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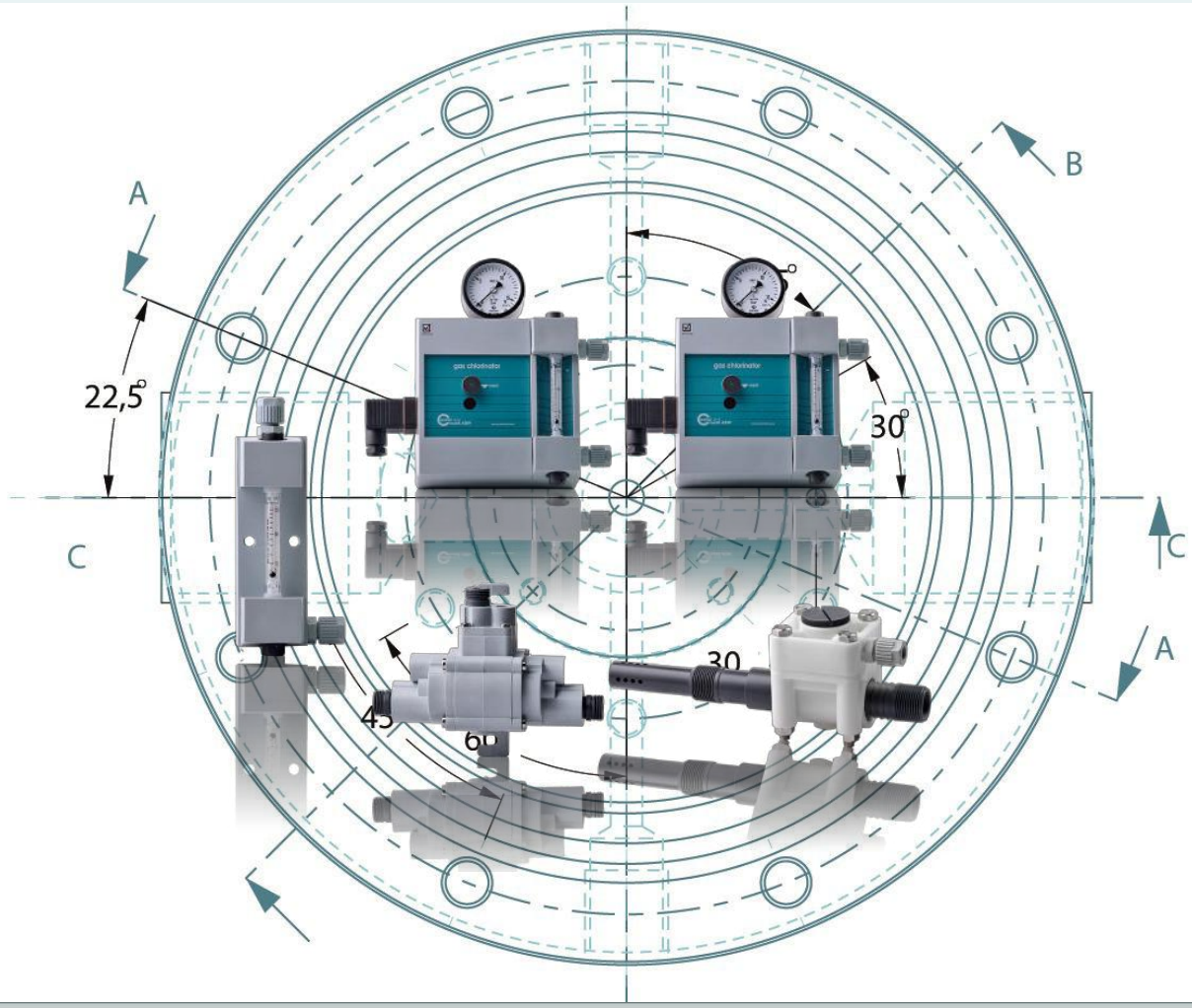
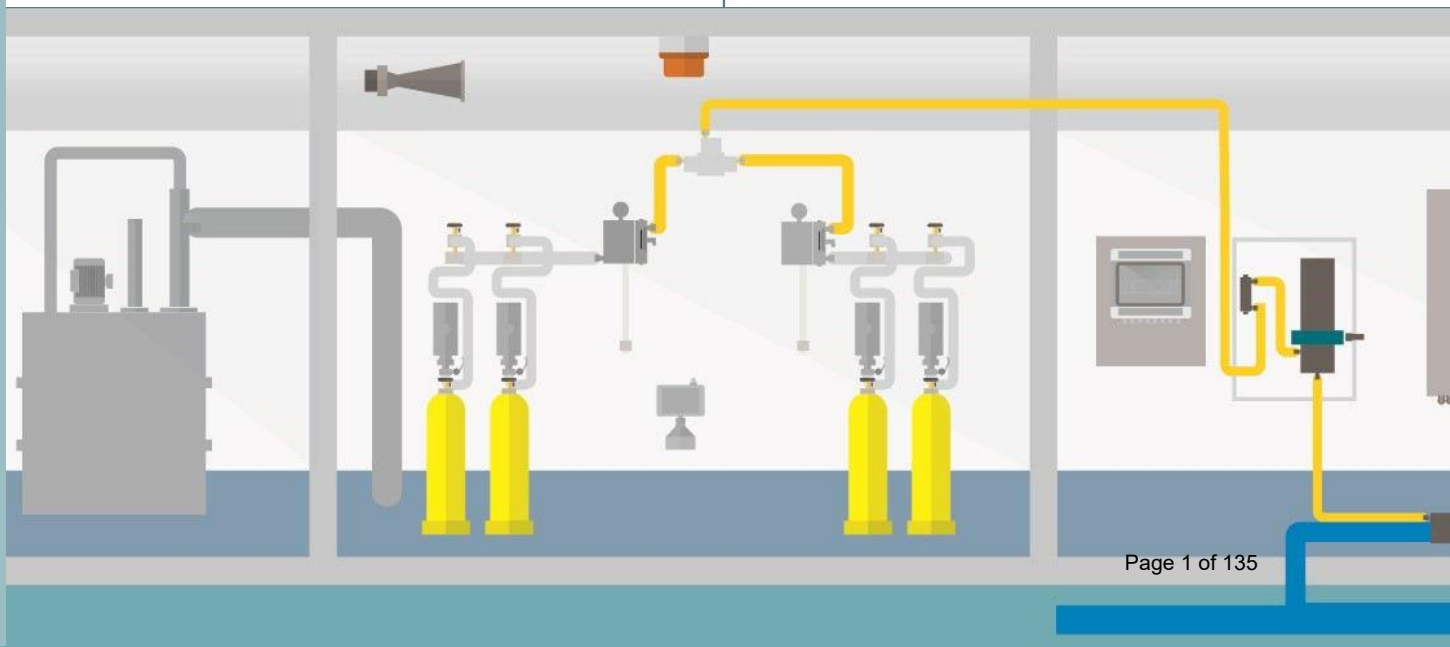
Product Catalogue 2019





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CONTENTS

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1. Dosing equipment for aggressive gases

SINGLE UNITS

Designed to feed gas chlorine and with minor alterations also other gases (SO2, CO2, NH3), working on the indirect vacuum principle.
Our systems ensure optimum levels of dosage with minimal chemicals and power consumption even with very high capacities.
Dosing Devices and Systems comply with safety regulations of European and ASA standards, and Vacuum Regulators also with the strict safety standard DIN 19606.
Application: potable and swimmingpool water treatment

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Vacuum regulator M 20 C

- **Capacity: up to 15 kg/h**
- Full vacuum system for maximum safety
- Chlorine wetted parts made of high quality materials for maximum reliability

GENERAL

Vacuum Regulators are designed to feed gas chlorine and with minor alterations also for other gases (SO_2, CO_2, NH_3), working on the indirect vacuum principle. They are made of the best and most resistant materials. The springs are made of tantalum alloys, the inlet valve of technically pure silver, the casing of rubber and plastic mixture, the membranes and washers of quality materials like ECTFE foil, FPM/FKM, PTFE, PVDF, which all ensures faultless operation of these devices at high mechanical and temperature load.

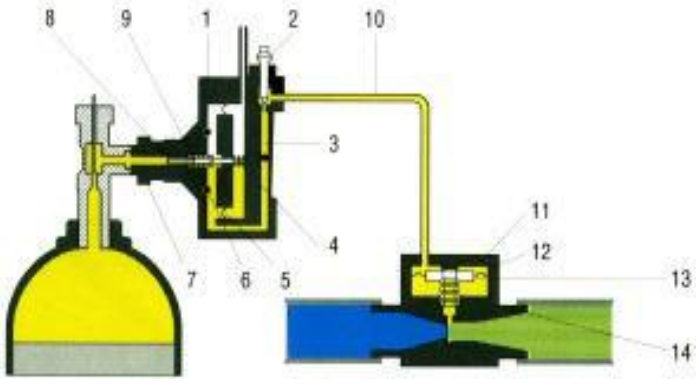
OPERATION PRINCIPLE

Gas pressure (Cl2) 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 check valve, gas chlorine travels along the vacuum line through the flow meter and the rate valve to the ejector, where it thoroughly mixes with water.

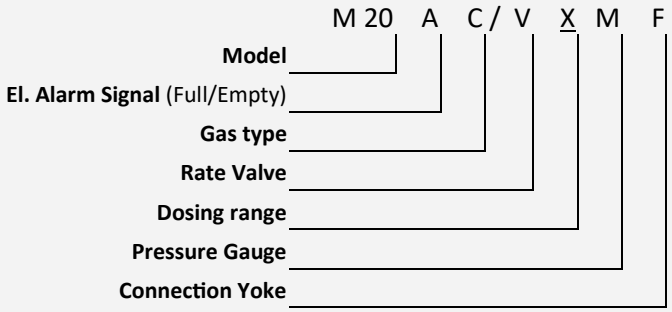
The feed rate is set on the precision rate valve. The regulator casing is equipped with an optical indicator which signals that the chlorine cylinder is empty. Optionally we can add a pressure gauge and a switch for the electric alarm signal to inform the user that the cylinders are empty.

Rate Valves:
Rate Valves are made of high quality materials.

1 Vacuum Regulator Casing
2 Rate valve
3 Flow Meter
4 Spring
6 Washer
7 Adapter
8 Inlet Valve
9 Spring
11 Ejector Casing
12 Membrane
13 Non-return Valve
14 Spring



ORDER CODES



OPTIONS:
- **Alarm:** yes **"A"** , without alarm the letter is not written in
- **Gas type**: **"C"** - Cl_2, **"CO2"**- CO_2, **"S"** - SO_2, **"N"** - NH_3
- **Rate Valve**: yes **"V"** , without it the letter is not written in
- **Dosing range X in g/h:**

1	up to 12	**6**	up to 1000
2	up to 25	**7**	up to 2000
3	up to 100	**8**	up to 4000
4	up to 200	**9**	up to 10000
5	up to 500	**15**	up to 15000

- **Pressure gauge** yes **-"M"** , without it the letter is not written in
- **Yoke**: standard nut is included; for clamp type yoke, the letter "**F**" is written in the code

TECHNICAL DATA

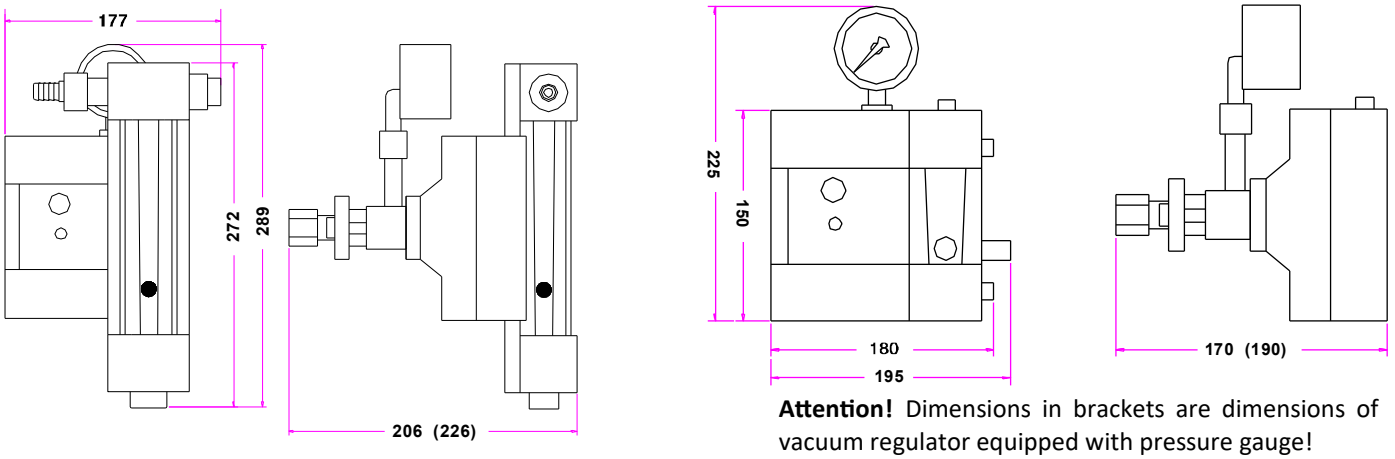
Accuracy:	Within 4% of flow
Operating range:	20: 1
Gas types:	Cl2, CO2, SO2, NH3
Weight:	up to 4kg/h = 3.1 kg
	10 - 15 kg/h = 3.9 kg

Connections

Vacuum (up to 15m):
2 kg/h – d8/d10 - 3/8''
4 kg/h – d8/d10 - 3/8''
10 kg/h – d12/d16 - 5/8''
15 kg/h – d12/d16 - 5/8''
For larger vacuum lines, see table:
Chlorine vacuum line size requirements

Connection to Cylinder:
Standard: 1" (according DIN 477)
Optionally: 1.030" (CGA)
5/8" (BSP)
M27x1,5mm
G3/4''
Yoke type

MEASURE DRAWINGS



Attention! Dimensions in brackets are dimensions of vacuum regulator equipped with pressure gauge!

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Vacuum regulator M 40 C

- **Capacity: up to 40 kg/h**
- Full vacuum system for maximum safety
- Chlorine wetted parts made of high quality materials for maximum reliability

GENERAL

Vacuum Regulators M 40 C are designed to feed larger amounts of gas chlorine and with minor alterations also for other gases, working on the indirect vacuum principle.

M 40 C regulators consist of:

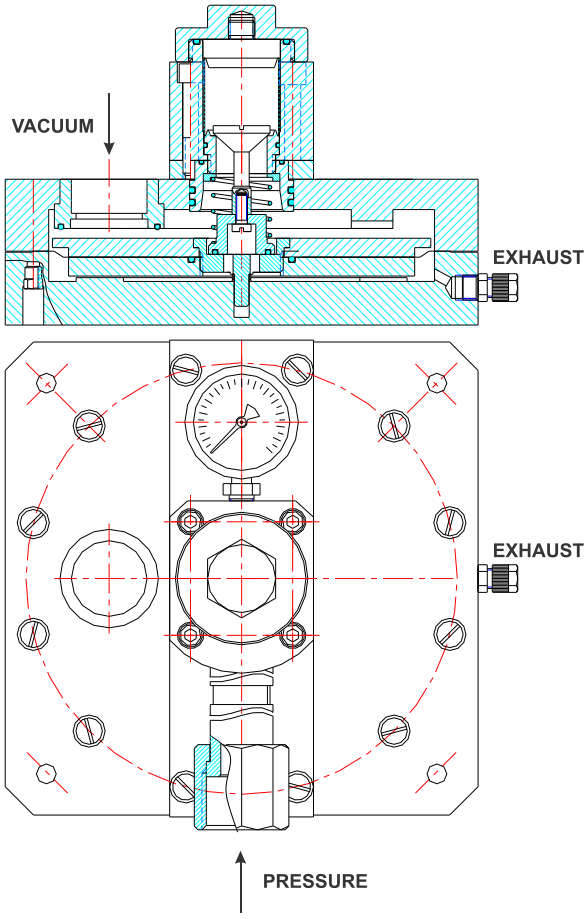
- inlet pressure valve
- regulator head
- pressure gauge

Optionally, they can be equipped with:

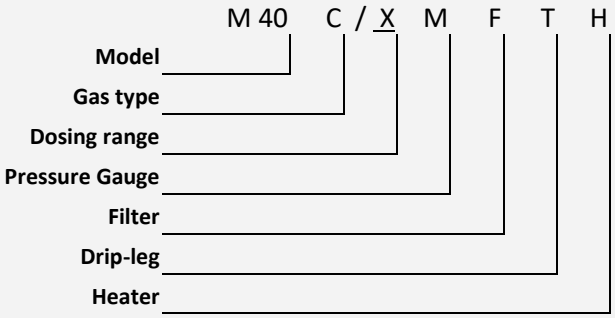
- drip-leg and heater
- y-strainer
- chlorine gas filter

OPERATION PRINCIPLE

Gas pressure (Cl2) builds up only at the yoke adapter 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 check valve, gas chlorine travels along the vacuum line through the flow meter and the rate valve to the ejector, where it thoroughly mixes with water.



ORDER CODES



OPTIONS:
-**Gas type**: **"C"** - Cl_2, **"CO2"**- CO_2, **"S"** - SO_2, **"N"** - NH_3
-**Dosing range (kg/h):**
20 up to 20
40 up to 40
-**Pressure gauge :** yes **"M"** , without it the letter is not written in
-**Filter**: yes "**F**"; if selected, then drip-leg "**T**" and heater "**H**" can't be present
-**Drip-leg:** yes "**T**", without it the letter is not written in
-**Heater:** yes "**H**"; it can only be written in if the drip-leg is present

TECHNICAL DATA

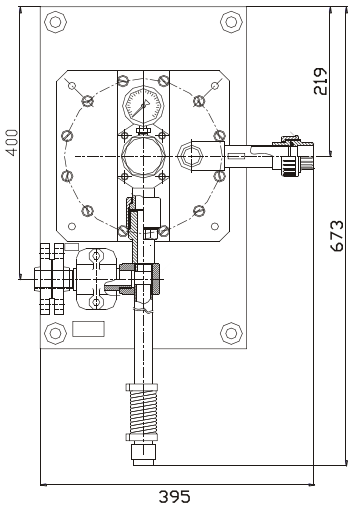
Gas types:	Cl2, CO2, SO2, NH3
Weight:	19 kg
Dimensions	673 x 395 x 179 mm

Connections

Vacuum (up to 15m):
20 kg/h – d20 PVC Union
40 kg/h – d25 PVC Union
For larger vacuum lines, see table:
Chlorine vacuum line size requirements

Pressure:
Flange connection G3/4''
NP16 DN20 (EN1092-1)
from 20 - 40 kg/h

MEASURE DRAWINGS



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Vacuum regulator M 50 C

- **Capacity: up to 200 kg/h**
- Full vacuum system for maximum safety
- Chlorine wetted parts made of high quality materials for maximum reliability

GENERAL

Vacuum regulators series M 50 C function in the same way as M 20 C Vacuum regulators, with the only difference that they are designed to feed larger amounts of gas.

M 50 C regulators consist of:

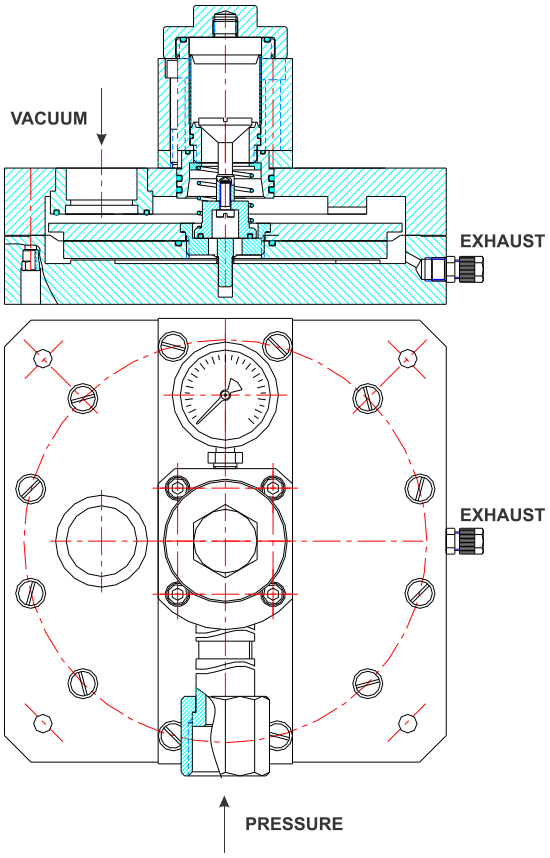
- inlet pressure valve
- regulator head
- pressure gauge

Optionally they can be equipped with:

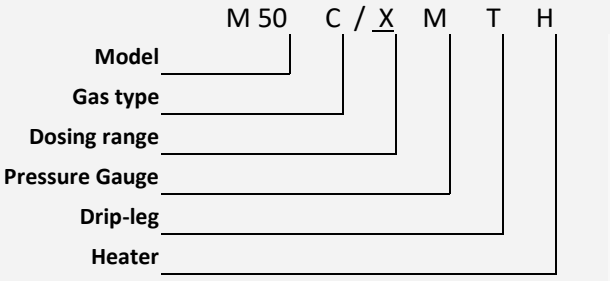
- drip-leg and heater
- y-strainer
- chlorine gas filter

OPERATION PRINCIPLE

Gas pressure (Cl2) builds up only at the yoke adapter 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 check valve, gas chlorine travels along the vacuum line through the flow meter and the rate valve to the ejector, where it thoroughly mixes with water.



ORDER CODES



OPTIONS:
-**Gas type**: **"C"** - Cl_2, **"CO2"**- CO_2, **"S"** - SO_2, **"N"** - NH_3
-**Dosing range (kg/h):**
80 up to 80
120 up to 120
160 up to 160
200 up to 200
-**Pressure gauge :** yes **"M"** , without it the letter is not written in
-**Drip-leg:** yes "**T**", without it the letter is not written in
-**Heater:** yes "**H**"; it can only be written in if the drip-leg is present

TECHNICAL DATA

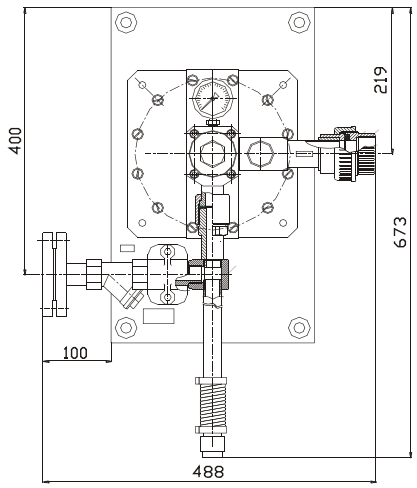
Accuracy:	Within 4% of flow
Operating range:	20: 1
Gas types:	Cl2, CO2, SO2, NH3
Weight:	19 kg
Dimensions	673 x 488 x 179 mm

Connections

Vacuum up to 15m):
Up to 80 kg/h – d50 PVC Union
Up to 120 kg/h– d50 PVC Union
Up to 160 kg/h – d50 PVC Union
Up to 200 kg/h – d50 PVC Union
For larger vacuum lines, see table:
Chlorine vacuum line size requirements

Pressure:
Flange connection G3/4''
NP16 DN20 (EN1092-1)
from 60 to 120 kg/h
Flange connection G1''
NP16 DN20 (EN1092-1)
from 160 kg/h to 200 kg/h

MEASURE DRAWINGS



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Pressure regulator M 30 C

- **Capacity: up to 2 kg/h**
- Direct feed of gaseous chlorine under pressure
- Best for locations with no auxiliary power supply

GENERAL

Pressure regulators M 30 C are a part of chlorination system, and are designed for direct feed of gaseous chlorine under pressure, e. g. **for open swimming pools and tanks at locations where it is not possible to provide an auxiliary power supply**.

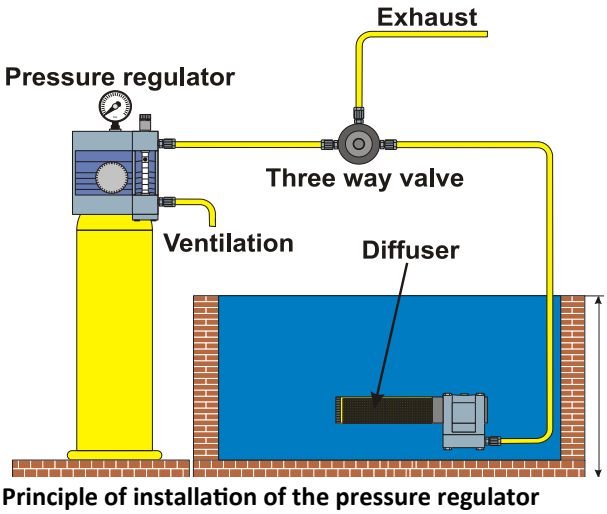
The capacities of the device vary from 0 - 2000 g/h, functioning on the principle of pressure in the chlorine cylinder with manual feed rate adjustment.

OPERATION PRINCIPLE

Chlorine gas under cylinder pressure enters the regulator through the inlet valve, where the pressure is reduced to 1,2 bar. The gas then flows through the rate tube and the rate valve where the desired amount is set. The set amount of chlorine gas goes through the chlorine pipe and three way valve to the diffuser, where it is mixed with water. The diffuser is equipped with check valve to prevent the water entering the system.

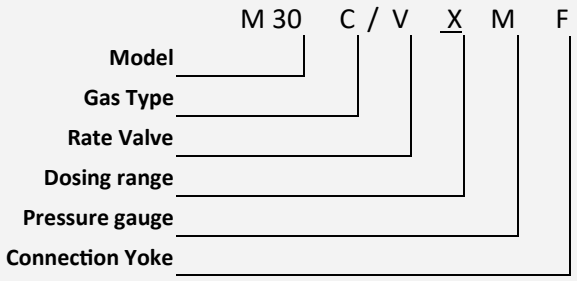
INSTALLATION

System of pressure regulators M 30 RC is equipped with a pressure reducing valve which prevents the chlorine gas to enter under high pressure. The pressure is reduced to a 1,2 bar maximum. Exhaust should be made so that the remainig chlorine gas in the pipline is neutralised. The diffuser should be mounted at least 1,2 m below water level and maximum of 7m, because the higher the feed rate the greater should be the depth. Because of the influences of temperature and quality of the media, the bubbles and other factors, always choose the deepest point to insure best possible absorption.



Principle of installation of the pressure regulator

ORDER CODES



OPTIONS:
- **Gas type:** "**C**" – Cl2, **"CO2"**- CO_2, "**S**" – SO2
- **Rate Valve: by default**
- **Dosing range (g/h):**

1 up to 12
2 up to 25
3 up to 100
4 up to 200
5 up to 500
6 up to 1000
7 up to 2000

- **Pressure gauge : by default**
- **Yoke -** standard nut; for clamp type yoke the letter ''**F**'' is written in the code

TECHNICAL DATA

Accuracy:	Within 4% of flow
Operating range:	20: 1
Gas types:	Cl2, CO2, SO2,
Weight:	Gross 6,3 kg, Nett 5,1 kg
Dimensions	500 x 250 x 280 mm

Connections

Connection to the cylinder:
1" (complies with DIN 477)

Other connections on request!

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Gas Flow Meters M 200 C

- **Capacity: from 12 g/h to 200 kg/h**

GENERAL

M 200 C Gas flow meters are gas flow indicators applied in a gas chlorination system to regulate the flow.

They consist of:

- base plate
- measuring tube holders
- rate valve
- glass measuring tube

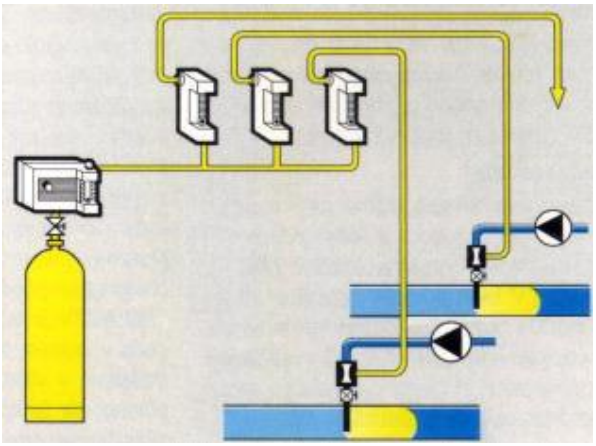
The size and type of the measuring tube varies according to the flow range and gas type.

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

M 200 C Gas flowmeters cover a metering range of 12g/h to 15 kg/h, model M 240 up to 40 kg/h and model M 250 up to 200 kg/h.

OPERATION PRINCIPLE

The fluid passes through the measuring tube from bottom to top and consequently needs to be installed vertically and flow direction is upwards. In the conical glass measuring tube is a free rotating float which provides self stabilization. The float indicates the flow that can be read from the scale on the measuring tube.



Rate valves:
Rate valves are made of high quality materials.

ORDER CODES

M 200 C / X

Model
Gas type
Dosing range

OPTIONS:
- **Model: 200** for dosing range up to 15kg
  240 for dosing range up to 40kg
  250 for dosing range up to 200kg
- **Dosing range:**

M 200 (g/h)		M 240 (kg/h)	
1	up **to** 12	**20**	up to 20
2	up to 25	**40**	up to 40
3	up to 100		
4	up to 200	**M 250 (kg/h)**	
5	up to 500	**60**	up to 60
6	up to 1000	**80**	up to 80
7	up to 2000	**120**	up to 120
8	up to 4000	**160**	up to 160
9	up to 10000	**200**	up to 200
15	up to 15000		

- **Gas type: "C"** - Cl2, **"CO2"**- CO_2, **"S"** - SO2, **"N"** - NH3

TECHNICAL DATA

Accuracy:		Within 4% of flow
Gas types:		Cl2, CO2, SO2, NH3
Weight:	**M 200**	0,3 kg
	M 200/9	1 kg
	M 240	5,5 kg
	M 250	6 kg

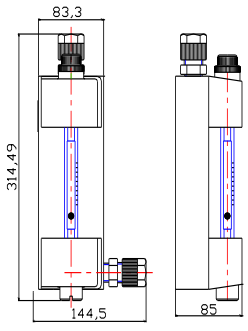
Connections
Vacuum (up to 15m):

2 kg/h – d8/d10
4 kg/h – d8/d10
10 kg/h – d12/d16
15 kg/h – d12/d16
20 kg/h – d20 PVC Union
40 kg/h – d25 PVC Union
60kg/h – d50 PVC Union
80 kg/h – d50 PVC Union
120 kg/h – d50 PVC Union
160 kg/h – d50 PVC Union
200 kg/h – d50 PVC Union

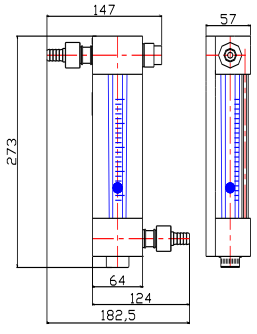
For larger vacuum lines, see table:
Chlorine vacuum line size requirements

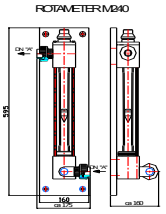
MEASURE DRAWINGS

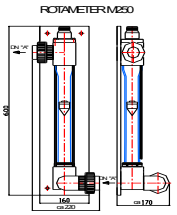
ROTAMETER M200/1-8 (up to 4g/h)



ROTAMETER M200/9 (up to 10kg/h)







Differential pressure regulators DP20, DP40, DP50

- **Capacity: up to 200 kg/h**

GENERAL

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

OPERATION PRINCIPLE

The **return** pressure acts upon the **underside** of the diaphragm.

The diaphragm along with the spring **act together** to react to system changes and to keep this **constant pressure (vacuum) loss**.

So as the system pressure (vacuum) **rises,** the diaphragm moves the **valve cone down**, to keep a **controlled circuit pressure**.

ORDER CODES

DP 20 C / X

- **Model**
- **Gas type**
- **Dosing range**

OPTIONS:

- **Model: DP 20**: 0 - 15 kg/h
  DP 40: 20 - 40 kg/h
  DP 50: 60 - 200 kg/h
- **Gas type**: **"C"** - Cl2, **"CO2"**- CO_2, **"S"** - SO2, **"N"** - NH3
- **Dosing range (kg/h):**

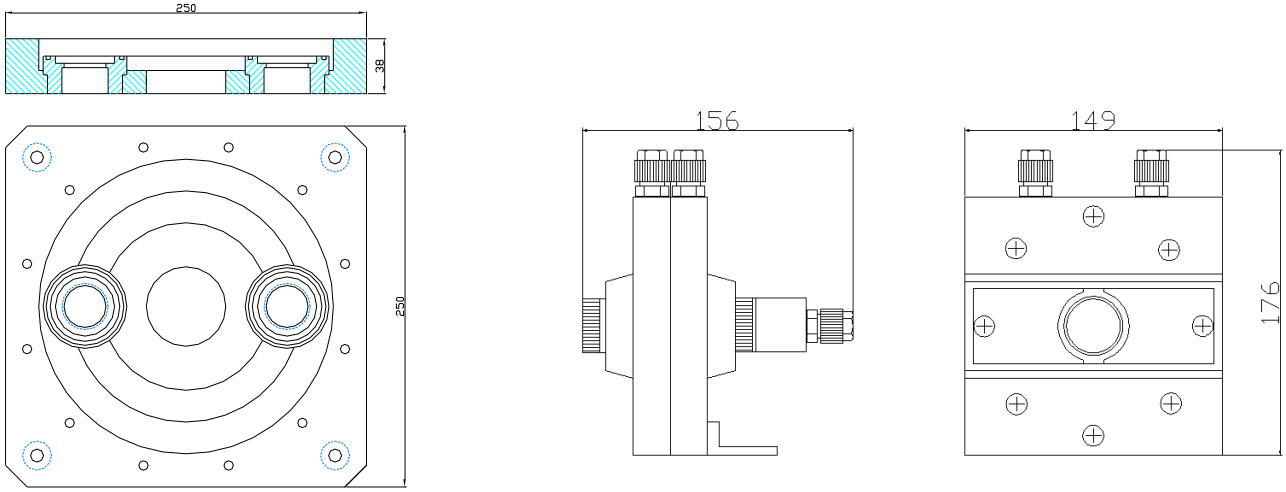
DP 20
8 up to 4
9 up to 10
10 up to 15
DP 40
20 up to 20
40 up to 40
DP 50
60 up to 60
80 up to 80
120 up to 120
160 up to 160
200 up to 200

TECHNICAL DATA

Connections
Vacuum (up to 15m):
4 kg/h - d8/d10
10 kg/h - d12/d16
15 kg/h - d12/d16
20 kg/h - d20 PVC Union
40 kg/h - d25 PVC Union
60 kg/h - d50 PVC Union
80kg/h - d50 PVC Union
120kg/h - d50 PVC Union
160 kg/h - d50 PVC Union
200 kg/h - d50 PVC Union

For larger vacuum lines, see table:
Chlorine vacuum line size requirements

MEASURE DRAWINGS



Ejectors M 300 C

- **Capacity: up to 15 kg/h**
- Safe vacuum generation
- Integrated check valve
- Versatile application

GENERAL

Ejector is a mechanical device that generates the vacuum necessary for operation of the feed system.

Ejector consists of:

- drive nozzle
- mixing chamber
- check valve
- outlet connection

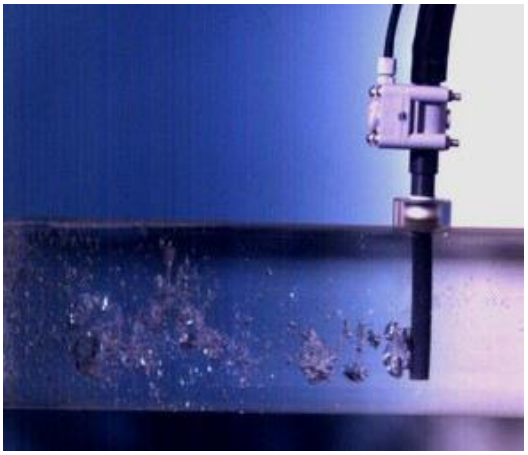
Ordinary ejector construction is for pipes with water pressure up to **6 bar**.

Reinforced ejectors are used for pipes with water pressure up to **20 bar**.

Ejectors with "connection cock" are used when the ejector has to be separated from the pipeline in which there is **overpressure**.

OPERATION PRINCIPLE

The booster pump drives water through the ejector. This generates vacuum, the power of which depends on the pump pressure and permeability of the drive nozzle. 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 check valve prevents irruption of water into the vacuum line.



M 304 TC Ejector with PVC valves for pressure up to 6 bar

M 307 C Reinforced ejector for pipes with pressure up to 20 bar

ORDER CODES

M 300 C /X T _

- Model
- Gas type
- Dosing range
- Membrane
- Connections

OPTIONS:

- **Model: M 300** - Ordinary ejector construction for pressure up to 6 bar, max 4 kg/h
  - **M 303** - Ejector with a "connection cock" for dismantling under pressure up to 3 bar, max 4 kg/h
  - **M 304** - D.P.T – Ejector with PVC valves , designed for pool engineering. For pressures up to 6 bar
  - **M 305** - Reinforced ejector for more than 4 kg/h, G 5/4
  - **M 306** - Ejector with union connection for pressure up to 6 bar, max 4 kg/h
  - **M 307** - Reinforced ejector for pressures from 6 to 20 bar
  - **M 308** - Ejector for pressures more than 20 bar
  - **M 309** - Reinforced ejector for pressures up to 6 bar, PTFE
- **Gas type**: **"C"** - Cl_2, **"CO2"** - CO_2, **"S"** - SO_2, **"N"** - NH_3
- **Dosing range*:** is chosen from technical data table below and the suitable number is written into the ordering code
- **Membrane type** : **"T"** = TEFLON, **"D"** = diaphragmless; only possible to choose for M 305!
  Models M 300, M 303, M 304 and M 306 = TEFLON
  Models M 307 = diaphragmless
- **Connections:** **A =** d8/d10
  B = d12/d16
  C = d12 PVC Union
  D = d16 PVC Union
  X = on request

TECHNICAL DATA

Dosing range (X)*: (in g/h)

1	up to 200
2	up to 500
3	up to 1000
4	up to 2000
5	up to 4000
6	up to 10000
15	up to 15000

Weight:

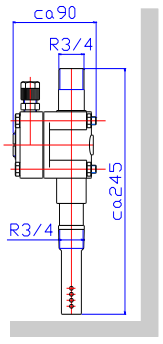
M300/1-5: 0,6 kg
M305/5-6: 1,2 kg
M305/15 : 1,2 kg
M306/1-5: 0,6 kg

Gas types:

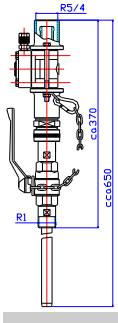
C = Cl_2
CO2 = CO_2
S=SO_2
N=NH_3

MEASURE DRAWINGS

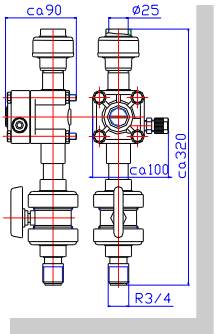
M 300/1..5



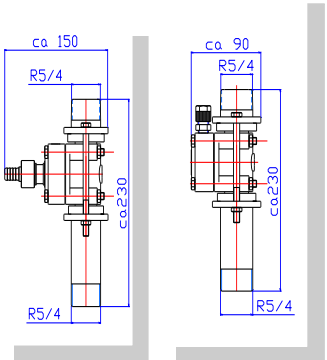
M 303/1..5



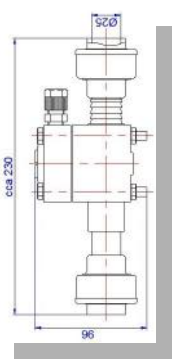
M 304/1..5



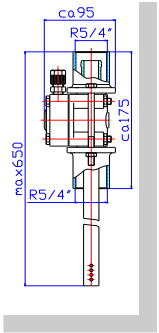
M 305/5...15



M 306/1..5



M 307/1..5



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High capacity Ejectors M 340 C, M 350 C

- **Capacity: up to 200 kg/h**
- Safe vacuum generation
- Integrated check valve

GENERAL

The high capacity ejectors series M 340 C and M 350 C are designed to feed larger amounts of gas chlorine into the water. They are working on the venturi principle to create a vacuum required for vacuum regulator operation.

The high capacity ejectors series
M 340 C and M 350 C are composed of:

- nozzle with inlet water connection
- basic body with venturi pipe and
- mixing chamber
- check valve with vacuum pipe connection
- diffuser with outlet water connection

OPERATION PRINCIPLE

Water is taken from the main pipe to the booster pump where necessary pressure is added so the water can be pushed through the corresponding venturi where the required vacuum is achieved. To prevent water inlet into the system, ejector is equipped with the check valve.

ORDER CODES

M 340 C / X

- **Model**
- **Gas type**
- **Dosing range**

OPTIONS:
- **Model: 340** for dosing range up to 40kg
  350 for dosing range up to 200kg
- **Gas type: "C"** - Cl_2, **"CO2"** - CO_2, **"S"** - SO_2, **"N"** - NH_3
- **Dosing range (kg/h):**

M 340
20 up to 20
40 up to 40
M 350
60 up to 60
80 up to 80
120 up to 120
160 up to 160
200 up to 200

TECHNICAL DATA

Weight :
M 340: 4,5 kg
M 350: 6 kg

Dimensions :
M 340: 402 x 283 x 165 mm
M 350: 402 x 339 x 165 mm

Connections

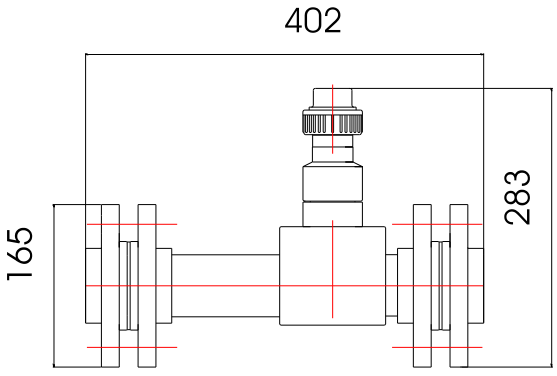
M 340	Water inlet	Water outlet	Vacuum connections
20 -	DN50	DN50	d20/d25/d32/d40
40 -	DN50	DN50	d20/d25/d32/d40
M 350	Water inlet	Water outlet	Vacuum connections
60 -	DN80	DN80	d50 PVC Union
80 -	DN80	DN80	d50 PVC Union
120 -	DN80	DN80	d50 PVC Union

Options:
Conections for 160 and 200 kg are subject to specific project.

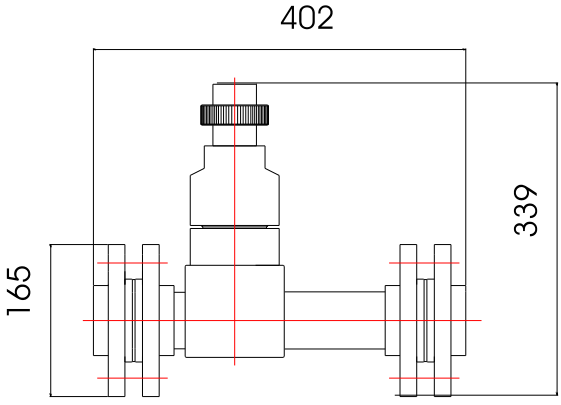
Other connections on request!

MEASURE DRAWINGS

Ejector up to 40 kg/h



Ejector up to 120 kg/h



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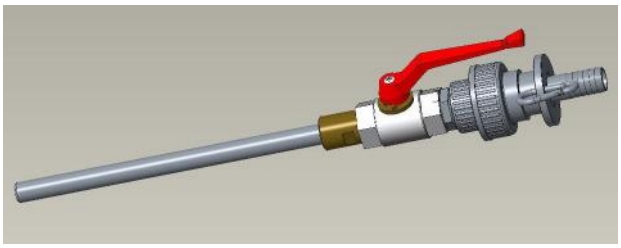
Corporation cock assembly



- **Capacity: up to 15 kg/h**
- Safe vacuum generation
- Integrated check valve
- Versatile application

GENERAL

Corporation cook assembly is used in conjunction with chlorine gas vacuum ejectors. Corporation cock is used, when at the point of dosing, the main water line cannot be drained. In this case the diffuser can be removed and main water line remains full and pressurized.

ORDER CODES

1" CORPORATION COCK: **PSX01161**

TECHNICAL DATA

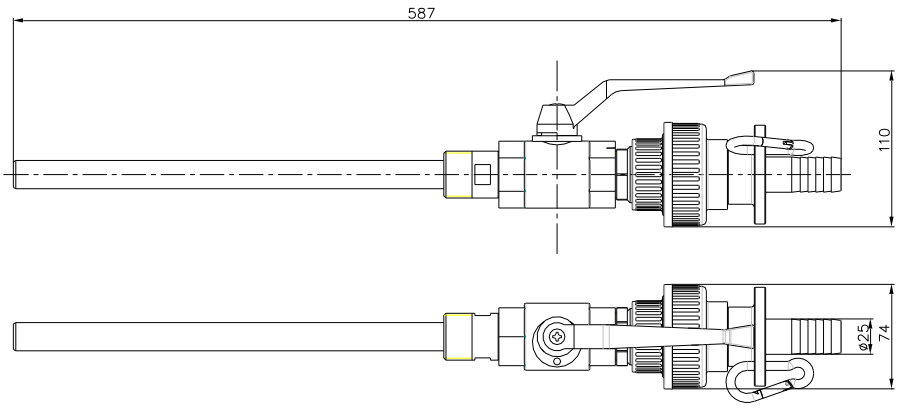
Connection to process water line: 1"

Hose connection: 1" (Ø25) PINE

Max. pressure: 16 bar

Materials: Brass, PVC

MEASURE DRAWINGS



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Motor driven rate valve M 3531 C

- **Capacity: from 12 g/h to 15 kg/h**
- 4 –20 mA PROPORTIONAL CONTROL input
- V-notch precision rate valve
- Modbus COMMUNICATION
- High quality stepper motor
- 5-POINT VALVE CALIBRATION
- Led indication of the valve position
- MANUAL or AUTOMATIC control

GENERAL

Electronically controlled motor driven rate valve is designed for accurate feed of chlorine gas and other technical gases into water.

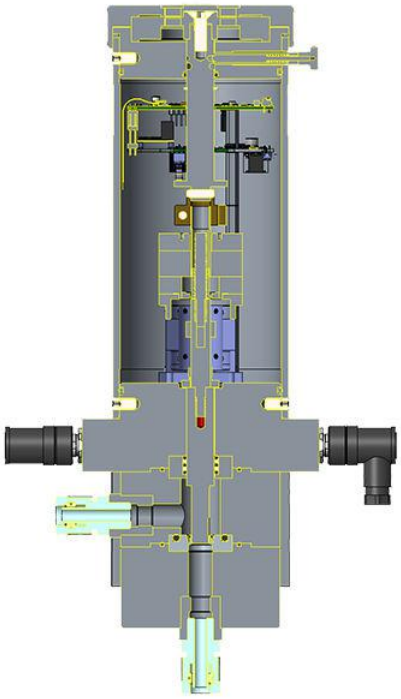
Made of **high quality materials**, resistant to high concentrations of aggressive gases. Built-in seals are made of fluorinated hydrocarbons (FKM, PTFE), materials resistant to aggressive gases.

Manual control over integrated keyboard and **full manual control** over top handwheel; **automatic control** over current or voltage input and via digital communications.

Fault signal is visible through the user interface or via a digital output.

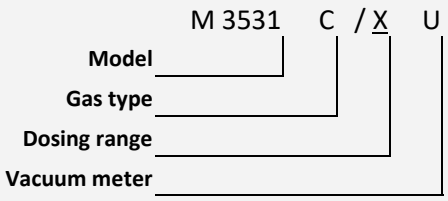
The non-linearity of the valve can be repaired by software in five points.

Built-in **security feature:** In case of power loss the valve has a battery backup that closes or opens the valve.
It also allows completely mechanical handling in case of power loss.



Sectional view of the motor valve

ORDER CODES



OPTIONS:
- **Gas type**: **"C"** - Cl_2, **"CO2"** - CO_2, **"S"** - SO_2, **"N"** - NH_3
- **Dosing range (g/h):**

1	up to 12	**6**	up to 1000
2	up to 25	**7**	up to 2000
3	up to 100	**8**	up to 4000
4	up to 200	**9**	up to 10000
5	up to 500	**15**	up to 15000

- **Vacuum meter:** default

TECHNICAL DATA

Connections
Vacuum (up to 15m):
2 kg/h – d8/d10
4 kg/h – d8/d10
10 kg/h – d12/d16
15 kg/h – d12/d16

For larger vacuum lines, see table:
Chlorine vacuum line size requirements

Accuracy: 5%
Resolution : 0,5% capacity
Weight: 2.90 kg

ELECTRICAL DATA

Analog input:
Current input
0 .. 4 – 20 mA (internal resistance 100 Ω)
Voltage input
0 .. 2 – 10 V (internal resistance 100 KΩ)

Function:
Valve position = Analog input value

Digital input:
Electrical function:
Internal supply digital input.
Maximum voltage
24 V
Maximum current
1 mA
Signal "1" at 10 V
Signal "0" at 4 V

Function:
Contact normally closed = Valve in operation
Contact open = Valve failure

Analog output:
Voltage
22 VDC
Current output
4 – 20 mA

Function:
Analog output value = Valve position
Analog output value < 3,6 mA or >21,6 mA indicating valve failure.

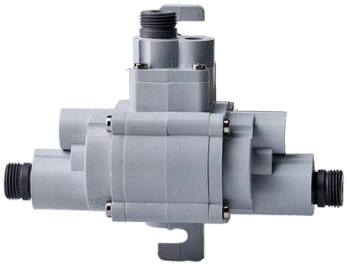
Digital output:
Electrical function:
Potential-free contact.
Maximum voltage
30 VDC ali 24 VAC +10%
Maximum current
200 mA

Function:
Valve failure (contact is open or closed via software)

Valve power supply: 24 VDC nominal, 20 - 30 VDC

Maximum consumption: 6 W

Vacuum switchover M 400, M 440



- **Capacity: 12 g/h to 120 kg/h**
- Automatic switchover of chlorine gas sources
- Completely vacuum operated
- No external energy required
- Simple assembly and installation

GENERAL

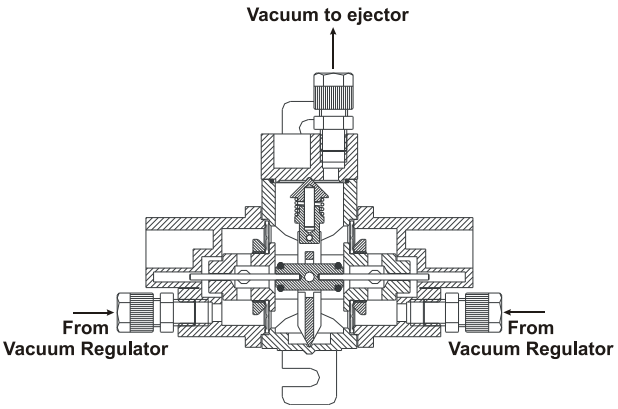
The automatic switchover system is completely vacuum operated device and automatically switches chlorine feed from an empty chlorine source to a full chlorine source, without manual reset. Optionally it can be equipped with electrical signal indicating which source is in use. The switch occurs mechanically and no additional energy is required. Switchover from empty chlorine source to the full chlorine source provides uninterrupted operation. The system will not switch back to new chlorine source until the one in use is exhausted.

OPERATION PRINCIPLE

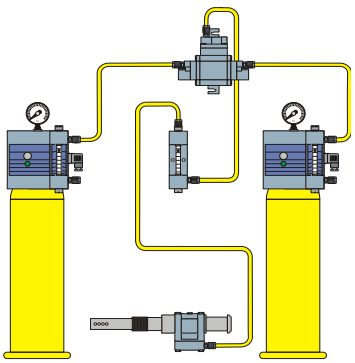
The switchover device operates under vacuum from the vacuum regulator to the ejector.

Vaccum switchover for up to 10kg/h

Vaccum switchover for up to 120kg/h



INSTALLATION



ORDER CODES

M 400 C / X Y

- **Model**
- **Gas type**
- **Dosing range**
- **El. Signal (yes/no)**

OPTIONS:
- **Model: 400** for dosing range up to 10kg/h
  440 for dosing range up to 120kg/h
- **Gas type: "C"** - Cl_2, **"CO2"** - CO_2, **"S"** - SO_2, **"N"** - NH_3
- **Dosing range (kg/h):**

M 400

1	up to 4
2	up to 10

M 440

20	up to 20
40	up to 40
60	up to 60
80	up to 80
120	up to 120

- **El. Signal (indicates the source in use):** yes **"Y"**, without it the letter is not written in

TECHNICAL DATA

Gas types:
C = Cl_2
CO2 = CO_2
S = SO_2
N=NH_3

Weight:

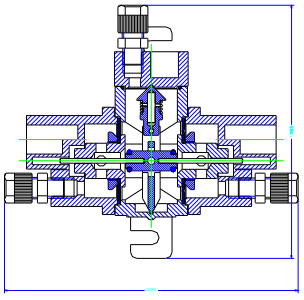
M 400/1	0,5 kg
M 400/2	0,55 kg
M 440/40	3,3 kg
M 440/80	10 kg
M 440/120	10 kg

Connections
Vacuum (up to 15m):
4 kg/h - d8/d10
10 kg/h - d12/d16
15 kg/h - d12/d16
20 kg/h - d20 PVC Union
40 kg/h - d25 PVC Union
60 kg/h - d50 PVC Union
80kg/h - d50 PVC Union
120kg/h - d50 PVC Union
160 kg/h - d50 PVC Union
200 kg/h - d50 PVC Union

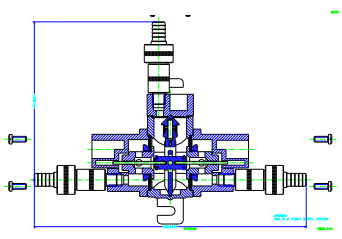
For larger vacuum lines, see table:
Chlorine vacuum line size requirements

MEASURE DRAWINGS

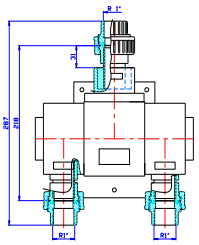
M 400/1



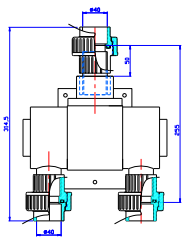
M 400/2



M 440/40

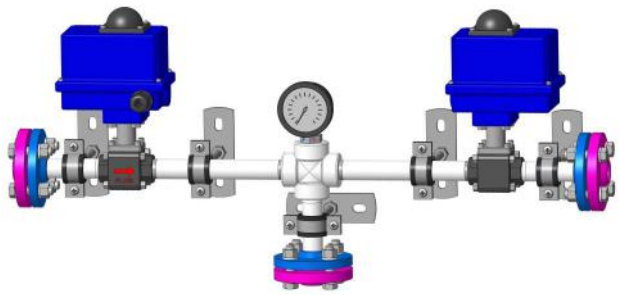


M 440/80



Email: justin@eurohitech.biz

Pressure switchover M 481 C



- **Capacity: up to 200 kg/h**
- Automatic switchover of chlorine gas sources
- 1 or 2 pressure probes
- No external energy required
- Simple assembly and installation

GENERAL

The Pressure Switchover series M 481 C provides an uninterrupted supply of liquid or gas chlorine to the system. It assures safe and reliable switching between two chlorine gas or liquid sources.

Automatic pressure switchover consists of:

- pressure switches
- motorized ball valves
- manifolds and bypass valves
- connection flanges

There are two versions of the M 481 C pressure switchover available:
M 481 C/1—with one pressure probe; controls pressure to consumption
M 481 C/2—with two pressure probes; controls the source pressure (pressure of the chlorine supply)

OPERATION PRINCIPLE

Pressure switchover unit consists of two independent, electrical motor-driven ball valves, depending on version, one or two pressure probes and microprocessor controlled control panel.
Under normal operating conditions there is always an excess pressure of approximately 6 to 7 bar (at 20°C) in chlorine cylinders or containers (drums).
This pressure drops when chlorine is consumed. The pressure probe senses the pressure drop and the control panel initiate the motor valves to switch to the full chlorine source.
On the control panel the operator can check the status of the operation of the pressure switchover. Depending on the version different alarms are indicated. If the switchover is malfunctioning, valves can be closed or opened manually on the motorized ball valves.

Pressure switchover type M 481 C/1
Pressure switchover with one pressure probe!

ORDER CODES

M 481 C /1 X

- **Model**
- **Gas type**
- **No. of probes**
- **Capacity**

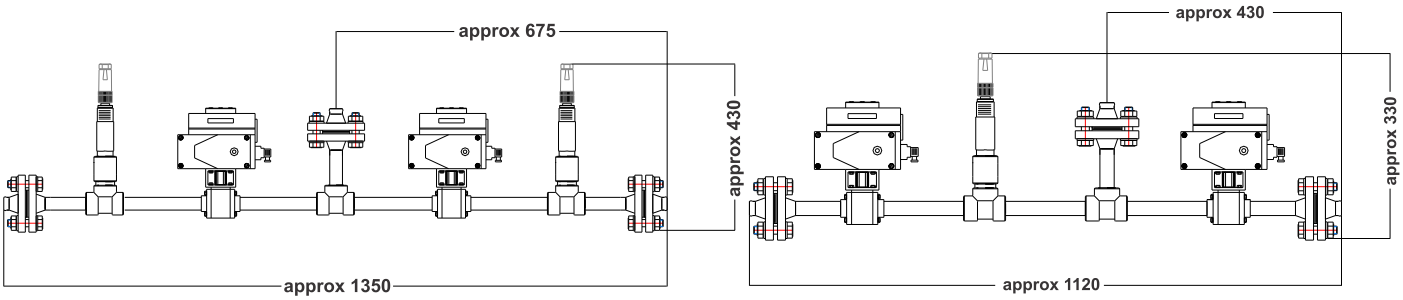
OPTIONS:
- **Gas type**: **"C"** - Cl_2, **"CO2"** - CO_2, **"S"** - SO_2, **"N"** - NH_3
- **No. of probes**: **1** = pressure switchover with one probe
  2 = pressure switchover with two probes
- **Capacity :** **A** up to 50 kg/h - 3/4¨ NPT
  B up to 200 kg/h - 1¨ NPT

TECHNICAL DATA

Gas types:	**Weight:**
C = Cl_2	1A = 17 kg
CO2 = CO_2	1B = 19 kg
S = SO_2	2A = 22 kg
N = NH_3	2B = 24 kg

Connections
Flange connections:
1A = DN20 (EN 1092-1)
1B = DN20 (EN 1092-1)
2A = DN25 (EN 1092-1)
2B = DN25 (EN 1092-1)
Other connections on request!

DIMENSIONAL DRAWINGS



M 481 C/2 **M 481 C/1**

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Pressure switchover M 470 C PVC

- **Capacity: up to 200 kg/h**
- Automatic switchover of chlorine gas sources
- 1 or 2 pressure probes
- No external energy required
- Simple assembly and installation

GENERAL

Pressure Switchover series M 470 C PVC provides an uninterrupted supply of chlorine gas to the system. It assures safe and reliable switching between two chlorine gas sources.

Automatic pressure switchover consists of:

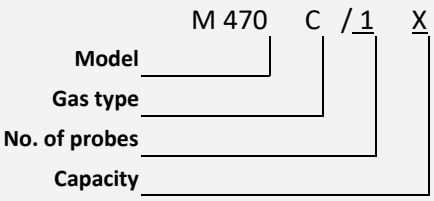
- pressure switches
- motorized ball valves
- manifolds and bypass valves
- union connection

There are two versions of the M 470 C pressure switchover available:
M 470 C/1—with one pressure probe; controls pressure to consumption
M 470 C/2—with two pressure probes; controls the source pressure (pressure of the chlorine supply)

OPERATION PRINCIPLE

Pressure switchover unit consists of two independent, electrical motor-driven ball valves, depending on version, one or two pressure probes and microprocessor controlled control panel.
Under normal operating conditions there is always steady pressure under pressure regulator approx. 1 bar (depends on pressure regulator set up (from 0,7 up to 2 bars).
This pressure drops when chlorine is consumed. The pressure probe senses the pressure drop and the control panel initiate the motor valves to switch to the full chlorine source.
On the control panel the operator can check the status of the operation of the pressure switchover. Depending on the version different alarms are indicated. If the switchover is malfunctioning, valves can be closed or opened manually on the motorized ball valves.

ORDER CODES



OPTIONS:
- **Gas type**: **"C"** - Cl_2, **"CO2"** - CO_2, **"S"** - SO_2, **"N"** - NH_3
- **No. of probes**: **1** = with one pressure probe
  2 = with two pressure probes
- **Capacity: A** up to 20 kg/h - d16(DN10)
  B up to 100 kg/h- d32(DN25)

TECHNICAL DATA

Gas types:
C=Cl_2
CO2 = CO_2
S=SO_2
N=NH_3

Connections
Flange connections:
PVC Union
1A = d16
1B = d32
2A = d16
2B = d32

Other connections on request!

DIMENSIONAL DRAWINGS

Email: justin@eurohitech.biz

Chlorine gas filters M 3319 C

- **Capacity: up to 200 kg/h**
- Avoids damages on the feed unit
- Evaporates liquid rests
- No external energy required
- Simple assembly and installation

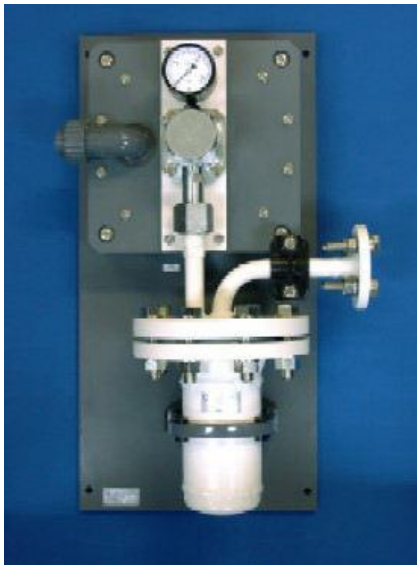
GENERAL

The chlorine gas filters series M 3319 are designed to purify chlorine gas in order to avoid damages on the feed unit, particularly the sensitive parts like valve seats and rate valves. Additionally, the filter together with the heater wrapped around it, also evaporates liquid rests.

CONSTRUCTION

Main part of the filter consist of the rugged steel pressure vessel (tested and certified) with standard DIN connection flanges. The main piece inside the vessel is a special glass wool wrapped with a monel net.

Optionally, a self regulated heater can be wrapped around the filter.



ORDER CODES

M 3319 C /X H

- **Model**
- **Gas type**
- **Capacity**
- **Heater**

OPTIONS:
- **Gas type: "C"** - Cl2, other gas by order
- **Capacity (kg/h):**
  - **40** up to 40
  - **150** up to 150
  - **200** up to 200

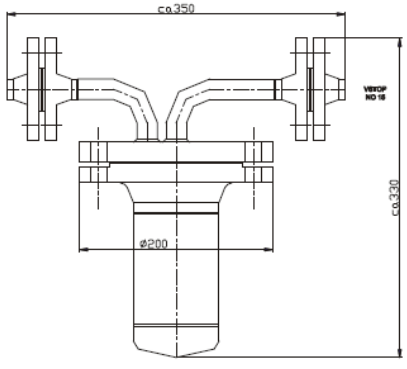
  Higher capacity on request!
- **Heater:** yes **"H"**, without it the letter is not written in

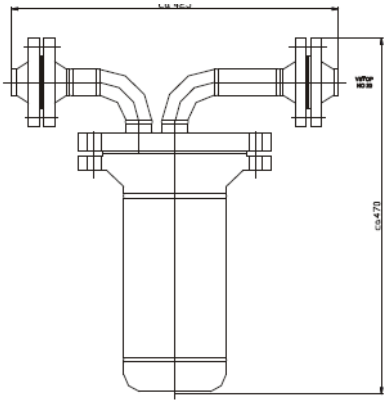
TECHNICAL DATA

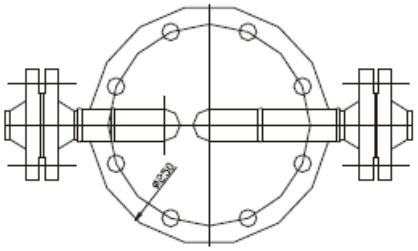
Gas types: C=Cl_2
Weight: 30 kg
Nominal pressure: 14 bar
Test pressure: 20 bar
Working temperature: - 10°C up to +50°C
Product is made according to directive: 97/23/EC

Connections
40 kg/h - DN 20
150 kg/h - DN 20
200 kg/h - DN 25
Inlet Flange according to EN 1092-1/11, Tip D
Outlet flange according to EN 1092-1/11, Tip C

MEASURE DRAWINGS







Evaporator M 3100 C

- **Capacity: up to 200 kg/h**
- Turns liquid chlorine to gas
- High heating efficency
- Low operation and maintenance costs
- Simple assembly and installation

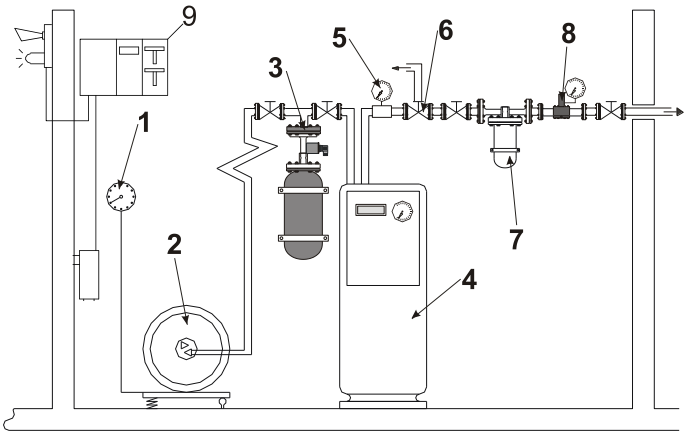
GENERAL

Evaporators series M 3100 C are designed to heat liquid chlorine taken from storage containers and turn it to chlorine gas.

Modification of the traditional evaporator design is a result of growing demand for lower operation and maintenance cost and for higher heating efficiency. The evaporators series M 3100 C are specially suitable for installations where large quantities of gas are required directly from gas drums. Evaporation is achieved mainly by electric heating. The unit consists of regulation, control and safety devices as well as the separate control panel. All parts except the control panel are built-in the fibre glass reinforced polyester cabinet.

OPERATION PRINCIPLE

The spiral tube is immersed into an hot water bath of 70°C. The thermostat-regulated heating creates a constant temperature. In case of temperature drop (below 60°C) or temperature rise (above 80°C), the alarm is activated. The liquid gas under pressure enters the evaporator on the top part, where it evaporates in the progressive heating zone and then leaves it as a dry saturated gas, also on the top part. In order to protect the installations (up to the pressure reducing valve) from re-liquefaction of the gas, the evaporator is designed generously, considering the gas outlet temperature. In liquid side of the system, the bursting disk with connected expansion chamber ensures that the highest admissible operating pressure is not exceeded. This chamber is dimensioned in a way that transforms the overpressure after the bursting of the bursting disc into the normal operating pressure. On the gas side a pressure relief valve must be installed after a bursting disc and outlet must be connected to the neutralization device. A contact manometer indicates too high or to low gas pressure. Water level in a thermal bath is strictly monitored and water must be refilled if the level drops under the prescribed level. All exposed parts are made of materials or material combinations which are absolutely resistant to the media that needs to be evaporated, and which are proven to resist many years of use.



LEGEND:

1. Scale
2. Ton Container
3. Bursting membrane with expansion chamber
4. Evaporator
5. Pressure gauge
6. Exhaust pressure safety valve
7. Chlorine gas filter
8. Pressure reducing valve
9. Chlorine gas Leak detector

ORDER CODES

M 3100 C / X

Model
Gas type
Capacity

OPTIONS:
- **Gas type: "C"** - Cl2
- **Capacity: 50** up to 50 kg/h
  100 up to 100 kg/h
  150 up to 150 kg/h
  200 up to 200 kg/h
  Higher capacities on request!

TECHNICAL DATA

Evaporator capacity: 30 - 200 kg/h
Power Supply: 400 V 50-60Hz
Consumption: 9 kW—18kW
Operating pressure:
Cl2: max 16 bar **H2O**: max 8 bar
Test pressure: 20 bar
Construction weight: cca 450kg
Temperature:
Operating: 70ºC
Max. 80ºC - Min. 60ºC

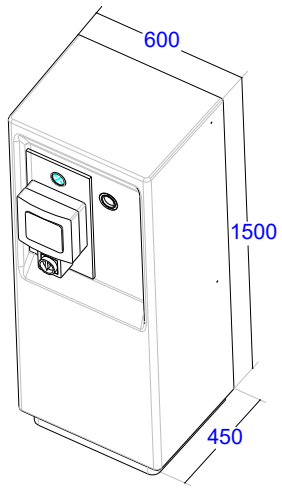
Connections

Inlet Gas: DN15 NP40
Outlet Gas: DN20 NP40

Inlet Water: R3/4"
Outlet Water: R3/4"

Other connections on request!

MEASURE DRAWINGS



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Chlorine gas pressure reducing valve M 3480 C

- **Capacity: up to 200 kg/h**
- Assures steady operating pressure
- Spring-loaded double diaphragm system

GENERAL

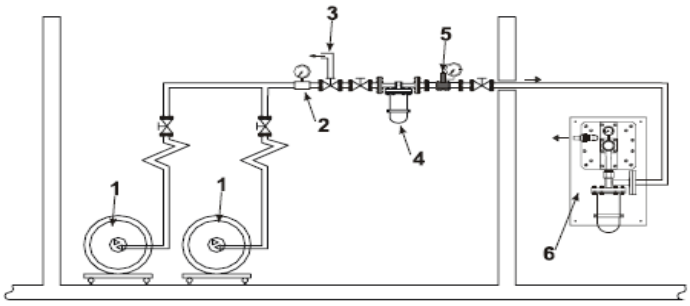
The M 3480 C gas chlorine pressure reducing valve is used to sink down the unregulated gas pressure to a steady operating gas pressure. The pressure reducing valve secures pressure independent operation of Vacuum regulator and prevents, in relation to pressure and temperature changes, liquefaction of chlorine gas.

OPERATION PRINCIPLE

Through the adjustable screw the valve cone can be lifted above the valve seat within defined limits, so that the operating pressure can be set to any value between 2 and 3 bar for Cl2. Pressure fluctuations are compensated by the spring-loaded double diaphragm system, so that the operating pressure is kept constant (at constant flow).
If the operating pressure exceeds the set value, the spring-cone diaphragm system
enables the valve to close.

INSTALLATION

The gas chlorine pressure reducing valve is always mounted in a chlorine system, so the installation depends very much on the system. When taken from the packing box, the valve must be mounted as soon as possible, in other case it must be stored in a dry place. No moisture should enter the valve! A valve has two flanges and is mounted in the chlorine gas system pressure line with counter flanges and tightens up with screws. The valve must be mounted to the wall or to a construction with the attached L-piece. If the pressure gauge is mounted onto the valve, than it must be mounted before the valve is mounted. To do that, remove the plug screw. Prepare the pressure gauge and put some special chlorine gas resistant glue on the screw. Screw the pressure gauge in and remove the surplus glue with the rag. Watch how the scale is turned. Now the correct pressure can be set.



1. One ton chlorine drum
2. Chlorine gas pressure gauge
3. Chlorine gas Safety valve – exhaust to neutralization chamber
4. Chlorine gas filter
5. Chlorine gas reducing valve
6. Vacuum regulator 20 kg/hr

ORDER CODES

M 3480 C / X M

- **Model**
- **Gas type**
- **Capacity**
- **Pressure gauge**

OPTIONS:
- **Gas type:** **"C"** - Cl_2, **"CO2"** - CO_2, **"S"** - SO_2, **"N"** - NH_3
- **Capacity:**
  40 up to 40 kg/h
  200 up to 200 kg/h
- **Pressure Gauge:** if selected letter »**M**« is written in the model number

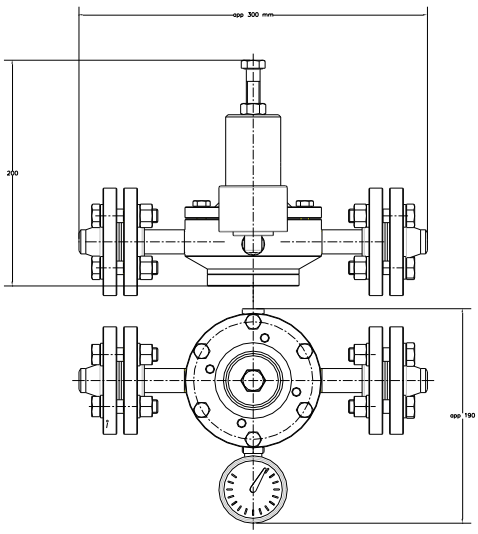
TECHNICAL DATA

Nominal pressure: 16 bar
Output pressure adjustable: 0-3 bar (Cl2)
Weight: 12,5kg
Materials:
Diaphragm: Silver
Valve seat: PVDF for Cl2
Spring: Hastelloy C, silver-plated
O-Rings: Viton for Cl2
Enclosure: Brass for Cl2

Optional: Output gas pressure gauge
Connection: R1/4", range 0-16 bar

Connections
up to 40 kg/h
Inlet Flange DN20 EN 1092-1/11, Type D - Female (Groove Flange)
Outlet flange DN20 EN 1092-1/11, Type C - Male (Tongue Flange)
up to 200 kg/h
Inlet Flange DN25 EN 1092-1/11, Type D - Female (Groove Flange)
Outlet flange DN25 EN 1092-1/11, Type C - Male (Tongue Flange)
Other connections on request!

MEASURE DRAWINGS



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Expansion chamber system M 3470 C

- **Capacity: up to 200 kg/h**
- Turns liquid chlorine to gas
- High heating efficency
- Low operation and maintenance costs
- Simple assembly and installation

GENERAL

Expansion systems consist of a bursting disc expansion tank and pressure switch.

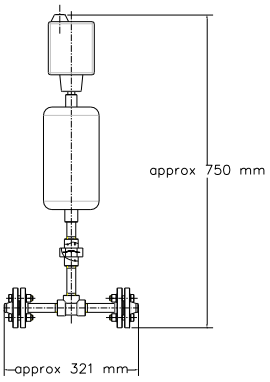
The function of an expansion chamber is to protect liquid chlorine lines from bursting due to overpressure. By rupturing a bursting disc at predetermined pressure, the liquid chlorine is allowed to expand into the expansion tank, and thus lowering the pressure in liquid chlorine pressure lines. Every section of liquid chlorine pipeline that could be sealed between two valves must be fitted with an expansion system.

The bursting disc is a silver disc that is installed in special disc holder in the liquid chlorine pipeline. When the rupture pressure has been reached, the silver disc bursts at the designated pressure, thereby relieving the pressure in the pipeline. Bursting discs provide highly reliable protection against overpressure because they don't have any moving parts, which may jam due to contamination. The built-in pressure switch on the expansion chamber, provides remote signalling of a failure. Any chlorine that is released is collected in an expansion tank.

TECHNICAL DATA

Expansion chamber capacity: 3l
Connections: DN15 (1/2”); DN20 (3/4”); DN25 (1”)
Line protected: DN15 — 80 m; DN20 — 50m,
DN25 — 30 m
Bursting pressure: nominal 11bar (min.9,8 bar; max.12,8 bar)
Switching capacity max.: 10 W / 10 VA
Switching voltage max.: 75 V DC, 50 V AC
Switching current max: 0.5 A at direct or alternating voltage
and pure ohmic load

MEASURE DRAWINGS



ORDER CODES

Model	Technical Data	Description
M 3470 C/1	Line DN 15 (1/2”) Line protected: 80 m, Burst pressure: 11 bar	Exp. Chamber c/w bursting disc and contact pressure gauge
M 3470 C/2	Line DN 20 (3/4”) Line protected: 50 m, Burst pressure: 11 bar	Exp. Chamber c/w bursting disc and contact pressure gauge
M 3470 C/3	Line DN 25 (1”) Line protected: 30 m, Burst pressure: 11 bar	Exp. Chamber c/w bursting disc and contact pressure gauge

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1. Dosing equipment for aggressive gases

SYSTEMS

Designed to feed gas chlorine and with minor alterations also other gases (SO2, CO2, NH3), working on the indirect vacuum principle.
Our systems ensure optimum levels of dosage with minimal chemicals and power consumption even with very high capacities.
Dosing Devices and Systems comply with safety regulations of European and ASA standards, and Vacuum Regulators also with the strict safety standard DIN 19606.
Application: potable and swimmingpool water treatment

CHLORINATION SYSTEMS (vacuum principle)

CHLORINATION SYSTEM (pressure principle)

AUTOMATIC CHLORINATORS

FLOOR MOUNTED CHLORINATOR

FLOOR MOUNTED CHLORINATION SYSTEM

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Chlorination system M 20 RC

- **Capacity: up to 15 kg/h**
- Full vacuum system for maximum safety
- Chlorine wetted parts made of high quality materials for maximum reliability

GENERAL

The M 20 RC Chlorination System is designed for dosing gas chlorine and with minor alterations also for other gases, working on the indirect vacuum principle.

The **M 20 RC System consists** of:

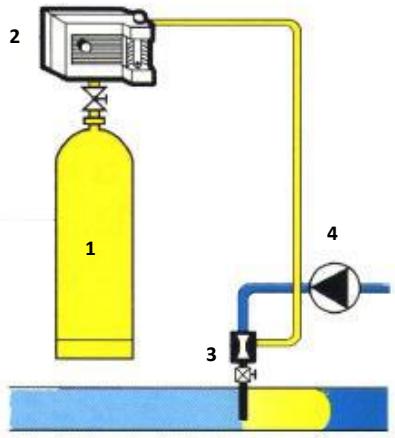
- **M 20 C** vacuum regulator with rate valve
- **M 300 C** ejector

Dosing can be set manually with the rate valve on the regulator. It starts or stops when the ejector pump switches on or off.

INSTALLATION

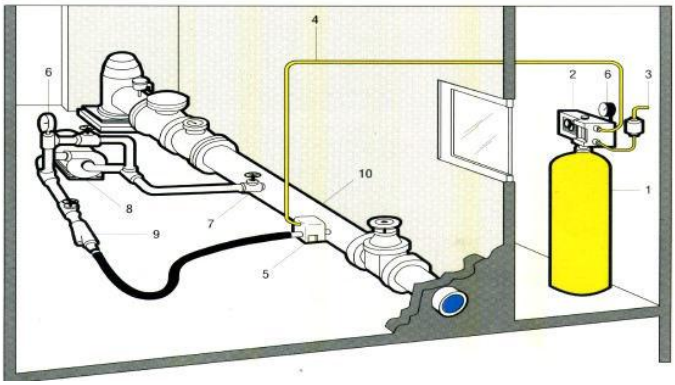
It is very simple to mount vacuum regulators. However, installation of the devices must be done by qualified experts taking in consideration all required international standards in order to ensure safe and faultless operation.
An authorized service must overhaul the system once a year.

OPERATION PRINCIPLE



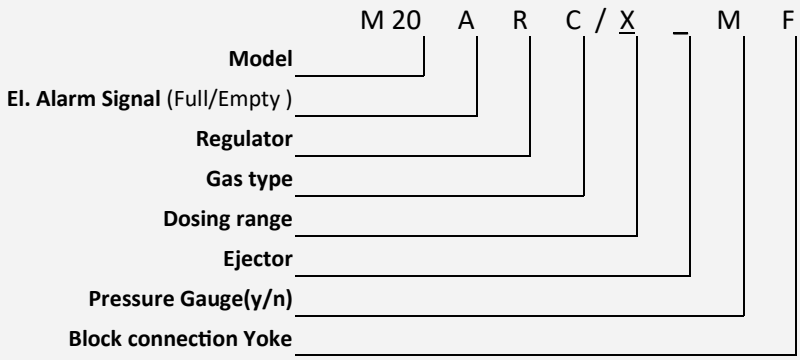
1. Chlorine cylinder
2. Vacuum regulator
3. Ejector
4. Booster pump

Typical Vacuum Installation from The Chlorine Cylinder to the Ejector



1. Chlorine cylinder
2. Gas Chlorine Regulator
3. Outlet
4. Vacuum line
5. Ejector
6. Pressure Gauge
7. Rate Valve
8. Booster Pump
9. Filth filter
10. Collector Line for use

ORDER CODES



OPTIONS:

- **Alarm:** yes "**A**", without alarm the letter is not written in the code
- **Regulator:** "**R**", means system with all general parts
- **Gas type: "C"** - Cl2, **"CO2"** - CO2, **"S"** - SO2, **"N"** - NH3
- **Dosing range (g/h):**
  - **1** up to 12
  - **2** up to 25
  - **3** up to 100
  - **4** up to 200
  - **5** up to 500
  - **6** up to 1000
  - **7** up to 2000
  - **8** up to 4000
  - **9** up to 10000
  - **15** up to 15000
- **Ejector:** "**B**" - **D.P.T.** : Ejector with PVC valves designed for pool engineering, (pressure up to 6 bar)

  "**T**" - **Reinforced ejector**: is used with pressure higher than 6 bar
  "**P**" - **Ejector with conection cock** for dismantling under pressure (up to 3 bar, max 4 kg/h)
- **Pressure gauge:** yes "**M**", without it the letter is not written in the code
- **Yoke:** for clamp type yoke, the letter "**F**" is written in the code

TECHNICAL DATA

Accuracy: Within 4% of flow
Operating range: 20 : 1
Weight:
Nett: 4,7 kg
Gross: 7,4 kg
Packaging dimensions: 600 x 400 x 400mm

Connections

Vacuum (up to 15m):
2 kg/h – d8/d10
4 kg/h – d8/d10
10 kg/h – d12/d16
15 kg/h – d12/d16
For larger vacuum lines, see table:
Chlorine vacuum line size requirements

Connection to the cylinder
1" (complies with DIN 477)

Ejector connection:
See product info for ejectors M 300.

Chlorination system MR 20 RC

- **Capacity: up to 15 kg/h**
- Full vacuum system for maximum safety
- Chlorine wetted parts made of high quality materials for maximum reliability

GENERAL

The MR 20 RC Chlorination System is designed for dosing gas chlorine and with minor alterations also for other gases, working on the indirect vacuum principle.

The **MR 20 RC System consists** of:

- **M 20 C** vacuum regulator
- **M 300 C** ejector
- **M 200 C** gas flowmeter

Dosing can be set manually on the rate valve of the regulator. It starts or stops when the ejector pump switches on or off.

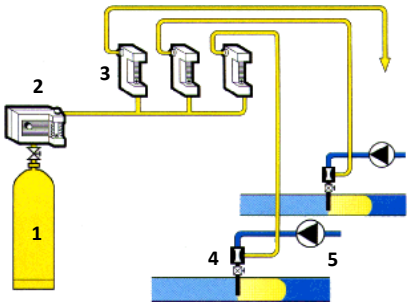
INSTALLATION

It is very simple to mount vacuum regulators. However, installation of the devices must be done by qualified experts taking in consideration all required international standards in order to ensure safe and faultless operation.
An authorized service must overhaul the system once a year.

SYSTEM EXTENSION OPTIONS

Multipoint chlorination system

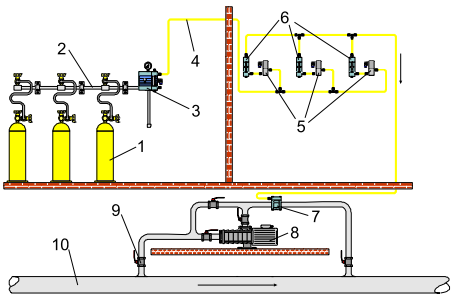
The MR 20 RC System can be extended by additional gas flowmeters, which have to be installed parallel to the existing one. This way the system can be extended to several dosing points, but in this case suitable ejector must be added to it. When adding gas flowmeters to the system, it is important not to exceed the capacity of the regulator.



1. Chlorine cylinder
2. Vacuum regulator
3. Gas flowmeter
4. Ejector
5. Booster pump

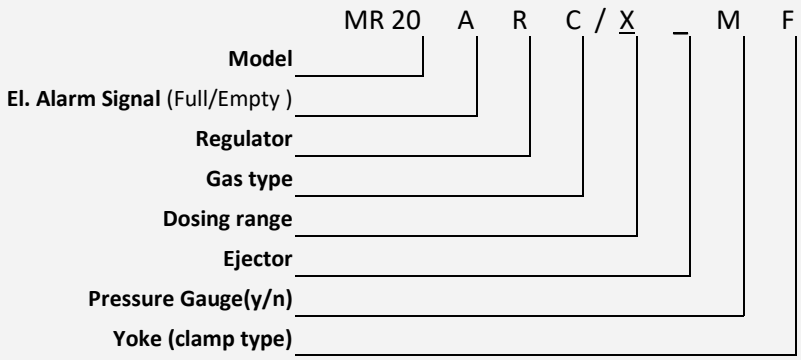
Semiautomatic dosing system

Where there are several pumps in the water-supply system with known capacities, each pump can be extended by an ejector and a gas flowmeter, and connected parallel to the regulator. Dosing can be blocked through electromagnetic valve. Activation of the electromagnetic valve depends on the known flow changes.



1.Chlorine Cylinder
2.Manifold with Accessories
3.Vacuum Regulator
4.Vacuum Tube
5.Electromagnetic Valve
6.Gas flowmeter
7.Ejector
8.Ejector Pump
9.Valves
10.Tube leading to use

ORDER CODES



OPTIONS:

- **Alarm:** yes "**A**", without alarm the letter is not written in the code
- **Regulator:** yes "**R**", means system with all general parts
- **Gas type: "C"** - Cl_2, **"CO2"** - CO_2, **"S"** - SO_2, **"N"** - NH_3
- **Dosing range (g/h):**
  - **1** up to 12
  - **2** up to 25
  - **3** up to 100
  - **4** up to 200
  - **5** up to 500
  - **6** up to 1000
  - **7** up to 2000
  - **8** up to 4000
  - **9** up to 10000
  - **15** up to 15000
- **Ejector:** "**B**" - **D.P.T.** : Ejector with PVC valves designed for pool engineering, for pressure up to 6 bar.

  "**T**" - **Reinforced ejector**: is used with pressure higher than 6 bar
  "**P**" - **Ejector with conection cock** for dismantling under pressure

TECHNICAL DATA

Accuracy: Within 4% of flow
Operating range: 20 : 1
Weight:
Nett: 5 kg
Gross: 8,9 kg
Packaging dimensions: 600 x 400 x 400mm

Connections

Vacuum (up to 15m):
2 kg/h – d8/d10
4 kg/h – d8/d10
10 kg/h – d12/d16
15 kg/h – d12/d16
For larger vacuum lines, see table:
Chlorine vacuum line size requirements

Connection to the cylinder
1" (complies with DIN 477)

Ejector connection:
See product info for ejectors M 300.

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Chlorination system MR 21 RC

- **Capacity: up to 15 kg/h**
- Full vacuum system for maximum safety
- Chlorine wetted parts made of high quality materials for maximum reliability

GENERAL

The MR 21 RC Chlorination System is designed for dosing gas chlorine and with minor alterations also for other gases, working on the indirect vacuum principle.

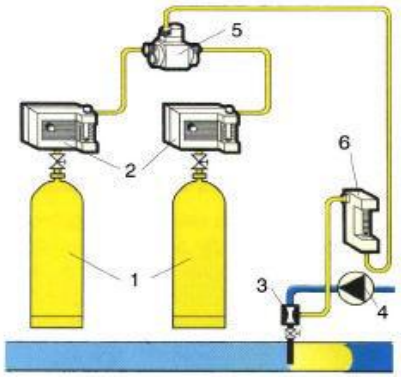
The **MR 21 RC System consists** of:

- **Two M 20 C** vacuum regulators
- **M 400** automatic vacuum switch-over
- **M 300 C** ejector
- **M 200 C** gas flowmeter

Dosing can be set manually with the rate valve of the regulator. It starts or stops when the ejector pump switches on or off.

OPERATION PRINCIPLE

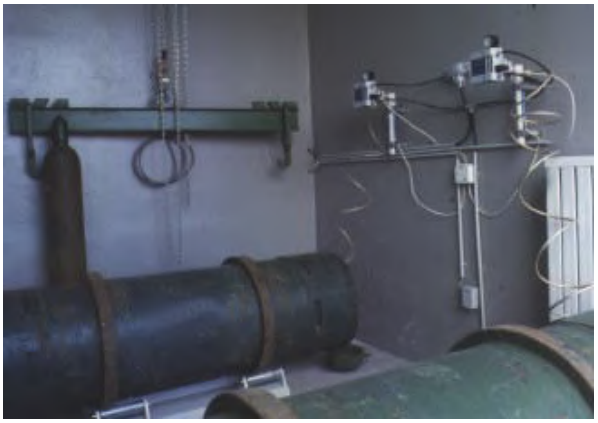
The MR 21 RC system ensures uninterrupted dosing even when the cylinder is empty or there are several cylinders connected to the collector line. When the cylinders are empty, the Vacuum switchover automatically switches over the vacuum to the regulator that has full cylinders. This way the system functions without interruption. The empty cylinders can be replaced without having to stop the system of water disinfection.



1. Chlorine cylinder
2. Vaccum regulator
3. Ejector
4. Booster pump
5. Switchover module
6. Gas flowmeter

INSTALLATION

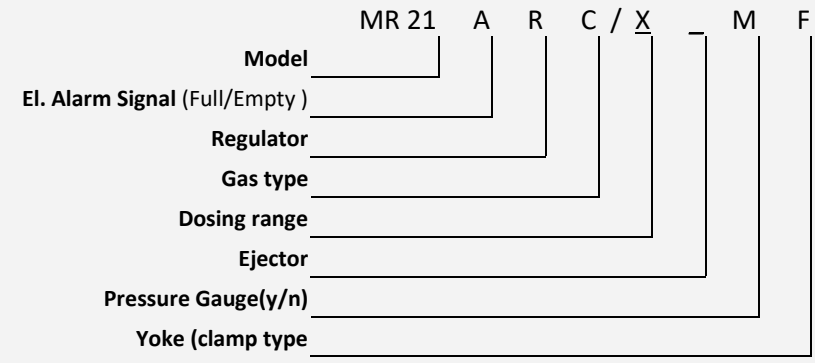
It is very simple to mount vacuum regulators. However, installation of the devices must be done by qualified experts taking in consideration all required international standards in order to ensure safe and faultless operation.
An authorized service must overhaul the system once a year.



SYSTEM EXTENTION OPTIONS

The MR 21 RC system can be extended by additional gas flowmeters which have to be installed parallel to the existing one. This way the system can be extended to several dosing points, but in this case a suitable ejector must be added to it. When adding gas flowmeters to the system, it is important not to exceed the capacity of the regulator.

ORDER CODES



OPTIONS:

- **Alarm:** yes "**A**", without alarm the letter is not written in the code
- **Regulator:** yes "**R**", means system with all general parts
- **Gas type: "C"** - Cl_2, **"CO2"** - CO_2, **"S"** - SO_2, **"N"** - NH_3
- **Dosing range (g/h):**
  - **1** up to 12
  - **2** up to 25
  - **3** up to 100
  - **4** up to 200
  - **5** up to 500
  - **6** up to 1000
  - **7** up to 2000
  - **8** up to 4000
  - **9** up to 10000
  - **15** up to 15000
- **Ejector:** "**B**" - **D.P.T.** : Ejector with PVC valves designed for pool engineering (pressure up to 6 bar)

  "**T**" - **Reinforced ejector**: is used with pressure higher than 6 bar

  "**P**" - **Ejector with conection cock** for dismantling under pressure (up to 3 bar, max 4 kg/h)
- **Pressure gauge:** yes "**M**", without it the letter is not written in the code
- **Yoke:** for clamp type the letter "**F**" is written in the code

TECHNICAL DATA

Accuracy: Within 4% of flow
Operating range: 20 : 1
Weight:
Nett: 15 kg
Gross: 11,2 kg
Packaging dimensions: 600 x 400 x 400mm

Connections

Vacuum (up to 15m):
2 kg/h – d8/d10
4 kg/h – d8/d10
10 kg/h – d12/d16
15 kg/h – d12/d16
For larger vacuum lines, see table:
Chlorine vacuum line size requirements

Connection to the cylinder
1" (complies with DIN 477)

Ejector connection:
See product info for ejectors M 300.

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Chlorination system MR 40 RC

- **Capacity: up to 40 kg/h**
- Full vacuum system for maximum safety
- Chlorine wetted parts made of high quality materials for maximum reliability

GENERAL

The MR 40 RC Chlorination System is designed for dosing gas chlorine and with minor alterations also for other gases, working on the indirect vacuum principle.

The **MR 40 RC System consists** of:

- **M 40 C** vacuum regulator
- **M 340 C** ejector
- **M 240 C** gas flowmeter

M 340 C Ejector with check valve

OPERATION PRINCIPLE

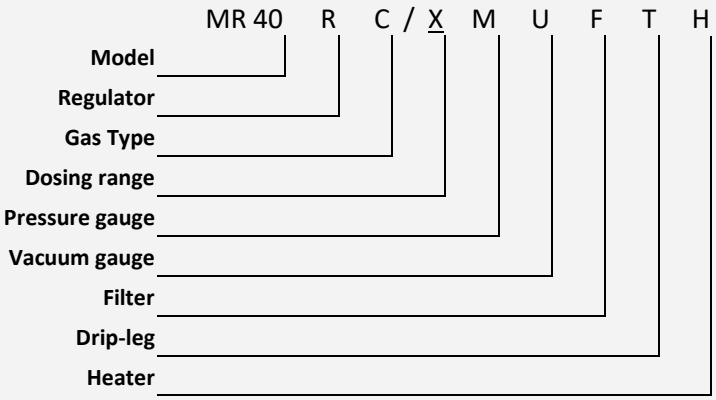
Dosing can be set manually with the rate valve of the gas flowmeter. It starts or stops when the ejector pump switches on or off.

SYSTEM EXTENTION OPTIONS

The MR 40 RC System can be additionally equipped with motor valve for automatic dosing of gas. It can easily be switched from automatic to manual operation.

MR 40 RC Vacuum System additionaly equipped with motor valve

ORDER CODES



OPTIONS:
- **Regulator:** yes "**R**", means system with all general parts
- **Gas type: "C"** - Cl_2, **"CO2"** - CO_2, **"S"** - SO_2, **"N"** - NH_3
- **Dosing range (kg/h):**
  20 up to 20
  40 up to 40
- **Pressure gauge :** yes"**M**, without it the letter is not written in the code
- **Vacuum gauge:** yes"**U**", without it the letter is not written in the code
- **Filter:** yes"**F**" (type M 3319), without it the letter is not written in the code
- **Drip-leg:** yes "**T**", without it the letter is not written in the code; if filter is not selected, then the drip-leg is present!
- **Heater:** for block connection type the letter "**F**" is written in the code

TECHNICAL DATA

System Weight: 30 kg

Connections

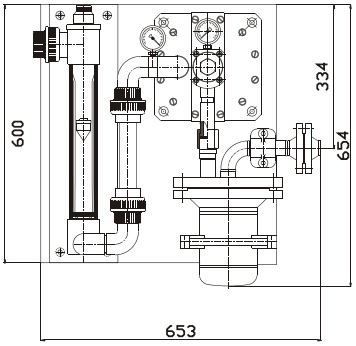
Vacuum (up to 15m):
20 kg/h – d20 PVC Union
40 kg/h – d25 PVC Union

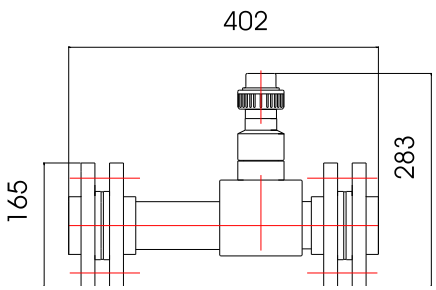
Pressure:
Flange connection D3/4'' NP16
DN20 (DIN2633)
from 20 up to 40 kg

Ejector connection:
See product info for high capacity ejectors M 340.

For larger vacuum lines, see table: Chlorine vacuum line size requirements

MEASURE DRAWINGS





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Chlorination system MR 50 RC

- **Capacity: up to 200 kg/h**
- Full vacuum system for maximum safety
- Chlorine wetted parts made of high quality materials for maximum reliability

GENERAL

The MR 50 RC Chlorination System is designed for dosing larger amounts of gas chlorine (up to 200kg) and with minor alterations also for other gases, working on the indirect vacuum principle.

The **MR 50 RC System consists** of:

- **M 50 C** vacuum regulator
- **M 350 C** ejector
- **M 250 C** gas flowmeter

M 350 C Ejector with check valve

OPERATION PRINCIPLE

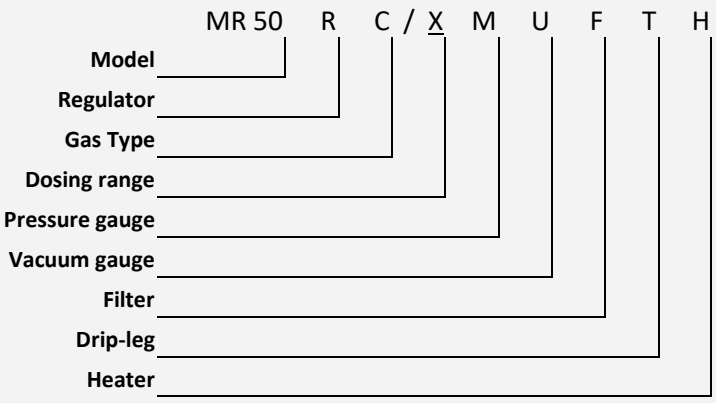
Dosing can be set manually with the rate valve of the gas flowmeter. It starts or stops when the ejector pump switches on or off.

SYSTEM EXTENTION OPTIONS

The MR 50 RC System can be additionally equipped with motor valve for automatic dosing of gas. It can easily be switched from automatic to manual operation.

MR 50 RC Vacuum System additionaly equipped with motor valve

ORDER CODES



OPTIONS:
- **Regulator:** yes "**R**", means system with all general parts
- **Gas type: "C"** - Cl_2, **"CO2"** - CO_2, **"S"** - SO_2, **"N"** - NH_3
- **Dosing range (kg/h):**
  60 up to 60
  80 up to 80
  120 up to 120
  160 up to 160
  200 up to 200
- **Pressure gauge :** yes"**M**, without it the letter is not written in the code
- **Vacuum gauge:** yes"**U**", without it the letter is not written in the code
- **Filter:** yes"**F**" (type M 3319), without it the letter is not written in the code
- **Drip-leg:** yes "**T**", without it the letter is not written in the code; if filter is not selected, then the drip-leg is present!
- **Heater:** for block connection type the letter "**F**" is written in the code

TECHNICAL DATA

System Weight: 54 kg

Connections

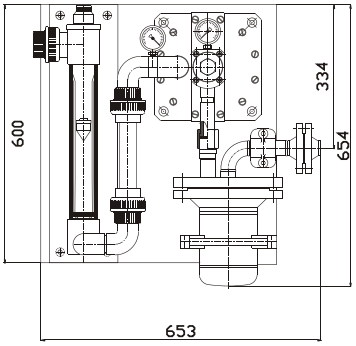
Vacuum(up to 15m):
60kg/h – d50 PVC Union
80 kg/h – d50 PVC Union
120 kg/h – d50 PVC Union
160 kg/h – d50 PVC Union
200 kg/h – d50 PVC Union

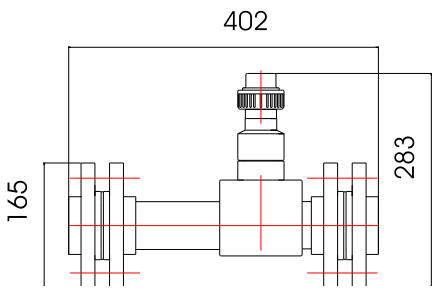
Pressure:
Flange connection D3/4''
NP16 DN20 (DIN2633)
from 60 to 120 kg

Ejector connection:
See product info for high capacity ejectors M 350.
Other connections on request!

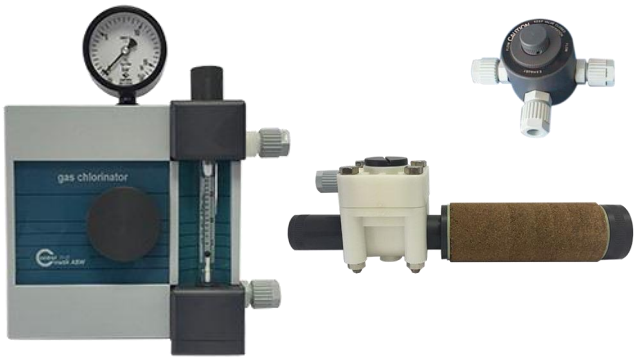
For larger vacuum lines, see table: Chlorine vacuum line size requirements

MEASURE DRAWINGS





Chlorination system M 30 RC



- **Capacity: up to 2 kg/h**
- Pressure principle
- For locations with no auxiliary power supply

GENERAL

Chlorination System M 30 RC is designed for direct feed of gaseous chlorine under pressure, e. g. for open swimmingpools and tanks at locations where it is not possible to provide an auxiliary power supply. The capacities of the device vary from 0 - 2000 g/h, functioning on the principle of pressure in the chlorine cylinder with manual feed rate adjustment.

The **M 30 RC System consists** of:

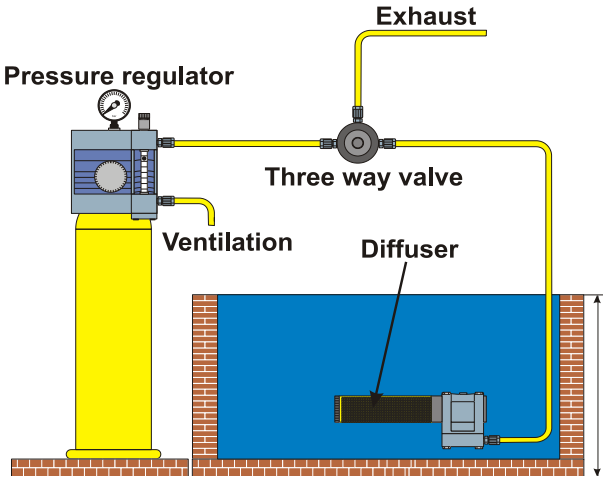
- Pressure regulator
- Diffuser
- Three way valve
- Accessories

OPERATION PRINCIPLE

Chlorine gas under cylinder pressure enters the regulator through the inlet valve, where the pressure is reduced to 1,2 bar. The gas then flows through the rate tube and the rate valve where the desired amount is set. The set amount of chlorine gas goes through the chlorine pipe and three way valve to the diffuser, where it is mixed with water. The diffuser is equipped with check valve to prevent the water entering the system.

INSTALLATION

System of pressure regulators M 30 RC is equipped with a pressure reducing valve which prevents the chlorine gas to enter under high pressure. The pressure is reduced to a 1,2 bar maximum. Exhaust should be made so that the remainig chlorine gas in the pipline is neutralised. The diffuser should be mounted at least 1,2 m below water level and maximum of 7m - the higher the feed rate the greater should be the depth. Because of the influences of temperature and quality of the media, bubbles and other factors, always choose the deepest point to insure best possible absorption.

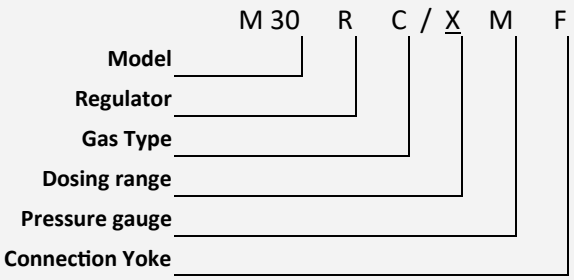


Example of pressure regulator installation

Diffuser with 2 stones

Three way valve

ORDER CODES



OPTIONS:
- **Regulator:** yes "**R**", means system with all general parts
- **Gas type: "C"** - Cl_2, **"CO2"** - CO_2, **"S"** - SO_2, **"N"** - NH_3
- **Dosing range (g/h):**

1	up to 12
2	up to 25
3	up to 100
4	up to 200
5	up to 500
6	up to 1000
7	up to 2000

- **Pressure gauge: by default—**yes"**M**", without it the letter is not written in the code
- **Yoke -** standard nut; for clamp type the letter ''**F**'' is written in the code

TECHNICAL DATA

Accuracy: Within 4% of flow
Operating range : 20 : 1
System Weight: 5,1 kg
System Dimmensions: 500 x 250 x 280m

Connections

Connection to the cylinder:
1" (complies with DIN 477)
Other connections on request!

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Automatic chlorinator M 3603 C

- 4 –20 mA PROPORTIONAL CONTROL input
- Modbus COMMUNICATION
- 5-POINT VALVE CALIBRATION
- MANUAL or AUTOMATIC control
- Led indication of the valve position
- Vacuum indication
- High quality stepper motor
- V-notch PRECISION RATE VALVE
- Simple installation, set up and start up

GENERAL

Automatic chlorinator series M 3603 C is a heavy duty feed unit intended for accurate manual or automatic feed of chlorine gas into water. It is designed to be controlled through 4-20mA current signal or ModBUS communication. In case of need it can simply be switched to manual control.

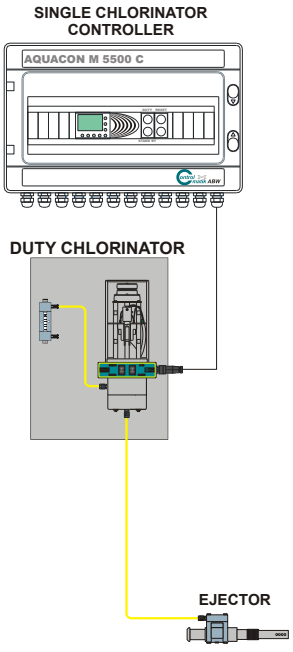
The unit M 3603 C consist of:

- Motor rate valve series M 3531 C
- Gas flow meter of corresponding capacity
- Vacuum gauge
- Wall mounting board

Electromotive rate valve Series M 3531 C is made of compact plastic, resistant to high concentration of chlorine gas, precision rate valve and quality driving stepper motor. Gas flow meter is also made of compact plastic, resistant to high concentration of chlorine All seals are made of fluorocarboned hydrogen's (FPM/FKM) resistant to aggressive gases. All this guarantees a safe, long and accurate functioning of automatic chlorinator.

OPERATION PRINCIPLE

Automatic chlorinator is mounted between ejector and vacuum regulator. It is connected to either AQUACON M 5500 C, AQUAProcessor series M 5700 C or directly to SCADA software, through PLC units, which opens or closes the motor valve through 4-20mA current signal or ModBUS communication, according to the signal received from water flow meter and/or residual chlorine analyser. In case of controller malfunction the feed rate can easily be set manually on the motor valve (switch remote/manual and switch open/close). In case of motor valve failure, manual feed can be adjusted by manual knob on the top of the motor valve.



ORDER CODES

M 3603 C X U

- **Model**
- **Gas Type**
- **Dosing range**
- **Vacuum gauge**

OPTIONS:
- **Gas type:** "**C**" – Cl2, "**S**" – SO2
- **Dosing range (g/h):**

1	up to 12	**6**	up to 1000
2	up to 25	**7**	up to 2000
3	up to 100	8	up to 4000
4	up to 200	9	up to 10000
5	up to 500		

- **Vacuum gauge :** yes"**U**", without it the letter is not written in the code

TECHNICAL DATA

Weight: 6,5 kg
Dimmensions: 500x 300 x 180 mm

Connections:
Vacuum (up to 15m):
2 kg/h – d8/d10
4 kg/h – d8/d10
10 kg/h – d12/d16

For larger vacuum lines, see table: Chlorine vacuum line size requirements

ELECTRICAL DATA

Analog input:
Current input:
0 .. 4 – 20 mA (internal resistance 100 Ω)
Voltage input:
0 .. 2 – 10 V (internal resistance 100 KΩ)
Function:
Valve position = Analog input value
Digital input:
Electrical function:
Internal supply digital input
Maximum voltage:
24 V
Maximum current:
1 mA
Signal "1" at 10 V
Signal "0" at 4 V
Function:
Contact normally closed = Valve in operation
Contact open = Valve failure

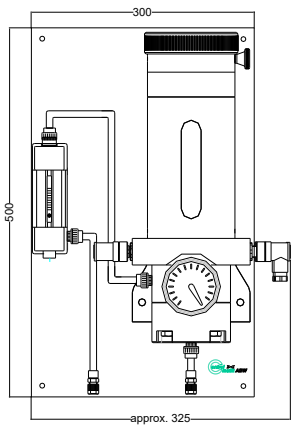
Analog output:
Voltage
22 VDC
Current output
4 – 20 mA
Function:
Analog output value = Valve position
Analog output value < 3,6 mA or >21,6 mA indicating valve failure.

Digital output:
Electrical function:
Potential-free contact
Maximum voltage:
30 VDC ali 24 VAC +10%
Maximum current:
200 mA
Function:
Valve failure (contact is open or closed)

Valve power supply:
24 VDC nominal, 20 - 30 VDC

Maximum consumption: 6 W

MEASURE DRAWINGS



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AKN - Full automatic chlorinator M 3610 C

- 4 –20 mA PROPORTIONAL CONTROL input
- Modbus COMMUNICATION
- 5-POINT VALVE CALIBRATION
- MANUAL or AUTOMATIC control
- Led indication of the valve position
- Vacuum indication
- High quality stepper motor
- V-notch PRECISION RATE VALVE
- Simple installation, set up and start up

GENERAL

Automatic chlorinator series M 3610 C is a heavy duty feed unit intended for accurate manual or automatic feed of chlorine gas. It is designed to be controlled from controller (automatic control) or in case of need it can simply be switched to manual control.

The unit M 3610 C consists of:

- Motor rate valve series M 3531 C
- ERB gas flow meter of corresponding capacity with manual rate valve
- Vacuum switch (high/low)
- Vacuum gauge
- Wall mounting board with piping
- DP regulator

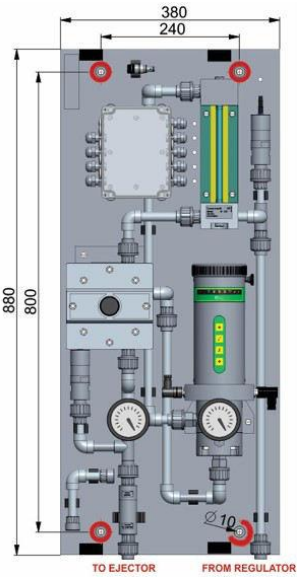
Electromotive rate valve Series M 3531 C is made of compact plastic, resistant to high concentration of chlorine, precision rate valve and quality driving motor. Gas flowmeter is also made of compact plastic and glass, resistant to high concentration of chlorine and precision manual rate valve. All seals are made of materials resistant to aggressive gases (FKM, PTFE, PVDF). Differential pressure regulator is available in case of long vacuum lines or fluctuating vacuum.

OPERATION PRINCIPLE

One must have in mind that M 3610 C is vacuum device. So gases are not pushed, but sucked through. Gas enters in inlet and goes through the gas flow meter. Next, through the needle of rate valve, desired quantity is provided. Then, gas enters the DP REGLATOR, where vacuum fluctuations are reduced. Last element is check valve that disables backflow.

Automatic chlorinator is connected to AQUACON M 5500 C or AQUAProcessor series M 5700 C which opens or closes the motor valve on chlorinator according to the signal received from water flow meter and/or residual chlorine analyser. In case of controller malfunction the feed rate can easily be set manually on the motor valve. In case of motor valve failure, manual feed can be adjusted by rate valve on the gas flow meter.

Motor valve can then easily be dismounted from chlorinator. When repaired, it can easily be assembled back and set into operation.



ORDER CODES

M 3610 C / X U DP M HL

- **Model**
- **Gas type**
- **Dosing range**
- **Vacuum gauge**
- **D.P. Regulator**
- **Motor valve (default)**
- **High/ low vacuum switch**

OPTIONS:

- **Gas type:** "**C**" – Cl2, "**S**" – SO2
- **Dosing range (g/h):**

1	up to 12	**6**	up to 1000
2	up to 25	**7**	up to 2000
3	up to 100	**8**	up to 4000
4	up to 200	**9**	up to 10000
5	up to 500	**15**	up to 15000

- **Vacuum gauge :** yes"**U**", without it the letter is not written in the code
- **Differential pressure regulator:** yes"**DP**", without it the letter is not written in the code
- **High vacuum switch:** yes **"H",** without it, the letters are not written in
- **Low vacuum switch:** yes **"L",** without it, the letters are not written in

TECHNICAL DATA

Weight: 15,5 kg
Dimmensions: 896x 396 x 210 mm

Connections:
Vacuum (up to 15m):
2 kg/h – d8/d10
4 kg/h – d8/d10
10 kg/h – d12/d16
15 kg/h – d12/d16

For larger vacuum lines, see table: Chlorine vacuum line size requirements

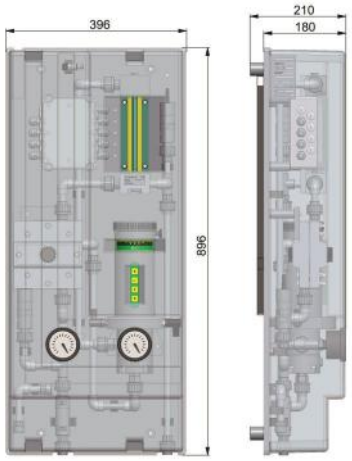
ELECTRICAL DATA

Power supply: 24 V + 20 / -30%
Valve power supply: 24 VDC nominal, 20 - 30 VDC
Consumption: 30 mA
Limitation of current at the output Q1 and Q2: 220m
Sensor:
Area: MIN -100000 Pa (-100 kPa, -1 bar)
MAX 0 Pa
Accuracy: 1%
Alarm:
Operating mode: active HIGH, active LOW
Reference: area
Hysteresis: 1% .. 10% of the area

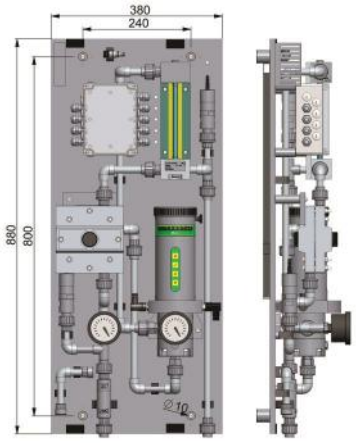
Digital optput Q:
Operating mode:
-Off
-When the alarm activated 24 VDC, otherwise off
-When 0 VDC alarm turns on, otherwise off
-When the alarm activated 24 VDC, otherwise activated 0 VDC

Mechanical data:
Protection: IP 67
Accessories: PVC-U 16 (PN16)

MEASURE DRAWINGS



With cover



Without cover

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Automatic floor mounted cabinet chlorinator MR 520 C

- 4 –20 mA PROPORTIONAL CONTROL input
- Modbus COMMUNICATION
- 5-POINT VALVE CALIBRATION
- MANUAL or AUTOMATIC control
- Led indication of the valve position
- Vacuum indication
- High quality stepper motor
- Simple installation, set up and start up

GENERAL

Floor mounted cabinet chlorinator series MR 520 C is a heavy duty feed unit, intended for accurate automatic or manual feed of chlorine gas. It is designed to accept control signal from controller (automatic control) but in case of need, it can simply be switched to manual control.

The unit MR 520 C consist of:

- Motor rate valve series M 3531 C (automatic version)
- ERB gas flow meter of corresponding capacity with manual rate valve
- Vacuum switch (high/low)
- Vacuum gauge
- Wall mounting board with piping
- DP regulator

Electromotive rate valve Series M 3531 C is made of compact plastic, resistant to high concentration of chlorine, precision rate valve and quality driving motor. Gas flowmeter is also made of compact plastic and glass, resistant to high concentration of chlorine and precision manual rate valve. All seals are made of materials resistant to aggressive gases (FKM, PTFE, PVDF). Differential pressure regulator is available in case of long vacuum lines or fluctuating vacuum.

OPERATION PRINCIPLE

The floor mounted cabinet chlorinator MR 520 C is a precise automated vacuum device. Chlorine gas is not pushed, but sucked through the device. So gas enters into device under vacuum and goes through the gas flow meter, through the rate valve needle (on the motorized valve) where the desired quantity is adjusted. Then, gas enters the DP REGLATOR, where vacuum fluctuations are reduced. Last element is check valve that disables backflow and then chlorine gas under vacuum leaves the device and is transfeered to ejector.

Automatic chlorinator is connected to control unit (PLC, SCADA or Controlamatik AQUACON M 5500 C or AQUAProcessor series M 5700 C) from which command signal opens or closes the motor valve on chlorinator according to the signal received from water flow meter and/or residual chlorine analyser. In case of controller malfunction the feed rate can easily be set manually on the motor valve. In case of motor valve failure, manual feed can be adjusted by rate valve on the gas flow meter. Motor valve can then easily be dismounted from chlorinator. When repaired, it can easily be assembled back and set into operation.

ORDER CODES

MR 520 C / X U DP M HL

- **Model**
- **Gas type**
- **Dosing range**
- **Vacuum gauge**
- **D.P. Regulator**
- **Motor valve**
- **High/ low vacuum switch**

OPTIONS:

- **Gas type:** "**C**" – Cl2, "**S**" – SO2
- **Dosing range (g/h):**

1	up to 12	**6**	up to 1000
2	up to 25	**7**	up to 2000
3	up to 100	**8**	up to 4000
4	up to 200	**9**	up to 10000
5	up to 500	**15**	up to 15000

- **Vacuum gauge :** yes"**U**", without it the letter is not written in the code
- **Differential pressure regulator:** yes"**DP**", without it the letter is not written in the code
- Motor valve: yes"**M**", without it the letter is not written in the code
- **High vacuum switch:** yes **"H",** without it, the letters are not written in
- **Low vacuum switch:** yes **"L",** without it, the letters are not written in

TECHNICAL DATA

Dimmensions: 1500 x 600 x 300 mm

Connections:

Vacuum (up to 15m):

2 kg/h – d8/d10
4 kg/h – d8/d10
10 kg/h – d12/d16
15 kg/h – d12/d16

For larger vacuum lines, see table: Chlorine vacuum line size requirements

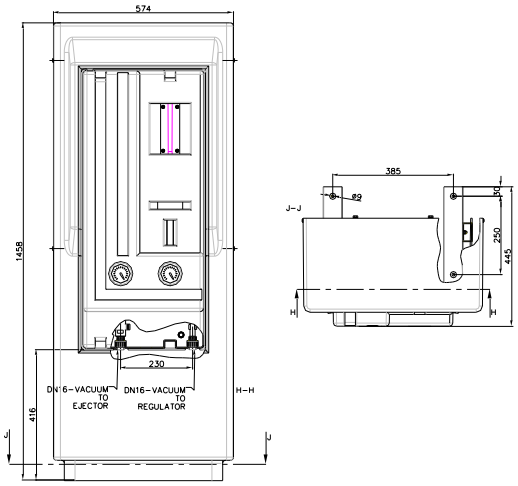
ELECTRICAL DATA

Power supply: 24 V + 20 / -30%
Valve power supply: 24 VDC nominal, 20 - 30 VDC
Consumption: 30 mA
Limitation of current at the output Q1 and Q2: 220m
Sensor:
Area: MIN -100000 Pa (-100 kPa, -1 bar)
MAX 0 Pa
Accuracy: 1%
Alarm:
Operating mode: active HIGH, active LOW
Reference: area
Hysteresis: 1% .. 10% of the area

Digital optput Q:
Operating mode:
-Off
-When the alarm activated 24 VDC, otherwise off
-When 0 VDC alarm turns on, otherwise off
-When the alarm activated 24 VDC, otherwise activated 0 VDC

Mechanical data:
Protection: IP 67
Accessories: PVC-U 16 (PN16)

MEASURE DRAWINGS



Floor mounted cabinet chlorinator MR 540 & 550 C

- **Capacity: up to 200 kg/h**
- Corrosion resistant thanks to epoxy-glass housing
- Positive operational control by vacuum
- Additional safety thanks to vacuum non-return valve
- Precisely adjustable by integral flow meter
- High level of automation by innovative motorised control valve

GENERAL

Floor mounted chlorinator series MR 540 & 550 is used for accurate feed of gas chlorine, sulphor dioxide and other gases in water supplies, waste water treatment plants and industry.

The device is built up as modular design in a floor mounted fiber glass cabinet unit, easily adapted to any chlorination system.

The **MR 540 C** unit:

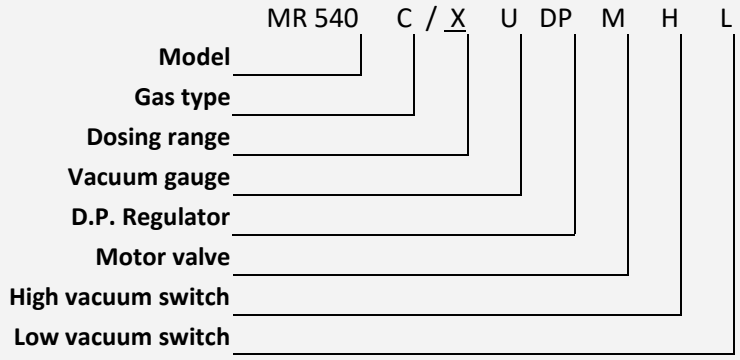
- Dosing capacity of **up to 40 kg/h**
- Gas flowmeter M 240
- Optionally: Vacuum gauge, Differential pressure regulator DP 40, Motor valve, hi/low vacuum switch

The **MR 550 C** unit:

- Dosing capacity **up to 200 kg/h**
- Gas flowmeter M 250
- Optionally: Vacuum gauge, Differential pressure regulator DP 50, Motor valve, hi/low vacuum switch

Floor mounted chlorinator unit type MR 540 C with differential pressure regulator DP 40 and M 240 gas flowmeter with vacuum gauge

ORDER CODES



OPTIONS:
- **Model: 540** for dosing range up to 40kg
  550 for dosing range up to 200kg
- **Gas type: "C"** - Cl2, **"S"** - SO2
- **Dosing range (kg/h):**
  MR 540
  20 up to 20
  40 up to 40
  MR 550
  60 up to 60
  80 up to 80
  120 up to 120
  160 up to 160
  200 up to 200
- **Vacuum gauge:** yes **"U"**, without it, the letter is not written in
- **D.P. Regulator:** yes **"DP",** without it, the letters are not written in
- **Motor valve:** yes **"M",** without it, the letters are not written in
- **High vacuum switch:** yes **"H",** without it, the letters are not written in
- **Low vacuum switch:** yes **"L",** without it, the letters are not written in

TECHNICAL DATA

Accuracy: Within 4% of flow
Operating range: 20 : 1
Weight: 32kg

Connections

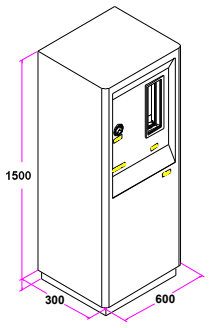
Vacuum (up to 15m):
20 kg/h – d20 PVC Union
40 kg/h – d25 PVC Union
60 kg/h – d50 PVC Union
80 kg/h – d50 PVC Union
120 kg/h – d50 PVC Union
160 kg/h – d50 PVC Union
200 kg/h – d50 PVC Union

Pressure:
Flange connection D3/4'' NP16
DN20 (DIN2633)
from 20 up to 200 kg

Ejector connection :
See product info for ejector M 300, M 340 and M 350.

For larger vacuum lines, see table: Chlorine vacuum line size requirements

MEASURE DRAWINGS



Floor mounted chlorinaton system MR 520, 540 & 550 RC

- **Capacity: up to 200 kg/h**
- Corrosion resistant thanks to epoxy-glass housing
- Positive operational control by vacuum
- Additional safety thanks to vacuum non-return valve
- Precisely adjustable by integral flow meter
- High level of automation by innovative motorised control valve

GENERAL

The MR 500 RC series chlorinator system is used for accurate feed of gas chlorine, sulphor dioxide and other gases in water supplies, waste water treatment plants and industry.

The device is built up as modular design in a floor mounted fiber glass cabinet unit, easily adapted to any chlorination system. The cabinet can be used as an independent unit or can just be a part of a bigger system.

The **MR 520 RC** system:

- Dosing capacity **up to 15 kg/h**
- Gas flowmeter M 200
- Vacuum regulator M 20
- Ejector M 300
- Optionally: Differential pressure regulator DP 20, Pressure gauge and Vacuum gauge, Motor valve, hi/low vacuum switch

The **MR 540R RC** system:

- Dosing capacity **up to 40 kg/h**
- Gas flowmeter M 240
- Vacuum regulator M 40
- Ejector M 340
- Optionally: Differential pressure regulator DP 20, Pressure gauge and Vacuum gauge, Motor valve, hi/low vacuum switch

The **MR 550 RC** system:

- Dosing capacity **up to 200 kg/h**
- Gas flowmeter M 250
- Vacuum regulator M 50
- Ejector M 350
- Optionally: Differential pressure regulator DP 50, Pressure gauge and Vacuum gauge, Motor valve, hi/low vacuum switch

ORDER CODES

MR 520 R C / X M U DP M H L

- **Model**
- **Regulator**
- **Gas type**
- **Dosing range**
- **Pressure gauge**
- **Vacuum gauge**
- **D.P. Regualtor**
- **Motor valve**
- **High vacuum switch**
- **Low vacuum switch**

OPTIONS:
- **Model: 520** for dosing range up to 15kg
  540 for dosing range up to 40kg
  550 for dosing range up to 200kg
- **Gas type: "C"** - Cl2, **"S"** - SO2, **"N"** - NH3
- **Dosing range*:** is chosen from technical data table berlow and the suitable number is written into the ordering code
- **Pressure gauge:** yes **"M"**, without it, the letter is not written in
- **Vacuum gauge:** yes **"U"**, without it, the letter is not written in
- **D.P. Regulator:** yes **"DP",** without it, the letters are not written in
- **Motor valve:** yes **"M",** without it, the letters are not written in
- **High vacuum switch:** yes **"H",** without it, the letters are not written in
- **Low vacuum switch:** yes **"L",** without it, the letters are not written in

TECHNICAL DATA

Dosing range MR 520: (g/h)

1	up to 12
2	up to 25
3	up to 100
4	up to 200
5	up to 500
6	up to 1000
7	up to 2000
8	up to 4000
9	up to 10000
15	up to 15000

Dosing range MR 540:(kg/h)

20	up to 20
40	up to 40

Dosing range MR 550:(kg/h)

60	up to 60
80	up to 80
120	up to 120
160	up to 160
200	up to 200

Gas types:
C=Cl2
S=SO2

Accuracy:
Within 4% of flow
Operating range:
20 : 1
Weight:
32kg + 20kg + 6kg

Connections

Vacuum (up to 15m):

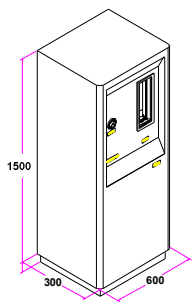
2 kg/h – d8/d10
4 kg/h – d8/d10
10 kg/h – d12/d16
15 kg/h – d12/d16
20 kg/h – d20 PVC Union
40 kg/h – d25 PVC Union
60 kg/h – d50 PVC Union
80 kg/h – d50 PVC Union
120 kg/h – d50 PVC Union
160 kg/h – d50 PVC Union
200 kg/h – d50 PVC Union

For larger vacuum lines, see table:
Chlorine vacuum line size requirements

Pressure:
Flange connection D3/4'' NP16
DN20 (DIN2633)
from 20 up to 200 kg

Ejector connection :
See product info for ejector M 300, M 340 and M 350.

MEASURE DRAWINGS



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1.2 Accessories

Designed to feed gas chlorine and with minor alterations also other gases (SO2, CO2, NH3), working on the indirect vacuum principle.
Our systems ensure optimum levels of dosage with minimal chemicals and power consumption even with very high capacities.
Dosing Devices and Systems comply with safety regulations of European and ASA standards, and Vacuum Regulators also with the strict safety standard DIN 19606.
Application: potable and swimmingpool water treatment

VACUUM SWITCHES

MANIFOLDS & WALL ADAPTERS

PRESSURE & VACUUM GAUGES

VALVES

POWER SUPPLIES & HEATERS

PIPES

CYLINDER HOLDERS

HORN & LIGHT ALARM

CONNECTIONS

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Hi and Low Vacuum switch M 3232 & M 3233

GENERAL

Vacuum switches series M 3232 and M 3233 are devices for negative pressure (vacuum) measurement, with an integrated adjustable alarm with digital output. The pressure sensor is made of ceramics and is resistant to the toxic gases such as Cl2, SO2. Sealing is guaranteed by the FKM/FPM O-ring. Electric is indicator is connected via an industrial M8 connector with IP67 protection.

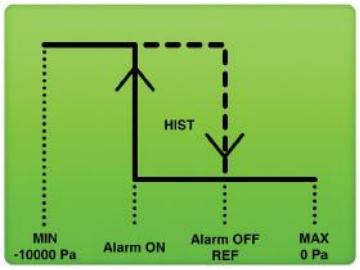
The high and low vacuum switches are pre-set in the factory. Hi vacuum switch is pre-set to - 0.2 bar and low vacuum switch is pre-set to -0.5 bar.

Diagnostics and settings are managed via BLE **Bluetooth Smart communication** on a mobile device (iOS, Android)

Alarm mode operation

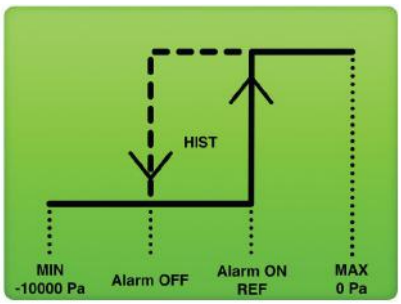
When any alarm is active, red LED light is turned on.

Low vacuum Switch



The alarm is activated when the vacuum is lower than reference. Alarm is released when vacuum is higher than reference plus value of hysteresis.
Factory pre-set is - 0.5 bar (-50000 Pa) (pull up)

Hi vacuum Switch



The alarm is activated when the vacuum is higher than reference. Alarm is released when vacuum is lower than reference plus value of hysteresis.
Factory pre-set is - 0.2 bar (-20000 Pa) (pull up)

TECHNICAL DATA

Technical data

Electrical data:

Power supply	24 V + 20 / -30%
Consumption	30 mA
Limitation of current at the output of Q1 and Q2	220mA

Sensor:

Area	
MIN	-100000 Pa (-1 Bar)
MAX	10000 Pa (+0,1 Bar)
The accuracy	1%

Alarm:

Operating mode	active high mode active low mode
Reference	area
Hysteresis	1000…20000 Pa

Digital output Q:

Operating modes	- Off - (pull up) When the alarm activated 24 VDC, otherwise off **(Default)** - (pull down) When the alarm activated 0 VDC, otherwise off - (pull up/down) When the alarm activated 24 VDC, otherwise 0VDC

Mechanical data.

Protection	IP 67
Connection:	uPVC d16 (PN16) Union

PREDEFINED SETTINGS:

M 3232 (low vacuum)

Alarm operating mode	Active high mode (pull up)
Alarm reference	-50000 Pa (-0,5 Bar)
Alarm hysteresis	2000 Pa (0,02 Bar)
Output Q2 when alarmed	Switch to 24 VDC

M 3233 (high vacuum)

Alarm operating mode	Active low mode (pull up)
Alarm reference	-20000 Pa (-0,2 Bar)

Axial - flow full cone nozzle M 491.048 AK

GENERAL

The M 491.048 AK nozzle represents a new generation full cone nozzles. These nozzle was developed using state-of-the-art design and simulation methods (CFD) and in practical operation they impress with their advantages. The M 491.048 AK features a non-clogging nozzle design and a stable spray angle with particularly even liquid distribution.

ORDER CODES

Model	Order code	Description	Capacity and connections
M 491.048 AK	**EAX00638**	FULL CONE NOZZLE	**At 2 bar 40 l/min** — 120°

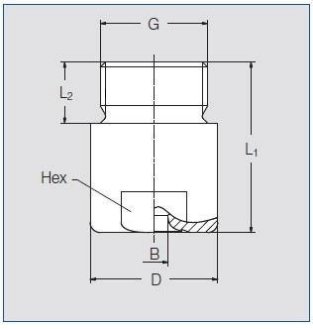
TECHNICAL DATA

Spraying angle: 120° ; Weight = 120 g ; Connection: 3/4” BSPP

Pressure /	Water flow
0,5 bar	22,97 l/min
1.0 bar	30,31 l/min
2.0 bar	40,00 l/min
3.0 bar	47,04 l/min
5.0 bar	51,71 l/min
7.0 bar	66,02 l/min
10.0 bar	76,15 l/min

Technical data are subject to change!

DIMENSIONS



G= 3/4” BSPP
L1= 42 mm
L2 = 15 mm
D = 32 mm
HEX = 27 mm

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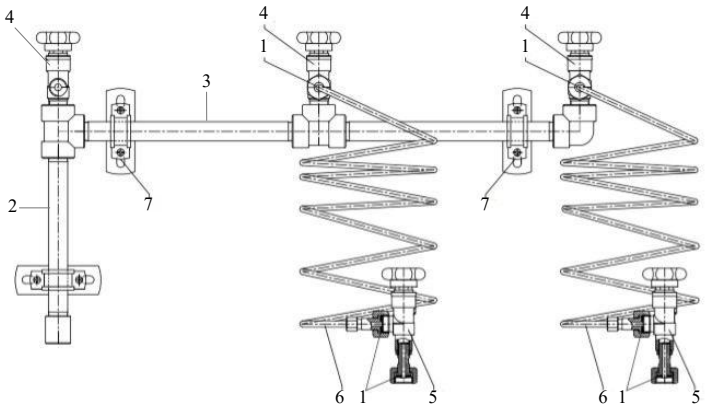
Manifolds & Wall adapters

Manifolds are designed to connect several cylinders or containers to one main chlorine supply line (liquid or gas).

Chlorine gas manifolds comprise of:
1. Sealing nut
2. Tube “drip-leg”
3. Tube for chlorine manifold
4. Valve for manifold
5. Valve for cylinder/container
6. Flexible copper pipe with valve
7. Wall brackets

Optionally: drip-leg (gas only)

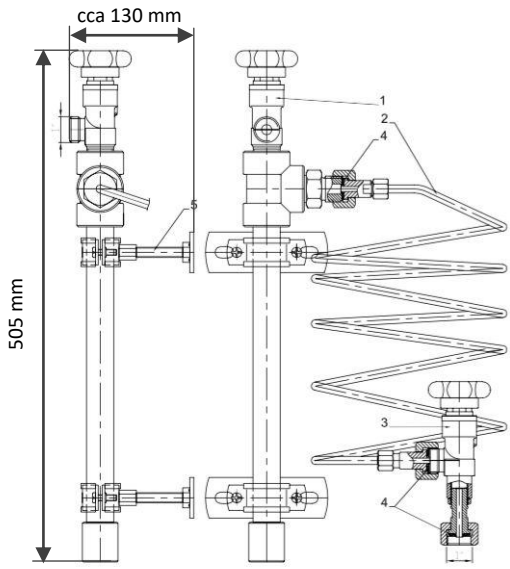


Manifold M 3302 for 2 cylinders with left side connection

Wall Adapters are used to fasten vacuum regulators to the wall.

Wall adapters comprise of:
1. Valve for wall adapter
2. Flexible copper pipe with valve
3. Valve for container
4. Sealing nut R 1''
5. Wall bracket

The Cylinder Wall Adapter includes a flexible tube with valve.
The Container Wall Adapter includes also a supplementary part with a valve for mounting to the container.



Wall adapter M 3311 for 1 cylinder with left side connection

ORDER CODES

MANIFOLDS

For Cylinders:

Model	Description	Left side connection Order code	Right side connection Order code
M 3302	For 2 cylinders	SIA00129	SIA00130
M 3303	For 3 cylinders	SIA00136	SIA00137
M 3304	For 4 cylinders	SIA00138	SIA00139
M 3305	For 5 cylinders	SIA00140	SIA00141
M 3306	For 6 cylinders	SIA00142	SIA00143
M 330X	For X cylinders	On request	On request

For Containers:

Model	Description	Left side connection Order code	Right side connection Order code
M 3322	For 2 containers	SIA00131	SIA00132
M 3323	For 3 containers	SIA00146	SIA00147
M 3324	For 4 containers	SIA00148	SIA00149
M 3325	For 5 containers	SIA00150	SIA00151
M 3302	For X containers	On request	On request

WALL ADAPTERS

Model	Description	Left side connection Order code	Right side connection Order code
M 3311	For 1 cylinder	SIA00127	SIA00128
M 3312	For 1 container	SIA00144	SIA00145

TECHNICAL DATA

Connections to Cylinder/Container

Standard: 1” (according DIN 477)
Optionally: 1.030” (CGA)
5/8” (BSP)
M27x1,5mm

Pressure & Vacuum gauges

GENERAL

Pressure gauges are used in chlorine gas line supply for monitoring the chlorine gas pressure in chlorine tanks and cylinders. While container or cylinder is discharging, the pressure is dropping , therefore pressure gauges are used to check the fullness of container or cylinder. It is important to consider that the pressure also depends on the surrounding temperature. For example at 20 ℃ pressure is 5.8bar, while at 40 ℃ 10,5bar.

Vacuum gauges are used in chlorine gas line supply between vacuum regulator and ejector. They monitor the vacuum in ejector and in the vacuum line. A constant vacuum ensures safety and reliable operation.

TECHNICAL DATA

Case
Size 60 (2.36")
Accuracy Class
(EN 837-3)2.5(i.e. accuracy error less than +2.5% of full scale value);4 for gauges with protection foil covering the diaphragm
Pressure Ranges (EN 837-3)
0 ... 16 bar also standard vacuum 0....-1 bar
Pressure Limitations
Steady pressure / maximum: full scale value
Cyclic pressure: 90% of full scale value
Temperature Limitations
Ambient temperature : -20 /+50°C(-4 / +122 °F)
Medium temperature: max.+50° C(122 °F)
Temperature Caused Error
The accuracy error caused by media or ambient temperatures differingfrom +20 °C (+68° F) is significant. In accordance with EN 837-3 it maybe up to .8 % f.s. per each 10 °C (18°F).
Protection Type
(EN 60529 / IEC 529)IP 43
Connection
¼" BSP bottom connection or center back connection
Movement
Brass/German silver
Dial
Aluminum alloy, black figures, white background
Pointer
Aluminum alloy blackCaseBezel ring, black painted, screwed on to the vertical mounted lower half
Lens
Single strength glass lens

ORDER CODES

Model	Order code	Description	Reading
M 3907/1	EAX00014	Pressure gauge	Pressure: 0 to 16 bar
M 3907/2	EAX00010	Vacuum gauge	Vacuum: 0 to –1 bar

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Chlorine valves

Chlorine cylinder valve made with O-ring sealing system and spindle thread outside gas wetted area. Valve seat and lower spindle are made of stainless steal, upper spindle is made of brass.

TECHNICAL DATA

Model	Connection inlet	Connection outlet	
M 3440/4	DIN EN ISO 11363-1	1" DIN 477 Nr 8 male	Cylinder valve
M 3491/4	1" DIN 477 female	1" DIN 477 Nr 8 male	Isolating valve

ORDER CODES

Model	Order code	Description	Reading
M 3440/4	**EAH00230**	Cylinder valve (Chlorine valve for mounting to chlorine cylinder)	Pressure: 0 to 16 bar
M 3491/4	**PSA00011**	Isolating valve (Chlorine valve with reducer and nut for mounting to flexible tube)	Pressure: 0 to 16 bar

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Pressure relief valve assembly M 3460 C

GENERAL

Pressure Relief Valve assembly is used to release pressure in the over-pressurized chlorine gas lines, since pressure might otherwise build up and create a process upset, instrument or equipment failure. The pressure is relieved by allowing the pressurised chlorine gas to flow from an auxiliary passage out of the system. The relief valve is designed or set to open at 14 bar pre-set pressure in order to protect pressurized gas lines and other equipment from being subjected to pressures that exceed their design limits.

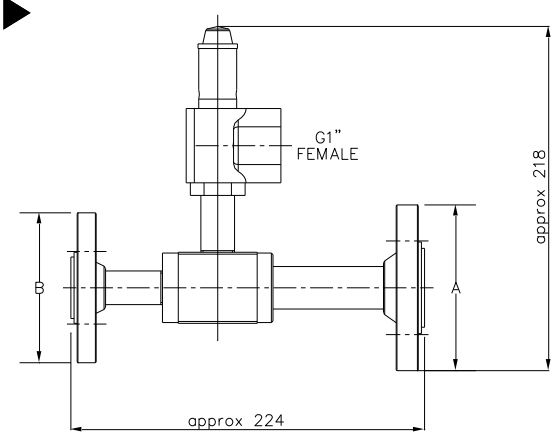
TECHNICAL DATA

Type: Spring loaded safety valve assembly
Inlet/Outlet connection: DN15/DN20/DN25
Release connection: G 1" FEMALE
Release pressure: 14 bar
Housing Material: Rg5
Sealing: Viton, additional bellows seal (Double gastight)

ORDER CODES

Model	Technical Data	Description	Function
M 3460 C/1	**DN 15** **Release pressure: 14 bar**	Pressure Safety Valve	**To release over-pressure in chlorine gas lines**
M 3460 C/2	**DN 20** **Release pressure: 14 bar**	Pressure Safety Valve	**To release over-pressure in chlorine gas lines**
M 3460 C/3	**DN 25** **Release pressure: 14 bar**	Pressure Safety Valve	**To release over-pressure in chlorine gas lines**

DIMENSIONS



A - Flange dimension acc. to capacity:
1— DN15 For capacities up to 50 kg/h
2— DN20 For capacities up to 120 kg/h
3— DN25 For capacities up to 200 kg/h

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Check valves M 3901

GENERAL

Vacuum check valve is designed to prevent liquid (water) to enter the gas dosing system. The valve only allows gas to flow through it in one direction.
Vacuum check valves are two-port valves, meaning they have two openings in the body, one for gas to enter and the other for gas to leave. Vacuum can flow only in one direction.
Vacuum Check valve works automatically and is not controlled by a person or any external control.

Vacuum chlorine gas check valves are made of quality materials:

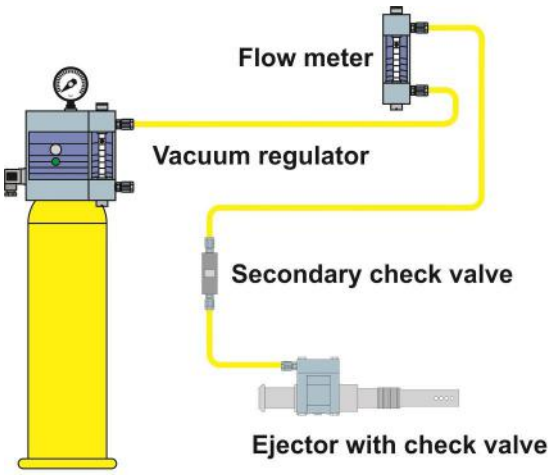
Body—PVC

Spring—tantalum alloy

Ball /check valve seat—PTFE

O-rings and gaskets—FPM/FKM

INSTALLATION EXAMPLE



High Capacity Check valve

ORDER CODES

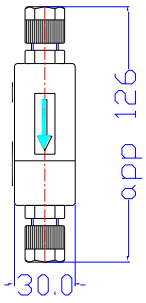
M 3901 C / X

- **Model**
- **Gas type**
- **Capacity**

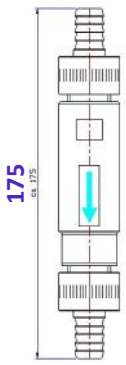
OPTIONS:
- **Gas type:** **"C"** - Cl2, **"CO2"**- CO_2, **"S"** -SO2, **"N"** -NH3
- **Capacity (kg/h):** **1** = up to 4
  2 = up to 15
  40 = up to 40
  120 = up to 120

Model	Order code	Capacity	Connections (vacuum)
M 3901/1	**IZX00003**	Up to 4 kg/h	d8/d10
M 3901/2	**IZX00102**	Up to 15 kg/h	d12/d16
M 3901/40	**IZX00153**	Up to 40 kg/h	d25
M 3901/120	**IZX00200**	Up to 120 kg/h	d50

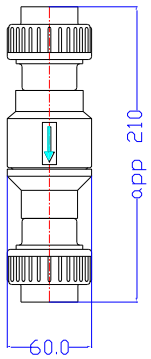
MEASURE DRAWINGS



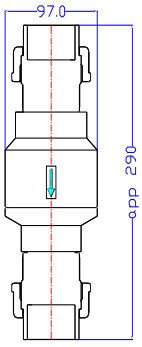
Max. 4 kg/h



Max. 15 kg/h



Max. 40 kg/h



Max. 120 kg/h

SOLENOID (electromagnetic) CL2 GAS VALVE

Solenoid (Electromagnetic) valve is designed to operate in chlorine gas lines under vacuum. It is designed to shut off vacuum between ejector and chlorinator (vacuum regulator). Valve is normally closed and opens only when power is applied. At power loss the valves closes and cuts off vacuum to the system.

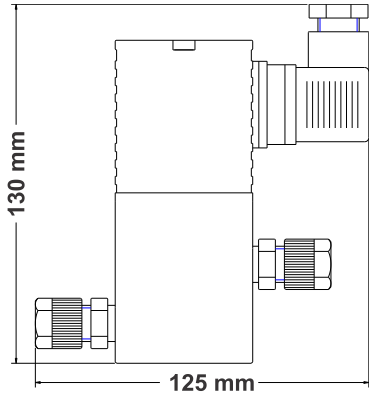
TECHNICAL DATA

Operation range: up to 4 kg/h
Power Supply: 230 VAC ; 24 VAC
Weight: 200 g
Connections: d8/d10

ORDER CODES

Model	Order code	Description	Connections
M 3540/2	IZV00011	Electromagnetic chlor valve, 230 V	d8/d10
M 3540/4	IZV00064	Electromagnetic chlor valve, 24 V	d8/d10

MEASURE DRAWINGS



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Duty/Standby position indicator M 3290 C

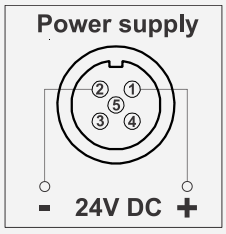
GENERAL

The DUTY/STANDBY positon indicator box is intended for use with vacuum switchover with electrical contacts M 400 and M 440 series.
It indicates the vacuum flow position through the vacuum switchover.

TECHNICAL DATA

Power supply:	24 V DC
Max. Consumption:	1 W
Protection:	IP65

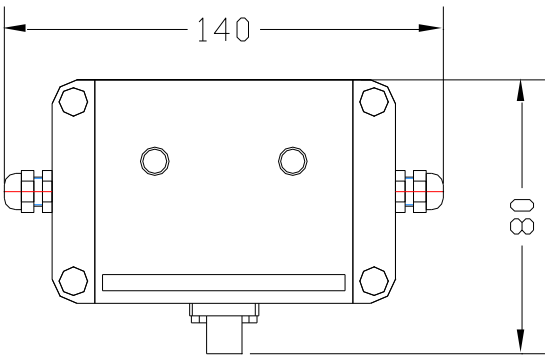
Connection:



ORDER CODES

Model	Order code	Description	Function
M 3290 C	PCD00323	POSITION INDICATOR BOX	DUTY/STANDBY INDICATION

DIMENSIONS



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Power supplies & Heaters

- Input voltage 230 VAC or 115 VAC selectable
- ANALYAnalyzer power supply
- 24VAC output voltage for actuator
- 24VDC output voltage for current loops

Power supplies CN 4004 and CN 4005 are designed to supply analyzers series M 1035 C , M 1036 C and M 5265 C compact unit.
The unit can also be used to supply passive curret loops and actuator units series M 3521 C and M 3531 C.

Heater M 3003 is used to heat manifold or chlorine trap.

TECHNICAL DATA

Input

Max. Consumption:	30VA
Input voltage:	230 VAC or 115 VAC +/-10% (user selectable)
Fuse for 230VAC:	0,2A T
Fuse for 115VAC:	0,5A T

Output

Output »sensor« on connection terminals 1-5
and »24V« on connection terminals L1-N1

Voltage:	24VAC +/- 20%
Max. curret:	2A

Output »4..20mA« on connection terminals:
(S1+)-(OUT1-),(S2+)-(OUT2-),(S3+)-(OUT3-), (S4+)-(OUT4-)

Voltage:	24VAC +5%,- 20%
Max. curret:	100mA total

Housing

Dimensions:	160*75*120(L,H,W)
Protection:	IP65
Material:	ABS

ORDER CODES

Power supplies

Model	Order code	Description
CN 4004	**IZX00110**	For 1 controller unit
CN 4005	**IZX00111**	For up to 3 controller units

Heaters

Model	Order code	Description
M 3003	**IZX00184**	Clamp type

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Pipes

Flexible copper pipes provide an easy, stretchable path to connect cylinder or ton container to a pressure manifold or vacuum regulator.

Vacuum PE pipes provide flexible connection to connect vacuum regulator to ejector.

ORDER CODES

Flexible copper pipes

Model	Order code	Length	Connection
M 3911/1	**PSX00250**	L1625 mm	1" DIN 477 Nr 8 male
M 3911/2	**PSX00256**	L4155 mm	1" DIN 477 Nr 8 male

Vacuum PE pipes

Model	Order code	Vacuum Connections
M 3912/1	**EFA00437**	d8/d10
M 3912/2	**EFA00023**	d12/d16

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Cylinder holder

Cylinder holder: Zincked galvanized wall mounted holder for cylinders with adjustable chain.

ORDER CODES

Model	Order code	Description
M 3908	**PSK00009**	Zinck galvanized holder with chain

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Vacuum tubing for chlorine gas lines

GENERAL

Vacuum tubing is made out of PE-LD (Polyethylene—Low Density). PE is physiologically harmless, largely resistant to acids, alkalis, saline solutions and chlorine gas.

TECHNICAL DATA

Temperature resistance: -40°C to +80°C
Material: PE-LD (Polyethylene—Low Density)
Colour: NATURE
Dimensions d8/d10:

- Inner diameter: 8 mm
- Outer diameter: 10 mm
- Wall thickness: 1 mm

Bending radius for d8/d10 tube: 60 mm
Pressure for d8/d10 tube: 6 bar
Dimensions d12/d16:

- Inner diameter: 12 mm
- Outer diameter: 16 mm
- Wall thickness: 2 mm

Bending radius for d12/d16 tube: 90 mm
Pressure for d12/d16: 7 bar
Suitable for vacuum

ORDER CODES

Model	Technical Data	Description	Function
M 3912/1	Inner diameter: 8 mm Outer diameter: 10 mm Wall thickness: 1 mm	**Vacuum tubing**	**For use in chlorine gas vacuum lines capacities up to 4 kg/h**
M 3912/2	Inner diameter: 12 mm Outer diameter: 16 mm Wall thickness: 2 mm	**Vacuum tubing**	**For use in chlorine gas vacuum lines capacities from 4 kg/h to 15 kg/h**

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Horn & Light alarm

Alarm warning lamp (yellow) and **Horn alarm** are both wall mounted type.
In case of chlorine gas leakage, the lamp turns on as light alarm and the horn as audio alarm announcing the presence of gas chlorine in the air.

ORDER CODES

Model	Order code	Description
LAMP	**IZX00077**	SIGNAL LAMP 230V YELLOW
HORN	**ECZ00431**	HORN 230V AC 110dB

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Connections d8/ d10

GENERAL
Fittings for vacuum tubing d8/d10 (F-100)

Description	Order code	
Straight R1/4”	EAI00280	
Straight R3/8”	EAI00297	
Elbow R1/4”	EAI00583	
Elbow R3/8”	EAI00281	
Straight joint	EAI00282	
T-piece	EAI00291	
Elbow 90° joint	EAI00376	

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Connections d12/ d16

CONNECTIONS d12/d16

GENERAL
Fittings for vacuum tubing d12/d16(F-106)

Description	Order code
Straight R1/2”	PSO00001
Straight M 24x2	PSO00002
Straight R1/4”	PSO00003
Elbow L R1/4”	PSO00050
Elbow SL	PSO00035
Union	EBX00510
T-piece	PSO00038
Reduction from 16/12 to 10/8 pipe	PSO00036

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2. Measuring & Control equipment

Designed to feed gas chlorine and with minor alterations also other gases (SO2, CO2, NH3), working on the indirect vacuum principle.
Our systems ensure optimum levels of dosage with minimal chemicals and power consumption even with very high capacities.
Dosing Devices and Systems comply with safety regulations of European and ASA standards, and Vacuum Regulators also with the strict safety standard DIN 19606.
Application: potable and swimmingpool water treatment

FREE CHLORINE ANALYSERS

CHLORINE DIOXIDE ANALYSER

pH PROBE

REDOX PROBE

RECORDER

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Free Chlorine analyser M 1035 C

- ***Measuring range 0 - 5 mg/l***
- **2 measuring electrodes gold/copper + reference electrode (optional)**
- **Stable measurement**— open flow measurement cell with a constant flow
- **Continuous cleaning** of measuring electrodes
- **Alarm** for measuring cell or regulation errors
- **CANbus communication** to easily connect several units to the control unit

⇒ ***Insight in measurement cell parameters for rapid detection of interfering substances***

⇒ ***Modular electronics for simple service***

⇒ ***Clear graphical display for all measured parameters***

GENERAL

Free residual chlorine analyser series M 1035 C is designed for measurement and control of drinking water, waste water treatment and swimming-pool applications.
Two basic measured parameters are **free chlorine** and **temperature**.

The unit enables the construction of additional expansion modules, for measuring the pH value and the redox potential (for drinking and waste water).

Amperometric measurement method using two electrodes and an additional third reference electrode provides a constant and continuous measurements.

The unit consists of the following subassemblies:
- a mechanical filter sample
- an indicator of the flow of the sample
- self-cleaning measuring cell
- measurement - regulation electronics
- cover

The user interface for parameterization and calibration is performed via graphical LCD display.
Control, regulation and control of disinfection processes are enabled by analog and digital outputs and the CANbus digital communication. The control module supports the connection of actuators - dosing pump with analog and digital inputs as well as solenoid and motorized valves - for two-point and continuous dosing.
Software design of the control module contains a number of protective mechanisms against overdosing.

ORDER CODE

M 1035 C / A D C R 1 S F

- **Model**
- **Automatic temp. compensation - Default**
- **CAN Communication output - Default**
- **Output options (4-20mA) - Default**
- **Regulator - Optional**
- **Measuring range - See Options below**
- **Reference electrode - Optional**
- **Flow indicator - Default**

OPTIONS:
- **Regulator:** yes **''R''**, without it the letter is not written in
- **Measuring range**: ''**1**'' for 0 to 1 mgCl2/l (0 –5 mgCl2/l adjustable)
  ''**X**''- on request
- **Reference**: yes ''**S**'' , without it the letter is not written in

TECHNICAL DATA

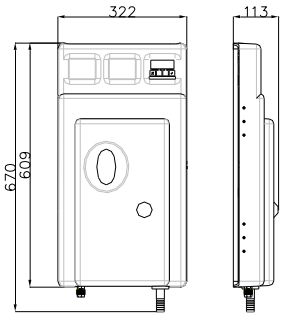
General data :

Ambient temperature:	-10...+50ºC
Relative humidity:	10...95 % non-condensating
Control unit protection:	IP 65
Dimensions:	670 x 322 x 113
Weight:	6,5 kg
Flow:	minimum 0,5 l/min
Measuring range (M.R.):	0 - 5 mg/l
Measuring principle: (amperometric):	**Copper-gold electrodes** (optionally third reference electrode s available)
Measured value resolution:	0,01 mg/l
Deviation of indication, measured value:	maximum 2% of MR
pH range:	6.5...8
Water conductivity:	> 50µS
Automatic temperature compensation range:	0...+50ºC

Electrical data :

Supply voltage:	24 VAC/VDC ±20%
Power:	5 W Maximum
Isolation voltage:	500V (to sensor, output signal, reg. cont.)
Current output connector:	
Modules:	2
Current range:	4...20 mA
Load:	maximum 800 E at 24VDC
Output range:	adjustable to (MR)
Output Mode options:	- Free chlorine signal output - Temperature - Regulator output
Regulator connector:	
Regulator	3 point or PI regulator
Outputs:	3 x 24 VAC / 250 mA
Inputs:	3 x 24 VAC
Mode options:	- Motor Control - Pump Control

MEASURE DRAWINGS



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Free Chlorine analyser M 1036 C

- ***Measuring range 0 - 5 mg/l***
- **3 measuring electrodes platinum/platinum + reference electrode**
- **Stable measurement**— open flow measurement cell with a constant flow
- **Continuous cleaning** of measuring electrodes
- **Alarm** for measuring cell or regulation errors
- **CANbus communication** to easily connect several units to the control unit

⇒ ***Insight in measurement cell parameters for rapid detection of interfering substances***

⇒ ***Modular electronics for simple service***

⇒ ***Clear graphical display for all measured parameters***

GENERAL

Free residual chlorine analyser series M 1036 C is designed for measurement and control of drinking water, waste water treatment and swimming-pool applications.
Two basic measured parameters are **free chlorine** and **temperature**.

The unit enables the construction of additional expansion modules, for measuring the pH value and the redox potential (for drinking and waste water).

Amperometric measurement method using two electrodes and an additional third reference electrode provides a constant and continuous measurements.

The unit consists of the following subassemblies:
- a mechanical filter sample
- an indicator of the flow of the sample
- self-cleaning measuring cell
- measurement - regulation electronics
- cover

The user interface for parameterization and calibration is performed via graphical LCD display.
Control, regulation and control of disinfection processes are enabled by analog and digital outputs and the CANbus digital communication. The control module supports the connection of actuators - dosing pump with analog and digital inputs as well as solenoid and motorized valves - for two-point and continuous dosing.
Software design of the control module contains a number of protective mechanisms against overdosing.

ORDER CODE

M 1036 C / A D C R 1 S F

- **Model**
- **Automatic temp. compensation - Default**
- **CAN Communication output - Default**
- **Output options (4-20mA) - Default**
- **Regulator - Optional**
- **Measuring range - See Options below**
- **Reference electrode - Default**
- **Flow indicator - Default**

OPTIONS:
- **Regulator:** yes **''R''**, without it the letter is not written in
- **Measuring range**: ''**1**'' for 0 to 1 mgCl2/l (0 –5 mgCl2/l adjustable)
  ''**X**''- on request

Standard models:	Order Codes
M 1036C/ADC1SF	IZF00104
M 1036 C/ADCR1SF	IZF00100

TECHNICAL DATA

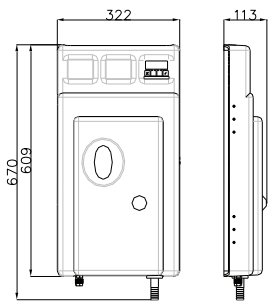
General data :

Ambient temperature:	-10...+50ºC
Relative humidity:	10...95 % non-condensating
Control unit protection:	IP 65
Dimensions:	670 x 322 x 113
Weight:	6,5 kg
Flow:	minimum 0,5 l/min
Measuring range (M.R.):	0 - 5 mg/l
Measuring principle: (amperometric):	**Platinum-platinum electrodes and third reference electrode**
Measured value resolution:	0,01 mg/l
Deviation of indication, measured value:	maximum 2% of M.R.
pH range:	6.5...8
Water conductivity:	> 50µS
Automatic temperature compensation range:	0...+50ºC

Electrical data :

Supply voltage:	24 VAC/VDC ±20%
Power:	5 W Maximum
Isolation voltage:	500V (to analogue part)
Current output connector:	
Modules:	2
Current range:	4...20 mA
Load:	maximum 800 E at 24VDC
Output range:	adjustable to (MR)
Output Mode options:	- Free chlorine signal output - Temperature - Regulator output
Regulator connector:	
Regulator	3 point or PI regulator
Outputs:	3 x 24 VAC / 250 mA
Inputs:	3 x 24 VAC
Mode options:	- Motor Control - Pump Control

MEASURE DRAWINGS



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Chlorine dioxide analyser M 1056 C

- ***Measuring range 0 - 1 mg/l***
- **2 measuring electrodes gold/copper + reference electrode (optional)**
- **Stable measurement**— open flow measurement cell with a constant flow
- **Continuous cleaning** of measuring electrodes
- **Alarm** for measuring cell or regulation errors
- **CANbus communication** to easily connect several units to the control unit

⇒ ***Measuring range for concentrations up to 500 ug/l***

⇒ ***Insight into the measuring cell parameters to quickly detect any effect of disturbing elements***

⇒ ***Modular electronics for simple service***

⇒ ***Clear graphical display for all measured parameters***

GENERAL

Chlorine doixide analyser series M 1056 C is designed for measurement and control of drinking water, waste water treatment and swimming-pool applications.
Two basic measured parameters are **chlorine dioxide** and **temperature**.

The unit enables the construction of additional expansion modules, for measuring the pH value and the redox potential (for drinking and waste water).

Amperometric measurement method using two electrodes and an additional third reference electrode provides a constant and continuous measurements.

The unit consists of the following subassemblies:
- a mechanical filter sample
- an indicator of the flow of the sample
- self-cleaning measuring cell
- measurement - regulation electronics
- cover

The user interface for parameterization and calibration is performed via graphical LCD display.
Control, regulation and control of disinfection processes are enabled by analog and digital outputs and the CANbus digital communication. The control module supports the connection of actuators - dosing pump with analog and digital inputs as well as solenoid and motorized valves - for two-point and continuous dosing.
Software design of the control module contains a number of protective mechanisms against overdosing.

ORDER CODE

M 1056 C / A D C R 1 S F

- **Model**
- **Automatic temp. compensation - Default**
- **CAN Communication output - Default**
- **Output options (4-20mA) - Default**
- **Regulator - Optional**
- **Measuring range - See Options below**
- **Reference electrode - Default**
- **Flow indicator - Default**

OPTIONS:
- **Regulator:** yes **''R''**, without it the letter is not written in
- **Measuring range**: ''**1**'' for 0 to 1 mgClO2/l (adjustable)
  ''**X**''- on request

Standard models:	**Order Codes**
M 1056C/ADC1SF	**IZF00108**
M 1056 C/ADCR1SF	**IZF00109**

TECHNICAL DATA

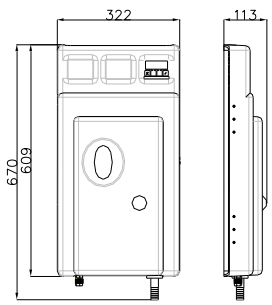
General data :

Ambient temperature:	-10...+50ºC
Relative humidity:	10...95 % non-condensating
Control unit protection:	IP 65
Dimensions:	670 x 322 x 113
Weight:	6,5 kg
Flow:	minimum 0,5 l/min
Measuring range (M.R.):	0 - 1 mg/l
Measuring principle: (amperometric):	**Platinum-platinum electrodes and third reference electrode**
Measured value resolution:	0,001 mg/l
Deviation of indication, measured value:	maximum 2% of M.R.
pH range:	6...10
Water conductivity:	> 50µS
Automatic temperature compensation range:	0...+50ºC

Electrical data :

Supply voltage:	24 VAC/VDC ±20%
Power:	5 W Maximum
Isolation voltage:	500V (to analogue part)
Current output connector:	
Modules:	2
Current range:	4...20 mA
Load:	maximum 800 E at 24VDC
Output range:	adjustable to (MR)
Output Mode options:	- Free chlorine signal output - Temperature - Regulator output
Regulator connector:	
Regulator	3 point or PI regulator
Outputs:	3 x 24 VAC / 250 mA
Inputs:	3 x 24 VAC
Mode options:	- Motor Control - Pump Control

MEASURE DRAWINGS



pH probe M 1122

- on-line pH measurement
- PI regulation option
- Communication output (SELECAN) or galvanically separated current output
- easy assembling and management
- IP 65 housing

GENERAL

pH measurement is used in chemical industry, in swimming-pools, potable and waste water treatment and also in different kinds of industrial measurements.

Controlmatik probe M 1122 is designed for continuous measurement of pH in swimming-pools, potable, waste and industrial waters. With special versions of measuring electrodes it can also be used for measurement of other media.

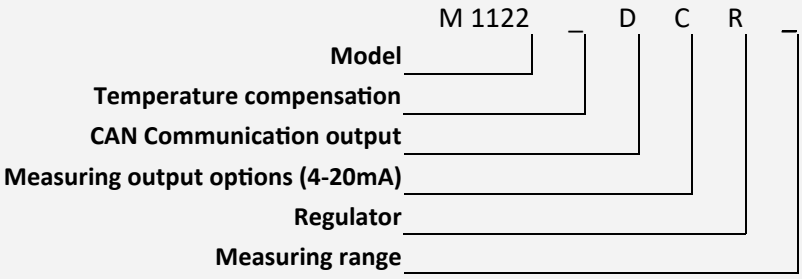
The unit consists of :

- pH measuring electrode
- Controller with graphic display

Electronics evaluates and amplifies the measured potential. PI regulator for independent control of a certain process can be build in a probe. The probe can upgraded with manual or automatic temperature compensation (depends on customer request) and with galvanic separated 4–20 mA signal on the amplifiers output. The user can easily communicate with a probe over graphic display and four function keys.

The probe guarantees accurate and continuous measurement.

ORDER CODE



OPTIONS:
- **Temperature compensation: "A"** for automatic
  "M" for manual
- **CAN communication**: yes "**D**", without it the letter is not written in
- **Current output sensor**: default
- **Regulator:** yes **"R"**, without it the letter is not written in
- **Measuring range**: "**1**" for 0 to 14 pH
  "**2**"- on request

TECHNICAL DATA

General data :

Ambient temperature:	-10...+50ºC
Relative humidity:	10...95 % non-condensating
Control unit protection:	IP 65
Dimensions:	98 x 64 x 38
Weight:	0,2 kg

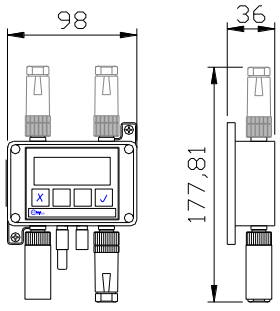
pH measurement

Max. Measuring range (MR):	from 0,00 to +14,00 pH
Measured value resolution:	0,01 pH
Deviation of indication, measured value:	maximum 0,5% of M.R.
Zero point shift range:	from 0,00 to +14,00 pH
Automatic temperature compensation range:	0...+100ºC
pH input signal:	
- Input resistance at nominal operating conditions	> 1000 MOhm
- Current input at nominal operating conditions	< 1 pA

Electrical data :

Power supply:	9 - 36 VDC,12 - 24 VAC±10%
Power:	2 W
Current output connector:	
Modules:	2 (galvanic separated)
Isolation voltage:	500V
Current range:	4...20 mA
Power supply:	9...26 VDC
Output range:	adjustable to (MR)
Output Mode options:	- pH signal output - Temperature - Regulator output
Regulator connector:	
Regulator	3 point switch or PI regulator
Outputs:	3 x 24 VAC / 250 mA
Inputs:	3 x 24 VAC
Mode options:	- Motor Control - Pump Control

MEASURE DRAWINGS



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Redox probe M 1322

- on-line Redox measurement
- PI regulation option
- Communication output (SELECAN) or galvanically separated current output
- easy assembling and management
- IP 65 housing

GENERAL

Redox measurement is used in chemical industry, in swimming-pools, potable and waste water treatment and also in different kinds of industrial measurements.

Controlmatik probe M 1322 is designed for continuous measurement of Redox in swimming-pools, potable, waste and industrial waters. With special versions of measuring electrodes it can also be used for measurement of other media.

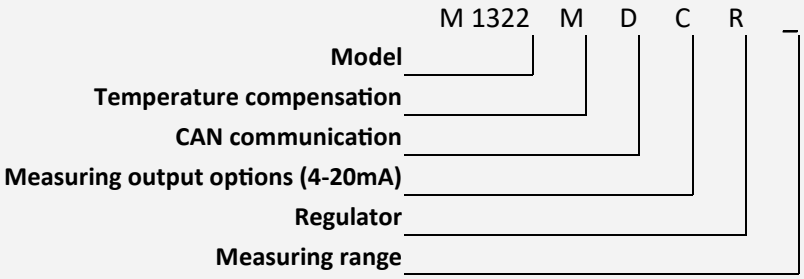
The unit consists of :

- Redox measuring electrode
- Controller with graphic display

Electronics evaluates and amplifies the measured potential. PI regulator for independent control of a certain process can be build in a probe. The probe can upgraded with manual or automatic temperature compensation (depends on customer request) and with galvanic separated 4–20 mA signal on the amplifiers output. The user can easily communicate with a probe over graphic display and four function keys.

The probe guarantees accurate and continuous measurement.

ORDER CODE



OPTIONS:
- **Temperature compensation:** yes **"M" ,** without it the letter is not written in
- **Current output Redox signal**: yes "**C",** without it the letter is not written in
- **Regulator:** yes **"R"**, without it the letter is not written in
- **Measuring range**: "**1**" for -2000…+2000 mV
  "**2**"- on request

TECHNICAL DATA

General data :

Ambient temperature:	-10...+50ºC
Relative humidity:	10...95 % non-condensating
Control unit protection:	IP 65
Dimensions:	98 x 64 x 38
Weight:	0,2 kg

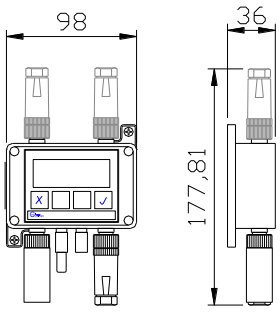
Redox measurement

Max. Measuring range (MR):	from –2000 to +2000 mV
Measured value resolution:	1 mV
Deviation of indication, measured value:	maximum 0,2% of M.R.
Redox input signal:	
- Input resistance at nominal operating conditions	> 1000 MOhm
- Current input at nominal operating conditions	< 1 pA

Electrical data :

Power supply:	9 - 36 VDC,12 - 24 VAC±10%
Power:	2 W
Current output connector:	
Modules:	2 (galvanic separated)
Isolation voltage:	500V
Current range:	4...20 mA
Power supply:	9...26 VDC
Output range:	adjustable to (MR)
Output Mode options:	- Redox signal output - Regulator output
Regulator connector:	
Regulator	3 point switch or PI regulator
Outputs:	3 x 24 VAC / 250 mA
Inputs:	3 x 24 VAC
Mode options:	- Motor Control - Pump Control

MEASURE DRAWINGS



3. Regulation & control equipment

Designed to feed gas chlorine and with minor alterations also other gases (SO2, CO2, NH3), working on the indirect vacuum principle.
Our systems ensure optimum levels of dosage with minimal chemicals and power consumption even with very high capacities.
Dosing Devices and Systems comply with safety regulations of European and ASA standards, and Vacuum Regulators also with the strict safety standard DIN 19606.
Application: potable and swimmingpool water treatment

AUTOMATIC CHLORINATOR CONTROLLER

AQUA PROCESSOR

AUTOMATION

COMPACT SWIMMING POOL UNIT

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Automatic Chlorinator controller AQUACON M 5500 C

- **Single** or **Duty — Standby** automatic chlorinator controller
- Simple installation, set up and start up
- Easy user unit communication
- IP 65 Control panel housing

⇒ ***CONTROLS UP TO TWO AUTOMATIC GAS CHLORINATORS OR UP TO TWO SODIUM HYPOCHLORITE DOSING PUMPS***

⇒ ***DIFFERENT CONTROL OPTIONS (FLOW, FREE CHLORINE, FLOW AND FREE CHLORINE)***

GENERAL

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

OPERATION PRINCIPLE

Controller AQUACON M 5500 C controls one or two automatic chlorinators (liquid or gas) on the basis of information received from water flow meter or/and free residual analyzer. If two automatic chlorinators are connected than one is duty and the other is stand by.

Different control options are available:

1) Flow-proportional controller
2) Residual chlorine controller
3) Combination of flow-proportional and residual chlorine controller in one unit

Regulation for each individual system can easily be set on the field. Electronically controlled motor valve (or dosing pump), is driven through PID regulator with all types of control options.

Flow-proportional control

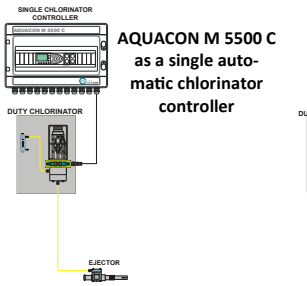
Simplest form of dosing control. The chlorine dose is proportional to the water flow. A flow meter provides a signal proportional to the water flow, which controller uses to determine the gas control. According to the set reference value and water flow, controller sends the appropriate signal to the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

Free residual chlorine control

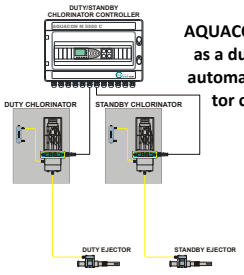
The controller receives the signal from a chlorine analyser down stream of the dose point. The signal from the chlorine analyser is compared with the reference value set in the controller and determines the correct dose and sends the appropriate signal to the chlorinator. This operation is performed 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 analyser 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.



AQUACON M 5500 C as a single automatic chlorinator controller



AQUACON M 5500 C as a duty/standby automatic chlorinator controller

ORDER CODE

M 5500 C / _ 2 _

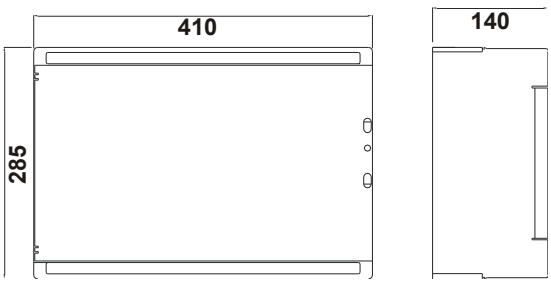
- **Model**
- **Gas type**
- **Input signal**
- **Motor valve control signal**
- **Output signal**

OPTIONS:
- **Gas type: C = chlorine**
- **Input signal**: write in ''**C**'' for 4—20 mA
  write in ''**P**'' for Pulse
- **Motor valve M 3531 C control signal:** write in **2** for M 3531 C valve 4—20mA control signal
- **Output signal**: write in ''**O**'' for regulator value output
  Write in ''**C**'' for flow or residual value output

TECHNICAL DATA

Power supply:	230 VAC
Fuse:	1 A
Power consumption:	16 Watts (max)
Operating temperature:	55 ºC(max)
Display:	LCD 4 lines x 20 car.
Control Inputs:	2 x 4 - 20mA (1 x flow, 1 x residual)
Control outputs:	Duty chlorinator Standby chlorinator
Resistance on analogue outputs:	500 Ohm
Processor:	Alpha
Dimensions:	410 x 285 x 140 mm
Weight:	3 kg
Protection:	IP 65
Control options:	Flow proportional Free Residual chlorine Compound loop
Inputs (from flow meter)	4 - 20 mA or pulse input 1l/1imp
Outputs	Regulator value output

MEASURE DRAWINGS



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AQUA Processor M 5700 C

- TOUCH screen LCD display
- Easy user-unit communication
- Communication with PC and SCADA software
- Self-control and indication of faults
- Expandable and system adaptable (multipoint dosing)
- Data history and digital communication

GENERAL

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
- 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.

AQUAProcessor M 5700 C TOUCH secondary function is to **control complete station**: booster pump control, empty cylinder control, chlorine gas leakage control, chlorine gas neutralisation system control, emergency cylinder shut off system control, fan 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.

Available regulation types for automatic dosing of chlorine gas in water:

- flow-proportional controller
- residual chlorine controller
- 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.

ORDER CODE

M 570 _ C / S

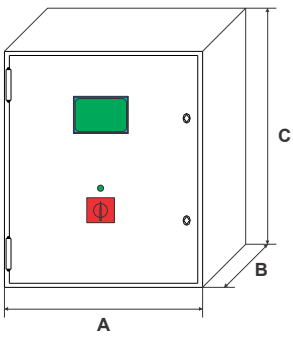
Model
Number of dosing points
Gas type
LCD size

OPTIONS:
- **Number of dosing points:**
  - **"1"** - *One dosing point flow proportional and/or residual controller*
  - **"2"** - *Two dosing points flow proportional and/or residual controller*
  - **"3"** - *Three dosing points flow proportional and/or residual controller*
  - **"X"** - *Multi dosing points flow proportional and residual controller*
- **Gas type: "C" =** chlorine
- **LCD size**: "**S**" for standard 3,5'' LCD display; 5'' and 7''LCD available on request!

TECHNICAL DATA

Power supply:	220 VAC
Display:	min. 3,5'' TOUCH LCD to 7" TOUCH LCD
Analogue inputs:	min 4 x 4-20 mA (expandable)
Analogue outputs:	min. 2 x from 4-20 mA (expandable)
Digital outputs:	min. 4 outputs (expandable)
Digital inputs:	min. 4 inputs (expandable)
Digital comm:	Modbus, Ethernet, CAN
AC Supply:	24 V AC - For motor valves and residual analysers
Protection:	IP 65
Power consumption:	min. 20W ... (depending on configuration)

MEASURE DRAWINGS



Dimensions:

M 5701 C (3,5"LCD - standard): **A**=405mm , **B**=200mm, **C**=650mm
M 5701 C (5" or 7"LCD - optional): **A**=510mm , **B**=250mm, **C**=650mm

M 5702 C (3,5"LCD - standard): **A**=405mm , **B**=200mm, **C**=650mm
M 5702 C (5" to 7"LCD - optional): **A**=510mm , **B**=250mm, **C**=650mm

Dimensions may vary depending on the configuration!
Other cabinet dimensions on request!

Automation

- Modular construction
- Touch screen
- Easy installation and service
- Digital protocols CAN, MODbus,PROFIbus, ETHERNET...
- WEB servers, SCADA control systems

Advantages:

- Greater reliability and reproducibility
- Better monitoring, management and process control
- Easy diagnostics and error fixing
- Alarm control and ispection
- Keeping records of events
- Lower power consumption
- Easy maintenance

GENERAL

Programmable controllers are used in automation of processes in drinking and swimmingpool waters, and in industry for processes of chemical water treatment, management and control of filter systems, management of small and large pumping stations and pool complexes, for connecting facilities to each other (GSM, GPRS, FM) and for the data transfer control systems (SCADA, web servers).
When designing automation processes programmable controllers are indispensable due to modular construction (INPUT—OUTPUT Units), ease of integration into digital networks, and support for digital communication protocols (CAN, Modbus, Ethernet, ...).
All these benefits are also taken into account in the development of our measurement and control devices and actuators, which also support CAN and digital Modbus protocol. This means easier and especially faster integration of the metering and control equipment to controllers and control systems.
We maintain already implemented projects, and offer professional assistance to the users of our equipment in its integration into automation processes.

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Compact swimming pool measurement & regulation unit M 5265 C

- 3 measuring electrodes: platinum / platinum + reference electrode
- Continuous measurements: free chlorine, pH, Redox, Chlorine dioxide, temperature
- 2 analog and 3 digital outputs for metering pumps and motor valve
- Stable measurement - open flow measuring cell with constant flow

⇒ ***CONTINUOUS CLEANING OF THE MEASURING ELECTRODES BY A STEPPER MOTOR***

⇒ ***INSIGHT INTO THE MEASURING CELL PARAMETERS TO QUICKLY DETECT ANY EFFECT OF DISTURBING ELEMENTS***

⇒ ***MODULAR ELECTRONICS FOR SIMPLE SERVICE***

⇒ ***ALARM FOR MEASURING CELL OR REGULATION ERRORS***

⇒ ***CANBUS COMMUNICATION TO EASILY CONNECT SEVERAL UNITS TO THE CONTROL UNIT***

⇒ ***CLEAR GRAPHICAL DISPLAY FOR ALL MEASURED PARAMETERS***

⇒ ***ISOLATED CURRENT OUTPUTS***

GENERAL

The unit M 5265C is intended for measurement and control of processes in swimming pool water.
Basic parameters of measurement are:
free Chlorine, Chlorine dioxide, pH, Redox and temperature.
The unit provides the possibility to combine different measurement and regulation modules, that can measure only one parameter (chlorine, pH, redox potential), or a combination of modules, that measure all above mentioned parameters.
Amperometric measurement method of chlorine with two electrodes and an additional third reference electrode provides constant and continuous measurement.

The unit consists of the following subassemblies:

- a mechanical filter sample
- an indicator of the flow of the sample
- self-cleaning chlorine measuring cell
- pH and redox electrodes
- a measurement & regulationmodule
- cover

User interfaces for parameterization and calibration are carried out via graphical LCD displays, for each measured parameter separately.
Control and regulation of disinfection processes are enabled by analog and digital outputs and CANbus digital communication. Control modules support connection of actuators - dosing pump with analog and digital inputs as well as solenoid and motorized valves - for two-point and continuous dosing.
Software design for control modules contain several protective mechanisms against overdosing.

ORDER CODE

M 526 5C / A D C R 1 S F

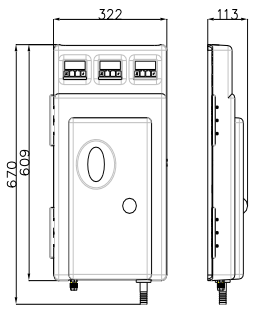
- **Measuring cell type**
- **Automatic temp. compensation - Default**
- **CAN communication - Default**
- **Measuring output options (4-20mA) - Default**
- **Regulator - Optional**
- **Measuring range - See Options below**
- **Reference electrode - Optional**
- **Flow indicator - Default**

OPTIONS:
- **Measuring cell type:** **"5"** for Au-Cu
  "6" for Pt-Pt
  "7" for Au-Pt
- **Regulator:** yes **"R"**, without it the letter is not written in
- **Measuring range**: "**1**" for 0 to 1 mgCl2/l
  "**2**" for 0 to 2 mgCl2/l
  "**X**" on request!
  "**pH**" for 2 to 12 pH
  "**Redox**" for 0 to 1000 mV
- **Reference electrode**: yes **"S"**, without it the letter is not written in

TECHNICAL DATA

Technical data:	**pH**	**Redox**	**Cl2**
Measuring range (M.R.)	0 -14 pH	-2000 +2000 mV	0 - 1 mg/l
Measured value resolution	0,01pH	1 mV	0,01 mg/l
Deviation of indication, measured value	max. 0,5% from MR	max. 0,5% from MR	
pH range			6,5....8,5
Automatic temperature compensation range	0...+50ºC		
Electrical data:			
Supply voltage	24 VAC±20% or 24 VDC±20%		
Power	2 W Maximum	2 W Maximum	5 W Maximum
Isolation voltage	500V ; to sensor, output signal, regulator connections		
Current output connector (each electronic):			
Modules	2		
Current range	2 x 4...20 mA	2 x 4...20 mA	2 x 4...20 mA
Load	At 24 VDC 800E		
Output range	adjustable to (M.R.)		
Output Mode	Selectable		
	pH output	Redox output	Free chlorine output
	Temperature		Temperature
	Regulator output	Regulator output	Regulator output
Regulator connector (each electronic):			
Regulator	3 point or PI regulator		
Outputs	3 x 24 VAC / 250 mA		
Inputs	3 x 24 VAC		
Mode	Selectable		
	- Motor Control		
	- Pump Control		
General data:			
Ambient temperature	-10...+50ºC		
Relative humidity	10...95 % non-condensation		
Control unit protection	IP 65		
Dimensions	322 x 670 x 113		
Weight	7,0 kg		
Flow	Minimum 0,5 l/min		
Water conductivity	> 50µS		

MEASURE DRAWINGS



4. Safety equipment for Chlorine handling

Designed to feed gas chlorine and with minor alterations also other gases (SO2, CO2, NH3), working on the indirect vacuum principle.
Our systems ensure optimum levels of dosage with minimal chemicals and power consumption even with very high capacities.
Dosing Devices and Systems comply with safety regulations of European and ASA standards, and Vacuum Regulators also with the strict safety standard DIN 19606.
Application: potable and swimmingpool water treatment

CHLORINE GAS LEAK DETECTOR

CHLORINE GAS DETECTION SENSOR

EMERGENCY SHUT OFF SYSTEM

NEUTRALISATION SYSTEM

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Email: justin@eurohitech.biz

Gas leak detector M 4510 C

- Up to four sensors possible
- 4 relay outputs
- 2 relay outputs for Fault indication
- Easy to install
- Manual test for alarm indicators
- Battery backup (optional)

GENERAL

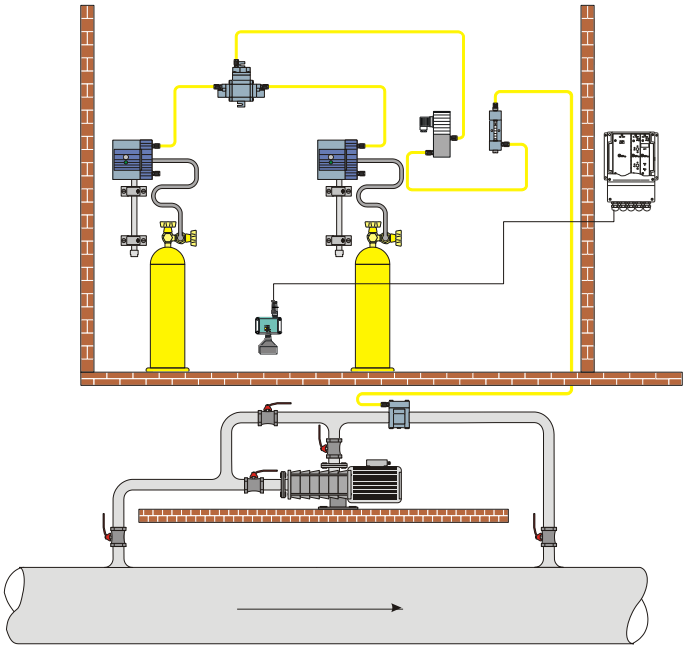
The M 4510 series Controlmatik ABW detection unit is assembled as separate signal evaluation unit with display, unit with two adjustable alarms and fault alarm, power supply unit and separate detection cell - probe. Battery backup is optionally available!

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
- neutralisation system

For detection cell see product information for Chlorine gas detection sensor M 2103 C.

Sensor in a separate housing.
Easy to replace!

APPLICATION EXAMPLE:



ORDER CODE

M 4510 C1 / 1 B

- **Model**
- **Gas type**
- **Number of M 2103 probe units**
- **Battery backup**

OPTIONS:
- **Gas type: C 1** = Cl2 chlorine Hi; **C 2**= Cl2 chlorine Low; **D** = ClO2 chlorine dioxide;
  O = O3 ozone; **S** = SO2 Sulfur dioxide;
  X = on request
- **Number of M 2103 probe units: "1"** for 1 unit, **"2"** for 2 units, **"3"** for 3 units, **"4"** for 4 units
- **Battery backup B:** battery uninterrupted power supply included

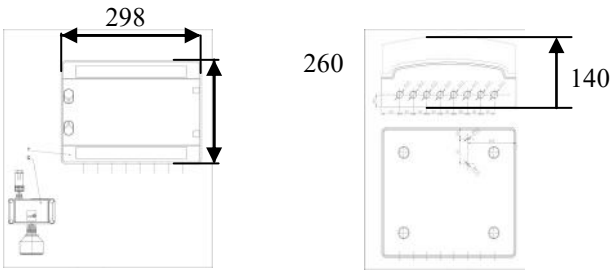
TECHNICAL DATA

Detector unit (M 4510 C):	**1 and 2 Sensors unit**	**3 and 4 Sensors unit**
Measuring unit	PPM	PPM
Temperature range	from - 10 to + 50 °C	from - 10 to + 50 °C
Resolution at 20 °C	0,1 PPM	0,1 PPM
Repeatability	2%	2%
Range	Cl2 Hi 0 - 20 PPM ; Cl2 Low 0 - 10 PPM; ClO2 0 - 10 PPM; O3 0 - 100 PPM; SO2 0 - 20 PPM;	Cl2 Hi 0 - 20 PPM ; Cl2 Low 0 - 10 PPM; ClO2 0 - 10 PPM; O3 0 - 5 PPM; SO2 0 - 20 PPM;
Supply voltage:	220V, 50/60Hz	220V, 50/60Hz
Fuse:	1 A (T)	1 A (T)
Analogue output:	2 x 4-20 mA	NONE
Output voltages:	0-10 V DC (on request)	NONE
Current input:	2 x 4 - 20 mA for sensor 1 and sensor 2	4 x 4 - 20 mA for all sensors
Consumption:	approx. 4 VA	approx. 4 VA
Battery backup (**B**):	approx. 8 hours	approx. 8 hours
Measuring loop resistance:	740 Ohm	740 Ohm
Display:	LCD 4 lines, 12 characters	LCD 4 lines, 12 characters
Relay output:	4 relay output; max: 250V/8A	4 relay output; max: 250V/8A
Weight:	M 4510: approx. 2.5 kg M 2103: 0,5 kg	M 4510: approx. 2.5 kg M 2103: 0,5 kg
Housing protection type:	IP 65	IP 65

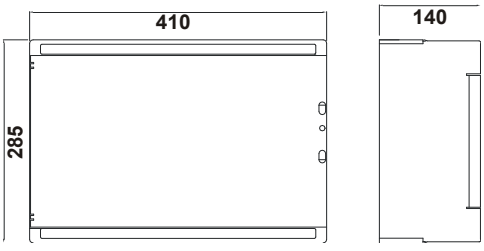
Probe unit (M 2103):
For data see M 2103 documentation

MEASURE DRAWINGS

M 4510 C/1, M 4510 C/2
M 4510 C/3, M 4510 C/4



M 4510 C/1B, M 4510 C/2B
M 4510 C/3B, M 4510 C/4B



Chlorine gas detection sensor M 2103 C

- No chemical additives necessary
- Signal proportional to gas concentration
- Minimal maintenance costs

GENERAL

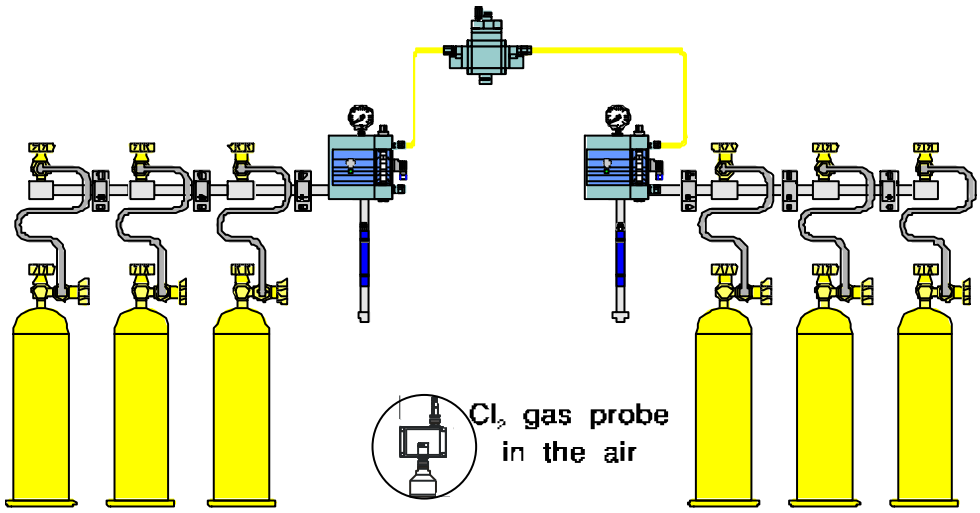
The M 2103 C series Controlmatik ABW chlorine gas detection sensor is designed to detect and indicate chlorine concentrations in the air and to provide safety in storage areas and in places where the gaseous chlorine and Sodium Hypochlorite are dosed.

The sensor is mounted in an IP 65 housing and is connected via connector to the amplifying electronics, which is mounted on the same housing.

The sensor is connected to the unit with two-wire current loop signal and operates on the basis of chemical cell and a diffuse capillary blockade. The hydrochloric acid concentrate in the chemical cell is regenerated during the chemical reaction and a free oxygen is released; the quantity of the released oxygen defines the signal at the output.

Sensor in a separate housing.
Easy to replace!

APPLICATION EXAMPLE:



ORDER CODE

M 2103 C / X

Model
Gas type
Detection range

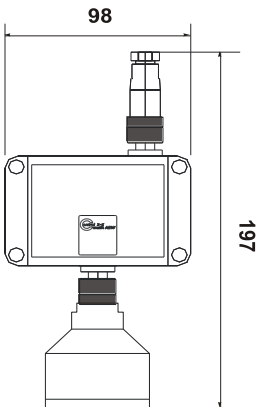
OPTIONS:
- **Gas type:** **C** = chlorine
  X = on request
- **Detection range:** **1** = 0 - 10 PPM
  2 = 0 - 20 PPM

TECHNICAL DATA

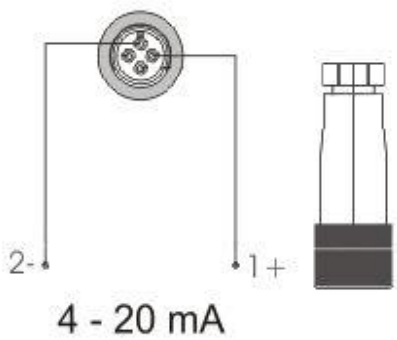
Measuring unit:	PPM*
Temperature range:	from - 20 to + 50ºC
Resolution at 20ºC:	0,1 PPM
Repeatability:	2%
Measuring range:	0-10 PPM, 0 - 20 PPM
Pressure operating range:	from 90 to 1100 mBar
Relative moisture operating range - permanently:	15-90% (Humidity)
Product lifetime (without shock concentrations):	2 years
Current output:	4 - 20 mA
Supply voltage:	9 - 26 VDC
Protection:	IP 65
Dimensions:	98 x 197 x 50 mm
Weight:	0.5 kg

** 1 PPM Cl2 = 3,214 mgCl2/m3*

MEASURE DRAWINGS



Connection schematics :



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Emergency Shut off System M 3800 EPESS

- Electric power, Battery back up
- Designed for both ton containers and gas cylinders
- Attached to valve body
- Simple “clamp on system“ allows actuator attachment and detachment from the valve body in seconds
- No tools necessary, adaptable to fit any valve
- Adjustable torque to fit any valve and specific regulations and requirements
- Valve closure in less than 4 seconds

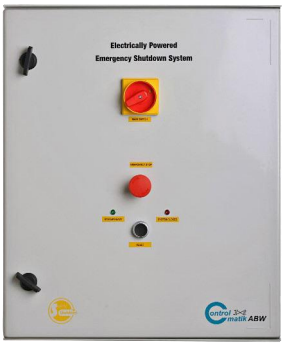
GENERAL

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.

INSTALLATION

Each electrical actuator is individually fixed onto cylinder or container valve and connected to the control panel. Actuator is delivered with 10m of special connection cable. Maximum distance between control panel and actuator is 10m (length of cable).

One control panel cabinet controls up to 10 electrical actuators!

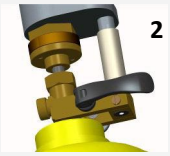


ORDER CODE

Electrical actuator

M 3800 EPESS -EA / X

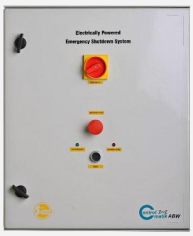
Valve type _____



OPTIONS:
Valve type:
1 = Hand—wheel adjustable (for containers)
2 = Square stem adjustable (for containers)
3 = Hand—wheel fixed (for cylinders)
4 = Square stem adjustable (for cylinders)

NOTE:
Hand-wheel and square stem valve dimensions have to be specified with order!

Control panel cabinet



M 3800 EPESS -CP / X

Number of electrical actuators _____

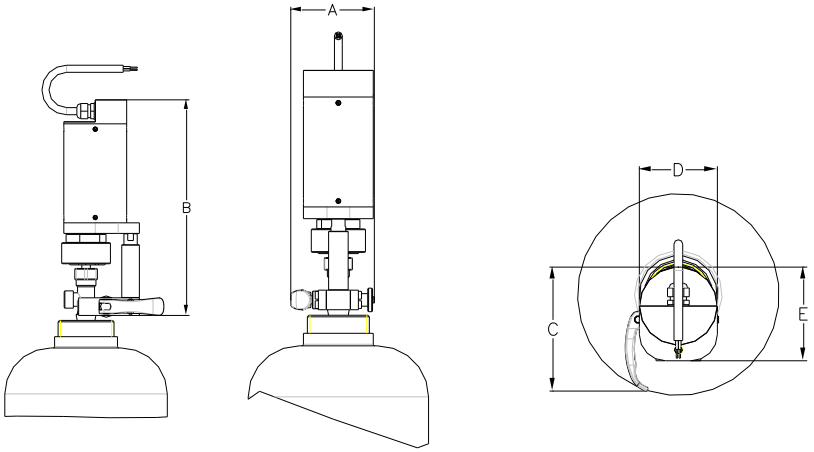
OPTIONS:
Number of electrical actuators:
2 = max. 2 electrical actuators
6 = max. 6 electrical actuators
10 = max. 10 electrical actuators

TECHNICAL DATA

Supply voltage: 230V, 50/60Hz
Control panel cabinet Display: LCD 4 lines,12 characters
Relay output: 230 V 3A ind. burden; 8A ohm. burden
Battery back up: up to 8 hours

MEASURE DRAWINGS

Dimensions table:
A — closed 106 mm max, / open 173 mm max.
B — min. 290 mm / max. 318 mm
C — 142 mm
D — 90 mm
E — 107 mm



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Neutralisation system M 6100 C

- Neutralises Cl2 in case of uncontrolled gas leakage
- 99,96% of neutralization achieved inside the suction ejector
- Provides safety in chlorine storage area
- Automatic operation
- Easy to assemble and to maintain

GENERAL

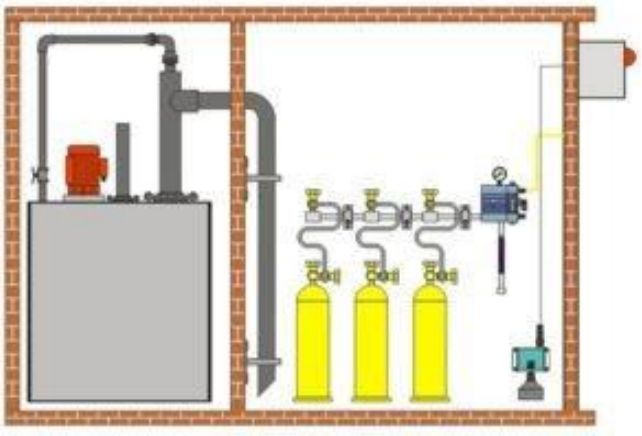
Gaseous chlorine neutralisation system is designed to protect gaseous chlorine storage areas, devices for gaseous chlorine dosing and people. The most common cause of uncontrolled chlorine leakage are negligence, inadequate handling or a fault on the pressure part of chlorine installation, i.e. on the elements between the chlorine cylinder and the vacuum regulator (bad or worn-out seals, a damaged gas cylinder valve etc.)

OPERATION

The chlorine neutralization device is activated manually or automatically by chlorine gas leak detector – with probe which detects the presence of gaseous chlorine in the room. The pump is activated in order to pump the neutralization solution through the ejector, creating vacuum, and thus sucks chlorine from the storage room directly into the solution which neutralises it. The mixture of the chlorine atmosphere and the solution provokes a chemical reaction that completely neutralise the chlorine. The clean air is sent back to the atmosphere through the air hole of the neutralization device.

Neutralisation device main parts:

a) Neutralization solution tank
b) Special high resistant pump for ejector activation and mixing of neutralization solution. The pump is resistant to aggressive liquids and temperature media up to 60°C .
c) Special vacuum ejector for contaminated air suction (capacity = 150 m3/h)



ORDER CODE

M 6100 C / X

- **Model**
- **Gas type**
- **Capacity**

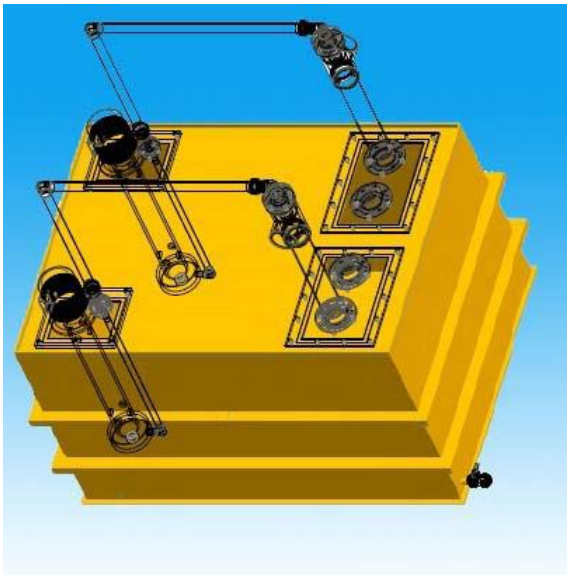
OPTIONS:
- **Gas type: "C"** = chlorine
- **Capacity: 50 =** 50 kg/h
  100 = 100 kg/h
  300 = 300 kg/h
  400 = 400 kg/h
  500 = 500 kg/h
  Other capacities are available on request!

TECHNICAL DATA

Model	Capacity	Power	Suction capacity	Reservoir volume
	Kg	kW	m3/h	l (min)
M 6100 C/50	50	2,2	150	900
M 6100 C/100	100	2,2	150	1800
M 6100 C/200	200	2,2	300	3600
M 6100 C/300	300	2,2	300	5400
M 6100 C/400	400	2 x 2,2	600	7200
M 6100 C/500	500	2 x 2,2	600	9000

Reservoir shape and dimensions:

Controlmatik offers standard and custom made neutralization device dimensions!



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5. Mobile units for water treatment

Designed to feed gas chlorine and with minor alterations also other gases (SO2, CO2, NH3), working on the indirect vacuum principle.
Our systems ensure optimum levels of dosage with minimal chemicals and power consumption even with very high capacities.
Dosing Devices and Systems comply with safety regulations of European and ASA standards, and Vacuum Regulators also with the strict safety standard DIN 19606.
Application: potable and swimmingpool water treatment

COMPACT MOBILE UNIT FOR WATER FILTRATION AND DISINFECTION

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Compact unit for water filtration & disinfection

- Assembled in a portable container
- Perfect solution for small water treatment plants
- Disinfection before or after filtering
- Water free of germs and odour
- Automatic high performance filter

GENERAL

The COMPACT unit for water filtration and disinfection is a system made of very well proofed components. When the water leaves the unit is free from germs, odourless and naturally tasting.

The unit consists of :

- **dosing pumps** for flocculation and disinfection
- **automatic high performance filter** and
- all the necessary **mounting and piping materials**

It is assembled in a portable container which is placed in the area of water reservoir.

OPERATION

The medium for flock build up is dosed into the water in the inlet part of the device. Water then passes through the filter where it is filtered according to the technological procedure.

The filter is filled with (filling of the filter depends on technological procedure and water quality analysis) three layers of sand of different granulation and with a layer of hydro-anthracite. Disinfection can be made after filtering (in case water goes to the reservoir) or before filtering (in case water goes directly to the consumer).

Capacity of filtering can be enlarged by combining more filters together.

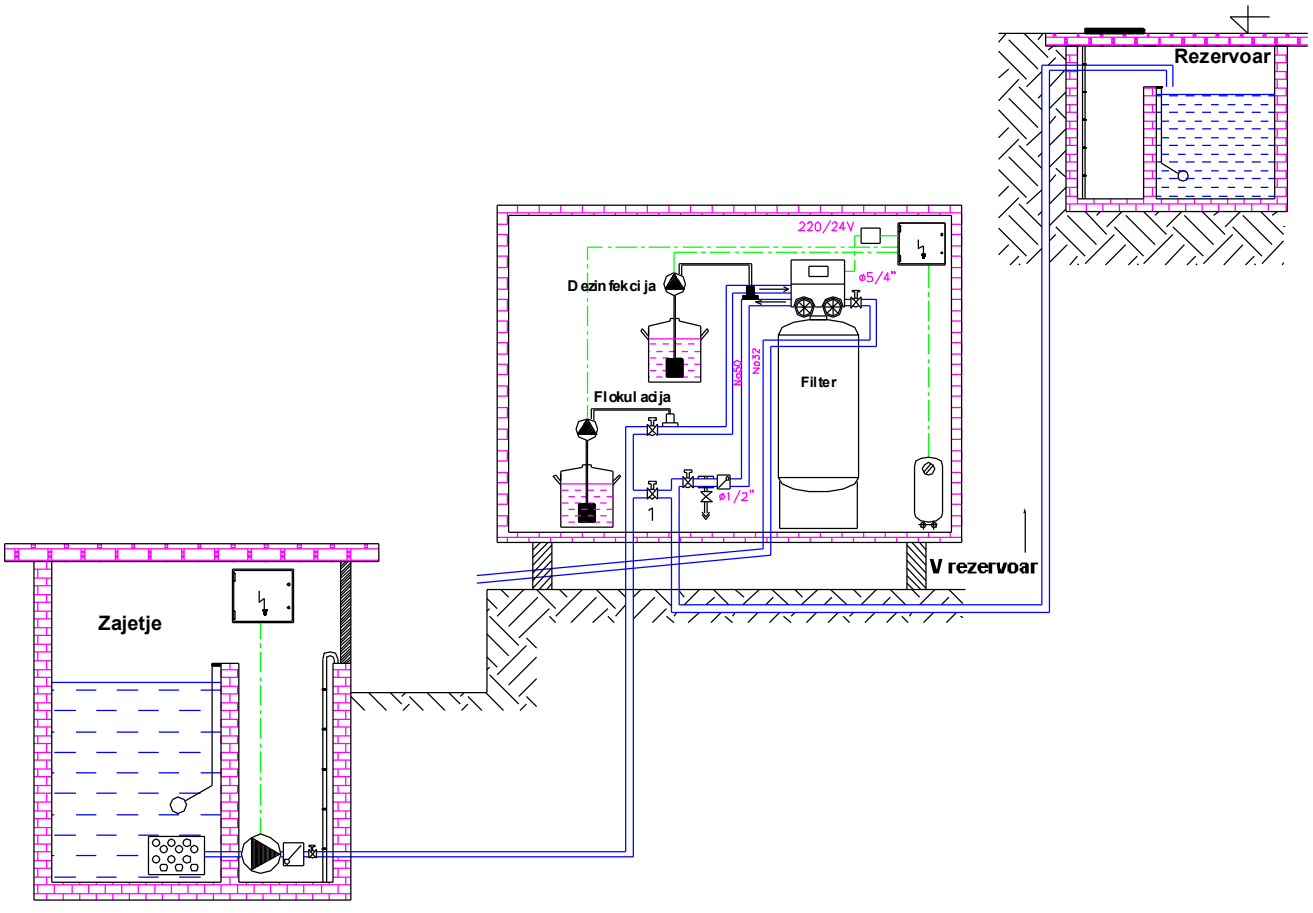
TECHNICAL DATA

Filtration speed for drinking water must be less than 20 $m_3/h/m_2$

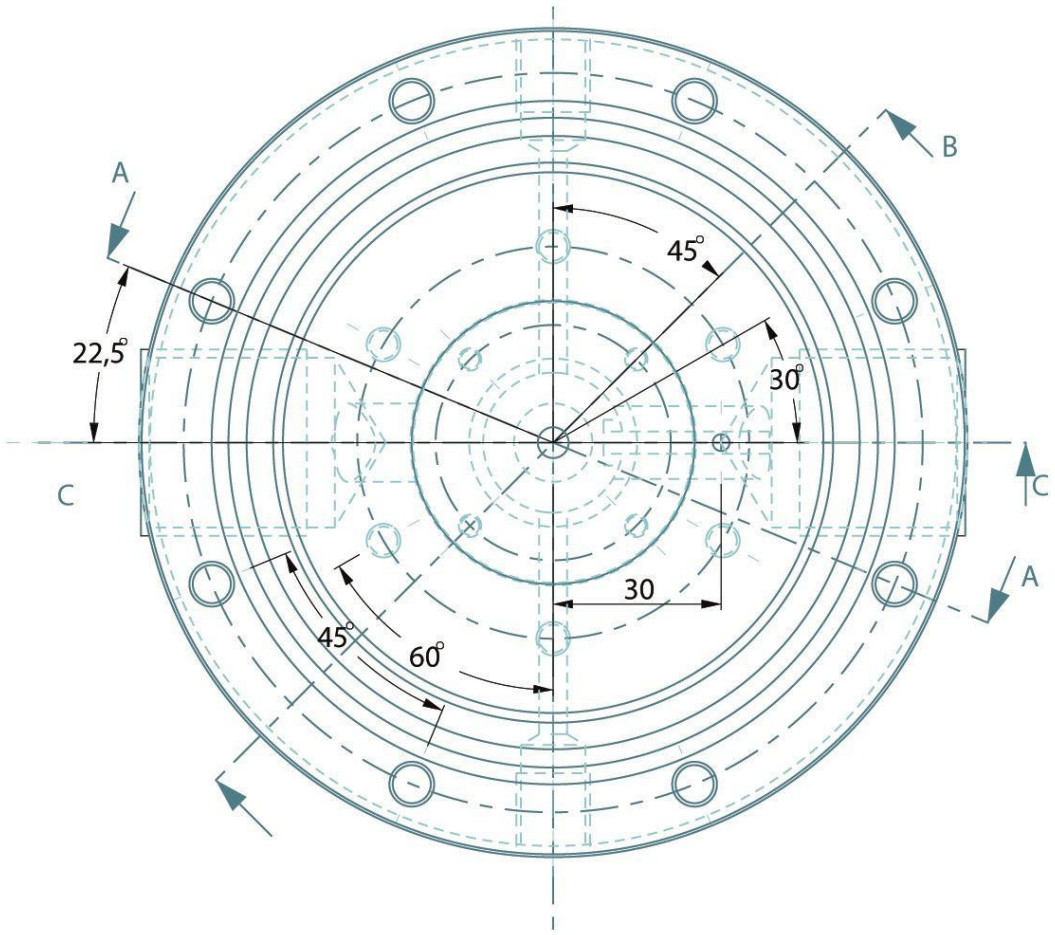
Cleaning of the filter is full automatic, according to the time settings(24h - 7days)

Flow capacities :
Small - Q = 0,7 - 3,0 m3/h

MEASURE DRAWINGS



Water is one of the basic elements of life and
It is our responsibility to take care of it and maintain it clean.
With our products we contribute to preservation of this invaluable source and better future on our planet.



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