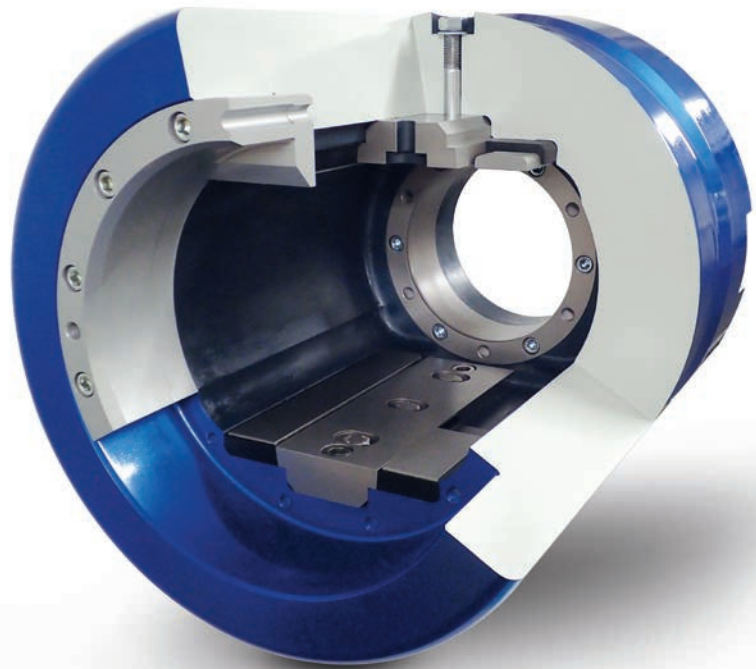


Intelligent Wear Protection The Voith FlexPad



Benefits

- + Lifetime of REH several times longer compared to conventional design
- + Failure-free operation due to avoidance of highly loaded bolt connections
- + No expensive rework of REH hub
- + Reduction of operating costs
- + Reduction of dynamic effects in the whole driveline

The Voith FlexPad Roll End Hub (REH) design greatly increases hub body operational life through a significant reduction in wear.

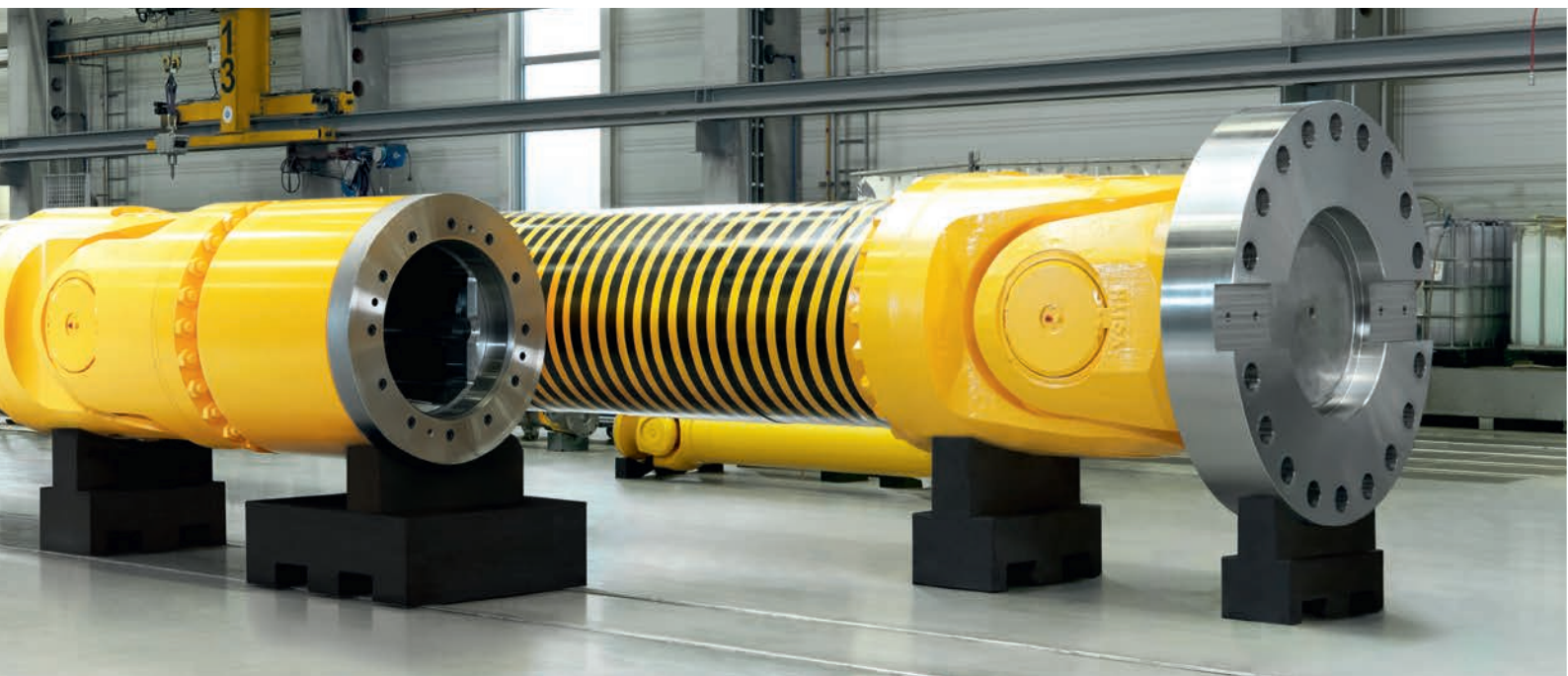
Resolving issues with smarter design:

In steel mills work rolls are changed regularly. This requires some clearance between roll end hubs (REH) and work roll ends. The clearance leads to wear and continuously growing play, and finally to expensive downtime and remachining of roll end hub bodies. Voith has solved this problem by eliminating all metal to metal contact in REH-bodies. With selective load application and load distribution wear is evenly transferred into the FlexPad wear plates that are replaced according to scheduled maintenance cycles. FlexPad wear plate attachment bolts are located in a low-stress area of the hub. Compared to conventional REHs FlexPad prevents unscheduled downtime due to bolt breakages.

Functional principle:

With conventional REHs clearance between REHs and work roll ends leads to line contact and thus (load concentration) on the REH body via wear plates, and resultingly causes heavy wear of the hub contact surface.

FlexPad REHs provide for area contact with roll necks via elastic flexibility of the FlexPads. The line contact is transformed into area contact and at a reduced force level. Thereby, the stress level on localized hot spots is significantly decreased. This prevents overloading of the hub and reduces wear.



Contact with roll necks is via FlexPad metal wear plates embedded in the roll end hub body. These have an elastic compound material bonded to the plates on all surfaces contacting the REH body. The compound fully functions in an elastic range and so guarantees constantly stable positioning of the wear plates during load variations. The clearance between the roll neck and the REH remains constantly very tight during mill operations.

FlexPad REH ensures safe operation in between scheduled service intervals and avoids unplanned downtime.

The highly costly REH body is protected from wear and the overall lifetime is increased many times. While conventional REHs must be disassembled from the roll stand for maintenance, FlexPad wear plates can be replaced very easily with the REH installed with the mill.

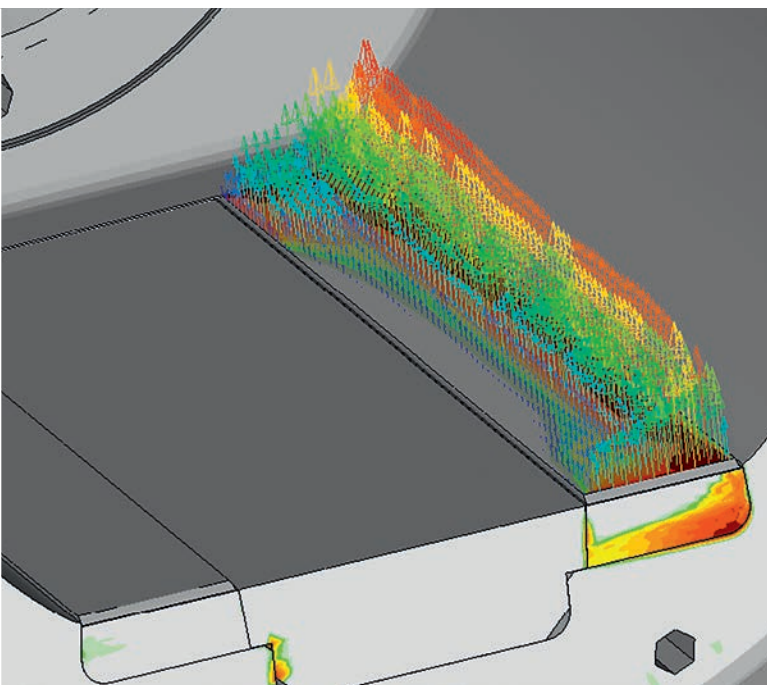
Considering the expenses of operating a roll neck-drive shaft connection (total cost of ownership), FlexPad REHs reduce costs by approximately 20 % (on average).

Design and maintenance features:

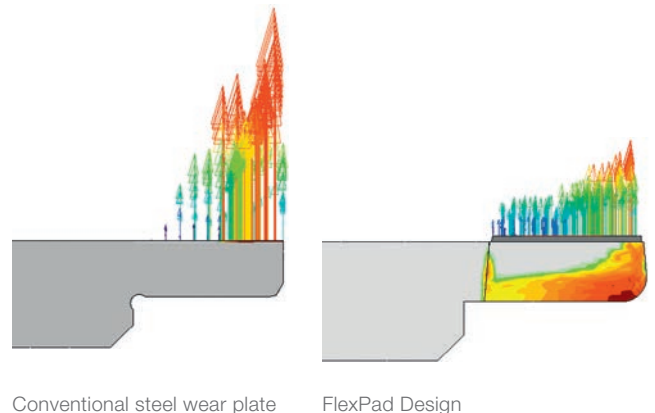
- **100 % compatible with existing mechanical interfaces**
- **Customized for any roll neck geometry**
- **Quick and easy exchange of FlexPad wear plates**
- **Wear plate replacement while FlexPad REH installed with the roll stand (no need to dismantle the REH)**

Benefits

- + **Lifetime of REH several times longer compared to conventional design**
 - + **Failure-free operation due to avoidance of highly loaded bolt connections**
 - + **No expensive rework on REH body**
 - + **Reduction of the operating costs**
 - + **Reduction of dynamic effects in the whole driveline due to dampening of the Flex-layer**
 - + **Constant low operating clearance**
-



Comparison of contact pressure distribution



Voith Group
St. Poeltener Str. 43
89522 Heidenheim
Germany

www.voith.com/ujs

Contact:
Phone +49 7321 37-8303
UJShafts@voith.com



VOITH