

**The BELLMER Group has designed, manufactured and installed products and plants for the paper industry and for solid-liquid separation since 1842.**

**Bellmer** was founded in 1842 in Germany as a family-run business. Bellmer is a high performance machine and plant manufacturer who does not only convince

through state-of-the-art products, but offers solutions with a sound know-how for almost any case of application. Customers from the field of pulp and paper or from

the line of industry dealing with thickening or dewatering of all sorts of suspensions have been benefitting from Bellmer's experience and expertise.

## Members of the Bellmer Group

**Gebr. Bellmer GmbH Maschinenfabrik**



**Bellmer GapCon GmbH**



**Bellmer Kufferath Machinery**



**LANG-HAFNER**



**Bellmer Iberica Machinery S.L.**



**Bellmer Vaahto Paper Machinery Oy**



## Paper Technology

Bellmer advises, plans and designs plants or modernization projects for the pulp and paper industry. From the approach flow via the wire section up to the pope reel, complete paper machines can be supplied ready to use.

Bellmer develops machine building solutions with integrated control technology that are implemented in a turnkey way and commissioned and started up by specialists. In addition to a joint optimization phase, 24-hour service is offered as a standard feature 365 days a year.

Fields of application include fine paper, testliner, cardboard, special papers, decor papers and impregnated papers, move and modernize, fiberboard, safety papers and the nonwoven industry.

## Separation Technology

The paper technology sector is supplemented by the company sector separation technology: Dewatering of various suspensions from the environmental and paper industry. The two company sectors link special expertise in the paper and separation technology for the customer's benefit.

## Headbox

### TURBOSeries: TURBOVahtoJetter™, TURBOStreamer™, TURBOFlower™, TURBOCircler™

Bellmer offers high quality headbox systems for each product range. In addition to the modern hydraulic headboxes of the TURBOSeries™ such as the TURBOVahtoJetter™ for fast paper machines, also headboxes with rectifier rolls, the TURBOFormer™ for particularly high requirements concerning formation are manufactured.

In the field of very high grammages or space-saving multi-ply concepts, the vat former Bellmer TURBOFlower™ offers a wide range of use. For optimally equal supply of stock to the headbox, the circular distributor Bellmer TURBOCircler™ is the right tool to achieve ideal CD profiles.



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## Breast Roll Shaking

For different cases of application, we are able to support you with two different models:

### EQUALShaker™

The EQUALShaker™ improves the formation in the paper and board production for speeds of up to 450 m/min. The breast roll is shaken with an acceleration up to the speed of gravity (9.81 m/s<sup>2</sup>). For higher paper machine speeds, higher shaking forces are required.

### TURBOShaker™

The TURBOShaker™ eliminates disturbing mechanical forces by its design principle based on centrifugal masses that balance each other.

Due to its unique drive design, the TURBOShaker™ only requires a small footprint which makes this tool an ideal unit to retrofit to already existing plants.



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## Wire Section

For wire sections, highest requirements regarding quality of production and components need to be fulfilled.

With one-layer or multi-layer design, custom-tailored optimum solutions are elaborated. Bellmer exclusively uses solid and proven parts of stainless steel in order to ensure durability. Classical cantilever solutions or clever wire draping equipment, whatever will be needed, accurate design, production and erection of the components according to schedule goes without saying that top performance will be provided.



## White Water Filtration

### TurboDrain™ Recovery TDR

White water filtration with the Bellmer TurboDrain™ Recovery TDR is a new technology for the paper industry.

It relieves water cycles of paper mills and cleans the white water II. The TurboDrain™ Recovery TDR is a belt thickener tool featuring a most compact design which is offered in various sizes and types. After dosage of flocculent, the flocculated suspension reaches the circulating belt of the TurboDrain™. The separated solids are recovered; the recyclable material is fed back to the production and the disturbing matter is removed from the process. Part of the filtrate is used for wire cleaning and is subsequently used as dilution water. Capture rates of > 98% can be achieved. The clear filtrate gained is almost solid-free and available for further use.



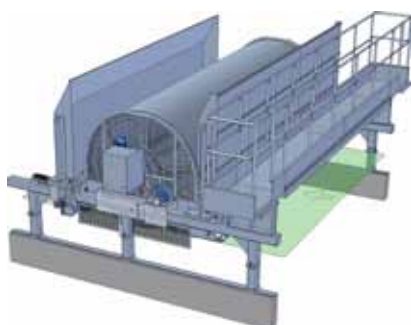
## Dandy Rolls and Open Wire Rolls

Bellmer Kufferath Machinery is market leader with more than 80 references of dandy roll systems up to 2,000 mm diameter or up to 1,100 m/min machine speed in different versions and body lengths.

### Dandy Roll System AKUFORM® R/RX

Improvement of sheet formation and surface quality.

- Improvement of paper quality, especially with decor and cigarette papers
- Compared to double screen formers large and consistent flake structure, no washing out of the surface
- Reduction of pinholes and constantly fine porous sheet
- No drop markings from water splashes (RX)
- No dirtying of cut squirt and press section (RX)



## Hybridformer

### TURBOFormer™

The Bellmer TURBOFormer™ ensures increased production through additional dewatering in the wire section.

Subject to product and basis weight, the Bellmer TURBOFormer™ is able to enhance the performance of endless wire machines up to 30%.



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## Press Section / Shoe Press

### TURBOPress

Short or no draws at all, mature designs and fast felt changes are the main features of the Bellmer press sections. In order to be able to create ideal press sections, the shoe press TURBOPress was developed. With this wide-nip press, highest dry contents can be achieved, upon simultaneously treating the bulk with care. This tool ensures gentle but nevertheless very efficient press process resulting in best dry contents upon only slightest strain to the raw paper.

The TURBOPress is a shoe press module, which is available in three different module types: XXL & XL, L as well as S. Bellmer GapCon provides the optimum solution for every need, whether the shoe press is needed for a rebuild or for a new machine. The TURBOPress is a modern tool to improve the overall efficiency of a paper machine. It optimizes the required paper properties and reduces energy costs.



## Size Press / Film Press

Bellmer size presses captivate because of their perfect functionality and reliability. They supply size presses in standing or hanging execution, optimally adapted to the requirements of your paper web and its sizing. High production speeds entailing high process temperatures are taken into consideration when establishing the design.

### TURBOSizer™ / TURBOFilmSizer™

Due to the advanced construction and design, Bellmer size and film presses TURBOSizer™ and TURBOFilmSizer™ operate with maximum security and cleanliness and thus ensure an even, one- or two-sided glue or pigment application.



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## Pulper

### TURBOPulper™

Bellmer TURBOPulpers™ always ensure optimum stock disintegration - if beneath the paper machine for the wet broke and the paper web pulping or the disintegration of dry broke.

Bellmer supplies - subject to the location of installation, kind and quantity of stock - the adequate design and size. There is a choice between the standing and suspended type with round vat or the flat pulper carried out in low height.



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## Dryer Section

### TURBODryer™

With Bellmer as a partner, customers benefit from their great experience and expertise in this field. Bellmer provides advanced overall solutions with cascade type steam and condensate systems as well as the matching hood technology. Their drive designs either with guide roll drive or direct drive and the individual techniques of ropeless transfer are based on the requirements of faster and faster machines.

The cooperation with the Bellmer subsidiary company Lang-Hafner specializing in air & steam systems ensures adequate and custom-tailored energy saving designs. High-quality steam and condensate systems as well as hall aeration or hood and air technology can be combined from one source to your advantage.



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## Threading Systems

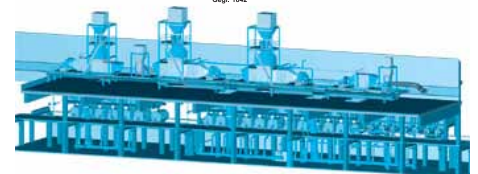
### TURBOFeed

Threading systems have an essential influence on the efficiency of paper machines. Products belonging to the TURBOFeed series reach from the classical rope guiding elements, such as rope pulleys, rope drive and rope tensioners, up to pneumatic ropeless transfer systems.

Additionally, Bellmer has developed adequate stabilizers for faster paper and board production.



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## Calender

The "hard" or "soft nip" calender is an essential component of the paper machine, influencing factors such as smoothness, gloss and CD thickness. Bellmer GapCon's calenders are custom built to meet each customer's requirements yet using standardized equipment.



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## Reeling Technology with the TURBOReeler™ Family

### Reeling:



### TURBOReeler™, TURBOCheck™, TURBODur™, TURBOCenterWinder™

With a product of the TURBOReeler™ family, you decide on a reproducible, fully automatic reel change at any time.

The TURBOReeler™ is a conventional reeler in its perfected form. The modular box-type frame allows fast and secure installation. Cables, pneumatics and hydraulics are safely integrated in the stable quality frame.

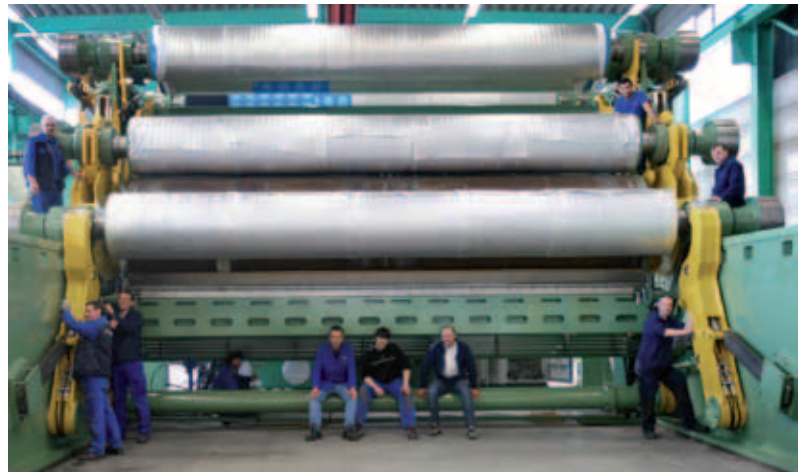
Due to Bellmer's proven large-roll reeling technique, customers have been able to perfectly reel diameters of up to 4,200 mm with the TURBOReeler™.

Monitoring and setting of any operation parameter is effected through process visualization at the clearly laid out control panel. Just in case some error should slip in, the specially developed diagnosis system TURBOCheck™ will help. A criterion for the reeling quality of a paper roll is the reeling hardness.

For the TURBOReeler™, the proven reeling hardness control TURBODur™ was developed. Thanks to this unit, the press curves of the spool to be reeled can be adjusted according to the requirements of the paper grades used.

Should your paper be particularly sensitive or should its air permeability be low, we can provide you with the TURBOReeler™ Pro featuring a secondary center drive. This will ensure that the secondary reeling build-up can be performed in a sensitive way, equipped with the corresponding drive technology.

There are papers such as thermo papers that are so sensitive that one should not even look at them too closely. One inadequate reeling cycle and the quality paper becomes waste. This absolutely highest demand and most difficult task is perfectly mastered by our TURBOCenterWinder™. Through its unique design, each paper roll is reeled up with just one center drive from the starting core up to the end.





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## Unwinding and Splice:

### TURBOUnwinder™



The TURBOUnwinder™ is a conventional unwinding station in its perfected form. The modular box-type frame allows fast and secure installation. The TURBOUnwinder™ is a cost-favorable upgrade for existing slitter winders and can be well used when changing the reeling process to large-scale technology. Subject to the specific requirements on site, inclined hoist for crane-free pick-up of the reel spools from the ground, equipment for quick ejection of the empty reel spools, oscillation of the paper web or brake generators can be integrated into the system.

### TURBOCenterSplicer™

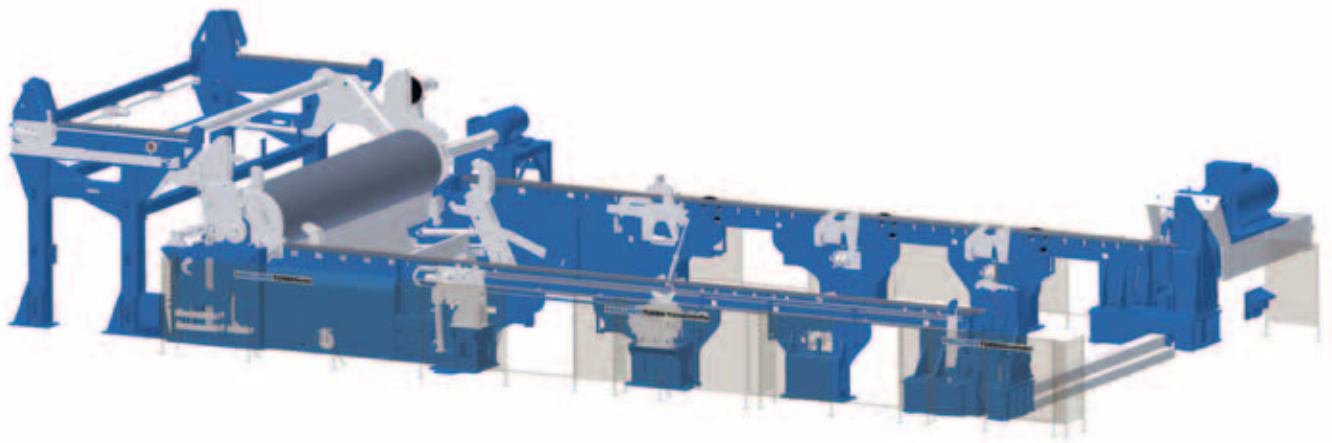
There are papers such as thermo papers that are so sensitive that one should not even look at them too closely. One inadequate unwinding cycle and the quality paper becomes waste, making the following conversion step unnecessary. This absolutely highest demand and most difficult task is perfectly mastered by our TURBOCenterSplicer™. Through its unique design, each paper roll is completely unreeled with just one center drive. The transfer of the paper web is effected by means of our sensitive feeler roll with shortest rest paper flags.

## Transport Systems:

### TURBOTransporter™



The larger the reel spools get (operating width and reeling diameter), the more important their reproducible movement gets - often to be effected through forced transport. TURBOTransporter™ and reel spool magazines solve these tasks for you without any problems, for each and every reel spool. And when here another working step can be saved either through automation or through extension of the crane when changing the process to large reels, you will certainly appreciate that.



## Winder

### TURBOWinder

GapCon's TURBOWinder is based on the two-drum principle and is tailor made to meet the capacity and technological requirements of each customer, while complying with all current applicable safety regulations.

The TURBOWinder is the right choice for most grades and can be deployed up to widths of 7.5 meters and production speeds of 2,500 m/min.



## Steam and Condensate Systems

### Lang-Regler Lufttechnik-Wärmetechnik GmbH

To assure perfect drainage of the drying cylinders, the paper machine has to be provided with a steam and condensate system, which is able to meet a wide range of requirements.

Based on more than 35 years of expert knowledge in this field, Bellmer is able to offer individually designed systems. Their designed and manufactured steam and condensate systems are constantly updated and adapted to the latest requirements of the paper industry.

Bellmer systems guarantee highest economic efficiency, ease of use, as well as long-term commitment.

The installation of their steam and condensate systems is supervised by experienced technicians, controlled, and put into operation.

In case of disturbances, qualified technicians are available to resolve the problem via telephone hotline or personally on site.







## Hoods and Air Systems

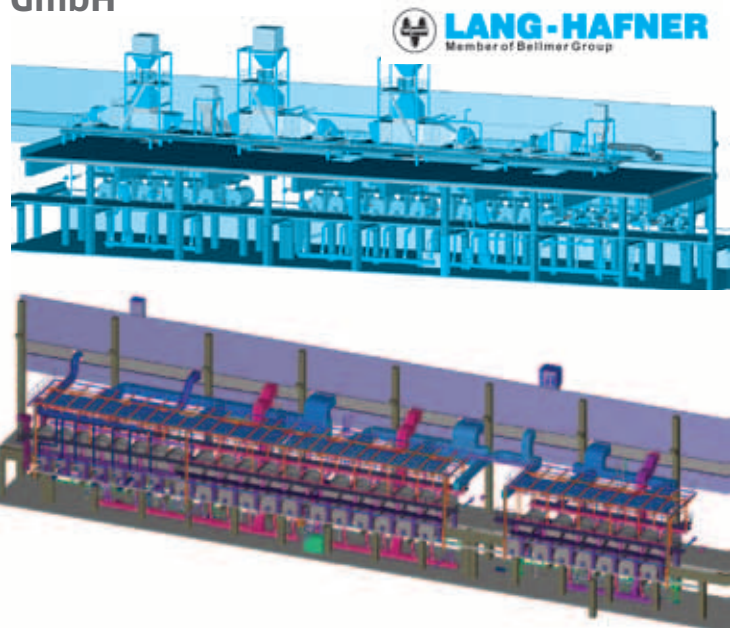
### Hafner Lüftungs- und Klimatechnik GmbH

Comprehensive economic energy strategies do not only require an increase of the drying plant efficiency (steam and condensate systems), but also the installation of an up-to-date air system.

Saving of primary energy by reducing the energy consumption or the energy transfer to the atmosphere enhances the efficiency of all production machines and pays off in a minimum of time.

Hafner GmbH manufactures custom-tailored individually designed exhaust and fog suction hoods up to high-performance hoods.

Special lifting and rolling gate systems and mobile designs allow an easy access to the machine, also for changing cylinders, rolls, fabrics etc.



By means of the heat recovery system, the outlet air from the dryer section is recovered in air/air or air/water exchangers for its recycling into the energy balance.

The heat recovery plant allows to make substantial energy savings and the amortization of your investment can therefore be guaranteed within a minimum of time.

All systems are monitored and operated by ultramodern micro-processor controlled control loops.



## Treatment of White Water, Waste Water and Sludge

Each and every hour of standstill of a machine is money, thus we only provide you with highest quality ensuring smooth operation. There is a good reason why Bellmer is the market leader in this field. Thanks to more than 800 reference tools in the paper industry, you can benefit from a rich experience and expertise. Here, they offer the most ample solutions in order to relieve water cycles, to lower production costs or just to reduce the cost for the disposal of sludges. Bellmer innovations here have set the standard again and again.

Learn more about Bellmer solutions:



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**BELLMER KUFFERATH**

### TurboDrain™ TDR for

- SW-II-cleaning
- recovery of valuable substances
- separation of stickies in waste paper preparation

### TurboDrain™ TDC for

- thickening of paper sludges



### WinklePress™ WPH for

- high-pressure dewatering

### WinklePress™ WPN for

- dewatering of paper sludges
- dewatering of deinking sludges

### Bellmer Poly Stations for

- effective solution of flocculent



### Cascade for

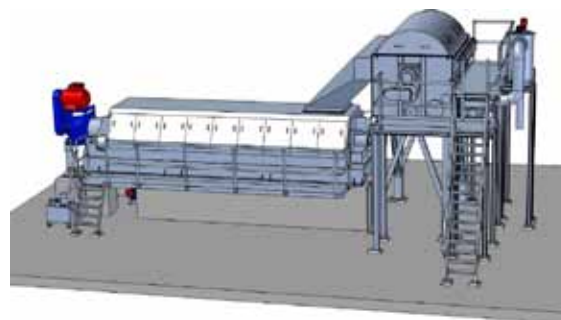
- thickening and dewatering of any sludge occurring in the paper industry

### Bellmer System Control BSC for

- automation of your plants
- reduction of use of chemicals

### AKSE® S Disc Thickener and AKUPRESS® BX Screw Press

- Highest dry contents up to 70% through patented, automatic control system
- Inlet stock consistencies of 0.5 - 25%
- Optimized machines for 2 - 160 t/d throughput per line
- High bio sludge content possible
- Closed design with little space requirements



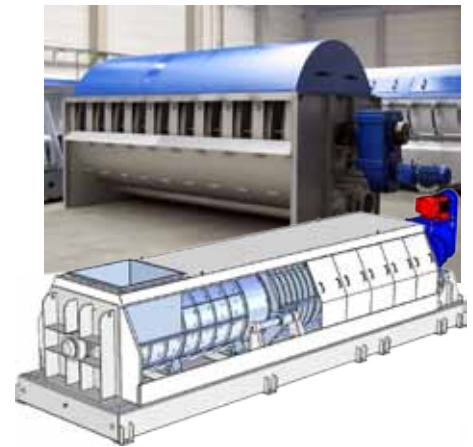
## Fiber Thickening / Dewatering

### Disc Thickener AKSE® F

- Hydrostatic thickener without down pipes
- Sturdy against inlet fluctuations
- Completely closed design
- Automatic control and easiest handling and maintenance.

### Screw Press AKUPRESS® CX

- Inlet stock consistencies of 3 - 20%
- Highest dry contents up to 55% dry content
- Machine sizes for quantities of around 10 - 500 BD available in 5 sizes from 250 - 1,400 mm screw diameter
- Patented control system



## Rejects Dewatering

Bellmer Kufferath Machinery has more than 150 reference systems, comprising 5 sizes from 250 up to 1,000 mm screw diameter with capacities of up to 200 BD.

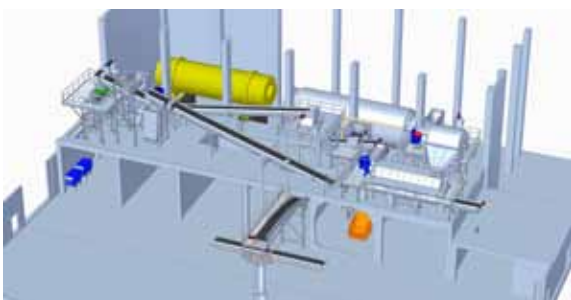
Turn-key rejects treatment systems consist of hereafter mentioned parts:



### Screw Press AKUPRESS® A/AS/AX

as well as additional systems engineering (such as, e.g. shredders, metal separators, conveyors etc.)

- Dewatering of coarse and fine rejects from waste paper stock preparation plants from 55 - 75% dry content
- Dewatering of pulp rejects from 45 - 55% dry content
- Bilaterally bedded screw for highest stability and low wear



## Engineering



To acquire an engineering through Bellmer means that we show you ways and solutions how to improve the quantity, quality and runnability of your paper machine and also how to utilize so far undiscovered potentials within your production process. The possible starting points of an engineering job include among other things stock preparation, approach flow, fiber recovering in white water cleaning and paper machine.

An engineering project is the best way of solving a problem as this job is carried out with a definite and concrete aim.