

# Ultimate speed and precision

BALINIT coatings for high speed spindles  
and high precision collet chucks



# BALINIT coatings for high speed spindles and Precision collet chucks

Production efficiency and accuracy are not determined by top coatings for the cutting tools alone. Bearing spindles also have to run at high speeds and must have no wear on

bearing and sealing areas. Additionally, collet chuck systems must clamp tools reliably and with precision even at fast tool change cycles.

## The advantages of BALINIT coated spindle bearings and collet chucks

- Sliding wear resistance against seal
- Higher pitting resistance of bearing raceway
- Higher precision and longer service life of collet chucks

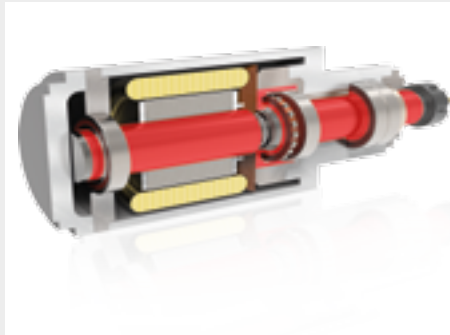
## BALINIT coatings overview

	BALINIT® C	BALINIT® DLC	BALINIT® DLC STAR
Coating material	WC/C	a-C:H	CrN/a-C:H
Microhardness (GPa)	8 - 12	15 - 25	15 - 25
Typical thickness for spindle and chuck applications	1 - 3 µm	1 - 3 µm	2 - 4 µm
Coefficient of friction against steel	0.1 - 0.2	0.1 - 0.2	0.1 - 0.2
Colour	anthracite	black	black

All given data are approximate values, they depend on application, environment and test condition.



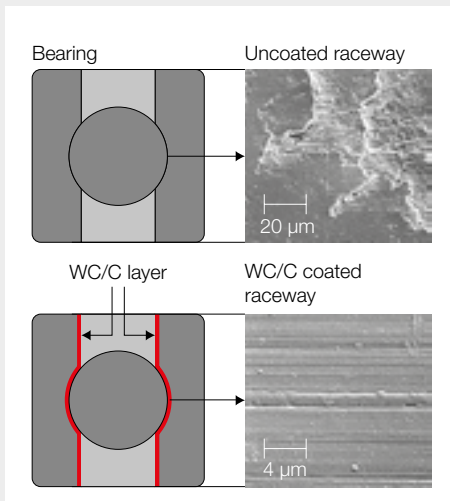
### Spindle bearing shaft



BALINIT® DLC or BALINIT® DLC STAR protect shaft against seal abrasion



### Spindle bearing rings



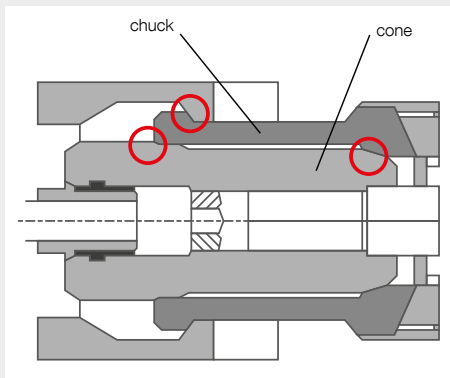
BALINIT® C (WC/C) increases the pitting resistance of high speed spindle bearing rings. The coated raceways show no damage in comparison with uncoated bearing steel.

#### Test Conditions


Bearing type spindle bearing 7014 P4	
Test time	50 h
Speed	19,000 min <sup>-1</sup>
Speed coefficient	1.7 x 10 <sup>8</sup>
Lubrication	Grease



### Collet chuck



BALINIT® DLC or BALINIT® DLC STAR reduce wear on high precision chucks (HSK or standard chucks).

 Highly loaded contact zones prone to galling and wear

**Benefit from our high speed spindle bearings solutions**  
**Contact us now!**

**Headquarters**

Oerlikon Balzers Coating AG  
Balzers Technology & Service Centre  
Iramali 18  
LI-9496 Balzers  
Liechtenstein  
T +423 388 75 00  
E [components.balzers@oerlikon.com](mailto:components.balzers@oerlikon.com)

**Liechtenstein**

Oerlikon Balzers Coating AG  
Beschichtungszentrum  
Iramali 18  
LI-9496 Balzers  
T +423 388 57 01  
[www.oerlikon.com/balzers/ch](http://www.oerlikon.com/balzers/ch)

Our worldwide coating centre  
network addresses are listed at:  
[www.oerlikon.com/balzers](http://www.oerlikon.com/balzers)