Valmet steel dryer cylinders
For excellent drying performance

Valmet steel cylinders bring considerable benefits compared to traditional casted dryer cylinders. Steel cylinders have thinner shells and a 10 percent better heat conductivity compared to cast iron cylinders. These properties enable efficient heat transfer during the drying process and the drying capacity is higher with the same steam pressure than with cast iron cylinders.

Benefits

- Reduced shell thickness and better heat conductivity.
- The same drying capacity with lower steam pressures or higher capacity with the same steam pressures.
- Shorter machine, less components, less costs
- Lower investment cost for building
- Longer cleaning and service intervals with Valmet cylinder coatings.

The lighter weight of steel cylinders means that a dryer section with steel cylinders has less dynamic impact on the building. Also the shell thickness can be even 40 percent less compared to cast iron. It has been also measured that up to 5 percent less motor power is needed with steel than cast iron cylinders. Valmet steel cylinders have a wider working width due to their optimized head design: with the same bearing distance as cast iron cylinders, a wider web can be evenly dried. This together with a higher drying capacity make steel cylinders a highly attractive option especially for rebuilds or for new lines with a restricted length of the machine hall.

High safety levels with optimal construction and quality control

Steel is generally a better material for pressure vessels compared to cast iron. But from the safety perspective, design and quality are equally important: an optimized shell, the head geometry and weld joints form the basis for uniform heat transfer. Valmet steel cylinders' temperature profile in the cross direction is smooth and the cylinder surface is easy to keep clean with carbon or glass fiber doctor blades.

Before delivery, the quality and properties are confirmed and documented in accordance with Valmet standards, pressure vessel code requirements and customer specifications. Valmet has an excellent safety record with both steel and cast iron cylinders.

Technical information

The materials and design are selected to ensure the top performance of the dryer section:

- Welded steel shell
- Applicable for all paper machine widths
- Available for PED and ASME standards
- Heads and shell welded together, no risk of steam leakages
- Journal and head with bolt connection
- Two manholes for easy maintenance and safety
- Bearings: spherical roller bearing + toroidal roller bearing
- Dryer bars, steam and condensate joint
- Doctoring with carbon/glass fiber blades

Valmet
Protective coatings for dryer cylinders

The cleanliness of the first dryer cylinders can present a challenge at the dryer section and in the after-dryer stages (after sizing or coating) with certain paper and board grades. Protective coatings extend the maintenance intervals, increase the lifetime of dryer fabrics and improve runnability. The Valmet Dryer Roll Cover DO-W is designed for wear protection and the Valmet Dryer Roll Cover DO-EC also provides extra protection against corrosion. The Valmet Dryer Roll Cover DOH release coating has been developed specifically to keep cylinders clean and to provide excellent release and doctoring properties. Valmet also supplies doctor blades that are designed and tested for each cover material.

Steel cylinder

![Steel cylinder diagram]

Casted cylinder

![Casted cylinder diagram]

*Head design differences between steel and cast iron cylinders. Steel cylinders have wider drying width with the same bearing distance enabling a wider trim.*