

100CR6 ROLLING BEARING STEEL WIRE FROM THE CONTINUOUS CASTING PROCESS

First European qualification for demanding ball bearing applications



DATA AT A GLANCE

Industry	Rolling bearing & ball bearing industry
Material	100Cr6 rolling bearing steel wire
Application	Ball bearings for automotive and industrial applications
Special Feature	Qualification of rolling bearing steel wire produced via the continuous casting process for ball bearing applications
Customer Benefit	Equivalent quality with an attractive cost structure

INITIAL SITUATION

Ball bearings are among the most demanding applications in the rolling bearing industry. Due to the high requirements for purity, microstructure, and fatigue strength, balls in Europe have thus been manufactured exclusively from material produced via the ingot casting process. voestalpine Wire Technology aimed to enter this demanding segment with rolling bearing steel wire produced via the more efficient continuous casting process.

THE CHALLENGE

Ball bearings place particularly high demands on the material:

- » low inclusion content
- » homogeneous and non-seigered microstructure
- » high fatigue strength
- » consistent surface quality
- » reproducible material properties

OUR APPROACH

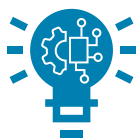
- » Use of large casting formats measuring 440 × 330 mm and 360 × 270 mm, combined with electromagnetic stirring
- » Soft reduction for a homogeneous microstructure
- » Specially developed annealing process prior to rebar forming
- » Non-destructive testing using ultrasound and eddy current
- » Close collaboration between the steel mill, wire rod production, drawing mill, R&D, and application engineering enabled rapid coordination and optimization.

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As the first European supplier, voestalpine Wire Technology successfully qualified bearing steel wire produced via the continuous casting route for demanding ball bearing applications.

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FROM DEVELOPMENT TO SUCCESSFUL QUALIFICATION



**Material
development**



**Process
optimization**



**Material
testing**



**Processing
trials**



**Service
life tests**



Qualification

CUSTOMER BENEFITS

TECHNICAL	ECONOMIC	PARTNERSHIP-BASED
Equivalent quality to the established ingot casting process	More efficient manufacturing process	Integrated value chain
High process reliability	Attractive cost structure	Quick decision-making processes
Reproducible material properties, high material purity and homogeneity	Prompt technical support	Many years of experience in the rolling bearing sector

TYPICAL APPLICATIONS

AUTOMOTIVE	INDUSTRIAL
Wheel bearings	Machine tools
Transmissions	Conveyor technology
Electric motors	Pumps
Alternators	Railway applications

Typical rolling
element diameter:

ca. **3-30** mm

This successful qualification opens further application possibilities for demanding rolling bearing applications. In addition to Europe, international growth markets such as India and Thailand offer additional potential. With the future EAF process route, rolling bearing steel wire can also be produced with a significantly reduced CO₂ footprint.

Equivalent quality to the ingot casting route - produced more economically.

voestalpine Wire Technology combines the highest material requirements with the advantages of an efficient process route.

Benefit from our experience in the rolling bearing segment. Our experts will support you in selecting, developing, and qualifying your material solution.



[More details
& contact](#)