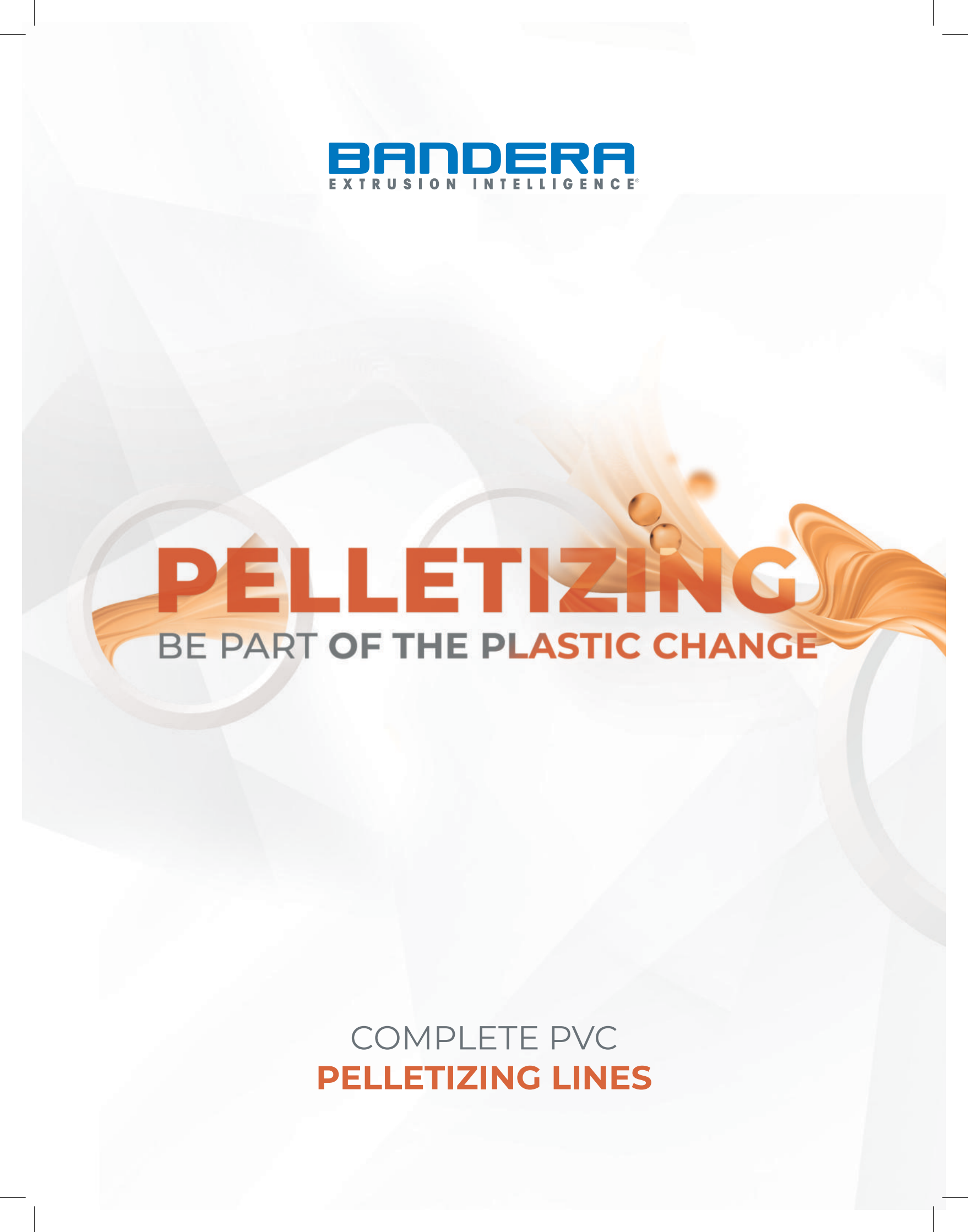


BANDERA
EXTRUSION INTELLIGENCE®



PELLETIZING

BE PART OF THE PLASTIC CHANGE

COMPLETE PVC
PELLETIZING LINES



Costruzioni Meccaniche Luigi Bandera S.p.A.
is a worldwide leader in the design
and manufacture of complete extrusion lines
for packaging and converting.

Our history

1947

Luigi Bandera officially established the company and started the history of extrusion in Italy

1950

Costruzioni Meccaniche Luigi Bandera became a joint stock company, scaling up its activities to become an industrial concern

1960/70

Costruzioni Meccaniche Luigi Bandera experienced a remarkable industrial growth developing a wide and diversified range of extrusion products

1980/90

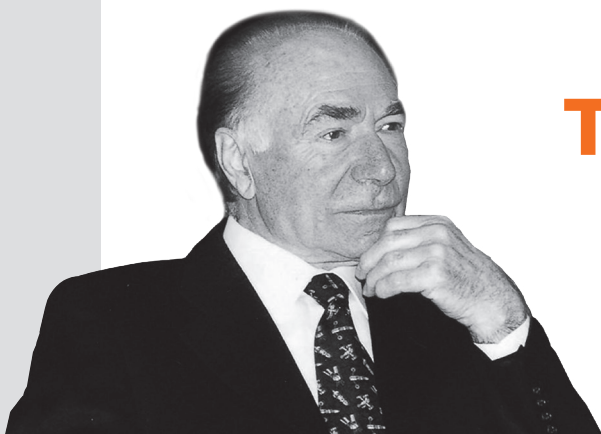
Costruzioni Meccaniche Luigi Bandera was acknowledged as one of the leading companies in the extrusion sector of both Blown Film and Sheet, in Italy and worldwide

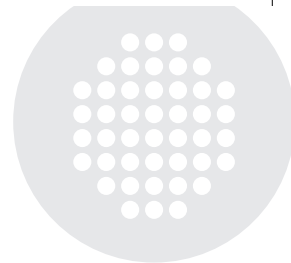
2015/2016

Opening of the House of Extrusion®, 6000 m² (64600 ft²) housing R&D and test-running activities on complete production lines

Today

Bandera focuses on **Blown Film, Flat Die** and **recycling** extrusion technologies, offering customized engineering services and an after-sales global network





The way we are

Honesty, directness and respect are the main ingredients of our everyday life. Our founder, Luigi Bandera, used to say that the essential asset held by his company is the people and their value.

This powerful thought drives us in our daily approach to business and innovation.

Our mission, **Extruding Future Plastics Now®**

Establishing Bandera as the most important design and manufacturing centre for extrusion in Europe and a worldwide leader in packaging and converting solutions. Providing production lines featuring state-of-the-art technology for innovative thermoplastic materials.

Top numbers

Our numbers sum up concisely the real meaning of our long term expertise, our know-how and innovative approach. We are an international company but remain firmly rooted in the Made in Italy tradition. We develop and manufacture unique, customised solutions, to meet specific customer requirements, supporting them from engineering up to installation and after-sales services.

We listen,
don't just hear
We watch,
don't just see
**We create,
don't just
make**

since 1947

experts in extrusion

16K

active clients all
over the world

35K

extruders installed
running worldwide

**55000 m²
180000 ft²**

production sites

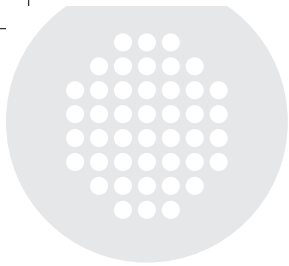
54000 t

of extruded
polymers per day

100%

In-house design
and manufacturing





Innovation is a state of mind

El Extrusion Intelligence®

The concept of **El Extrusion Intelligence®** is the essence of Bandera's continuous innovative ideas in extrusion technology.

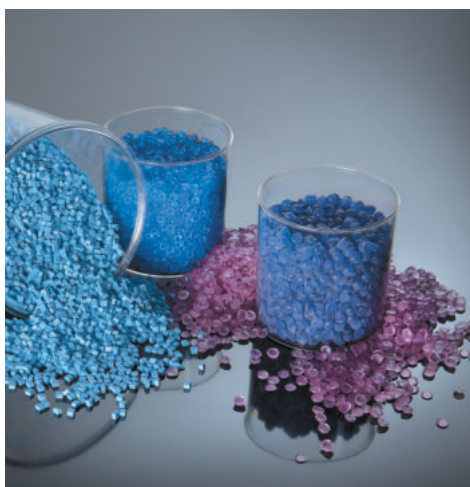
As a globally recognised brand, Bandera is a synonym for technological innovation in extrusion, supplies reliable and cost-efficient solutions and equipment, as well as engineering services, know-how and turnkey installations.

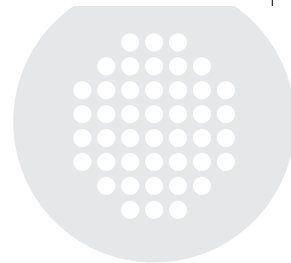
Bandera is capable of gathering its expertise, ideas and innovation from many sources, in order to compete in an environment of increasingly complex technology, to find the best solution for each application.

The House of Extrusion®

Bandera created the most innovative European extrusion centre for packaging and converting.

The **House of Extrusion®** is a sign of Bandera's vision. Jointly with customers, industry, academia and research centres, Bandera opens the doors the creation of new solutions to anticipate market demand.





Complete Pelletizing lines

Thanks to our long-term experience and spurred on by the need to cater to the everchanging requirements of our customers we have improved the quality and performances of our machines, implementing them in terms of energy efficiency and versatility to process various rigid and plasticized PVC formulations.

The main pluses of our pelletizing lines

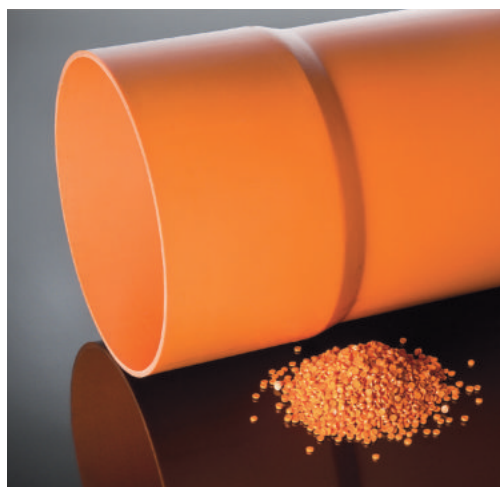
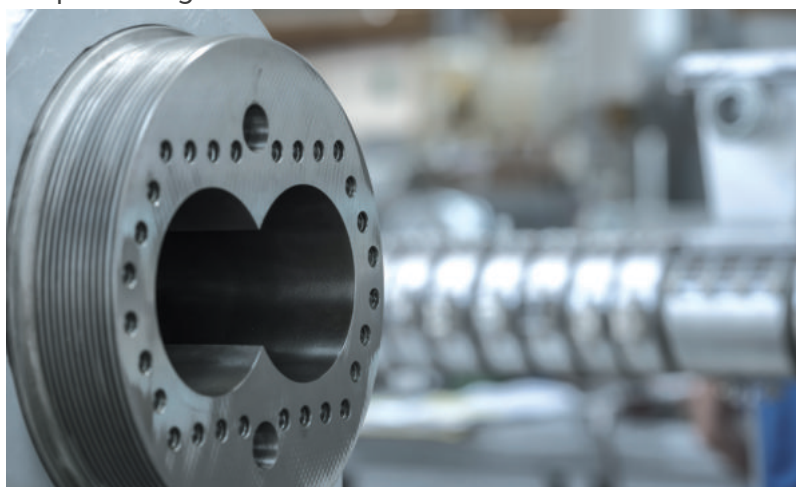
- **High energy efficiency** with a low kW/ kg ratio
- **Extreme versatility and capability** of the extruder to adapt to various rigid and plasticized formulations
- **Extruder with a long barrel and “28 L/D” screws**

The venting stack is positioned at “20 L/D” to make it possible for the material to melt in a longer space, for a longer “residence time”, with lower initial temperatures, avoiding overheating, so to reach the degassing point with no residual dust, well melted and perfectly homogenized. This allows the use of a “softer” screw profile, avoids high mechanical stress and thermal degradation for the material, allows savings on additives such as stabilizers and process aids and reduces the initial cost of dry blend formulations. The remaining “8 L/D” after the degassing section allows melt temperature control on the outlet to the pelletizing head.

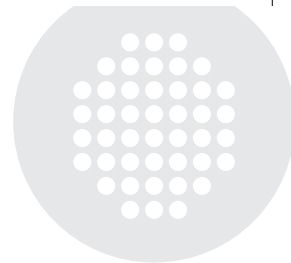
Our Pelletizing lines are the result of more than

**70 years
of activity in
manufacturing**

Counter Rotating
Twin-Screw Extruders
within a range of
ø 45 mm to 175 mm
(1.77” to 6.8”)







Pelletizing lines main features

HORIZONTAL SCREW VOLUMETRIC DOSING UNIT

- Storage hopper with min/max levels and mixer to avoid PVC agglomeration, variable speed horizontal screw dosing unit
- Driven with A.C. motor complete with speed synchronism system with the extrusion screws

COMBINED FORCED FEEDER

- Small conical hopper with vertical screw and agitator blade driven by an A.C. motor complete with speed synchronism system with the extrusion screws

VERTICAL FORCED FEEDER

- Conical hopper with vertical screw and agitator blade driven by an A.C. motor complete with speed synchronism system with the extrusion screws



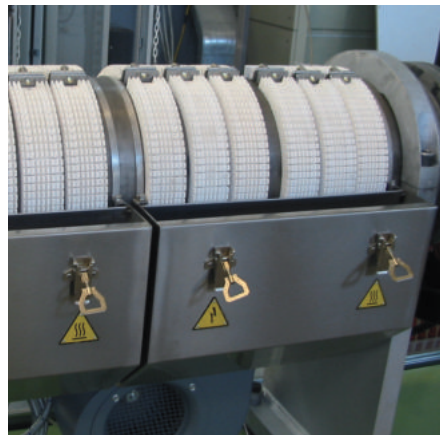
BARREL THERMOREGULATION SYSTEM

- Barrel heating through special ceramic electric heaters. Cooling of the barrel zones by electric centrifugal fans

BARREL EXTRACTION

- Barrel displacement system for easy maintenance and monitoring of the status of the barrel and screws. This is a very fast and simple system, allowing full extruder cleaning and quick production changeover operations

Barrel thermoregulation system



Barrel extraction



Screw thermoregulation

SCREW THERMOREGULATION

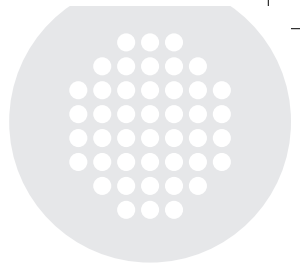
- Screw thermoregulation system with internal circulation of silicone oil, especially in the terminal part of the screws to avoid PVC overheating, composed by two rotary joints mounted on screw shafts and an oil thermoregulation control unit

DEGASSING SYSTEM

- Vacuum degassing group: composed by a water ring vacuum pump, a venting stack with inspection glass and a powder decanter provided with a filter



Degassing system

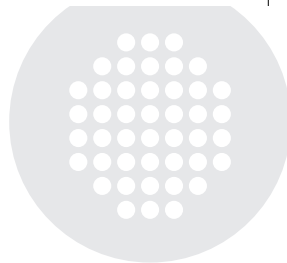


High **P**erformance
Pelletizing **S**ystems

HMI panel:

- main page
- thermoregulation page
- automatic zone heating
- trends page
- recipes saving page
- maintenance clock page





PELLETIZING HEAD CENTRAL CUTTING SYSTEM

- Quick disconnection and fast release of the cutting head for cleaning
- Central cutting head, with cone distribution of the melt to prevent overheating of the material and pellet adhesion problems, high pressure fan for the pneumatic transport of the pellets to the RGT cooler

PELLETIZING GROUP

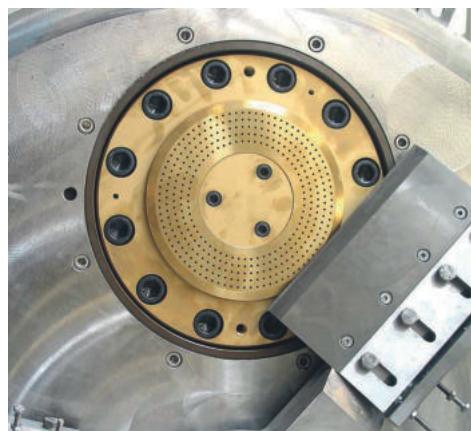
- Support trolley for the pelletizing head, 4 cutting blades driven by A.C. motor controlled by inverter for cutting speed adjustment
- Cutting chamber and pellet pressure conveyor through electric fan with external light to check the cutters during operation

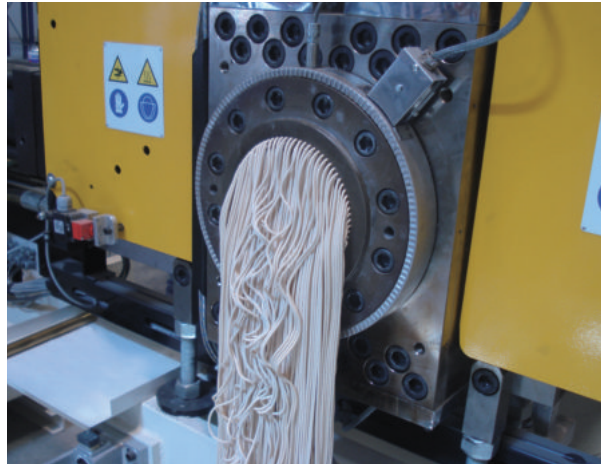
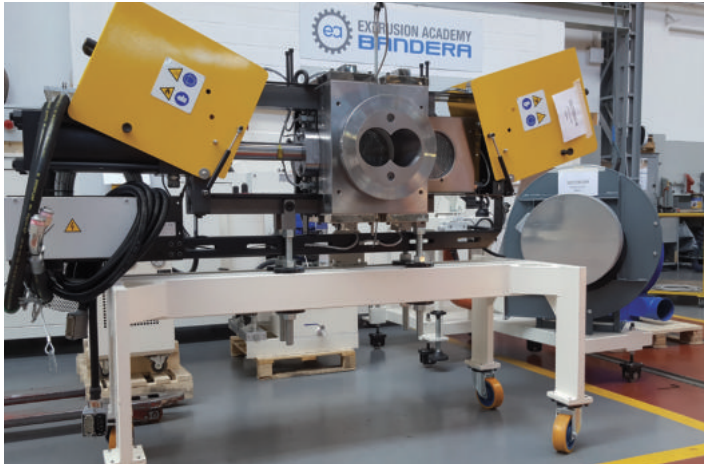
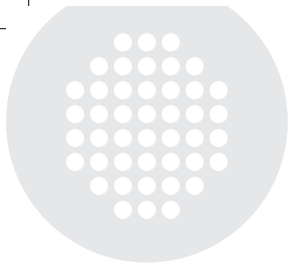
PELLETIZING HEAD SIDE CUTTING SYSTEM

- Front-opening stainless steel cutting chamber and pellet conveyor, water cooled in the bottom part
- Support trolley for the pelletizing head mounted on wheels
- Removable drilled plate, rotary cutting device with 3 cutting blades driven by 90° gearbox

PELLET COOLER, RGT SERIES

- Stainless steel hopper, drilled stainless steel bedplate with 2 adjustable electric vibrators, where the pellets flow and are cooled by air through a high capacity electric fan
- Terminal screen for separation of faulty shape granules



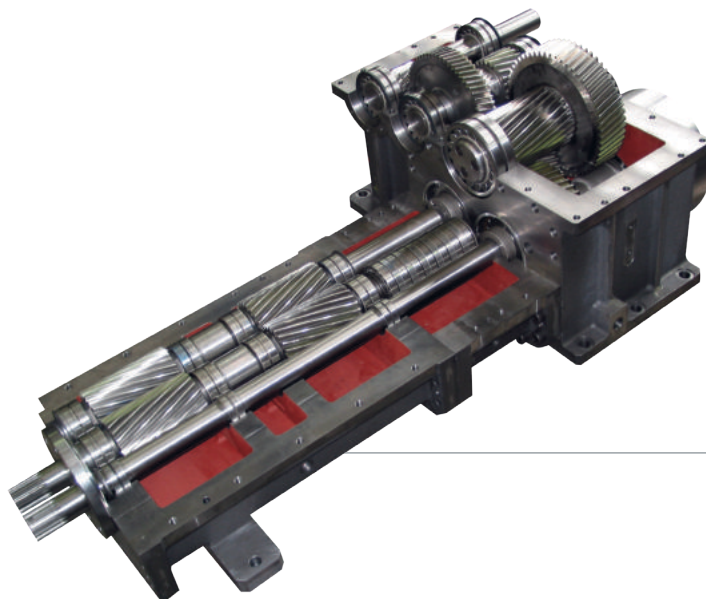


HYDRAULIC SCREEN-CHANGER

- Stainless steel execution
- Mounted on a supporting frame with pivoting wheels. Main frame with hydraulic piston and relevant sliding plate
- This system allows filter replacement during operation. Provided with fast connection to the extruder barrel through conical jaw

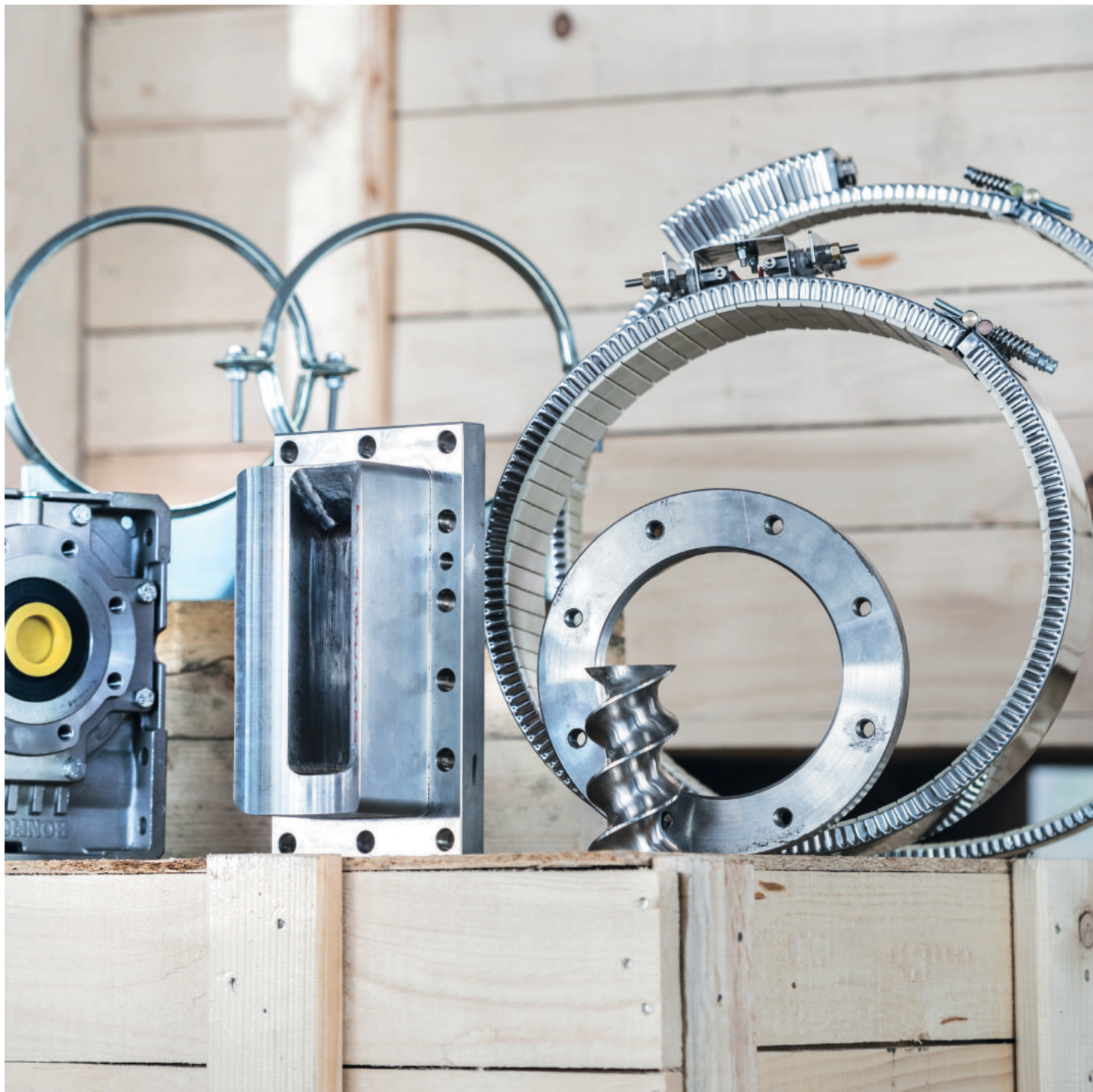
SCREW DOSING UNIT FOR ADDITIVES

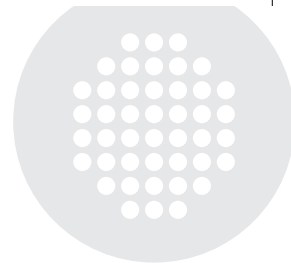
- Composed by storage hopper with variable speed horizontal screw dosing unit



HTS Series Gear Box







Why choose Bandera as a technological partner?

We are a company focused on **innovation**, supported by **After-sales technical servicing**. The following characteristics make our company a trustworthy partner for consistent and innovative cooperation:

Maximum process versatility of BANDERA extrusion lines

- Universal screw design (latest generation)
- Screws developed with rheological data collected from new materials
- Easy integration and interface of ancillary equipment

Complete reliability

- Robust construction (in-house)
- Market references obtained over many years
- Chosen by certified sub-suppliers

Energy savings as a priority in line design

- A.C. motors and drivers (latest generation)
- Maximum extruder yield (ideal power/output ratio)

Value of competitive investment

- Rationalization of manufacturing process and assembly
- Strong purchasing power of specialized sub-suppliers
- Reduced engineering and manufacturing costs due to the high degree of industrialization and job repetitiveness

A responsive and efficient Customer Service

- **5 After-sales service centres** for a worldwide assistance
- **Top class on-site technicians** specialised in installation and start-up of extrusion lines
- **Customized training procedures** for new applications
- **Scheduling of technical servicing for extraordinary maintenance**
- Cost effective spare parts packages
- **Reclaiming** of existing machines and **revamping** of complete extrusion lines





RECYCLING



BLOWN FILM



FLAT DIE



PELLETIZING



EXTRUSION

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BANDERA
EXTRUSION INTELLIGENCE®

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