



OIL & GAS
**BEARINGS FOR
STRATEGIC APPLICATIONS**

Solutions for Drilling & Refining



www.ntn-snr.com



With You

UPSTREAM

Land based and offshore drilling rigs have similar elements as they are related to the same bearing applications.

The infrastructure will vary to suit the environment.

The size of the rig and its components are directly proportional to the depth of the well.

BEARINGS FOR DRILLING RIGS



TAPER ROLLER BEARING TRB

- The quality of our steel: only premium quality is retained
- Under extreme conditions, impacts and heavy loads, case-hardened steel shows a 40% increase in service life when compared with through-hardened steel. It can also withstand radial loads due to a high contact angle
- Optimum static and dynamic capacities (ex. by increasing the number and the size of rollers)
- Controlled internal geometry by roller/rib contact optimization

TRB APPLICATIONS

- ③ Top drive
- ④ Swivel
- ⑥ Mud pumps



BALL BEARING BB

- Japanese manufacturing style (premium quality)
- CM clearance as standard range. Reduced clearance to improve performance
- Shield and sealed performance : ZZ, LLU, LLB

BB APPLICATIONS

- ⑤ Draw works



SPHERICAL ROLLER THRUST BEARING SRTB

- Very high axial load capacity
- Can also withstand radial loads due to a high contact angle
- Can withstand 2° to 3° of misalignment

SRTB APPLICATIONS

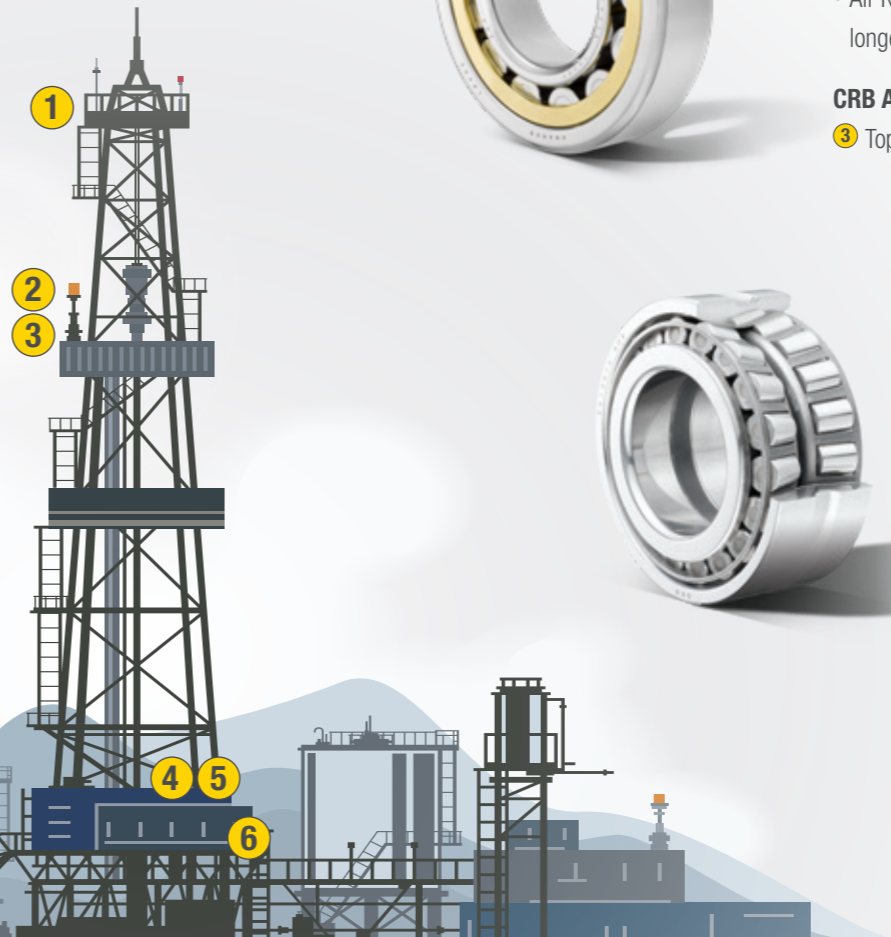
- ③ Top drive

SPHERICAL ROLLER BEARING SRB

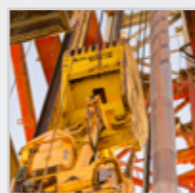
- Designed to withstand large radial loads, shock loading and vibration
- Capable of up to 2° of misalignment
- Available NTN-SNR E-type series for extreme loads and long life

SRB APPLICATIONS

- ④ Rotary table
- ⑤ Draw works
- ⑥ Mud pump



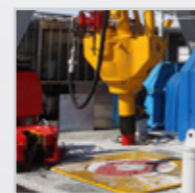
Crown block & Sheave ①



Traveling block ②



Top drive ③



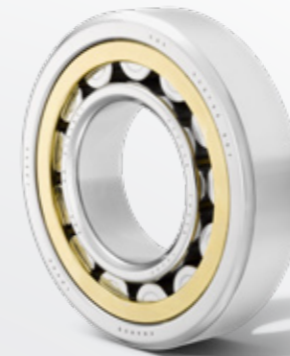
Swivel & Rotary table ④



Draw works ⑤



Mud pump ⑥



CYLINDRICAL ROLLER BEARING CRB

- Widest selection of CRBs on the market
- Capable of large radial loads at relatively high speeds
- Metric, inch, ISO, and ABMA series available
- All NTN ABMA series cylindrical roller bearings use shock resistant, longer life, case hardened material

CRB APPLICATIONS

- ③ Top drive
- ④ Swivel & rotary table
- ⑤ Draw works
- ⑥ Mud pump



DOUBLE ROW TAPERED ROLLER BEARINGS DRTRB

We manufacture a large range of TNASWE type TRBs used in crown and traveling block sheaves. For years, we have been an OE/AM supplier to oilfields in these applications.

DRTRB APPLICATIONS

- ① Crown block & sheave
- ② Traveling block

Bore diameter	NTN-Bower part#
4.25"	NA56425SW/56650D#01
5.625"	NA48685SW/48620D#01
6.5"	NA46790SW/46720D#01
7.5"	NA67885SW/67820D#01
8"	LM241149NW/LM241#01
10"	LM249747NW/LM249#01
10.5"	LM251649NW/LM251#01
12"	L357049NW/L35701#01

TAPER ROLLER THRUST BEARING TRTB

- Extremely high axial load capacity
- Commonly used in oilfield applications to handle extreme thrust load
- Available in shock resistant, longer life, case hardened material

TRTB APPLICATIONS

- ③ Top drive
- ④ Swivel



NTN References

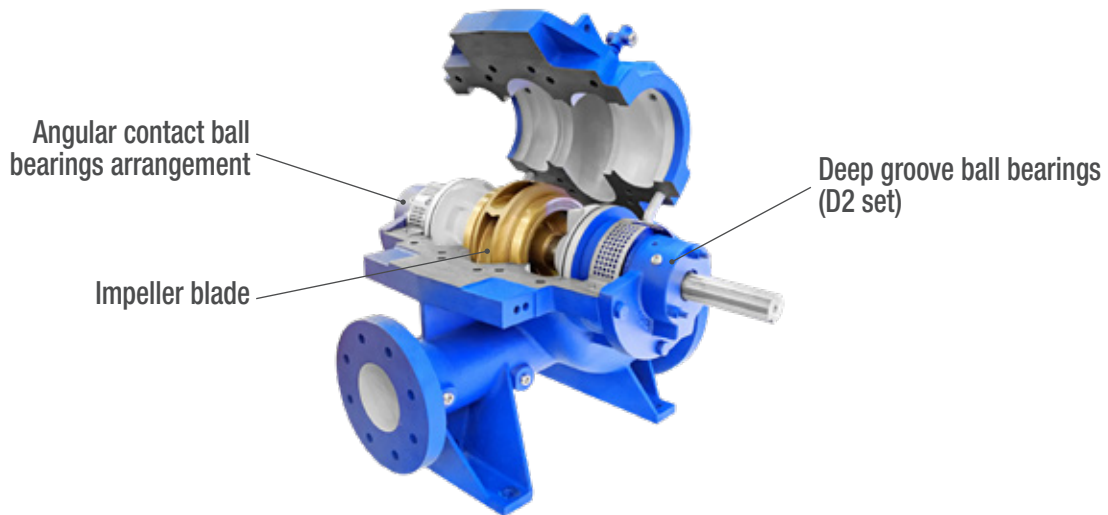
E-CRT3018PX1
E-CRT3407PX1
E-CRT3614PX1
E-CRT4112PX1
E-CRT4604PX1
CRT5613PX1

DOWNSTREAM

Pumps and compressors are typical applications from the refining stage.

Bearings used correspond to specific standards.

BEARINGS FOR REFINING PUMPS



API610

The standard for petroleum refining process pump defined by American Petroleum Institute.

The conditions for use and specification of bearings are defined

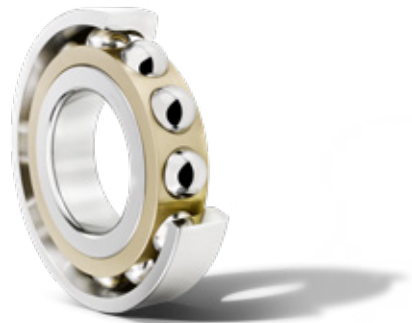
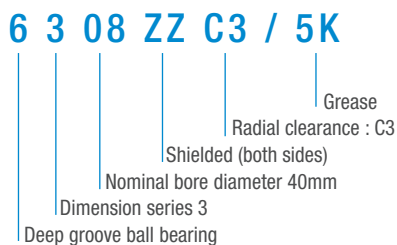
BEARING LIFE	Bearing “system” life (not for individual bearings) should be <ul style="list-style-type: none"> • over 25000h (Continuous operations) • 16000h (Maximum radial and axial loads and rated speed)
ROTATION	dm N < 500,000 dm [mm]... (bore diameter + Outer diameter)/2 N [min ⁻¹]... Rotational speed
LUBRICATION	Oil lubrication * The housing shall be equipped with an oil leveler.



DEEP GROOVE BALL BEARINGS **DGBB**

- Radial clearance : C3 (Larger than normal clearance)
- Metal cage

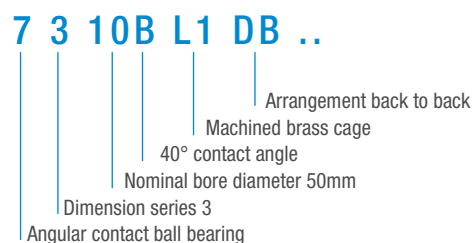
DGBB DESIGNATION (example)



ANGULAR CONTACT BALL BEARING **ACBB**

- 40° contact angle (For axial load)
- Arrangement: back to back
- Machined brass cage

ACBB DESIGNATION (example)



LONGER LIFE (TMB / TAB BEARINGS)

NTN-SNR RECOMMENDATION

Bearing dimensions are the same as those of standard deep groove ball bearings, but the bearings have special heat treatment that considerably extends life. These bearings are especially effective in countering short life due to the effects of infiltration by dust and other foreign matter.

P/NS FOR EXAMPLE : **6206 / TMB206 / TAB206**

Features are as follows:

- Load rating and speed limit are the same as standard bearings.
- TMB 62 series bearings used instead of standard 63 series bearings enabling lighter, more compact designs.
- **TAB bearings have a 5x longer life in polluted oil compared to standard bearings and 2x longer than TMB bearings.**

CONTAMINATED LUBRICATION >> **TMB**

CONTAMINATED LUBRICATION AND PEELING* >> **TAB**



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