

*Accurate steering action with CARB in steering cylinder*

## CARB contributes to truly maintenance-free, green construction machinery

*Volvo Articulated Haulers, part of the Volvo Construction Equipment Group, Sweden, has recently released a new model of heavy haulers for the mining and earthmoving industries. Two priorities for the new technologies implemented were that the machines should require the absolute minimum amount of servicing by the operator, and that the impact on the environment should be as small as possible.*

A perfect example in the new A35 hauler is the rod end bearing solution on the two hydraulic cylinders which are part of the steering mechanism. The cylinders, one mounted on either side of the central pivot joint, swing the front tractor unit and the separate rear trailer about the pivot by synchronised extension and retraction. The rod end bearings are fully sealed and lubricated for life CARB® toroidal roller bearings from SKF.

### Proof of performance

Volvo subjected the rod-end bearing to an extensive and rigorous testing programme, both in the laboratory and in long-term field service. The low-section, self-aligning roller bearing proved capable of withstanding the very high shock loads in combination with

small oscillating movements and deflections which prove so destructive for conventional plain bushings in such applications. The many long, small diameter rollers are fully surrounded by high quality grease, and only need to rotate through a very small angle in order for the load-carrying contact to take place between many freshly lubricated surfaces, so the wear rate is negligible. This is in contrast to plain bearings, where the load is distributed on one very large sliding surface, which makes it extremely difficult to provide adequate, long-lasting lubrication where it is needed.





*With truly maintenance-free solutions, the productivity increases.  
A35-hauler during night time operation*

#### Application conditions

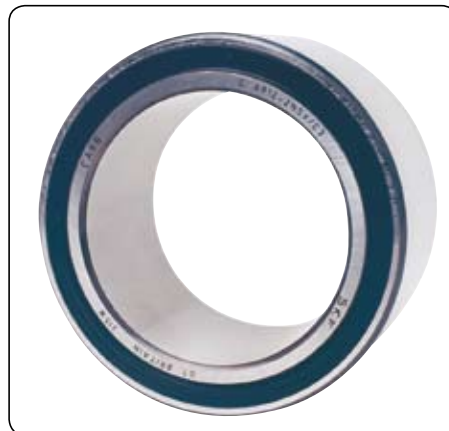
Bearing:	C 6912-2NSV
Speed:	Slow oscillation
Temperature:	Ambient -20 to +40 °C
Load:	Up to bearing static capacity, $C_0$
Lubrication:	Greased for life
Environment:	Very dirty and wet, earthmoving conditions

#### CARB advantages

- No relubrication of the unit is needed, which means not only reduced labour costs but also no risk of the lubrication being inadequate or missed altogether (particularly in hard-to-access positions)
- No grease escapes from the bearing, giving absolutely no adverse impact on the environment
- The radial clearance in the bearing is very small, and does not increase over the life of the machine, so the accuracy of the steering motion is assured
- Bearing friction is low compared with traditional plain bushings



*CARB in the steering cylinder rod end*



*Low section sealed-for-life CARB used in truly maintenance-free applications*

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