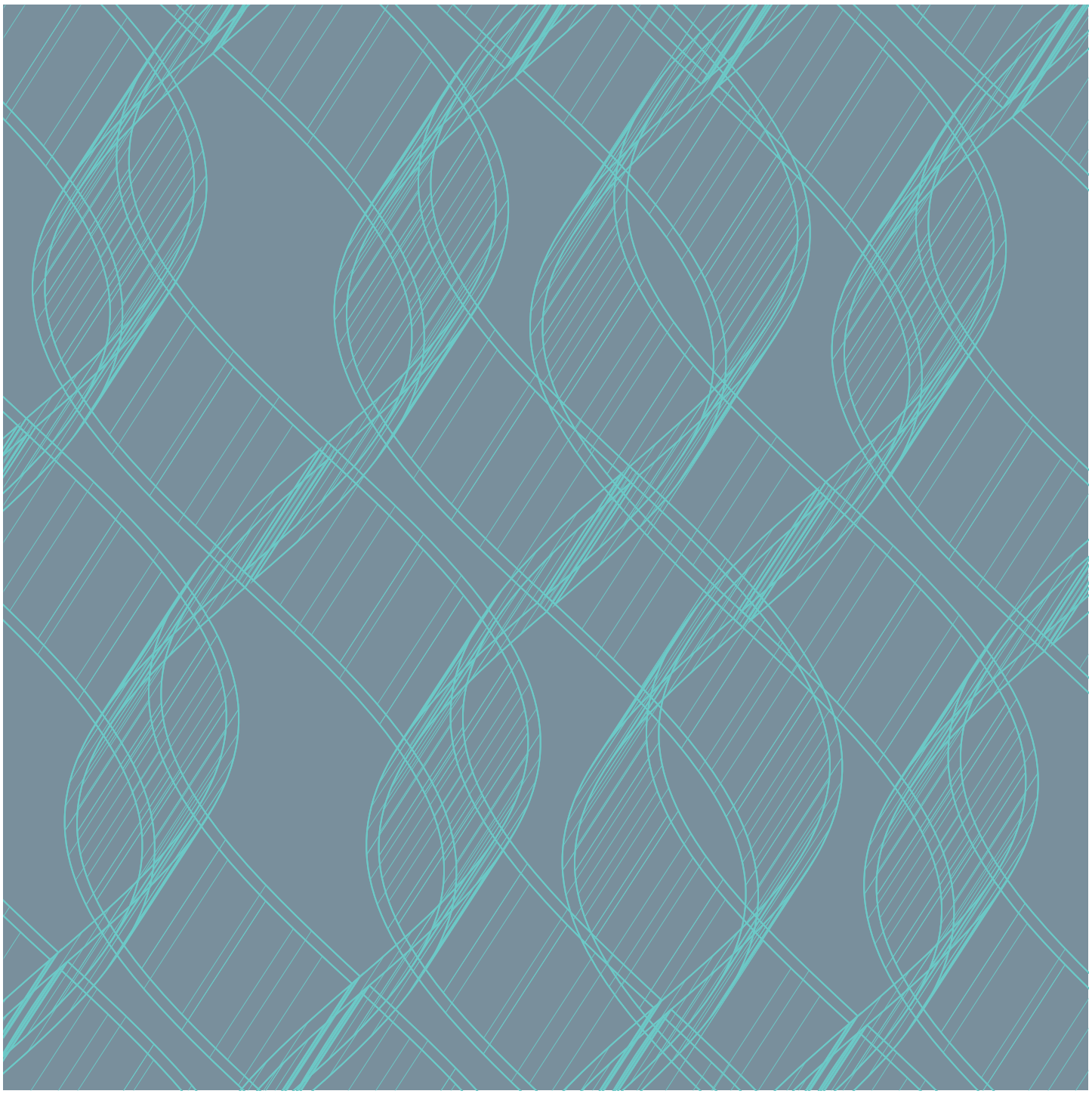
Bausano

Medical products extrusion lines

Bausano's extrusion lines for the medical sector meet strict quality standards, creating precise components like tubing and catheters for healthcare applications.



Medical products
extrusion lines

Bausano
Extrusion instinct

Efficient. Customizable. Ahead.

Flexible and transparent, medical-grade PVC tubes and catheters are ideal for fluid transfer in various healthcare applications. Bausano extrusion lines ensure dimensional stability, absence of contaminants, and compliance with pharmacopoeial standards. Smooth internal surfaces and excellent elasticity make them suitable for continuous and safe patient use in clinical and surgical environments.



Extrusion lines for medical tubes

The medical industry requires equipment that is safe, reliable and specifically designed for processing PVC and other non-toxic materials approved for sanitary use, in line with Pharmacopoeia regulations.
In this field, high quality and productivity are essential. Final products must be free from contamination and meet very tight dimensional tolerances to ensure consistent performance and patient safety.

Extrusion lines dedicated to medical applications include extruders in different sizes, selected based on production volumes and the type of material processed. Bausano provides customised systems tailored to customer needs, offering both single- and twin-screw extruders, along with a wide selection of accessories designed to support stable, high-efficiency output.

When producing medical devices, raw material selection is only the starting point.
Precision in extrusion is critical to guarantee reliability and repeatability. Bausano addresses this need through continuous innovation in its MD and E-GO series, developed to meet the strict technical requirements of the medical sector.

All Bausano extrusion systems are tested under strict quality protocols to ensure they comply with the standards of the pharmaceutical and medical industries. Internal procedures, along with comprehensive quality checks throughout the production process, support full adherence to current legislation.

The durability of the polymers used ensures resistance to stress and prolonged use, which is essential in demanding healthcare environments. At the same time, the use of stainless steels with specialised surface treatments contributes to avoiding contamination risks and allows for faster, more effective cleaning operations.

Bausano pays particular attention to the characteristics and technical expectations of the medical sector, providing lines suited for a wide variety of applications. These include the production of tubes for transfusion and dialysis, flexible medical bags, and thermoplastic sheets used in the packaging or transport of sensitive materials.

Made in Italy quality
Choosing Bausano means selecting a strategic partner in plastic processing. The company designs and manufactures customised extrusion lines completely Made in Italy, for the production of pipes, granules, profiles, medical tubes and medical pockets in thermoplastic materials.
The quality of the extruders and of the finished products is unquestionable: the best technology at the service of the plastics industry, aimed at boosting productivity and reducing energy consumption.

Single-screw extruder series

Specialised, controlled and certified: these are the words that best define the context in which Bausano operates with success in the medical sector, standing out as a reference manufacturer of extrusion lines for medical-grade tubing. The company combines technical know-how and sector experience with constant innovation, responding to the strict requirements of the market through the development of E-GO, the extrusion range for producing flexible and precision-controlled medical tubes.

Medical tubes: extrusion at the heart of healthcare
Bausano develops complete extrusion lines tailored to medical applications, with in-house design and engineering of all critical components. This vertical integration ensures compliance with the strictest regulations, high product quality and a process with consistent performance. Based on E-GO single-screw technology, the lines guarantee precision and hygiene in all production steps.

This system is suitable for manufacturing:
- PVC, PE, PP, TPE, EVA tubes for fluid transfer and infusions.
- Multilayer tubes for co-extrusion of polymers with different functions.
- Stripe tubing with radiopaque additives for X-ray visibility.
- Fluoropolymer tubes for catheter construction.
- Custom medical tubing for transfusion, dialysis and ventilation.

Screw design that drives performance
E-GO's strong plus is the geometry of its screw, which features customised design and differentiated pitch, and thus allows optimising the torque by increasing the machine output and making low-temperature processing possible also for materials like polyolefins. Recent developments in screw design have seen the creation of barrier screws with enhanced melting capability through shearing and mixing the material.

Main features
- Long effective life of grooved bush and processing unit.
- Constant output across the entire speed range.
- Lower melt temperature.
- Reduction of energy consumption thanks to induction heating system applied to the barrel.
- IoT technologies enable complete production monitoring, enhancing energy efficiency throughout the extrusion process.
- Reduced water cooling of the grooved feed bush and new drive concept.



TECHNICAL DATA				
Models	**E-GO 45**	**E-GO 60**	**E-GO 70**	**E-GO 75**
Screw diameter (mm)	45	60	70	75
L/D ratio	25 / 30	25 / 30	25 / 30	25 / 30
Heating zone	4	4 / 5	4 / 5	4
Cooling zone	4	4 / 5	4 / 5	4
Total power (kW)	25 / 35	41 / 80	45 / 65	85 / 108

Data contained in this catalogue are purely indicative and may change.

For specific needs or co-extrusion requirements, Bausano also offers a range of compact single-screw extruders: models E-GO 25, E-GO 30 and E-GO 35 ensure reliable performance even in low-output contexts. With screw diameters from 25 to 35 mm and L/D ratios up to 30, these machines are ideal for small-scale production or laboratory use. Output ranges from 4 to 80 kg/h.

Parallel twin-screw extruder series

The extrusion process allows the production of high-precision medical tubing. Bausano supplies parallel counter-rotating twin-screw extruders specifically designed to meet the strict requirements of the healthcare industry.

Bausano ensures quality and control at every stage, from feasibility analysis to equipment design, production, commissioning and after-sales support. All phases are carried out in-house to guarantee full process traceability and maximum reliability. This integrated approach enables the development of fully customisable twin-screw extrusion lines for medical tubing. The systems are designed to process a wide range of polymers with high accuracy, ensuring dimensional stability and surface purity. Bausano's MD series parallel twin-screw extruders meet the strictest medical standards and are engineered in various sizes and configurations. The available screw geometries and motor drives allow optimal plasticisation, precise extrusion control and output consistency – essential requirements for the production of safe and high-performance medical tubes.

MD Series: parallel twin-screw technology

High specific output for gentle plasticization of PVC.

Optimized material feeding system for stable production of PVC-U powder.

Optimized screw design for PVC and for customer needs.

Patented Multidrive system reduces stress on motor shafts, gears and screws with a positive impact in terms of both precision and energy savings.

AC motors for low energy consumption.

Induction barrel heating system, more efficient heating, and less dispersion.

IoT technologies enable full monitoring and analysis of production parameters, with a special focus on improving energy efficiency across the entire extrusion process.



TECHNICAL DATA							
Models	**MD 66**	**MD 75**	**MD 92**	**MD 118**	**MD 130**	**MD 158**	**MD 170**
Screw diameter (mm)	66	75	92	118	130	158	170
L/D ratio	19 / 30	24 / 30	25 / 30	26 / 30	25 / 30	21 / 26 / 30	24 / 28
Heating zone	5 / 6	5 / 6	6 / 7	7 / 8	8 / 10	9 / 9 / 10	8 / 9
Cooling zone	3 / 4	3 / 4	4	4	5 / 6	7	8 / 9
Total power (kW)	45 / 55	85 / 100	127 / 165	205 / 210	240 / 260	260 / 286 / 338	411 / 435

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For specific needs in PVC extrusion, Bausano offers compact single-screw co-extruders designed for low-output applications: models E-GO 25 and E-GO 30 ensure reliable performance in small-scale PVC production or laboratory settings. Output reaches up to 17 kg/h for PVC, depending on the configuration.

Die head

An essential component in the production of medical tubes is the die head, which directly influences the quality and consistency of the entire extrusion process.

Each head is engineered for minimal internal stress and designed to guarantee uniform material distribution. This ensures that medical tubes achieve the highest standards in terms of wall thickness uniformity and concentricity. In a sector where final product quality is often linked to patient safety, the design of the die head becomes not just a mechanical component, but a central part of a controlled and certified production process. Bausano's experience in the medical field ensures that each solution is fully compliant with applicable standards, delivering both performance and reliability over time.

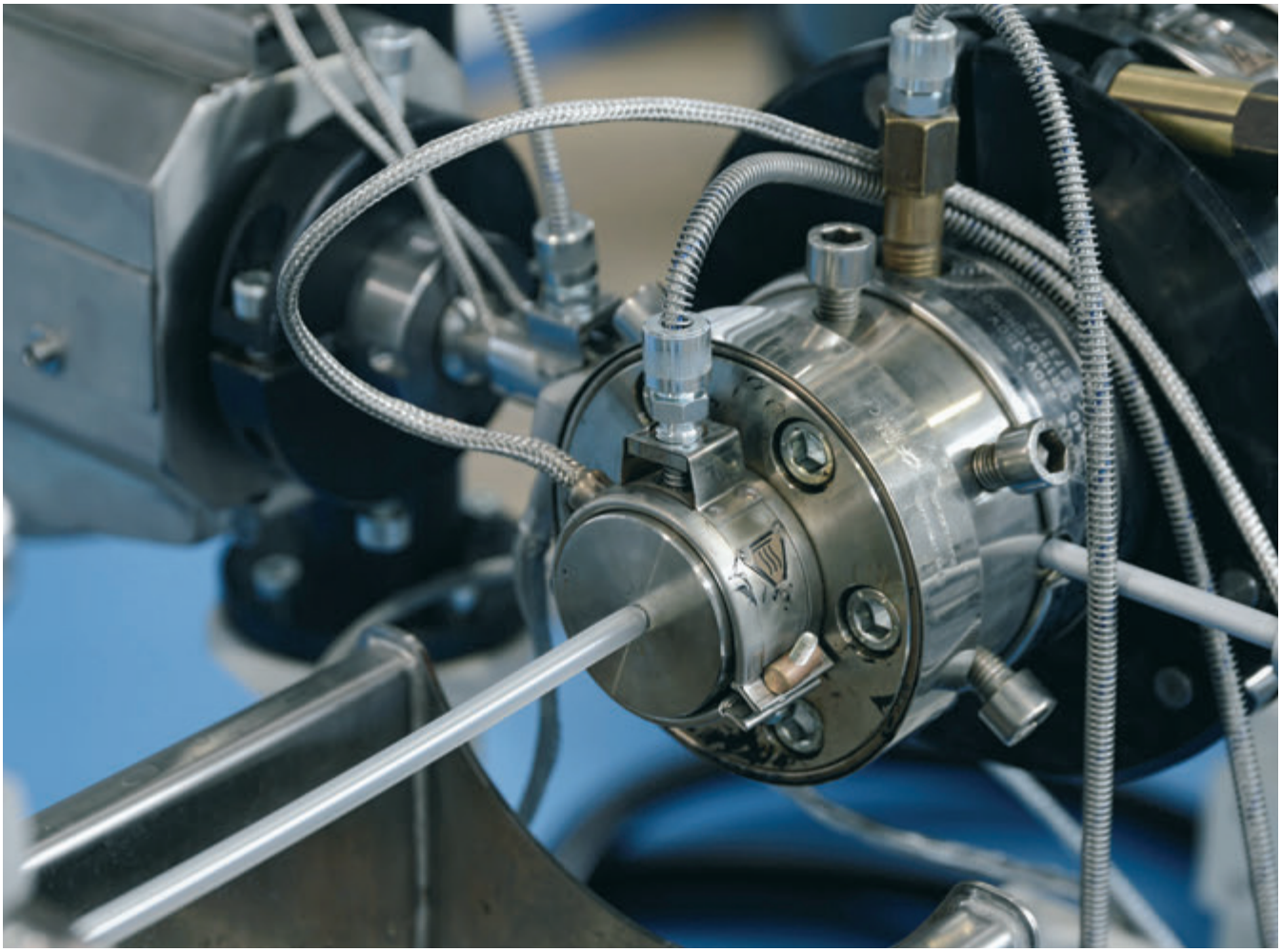
Features of extrusion dies for medical tubing

1
Dies are designed to ensure precise flow and uniform wall thickness across all tube layers.

2
Multiple tooling sets allow matching material rheology with output rate and line speed.

3
Streamlined flow paths reduce degradation and optimize residence time within the die.

4
Suitable for tubes with tight tolerances and critical stress control in medical use.



Bausano's extrusion heads are designed to support this diversity, making it possible to process various polymers including PVC, PE, TPE, EVA and PP. These materials are often selected not only for their mechanical properties but also for their compatibility with sterilisation methods, biocompatibility, and transparency.

Multilayer co-extrusion
For manufacturers requiring added functionality in their products, Bausano designs and builds co-extrusion heads for multilayer tubes.
This approach makes it possible to manufacture highly specialised tubing with improved chemical inertness on the inside, and enhanced durability or elasticity on the outside – ideal for demanding healthcare applications.

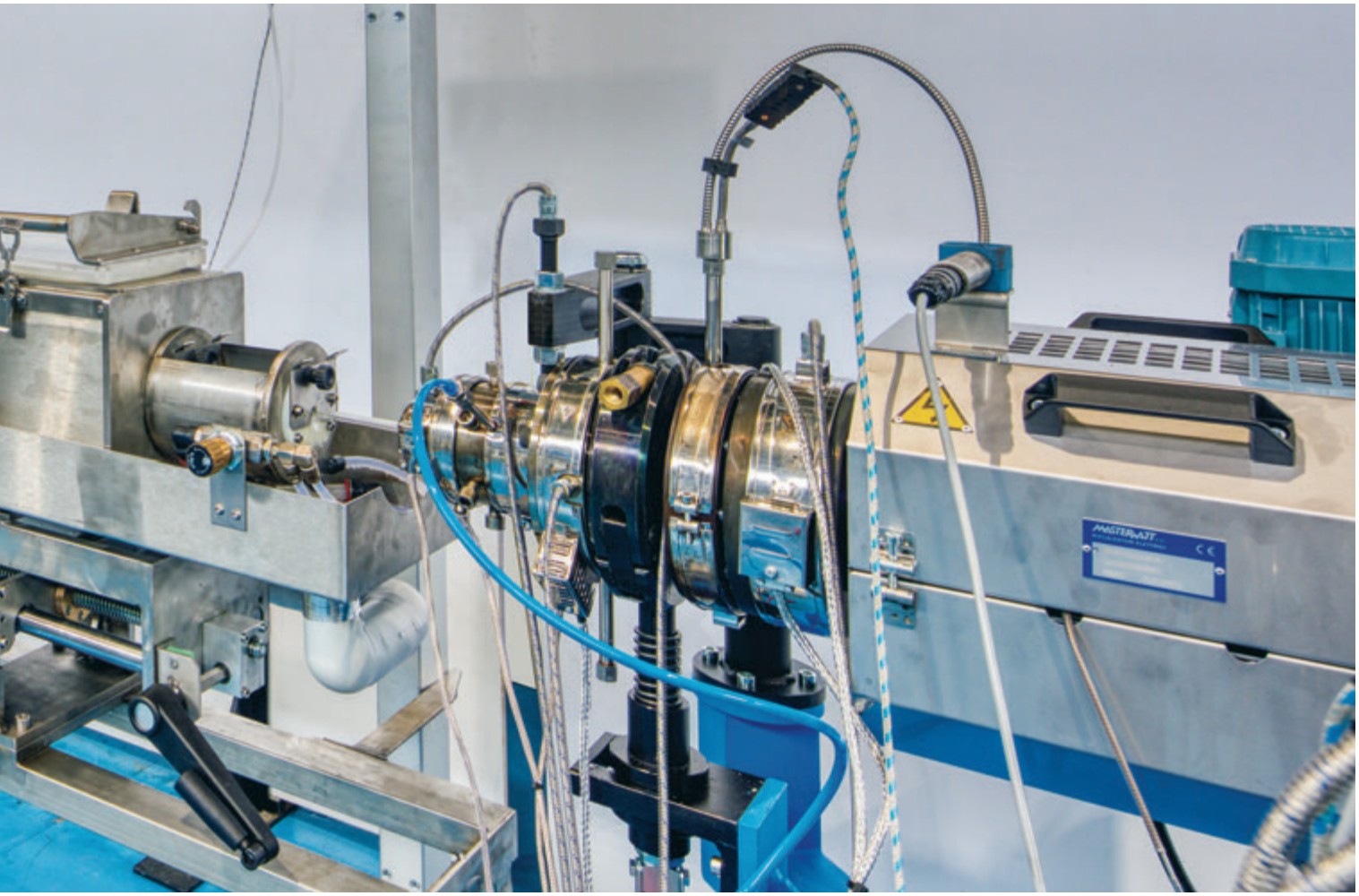
Multilayer tubes are used, for example, in procedures requiring drug delivery, vascular access or real-time monitoring, where different materials can serve distinct roles within the same device. These layers can also include additives such as radiopaque stripes (visible under X-ray), bioresorbable coatings, or hydrophilic surfaces for easier insertion.

Full integration with downstream components
In addition to the die and co-extrusion heads, Bausano develops the complete extrusion line: from the extruder to downstream components such as calibration tanks, tube measuring systems, cutting units and automatic winders.
The synergy between these components guarantees repeatability, efficiency and full traceability.



Vacuum tank

The Bausano vacuum tank plays a critical role in stabilising the tube immediately after extrusion. Made of stainless steel, the 1.5-meter front vacuum chamber is designed to ensure proper alignment and dimensional accuracy from the start of the cooling process. Operating within a closed-loop water circuit, the tank guarantees constant flow and optimal temperature regulation. High-efficiency vacuum and level pumps support reliable suction, while the system layout allows uniform contact between the product and cooling medium.
Compact and modular, the vacuum tank is essential for maintaining consistent output, even during high-speed production cycles.



Cooling tank

Cooling and vacuum tanks in stainless steel ensure immediate stabilisation and uniform cooling of the profile. Compact, modular and integrated for maximum efficiency along the extrusion line.

Bausano cooling tanks are designed to ensure uniform and efficient heat exchange along the extrusion line. Built in stainless steel and integrated into a closed-loop water circuit, these tanks maintain precise temperature conditions essential for stabilising the product during cooling.

Structural features

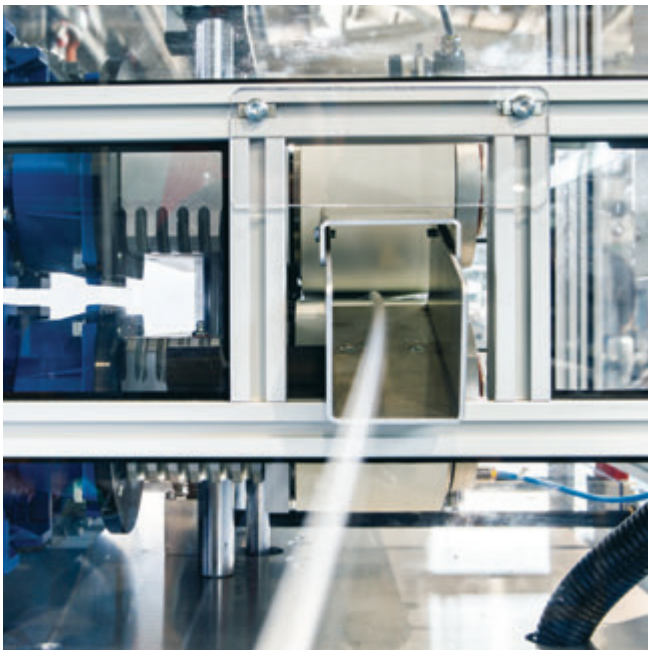
- Stainless steel for corrosion resistance.
- Non-insulated design for modular integration.
- Multiple tank sections optimised for linear layouts.
- Integrated water distribution and return channels.
- Modular design for custom line configurations.

Performance benefits

- Uniform water circulation along the cooling length.
- Integrated flow and temperature regulation.
- Compatibility with high-speed production lines.
- Stable dimensional control of extruded products.
- Reduced energy consumption through closed loop operation.

Haul-off unit





The haul-off unit is essential for maintaining steady and precise tube advancement during extrusion. Featuring a closed-profile frame with rubber traction belts and pneumatic position adjustment, it ensures the tube is gripped securely and moved forward at a consistent pace. This exacting control over pressure and drag minimizes tube deformation and supports dimensional accuracy, even during prolonged or variable-speed operation.

Tubing haul-off performance and reliability
This system is engineered to deliver continuous, synchronized tube feed, perfectly aligned with the extrusion speed. Pressure on the belt is adjusted pneumatically to match the tube's diameter, ensuring stable traction without damaging the material. Such precision reduces the need for operator intervention, enhances workflow consistency, and ensures that medical tubes retain their required dimensions and surface integrity throughout production.

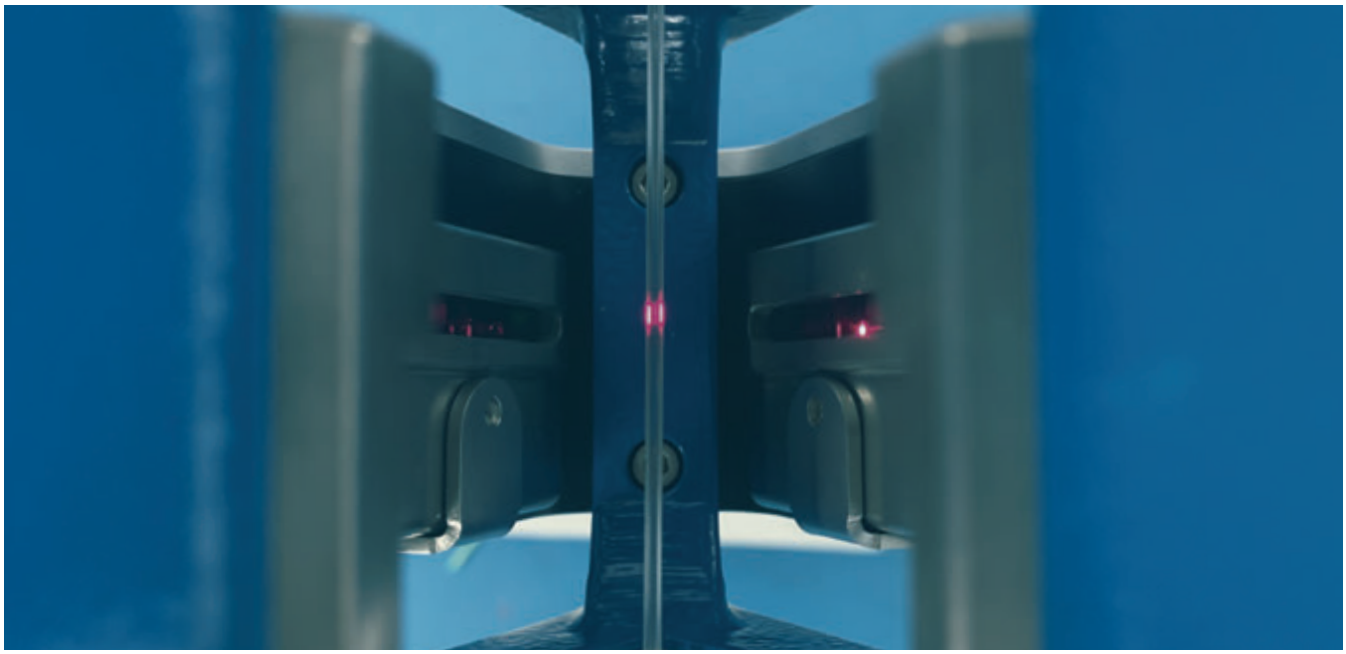
Cutting unit



The cutting unit is designed to deliver precise and repeatable performance, even at high production speeds. With a cutting line height of 1100 mm ± 20 mm, it integrates seamlessly into standard extrusion setups. The system can process tubes with an external diameter of up to 27 mm, maintaining clean, accurate cuts across a wide range of geometries. Its structure supports continuous operation without compromising on dimensional stability, making it ideal for intensive cycles.

Advanced cutting control and flexibility
The machine reaches up to 3000 cuts per minute in continuous mode, maintaining full synchronisation with the extrusion line. It supports multiple cutting modes, including start/stop, sinusoidal rotation and continuous cutting, allowing adaptation to different production needs. Management is handled through a CNC control unit with an integrated industrial PC, enabling advanced programming, intuitive interface navigation and real-time process monitoring – all contributing to precise, reliable and efficient tube sectioning.

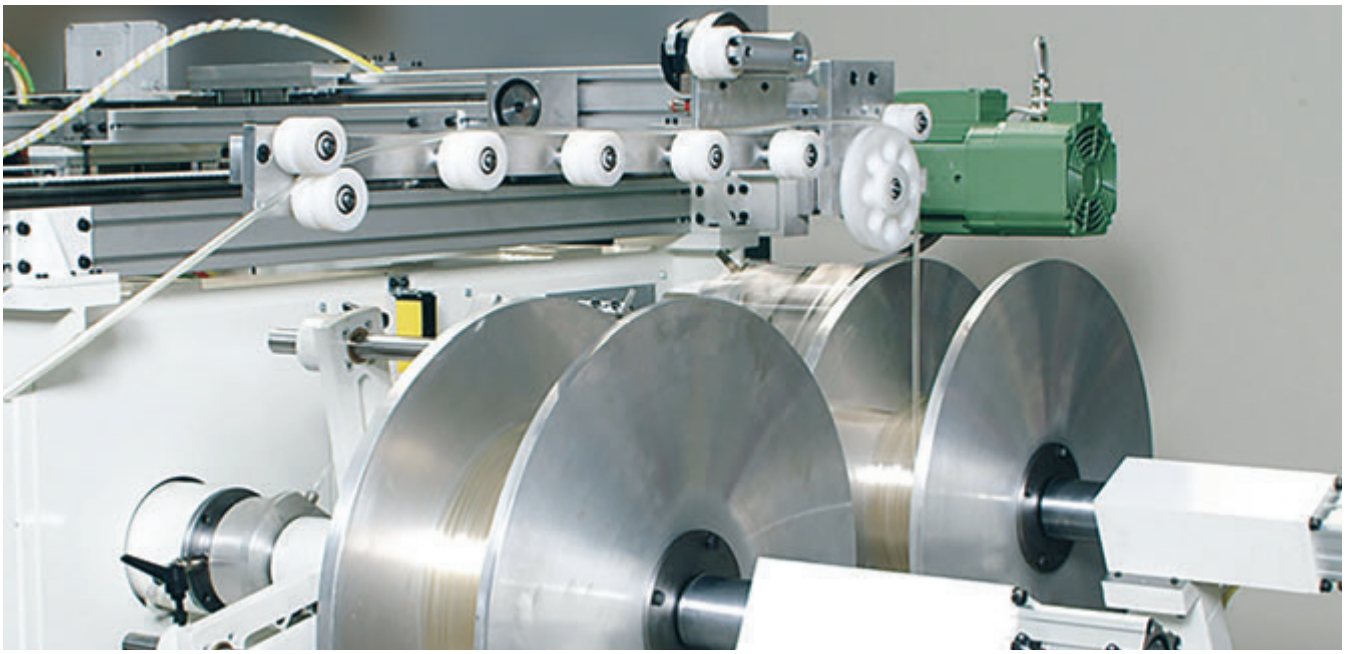
Tube measuring system



Bausano provides a complete range of tools for the dimensional measurement and control of extruded tubes. The system is designed to detect and monitor a wide set of parameters such as diameter, ovality, wall thickness (including both single and multilayer configurations), concentricity, eccentricity, cross-section, shape and internal capacity. By integrating these controls directly along the extrusion line, the system ensures real-time verification of quality standards and dimensional consistency, allowing the production to remain within tolerance even during high-speed cycles.

Real-time detection and quality assurance
The measuring unit combines laser and ultrasound technologies to deliver highly accurate, continuous readings. It operates with a high scan rate and uses a four-point detection method for monitoring external diameter and wall thickness. The system includes a 15-inch display with live updates and automatic alarm triggers when deviations occur, enabling operators to react promptly. This level of precision helps prevent waste and ensures that non-compliant sections are quickly identified and removed from the process, safeguarding overall production efficiency.

Winder



Bausano develops winding systems designed to ensure consistent collection of extruded products under all production conditions. The solution includes automatic and semi-automatic spoolers capable of maintaining precise speed control throughout the entire winding process. This ensures proper alignment, avoids deformation of the tube or profile, and maintains continuous line flow, even when working at high output rates.

Automatic reel change and operator efficiency
To further support productivity, the winding unit is equipped with an automatic reel change system. This function reduces manual intervention and limits operator contact with the finished product, improving both safety and cleanliness in the work area. The design of the system allows for seamless transition between reels, ensuring stable performance and optimal material handling across various production formats.

Made for healthcare made to endure

Medical bags in plastic are designed to ensure resistance, flexibility and reliability during transfusion, dialysis or infusion procedures. Produced with non-toxic materials, they maintain their shape even under pressure and ensure maximum safety during use and sterilisation. The satin finish prevents adhesion between walls, improving usability and hygiene.



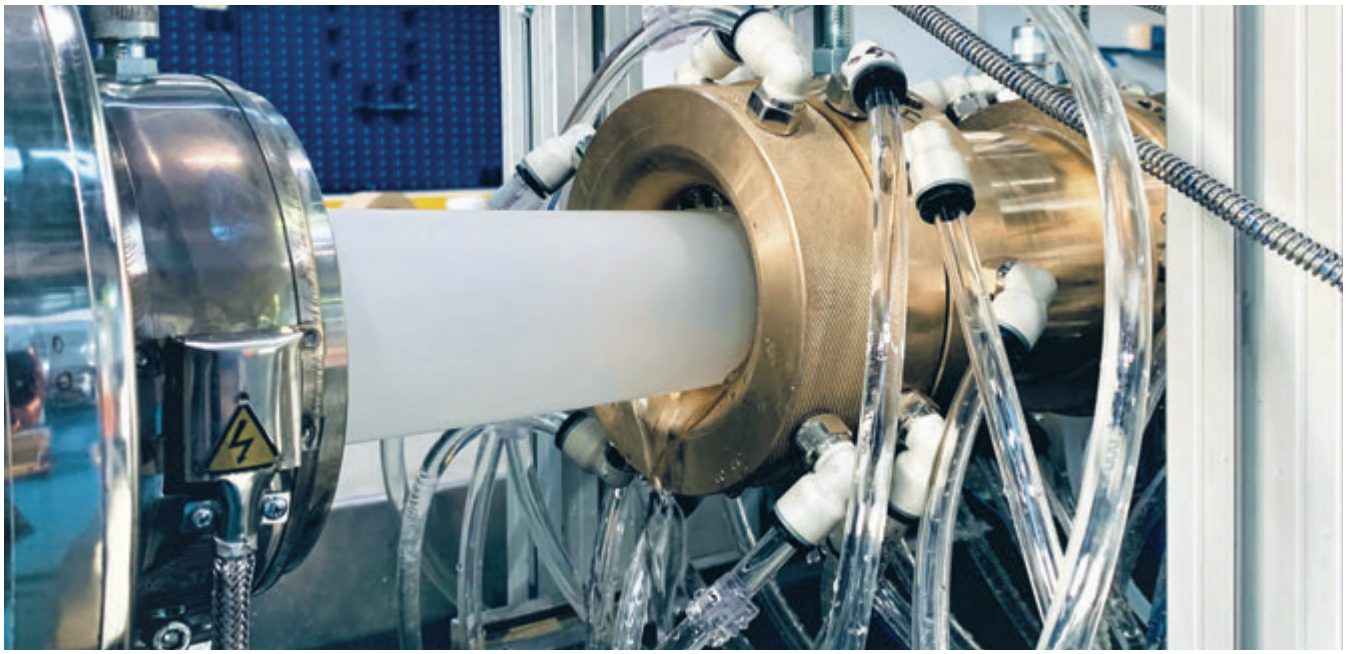
Extrusion lines for medical bag and sheet

Medical bags and plastic sheets used in transfusion, dialysis and infusion therapies are subject to strict performance and safety requirements.
Bausano designs and manufactures extrusion lines specifically dedicated to producing these components, ensuring they meet the highest standards in terms of resistance, elasticity, and thermal behaviour. Through precise control of the extrusion process and advanced surface finishing, the produced sheets avoid adhesion between internal layers, facilitating their separation during use. This feature is particularly important during sterilisation in autoclave cycles, where medical bags must preserve their integrity without deforming or compromising their contents.
The smooth satin finish and optional embossed texture support safety and usability in hospital and pharmaceutical environments.

The Bausano extrusion systems for medical film and bag production are configured to process a wide range of thermoplastic polymers, such as plasticised PVC, polyethylene and EVA, the most widely used materials in the intravenous bag segment. Each extrusion line is equipped with special heads and calibration systems that ensure consistent wall thickness and mechanical strength.

The sheet can be produced in different widths and thicknesses, with high precision and uniformity, ready for subsequent welding and shaping phases. Whether in roll form or cut into format, the film guarantees high purity levels, barrier properties and compatibility with medical fluids.
Thanks to modularity and full process control, Bausano's solutions adapt to different production capacities and are fully customisable.
Every component, from the extruder to the winding system, is designed in-house to ensure integration, reliability and compliance with the strict demands of the medical sector.

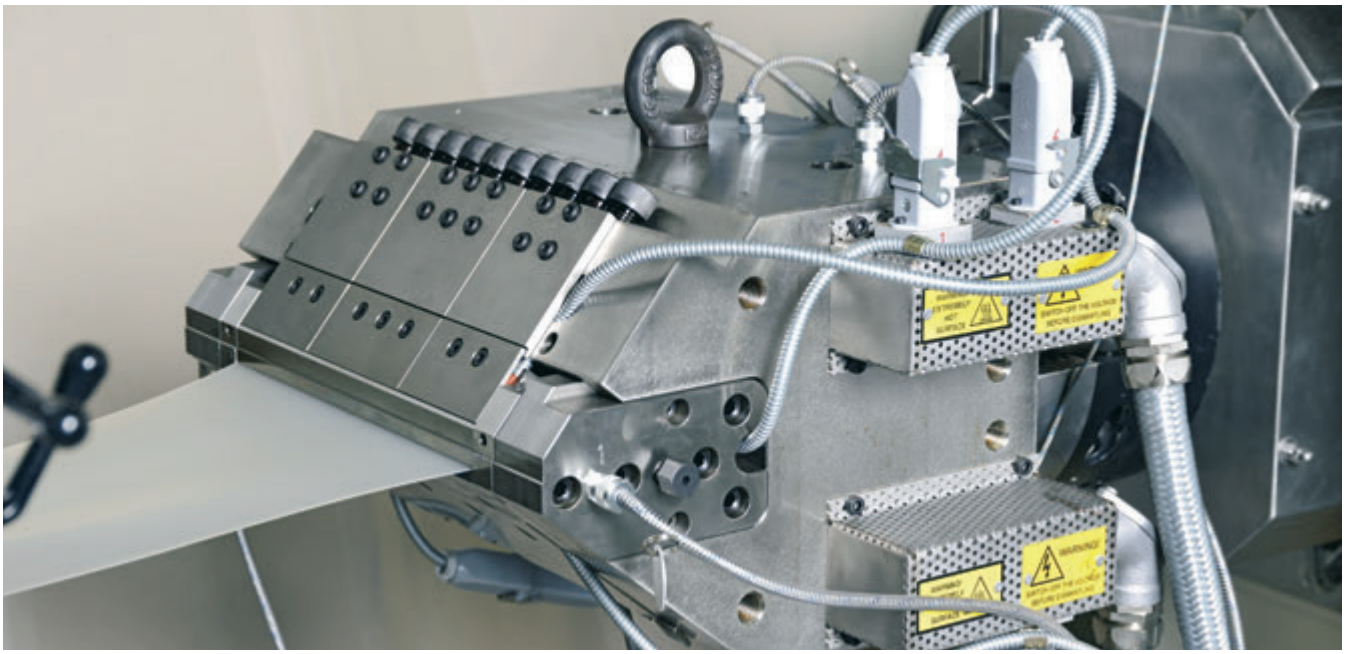
Extrusion system for medical bag



Bausano designs extrusion heads for medical bag production that are engineered to guarantee high linear speeds and maximum dimensional stability. The extrusion process maintains consistent resistance across the profile, with precise pressure regulation to ensure product quality and uniformity. These heads are developed to meet the specific needs of medical applications, where control over thickness and geometry is essential. Combined with dedicated downstream systems, they support efficient and continuous production cycles without compromising reliability.

Calibration, cooling and reel handling
To maintain stability during the cooling phase, Bausano integrates a water-based cooling system specifically engineered to sustain high extrusion speeds. The calibration unit includes cooled rollers with pneumatic pressure adjustment, enabling fine-tuned control over the extruded film or tube.
For the final handling phase, the winding system offers flexibility in both width and length of the reels, with options for standard or customised configurations. This ensures clean, orderly collection of the finished product, supporting seamless integration with downstream packaging or conversion operations.

Extrusion system for medical sheet



Bausano designs complete extrusion lines for the production of medical-grade plastic sheets used in transfusion, dialysis and infusion applications. These sheets range from 80 mm to 420 mm in width and from 0.1 to 0.65 mm in thickness. A key feature of the product is the satin or embossed internal surface finish, which prevents the two inner walls of the pocket from sticking together. This improves usability during medical procedures and ensures greater safety for healthcare professionals and patients alike. Unlike medical bags, these sheets are extruded in continuous rolls and later formed into the final product in post-processing phases.

Extrusion control and downstream integration
The line includes a dedicated extrusion head designed to produce sheets with adjustable width and consistent thickness, ensuring reliable transverse dimensions. The system can be configured with single- or twin-screw extruders, depending on the material and output required. A complete calendering unit with precision rollers ensures uniform sheet cooling while reducing condensation. For dimensional accuracy, a haul-off with double belt and optional side trimming unit can be integrated. The winding system – available in manual or automatic version – features adjustable pulling force, synchronized lateral movement and clean sheet cutting, supporting continuous production with minimal operator intervention.

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Medical extrusion lines

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Extrusion instinct

Bausano, international company founded in Italy in 1946, is a leader in developing high-tech industrial solutions for plastic processing.

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