

DEVASOL

DEWATERING VACUUM SOLUTIONS

Innovative dewatering solutions for paper industry



Devasol - a reliable partner for development and implementation of your drainage and vacuum solutions. By placing your trust in our Devasol experts, tailor made solutions for your production processes will be provided as well as assistance in optimization of existing processes. We are a top-quality dewatering and vacuum systems products supplier. With our commitment to the success of each customer, combined with innovative, user-friendly and high-quality solutions, we are the right choice for all your needs in the field of dewatering vacuum solutions in paper industry.

Definition of the type, number, position and profile of the drainage elements, based on the needs of the customer needs.

Objective:

- Improve the formation
- Produce a qualitatively consistent sheet
- Retention control
- Increase the drainage capacity and/or increase savings by producing a higher finished dryness level

By:

- Turbulence level control
- Foil positioning
- Foil geometry
- Hydrodynamic drainage
- Control of the vacuum level in low, medium and high vacuum zone

INITIAL FORMING ZONE FORMING BOARD

The function of forming board is to:

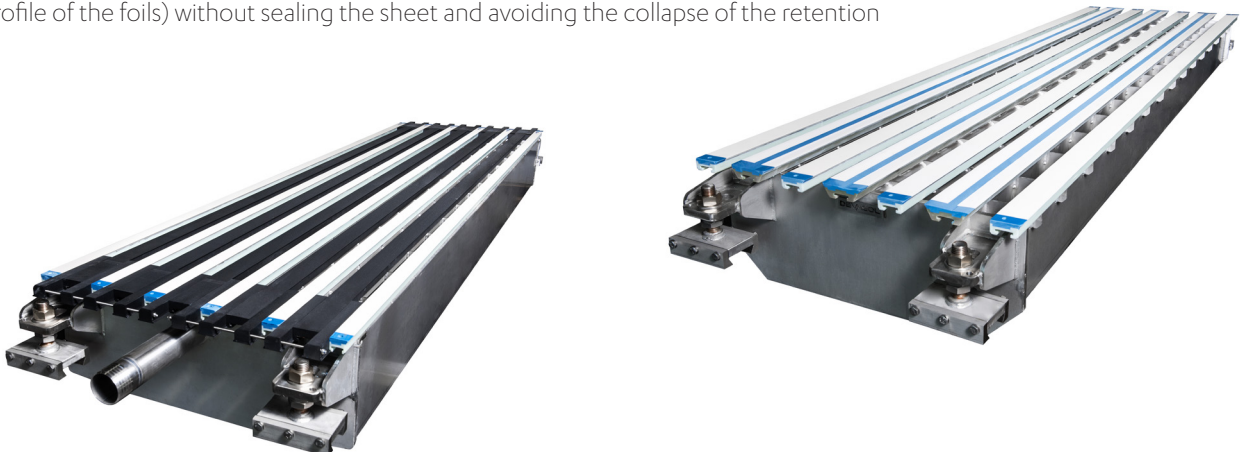
- support the forming fabric in the landing point of the jet
- be can easily positioned to use the power of the jet for a correct initial drainage
- utilize shear forces, generated by speed difference between fabric and jet
- generate sufficient turbulence by means of number, position and profile of the foils
- drain the correct water quantity (preventing the sealing of the sheet and the collapse of the retention)
- have a good structural rigidity to resist all the stress generated by the impact of the jet without vibration that could change the sheet formation



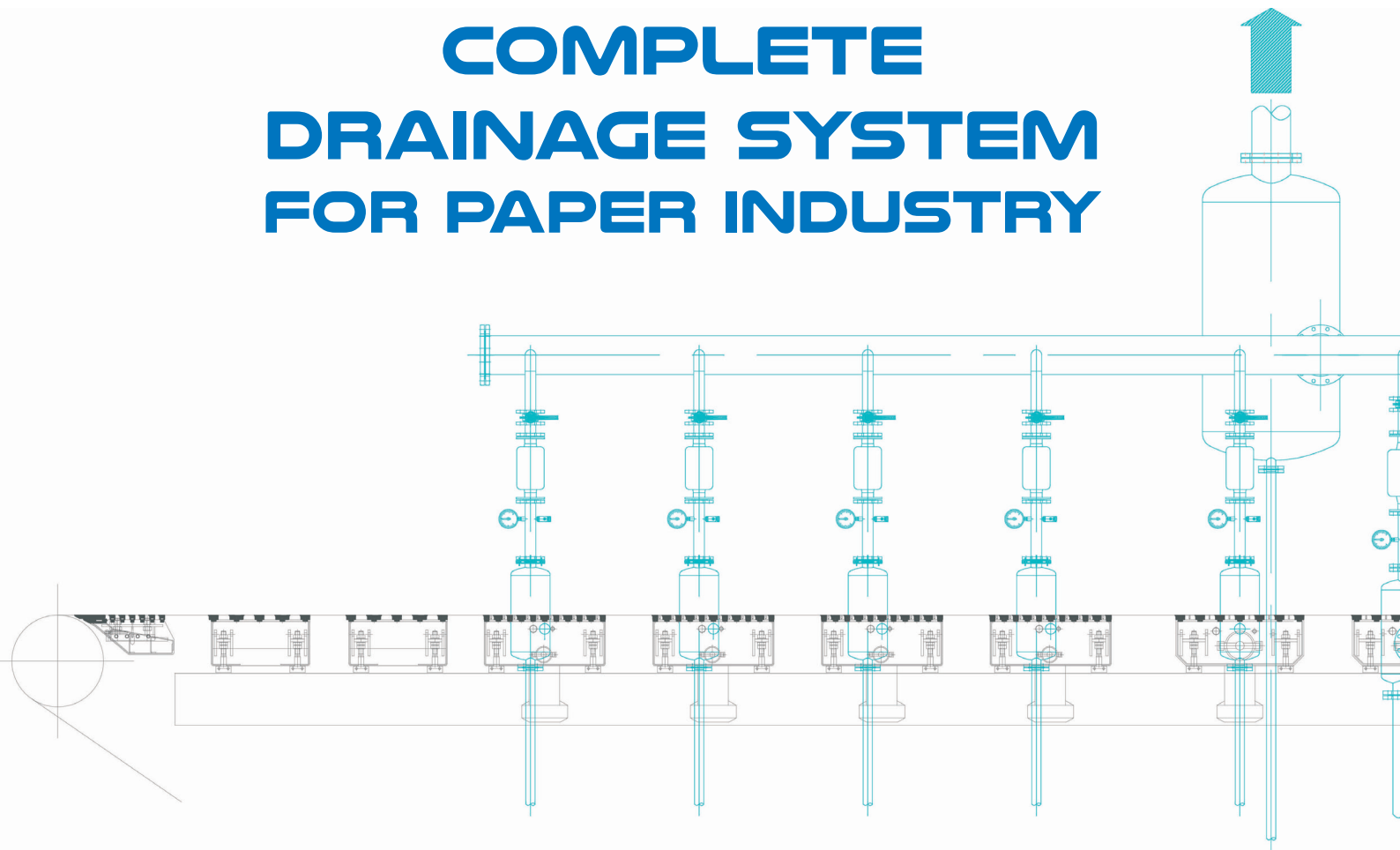
FORMATION ZONE HYDROFOIL / STEPFOIL BOX

This type of drainage elements must:

- produce sufficient level of turbulence by mean of number, position and profile of the foils; the scope is to avoid the fibre flocculation which prevents a good formation of the sheet
- remove water in a controlled and progressive way (depending on the number, position and profile of the foils) without sealing the sheet and avoiding the collapse of the retention



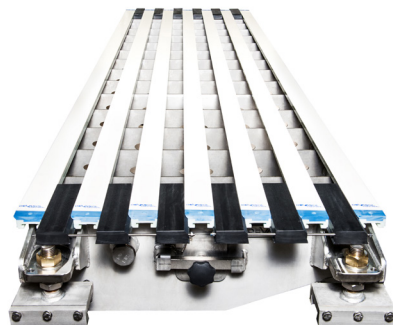
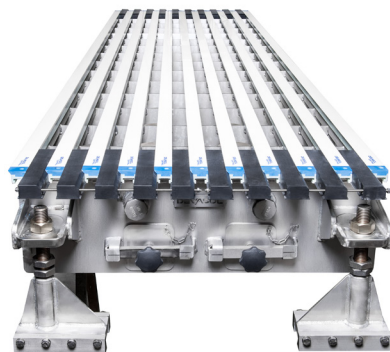
COMPLETE DRAINAGE SYSTEM FOR PAPER INDUSTRY



LOW AND MEDIUM VACUUM ZONE VACUUMFOIL BOX / DUOFLOW BOX

This type of drainage element must:

- remove the water from the pulp by means of low and medium vacuum. The existent hydrodynamic forces in the formation zone are no longer sufficient to ensure an efficient drainage.
- remove the water in gradual way by the installation of vacuum boxes with increasing vacuum level.
- Control of the dry line.

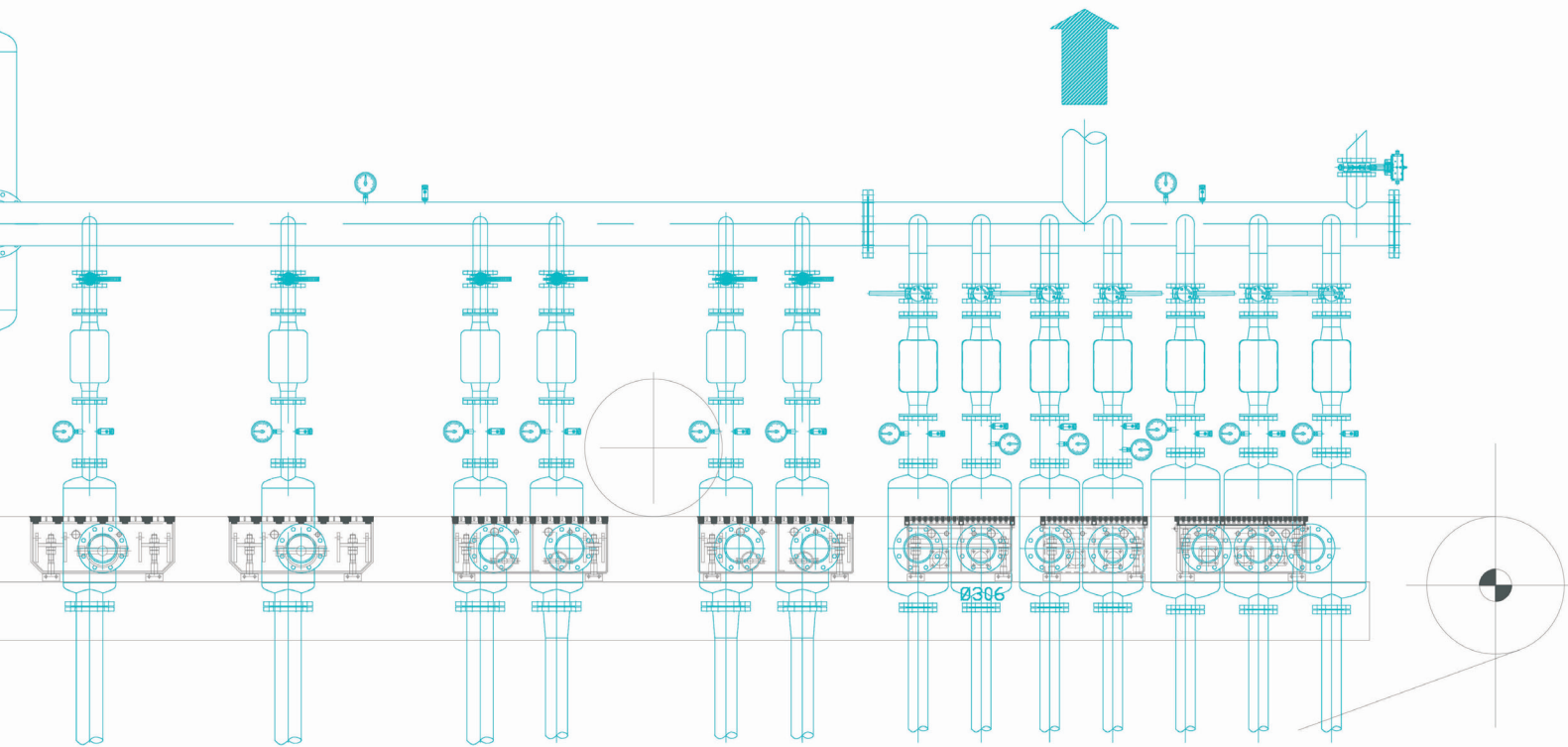


VACUUM PLANT

The complete vacuum plant, from projection to construction and final assembly:

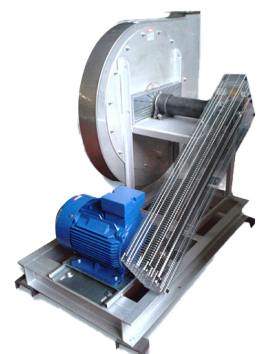
- Tubing
- Vacuum regulators
- Separators





HIGH VACUUM ZONE SUCTION BOX – BIVAC – TRIVAC – QUADRIVAC

With the increase of the dry level, in the sheet, it is necessary to apply a progressively higher vacuum level to overcome the resistance at the drying. From the operational point of view, there is a significant difference between the installation of a few single boxes and installation of a single box with multi vacuum zone. In a system with single boxes, the pressure between two boxes returns to atmospheric pressure. The vacuum in the next box must be restored with a reduction in drainage efficiency. In a system with multi-vacuum boxes, there is no discontinuity in the vacuum increment, which increases the drainage efficiency.



DEVASOL MATERIALS

CERAMIC

ALUMINIUM OXIDE



Alumina or aluminium oxide (Al_2O_3) is the most commonly used material for applications in the paper industry due to its excellent mechanical properties. High hardness and compressive strength, good wear and corrosion resistance, and good edge toughness distinguish it. With a special grinding process, a good surface smoothness can be obtained.

ZTA



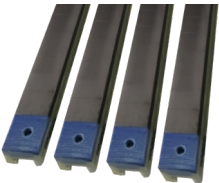
Zirconia toughened alumina (ZTA) is a composite ceramic material with zirconia grains in the alumina matrix. It was developed to additionally improve the properties of aluminium oxide. Very low porosity and high wear resistance make this material ideal in the presence of abrasive fillers. The thermal shock resistance was increased up to $170^{\circ}C$. These improvements were made to keep a high surface smoothness and edge toughness.

ZIRCONIUM OXIDE



Zirconium oxide (ZrO_2) ceramic is excellent where high shock resistance is needed. This self-lubrication material is ideal to be used in the press section, where water content is low. The material has a lower hardness as aluminium oxide, but higher fracture toughness.

SILICON NITRIDE



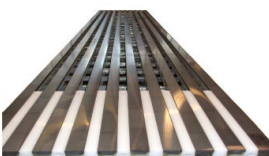
Silicon nitride (Si_3N_4) ceramic features an excellent combination of material properties. Its microstructure creates excellent thermal shock resistance and a high fracture toughness. The extraordinary surface hardness makes this material ideal for high wear applications.

SILICON CARBIDE



Silicon Carbide (SiC) ceramic has the lowest residual porosity of all the ceramic materials developed for the most difficult applications. With his exceptional wear resistance and thermal stability, this material exhibits an excellent wear resistance even with abrasive fillers. SiC is the only material that guarantees the best surface quality throughout its life

POWERFUL NITRIDE



An improved silicon nitride material. Practically absent surface porosity, improved hardness (hard as diamond), the lowest friction coefficient of all ceramic materials makes it perfect for installation when high mechanical stress resistance is required or energy consumption reduction is needed.

PLASTIC

HDPE



High-density polyethylene (HDPE) is a thermoplastic polymer produced from ethylene.

Properties:

- Good chemical and moisture resistance
- Poor wear resistance
- Low sliding resistance
- High workability
- Excellent surface finish
- Good dimensional stability

HDPE - GF



HDPE reinforced with glass fibres.

Properties:

- Good chemical and moisture resistance
- Good wear resistance
- Low sliding resistance
- Good dimensional stability
- Excellent surface finish
- Best quality/price ratio

HDPE - CERAM

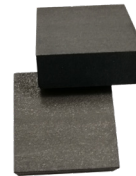


HDPE with ceramic reinforcement.

Properties:

- Good chemical and moisture resistance
- Best wear resistance
- Sliding resistance almost absent
- High workability
- Good thermal deformation resistance
- Good dimensional stability

SEAL L or H



Self-lubricating HDPE / Graphite composite.

Properties:

- High concentration of graphite endures emergency situations such as dry running.
- L version (low graphite content) can be used for speeds up to 800m/min.
- H version (High graphite content) is excellent for speed exceeding 800m/min.
- Low sliding resistance and consistent energy savings.
- Increased life of cylinder shells.
- The H version guarantees a double life-time compared to the L version.

Metalwork and grinding of technical ceramics



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