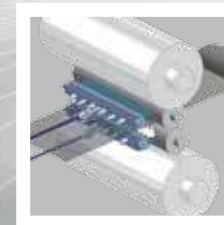
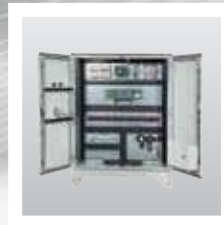
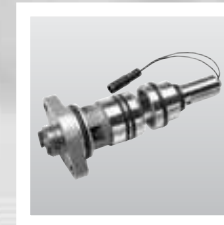


ENGINEERING  
YOUR SPRAY SOLUTION



## SELECTOSPRAY® Roll Cooling Systems



**SELECTOSPRAY®**



Lechler is the world's leading spray technologist, with more than 130 years of experience in providing spray solutions to global leaders in manufacturing industries. Since the company was founded, we have gained unsurpassed knowledge and experience which has enabled us to keep at the forefront of spray technology. Based on the knowledge we have gained we are fully aware of what is required by modern industry and how it can be achieved.



Headquarters, Germany



Lechler Ltd., United Kingdom



Lechler Inc., USA

Research and development plays a vital role in maintaining our global position. Teams of highly motivated engineers are constantly striving to develop new products and solutions that will assist you in maintaining the competitive edge in today's fast moving environment.

Our sales and technical specialists around the world have proven track records in building successful business partnerships wherever quality, performance and reliability are important. Allow Lechler engineering to assist you to drive your manufacturing process forward.



## Roll Cooling Systems

**The Lechler SELECTOSPRAY® roll cooling system is the industry standard for selective roll cooling in the rolling of flat steel, aluminium and other non-ferrous strip.**

- Advanced design and engineering capabilities with more than 400 systems and 1000 headers designed and manufactured.
- In depth application know-how and process knowledge.
- Comprehensive range of high-performance electrical, pneumatic and electro/pneumatic valves.
- In-house design and build of dedicated control cabinets.
- Tailored engineered systems as well as standard configurations.
- Production facilities in Germany, China, England, India, Hungary and the USA. Global network of affiliated sales offices and representatives in over 40 countries.

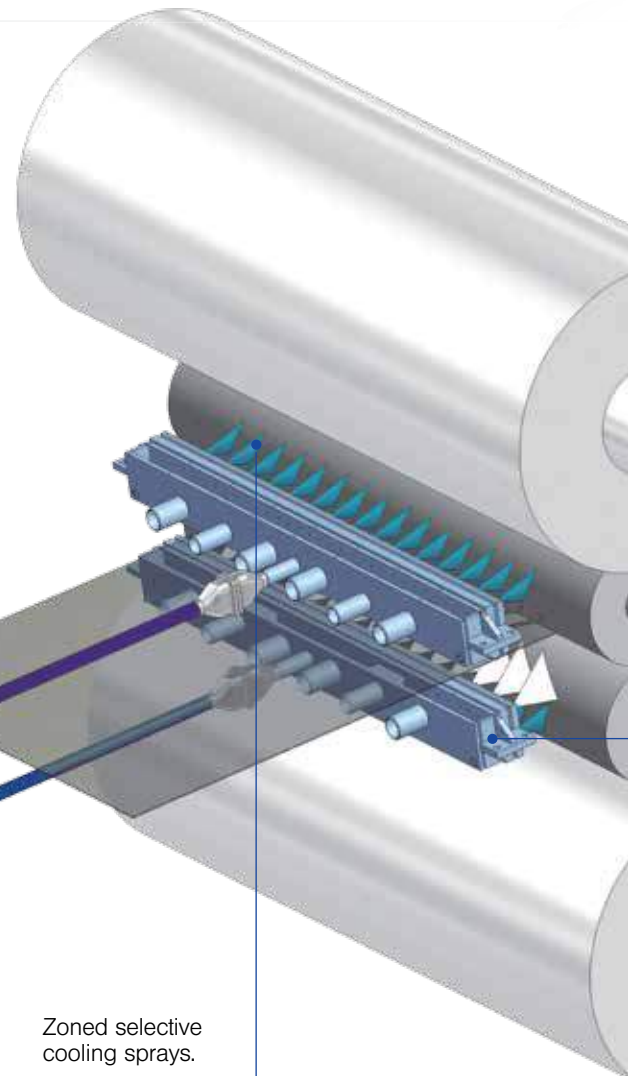


Control cabinet



Zoned selective cooling sprays.

Upper selective roll coolant header



# Advanced Design and Engineering Capabilities

The multi-discipline engineering team at Lechler offer the ability to optimize the roll cooling efficiency by the unique ability to offer a tailored solution to each SRC project.

From initial conceptualization to complete integration into existing or new mill configurations, the approach is the same. No compromise—with an optimized solution to maximize process efficiency.

## Computational Fluid Dynamics (CFD)

To determine that the internal fluid paths are designed to meet the criteria of near laminar flow.

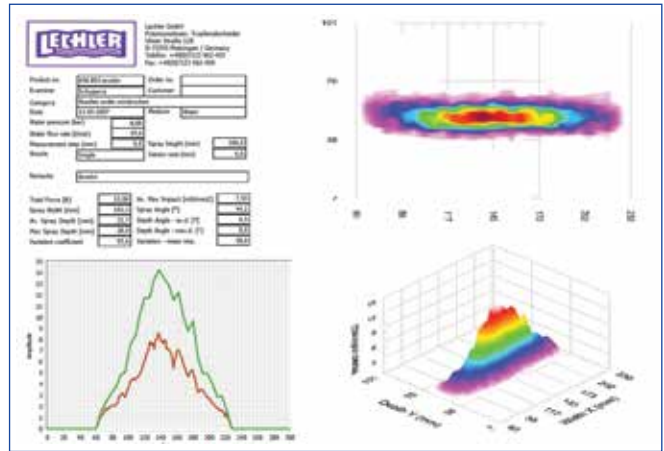
## Finite Element Analysis FEA

To ensure loadings are designed and modelled within acceptable stress and deflection criteria.

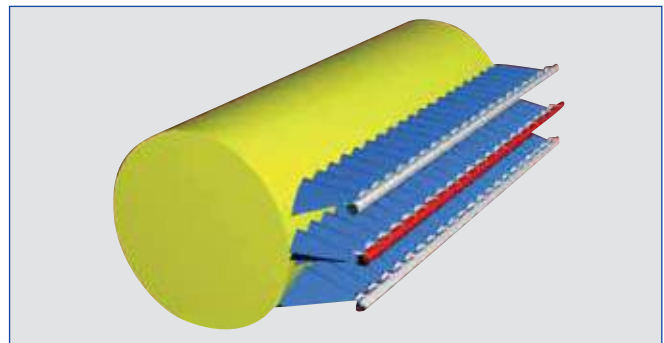
The state of the art tools used to achieve this goal are:

**Thermal Modelling** to determine the most efficient use of the available coolant.

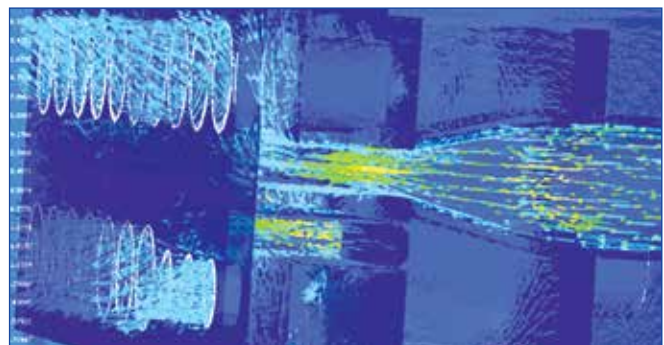
**Spray Simulation** utilization of inventor 3-dimensional imaging software to develop symmetrical cooling profiles from the available spray bar position.



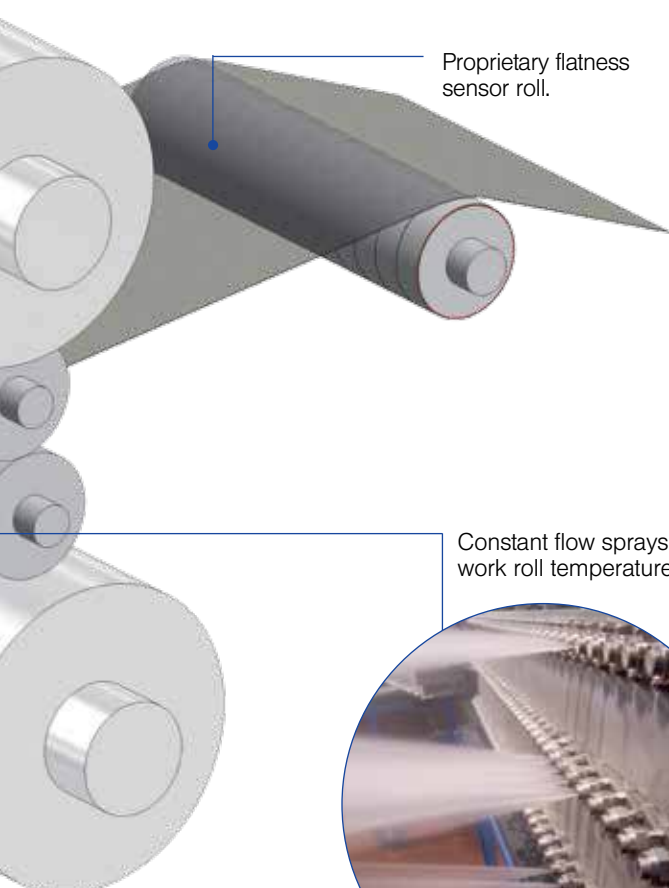
Spray impact / pressure analysis



Roll cooling nozzle arrangement

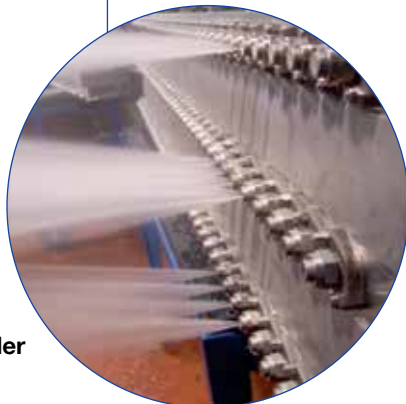


Header internal flow analysis



Proprietary flatness sensor roll.

Constant flow sprays for stable work roll temperature control.



Lower selective roll coolant header

## Lechler scope of supply:

- Selective/non-selective coolant headers
- Control cabinet
- Control connections (electric/pneumatic)
- Spares
- Thermal modelling
- Mill cooling system audits

# Application Know-how

**Lechler supports a long experience of designing and building roll cooling systems with considerable know-how in the operational and process field through our industry experts.**

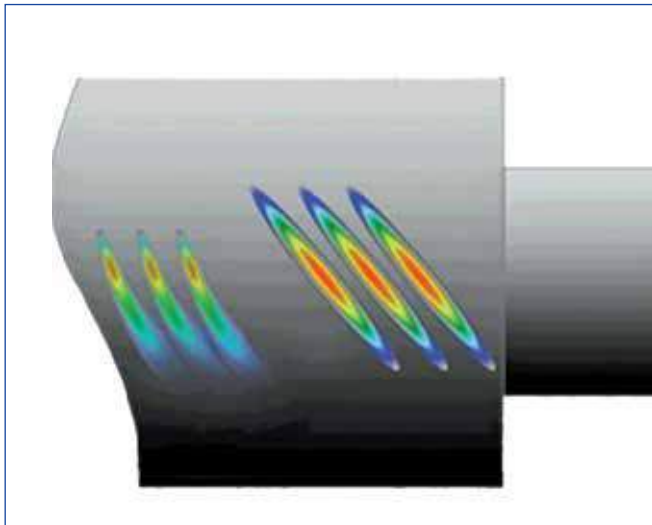
Whereas the principal objectives of the selective roll cooling system is to achieve optimum strip flatness and efficient heat transfer from rolls; ensuring this is achieved by applying minimum coolant

is a key engineering and production priority. This results in a consequential reduction in the volume being processed for recovery or disposal of spent coolant which significantly reduces primary operating cost.

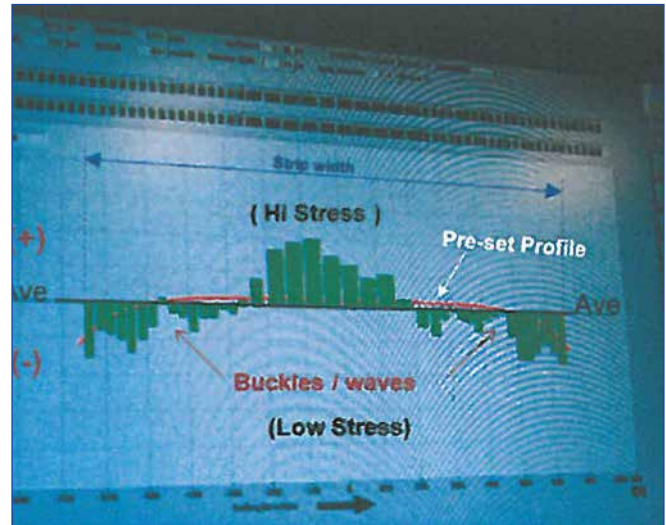
Efficient application of the coolant and lubrication media also ensures minimal generation of detritus and particulates in the process further improving service

quality and strip brightness. Lechler systems are "designed in" to the existing mill configurations as an integral part of the rolling process ensuring optimum interaction and integration with the rolling process.

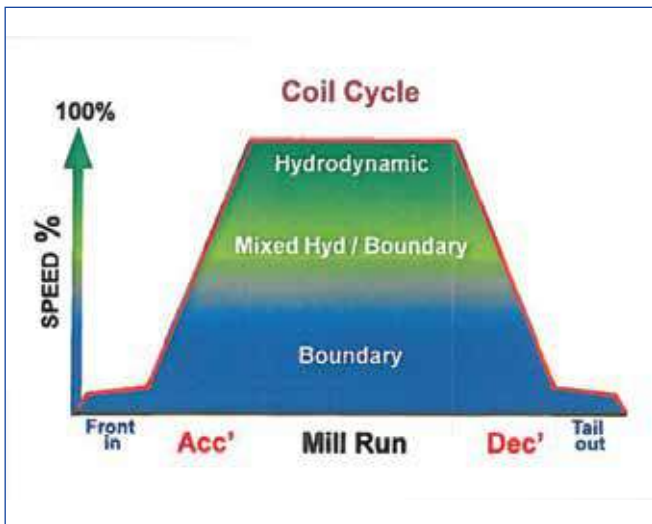
Lechler provides participative contributions to ensuring clients process needs are considered a priority.



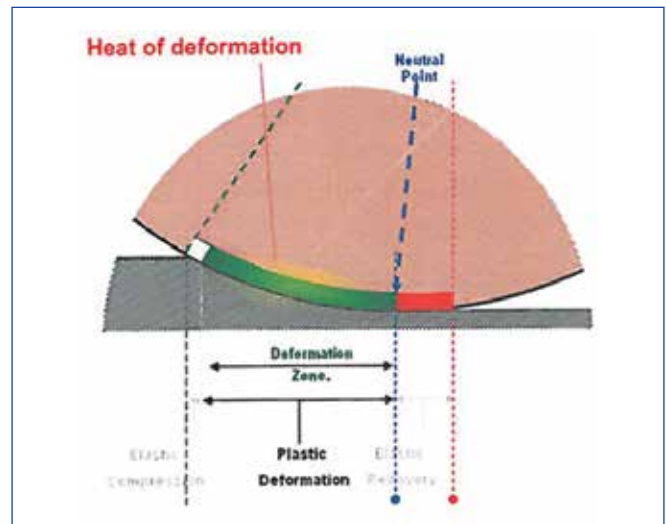
Spray pattern symmetry (non ideal on left, ideal on right)



Flatness display



Lubrication coolant phases

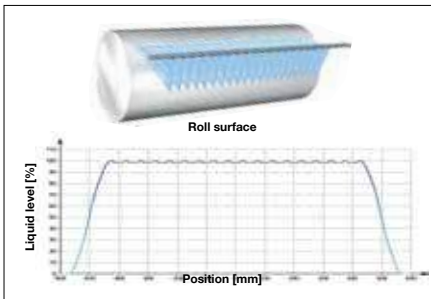


Generation of heat in roll

# Thermal Roll Cooling Studies

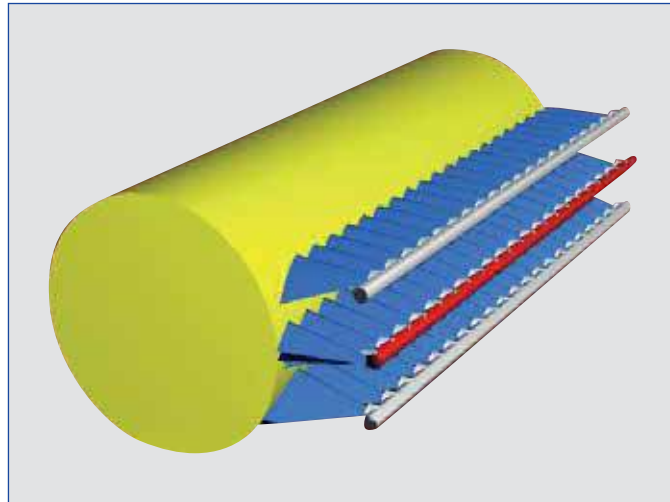
Over the life span of a rolling mill the requirements in terms of product quality and the range of steel grades may change significantly. In particular the capability of the installed roll cooling systems needs to be investigated as one of the key technology area when it comes to process modifications aiming for a higher productivity.

Having engineered and installed more than 350 selective cooling systems in steel, aluminium and non-ferrous rolling mills and having revamped a large number of conventional roll cooling systems in hot and cold rolling mills Lechler has the competence and experience to also help you to optimize your roll cooling system performance.



Optimum strip flatness thanks to simulation of the nozzle arrangement

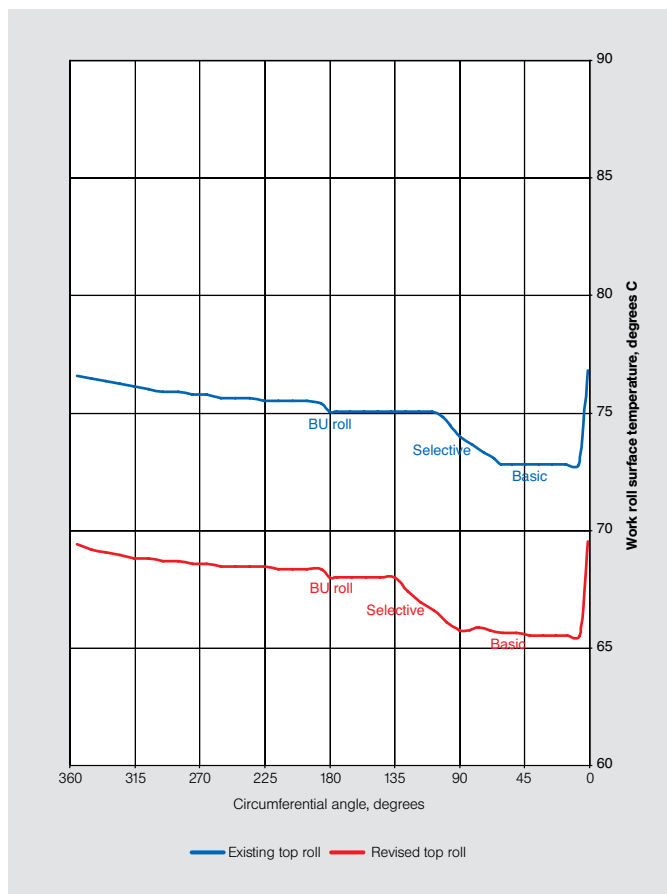
Where the capability of Lechler was limited to the investigation of the coolant volume distribution characteristic, Lechler can now also simulate the thermal cooling effect of the existing work roll sprays with a computer model.



Roll cooling nozzle arrangement

## Thermal roll cooling studies help to:

- Improve product quality
- Increase mill speed and productivity
- Experience of 350 Roll cooling systems installed
- Optimized roll cooling headers and nozzles from one source



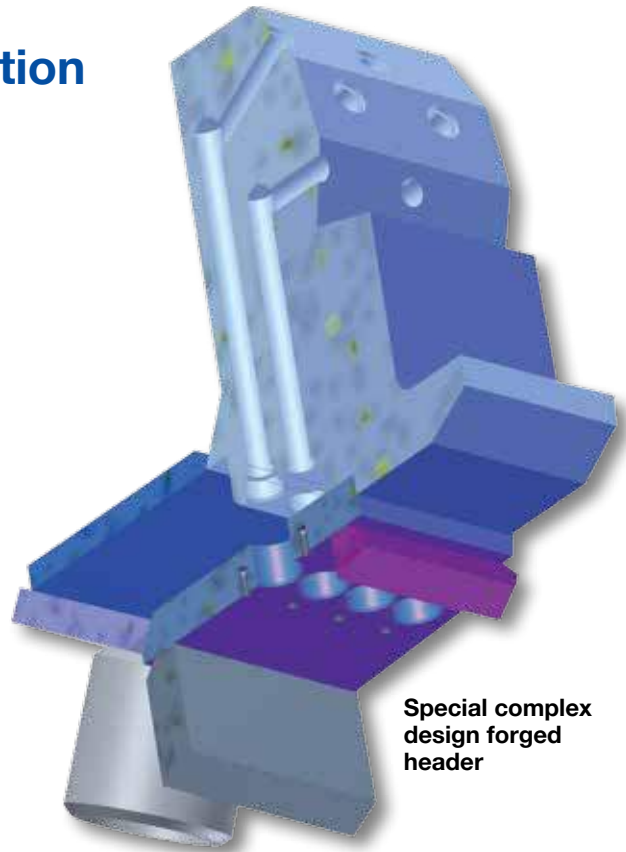
Circumferential work roll temperature profile before (blue) and after (red) optimization

# SELECTOSPRAY® Header Evolution

State of the art design and manufacturing has seen Lechler headers develop from a mixture of small fabricated mild steel plates to current industry leading standards for conventional mill configurations using stainless steel plates or heavier stainless steel forgings as a basis of our robust custom built solutions when for example a roll change support rail is required.

Lechler's header design concepts ensure faster times to market, more competitive pricing whereas development of smaller valves that match the flow of traditional larger valve designs; result in more compact headers, affording the optimising process a further iteration.

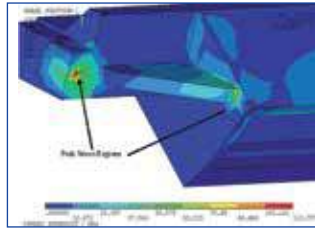
Utilizing the Lechler in-house manufacturing and design facilities, the ethos of complete structural integrity is a precursor to creating header designs that have high impact resistance as well as and including such things as integral roll change rails.



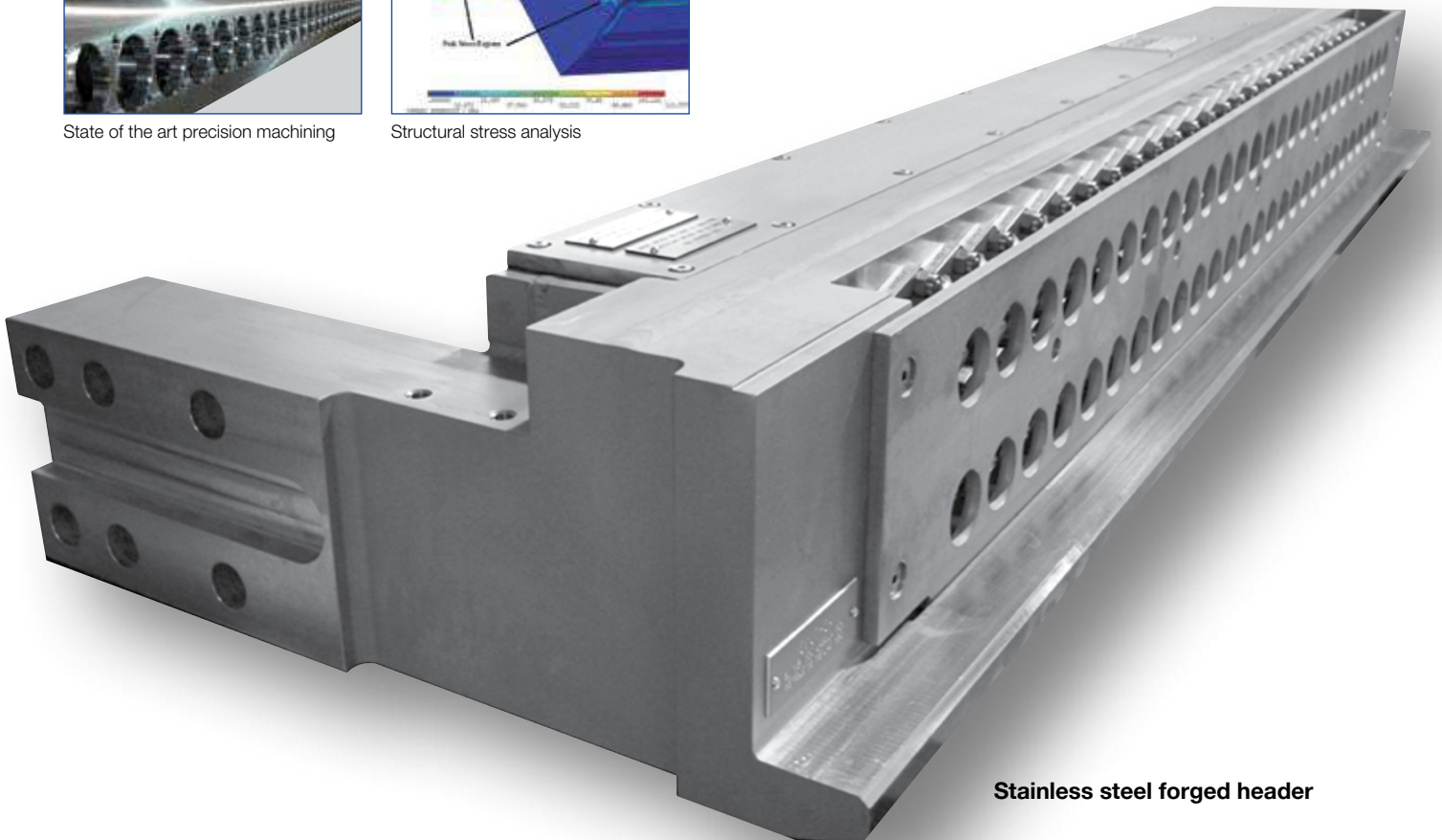
Special complex design forged header



State of the art precision machining



Structural stress analysis



Stainless steel forged header

# SELECTOSPRAY® Valve Family

Selective roll cooling headers are fitted with the appropriate valve type from our family of valves. Valve type and design is carefully selected for optimum performance to give consistent and reliable spray control in each application.

The proven Lechler valve designs are available in pneumatic and electric versions:

- **Modulax** pneumatically controlled with the solenoid in the control cabinet outside of the mill. Pneumatic valves are primarily used for steel rolling systems.
- **EVA** purely electrically controlled. Electrical valves are used primarily for aluminium rolling systems.

All valve versions offer:

- Very large coolant entry ports.
- Easily removable from the header front and are protected by the header itself.
- All valves carry self-aligning flat jet nozzles.

Valve type	Spacing	Flow (L/M) at 6 bar	Pulse rate (s)
EVA STD	52	159	0.1
mini	26	59	0.1
Modulax STD	52	149	2
mini	26	59	2

Typical flow rates: Lechler Valves (26/52 mm zones)

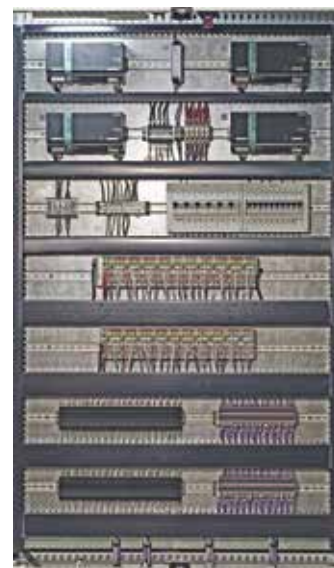


# SELECTOSPRAY® Control Cabinets

Lechler control cabinets offer the customized control interface to drive pneumatic or electrical SELECTOSPRAY® systems.

We provide control system components that meet the latest industry requirements:

- All cabinets are custom-made in-house by Lechler.
- Use only industry standard parts.
- Hardwired from remote I/O.
- Siemens as standard, Wago I/O unit optional.
- Robust stainless steel hose design with ease of connection.
- Closed loop control by feedback from shape meter or touch screen, push buttons.



# SELECTOSPRAY®

# – PNEUMATIC ROLLING

## SELECTOSPRAY® from Lechler

The demand for cost effective production pushes all parameters in the rolling process. The requirements for product rolled at ever increasing rolling speeds and reductions, presents complex technical challenges.

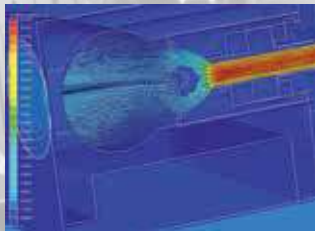
Lechler SELECTOSPRAY® Systems present a performance advantage to improve all aspects of the roll cooling process.

Efficient use of available coolant, through optimised spray positions increases the cooling effect per litre of coolant.

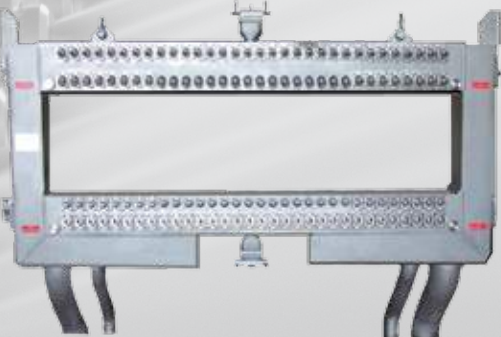
Eliminating cost from the rolling process is all part of the SELECTOSPRAY® experience.

### Key features of a SELECTOSPRAY® system are:

- CFD design of header and valves, to optimise flow and reduce pressure losses



- Very robust and reliable construction of headers, valves, nozzles, hoses and cabinets



## SELECTOSPRAY® Benefits

- Significantly improves rolled product flatness
- Contributes to extended work roll life
- Efficient application reduces applied volumes
- Reduces costs of coolant recovery

### Lechler Pneumatic Valves

SELECTOSPRAY® Selective Roll Cooling Systems are integrally fitted with our family of valves. Pneumatic valves are used primarily in steel or hot aluminium rolling mills at 52 mm and 26 mm valve pitch.

### Robust, Reliable, Simple

- Contamination tolerant
- Large orifices – high flow
- Completely removable from the header front
- Normally failure-open
- Quick response time

## Twin Seal – Pneumatic Valves

### 52 mm Modulax



### 26 mm Mini Modulax



- Reduced costs with less maintenance
- One moving part
- Extended life in arduous conditions
- Secure cabinet protection



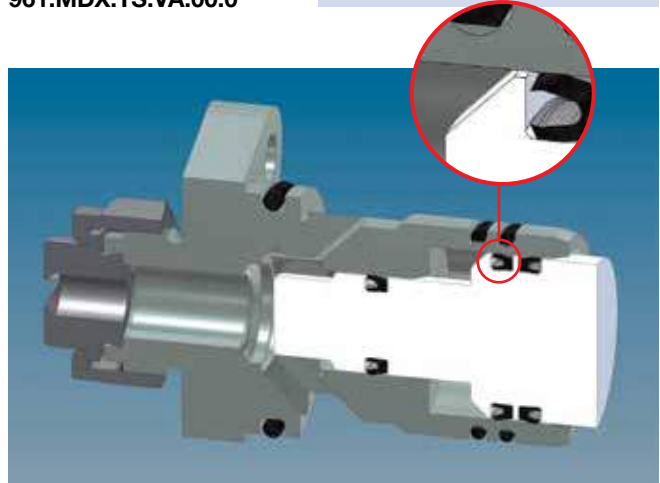
# COOLING SYSTEMS

## Modulax Twin Seal Valve 52 mm / 2"



Product code  
961.MDX.TS.VA.00.0

- High flow – 159 l/min
- No orientation required
- Contamination tolerant
- Easy access



The Lechler Modulax TS (Twin Seal) is used in rolling mills where the ability to fail open is beneficial. Typically where emulsions or dispersions are used as the coolant.

### Enhanced Functionality

The Twin Seal Modulax Valve offers all the benefits of previous Modulax valves, with the enhanced feature of an additional lip seal for cabinet protection. The secondary seal is reversed as shown in the cut out to the right.

In the event of the front coolant seal failing due to mechanical damage, the secondary seal becomes energised, forcing the piston back and preventing any coolant from flowing through the pneumatic control lines back to the cabinet solenoids.

In a seal failure condition the Modulax TS indicates an issue, by exhausting coolant via the front breather port.

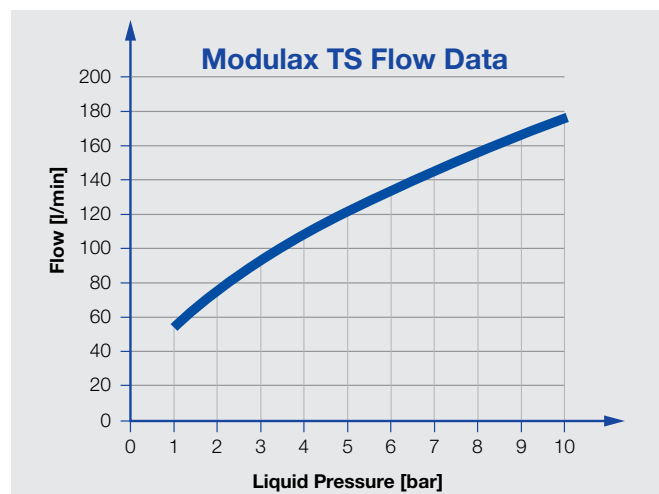
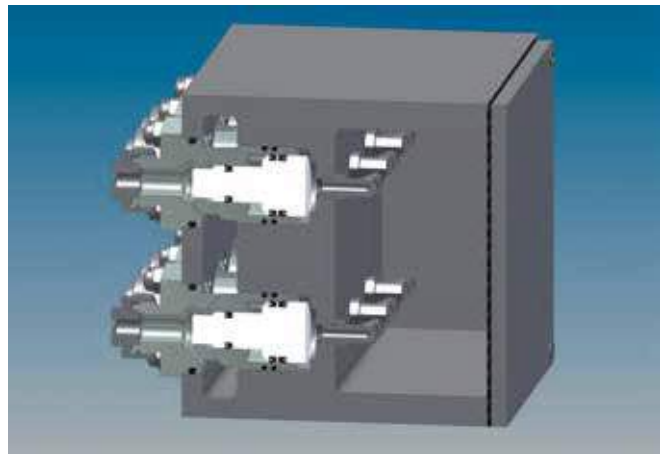
### Features

The Modulax Twin Seal Valve has all the features of the Standard Modulax Valve, these being:

- 2:1 coolant / air pressure ratio
- Four large coolant inlets
- Only one moving part, the low inertia Delrin piston assembly
- Pneumatic actuation
- Can be fitted with nozzle blocks or the self-aligning dovetail fixing of the SELECTOSPRAY® nozzle range
- Easily and completely removable from the front of the header
- Solenoid valves located remote from the mill in a control cabinet

### Advantages

- Long-life low-friction lip seals
- Tested to over 10 million cycles
- Cabinet solenoid protection
- Visible seal damage indicator
- Cost effective replacement
- Segregation of air and coolant by a secondary protection barrier seal

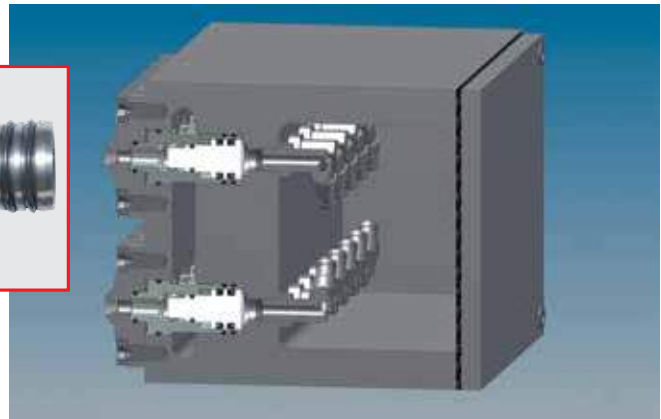
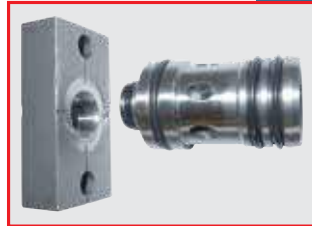


Maximum valve flow table (other flows are available with the correct Lechler nozzle selection)

# Mini Modulax Twin Seal Valve 26 mm / 1"

Product code  
961.000.00.MM.TS.0

- High flow – 59 l/min
- No orientation required
- Contamination tolerant
- Easy access



The Lechler Mini Modulax TS (Twin Seal) is used in rolling mills where the ability to fail open is beneficial. Typically where emulsions or dispersions are used as the coolant.

## Operation

When air, under pressure, passes through the opened solenoid in the control cabinet it acts on the rear of the piston, moving it forward closing the Mini Modulax Valve.

When air pressure is removed by the closing of the solenoid in the remote cabinet, liquid pressure forces the piston back, opening the valve, and allowing the coolant to flow to the nozzle.

## Cooling Efficiency

Large inlet ports in the Mini Modulax Valve permit coolant to enter directly and laminar to the nozzle. Due to the perfect geometry inside the valve, the nozzle forms a perfect blade-like flat jet for optimized heat transfer.

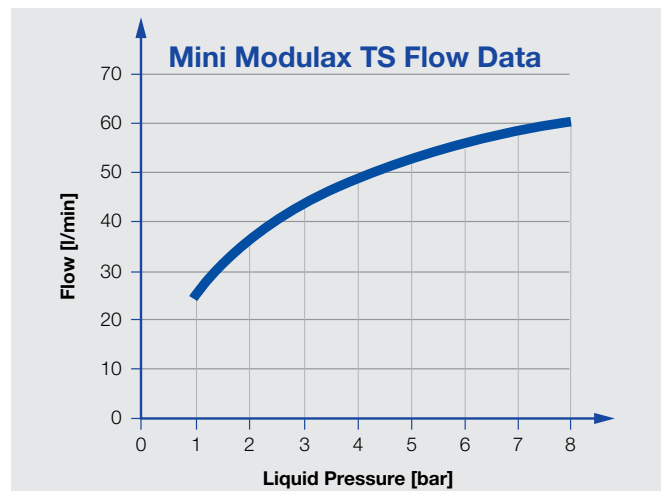
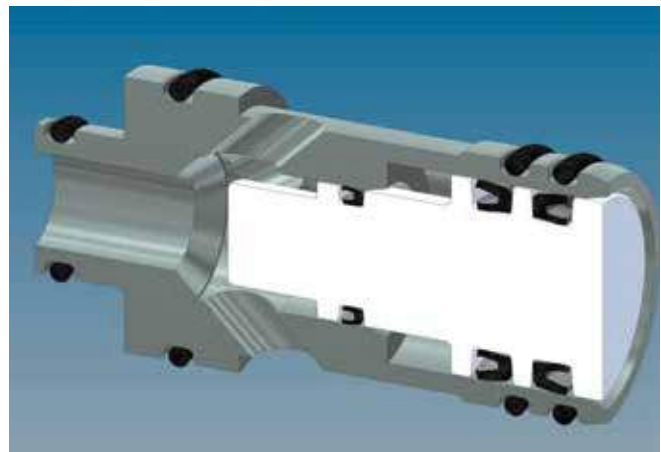
## Features

Modular construction with laminar flow characteristics in axial direction

- 2:1 coolant / air pressure ratio
- Totally enclosed by liquid
- Six large coolant inlets
- Only one moving part, the low inertia Delrin piston assembly
- Pneumatic actuation, perfect seating of the piston due to coolant continually washing piston seat
- Can be fitted with nozzle blocks or the Lechler SELECTOSPRAY® nozzle range
- Easily and completely removable from the front of the header
- Solenoid valves located remotely from the mill in a control cabinet

## Advantages

- Long-life low-friction lip seals
- Tested to over 10 million cycles
- Cabinet solenoid protection
- Visible seal damage indicator
- Cost effective replacement
- Segregation of air and coolant by a secondary protection barrier seal



Maximum valve flow table (other flows are available with the correct Lechler nozzle selection)

# Your Competitive Advantage

## Characteristics

## The benefits to you

### Tailored Nozzle Design

- Custom-designed spray coverage
- Optimized coolant usage
- Precise spray patterns
- Homogeneous spray pattern
- Increased cooling efficiency
- Reduced running costs

### Pneumatic Operation

- Contamination tolerant
- Fast response 50 ms/m
- Reduced downtime
- Improved product quality
- Reduced flatness deviation
- Reduced running costs
- Can be used for roll conditioning
- Low power solenoids
- High operating temperature (120 °C)

### Easy Access

- Removable from the header front
- Quicker valve changes
- Reduced maintenance costs
- Valve alignment not required
- Repeatable spray performance

### Compact Dimensions

- Low section headers
- Optimized spray position
- Increased cooling efficiency
- Less expensive headers
- Can be closely grouped (25 mm)
- Small diameter valves

### Reliability

- Tested to over 10 million cycles
- Reduced running costs
- Low-friction seals
- Easy maintenance

### Competitive Advantages

- Easy maintenance
- Quick change
- Removable from the front of the header
- No requirement to remove the headers for servicing
- Lower maintenance costs
- Class leading flow rates

### Twin Seal Advantages

#### Cabinet Protection

- No coolant damage to:
  - Pneumatic solenoids
  - Nylon control tubes
  - Internal header fittings

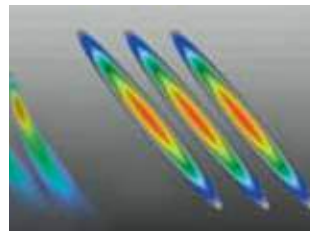
- Extended production time between maintenance
- Reduced running costs



Valves removable from the front of the header



Protection for cabinets and solenoids



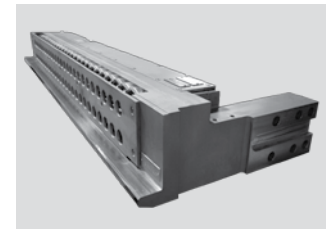
Perfect spray geometry (max HTC)



Protection for pneumatic lines and fittings



25mm valve pitch allows for a compact header design



Bespoke header design provides the optimum spray solution



A full range of spares, tools and accessories are available

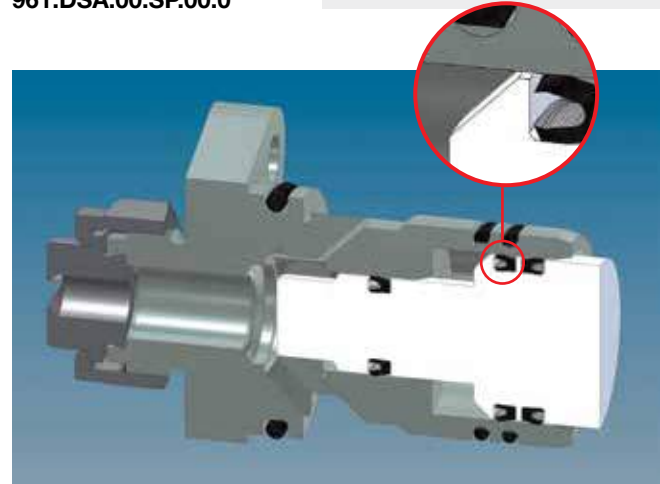
# SELECTOSPRAY® – ELECTROPNEUMATIC ROLL COOLING SYSTEMS

## Modulax DSA Valve 52 mm / 2"



- High flow – 159 l/min
- No orientation required
- Contamination tolerant
- Easy access

Product code  
961.DSA.00.SP.00.0



The Lechler Modulax DSA (Direct Solenoid Actuation) is used in rolling mills where the ability to fail open is beneficial. Typically where emulsions or dispersions are used as the coolant.

### Enhanced Functionality

The Modulax DSA Valve offers all the benefits of the Modulax valves, with the enhanced feature of a discreet solenoid actuator. This allows the Modulax DSA valve to be pulsed up to 5 Hz.

In the event of the front coolant seal failing due to mechanical damage, the secondary seal becomes energised, forcing the piston back and preventing any coolant from flowing through the solenoid into the rear chamber, ensuring improved integrity.

In a seal failure condition the Modulax DSA indicates an issue, by exhausting coolant via the front breather port.

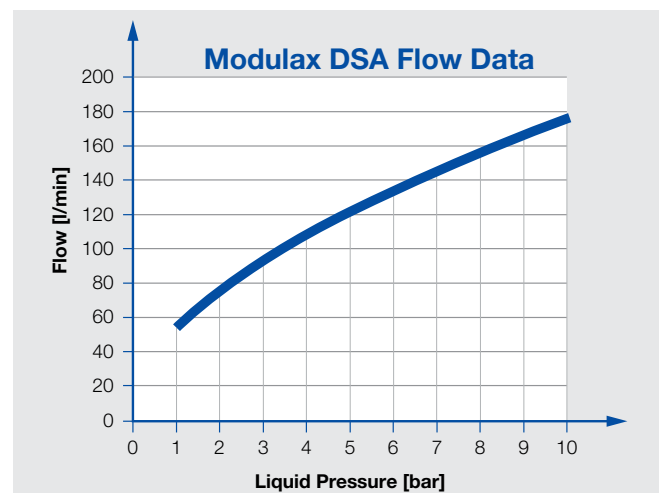
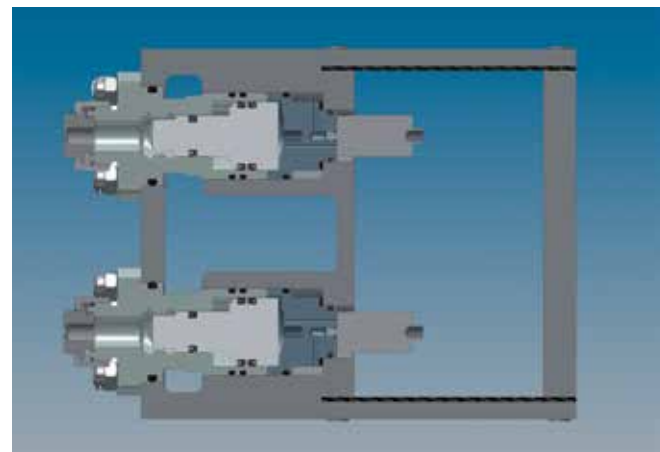
### Features

The Modulax DSA Valve has all the features of the Modulax Valve, these being:

- A 2:1 coolant / air pressure ratio
- Four large coolant inlets
- Only one moving part, the low inertia Delrin piston assembly
- Electropneumatic actuation
- Can be fitted with nozzle blocks or the self-aligning dovetail fixing of the SELECTOSPRAY® nozzle range
- Easily and completely removable from the front of the header
- Solenoid valves located directly behind the valve

### Advantages

- Long-life low-friction lip seals
- Tested to over 20 million cycles
- Header solenoid protection
- Visible seal damage indicator
- Cost effective replacement
- Segregation of air and coolant by a secondary protection barrier seal

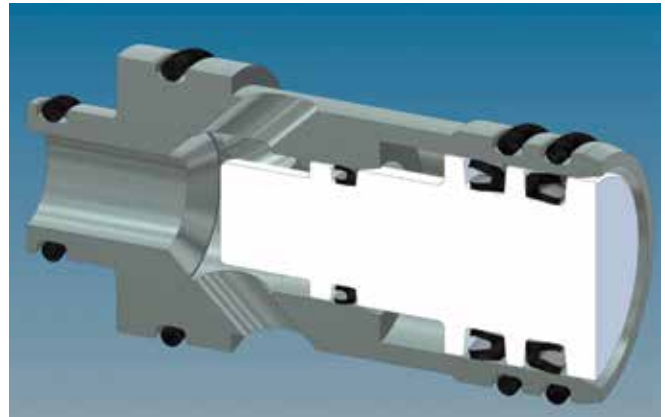


Maximum valve flow table (other flows are available with the correct Lechler nozzle selection)

## Mini Modulax DSA Valve 26 mm / 1"

- High flow – 59 l/min
- No orientation required
- Contamination tolerant
- Easy access

Product code  
961.DSA.MM.SP.00.0



**The Lechler Mini Modulax DSA (Direct Solenoid Actuation) is used in rolling mills where the ability to fail open is beneficial. Typically where emulsions or dispersions are used as the coolant.**

### Operation

As with the larger version, when air, under pressure, passes through the opened solenoid in the header it acts on the rear of the piston, moving it forward closing the Mini Modulax Valve.

When air pressure is removed by the closing of the solenoid, liquid pressure forces the piston back, opening the valve, and allowing the coolant to flow to the nozzle.

### Cooling Efficiency

As with the larger version, large inlet ports in the Mini Modulax DSA Valve permit coolant to enter directly and laminar to the nozzle. Due to the perfect geometry inside the valve, the nozzle forms a perfect blade-like flat jet for optimized heat transfer.

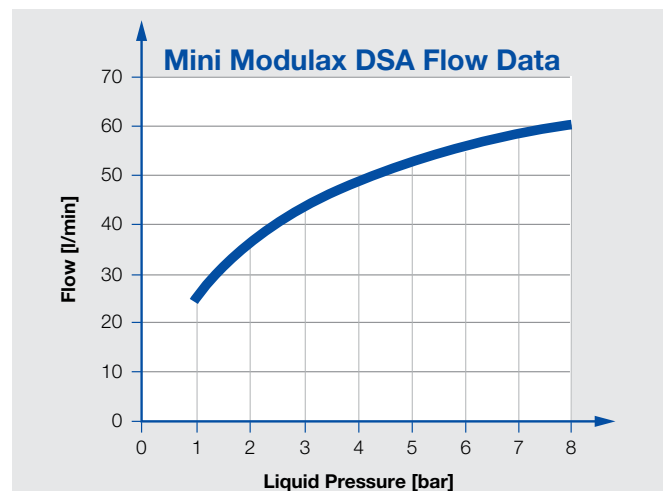
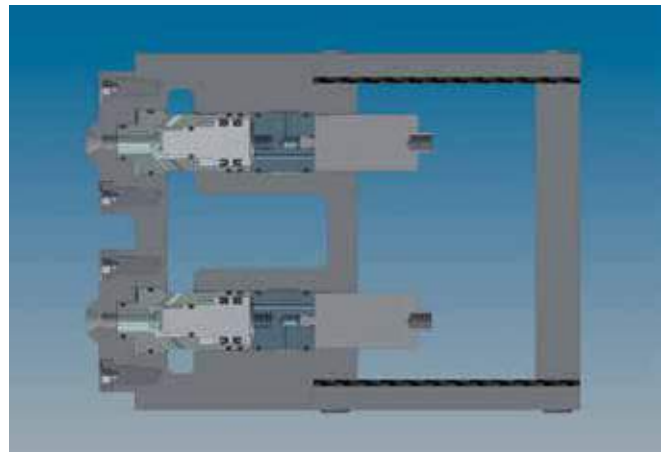
### Features

Modular construction with laminar flow characteristics in axial direction

- A 2:1 coolant / air pressure ratio
- Totally enclosed by liquid
- Six large coolant inlets
- Only one moving part, the low inertia Delrin piston assembly
- Electropneumatic actuation
- Perfect sealing of the piston due to coolant continually washing piston seat
- Can be fitted with nozzle blocks or the Lechler SELECTOSPRAY® nozzle range
- Easily and completely removable from the front of the header
- Solenoid valves located directly behind the valve

### Advantages

- Long-life low-friction lip seals
- Tested to over 20 million cycles
- Header solenoid protection
- Visible seal damage indicator
- Cost effective replacement
- Segregation of air and coolant by a secondary protection barrier seal



**Maximum valve flow table** (other flows are available with the correct Lechler nozzle selection)

# SELECTOSPRAY® – ELECTRIC ROLL COOLING SYSTEMS

## SELECTOSPRAY® from Lechler

The demand for cost effective production, pushes all parameters in the rolling process. The requirements for product rolled at ever increasing rolling speeds and reductions, presents complex technical challenges.

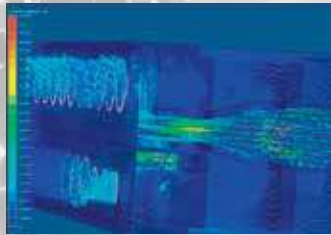
Lechler SELECTOSPRAY® Systems present a performance advantage to improve all aspects of the roll cooling process.

Efficient use of available coolant, through optimized spray positions increases the cooling effect per liter of coolant.

Eliminating cost from the rolling process is all part of the SELECTOSPRAY® experience.

### Key features of a SELECTOSPRAY® system are:

- CFD design of header and valves, to optimize flow and reduce pressure losses



- Very robust and reliable construction of headers, valves, nozzles, hoses and cabinets

## SELECTOSPRAY® Benefits

- Significantly improves rolled product flatness
- Contributes to extended work roll life
- Efficient application reduces applied volumes
- Reduces costs of coolant recovery

## Lechler Electric Valves – Robust, Reliable, Simple

- Contamination tolerant
- No control air required
- Large orifices – high flow
- Completely removable from the header front
- Quick response time, suitable for pulsing

## Cable Free – Electric Valves

52 mm EVA

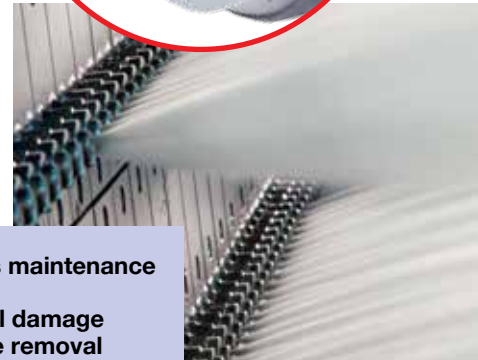


26 mm Mini EVA



Unique offset spring pins  
require no alignment

- Reduced costs with less maintenance
- No cables = no electrical damage during valve removal



# Your Competitive Advantage

## Characteristics

## The benefits to you

### Tailored Nozzle Design

- Perfect spray coverage
  - Optimized coolant usage
- Precise spray patterns
  - Reduced running costs

### Electric Operation

- No compressed air
  - Fast response 20 ms
  - Low power coils
  - Pulsing up to 5 Hz
- Reduced running costs
  - Improved product quality
  - Reduced running costs
  - Large flow ranges available
  - Increased productivity
  - Can be used for HES (Hot Edge Spray)

- High temperature (120 °C)

### Pinned Connections

- Valve alignment not required
  - Cable free
- Less maintenance
  - Reduced risk of valve damage

### Compact Dimensions

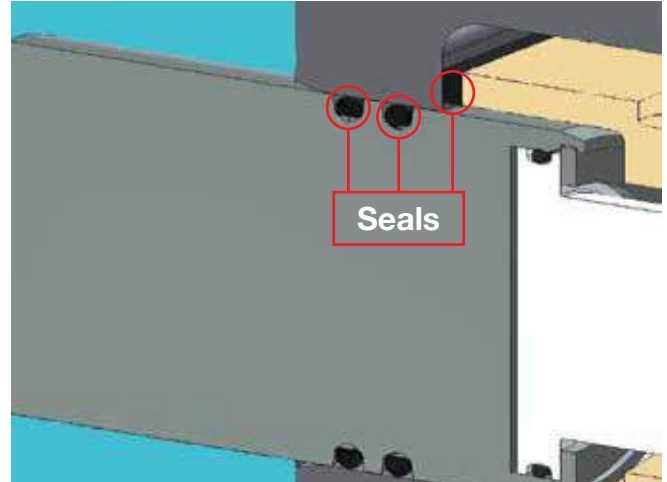
- Low section headers
  - Small diameter valves
- Optimized positioning
  - Increased cooling efficiency
  - Can be closely grouped (26 mm)

### Reliability

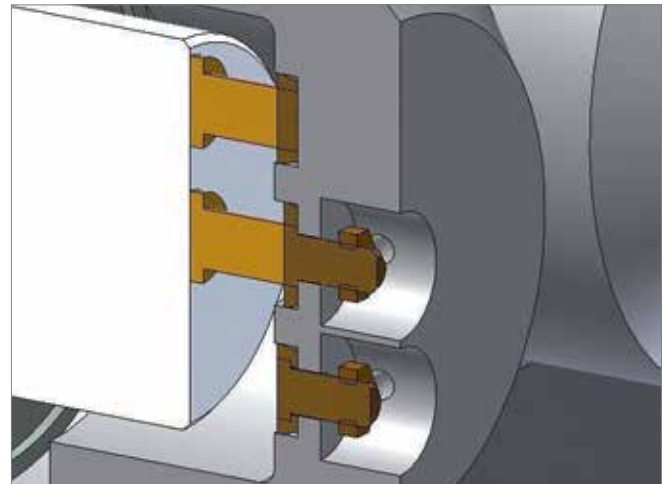
- Tested to 20 million cycles
- Reduced running costs
  - Easy maintenance

## Competitive Advantages

- Easy maintenance
- Quick change
- Removable from the front of the header
- No requirement to remove the headers for servicing
- Lower maintenance costs
- Class leading flow rates



The coolant ■ is completely isolated from the electrical chamber by three seals



The unique cable free quick connection requires no alignment and ensures maximum system availability



Totally serviceable from the header front

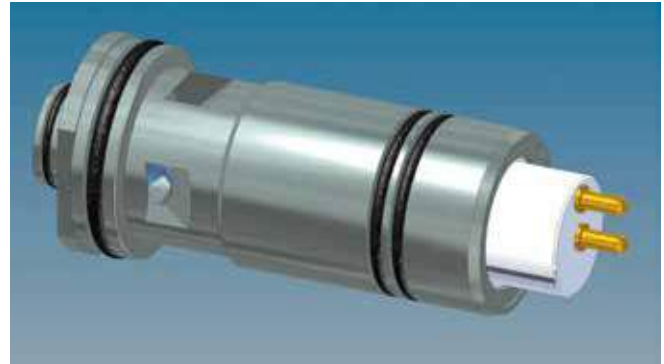
# SELECTOSPRAY® – ELECTRIC ROLL COOLING SYSTEMS

## EVA Quick Connect 52 mm / 2" with Offset Pins



Product code  
961.EVA.CS.QC.OP.0

- Cable free – no wires
- No orientation required
- 5 Hz pulsing
- 159 l/min



The Lechler EVA (Electric Valve Actuation) is used in rolling mills where inflammable rolling oil or kerosene is used as a coolant

In applications such as aluminium cold or foil mills, there is the demand for valves that have the built-in function to fail closed. In the event of an emergency or a mill fire, the risk of prolonging the hazard is reduced if the flow the flammable coolant is halted.

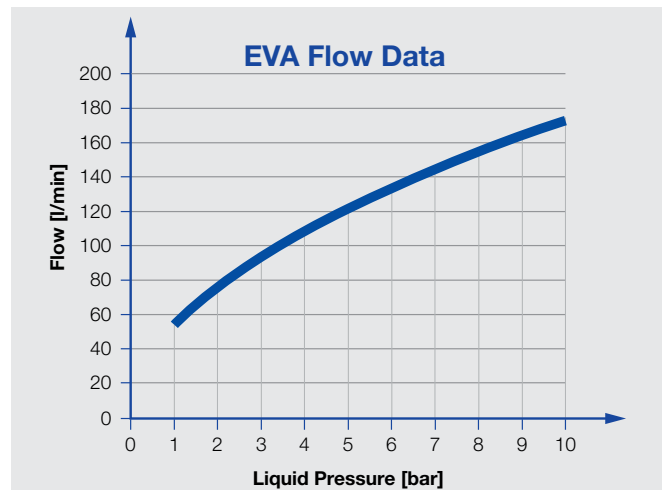
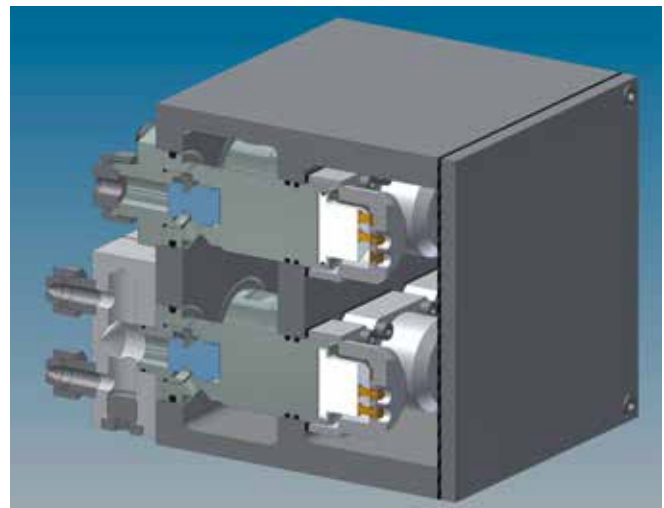
The Lechler EVA valve has this feature. When coupled with the fact that it does not require compressed air to operate, it fulfils all the demands, both functional and commercial, of a modern rolling facility.

### Features

- Completely cable free
- Self-aligning, ensuring a perfect connection every time
- Class leading flow capability
- Pulse rate up to 5Hz
- Operating typically at 52 mm centers (50 mm optional)
- Stainless steel construction
- Long life and easy to maintain
- Can be fitted with nozzle blocks or the Lechler SELECTOSPRAY® nozzle range

### Advantages

- No control air required
- Large orifices for a laminar flow and a stable spray pattern, providing effective and precise roll cooling
- Easily and completely removable from the front of the header
- No requirement to remove the header from the mill window



Maximum valve flow table (other flows are available with the correct Lechler nozzle selection)



# Mini EVA Quick Connect 26 mm / 1" with Offset Pins



Product code  
961.EVA.MM.QC.00.0

- Cable free – no wires
- No orientation required
- 5 Hz pulsing
- 59 l/min



**The Lechler Mini EVA (Electric Valve Actuation) is used in rolling mills where inflammable rolling oil or kerosene is used as a coolant**

The Mini EVA valve encompasses the same design principles as the 52 mm EVA valve with the built-in function to fail closed. The Mini EVA has a class leading flow rate for a 26 mm envelope. This enables Lechler Engineers to design low aspect roll cooling headers allowing the optimum positioning of the header inside the mill window.

**The compact Lechler Mini EVA valve is proven to be the ideal solution for the following applications:**

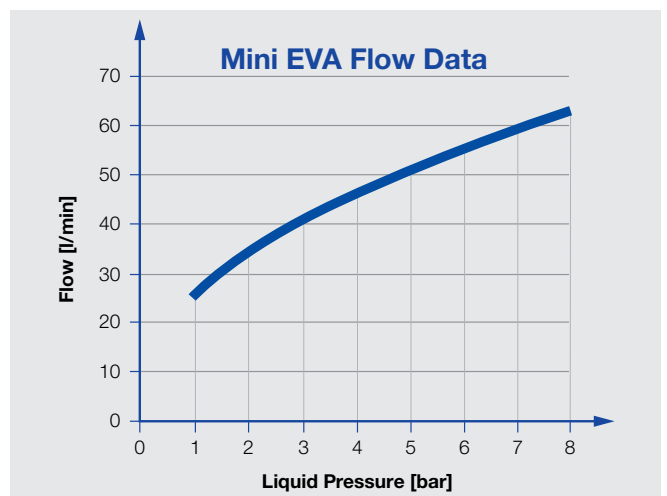
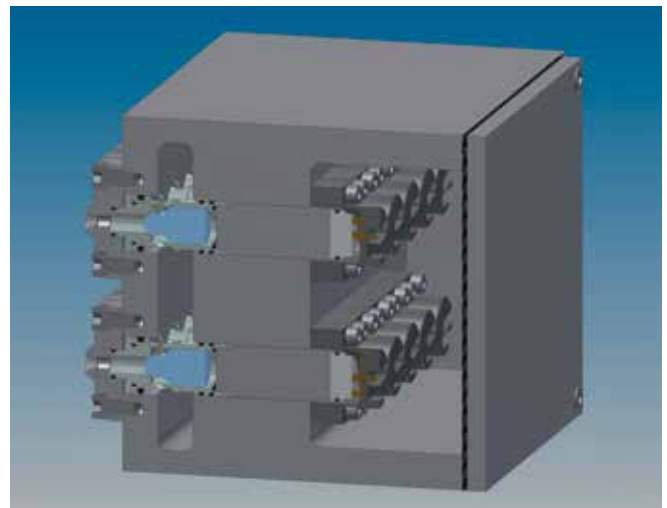
- Roughing foil mills
- Foil mills
- Other mills that require increased edge spray resolution
- Hot edge sprays (HES) up to 120 °C max

## Features

- Completely cable free
- Self aligning, ensuring a perfect connection every time
- Class leading flow capability
- Pulse rate up to 5Hz
- Operating typically at 26 mm centres (25 mm optional)
- Stainless steel construction
- Long life and easy to maintain
- Can be fitted with nozzle blocks or the Lechler SELECTOSPRAY® nozzle range

## Advantages

- No control air required
- Large orifices for a laminar flow and a stable spray pattern, providing effective and precise roll cooling
- Easily and completely removable from the front of the header
- No requirement to remove the header from the mill window



Maximum valve flow table (other flows are available with the correct Lechler nozzle selection)

# SELECTOSPRAY® — HEADER REFURBISHMENT PROGRAM

Every rolling plant has its own priorities and not every maintenance measure is necessary in every case. That's why our services come as part of a modular kit from which you can choose the maintenance you really need.



## On-site system inspection

During a mill shutdown, our experts carry out a visual assessment together with mechanical, pneumatical and electrical function and spray tests of the selective roll cooling system. Our findings will be summarized in a comprehensive report including results and recommendations.

## Unscheduled on-site repair

If need be, we carry out necessary repairs during a mill shutdown provided that the required spare parts are available on site.

## Scheduled preventive maintenance and evaluation on site

Our experts carry out regular and scheduled visual assessments and functional tests. They change typical wear parts and any other faulty or worn components or they repair them. Yearly maintenance contracts are the basis for such cooperation and offer you maximum cost transparency.

## Off-site refurbishment

Sometimes valved spray headers, control hoses and control cabinets have experienced damage or wear which require maintenance beyond an on-site repair job. In those cases, the equipment can be brought back to the Lechler service center for repair and refurbishment.

## Revolving off-site header and hose refurbishment

On-site repair or preventive maintenance of all valves may require a mill shut down longer than desirable. Therefore, Lechler has introduced the system of Revolving Headers.

With one spare header of each type, optimally-refurbished headers are operational in the mill in trouble-free conditions while the additional header is being serviced at Lechler. After a defined operation period, the headers will be changed again. The same can be done for control hoses. Prior to the refurbishment, a repair report together with a quotation is sent to the customer for approval.

## Consulting and maintenance

Our experts provide operation and troubleshooting training on site. Consulting regarding the optimal application of the coolant in other mill stands for process improvements can also be given.



Internal evaluation shows severe contamination inside pneumatic chamber header.

Let our team of experts inspect your header system in house with our state of the art equipment and test lab. Our refurbishment program will increase the life of your header system to ensure that it runs properly by providing you with fewer quality issues and increased cost savings.

Our program begins with a complete inspection of your header. We start by removing all pneumatic tubing, soft components, nozzles, and valves. Any missing, broken parts or cracked welds are identified and reported. After the inspection, a thorough acid

cleaning of the header, nozzles, valves, and caps is completed. All O-rings, lip seals, and pistons are also replaced to design standards. The final step is a spray test, which searches for positive shutoff, leaks, correct firing sequence, and overall performance.

Refurbishment of hoses is also offered by Lechler in addition to the header system.

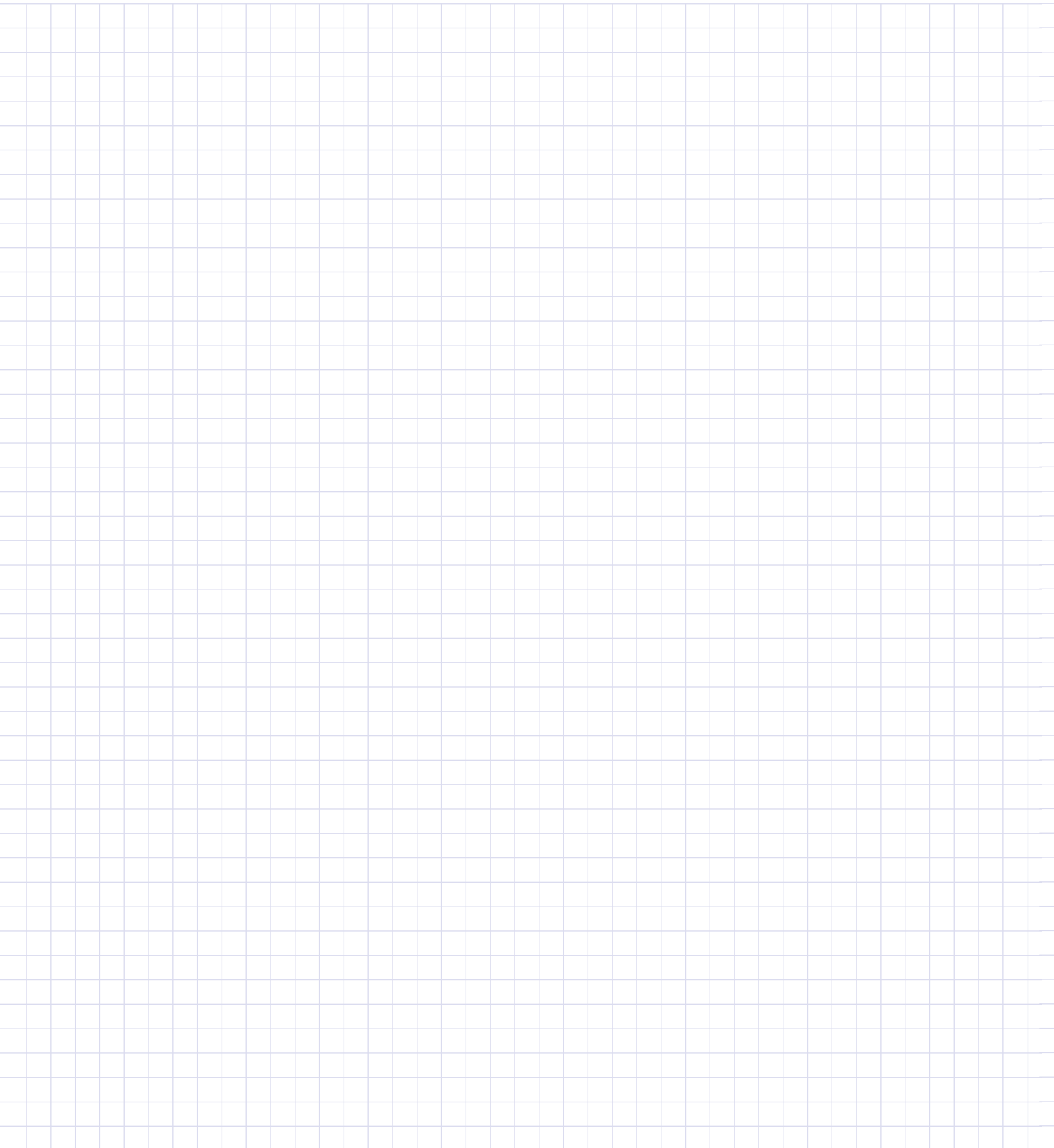


SELECTOSPRAY® header after acid cleaning



Spray testing at Lechler

# FOR YOUR NOTES





ENGINEERING  
YOUR SPRAY SOLUTION



## LECHLER WORLD-WIDE



Edition 2/17 • USA • Subject to technical modification

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