

# CASTER ROLLS

## Longer-life caster rolls to improve productivity and reduce plant OpEx



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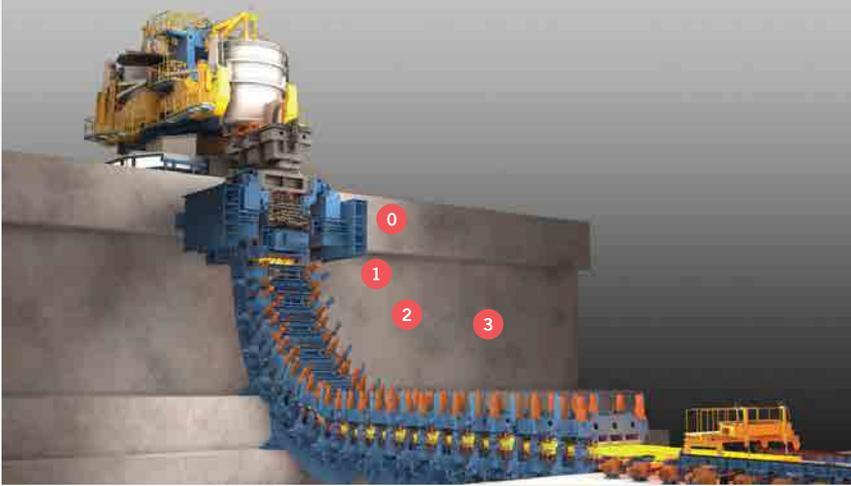
The combination of  
**Danieli's solutions**  
for long-life  
caster rolls  
**Q-ROLL Running**  
**Generation and**  
**Q-ROLL Wire**  
**Tech-Welding**

### Performance achievements

Experience has shown that the microstructure of the roll surface has a significant effect on its performance. Specifically, Danieli has experienced and proven that clad rolls with a microstructure characterized by high levels of retained austenite and/or delta-ferrite perform poorly due to unacceptable levels of wear, corrosion-erosion, and thermal fatigue cracking. Longer roll life directly influences the number of stoppages due to segment changes. The real benefit of combining Q-ROLL Running Generation and Q-ROLL Wire Tech-Welding (Danieli UHP wire brand) is better performance: the number of stoppages due to roll change can be reduced by an average of 40-50%. In a plant producing 1 Mtpy this means an average economic benefit of 0.5 MEuro/year.



## DAN Q-ROLL Danieli Caster Rolls for quality casting and easy maintenance



### ZONE 0

Q-Roll SPRINTER  
+ Danieli UHP 0.0  
**Foot Rolls**

In super austenitic stainless steel, to withstand severe corrosion and oxidation.



### ZONE 1

Q-Roll FAST RUN  
+ Danieli UHP 1.0  
**Segment 0**

Small pitch to withstand strand bulging, in tailored martensitic steel with enhanced corrosion resistance.



### ZONE 2

Q-Roll LONG RUN  
+ Danieli UHP 2.0  
**Bending Zone**

tailored martensitic steel to withstand thermal stresses in mildly corrosive environments.



### ZONE 3

Q-Roll OLYMPIC RUN  
+ Danieli UHP 3.0

**Horizontal Zone**  
tailored martensitic steel to withstand abrasion and wear in mildly corrosive environments.



### Cladding technology

The selection of overlay material is generally based on pit corrosion resistance, thermal fatigue cracking resistance, wear and bruise resistance, corrosion cracking resistance and weldability. Martensitic stainless steel is the preferred material used, due to its properties and costs.

Through the submerged arc welding technology, Danieli's procedures are carefully checked, step-by-step.

### Chemistry of Danieli Q-ROLL

#### Wire Tech-Welding

Because each part of the casting machine (from top to bottom) has a different deterioration behavior, Danieli has developed its UHP-Ultra High Performance wire brand of alloy compositions according to a "zoning of cladding materials" concept, in order to customize the welding wire according to the zone where the roll is installed and the casting conditions.

### Manufacturing process

Danieli grants its caster Rolls production step by step, starting from the raw materials, supplied by Danieli-selected manufacturers worldwide in compliance with Danieli's specifications, up to in-house manufacturing process carried out in accordance with the Danieli Quality Control Plan QCP. Hi-tech CNC lathe, work center, milling units and Cladding Machines together with a careful and on-time supplying production, ensure to customer always to get the most reliable product to be installed in the caster machine.