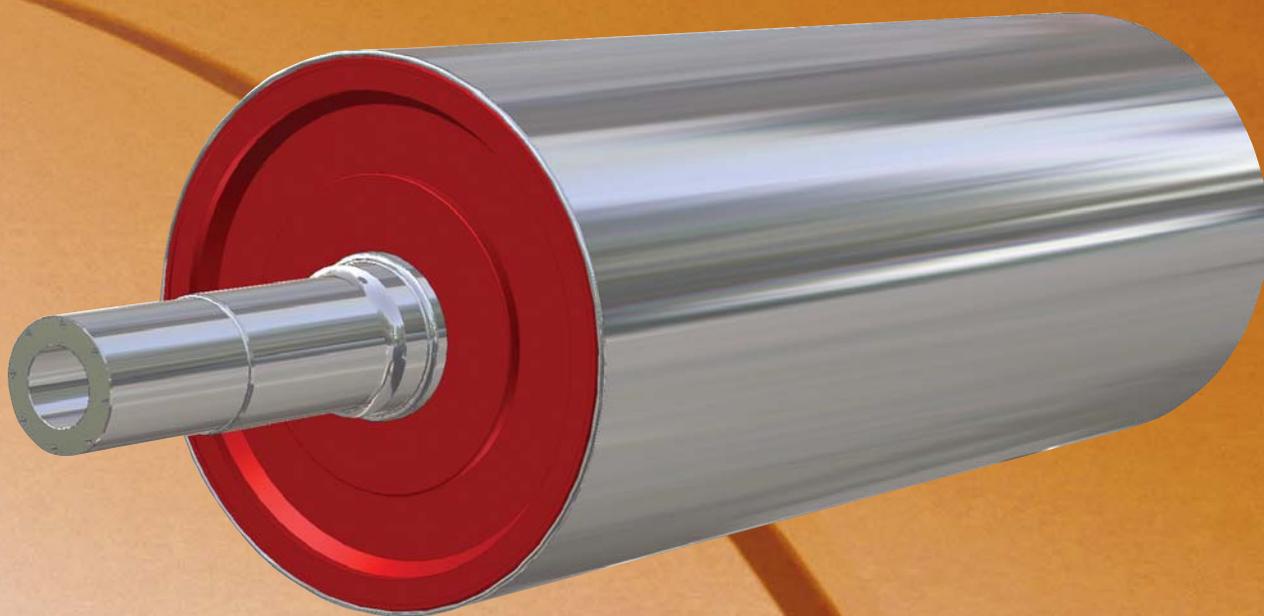




# High Performance Cooling Rolls



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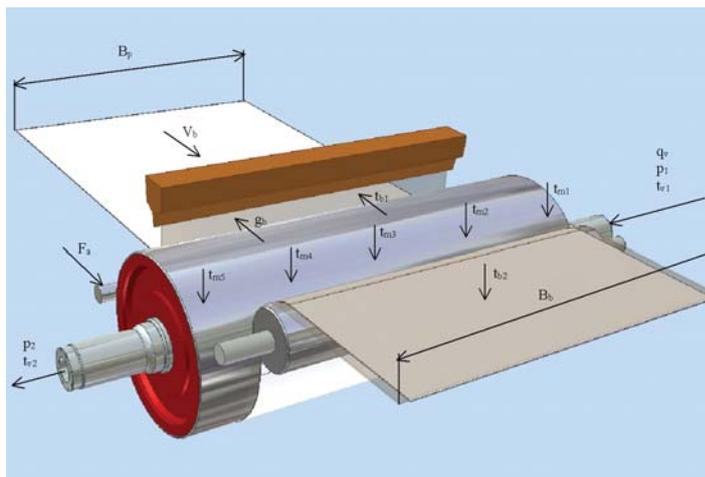
# Introduction

Since 1964 Core Link has supplied cooling rolls to customers within the conversion industry worldwide. With over 40 years of experience cooling rolls can be supplied to your demands with regards to process data such as cooling demand, available volumetric cooling water flow and temperatures, lamination thickness, line speed etc.

When purchasing a cooling roll from Core Link you do not get a cooling roll only, we are supplying a cooling concept. Every cooling roll is individually designed to meet your needs for years onwards. Naturally you can specify the desired surface texture and we will supply cooling rolls accordingly. We can deliver cooling rolls with steel shells or for the most demanding applications with copper shells.

In our workshop we assist you with all necessary maintenance service on existing cooling rolls such as internal cleaning, adjusting circular run-out, repair and reconditioning of the surfaces. Throughout the life of your cooling roll Core Link can be the only contact you will need.

In order to keep up with the demands from our customers we continuously develop the cooling roll concept. With efforts in research and development we are confident that we can keep our leading position as a cooling roll supplier. You can be confident that a cooling roll from Core Link will meet your highest demands for quality, now and in the future.



## Core Link - not only cooling rolls

Widely considered as a pioneer in the development of modern core and broke roll handling equipment, Core Link provides more than three decades of industry expertise and technical knowledge. Since the very beginning, substantial resources have been invested in the R&D of new products, methods and processes and our business strategy for the future is clear:

*Core Link will contribute to improve customer productivity and profitability by offering complete systems for core handling and broke roll handling. Our goal is to be the preferred supplier.*

Core Link is part of the Mustad International Group, a worldwide industrial group founded in Norway in 1832. With this platform, we can offer our customers a reliable partnership based on a long-term perspective.

# Cooling technology

For all our types of cooling rolls water is forced to travel in a spiral pattern between an inner and outer shell of the cooling roll. The spiral pattern is designed to be progressively tighter from the water inlet side to the outlet side. With increasing water speed the cooling effect accelerates. This ensures that the surface temperature of the cooling roll can be kept within close tolerances over the entire surface.

In order to design the spiral patterns we have developed our own computer software. We calculate the appropriate spiral pattern based on your process data relating to the laminator and the cooling system. If desired we can offer a mill study, where we visit your manufacturing plant and measure all necessary data. When purchasing a cooling roll from Core Link you can be sure that you get a cooling roll that meets your specific demands.

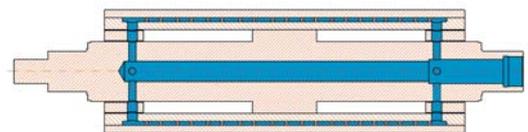


## Different types of cooling rolls

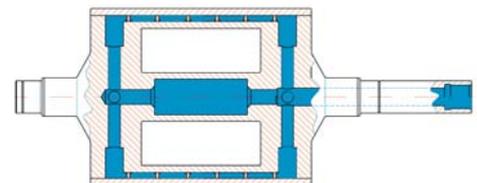
Core Link can produce rolls with steel or copper shells in the following dimensions:

Diameter:	100 to 1100 mm
Shell length:	up to 5000 mm
Total length:	up to 7000 mm
Weight:	up to 5000 kg
Tolerances for roundness and truth of running:	down to 3 µm

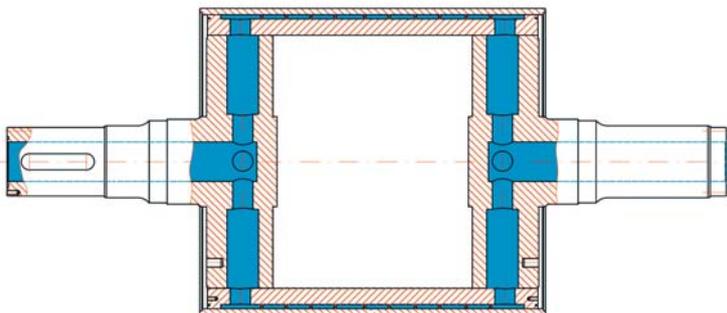
All types of surface finishes and treatments are possible.



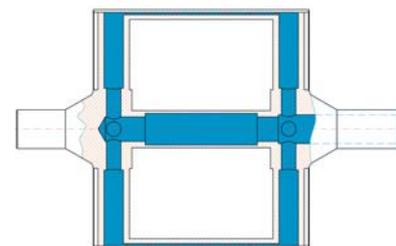
Contrabending



Heating/Cooling roll



Laminating roll



Chill roll

# Copper rolls

In order to meet to the increased demands for higher cooling capacity and stiffer cooling rolls Core Link has developed cooling rolls with a copper shell. Cooling rolls with a shell made of copper instead of steel shells gives several advantages.

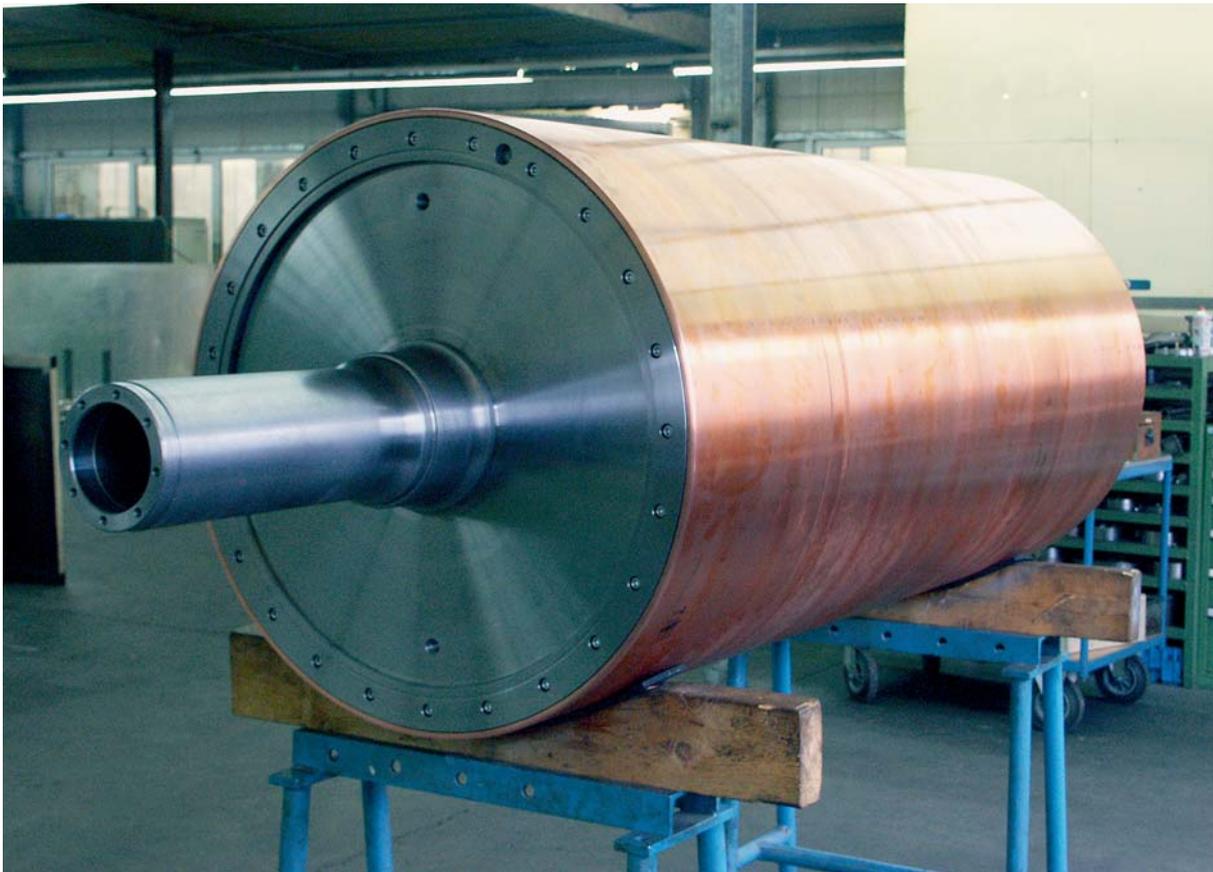
The copper shell is produced seamless in a electrolytic process. A production method that gives a shell made of pure copper without any welds, pores or any other possible weak points. The shell is mounted with a shrink fit on the inner part, a method that ensures a stiff and long lasting cooling roll.

The copper shell has a very long life length without any reduction in cooling capacity as there is no risk of rust or corrosion on the inner surface of the roll.

The high thermal conductivity of copper significantly increases the cooling performance, making it possible to increase the production speed.

The increased cooling performance also means that the cooling water can be warmer compared to systems with steel rolls. In a typical situation the water temperature can be 5°-10° higher with a copper shelled roll. Warmer water saves energy costs as the capacity of chilling units can be reduced.

With a higher water temperature problems with water condensation on the cooling roll surface are minimized.



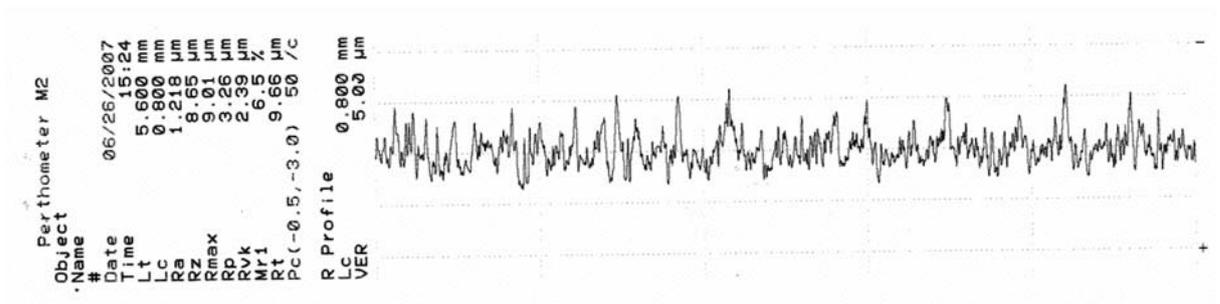
# Surface finish

We understand our customers need for different surface textures of a cooling roll. We use the leading

hard chromium platers in Europe to be sure that our customers receive the best quality of hard chromium.



In our computer controlled sand blasting equipment we can blast a surface finish according to our customers varying demands. We can reproduce the surfaces any number of times. Together with different types of treatment after sand blasting we can ensure a high quality surface texture.



# Internal Cleaning

The cooling function of cooling rolls is highly dependent on interior deposits inside the cooling roll. Regardless of the quality of your cooling water system

some deposits will build up with time. The deposits have an insulating effect and cause increased surface temperatures.



Dismantable cooling rolls are disassembled and the inside of the shell is sandblasted. The inner part is cleaned mechanically with high pressure water.

For the cleaning of non dismantable cooling rolls Core Link has developed equipment for internal chemical

cleaning of cooling rolls. Using this equipment a cleaning liquid is pumped through the cooling roll in a closed system. The interior deposits will be dissolved during the process and the cooling capacity of the roll will be restored. The cleaning chemicals used are not aggressive to operators, nor to the environment.





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