



DIOX-C CHLORINE DIOXIDE GENERATOR

WALLACE & TIERNAN® PROCESS TECHNOLOGY

This type of unit uses Nadolyt C25 (sodium chlorite, NaClO_2) and chlorine gas (Cl_2) as the basic chemicals for the generation of chlorine dioxide. Nadolyt C25 is metered into the unit directly from a carboy or a pumped system. Three system types are available.

Design and function

The DIOX-C chlorine dioxide generator is extremely economical in the production of an aqueous chlorine dioxide solution. Chlorine gas (Cl_2) and Nadolyt (sodium chlorite) are used for the preparation. Chlorine gas, the feed rate of which is set at the remote vacuum chlorinator, mixes with the operating water to form a solution which is then fed to a reaction tank. Once the chemicals have fully reacted, the concentrated chlorine dioxide solution is diluted. The quantity of the dilution water is adjusted to give the required strength of the chlorine dioxide. This can be set from 1 up to max. 3 g/l ClO_2 depending on the demand. During the filling process the gas produced in the chlorine dioxide storage tank is aspirated by an injector. During off periods, degassing is prevented by an absorber unit. The monitoring functions of the system guarantee the mixing ratio of chlorine gas and sodium chlorite and thereby the virtually full conversion of chlorite to chlorine dioxide.

Features

- Strength of the ClO_2 solution selectable by means of dilution water
- Basic control: control of all process parameters
- Professional control: touch panel to display, supervise and evaluate the chemical flow
- Safety facilities like check valve for process water supply, additional lock at leakage, gas alarm, ClO_2 container overfull, power off failure

Key Benefits:

- Extremely economical procedure for the generation of chlorine dioxide
- High stability of the chlorine dioxide solution prepared
- Suitable for feeding several points of application as a result of the product being generated in a batch tank
- Variable relation chlorine/chlorine dioxide adjustable (Mixed mode; Professional control only)
- Space-saving through compact design
- Extensive connections possible (PROFIBUS® DP, PROFINET IO)

TECHNICAL DATA

Reaction tank: 67 l

Storage tank for chlorine dioxide solution: 150 l

Required operating water pressure: 7 bar g

Power supply:

1/N/PE AC 230 V, 50 Hz max. 16 A/max. 500 VA without booster pump

3/N/PE AC 400/230 V, 50 Hz fuse and power consumption depend on the booster pump

Power consumption:

max. 500 VA (without booster pump)

Fuse: max. 16 A

Dimensions (W x H x D): 1600 x 1970 x 790 mm

Weight: max. 240 kg empty, max. 525 kg full

BASIC CONTROL

PLC: SIMATIC® S7-200/CPU 224

Control desk:

SIMATIC OP7 with operating panel and code-protected service menu

Remote diagnosis:

Available via optional external modem

Volt-free inputs:

external release

Volt-free outputs:

General alarm, operating status, storage tank empty

Additional functions:

can be activated with both process controls of a booster pump, control of changeover unit for chlorine gas, transfer control for Nadolyt (NaClO₂)

PROFESSIONAL CONTROL

PLC: SIMATIC S7/CPU 314

Control desk: 7" touch panel

Connections (optional): PROFIBUS® DP, PROFINET IO

Volt-free inputs/outputs: refer to Basic control

Functions:

- Continuous monitoring of chemical flow
- Automatic flow adjustment after entering the requested strength into the touch panel
- Cl₂+ClO₂ mode (mixed mode) adjustable

INSTALLATION AND MAINTENANCE

The chlorine dioxide generator is supplied completely preassembled and tested. On site only operating water and chlorine cylinders have to be connected and an electricity supply to be provided. Dosing equipment is supplied as separate items. In accordance with local safety regulations tests have to be carried out by trained, authorised personnel familiar with the units prior to commissioning and afterwards at regular periods. Test, expert installation and commissioning as well as regular maintenance are available from Wallace & Tiernan system specialists.

Maximum capacities of generator	1500 g/h ClO ₂	3000 g/h ClO ₂	4500 g/h ClO ₂
Remote vacuum chlorinator (Cl ₂)	75 - 1500 g/h	150 - 3000 g/h	200 - 4000 g/h
Diaphragm metering pump Chem-Ad® Series B for Nadolyt C25 (NaClO ₂)	7.2 l/h	25.0 l/h	25.0 l/h
Rotameter with adjustable min. and max. contacts			
Injector operating water	400 l/h	1000 l/h	1500 l/h
Dilution water	1000 l/h	1500 l/h	2000 l/h



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