What is a Yankee Machine?

A Yankee machine is a paper machine with a single large drying cylinder which crepes the paper or produces a glazed surface on one side.

A tissue Yankee cylinder is a large diameter drum which is pressurized with steam to provide a hot cylinder surface used for soft tissue products, such as facial tissues, toilet tissues, and kitchen roll towels by a process called creping, which is achieved by using a doctor or creping blade to aid release of dried tissue from adhering to the Yankee cylinder.

A MG (stands for Machine Glaze) cylinder is also a Yankee cylinder, but used on other grades of paper. The paper sheet, in contact with the large hot highly polished dryer surface, for a long dwell time, will start to slip and plasticize the surface fibres, improving gloss & glazed properties on one side of the paper, e.g. manila envelopes.

The largest Yankee cylinders are exceeding 7 metres in diameter and 6 metres in width.

Tip: Use ‘Yankee cylinder’ or a similar expression as search word in e.g. Google to learn more.
Full Range Yankee Cylinder Service

Some of the Paper Machine Service Suppliers provide required techniques to monitor, measure, solve and restore any condition divergences in the Yankee section of Tissue and MG machines.

**Inspections:**
- Metallurgical
- Ultrasonic
- Visual

**Measurements:**
- Surface contour
- Shell thickness
- Temperature

**Other Services and Repairs:**
- Porosity and leakage repairs
- Doctor blade adjustments
- Head testing and repair
- Press nip calibration
- In situ balancing

**Thermal Coating *):**
- Full-face
- Edge repair
- Spot repair
- Grinding
- Superfinishing

*) The expression Thermal Coating is used in the paper industry to differentiate it from Organic Coating.
Additional demands set on on-site applications

- Work safety for operators and equipment
- Dust control / extraction / filter
- Occupational health considerations
- Cleanness of environment and work object
- Estimation/calculation of time schedule
- No time available for mistakes or re-runs
- Spare equipment set-ups compulsory (break downs)
- Machining/grinding is the key time factor
- Space and position for equipment and operators
Wall thickness and steam pressure are related by safety rules. The ideal situation would be to operate the machine in the optimal economic area (A), all the time. This is also the point were to consider a full-face thermal coating, before the heat flow has to be decreased.
Good co-operation concerning work site conditions is inevitable.

Disassembling, scaffolding, gases, electricity and all other preparatory tasks must be thoroughly planned.

The coating application time varies between 2,5 to 4,5 h/m², depending on cylinder dimensions, spray equipment and filler material used, number of coating heads, as well as on cylinder onset and local conditions.
Typical Work Setup for Yankee Dryer TS Coating

- Grinding with one or two grinder heads
- Coating with one to four spray equipment sets
- Process dust extraction is used for grinding as well as thermal spraying

Grinding with one or two grinder heads

Coating with one to four spray equipment sets

Process dust extraction is used for grinding as well as thermal spraying
TWA-Spraying with two Arc Heads

Note dust extraction hoods
Full-face coated MG-cylinder, WC / HVOF

High polish by superfinishing

Two spray heads
Tangential belt grinding “design Farros Blatter or Bender Crownmaster” are often used for crowned Yankee cylinders. Tangential surface contact facilitates accurate step-free crowning and high grinding capacity.

Most of the grinding machines for this purpose are more or less home-made, some based on a standard grinding machine bed way and often equipped with a turning device for fast material and/or old coating removal.

Most of the PM Service Suppliers build their own grinders for own use, extremely seldom for sale.