INVO® Shower

UMV's flexible shower system

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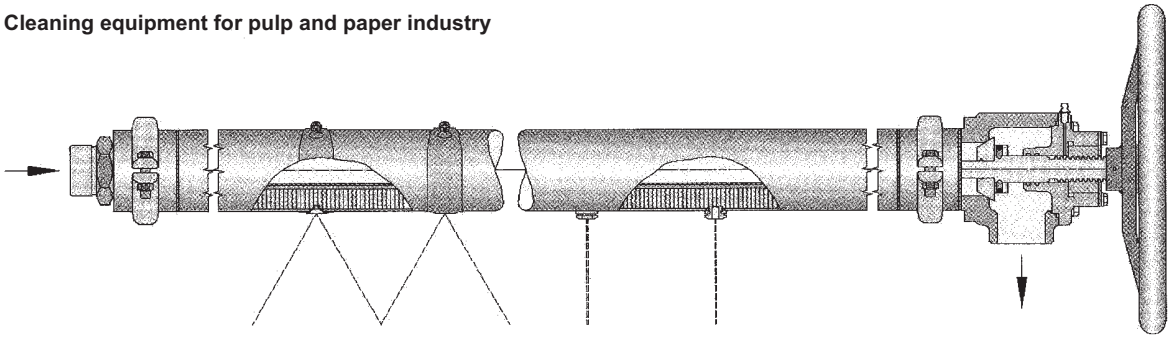
Cleaning equipment for pulp and paper industry



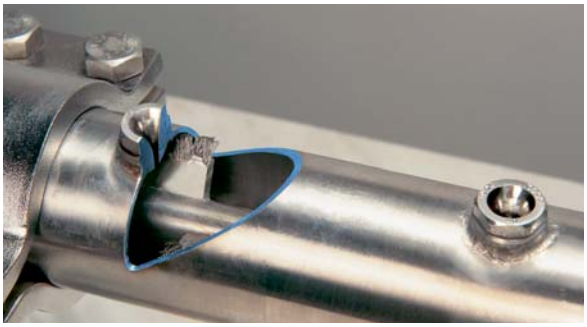
The need to clean wires and felts has escalated in recent years because of the increased use of recycled paper. The widespread use of closed circuit white water systems and the need to lengthen the life of the wires and felts has increased the demand for efficiency on wire and felt cleaning systems.

Invo® shower pipes and oscillators provide a cost-effective and optimum cleaning efficiency. The nozzles can be cleaned while in operation. Oscillating speed is synchronized to machine speed and loop length to optimize cleaning efficiency and water consumption. The end result gives better capacity and longer life of the wire or felt.

The cleaning system is designed to give flexibility. A pipe without cleaning equipment can be fitted on site with a valve house and brush bar.

Shower pipes

The internal cleaning equipment consists of a valve house and a rod fitted with either a wheel or a ratchet wrench. Shower pipes can also be delivered without cleaning equipment.



Shower pipe applications

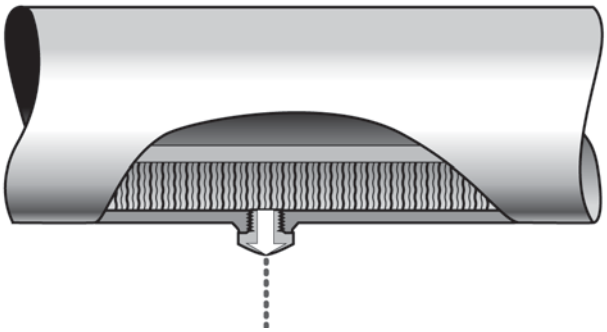
High-pressure shower pipes
Cleaning of wires, press felts, dryer fabrics and rolls.

Low-pressure shower pipes
Cleaning of wires, felts drum filters, cylinders, etc. Low-pressure pipes can also be used to apply chemicals and for moistening.

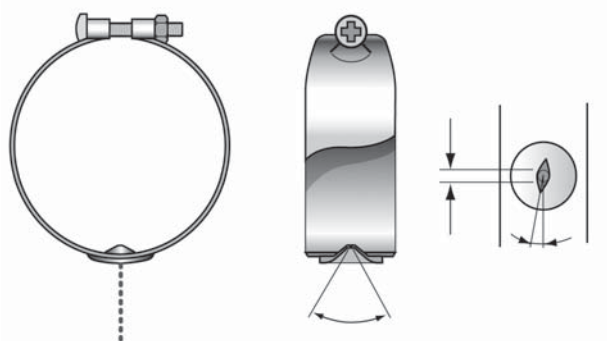
Other pipes
Knock-off showers, edge shower, single traversing showers and different types of double pipes.
Different types of showers according to customer requirement can also be quoted upon request.

Nozzles

Threaded nozzles
The nozzles are used for needle jet nozzles to ensure distinct directional accuracy and a tight seal around the nozzle.

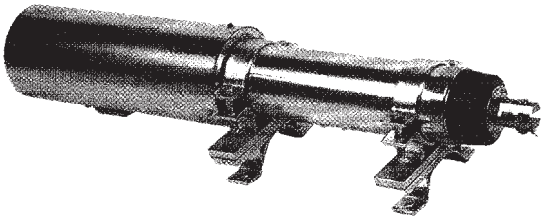


Patented band nozzle
This nozzle is made for low-pressure showers and fishtail jets. The nozzle is easy to change and ensures that the nozzles are always fitted at the correct angle.



Oscillators

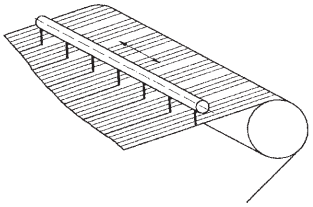
Oscillators standard type:
Is an electromechanical ballscrew oscillator which has an endless threaded ballscrew and AC drive motor. The endless screw allows the drive to rotate in only one direction. To achieve a good cleaning of the fabric the gear ratio is adapted to give the oscillator the right speed. All external material, including protection hood for drive unit, is acid resistant stainless steel.



Control cabinet in stainless steel:
Oscillator with control system and following main functions:

- Oscillating speed control by frequency converter
- Safety control of stand still and water supply control unit
- The control cabinet can be connected to the DCS-system

Calculation of oscillating speed



To receive an optimal cleaning with total covering, the oscillating speed is synchronized so that the complete wire and felt will be cleaned without any spot being cleaned twice.

$$\text{Oscillating speed mm/min} = \frac{\text{machine speed (m/min) x nozzle dia (mm)}}{\text{Loop length (m)}}$$

Benefits with optimal cleaning

Wire:

- Better sheet release
- Better drainage
- Longer wire life
- Reduced pin-holding on tissue machine
- More even wearing of cloths

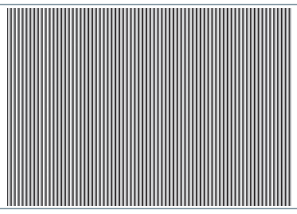
Felt:

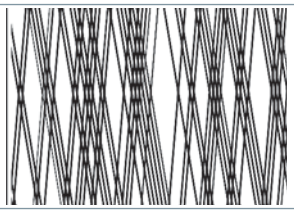
- Better cross machine moisture profile
- More consistent felt performance throughout the lifetime of the felt
- Longer felt lifetime
- Lower Uhle box vacuum

Advantages of INVO® shower pipe system:

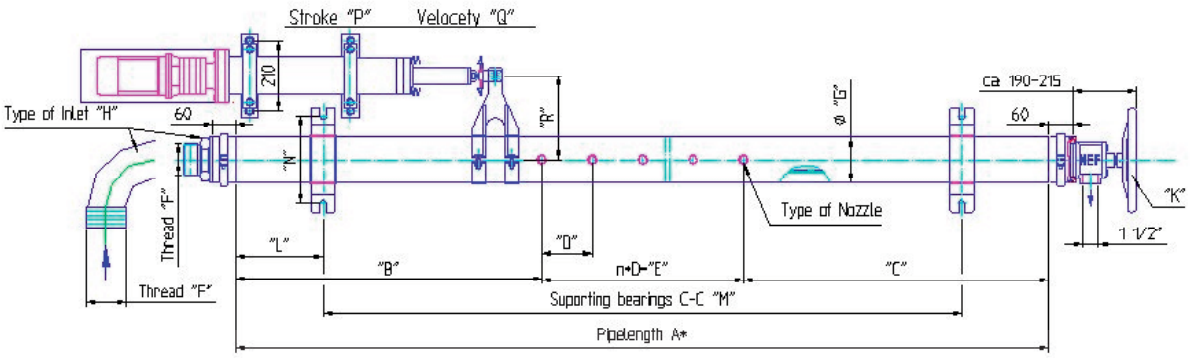
- Nozzle-cleaning while operating means that unfiltered or white water can be used
- Each wire/felt cleaning system is adjusted for optimum cleaning
- Minimum maintenance
- Flexible configuration
- Self-orienting nozzles minimize the risk of wrongly angled fishtail jets
- Optimum nozzle efficiency
- Prompt delivery of new products and spare parts
- High quality products

1. Synchronized speed
2. Unsynchronized speed

1. 

2. 

Standard high pressure oscillating showerpipe, hand operated brush.



Customer

Felt width:		**Felt lenght:**		**Machine speed: Max:**	**Min:** / ***Nom*:**
*Ref *A*:*	*Ref *B*:*	*Ref *C*:*	*Ref *D*:*	Ref"K" ☐ Handwheel ☐ Ratchet	Ref"H" ☐ Bend ☐ Stright
*Ref *F*:*	*Ref *G*:*	*Ref *L*:*	*Ref *E*:*		
*Ref *M*:*	*Ref *N*:*	*Ref *P*:*	*Ref *Q*:*	*Number of nozzles "n":*	
Induktiv sensor ☐	Pressure:		*Ref *R*:*	**Number of units:**	
Internal cleaning brush ☐		*Type of Nozzles:*			

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