

TAPING LINES



VERTICAL

HORIZONTAL

TANGENTIAL

PI LINES

GLASS FIBER / DAGLAS LINES

MICA LINES

PTFE LINES

VERTICAL LINES
WITH IR OVEN



VERTICAL

SPECIAL CHARACTERISTICS

- synchronization of taping heads and capstan with electronic gear (position coupling), therefore high accuracy of the taping pitch (independently adjustable)
- suitable for processing various tape materials by using different taping tools
- space saving technology
- wedge clamping system for safe clamping and centering of the reels even at high speed
- continuous measuring of the reel diameter by laser sensor
- cops drive with servomotor for continuous tape tension (hysteresis free)
- all combinations of taping heads possible within one housing

VERSIONS

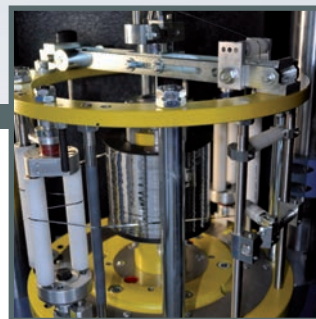
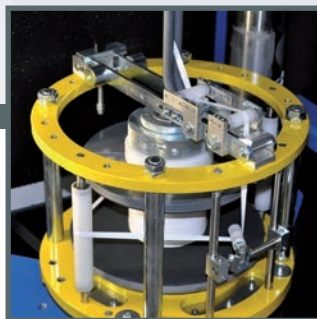
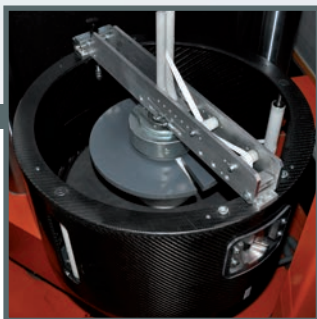
- one taping head and one long cops storage for large product lengths
- two taping heads for applying two tapes (also in opposite direction) in a single operation
- tape tension control by adjustable torque curve, perfect for applications with tape tensions > 2 N
- tape tension regulation with closed loop control by torque sensor for sensitive applications with highest requirements regarding tape tension constancy, for tape tensions > 0.5 N
- dancer control of tape tension for special applications (up to approx. 1.500 r/min)
- with capstan mounted on the unit

Technical data						
	250		330		420	
max. revolutions	3,500 rpm		3,000 rpm		2,800 rpm	
pitch	0.5 – 10 mm	0.02 – 0.4 inch	1 – 20 mm	0.04 – 0.8 inch	2 – 40 mm	0.08 – 1.6 inch
tape tension	0.5 – 20 N	0.113 – 4.496 lbf	1 – 30 N	0.225 – 6.74 lbf	2 – 40 N	0.45 – 8.992 lbf
tapes						
width	2 – 8 mm	0.08 – 0.32 inch	2.5 – 16 mm	0.1 – 0.64 inch	3 – 30 mm	0.12 – 1.2 inch
thickness	0.01 – 0.25 mm			0.0004 – 0.01 inch		
Copses						
max. diameter	140 mm	5.5 inch	220 mm	8.66 inch	300 mm	11.8 inch
max. width	80 mm	3.15 inch	100 mm	3.937 inch	120 mm	4.724 inch
inner core diameter	76 – 78 mm			2.992 – 3.07 inch		
max. cops weight	2 kg	4.4 lb	6 kg	13.23 lb	9 kg	19.84 lb
bore through head	max. 28 mm			max. 1.1 inch		
wire guiding	0.1 – 2.5 mm	0.004 – 0.1 inch	0.2 – 5 mm	0.008 – 0.2 inch	0.3 – 12 mm	0.012 – 0.472 inch

Values indicated delimit the range of possibilities, but never apply together for a single product. Also exceeding these limits is possible in individual cases.

Alternatively, a taping head made from carbon, having the following features, is available:

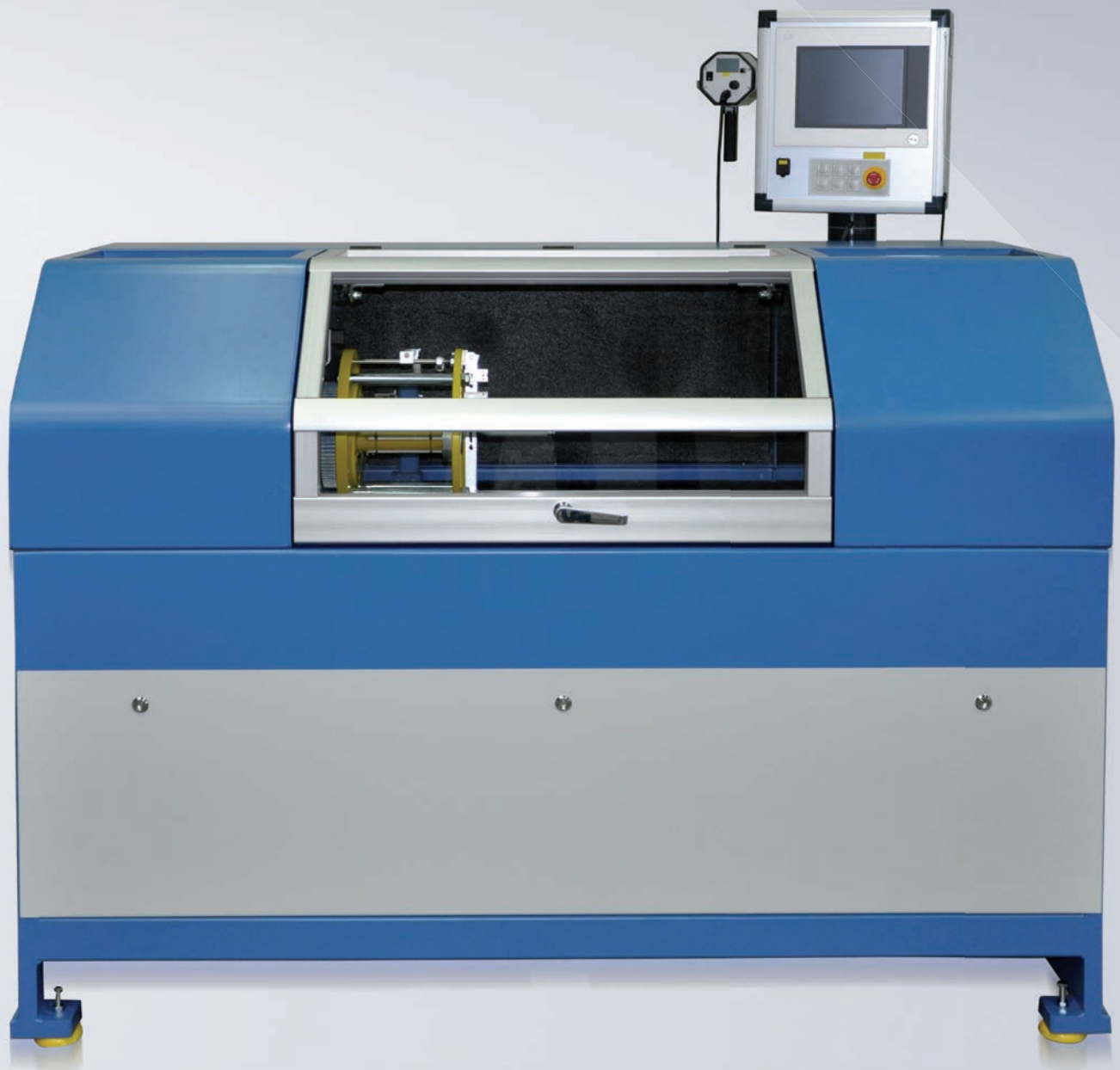
- outer diameter: 420 mm // 16.54 inch
- closed all around
- significantly less wind influence
- higher taping precision
- less energy consumption due to lower weight and less air swirling



OPTIONS

- stroboscope with speed synchronization for precise observation of the taping process with adjustable viewing angle
- speed controlled air conditioner for keeping the temperature constant during the taping process
- image processing system with possibility to automatically regulate taping
- measuring instruments for process control (e.g. diameter, high-voltage resistance) can be integrated
- safe drives for inching with open protective door





HORIZONTAL

SPECIAL CHARACTERISTICS

- synchronization of the taping head and capstan or caterpillar with electronic gear (position coupling) therefore high accuracy of the taping pitch (independently adjustable)
- up to 5 Taping units can be synchronized in one line
- suitable for processing various tape materials by using different taping tools
- wedge clamping system for safe clamping and centering of the reels even at high speed
- continuous measuring of the reel diameter by laser sensor
- cops drive with servomotor for continuous tape tension (hysteresis free)

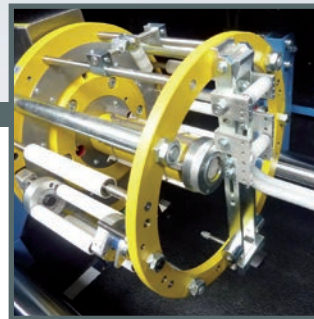
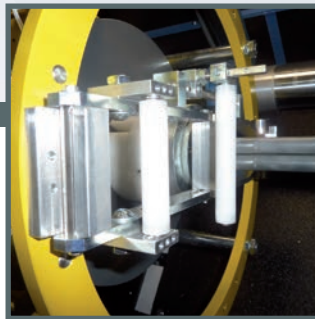
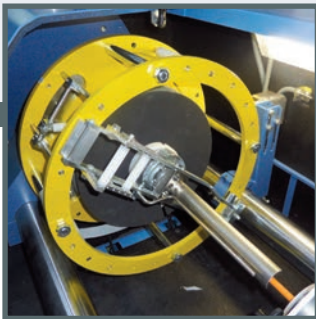
VERSIONS

- tape tension control by adjustable torque curve, perfect for applications with tape tensions $> 2 \text{ N}$
- tape tension regulation with closed loop control by torque sensor for sensitive applications with highest requirements regarding tape tension constancy, for tape tensions $> 0.5 \text{ N}$
- dancer control of tape tension for special applications (up to approx. 1.500 r/min)
- hollow shaft motor for high precise tape tension regulation available
- cops storage with different lengths

Technical data

	250		330		420		470		520	
max. revolutions	3,500 rpm		3,000 rpm		2,800 rpm		2,500 rpm		2,200 rpm	
pitch	0.5 – 10 mm	0.02 – 0.4 inch	1 – 20 mm	0.04 – 0.8 inch	2 – 40 mm	0.08 – 1.6 inch	3 – 60 mm	0.12 – 2.362 inch	3 – 60 mm	0.12 – 2.362 inch
tape tension	0.5 – 20 N	0.113 – 4.496 lbf	1 – 30 N	0.225 – 6.74 lbf	2 – 40 N	0.45 – 8.992 lbf	2.5 – 60 N	0.562 – 13.49 lbf	3 – 60 N	0.674 – 13.49 lbf
tapes										
width	2 – 8 mm	0.08 – 0.32 inch	2.5 – 16 mm	0.1 – 0.64 inch	3 – 30 mm	0.12 – 1.2 inch	4 – 50 mm	0.157 – 1.969 inch	4 – 60 mm	0.157 – 2.362 inch
thickness	0.01 – 0.25 mm					0.0004 – 0.01 inch				
Copses										
max. diameter	140 mm	5.5 inch	220 mm	8.66 inch	300 mm	11.8 inch	320 mm	12.6 inch	450 mm	17.7 inch
max. width	80 mm	3.15 inch	100 mm	3.937 inch	120 mm	4.724 inch	120 mm	4.724 inch	60 mm	2.362 inch
inner core diameter	76 – 78 mm					2.992 – 3.07 inch				
max. cops weight	2 kg	4.4 lb	6 kg	13.23 lb	9 kg	19.84 lb	15 kg	33 lb	15 kg	33 lb
bore through head	Max. 30 mm					max. 1.18 inch				
wire guiding	0.1 – 2.5 mm	0.004 – 0.1 inch	0.2 – 5 mm	0.008 – 0.2 inch	0.3 – 12 mm	0.012 – 0.472 inch	0.5 – 20 mm	0.02 – 0.787 inch	0.5 – 20 mm	0.02 – 0.787 inch
rectangular wire	1 – 60 mm ²	0.0015 – 0.0931 inch ²	2 – 120 mm ²	0.0031 – 0.186 inch ²	2 – 120 mm ²	0.0031 – 0.186 inch ²	2 – 120 mm ²	0.0031 – 0.186 inch ²	2 – 120 mm ²	0.0031 – 0.186 inch ²

Values indicated delimit the range of possibilities, but never apply together for a single product. Also exceeding these limits is possible in individual cases.



OPTIONS

- stroboscope with speed synchronization for precise observation of the taping process with adjustable viewing angle
- speed controlled air conditioner for keeping the temperature constant during the taping process
- image processing system with possibility to automatically regulate taping
- measuring instruments for process control (e.g. diameter, high-voltage resistance) can be integrated
- safe drives for inching with open protective door



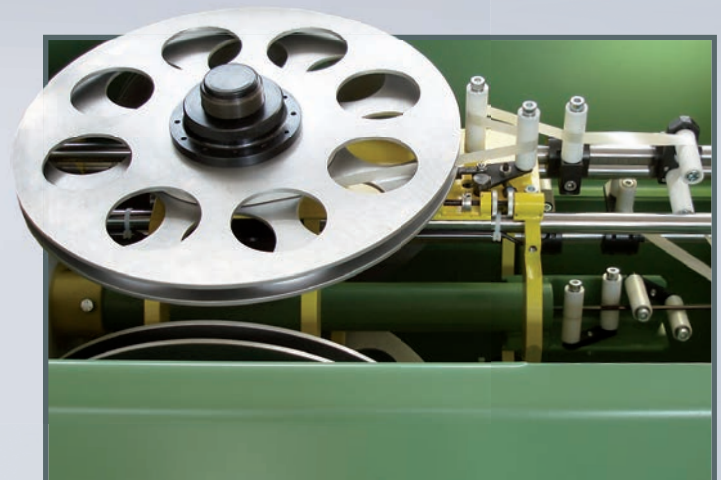


Technical data		
	300	400
max. revolutions (with symmetric loading only)	1,200 rpm	1,000 rpm
pitch	2 – 60 mm	
	0.08 – 2.362 inch	
tape tension	5 – 50 N	
	1.124 – 11.24 lbf	
pads		
tape width	5 – 50 mm	
	0.197 – 1.969 inch	
tape thickness	0.01 – 0.25 mm	
	0.0004 – 0.01 inch	
max. diameter	300 mm	400 mm
	11.811 inch	15.748 inch
max. weight	5 kg	
	11 lb	
inner core diameter	76 mm	
	2.992 inch	
bore through head	max. 30 mm	
	max. 1.181 inch	

TANGENTIAL

SPECIAL CHARACTERISTICS

- synchronization of the taping head and capstan or caterpillar with electronic gear (position coupling)
- therefore high accuracy of the taping pitch
- up to 5 taping units can be synchronized in one line
- high tape tension constancy from full to empty disc by dancer-controlled mechanical brake



Technical data		
max. revolutions	1,000 rpm	
pitch	3 – 60 mm	0.12 – 2.362 inch
tape tension	4 – 60 N	0.9 – 13.5 lbf
pads		
tape width	4 – 50 mm	0.157 – 1.969 inch
tape thickness	0.01 – 0.25 mm	0.0004 – 0.01 inch
max. diameter	450 mm	17.7 inch
max. weight	15 kg	33 lb
inner core diameter	76 mm	2.992 inch
bore through head	max. 30 mm	max. 1.181 inch



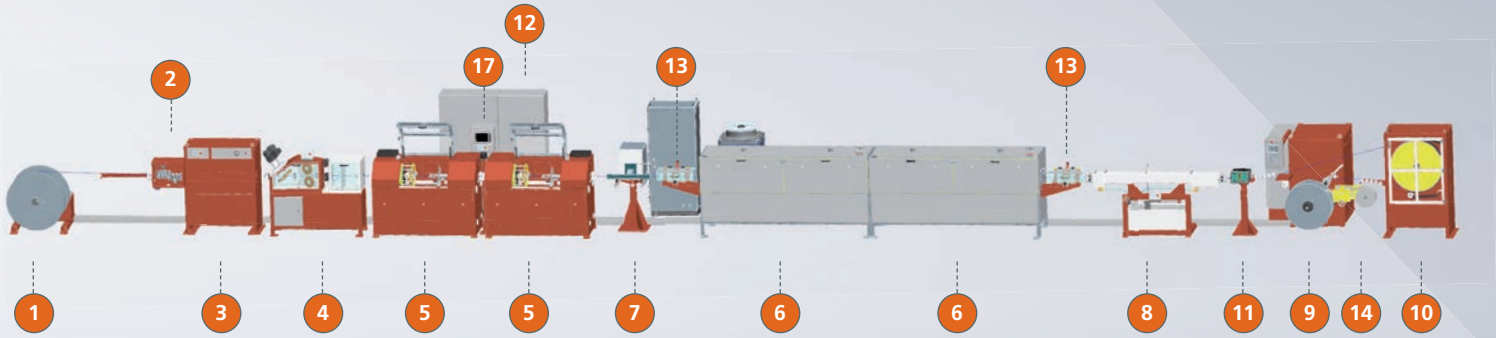
COMPACT

SPECIAL CHARACTERISTICS

- economic solution for standard applications, e.g. cable production
- control cabinet and operating unit integrated
- therefore also suitable for variable use in different lines
- suitable for processing various tape materials by using different taping tools
- synchronization to line by means of encoder, analogue signal or fieldbus
- wedge clamping system for safe clamping and centering of the reels even at high speed
- continuous measuring of the reel diameter by laser sensor
- generation of tape tension with motor for continuous tape tension (hysteresis free)



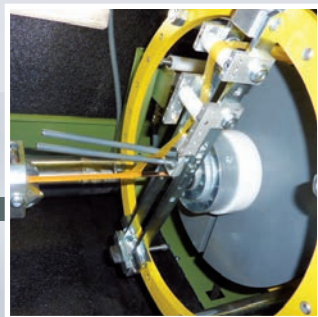
- 1 pay-off
- 2 set of straighteners
- 3 caterpillar
- 4 brush cleaning device
- 5 taping unit
- 6 IR oven
- 7 induction heating
- 8 cooling device (water)
- 9
- 10
- 11
- 12
- 13
- 14
- 17



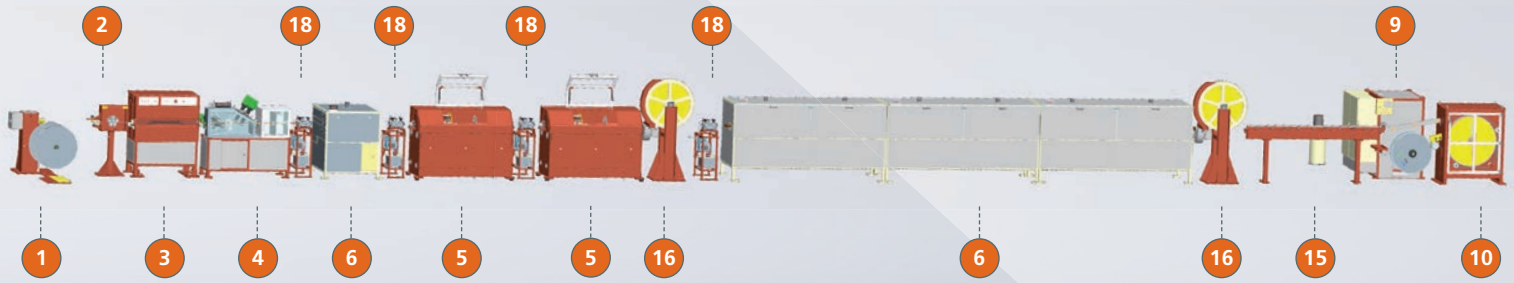
PI LINES

SPECIAL CHARACTERISTICS

- combination of taping rectangular conductors with thermal sintering process by heating the product from the inside (induction heating) as well as from the outside (infrared heating), so that consistently PI isolated conductors can be produced.
- typical application: thermally resistant coil winding for high performance
- equipment with double take-up for continuous operation
- if necessary, use of paper dispenser at the take-ups to prevent damage of the product during winding



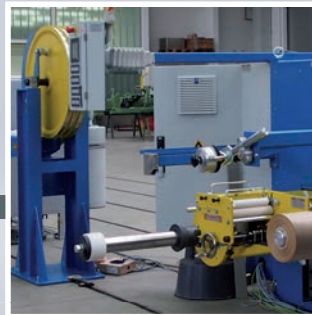
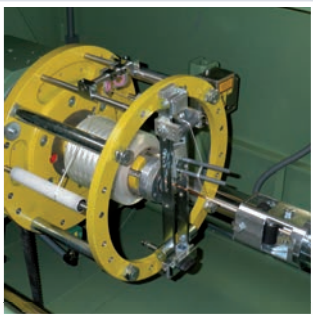
- | | | |
|-----------------|----------------------------|-----------------------|
| 9 take-up | 13 set of pressing rollers | 17 operating panel |
| 10 capstan | 14 paper supply | 18 varnish applicator |
| 11 spark tester | 15 cooling device (air) | |
| 12 cabinet | 16 pulleys | |

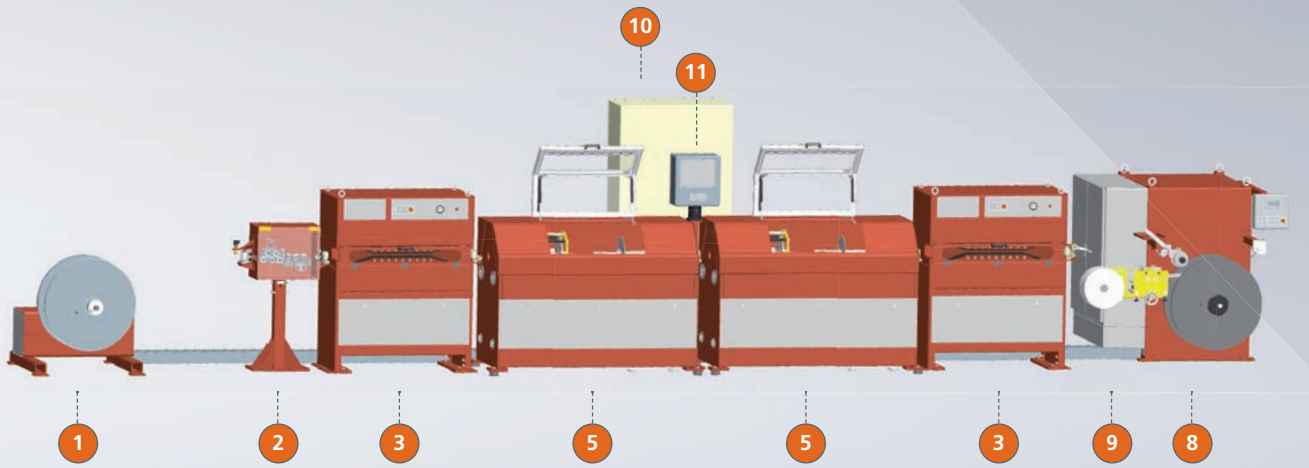


GLASS FIBER LINES

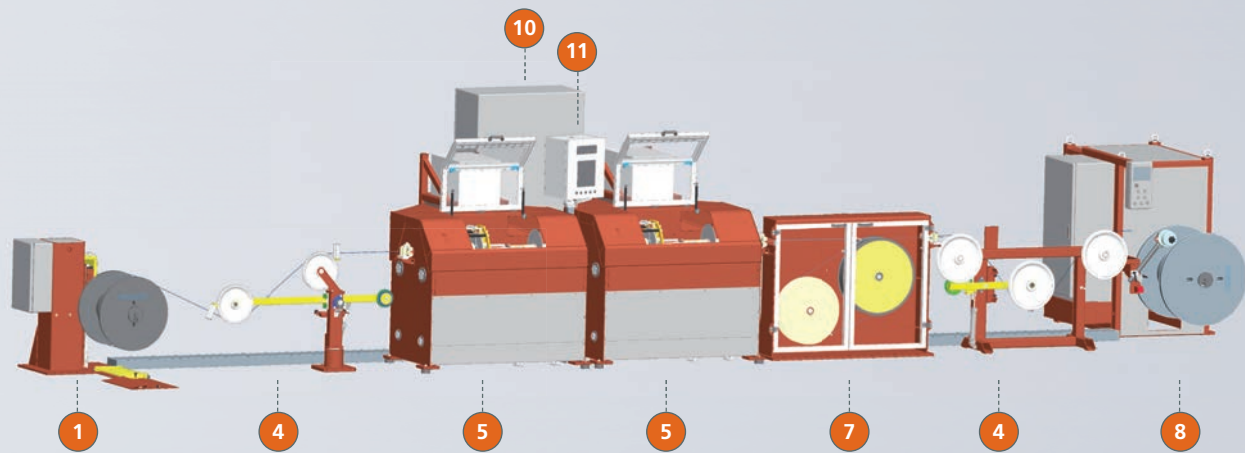
SPECIAL CHARACTERISTICS

- spinning rectangular conductors with glass fiber yarn and subsequent solid connection to the conductor
- for pure glass fiber and bare copper conductors additional varnish application and curing in the subsequent oven
- when using Daglas (glass fiber and polyester mixed) and prevarnished wire, the heated varnish and the melting polyester becomes a solid bond
- typical application: ensuring a defined distance between conductors by means of glass fibers, such as used in power transformers
- equipment with double take-up recommendable for continuous operation
- version with paper dispenser optionally available

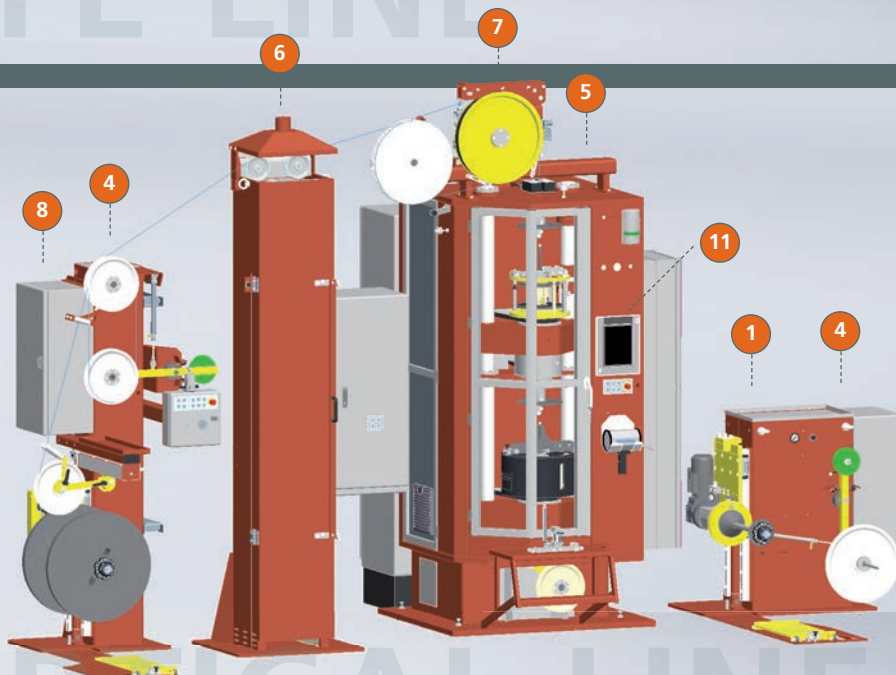




MICA LINE



PTFE LINE



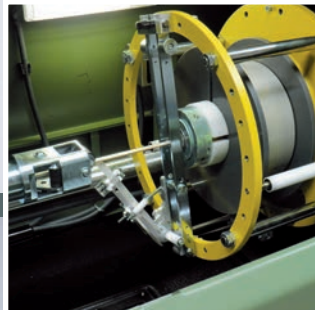
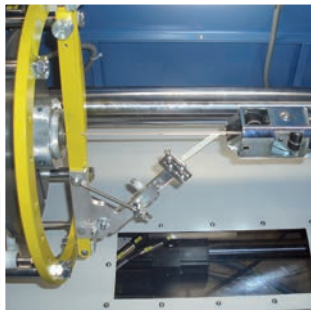
- 1 pay-off
- 2 set of straighteners
- 3 caterpillar
- 4 dancer
- 5 tapping unit
- 6 IR oven
- 7 capstan
- 8 take-up
- 9 paper supply
- 10 cabinet
- 11 operating panel

VERTICAL LINE

MICA Lines

- taping of rectangular conductors with defined displacement of the layers to each other
- optional equipment of the taping units with image processing system to control the displacement in real time (depending on the permissible tolerance of layer displacement)

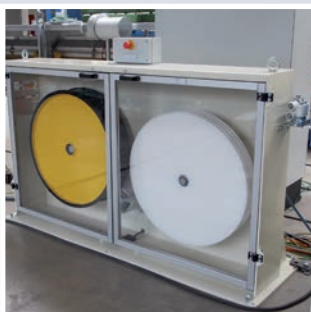
- typical application: small sized reel winding for high performance
- if necessary, use of paper dispenser at the take-ups to prevent damage of the product during winding



PTFE Lines

- taping of mostly circular conductors or litz wires with tapes mainly made of Teflon (PTFE)
- typical application: production of Coax cables for very high frequencies consisting of several layers of sintered PTFE and one layer silver plated copper tape

- if necessary, also use of dancer controlled taping units or those with hollow shaft motor to hold the final diameter of the product as constant as possible
- dancer and capstan with large diameter to not fall below the bending radius of the sensitive product
- possible use of a direct drive for the capstan for excluding transmission influences



VERTICAL Lines

- taping of mostly round conductors with tapes made of different materials, such as Polyester, PVC, Nomex, paper, PI and Teflon (PTFE)
- combination with infrared sintering oven when using PI and unsintered Teflon as well as some other plastic tapes

- typical application: taping of conductors for the aircraft industry with a layer of PI and a layer of unsintered PTFE, with subsequent sintering process to guarantee high insulation strength as well as fire resistance of the conductors
- realization of space saving complete lines by equipping the vertical taping unit with up to two taping heads and if needed a vertical sintering oven



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