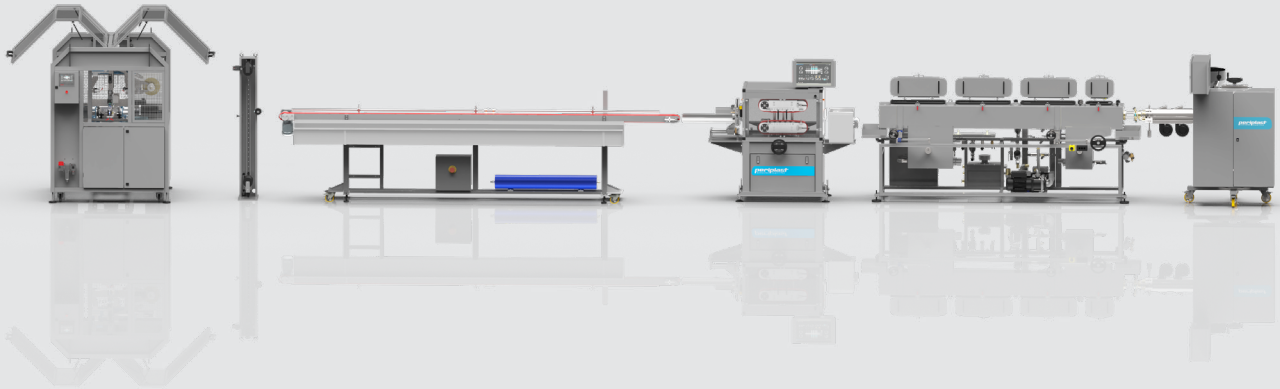
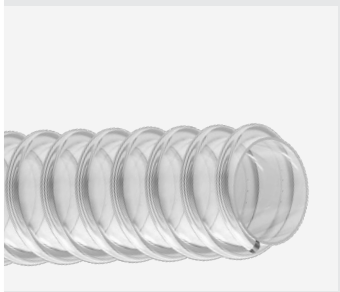
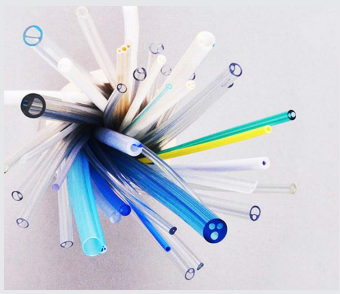
periplast
extrusion expertise



MEDICAL TUBE EXTRUSION LINE

PVC | TPE | TPU | TPV

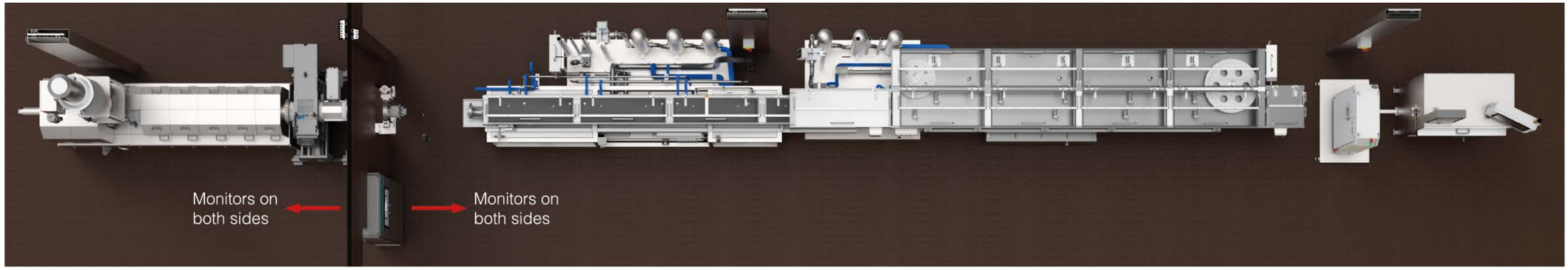




ECO FRIENDLY
SUSTAINABLE
CIRCULAR ECONOMY

PERIPLAST

MEDICAL TUBE EXTRUSION LINE



CLEAN ROOM READY EXTRUSION LINES

Complaint with most demanding ISO standards, using FDA-approved materials, osmosis water, compatible materials with high-quality water filtering and control.

Proven quality, stability, and dimensional precision with reduced tolerance in production are demanded by the medical tubing industry.

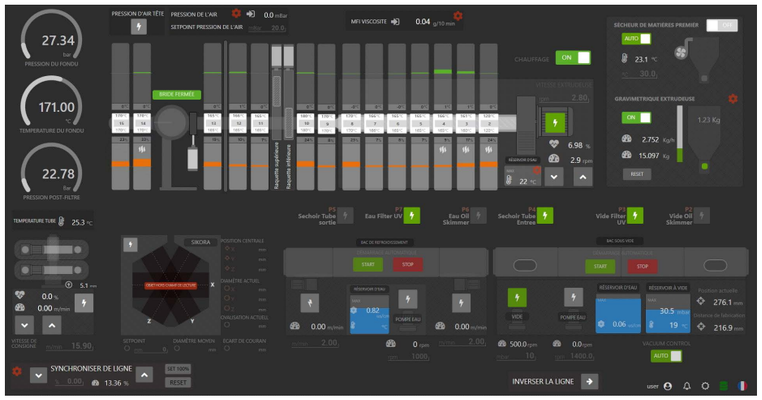
High production, clear surface, and low production scrap are our commitments.

- Wall separation between Extruder and Downstream
- No Paint - all stainless steel components for better cleaning
- Extruder (water cooled with no fans)
- Extruder Motor without gearbox using water-cooled torq motor with screw removal from the back
- Stainless steel in all components and tooling in contact with Raw material/tubing
- Stainless steel AISI316 in all areas with contact with Osmosis water
- Vacuum using touchless water calibration (pre-skinner)
- Electric cables and pipes are mostly covered
- Medical grade filtering including UV light and conductivity sensor
- Polished water tanks for faster/better cleaning
- Multipass tanks for space saving and higher output
- Internal air control of the Die
- LOTO complaint (Lockout/Tagout)

PERIPLAST LINE

CONTROLLER

Adopting the TOP-NOTCH technology available in the market, using one Industrial PC running Windows 11 IoT running and OPC-UA HMI with two or more 22'' FULL HD (1080p) multipoint Touch screen panels, fitting the machine's base frames along the line.



The main page designed specifically for each line including all the machines, sensors, and controls.

Main Functions:

- Product recipes include information regarding each article to produce including: product name and ID, temperature, speed of all drives, and two different setpoints in % for startup and production
- Graphic trends, and values to display and control the line variables (temperatures, speeds, pressures, etc.)
- Display, recording and printing of the alarms
- Program for the maintenance management of the machine.
- The same menus and screens available from any PC or laptop to be installed on the production control room, monitoring the process at any moment
- OPC-UA connection to External Scada System
- SQL Database recording alarms, process variables: temperature, speed, pressure
- Can run over Beckhoff or Siemens PLC

Software Controls:

Upstream Equipment: Feeder/Force feeder, Volumetric/Gravimetric feeder (INOEX, IBE)

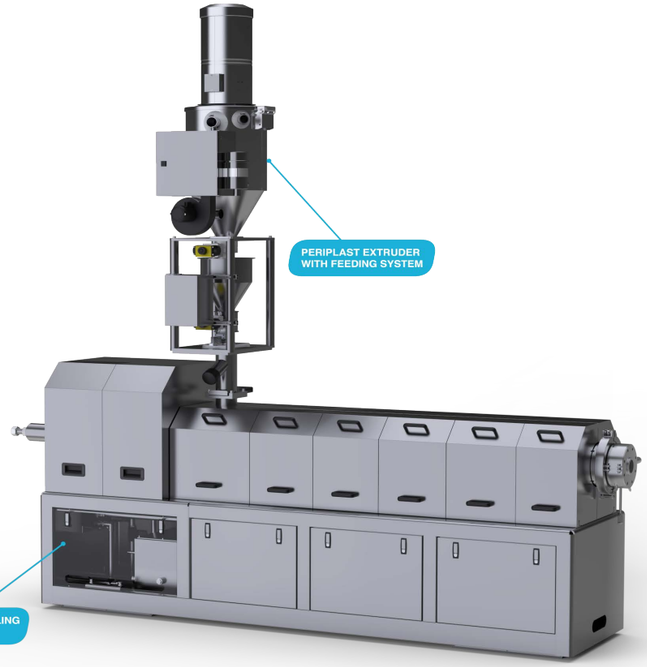
Extruder:

- Control and supervision of all thermo zones. A very simple software controls, at any moment, the power consumption distributing the power from the available phases and reducing the total power of the equipment
- Screw rotation, melt: temperature and pressure on the breaker plate – pressure loop as option
- Display of temperature parameters, set point, and heating power (bar graph).
- Upward/downward function on synchronized ramp of the line motors speeds.
- Pre-heating timer with the daily or weekly program, adjustable according to the hour the machine with 2 different Setpoints
- User management of min., max. or deviation of the temperature

Downstream Equipment

- Melt-Pump (speed and pressure)
- Screen changer (temperature and pressure control, and screen pack cleaning)
- Die-Head/tooling (temperature and airflow control)
- Calibration: Automatic vacuum control (PID) – with energy and noise reduction and possible to define recipes
- Cooling: Closed loop water circulation/temperature controls.
- Diameter and Thickness control (Zumbach and Sikora)
- Take-off: pulling speed, open/closing of the conveyors/belts in pneumatic version or belt thickness sensor on wheel version.
- Saw: Cutting cycle (length, number of parts cut, safety)
- Discharge of collecting table/packing system

EXTRUDER



BUILDING FEATURES

- AC MOTOR WITH GEARBOX OR TORQ MOTOR, AS OPTION SCREW REMOVAL FROM THE BACK
- ROBUST BASE FRAME, PAINTED WITH MEDICAL COMPLIANT PAINT OR IN STAINLESS STEEL
- SELF CONTAINED ELECTRIC ROOM OR CENTRALIZED AS OPTION
- SCREWS ACCORDING TO THE MATERIAL
- EXTRUDER - WATER COOLING COMPLAINT WITH ISO ROOMS AIR QUALITY
- WATER COOLED SCREW WITH TEMPERATURE CONTROL
- AIR COOLED OR WATER COOLED AS OPTION

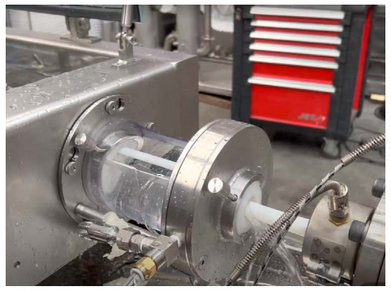
PIPE HEAD

SINGLE OR MULTILAYER DIE-HEAD

- MELT FLOW DISTRIBUTOR OF SPIDER-LEGS, SCREEN OR SPIRAL TYPE
- MADE OF HARDENED STAINLESS STEEL AISI420 48-50HRC
- SUPPLIED COMPLETE WITH HEATING BANDS
- EXTRUDER ADAPTOR, TO SUIT PERIPLAST EXTRUDER
- PROVIDED WITH DIE SET'S
- BUBBLE TUBE AS OPTION
- CO-EXTRUSION OF ONE OR MORE LAYERS

VACUUM TANK

- PRE-SKIMMER WITH PTFE SEALING TOUCHLESS WATER CALIBRATION
- PID VACUUM ADJUSTMENT FOR ENERGY SAVING
- MULTIPASS TANK'S WITH INTEGRATED VACCUM TO SAVE ROOM SPACE AS OPTION
- MOVEMENT OF THE TANK ON ITS BASE FRAME MOTORIZED WITH AUTOMATIC DISTANCE CONTROL AS OPTION
- MANUAL ADJUSTMENT TRANSVERSELY, AND UP AND DOWN BY HANDWHEEL



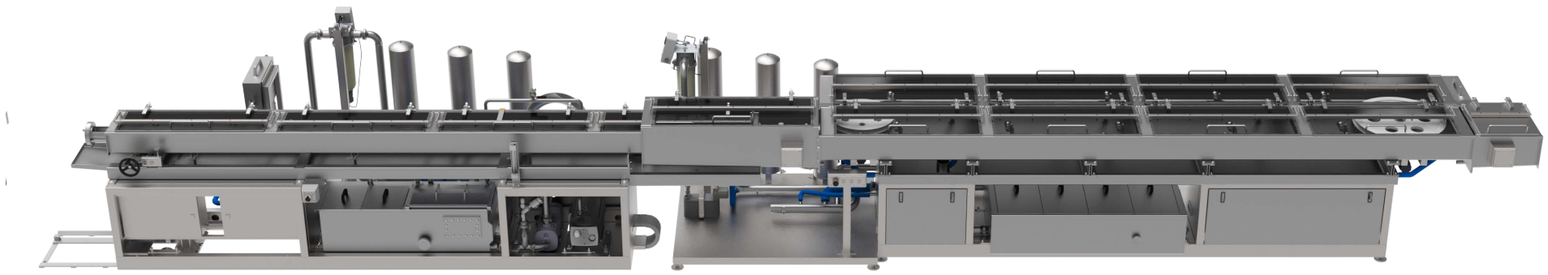
VACCUM CALIBRATION WITHOUT CONTACT

- MACHINE FRAME IN STAINLESS STEEL AISI 304
- EASY CONTROL OF BOTH CALIBRATING AND COOLING FROM CONTROL PANEL
- PIPE SUPPORTED BY STAINLESS STEEL ROLLS WITH GLASS BEARINGS AS OPTION
- PNEUMATIC DOOR OPENING
- AUTOMATIC WATER LEVEL CONTROL ON THE TANK
- ONLY 1 WATER INLET AND 1 WATER OUTLET FOR EASE OF INSTALLATION AND OPERATION
- OSMOSIS WATER COMPLAINT FILTERS IN AISI316 WITH POSSIBILITY TO INTEGRATE UV LIGHTS
- TANK AND WATER RESERVOIRS INSULATED TO PREVENT CONDENSATION AS OPTION

COOLING TANK

- STAINLESS STEEL WATER RECIRCULATING PUMPS
- INTEGRATED LOW NOISE BLOWER
- MULTIPASS TANK TO SAVE ROME SPACE AS OPTION
- ALL THE PARTS IN CONTACT WITH THE WATER IN AISI316 - OSMOSIS WATER READY - POLISHED FOR BEST CLEANING AS OPTION
- EASY CLEANING

Multipass 15m



PERIPLAST VACUMM TANK

PERIPLAST COOLING TANK

TAKE-OFF WITH

INTEGRATED CUTTER

- TAKE-OFF, CUTTER AND COLLECTING TRAY IN THE SAME BASE FRAME
- CUTTING UNIT WITH THE POSSIBILITY OF MOVING APART FROM THE TAKE-OFF BELTS FOR START-UP PURPOSES
- EASY MANUAL DISPLACEMENT OF THE CUTTING UNIT AND BLOCKING IN ITS OPERATING POSITION

TAKE-OFF

- CONVEYORS DRIVEN BY AN SERVO MOTOR VIA HEAVY DUTY GEARBOX
- CONSTANT TORQUE (AND THEREFORE PULL) THROUGHOUT THE SPEED RANGE UP TO 140M/MIN
- EXTREMELY ACCURATE CONTROL OF SPEED (BETTER THAN 0,1% OF ANY SET SPEED) TO ENABLE MINIMUM WALL THICKNESS TO BE ACHIEVED AND MAINTAINED)
- SENSOR TO CONTROL DISTANCE BETWEEN BELTS
- OPEN/CLOSE OF UPPER CONVEYOR BY PNEUMATIC SYSTEM PROVIDED OF BACK PRESSURE FACILITY AS OPTION
- GRIPPING BY POLY-V BELT WITH A RUBBER LAYER (FDA APPROVED)
- DIAMETER AND THICKNESS CONTROL USING ZUMBACK OR SIKORA, WITH FULL INTEGRATION OF THE SCREENS ALONG THE LINE

PERIPLAST TAKE-OFF WITH INTEGRATED CUTTER

ROTARY CUTTER AND COLLECTING TRAY

- ONE BLADE DRIVEN BY BRUSHLESS AC SERVOMOTOR
- ADJUSTABLE BLADE SPEED
- ACCURATE LENGTH INSTRUCTIONS/SIGNALLING TO CUT TUBE LENGTHS
- BATCH DISPLAY COUNTER
- LUBRICATION OF KNIFE BLADE AND LUBRICATOR LEVEL INDICATOR
- BUSHES FOR TUBE GUIDING/HOLDING UP TO THE BLADE SURFACE
- SYNCHRONIZED WITH HAUL-OFF
- SAFETY SYSTEM TO GUARANTEE THAT THE OPENING OF CUTTING UNIT WOULD NEVER BE DONE WHILE THE BLADES ARE STILL ROTATING
- SUPPORTED ON THE SAME BASE FRAME OF THE TAKE-OFF WITH A SMALL SHORT GUIDING SYSTEM, MANUALLY ADJUSTED, TO APPROACH AND MOVE AWAY FROM THE TAKE-OFF BELTS
- COLLECTING OF TUBE BY A SOFT BELT WITH VARIABLE SPEED CONVEYOR BELT SYNCHRONIZED WITH THE LINE SPEED
- AIR BLOWER TO TAKE OUT OF THE BELT THE SMALL TUBES OF THE SHORT PRODUCTIONS AND ALSO THE LONGER LENGTHS

PERIPLAST TAKE-OFF WITH INTEGRATED CUTTER

MEDICAL TUBE COILER

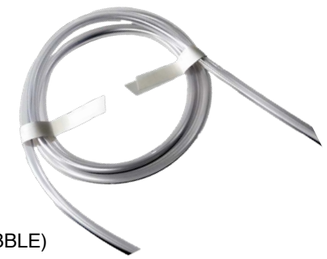
ONE COILING STATION WITH ACCUMULATOR

- COIL TENSION CONTROL (COILING TENSION AND MAXIMUM TENSION)
- COIL LAYERING DRIVEN BY MOTOR AND CONTROLLED BY FREQUENCY INVERTER
- TOTAL CONTROL OF THE COILING THROUGH PLC WHICH REGISTERS PRODUCTION STATISTIC DATA
- GENERATION AND CONTROL RECIPES FOR THE VARIOUS ITEMS: PRODUCT ID/NAME, TUBE DIAMETER, THICKNESS AND LENGTH OF COIL
- PNEUMATIC POSITIONING SYSTEM OF THE WINDER ARMS THAT DEFINE THE WIDTH OF COIL
- LINEAR COILING (WINDING) SPEED SYNCHRONIZED WITH EXTRUSION SPEED

OPERATION IN FULL AUTOMATIC MODE INCLUDES:

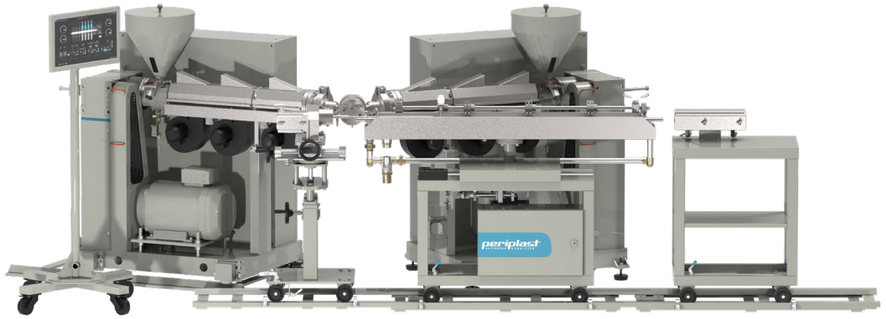
MODEL	Hose OD range [mm]	Coil dimensions range [mm]		Maximum linear speed [m/min]
		ID (A)	Width (B)	
BTM	Up to Ø11	75mm to 150mm	30	Up to 15

- AUTOMATIC SWITCH OF COIL:
  - CUT OF TUBE HOLDING THE END TIP
  - PICK UP OF A NEW TUBE TIP
  - START A NEW COIL
- STRAPPING OF FINISHED COIL WITH COHESIVE PAPER TAPE
- EXTRACTION OF FINISHED AND STRAPPED COIL FROM COILING STATION
- GUIDING OF END-PRODUCT TO OUTSIDE OF THE EQUIPMENT
- SUITABLE FOR THE 1800MM, 2000MM,3000MM (Ø11MM MAX OD BUBBLE)
- DISCHARGE TO TROLLEY
- DIFFERENT COILER'S ON REQUEST



PERIPLAST MEDICAL TUBE COILER

SPIRAL MEDICAL TUBE LINE



Periplast Spiral Medical Tube line for the production of spiral breathing tubes. These tubes are made of PVC-soft for the hoses on which a PVC-hard spiral is applied during the production. The extruders are particularly used for the manufacturing of medical catheters with a diameter of 15 to 19mm. The line consists of 2 extruders (PVC-soft and PVC-hard), co-extrusion dies, calibrator, dual cooling (with adjustable inflow channel), automatic cutter and hose store.

PERIPLAST SPIRAL MEDICAL TUBE LINE

periplast
extrusion expertise

Address

Rua de Marrazes, lote 32 -
Zicofa 2415-807 Leiria
Portugal

Phone

+351 244 859 990

Online

comercial@periplast.pt

www.periplast.pt

MORE INFO