

BANDERA
EXTRUSION INTELLIGENCE®

FLAT DIE

BE PART OF THE **PLASTIC CHANGE**

EXTRUSION LINES
FOR RIGID FILM & SHEET

BE PART of the plastic change!



Bandera designs and manufactures extrusion plants for rigid film destined to the thermoformed packaging and converting (FFS) sectors and high-thickness sheets for many different industrial applications.

Performances and reliability are the basis of its design.



since 1947

experts in extrusion



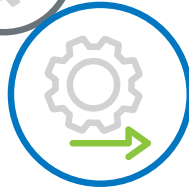
15 500

active clients all over the world



35 000

extruders installed running worldwide



55 000 m²

(180 000 ft²) production sites

LET'S BUILD NOW our common future.



Extruding Future Plastics Now^{®*}

Bandera established a highly effective centre of excellence for the creation of advanced technologies intended for the plastic industry for the fulfilment of the Circular Economy criteria. **FACTORY, EQUIPMENT and PEOPLE** with focus on innovation and for new profitable businesses.

The House of Extrusion[®]

At Bandera HQ since 2015, it is the greatest innovation centre within the worldwide extrusion industry. The 6000 m² (64600 ft²) area is shaped to boost Bandera and Customers' R&D activities: **a REFINERY of WINNING IDEAS.**

ALPHA PP

ALPHAPET^{®*}

SMARTDUTY^{®*}

CONDOR^{®*}
LINE

HVTSE^{®*}

PUR^e^{®*}
BANDERA PET FOOD GRADE RIGID FILMS

SOFT TOUCH^{®*}



PACKAGING FORWARD[®]

Eco packaging solutions from recycled
and biodegradable materials

BANDERA
EXTRUSION INTELLIGENCE
ALPHA PET[®]



BANDERA, the packaging innovator

The Bandera DNA drives its team to listen, learn and provide solutions to create profitable scenarios for both the Company and its Partners.

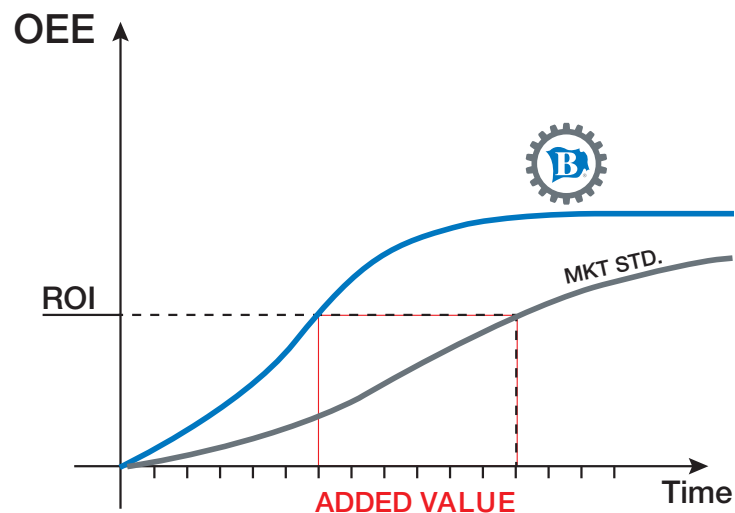
The packaging sector is constantly evolving and requires attention, promptness and determination.

Bandera innovative technologies are targeted to straightforward benefits and market leading position.

We consider our Customers as close Partners: this loyalty represents the roots of a continuous success.

PROFIT ORIENTED TECHNIQUES

- Best ROI level
- Highest OEE rate
- Secured investment
- Long term effectiveness
- Partnership with extrusion leaders
- Innovative Technologies
- Robust and repeatable processes
- Easy-to-run machines
- Safe operability
- Extreme flexibility



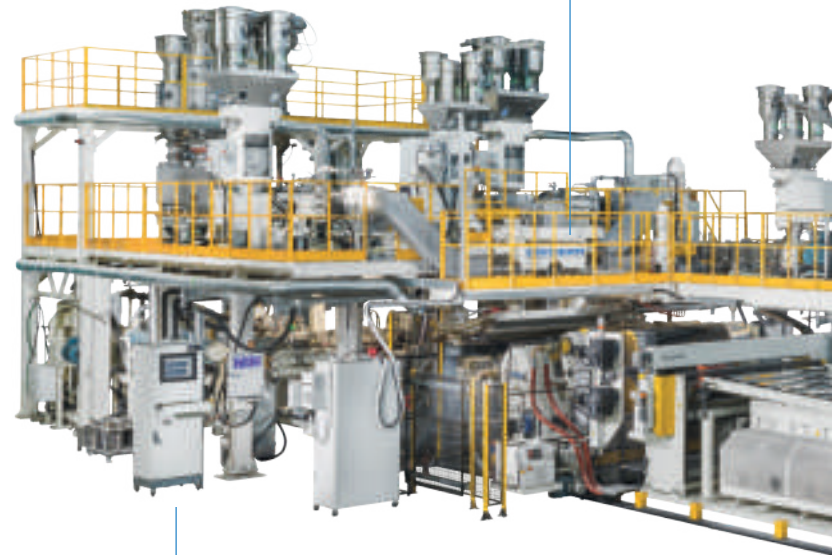
**ASK BANDERA,
DO IT BETTER.**

We create Value with Passion and Care since 1947

BANDERA, ALPHA[®]PET^{*}

General Data

- 500-3200 kg/h (1100÷7000 lb/h) output rate
- 80-2000 µm (3.14÷78.4 mil) thickness range
- Up to 2100 mm (82.6" ft) net width
- Modular setup up to 9 layers structures
- Outstanding flexibility for running other resins
- C-PET and PET G special features
- Market leading performances for both thermoforming and FFS applications
- Gentle extrusion process improving PLA, PP and PS products also
- Molten state decontamination during extrusion (NOL #119 issued by FDA on 2009)



- More than 300 installations
- Unbeatable energy efficiency through dryless conditions
- 0.32 kWh/kg (0.15 kWh/lb) ensured by patented HVTSE[®]* technology



the PET specialist **SMARTDUTY**[®] *

↑ISCO

- Top IV level guaranteed
- ≥ 0.72 dl/g for only 0.05 kWh/kg
(0.02 kWh/lb) energy gap
- Long term secured performances



FC+

- In combination with PURE[®] system
- Food contact compliance as per FDA & EFSA regulations

PUR^e® *

- Use of 100% recycled material for food packaging application
- Rational process for easy-to-run operation
- Energy consumption: 0.08 kWh/kg (0.03 kWh/lb - 35% less than alternative equipment)
- Long lasting components for cost effective maintenance
- Modular setup for customized and user friendly installation



PUR^e® is a highly effective solid state purification system for PET post-consumer material, fully complying with FDA and EFSA cleaning efficiency requirements. PET solid state decontamination (NOL #231 issued by FDA on 2020).



TRAY-TO-TRAY

The Bandera resolute answer for achieving 100% recycle to 100% recyclable products, satisfying PET trays circularity. Extrusion coating system completing the standard PET rigid film production of all customers. In-line or off-line ("roll-to-roll") installation avoiding any distress to existing production lines.



- PET mono-material product
- No PE (EVOH) barrier film required
- Shelf-life compliant with market standards
- Fully sealable with top lid film
- Transparency and repeatability



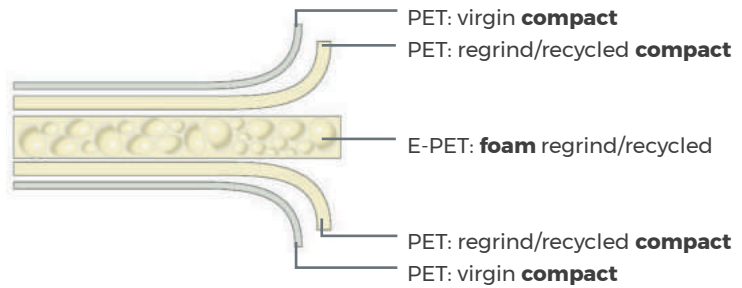
, the PET specialist

The crucial innovation of Bandera: recycled material use for creating lighter products featuring characteristics as good as standard rigid films produced in PET, PLA, PP or PS.

VELPET®* process foresees the injection of inert gas (typically Nitrogen) into the HVTSE®*

twin screw extruder thus creating an homogeneous foamed layer without using expensive additives required by the chemical foaming process.

In addition to that, thanks to the further R&D progress and the experience gained over the years, the VELPET®* technology allows a deep final product customization in terms of sheet structure, thickness, width, final density and specific mechanical behaviours (i.e. easy-break skill).

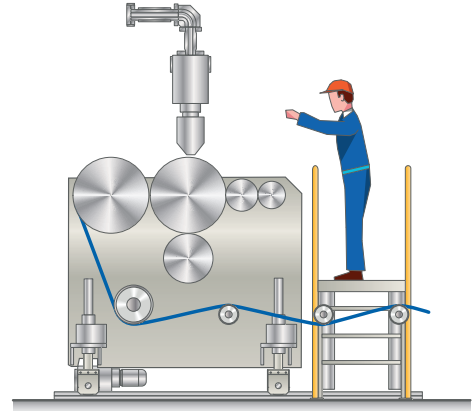


- From recycle (post-industrial & post-consumer) to lighter & recyclable sheet production
- Customized mono & multi-layer structure with tailored weight reduction range
- Top aesthetical and mechanical features
- Lower production costs compared to rigid structures and chemical foam solutions
- Innovative technique with proven results

The Product

Rigid and flexible film extrusion line for **PP superior quality products destined to the food & non-food packaging market and for barrier & non-barrier applications (Form-Fill-Seal & thermoforming)**

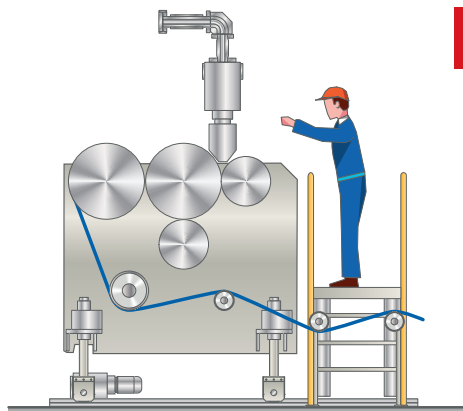
- For calendered products 200µm (7.8 mil) + 2.20 mm (86.6" - Alpha PP)
- For ultra thin products up to 80µm (3.19 mil SoftTouch®*)
- Up to 1100 mm - 43.3" (1450 mm - 57" for FFS) net width
- Up to 1200 kg/h (2640 lb/h) output



The tangible Benefits

- Higher transparency (haze and clarity)
- Easier barrier resins workability
- Layer structure accuracy
- Lower shrinkage
- Sustainable down-gauging
- Better thermoformability
- Greater mechanical properties

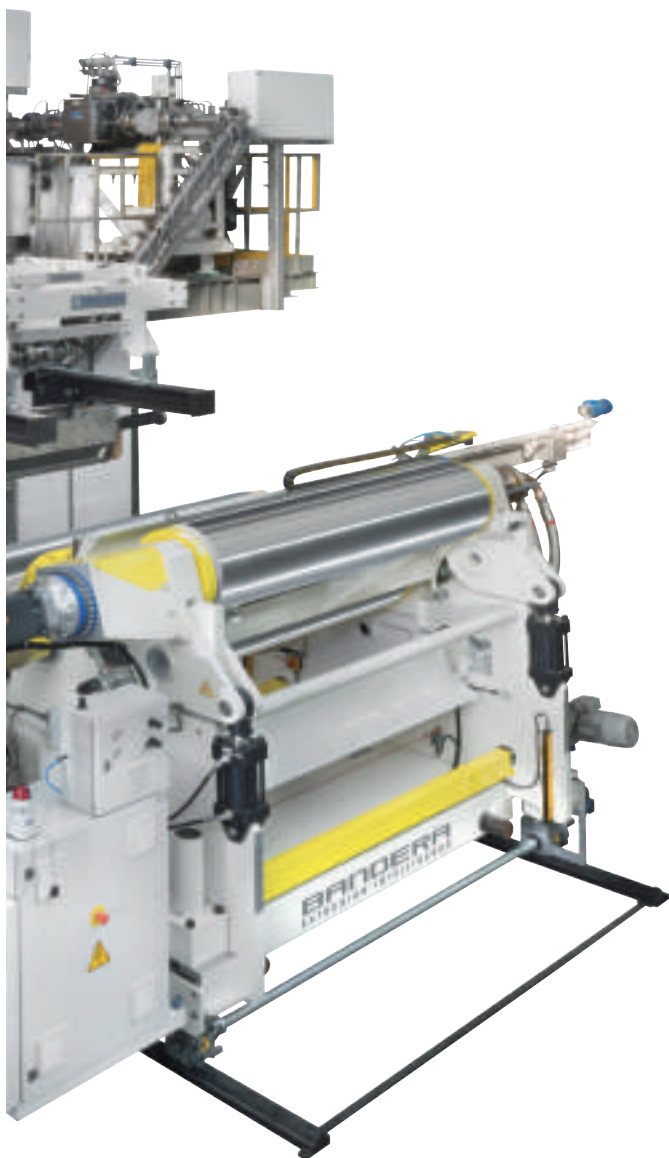
PP TOP ALPHA PP



The Technology

Integrated Cast & Calendering technique, available with

- In-line film lamination system for F.F.S. application
- Extrusion coating equipment for optimizing barrier resins workability and layers structure accuracy
- Multiple (gradual) thermoregulation stages for dimensional stability optimization
- Top and/or bottom side of the film with glossy and/or matt surface(s)



The Special Adds

with **Bandera Highly Vented
Twin Screw Extruder (HVTSE®*)**

- Cost-effectiveness (energy saving, color & recipe changeover, OEEE)
- Versatility (easier regrind material re-work and homogenization)
- Flexibility (PP and PET, PLA, PS products)

CAST FILM

Bandera designs and manufactures a wide range of cast film lines covering the most sophisticated applications within the packaging and converting fields. Technical competences, deep experience, innovative mindset are the key ingredients to achieve distinctive results.

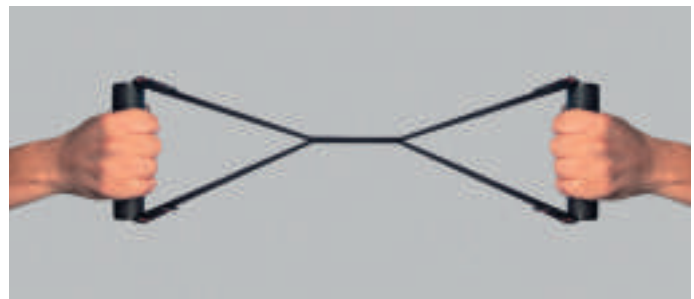
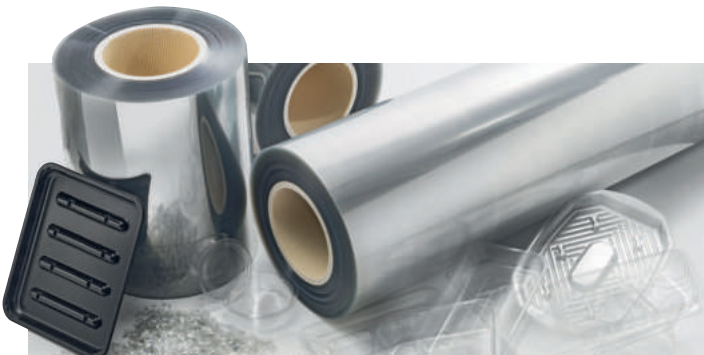
- High barrier products (EVOH-PA) with film structures up to 11 layers
- Multiple resin process with specially designed feedblock and flat die
- 100% customized layout for solid performances and operators' daily comfort
- Process consistency thanks to renown quality standards and equipment robustness



MDO

The Bandera MDO is an exclusive equipment, destined to refined users and distinguished projects. In few words, a promising R&D project that largely satisfied the highest market players demand. The Bandera way to design and manufacture such machinery makes it versatile and top performing.

- Suitable for both rigid & flexible film to enhance physical/mechanical/aesthetical characteristics
- Highly controlled stretching operation followed by proper de-tensioning/stress-relieving stage
- Mild and accurate process in terms of thermoregulation, gap/nipping and speeds
- Available for IN-line and OFF-line installations

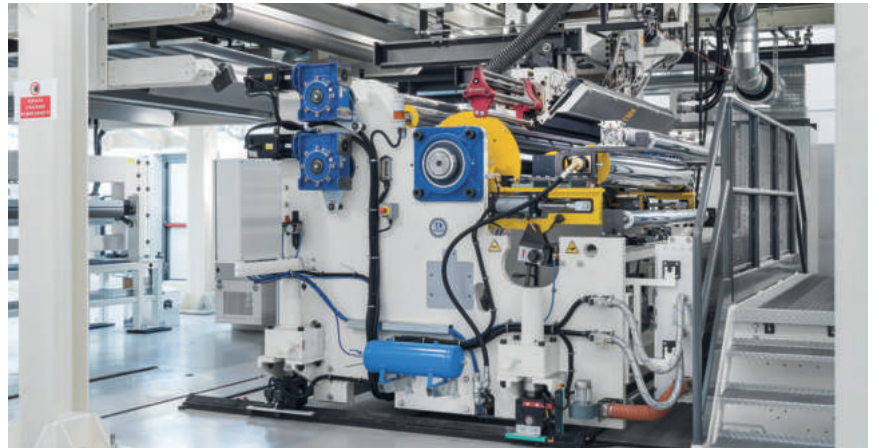


, the flexible skills

EXTRUSION COATING

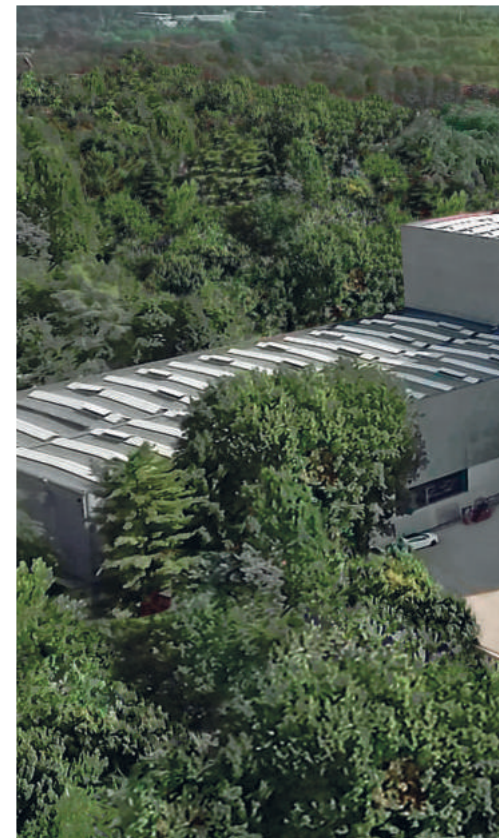
Thanks to the cutting-edge extrusion know-how and the cooperation with selected Partners, Bandera secures customers' investment with steadiness and far-seeing attitude.

Extrusion coating on paper, aluminium, composite materials and specialties; the wide range of production required by the market makes the Bandera customer oriented approach a great added value to any project.



- Extrusion performances cared by Extrusionists
- Single & multi-layer structures covering the most various process requirements
- Specially designed extrusion carriage with 3D calibrated positioning
- Low grammage jobs handling (current & future market scenarios)







HOUSE OF EXTRUSION®

Test your material | **Prove** the result | **Lead** the market



RECYCLING



BLOWN FILM



FLAT DIE



PELLETIZING



EXTRUSION

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BANDERA
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