

COOLING TOWERS CATALOGUE



**DESIGN. PRODUCTION. CONSULTING.
THERE'S A WHOLE WORLD WITHIN.**

THIRTY YEARS OF LEADERSHIP

EMEC products are designed with the passion and commitment that comes with years of investment in technology and human resources. Our range of products covers a wide array of chemical product treatment requirements. Investments issue in the delivery of reliable and constantly updated products. Our core range features:

- dosing pumps
- integrated control and dosing systems
- control instruments
- probes
- accessories and spares

EVERYTHING UNDER CONTROL

Our values and commitment to excellence are just one aspect of our success. What sets us apart, on a practical level, is complete control over every aspect of production:

- design and development
- mechanical component machining
- circuit board production
- software programming
- chemicals testing
- panel machining
- product assembly
- onsite testing
- spares warehousing
- delivery

SALES SUPPORT

Our commercial account staff are among the company's value-added assets. Each boasting a firm technical grounding, they are fully briefed on all aspects of design and production and are crucial to informing the product upgrade and implementation process thanks to client feedback and requirements and to their field experience. Our commercial account management is a key contributor to defining marketing and development strategies.

POST SALES and CUSTOMER SUPPORT

We at EMEC strive to establish long-term customer relationships by delivering on our support commitments, every step of the way: from identifying solutions best suited to our customers' requirements, to addressing implementation issues both large and small, from back office to product.

TRAINING

Knowledge is at the heart of our business, and we seek to pass that knowledge on to our products' end users. That is why we have set up the Emec Training Program, featuring training courses delivered at both our company premises and at those of our customers. Training targets personnel entrusted with installing and maintaining our products at the client's premises, and is delivered by experienced commercial account staff.

SUSTAINABLE IN PRACTICE

Respecting and safeguarding the environment are the core values underpinning our business. In keeping with that commitment we engage in and promote all actions designed to curb the environmental impact of our processes, products and raw materials, on a life-cycle basis. Our company implements an Environmental Management System compliant with UNI EN ISO 14001 standards, subject to ongoing updates. Our goal is to curb atmospheric emissions, rationalise water consumption and enact appropriate waste management policies, especially with reference to noxious chemicals.

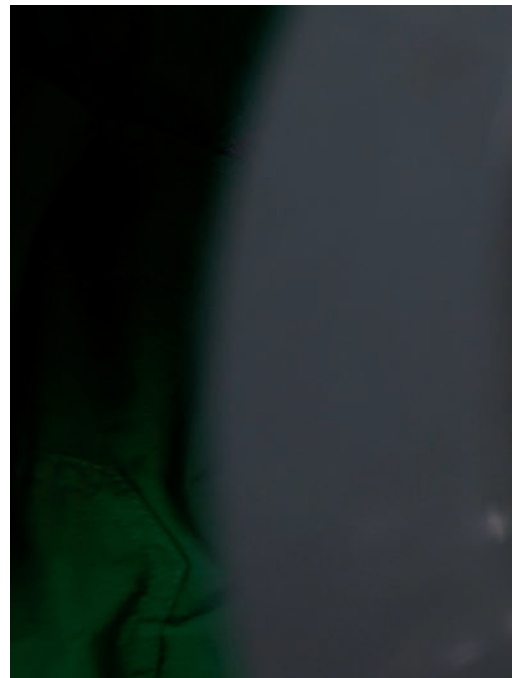
VALUE-ADDED COOPERATION

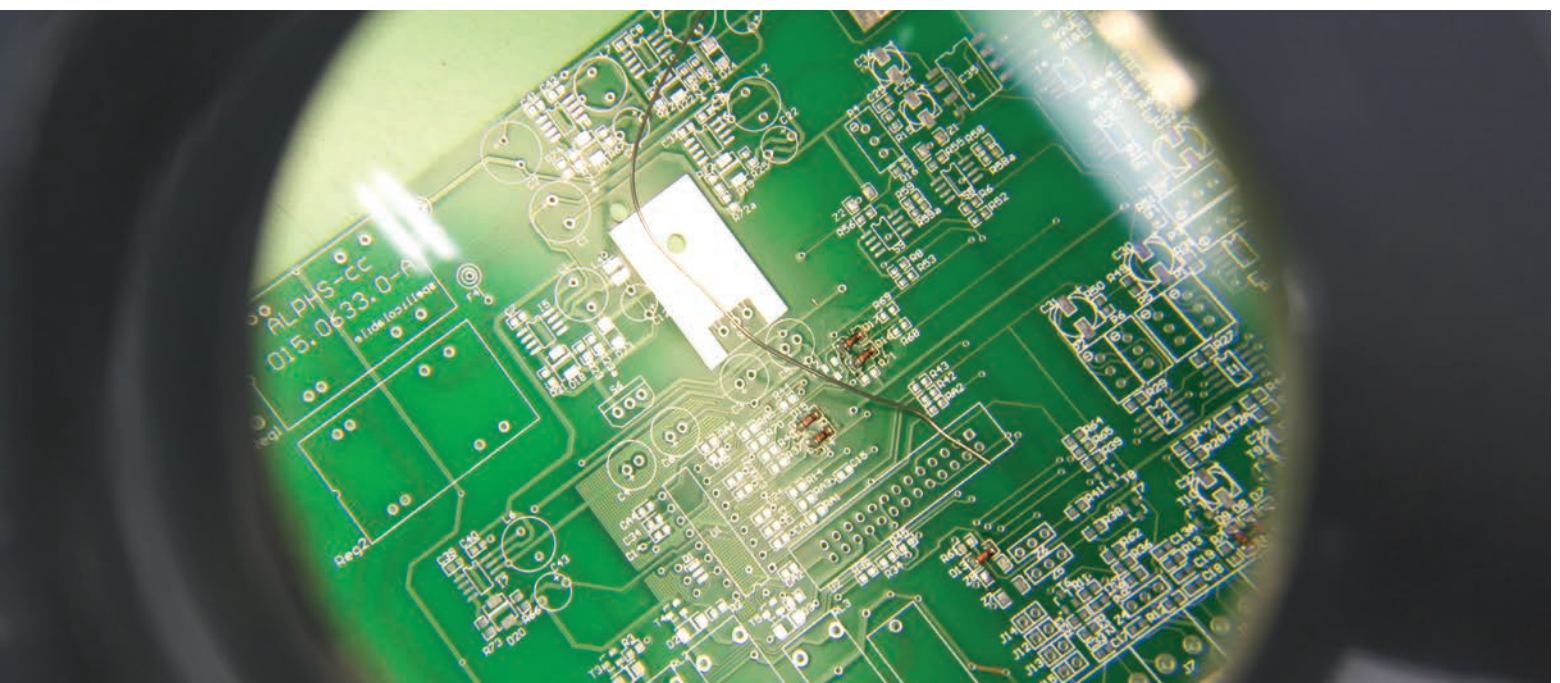
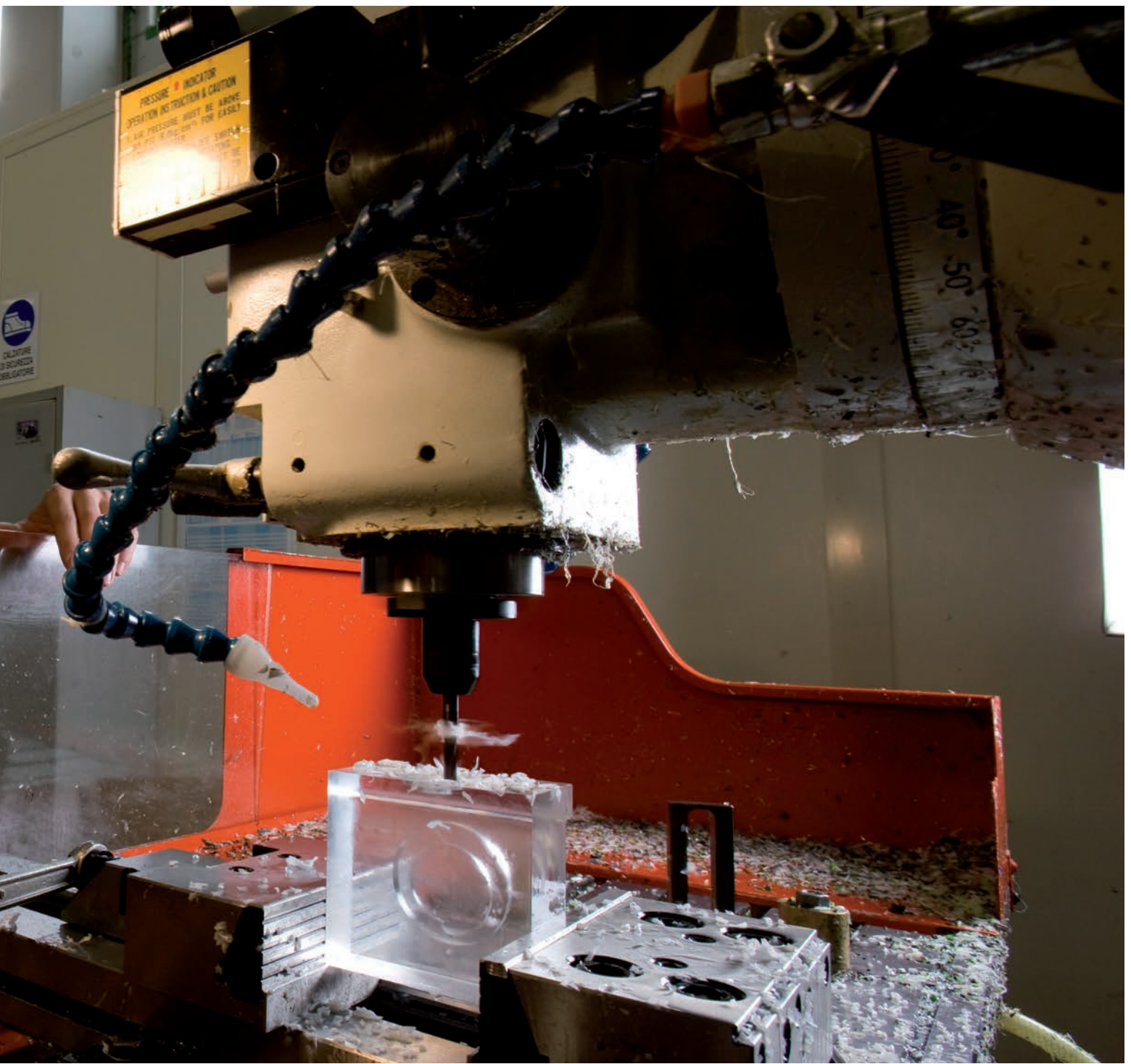
At EMEC we also deliver a commitment to reviewing emissions generated at our facilities, by monitoring atmospheric, acoustic and particle emissions, as well as soil and water contaminants. Our facilities are subject to periodic inspections by local health and environmental agencies. In that respect our facilities have consistently fulfilled legal threshold requirements. We, however, don't stop at fulfilling the minimum legal standard; we have taken things further by engineering energy efficient solutions into our workplace and production facilities. Our adoption of high-efficiency boilers and smart air conditioning systems, has led to substantial gas and electricity savings. Also, the adoption of an oil water separator has allowed us recover reusable lubricant following machinery cleaning operations.



EMEC WORLDWIDE

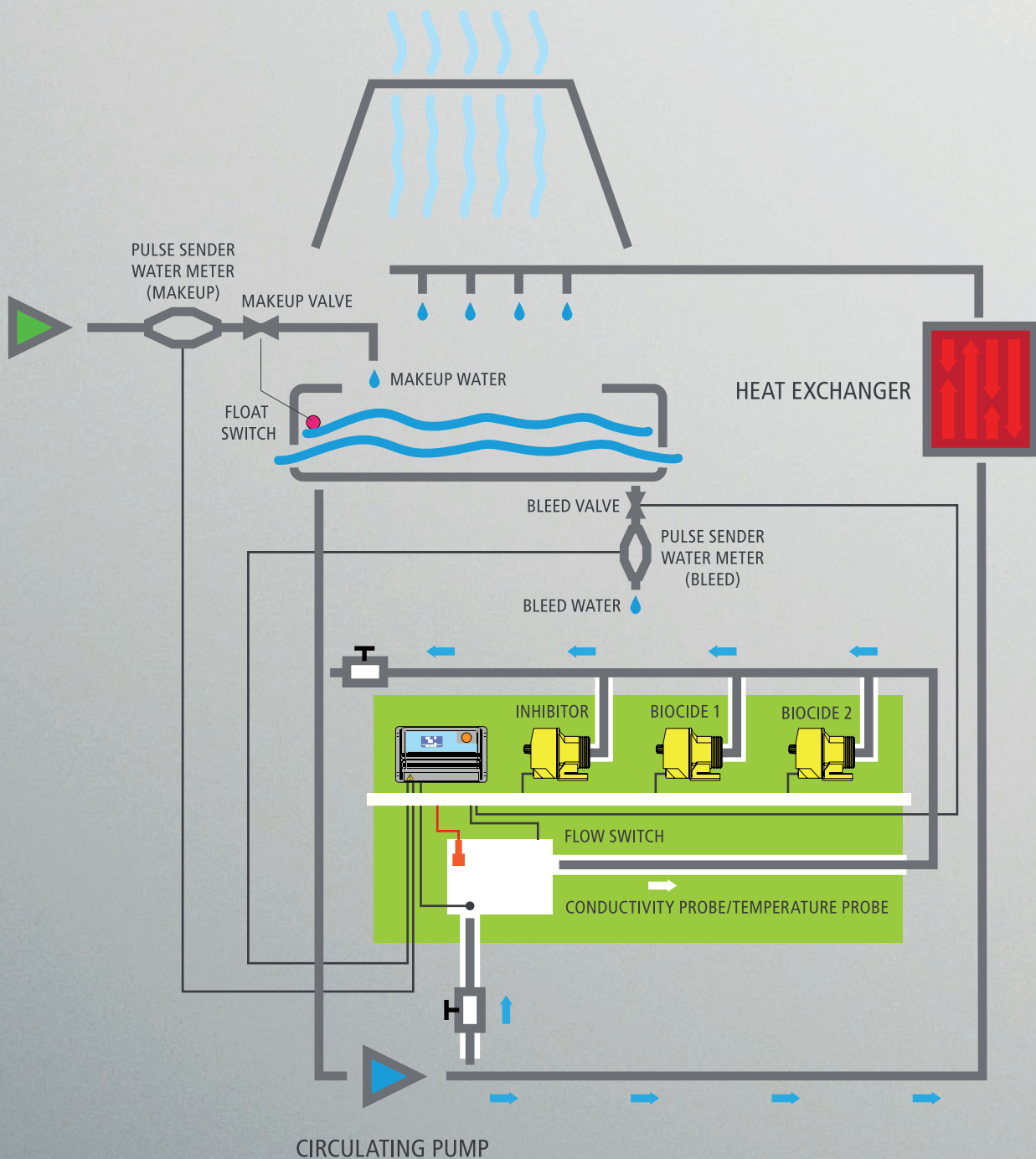






INTEGRATED SOLUTIONS FOR COOLING TOWERS: THE CORE FOR THE ENTIRE SYSTEM.

Thanks to our long experience in both designing and manufacturing, we have learned and studied in-depth every aspect of activities linked to the correct functioning of cooling towers. In particular, EMEC control systems are the core of an integrated all-in one system for the cooling towers management, with pre-biocide and biocide testing, inhibitor dosing and bleed. Together with the dosing pumps and the provided accessories, they are designed to guarantee the correct and efficient treatment of water flow in a cooling tower.



The control system performs three essential tasks:

Corrosion inhibition

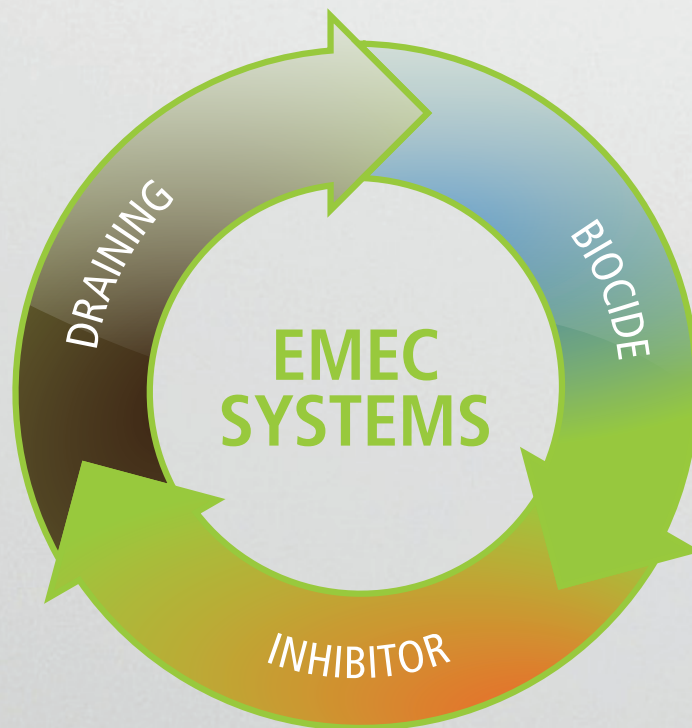
The inhibitor consists of a chemical compound that added to water lowers the metal's corrosion factor. Concerning cooling towers treatment, this prevents the deterioration of water pipes and thus keeping the system efficient.

Water flow

A checking system for chemical products concentration in water flow is to plan its removal and reintroduction by adding "new" water. In this way, also thank to a probe for conductivity reading, it is possible to keep the system efficient.

Elimination of pathogenic agents

A biocide is a chemical substance capable of selectively killing micro-organisms. In water flow it prevents and controls the development of dangerous pathogenic agents, such as, for example, Legionnaires disease. Since micro-organisms tend to adapt if they are always attacked by the same chemical substance, the instruments can be programmed for the different dosing of alternate substances and of the so called activators (pre-biocide phase).



EMEC instruments, therefore, represent an integrated solution which besides requiring low-level maintenance they guarantee lower expenses. The interface is clear and straightforward because the used terminology on the set-up screens is linked to the instrument's functionality.

6 GOOD REASONS FOR CHOOSING EMEC AND IMPROVING YOUR BUSINESS.

1

System control

An efficient measuring system so as to exactly know what is happening and when. An event log program can be downloaded to indicate precisely when pumps are active, valves are open and whether there is flow or not.

2

A more complete monthly report

The possibility to acquire the recorded data by the control and regulation system by a USB flash drive and to use them to easily draft reports about indicating the actual use of water, system's conductivity, temperature and much more.

3

Time optimization

Thanks to ERMES software, the copy of the user settings from the control instrument to a USB drive and the move to a different control and regulation instrument. This means that programming a new control system will only take a few seconds and will be extremely easy!

4

Easier checking and verification

The use of the data recorded by the control instrument to easily verify the results of water treatment. Together with the event logs they show water consumption, the system's conductivity and temperature, as well as dosing and bleed time.

5

Better performance and maximum efficiency

Accurate control of conductivity and chemical feeds reduces water consumption and inhibits corrosion, remove deposits and the growth of algae and harmful bacteria.

6

Total reliability

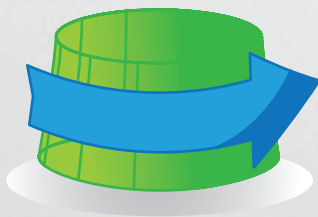
All instruments maintain the settings also in the absence of power supply.

THE EMEC KNOB. DESIGNED TO GUARANTEE THE HIGHEST LEVEL OF USER-FRIENDLINESS.

One of the added values shown by EMEC instruments contributing to making them really user-friendly, is the knob is situated in the higher part of the system. It is sufficient to turn it clockwise, or anti-clockwise, to search the menus and place the cursor on the chosen operation. Once a choice is made it is sufficient to click to implement it.



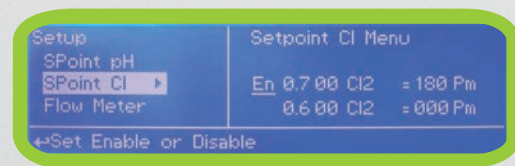
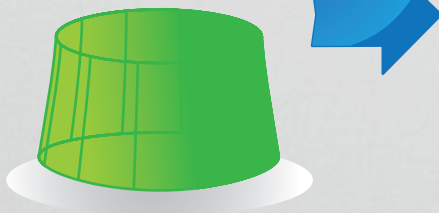
ROTATE



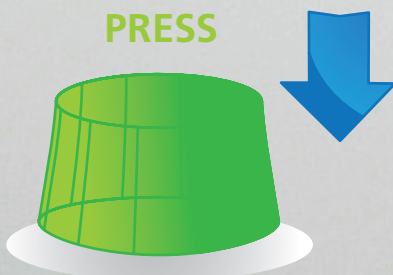
Rotate to see the menu.



CHOOSE



PRESS



Press the select choice and go to sub-menu.



MTOWER



ADVANTAGES

- › Simultaneous multiple view for probes reading
- › Easy control by ENCODER with "EASY-NAV" rotation
- › Local network or remote control
- › Large backlit LCD display
- › Pre-bleed function
- › Lockout function
- › Timeout function
- › Permanent data storage (without battery power)
- › Current Feed&Bleed display

TECHNICAL FEATURES

- › Wall mounting
- › IP65 protection (NEMA4x)
- › Rotational ENCODER
- › Backlit LCD display
- › Working environment temperatura: -10°C / 50°C; 0-95% relative humidity (condensation free)
- › Universal power supply: 90÷265 VAC; 50/60 Hz
- › Average power consumption: 45 W
- › Self installing communication software (ERMES)

ELECTRICAL FEATURES

INPUT SIGNALS

- › Terminal block and BNC

INPUTS

- › Probes
- › 1 water meter for makeup water
- › 1 water meter for bleed water
- › 1 temperature probe
- › Tank levels
- › Flow sensor

OUTPUTS

- › 6 powered relay outputs
- › 2 outputs (voltage free contact)
- › 3 proportional pulse signal outputs (open collector)
- › 4 mA output (max resistive load 500 Ohm)
- › 1 alarm output (relay with volt-free contact)

MEASURING PARAMETERS

- › MTOWER PLUS CD/PH/CL: Conductivity (contact or inductive), pH, Chlorine
- › MTOWER PLUS CD/PH/RH: Conductivity (contact or inductive), pH, ORP
- › MTOWER PLUS CD/PH: Conductivity (contact or inductive), pH
- › MTOWER PLUS CD/RH: Conductivity (contact or inductive), ORP
- › MTOWER PLUS CD/CL: Conductivity (contact or inductive), Chlorine
- › MTOWER PLUS CD: Conductivity (contact or inductive)

FUNCTIONS

BIOCIDES WORKING MODES

- › Proportional to value reading;
- › Proportional to value read in the set period;
- › Timer with 1/4 week programming period.

ALARMS

- › Conductivity (high/low)
- › Bleed timeout (conductivity not reached after set time has elapsed)
- › Product levels
- › Flow

DOSAGE

- › 2 biocides
- › 2 pre-biocides (activator)
- › 1 inhibitor
- › 1 pH corrector

DOSING SYSTEMS

- › On/Off
- › Proportional to pulses
- › Proportional to PWM

PRE-BLEED

- › Reduced water system conductivity before biocide dosing

BLOW DOWN

- › Discharge control on conductivity values

LOCKOUT

- › Discharge valve locked for a settable time (after biocide dosage)

TIMEOUT

- › Maximum discharge valve opening time

PERMANENT DATA STORAGE (without battery power)

DELAY AT DOSING START-UP (99 minutes maximum)

TEMPERATURE READINGS AND COMPENSATION (PT100 probe)

ETHERNET (option)

GSM/GPRS MODEM (option)

**ADVANTAGES**

- › Simultaneous multiple view for probes reading
- › Easy control by ENCODER with "EASY-NAV" rotation
- › Local network or remote control
- › Large, backlit LCD display
- › Permanent data storage (without battery power)

TECHNICAL FEATURES

- › Wall mounting
- › 5 programmable channels + 1 temperature channel
- › IP65 protection (NEMA4x)
- › Rotational ENCODER
- › Backlit LCD display (240x64)
- › Working environment temperature: -10°C / 50°C; 0-95% relative humidity (condensation free)
- › Universal power supply: 90÷265 VAC; 50/60 Hz
- › Average power consumption: 12 W
- › Self installing communication software (ERMES)

ELECTRICAL FEATURES**INPUT SIGNALS**

- › Terminal block and BNC

INPUTS

- › 5 product tank levels
- › 1 water meter
- › 1 temperature probe
- › 1 standby (contact)
- › 1 flow (contact)

OUTPUT

- › 6 powered relay outputs
- › 6 proportional outputs (open collector)
- › 6 4/20 mA outputs (optional)
- › 1 output for probe cleaning
- › 1 alarm output (relay with volt-free contact)

MEASURING PARAMETERS

Factory configuration for 5 parameters within:

- › pH
- › Redox (ORP)
- › Chlorine (total, free and combined)
- › Chlorine dioxide
- › Hydrogen Peroxide
- › Ozone
- › Peroxyacetic acid
- › Turbidity
- › Conductivity (contact or inductive)
- › Dissolved oxygen
- › Temperature (on all models, regardless of the configuration)

FUNCTIONS**DOSING SYSTEMS**

- › On/off
- › Proportional to pulses
- › Proportional to PWM
- › Fixed PWM
- › PID

EQUIPMENT CONTROL

- › Local
- › Remote

ALARMS

- › Damaged probes
- › Maximum dosage
- › 2 overflow alarms per channel
- › 5 product level alarms
- › Flow in probe holder

PERMANENT DATA STORAGE (without battery power) with system log

MULTIPLE PROBE READINGS CAN BE VIEWED

PROBE READOUT MENU

REGULAR PROBE CHECK UP

5 TIMERS FOR TIMERED FEEDINGS

TOTALIZER FOR INSTANT FLOW RATE when connected to a meter

DATA LOG ON USB DEVICE (option)

6 mA OUTPUTS (option)

ETHERNET (option)

GSM/GPRS MODEM (option)

LDCDIND - LDCD



LDCDIND ADVANTAGES

- › Simultaneous multiple view for probes reading
- › Easy control by ENCODER with "EASY-NAV" rotation

LDCD ADVANTAGES

- › Can be controlled from a local network or remotely
- › Large backlit LCD display

TECHNICAL FEATURES

- › Wall mounting
- › IP65 protection (NEMA4x)
- › Backlit LCD display
- › Working environment: -10°C / 50°C; 0-95% relative humidity (condensation free)
- › Universal power supply: 90±265 VAC; 50/60 Hz
- › Average power consumption: 25 W

ELECTRICAL FEATURES

INPUT SIGNAL

- › Terminal block

INPUTS

- › Stand-by
- › 2 tank levels
- › Pulse emitter water meter
- › Temperature probe
- › Flow

OUTPUTS

- › 2 powered relay outputs
- › 1 proportional output proportional pulse signal outputs (open collector)
- › 1 maximum dosage alarm output (tension-less contact)
- › 2 galvanically isolated outputs. Programmable 0/4±20mA (reading and temperature). Maximum applicable resistance 400 Ω
- › 1 RS485 or RS232 output

LDCDIND MEASURING PARAMETERS

- › INDUCTIVE CONDUCTIVITY dosage and control

LDCD MEASURING PARAMETERS

- › CONDUCTIVITY dosage and control

FUNCTIONS

CONTROLS

- › Flow in the nel probe holder
- › Remote control for outputs enabling/disabling

ALARMS

- › Maximum dosage
- › 2 overflows
- › 2 levels
- › Flow

DOSING SYSTEMS

- › On/Off
- › Proportional

DELAY AT DOSING START-UP (60 minutes maximum)

MENU WITH PROBE READING VALUE

TEMPERAURE DISPLAY AND COMPENSATION

ALERT SMS THROUGH RS232/485 SERIAL PORT (with modem)

PERMANENT DATA STORAGE (without battery power)

ETHERNET (option)

GSM/GPRS MODEM (option)

USB data log (option)



ERMES is ready to go out of the box

Using standard communications protocols means that all our instruments can be easily installed in a few minutes. Ready to go just out of the box.

Using common protocols means to use already existing networks without the need to call an I.T. technician for exotic configuration. If you know how to setup your PC you already know how to install our instruments. No knowledge of network protocols is necessary, IP addresses or DNS.

If you need to connect the instruments remotely the only requirement is a common internet access and a SIM card. That's all you need.

ERMES takes care of the rest: simply, quickly and reliably.

Everything is always under control: with ERMES software your instruments are always under control and they can be programmed remotely as on site. You may also receive an SMS alarm message on your mobile phone with several reporting options for the current status of one or more instruments. Alert messages can also be sent to one or more email addresses.

ADVANTAGES

- › Communication software for remote or local controls suitable for MAX5, MTOWER and LD MULTICHANNEL instruments
- › More instruments can be linked to a local network within a maximum of 30 units using a RS485 protocol.
- › Guided and simplified software installation
- › Just one ETHERNET or GSM/GPRS MODEM device installed to control all plant's instruments.

APPLICATIONS

- › MAX5 series
- › MTOWER series
- › LD MULTICHANNEL series

ERMES logo where available



CONNECTION OPTIONS

- › Connection using a RS485 network and USB or RS485 cable. This connection enables the user to control one or more instruments directly connected to a PC.
- › Connection using a RS485 network and GSM modem or RS485 cable. This connection enables the user to control one or more instruments from anywhere in the world via a standard Internet connection and a data SIM card.
- › Connection using a RS485 network and ETHERNET router. This connection enables the user to control one or more instruments within a LAN (Local Area Network).
- › Connection using a RS485 network and WIFI router. This connection enables the user to control one or more instruments using wireless technology as on notebooks.

Standard settings can be customized by adding external modules.

Mixed configurations allow to connect instruments to ERMES software in multiple ways: directly, locally and remotely.

FUNCTIONS

- › Display of the status of the network tools: probes, outputs, alarms, setpoints
- › Complete remote configuration and control of the equipment
- › Equipment activity log graphics and display and transferral in Excel or PDF format

DOSING PUMPS



AMS

Injection volume and frequency control.
PVDF pump head and accessories.

MODELS

- AMS MF multifunction
- AMS CO constant dosage
- AMS CL constant dosage with level control
- AMS IS constant-proportional dosage with digital signal
- AMS PV constant-proportional dosage, with pulses divider

PRESSURE	FLOW
bar	l/h
7	20
3	40
2	60



KMS

Injection volume and frequency control.
PVDF pump head and accessories.

MODELS

- KMS MF multifunction
- KMS CL proportional dosage for chlorine reading and correction
- KMS EN proportional dosage at an incoming signal, weekly timer
- KCO constant dosage
- KCL constant dosage with level control
- KIS constant-proportional dosage with digital signal
- KPV constant-proportional dosage, with pulses divider

PRESSURE	FLOW
bar	l/h
2	18
5	10
20	1



TMS

Injection frequency control.
PVDF pump head and accessories.

MODELS

- TMS MF multifunction
- TCO constant dosage
- TCL constant dosage with level control

PRESSURE	FLOW
bar	l/h
4	20
3	30
1	50



VMS

Injection frequency control.
PVDF pump head and accessories.

MODELS

VMS MF multifunction
VCO constant dosage
VCL constant dosage with level control
VMS EN proportional dosage, weekly timer

PRESSURE	FLOW
bar	l/h
5	1
10	4
3	10
2	17

WTC

Programmable digital metering and controlling pump

- 2 pumps (PVDF)
- 1 input for external pump
- Conductivity probe (0-9.999 μ S)
- 2 outputs: On/Off (programmable timer) and Blow Down (conductivity-controlled bleed)
- Pulse emitting meter input
- Flow input
- Stand-by input
- Permanent data storage

Functions:

- Pre-bleed function: reduced water system conductivity before biocide dosing
- Blow down function: discharge control on conductivity values
- Lockout: discharge valve locked for a settable time (after biocide dosage)
- Timeout: maximum discharge valve opening time

Pump and timer output configurations:

- "pulse" mode
- "perc" mode
- "ppm" mode
- "1-2-3-4 week" mode
- "feed & bleed" mode

PRESSURE	FLOW
bar	l/h
2	15
4	10
6	7
10	5

DOSING & CONTROL COMPLETE SOLUTIONS



Pre-assembled panels

Pre-assembled panels may have:

- pumps, instruments or elements owned by the client and assembled by EMEC;
- customised logos;
- backgrounds chosen by the customer;
- customised sizes;
- custom power panels.

PLANTS ON SKIDS OR IN CUSTOM-MADE CABINS

The Stainless Steel or plastic skid is designed and built on client requirements.

In addition to the solution on skids, it is possible to create dosing plants in a cabin, blind or with window.

The final product includes electrical and piping hook-ups ready for installation.



MTOWER PLUS PANELS

Full cooling tower water treatment:

- dosage of 1 or 2 biocides
- dosage of inhibitor
- pH and conductivity correction
- chlorine or ORP/Redox correction
- bleed electrovalve control
- flow switch
- input for makeup and bleed water meters



MTOWER CD/RH PANELS

Full cooling tower water treatment:

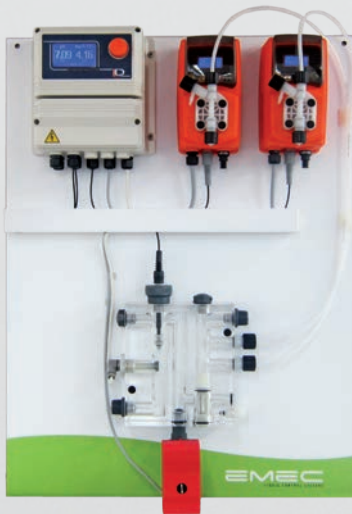
- dosage of 1 or 2 biocides
- dosage of inhibitor
- ORP/Redox and conductivity correction
- bleed electrovalve control
- flow switch
- input for makeup and bleed water meters



MTOWER CD/PH PANELS

Full cooling tower water treatment:

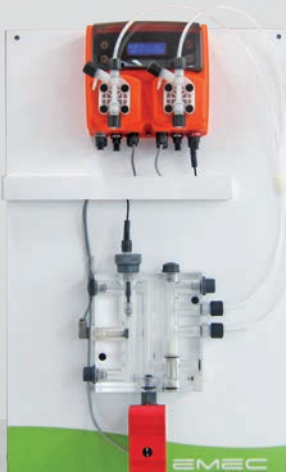
- dosage of 1 or 2 biocides
- dosage of inhibitor
- pH and conductivity correction
- bleed electrovalve control
- flow switch
- input for makeup and bleed water meters



LD MULTICHANNEL PANELS

Cooling tower water treatment:

- 1 pH on/off output
- 1 conductivity on/off output
- 2 proportional pH output
- 1 proportional conductivity output
- conductivity control
- pH control
- bleed valve control
- flow switch



WTC PANELS

Cooling tower water treatment:

- biocide dosage 1
- dosage of inhibitor
- biocide output 2
- bleed electrovalve control
- flow switch
- makeup water meter input

MIXING AND DOSING STATIONS



READYMADE SYSTEMS

Storage, dosing, all regulation in one single system.

Dosing stations are assembled to include:

- Dosing pumps
- Suction lances
- Mixer
- Water makeup valve
- Water bleed valve

Dosing stations are complete solutions and only electric and piping operations are the responsibility of the client.

ADVANTAGES

- All products are manufactured by EMEC, with the great advantage of not having problems in connecting or linking-up elements.
- Pre-assembled panel is flexible and can be adapted to the client's requirements.
- Dimensions: the dosing station is only as large as the circumference of the chemical tank.



CNT500 DOSING STATION

- 500 litre chemical tank
- MIXV4 or MIXV2 mixer
- LASP4 or LASP5 suction lance
- Dosing pump
- 1/2" loading valve
- Bleed valve
- Ready for 2 lances and 2 pumps assembly



CNT250 DOSING STATION

- 250 litre chemical tank
- MIXV4 or MIXV8 or MIX8 mixer
- LASP4 or LASP5 suction lance
- Dosing pump
- 1/2" loading valve
- Bleed valve
- Ready for 2 lances and 2 pumps assembly



CNT120 DOSING STATION

- 120 litre chemical tank
- MIXV8 or MIX8 mixer
- LASP4 or LASP5 suction lance
- Dosing pump
- 1/2" loading valve
- Bleed valve
- Ready for 2 pumps assembly



CNT50 DOSING STATION

- 50 litre chemical tank
- Manual mixer
- LASP4 or LASP5 suction lance
- Dosing pump (VMS or KMS series)
- 1/2" loading valve
- Bleed valve
- Ready for 2 pumps assembly

PROBES



EPH SERIES

- › Probe for water pH measurement
- › EPOXY body
- › Working temperature 0° / 80° C
- › Working pressure max 7 bar
- › Response time: 95% data close to the actual in less than 1 second
- › Coaxial cable and BNC connectors or connector on the SN6 screw electrode and BNC connector for the instrument



ECDIND PT SERIES

- › Probe for inductive conductivity measurement
- › PEEK body
- › Working temperature max 85° C
- › Working pressure max 8 bar
- › Standard cable/connector 4 mt G1 and NPT 3/4"
- › In-line assembly



ECDI SERIES

- › Probe for water conductivity measurement
- › PVDF body
- › Stainles steel electrodes (AISI-316)
- › Working temperature max 60° C
- › Working pressure max 7 bar
- › Thread R3/4" or R1/2"
- › Standard cable/connector 4 mt



ECDC SERIES

- › Probe for water conductivity measurement
- › PVDF or PVCC (ECDCC20) body
- › GRAPHITE electrodes
- › Working temperature max 60° C
- › Working pressure max 7 bar
- › Thread R3/4" or R1/2" (ECDCC20 thread M20 and nut)
- › Standard cable/connector 4 mt
- › In-line or off-line assembly (ECDCCIM)



ECL6

- › Probe for free Chlorine (organic and inorganic)/Bromine measurement
- › Transparent acrylic body
- › Platinum and copper electrode
- › Working temperature: 40° C max
- › Working pressure between 0.4 and 3 bar
- › Flow regulation
- › 1.5 m cable with connector
- › pH, Redox and temperature probe holders



ECL6/E

- › Probe for free Chlorine (organic and inorganic)/Bromine measurement
- › Transparent acrylic body
- › Platinum and copper electrode
- › Working temperature: 40° C max
- › Pressione di lavoro: da 0,4 a 3 bar
- › Flow regulation
- › 1.5 m cable with connector
- › Temperature probe holders

PROBES



ECL1

- › Amperometric cells for active free Chlorine (inorganic)
- › From 0 to 200 mg/l
- › Operating pH: 6/8
- › PVC body



ECL2

- › Amperometric cells for Chlorine Dioxide
- › From 0 to 20 mg/l
- › PVC body



ECL18

- › Amperometric cells for free Chlorine (inorganic)
- › From 0 to 10 mg/l
- › Operating pH: 6/8
- › PVC body



ECL17

- › Amperometric cells for Chlorine Dioxide
- › From 0 to 10 mg/l
- › PP body

ACCESSORIES



MANIFOLDS

- › Come in a one-piece PMMA design
- › Manifolds have a flow sensor as well as housing for the conductivity probe
- › Can be accessorized with a motorized valve, two injection points and even additional measurement probes
- › Maximum pressure 8 bar
- › Maximum temperature 75° C



TURBINE PULSE EMITTER WATER METER (for cold and hot water)

- › Fittings from 1/2" to 2 "
- › Working temperature: hot water up to 130° C
- › Cold water to 60° C
- › Maximum pressure: 16 bar
- › Epoxy coated cast iron housing



WOLTMANN PULSE EMITTER WATER METER dry dial

- › Fittings from 2" to 12"
- › Working temperature: 60° C max
- › Maximum pressure: 16 bar
- › Epoxy coated cast iron housing
- › PTFE internal and external coating



WOLTMANN PULSE EMITTER WATER METER for hot water

- › Fittings from 2" to 8"
- › Working temperature: 130° C max
- › Maximum pressure: 16 bar
- › Epoxy coated cast iron housing

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