



CKA Birla Group |



Windmill Pitch and Yaw Drive Bearings

Reliability & Low Maintenance





Pitch & Yaw Drive Gearboxes

Bearings in pitch and yaw drives operate under a combination of low speed, high load, and harsh environmental conditions, making them highly susceptible to surface damage, lubrication failure, and premature wear—even without continuous rotation.

With NBC Bearings, you can rest assured of reliable performance, enhanced durability, and extended service life in these demanding applications.

Wind turbine pitch and yaw drives are critical electromechanical systems ensuring maximum energy capture and structural protection. **Yaw drives** rotate the nacelle to face the wind, while **pitch drives** adjust blade angles for speed regulation and safety. These drives utilize robust gearboxes and motors often featuring high-load, durable bearings designed for harsh environments.

These are typically RNN type cylindrical roller bearings with special coating on races and rollers. They are designed as **double-row, high capacity, full-complement (without cage) assemblies, without an outer ring** for heavy radial loads in compact spaces, such as in planet gears of pitch and yaw drives. They feature two rows of cylindrical rollers, coated with a layer of black oxide, and guided by an inner ring, to provide high rigidity and low, controlled friction.



Key Features

Full Complement Design

Double row roller set with no cage. This maximizes the number of rollers for high load carrying capacity, and within a compact footprint for higher stiffness.

Power Dense Structure

Designed without an outer ring; the rollers typically run directly on a hardened and ground housing bore. This allows for a power dense and more rigid structure, i.e., more power transmission using less space and components.

Optimized Surface Topography

Crowned surface profile of Rollers and Raceways for uniform load distribution, and reduced edge contact stresses and sensitivity to misalignments and shaft deflections.

Enhanced Surface Properties

Rollers (and/or rings) are treated with Black Oxide coating. This layer ensures better lubrication in the contact zone due to its porous nature thereby reducing friction during the critical break-in phase, protects against spalling/smearing on running surfaces due to slippage, provides increased resistance against corrosion and surface fatigue (micro pitting), and inhibits White Etching Cracks.

Cover Sleeve for Easy Installation

The rings and roller assembly are separable, hence held together with an outer plastic cover sleeve. The bearings are mounted on planet pins/shafts, and the planet gears are directly mounted on the bearing roller rows. This facilitates easier installation, as gear can be easily mounted on bearing assembly as the plastic cover slides out.

Benefits to Customers

- ✓ Maximum radial load, compact footprint
- ✓ Reduced smearing, improved wear, lower friction
- ✓ Enhanced lubricant adhesion/retention
- ✓ Resistance against Corrosion, Surface Fatigue and White Etching Cracks
- ✓ Extended service life, improved reliability
- ✓ Easier installation & maintenance

Application Conditions



- High Static Loads
- Slow Speeds
- High G-forces
- Prone to Lubrication Starvation

Used in Planetary Gearboxes for

- Wind Turbine Pitch and Yaw Drives
- Mining and Construction Vehicle
- Heavy Duty Industrial Equipment
- Crushers and Vertical Roller Mills in Cement



NBC Bearing Range

NEI P/N	Bore Diameter (mm)	Diameter Over Rollers (mm)	Total Width (mm)	Inner Ring Corner Chord min Left (mm)	Inner Ring Corner Chord min Right (mm)	Static Load Rating (kN)	Dynamic Load Rating (kN)
RN1653	50.00	72.33	39.00	3.0	0.3	194.3	146.6
RN1860	22.00	38.75	22.50	2.6	0.3	36.6	37.5
RN1861	40.00	57.81	34.00	3.2	0.3	138.6	95.1
RN1862	35.00	52.09	26.50	2.5	0.3	88.1	68.9
RN1863	50.00	75.25	40.00	2.5	1.0	204.6	151.2
RN1864	60.00	83.83	46.00	3.0	0.3	289.8	192.6
RN1865	28.00	43.35	26.50	3.0	0.3	64.2	51.0
RN2175	45.00	66.85	37.50	2.6	0.3	153.8	116.8
RN2263	36.00	59.00	42.00	3.5	0.3	162.0	114.0

CKA Birla Group |



National Engineering Industries Ltd

Khatipura Road, Jaipur, [+91 141 2223 221](tel:+911412223221) neisales@nbcbearings.in
Rajasthan, India 302 006 [+91 141 2222 259](tel:+911412222259) www.nbcbearings.com

Toll free: 1800 3000 6222

[in](#) [X](#) [f](#) [v](#) [y](#) /nbcbearings

