

Three machines for an outstanding dispersion process Compact Dispersion System



Save your resources!

Dispersion systems are used in stock preparation for recovered paper. The newly developed Compact Dispersion System from Voith impresses with its reliable and high dewatering performance, quick and efficient steam heating and energy-saving dispersion.

Conventional dispersion systems often require serial operation of up to six machines. This creates a large space requirement and high investment costs for the customer. Furthermore, an increased energy demand and thus a longer amortization period come about due to the large number of machines. The more complex systems require extensive maintenance intervals, increasing the risk of unplanned paper machine downtimes.

The solution: Compact Dispersion System from Voith

The dispersion system Compact Dispersion System from Voith achieves a high-quality dispersion result using only three machines:

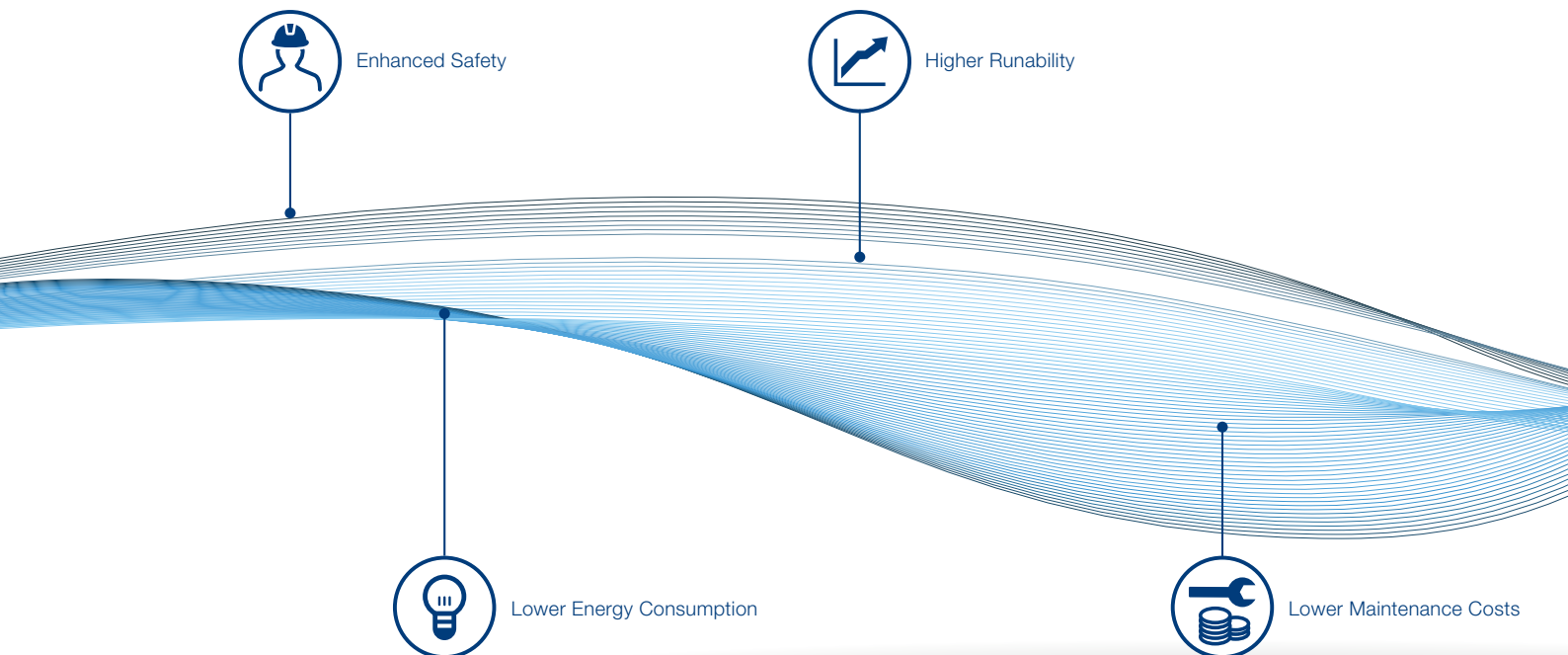
- the established screw press InfiltraScrewpress
- the efficient speed heater InfibraHeater
- the energy-saving disperger InfibraDisp

Reduce your investment costs

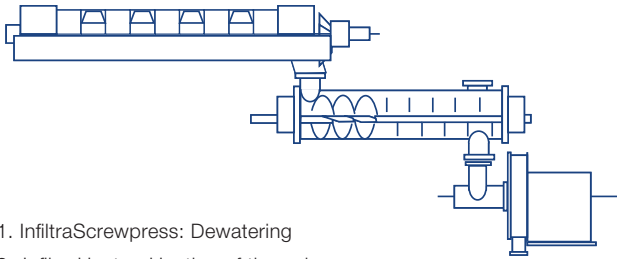
Due to the low number of machines, the space required for the dispersion system can be reduced by up to 35%. The energy requirement also decreases by at least 10% and, along with the low investment costs, valuable time is saved in maintenance.

The dispersion process in three steps

- 1 In the first step, the suspension is thickened in the screw press.
- 2 Then the thickened stock is shredded in the heating unit, heated with steam and if needed mixed with bleaching chemicals.
- 3 In the final dispersion process, contaminants and inks are removed from the fibers and shredded, and significant increases in strength are achieved.



Elements Compact Dispersion System



1. InfiltraScrewpress: Dewatering
2. InfibraHeater: Heating of the pulp
3. InfibraDisp: Dispersing ink particles and contaminants

All advantages at a glance

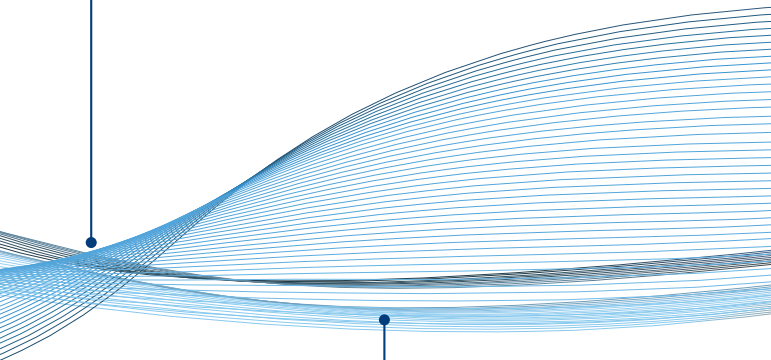
- + Energy savings of at least 10 %
- + Easy handling of the system
- + Up to 35 % less space required with only three machines
- + Improved dewatering performance
- + Higher runability due to reduced wear
- + Low maintenance

Technical specifications

Application	Recovered paper fibers
Inlet stock consistency InfiltraScrewpress	8 – 12 %
Outlet stock consistency InfiltraScrewpress	approx. 30 %
Stock temperature InfibraHeater	110 °C
Operating pressure InfibraHeater	0.5 bar(g)
Outlet stock consistency InfibraDisp (LC)	4 – 12 %
Outlet stock consistency InfibraDisp (HC)	20 – 35 %



Reduced Fiber Loss

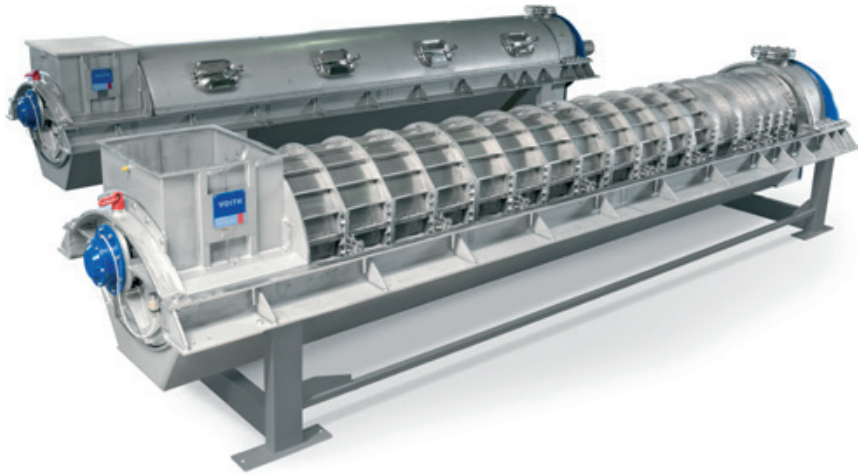


Lower Water Consumption

BlueLine – sustainable future solutions

Compact Dispersion System is part of the new BlueLine product line, due to its resource-saving characteristics like lower energy consumption, higher runability, lower maintenance costs and enhanced safety.

The product line is tailored to the needs of the modern environmentally friendly paper industry. With BlueLine, customers profit from proven Voith quality and reliability and at the same time low energy and water consumption, reduced fiber loss, enhanced safety and low maintenance costs. The product line combines resource-saving machines in stock preparation.



1



2

High dewatering performance with InfiltraScrewpress

The first process stage of a dispersion system is the dewatering of the fiber suspension. In Compact Dispersion System from Voith, InfiltraScrewpress facilitates efficient dewatering of the suspension to a stock consistency of around 30 %.

High dewatering performance

The suspension to be dewatered is conveyed into the screw press with a stock consistency of 8 – 12 %. InfiltraScrewpress from Voith is equipped with a press screw on the inside that transports the stock in axial direction. In the process, the pulp is thickened via the constricting volumes between the press screw and the outside screen baskets. The filtrate can thus be pressed out of the suspension and discharged via the screen baskets of the screen element SplitScreen. The remaining pulp is conveyed with a stock consistency of around 30 % via the outlet of the screw press to the speed heater InfibraHeater.

Voith press screw increases efficiency

The customized press screw design of InfiltraScrewpress leads to a more homogeneous and continuous dewatering of the pulp. Continuous optimization has resulted in improved pulp heating and chemical mixing in the InfibraHeater and reduced performance fluctuations of InfibraDisp.

Improved machine runability

In order to achieve longer running times of the machine, the press screw of InfiltraScrewpress is provided with a wear protection coating. In addition, the continuous stock flow delays the development of wear in the machine due to the homogeneous design of the press screw.

Newly developed screen element lowers maintenance requirements

The patented screen element SplitScreen impresses with its newly developed design. The screen element consists of a supporting structure and an inner screen plate. This removable design allows the replacement of the bolted screen plate without having to replace the entire screen element SplitScreen. The maintenance intervals are thus shortened and high costs can be saved. In addition, the large open screen surface of SplitScreen achieves a high dewatering performance. Depending on customer requirements, the fiber loss can be minimized or the dewatering capacity increased with an adapted perforation.

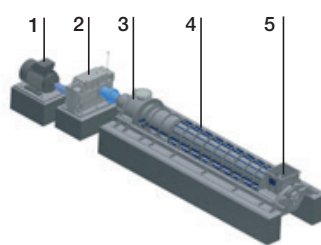


- 1 InfiltraScrewpress
- 2 Machine housing with inspection hatches
- 3 SplitScreen screen element

Reliable operation due to new machine design

The low center of gravity for the screw press guarantees very tight tolerances between the screen and the press screw during operation. Thus, a machine design that is more than ten times as rigid and reliably stable operation can be achieved, compared to machines available on the market.

InfiltraScrewpress Cross section

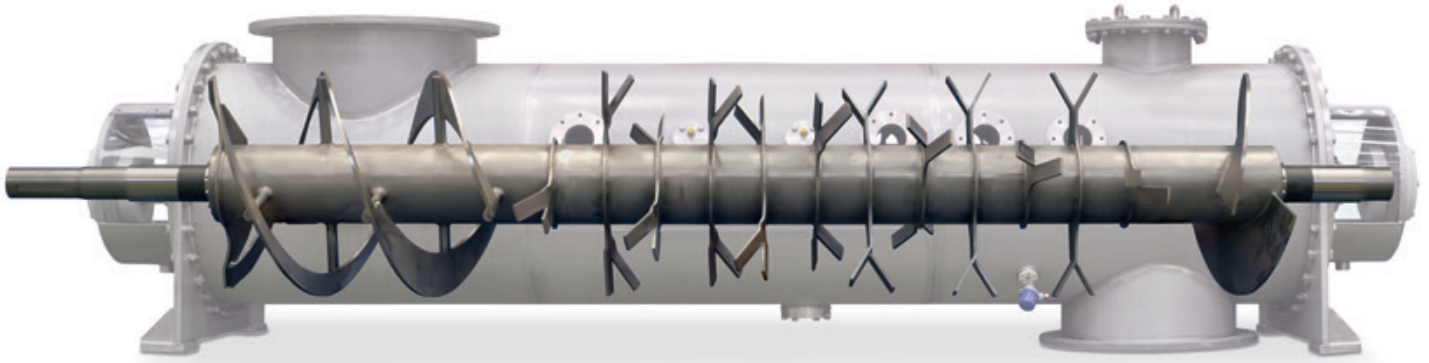


1. Electric motor
2. Gear unit
3. Outlet housing
4. SplitScreen
5. Inlet housing

Technical specifications InfiltraScrewpress

Size		45	60	85	120
Installed power*	[kW]	30 – 110	132 – 160	160 – 250	250 – 450
Speed	[1/min]	25 – 65	20 – 50	15 – 40	10 – 30
Throughput*	[t/d]	50 – 150	150 – 300	300 – 600	600 – 1 000
Inlet stock consistency	[%]	8 – 12	8 – 12	8 – 12	8 – 12
Outlet stock consistency	[%]	approx. 30	approx. 30	approx. 30	approx. 30

*depending on the raw material used



1

Efficient heating, fluffing and homogenizing InfibraHeater

Improved quality due to efficient heating

The InfibraHeater combines a number of technological process steps in just one unit. It provides for efficient heating, fluffing and homogenization of the pulp. The reduced number of machines significantly reduces maintenance effort and shortens inspection times.

By fluffing in the inlet area of the InfibraHeater it is possible to increase the surface conditions significantly and heating can be performed much more efficiently. The rotational speed of the InfibraHeater provides for optimal process efficiency. It works by means of steam heating in which the steam supply can be precisely controlled and the exact temperature measurement keeps the steam input as low as possible.

Continuous stock transport

The equalizing screw in InfibraHeater provides a continuous and homogeneous stock transport from the screw press to the disperger. The homogenization of the dewatered stock reduces performance fluctuations at the disperger. The constant feed of stock to InfibraDisp is ensured by the discharge design of the equalizing screw.

Optimal degree of whiteness

Due to the thorough mixing, InfibraHeater is also perfectly suited for introducing additives. For example, sodium silicate and caustic soda can be used for the preparation of peroxide bleaches. In addition, a retention time of ~30 seconds prevents the yellowing of the pulp.

Technical specifications InfibraHeater

Size		24	30	36	42
Installed power	[kW]	75 – 110	110 – 132	160 – 200	250 – 315
Speed	[1/min]	350	295	240	200
Throughput	[t/d]	300	400	600	1 000
Stock consistency	[%]	25 – 40	25 – 40	25 – 40	25 – 40
Stock temperature	[°C]	110	110	110	110
Operating pressure	[bar(g)]	0.5	0.5	0.5	0.5



2



3

- 1 InfibraHeater
- 2 InfibraDisp
- 3 Feed screw

A new generation of dispersion InfibraDisp

InfibraDisp sets new benchmarks

In dispersion, interfering particles and inks are gently separated from the fibers and shred to a size suitable for further processing. The newly developed disperger InfibraDisp from Voith facilitates efficient dispersion with minimum use of resources.

Feed screw lowers your energy costs

The stable welded design of the disperger provides long and reliable operation. The newly developed feed screw of InfibraDisp impresses with its homogeneous and continuous stock feed to the filling, thus achieving a consistently high-value result with a low specific dispersion energy. Hence a uniform filling passage of the stock is achieved and performance fluctuations appearing in the dispersion process are prevented.

Revolutionary gap adjustment for maximum user-friendliness

InfibraDisp is equipped with a unique and operator-friendly hydraulic gap adjustment. Requested gap is set by basic magnet valves, and a position sensor gives precise feedback on gap value. Therefore, simple operation and control are ensured at all times. Combined with an automatic zero-point setting and a wear indicator, Voith offers a safe, precise and reliable concept for its dispergers.

Low maintenance costs, high operational safety

The new design of the machine lowers the maintenance times and costs, because the feed screw drive as well as the storage for gland and sealing water support are no longer required. The combination of forced and sump lubrication ensures a high level of operational safety for maintenance and inspection of the machine.

Technical specifications InfibraDisp

Size		60	85	120
Installed power	[kW]	450	900	1 900
Speed (at 50 Hz)	[1/min]	1 500	1 500	1 000
Throughput (at 40 kWh/t)	[t/d]	225	450	900
Throughput (at 75 kWh/t)	[t/d]	115	230	550
Inlet stock consistency	[%]	25 – 35	25 – 35	25 – 35
Outlet stock consistency	[%]	4 – 12 (LC) 20 – 35 (HC)	4 – 12 (LC) 20 – 35 (HC)	4 – 12 (LC) 20 – 35 (HC)

Voith Group
St. Poeltener Str. 43
89522 Heidenheim, Germany

Contact:
Phone +49 7321 37-0
paper@voith.com
www.voith.com/paper



VOITH
Inspiring Technology
for Generations