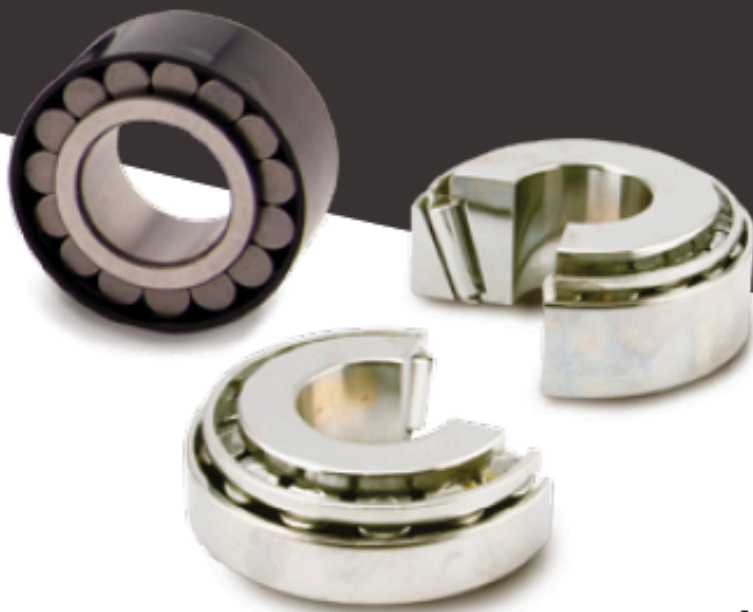


Koyo



Agriculture and Construction



JTEKT
Koyo | TOYODA

Koyo for Agriculture and Construction Industry

"...providing maximum value to our customers in harsh conditions..."

Introduction

The market of Agricultural and Construction machines has been characterised by very dynamic growth in the past several decades. Steadily increasing world population brings about considerable food and forage demand increase. Alongside with that, new constructions and infrastructures are required to keep pace with the economic growth in developing countries.

The increase of the demand calls for higher performance and better efficiency of the machine components.

JTEKT serves the Agriculture and Construction market with a wide variety of products, combining technological advancement with optimum performance.

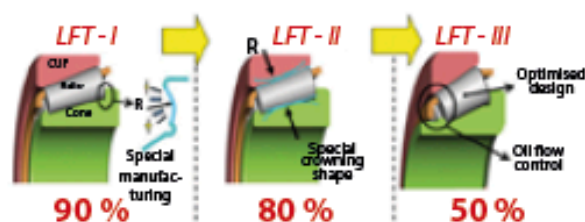
Product line up

LFT Bearings

- ✓ Fuel consumption saving
- ✓ Tapered Roller Bearings

Low Friction Torque contributes to the improvement of fuel consumption and the reduction of CO2 emissions.

JTEKT has succeeded in the practical application of low friction torque bearings, characterised by 40% to 50% less friction torque than that of the conventional low friction torque tapered roller bearing (LFT II) in automobile differential pinion. New bearing (LFT III) has achieved lower friction torque with an optimised internal geometry and lubricating oil inflow control.



	Application (mainly for automotive)			Remarks
	Transmission	Axle	Wheel	
LFT - I	++	++	++	Production
LFT - II	+++	+++	++	Production
LFT - III	+++ (partly)	+++	-	Production

KE Bearings

- ✓ Longer life
- ✓ Down Sizing Weight Saving
- ✓ Tapered Roller Bearings

Koyo Extra-LIFE Bearings (KE) have been developed using our unique heat treatment technology combining two key elements:

- 1) optimisation of the retained austenite
- 2) assuring high hardness of the raceway surface

Although these two characteristics are renowned for being very challenging to combine, JTEKT succeeded and commercialised these products. KE bearings have proven to meet the expectations for longer life and down sizing; even in tests in contaminated oil conditions KE bearings achieved 10 times longer life compared to standard product.



DLC Coating

- ✓ Longer life
- ✓ Tapered Roller Bearings

DLC coating can be applied on rollers whenever the bearings are expected to be used in minute vibration and oscillation conditions. Excellent anti-wear and low friction characteristics of DLC coating ensure not only longer bearing life, but also diminish the impact on the neighbouring components.

High Temperature Plastic Cage

- ✓ Longer life
- ✓ Weight Saving
- ✓ Cylindrical Roller Bearings
- ✓ Needle Roller Bearings

JTEKT developed Cylindrical and Needle Roller Bearings as well as cage & roller assemblies with high temperature plastic cage. Optimised cage design considerably improves bearing performance in high speed rotation conditions, at the same time increasing strength and reliability. Additionally, it contributes to machine weight reduction.

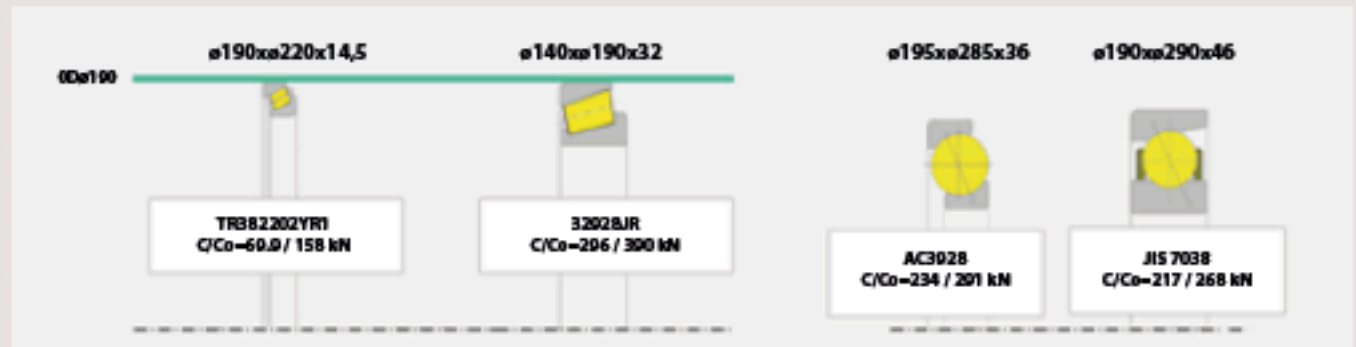


Thin Section Bearings

✓ Space Saving

✓ Tapered Roller Bearings
✓ Angular Contact Ball Bearings

JTEKT Ultra Thin section tapered roller bearings ensure efficient space usage, resulting in a widening of the inside space as compared to standard tapered roller bearings with the same outer diameter. Nylon spacer type thin section Angular Contact Ball bearings guarantee not only space saving, but also an increase in the load rating.



Preset/Unit Bearings

✓ Easy Mounting

✓ Tapered Roller Bearings
✓ Ball Bearings

JTEKT Preset Tapered Roller Bearings help reduce the work time needed for bearing assembly. The snap-ring design makes positioning easier. Furthermore, it makes Preload/End Play adjustments at the assembly process redundant. Additionally, JTEKT's portfolio includes unit type Ball Bearings and Tapered Roller Bearings.

The application of such bearings makes it possible to eliminate processes such as
1) clearance adjustment, 2) grease filling, 3) preparing seal sliding surface.

✓ LFT Bearings
✓ Fan drive cooling system

✓ High performance Dust prevent seal
✓ Preset / Unit Bearings
✓ Distribution
✓ RN design bearings



✓ KE Bearings
✓ DLC Coating
✓ High temperature Plastic cage

✓ Thin section Bearings
✓ Needle Roller Bearings
✓ Micro power pack
✓ Cage and Roller assembly
✓ Full complement roller set

High Performance Dust Prevention Seal

✓ Easy Maintenance
✓ Longer Life

✓ Ball Bearings

JTEKT developed high performance dust prevention seal with an innovative structure, specially designed for attachment wheels for Tractors. Optimized labyrinth and double lip design assure high sealing performance and powerful spring protection from gravels. Those enhancements have resulted in considerable bearing life improvement even under severe running conditions. Likewise, the required maintenance intervals have been increased, in line with the end-users expectations.



RN-Design bearings

✓ Easy Mounting
✓ Customised solution

✓ Cylindrical Roller Bearings
✓ Needle Roller Bearings

JTEKT can offer RN-Design bearings specially developed for planetary applications. They come in a variety of customised versions, such as:

1) 1 row/2 row design 2) with or without border 3) washer, spring ring, black oxide rollers,

JTEKT is capable of adjusting the design to fit the customer's needs, which makes mounting and positioning easier, at the same time improving the performance of the machine.



Cage and Roller Assemblies

- ✓ Space saving
- ✓ High speed

Cage and Roller assemblies can carry maximum load within the minimum cross section. JTEKT Special manufacturing processes help increase roller fatigue resistance and minimize axial drift effects in critical applications. JTEKT advanced cage development ensures optimized cage designs which combine increased loading capacity with high speed performance.



Full complement Roller sets

- ✓ Easy Mounting
- ✓ Space saving
- ✓ Needle Rollers
- ✓ Cylindrical Rollers

Combination of roller quantity, diameter and length make a wide variety of types. JTEKT supplies customised roller sets in line with the customer's needs, as well as special card board/plastic sleeves. The latter make mounting much faster and easier.

Drive shafts

A drive shaft acts as an intermediary between a driving shaft and a driven shaft that are not aligned on the same axis. Its primary task is to smoothly transfer the running torque. JTEKT drive shaft is characterised by high performance and high reliability which are a corollary of our rich experience in the market and high technology in design and production.

Our ambition is to satisfy market requirements especially by ensuring greater power output at higher efficiency, and providing solutions designed for limited space.



JTEKT HPI Products : Hydraulic Motors/Pumps



Since 1966 JTEKT HPI has specialised in the design and production of hydraulic systems based on the technology of external gear pumps. Skills and knowledge in electro mechanics and electronic engineering enable us to propose complex electro-hydraulic systems.

- ✓ High performance products
- ✓ A modular design
- ✓ Systems incorporating many electronically controlled functions
- ✓ Customised solutions

JTEKT HPI offers optimised solutions with the best performance, making an in depth analysis of the customers' specific needs. Direct, customised and easy integration for all your hydraulics applications.



- ✓ Easy Mounting
- ✓ Easy integration
- ✓ Hydraulic Distribution



- ✓ Space saving
- ✓ High duty
- ✓ Micro Power Packs

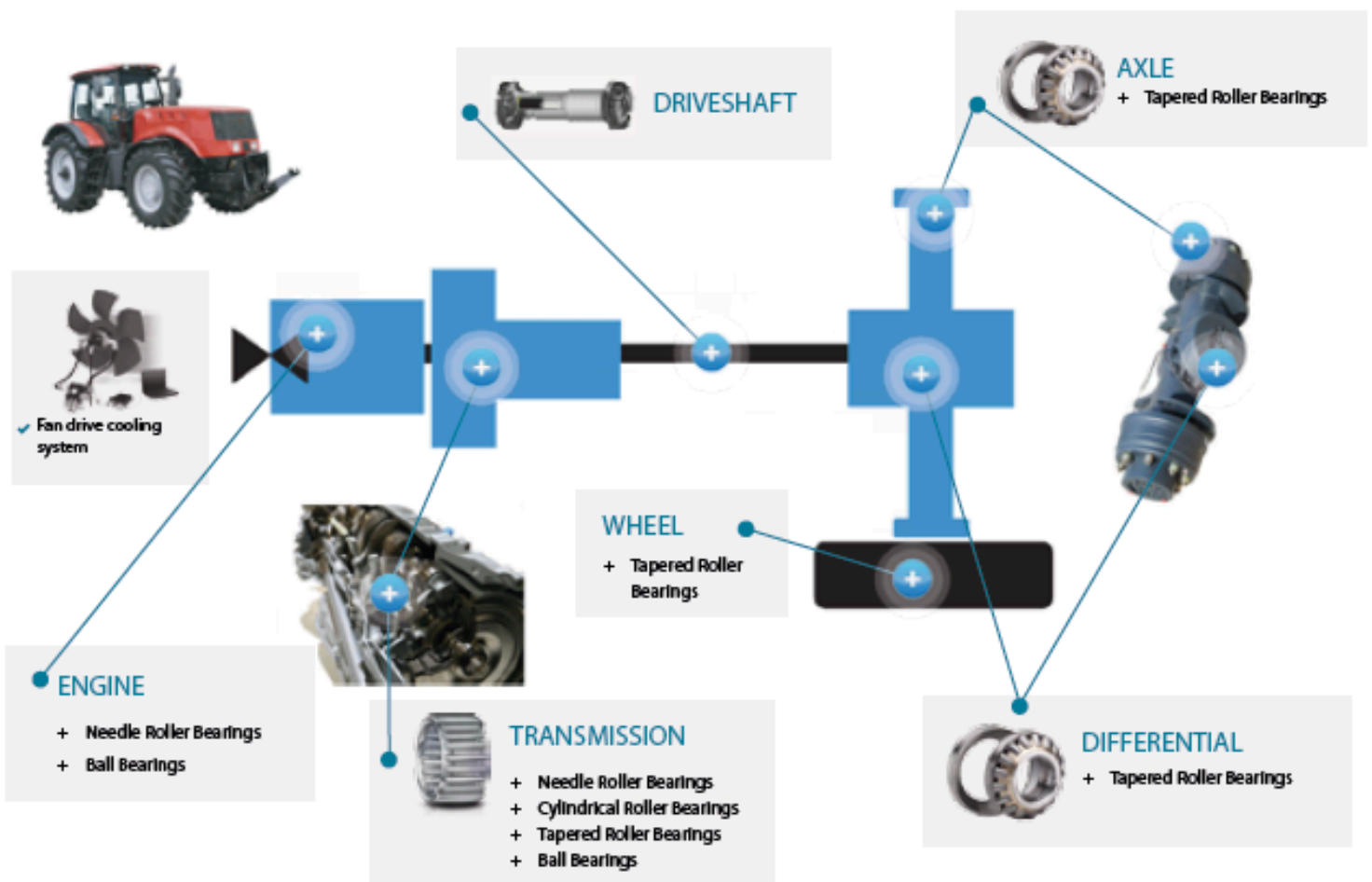
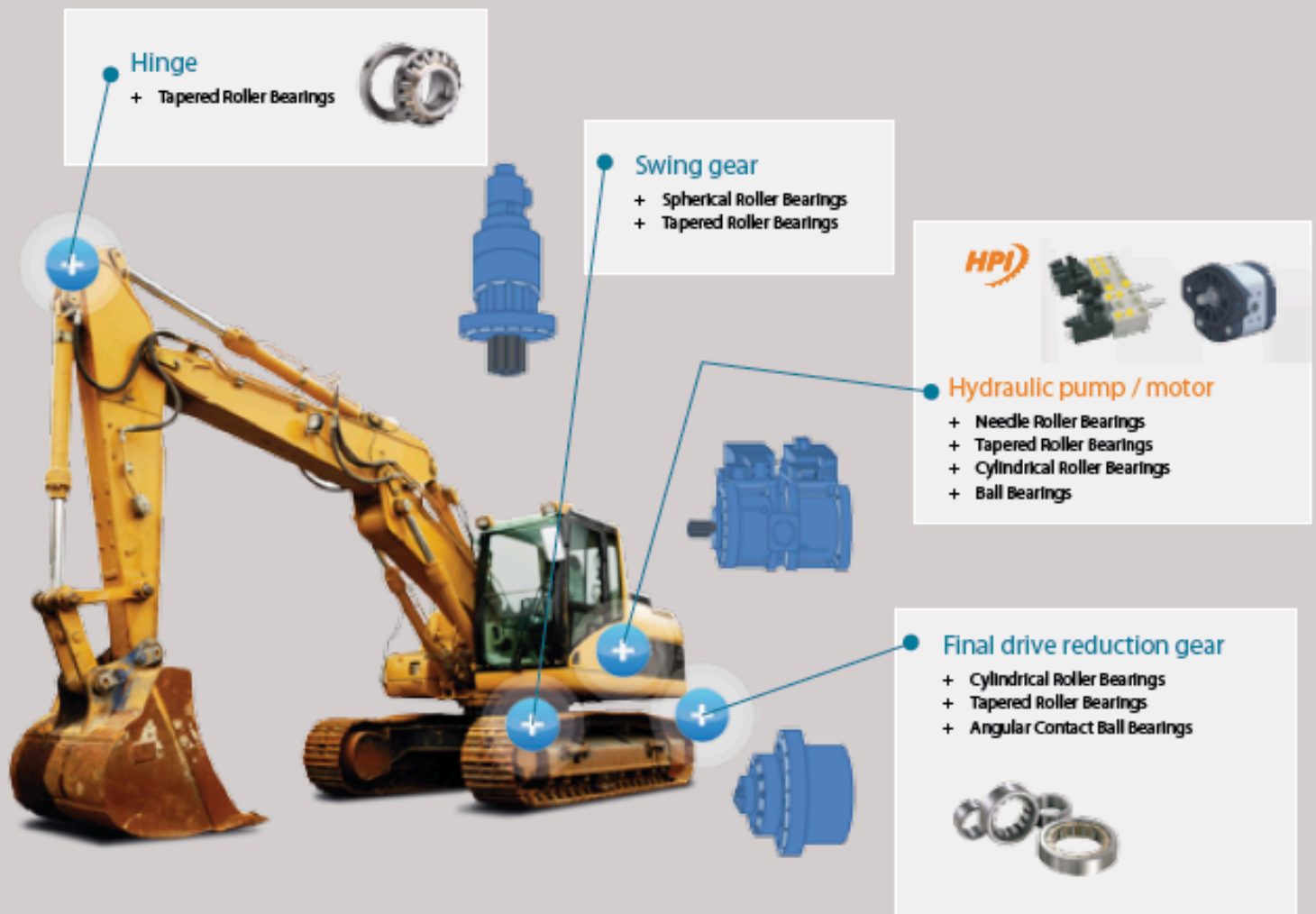


- ✓ Space saving
- ✓ High duty
- ✓ Hydraulic Pumps



- ✓ Fuel consumption saving
- ✓ Fan drive cooling system

Main Applications



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