
Septek Calcium carbonate Removal Unit

Transferable calcium removal unit for aeration systems in WWTP:s

Problem / background:

This unit is needed to clean/remove/dispose biological matter/CaCo₃ calcium carbonate from the slits of aerators rubber (EPDM) membrane media. When Biological matter/CaCo₃ accumulates in and on aeration media slits, they can clog them partially or completely. This will increase the pressure drop of the aeration system thus operating efficiency SAE (kg/O₂) decreases considerably. This will cause the WWT plant extra costs, because the compressors have to compress air to higher pressure. By monitoring the energy (electricity) consumption, the WWT plant operators can calculate the difference in energy cost before and after using Septek transferable calcium removal unit. In addition clogging in the media slits can cause also an increase in the air bubble size, which effects O₂ transfer to the wastewater.

Solution/action:

Formic acid HCOOH will be pumped Septek calcium removal unit to the aeration system through the drop leg in small doses. As a result the acid will run with the compressed air through the media slits. The acid will react with the biological matter/CaCo₃ and then it will dispose/remove it to the wastewater. The end result will be clearly a decrease in the system pressure drop. A fast coupling nozzle should be assembled to the drop leg.

Pressure drop monitoring:

When using the acid cleaning unit the pressure drop will decrease fore example 20 mbar. When the pressure readings settled, you can stop using the unit. The effect of the acid cleaning can be monitored by measuring the pressure in the drop leg before and after using the unit. in order to monitor the pressure, a fast coupling should be installed on the drop leg to fit the coupling of the manometer.

We can help you in the energy consumption calculations.

Controllable Diaphragm pumps

C 409.2



The new 4 C-designs

intelligent, multifunctional, versatile, economic...

sera - controllable diaphragm pumps

of serie C 409.2 are electronically controlled dosing pumps which can be used for many applications. They are designed for industrial use and guarantee highest operational reliability. Performance range between 0,8 l/h and 350 l/h, pressures up to max. 10 bar.

Application

Liquid chemicals with aggressive, odorous, abrasive, radioactive, flammable, viscous or toxic properties.

...further features of performance

- directly controllable
- high dosing accuracy
- long service life of diaphragms*
- high-quality materials
- linear control characteristic
- low maintenance
- low operating expenses
- leakagefree
- unlimitedly safe to run dry
- easy to operate
- low weight

* compared to common conventional diaphragms



Controllable Diaphragm pumps C 409.2



Functions of the control electronics

Function
Manual operation
Manual stroke frequency adjustment
Profibus DP – Interface ¹⁾
External ON
External STOP
Pulse operation
Fractionation
Cycle delay
Analogue operation 0 – 20 mA
Analogue operation 4 – 20 mA
Analogue operation standardization
Charge manual
External charge START
Charge with timer
Speed control / Slow mode
3 LEDs for status indication
Multiline illuminated text display
Operating messages in plain text
Fault indication in plain text
Menu - driven parameterization
Flow indication
Calibration
Working hour meter
Password protection
4 – key operation
2 digital outputs (SPS)
1 digital input (SPS or contact signal)
2 analogue / digital inputs (optionally reversible)
Programmable input/output functions
Connection / evaluation 2-stage level monitoring
Connection / evaluation diaphragm rupture monitoring
Connection / evaluation flow monitoring
Connection / evaluation flow metering
Operating panel for wall mounting (option)

¹⁾ available from 4 quarter 2007

Controllable Diaphragm pumps

C 409.2



Technical data

Pump type	Nominal capacity		max. counter-pressure	max. suction height	Inlet/Outlet size	Driving power (motor)	Nominal stroke frequency
	50/60Hz [l/h]	Q _{max} [ml/Stroke]	p ₂ max. [bar]	[mWC]	DN [mm]	P _d [kW]	n _n 50/60 Hz [min ⁻¹]
C 409.2 -0,8e	0 - 0,8	0 - 0,13	10	2	5	0,18	100
C 409.2 -1,6e	0 - 1,6	0 - 0,27	10	3	5	0,18	100
C 409.2 -2,4e	0 - 2,4	0 - 0,27	10	3	5	0,18	150
C 409.2 -4,0e	0 - 4,0	0 - 0,67	10	3	5	0,18	100
C 409.2 -7,0e	0 - 7,0	0 - 0,78	10	3	5	0,18	150
C 409.2 -12e	0 - 12	0 - 3,0	10	3	10	0,18	67
C 409.2 -18e	0 - 18	0 - 3,0	10	3	10	0,18	100
C 409.2 -25e	0 - 25	0 - 2,8	10	3	10	0,18	150
C 409.2 -50e	0 - 50	0 - 8,3	10	3	10	0,18	100
C 409.2 -75e	0 - 75	0 - 8,3	10	3	15	0,37	150
C 409.2 -90e	0 - 90	0 - 15,0	8	3	15	0,37	100
C 409.2 -115e	0 - 115	0 - 19,2	4	3	15	0,37	100
C 409.2 -140e	0 - 140	0 - 15,6	8	3	15	0,37	150
C 409.2 -180e	0 - 180	0 - 20,0	4	3	15	0,37	150
C 409.2 -250e	0 - 250	0 - 41,7	3	3	15	0,37	100
C 409.2 -350e	0 - 350	0 - 38,9	3	3	15	0,37	150

Electrical data (electronics)

- Operating voltage: 115 - 240 V (50/60 Hz)
- Inlet voltage control input: 5...30 V DC
- Minimal contact signal time: 50 ms
- Analogue input resistance: 100 Ω
- Digital Output: PNP, 15...30 V DC, 250 mA
- Pump protection type: IP 65
- Insulation class: F
- Noise level (Noise level measurement DIN 45635-01:KL3): 60 +/- 5 dB (A)
- Weight: 11 - 20 kg
- Permitted ambient temperature: +2°C to +40°C
- Permitted humidity: approx. 90%

Controllable Diaphragm pumps C 409.2



Materials

The high quality of the materials ensures continuous and reliable operation. We have the optimum material for each requirement.

Pump body and valves:

PVC, PP, PVDF, 1.4571, Titan, PP-FRP, PVDF-FRP

Valve balls:

Glass, PTFE, 1.4401

Valve seals:

EPDM, FPM, FEP-covered

Working diaphragm:

EPDM, FPM, PTFE-faced

Intermediate diaphragm:

CSM, PTFE, PTFE-faced

* please ask us for any material required but not mentioned here

Drive

Each drive unit consists of a proven motor coupled to a stroke mechanism in a robust aluminium housing.

sera – aluminium housings can cope with even extreme operating conditions due to the thickness of the material and the surface treatment.

Accessories

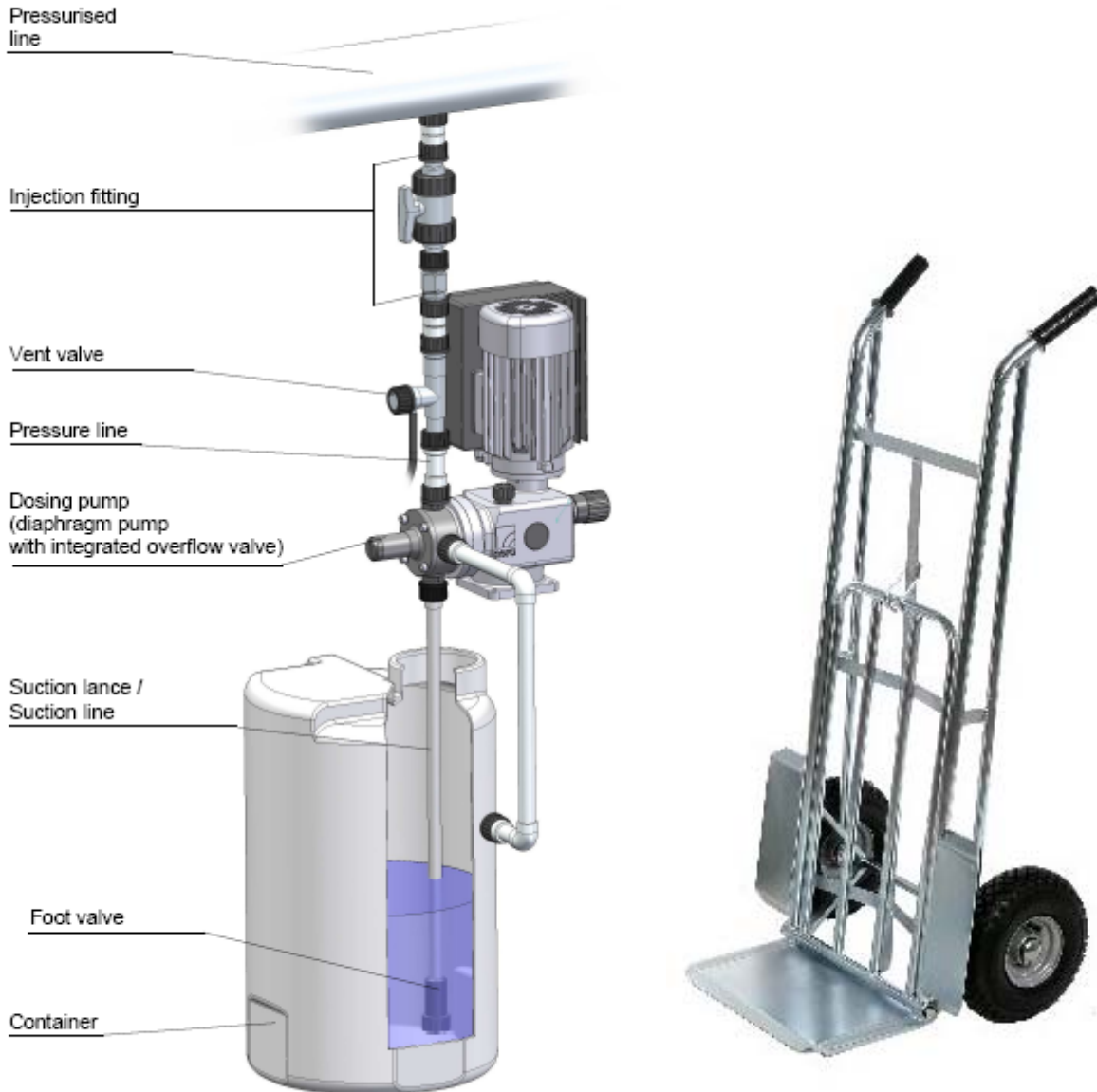
- Control cable
- Diaphragm rupture monitoring
- Flow controller
- Flow meter

For the optimum installation of a dosing pump we can supply all the necessary accessories such as valves, pulsation dampers, injection fittings, dosing tanks, etc. against your order.



104/03 en 04/07

Subject to technical modifications



When using please use:

- Hand protection: Neoprene / PVC gloves. (Included in the delivery)
- Eye protection: Tightly fitting safety goggles and safety mask. (Included in the delivery)
- Skin and body protection: Protective suit and rubber boots. (Not included in the delivery)