

## **SKF introduces new Energy Efficient bearings and further steps to help reduce the world's energy consumption**

SKF has developed a new bearing family that reduces energy consumption by at least 30% compared to standard ISO products. The new family will be initially introduced for two types of bearings, deep groove ball bearings and tapered roller bearings, which are the most used bearing types in the world.

In addition, the company has developed a web-based application that can support a significant reduction in energy consumption and cost savings for process plants and manufacturing industries.

Further steps to reduce energy consumption for customers include the use of other SKF knowledge and technology in a wide range of applications from welding robots to automatic throttle control units for business jets.

And, within its own factories SKF has undertaken a series of activities to continually save energy.

"With these innovations we will be able to support industry in making a significant contribution to energy savings today and in the future", says Tom Johnstone, President and CEO of SKF.

"The United Nations reported a couple of weeks ago about the world climate that shows we have a problem. There are many views and discussions on the subject. However each of us has to make their own contribution and this is the start of our contribution. We have developed and can offer technical solutions that can significantly reduce energy consumption", Mr Johnstone says. "In addition we are addressing our own energy consumption to reduce this and to reduce CO2 emissions."

"Two years ago at the Annual General Meeting SKF launched its BeyondZero™ initiative. In short this means that the energy savings from the products and solutions that SKF supplies to its customers will be greater than the SKF Group's own energy consumption. It means more than being energy neutral – it means being energy positive. These new innovations launched today will contribute to us achieving our BeyondZero™ target."

## **SKF Energy Efficient bearings**

This new family of bearings reduce energy consumption by at least 30% and have the same service life as ISO rated products. Their lower friction generates lower operating temperatures that will improve lubrication conditions and contribute to long life.

The two new bearing types that are now introduced are the result of some years of very focused research and development to find a design that would substantially reduce the energy consumption while performing according to ISO standards. The SKF Group's advanced research centres and laboratories have been deeply involved together with the company's manufacturing centres.

The technical improvements that deliver the energy savings are design related and a combination of surface topography, raceway profiles, optimised internal geometry, a special polymer cage, lower friction grease and in the case of the tapered roller bearing also an optimised set of rollers.

The Energy Efficient family of tapered roller bearings will deliver energy savings on average of at least 30% and SKF will initially focus on industrial segments where applications exceed 1 MW power consumption. Such applications are in railway and transmissions in heavy industry, ships, wind energy, conveyors and extruders. First applications are expected to be in wind turbines.

An excellent example of the saving potential of these bearings is the wind turbines operating in the world at the end of 2006. If all bearings in the gearbox of all these turbines could be replaced by SKF's Energy Efficient tapered roller bearings they would generate an estimated extra 770 million kWh per year. That is equivalent to the total energy consumption of 1 million Swedish households for one month.

The Energy Efficient family of deep groove ball bearings will also deliver energy savings of at least 30%. Deep groove ball bearings are mainly used in lightly loaded applications and the first applications will be industrial electrical motors driving machinery in many segments.

An example of the saving potential of these bearings is the energy consumption in industrial motor driven systems in USA and European Union. If these motors used SKF Energy Efficient deep groove ball bearings the estimated savings would be 2,460 million kWh per year. This is equivalent to the total energy consumption of over 3 million Swedish households for one month.

## **SKF energy efficient solutions**

SKF has focused for many years on developing products and solutions that help customers to reduce their energy consumption, and thus also their costs.

Some examples are:

\* More than 90% reduction in energy consumption was achieved in welding robots when SKF replaced pneumatic actuators with compact SKF electromechanical actuators as the enabling technology for welding tongs in automotive plants in Germany. With over 300 robots in a typical production line, making 4 million welding points per year, the total savings are very large.

These electromechanical actuators can also be used in other robotic applications in industries like Automotive, Aerospace, Semiconductors, Metalworking, Food and Beverage and many other industrial segments.

\* One million litres of fuel can be saved per business jet lifetime with the SKF Automatic Throttle Control units. The Group has developed ATC units for business jets that allow a saving of 100 litres of fuel per flight hour, which is equivalent to one million litres over the lifetime of the jet.

The auto throttle takes over some pilot functions like thrust, rate of climb and speed during flight, adjusting as necessary to the reduced weight due to fuel burn off. Computerised automatic control is more fuel efficient than human piloting and the typical reduction in fuel using SKF ATC units is 5% per flight.

The SKF ATC units are FAA approved and installed on two lines of business jets.

### **"Client Energy and Environment Analysis Application" (CEEAA).**

SKF has developed a web-based application that can support a significant reduction in energy consumption and save costs for process plants and manufacturing industries. The application is called "Client Energy and Environment Analysis Application" (CEEAA).

The CEEA establishes an "opportunity map" of the potential energy savings and identifies those likely to give greatest savings as a function of percentage saved, payback period and cost.

Even small percentage energy savings per 'machine' can deliver huge cost savings on common equipment like motors, pumps, fans, compressors etc when considering the effect across the whole plant. For example; in a typical oil refinery there would be more than 1,000 pumps, and savings per pump could be up to 20%.

## **Reducing energy within SKF manufacturing**

SKF is also continuously working with a number of programmes to reduce the energy consumption within its own facilities. These programmes cover everything from changing windows, improving insulation, detecting leaks of compressed air in piping systems, more efficient heating and ventilation, to new technologies for heat treatment and grinding, changing to green energy - in the Göteborg factory carbon dioxide emissions were reduced by 60% - change to energy efficient pumps and motors, reduced use of compressed air, intelligent machine control etc. In 2005 SKF launched a target to reduce our CO2 emissions by 5% per annum. In 2005 the reduction was 7% and in 2006 the reduction was over 5%.

## **SKF working closely with Universities to address energy issues**

Since a number of years SKF has been working together with MIT, Massachusetts Institute of Technology, to define new models to evaluate and measure the energy use of systems in order to improve the energy efficiency and develop new solutions. One example is the design of bearings where we evaluate the energy impact of any change in design along the life cycle; during manufacturing, in use and in the recycle stages.

SKF is also working closely with the School of Business, Economics and Law at Göteborg University and Chalmers University of Technology, to support 3 PhD's on Sustainability; two of which are focusing on BeyondZero™ and one of which is focusing on Corporate Social Responsibility. These projects form part of SKF's initiative to take a leading role and to seek broad engagement in finding solutions to the long term challenges of Sustainability.

Göteborg, 16 February 2007

Aktiebolaget SKF  
(publ)

For further information, please contact:

Lars G Malmer, SKF Group Communication, tel. +46 (0)31 337 1541, e-mail: [Lars.G.Malmer@skf.com](mailto:Lars.G.Malmer@skf.com)

Colin Roberts, SKF R&D Co. B.V., tel +31 653 944 111, e-mail: [colin.roberts@skf.com](mailto:colin.roberts@skf.com)

**Aktiebolaget SKF**

SE-415 50 Göteborg, Sweden

Tel +46-31-337 10 00 Fax +46-31-337 28 32 [www.skf.com](http://www.skf.com)