

## CARB contributes to high power density in mobile hydraulic pumps

### The customer

Bosch Rexroth AG situated in Germany, a member of the Bosch Group, is a leading supplier of industrial motion and control components and services. Compact size and high power density, economy and reliability are characteristic advantages for their hydrostatic transmissions, together with the fact that the products meet the demand for high speed and high torque, as well as optimum efficiency.

### The application

The latest generation Rexroth variable displacement axial piston pumps is suitable for various branches. Low weight and high power density is particularly important for mobile equipment pumps, and therefore the casing is made of aluminium alloy.

The Rexroth axial piston pumps are designed for demanding applications and easy control of working equipment, e.g. HGV loading cranes, generator drives, compressor drives, drives for air conditioning systems, fan drives, etc.



*With weight and size efficient hydraulics, the productivity increases*

### Operating conditions

Bearing:	C 2207 TN9/C3
Bearing housing:	Aluminium
Speed:	Up to 2500 r/min
Lubrication:	Completely immersed in oil

The rated power per weight unit for the Rexroth variable displacement axial piston pump series is presently unmatched on the mobile hydraulic pump market.

*The solution? Please turn over!*

### CARB advantages

- Cost efficiency by letting the bearing “absorb” deformations instead of spending resources on stiffening of the design
- High power density design of the pump possible due to high real radial load carrying capacity, reducing the build-in space needed
- Lightweight design since the bearing accommodates deflections, which means reduced fuel consumption and increased payload for the vehicle

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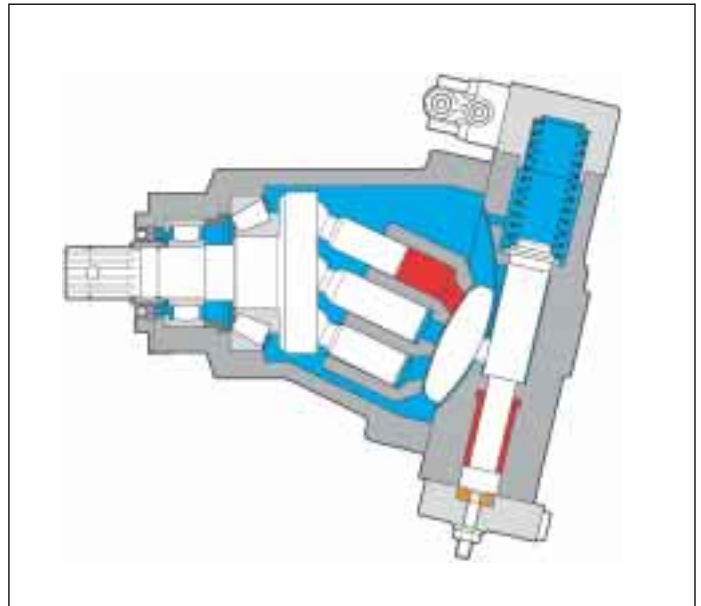
### The solution

Conventionally, the bearing arrangement consists of a taper roller bearing for taking the thrust load and a cylindrical roller bearing close to the drive-end of the shaft.

However, analysis showed that the cylindrical roller bearing would be exposed to misalignment, due to unavoidable deflections, which could shorten the bearing life.

Instead of a cylindrical roller bearing, the SKF CARB toroidal roller bearing was therefore chosen. This bearing is self-aligning and allows misalignment between shaft and housing without any reduction of the bearing life.

The field experience with the new bearing arrangement is very good and the pump unit meets the requirement of a long life set by Bosch Rexroth AG.



*CARB drive-end bearing in the Rexroth axial piston pump*



*The Rexroth axial piston series pump*