

# Vaccuperm

Vacuum chlorine gas dosing systems

Your distribution partner:



DOSIERTECHNIK  
& PUMPSYSTEME



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be  
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Pos.	Component	Pos.	Component
B.1	Inlet filter	E	Vacuum regulator with empty chlorine cylinder
B.2	Inlet valve	E.1	Vacuum seal
C	Dosing regulator	F	Vacuum regulator with open pressure relief valve
C.1	Flowmeter	F.1	Pressure relief valve
C.2	Rate valve	F.2	Vent outlet
C.3	Differential pressure regulator		

## Benefits and applications

### Benefits

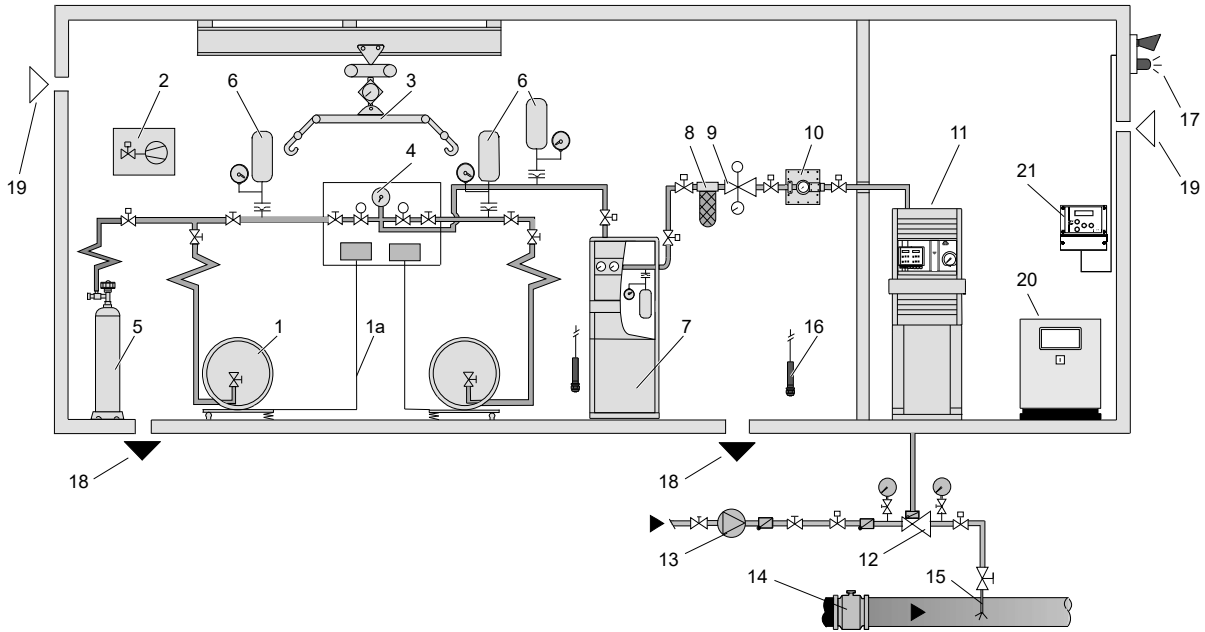
- Safe system using the vacuum principle
- Most economical way of disinfection
- Manufacturer has over 50 years of experience in disinfection with chlorine gas

### Applications

- Drinking water treatment
- Waste water treatment
- Industrial water treatment
- Cooling towers
- Swimming pools

## Vaccuperm chlorine gas dosing systems from 70 to 200 kg/h

Manual or automatic chlorine extraction from two banks of drums with evaporator



TM075188

Pos.	Component
1	Chlorine drum
1a	Chlorine drum scale
2	Controller for the pneumatic shut-off valve
3	Chlorine drum lifting device
4	185 change over device
5	Nitrogen rinsing device
6	Expansion tank with bursting disc
7	RV171(W) evaporator
8	LiquFilt 524 heated liquid chlorine trap with filter
9	544 pressure reducing valve
10	VGA-148 vacuum regulator
11	VGS-145 chlorine gas dosing system
12	VGS injector
13	CR booster pump
14	Flowmeter with 4-20 mA signal
15	Injection unit
16	Gas sensor
17	Horn and flashlight
18	Vent to a Grundfos chlorine gas neutralisation system
19	Ventilation of the building
20	Central control panel (SCADA)
21	Conex DIA-G gas warning system



# VACCUPERM - CHLORINE GAS DOSING SYSTEMS

## Accessories

### Injectors

Injectors create the vacuum for the transport of the chlorine gas into the water flow. They operate according to the principle of a water jet pump. An integrated non-return valve protects the chlorine gas dosing system from the ingress of chlorine solution. Injectors are available with different water connections for different counterpressures for the entire Vaccuperm range.

#### Benefits

- Low operating costs and high efficiency due to the special form of the nozzle
- A non-return diaphragm valve protects the dosing unit from the ingress of water or chlorine solution optimally
- Excellent price-performance ratio

### Change-over devices

Change-over devices ensure a continuous supply of a chlorine gas dosing system by changing over from the empty bank of cylinders or drums to the standby bank.

#### Benefits

- The version up to 10 kg/h operates without electrical power
- The 120 and 200 kg/h versions include motor valves and manual ball valves
- The 200 kg/h version includes a contact pressure gauge

### Evaporators

The automatic chlorine evaporator is specifically designed for use in large-scale chlorine dosing plants in water treatment facilities, for example 70 kg/h up to 200 kg/h. The heat transfer medium is either water containing anticorrosive and antifreeze agents or oil. Liquid chlorine is fed from storage containers into the heat exchanger of the evaporator. There it is heated up and transformed into a dry saturated gas. The evaporator is designed to minimize the possibility of recondensing.

#### Benefits




- Reliable and redundant safety concept
- Heat exchanger designed for dry saturated gas
- Pressure tested according to EN 13445
- Control panel with cable labelling
- Contact thermometer and contact pressure gauge
- Bursting disc with expansion tank

### Pressure reducing valves

The pressure reducing valve reduces the unregulated gas pressure of the gas containers to a constant operation pressure. It ensures the precise and pressure-independent functioning of the inlet valve of the vacuum regulator and prevents reliquefaction of the gas. If the reducing valve is additionally equipped with a servomotor, it protects the dosing unit against the penetration of liquefied gas by its immediate shut-off function in case of malfunctions of the system. Pressure reducing valves are available for dosing capacities from 40 kg/h to 200 kg/h and with supply voltages of 230 V, 50 Hz and 115 V, 60 Hz.

## Technical data

### Change-over devices

Change-over devices	189 vacuum change-over device	186 vacuum change-over device	185 change-over device
			
Dosing capacity	Up to 10 kg/h	Up to 120 kg/h	Up to 200 kg/h (gas) Up to 600 kg/h (liquid)
Position	Vacuum side	Vacuum side	Pressure side
Connections	PE hose 8/11 or 10/14	PVC pipe DN 20, DN 32 or DN 40	Flange DN 25 EN1092-1
Options	Connection for PVC pipe DN 15 Contact for remote indication Certificate 3.1 (EN 10204)	115 V; 50/60 Hz 230 V; 50/60 Hz Connections for PE-hose 8/11 or 10/14 Certificate 3.1 (EN 10204)	Bypass line 115 V; 50/60 Hz 230 V; 50/60 Hz Counterflange set Certificate 3.1 (EN 10204)

### Evaporators

Evaporators	RV 171 evaporator	RV 171W evaporator
		
Dosing capacity	Up to 100 kg/h and 200 kg/h	
Heat transfer medium	Oil	Water
Connections	Flange DN 25 EN1092-1	Flange DN 25 EN1092-1
Options	400 V; 50/60 Hz 415 V; 50/60 Hz Certificate 3.1 (EN 10204)	380 V; 50/60 Hz 400 V; 50/60 Hz 415 V; 50/60 Hz Certificate 3.1 (EN 10204)

### Additional accessories

Injectors	Pressure reducing valves	LiquiFilt
		



For more information, see the Vaccuperm Data Booklet:  
<http://net.grundfos.com/qr/i/99557091>



# VACCUPERM - CHLORINE GAS DOSING SYSTEMS

## for capacities from 10 kg/h up to 200 kg/h

Handling, transport and storage of chlorine for water disinfection is a challenge to systems engineering. This is the reason why the vacuum principle has been used in dosing systems for a long time already. The pressure of the chlorine gas is reduced to the vacuum. This method successfully avoids chlorine gas leakage. In the event of a pipe breakage, no chlorine gas can escape, only ambient air is drawn in. Vacuum chlorine gas dosing systems have two principal components.

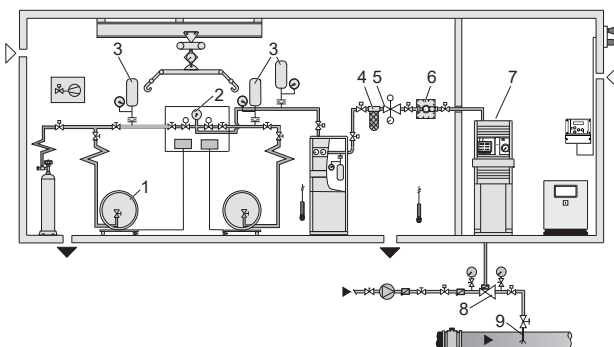
### Vacuum regulator

The vacuum regulator is a pressure reducing valve that reduces the pressure from the chlorine tank side to the negative pressure on the vacuum side. The valve opens when a sufficient vacuum is present on the outlet side. Additionally the vacuum regulator includes a pressure relief function.

### Dosing regulator

The chlorine gas volume flow is adjusted with the dosing regulator. This can be effected manually or automatically via motor control. The dosing capacity can be read at the integrated glass flowmeter. Dosing regulators are designed for constant and linear gas flow.

### Installation scheme



### Benefits

- Safe system using the vacuum principle
- Most economical way to disinfect water
- Over 50 years of experience in disinfection
- Every unit is 100 % factory-tested
- High accuracy
- Equipment is designed for safety




### Applications

- Drinking water treatment
- Waste water treatment
- Industrial water treatment
- Cooling towers

### Pos. Component

- 1 Chlorine drum
- 2 Automatic change-over device
- 3 Gas expansion tank with rupture disc
- 4 Heated liquid trap with filter
- 5 Automatic pressure-reducing valve
- 6 Vacuum regulator
- 7 Dosing system
- 8 Injector
- 9 Injection unit

## Technical data

Type	Vacuum regulator		Dosing regulator		
	VGS-147	VGS-148	VGS-141	VGS-143	VGS-145
					
Dosing capacity	Up to 40 kg/h	Up to 200 kg/h	0.1 to 2 kg/h 0.2 to 4 kg/h 0.4 to 8 kg/h 0.5 to 10 kg/h	1 to 20 kg/h 2 to 40 kg/h	3.5 to 70 kg/h 6 to 120 kg/h 10 to 200 kg/h
Accuracy	-	-	±4 %	±4 %	±4 %
Adjustment ratio	-	-	1:20	1:20	1:20
Measuring device	-	-	Flowmeter 300 mm length	Flowmeter 300 mm length	Flowmeter 300 mm length
Mounting	Header line Wall	Piping Wall	Floor Wall	Floor Wall	Floor Wall
Pressure connection	Groove flange DN25; PN40 , (EN 1092-1; Type 11; Form D)	Groove flange DN25; PN40 , (EN 1092-1; Type 11; Form D)	-	-	-
Vacuum connection	PVC pipe DN 20	PVC pipe DN 40	PE hose 10/14 PVC pipe DN20	PVC pipe DN 20	PVC pipe DN 40
Vent connection	PE hose 8/11	PE hose 8/11	-	-	-
Materials	<ul style="list-style-type: none"> <li>Enclosure: PVC</li> <li>Inlet valve: silver, special alloy, PTFE</li> <li>Springs: alloy C-4 coated</li> <li>Diaphragm: FEP</li> <li>Filter: PTFE</li> <li>O-Rings: FKM</li> </ul>		<ul style="list-style-type: none"> <li>Enclosure: PU, painted</li> <li>Pipes: PVC</li> <li>Springs: alloy C-4 coated</li> <li>Diaphragm: FEP</li> <li>Rate valve: PVC, PTFE</li> <li>Flowmeter tube: glass</li> <li>O-Rings: FPM</li> </ul>		
Options	<ul style="list-style-type: none"> <li>Contact pressure gauge</li> <li>Pressure inlet position left or right</li> <li>3.1 Certificate</li> </ul>		<ul style="list-style-type: none"> <li>Automatic control</li> <li>Supply voltage: 110-240 V; 50/60 Hz or 24 VDC</li> <li>Input/output signal: (0)4-20 mA</li> <li>Flowmeter scanning with 4-20 mA output</li> <li>3.1 Certificate</li> </ul>		
Benefits	<ul style="list-style-type: none"> <li>Integrated pressure-relief valve</li> <li>Reliable metal inlet valve</li> </ul>		<ul style="list-style-type: none"> <li>Linear gas flow</li> <li>Special rate valve</li> <li>Automatic or manual capacity adjustment</li> <li>Integrated differential-pressure regulator</li> <li>Vacuum gauge for injector vacuum</li> </ul>		



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