



TECNICA80

MOTORIZED EXPANDABLE MANDRELS FOR WINDING COILS

& equipment for power transformers



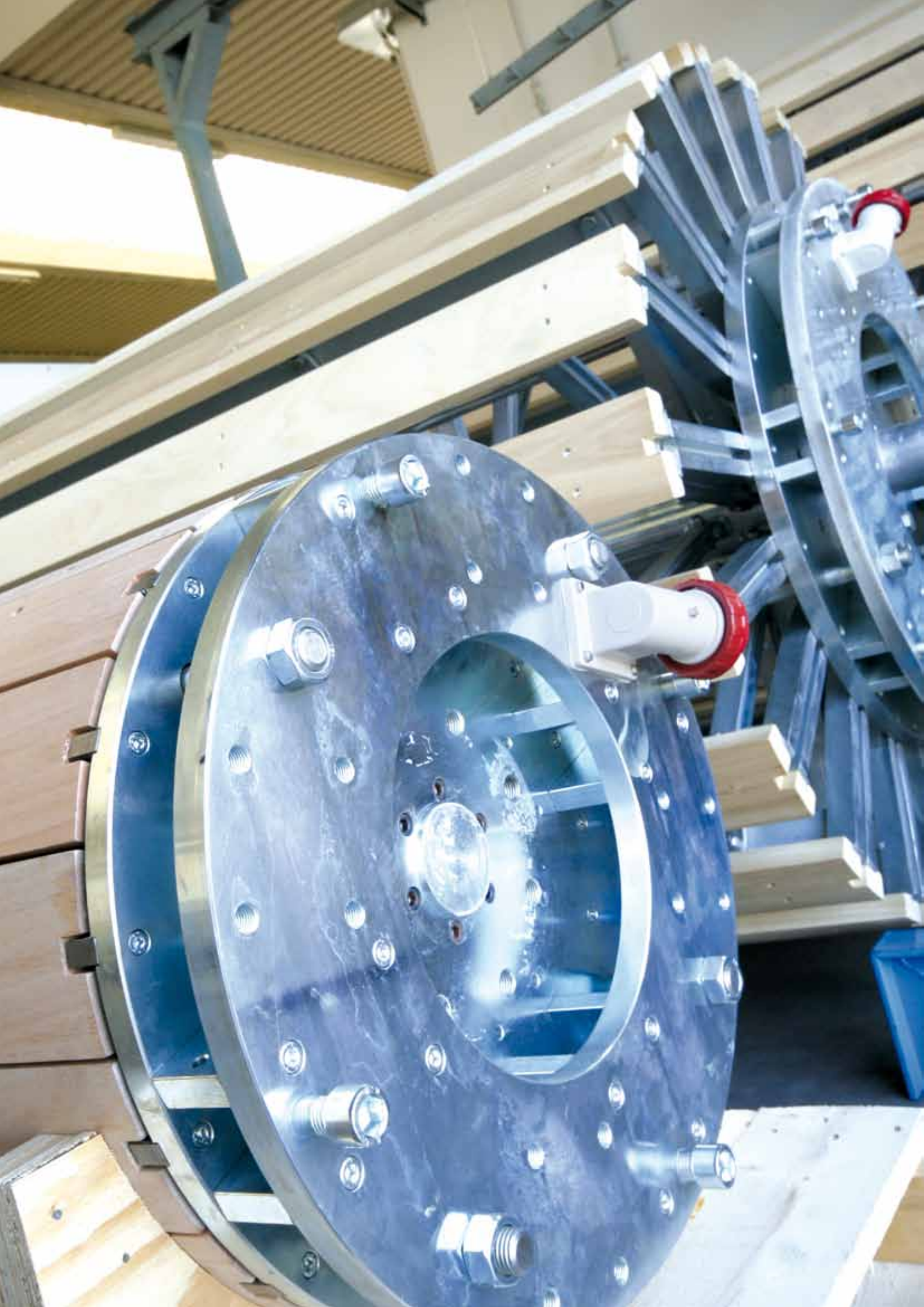
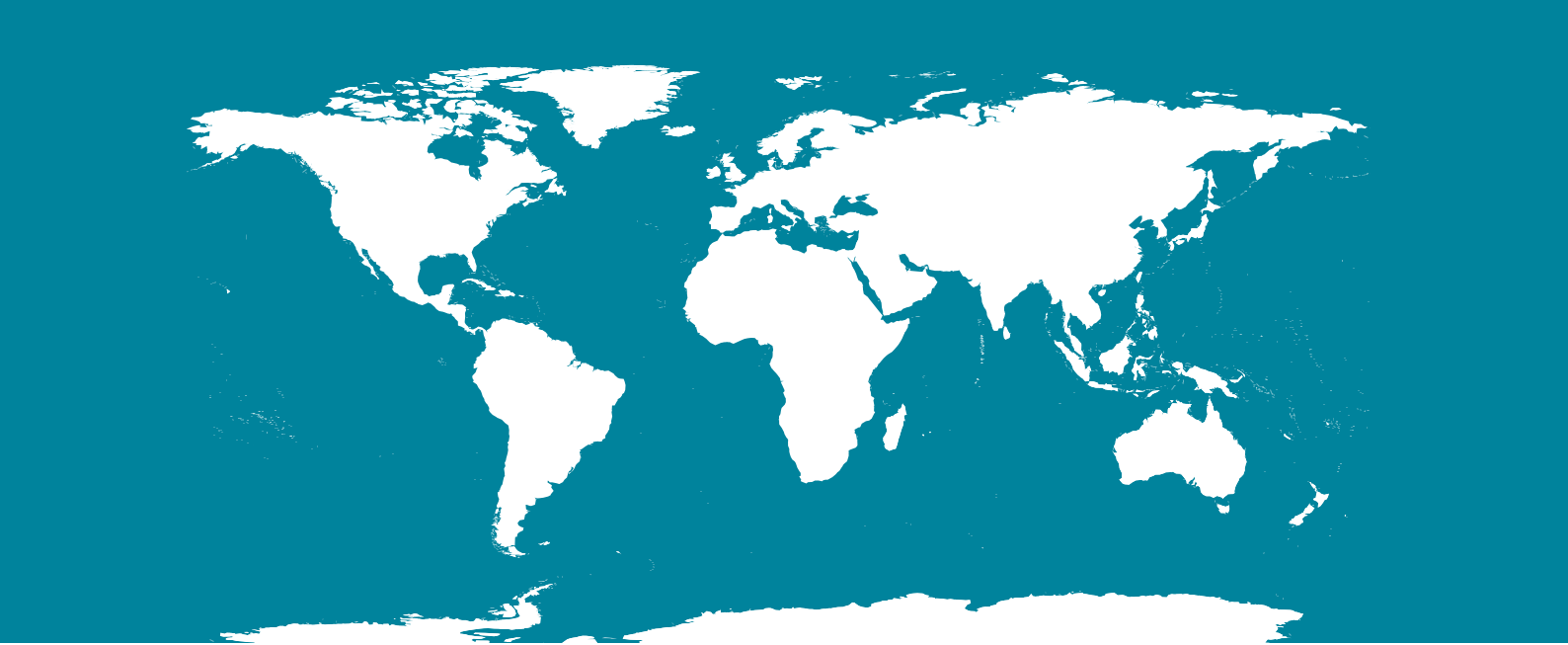


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ABOUT US

TECNICA 80 s.r.l. is an Italian factory founded in 1976, which for over 30 years has designed and manufactured machines and equipments for various industrial sectors, such as the food/wine, pharmaceutical and heavy duty.

In the field of **power transformers** the company has designed and built **expandable mandrels**, equipments and other accessories, also thanks to the experience developed during the last 30 years with internationally renowned Customers.





ALSTOM



TOSHIBA

OUR CUSTOMERS

- **ABB ADDA S.P.A.** - Pomezia - ITALY
- **ABB DISTRUBUZIONE S.P.A.** - Pomezia - ITALY
- **ABB TRASFORMATORI S.P.A.** - Legnano - ITALY
- **ABB TRASFORMATORI S.P.A.** - Milano - ITALY
- **ABB Power & Technologies S.P.A.** - Monselice - ITALY
- **ABB TRASMISSIONE & DISTRIBUZIONE S.P.A.** - Milano - ITALY
- **ABB S.A.** - Córdoba - SPAIN
- **ABB LTDA** - Guarhulos - BRAZIL
- **ALSTOM** - Canoas - RS - BRAZIL
- **ALSTOM GRID** - Gebze - TURKEY
- **AREVA T&D S.A.** - Canoas- RS - BRAZIL
- **AREVA T&D INDIA Ltd** - Naini - INDIA
- **BRUSH TRASFORMERS GULF** - Abu Dhabi - AEU
- **CEMEC CONSTRUCOES ELETROMECHANICAS S.A.** - Fortaleza - BRAZIL
- **C.T.C. CAMBIADORES DE TOMAS EN CARGA, S.L.L.** - Cordoba - SPAIN
- **GANZ ANSALDO** - Budapest - HUNGARY
- **GETRA POWER S.P.A.** - Caserta - ITALY
- **GRUPO LANIN - KALICERA S.A.** - Boulogne - ARGENTINA
- **ELETTROMECCANICA TIRONI S.R.L.** - Modena - ITALY
- **ELETTROMECCANICA MACCATROZZO S.N.C.** - Mestre - ITALY
- **SMIT TRANSFORMERS** - Nijmegen - NETHERLAND
- **TAMINI TRASFORMATORI S.R.L.** - Melegnano - ITALY
- **TOSHIBA INFRAESTRUTURA** - Betim - BRAZIL
- **TRAFO EQUIPMENT S.A.** - Gravatai - BRAZIL
- **TUBOS TRANS ELECTRIC** - Cordoba - ARGENTINA



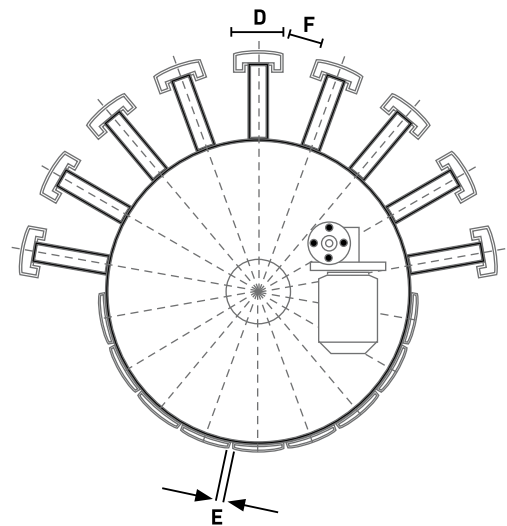
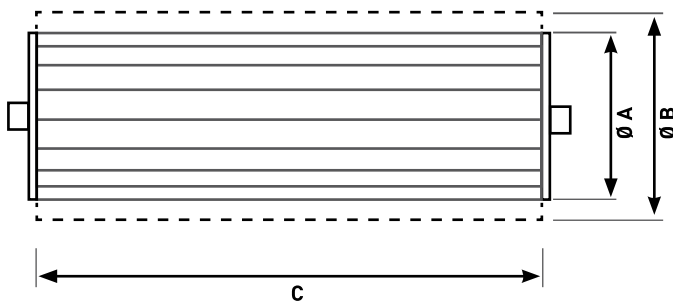
MOTORIZED EXPANDABLE MANDRELS

We have achieved Expanding Mandrels planned and built to improve endurance on the diameter of the coils of the big transformers. In order to reach that goal, TECNICA 80 builds the expandable mandrel formed by a carrying structure, made of a central axle and two flanges, an upper and a lower one, coupled by means of screws so that forms a monolithic structure able to support the torque. Two running supports are assembled on the central axle one opposite the other and both of them managed by two screws,





a right and a left one. The steel beams are assembled on running guides operated by the running support by means of levers which make the cylindrical shapes appear. The wood covering allows the final work to be done, thus obtaining the perfect cylindrical shape of expanding equipment.



LEGEND:

A= Minimum diameter

B= Maximum diameter

C= Length

D= Stave width

E= Short distance between staves when mandrel is closed.

F= Short distance between the staves when the mandrel is opened (this distance is necessary to have a homogeneous cilindricity for the bobbin).



HIGH QUALITY, BEST PERFORMANCES

During the years experience and technological development we have improved the product in its details and also in performance, in order to optimize time and quality during work.





OUR PLUS

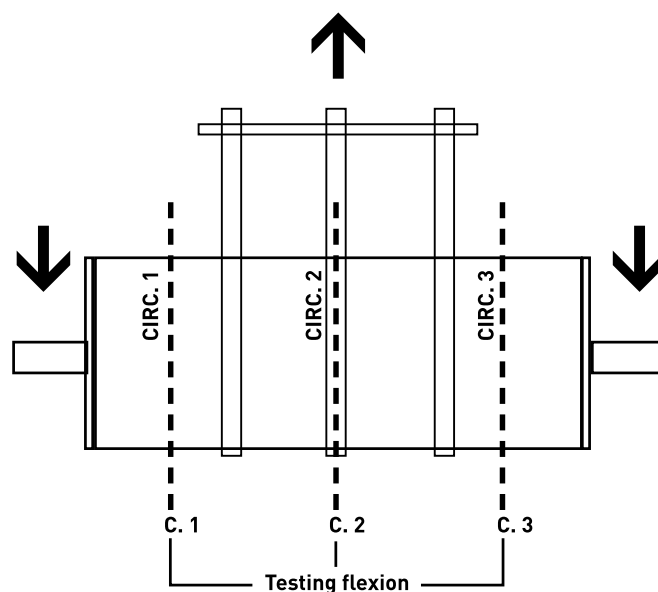
- It keeps constant circumference on the diameter of the coils of the big transformers;
- Our mandrel can be personalized according to the needs of Customer;
- Motorized system of opening and closing mandrel;
- A monolithic structure stands the torsion and eliminates the risk of ovality during winding;
- The running support by means of levers which make the cylindrical shape;
- The wood covering allows to obtain the perfect cylindrical shape of the mandrel;
- Mandrel can be used both in horizontal and vertical positioning;
- Details and performance are able to optimize time and quality during work of winding coils;
- All mandrels are tested.



TESTING OPERATIONS

All our mandrel are tested ,according to the following standard.

We check the roundness of mandrel by the measurement on three points (Circ. 1 – 2 – 3), as indicated in the picture below:



Before idling and then we block the extremity of the mandrel and we practice a force on the points indicated on the picture. The comparators are able to verify the flexibility under load. Also in this case we check the roundness on these points.



PACKAGING

For shipping we use to fix the mandrels on metal anchorages, as indicated on the pictures, that could be used also to storage them in the factory.





TECHNICAL DATA

MODEL	DIA. MIN.	DIA. MAX	LENGTH	STAVES	STRETCHING CARRYING POWER
11.250*	250	317	1800	8	220
11.300*	300	395	1800	8	250
11.380	380	680	1700	8	250
11.400*	400	520	2200	14	500
11.400*	400	600	2200	12	500
11.400*	400	600	2400	12	500
11.400*	400	680	2400	12	500
11.550	550	750	2400	16	500
11.550	550	800	2000	16	750
11.570	570	770	1500	16	750
11.600	600	766	2200	16	1000
11.600	600	800	1800	16	1000
11.600	600	900	2200	16	1000
11.600	600	900	2400	16	1000
11.600	600	900	2600	16	1000
11.600	600	900	2700	16	1000
11.600	600	900	3000	16	1000
11.700	700	1000	2200	18	1000
11.700	700	1100	2700	18	1500
11.700	700	1100	3000	20	1500

* with actuator



MODEL	DIA. MIN.	DIA. MAX	LENGTH	STAVES	STRETCHING CARRYING POWER
11.780	780	1200	2700	18	1500
11.780	780	1200	3000	18	1500
11.800	800	1250	2400	18	1500
11.800	800	1250	3000	18	1500
11.900	900	1300	2000	20	1500
11.900	900	1300	2200	22	1500
11.900	900	1300	3000	22	1500
11.900	900	1400	2500	20	1500
11.1040	1040	1500	3000	28	1500
11.1100	1100	1450	2000	28	1500
11.1100	1100	1500	3000	28	1500
11.1200	1200	1700	3000	28	1500
11.1400	1400	2000	3000	30	1500
11.1450	1450	1800	3300	28	1500
11.1470	1470	2400	3000	30	1500
11.1490	1490	2050	3300	40	1500
11.1490	1490	1790	3300	40	1500
11.1550	1550	2200	3000	30	1500
11.1700	1700	2350	3000	30	1500
11.2000	2000	2700	3000	40	1500

EQUIPMENT FOR POWER TRANSFORMERS

A RANGE OF MACHINERY AND TOOLS THAT FULLFILS OUR SOLUTIONS FOR POWER TRANSFORMERS.

PRESSOR ROLLER

The main purpose of the pressor is to optimize the winding of bending copper . It deals with a system of two rollers ,one for horizontal compression and one for vertical compression, controlled by a pneumatic pressure in vertical and a pneumatic brake in horizontal.

This aim warrants obtaining a perfect alignment of bending copper in complete safety for the operator and it permits to economize man-hours.

ADVANTAGES

- WINDING SPACE OPTIMIZATION
- UNIFORMITY OF THE COIL
- SAFETY
- IMPROVED PERFORMANCE



HORIZONTAL EQUIPMENT FOR GLUEING CYLINDER

The equipment is able to glue two limbs through pressure on the glueing point. The cylinder is glued by an inferior concave template and a convex one. The sizing of two limbs takes place by pneumatic pressure on all length of the cylinder.



TIPPER FOR COILS AND TIPPER FOR MANDRELS

The tipper for coils is realized to turn over the coils in horizontal position by a max carrying capacity of 5000 kg. It is possible to put on coils from dia. 1300 to dia. max 2000 by a telescopic and oleo dynamic system.

The tipper for expandable mandrel is built to turn over the coils in horizontal position by hoisting equipment.

TIPPER FOR COILS TECHNICAL DATA

- CARRYING CAPACITY: 5000 KG
- TRAVEL: 360 MM
- INCLINATION CAPACITY : 90 MAX



TIPPER FOR MANDRELS – TECHNICAL DATA

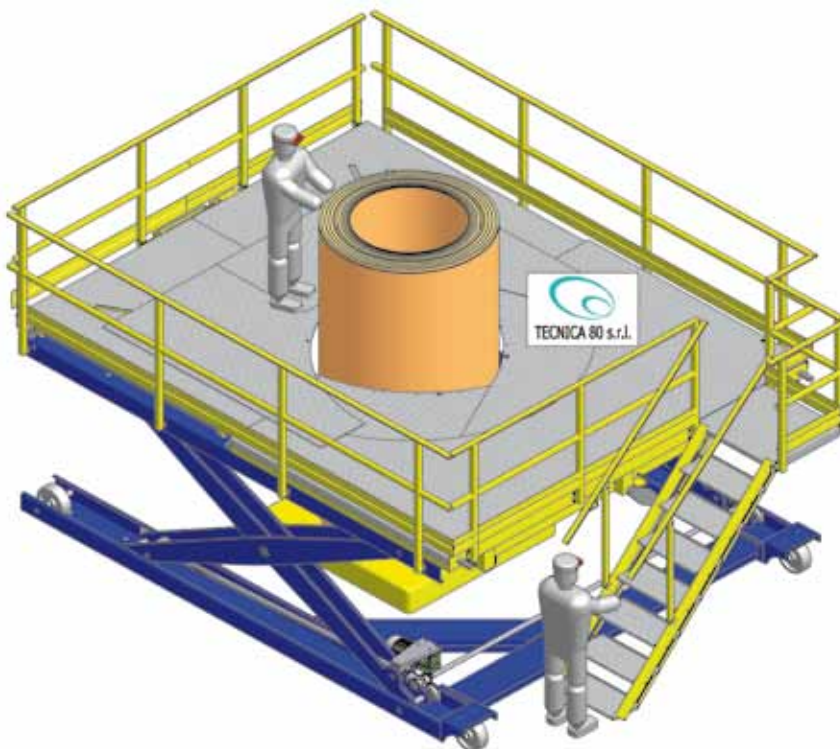
- LOAD CAPACITY: 20000 KG*
- INCLINATION CAPACITY : 90 MAX

* The carrying power can be personalized according to the Client's requirements.



PLATFORM LIFT – MOD.IRIS –

It is a platform lift to assembly phases. It consists of a plinth on which a pantograph lifting system sets in motion with maximum height of 2,90 m. Tread platform consists of a central compartment to IRIS, composed of sectors whose movement is commanded by an electromechanical system opening and closing. The minimum diameter of opening is of 1000 mm and maximum diameter is of 3000 mm.



The plan is itself divided into two opening parts for the introduction of the bobbin in the centre of the platform. The platform is equipped with a scale for operator access and is equipped with adjustable steps with landing for entrance to the platform, and a security perimeter railing along the top edge of the platform.

The lifting system is electromechanical, powered with panel control at ground and also on board of the platform.

The platform can also display a self-propelled wheel system for handling. Platform lifts are accompanied by electrical safety systems as well as mechanical.

STACKING TABLE

Our stacking table has a capacity from 20 to 200 ton and is completed of a oleo-dynamic tilting until 90° by bridge crane. It is composed by a loading platform on which are positioned a system of three or five sliding columns and lateral extension, adjustable to the dimensions of laminations . On the base are positioned two saddles to contain the laminations during tilting. The equipment is adjustable in its height by an oleo-dynamic cylinder to permit to the operator to work in safety and save man-hours.



ALSO AVAILABLE:

- 3 OR 5 COLUMNS TILTING BY BRIDGE CRANE
- WITH OVERHEAD TRAVELLING CRANE OVERTURNING

OLEO-DINAMIC EQUIPMENT FOR BENDING COPPER STRAP TO 90° AND “S”

Oleo-dynamic equipment for bending copper strap to 90 and “S” on horizontal and vertical winding machine. It deals with a pneumo-hydraulic pump 700 bar by compressed air 8bar input and a pedal-control.

→ MODEL “90°”



→ MODEL “S”



SPECIAL MANUAL EQUIPMENT FOR BENDING COPPER STRAP

This is special equipment for bending core strap on the bobbin.

TECHNICAL DATA

- USE: MANUAL.
- COPPER STRAP: 25X14*.
- CAPACITY OF BENDING: UNTIL 90 .
- MODEL: RIGHT AND LEFT.

*The dimensions of the copper STRAP can be personalized.



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