



WALLACE & TIERNAN® GAS FEED SYSTEMS S10K™ CHLORINATOR

PRODUCT OVERVIEW

The S10k™ chlorinator is a vacuum operated, sonically regulated unit. Direct cylinder mounting puts the vacuum-regulating valve right at the source, reducing gas pressure to a vacuum immediately. It provides for economic low capacity gas feed applications for municipal and industrial water and wastewater treatment and disinfection, swimming pools and industrial process water. Its ability to handle all water treatment gases as well as its flexible mounting configurations for cylinders, manifolds or ton containers provides versatility for all installations. Two basic arrangements are available in capacities of 4 and 10 kilograms per hour / 200 and 500 pounds per day (PPD) of chlorine gas. With fewer internal parts, you can be confident that the S10k chlorinator will provide reliable, dependable service.

FEATURES

Positive Indication of Operating Status



standby*

operating

empty

off

*auto switchover only

Easy to read icons provide positive indication of cylinder status. The operator can tell at a glance whether the container is in the standby status (for automatic switchover) operating, empty or off.

Positive Shutoff

An OFF position on the face of the regulator allows for positive shutoff. Containers can be changed without admitting air, dirt or moisture into the control unit and without shutting off the injector.

KEY BENEFITS

- Easy to read icons provide positive indication of container status
- Positive shutoff allows containers to be changed without admitting air, dirt or moisture into control unit
- Easy alignment of the control unit on the container by means of a captive yoke assembly
- Complete gas consumption by means of a non-isolating switchover system
- Flexible installation with detachable flowmeter assemblies

Unique Secondary Check

The 10 Kg/hr (500 PPD) regulator includes a unique secondary check designed to confine gas under pressure should the primary valve not seat completely due to contamination. This minimizes the possibility of venting gas to atmosphere.

Built-in Automatic Switchover (option)

Built-in switchover eliminates the need for external switching devices. The non-isolating feature allows cylinders to be emptied thoroughly, for complete gas consumption.

Captive Universal Yoke Mounting

A unique self aligning captive yoke clamp makes it easy to line up and connect the chlorinator to the gasketed outlet of a container valve. A similar captive yoke design is used for ammonia cylinders. A ton container kit includes a drip leg, to trap initial spurts of liquid, a heater for evaporation and a replaceable filter can be provided. A universal yoke is available for international cylinder variants.



Handles All Water Treatment Gases

The unit can handle all typical water treatment gases e.g. chlorine, sulphur dioxide, carbon dioxide and ammonia.

Detachable Flowmeters

Two sizes of flowmeters, 75 and 125 mm (3" and 5") are available in 15 capacities to 10kg/hr (500 PPD) chlorine (comparable capacities for other gases). These flowmeters can be integral to the unit, or mounted remote, for installation flexibility. Flowmeters can be ganged together for multiple points of application. When used with optional vacuum solenoid valves multiple rate control can be achieved.



TECHNICAL DATA

The S10k™ chlorinator is simple in design, compact and easy to handle. Injector installation only requires connecting to a water supply and running plastic tubing to a main or open channel. A knob adjustment on the flowmeter changes gas feed rate, which is indicated on a high resolution 75 or 125 mm (3" or 5") scale.

Accuracy

Gas feed is $\pm 4\%$ of the indicated flow.

Operating Range

Manual 20:1 for any flowmeter.
Automatic 10:1.

Distance, Supply to the Control Unit

For flexibility, it is not necessary to install the vacuum regulating valve close to the control unit. It can be up to several hundred feet from the gas control unit, depending on maximum feed rate, the diameter of the connecting pipe or tubing and system performance requirements.

Injector Operating Water

Injector operating water must be reasonably clean. Injectors are fixed-throat differential type. Maximum inlet pressure is 20 bar/300 psi to a maximum of 38°C/100°F; 10 bar/150 psi to a maximum of 54.4°C/130°F.

Pressure at Application Point

Maximum pressure with hose or polyethylene tubing is 5 bar/75 psi. High pressure hose or rigid pipe will allow application against back pressure to 10.7 bar/160 psi. A solution pump after the injector will allow application against higher pressure.

Swimming Pools

For non-residential swimming pool applications a unique package is available.

Control Methods

Feed rate of any S10k gas feeder is controlled by either one or both of these methods: interrupting the injector-water supply to shut off the gas feeder's operating vacuum or changing V-Notch orifice area (by positioning the v-grooved plug in its ring) while holding vacuum differential across the orifice constant.

Manual Control

Manual control by changing orifice area (V-Notch plug position) via an adjustment knob on chlorinator.

Start-Stop or Program Control

This type of control is achieved with simple implementation. Operating vacuum is started and stopped by interrupting the injector water supply.

Automatic Control

The S10k chlorinator can be provided with automatic feed rate control ranging from simple to complex control schemes. The control system can consist of a simple direct mA control V-Notch actuator or a more sophisticated control including an actuator and a controller (choice of either a Multifunction Controller (MFC), a Signal Conditioning Unit (SFC-SC) or a Process Control Unit (SFC-PC).

Direct 4-20mA input control (see WT.040.050.000.UA.PS)

- Direct 4-20mA input signal from an external control device
- Compact integral design
- Internal dosage capability

Connections

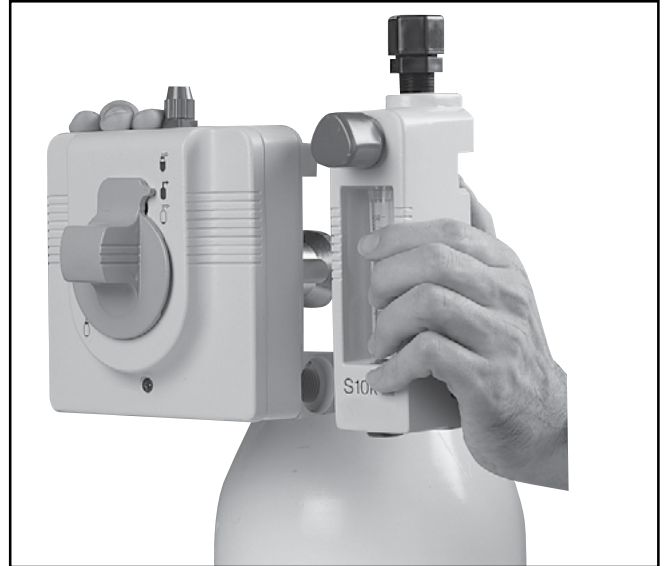
Pipe and plastic tubing sizes.

Vacuum Regulating Valves

Tubing to:	4 kg/hr / 200 PPD	10 kg/hr / 500 PPD
control unit	3/8" x 1/2"	1/2" x 5/8"
container valve	gas inlet is yoke connection to a cylinder or header valve or, with optional adapter, to a ton container valve	

Injectors

Connection	4 kg/hr / 200 PPD	10 kg/hr / 500 PPD
water inlet		1" female NPT
	3/4" male NPT or 3/4" flexible pipe	
water outlet		3/4" NPT with adaptors for 3/4" (optional), 1", or 1-1/2" pipe or hose



Gases and Capacities

	Chlorine			Sulphur Dioxide			Ammonia			Carbon Dioxide		
	Scale Max Cap, Lb/24Hr	Scale Max Cap, Kg/Hr	Scale Max Cap, Gm/Hr	Scale Max Cap, Lb/24Hr	Scale Max Cap, Kg/Hr	Scale Max Cap, Gm/Hr	Scale Max Cap, Lb/24Hr	Scale Max Cap, Kg/Hr	Scale Max Cap, Gm/Hr	Scale Max Cap, Lb/24Hr	Scale Max Cap, Kg/Hr	Scale Max Cap, Gm/Hr
3" / 75mm Rotameter	4		80	3.6		72	1.8		36			
	10		200	9		180	4.5		90			
	20		400	18		360	9		180			
	50	1		45		900	22.5		450			
	100	2		90	1.8		45		900			
	200	4		180	3.6		95	1.9				
5" / 125mm Rotameter	3		60	2.7		54	1.3		27	2.4		48
	10		200	9		180	4.5		90	8		160
	20		400	18		350	9		180	16		320
	25		500	27		540	22.5		450	40		800
	50	1		45		900	45	0.9		80	1.6	
	100	2		90	1.8		95	1.9		160	3.21	
	200	4		180	3.6		112	2.2		200	4	
	250	5		225	4.5		240	4.75		400	8	
500	10		450	9								

Overall Dimensions

Chlorinator

75 mm / 3" Rotameter 200 x 178 x 278 mm / 7-7/8" x 7" x 11-3/4"

127 kgs / 5" Rotameter 210 x 305 x 330 mm / 8-1/4" x 12" x 13"

Automatic panel 640 x 187 x 181 mm / 25-1/4" x 7-3/8" x 7-1/8"

Shipping Weight

Gas metering unit 2.3 kgs / 5 lb.

Automatic panel 7.3 kgs / 16 lb.

MFC (see WT.050.580.000.UA.PS)

- Direct flow proportional control or control adjustments
- Single feedback or direct residual closed-loop control
- Compound loop control
- Set point trim control
- Outputs: standard outputs of the MFC consists of four individual 0/4-20mA outputs, RS-485 digital communications

SFC-SC (see WT.050.590.020.UA.PS)

- Operating Modes: flow proportional, manual
- Inputs: 4-20mA DC (from flow transmitter)
- Outputs: Control out to actuator; also 4-20mA output for retransmission of gas feed rate (actuator position)
- Control Capability: Dosage and flow scaling

SFC-PC (see WT.050.590.010.UA.PS)

- Operating Modes: direct residual feed back, compound loop, feed forward, flow proportional, manual
- Ranges: Set points up to 50mg/L and center-zero capability for dechlorination
- Inputs: up to 3 analog (flow, residual, spare); 2 digital
- Outputs: Control out to actuator; plus user-configurable 4-20mA; RS-485 serial communications
- Control Logic: Proportional and integral with process time
- Alarms: Four user-configurable for 16 different conditions

OPTIONS

Related options include: cylinder valves and connections; header valves with manifolding and connections; vent; injector water and injector outlet lines and clamps; main connections; solenoid valves; water line pressure gauge; high vacuum pressure switch and alarm; chlorine detectors; on line analyzers; cylinder scales; residual test kits; injector vacuum gauges; spare parts and PM Kit® replacement parts..

Chlorine Gas Warning

All unattended chlorine gas containers and chlorination equipment should be monitored for leaks. Sensitive chlorine detectors, which respond quickly to chlorine in the atmosphere, should be installed at each site. See product sheet WT.050.130.000.UA.PS for further details.

Carbon Dioxide Warning

Because of the high pressure in carbon dioxide containers, the vacuum regulating valve cannot be mounted directly on the container. A pressure reducing valve and pressure relief valve must be installed between the container and the vacuum regulating valve.

Compliance

Gas feeders, controller and actuator are designed to conform to all applicable NEC and NEMA specifications and Chlorine Institute and Compressed Gas Association recommendations.



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