

Deutsche Bahn AG's Manufacturer-related product qualification (HPQ)



Quality relates on the provisions contained in bodies of technical rules such as UIC, DIN EN, DBS, BN.

It qualifies KRW to produce bearings, adopting a specific process that has already been described in standards, drawings or other technical material.

The goal is to supply safety-related products to Deutsche Bahn AG who are in a position to meet requirements for safety, reliability and process capability.

KRW supplies in:



Wheel Sets



Gear Boxes



Motors



Wheel set bearings comprise the interface between the wheel set and the bogie frame; they are therefore subjected to extreme loads, deflection of the axle and must fulfill a wide range of technical requirements.

KRW rolling bearings components are subjected to a series of tests in accordance with DIN EN 12080 – including ultrasonic inspection of the inner rings and outer rings – they conform to the highest quality class and are designated as “Class 1”.

All rollers are eddy current inspected.





Axle Box Cylindrical Roller Bearings



Spherical Roller Bearings



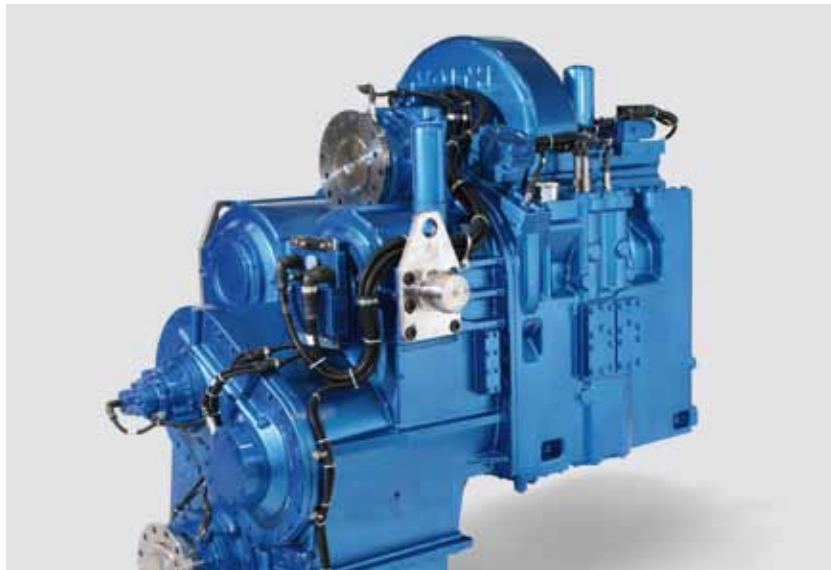
Tapered Roller Bearings



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WFP190x340x92M3	WJ160x300x84M3	WJP80x170x58E.TN	LWJ130x240x80	LWJP180x320x75	RWU130x260x86M3
WFP200X310X66P.M3	WJ180x320x75M3	WJP90x160x52,4M3	LWJP120x240x80	LWJ180x340x100	RWU130x260x86M3
WJ/WJP130x240x80TN	WJ180x320x86E.M3	WJZ/WUZP160x290x192E.M3	LWJP130x240x80	LWJP130x240x80	RWU100x180x60,3TN
WJ100x180x60,3M3	WJ80x170x58E.TN	WJZ180x320x86M3	LWJ120x240x80	LWJ119x240	RWU180X340X100M3
WJ100x180x60,3TN	WJ90x160x52,4M3	WJZ180x320x91E.M3	LWJ130x260x86	LWJP119x240	RWU130X260X86TN
WJ100x215x73M3	WJ90x160x52MPA	WP120x240x80K4.M3	LWJ150x300x102	LWJP130x250x80	RWU120X240TN
WJ110x215x73M3	WJ90x190x64E.M3	WP130x260x86K4.M3	LWJP130x260x86	LWJP130x260x86	
WJ110x215x73TN	WJP100x180x60,3TN	WU120x240x80M3	LWJ130x260x86	LWJ180x340x100	
WJ115x225x80MPA	WJP100x200x67M3	WU130x250x80TN	LWU180x340x100	LWJP129x220x73	
WJ120x215x73TN	WJP110x215x73M3	WU130x260x86M3	LWJ119x240x80	LWJP130x260x86	
WJ120x240x80M3	WJP115x225x80MPA	WU130x260x86TN	LWJP119x240x80	P130x240x80	
WJ120x240x80TN	WJP120x215x73TN	WU160x290x80E.M3	LWJ110x215x73	P130x260x86	
WJ130x240x80M3	WJP120x240x80TN	WU180x320x86E.M3	LWJP110x215x73	P120x240x80	
WJ130x240x80TN	WJP130x240x80M3	WU90x190x64E.M3	LWJ100x180x60,3	P100x180x60,3	
WJ130x250x80M3	WJP130x240x80TN	WUZ180x320x104E	LWJP120x240x80	P119x240x80	
WJ130x250x80TN	WJP130x250x80M3	WUZ180x320x86M3	LWJP130x240x80	P130x260x86	
WJ130x260x86M3	WJP130x260x86M3	WWFP200X310X132/192P.M3	LWJ130x240x80	P129x220x73FV2	
WJ130x260x86TN	WJP130x260x86TN	LWJ180x320x75	LWJ130x260x86	RWU150x300x102M3	
WJ150x300x102M3	WJP150x300x102M3	LWU130x260x86	LWJ129x220x73	RWU120x240x80TN	



Multistage gearboxes for traction motors and Diesel locomotive transmission gearboxes. Bearings must withstand high loads and shocks under complex environmental influences while ensuring high guidance accuracy.





Cylindrical Roller Bearings

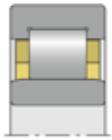


Four Point Ball Bearings

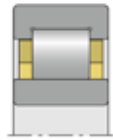


Tapered Roller Bearings

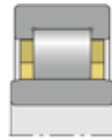




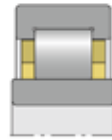
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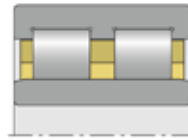
NUZ



NUB



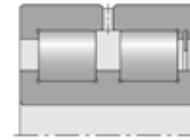
NUBZ



NNU



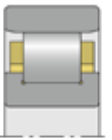
NC.V



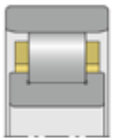
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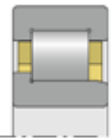
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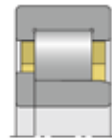
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NB



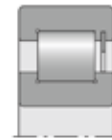
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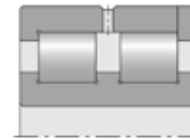
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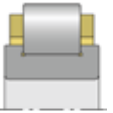
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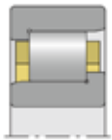
NCF.V



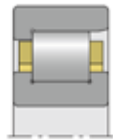
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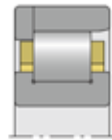
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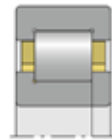
NJF



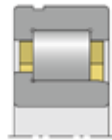
NF



NFP



NUP



NJ.N



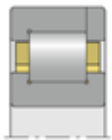
NJ.V



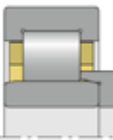
LNUP



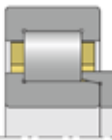
LNJP



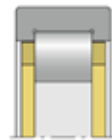
NP



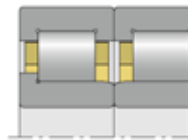
NU + HJ



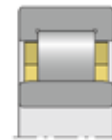
NJ + HJ



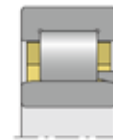
RNU



WJ/WJP



WU



WU + HJ



LNJ

Bearing type	Machine brand OEM
6034 and 6038, 6211 to 6238, 6309 to 6320	ALSTOM
6030 and 6038, 6320	VOITH TURBO
Q220 to Q240, Q306 to 322, QJ1030 to 40, QJ216 to 230	ALSTOM
QJ1021 and 1022, QJ 208 to 224, Q313	VOITH TURBO
NU1024 to NU1040	ALSTOM
NU1021 to 1030, NJ1021,	VOITH TURBO
NU205 to 240, NU2220 to 2226, NU2311 to 2324	ALSTOM
NU208 to 230, NJ217, NU2212 and 2215, NU2314 and 2315	VOITH TURBO
NU2936 to 2944	ALSTOM
NU306 to 324	ALSTOM, VOITH TURBO
32224M	ALSTOM
32044M, NU314, Q314	FLENDER
6018, 6019, 6036, 6212, 6217, 6310, 6311	Gmeinder Getriebe
NJ214, NJ219, NJ2215, NJ2220, NU1024, NU1036, NU2026, NU212 to NU240	Gmeinder Getriebe
NU2218, NU2314, NU2320, NU311 to NU321, QJ218 to QJ226, QJ314, QJ318	Gmeinder Getriebe



Bearings in the traction motor must withstand high acceleration and speeds. Magnetic asymmetries during operation forms circuit through the bearing.

Bearings in electric motors get damaged by the passage of current. In order to prevent this, oxide ceramic current insulation is applied.



Current insulation:

Bearings up to OD = 1000mm

SJ5 = up to 500V

layer thickness = 70 μ m

SJ10 = up to 1000V

layer thickness = 140 μ m

Bearing type	Machine brand
Various bearing types (DGBBs and CRBs)	VEM Motors



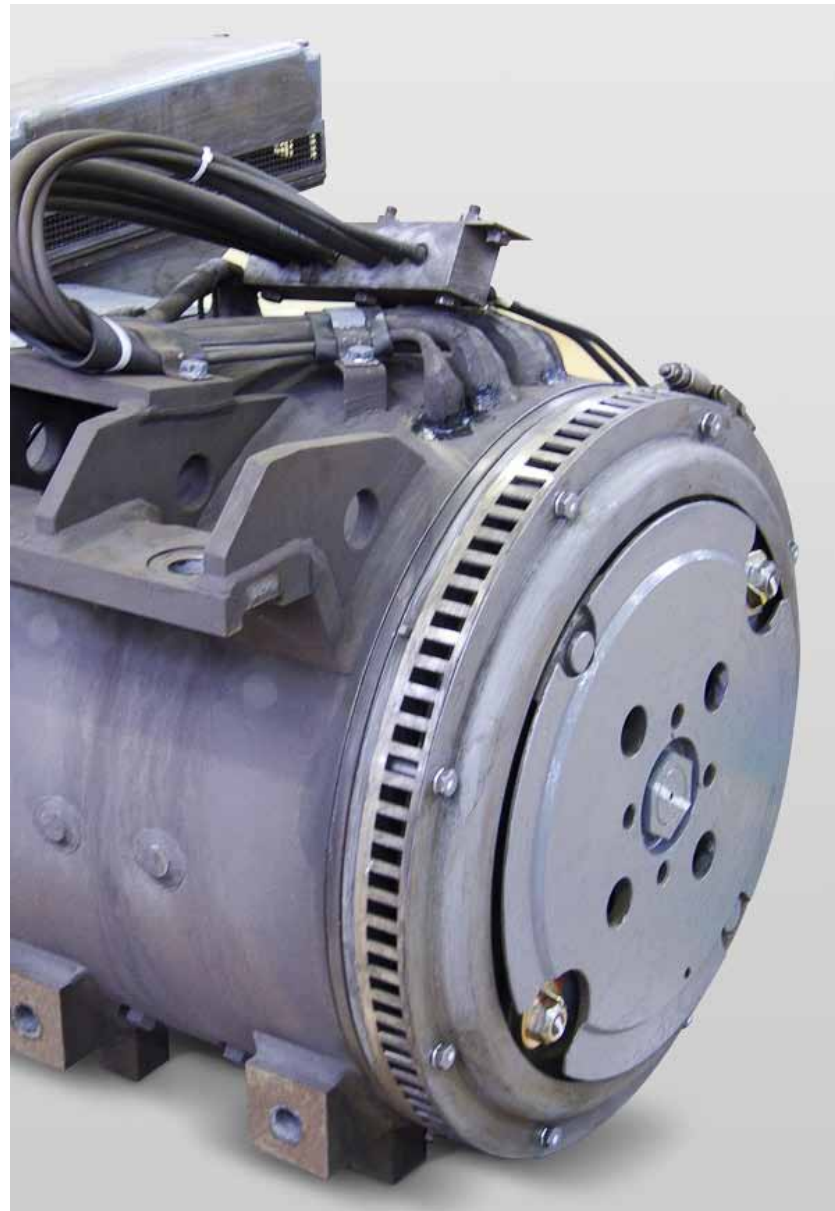
Deep Groove Ball Bearings



Cylindrical Roller Bearings



Insulated Bearings
(Ceramic Coating)



VOITH



Several other unknown OEMs which are served with KRW bearings by dealers.



Mobility
Networks
Logistics

Supplier of Deutsche Bahn AG since 1996

Q1 and HPQ certified

§ KRW bearings are approved in 231 (= 81%) different applications

§ Approved in motors, fluid engines, gearboxes and wheelsets

Strategic Partner of DB purchase & procurement