



Product range



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Controlmatik ABW's main groups of activities:

- Production
- Service and installation
- Design & Engineering

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Controlmatik ABW's main product groups are:

- Production of equipment for dosing of aggressive gases and fluids
- Production of measurement and regulation equipment
- Production of safety equipment



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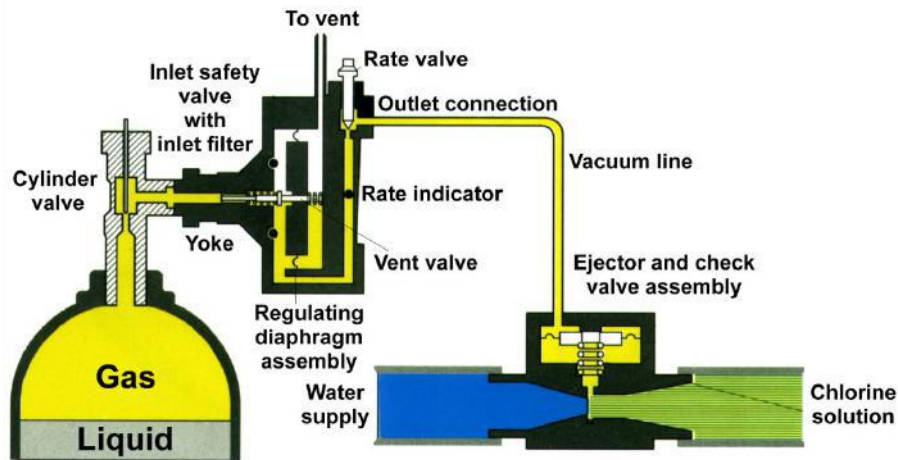
Production of equipment for dosing of aggressive gases and fluids consist of:

- Vacuum regulators
- Manual chlorinators
- Ejectors
- Gas flow meters (Rotameters)
- Vacuum and pressure switchovers
- Differential pressure regulators
- Pressure regulators with diffusers
- Motorized dosing valves
- Automatic chlorinators
- Cabinet chlorinators
- Chlorine gas filters
- Evaporators
- Pressure reducing valves
- Accessories





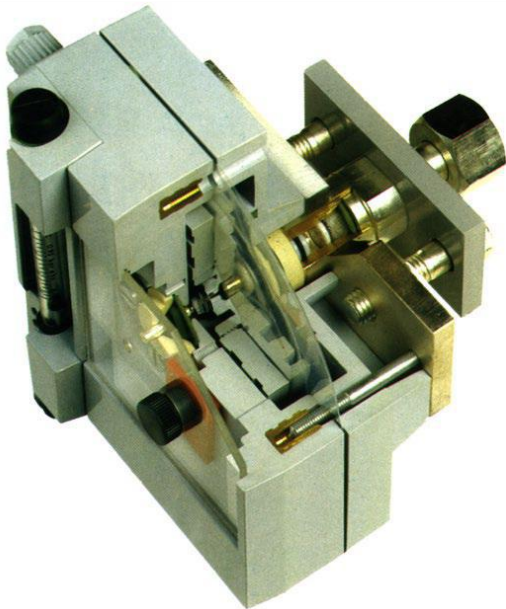
Vacuum regulators are designed for dosing chlorine gas and with minor alterations also for other gases, working on the indirect vacuum principle.



Gas pressure (Cl_2) builds up only at the back adapter massive part of the regulator. The inlet valve prevents gas from entering the system without control. When the ejector has generated enough vacuum to overcome the force of the non-return valve, gas chlorine travels along the vacuum line through the flow meter and the dosing valve to the ejector, where it thoroughly mixes with water. The dosing quantity is set on the precision rate valve. The regulator housing is equipped with an optical indicator, which signals when the chlorine cylinder is empty. As an additional order there are a pressure gauge and a switch for the electric signal to inform the user that the chlorine cylinders are empty.



- **Vacuum regulators** are made of the best and most resistant materials.



Housing:	special ABS mixture
Inlet valve:	silver
Springs:	Tantalum alloy
Rate valve:	PVDF,
Inlet adaptor:	Ceramic
Diaphragms:	ECTFE foil and FPM/FKM (Viton)
O-rings and gaskets:	FPM/FKM (Viton)
Inlet valve housing:	PVDF
Inlet valve seat:	PTFE (Teflon)
Yoke adapter:	Carbon steel zinc coated and epoxy dust painted



Controlmatik produces three main groups of vacuum regulators:

- M 20 models:
for dosing ranges from 12 g/h to 15 kg/h
- M 40 models:
for dosing ranges from 20 kg/h to 40 kg/h
- M 50 models:
for dosing ranges from 50 kg/h to 200 kg/h





Manual chlorinators are designed for chlorine gas dosing and with minor alterations also for other gases.

Controlmatik produces five main groups of manual chlorinators:

The **M 20 RC** model capacity from 12 g/h to 15 kg/h consists of:

- Vacuum regulator with rate valve and corresponding ejector

The **MR 20 RC** model capacity from 12 g/h to 15 kg/h consists of:

- Vacuum regulator, remote gas flow meter with rate valve and corresponding ejector

The **MR 21 RC** model capacity from 12 g/h to 15 kg/h consists of:

- Two vacuum regulator, remote gas flow meter with rate valve, vacuum switchover and corresponding ejector

The **MR 40 RC** model capacity from 20 kg/h to 40 kg/h consists of:

- Vacuum regulator with drip-leg and heater, gas flow meter with rate valve and corresponding ejector (optionally can be equipped with chlorine gas filter)

The **MR 50 RC** model capacity from 50 kg/h to 200 kg/h consists of:

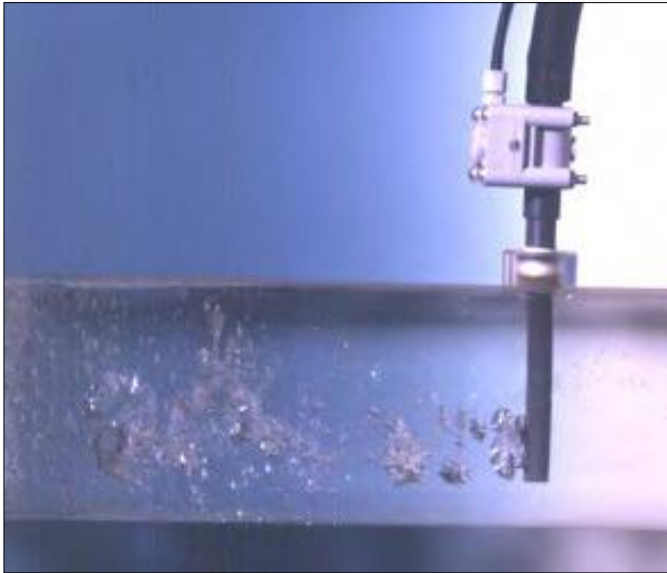
- Vacuum regulator with drip-leg and heater, gas flow meter with rate valve and corresponding ejector (optionally can be equipped with chlorine gas filter)





Ejector is a mechanical device that generates the necessary vacuum for operation of the complete dosing system. It consists of a drive nozzle, mixing chamber, non-return valve and an outlet connection.





EJECTOR OPERATION PRINCIPLE

The booster pump drives water through the ejector. This generates vacuum, which volume and power depends on the pump pressure and nozzle size. Vacuum fills the ejector with gas chlorine which mixes with water in the mixing chamber. The mixture of chlorine and water is then injected into the water-supply system. The non-return valve prevents irruption of water into the vacuum line.

IMPORTANT!

The booster pump and inlet and outlet piping of the ejector must be correctly sized in order to achieve ejector maximum performance. For every ejector the booster pump sizing chart is available!

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Controlmatik produces three main groups of ejectors:

- M 300 models:

for dosing ranges from 12 g/h to 15 kg/h

sub - groups of M 300 models:

M 300 – ¾" ejectors for pressure up to 10 bars

M 301 – ¾" reinforced ejectors for pressures up to 20 bars

M 303 – ¾" ejectors for dismantling under pressure

M 304 – ¾" ejectors with PVC ball valves for dismantling under pressure 5 bar max.

M 305 – 5/4" reinforced ejectors for more than 4 kg/h capacity



- M 340 models:

for dosing ranges from 20 kg/h to 40 kg/h

- M 350 models:

for dosing ranges from 50 kg/h to 200 kg/h



NOTE! Special high pressure ejectors are available on request!

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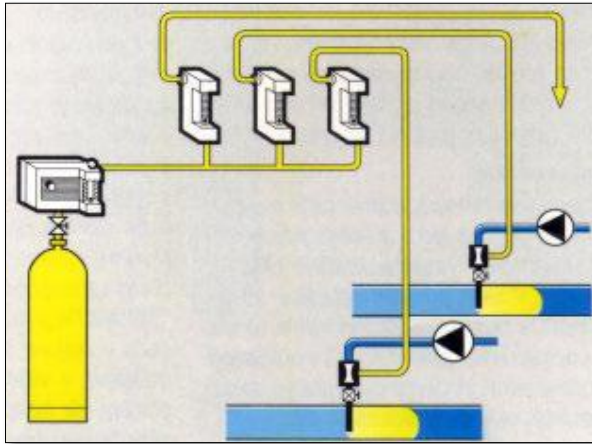
Rotameters are gas flow meters that can regulate flow. They consist of a base plate, measuring- tube supports, a rate valve and a measuring tube.

The size and type of the measuring tube varies according to the flow range and gas type.

The rate valve is designed for accurate regulation of the desired gas flow which is read by means of the measuring tube.



Controlmatik produces three main groups of rotameters:



- M 200 models:
for dosing ranges from 12 g/h to 15 kg/h
- M 240 models:
for dosing ranges from 20 kg/h to 40 kg/h
- M 250 models:
for dosing ranges from 50 kg/h to 200 kg/h



Controlmatik produces two main groups of switchovers:

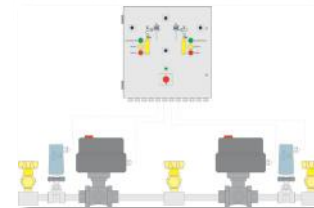
Vacuum switchovers

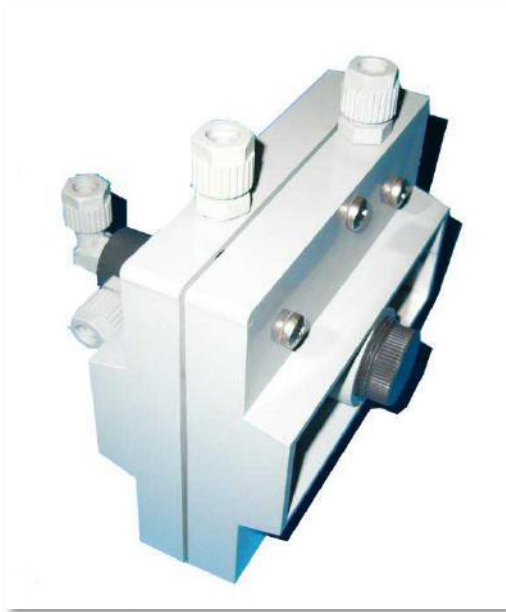
- M 400 models:
for dosing ranges from 12 g/h to 15 kg/h
(also available with electrical contacts)
- M 440 models:
for dosing ranges from 20 kg/h to 120 kg/h



Pressure switchovers:

- M 481 model:
for dosing ranges from 2 kg/h to 200 kg/h





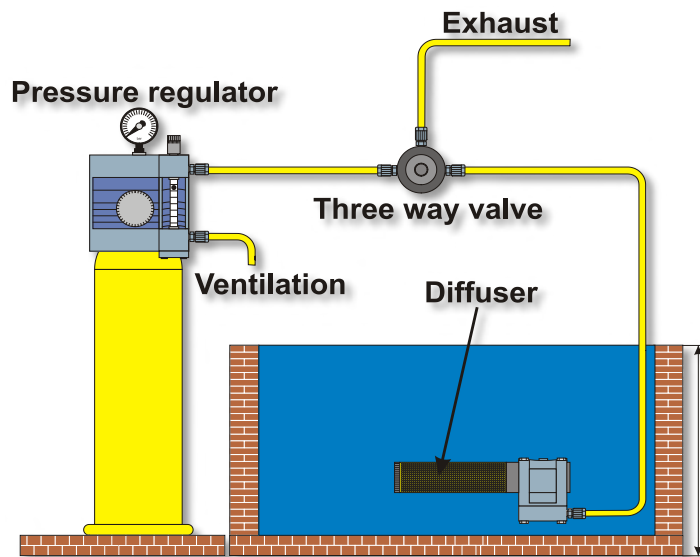
Differential pressure regulators are designed to stabilize vacuum. They are used in gas chlorine installations, with minor alternations they can also be used for other gases. They are made of the best and most resistant materials. The springs are made of tantanum alloys, housing form special ABS plastic or rigid massive PVC, the diaphragms O-rings, gaskets and washers are made of quality materials like ECTFE foil, FPM/FKM (VITON), PTFE(TEFLON), EPDM, which all ensures faultless operation of these devices at high mechanical and temperature load.



Controlmatik produces three main groups of differential pressure regulators:

- DP 20 models:
for dosing ranges from 12 g/h to 15 kg/h
- DP 40 models:
for dosing ranges from 20 kg/h to 40 kg/h
- DP 50 models:
for dosing ranges from 50 kg/h to 200 kg/h





Pressure regulators have been designed for direct dosage of gaseous chlorine under pressure, e. g. for reservoirs and tanks at locations where it is not possible to provide an auxiliary power supply.

Chlorine gas under pressure (pressure of chlorine cylinder) goes into the regulator. In the regulator the pressure is reduced to 1,2 bar. After the inlet valve the chlorine gas goes through the dosing valve, where the desired amount is set, into the measuring tube. The desired amount of chlorine gas then goes through the chlorine pipe into the diffuser, where it is mixed with water. The diffuser is equipped with non-return valve to prevent the water enter into the system.



Controlmatik produces pressure regulators for maximum 2000 g/h capacity.

System M 30 RC consist of:

- Pressure regulator M 30 C
capacities from 12 g/h to 2 kg/h
- Diffuser M 302
single ceramic stone M 302/1 up to 200 g/h
double ceramic stone M 302/1 more than 500 g/h
- Three way valve (to release line pressure)





Motor driven rate valves are electronically controlled (proportional to 4-20 mA current input signal or through MODBUS communication port) and designed for accurate dosing of gas chlorine into the water. With minor changes also other gases can be dosed. Electromotive dosing valve Series M 3531 C is made of: rigid PVC, resistant to high concentration of chlorine, precision dosing valve and quality driving motor. O-rings, valve seats and diaphragms are made of quality materials(like VITON, TEFLON, EPDM) resistant to aggressive gases. Rate V-notch rate valve is made out of high performance material. All this guarantees a long and accurate functioning of electromotive rate valve.



Controlmatik produces electromotor driven rate valves for capacities from 100 g/h to 200 kg/h

Electro motor rate valves M 3531 C can be used as a self standing unit or can be a part of automatic chlorinators or cabinet chlorinators. M 3531 C can be controlled from AQUACON, AQUAprocessor, free residual chlorine analyzer or directly from SCADA software via PLC unit.

The M 3531 C motor driven rate valves can also be manually controlled via open/close switch on the unit.

Minimum capacity is limited to 100 g/h, only special version (on request) can be used for smaller capacities!





Automatic chlorinator series M 3610 C is a heavy duty dosing unit intended for accurate automatic dosing of chlorine gas into water. It is designed to be controlled from autonomous control unit (Controller AQUACON or AQUAProcessor) or from SCADA system through PLC units. Minimum capacity is limited to 100 g/h, only special version (on request) can be used for smaller capacities, maximum capacity is 200 kg/h.

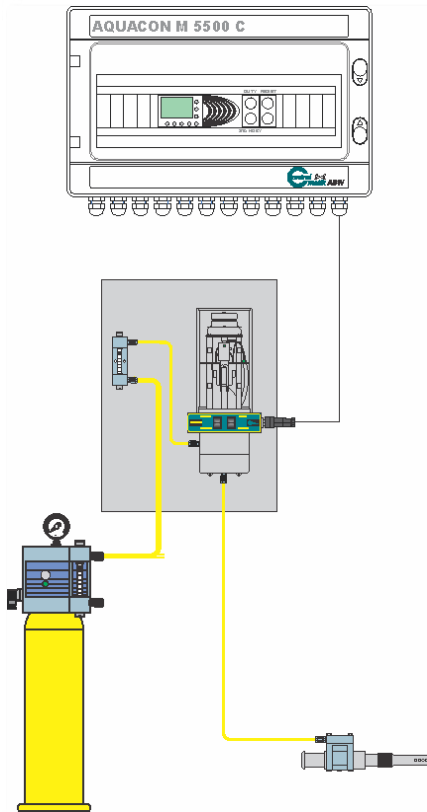


Automatic chlorinator series M 3610 C is a heavy duty dosing unit intended for accurate manual or automatic dosing of chlorine gas into water. It is designed to be controlled from controller or via PC (SCADA) through PLC units (automatic control) or in case of need, it can simply be switched to manual control. The unit consist of motor driven rate valve series M 3531 C, gas flow meter of corresponding capacity, operating vacuum gauge, inlet vacuum gauge (ejector vacuum), differential pressure regulator and wall mounting board with piping and connection box. High and low vacuum switches are optionally available.



Controlmatik produces automatic chlorinators for capacities from 100 g/h to 200 kg/h

Automatic chlorinator is mounted between ejector and vacuum regulator. It can be controlled from AQUACON, AQUAprocessor, free residual chlorine analyzer or directly from SCADA software via PLC unit. Chlorinator adjusts the dosage according to the signals received any of the above mentioned unit. In case of controller malfunction the dose can easily be set manual on the motor valve by pressing the switch manual and switches open/close. In case of motor valve malfunctioning, manual dosage can be adjusted by rate valve on the gas flow meter. Motor valve can than easily be dismantled from chlorinator without interrupting the dosing process.





Cabinet chlorinators are used for accurate dosing gas chlorine, sulphur dioxide and other gases in water supplies, waste water treatment plants and industry. The device is built up as modular design in a self-standing cabinet unit with a casing made of glass fibre and can easily be adapted to any chlorination system



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Controlmatik produces two main groups of cabinet chlorinators

- MR 500 C series (manual or automatic)
 - MR 520 C for dosing ranges from 12 g/h to 15 kg/h
 - MR 540 C for dosing ranges from 20 kg/h to 40 kg/h
 - MR 550 C for dosing ranges from 50 kg/h to 200 kg/h
- MR 500 RC series (manual or automatic complete with vacuum regulator)
 - MR 520 C for dosing ranges from 12 g/h to 15 kg/h
 - MR 540 C for dosing ranges from 20 kg/h to 40 kg/h
 - MR 550 C for dosing ranges from 50 kg/h to 200 kg/h





The **chlorine gas filters** are designed to clean chlorine gas from impurities. It prevents dosing units from damage by this impurities, particularly the sensitive parts like valve seats and rate valves. With the combination of heater wrapped around the filter also evaporates the liquid rests.

Main part of the filter consist of the rugged steel pressure vessel (tested and certified) with standard DIN connection flanges. Inside the filter vessel, the main job is done by an inserted piece from special glass wool filtering material and special monel net wrapped around. Optionally the self regulated heater can be wrapped around the filter.



Controlmatik produces two types of filters:

M 3319/40 chlorine gas filter capacity up to 40 kg/h

M 3319/120 chlorine gas filter capacity up to 120 kg/h

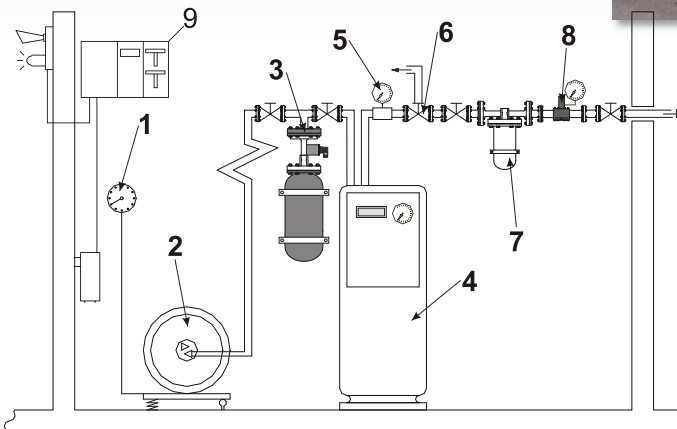
(Optionaly higher capacity filters can be build on request)

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Controlmatik evaporators are designed to heat liquid chlorine taken from storage containers and efficiently turn it to chlorine gas consuming as less power as possible. The growing demands for lowest operation and maintenance cost and for highest heating efficiency have resulted in a modification of the traditional evaporator design. Therefore the evaporators series M 3100 are special suited, where large quantities of gas are required directly from gas drums. Evaporation is achieved mainly by electric heating. Unit is constructed from regulation, control and safety devices and control panel. All parts are build in a fibre glass reinforced polyester cabinet.

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LEGEND:

1. Scale
2. Ton Container
3. Bursting disc with expansion chamber and pressure switch
4. Evaporator
5. Pressure gauge
6. Safety pressure release valve
7. Chlorine gas filter
8. Pressure reducing valve
9. Chlorine gas Leak detector

Controlmatik produces three sizes of evaporators:

M 6100/50 - for 50 kg/h capacity

M 6100/150 - for 150 kg/h capacity

M 6100/200 - for 200 kg/h capacity

Also the following auxiliary equipment for evaporator installation is available:

- Liquid chlorine expansion chamber with bursting disc and pressure switch
- Safety pressure release valve
- Pressure reducing valve
- Chlorine gas filters

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The **chlorine gas pressure reducing** valve is used to sink down the unregulated gas pressure to a steady operating gas pressure. The pressure reducing valve secures pressure independent operation of Vacuum regulator and prevents in relation to pressure and temperature changes, liquefaction of chlorine gas.



Controlmatik produces two sizes of pressure reducing valves:

M 3480 C/40 – capacity up to 40 kg/h

M 3480 C/200 – capacity up to 200 kg/h

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Controlmatik also supply's auxiliary equipment necessary for the whole dosing system to run.

The following additional equipment can be chosen for extension, upgrading, renewal or updating :

- M 3000 Chlorine gas heaters
- M 3200 Low and High vacuum indicators
- M 3300 series chlorine gas manifolds
- M 3400 chlorine gas header and isolating valves
- M 3900 vacuum check valves, cylinder holders, chlorine gas pressure and vacuum gauges,

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- Production of measurement and regulation equipment consist of:

- Free residual chlorine analyzers
- Chlorine dioxide analyzer
- pH and redox meters
- Compact swimming pool control unit
- Aquacontroller
- Aquaprocessor
- Automation – SCADA software and PLC – units





Controlmatik **free residual chlorine analyzers** are designed for measurement and control in drinking water, waste water treatment and swimming-pools applications. The unit consists of measurement cell with mechanical cleaning and microprocessor controlled unit with graphic display. With clear measured signal control unit evaluates and amplifies cell current and with an automatic temperature compensation we have an accurate measured signal on the output and on the graphical display shown in mg/l. Control unit can be equipped with PI regulator output or with galvanically separated 4-20 mA signal on the amplifier output. User can easily communicate with control unit over graphic display and four keys. All this guarantees accurate and continuous measurement and regulation.

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Controlmatik produces two major type of free residual chlorine analysers:

M 1035 C – free residual chlorine analyser with copper-gold electrode system

M 1036 C – free residual chlorine analyser with platinum/platinum and reference electrode system

Every analyser is equipped with flow indicator and with motor fault alarm.





Controlmatik **chlorine dioxide analysers** are designed for measurement and control in drinking water, waste water treatment and swimming-pools applications.

The unit consists of three electrode (platinum/platinum and reference electrode) measurement cell with mechanical cleaning and microprocessor controlled unit with graphic display. The analyser incorporates all functions as the free residual chlorine analyser.

Controlmatik produces one type of chlorine dioxide analyser:

M 1056 C – Chlorine dioxide analyser

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Controlmatik **pH and redox (ORP) meters** are designed for continuous measurement in swimming-pools, potable, waste and industrial waters. With special versions of measuring electrodes it can also be used for measurement of other media.



The unit consists of measuring electrode and graphic display. Electronic unit evaluates and amplifies the measured potential. PI regulator that independently controls a certain process, can be build in a unit. Unit can be equipped with manual or automatic temperature compensation (depends on customer request) and with SELECAN communication output or with the galvanically separated 4–20 mA signal on the amplifiers output. The user can easily communicate with a unit over a graphic display and four function keys.

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Controlmatik produces the following type of pH and redox (ORP) meters:

- M 1122 C – pH meter which includes , electronic unit, pH electrode and connecting cable
- M 1322 C – redox (ORP) meter which includes , electronic unit, pH electrode and connecting cable



Compact swimming pool measurement & regulation unit

is designed for measurement and control of free chlorine, redox and pH in swimming-pools applications.

The unit consists of two electrodes (gold and copper - measurement electrodes) measurement cell with mechanical cleaning and flow armature with pH and redox electrode and with three microprocessor controlled display units with PI regulator build in and with automatic temperature compensation which provides accurate measured signal on the output and is shown on the graphical display. Each control unit is equipped with PI regulator output and with two galvanically separated 4-20 mA signal on the amplifiers output. Unit can control dosing pumps or motor dosing valve. User can easily communicate with control unit over graphic display and four keys.

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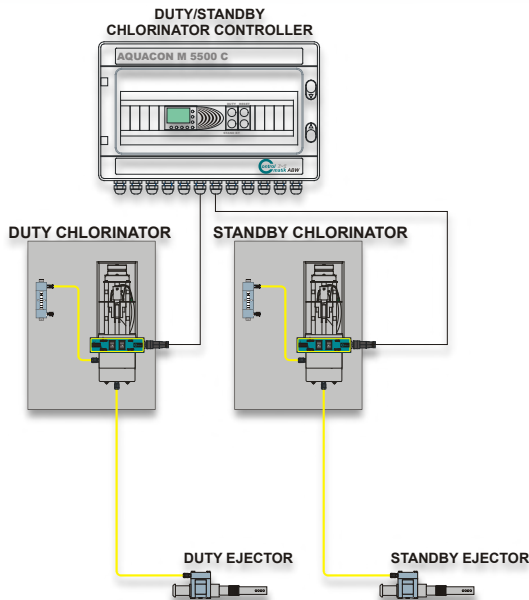
Controller unit **AQUACON series M 5500 C** is a simple duty/standby control unit for control of up to two automatic chlorinators — gas or liquid. It is designed to control the process values on portable water plants, swimming pools, waste water plants or in industry.



Controller combines three functions in one unit:

- 1) Process control according to the signal received from flow meter (Flow-proportional controller)
- 2) Process control according to the signal received from residual chlorine analyzer (residual chlorine controller,)
- 3) Process control according to the signal received from residual chlorine analyzer and water flow meter (compound loop controller)

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The proper regulation for each individual system can easily be set on the field. The electronically controlled motor valve or dosing pump, is driven through PID regulator at all types of control options.

Flow-proportional control

Simplest form of dosing control. The chlorine dose is proportional to the water flow. A flow meter provides a signal proportional to the water flow, which controller uses to determine the gas control. According to the set reference value and water flow, controller sends the appropriate signal to the chlorinator.

Free residual chlorine control

The controller receives the signal from a chlorine analyzer down stream of the dose point. The signal from the chlorine analyzer is compared with the reference value set in the controller and determines the correct dose and sends the appropriate signal to the chlorinator. This operation is performed after a predetermined process parameters which are set in the controller.

Flow-proportional control and free residual chlorine control (compound loop regulation type)

At start the chlorine dose is set proportional to the water flow. After a predetermined process parameters which are set in the controller, the signal from the chlorine analyzer is compared with the reference value set in the controller. Controller then determines the correct dose and sends the correction signal to the chlorinator. Controller also immediately sends the correction signal to the chlorinator in case of any change in water flow.



AQUAprocessor series M 5700 C is unit built with main CPU (central processor unit) with TOUCH screen LCD display. The unit can be expanded through various other extension modules, as to the system. It is designed to control the process values on water plants, swimming pools, waste water plants or in industry. Regulation cabinet can be configured for manual or automatic output monitoring. The monitored data can be transmitted to a SCADA PC or other control system. Regulation cabinet can be expanded with: analogue input modules, analogue output modules, digital input modules, digital output modules and motor modules. User can communicate with the CPU via control panel with display and keyboard or through the notebook or PC with SCADA software.





AQUAProcessor M 5700 C TOUCH primary function is to control the chlorine gas dosing on basis of data received from chlorine analyzer and/or water flow meter. There are three types of controls available and multiple individual dosing points can be controlled. Available are flow-proportional controller, residual chlorine controller and combination of flow-proportional and residual chlorine controller in one unit. The proper regulation for each individual system can easily be set on the field. The electronically controlled motor valve is driven through PID regulator at all types of controllers.

AQUAProcessor M 5700 C TOUCH secondary function is to control complete station: booster pump control, empty cylinder control, chlorine gas leakage control (chlorine gas probes can be directly connected to the unit), chlorine gas neutralization systems control, emergency cylinder shut off systems control, fans operation control, ect.

AQUAProcessor M 5700 C TOUCH is also able to communicate with SCADA software. The device can send all the relevant data to SCADA control software and receive commands from SCADA.



**Controlmatik produces the following types of
AQUAProcessors M 5700 C TOUCH**



M 5701 C

– One dosing point control

M 5702 C

– Two dosing points control

M 5703 C

– Three dosing points control

M 5704 C

– Four dosing points control

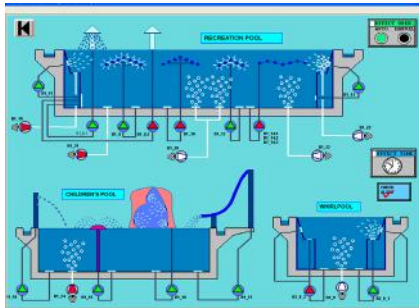
M 5705 C

– Five dosing points control

Also special versions are available on request!

As a standard the unit comes with an 3.5" touch screen,
optionally the 5" or 7" touch screen can be used!

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Controlmatik provides a complete solution for water management automation system for waterworks , industrial water plants and for swimming pool and Aqua parks.

We offer turn-key projects from design to equipment delivery and installation.

We design and deliver power cabinets, control cabinets and SCADA software.

We have successfully completed several waterworks, waste water treatment plants and industry water treatment automations.

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-Production of safety equipment consist of:

- Chlorine gas leak detectors
- Chlorine gas neutralization with closed tank
- Emergency shut off system





Controlmatik **leak detector** is assembled as separate signal evaluation unit with display, unit with two adjustable alarms and fault alarm, power supply unit and separate detection cell – probe. The detection cell is mounted in an IP 65 housing and features 4- 20 mA output which is connected to the signal evaluation unit. Two adjustable alarms can be set and following units can be activated in case of chlorine gas leak :

- alarm horn
- flashing light
- ventilation system
- neutralization system

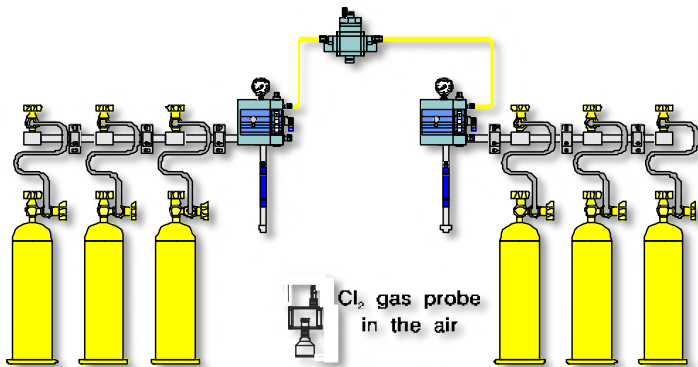




Controlmatik produces two major type of chlorine gas leak detectors:

M 4510 C/X – Standard leak detector

- M 4510 C/1 – single probe unit
- M 4510 C/2 – double probe unit
- M 4510 C/3 – unit with three probes
- M 4510 C/4 – unit with four probes



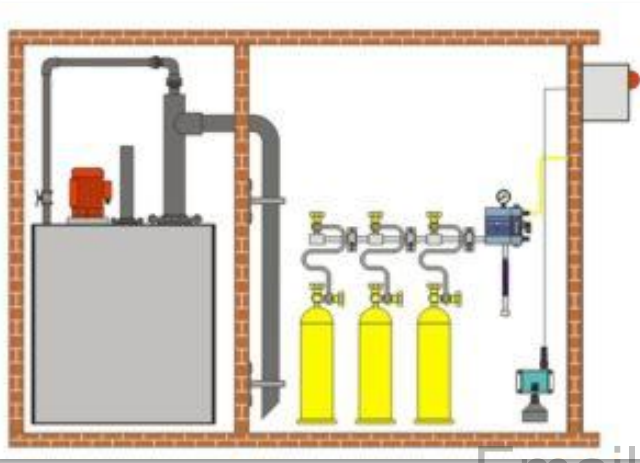
M 4510 C/ XB – Leak detector with battery back-up

- M 4510 C/1B – single probe unit
- M 4510 C/2B – double probe unit

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Gaseous chlorine neutralization system is designed to protect gaseous chlorine storage areas, devices for gaseous chlorine dosing and people. The chlorine gas neutralization device is activated manually or automatically by the chlorine gas leak detector – with probe which detects the presence of gaseous chlorine in the room. The pump activates and by transporting the neutralization means into the ejector, creates vacuum and thus sucks chlorine from the storage room directly into the solution which neutralizes it. The 99% of the neutralization process takes place inside the special ejector. The mixture of the chlorine atmosphere and the solution provokes a chemical reaction that completely neutralizes the chlorine. The cleaned air is sent back to the atmosphere through the air hole of the neutralization device.





Neutralisation device main parts are:

- a) Neutralization solution tank
- b) Special high resistant pump for ejector activation and mixing of neutralization solution
- c) Special vacuum ejector for contaminated air suction capacity of 150 m³/h of contaminated air suction

NOTE! Number of pumps and ejectors varies with the capacity!

Controlmatik produces six types of Neutralization systems:

- M 6100/50** – 50 kg/capacity system
- M 6100/100** – 100 kg/capacity system
- M 6100/200** – 200 kg/capacity system
- M 6100/300** – 300 kg/capacity system
- M 6100/400** – 400 kg/capacity system
- M 6100/500** – 500 kg/capacity system

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Controlmatik ABW “Emergency Shut off System - M 3800 EPESS” ensures, in combination with chlorine gas leak detector, automatic closure of chlorine cylinder or container valves in case of chlorine gas leakage. Chlorine gas leak detector provides information about the leakage and gives signal to “Emergency Shut off System” control panel. Control panel triggers the electrical actuator, mounted directly on the valve of the cylinder or container, which closes the valve in less than four seconds. Operator can also manually close all the valves with emergency button mounted outside the storage room. When all the valves are closed, operator can enter the storage room and inspect the leakage. When the source of the leakage is identified and resolved, operator can manually open all the necessary valves and set the “control panel in ready mode”. The system is very simple to install. Controlmatik ABW “M 3800 ESS” can be used for multiple units (cylinder or container valves). The system is using electrical power source and is battery backed-up in case of power failure.

