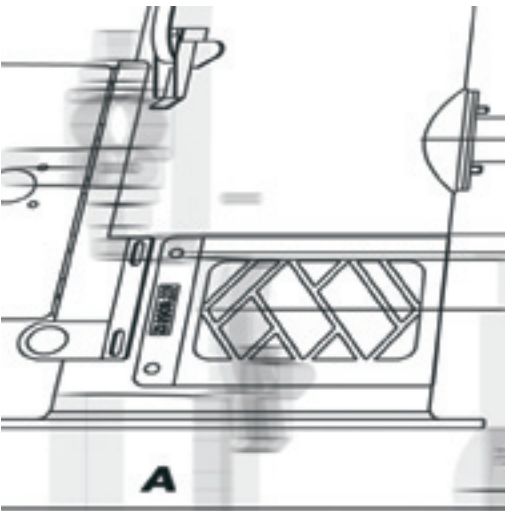
PREVIEW



32
KRYSTAL
High precision
volumetric dosing
units

LEONARDO PROJECT





“No human investigation can be called true science without passing through mathematical tests.”

22,000 billion operations per second is the calculation capacity of the supercomputer installed in our R&D department.

This powerful installation allows us to expand scientific knowledge and examine all physical phenomena, ensuring an unrivalled support to the development of the study of specific solutions for our customers.

Moretto puts into action pure research. This project is very ambitious and the investment is important, with the addition of a new 10.000 square meters building, which will serve as the foundation to establish the leading global market.

Taking teaching from Leonardo Da Vinci, the ‘500 great Master, it is with homage that we honour him, referring to this ambitious project with the name LEONARDO.

INTELLECTUAL PROPERTY



PATENTS

DOLPHIN automatic manifold plate

GRAVIX gravimetric dosing unit

ROTOPULSE

ANTI-BLOCK slide gate

X DRYER drying tower

Hopper integrated filter

X DRY AIR compressed air dryer

Fluidified hopper

Pipes collars

FLOWMATIK Multi

DPM volumetric dosing units

XD 20 Dryers SERIES

ROTODUST dust removers

XD 600 SERIES Dryer

KRUISEKONTROL

OTX Geometry

MPK Crystallizer

X MAX modular Dryer

CTM hopper hinge

OTX air insufflation

CFA pipes acoustic insulation

Moisture meter on line

OKTOBAG octabins and big-bags automatic unloader

VIEWER

ONE WIRE 6

KASKO receivers



INDUSTRIAL DESIGN

Anti-plug Y connections

Three phase suction units

Material flow in the hopper

SPYRO anti-wear hopper finishing

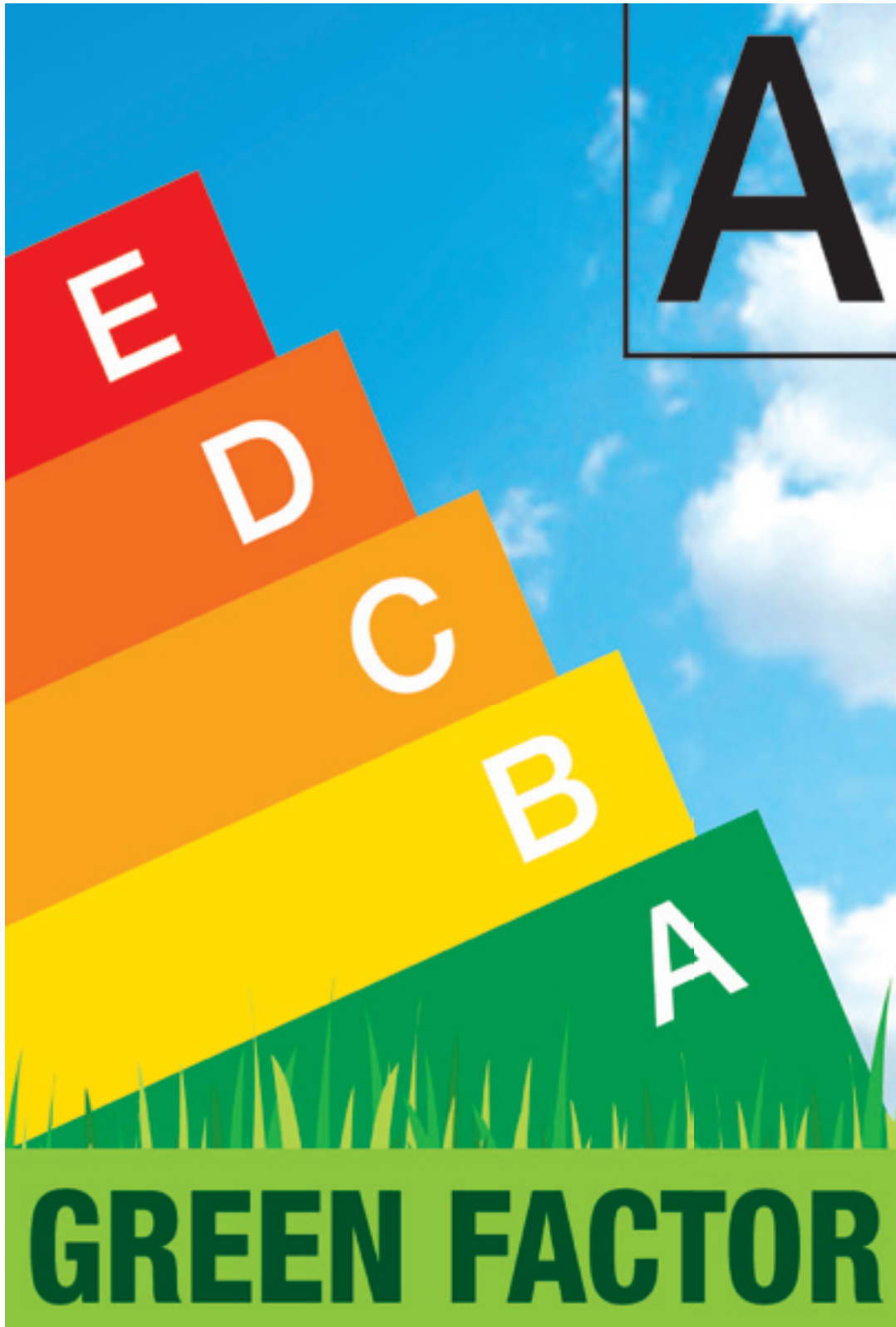
OKTOMATIK octabin unloader

DVM KRYSTAL

154 patents

32 projects

GREEN PHILOSOPHY AND SUSTAINABILITY





Energy saving is a topical issue in the plastics industry, since it is very energy consuming and the cost of energy is the second highest company cost after raw materials.

Reducing energy costs means regaining competitiveness and it is right here that we can provide valuable support to our customers.

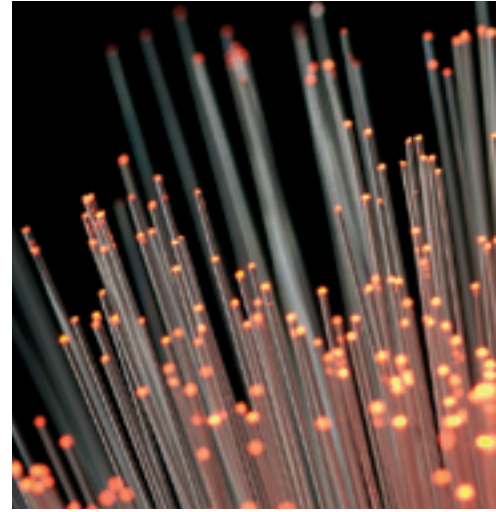
The low energy consumption of Moretto solutions is a guarantee of respect for the environment. GREEN FACTOR represents an assurance for the planet and this brand expresses the right balance between technology and the environment.

SOLUTIONS FOR DIFFERENT SECTORS



INJECTION

Injection transformation process of plastic materials represents a very ubiquitous technology and is adopted in many business sectors. In most cases it is dedicated to the production of technical parts involved in the medical and aerospace industries. In these cases, the polymers are called to respond, with all their characteristics and treatments preceding polymers transformation have to be performed to perfection. Transport, dehumidification and dosage thus become strategic for the production of technical parts. Our dedication to attention and detail is an essential component for the production of injected parts and it is expressed in all our range of products.



EXTRUSION

Film for packaging, towels for water, plastic profiles and cables are indispensable things in our lives. Extrusion is the process that transforms the majority of the plastic materials in the world and often with very high concentration production sites. A small mistake in a recipe would be very expensive and therefore imperfections in the process are not permitted. Accuracy and stability are essential characteristics in this specialty. Storage, transport and dosage are the core of a production without any compromise.

SOLUTIONS FOR DIFFERENT SECTORS



PET

Water is the most valuable element that exists in nature and provides life for man. The path that brings water from the source to the consumer crosses the packaging of the PET bottle. Absolute rigor is required in the production of bottles for such precious material. The packaging industry is very energy consuming and processes are required to be excellent in order to maintain company competitiveness. We provide specific applications, low energy consumption solutions, which is unique in the world for this sector.



MEDIPHARMA & OPTICAL

When technology meets life and human health, quality and professionalism are no longer sufficient and then an excellent standard is necessary. We have specific applications for functions of vital importance that admit no compromise.

CUSTOM-MADE SOLUTIONS



Automotive



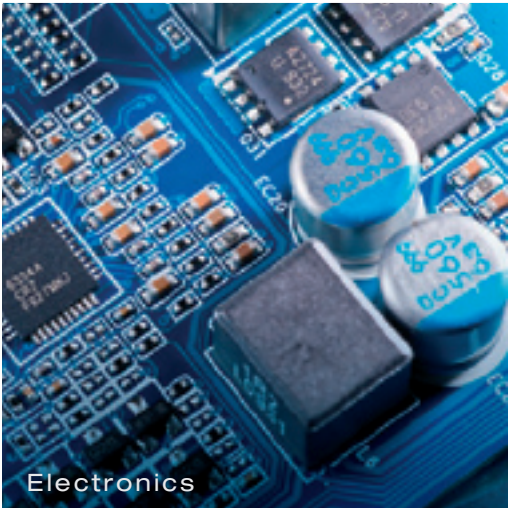
Profiles, pipes



Medical



White goods



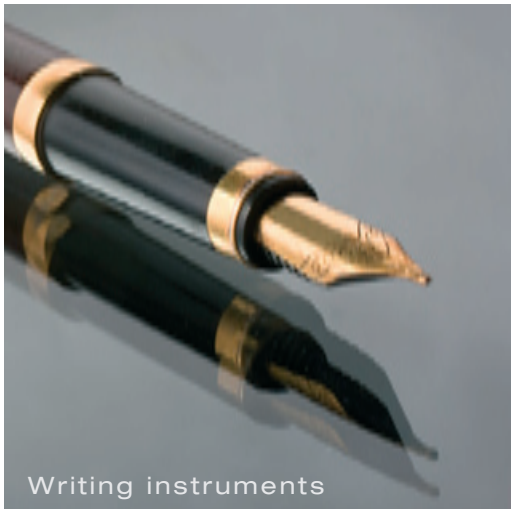
Electronics



Optical



Footwear



Writing instruments



Beverage



Packaging



Electrical components



Telephony



Cosmetics



Controls

PRODUCTS RANGES

FEEDING & CONVEYING

Conveying and feeding range of products provides different solutions, from individual single-phase loaders to the most versatile three-phase systems ensuring high flexibility performance depending on the application, available also in DUO and QUAD versions.



SINGLE-PHASE HOPPER LOADERS



THREE-PHASE LOADERS



CYCLONE FILTERS



KRUISEKONTROL

DRYING

The wide range of dehumidifiers satisfies requirements of air flow up to 20,000 m³ / h. The careful management of the drying process ensures quality and consistency of production as well as high energy savings.



MINI-DRYERS



SINCRO DRYERS



X DRYERS

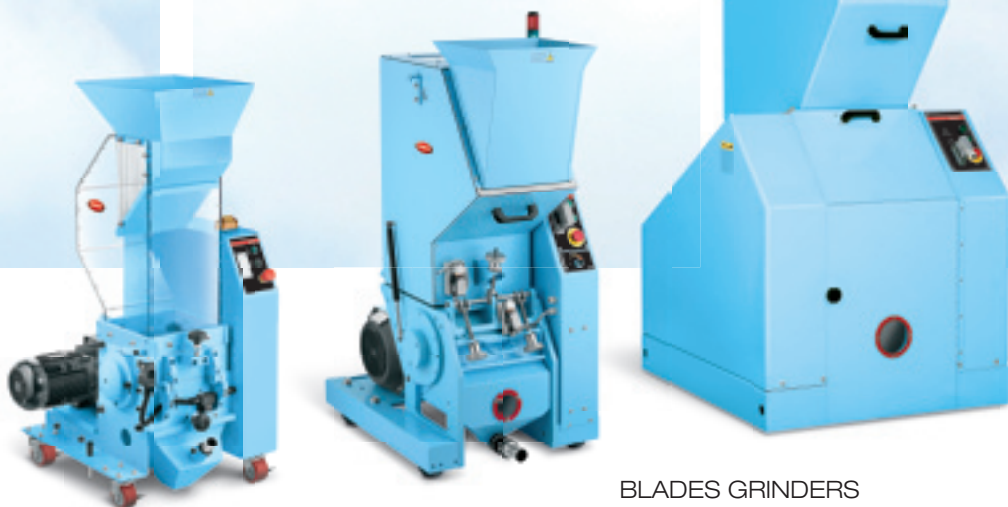


X MAX

GRINDING

Robustness, reliability and cutting accuracy are the key features of Moretto grinding units. The product range is divided into three lines:

- Kastor
- Uniblade
- Multiblade



KASTOR GRINDERS

BLADES GRINDERS

DOSING

The constant search for value added solutions generated Moretto dosing systems:

- Micro-batch pulsed dosing units
- Volumetric dosing units
- Gravimetric dosing units

Which represent a crowning achievement in this field of application.



MICRO-BATCH
PULSED MICRODOSERS

VOLUMETRIC DOSING
SYSTEMS



GRAVIMETRIC DOSING
UNITS

PRODUCTS RANGES

STORAGE



INDOOR SILOS



TEXTILE SILOS



DAILY BINS

Both in small installations as well as in complex plants, Moretto proposes silos and storage containers of various capacities, modular and able to optimize storage spaces. The most innovative technologies in terms of automatic complete emptying of octabins and big bags are also available in this range of products.

THERMO

The thermo line offers reliable solutions for thermoregulation in the process of transformation of polymers. Moretto provides water, oil or pressurized temperature controllers to meet any production requirement.



TE-KO

TE-KO PRESS

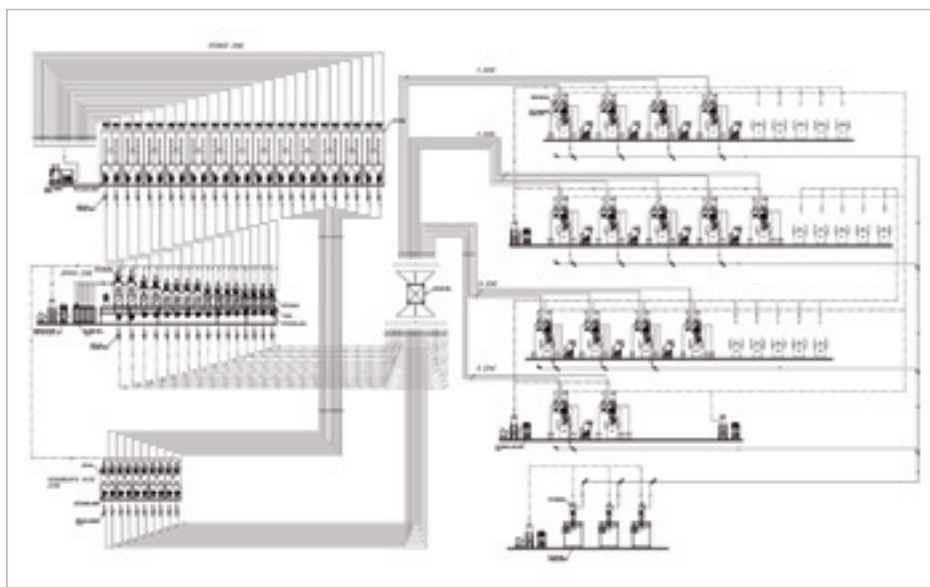
COOLING

Refrigeration is a key point in the transformation process of plastics and is at the same time one of the costs that has the greatest impact on energy consumption. Moretto has developed compact solutions for these applications that allow huge reductions in energy consumption. The wide range of models allows us to cover cooling capacities up to 1000 kW.



SYSTEMS

Moretto has specialized over the years in the design and implementation of centralised dehumidification, dosage, conveying, storage, refrigeration and temperature control systems. Each installation is made with extreme attention to detail, aimed at achieving the most appropriate solution for the satisfaction of each customer.



SUPERVISING SYSTEM





MORETTO OBJECTS WINDOWS INTEGRATED SUPERVISOR

MOWIS is the Moretto integrated supervising system. Entirely developed and created in our R & D Department, it has been built on MODULARITY. MOWIS requires a PC with Windows operating system. The basic licenses are structured in order to extend the system from a minimum of two clients up to a complete saturation with 1,100 clients, according to the user's needs and to tailor the investment on his real needs.

BLUE & SKY PHILOSOPHY



Moretto offers solutions for different targets and standards, with services tailored to the specific and different expectations of each one of them.
Blue Standard and Sky Standard.

BLUE

The BLUE line contains automation dedicated to the most competitive sectors, where reaction speed and easy installation with low impact on existing systems are required. A large range of Blue products are available together with a wide range of options.

- Easy interface
- Speed
- Reliability
- Competitiveness
- Supervision





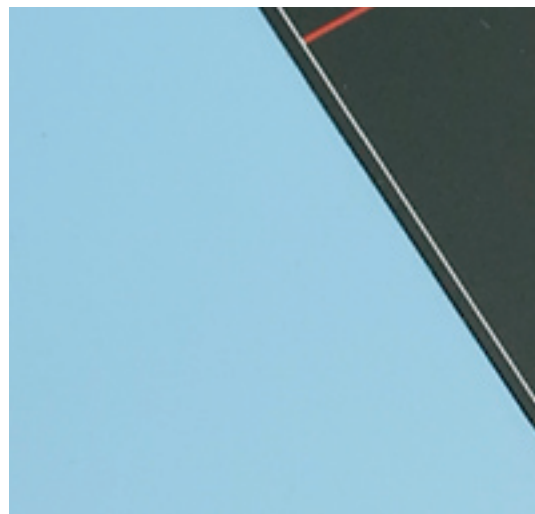
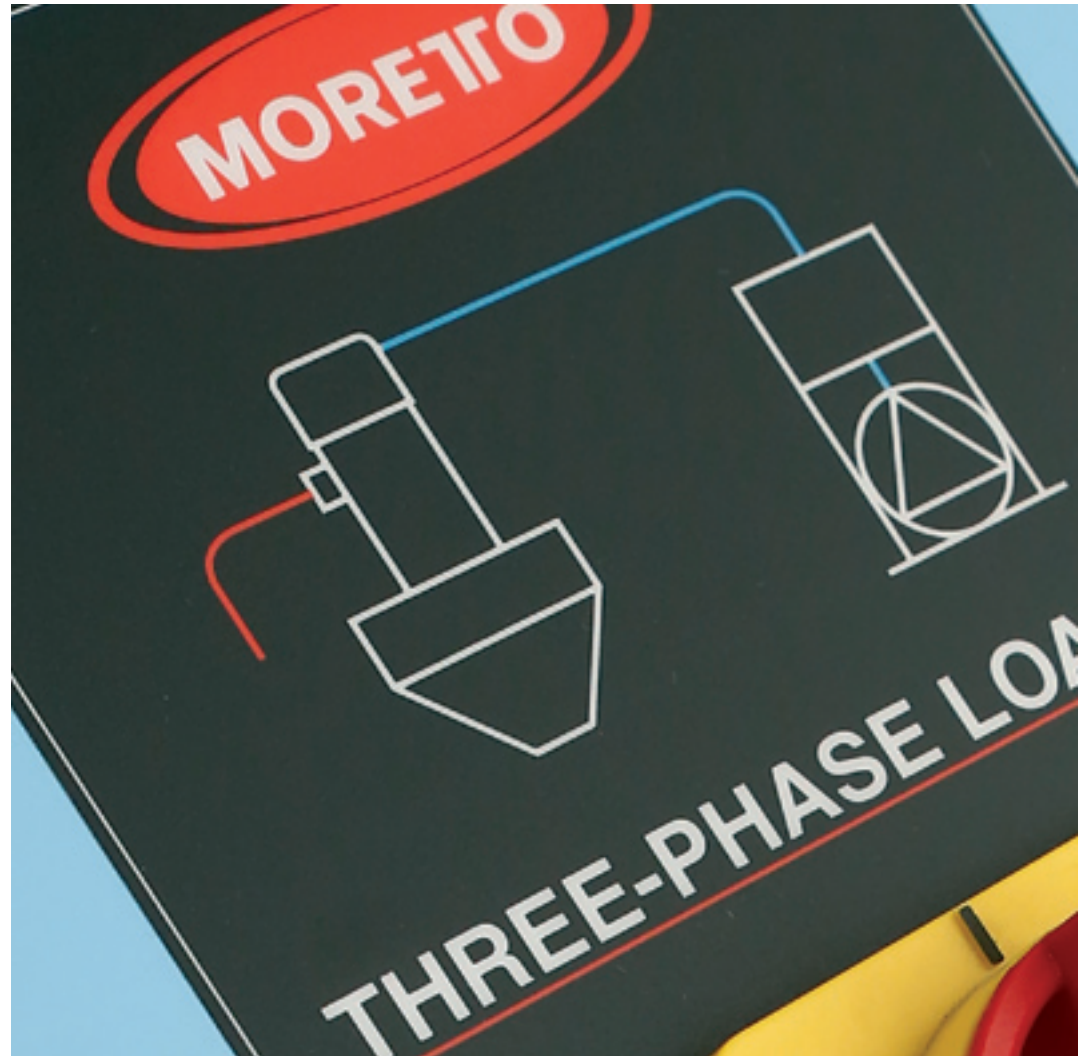
SKY

The SKY line is the expression of the most advanced technologies for the plastics processing industry. Low consumption units of excellent performance are available in this particular category of products. Suitable for the most severe industries such as Medical, Optical and Aerospace ones, they hold technological leadership in the sector. Thirty-two exclusive projects marked OMS & P represent the expression and character of the company, strongly oriented to the future in the name of competitiveness.

- Exclusive Products
- Innovative Solutions
- Technological leadership
- Champions in energy saving
- Excellent performance
- Remote service
- Sky protection pack
- Open systems
- Integrated supervision



Standard





FEEDING & CONVEYING

FEEDING & CONVEYING

Standard

VTP - VTM SERIES Venturi feeders

The VTP-VTM series Venturi feeders are based on the Venturi principle and are suitable for little quantities of plastic granule conveying. The DUO version integrated with the VP allows recovery of regrind material for special applications.



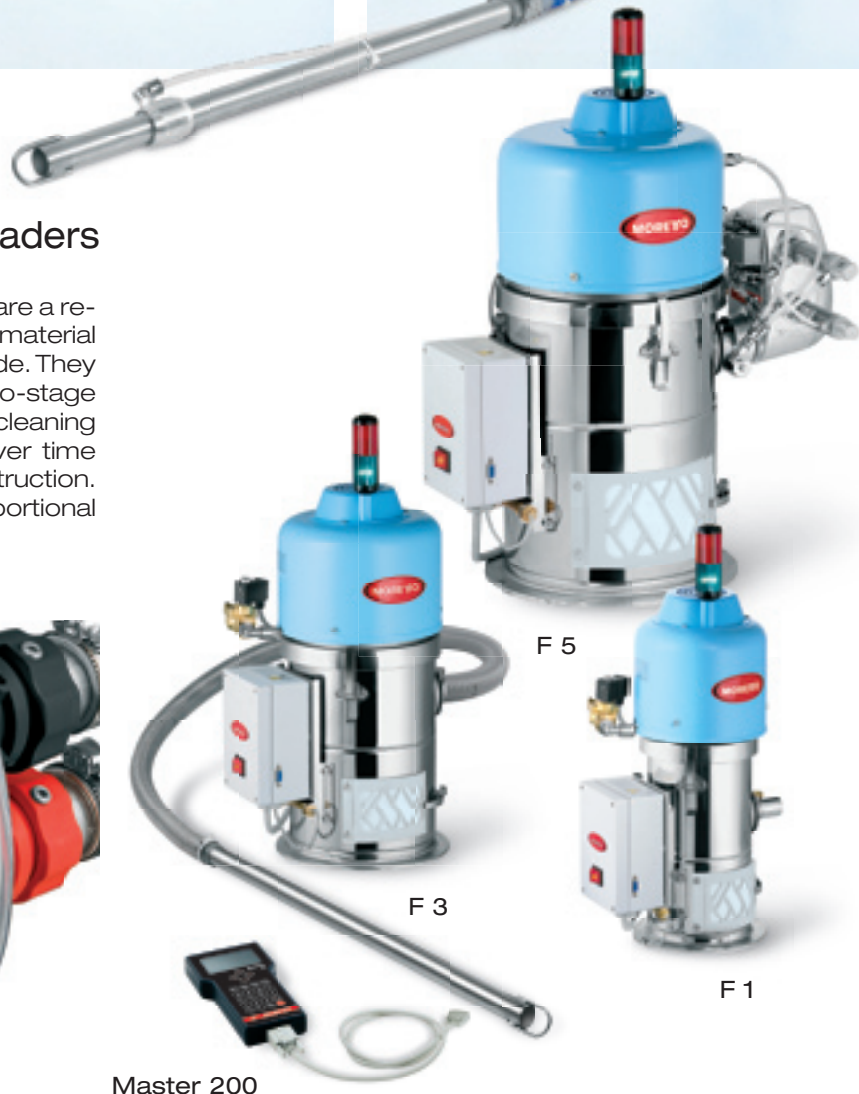
VTP

F SERIES Single phase hopper loaders

The single phase hopper loaders are a reliable and competitive solution for material feeding at the process machine side. They are equipped with a powerful two-stage turbine and with automatic filter cleaning as standard. They are reliable over time due to the stainless steel construction. They are prearranged for the proportional valve application.



Krystal proportional valve.



F 5

F 3

F 1

Master 200

C SERIES Containers

A large range of containers can be combined with different suction unit sizes for plastic granule conveying. These machines are very reliable due to the stainless steel construction, the filter cleaning as standard and the gasket, with 66 combinations for every requirement.



C 25

C 5

R - C LARGE SERIES Receivers – Containers

The LARGE series receivers are suitable to convey large quantities of plastic material. Different equipments can be used to treat chips, flakes, powder, talc and calcium carbonate too. The enlarged discharging valve (230 mm) enables the container emptying to take place in only three seconds, improving about 30% of the productivity comparing to the conventional receivers.



R - C 96

R - C 48

R - C 24

FEEDING & CONVEYING

Standard

V S DUO SERIES Three phase loaders

The VS series loaders are equipped with a high head pump and are very reliable over time. Combined with receivers, they are a very efficient conveying system for large quantities of plastic granules and for long distances up to 200 mt. The DUO suction units can feed the hopper besides the injection moulding machine and produce in this way an integrated system. These applications are completed by a cyclone filter and a bypass valve.



Filter cleaning and DUO valve.



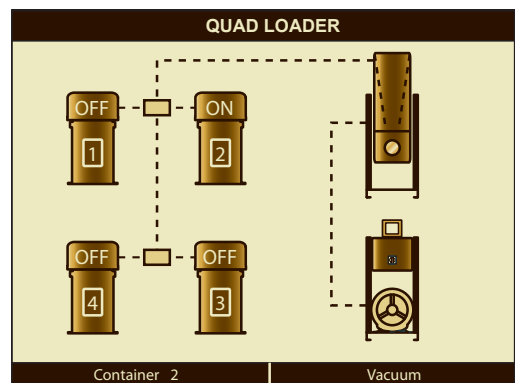
Master 200 programming palmtop.

QUAD SERIES Three phase loaders

In the QUAD version, the suction unit is equipped with a four-way valve that can serve up to four receivers. This combination is very suitable for feeding up to four materials to dosing units. The cyclone filter with automatic filter cleaning allows the maintenance activities to take place on the floor.



QUAD valve.



Touch view control.

FEEDING & CONVEYING

Standard

VTS Side channel suction units

These machines are especially developed for medium distance plastic granule conveying. The best performances are obtained with high efficiency and low energetic consumptions. They can be used at the production department due to their low noise emission.



VTS



Side channel pumps battery.



Master 200
programming
palmtop.

VTN CLAWS Claws suction units

Claws suction units operate with high vacuum levels up to 1 bar. Especially dedicated for heavy applications, this suction unit is preferably used for heavy materials and powders for distances up to 250 meters. The special pumping system constantly maintains the efficiency performances, even for long distances. The machine can be programmed based on the real needs, thanks to the cyclone converter, in order to contain the wear and the angel hair phenomenon, achieving at the same time high consumption reductions.



VTN



Claws suction units battery.

FEEDING & CONVEYING

Standard

ROOTS VTK Roots suction units

The VTK suction units are suitable for heavy application on long distances and for large quantities. They can treat hot and dusty air with high performances, without any compromise to the pumps efficiency. Equipped with soundproof cabin as standard, they are very compact applications.



VTK C

Sound proofing cabin for VTK with inspection door.

FC SERIES Ciclone filters

FC series cyclone filters are a very efficient solution for filtration problems in conveying systems. The cyclone effect aids the dust separation, improving the filters endurance. Different filtering elements up to 0.5 micron are suitable for calcium carbonate (CA CO₃) filtration too as they don't need any maintenance.



FC 20 - 25

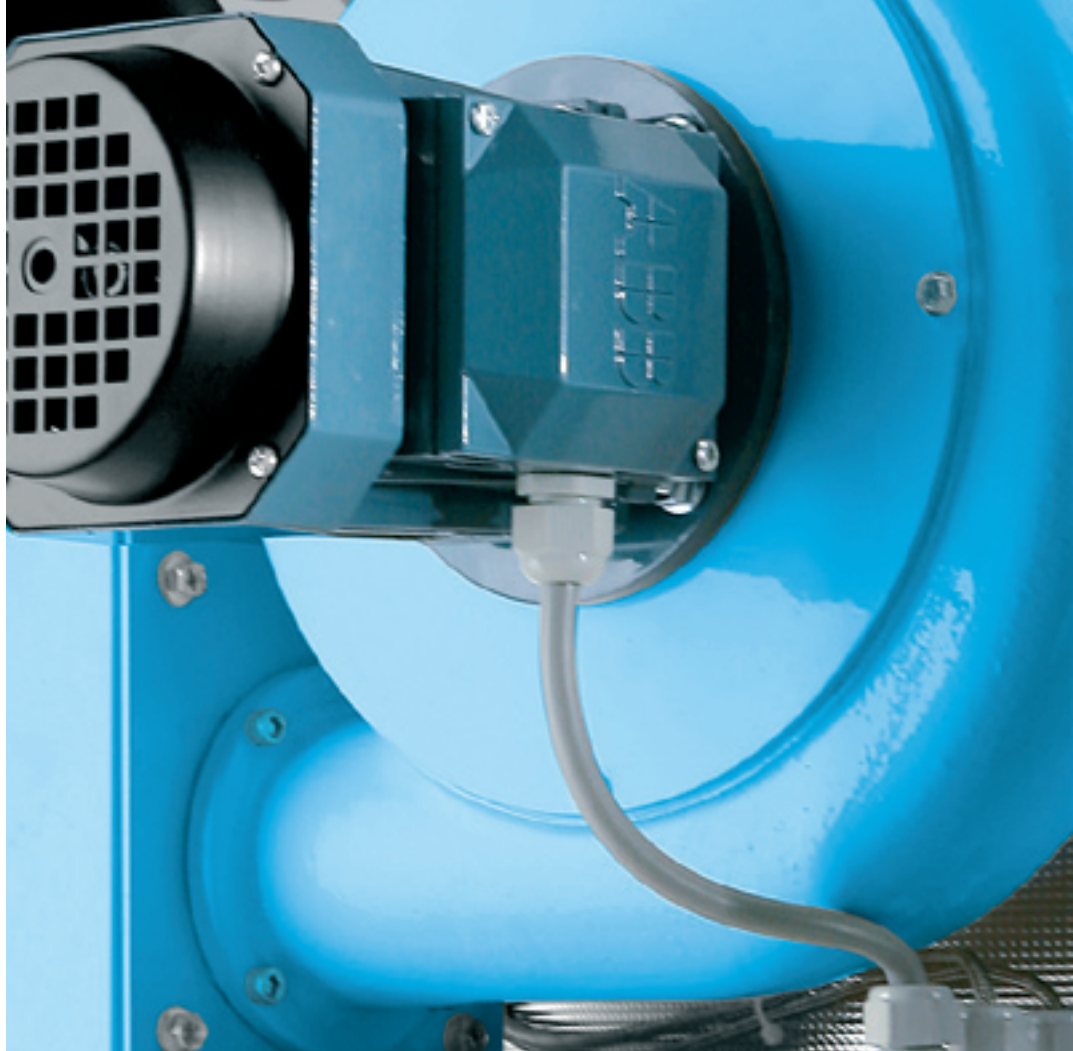


FC 30 - 40



FC 60

Standard





HOT AIR DRYING

HOT AIR DRYING

Standard



EH SERIES Hot air dryers

The hot air dryers group are suitable for non hygroscopic materials treatment. The temperature is electronically regulated by a solid state relay with pulse train. Their use is very simple thanks to the VIEWER control. These are very compact machines due to the special design with the on board heating group. The groups can be installed on the machine, ON version, or at the machine side, SIDE version.



On board heating group.

EH 300 ÷ 4000 SERIES On floor hot air dryers

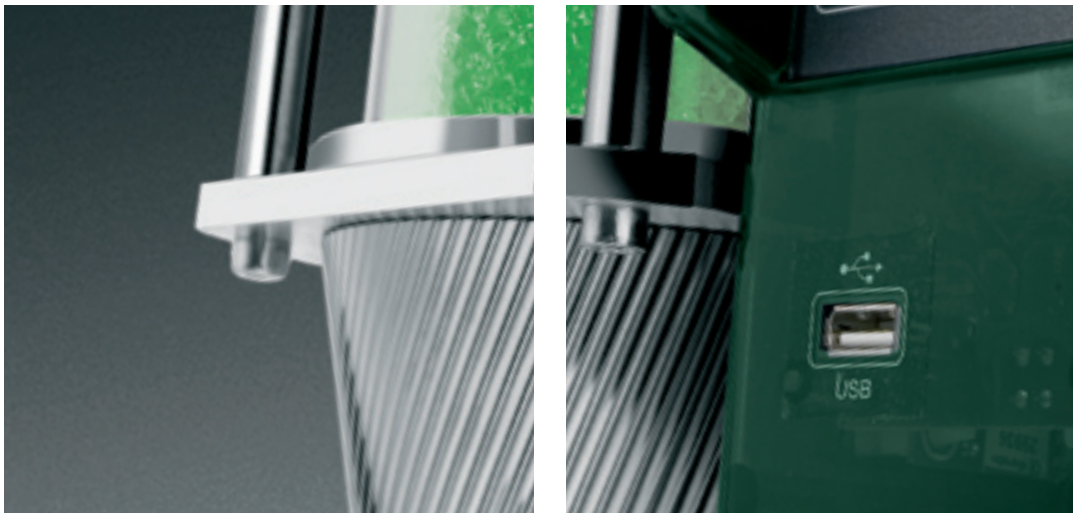
These machines are suitable for large quantities of non hygroscopic polymers drying. The unit is positioned on the floor, at the machine side and the hopper can be installed directly on the processing machine, or on a mezzanine. A powerful high head air generator feeds the hot air dryer circuit in the hopper ensuring a very efficacious treatment.

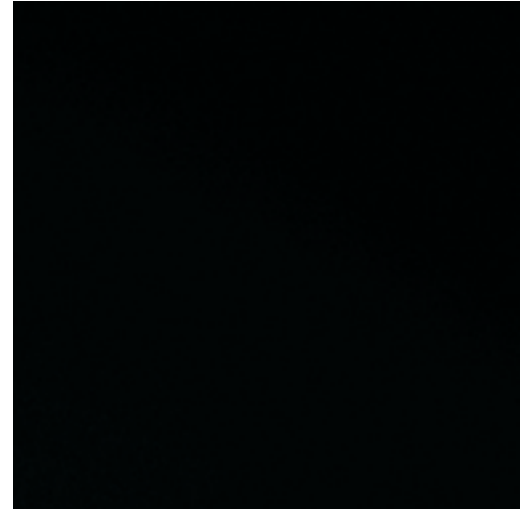


EH 300

EH 500

Standard





DRYING

The smallest big dryer

DRYING

Standard

DRY AIR SERIES Mini dryers

Double bed mini dryers with zeolite technology. Thanks to the high performance, they are especially suitable for technical polymers treatment. The compact structure allows the installation directly on the process machine, optimising the process and achieving at the same time high energy savings.



D1T ÷ D5T

X DRY AIR SERIES

Mini dryers



02 PRODUCTION		13:01
Material		<input type="text" value="ABS"/>
Throughput	kg/h	<input type="text" value="5.0"/>
Process temperature	°C	80
Residence time	h:min	2:00
Residual time	h:min	2:00
Bulk density	kg/dm ³	0.6
Flow rate	m ³ /kg	1.2
Airflow capacity	m ³ /h	6.6



XD 1 TS ÷ XD 5 TS

Shockproof



XD 0 X ÷ XD 2 X



XD 0 TX ÷ XD 3 TX

One power

DRYING

SX 200 SERIES Sincro dryers

This dryer series derives for technology from the X DRYER series; this means high performances up to -70°C of the Dew Point. An advanced thermodynamics uses low energetic consumption zeolites and has an high performance efficiency. Sincro is based on a powerful microprocessor, with three performance levels, low, medium and high, for hygroscopic polymers. The self adaptive PID thermoregulation ensures high precision and the machine has high performance due to the constant efficiency. The machine, equipped with the antistress system as standard, doesn't use compressed air and cooling water, realising high energy savings.



Dew Point
 -70°C



Master 200
programming
palmtop.

X Technology

XD 20 SERIES X Dryers

Innovative and exclusive flexible drying system for technical polymers is innovative because the system management is not based on the material/temperature ratio, but it is required to set only two parameters: **material type** and hourly **production**, all the rest is automatic. X Dryer doesn't use compressed air or cooling water, the antistress function protects the polymers from an overheating degradation. Constant efficiency, -75 °C Dew Point, one power, antistress, for a machine that realises incredible energy savings.



PRODUCTION			
Material Type		ABS	
Throughput	Kg/h	32	
Process Temp.	°C	90	
Residence Time	h:min	2:30	
Remaining Time	h:min	2:30	
Bulk Density	Kg/dm ³	0.6	
Flow Rate	m ³ /Kg	2.2	
Air Flow	m ³ /h	70	



A revolving and tilting control box allows a correct position for the operator. A useful signalling lamp indicates the machine status and every potential alarm.

Sincro

DRYING

Standard

SX 600 SERIES Sincro dryers

This dryer series stand out for the equipments, using double bed zeolite technology double pump. One pump is dedicated to the technological air production and the second one for the saturated bed regeneration. Developed for large productions, SINCRO control and total regeneration energy recovery allow the customer to reduce energy costs from 50% to the 60%. SINCRO 600 doesn't use compressed air and cooling water, but instead uses an antistress system as a standard.



SX 609 - SX 610

SX 611 - SX 612

SX 600 SERIES SIDE Version

The SINCRO 600 dryers are used combined with the large dimensions series 100 hoppers. These hoppers are equipped with large dimensions insulated gauges made of tempered glass. The heating group is installed on board on the hopper near the user, in order to optimise the energy consumption.



SX 600 SIDE version.

X Technology

DRYING

Standard

XD 600 SERIES X Dryers

This machine extends the XD 20 range with the same features, whilst enlarging the production capacity. For these reasons, the circuit is equipped with a self adjustable airflow double pump, regeneration and total recovery. Combined with Flowmatik, it becomes a low energy consumption system with efficiency up to -75°C of Dew Point. X Dryer doesn't use compressed air and cooling water. Adaptive airflow, anti-stress system, one power for a machine without equal.





XD 600 SERIES SIDE Version

CE compliant on floor hoppers frame support the European version, with compact construction prearranged for every application.

XD 600 SIDE version.

Air-o-dynamic

DRYING

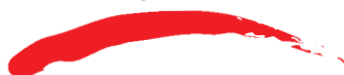
Standard

FLOWMATIK UNI

FLOWMATIK UNI manages the airflow in the single hopper applications. Flowmatik uses a special instrument just used by the aeronautics to control the exact process of airflow synchronising the dryer with the real process needs. Flowmatik gives an instant report of the real energy saving.



Let yourself
be surprised!



The VIEWER device controls the heating group in split applications.

CRM MODULAR TROLLEY FLOWMATIK MULTI

FLOWMATIK MULTI has the same functions of FLOWMATIK UNI, but extends them by checking up to 32 hoppers at the same time. Flowmatik works as a totaliser managing single hopper requests, and demands to the dryer the exact process air quantity. Flowmatik is dynamic and maximises the energy use with unequal savings.



MULTI HOPPER DRYING

Standard

TMT ON FLOOR HOPPER FRAME

TMT is the ideal solution for multi hopper systems dedicated to medium productions. TMT frames are modular structures developed for hopper batteries from 100 to 800 dm³. There are many possible configurations that can follow the future system developments. TMT can become a VIEWER version with manual valves, an ANTISTRESS version with proper ANTISTRESS valves and a FLOWMATIK version for the heaviest applications.



Three different versions:
VIEWER System
ANTISTRESS System
FLOWMATIK System

VIEWER:
manual regulation of the temperature and of the outlet valve.
ANTISTRESS:
manual regulation of the temperature with automatic antistress difference.
FLOWMATIK:
regulation of material type and hourly production for every hopper with completely automatic cycle and management.



FLOWMATIK control panel equipped with a graphic interface touch screen.

MULTI HOPPER DRYING

Standard



TMR MODULAR MEZZANINES

TMR is a modular solution for multi hoppers or a multi material system on mezzanines. These structures allow a flexible management of the treated materials and a recovery of precious square meters on the floor, where it can be possible to place octabins and containers for materials storage. The versions are VIEWER - ANTISTRESS - FLOWMATIK.

Extreme modularity for "OPEN" SYSTEMS that can be simply managed, dismantled, moved and expanded.



Spyro

DRYING

Standard

ORIGINAL THERMAL EXCHANGER

OTX 40 SERIES
Insulated hoppers

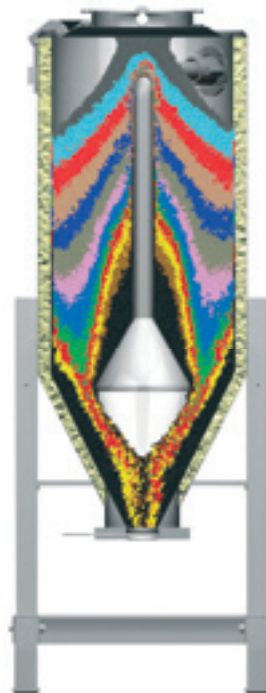
OTX is a special exchanger where material crosses the energy. OTX is the result of deeper studies using a mathematical simulator developed at NASA research departments. OTX:

- a special geometry controls the granule flow during the treatment
- the air flow spreads homogeneously through the granule with a controlled fluidodynamics.
- treatment time reduced of the 40%
- extraordinary efficiency increases the performances of the 66%

The equipment is completed by the Spyro stainless steel anti-wear finishing, over time integrity warranty.

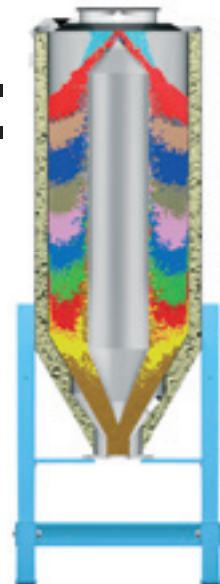


CONVENTIONAL



OTX

=



example:
PC 50 kg/h
3 h
100 m³
300 l

PRODUCTION
TIME
AIRFLOW
CAPACITY

example:
PC 50 kg/h
2 h
60 m³
180 l

-40%

ORIGINAL THERMAL EXCHANGER

OTX 100 SERIES Insulated hoppers

OTX 100 series extends the range capacity up to 19.200 dm³. OTX 100 series is equipped as standard with the openable cone, ensuring safety and on time cleaning operations. They can be used up to 200 °C due to their 100 mm insulation. They are completed with modular frames prearranged for pipes, filters and external heating groups accommodation.



Openable hopper cone.

DRYING

TMM - TMX - HM - DHM SERIES Maintenance hopper

The maintenance hoppers can be placed on the processing machine ensuring the process continuity, with six hopper types, each one for a specific need.

- Mini Series
- Pyrex Series
- Inox Series
- Insulated Series



HM 15
F3



TMM 5

TMM 3

TMM 0

TMM 1



TMX 5

TMX 3

TMX 0

TMX 1



BTM base on maintenance hopper application.



DHM 15
F3



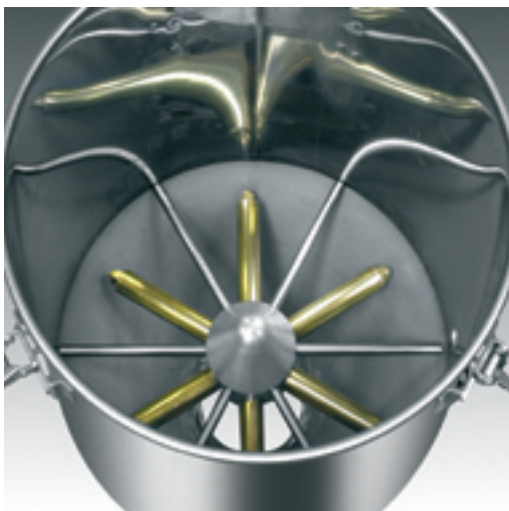
STS star shaped magnetic separator.



STC 0 ÷ STC 2

STC - STS SERIES Magnetic separators

They are developed for use inside the hoppers, the receivers or the containers. Powerful magnets capture little metallic parts from the granule falling flow. The star shaped STS series is suitable to be installed inside the hoppers. The drawer STC series can be installed in column.



Star shaped STS magnetic separator on maintenance hopper application.



Drawer STC magnetic separator.

X Technology

DRYING

Standard

X MAX SERIES Modular dryer

X MAX is an ON DEMAND flexible drying system. It is made of a modular unit series and stand and thanks to its constant efficiency it is possible to realise systems up to 20,000 mc/h basing on six base models. The units can be combined from a minimum of three to ten, whilst one reserve unit allows maintenance operations on the fly. X MAX doesn't use compressed air and cooling water. The control is prearranged to accept up to ten units and the energy recovery is total. X MAX is the best in energy saving.

- ETHERNET connection
- MOWIS connection



XM 906 ÷ XM 922

User interface Touch view control

ONLY TWO PARAMETERS REQUIRED TO BE SET:

La programmazione richiede l'impostazione di due soli parametri:

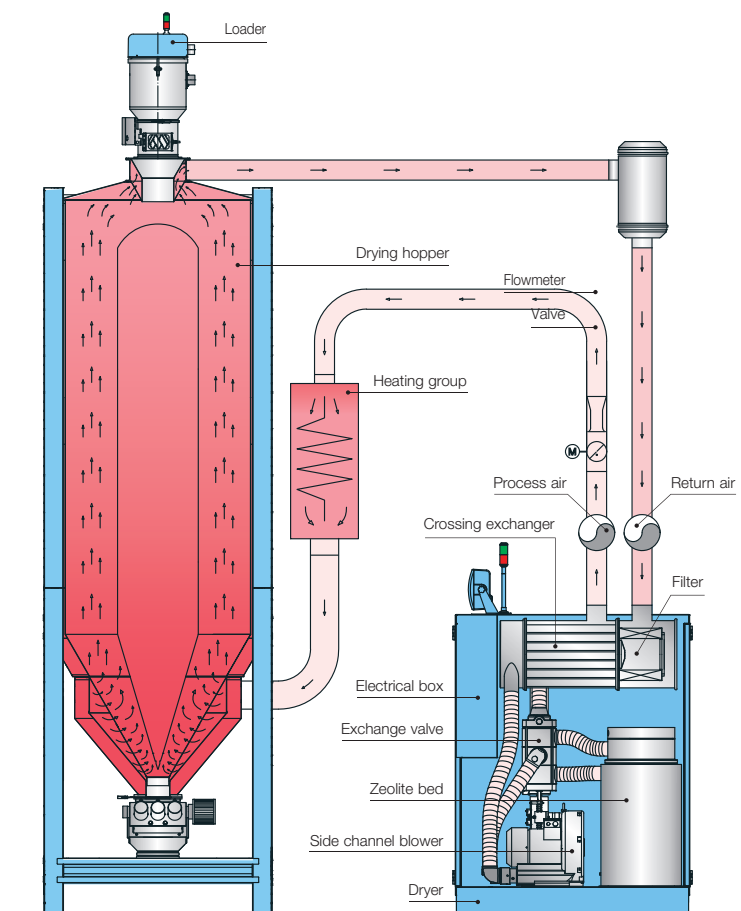
material type	PET
throughput	650



X MAX control panel equipped with graphic touch screen interface.

Constant efficiency

X MAX units can be configured from a minimum of three units to a maximum of ten. Single unit regeneration is made alternatively, unit by unit: one is in regeneration and the others are in process at the same time. The process units are stepped, giving a constant efficiency. The airflow is automatically self-adjustable to the process needs, preserving the polymer by the thermal stress and viscosity changes.



Functional scheme.

DRYING

Standard

- ΣUREKA
- ▶ X MAX
- ▶ FLOWMATIK
- ▶ OTX

Average
Dew point
-65 °C

- Uniform residual moisture
- 40% less drying time
- Energy saving up to 70%
- Modular and expandable solution





Drying Revolution



ΣUREKA combines three technologies that together realise the low consumption system most advanced in the market X MAX - FLOWMATIK - OTX.

The process air generation is the first step and X MAX comes from 10 years of studies around zeolites and goes through SINCRO - X DRYER. X MAX is the most profitable machine on the market and is innovative and flexible, with high performance and constant efficiency - one power, modular, expandable, auto adaptive, with low consumption.

FLOWMATIK manages the right process air, controls the exact airflow with an aeronautics instrument that measures the real cubic meters. Flowmatik is the contact with the dryers to synchronise the production and the air flow without wastes. Flowmatik setting in the right way is necessary to give the air flow gives maximum efficiency in the multi hopper systems. OTX is the crossing point exchange between energy and moisture. In-depth studies contribute to understanding of what happens inside the hopper. A special geometry ensures a correct granule falling flow. The performances have been increased up to 66%, by optimising the air flow and the energy use. In this way, Comparing OTX to a conventional hopper:

- **40% capacity**
- **40% specific airflow**
- **40% treatment time**

Now the process is foreseeable and under control

+ **66% Efficiency**

X Technology

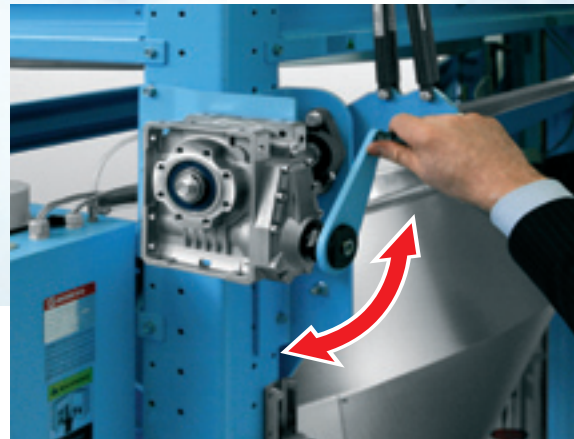
DRYING

MPK SERIES
PET Crystallizer

Standard



MPK is suitable for the treatment of amorphous chips or flakes. It's possible to start the production directly with completely amorphous material. It ensures the highest reliability in the crystallization process, by agitating the shaft equipped with interchangeable blades with reduction gear connected to the shaft by a coupling joint. MPK is equipped with the innovative assisted cone opening system, which allows the opening in only two minutes. With this system, only one man can do the cleaning operations in complete safety.



Assisted cone opening.

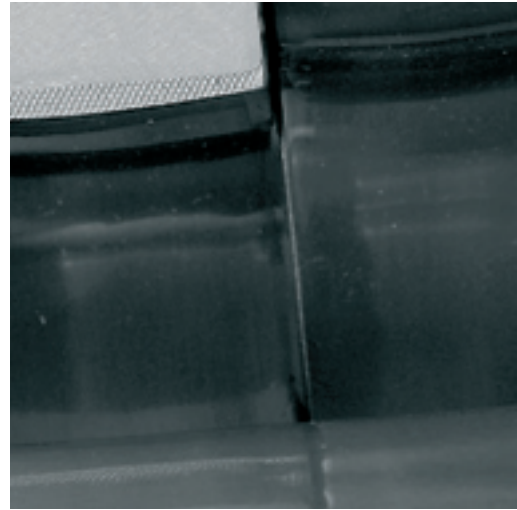


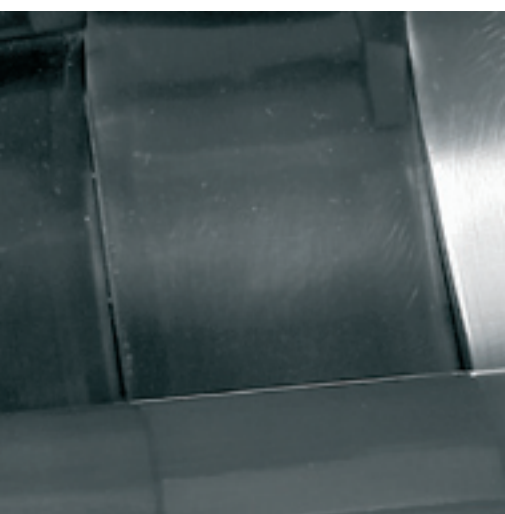
Graphic control touch view.



Easy cone opening only in two minutes.

Standard





GRINDING

GRINDING

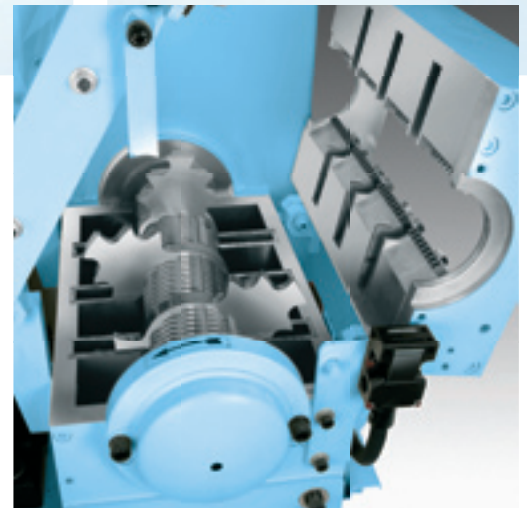
Standard

GRK KASTOR SERIES Grinder

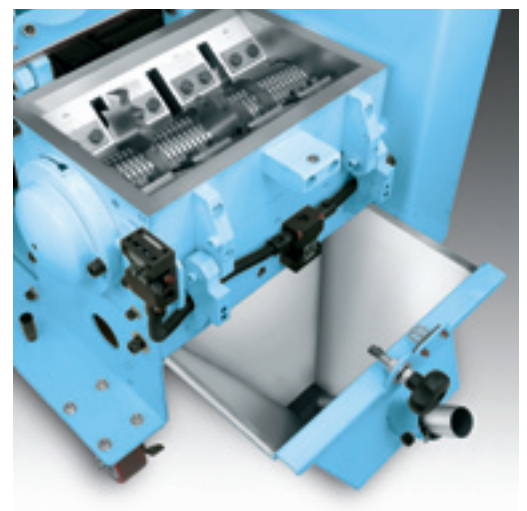
Kastor is a low speed grinder suitable for technical materials grinding. It is able to regrind sprues and moulded items too, thanks to the auto-reverse system. The hopper can be filled and the machine slowly grinds the contents. The noisiness is very low thanks to the low rotational speed and the re-grind material is regular and without dust and the blades are protected by the wear.



GRK



View of the cutting chamber.



Proportional valve regrind material collecting drawer version.

GR - GRV VARIANT SERIES Uni-Multiblade grinders

The granulators in the GR series come in seven sizes, each available in two versions: Uniblade with an angled blade and Multiblade with several blades for better cutting power utilisation. Many other solutions are available for specific applications. The GR Variant series is equipped with a grinding speed adjustment device. It is ideal for dealing with hot and soft sprues. Uniblade and Multiblade versions are available also in this series.



UNIBLADE
Bottles and hollow parts grinding.



MULTIBLADE
Sprues and moulded items grinding.



GR



VARIANT
Control panel with rotor revolution speed knob.

GRINDING

Standard

GR ECO SERIES Grinders

The ECO range differs for its complete integral sound-proofing. These machines, with a large grinding capacity, are built to withstand heavy-duty applications and are ideal for use in waste recovery departments and they are equipped with scissor-effect cut rotors with three and five blades. Time safety and machine opening without tools. Assisted hopper opening.



GR ECO



GRT

GRT SERIES Grinders

Machines dedicated to recover blow moulded sprues: sprues, blow moulded parts, parison at high temperatures, performs regrind and blow moulded parts out line. They are suitable for large and light wastes and for grind material that is just grinded.

RD ROTODUST Dust separators

The Roto Dust separator allows the customer to remove the dust from the regrind material directly into the column on the process machine. Thanks to the use of non toxic material is suitable for the medical and food sector.

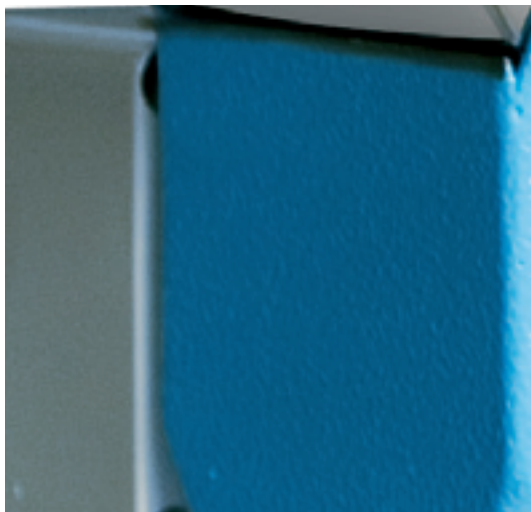
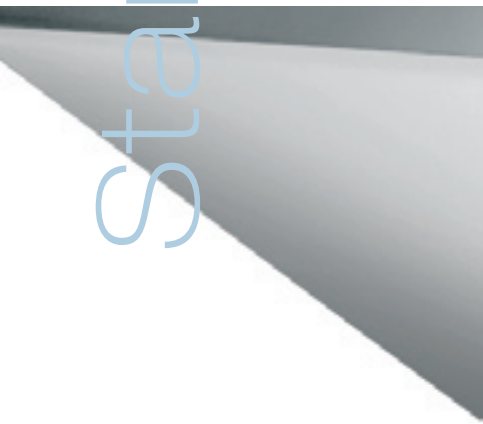


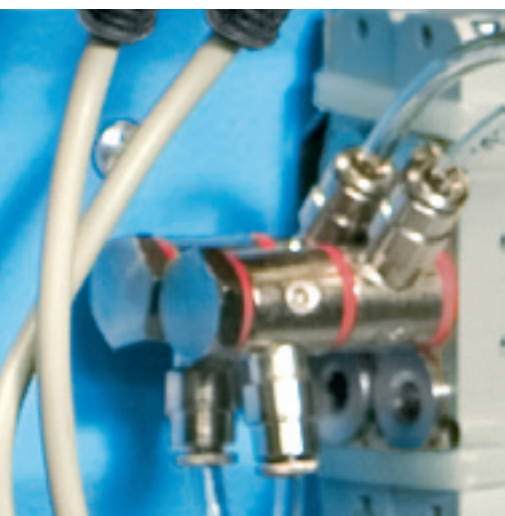
RD



Rotodust.

Standard





MICRODOSING

Hi-Fi Dosing

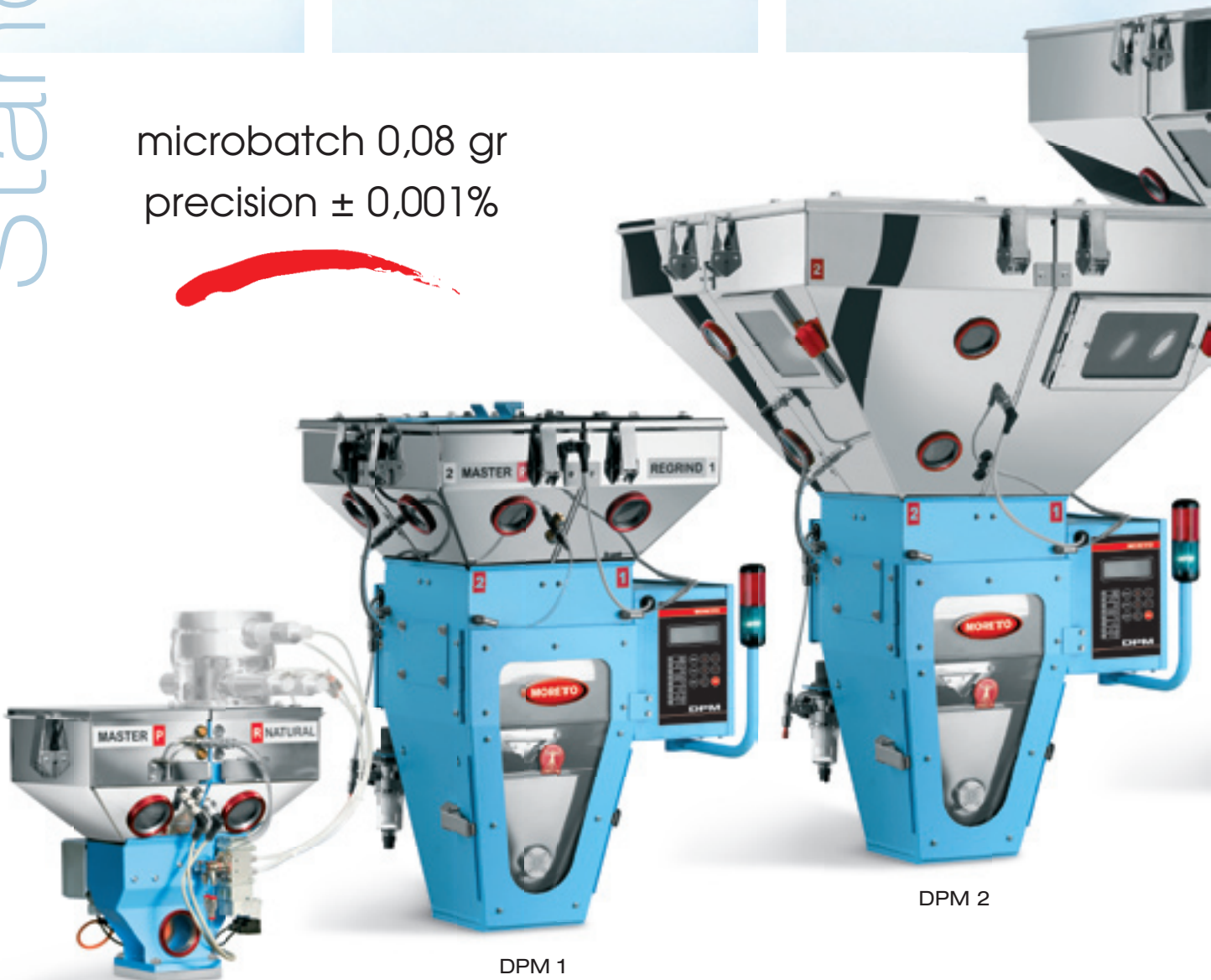
MICRODOSING

Standard

DPM SERIES Microdoser

ROTOPULSE is the final solution for masterbatch microdosing. The exclusive hollow rotor system is immune to vibrations and the precision is unrivalled. It is available in two component versions, natural and master, or also in four component versions. The range has four base models with different capacities and equipments.

microbatch 0,08 gr
precision $\pm 0,001\%$



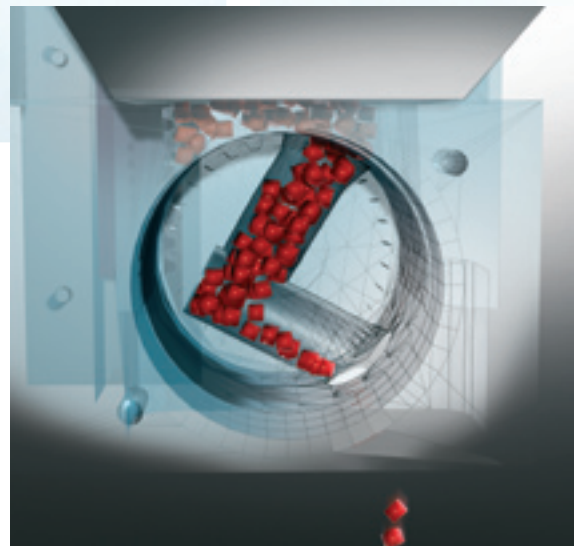
DPM 0

DPM 1

DPM 2



DPM 4

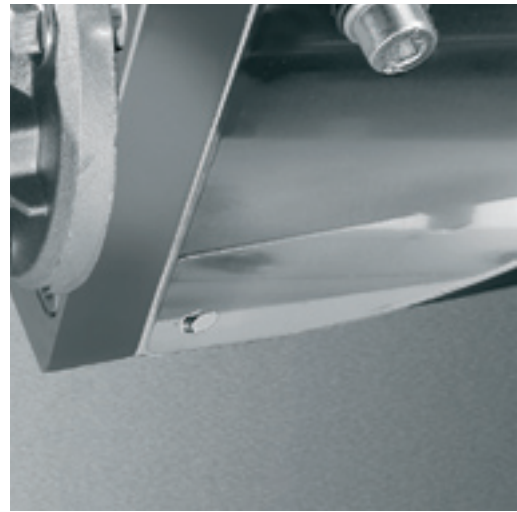
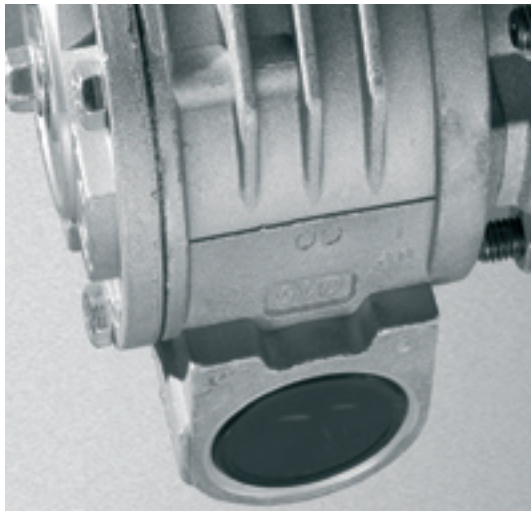
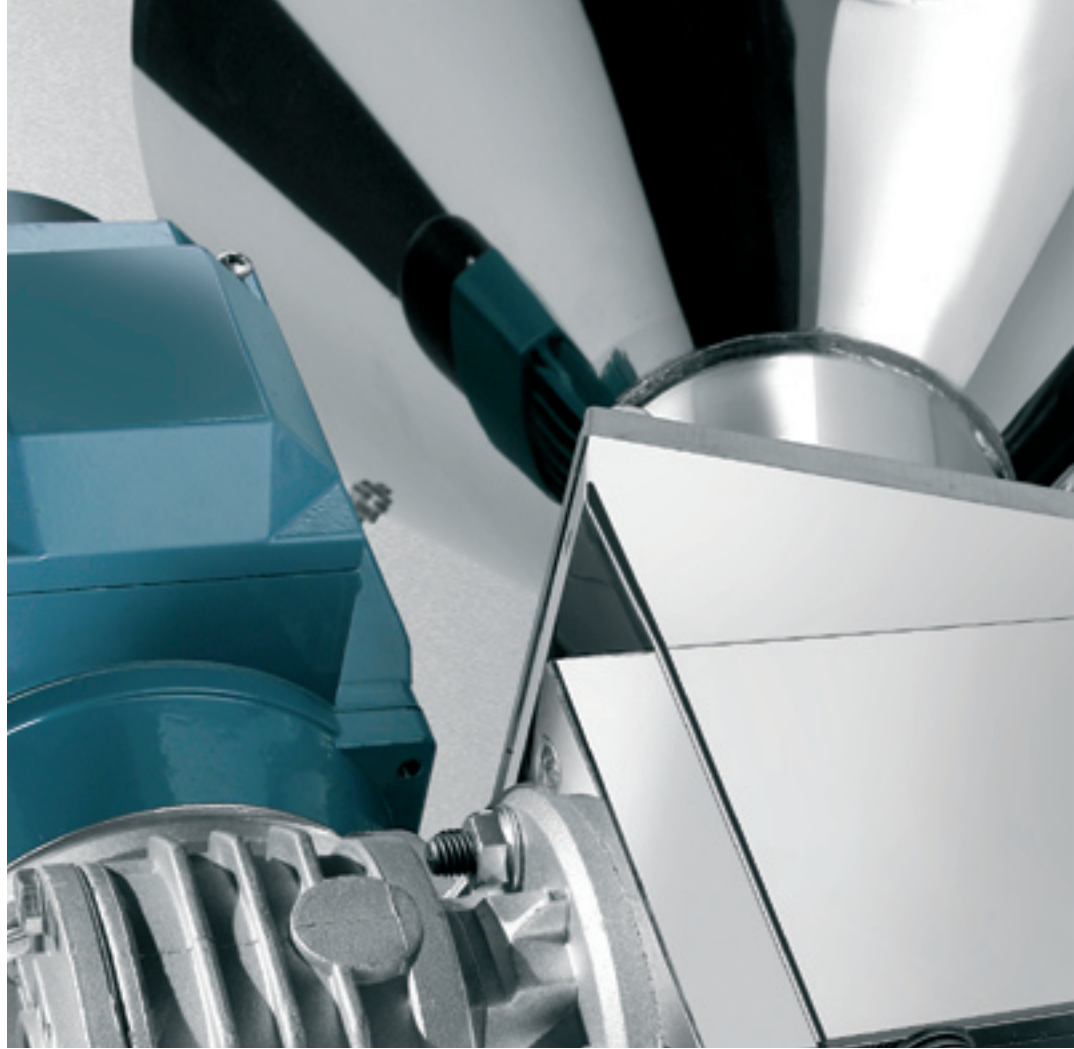


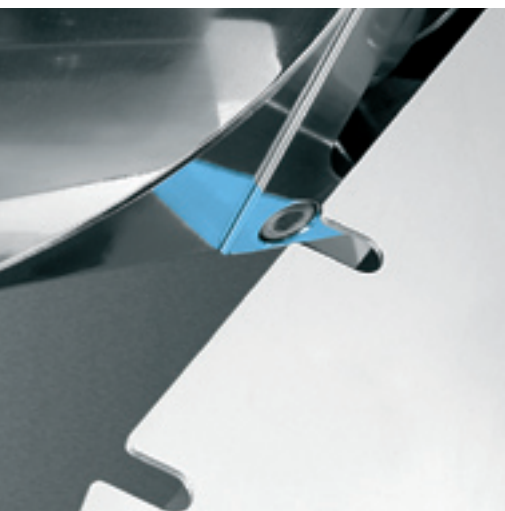
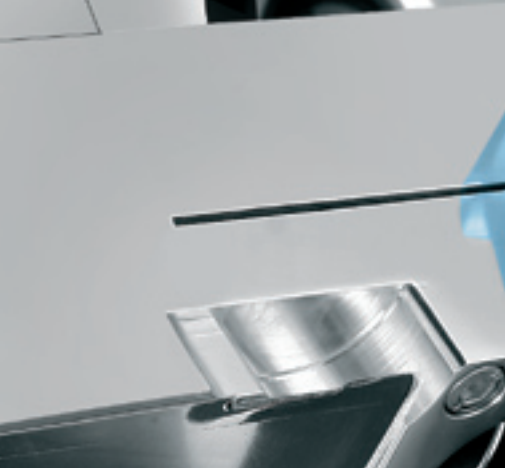
ROTOPULSE System.



Double eye-lid System.

Standard





VOLUMETRIC DOSING SYSTEM

VOLUMETRIC DOSING SYSTEM

DVM SERIES Volumetric dosing unit

The DVM volumetric dosing units are very handy. The direct percentage setting simplifies the programming operations and the use is very flexible thanks to the 100 receipts on memory. The inclined screw controls the accidental granule flow down due to vibrations.



DVM 2 - TVX



DVM 2 - MVX

DVM - H High temperature volumetric dosing unit

Great attention is paid to polymers, but it is very often forgotten that masterbatch can contain a considerable amount of humidity. DVM H is a volumetric screw doser designed for high temperatures up to 180°C. The dosing body is thermally insulated, with direct percentage setting and 100 receipts on memory and using a stainless steel interchangeable dosing screw.

- No water cooling



Up to 180 °C

DVM 2 H

VOLUMETRIC DOSING SYSTEM

Standard

DVX WITH HORIZONTAL MIXER SERIES Dosing system

DVX series dosing systems with horizontal mixer. They can be directly installed on the machine. The use of inclined screws prevents the granules from falling into the system accidentally. The horizontal mixer can be configured with two to four stations. These configurations use cylindrical stainless steel hoppers.

- Direct percentage setting
- 100 receipts on memory



Easy calibration system.



DVX 3



DVX 20

DVX WITH VERTICAL MIXER SERIES Dosing system

The DVX series dosing systems with vertical mixer can be directly installed on the processing machine. The mixer can be fitted with vertical agitator. The mixer is accompanied by a desk-control panel with a highly intuitive user-friendly touch-screen interface. The vertical mixers can be prepared for use with a maximum of ten dosing units.



Touch view interface.

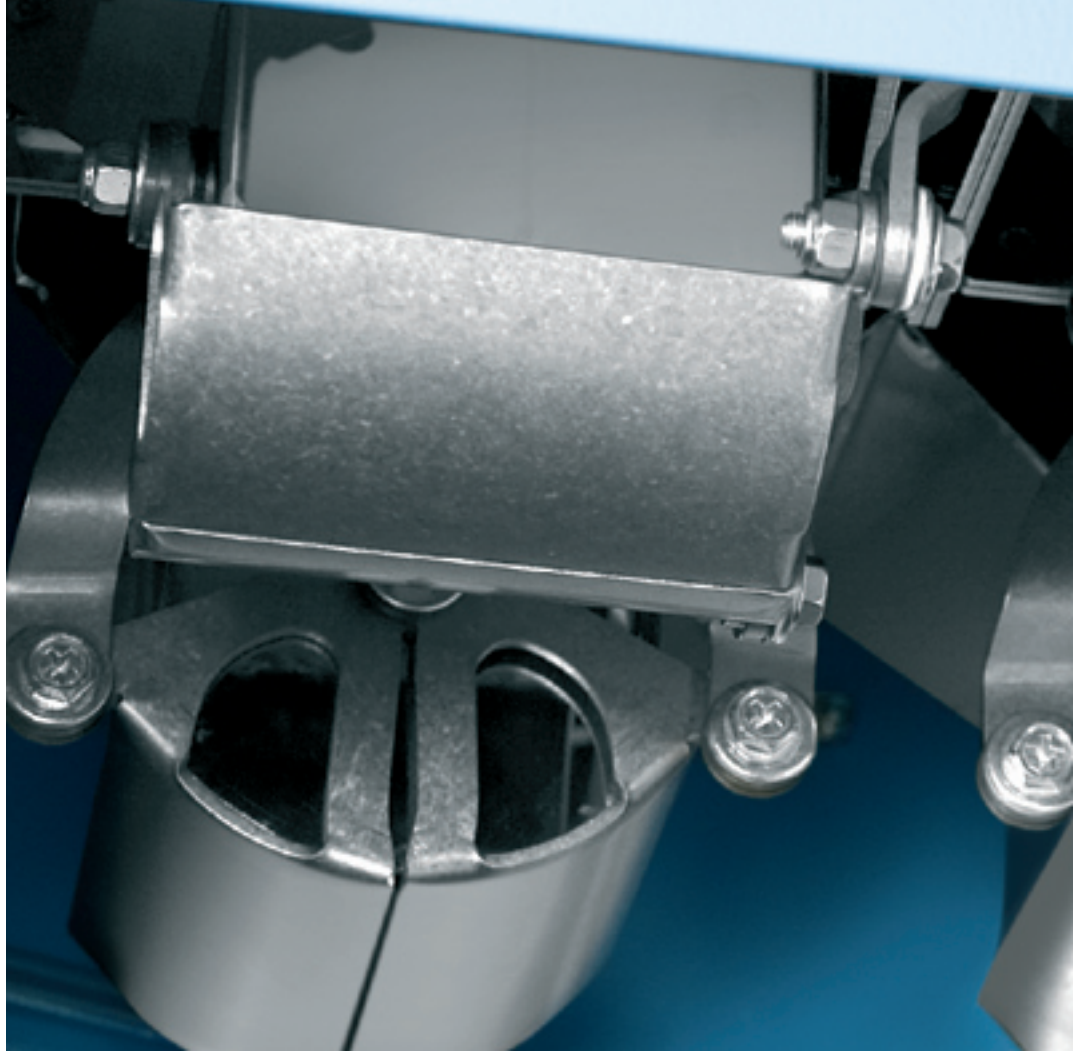
DVL LIQUIDOSER Dosing unit for fluids

LIQUIDOSER dosing units have been designed specifically for dosing liquid pigments. It can be possible to choose three different flows according to the quantity or percentages to be dosed. Dosing unit for fluids can be combined with gravimetric dosing units too.



DVL

Standard





GRAVIMETRIC DOSING

Shutter Speed

GRAVIMETRIC DOSING

Standard

DGM GRAVIX SERIES Gravimetric dosing unit

The gravimetric dosing units of the GRAVIX series stand out for the high precision and its Vibration Immunity System that allows the installation even on the blow molding machine. These machines have a precision of 0,001% thanks to the exclusive free weighing hopper system and the double eyelid discharging system. The object programming with an intuitive user touch screen interface make the process management easy. The machine integration with remote control and supervising systems is easy due to the connections with Modbus, USB and Ethernet port. The range includes 1.180 models with throughput capacity up to 12 tons/h and the possibility to dose up to 12 components. 200 recipes in memory is available in these high performance machines.





DGM 10

Vibration Immunity System +
Weighing Algorithm =
± 0,001% precision

Versions:

- Dried materials
- ROTOPULSE
- High temperature (180 °C)
- Medical
- Flakes
- Antistatic
- Corrosion-proofing

Shutter Speed

GRAVIMETRIC DOSING

Standard

DGM GRAVIX SERIE System exclusivity

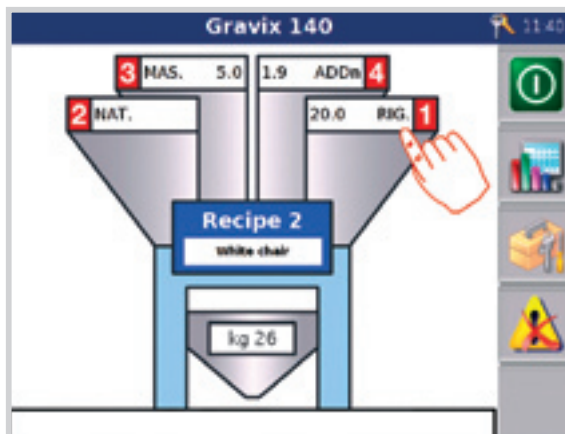
DOUBLE-EYELID SHUTTER, FREE WEIGHING HOPPER, DIGITAL TECHNOLOGY
The GRAVIX project is based on the double eyelid shutter. The reaction speed of 25 ms is not perceptible to the naked eye, but is necessary to ensure high precision levels. The weighing hopper is free from all mechanisms, cables or pipes for compressed air and weighing is therefore without disturbance factors and gives real values very close to the material requirement calculated by the microprocessor. The precision is $\pm 0.001\%$. The sophisticated devices of the GRAVIX weighs each component 100 times per second, obtaining the correct value on the basis of specific algorithms. The digital technology provides improved tolerance to temperatures, ensuring constant control even with hot dried materials.

25 ms

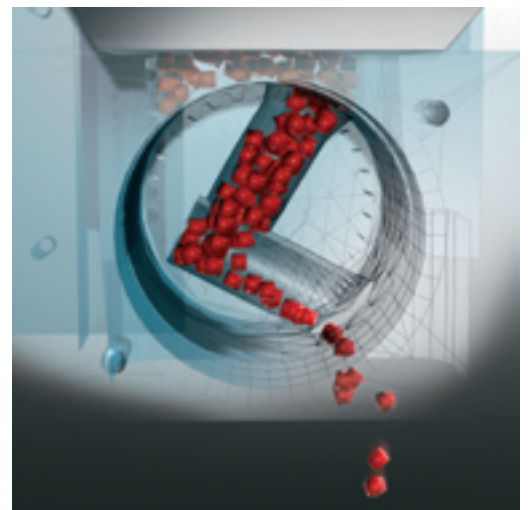
Reaction time



Double eye-lid System.



Super Easy Touch View Control.



ROTOPULSE System.

User Interface Super Easy Touch view

The new DGM version is equipped with the innovative Super Easy touch screen interface. The use of icons to represent the parameters better supports the operator in the machine and process management.

Connections

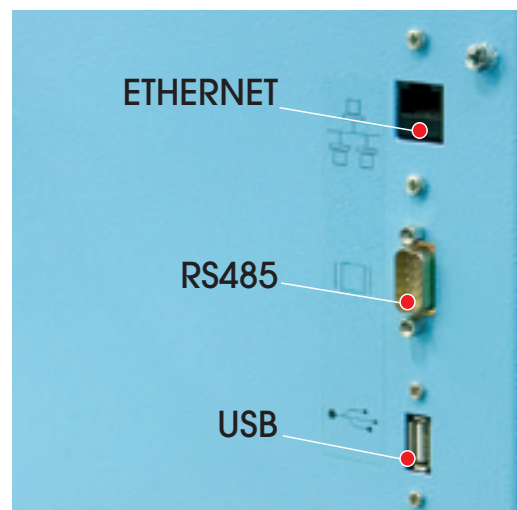
- USB Port
- Ethernet Port
- RS485 Modbus
- Wireless Connection
- MOWIS Connection



Remote control with wireless device.



EASY Interface.



Connection ports.

Standard





STORAGE

STORAGE

Standard

M SERIES Vertical mixers

These are a range of vertical mixers, which represents a competitive solution, in mixing operations of batches of plastic materials. They are easy to use thanks to inspection doors for easy cleaning, a discharge valve and a recirculation valve. Capacity from 200 to 20,000 dm³ can be achieved and the machine can also be supplied in stainless steel, if desired, upon request.



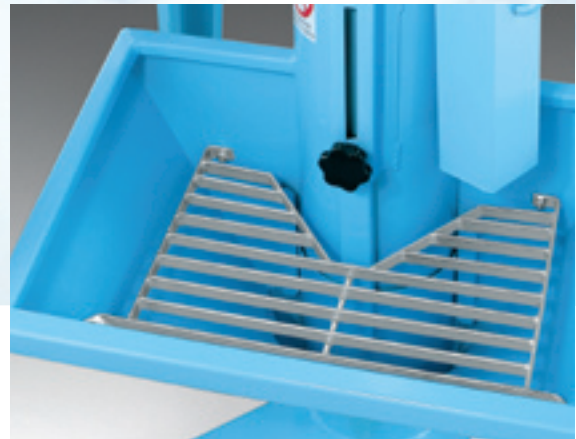
M 200



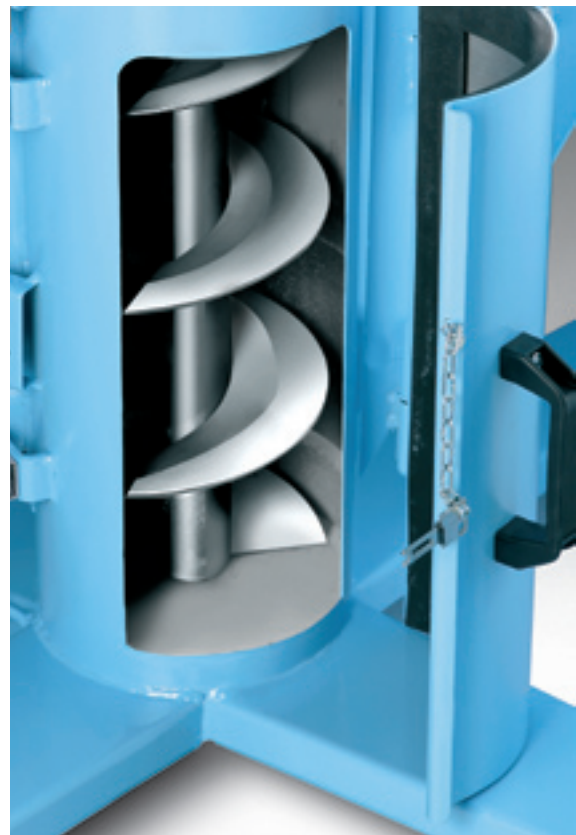
M 500



M 1000



Loading hopper with protection screen.



Inspection door equipped with safety devices.

STORAGE

CS SERIES Master trolley

Support frame with stainless steel hopper for the storage of masterbatch in granule. The modular system is composed by hoppers of a capacity of 50 dm³ each. The hoppers are all removable to permit the cleaning operation in an easy way. They are equipped with an Antiblock manual discharge slide gate valve.



CS 1250

CS SERIES Daily bins

The CS series storage bins are suitable for storage, conveying and handling of plastic materials. Available in six sizes from 40 to 800 dm³, they are made to contain the correct quantities of plastic granules depending on daily manufacturing needs. Daily bins with lids protect plastic granules from ambient contamination such as electrostatic dust against their stainless steel armor. These bins are useful in case of material daily storage besides the processing machine.



CSP SERIES Daily bins powder & flakes

The CSP series storage bins are suitable for storage, conveying and handling of difficult materials like powder, regrind material and/or thermoforming scales. Their specific structure simplifies material flow and avoids any material stagnation. Daily bins with lids protect plastic granules from ambient contamination such as electrostatic dust against their stainless steel armor. Equipped with a large door on top, it can be easily accessed for cleaning operations.



Bag-breaker screen.



CS 2 P

CS 3 P

CS 1 P

STORAGE

Standard

SILTEX SST Textile silos

The indoor storage bins of the Siltex series are a competitive solution for plastic granules storage. They are particularly convenient thanks to the competitive cost; thanks to the very compact assembling kit, the shipment is facilitated. All the options of the stainless steel storage bins, including bridge-breaker and shakers, can be applied on the indoor Siltex. They can be loaded with thrust loading group and are pre-arranged for the loading by vacuum with three-phase systems or centralized systems.



SS SERIES Indoor silos

Moretto offers a range of SS silos with capacities from 1.800 to 15.000 dm³, which can solve any installation problem, whenever a battery of silos cannot be installed outside. They have a sturdy structure and are installed on a supporting frame. They can be equipped with vertical ladders and mezzanine walking areas. If installed in the component warehouse, the SS series affords ideal storage, thus allowing substantial space to be recovered.



SS

STORAGE

Standard

RBB FILLER Big-bag filler

This equipment has been realised to load big-bags coming from regrind and pelletizing units. The big-bag is tensioned and balanced by braces and then inflated to enhance its loading. An expanding and locking device is applied on the neck of the big-bag in order to avoid dust release in the ambient. The modular construction allows the customer to load different sizes of big-bags: 500 - 800 - 1.000 up to 1,500 kg of capacity. Several applications are available for loading the hoppers, slide gates, level sensors, and weighing systems.



Expanding and locking device for the Big-bags neck.



SB BAGGY 10 Big-bag unloader

Baggy is suitable for the use at the process machine side. It has been developed to allow the big-bag discharge by falling and it has a modular structure that allows the customer to treat the different bag sizes with absolute safety. Big bag discharger doesn't require any other cost. When it's not used, BAGGY is easy to disassemble and is stackable, reducing the space at the minimum quantity required.



Bag connection bollard.



Accumulation tank.



SB BAGGY 10

STORAGE

Standard

SBB 10 Big-bag unloader

Big-bag discharge systems are widely used today in plastic processing. The Big-bag dischargers are available in different sizes and versions, including stainless steel models, for flakes and regrind material, even for bottle treatment, specifically designed for the use in the medical sector. A version for the treatment of regrind scales and bottles scales is available. The structure of the big-bags unloader is modular and telescopic to be adapted to the several dimensions of bags, from 500 to 1.500 kg. An electrical lifter is available for the operations of bags loading and is pre-arranged for bridge break vibrator applications.



SBB 10



Bag blocking device.



Door for the safety unhook of the bag.

SBB 15 Big-bag unloader

The big-bags are largely used for the commerce of plastic granules, but they are not standard packaging as regards capacity and dimensions. The equipment for the treatment of the big-bags must be adaptable according to the situation. The SBB 15 can contain bags from 1.000 up to 1.500 kg. On these machines, poorly flowing materials such as regrind and/or scales can be treated through the application of bridge-break devices, shakers and pulsed suction probes. Electrical hoisters up to 1.500 kg can be applied. It is a complete machine, for every need.



SBB 15



Lifting operations.

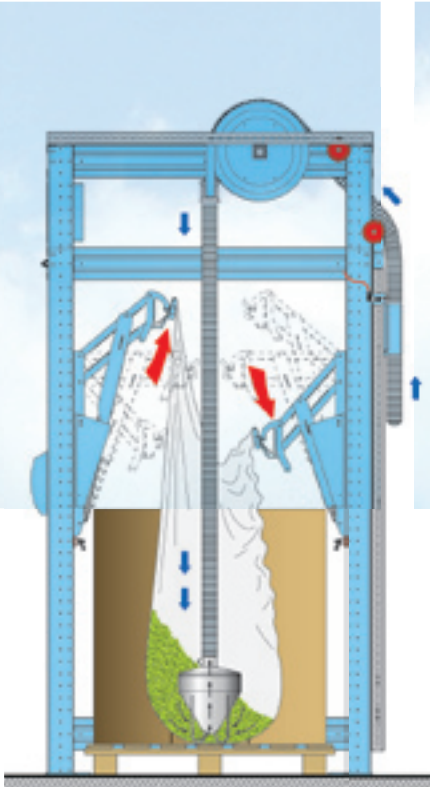
STORAGE

Standard

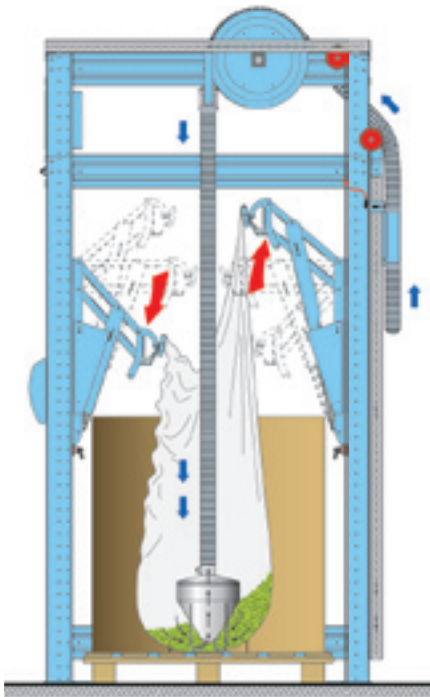
OKB OKTOBAG Octabins - big-bags unloader

OKTOBAG is an innovative machine; unique and dedicated to the unloading of octabins and big bags automatically. OKTOBAG treats octabins with a maximum height of 2.000 mm. It hooks the bag through four pliers working by gravity and keeps the bag tightened. In this way the granule is brought to the middle of the bag where a probe will suck the material. The complete bag emptying is easy and automatic thanks to the arms WAVE movement without any material loss and any operator's activity.





WAVE cycle start.



WAVE cycle.

The WAVE movement brings sequentially the residual granule to the middle of the polythene bag and it is completely sucked by the probe. At the end of the suction cycle, a proper sensor activates the independent arms. OKTOBAG is able to completely empty the polythene bag or the big bag.



Gravity pliers.

STORAGE

Standard

OKP OKTOPET Octabins unloader

The preforms are stocked in octabins to be placed in the warehouse waiting for the blow-moulding process. Then the octabins are moved close to the blow-moulding machine for the last phase of the process. OKTOPET has been designed for the unloading of the octabin on the buffer of the blow-moulding machine. This operation is made by OKTOPET in safety, with a completely automatic mechanism and using only electrical energy. OKTOPET is provided with speed variator for a gentle treatment of the preforms.



OKT OKTOMATIK Octabins unloader

The OKTOMATIK provides for a complete and automatic discharge of the octagonal carton. It can treat octabins with a weight up to 1,500 kg and height up to 2,300 mm. The machine is noiseless, efficient and it can treat up to 12 octabins per hour. The mechanism is completely electric, safe, and maintenance free.



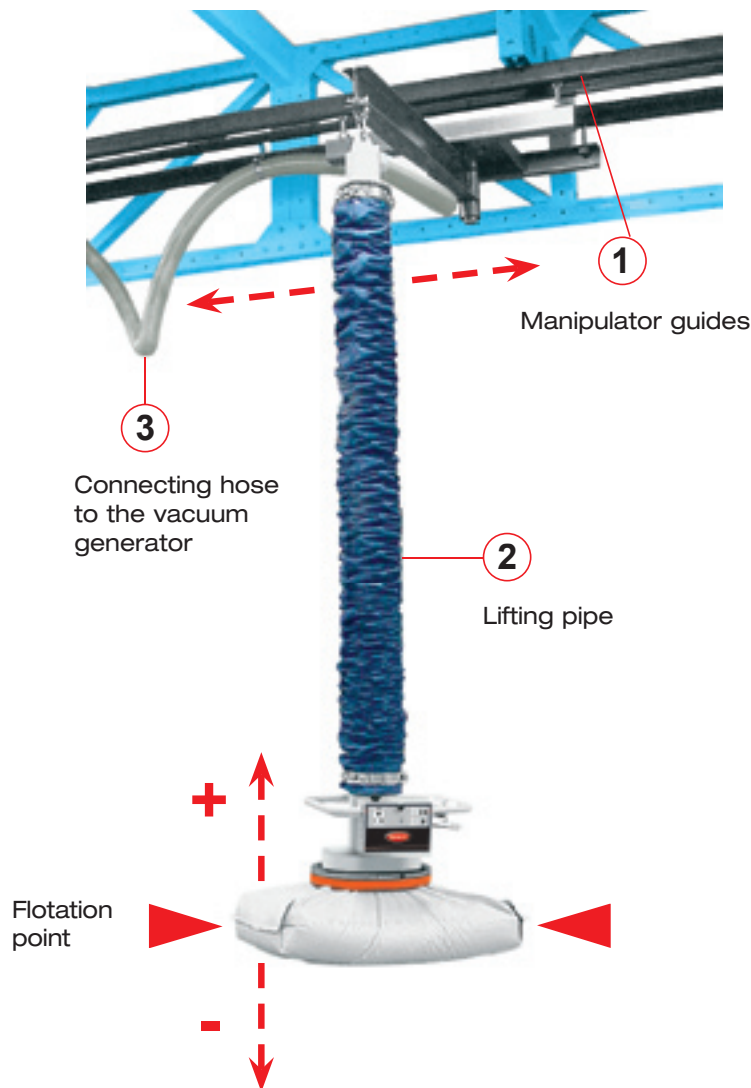
OKT

STORAGE

Standard

LIFTER Bags manipulator

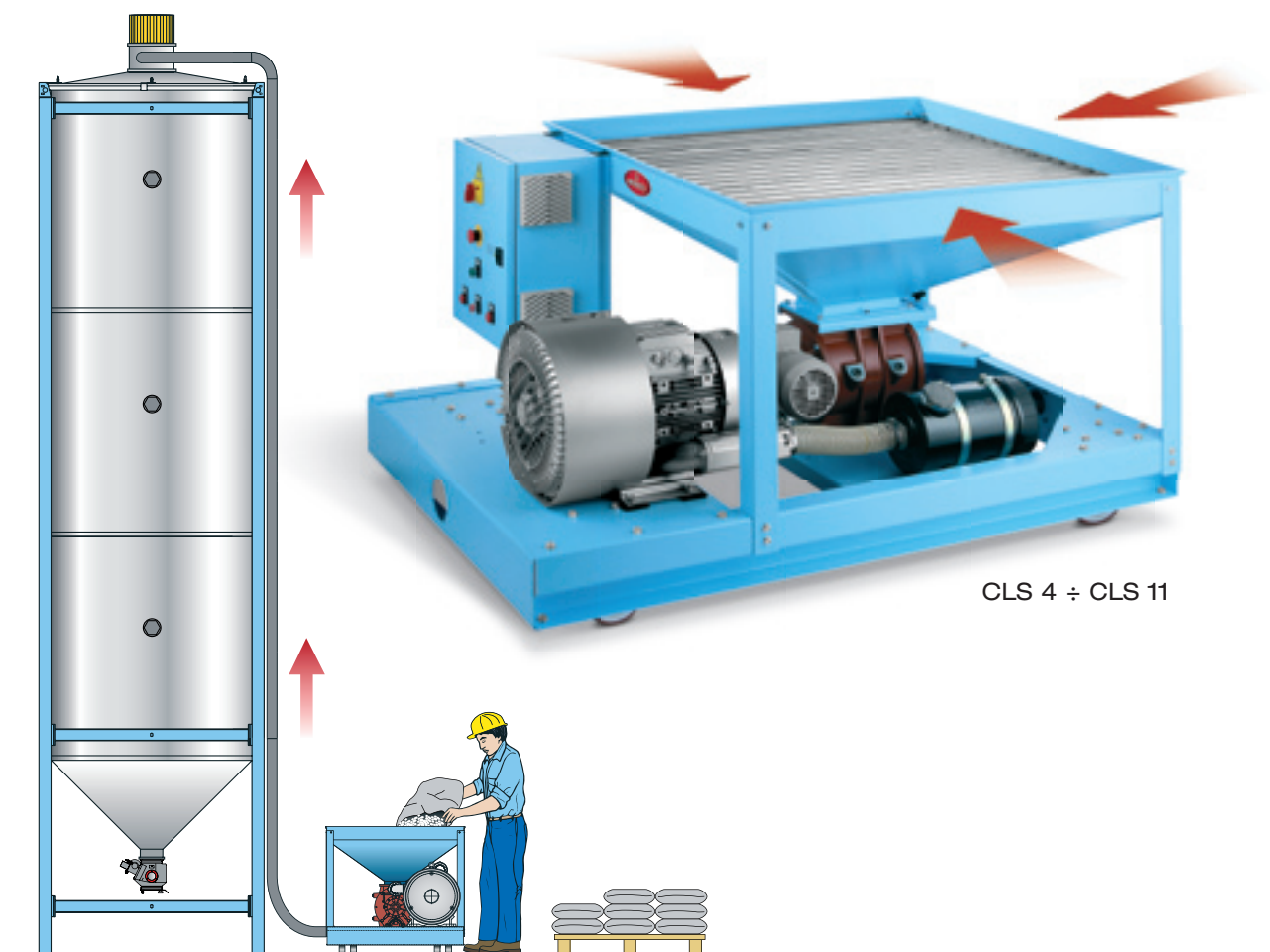
Lifter has been developed for the handling of plastic material in granule. By means of a vacuum unit, it is calibrated on the weight to be lifted. In this way, the flotation point can be adjustable, making the handling easy for the operator. The device is safe, ergonomic and, thanks to its flexibility, it guarantees higher productivity for the bags handling. LIFTER is equipped with a handgrip with integrated control for an easy use by the handler. It is installed on a double rail made of steel, over the defined operation area.



Detail of the suction cup with handle of the manipulator.

CLS SERIES Thrust loading groups

Thrust loading units for indoor silos with three ranges of products, together with different compressors with throughput ranging up to 8.000 kg/h.



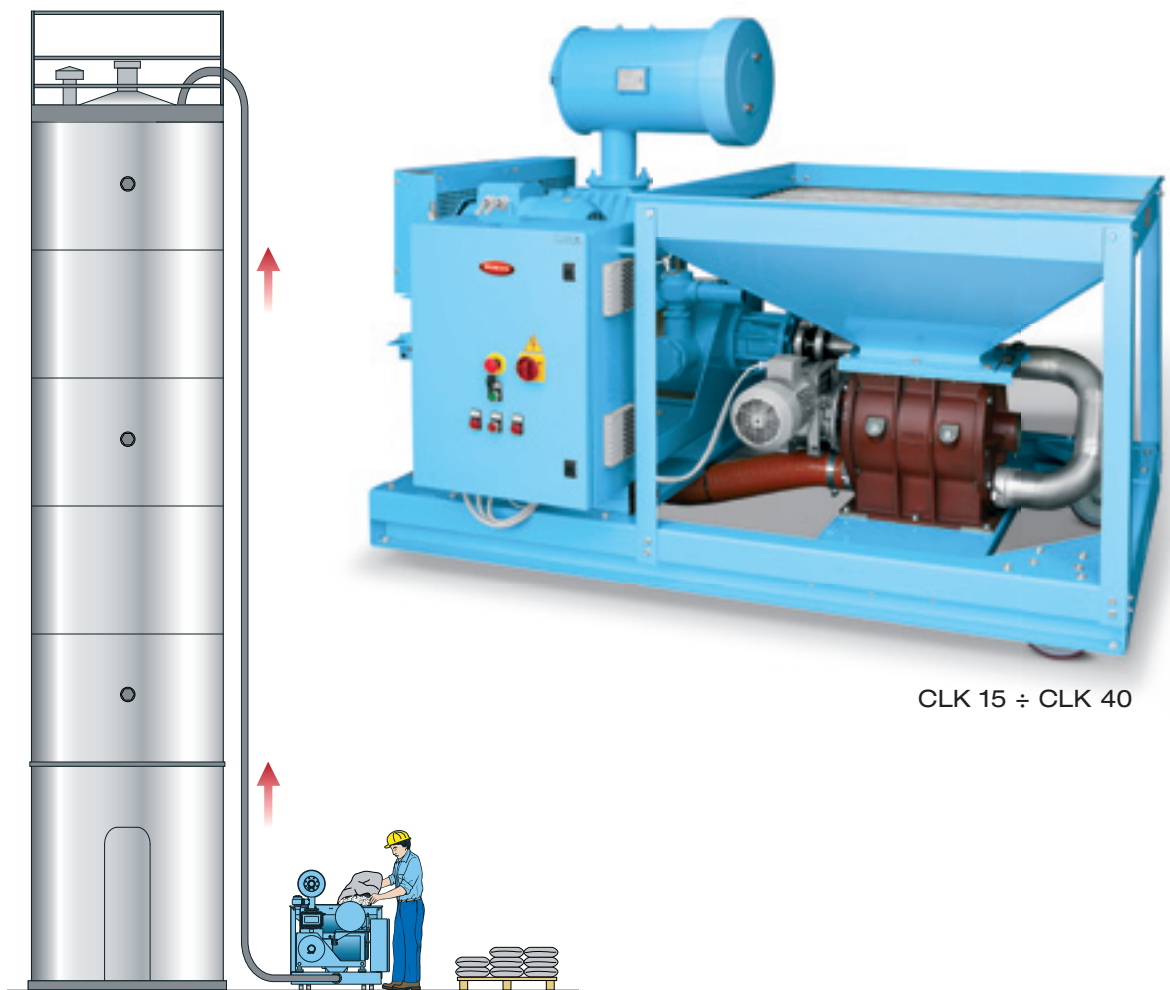
Example of use of thrust loading unit with SS indoor silos.

STORAGE

Standard

CLK SERIES Thrust loading groups

The thrust loading groups are fit for the loading of small silos and external silos and they treat large quantities of granule in a short time. They can treat bags, big-bags and octabins. They are equipped to adapt the production to the specific solution, with productivity up to 40.000 kg/h.



CLK 15 ÷ CLK 40

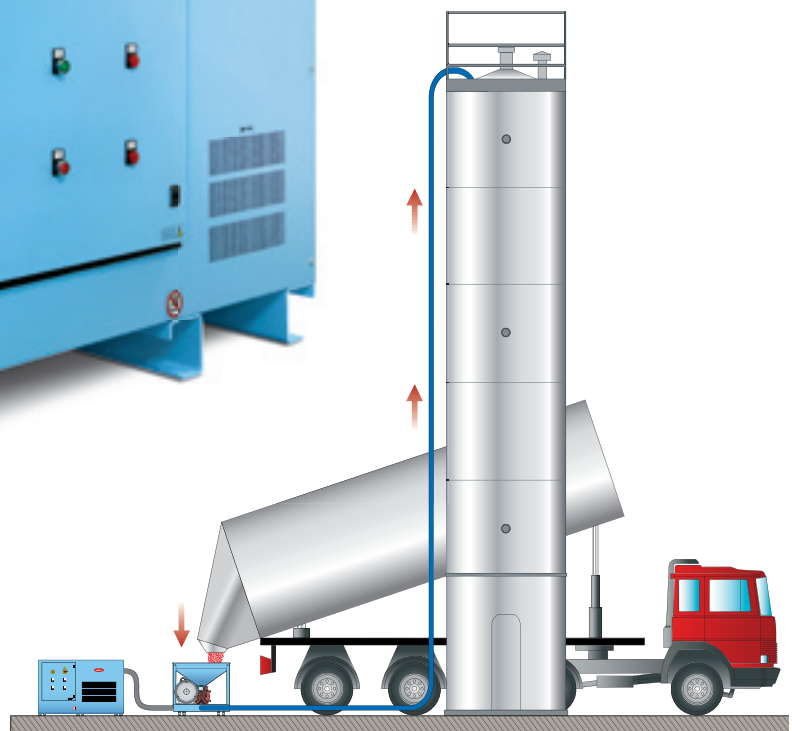
Example of use of the thrust loading group with external silos.

CLD SERIES Thrust loading groups

The CLD series is dedicated to the thrust transport of big quantities of plastic granule. It is fit to unload big bags, tank trucks and tank wagons and it is able to transport up to 50 tons of plastic granule per hour. Equipped with a special compressor, it can work up to 2 bar. The synchronism pump-rotocell is guaranteed by a proper device which prevents possible obstructions.



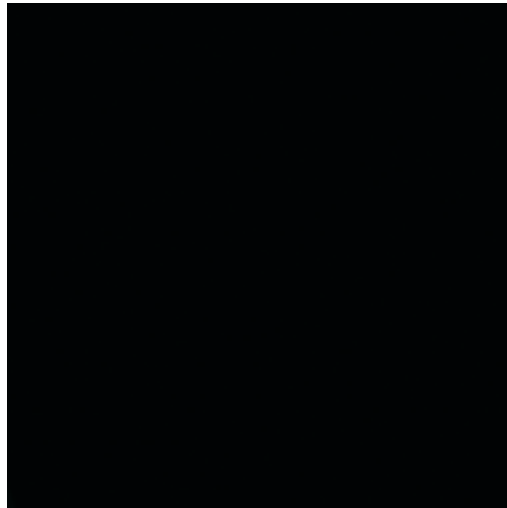
CLD 55



Example of use of the thrust loading group with external silos.

Standard





THERMO

Untouchables

TEMPERATURE CONTROL

Standard

THX - THW - THP SERIES Thermo series temperature controllers

The THW-THX water-operated temperature controllers are built in stainless steel and are corrosion-proof. The stainless steel resistances and the brass pump provide total protection. Operating precision is guaranteed by top quality components.

THP is a pressurised water-operated temperature controller for a maximum operating temperature of 145 °C. It is now produced on the same frame as the THW-THX for easy positioning below the injection moulding machine. The work pressure is digitally controlled. THP is available for heating powers up to 12 kW.



Detail of the control devices.



Lifelong

TE-KO TK W - TK O SERIES Temperature controllers

TE-KO reflects all of the features of the previous series and improves the performances. TEMPERATURE KONTROL, abbreviated TE-KO, is a reliable and sturdy temperature controller, available in the water operated version (working temperature 95 °C) and oil operated version (working temperature 160 °C). The range includes the compact, portable, high-performance TE-KO 0 model, and other models with power range up to 15 kW.



Super filter (TEKO - S).



Untouchables

TEMPERATURE CONTROL

Standard

TWP SERIES

Press series temperature controllers

TWP is a pressurised water-operated temperature controller for a maximum operating temperature of 150 °C. The working pressure is digitally controlled. It is equipped with high-performance thermal exchanger. TWP is available for heating powers up to 54 kW. The circuit is made with ISO flange system for high pressure.

Untouchables



TOP - TOP H SERIES

High temperature series temperature controllers

Diathermic oil temperature controllers are used for operating temperatures up to 250 °C and precision ± 0.5 °C. The magnetic drive pump is suitable for operating temperatures up to 350 °C and allows high head. These temperature controllers are available for heating powers up to 54 kW.

Untouchables

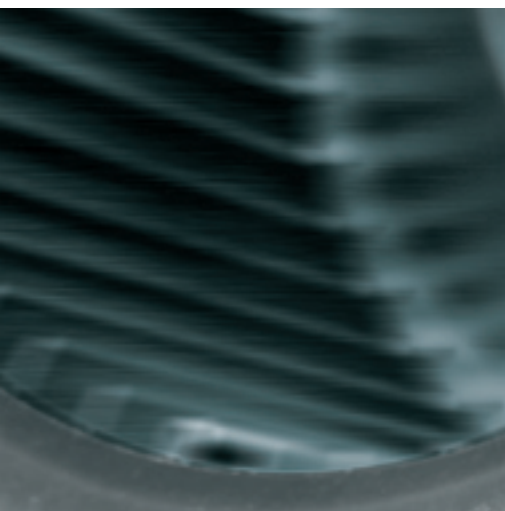
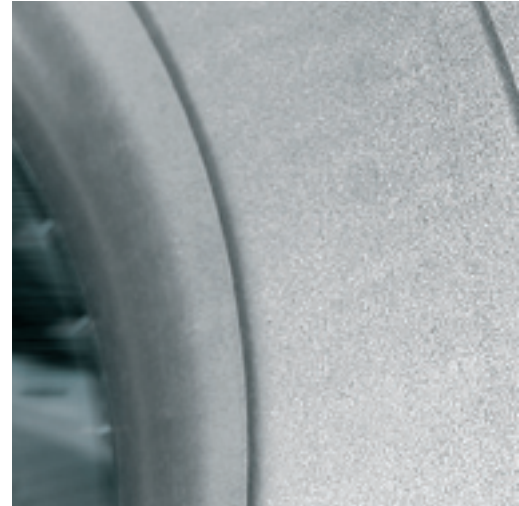


TOP

TOPH

Standard





COOLING

Combi-stainless steel

COOLING

Standard

RC MINI SERIES Chillers

Stainless steel chassis, Scroll compressors, axial fans and stainless steel plate heat exchangers are the main features of the Moretto Mini Chillers. These machines are built to last and provide a high level of performance.



RC COMBI UNI SERIES Chillers

The Combi UNI chillers series are available in 14 sizes with power up to 1,000 kW. They are equipped with a hydraulic circuit, complete with pump and large insulated accumulation tank. The reduction of compressor cycles per hour improves the efficiency and the durability over time. The liquid is automatically filled, and all the models are prearranged for the glycol filling. High performance machines with C.O.P. of 6.0.

- Centrifugal fan as standard
- Four sucking sides



RC 40 ÷ 100



Centrifugal fan.

Combi-stainless steel

COOLING

Standard

RC COMBI MULTI SERIES Chillers

The modular design means that several machines can be combined, even at different times. It is sufficient to install a second control instrument to allow programming of one single set temperature for both circuits, while the original instruments remain active to display possible indications of the individual circuit alarms.



Combi MULTI control panel.

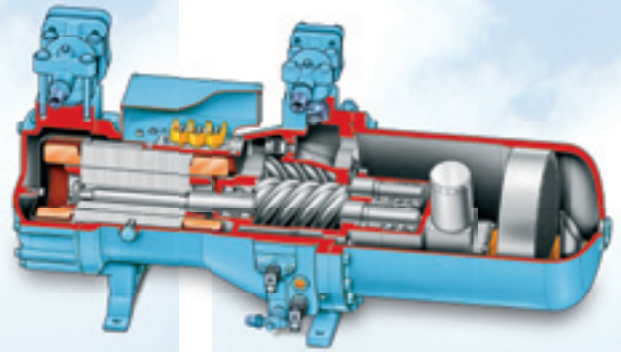


RC 120 ÷ 200

Variant

RCV VARIANT SERIES Chillers

The Variant chiller series has been specifically designed for heavy-duty tasks. These machines are equipped with centrifugal fans and a variable power screw compressor and can supply cooling capacity to suit all needs. An optional device for extra energy saving is also available for this series of chillers.



Screw compressor.



RCV 250 - RCV 350

COOLING

Standard

GP SERIES Pumping groups

Exchangers for liquid circulation are necessary with glycol-operating circuits; a wide range of high performance pumping groups.



GP 4 - GP 5



GLK

GLK Glycol loading kit

In the cooling centralised systems, the anti freeze glycol has to be added so that the risk of ice is eliminated. This device has been developed for the automatic integration of the glycol. The system is filled with the glycol liquid and the pump will integrate the circuit if required. This system is completely realised in anti-corrosive material.

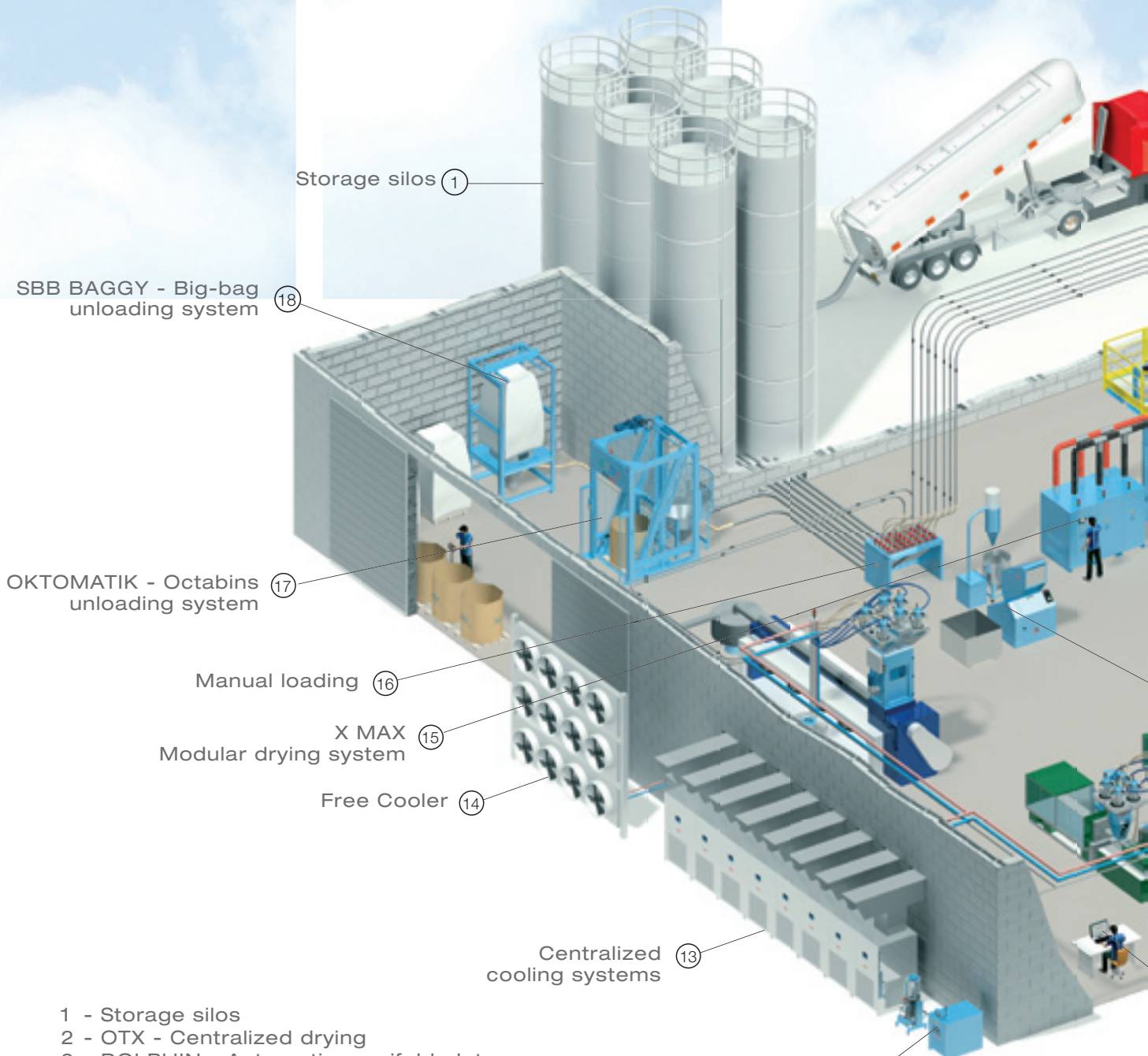
TV - FREE COOLER Thermal convectors

Large temperature control systems can be integrated with Free Cooler thermal convector batteries, when the external temperature allows this. Free Coolers provide high energy savings with moderate plant investment costs.



CENTRALIZED SYSTEMS

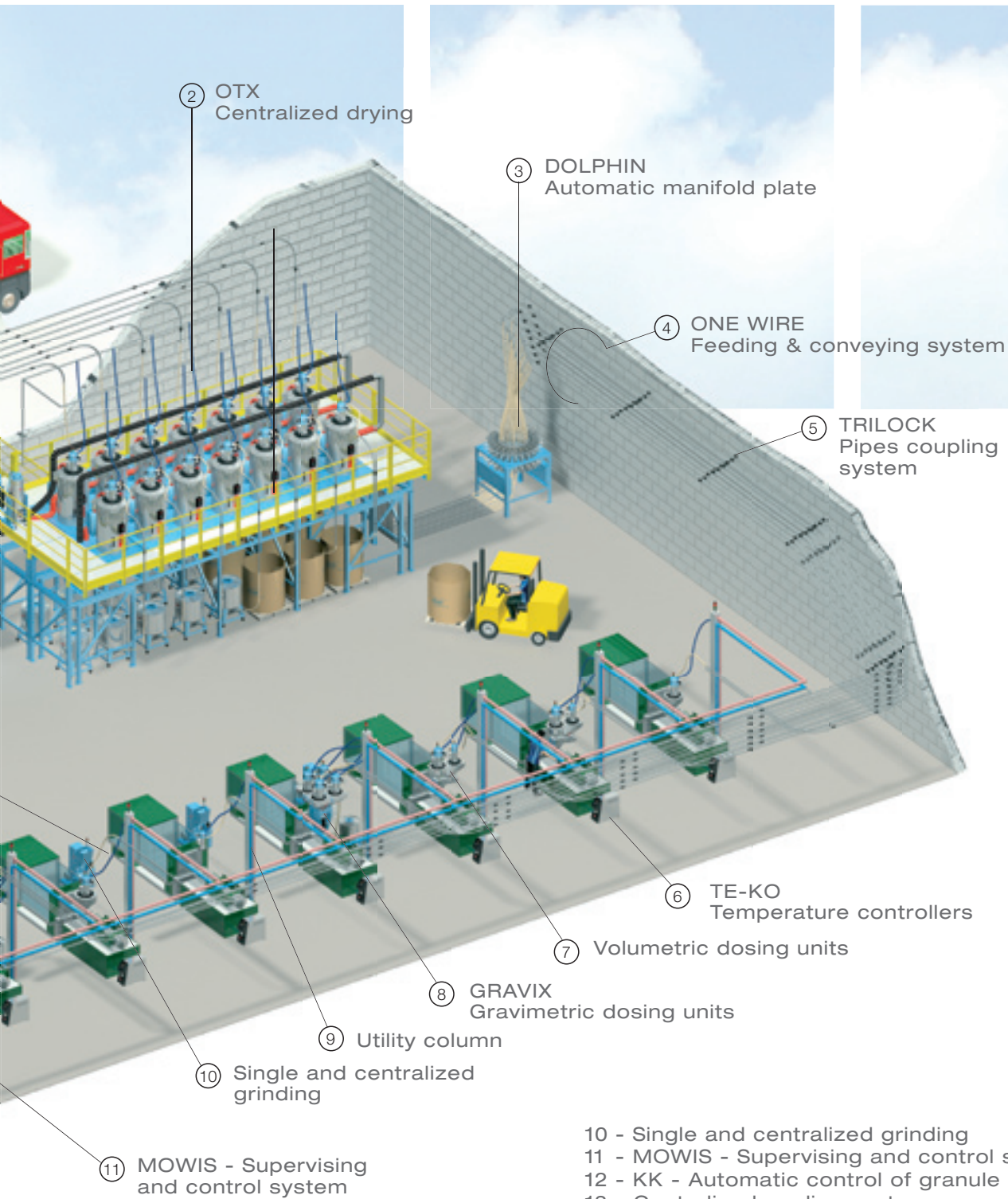
Plant Layout



- 1 - Storage silos
- 2 - OTX - Centralized drying
- 3 - DOLPHIN - Automatic manifold plate
- 4 - ONE WIRE - Feeding & conveying system
- 5 - TRILOCK - Pipes coupling system
- 6 - TE-KO - Temperature controllers
- 7 - Volumetric dosing units
- 8 - GRAVIX - Gravimetric dosing units
- 9 - Utility column

KK - Automatic control of granule speed (12)

CUSTOM-MADE SOLUTIONS



- 10 - Single and centralized grinding
- 11 - MOWIS - Supervising and control system
- 12 - KK - Automatic control of granule speed
- 13 - Centralized cooling systems
- 14 - Free Cooler
- 15 - X MAX - Modular drying system
- 16 - Manual loading
- 17 - OKTOMATIK - Octabins unloading system
- 18 - SBB BAGGY- Big-bag unloading system

MORETTO IN THE WORLD



MORETTO DEUTSCHLAND

Established in 2001 in Paderborn in Germany, Moretto GmbH was founded to provide a qualified reference on the German market. On 2009 it moved to Neunkirchen a. Sand and today it represents a substantial presence for the most important market in Europe provided with 2,500 square meters of warehouse, a large showroom, experienced staff and local technical service.



MORETTO DO BRASIL

Founded in 1998 the South American branch is based in the state of Sao Paulo in support of Brazilian companies and numerous multinational corporations, that have relocated production units in South America. 2000 square meters of warehouse, showroom and local technical staff serve a fast-growing market.



MORETTO EAST EUROPE

Located in Czestochowa Poland, is a major installation for East Europe market. 2500 sqm covered area with stock parts and show room. Very skilled staff with modern facilities support local customers and multinational companies having production facilities in this area.



MORETTO TURKEY

Moretto was born in 2012 in Turkey with the aim of providing a proper and quick service in this market. The branch is coordinated by a qualified and experienced technical and commercial team, who boast many years of activity in the field of polymers processing. Moretto Turkey offers the entire range of Moretto products and provides planning support and consultancy for the implementation of centralised systems, which develop in partnership with the client, providing a high-quality and fast service thanks to its direct presence on the market.

SALES NETWORK

OUR SALES NETWORK COVERS THE FOLLOWING COUNTRIES:

- Algeria
- Argentina
- Australia
- Austria
- Belarus
- Belgium
- **Brazil**
- Bulgaria
- Canada
- Chile
- China
- Colombia
- Croatia
- Czech Republic
- Denmark
- Egypt
- Finland
- France
- **Germany**
- Greece
- Hungary
- India
- Indonesia
- Ireland
- Israel
- **Italy**
- Japan
- Korea
- Lithuania
- Malaysia
- Mexico
- Morocco
- Netherlands
- New Zealand
- Norway
- **Poland**
- Portugal
- Romania
- Russia
- Saudi Arabia
- Serbia
- Singapore
- Slovak Republic
- Slovenia
- South Africa
- Spain
- Sweden
- Switzerland
- Taiwan
- Thailand
- Tunisia
- Turkey
- U.S.A.
- Ukraine
- United Kingdom
- Venezuela
- Vietnam



A series of horizontal dotted lines spanning the width of the page, intended for writing or drawing.



A series of horizontal dotted lines spanning the width of the page, providing a guide for handwriting practice.



MORETTO S.p.A.
VIA DELL'ARTIGIANATO, 3
35010 MASSANZAGO (PD) ITALY
TEL. +39 049 9396711 r.a.
FAX +39 049 9396710
www.moretto.com

**MORETTO DEUTSCHLAND
GmbH**
info@moretto-deutschland.de
www.moretto-deutschland.de

**MORETTO EAST EUROPE
Sp.z o.o.**
info@morettoeasturope.com
www.morettoeasturope.com

**MORETTO DO BRASIL IND. E
COM. LTDA**
info@morettodobrasil.com.br
www.morettodobrasil.com.br

MORETTO TURKEY
info@morettoturkey.com
www.morettoturkey.com