

FFK



***YOUR SPECIALIST IN Operation
Process optimization and
Spare parts***



FFK GmbH

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Company

The company FFK was founded in March 2010. Headquarter and manufacturing hall are located in Poellau near Hartberg / Austria. The company mainly focuses on pulp and paper industry.

The company is family owned with five employees (2017) and Florian Hoppl represents the company FFK as general manager.

„Our goal is to support our customer in various ways to save money and resources by optimize and modernize the production equipment. Correct operating and maintenance reduce machine downtimes and save money.“



DI_(FH) Florian Hoppl

The company FFK mainly focuses on the pulp and paper industry, which has high demands concerning the characteristics and the abrasive wear of the material. As a result of constant development work, the components of FFK extended the lifetime by 100%. A continuous focus on development of products and product portfolio enables us to focus specifically on customers requirements.



Services

FFK offers different services to our customers. Our long experience in pulp and paper is your advantage in process optimization. We analyse the production line, give advice how to increase production, detect problems and offer solutions to you.

Audit

Our technic engineer will come to your branch and analyses the production line. The complete product circle will be checked in detail, an Audit report with proposals and actions will be given to you. During the Audit also optimizations and small necessary repair works will be carried out with your team.

Acquisition support

If you decide to make some changes in the production or plan to increase production FFK will support you by finding the correct components. FFK can also offer a great variety of standard products or customized products.

Chemical optimization

During our work in different paper plants we found out that a big optimization potential is in the chemistry. Masses of chemistry are not necessary and can be reduced or cancelled without losses in quality. Less Chemicals reduces the costs and supports the sewage water plant.

Construction

In construction FFK works together with partners who have also a great knowledge of pulp and paper industry. We offer you customized product machines specialised for renewing and modernizing machines or specially designed machines for production increase.

Cleaner plant optimization

In the last years we gained a great knowledge of concerning problems with the cleaner plants. Beside a bad maintenance most of the cleaner are operated in the wrong way. This causes fibre losses, problems with the machines and quality problems. These errors/issues can be avoided and additionally save money.



Products

Our product portfolio contains a great variety of products domain of paper production.

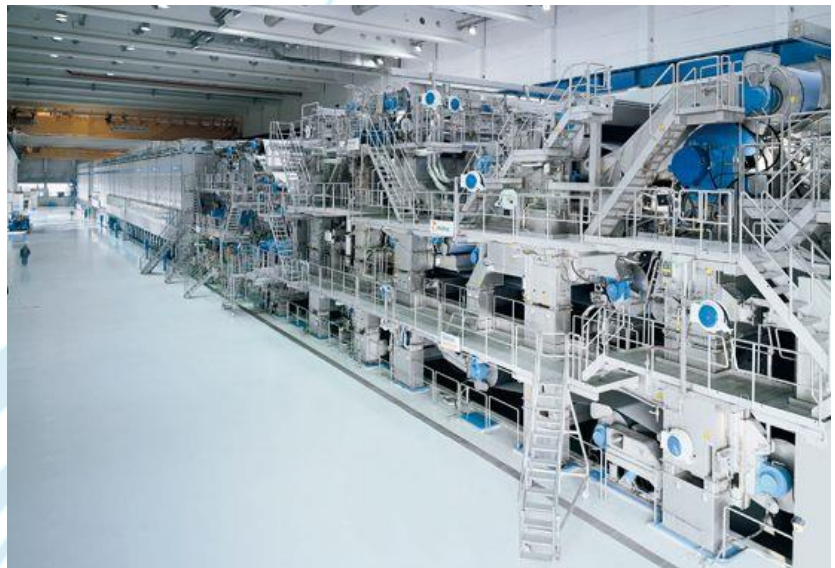
“For every customer the right products.”

AO1/AO2/AO3 / Ceramic

Depending on the type of machine and paper types we offer spare parts with different hard wear layers. 2008 FFK invented a new hard wear layer named AO1. Due to further researches 2013 AO2 and 2015 AO3 have increased our products. We also offer to our customers the known ceramic layers and for parts with low wear a thin ceramic coating.

Spear parts

- HD-Cleaner cones
- Inlet heads
- Spool pieces
- Junk Traps
- LD-Cleaner
- Refiner plates
- Disperser plates
- Pipes/Bends



Complete solutions

FFK offers, beside the spare parts, a variety of complete solutions in different parts of the paper industry. All our products are calculated to the specified throughput of your plant.

- HD-Cleaner System 600,400,300,200
- Final stage cleaner
- Non-flow sealing

Wear materials

AO1/AO2/AO3

- high abrasive wear resistance
- new wear material on the basis of corundum
- high compressive strength
- high tensile strength due to matrix ties structure
- nearly shrinkage- free
- pH – neutral
- temperature resistant and temperature shock resistant until 120 °C
- with special components up to 190° C - AO1 to 600° C
- smooth surface
- very low porosity
- AO material is similar to ceramic – not so brittle

ADVANTAGES

- high abrasive wear resistance will **extend the product lifetime**
- reduction of the maintenance cost by achieving a **longer product lifetime**
- **individual body shape possible**, depending on customer requirements
- **high dimension accuracy** during production
- **complex structures** are possible
- **recycling** of worn products is possible (relining of the steel body)
- AO can be used in substances **between 4-12 pH**
- **lower acquisition costs** compared to conventional coatings (ceramics, chrome, rare earths....)

PRODUCT REQUIREMENTS

- need a **support material** (steel body, component wall)
- **minimum** layer thickness of **10mm**
- minimum **delivery time** of 6 weeks
- clearly defined **operating conditions** (medium, temperature, pressure...)

Wear materials

Ceramic MATERIAL

In addition to AO wear material, we supply a great variety of ceramic cleaner cones. Depending on the usage and the plant geometry we offer our customer the best solution.

Our ceramic cleaner are the highest standard. The ceramic is burned at a higher temperature as standard. This process assures a harder surface and better wear resistant characteristics.

To protect components such as inlet heads or pipes and bends we offer a thin ceramic coating below 1mm. This coating reduces the pipe friction and the wear and furthermore ensures a longer life time of the components.

Comparison AO material vs. Ceramic

	AO1	AO2	AO3	Ceramic
wear resistance	+++	++++	++++	+++
chemical resistance	++++	++++	++++	++++
thermal shock resistance	+++	+++	++++	+++
surface quality	+++	++++	++++	+++++
porosity	+++	++++	++++	+++++
edge stability	+++	++++	++++	++++
tensile strength	+	++++	++++	+
compressive strength	++++	+++++	+++++	+++
temperature resistance	600	70	190	200
shrinkage rate	+++	+++++	+++++	+++
lifetime	+++	++++	+++++	++++

COMPLETE SOLUTIONS

High density cleaners

The cones of the company FFK have a robust stainless steel casing, which is coated with the hard wear layer AO2 or AO3. The thickness of the wear-resistant coating layer depends on the cone type. The standard products have a wall thickness between 25mm up to 60 mm. The special manufacturing process provides an almost pore free, absolutely smooth and solid casted wear layer. The whole cone is produced in one piece, which means that there is no joining gap between two parts on the separation surface. This is necessary in order to avoid micro turbulences, which reduce the deposition rate and increase wear.



A600 Cleaner unit

PERFORMANCE DATA

- **different cone types:**
- 300l/min to 12000l/min
- consistency between **2 to 6 %**
- several times **longer lifetime**
- equipped with **AO2 or AO3**
- **6 months guarantee** by proper installation and use.

OPTIONS

- **wear indicator**, electrical signal for detection of min. layer during operation
- **recycling of cones** is possible

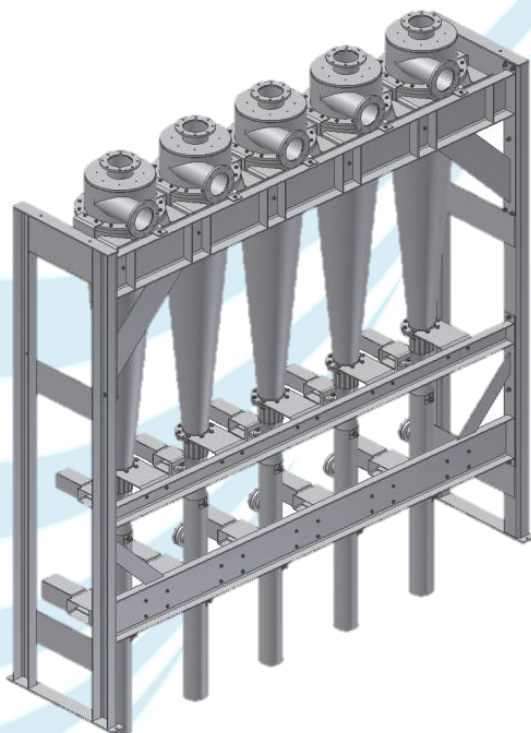
ADDITIONAL PRODUCTS

- optimized **spiral feed head**
- **standard feed heads**
- different types of **rotation breakers** for longer life time of the upper valve
- different types of **junk traps**

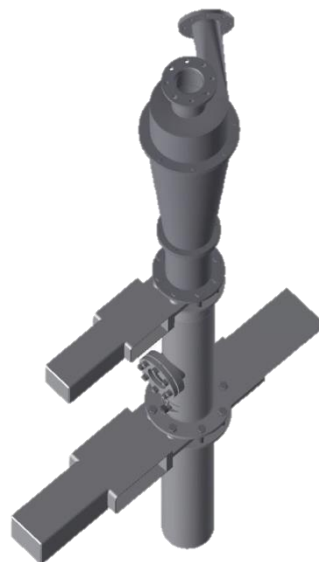
COMPLETE SOLUTIONS

HD cleaner / final stage cleaner 600/400/300/200 Series / A125

The company FFK is able to deliver complete HD cleaning solutions on customer requests. The major benefits of the complete HD cleaning solutions for the costumer are **less fibre losses**, **higher separation efficiency** and **less down times**. The complete HD cleaning solution consists of an optimized inlet head, an HD cleaner, a spool piece (booth are equipped with the wear layer AO2 or AO3), and finally a junk trap which is equipped with pneumatic valves.



A600 complete station



A300



A125

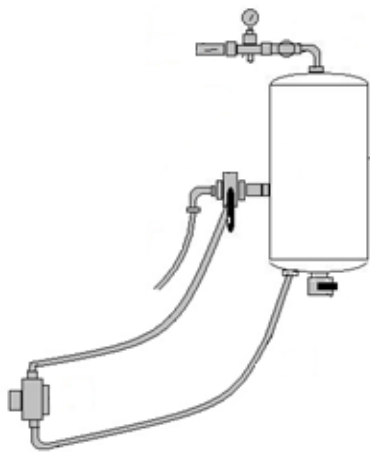
COMPLETE SOLUTIONS

Non flow sealing

TST – Buffer Fluid System for mechanical seals

The environmentally-friendly and user-friendly TST Systems are directly connected to the plant water line using it as its fluid and pressure source.

Operating Principle



- Water from the plant water line enters the system.
- The pressure of the barrier fluid in the vessel can be regulated via the pressure regulator.
- The barrier fluid is circulated to the seal and back to the system by the thermo syphon effect.

The plant water line pressure can be adjusted so that the Systems barrier fluid pressure is maintained at 1 bar above stuffing box pressure. This pressure difference keeps harmful products away from seal faces and increases reliability. Barrier fluid is circulated to and from the mechanical seal via thermo syphon effect. This removes water wastage and provides more efficient cooling, which was done through quench to drain in former days.

Features

- 12 liter - 304 SS vessel construction - Suitable for a range of challenging environments
- Water Regulator - Maintains water level and pressure in the vessel
- Flow indicator - Visually alerts the user of an inboard seal failure
- Non-return valve - Protects plant water supply from potential contamination and maintains vessel pressure in the event of water-supply interruption

Suitable for the following API Plans

API PLAN 53A

Spare parts

Cones

600/400/300/200 Series from all suppliers

PERFORMANCE DATA	OPTIONS	BENEFIT EFFECT
- flow-rate: -6000l/min to 10000/12500l/min peak -4000l/min to 7000l/min -1500l/min to 4000l/min -500l/min to 1500l/min - consistency between 2 to 6 % - equipped with A02 or A03 - different types of spool piece designs - 6 months guarantee by proper installation and use.	- with rotation breaker - without rotation breaker - recyclable	- exfiltration of abrasive parts - longer service intervals - less downtimes



A600 in one piece or divided

Spare parts

600 DIMENSIONS

	H	Ø
one piece	2500	770
lower part	1000	430
upper part	1500	770

OPTIONS

- **wear indicator**, electrical signal for detection of min. layer during operation
- **also available in 2 parts**
 - upper part
 - lower part
- **recyclable**

400 DIMENSIONS

	H	Ø
lower part	800	380
upper part	850	520

OPTIONS

- **wear indicator**, electrical signal for detection of min. layer during operation
- **available in 2 different parts**
 - upper part
 - lower part
- **recyclable**

300 DIMENSIONS

	H	Ø
Standard	865	395
Incl. spool piece	1255	395

OPTIONS

- **wear indicator**, electrical signal for detection of min. layer during operation
- **available in 2 different types**
 - in one piece incl. spool piece to avoid micro turbulences
 - cone only
 - spool piece only
- **recyclable**

200 DIMENSIONS

	H	Ø
Standard	705	340
Incl. spool piece	1075	340

OPTIONS

- **wear indicator**, electrical signal for detection of min. layer during operation
- **available in 2 different types**
 - in one piece incl. spool piece
 - cone only
- **recyclable**



A300



A200 incl. rotation breaker

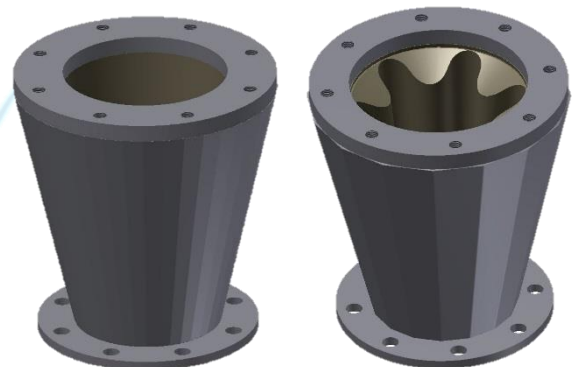
Spare parts

SPOOL PIECES 600/400/300/200

The spool pieces of the company FFK are used in the pulp and paper industry for the separation of dirt particles. The spool pieces break the rotation of the cyclone separator and enlarge the life time of the upper valve of the junk traps. The spool pieces are equipped with the special material AO2 or AO3. The particular manufacturing process provides an almost pore free, smooth and solid casted wear layer. The company FFK is able to produce different types of inlet designs.

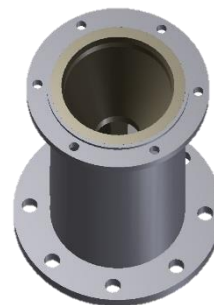
DIMENSIONS

	H	Ø
600 Series	360	340
Standard		
Design nr. 6		
Design nr. 7		
400 Series		
300 Series	360	285
200 Series	360	340



600 Standard

Design Nr. 7



300 Standard

PERFORMANCE DATA

- different types of **spool piece** designs
- consistency between **1 to 6 %**
- equipped with **AO2 or AO3**
- **6 months guarantee** by proper installation and use.

OPTIONS

- **with** rotation breaker
- **without** rotation breaker
- **recyclable**

BENEFIT EFFECT

- **enlarge the life time** of the upper valve
- **shorter service intervals**
- **less downtimes**
- **safe the feeders** of the valve

Spare parts

Flow optimized FEED HEAD 600/300/200/KS200 Spiral inlet

The inlet heads of the company FFK assure the optimized inlet. We equipped the inlet heads on customer requests with–drain spirals. The benefits of the drain spiral inlet heads are higher inlet speed, higher flow-rate and a better separation effect. The inlet head consists of stainless steel, and as a result of customer requests we chrome or coat the inside of the inlet heads.

DIMENSIONS

	H	T	Ø
600 Series			
Standard	470	500	770
Drain spiral	470	500	770
400 Series			
300 Series			
Standard	420	350	395
Drain spiral	420	350	395
200 Series	420	200	340



PERFORMANCE DATA

- **different types:**
 - 300l/min to 1000l/min
 - 500l/min to 1500l/min
 - 1500l/min to 4000l/min
 - 7000l/min to 12000l/min
- consistency between **1 to 6 %**
- **optimized inlet**
- **6 month warranty**

OPTIONS

- **standard**
- **with drain spiral**
- **chromed**
- **coated**

BENEFIT EFFECT

- **optimized inflow**
- **higher inflow speed**
- **better separation effect**

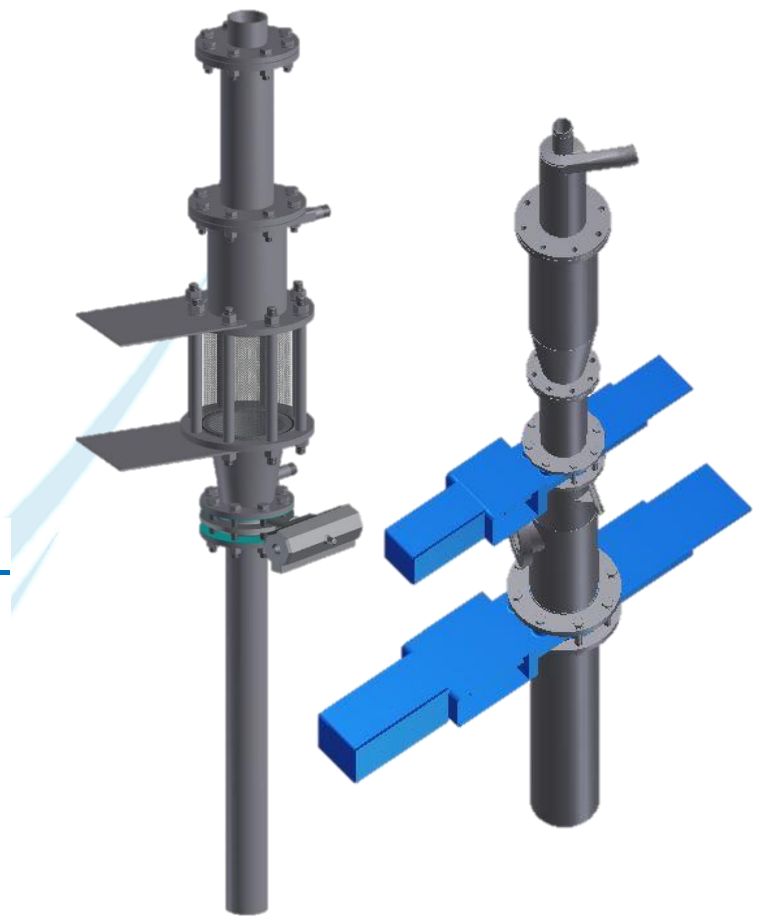
Spare parts

Discontinuous JUNK TRAP for last stage LC cleaner plant **A150 / A125**

The discontinuous junk traps reduce the fibre losses in the last cleaning stage. Hence, the customer can save a great amount of money in the fibre preparation. Combined with the FFK technical support the cleaner plant will work properly.

DIMENSIONS

	H	B	Ø
A150	1950	350	300
A125	1800	900	240



JUNK TRAP A125

JUNK TRAP A125

PERFORMANCE DATA

- consistency between **2 to 6%**

OPTIONS

- **with inlet cone**
- **without inlet cone**

BENEFIT EFFECT

- **reduce fibre loss**
- **better separation effect**
- **shorter service intervals**
- **less down times**

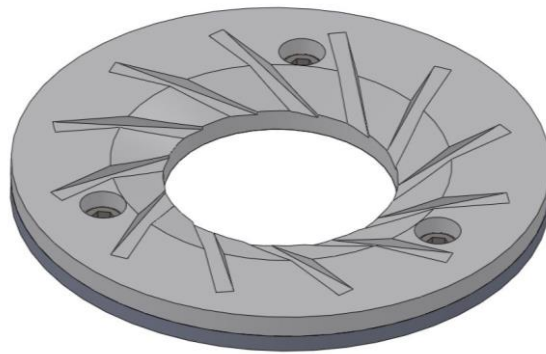
Spare parts

Refiner / Disperser Plates TC Series

Conventional or special FFK plates are for all standard refiners or dispersers.

The FFK refiner and disperser plates are high efficient and reduce the energy consumption in comparison to conventional plates.

The highest effort of the FFK plates is the reduction of fibre cutting. The very valuable long fibres are not cutted and therefore provide an excellent fibrillation to enlarge the density of the final paper.



Pipes /Bends All dimensions

If customers have an abrasive wear in pipes and bends, FFK will be able to-make an AO2 filling inside to reduce the wear. For questions please ask your FFK contact to give you further information about the options.



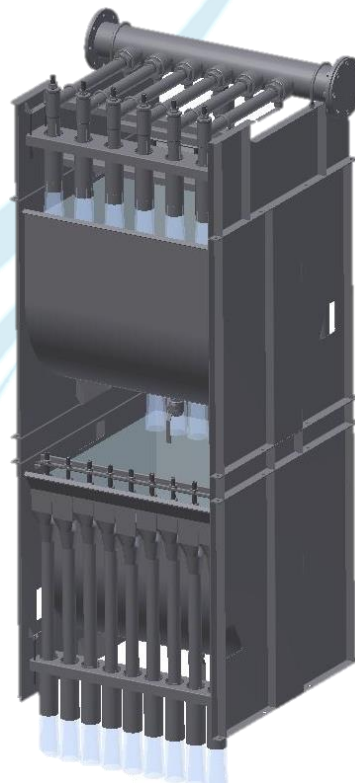
PROTOTYPING

The company FFK is specialized in designing and manufacturing machines and components based on our hard wear layers AO1,AO2 and AO3.

The company FFK develops, designs and manufactures machines, machine parts, separators as well as complete systems for their customers.

OUR TARGETS

- reduced wear
- lower maintenance costs
- reduction of unscheduled production down times
- optimized processes with higher capacities
- increasing customer satisfaction



Example of an FFK developed waste water treatment tower to reduce the energy costs for adding oxygen.

Patent for new waste water treatment system 2012

Imprint



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