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, i.e., by increasing the number and the size of rollers
- Controlled internal geometry by roller/rib contact optimization

TRB APPLICATIONS
- Top drive
- Swivel
- Mud pumps

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
- 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
- Rotary table
- Draw works
- 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.

TRTB APPLICATIONS
- Top drive
- Swivel & rotary table
- Draw works
- Mud pump

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
- Draw works

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
- Top drive
- Swivel & rotary table
- Draw works
- Mud pump

CROWN BLOCK & SHEAVE
Bore diameter | NTN-Bower part# |
--- | --- |
4.25” | NA5642SW/S665ODH01 |
5.625” | NA4868SSW/S4862ODH01 |
6.5” | NA4679SW/S4672ODH01 |
7.5” | NA4578SSW/S4572ODH01 |
8” | LM241149NW/LM2419#01 |
10” | LM249747NW/LM249#01 |
10.5” | LM251649NW/LM251#01 |
12” | L357049NW/L35701#01 |

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

With You
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
- over 25000h (Continuous operations)
- 16000h (Maximum radial and axial loads and rated speed)

**ROTATION**
\[
dm < 500,000 \\
\text{dm } \left( \frac{\text{bore diameter + Outer diameter}}{2} \right) \times N \left( \text{min}^{-1} \right) \text{Rotational speed}
\]

**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)
6 3 08 ZZ C3 / 5K
- Grease
- Radial clearance : C3
- Shielded (both sides)
- Nominal bore diameter 40mm
- Dimension series 3
- Deep groove ball bearing

**ANGULAR CONTACT BALL BEARING ACBB**
- 40° contact angle (For axial load)
- Arrangement: back to back
- Machined brass cage

**ACBB DESIGNATION** (example)
7 3 10B L1 DB ...
- Arrangement back to back
- Machined brass cage
- 40° contact angle
- Nominal bore diameter 50mm
- Dimension series 3
- Angular contact ball bearing
**DOWNSTREAM**

Pumps and compressors are typical applications from the refining stage. Bearings used correspond to specific standards.

**BEARINGS FOR AIR COMPRESSORS**

Angular contact ball bearings arrangement or Angular contact ball bearing and cylindrical roller bearing arrangement

---

**THE BEARING SPECIFICATION FOR SCREW COMPRESSOR**

<table>
<thead>
<tr>
<th>Used place</th>
<th>Discharge side (Fixed)</th>
<th>Intake side (Floating)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bearing type</td>
<td>Angular contact ball bearing</td>
<td>Cylindrical roller bearing</td>
</tr>
<tr>
<td>Example of bearing number</td>
<td>7304BT2PXn (ID 20mm)</td>
<td>NF2304ET2XCSnPXn (ID 20mm)</td>
</tr>
<tr>
<td>Precision class of JIS(*)</td>
<td>0-class</td>
<td>0-class</td>
</tr>
<tr>
<td>Contact degree</td>
<td>40-degree</td>
<td>-</td>
</tr>
<tr>
<td>Lubrication</td>
<td>Circulating oiling</td>
<td>Circulating oiling</td>
</tr>
<tr>
<td>Clearance</td>
<td>-</td>
<td>Special</td>
</tr>
<tr>
<td>Another specialty</td>
<td>Control of side face height difference of inner and outer ring</td>
<td>Control of side face height difference of inner and outer ring</td>
</tr>
</tbody>
</table>

* Japanese industrial standards
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

* Peeling