

### TECHNICAL SPECIFICATIONS OF THE MACHINES

The parameters and descriptions given below define the minimal requirements which are to be met by the machinery. The parameters of the machines offered shall not be worse than those mentioned below, otherwise, the offer will be rejected.

Due to the specific character of the new technology, all the machines must be fully compatible with each other.

Specifications of the machines making up the production line:

No.	Machine	Technical parameters and requirements
I	<b>TWIN SCREW EXTRUDER</b>	extruder production capacity: max.450 kg/h
		pressure and temperature control module
		automatic screen/filter changer
		fluid temperature control module
		calibrating modules: for thin and medium foams: at least four calibrators of adjustable diameters (non-adjustable calibrators are allowed) for thick foams: at least two non-adjustable calibrators
		density range of foam: <b>16-80 kg/m<sup>3</sup></b>
		thickness range of foam: <b>0.5 - 18.0 mm</b>
		plasticizing system for the twin screw extruder
		close circuit water cooling system
		high pressure gas supply system
		foam thickness control within one die, adjustable without breaking the ribbon/sheet (hydraulic regulation of the gap width or mechanical adjustment of the internal die shift)
		dies and calibrators for production the following widths of foam:
		Thin foams width range (for foams 0.5 - 3.0 mm): 1000-1100; 1180-1300; 1350-1450; 1550-1650; 1750-1900; 2000-2150 mm
		Medium foams width (for foams 3.1 - 8.0 mm): 1000-1100; 1200-1350; 1500-1600 mm
		Thick foams width range (for foams > 8.1 mm): 1000-1100; 1200-1350 mm
		dies for thick foams have to be equipped with a foam surface smoothing system
		suction collectors/ventilating hoods for collecting butane gas in the areas of the extruder-head and the winder
		<b>CE Certification</b>
		II
<b>component 1</b> (LDPE granulate): 10-100%		
<b>component 2</b> (GMS masterbatch): 0.5 - 5%		
<b>component 3</b> (talc masterbatch): 0.5 - 5%		
<b>component 4</b> (colour agent): 0 -10%		
<b>component 5</b> (oxy masterbatch): 0.2 - 5%		
<b>component 6</b> (other, recycled granulate): 0 -100%		
PLC controlled system		
components dosed for the pre-programmed capacity of the twin screw extruder		
pneumatic component feed system		
feed capacity matched to the extruder		
<b>CE Certification</b>		

III	<b>AUTOMATIC WINDER WITH S-WRAP HAUL-OFF UNIT INCLUDING IN-LINE LONGITUDINAL CUTTING UNIT</b>	winder suitable for the proposed widths and thicknesses of foam
		foam ribbon/sheet tensioning module
		constant foam collection speed to prevent thickness differences
		automatic sheet cut-off, hot-melt gluing of roll cores, and starting new roll winding with two-pin winder
		featuring also capability of winding thick foams without using roll cores and hot-melt gluing
		in-line longitudinal cut unit, featuring circular/disc cutters, capable of cutting sheet onto 3 independent stripes in-line, with two haul-off systems
		<b>CE Certification</b>
IV	<b>CUT-OUT UNIT FOR IRREGULAR SHAPE CUTTING</b>	vacuum table 1500 mm x 3000 mm
		X -Y plane motion/feed: 1500 mm x 3000 mm
		Z motion: 100 mm
		unit featuring two working heads: - oscillatory 2 x servo, and - milling cutter (24000 rpm.) featuring automatic tool change
		2.5 D or 3D control module
		vacuum pump
		control computer
		<b>CE certification</b>

All the production line machines (except the irregular shape cutt-out unit) must operate basing on one operating system and must communicate with each other thus making up one system controlling the whole production line. Production parameters shall be controlled by PLCs, and they shall be stored to make a production recipe.