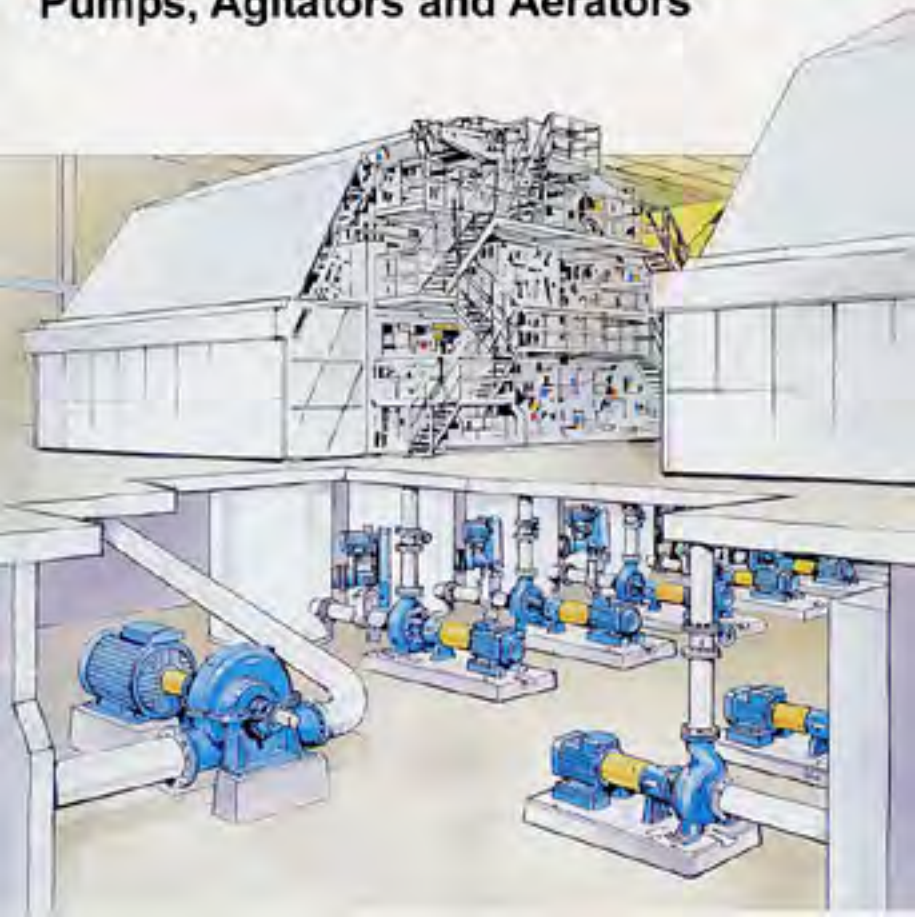


ABS in Pulp & Paper

Pumps, Agitators and Aerators



ABS Products in a Pulp & Paper Mill

History of ABS

ABS has been in the Pulp & Paper Industry since the 1870's. Our original brand names API, JMW, SCABA and Scanpump - and today ABS - is known globally. We have accumulated a vast knowledge of pumping applications and our long co-operation with machinery suppliers and end customers has influenced product development and shaped new patents.

ABS has always been in the forefront of new technology, bringing to the market a dynamic seal in the 1940's, our modular construction system in the 1960's, low pulsation fan pump guarantees in the 1970's, medium consistency pumps, degassing pumps and our **System PSI™** in the 1990's. For the new millennium we are launching a versatile baseplate system (**System PMI™**) and a new erosion-corrosion resistant material **ErCo™-2399**. Ongoing R&D supports our objective of maximising customer benefit.

BA/BG

The ultimate stock pumps! With large passages, BA pumps can handle any stock suspension. From stock containing undissolved wood substances to the toughest positions in recycled fibre treatment such as **pulper dump pumps** and **secondary cleaner's rejects**.

For highly aerated applications a BA pump variant is available as a degassing BG pump, capable of handling stock up to 6-8% depending on the air content.

BK/NK

PN 25 rated pumps. Designed for Pulp & Paper duties e.g. in digester applications. Designed to resist the pressure peaks of sometimes up to 40 bars that often occur around the chip feeder.

BA, BG



Stock pump
Air removal pump
Liquor pump

BK, NK



PN 25 pump

FB



Large solid passage,
Light & Heavy weight contaminants

Wood Yard

Fibre Line

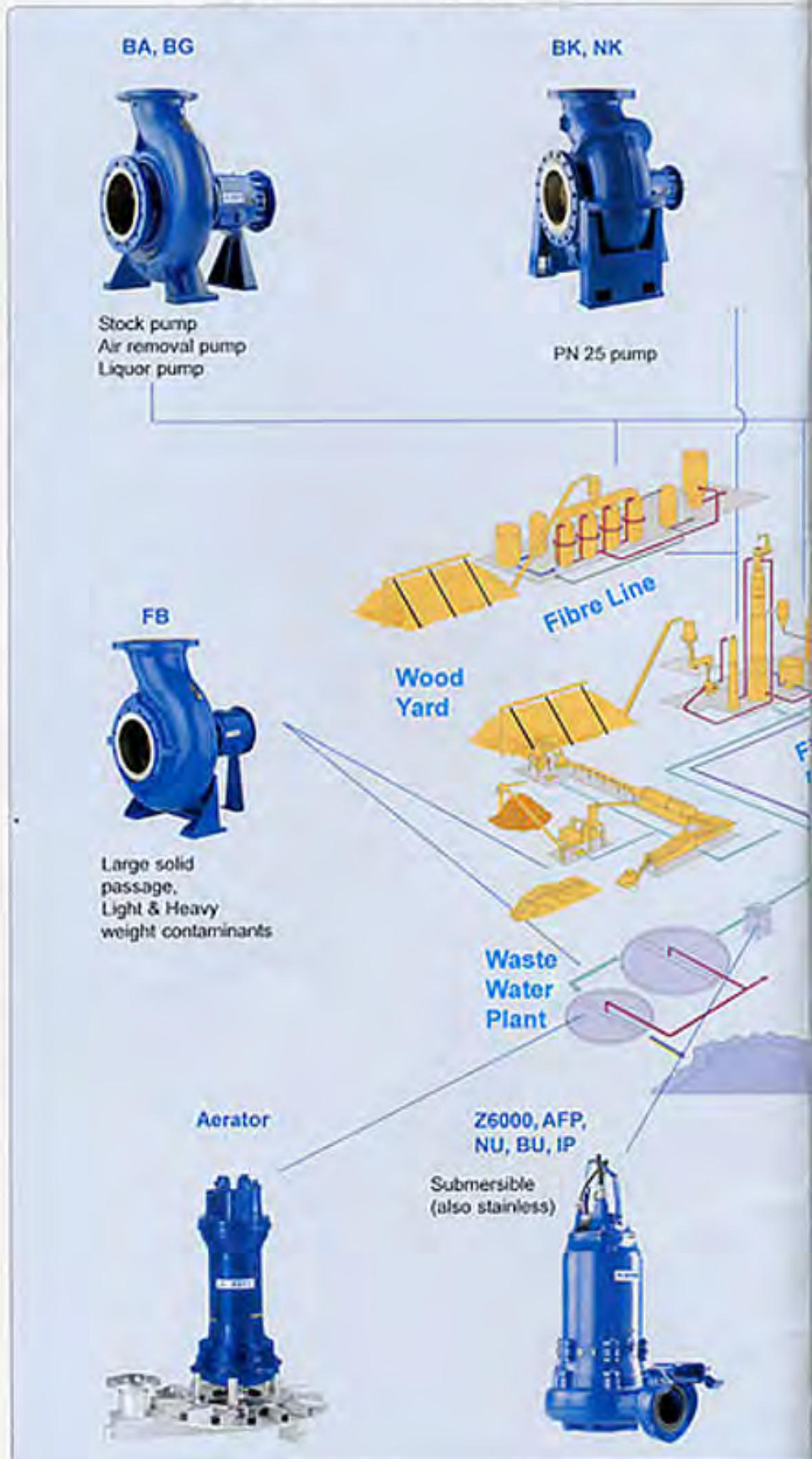
Waste Water Plant

Aerator



Z6000, AFP, NU, BU, IP

Submersible (also stainless)



EM



Medium consistency pump

**VPT
WPT
FVPT**



Top mounted agitator

ND



Liquid pump
Thin stock pump

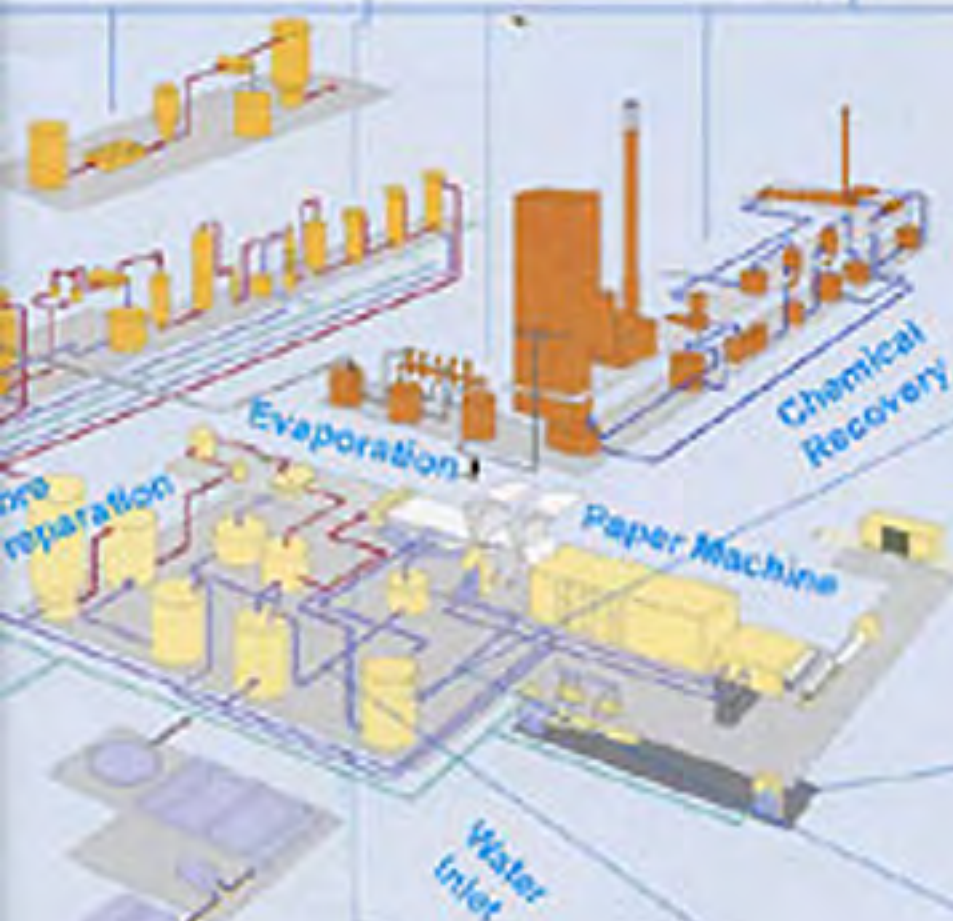
Side mounted agitator

**SKPT
SWVT, SVT, SPVT**



Carrier (Dumppanor) Sealless

FV, IV



Water intake

Z22

Fan pump
Decelerator



Stock pump
Culotte (ECCF)

EA



ECCF™



Thin stock pump
Chemical
Extraction
Concentrate

NS



High Pump Efficiencies and Hydrodynamic Sealing Technology

System PSI™ - Pump Seal Integration

The New Generation of Reliable Process Pumps

Modern pumps are designed for tough duties with minimum noise and vibration. The satisfactory operating range of our pumps (i.e. acceptable deviation from best efficiency point) is extended by a combination of strong bearing assemblies, expert knowledge of the internal fluid mechanics and controlling the hydrodynamical forces.

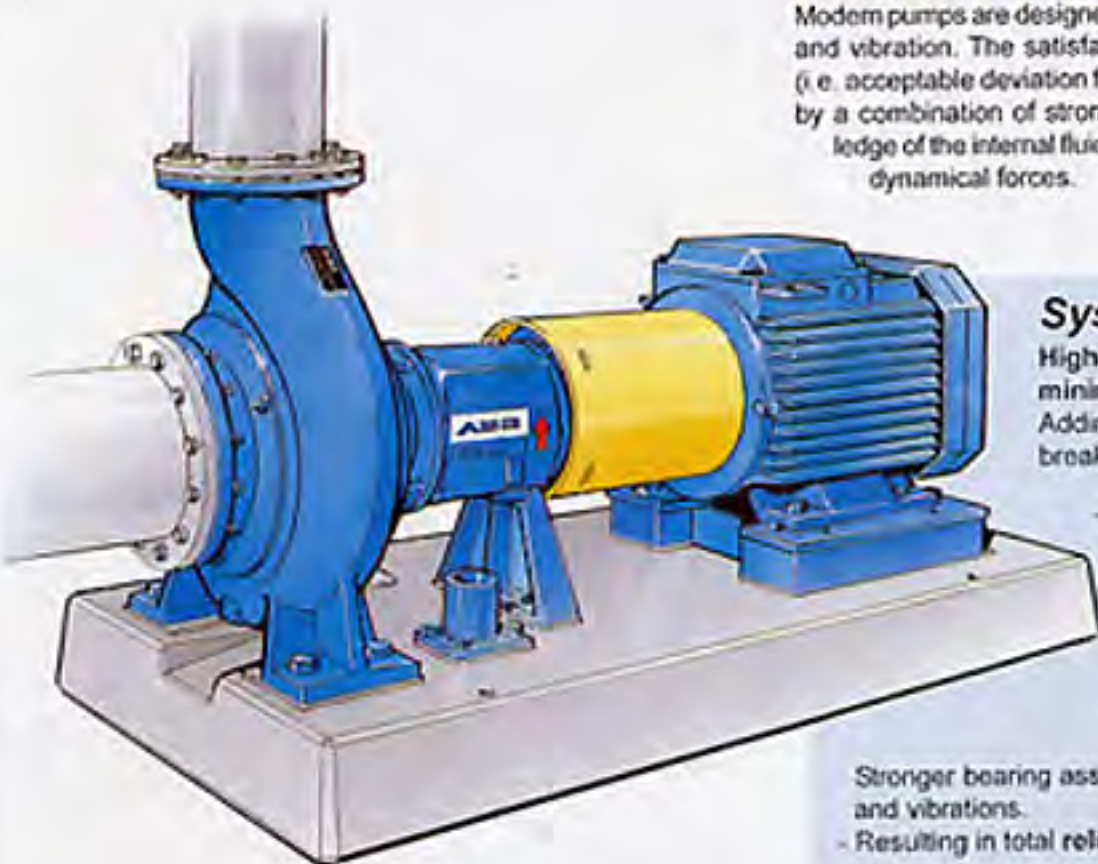
System PSI

High Pumping Efficiencies due to minimum or no backvanes. Adding a venting hole and vortex breakers (baffles) promotes:

- Pressurised clean liquid in the sealing area, making it possible to operate without quench.
- Cleaner liquid behind the impeller due to fluid movements.
- **Versatility** in choice of sealing method.

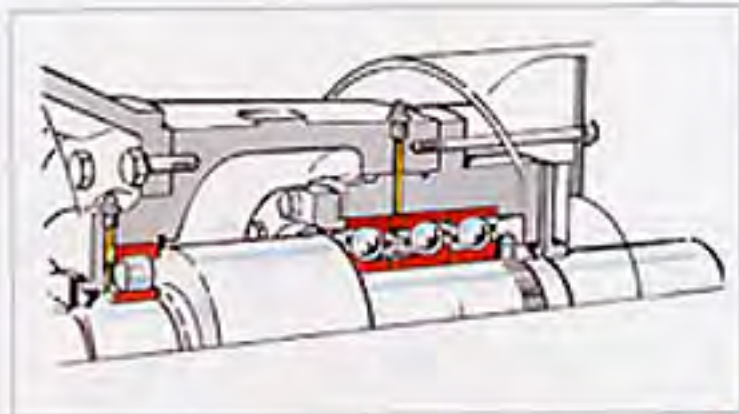
Stronger bearing assemblies minimise shaft deflection and vibrations.

- Resulting in total reliability.



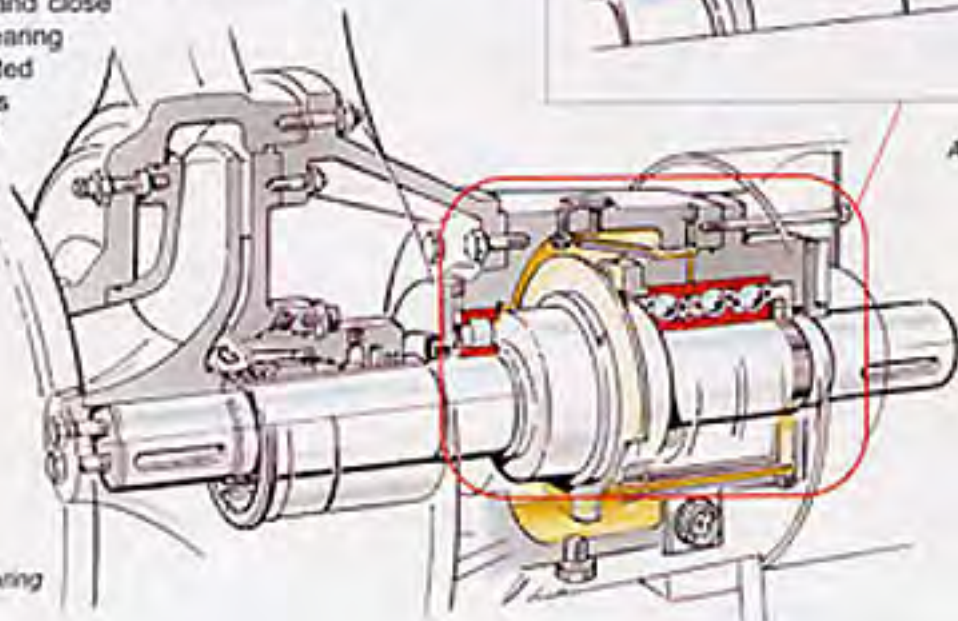
Reliability

The reliability of a pump in a Pulp and Paper mill is its most essential feature. Our pumps are designed with very strong bearing assemblies. The total concept - System PSI - is based upon knowledge of how to keep a pump running as long as possible with a minimum of down-time. You will only have reliability if you control all factors relating to the pump, its seal and the installation. Our designers' expertise in bearing technology and close co-operation with bearing suppliers have created the reliability that is needed in Pulp & Paper applications - i.e. long MTBF.



ABS grease lubricated bearing assemblies.

ABS oil lubricated bearing assemblies.



Creating Reliability and Versatility

Versatility

Easy plant engineering is a primary objective when designing our pumps. We provide you with the tools to make installation and maintenance as simple as possible, such as pump selection programs, layout and technical calculation software, lifting accessories, a modular construction system and the new installation method using free standing baseplates. These new baseplates are probably the most innovative way ever to install a pump - see next page. Our designs make it possible to be flexible in your sealing choice. If you prefer a mechanical seal, you will have the most cost effective and energy efficient solution. If your preference is a dynamic seal, our new design is easy to install and maintain.

PSI Cartridge

The PSI-Cartridge is equipped with baffles which (together with the hydraulic design) creates a vortex, driving solids and air out of the sealing cavity. This ensures pressurised clean liquid at the sealing faces at all times. Therefore, quench water is not needed in many applications!

PSI Dynamic Seal

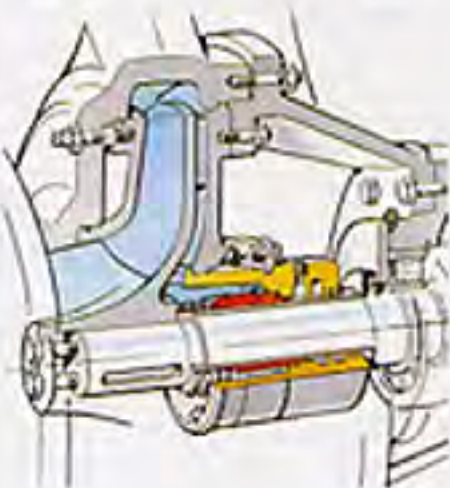
The dynamic seal is designed for the Pulp & Paper industry, handling all kind of pulps and contaminants.

PSI Cartridge

Hydrodynamic sealing technology and Mechanical seals integrated in our PSI Cartridge:

- Ease of Maintenance
- Reliability
- Low power consumption
- Minimum or no water

RBA Rubber bellow **MBA** Metal bellow **CSA** O-ring seal

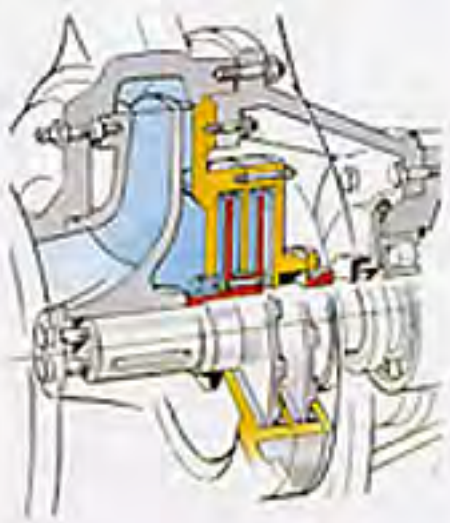


PSI Dynamic Seal

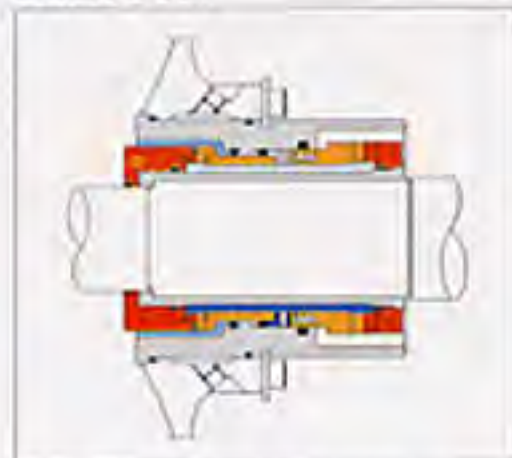
Hydrodynamic sealing technology with Dynamic seal optimised for:

- Ease of Maintenance
- Trouble free operation
- Leakage free

DSA Dynamic Seal



Dual Seal



Dual seals are double balanced mechanical seals for the toughest positions e.g. around the digester.

External Seal



External seals to suit ABS customer mill standards.

Gland Packing



Gland packing in high vibration positions, e.g. pulper dump pumps.

Ease of Engineering and Handling Minimum Pump Misalignment Flexibility for Future Upgrade

Flow Straight, Smooth

Flow straight, smooth, and free of turbulence. The design of the pump inlet and outlet ports is critical to achieving this. The inlet port is designed to be a straight run of pipe, free of elbows, valves, or other obstructions. The outlet port is designed to be a straight run of pipe, free of elbows, valves, or other obstructions.

Low Vibration

Low vibration and noise. The design of the pump is optimized for low vibration and noise. The pump is designed to operate at a low speed, which reduces the risk of cavitation and vibration. The pump is also designed to be balanced, which reduces the risk of vibration and noise.

Easy to Install

Easy to install and maintain. The pump is designed to be easy to install and maintain. The pump is designed to be compact and lightweight, which makes it easy to transport and install. The pump is also designed to be easy to maintain, with a simple design and few moving parts.

Wide Range of Applications

Wide range of applications. The pump is designed to be used in a wide range of applications, from industrial to residential. The pump is designed to be compatible with a wide range of fluids, including water, oil, and chemicals. The pump is also designed to be compatible with a wide range of pipe sizes and materials.

Future Upgrade

Future upgrade. The pump is designed to be easy to upgrade. The pump is designed to be compatible with a wide range of motor options, allowing for easy upgrading of the pump's power and performance.

Minimum Pump Misalignment

Minimum pump misalignment. The pump is designed to be tolerant of misalignment. The pump is designed to be able to operate with a wide range of misalignment, including axial, radial, and angular misalignment. This makes the pump easy to install and maintain, and reduces the risk of pump failure.



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Creating Cost Reduction and Flexibility



Key Industry Trends

The manufacturing industry is undergoing a significant transformation driven by several key trends. These include the adoption of Industry 4.0 technologies, such as artificial intelligence, machine learning, and the Internet of Things (IIoT), which are enabling smarter, more efficient production processes. Additionally, there is a strong focus on sustainability and cost reduction, with manufacturers seeking ways to optimize resource usage and reduce waste. Flexibility in production is also becoming a critical requirement as consumer demands for customized products increase.

Industry 4.0

Industry 4.0 represents the fourth industrial revolution, characterized by the integration of digital technologies into manufacturing. This includes the use of smart machines, data analytics, and cloud computing to create a highly interconnected and automated production environment. The goal is to improve efficiency, reduce downtime, and enable real-time monitoring and control of the manufacturing process.

Sustainability

Sustainability in manufacturing involves adopting practices that minimize environmental impact while maintaining economic viability. This includes energy-efficient production methods, waste reduction, and the use of sustainable materials. Companies are increasingly investing in green technologies to reduce their carbon footprint and meet the growing demand for eco-friendly products.



Active Volume (Paper Stock) Velocity at Surface

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Application Examples for Output Weight

Example 1: A paper mill produces 1000 tons of paper per day. The paper is 40 inches wide and 48 inches thick. The mill runs 24 hours a day. How many sheets of paper are produced per day?

Example 2: A paper mill produces 1000 tons of paper per day. The paper is 40 inches wide and 48 inches thick. The mill runs 24 hours a day. How many sheets of paper are produced per day?

Example 3: A paper mill produces 1000 tons of paper per day. The paper is 40 inches wide and 48 inches thick. The mill runs 24 hours a day. How many sheets of paper are produced per day?

Example 4: A paper mill produces 1000 tons of paper per day. The paper is 40 inches wide and 48 inches thick. The mill runs 24 hours a day. How many sheets of paper are produced per day?



Table with 3 columns and 4 rows of data.

Parameter	Value	Unit
Width	40	inches
Thickness	48	inches
Production Rate	1000	tons/day
Operating Hours	24	hours/day



Creating Optimal Mixing

When you create a new mix, you can choose the type of mix you want to create. The mix type determines the mix's behavior. The mix type also determines the mix's default settings. The mix type also determines the mix's default color. The mix type also determines the mix's default font. The mix type also determines the mix's default font size. The mix type also determines the mix's default font color. The mix type also determines the mix's default font weight. The mix type also determines the mix's default font style. The mix type also determines the mix's default font family. The mix type also determines the mix's default font size. The mix type also determines the mix's default font color. The mix type also determines the mix's default font weight. The mix type also determines the mix's default font style. The mix type also determines the mix's default font family.

Using the Mixer

The Mixer is a tool that allows you to create and edit mixes. It is located in the top right corner of the application. The Mixer has a list of mixes on the left side. The Mixer has a preview window in the center. The Mixer has a set of controls on the right side. The Mixer has a set of buttons at the bottom. The Mixer has a set of sliders at the bottom. The Mixer has a set of checkboxes at the bottom. The Mixer has a set of dropdown menus at the bottom. The Mixer has a set of text boxes at the bottom. The Mixer has a set of icons at the bottom. The Mixer has a set of labels at the bottom. The Mixer has a set of tooltips at the bottom. The Mixer has a set of help topics at the bottom. The Mixer has a set of settings at the bottom. The Mixer has a set of preferences at the bottom. The Mixer has a set of options at the bottom. The Mixer has a set of features at the bottom. The Mixer has a set of functions at the bottom. The Mixer has a set of tools at the bottom. The Mixer has a set of utilities at the bottom. The Mixer has a set of services at the bottom. The Mixer has a set of components at the bottom. The Mixer has a set of modules at the bottom. The Mixer has a set of packages at the bottom. The Mixer has a set of libraries at the bottom. The Mixer has a set of frameworks at the bottom. The Mixer has a set of engines at the bottom. The Mixer has a set of backends at the bottom. The Mixer has a set of frontends at the bottom. The Mixer has a set of interfaces at the bottom. The Mixer has a set of APIs at the bottom. The Mixer has a set of SDKs at the bottom. The Mixer has a set of APIs at the bottom. The Mixer has a set of SDKs at the bottom.



Creating Reliability and Customer Confidence

John Deere

John Deere is a leading manufacturer of agricultural machinery, known for its reliability and customer confidence. The company's commitment to quality and innovation is reflected in its products, which are designed to meet the demands of modern farming. John Deere's focus on reliability and customer confidence is a key factor in its success in the agricultural industry.



John Deere



For Your Benefit Application Expertise

What We Do

Our experts provide a wide range of services to help you understand your options and make the best choice for your needs. We offer personalized advice and support throughout the entire process, from initial assessment to final enrollment.

Our team of professionals is dedicated to providing you with the highest quality of service. We work closely with you to identify your goals and create a customized plan that meets your unique requirements. Our expertise spans across various insurance products, ensuring you have the most comprehensive coverage available.



Our services are designed to be transparent and easy to understand. We provide clear explanations of all terms, conditions, and costs, ensuring you are fully informed at every stage.



We are committed to your satisfaction and will continue to work with you to ensure your needs are met. Our ongoing support and monitoring services help you stay on track and make adjustments as your circumstances change.

Multiple Choice

1. The following are all true of the human eye, except:

- a. The cornea is the front-most part of the eye.
- b. The iris is the colored part of the eye.
- c. The lens is located behind the iris.
- d. The retina is the back-most part of the eye.
- e. The optic nerve carries visual information from the eye to the brain.

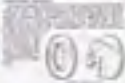


Diagram of the human eye showing internal structures.

Short Answer

1. The human eye is able to see objects that are very close to it and objects that are very far away. How does the eye accomplish this?



Diagram of the human eye showing accommodation for near and far vision.

2. The human eye is able to see objects that are very close to it and objects that are very far away. How does the eye accomplish this?



3. The human eye is able to see objects that are very close to it and objects that are very far away. How does the eye accomplish this?



Module Type

1. **Introduction**
2. **Basic Concepts**
3. **Advanced Topics**
4. **Case Studies**
5. **Conclusion**

- 1. **Introduction**
- 2. **Basic Concepts**
- 3. **Advanced Topics**
- 4. **Case Studies**
- 5. **Conclusion**

Case Applications

1. **Case Study 1**
2. **Case Study 2**
3. **Case Study 3**



4. **Case Study 4**

5. **Case Study 5**



6. **Case Study 6**



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