MODELLO H04-2600

Very versatile calender specially designed for bonding / laminating / full-coating 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 form) or reactive (in appropriate drums).
The polymer, melted by means of an appropriate extruder / fuser, is applied directly to one substrate by means of an engraved cylinder / flat cylinder (coating). In case of bonding process the second substrate can be added and calendered together, and eventually cooled down in exit thanks to an appropriate cylinder connected to a chiller unit.

APPLICATIONS DEPENDING ON THE INSTALLED OPTIONS:

- Bonding / laminating by hot-melt
- Full-coating by hot-melt
- Film / web thermobonding
- Plastification and coating with film
- Transfer printing of polyurethane, PVC and synthetic leather
- Metallization and gold lamination
- Transfer of special effects (e.g.: snake skin)
- Application of "black out" films and barriers

CENTRAL MACHINE BODY

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

ENGRAVED CYLINDER (re.7 – 8 of the attached drawing)

- Engraved cylinder (re. 8) Ø350 mm (13,78"). for the polymers 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.
- The working temperature, electronically controlled, is adjustable from room temperature up to 230°C.
- 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.
- This cylinder is chrome-plated, motorized, equipped with quick release head for easy replacement
- Doctor blade re. 7 for the distribution of the melted polymer, complete with aluminium plate heated (Monti Antonio S.p.a. system), isolated and coated with a special Teflon for anti-sticking purposes
- Complete with movable lateral seals for adjustment of the coating width

PRESSING CYLINDER FOR ENGRAVED CYLINDER (re.9 of the enclosed drawing)

- Silicon coated pressing cylinder Ø340 mm (13,39"), installed on self-aligning supports in order to grant a perfect contact with the engraved cylinder re.8
  The rotation of this cylinder is granted by motorisation while its pressure by two pneumatic pistons fed with compressed air with adjustable pressure up to 6 Kg/cm .
- On the each piston (one per side) acts one actuator which allows to control precisely the distance of the pressing cylinder re. 9 in relationship the cylinder re.8 (gap adjustable up to mm.50)
- It is foreseen the possibility of installing a chiller unit (optional) for the cooling of this cylinder (rotating head for the circulation of the chilled water already included).

UPPER PRESSING CYLINDER (re..11 of the attached drawing)

- Teflon coated (anti-sticking treatment) pressing cylinder, Ø260 mm (10,24") , heated by electric armoured resistances in diathermic oil-bath

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- The working temperature is controlled electronically with and it is adjustable from the room temperature up to 230 °C.
- 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 rotation of this cylinder is granted by motorization while its pressure by two pneumatic pistons fed with compressed air with adjustable pressure up to 6 Kg/cm . On the each piston (one per side) acts one actuator which allows to control precisely the distance of pressing cylinder re.11 in relationship to pressing cylinder re. 9 (gap adjustable up to mm.50)

UPPER MATERIAL/ FILM ENTRY (re. 14 of the attached drawing)

- Unwinding shaft with fixation cones in entry, with adjustable tension by means of braking disk pneumatically controlled, diameter mm.400

MECHANIC SPEED

The machine is equipped with motors which allow a mechanic speed from 2 to 60 m/min. (standard machine)

MOTORIZATIONS

- All movements are supplied by means of asynchronous motors, three phase, servo ventilated, which transmit movements to roller with reduction gears.
- The motor of the pressing cylinder re.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 effecting automatically on all "slaves".
- The control of all motors is done by vector inverters, with plc.

ELECTRIC/ELECTRONIC CONTROL PANEL

The cabinet is in metal sheet, with protection IP54, and it includes all inverters, contactors, etc.

TEMPERATURE CONTROL

The temperature of all oil heated cylinders is guaranteed by means of feelers with thermal resistance of 100 ohm at 20°C, which transfer the measurement to the PLC to automatically administrates very precisely these functions.

- The same process is used for the doctor blade heating.

AUTOMATION

- It is controlled by a SIEMENS PLC, complete with : digital inputs and outputs, control of analogical inputs for the temperature control, serial control of movable operator panel (front and rear).
- Movable operator panel : colours LCD touch-screen with TFT – resolution 640x480 pixel, screen 10,4", complete with Ethernet plug.

TECHNICAL DATA

- Adjustable working width up to mm 2400 (94.49")
- Working speed adjustable from 2 to 60 m/min.
- Installed power of complete machine: it depends on the requested options
- Average electric consumption of the complete machine: it depends on the requested options
- Compressed air pressure: 6-8 Bar
- Machine produced according to CE rules
- Customs tariff: 84 51 80 80

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OPTIONS

FRONT FEEDER FOR Ø mm.800 ROLLS,DOUBLE UNWINDING

- It is realized with two solid and stable oppose shoulders made out of high thickness steel plates inside of which are installed the pneumatic expansion shafts for the fixation of the material rolls (re.1 and 2 of the attached drawing) which will be treated during the bonding/lamination processes.
- The lower material unwinding (re.1 of the attached drawing) is motorized and synchronized to the main machine thanks to load cells or dancing roller or loop control system (re.4 of the attached drawing). This tension control system makes it possible also the control of elastic materials, of delicate materials and even of foams.
- The upper material unwinding (re.2 of the attached drawing) is motorized and synchronized to the main machine thanks to a load cells or dancing roller or loop control system (re.4 of the attached drawing). This tension control system makes it possible also the control of elastic materials, of delicate materials and even of foams.

RECOVERY OF MEMBRANE PROTECTION ON FRONT FEEDER

Small motorized axial winder (re.3 of the attached drawing) for the recovery of the membrane protection/carrier. It is characterized of a shaft with cones for the card-board cores fixation

SMALL WINDER ON MACHINE BODY (re. 26 the enclosed drawing)

This small winding is used both for winding protection/support films or for winding small quantities of treated materials in exit (sampling).

SINGLE SEPARATE WINDER IN EXIT (rif.21 of the attached drawing)

It is equipped with an independent motor, synchronized to the main one through a dancing roller (re.23) and it is characterized by an axial winder complete with pneumatic expansion shaft and a free spreader roller with elastic cords (rif.22). On request this winder can be supplied under form of peripheral winder

SECOND SEPARATE WINDER IN EXIT

Second axial winder in exit, complete with pneumatic expansion shaft

PRESSING GROUP WITH SMALL SPREADER ROLLER, MOTORISED (re. 13 of the attached drawing)

It is composed of:

- Silicon coated cylinder, prearranged for cooling (cylinder Ø215 mm (8,46")).
- Spreader roller with elastic cords, motorized , re.12.

INFRARED PRE-HEATERS (re.10 of the attached drawing)

IR heating with very low thermal inertia, consumption of 7' kW with self-adjusting system for temperature control

UPPER OPENING/ALIGNING ROLLER WITH SLATS, INCLUDING SCROLL ROLLER AND MANUAL BRAKE (re. 18 of the attached drawing)

Motorised roller with slats to spread the materials and eliminate eventual pleats as well as align them thanks to high precision optical reading.
Thanks to its motorisation, this slats roller can be used for controlling the tension of the material in entry.
Device complete with scroll roller re. 17 and manual brake re. 16

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LOWER OPENING ROLLER WITH ELASTIC CORDS, MOTORIZED (FOR MEMBRANES AND FILMS, re. 25 of the attached drawing)
Motorized spreader roller to spread materials and eliminate eventual pleats. Thanks to its motorization this spreader roller can be also used for the tension control of the material in entry (re. 1)
This roller is suitable for membranes, films and textiles in general

LOWER OPENING/ALIGNING ROLLER WITH SLATS, MOTORISED (re. 29 of the attached drawing)
Motorised roller with slats to spread the materials and eliminate eventual pleats as well as align them thanks to high precision optical reading.
Thanks to its motorisation, this slats roller can be used for controlling the tension of the material in entry.
This roller is suitable to textiles in general.

ALUMINUM SHAFT WITH BLUE CORDS

PNEUMATIC EXPANSION SHAFT, ROTATING HEADS

PNEUMATIC EXPANSION SHAFT, MONTI CONNECTIONS (till 250 Kg)

MEMBRANE MOTORIZED ENTRY, (re.24 of the attached drawing)
Motorised unwinding with pneumatic expansion shaft and rotating heads. This unwinding position is synchronised to the main machine thanks to load cell control, to grant a precise tension control.

BANANA ROLLER FOR FILMS (re.15 of the attached drawing)
Bow roller with hand wheel for tangency adjustment on the material prior the process; ideal to spread films and foils

COOLING CYLINDER WITHOUT CHILLER (Ø mm. 400) MOTORIZED (re. 27 of the attached drawing)
Cooling cylinder Ø400 mm (15,75"), chrome-plated, motorised, mirror finished. This cylinder is equipped with two rotating heads for water circulation.

CHLLER UNIT FOR COOLING CYLINDER Ø mm. 400 (15,75")

COOLING CYLINDER WITHOUT CHILLER (Ø mm. 600) MOTORIZED (re. 27 of the attached drawing)
Cooling cylinder Ø600 mm (23,62"), chrome-plated, motorised, mirror finished. This cylinder is equipped with two rotating heads for water circulation.

CHILLER UNIT FOR COOLING CYLINDER Ø600 mm (23,62")

CHILLER UNIT FOR SILICON COATED CYLINDER (re.9 of the attached drawing)

SELVEDGES CUTTERS, COMPLETE WITH TOWING ROLLER
Removal suction for selvedges cutters

ADDITIONAL ENGRAVED CYLINDER
Engraved cylinder Ø350 mm (13,78") 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.

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THERMOPLASTIC EXTRUDER 60 Kg./h.

- Device for extruding thermoplastic polymers having a capacity of 60 Kg./h.. It is equipped with two heated tubes and pertaining heads (duly isolated) to keep the the polymers melted until the distribution device
- Installed power: 40 Kw

THERMOPLASTIC EXTRUDER 120 Kg./h.

- Device for extruding thermoplastic polymers having a capacity of 120 Kg./h.. It is equipped with two heated tubes and pertaining heads (duly isolated) to keep the the polymers melted until the distribution device
- Installed power: 75 Kw

PUR FUSER, N°1 – 200 Kg.

- Drum melter of 200 liters 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 the polymers melted until the distribution device
- Installed power: 30 Kw

ADDITIONAL DOCTOR BLADE, COMPLETE

COOLING OF THE ELECTRIC/ELECTRONIC CONTROL PANEL

The cooling of the cabinet is by means air conditioning which grants perfect temperature and humidity control.

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