



Mechanical structure

- Solid machine stand with cross-bracing, onto which the guide rails for the roller bearings are screwed. The centre roller is rigidly fastened to the machine stand. The upper and lower rollers on the other hand can be hydraulically driven vertically against stops. The line pressure critical for the production, is created through hydraulic cylinders. The driving together of the rollers is prevented by corresponding thrust rings, which prevent the surface of the roller being damaged when "driving" with a negative roller gap. The necessary hydraulic power unit is integrated into the machine stand. The line pressure for the upper and lower rollers can be adjusted separately.
- Mounting of the three rollers in separate bearing blocks, so that the replacement of the rollers can be implemented with minimal effort.
- The calender is mechanically and electrical prepared for the connection of a pre-cooling unit.

Electrical technology

- The control and regulation systems are located in separate switching cabinets.
- Control and display devices are installed in the control box on the calender. All process-relevant data from the calender and the downstream device are displayed. The controller also provides an output for the target value voltage for the haul-off. The centre roller is the guide roller, the peripheral speeds of the two other rollers can each be changed by $\pm 10\%$. The deviation set then remains as a constant percentage throughout the complete control range. The overall control is carried out by a Siemens PLC, a touch panel serves as communications interface.

Technical data:

Calender GW	
Length	1800 – 2500 mm
Width	2200 – 6400 mm
Height	2000 3300 mm
Overall weight with rollers	5t – 30t
Product web thickness	0,15 – 60 mm
Product web width	800 4000 mm
Troughout performance	400 – 1300 kg/h

Equipment / options / additional equipment:

The following is a selection of equipment/ options/additional equipment for this machine:

Polishing rollers

The surface of the rollers is hard-chromed and polished, with the highest degree of concentricity, minimal surface roughness and dynamically balanced. All cooling connections are located on one side. A temperature deviation of less than 1° C throughout the complete roller is achieved thanks to special coolant routing.

Specifications:	Chrome layer thickness	100-120 µm
	Concentricity	+/-0,005 mm
	Roughness Rmax	0,1-0,3 µm



Roller drive

The roller drive is achieved through 3 separate motor-transmission units. Digital AC servomotors provide the drive. This ensures a high degree of control accuracy and a broad speed range. The mounting of the rollers is implemented with generously dimensioned bearings.

Specifications:	Drive power per roller	2,0-6,0 kW
	Line speed	0,05 – 70 m/min
	Speed tolerance	+/- 1%



Longitudinal drive

The complete machine with the downstream connected roller conveyor can be moved in extrusion direction with 4 running roller units and an electrical drive on a floor mounted track. In the vicinity of the nozzles the drive speed is automatically reduced to creep speed.

Specifications:	Drive speed	1,1 m/min
	Travel path, longitudinal	6500 mm



Height adjustment

The complete machine has height adjustment to adapt the inlet height to the height of the nozzle. The overall height adjustment is implemented electrically by means of a geared motor, operated from a central position on the swivelling control panel.

Specifications:	Stroke adjustment max.	200 mm
	Stroke speed	50 mm/min
	Stroke force	5 t – 40 t



Gap adjustment

The adjustment of the gap width, so the setting of the stops against which the hydraulic cylinders drive, is implemented electrically. The gap setting is measured electronically and transmitted to the control panel. Precise reproducibility is guaranteed.

Specifications:	Overall opening distance	120 mm
	Fine adjustment	0-70 mm
	Line pressure per roller	100-1300N/cm



Temperature control

The temperature control of the rollers is implemented via temperature control devices which each have a control circuit for each roller. Water is generally used as the cooling medium and is routed to the rollers on one side via jacketing hoses and rotary feed-throughs.

Specifications:	Three circuit device	20-160 C°
	Heating power per circuit	12-36 KW

