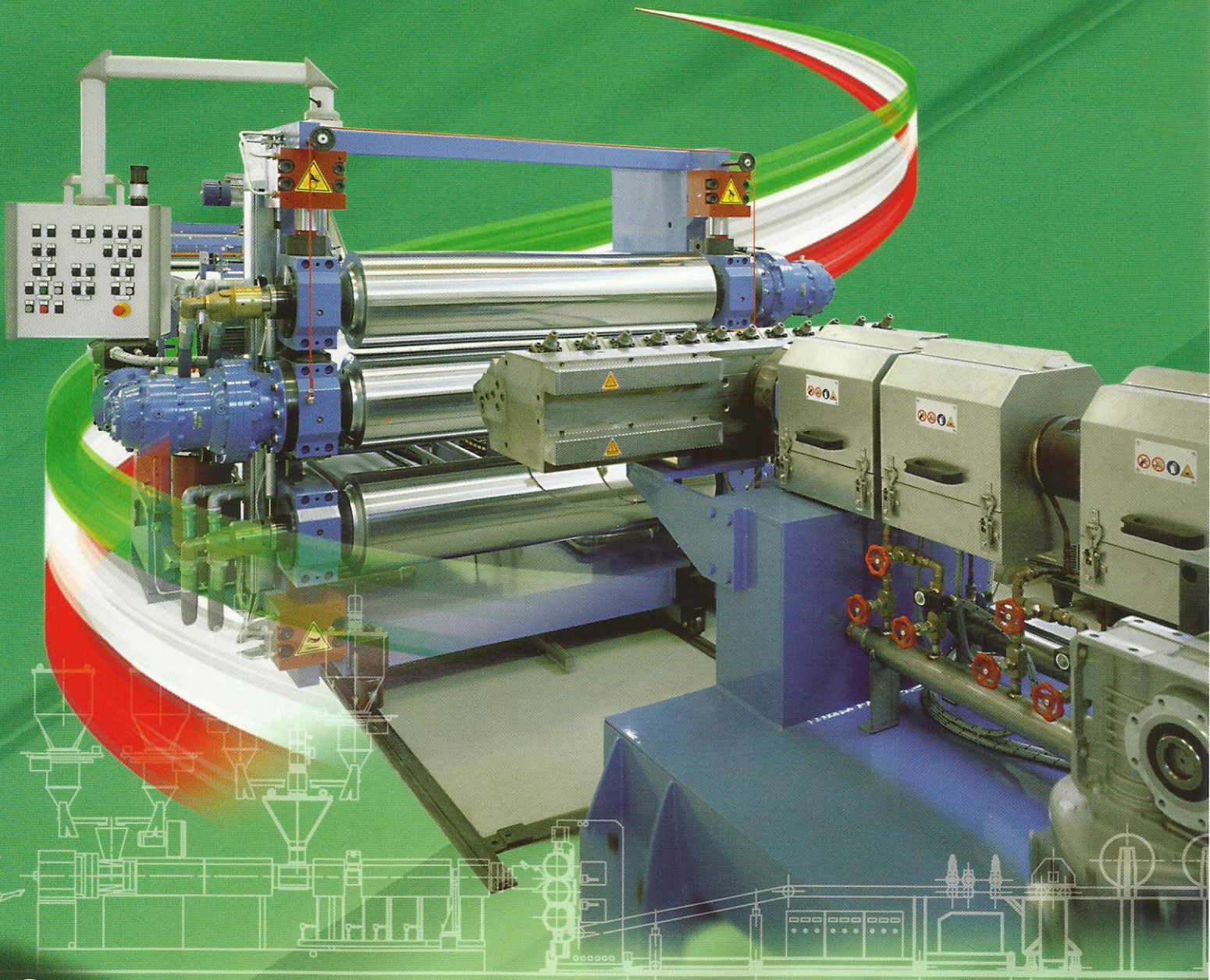


# ETP®

INNOVATIVE PATENTED TECHNOLOGY AND PLANT  
FOR HIGH PERFORMANCE EXTRUSION PROCESS



## RUBBER RECYCLING PLANT



**COMERIO ERCOLE**

MECHANICAL CONSTRUCTIONS SINCE 1885 - ITALY



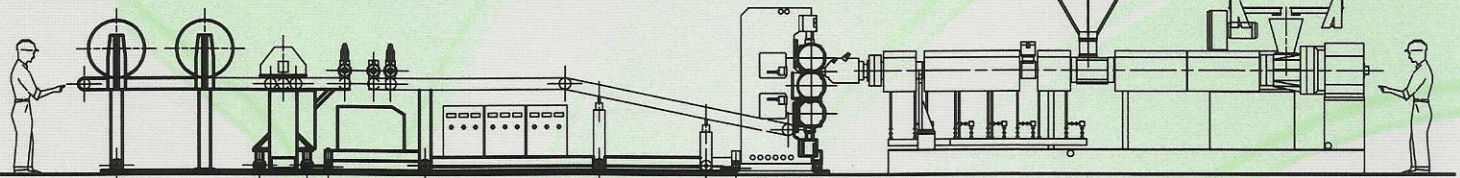
The necessity to produce quality materials from waste scraps is becoming more and more a new challenge in the recycling field. Global tire production is estimated at between +/- 1 and 1.5 billion units per year including tires for on-and- off road vehicles and equipment. Each year in the EU states over 300 million tires are permanently removed from passenger cars, utility vehicles and trucks and defined as waste. Comparable quantities arise in other world-regions including the Americas, Asia, Australia and the Middle-east. Several developing countries in Africa have also begun to manage their tire waste streams. Today, post-consumer tires, those permanently removed from vehicles, are valorized in different ways and increasingly seen as valuable resources. Material recycling is one of the two primary means of valorization, resulting in an array of environmentally sound, sustainable materials for use in myriad application, consumer and industrial products. Tire recycling is evolving into a cost-effective, energy-saving and commercially profitable industry.

There are four basic functional levels that become increasingly sophisticated as they progress:

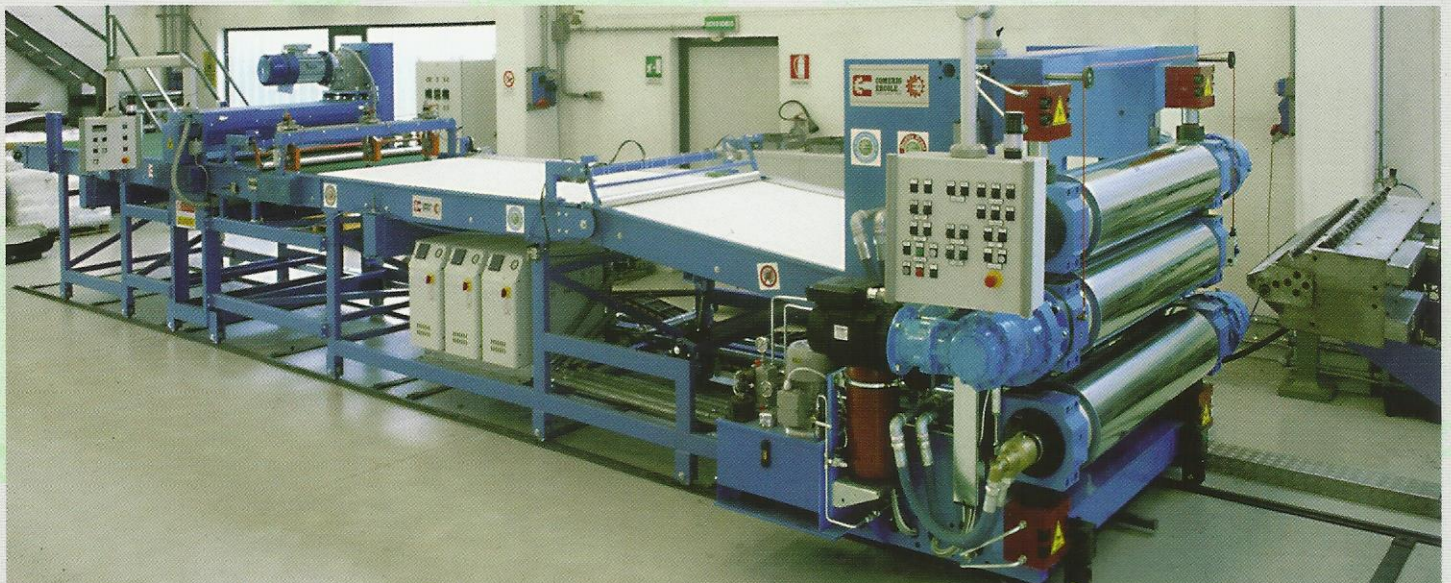
- **Level 1** Destruction of the tire structure: the first, most common means is with simple mechanical equipment that cut, compress, or remove a specified part
- **Level 2** Separate the elements of the tire: a second level reduces the material in size, and separates the rubber, metal, textile. Size reduction can be repeated to attain a desired size as follows:
  - **Level 2a** : fragments, rips or tears the material into shred or chips and may remove the metal segments that are not encased in rubber
  - **Level 2b**: processes the resulting material, reducing it further in size to granulate or powder, removing metal and textile
- **Level 3** Multi treatment technologies: level three modifies the separated materials with chemical, thermal technologies, devulcanisation, reclaiming, surface modification or pyrolysis
- **Level 4** Material upgrading technologies: level four refines earlier outputs with increasingly complex technologies, or by adding new ingredients like plastics or other elastomers.



**COMERIO ERCOLE** with **POLYGUMMI** has introduced a revolutionary new **PATENTED** system for rubber processing resulting from end-life tires or rubber scraps arising from technical articles. Also thermoplastic wastes, nonwovens, mineral fibres, wood sawdust, leather dust can be processed.



The plant called **ETP®** is essentially composed of a single-screw extruder with a vacuum device provided with patented mixing chamber, in which the rubber fillers are perfectly homogenized with a thermoplastic **matrix**. The system is designed and manufactured so that the recycled rubber filler is not thermally altered. Suitable cooling and degassing systems are provided on the plant.



## MAIN TECHNICAL FEATURES:

Calender width:	1500 mm
Trimmed product:	1250 mm
Productivity range:	400-450 kg/hour
Power consumption:	0.23 kW/kg
Thickness range:	3-20 mm
Thermoplastic matrix:	15-25% (EVA/PP/EBA/LDPE etc)
Rubber recycled filler:	78-85% (from 0.8 to 2.5 mm granules dia)

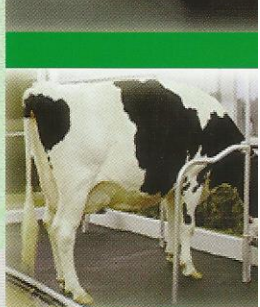
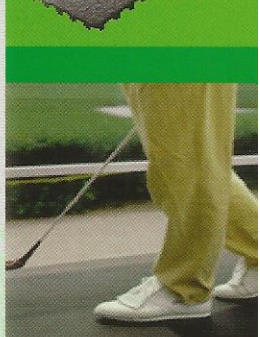
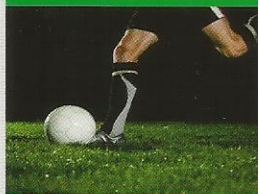
On the extruder two feeding points are positioned, the first for the thermoplastic matrix and the other one for the rubber filler. The plant is complete with a 3 roll calibrating special calender with different possible options and with cooling section, scraps cutting unit and collection section, which can be performed in rolls or in sheets.

## MAIN APPLICATIONS:

- Acoustic and insulating panels
- Subflooring sheet for underfloor insulation
- Anti-shock mattress
- Flooring and under-roofs
- Supports for carpets
- Sports playing surfaces
- Agricultural and farms products
- Automotive products – anti crash
- Footwear industry



To facilitate the verification of the new technological process by all potential customers **POLYGUMMI** has installed a laboratory plant in industrial size. The plant, managed by personnel can process final product having 1250 mm width in order to modulate and test real process industrial conditions.





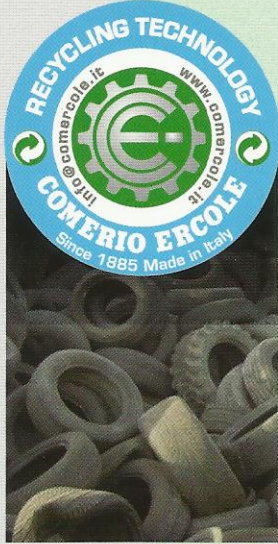
### PROCESS CONTROL SYSTEMS

**DATI**<sup>®</sup>  
DATA COLLECTION PLAN

POLYGUMMI, together with the major producers of electrical and automatic equipment, produce hardware and software systems for the management of plant to reach the highest sophistication level and integration as far as the control and supervision level is concerned. Data collection with MES integration with dedicated packages are also available upon specific customer requirements.



Choose the Original  
Choose Success!



### ENGINEERING AND KNOW-HOW

**SERVICING**<sup>®</sup>

POLYGUMMI is in a position to manage complete "turnkey" projects supplying engineering and technological know-how services suitable for the required production process.



**POLYGUMMI**

**PATENTED**



**COMERIO ERCOLE**  
MECHANICAL CONSTRUCTIONS



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