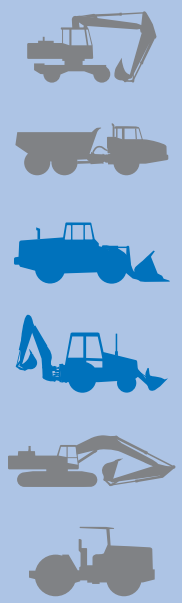
Customer reference case

Off-road vehicles

Axle pivot joint

SKF filament wound bushings
and PAK wiper seals



Maintenance-free solutions stand up under off-road conditions

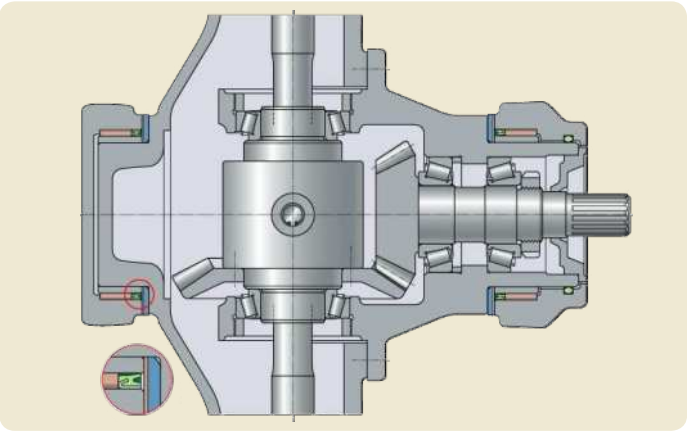
Like their counterparts on the road, off-road vehicles used in the construction, agricultural, and forestry industries are becoming more maintenance-free. With advances in material science and product development that were inspired in part by car and truck manufacturers, OEMs are able to employ maintenance-free solutions that will withstand the severe operating conditions that off-road vehicles must endure.

One example of a ready-made, maintenance-free solution is currently in use on the axle pivot joint found on vehicles like tractors and backhoes.

The axle pivot joint enables the axle to pivot, and keep all 4 wheels on the ground when the terrain is uneven. This application, which is low to the ground, is constantly exposed to water and abrasive contaminants like dirt and sand. In addition, it must be able to withstand shock loads up to 3,5 g.

The steel or bronze bushings once used on either side of the pivot joint needed constant re-lubrication as a result of grease wash-out and the ingress of dirt. Due to the location of the joint and grease fittings, this maintenance task was time consuming and difficult. If maintenance was neglected, the bushings would fail prematurely.

OEMs wanted a more robust solution that would meet future environmental standards. Endusers wanted a reliable, maintenance-free solution.



Axle pivot joint in a tractor

About the solution

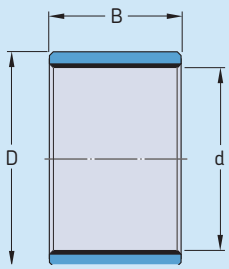
Years ago, when off-road OEMs first started looking for maintenance-free axle pivot solutions, there was nothing available that could withstand the severe operating conditions. Today, however, SKF has a "hybrid" bushing that consists of a filament wound body with an inner layer of polymer and PTFE fibers and outer layers of glass fibres.

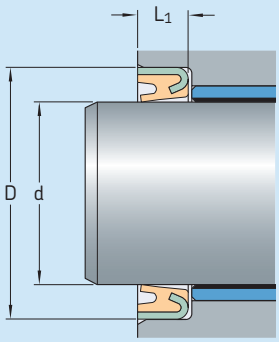
Features
- ✓ High wear-resistance
- ✓ Accommodates up to 2° of misalignment
- ✓ Protects the shaft against corrosion
- ✓ Highly reliable, proven solution
- ✓ Good impact resistance

OEM benefits
- ✓ Exceeds existing environmental standards
- ✓ Eliminates warranty claims caused by lack of lubrication
- ✓ Reduces development time by using a proven, complete solution
- ✓ Reduces costs by eliminating lubricant and fittings
- ✓ Improves safety for machine operators/ maintenance personnel
- ✓ Improves sustainability

End user benefits
- ✓ Reduces operating costs
- ✓ Reduces maintenance costs
- ✓ Improves reliability and machine uptime
- ✓ Avoids ground contamination

Filament wound bushings with matching seals





Bushing			Designation	Seal			Designation
d	D	B		d	D	L_1	
mm			–	mm			–
30	36	20, 30 or 40	**PWM 3036..**	30	40	4,5	**CR PAK 30×40×4.5 -L**
35	41	30, 40 or 50	**PWM 3541..**	35	45	4,5	**CR PAK 33×45×4.5 -L**
40	48	30, 40 or 60	**PWM 4048..**	40	50	4,5	**CR PAK 40×50×4.5 -L**
45	53	30, 40 or 60	**PWM 4553..**	45	55	5	**CR PAK 45×55×5 -L**
50	58	40, 50 or 60	**PWM 5058..**	50	60	7	**CR PAK 50×60×7 -L**
55	63	40, 50 or 70	**PWM 5563..**	55	65	7	**CR PAK 55×65×7 -L**
60	70	40, 60 or 80	**PWM 6070..**	60	70	7	**CR PAK 60×70×7 -L**
65	75	50, 60 or 80	**PWM 6575..**	65	75	7	**CR PAK 65×75×7 -L**
70	80	50, 70 or 90	**PWM 7080..**	70	80	7	**CR PAK 70×80×7 -L**

More information about PWM bushings can be found in publication 6242 and about the PAK wiper seals in publication 5397. PWM bushings with other widths or wall thicknesses are available on request.

The combination of the complex fiber-winding technique, and materials used to make an SKF filament wound bushing is what gives this product its high performance characteristics. It combines the unique mechanical properties and high strength of glass fibers with the outstanding tribological properties of PTFE. The result is a compact, light weight, corrosion resistant bushing that is insensitive to edge loading. It can also accommodate high loads, vibration and misalignment.

The unique configuration of the seal's lip and sheet steel backing also contributes significantly to the success of this bushing. The SKF PAK wiper seal, which was designed for maximum service life under extreme conditions, protects the shaft against corrosion and the bushing from contaminants.

Visit us on the web at **www.skf.com**

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