

Product Information

Vacuum gas dosing systems 111 / 113

for safe, variable and precise dosing
of chlorine gas, ammonia, sulphur dioxide and carbon dioxide



Dosing regulator 113 for chlorine gas quantities up to 4 kg/h

reliable gas dosing following the indirect principle according to DIN 19606

Vacuum regulator 111 for direct mounting on a gas cylinder

with gas inlet valve, filter and safety overpressure valve

High operating convenience

easy flow adjustment and easily readable indication,
automatic optical empty signal

Modular design for a variety of component combinations

multiple regulators with up to 4 units with different capacities
can supply several water cycles simultaneously

ALDOS

A Grundfos Company

Different versions for various applications

A Modular system

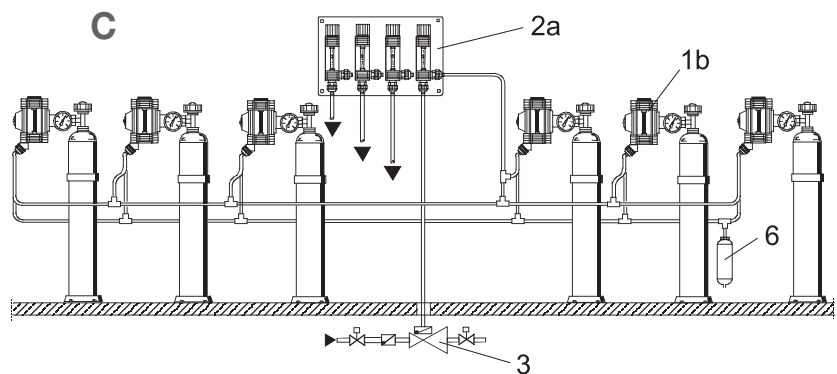
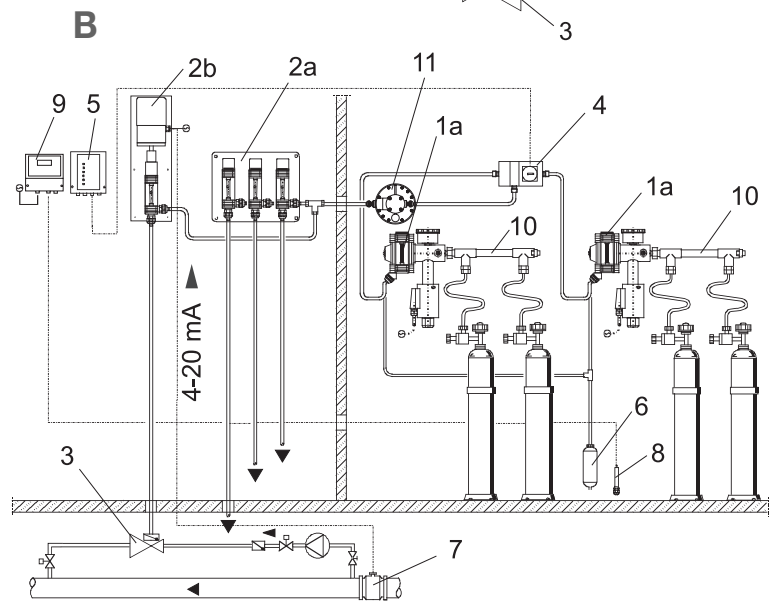
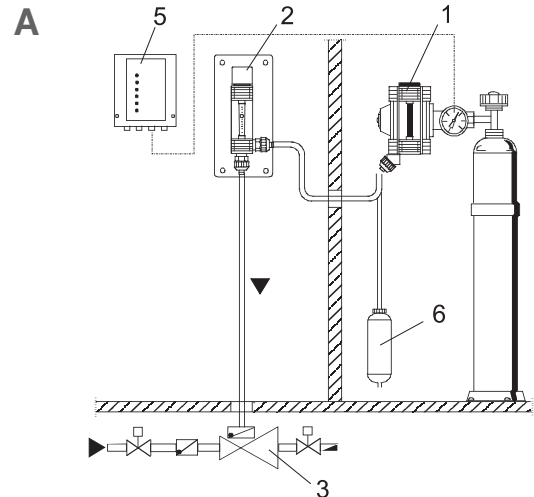
- Vacuum regulator for direct mounting on a gas cylinder
- Dosing regulator for separate wall mounting
- Up to 10 m of vacuum line between both devices

B 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
- The first cylinder being empty, the device changes immediately over to the next vacuum regulator at the full gas cylinder
- The safety valve avoids excess pressure in the vacuum lines leaving the dosing system

C 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 | 5 Display unit for empty signal |
| 1a Vacuum regulator with liquid trap (heated) | 6 Chlorine gas absorption cylinder |
| 1b Vacuum regulator for serial installation | 7 Flowmeter with current signal output |
| 2 Single dosing regulator | 8 Gas sensor |
| 2a Multiple dosing regulator | 9 Gas warning device Gasdetect |
| 2b Dosing regulator with electric servomotor | 10 Header line |
| 3 Injector with non-return diaphragm | 11 Safety valve |
| 4 Vacuum change-over device | |

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: PVC Inlet valve: silver/PTFE, special alloy Springs: Hastelloy C coated Diaphragm: FEP Rate valve: PVC O-rings: Viton B
Connections	Pressure gas: 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) Vacuum safety line: hose 8/11
Weight	Vacuum regulator: 2.3 kg Dosing regulator: 0.9 kg (1 reg.), 1.7 kg (2 reg.), 2.4 kg (3 reg.), 3.0 kg (4 reg.), 3.1 kg (1 reg. with servomotor)

Vacuum regulator 111-202.. (N/S/CO)

- 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

Technical data / Regulator types

Gas	Connection	Capacity	Part No.
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

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 !

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.. (N/S/CO)

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

Technical data / Regulator types

Gas	Measuring range (g/h)	Part No.
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 113-320.. to -340.. (N/S/CO)

- 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** (see table)

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 dosing regulators (chlorine gas)

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	✓

Dosing regulator 113-390.. , -395.. (N/S/CO) 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** (please see table below)

with servomotor with 4-20 mA input

for proportion control, manual/automatic switch, trimmer for zero point/limit value, keys for manual control open/close

Gas	Measuring range (g/h)	Part No.
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

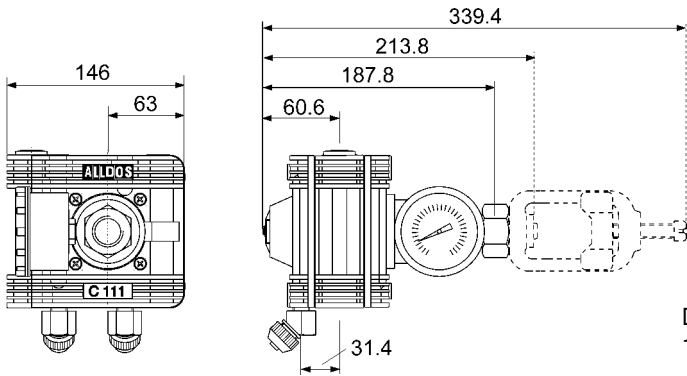
with servomotor with potentiometer

single potentiometer 1000 Ohm, automatic control on request

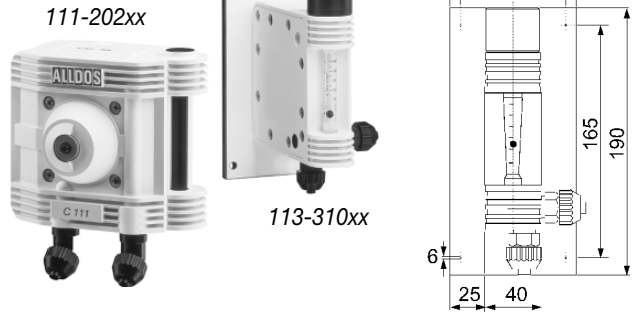
Gas	Measuring range (g/h)	Part No.
Chlorine (Cl ₂)	2 - 40	113-395
Ammonia (NH ₃)	0.5 - 9	113-395N
Sulphur dioxide (SO ₂)	10 - 250	113-395S
Carbon dioxide (CO ₂)	25 - 500	113-395CO

Measurements

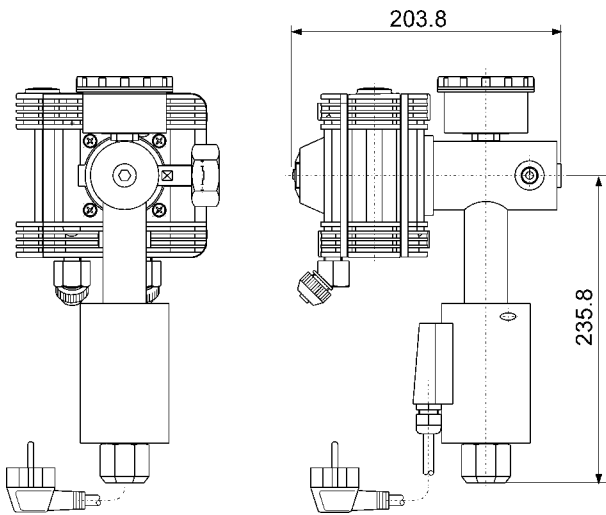
111-202.. with manometer



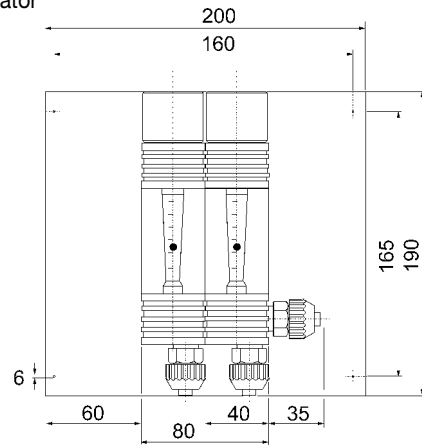
Single dosing regulator
113-310..



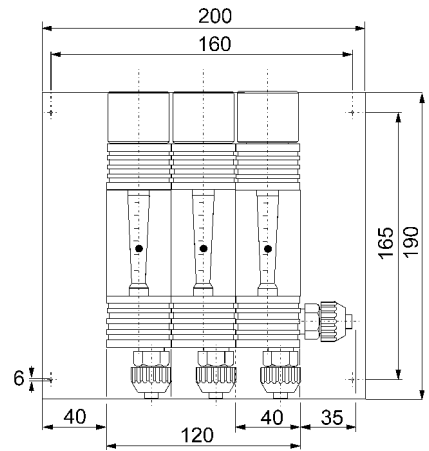
111-202.. with liquid trap



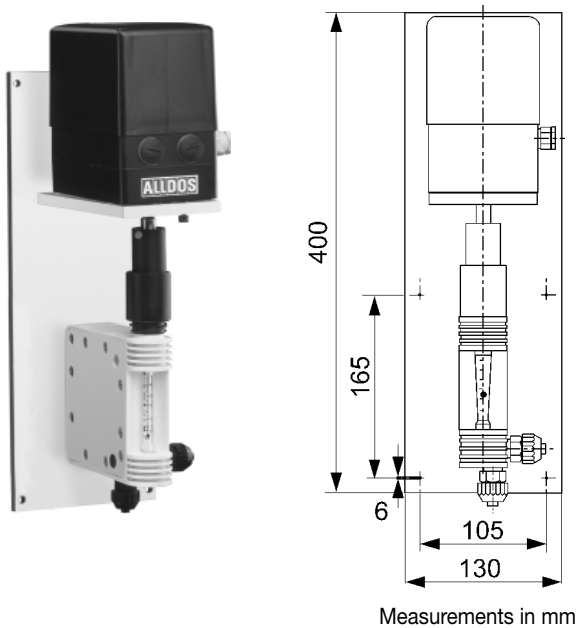
Double dosing regulator
113-320..



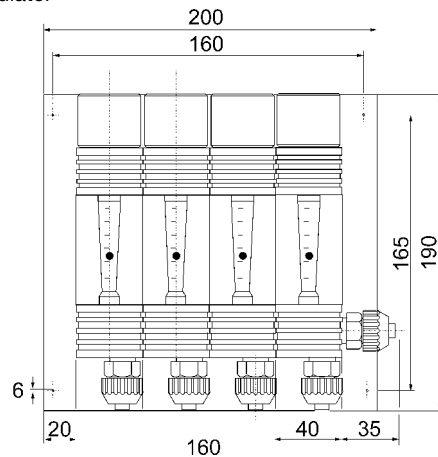
Triple dosing regulator
113-330..



113-390/-395.. with servomotor



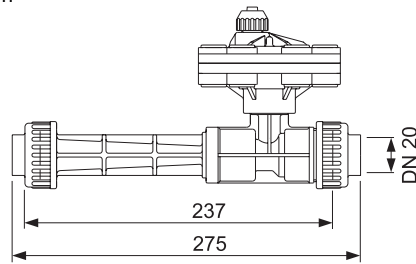
Quadruple dosing regulator
113-340..



Measurements in mm

PVC injectors for 111/113 system

- 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)	Adm. press. (bar)	Back-press. (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 U 189

For combining 2 vacuum regulators with dosing regulators, vacuum connection PE hose 10/14

Order data

Description	Part No.
with optical indication of the position battery I or battery II (please indicate)	189-010

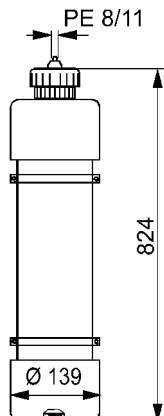
Option (please indicate)

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

Accessories empty signal

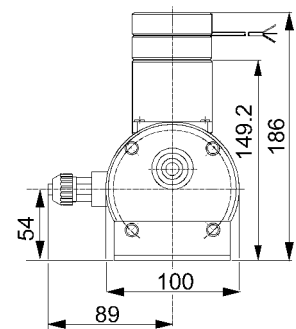
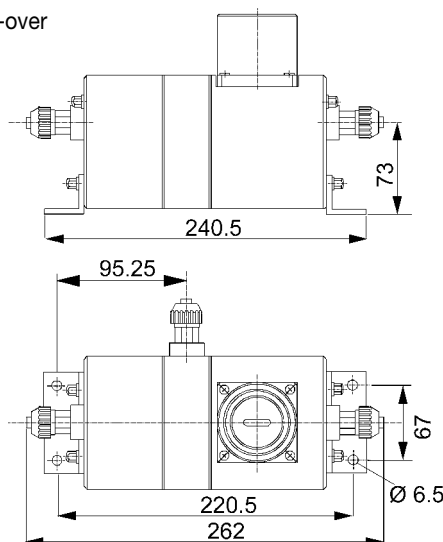
Description	Order No.
Display unit for empty signal, 115 V	332-2012
Display unit for empty signal, 230 V	332-2015
Wall mounting enclosure for display unit	300-210

Chlorine gas absorption cylinder 524



Measurements in mm

Vacuum change-over device U 189



Chlorine cylinder header line

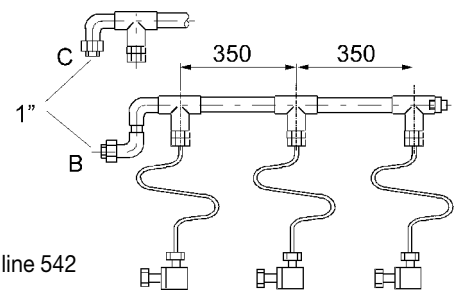
Lacquered steel header line acc. to DIN 2441, flexible copper lines and connection valves

Order data

Number of cylinders	Part Number	
	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



Chlorine gas absorption cylinder

PVC, connection for PE tube 8/11, 5 l content, filled with 4 kg absorbent, absorption capacity 450 g Cl₂, including fixing accessories

Order data

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

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 vacuum regulator 111-202 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 dosing regulator 113 / 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 dosing regulator 113 / each regulator	
O-rings, flat gasket, valve seat and protection ring	553-611

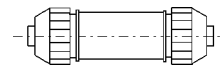
for injector 545

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

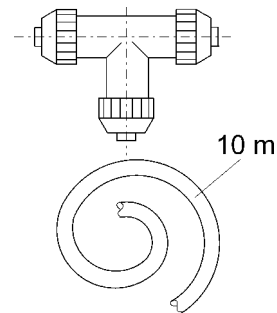
Installation accessories

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

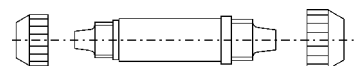
Coupling 526-132



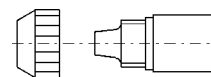
Connection set 526-133



Coupling 526-134



Coupling 526-135



Presented by: