Your requirements
The primary purpose of the headbox is to create an excellent paper quality for all planned grades. This includes primarily an effective control of the CD basis weight profile. The reliable setting of the fiber orientation is awaited from the headbox, as is a precise edge area of the stock jet in the wire section. The jet turbulence should create a paper with the best possible formation, flatness and strength properties in a broad production range. For the operator and papermaker, good accessibility and maintenance friendliness are of equal importance to cleanliness and purity.

Our solutions
The MasterJet II F high-turbulence headbox is designed for maximum availability with top paper quality. The optimal flow path and turbulence generation ensure optimal jet qualities in a broad production range. C-clamp mode of construction creates maximum parallelism of the slice gap in all speed ranges. ModuleJet is the world’s leading dilution technology system for excellent CD profiles. Fiber orientation can be corrected independently of the basis weight. The greatest possible accessibility is ensured by machine-wide opening of the back wall and top lip beam. Particular attention is always given to walkways, covers and showers for customer-specific solutions.

Your benefits
Excellent jet quality is reflected in the paper quality. The ModuleJet dilution technology produces not only good profiles but also a locally stable web run, good flatness characteristics and improved productivity. Through the use of lamellas, jet properties can be achieved that ensure the desired paper quality. The optimized flow path ensures high runnability through low tendency to contamination. Through machine-wide opening parts the maintenance personnel has optimal accessibility to the surfaces in contact with the stock. The stainless steel construction means that the components have a long service life. The compact and space-saving design permits good integration into the paper machine.
The function

It is the function of the headbox to distribute the stock suspension as troublefree and homogeneously as possible across the width of the machine and to deflocculate it by suitable turbulence generation. As a control tool, it is used for the optimization of the CD basis weight profile and fiber orientation.

The technology

Effective damping of the pulsations coming with the main flow out of the stock supply system takes place in the pulsation damper on fourdrinier and hybrid former machines on the basis of reflection and absorption. A parabolic header with a round cross-section ensures a uniform distribution of the suspension across the entire machine width. The turbulence generator with precisely defined flow steps in the individual tubes generates an optimal turbulence level for deflocculating the suspension. To adapt the introduced microturbulence to the operating and stock conditions, special inserts are used in the turbulence generator. These are exchangeable during a later rebuild so that with changed volume flow optimal conditions prevail. For a further improvement of the jet quality and for control of the MD/CD tensile ratio lamellas are inserted in the nozzle.

With the aid of Voith ModuleJet™ dilution technology and the associated Profilmatic™ M control system, basis weight disturbances are corrected. As this correction takes place by local changes in stock consistency, the jet direction and therefore fiber orientation remain uninfluenced.

MasterJet II F

Hydraulic headboxes for fourdriniers and hybrid formers

The technological characteristics of a paper web are decisively determined by the headbox and its quality. Therefore, on the headbox, particularly high demands are made on accuracy and precision. It is only through the maximum possible accuracy that the constancy of the paper characteristics, such as CD basis weight profile, main fiber direction, uniform formation, flatness, etc., are achievable.
The design

The basic design of the MasterJet II F headbox is based on an extremely rigid and stable supporting box, which takes up the turbulence generator and supports the bottom lip and top lip beams. This creates maximum parallelism in the nozzle and the lip gap. By means of precision adjusting threads or gear units the slice lip profile can be set exactly during operation. The ModuleJet dilution technology is upstream of the stilling chamber.

For thermal stabilization the headbox is equipped with a heating system. The turbulence generator serves as a heat exchanger. Via heating chambers the temperature of the headbox is adapted to that of the suspension. The C-clamp mode of construction avoids support of the nozzle forces over the lateral components and thus a deflection of the top lip beam under load. All forces are taken up within the headbox structure.

For the exact setting of the jet impingement point the top lip beam is moved horizontally. To ensure optimal cleaning and inspection the back wall or the header can be swiveled open and in this way machine-wide access is granted to the turbulence generator. The nozzle area becomes accessible when the top lip beam is swiveled up.

In summary it can be said that with regard to the hydraulic concept, the settablity, operability and accessibility, our further developed high-turbulence MasterJet II F headbox meets the highest demands. Manufacturing accuracy, material selection and surface quality are adapted in a trendsetting way to today’s quality demands. The equipment for controls and instrumentation are adapted to the geometric and dynamic conditions of the headbox so that the respective tasks are fulfilled with the greatest possible benefits. A maximum of accuracy, resolution and repeatability ensure a maximum system capacity and maximum availability.