

Wallace & Tiernan® Gas Feed Systems

V10k

Vacuum gas feeder

The V10k gas feed system with automatic or manual control is the proven gas feed technology for capacities up to 15 kg/h combining a standardised flexible design with user-selectable configurations. V10k gas feeders operate according to the indirect procedure, i.e. operating under a vacuum that is produced at the injector where the metered gas (e.g. chlorine gas) is dissolved in the operating water and the resultant solution is discharged to the point of application. Gas flow control is achieved by the proven Wallace & Tiernan® V-notch orifice ensuring industry proven accuracy and repeatability.

Features

- Rotameters with high resolution and easy readability in 15 capacities up to 15 kg/h
- Operating range for automatic control mode 1 : 20
- Differential regulating valve for precise feed rate control at low vacuum levels and economical injector operation
- Vacuum gauge for visual operation monitoring

General

V10k gas feed systems operate under a vacuum that is produced at the injector and transmitted through the control unit to the pressure/vacuum regulating valve on the gas supply source. This diaphragm-operated valve is opened by the vacuum and allows the gas to flow to the control unit where it passes through the rotameter and the V-notch orifice. On the rotameter the gas flow rate is measured and indicated. Downstream from the V-notch orifice the gas passes the differential regulating valve which maintains a consistent feed rate regardless of changes in the operating vacuum. At the injector, the metered gas is dissolved in the operating water stream and discharged as solution to the point of application.

The remote vacuum principle (vacuum from the gas supply containers up to the injector) is the basic technology of this design. There are no gas lines under pressure. If any part after the supply container gets broken, no gas can leak out, but air will leak in. Therefore the remote vacuum technology stands for the highest safety level in gas feed systems.

Benefits:

- Proven technology, excellent reliability and long service life
- Proven V-notch flow control technology providing accuracy and repeatability
- Serviceability – components easily accessible
- V10k feeder automatic control: optional fully automatic control by process controller or with actuator control 4 – 20 mA
- V10k feeder manual control: retrofit for automatic control (electric positioner) possible



V10k manual system

Product Sheet

Water Technologies

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For automatic control, the V-notch plug is moved depending on the application requirements:

- Manual override is achieved by simply pulling the knob to disengage the drive motor
- 3 sets of volt-free contacts for system control manual override, MAX position, MIN position
- Feedback potentiometer for precise operation with the SFC SC or SFC PC controllers

4 – 20 mA actuator control (optional)

- Simple ratio control
- Feed rate adjustment by means of a dosing factor
- Connection to SPS control systems

Technical data

Gases and scale capacities:

Chlorine: up to 15.0 kg/h

Carbon dioxide: up to 8.0 kg/h

Sulphur dioxide: up to 10.0 kg/h

Ammonia: up to 5.0 kg/h

Feed ranges:

e.g. chlorine gas

1 – 22.5 g/h	0.15 – 3.0 kg/h
3 – 60 g/h	0.20 – 4.0 kg/h
10 – 200 g/h	0.25 – 5.0 kg/h
20 – 400 g/h	0.30 – 6.0 kg/h
30 – 600 g/h	0.40 – 8.0 kg/h
50 – 1000 g/h	0.50 – 10.0 kg/h
75 – 1500 g/h	10.00 – 15.0 kg/h
100 – 2000 g/h	

Operating range (V10k automatic control):

1 : 20 for any rotameter

Accuracy:

± 4 % of F. S.

Operating temperature:

+10 °C to +50 °C

Operating vacuum:

-40 to -200 mbar

Operating water pressure at injector:

3/4 " Injector	1 " Injector
16 bar maximum at 20 °C	21 bar maximum at 20 °C
13 bar maximum at 30 °C	16 bar maximum at 30 °C
10 bar maximum at 40 °C	12 bar maximum at 40 °C
5.9 bar maximum at 50 °C	8 bar maximum at 50 °C

4 – 20 mA actuator control (optional)

Measurement inputs:

1 x 4 – 20 mA

1 x servo motor position feedback

1 x external dosing factor

Relay outputs:

2 x non-isolated

Power supply:

115/230 V AC, 50 – 60 Hz

Power supply (V10k automatic control):

0.25 A at 230 V AC

0.50 A at 115 V AC

Electric positioner (V10k automatic control):

Operating voltages	230 V	115 V
	50/60 Hz	
Rating	19 mA	46 mA
Time approx.	80 sec.	66 sec.
Potentiometer	1 kOhm ± 10 %	
Max. switching capacity	1250 VA	150 W
Enclosure	IP 67	

Available configurations:

- with 5 " rotameter (standard) or 10 " rotameter
- 4 kg/h, 10 kg/h vacuum regulator or higher capacities standard or with switch-over option
- injector size 1/3 ", 1 " or 2 " standard or anti-siphon type

Option:

Vacuum contact pressure gauge for installation into the gas supply line for monitoring operating vacuum

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