Wallace & Tiernan® Gas Feed Systems V-2020, V-2030 Chlorinator

The remote vacuum chlorinators V-2020 and V-2030 incorporate a world-wide tried design and function proven over decades and provide a multitude of configurations. Their usage is ideal for applications where high feed rates are required. The maximum feed rate for V-2020 systems is 60 kg/h, for V-2030 systems up to 200 kg/h chlorine. With minor modifications in material, both units can also be used as a gas feeder for sulphur dioxide (SO_2), carbon dioxide (CO_2) and ammonia (NH_3).

Features

- Operating range for automatic control mode 1 : 20
- Differential regulating valve for precise feed rate control and efficient injector operation at low vacuum levels
- Vacuum gauges indicate injector vacuum and system vacuum
- Conversion kit for automatic control available (electric positioner)

General

The all-vacuum chlorinators V-2020 and V-2030 are gas control units of the solution feed type. At an injector the metered gas is dissolved in water, and the resultant solution is discharged to the point of application. Feed rate control is achieved by changing the position of the V-notch plug. The plug provides ease of adjustment and excellent repeatability of the feed rate set.

The all-vacuum principle means there is vacuum from the vacuum regulator/check unit up to the injector. There are no lines or components in this chlorinator carrying gas under pressure. In the case of a loss of vacuum, no gas can leak out, but air will leak in.

Operation

Chlorine gas under pressure flows from the chlorine container via a steel manifold to the vacuum regulator/check unit. This diaphragm-operated vacuum regulating valve reduces the gas pressure to a vacuum at once and will only open beyond a factory-set operating vacuum which is produced by the injector. Dry gas passes the vacuum safety valve and enters the control unit where it causes the rotameter's float to rise. The level of

Benefits:

- Flexible floor-mounted gas feeder
- Proven technology, excellent reliability and long service life
- Reliable V-notch gas flow control and precise metering
- Direct-reading rotameters with high resolution and readability
- Serviceability – components easily accessible

Product Sheet

Water Technologies

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the float indicates the gas feed rate directly in kg/h. Having passed the V-notch orifice, the gas moves through the differential regulating valve which maintains a constant differential across the V-notch. The constant differential pressure drop keeps the adjusted feed rate stable, unaffected by varying conditions of the injector operating pressure. As an accessory to the differential regulating valve, a vacuum relief valve trims a too powerful injector vacuum.

The operating vacuum required for the aspiration of the chorine gas is produced by a remote mounted aspirator-type injector. In the injector the gas is thoroughly mixed with water, and the resultant solution is discharged to the point of application. When the injector water supply is shut off, a check valve closes the injector suction part and prevents injector water from back-flooding the control unit. Simultaneously the spring-operated vacuum regulator/check unit closes automatically due to the absence of vacuum and cuts off the gas supply.

Technical data

Methods of control:

- **Manual control:**
  The feed rate adjustment is turned manually to position the V-notch variable office.
- **Start-Stop or program control:**
  Feed rate adjustment is manual. Start-Stop is achieved by electrical auxiliary contacts controlling a solenoid valve or motorised valve installed in the operating water supply line.
- **Automatic control:**
  The feed rate adjustment is achieved by an electric positioner.
  - **Direct residual control**
    A set-value controller incorporated in the SFC system residual analyser maintains a desired residual.
  - **Flow-proportional control**
    By means of a SFC SC ratio controller the electric positioner of the chlorinator is paced to the water flow rate Q. The dosage factor can be set to scale the flow input signal from 0 to 200 %.
  - **Compound loop control**
    This mode of control combines flow-proportional and residual control by means of the SFC PC process controller. It provides automatic positioning of the chlorine feed rate proportional to the flow rate and chlorine residual.

Automatic Positioner:

- Manual override of the modes manual/automatic by simply pulling a knob.
- Internal feedback potentiometer for precise operation with the SFC SC or SFC PC controllers.

Accuracy:
± 4 % of the indicated flow

Operating range:
1 : 20 for any range

Operating temperature:
+ 10 °C to + 50 °C

Capacities:

V-2020	V-2030
0.5 – 10 kg/h Cl_2	1.0 – 20 kg/h Cl_2
1.0 – 20 kg/h Cl_2	2.0 – 40 kg/h Cl_2
1.5 – 30 kg/h Cl_2	3.0 – 60 kg/h Cl_2
2.0 – 40 kg/h Cl_2	4.0 – 80 kg/h Cl_2
3.0 – 60 kg/h Cl_2	6.0 – 113 kg/h Cl_2
	8.0 – 158 kg/h Cl_2
	10.0 – 200 kg/h Cl_2

In addition to chlorine, the systems are available for other gases: SO_2, CO_2, NH_3

Maximum injector inlet pressure:
V-2020:

2 ″ PVC injector:	9 bar – 38 °C	4.5 bar – 54 °C
2 ″ Bronze injector:	17.5 bar – 38 °C	9 bar – 54 °C
3 ″ Rubber lined steel injector:	12 bar – 38 °C	6 bar – 54 °C

V-2030:

3 ″ Rubber lined steel injector:	12 bar – 38 °C	6 bar – 54 °C
4 ″ Rubber lined steel injector:	12 bar – 38 °C	6 bar – 54 °C

Injector operating water:
Pressure and flow depend on maximum feed rate, back pressure at the point of application and head loss in the chlorine solution discharge line. The adjustable injector allows manual control of optimal water flow to meet actual operating conditions.

Dimensions (W x H x D):
730 x 1600 x 402 mm

Shipping weight:
60 kg

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Wallace & Tiernan GmbH
Auf der Weide 10
89312 Günzburg
Germany
Email: wtger.water@siemens.com