

HERKULES FLEXIBLE SOLUTION FOR THE WIDEST VARIETY OF ROLLS

Heavy Duty Roll Grinders for Paper Industry



During 100 years of supplying grinding machines to roll manufacturers, roll users, and roll service centers operating all over the world, Maschinenfabrik Herkules Siegen (Germany) has always paid special attention to the needs and requirements of grinding the wide and special variety of paper industry rolls.

Machining different surface materials and various dimensions at the highest possible geometric and surface accuracy in an unprecedented efficient way, in only one grinder with multiple machining capacities, is the achievement! The result is - over 100 times in the past 25 years, Maschinenfabrik Herkules Siegen (Germany) was the preferred supplier for customers in the paper industry.

History

Maschinenfabrik Herkules Siegen (Germany) strategically positioned itself into the pole position in servicing the world-wide paper industry in the long and near past.

Herkules first started to build first-class heavy-duty paper mill roll grinders decades ago. This did lead to great success in supplying to well-known players in the paper industry like Valmet, Beloit, Voith, Metso, Scapa Kern, Stowe Woodward, Abitibi Consolidated, International Paper, APP, and many more.

Then, to scale up the customer range, the competitor Bruderhaus was bought in 1985, which led to an enlarged customer base. Early 2001, Maschinenfabrik Herkules Siegen (Germany) took over all roll grinder related activities of Voith paper, thus enormously extending our customer base, as not only all Voith roll grinders are included, but also all Farrel roll grinders in North America, including the famous 2-wheel grinders. The thus established wide customer base in combination with the experience we gained over the years, plus the permanent efforts in improving the technology, have made Maschinenfabrik Herkules Siegen (Germany) the Number One partner for today's paper industry.

Grinding Machine Technology

Grinding paper machine rolls requires the highest flexibility for the widest range of roll dimensions. Herkules designs its versatile roll grinding machines exactly for such purposes, and offers basically two different types of machines:

- The P 30 WSB 450 suitable for rolls up to 40 tons weight
- The P 100 WSB 600 suitable for rolls of up to 110 tons weight or more

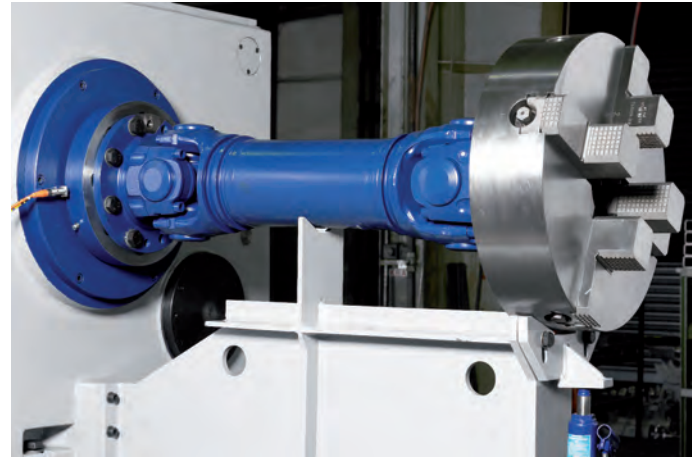
Both types of machines can accommodate rolls from the smallest required diameter up to 2500mm in diameter or more. Grinding rolls with or without bearing housings is standard.

Based on the original concept to build strong and high precision roll grinding machines specially adapted to the individual needs and requirements of the paper industry, Herkules has been the trendsetter in serving the industry with important tools to adapt to the new challenges in roll machining for paper production, by introducing the first:

- CNC crowning system in 1978
- Integrated measuring systems as of 1984
- Implementation of fully integrated on-line measuring systems
- Extension of on-line measuring to allow correction "on-the-fly" during grinding
- Extension of such standard "on-the-fly" correction functions by the newly developed integrated 3D measuring system
- On-line roll surface inspection system (RSIS)

Special features and additional functions can be integrated, such as:

- The common headstock - roll drive arrangement for Herkules paper industry roll grinders is the universal shaft with headstock cross travel for centerline displacement and longitudinal travel for ease of loading.



Headstock with universal joint, mounted faceplate with clamping jaws



Motor and drive spindle for X-axis movement



Drive and toothed rack for Z-axis movement

- Steady cross travel for centerline displacement



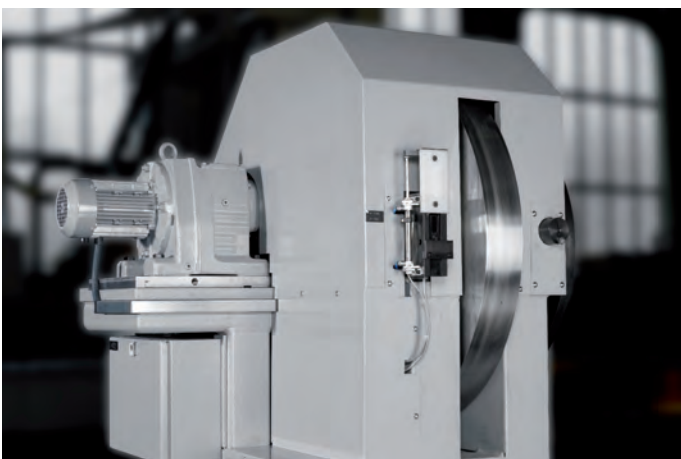
Steadies on lower parts for centerline displacement of steadies (in the rear, calibration disk at tailstock)

- Turning attachment for roll repairs and machining super calendar rolls



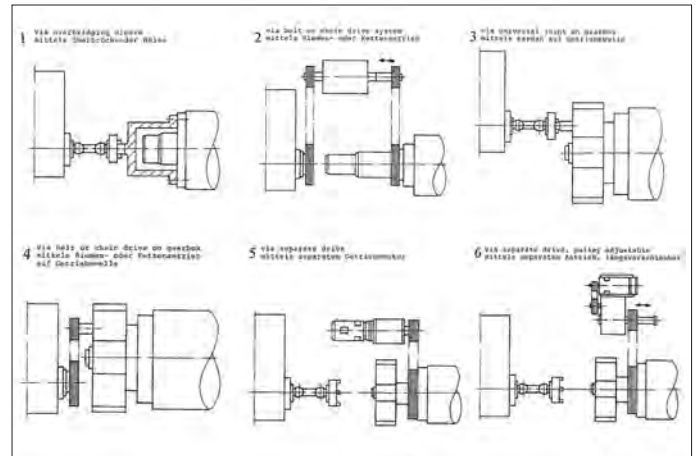
Turning attachment for overhead turning

- Special equipment with integrated dressing and measuring systems for the grinding wheels

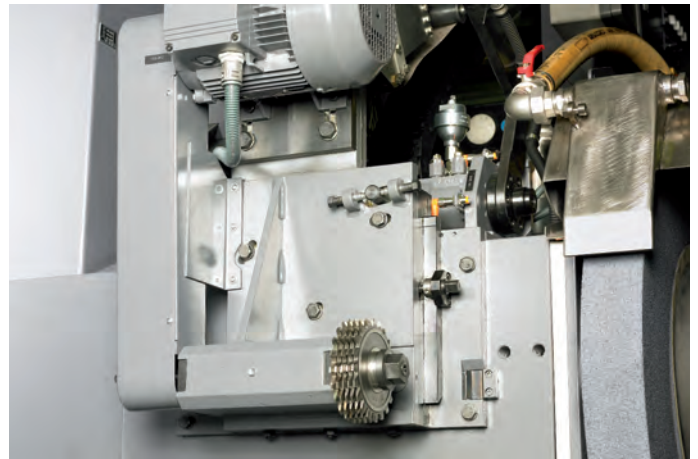


Steel disk for dressing diamond grinding wheels · On the right of the steel disk: Probe for measuring conventional grinding wheels · On the left of the steel disk: Probe for measuring the grinding wheel diameter

- Special roll drive system for CC rolls



- Venta-Nip milling attachment for cutting parallel and/or spiral grooves into all kinds of materials



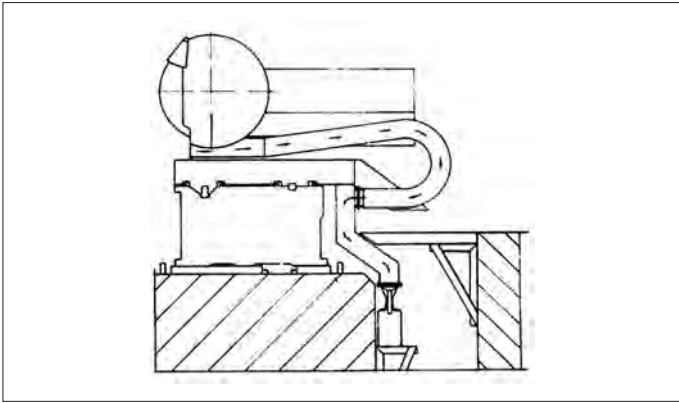
Venta nip device for milling the spiral grooves in suction rolls
Grinding wheel can remain installed

- Venta-Nip groove cleaning



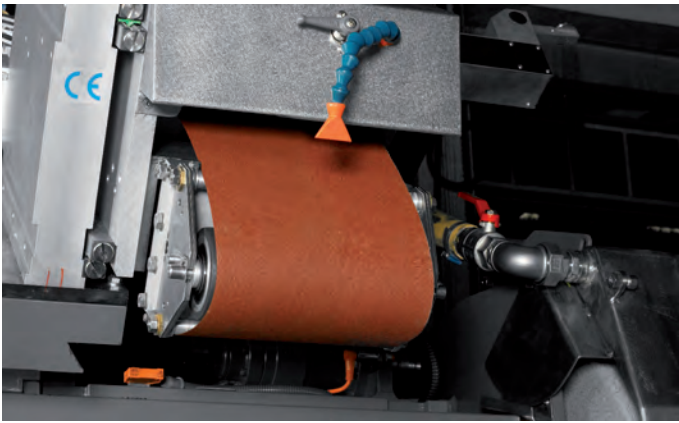
System installed on a floating supporter to follow the groove-inclination for cleaning the grooves respectively the groove edges

■ Dust collection systems



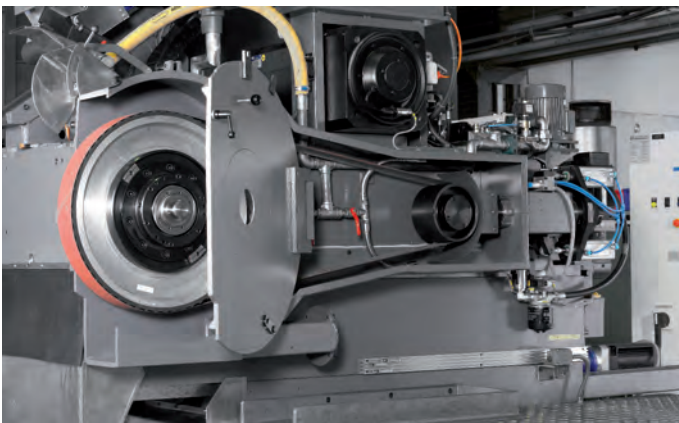
Dust collection systems

■ Superfinishing devices



Superfinishing with grinding belt (here type Löser), which does not require demounting the grinding wheel; device for moistening the grinding belt

■ Belt grinding systems



Belt grinding device with rubberized contact wheel with opened visible tensioning device

Multi-Probe Three-Dimensional State-of-the-Art Measuring for the Paper Industry

The newly developed dynamic correction grinding for 3D measuring is based on our worldwide well recognized Herkules paper industry roll grinding measuring and inspection concept. The new product development is an extension of our conventional integrated roll measuring and inspection system, but has four measuring sensors instead of the conventional 2 sensors.

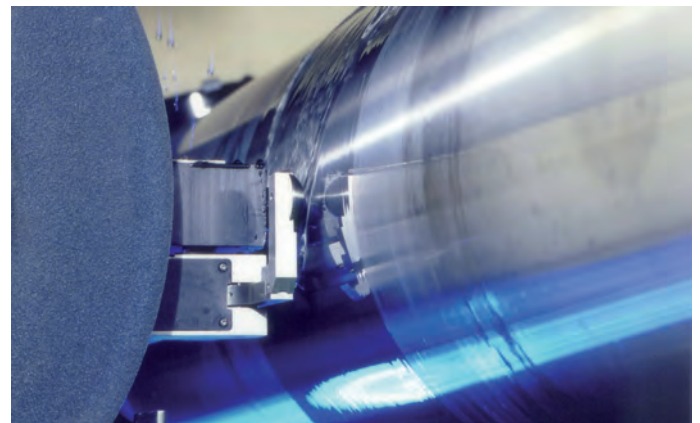


HCC KPM integrated 4-probe measuring caliper for 3D measuring and dynamic on-line shape correction capabilities

This four-probe measuring system is interfaced with our specially designed HCC KPM roll grinder control for performing the dynamic on-the-fly corrections, by means of simultaneous compensation of the 3D measured roundness deviations of the roll necks and/or roll barrels.

For more details please refer to the respective catalogue.

■ Integrated Ultrasonic Testing



The system serves for automatically checking the connection of the cover-layer with the basic roll