

## Schaeffler Global Technology Solutions

### Motorcycles & Small Combustion Engines

Honda Motor Co. Ltd., Japan

### FAG Wheel Bearing Improves Efficiency and Motorcycle's Life Cycle Cost

#### Challenge for Schaeffler

Motorcycles are the predominant means of transport in emerging markets such as South East Asia and India for both urban and interurban mobility. Road conditions and the environment are challenging in such areas. This means that the bearings are often exposed to severe contamination and water. All this can result in early bearing failures and shorter service intervals, which means higher cost of ownership for the end user. For this reason Honda was looking for a bearing whose properties were optimized for these harsh operating conditions.

#### Schaeffler Solution

Schaeffler presented a new robust FAG Generation C wheel bearing (deep groove ball bearing) for motorcycles. This combines several important features: Less friction, longer lifetime and protection against ingress of contamination while retaining as much grease as possible in the bearing. The bearing has lip seals on both sides specially developed for applications with a rotating outer ring. An additional feature of this bearing is the superior seal design. The ingress of contamination and water into the bearing is hindered by adding projecting edges at the right points on the outer side and making the gap between the inner ring and the seal lip as narrow as possible. The recess on the inner ring and the geometry of the seal lip leads to an effective labyrinth which prevents dust and contamination from entering the bearing. Last but not least, this FAG Generation C bearing has a newly designed grease guard on the inner side of the seal which reliably ensures that the high quality grease remains in the bearing.



#### Technical Information about the Market

##### Focus market:

Scooters and motorcycles in India and South East Asia

##### Market segment:

Displacement class less than 150 cc





Schaeffler supplies bearings and system solutions for motorcycles



High energy efficiency due to robust wheel bearing with lip seals



30 % less friction –FAG wheel bearing with Efficient Lip Seal (ELS)

## Customer Benefit

By using FAG Generation C bearings, Honda was able to realize substantial energy efficiency improvements. Especially at higher rotating speeds, the frictional torque is reduced, leading to improved fuel efficiency of motorcycles. A further vital characteristic of the new wheel bearing is its interchangeability with standard types with respect to the required installation space. During the project, Schaeffler also made specific adaptations in response to Honda needs. As a result, more than two million Honda motorcycles and scooters worldwide, especially in South East Asia and Europe, have now been equipped with a wheel bearing solution of FAG Generation C.

Advantages at a glance:

Friction:	30 % less friction compared to standard deep groove ball bearings
Reduced fuel consumption:	<ul style="list-style-type: none"> <li>• Reduced CO2 emissions</li> <li>• Reduced cost for end users</li> </ul>
Improved sealing action:	Verifiable reduction in both the ingress of contamination and moisture and the egress of grease
Improved lubrication:	Reduced maintenance outlay and operating costs

**100 % customer satisfaction on manufacturer and end-user side**

Honda also uses reduced friction deep groove ball bearing technology in many other applications such as engine and transmission in order to contribute to energy efficiency improvements.

## What's special

Compared to competitor products, the performance parameters of the FAG Generation C deep groove ball bearings for motorcycles are at the top of the range. Schaeffler achieves this high quality standard by the optimum combination of high grade materials with its outstanding engineering competence. This wheel bearing is the result of the close cooperation between Schaeffler Germany, Schaeffler Japan and Honda Japan.

## Technical Information about the Solution

### FAG wheel bearing used:

FAG deep groove ball bearing Generation C

### Types available:

- 6201-C-ELS-TVH-L100-FX
- 6301-C-ELS-TVH-L100-FX
- 6201-C-2ELS-TVH-L100-FX
- 6203-C-ELS-TVH-L100-FX
- 6004-C-2ELS-TVH-L100-FX
- 6204-C-2ELS-TVH-L100-FX

### Features:

- Water resistant
- Dirt resistance
- Keeps the grease in the bearing
- Less friction