

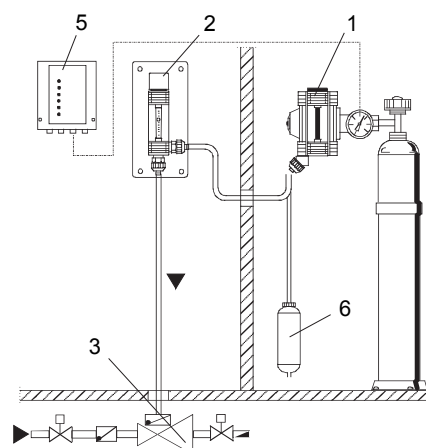
Vaccuperm 111 / 113

Vacuum gas dosing systems
for chlorine gas, ammonia, sulphur dioxide and carbon dioxide



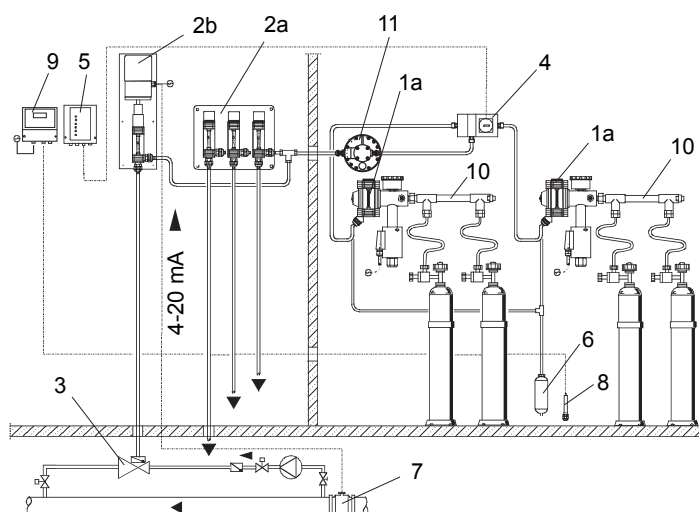
Modular system

- Vacuum regulator for direct mounting on a gas cylinder
- Dosing regulator for separate wall mounting
- Up to 10 m of vacuum line between both devices



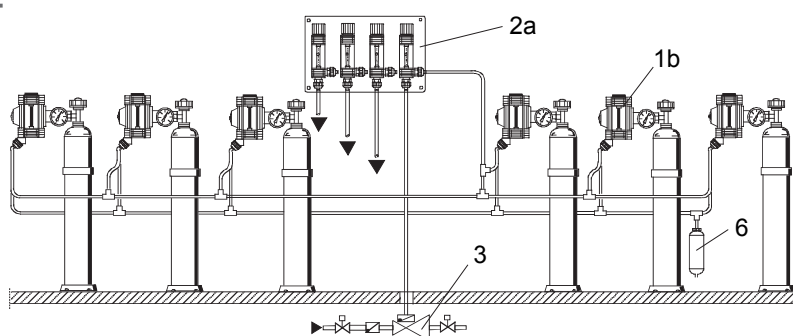
Dosing system with vacuum change-over device

- Continuous gas dosing without interrupting the process
- Two vacuum regulators for mounting on gas cylinder header lines
- Up to 4 dosing regulators can be installed separately
- If the first cylinder is empty, the 189 device immediately changes over to the next vacuum regulator at the full chlorine cylinder
- The safety valve avoids excess pressure in the vacuum lines leaving the dosing system



Dosing system for the simultaneous extraction from several cylinders

- If more gas is required, it can be extracted from several cylinders simultaneously
- Vacuum regulators are installed on several chlorine cylinders in series using T-pieces
- Single or multiple dosing regulators for separate installation



- 1 Vacuum regulator with manometer
 - 1a Vacuum regulator with liquid trap (heated)
 - 1b Vacuum regulator for serial installation
- 2 Single dosing regulator
 - 2a Multiple dosing regulator
 - 2b Dosing regulator with electric servomotor

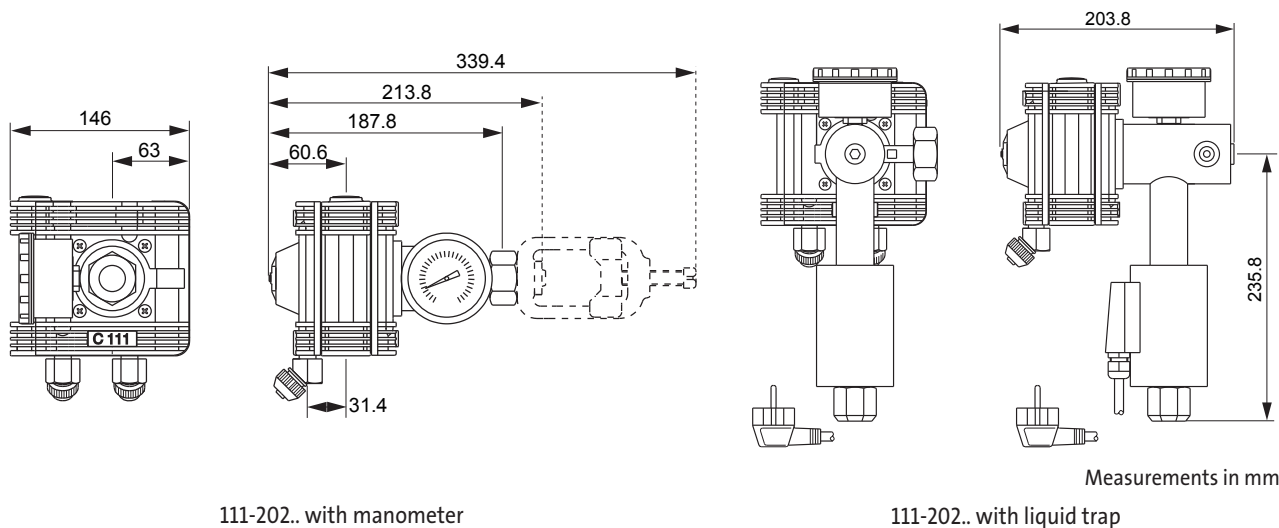
- 3 Injector with non-return diaphragm
- 4 Vacuum change-over device
- 5 Display unit for empty indication
- 6 Chlorine gas absorption cylinder
- 7 Flowmeter with current signal output

- 8 Gas sensor
- 9 Gasdetect gas warning device
- 10 Header line
- 11 Safety valve

Technical data

Medium	Chlorine gas (Cl ₂), ammonia (NH ₃), sulphur dioxide (SO ₂), carbon dioxide (CO ₂)	
Capacity ranges	Cl ₂ , SO ₂ : up to 4000 g/h; NH ₃ : up to 1800 g/h; CO ₂ : up to 2200 g/h	
Adjustment ratio	1 : 20	
Accuracy	± 4 %	
Measuring device	According to the floater principle, measuring tube 70 mm	
Material	Enclosure: Inlet valve: Springs: Diaphragm: Rate valve: O-rings:	PVC silver/PTFE, special alloy Hastelloy C coated FEP PVC Viton B
Connections	Pressure gas: Vacuum safety line:	union nut 1" (Cl ₂); union nut G 5/8" (SO ₂); union nut W 21.80 x 1/14 (NH ₃); pipe 6/8 (CO ₂) hose 8/11
Weight	Vacuum regulator: Dosing regulator:	2.3 kg 0.9 kg (1 regulator), 1.7 kg (2 regulators), 2.4 kg (3 regulators), 3.0 kg (4 regulator), 3.1 kg (1 regulator with servomotor)

Vacuum regulator 111



- With inlet valve and safety overpressure valve
- Prepared for manometer
- Optical empty indication
- 25 m of vacuum line (PE hose 8/11) with connections
- With gaskets for cylinder connection

Please indicate, if you require a different cylinder connection:

- Union nut G 5/8"
- Union nut G 3/4"
- Union nut 1.03"-14
- Union nut 1 1/4"
- USA yoke

Optional accessories > please indicate !

Technical data / regulator types

Gas	Connection	Capacity	Type
Cl ₂	Union nut 1"	max. 4 kg/h	111-202
NH ₃	Union nut W 21.80 x 1/14	max. 2 kg/h	111-202N
SO ₂	Union nut G 5/8"	max. 4 kg/h	111-202S
CO ₂	Pipe 6/8	max. 3 kg/h	111-202CO

Description
Manometer 0 - 16 bar , NG 63, with or without Min contact output
Residual pressure control 2 bar
Liquid trap , heating 230 V , cable with Euro plug
Liquid trap , heating 115 V , cable with USA plug
Vacuum regulator for serial installation
Testing agents for tightness check

Single dosing regulator 113-310...

- For operation with vacuum regulator 111-202
- With compensation regulator and measuring device
- 10 m of vacuum line (PE hose 8/11)
- Fastening included

Technical data / regulator types

Gas	Measuring range (g/h)	Type
Chlorine (Cl ₂)	2 – 40	113-310
Ammonia (NH ₃)	0.5 – 9	113-310N
Sulphur dioxide (SO ₂)	10 – 250	113-310S
Carbon dioxide (CO ₂)	25 – 500	113-310CO

Different measuring ranges (g/h) for 113-31.. and 113-39.. please indicate:

Cl ₂	NH ₃	SO ₂	CO ₂
5 - 100	2 - 30	5 - 75	5 - 70
10 - 250	5 - 90	10 - 190	10 - 170
25 - 500	20 - 220	30 - 450	20 - 360
50 - 1000	30 - 450	50 - 900	40 - 750
100 - 2000	50 - 900	100 - 1800	70 - 1500
150 - 3000	150 - 1800	400 - 4000	100 - 2200
400 - 4000			

Multiple dosing regulator 113-340...

- Up to 4 dosing regulators can be combined - with different or equal measuring ranges
- Max. dosing capacity 4000 g/h (Cl₂), 1800 g/h (NH₃), 4000 g/h (SO₂), 3000 g/h (CO₂)
- 10 m of vacuum line (PE hose 8/11) per regulator
- Please indicate the measuring range per regulator

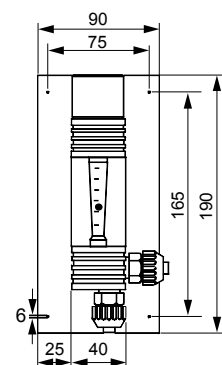
Technical data / regulator types

Gas	Part Numbers		
	double	triple	quadruple
Cl ₂	113-320	113-330	113-340
NH ₃	113-320N	113-330N	113-340N
SO ₂	113-320S	113-330S	113-340S
CO ₂	113-320CO	113-330CO	113-340CO

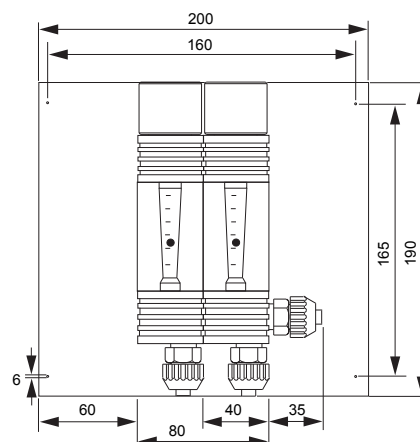
Examples for multiple chlorine gas dosing regulators

Part No 113..	Regul. 1 (g/h)	Regul. 2 (g/h)	Regul. 3 (g/h)	Regul. 4 (g/h)	Total max. 4000 g/h
-320	50 - 1000	150 - 3000	—	—	✓
-330	25 - 500	50 - 1000	100 - 2000	—	✓
-330	10 - 250	50 - 1000	150 - 3000	—	Exceeded!
-340	50 - 1000	50 - 1000	50 - 1000	50 - 1000	✓

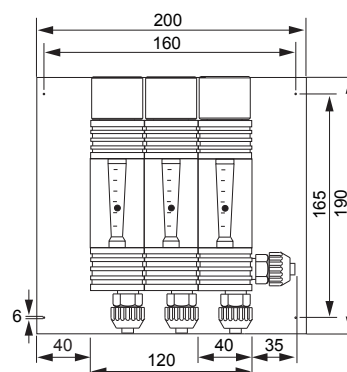
Measurements in mm



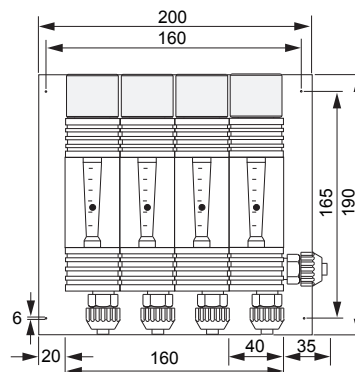
113-310.. single dosing regulator



113-320.. double dosing regulator



113-330.. triple dosing regulator



113-340.. quadruple dosing regulator

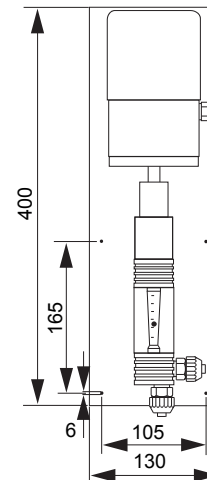
Dosing regulator 113-390... with electric servomotor

- Synchronous motor with limit switches, IP 55 enclosure
- Actuating time (0-100%): 108 s at 50 Hz, 87 s at 60 Hz
- Power consumption: 3 VA
- **Standard:** mains voltage of servomotor 230 V (50/60 Hz)
- **Option:** mains voltage 115 V - please indicate separately
- **Option: different measuring range**

with servomotor with 4-20 mA input

- For proportional control
- Manual/automatic switch
- Trimmer for zero point/limit value
- Keys for manual control open/close

Gas	Measuring range (g/h)	Type
Chlorine (Cl ₂)	2 – 40	113-390
Ammonia (NH ₃)	0.5 – 9	113-390N
Sulphur dioxide (SO ₂)	10 – 250	113-390S
Carbon dioxide (CO ₂)	25 – 500	113-390CO



Measurements in mm

with servomotor with potentiometer

- Single potentiometer 1000 Ohm
- Automatic control on request

Gas	Measuring range (g/h)	Type
Chlorine (Cl ₂)	2 – 40	113-395
Ammonia (NH ₃)	0.5 – 9	113-395N
Sulphur dioxide (SO ₂)	10 – 250	113-395S
Carbon dioxide (CO ₂)	25 – 500	113-395CO



113-390/-395.. dosing regulator
with servomotor



111-202xx
vacuum regulator



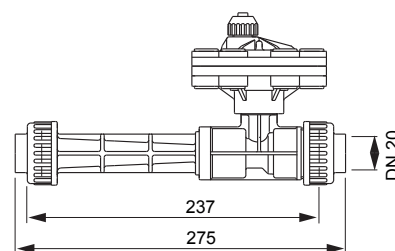
113-310xx
dosing regulator



113-330.. triple dosing regulator

PVC injectors

- With non-return diaphragm
- FEP diaphragm, PTFE piston, PTFE coated spring
- Water connections for PVC pipe 20/25
- Vacuum connection for PE hose 8/11

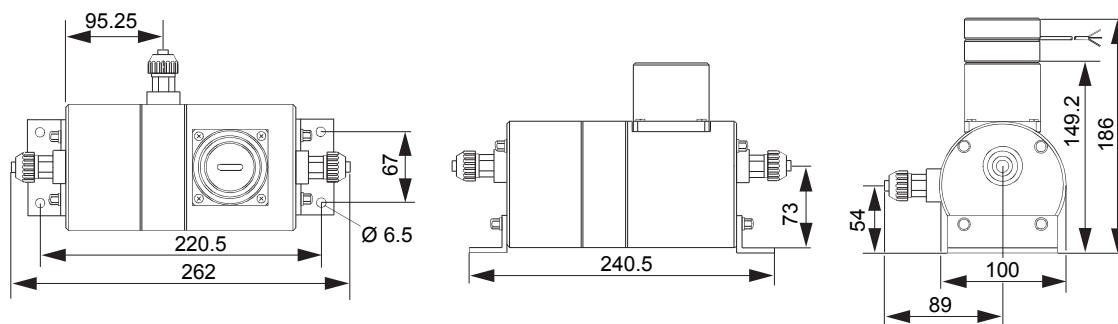


Technical data / Order data

Max. capacity (g/h)	Water flow (l/h)	Admission pressure (bar)	Backpressure (bar)	Order No 545-....-	
				Cl ₂	NH ₃ , SO ₂ , CO ₂
500	300 - 780	2 - 16	0 - 7	-0500-1	-0500-17
1000	550 - 1350	2 - 16	0 - 7	-1000-1	-1000-17
2000	850 - 2200	2 - 16	0 - 7	-2000-1	-2000-17
4000	1200 - 3300	2 - 16	0 - 7	-4000-1	-4000-17

Vacuum change-over device

- For combining 2 vacuum regulators with a dosing regulator
- Vacuum connection PE hose 10/14



Order data

Description	Type
with optical indication of the position battery I or battery II (please indicate!)	189-010

Option > please indicate:

- Additionally with 2 Reed contacts for remote transmission of the empty signal, max. 50 V/1 A/50 W

Accessories empty indication

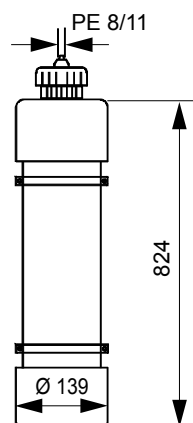
Description	Order No
Display unit for empty indication, 115 V	332-2012
Display unit for empty indication, 230 V	332-2015
Wall mounting enclosure for display unit	300-210

Chlorine gas absorption cylinder

- PVC
- Connection for PE tube 8/11,
- 5 l content
- Filled with 4 kg absorbent
- Absorption capacity 450 g Cl₂,
- Fastening included

Order data

Description	Order No
Absorption cylinder, filled	524-311
4 kg of granulate for refilling	553-225



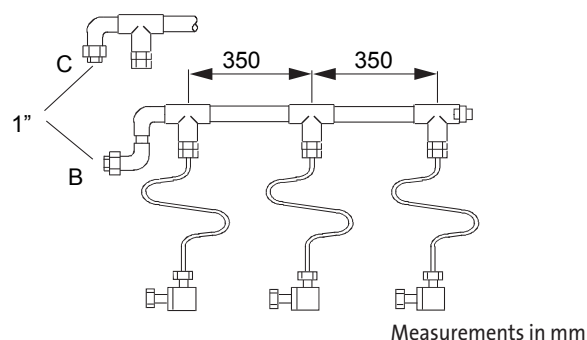
Measurements in mm

Chlorine cylinder header line

- Lacquered steel header line according to DIN 2441
- Flexible copper lines and connection valves

Order data

Number of bottles	Type	
	B:	C:
	111 without liquid trap	111 with liquid trap
2	542-622	542-632
3	542-623	542-633
4	542-624	542-634
5	542-625	542-635
6	542-626	542-636



Please indicate, if you require other cylinder connection valve threads:

- 1"
- G 3/4"
- G 5/8"
- 1.03"-14
- 1 1/4"
- Connection USA yoke

Safety valve

Description	Order No
Safety valve for up to max. 10 kg dosing quantity	543-010

Spare parts sets for chlorine

Spare parts sets for 111-202 vacuum regulator with or without limiting nozzle	Order No
without liquid trap: O-rings, filter, valve seat, pressure spring and protection ring	553-594
with liquid trap: O-rings, filter, valve seat, pressure spring and protection ring	553-605
Spare parts sets for 113 dosing regulator / each regulator	
O-rings, flat gasket, valve seat and protection ring	553-602

for NH₃, SO₂, CO₂

Spare parts sets for vacuum regulators 111-202N / -202S / -202CO with or without limiting nozzle	Order No
without liquid trap: O-rings, filter, valve seat, pressure spring and protection ring	553-608
with liquid trap: O-rings, filter, valve seat, pressure spring and protection ring	553-613
Spare parts sets for 113 dosing regulator / each regulator	
O-rings, flat gasket, valve seat and protection ring	553-611

for injectors

Spare parts sets	Order No
O-rings, piston, flat gasket, valve seat and diaphragm	553-1050

Installation accessories

Description	Order No
Chlorine cylinder holding clip for cylinder ø of about 270 mm	505-018
PE hose 8/11 (please indicate the length you require in meters)	526-131/xx
Vacuum connection set 10 m PE hose 8/11 and 2 T-pieces with connection screwings	526-133
Coupling with 2 union nuts for PE hose 8/11	526-132
Coupling with 1 union nut for PE hose 8/11 and 1 union nut for PE hose 10/14	526-134
Coupling with 1 union nut for PE hose 8/11 and adhesive bushing for PVC pipe 12/16	526-135

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Subject to change..