

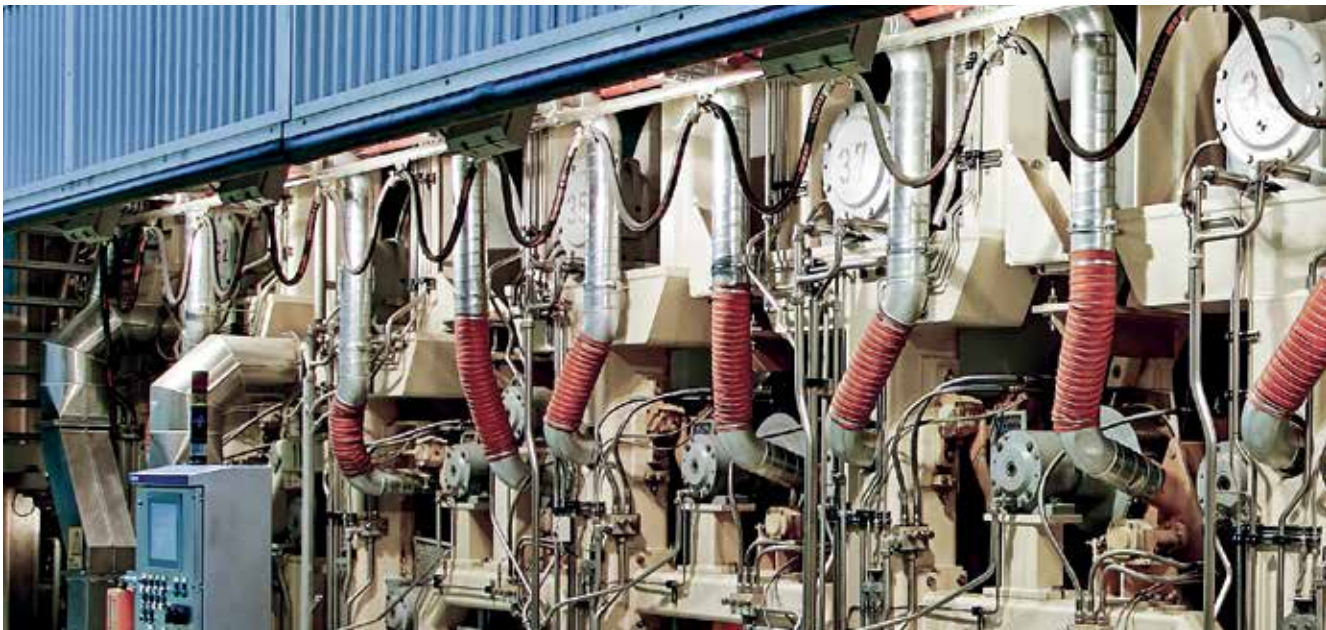


EFFICIENT DRYING FOR PAPER AND BOARD MACHINES

PrimeDry
Steel Cylinder

ANDRITZ

Excellent drying rates and lower energy consumption



Drying section with PrimeDry Steel cylinders

HIGH PERFORMANCE

The thermal conductivity of the steel alloy in the PrimeDry Steel cylinder is similar to that of the cast iron, but the steel alloy has better strength properties. Due to its strength, the shell thickness can be optimized to give less resistance to the heat flux. Performance of the PrimeDry Steel cylinder is 5-7% higher than the same size of cast iron cylinder at the same operating pressure. This allows either higher production or lower energy consumption for the same production level. In practice, steel cylinders can be operated at higher pressures than most cast iron cylinders. In retrofits and rebuilds, this provides even higher production through the existing length of the dryer section. New machines can now have a shorter dryer section and still achieve the same production level. This provides savings for the operator because less mill space is required and the installation costs are also lower. One important advantage for all paper and board machines (no matter if new or upgraded) is that the steel cylinders can dry a broader part of the paper web than cast iron cylinders although the bearing distance is the same. The paper web is dried without any “bad edges”.

HIGH DURABILITY

The surface hardness of the PrimeDry Steel cylinder is similar to that of cast iron cylinders. Wear and tear is similar to that of conventional cast iron cylinders.

STATE-OF-THE-ART DESIGN

The PrimeDry Steel cylinder has been designed and simulated using state-of-the-art computer modeling techniques, including finite element analysis. Welding and machining is performed in ANDRITZ’s workshops using the best technologies available. Each unit is inspected and fully tested in the workshop.

SAFETY IN OPERATION

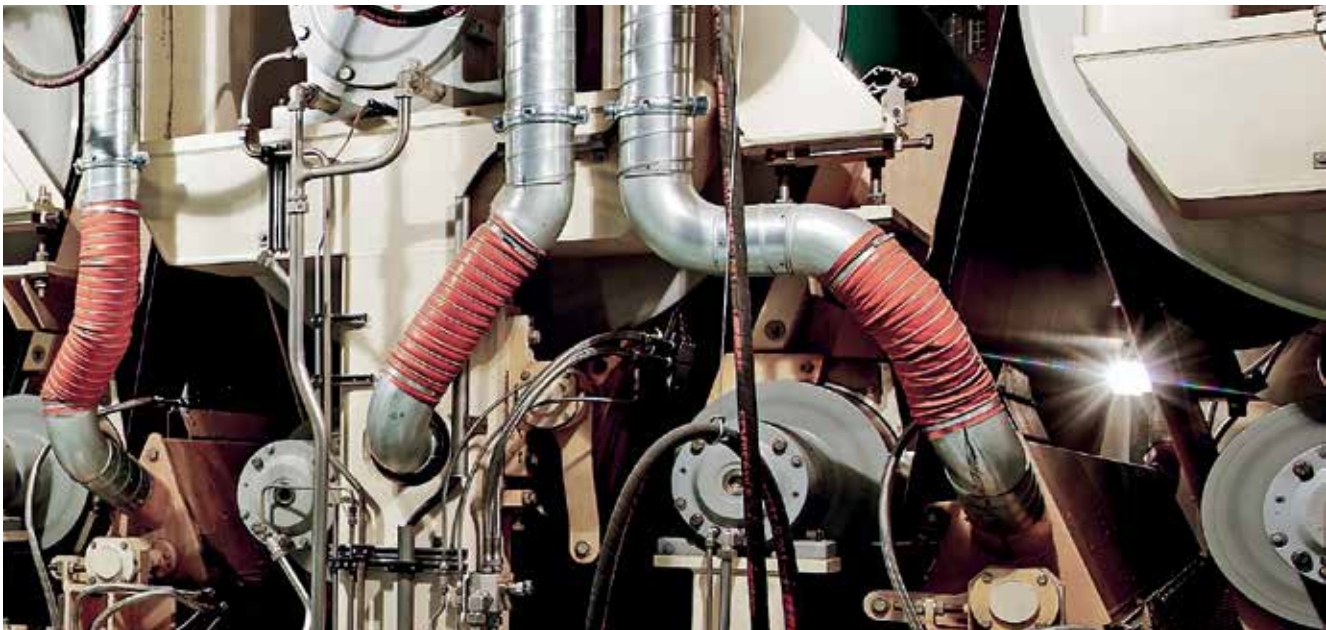
Due to the elasticity of steel, the development of a small crack can be dealt with much more easily than in a cylinder made of cast iron. Unexpected events can lead to the sudden development of cracks in a cast structure, requiring immediate attention and replacement. Steel structures show clear advantages in this respect.

A PRIME SOLUTION

The new PrimeDry Steel cylinder is more than an alternative to the cast iron cylinder in paper/board machines. Lower performance and higher operational risks with the current cast cylinders no longer have to be tolerated.

STEEL VERSUS CAST – A CLEAR CHOICE

The main advantages of PrimeDry Steel cylinders compared to cast iron cylinders include a higher



evaporation rate and increased operational safety. The thinner wall thickness of steel cylinders, which is responsible for their better performance, is enabled by the properties of steel.

In addition to performance and safety advantages, steel cylinders offer economical advantages as well. When space is limited, fewer steel cylinders are

needed than cast iron cylinders to achieve the same drying level. The table on the right gives an overview of the technical and economical highlights.

CHARACTERISTICS	STEEL VS. CAST	IMPROVEMENT
Material strength and elasticity	+++	approx. 40%
Cylinder weight	+	approx. 20%
Heat transmission coefficient	+	7%
Paper drying content and machine performance	++	% depends on paper grades
Energy savings	++	% depends on process design
Mechanical design at web edges (better heat transfer – greater paper width)	++	approx. 15 cm on each side
Investment	no difference	

Steel versus cast iron cylinders

The perfect drying solution

for new machines and machine upgrades



BENEFITS:

- Paper widths up to 10,500 mm and standard diameters of 1,500 and 1,830 mm
- Safer construction due to steel, all welds fully tested
- Better machine performance and better efficiency in the drying process due to the reduced cylinder shell thickness
- Higher drying rates without any changes to the existing drying sections (length)
- Wider working width possible without any changes to the existing machine frame (width)



Higher evaporation rate and more efficient drying due to steel cylinders

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