



Innovative  
**Blown Film**  
extrusion 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.

## Bandera history

1943

the first extruder was manufactured in Luigi Bandera's first workshop

1947

Costruzioni Meccaniche Luigi Bandera officially started operating

1950

Bandera was converted into a **joint stock company**

1960/70

between 1960 and 1970 company business expanded to an **industrial scale**

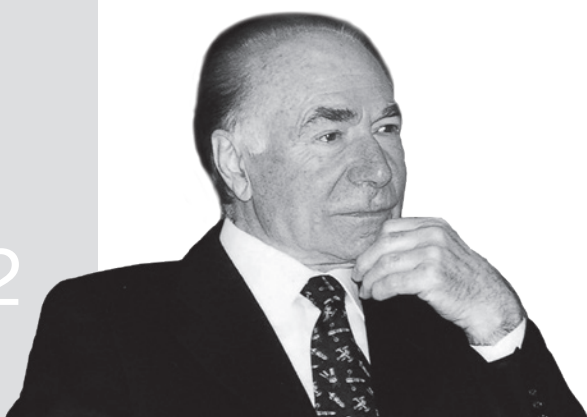
1980/90

through the 1980s and 1990s the company became an **acknowledged leader among the extrusion equipment manufacturers**

now

Bandera, currently managed by **Franco and Piero**, the founder's sons, has recently focused its product range on two main technologies:

- **Blown Film extrusion technology for packaging/converting/agrifilm**
- **Flat Die extrusion technology for the production of rigid thin films and thick sheets**





## 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®

Bandera's mission is to establish itself as the most important extrusion centre in Europe and to strengthen its role as a main global player.

Bandera's pioneering approach in manufacturing production lines for plastic materials in the Blown Film and Rigid Film and Sheet sectors, featuring state-of-the-art technology, will make it the forerunner of future extrusion.

## 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**

**25 500**

days of experience  
in extrusion

**15 500**

active clients  
worldwide

**35 000**

extruders installed  
running worldwide

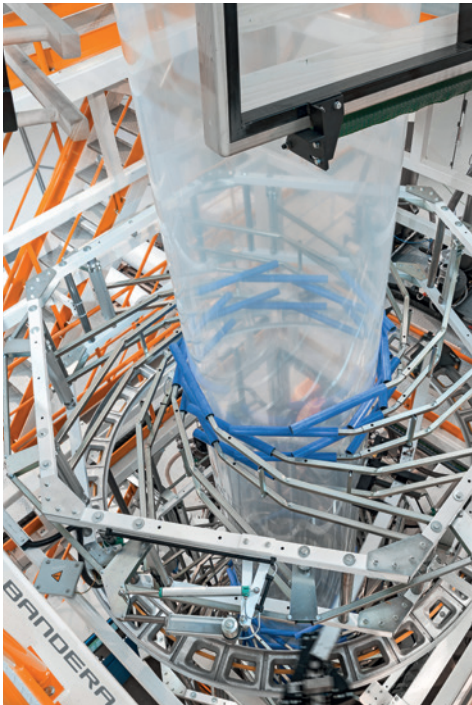
**100%**

In-house design  
and manufacturing





# Innovation is a state of mind



## Extrusion Intelligence

The concept of **Extrusion Intelligence**<sup>®</sup> 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.

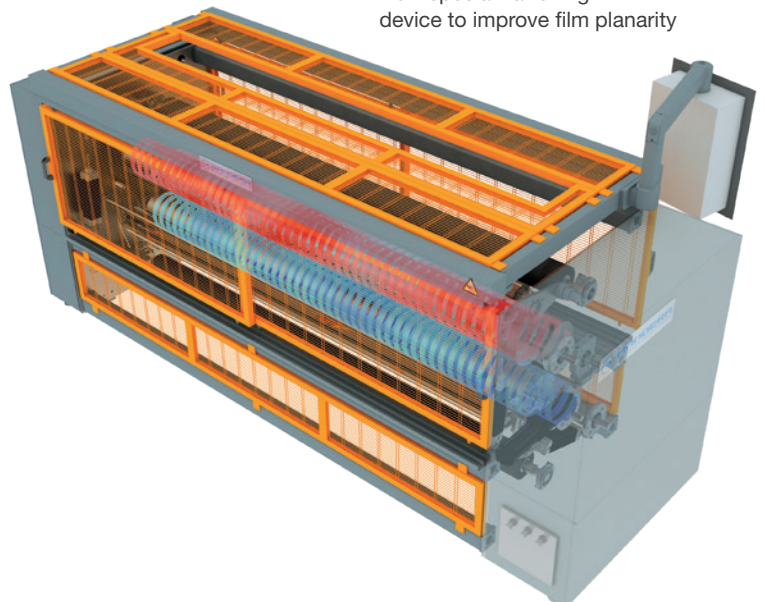
Bandera is capable of gathering its expertise, ideas and innovation from many sources, in order to compete in an environment of increasingly complex technology, to find the best solution for each application.

## The House of Extrusion

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

The **House of Extrusion**<sup>®</sup> 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.

New special flattening device to improve film planarity



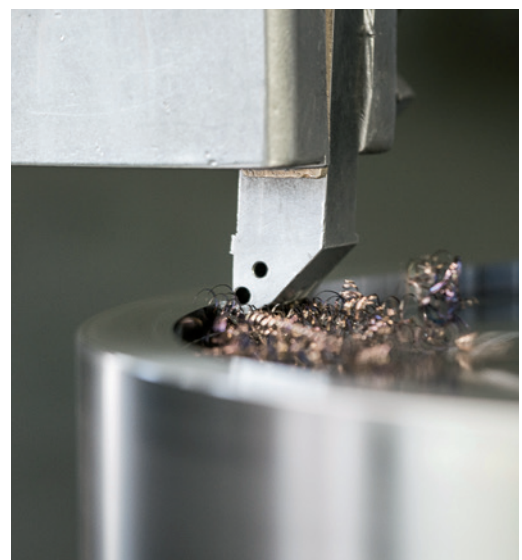
# Bandera Blown Film lines production range

Bandera Blown Film extrusion range includes:

- **SmartFlex**® Blown Film lines (1, 3 and 5 layers), characterized by a competitive investment level, maximized flexibility for different applications recipes, power consumption reduction, functional and compact layout featuring frames modularity
- **TechnoFlex**® Blown Film lines for the production of multi-layer film (3 and 5 layers) with top performances
- **BarrierFlex**® Blown Film lines for the production of barrier and high-barrier film with symmetrical and asymmetrical film structures (7, 9 and 11 layers)
- **HDBFlex**® Blown Film lines for the production of FFS industrial bags
- **AgriFutureFilm**® Blown Film lines for the production of agricultural film
- **GeoFutureFilm**® Blown Film lines for the production of geomembrane

Bandera innovative know-how and technologies are also applied to cutting edge thermoplastic process for the production of shoppers and bags of different shapes and sizes, as well as shrink film, pallet wrapping and stretch-hood.

Bandera is a  
**worldwide leader**  
the design and  
manufacture of  
top performance  
Blown Film lines





**SmartFlex® series pursues:**

- quality
- flexibility
- reliability
- low power consumption
- low environmental impact



# SMARTFLEX®

Blown Film lines, characterized by a competitive investment level, maximized flexibility for different applications/recipes, power consumption reduction, functional and compact layout featuring frames modularity

The achieved cost savings comes from series production, all general costs are split into a large number of lines thus generating an economy of scale at procurement stage.

The SmartFlex® series can be configured either in 1, 3 or 5 layers and comprises different versions:

- **SmartFlex® Plus:** higher winding quality, given by axial driven mandrel allowing combined winding mode
- **SmartFlex® HP:** higher output, given by increased extruders sizing
- **SmartFlex® HP Plus:** combining the two above mentioned features
- **SmartFlex® HDB:** to combine SmartFlex® standard products with the production of HDB/FFS films

SmartFlex® width range goes from 1200 up to 2600 mm net.

## MAIN ADVANTAGES

- Excellent mid- and long-term yield
- Excellent cost effectiveness
- User-friendly line management
- Made in Italy - Made in Bandera
- Best performances in processing biodegradable and compostable materials



## SMARTFLEX® SERIES POSSIBLE APPLICATIONS

- Packaging film (food and non-food film)
- Thermo-shrink film
- Lamination film
- Stretch-hood film
- Converting film





# TECHNO FLEX<sup>®</sup>

Blown Film lines for the production of top performance high-tech multi-layer film (3 and 5 layers)

Undoubtedly, film co-extrusion represents the most consolidated technology for the production of advanced multipurpose packaging solutions.

The standard configuration comprises a central high-capacity extruder, arranged with two smaller ones intended for the outer layers.

**TechnoFlex<sup>®</sup> lines are fully accessorized getting top quality high-tech film through upgraded components.** Among them it is worth mentioning the top range winder ESR-9000 series, which allows 3 winding methods: contact, axial and gap.

Pushing on strong customization, Bandera extrusion lines are characterized by production need orientation, **top versatility and safety**, combined with minimized power consumption.

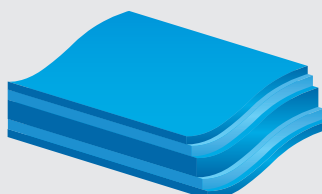
Particularly, the 5-layer configuration is perfect for customers looking for high production flexibility to process PE film with very high production (TechnoFlex<sup>®</sup> PO<sup>5</sup>), allowing them to produce technical film with outstanding top quality mechanical properties.

## Examples of typical 5 layers formulations



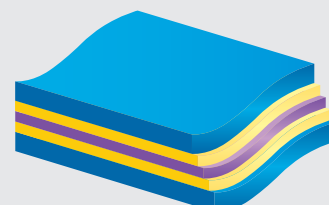
### PO<sup>5</sup> version

5 LAYERS
PE
FUNCTIONAL LAYER
PE
FUNCTIONAL LAYER
PE



### FLEX version

5 LAYERS
PE
TIE
PA/EVOH
TIE
PE



Examples of possible applications





The TechnoFlex® series production range is wide and comprises, among others:

- film used in top performing converting and printing lines
- film with specific characteristic intended for industrial applications







# BARRIERFLEX®

Blown Film lines for the production of barrier and high-barrier film with symmetrical and asymmetrical structures (7, 9 and 11 layers)

Co-extrusion lines of this series are intended for customers manufacturing top class high-barrier technical film for food, medical, pharmaceutical and several mechanical (e.g. automotive) applications.

The films produced with BarrierFlex® have a **double and triple barrier**, respectively, with an EVOH central layer combined with PA layers, thus offering a high performing barrier against gases and water vapour.

Besides, Bandera offers extrusion lines capable of ensuring minimized curling effect in case of asymmetric film structures.

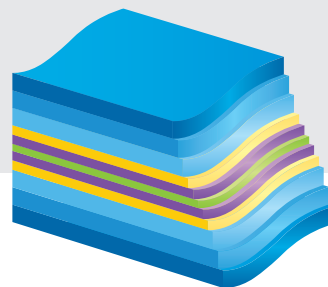
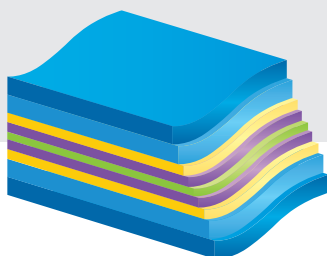
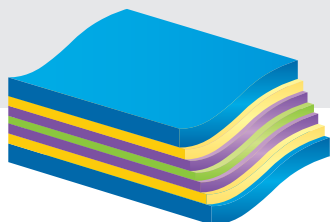


## Examples of typical formulations

7 LAYERS
PE
TIE
PA
EVOH
PA
TIE
PE

9 LAYERS
PE
PE
TIE
PA
EVOH
PA
TIE
PE
PE

11 LAYERS
PE
PE
PE
TIE
PA
EVOH
PA
TIE
PE
PE
PE



Examples of possible applications





# HDBFLEX<sup>®</sup>

Initial focusing on offering extrusion lines pursuing excellent mechanical characteristics, weldability, processability and printability, today the market trends require minimized film thickness aimed at maximizing product capacity up to 450 kg/h (based on HDB size)

Bandera has taken on this new challenge finding out specific solutions to meet its customers' individual needs, thus confirming - once again - its outstandingly strong customer satisfaction orientation.

Specifically, innovative solutions have been applied in every and each extrusion line section.

## HDBFLEX MAIN FEATURES

- Triple-flow cooling ring, which offers a strongly enhanced production capacity when combined with Bandera design extrusion heads
- Specific haul-off units with cutting-edge film cooling system for a better creaseless film surface - a solution setting the pace in innovation in HDB film field
- Integrated thickness control
- Fully-automated winding station, either by contact or by axial winding



Examples  
of possible  
applications



## Bandera provides know-how and innovative technologies

applied to the processing of cutting edge thermoplastic materials for the production of industrial bags (HDB/FFS)

**BANDERA**  
EXTRUSION INTELLIGENCE®

**HDBFLEX**

**BANDERA**  
EXTRUSION INTELLIGENCE®  
Converting and flexible packaging industry



Blown film extrusion lines

luigibandera.com

HDBFLEX

W400-HDB

BANDERA







Bandera is a worldwide leader in the production of complete multilayer Blown Film lines dedicated to agricultural film



**Nowadays, 5 and 7 layers co-extrusion lines are preferred as they satisfy the current requirements for agrifilm.**

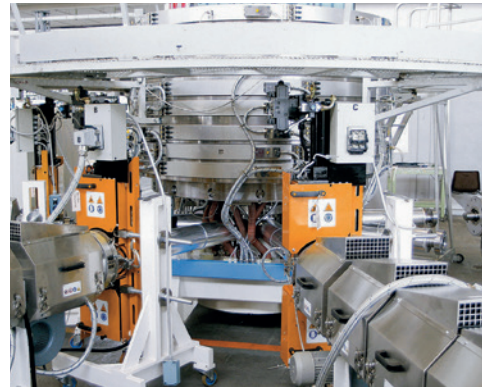
The multi-layer film ensures an enhanced management of raw process materials and optimized additive distribution in every layer, thus increasing film physical and mechanical properties as well as light and heat transmission: as a consequence, the film life cycle is increased.

Bandera agrifilm co-extrusion line flexibility and versatility is increasingly appreciated by customers, considering that, as a matter of fact, agrifilm is a seasonal product.

With the same co-extrusion head and minimized set-up times, Bandera co-extrusion lines can produce agrifilm as well as thicker film (e.g. waterproofing geomembrane): a valuable chance to have an all-year-round profitable co-extrusion line, regardless of agrifilm seasonality.

**AGRIFILM APPLICATIONS**

- Greenhouse cover film
- Silo-bags film
- Silo-stretch film
- Solar sterilisation film
- Mulch film
- Low walk-in tunnel film



Line configuration	Die diameter	Open width
3-layer	up to 2500 mm	up to 24 m
5-layer	up to 2200 mm	up to 20 m
7-layer	up to 2000 mm	up to 18 m

Examples of possible applications





# GEO FUTURE FILM®

Bandera offer comprises complete extrusion lines with up to 1200 kg/h production capacity, with film thickness up to 3 mm

## GEOMEMBRANE EXTRUSION LINES STANDARD CONFIGURATION

- Dosing system
- High-capacity extruder for the inner layer and two smaller extruders intended for the outer layers, arranged with bimetallic barrel and no-wear coated screw
- Co-extrusion head (die up to 2300 mm) equipped with internal bubble cooling system (IBC)
- Fixed haul-off unit, suitably designed for production needs
- Fully-automated winders, 8.5 m width, with automatic shaft extraction and reel downloading

Geomembrane can be textured on one or both sides; a plain strip can be obtained to ease welding.

**This product can also be processed with extrusion head for the production of agrifilm.**

Bandera geomembrane extrusion lines can be personalised according to Bandera's customers' needs.

## WATERPROOFING GEOMEMBRANE APPLICATIONS

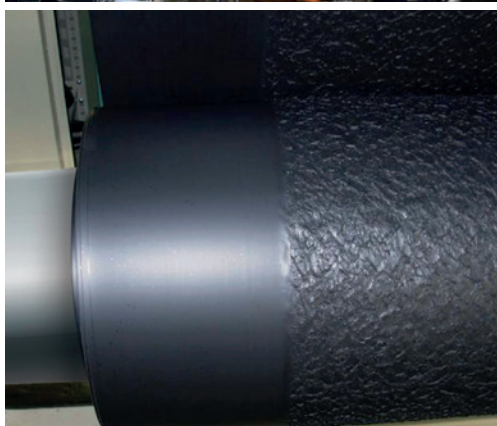
- Landfills
- Tunnels
- Collection tanks
- Water basins
- Irrigation channels
- Extraction mines
- Motorways
- Strengthening works at river and marine water flows
- Dam protections

## THICKNESS RANGE

- Min thickness: 0.5 mm
- Max thickness: 3 mm

## USEFUL WIDTH

From 6 ÷ 8 m

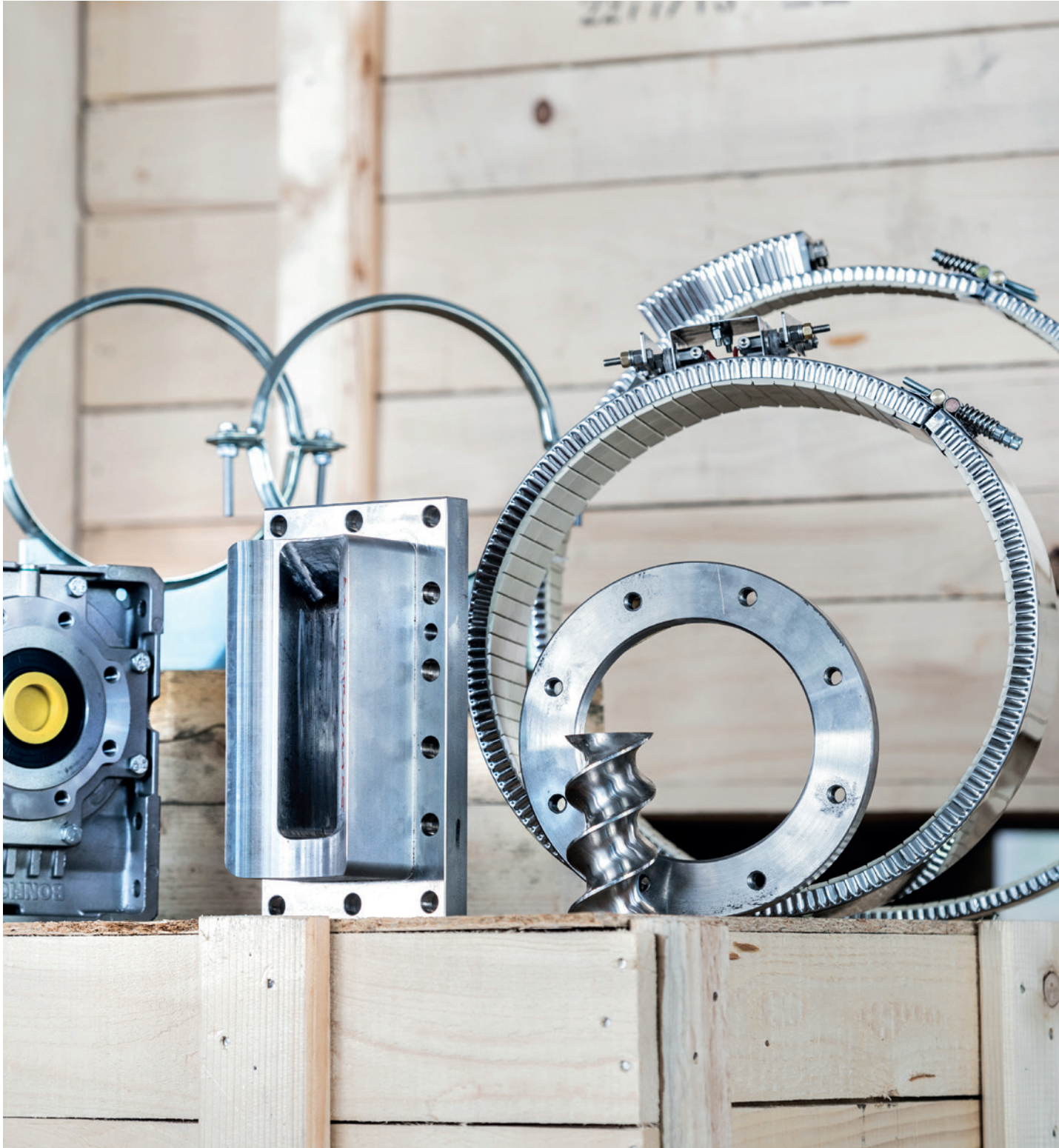




## Geomembrane

is the most unique  
product in tubular  
Blown Film sector,  
**with unique  
characteristics**







## Why choose Bandera as a technological partner?

Over the past years Bandera has strengthened its leading position in its reference markets worldwide of packaging film, agrifilm and waterproofing geomembrane sectors.

### Why choose Bandera?

- Unrivalled expertise in manufacturing complete Blown Film extrusion lines
- Worldwide appreciation
- Pace-setting **know-how** from the collaboration of **leading packaging companies and expertise in small-, medium- and large-sized Blown Film extrusion heads manufacturing**
- Wide extrusion head range
- Extended expertise in winding units
- Rooted collaboration with tested reliable **sub-suppliers**
- Timely and efficient aftersales service
- **ISO 9001:2000 certification**

## A responsive and efficient Customer Service

- **6 after-sale service centres** for a worldwide assistance
- **Top class on-site technicians** specialised in installation and start-up
- **Customised procedures training** for new applications
- **Scheduled interventions** for extraordinary maintenance
- Cost effective spare parts packages
- **Reclaiming** of existing machines and **revamping** of complete extrusion lines
- **Cognitive Extrusion® with IoE Internet of Extrusion®** for continuous intelligent maintenance.



**You and Bandera**, within the new markets of flexible films for printing, converting and packaging, will drastically reduce **energy consumption**, extensively widen the usage of **multilayers films**, process new **biodegradable raw materials** and now, **exclusively with Bandera**, speed up the **Overall Extrusion Equipment Effectiveness**<sup>®</sup> (OEEE), by the specific instruction protocol. Bandera **Deep Training**<sup>®</sup> to the operating personnel.

**Cognitive Extrusion**<sup>®</sup> handles the data, information and knowledge that are produced around the clock by our line sensors, allowing via **IoE Internet of Extrusion**<sup>®</sup> the management of planned, preventive and predictive maintenance.



Blown  
Film lines



Rigid Film and  
Sheet lines

Top packaging  
and converting solutions

**BANDERA**  
EXTRUSION INTELLIGENCE<sup>®</sup>

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