MODEL H02-2600

Very versatile calender specially designed for bonding / laminating / coating of a large range of substrates (woven and or knitted textiles, non-woven textiles, foams and other non-textile materials) by using any thermoplastic polymer (in granules) or reactive polymer (in appropriate drums).
The polymer, melted by means of an appropriate fuser/extruder, is applied directly to one substrate by means of an engraved cylinder. In case of bonding process, the second material can be added and bonded to the first one with possibility of cooling it by means of an apposite cylinder. This last one has to be connected to an external chiller unit.

Applications

• Bonding / laminating by hot-melt
• Full coating with hot-melt

Central machine body

Ergonomic solid and robust structure composed of iron shoulders machined with numerical control machine, where the following devices are installed:

Engraved cylinder (Ref. 7 – 8 of the attached drawing)

• Engraved cylinder (*Ref. 8*) Ø 235 mm (9,25") for the polymer's distribution. This cylinder is chrome plated in order to support the friction with the doctor blade and it is heated by electric armoured resistances, which are immersed in diathermic oil bath.
• This cylinder works in absence of air (Monti Antonio S.p.A. system) so that to grant no oil oxidation and a long life to the heating elements.
• The working temperature, electronically controlled is adjustable from room temperature up to 230°C.
• The group composed of engraved cylinder/doctor blade is positioned on self-propelled connecting rods. Its movement is granted by two dedicated pneumatic cylinders in order to let the engraved cylinder to lean against counter-pressure roll. The distance between engraved cylinder and counter-pressure roll is controlled by manual regulation. Its pressure is ensured by two pneumatic pistons feeded by compressed air with pressure adjustable up to 2,5 Kg/linear centimetre.
• Doctor blade (*Ref. 7*) for the distribution of fuse polymers, complete with heated aluminium plate (Monti Antonio S.p.A. system), isolated and coated by a special anti-sticking Teflon.
• Complete with movable lateral seals for adjustment of the distribution width.

Counter-pressure cylinder for engraved cylinder (Ref. 9 of the enclosed drawing)

• Silicon coated pressing cylinder Ø 255 mm (10,04"), installed on self-aligning supports in order to grant a perfect contact with the engraved cylinder (*Ref. 8*). The rotation of this cylinder is granted by motor manged by inverters and speed gears adaptor.
• It is foreseen the possibility of installing a spiral inside the cylinder for the cooling of the rubbed roll (option) (*Ref. 9*).

Pressing cylinder (Ref. 14 of the attached drawing)

• Pressing cylinder, Ø 235 mm (9,25").
• The rotation of this cylinder is granted by motorization while its pressure by two pneumatic pistons fed with compressed air with adjustable pressure up to 3,6 Kg/linear cm. On each piston (one per side) acts a manual regulation, which allows to precisely control the distance in relationship to the cylinder (*Ref. 9*) and to the cylinder (*Ref. 13*) (option).
• In case of use of thermoplastic polymers, this cylinder can be supplied heated (option).

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Upper material entry (Ref. 2 of the attached drawing)
Chromed unwinding shaft Ø 34 mm, with Monti connection, with cones of bobbin stop for unwinding of upper material in entry (*Ref. 2*). This unwinding position is motorized and synchronized with the main machine thanks to a control with the load cell (*Ref. 4*). The same axle is also pneumatically braked for a better control of delicate materials.

Membrane / lower material braked entry (Ref. 24 of the attached drawing)
Pneumatic expansion shaft with Monti connection for unwinding the lower material in entry. This unwinding position is synchronized with the machine thanks to a rubbed motorized roll (*Ref. 40*) and controlled by load cell (*Ref. 4*) in order to grant a precise tension control.

Membrane protection recovery
Small axial motorized winder (Rif. 3 of the attached drawing) for the recovery of the film of protection/support of the membrane. It is characterized by an aluminium shaft with blue cords for cardboard tubes fixation.

Opening/aligning rollers with elastic cords, motorized (Ref. 25 of the attached drawing)
Motorized spreader rollers to spread materials and eliminate eventual pleats. Thanks to its motorization this spreader rollers can be also used for the tension control of the material in entry (*Ref. 2-24*).

Single winder in exit (Ref. 20 of the attached drawing)
It is equipped with asynchronous motor controlled by a load cell (*Ref. 4*). It is supplied with axial winder with pneumatic expansion shaft with Monti connection.

Mechanic speed
The machine is equipped with motors, which allows a mechanic speed from 2 to 30 m/min.

Motorizations
• Main movements are supplied by means of asynchronous, three phase, servo ventilated, which transmit movements to the cylinder with reduction gear.
• The motor of the pressing cylinder (*Ref. 9*) has "master" function. All other motors have "slave" functions.
• The speed of all motors is synchronized and any variation registered by the "master" is transferred automatically on all "slaves".
• The control of all motors is done by vector inverters, with plc.

Electric/electronic control panel
The cabinet is in metallic material and includes all activations and control electronic components.

Temperature control
• The temperature of all oil heated cylinders is ensured by an algorithm of "PID" type with thermoresistance probe (PT100) that transfer measurements to PLC.
• The same process is used for doctor blade heating.

Automation
• It is controlled by a PLC, complete with digital entries and exits; control of analogical entries for temperature control, control on ETHERNET base of the movable operator panel (frontal) and of all the other electronic devices.
• Fix frontal operator panel: coloured touch-screen LCD, 10" screen.

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Technical data

- Adjustable working width up to mm 2400 (94,49").
- Working speed adjustable from 2 to 30 m/min.
- Installed power of complete machine: it depends on installed options.
- Average electric consumption of the complete machine: it depends on installed options.
- Compressed air pressure: 4-8 Bar.
- Weight: *to be confirmed*.
- Machine produced according to CE rules
- Customs tariff: 84 51 80 80

OPTIONS

CHILLER UNIT FOR SILICON COATED CYLINDER (*Ref. 9 of the attached drawing*) AND/OR FOR PRESSING CYLINDER (*Ref.14 of the attached drawing*)

ADDITIONAL ENGRAVED CYLINDER

Engraved cylinder Ø 235 mm (9,25") for polymer distribution. This cylinder is chrome plated in order to support the friction with the doctor blade and it is heated by electric armoured resistances, which are immersed in diathermic oil bath.

PRESSING GROUP WITH OPENING ROLLER WITH ELASTIC CORDS Ø 120 MM, MOT. (*Ref. 13-25 of the enclosed drawing)*

- Silicon coated cylinder Ø 215 mm (8,46") (Ref. 13), suitable for cooling.
- Opening roller with elastic cords Ø 120 mm (4,72"), motorized (*Ref. 25*).

COOLING CYLINDER WITHOUT CHILLER (Ø 400 MM) MOTORIZED (Ref. 27 of the attached drawing)

Cooling cylinder Ø 400 mm (15,75") chromed, motorized, mirror finished. It is equipped with two rotating heads for water recirculation.

CHILLER UNIT FOR COOLING CYLINDER (Ø 400 MM) (15,75")

PUR FUSER, N°1 – 200 Kg.

- Drum melter of 200 litres for fusing reactive polymers and having a capacity of 50/60 Kg/h. It is equipped with two heated tubes and pertaining heads (duly isolated) to keep the polymers melted until the distribution device.
- Installed power: 30 kW.

PNEUMATIC EXPANSION SHAFT

THERMOPLASTIC EXTRUDER – 60 Kg/h

- Device for thermoplastic polymers extrusion with capacity of 60 Kg/h. It is equipped with two tubes and heated heads (duly isolated) to maintain the polymers fuse up to the distribution device.
- Installed power: 40 kW.

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