KREBS slurryMAX™ Pumps

- Less down time
- Lower power consumption
- Patented externally adjustable suction-side wear ring
Applications

- Mining and mineral processing
- SAG mill discharge recirculation
- Copper
- Iron-ore
- Gold
- Oil Sands
- Cyclone feed
- Tailings
- Mill discharge
- Sand and gravel
- Industrial processing
- Heavy-duty abrasive slurries

Suction Side Hydraulic Recirculation

Following the dramatic success of the millMAX™ metal slurry pump, FLSmidth Krebs has incorporated the patented features into a new slurryMAX™ rubber lined pump product range.

The patented feature has an externally adjustable wear ring that closes the suction side impeller clearance between the suction liner and the eye of the impeller. This clearance eliminates the problem conventional rubber lined pumps experience - that of pressure pulsations caused by the close proximity of the rotating raised expelling vanes to the suction liner, necessary to maintain flow, and subsequently generating heat in the liner and rubber devulcanization failure.

The ability to control the suction side clearance reduces the hydraulic recirculation and therefore contributes to maintaining the design flow over the life of the pump, increasing the life of the impeller.

The extra-thick rubber lining has rigid reinforcement to prevent collapse onto the rotating impeller under upset vacuum conditions.

Impellers are oversized in diameter and available in metal or elastomers.

High pressure casings are available for applications requiring multiple pumps in series.

Pump sizes are available from 3” (75mm) to 16” (400mm).
Severe-Duty Rubber Lined Pumps

Inherent Flaw in Rubber-Lined Pumps Designs

- Cannot run impeller in close tolerance to the suction liner.
- Pressure pulsations generated by the expeller vanes will generate heat in the rubber liner, resulting in devulcanization.
- To overcome premature liner failure, large clearances are required, resulting in recirculation, drop in flow and efficiency.

And the solution is...
**Reverse Taper Roller Bearing**

- Increases effective load span to improve life
- Eliminates major cause of bearing failure due to over greasing
- Centrifugal pumping action of taper rollers discharges grease to the outside, preventing ingress of slurry or over greasing of bearing

For typical tailings application requiring 400’ of head, slurryMAX™ can use two pumps compared to competitors three pumps. The first stage can use a centrifugal dry gland requiring only one pump with water flush...a major maintenance headache on multi-stage pumping.
Thick rubber liners increase operating life of wear parts

Steel reinforcing plates provides stability to rubber liners and prevents deflection under vacuum.

Large Clearance
- Increases suction liner wear life
- Reduced power consumption
- Allows pump to operate at higher speed and generate higher head without liner devulcanization.

Adjustable Wear Ring
- Adjusted while pump is running
- Takes up clearance at the impeller
- Reduces suction side recirculation
- Maintain design flow from performance curve.

Tight Clearance
- Steel pipe in suction liner prevents liner from collapsing under vacuum.
- Rib reinforced ductile iron casings.

Narrow Clearance
- Reduced height vanes and fixed clearance reduce slurry pressure at gland
- Increases centrifugal seal performance
- Reduces gland water pressure requirement for water flush seal
Rigid Steel Reinforcing Support For Liners to Prevent Collapsing Under Upset Vacuum Conditions

Suction Side Casing Liner

Replaceable Suction Liner

Adjustable Wear Ring
SPECIFICATIONS

Metal impeller is standard.

Design is suitable for molded rubber at a later date.

The casing is constructed of tough spheroidal graphite iron. Casing and suction inlet are lined with natural rubber.

Impeller and other wet-end components constructed of highly abrasion-resistant high-chrome white iron with a Brinell hardness of 680 to 720.

High-chrome impeller is resistant to “tramp” metals and is capable of higher tip speeds.

Tight clearance between wear ring and impeller reduces suction-side slurry recirculation by up to 95%. Pumps feature a patented, adjustable, suction-side, sealing system that features a wear ring that runs against the machined face of the impeller near the eye.

Wear ring can be adjusted up to eight times throughout the life of the wet-end parts and is adjusted while the pump is running.

Generous clearance between impeller and suction liner limit the cyclical wear of the rubber associated with the trapping of solids between the liner and the impeller.

Radial impeller vanes both “clear” solids and reduce pressure at suction-side clearance - reducing solids grinding and recirculation respectively.

Tight back liner clearance maximizes packing and shaft sleeve life - normally this clearance is opened up as impeller wears and needs adjusting.

Reverse taper roller bearings purge grease to the outside - preventing ingress of slurry and over-greasing of bearing cartridge.

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<th>PUMP SIZE</th>
<th>POWER FRAME</th>
<th>MAXIMUM HP/KW</th>
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<tr>
<td>16X14-42 HP</td>
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Metal Slurry Pumps

The primary applications for the Krebs Metal Slurry Pumps are mill discharge, crusher slurry, sand and aggregate or any coarse solids or other severe, abrasive slurries especially in the copper, gold, iron ore, lead-zinc, coal, or phosphate plants. The most dramatic savings will be in these applications, though savings will also be realized on fine solids, like find sand recovery or kaolin.

The key advantage of the Krebs Metal Slurry Pumps is the 10% to 30% lower power, long even wear life and less pump downtime, which results in lower cost-per-ton pumped, along with better cyclone separation.

- Adjustable Wear Ring - Allows for on-line adjustment of wear ring to minimize slurry recirculation.
- Hybrid Sealing System [patented] - Offers a wide clearance between the impeller and suction wear faces, plus unique Expeller Vane Profile, eliminates power consuming solids crushing and combined with the Adjustable Wear Ring, reduces slurry recirculation and wear to a minimum.
- Strategic Metal Distribution - Extra metal at the cutwater and other high wear areas combined with superior wear materials, result in even wear life.
- Ease of Installation - Customized designed spool pieces to suit existing pipe work.
- Cartridge Replacement - With even extended wear life, the case, impeller and backliner can all be replaced at the same time, reducing down time and maintenance costs.
- Fully Floating Shaft Seal - Ensures concentricity of gland packing and shaft sleeve during assembly for extended packing and sleeve life.
- Adaptor Plate - Wet end adapts to a variety of existing power frames.
- Optional Water Flush or Dry Gland Seal - Ability to eliminate gland seal water.