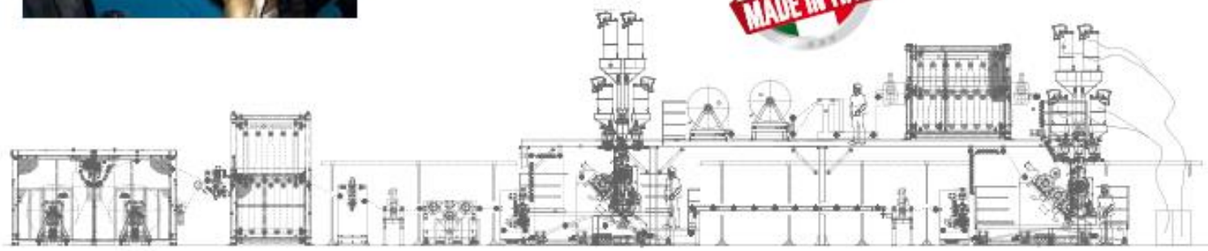
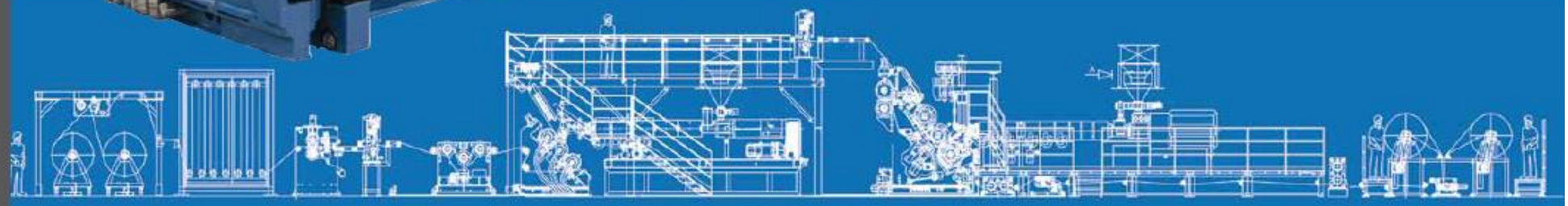
ROOF MEMBRANES

COATING PLANTS

b.g. plast since 1987 extrusion technology

SHEET EXTRUSION LINES FOR ROOF MEMBRANES





For many years BG Plast engineers have achieved great success in the production of coating lines.

There are many possibilities for combining plastics with other materials such as nonwoven fabrics, moquette, natural fibres, etc.

They are widely used in a variety of fields, from the automotive industry to that of shoes manufacturing and even the fair and exhibition market, to which were supplied 4000 mm width moquette rolls.

A new recent experience was a combination of 6 layers of which3 of different polymers and 3 of natural fibres.

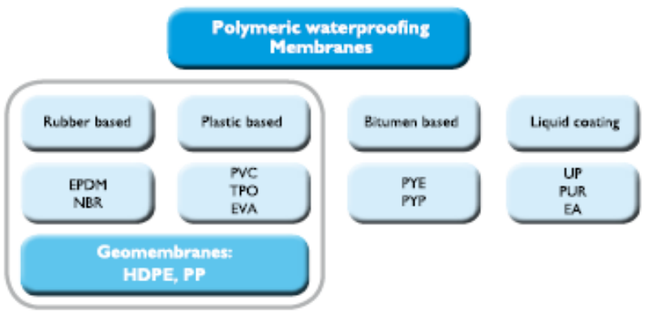
The line produces rigid panels to be thermoformed as car doors.

SHEET EXTRUSION LINES FOR ROOF MEMBRANES

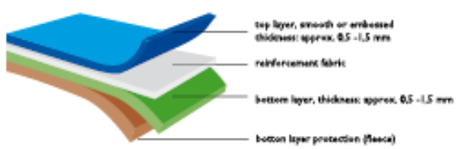
1 Sheet extrusion lines for roof membranes: fields of applications

Application	Roofing waterproofing
Material to be processed	TPO-recipes, soft-PVC
Product width	1.500 - 3.960 mm
Product thickness	1000 - 3.000 µm
Throughput	900 - 5000 kg/h
Line speed	max. 45 m/min
Special features	Lamination of fabrics from both sides in a single pass, in-line-embossing

2 Waterproofing membranes: materials of construction



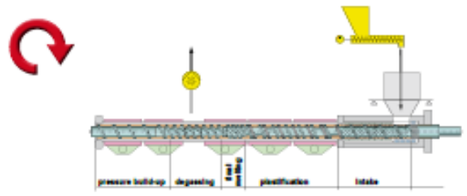
3 Waterproofing membranes: typical construction of modern membranes



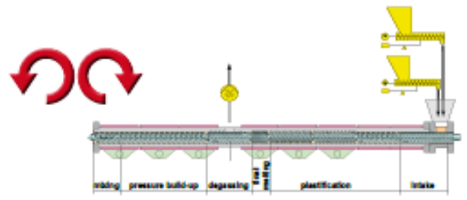
typical membrane width:
Europe / Asia: 1.500 -2.000 mm
USA: 2.438 -3.658 mm (8 -12')

4 Extrusion technologies

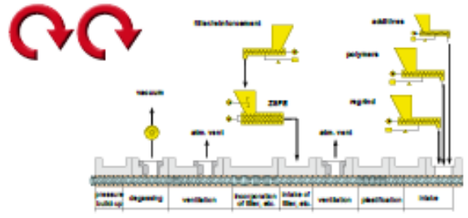
Single screw extruders are preferably used for:
* processing of PVC and / orTPO as pellets (pre-cornpounded)
* lines with low extrusion capacities (< 500 kg/h)



Counter-rotating twin screw extruders are preferably used for:
* processingof PVC only
* lines with medium extrusion capacities (< 1600 kg/h)



Co-rotating twin screw extruders are preferably used for:
* multi-purposelines (TPO and PVC)
* directcornpoundingof TPO + Flame retardant
* lines with high extruder capacities (> 1600 kg/h)



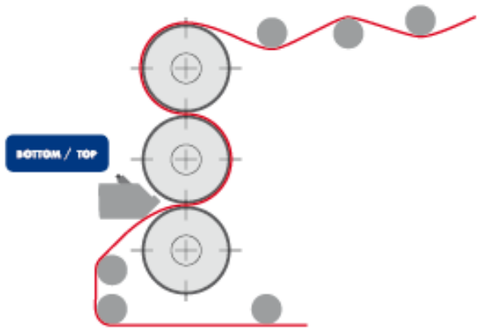
5 Extrusion technologies - comparison I

	↻	↻↻	↻↻
material intake	+	+++	+++
flexibility (formulations)	++	+	+++
mixing/homogenization	+++	+	+++
dwelltime/self cleaning	+	++	+++
degassing capabilities	+++	+	+++
pressure build-up capabilities	++	+++	+

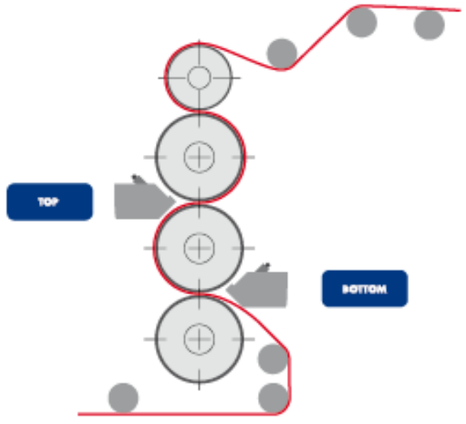
6 Extrusion technologies - comparison II

	↻	↻↻	↻↻
raw material intake	pellets	pellets dry blend	pellets
screw tempering	not required	internal screw tempering	not required
flexibility in process section	one-piece barrel and screw design	one-piece barrel and screw design	modular barrel and screw design
melt pump	recommended	not required	necessary
screw diameters	50 -150 mm	75 -164 mm	40 -130 mm
max. capacities (recommended)	600 kg/h	1600 kg/h	2500 kg/h

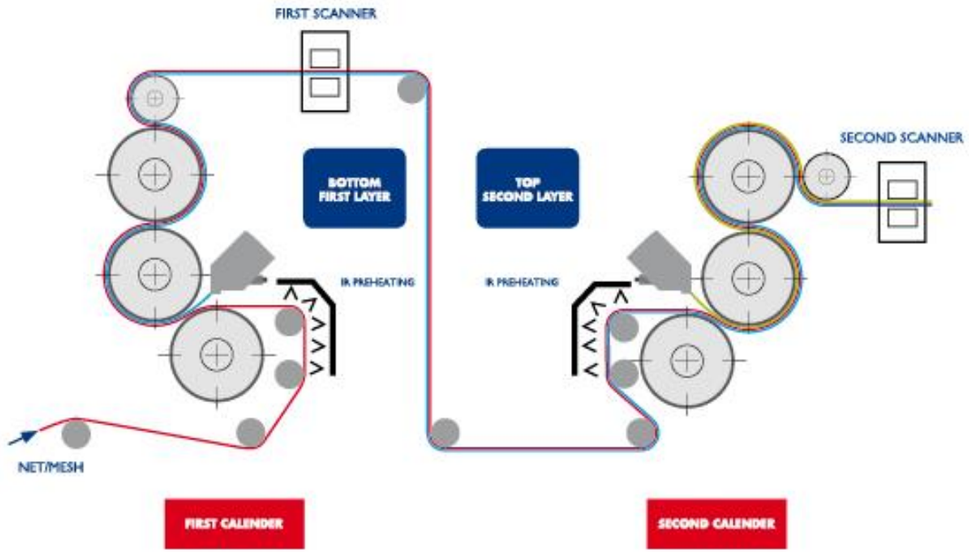
7 Line concepts/ calender technologies: 1-calender / 1-nip



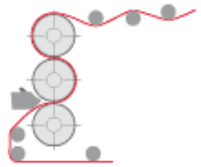
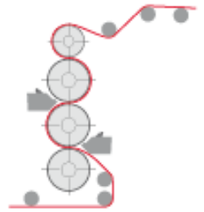
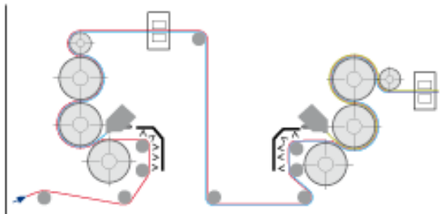
8 Line concepts/ calender technologies: 1-calender / 2 -nip



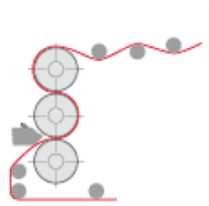
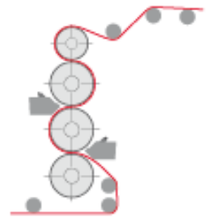
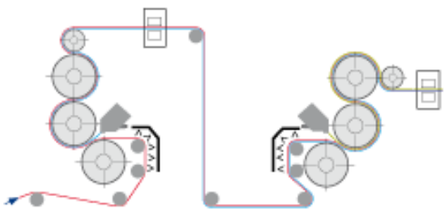
9 Line concepts/ calender technologies: tandem – extrusion/lamination (BGplast technology)



10 Line concepts/ calender technologies – comparison

		
+ lowest investment + easy start-up + defined scrim pos. - low line capacity - dual pass operation - higher amount of scrap	+ medium investment + single pass operation - difficult start-up - low line capacity - higher single layer tolerances	+ easy start-up + single pass operation + highest line capacities + best singlelayer tolerances - highest investment

11 Extrusion technologies versus sheet line concepts

			
	++ 500 - 900 kg/h кг/ч	+ 900 - 1500 kg/h кг/ч	–
	+ 700 - 1200 kg/h кг/ч	+++ 1200 - 1500 kg/h кг/ч	+++ 1500 - 3200 kg/h кг/ч
	+ 700 - 1200 kg/h кг/ч	+++ 1200 - 1500 kg/h кг/ч	+++ 2000 - 5000 kg/h кг/ч

b.g. plast since 1967
extrusion technology

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