TECHNICAL DATA SHEET

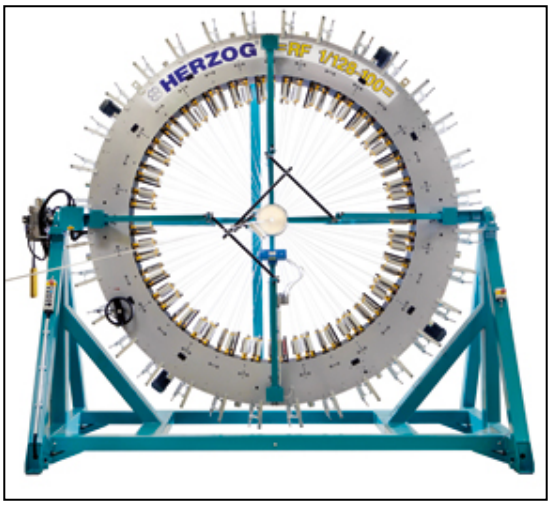
SK1BR

Braiding machine for creation of dry single-layer and multilayer preforms

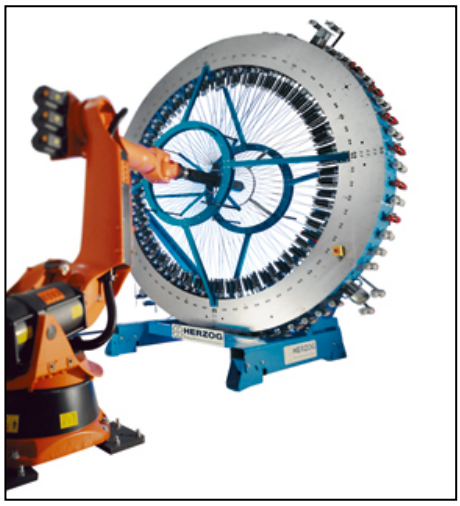
► DESCRIPTION

The unique braiding machine of radial type is made by «August Herzog Maschinenfabrik GmbH & Co. KG». Dedicated for carbon roving in horizontal version (preform is braided in horizontal direction), braiding machine is used to overbraid component parts and for sleeving, as well as for flat triaxial fabrics made of carbon, fiberglass or aramid roving. The machine is unique in the class of braiding machines and does not have analogs worldwide. The machine is used for preform creation in aircraft, aerospace and automobile industries.

Construction, control system and software provide machine operation with separate multi-roller take-off and multiaxial manipulator on the base of robot type KUKA according to programmed algorithm.



Radial braiding machine type with 128 carriers



Radial braiding machine type with 144 carriers with multiaxial manipulator

Quantity of braiding carriers, moved by horn gears during braiding, is defined by customer depending on a size and complicity of preform manufactured and can vary from 48 to 288.

Braiding body is a segment construction. Carriers' axes are directed toward machine center, and carriers' axes for warp threads roving are directed along machine axis. Warp threads can be placed on the original bobbins, without using of carriers.

Roving stretching during braiding is under control, horn gear actuator is realized by gear wheel. Rotating of horn gears is made by electric motor.

Handling of braiding machine is performed by PLC. Electric control box is free-standing with carbon dust protection and its electric lines length supplying the machine is 25 m. The machine is equipped with separate electric box cable with length of 25 m. Software of PLC, multiaxial manipulator and multi-roller take-off is interlinked.

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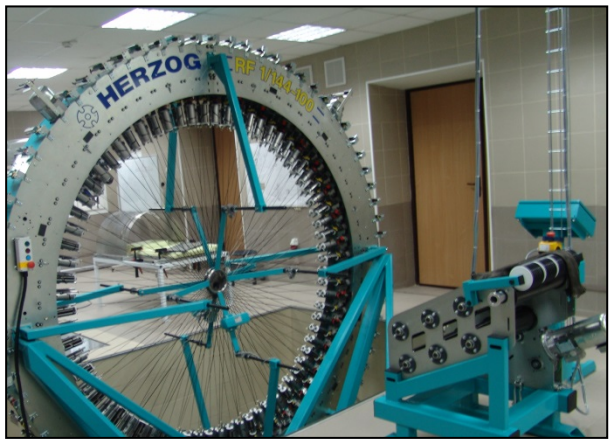

Machine control system is setup according to the following parameters:

- Speed of horn gear rotation;
- Braiding gauge;
- Braiding diameter.

Speed of horn gear rotation is infinitely variable in the range of 50 rpm to 150 rpm. The machine is provided with a carrier positioning unit for easy bobbin exchange.

Braiding machine and take-off function provides braiding angle accuracy for fiber from axis ± 1°, by gauge ± 0,5 mm;

Range of braiding roving angle to the axis relative to mandrel depending on machine model can vary from 25° to 85°, ignoring angle of wrap roving.

All yarn guides are particularly suitable for carbon fiber yarns.

Braiding compaction for one pass of mandrel with diameter of 150 mm is 95% of mandrel surface without using of warp thread feed.

The machine can be equipped with standard attachment equipment at customers' option:

- polished braiding rings with different diameter;
- set of braiding bobbins;
- set of tension springs for roving.

►EQUIPMENT CAPACITIES:

- Braiding of one layer and multi-layer preforms of round cross section with different diameter, thickness and length;
- Manufacturing of one layer and multi-layer preforms cone shaped section of different diameter, thickness and length;
- Manufacturing of hallow preforms of complex shape braiding method with preset parameters of mandrel surface area and angle of fiber placement relative to mandrel axis;
- Manufacturing of multi-layer preform with rectangular section and cone shaped profile;
- Radial braiding of carbon, woven or aramid fibers on a mandrel fixed by clamp system of manipulator of variable section and curved shape;
- Multi-layer braiding on a mandrel due to multiple feed of a mandrel at braiding zone;

- Braiding with preset parameters of mandrel surface area and of angle of fiber placement relatively to mandrel axis;
- Braided sleevings with uniform section made of carbon fiber;
- Braiding of flat triaxial fabrics.

► COMPLETENESS OF SET

Following elements and unit scan be supplied, depending on aims and demands for process standardization:

- Radial braiding machine with CNC
- Vibration stimulator for braiding concentration
- Carriers for carbon and fiberglass roving
- Carrier base unit for fast change system
- Braiding carriers for carbon and fiberglass
- Multi-roller take-off
- Manipulator kit to connect to braiding machine
- Semi-automatic bobbin winder
- Creel for carbon roving
- Creel for fiberglass roving
- Specially developed software

► NOTE

Please contact us for more detailed information as well as for system development according to your technical specification.

Standard warranty period: 12 months.