

CHLORINE GAS MODULATING VALVE INTEGRATING PID/PIR CONTROLLER

MODULO+



The modulating valve MODULO+ CIFEC, can adjust automatically the chlorine gas flow under vacuum, following a variable water flow and/or chlorine residual.

Advantages:

- + Unique in the world: it is a modulating valve made of CHLORAFILON.
- + It includes a range of needles and interchangeable graduated tubes, able to cover the flows from 2 g/h to 7 000 g/h
- + Protective jacket for needles' protection and guidance. This aspect is of key importance for the flow from 2 to 360 g/h. (patent SDGD)
- + Wall mounted panel
- + Disconnect without tools for manual mode
- + Digital communication port RS485, protocol Jbus integrated
- + Displaying flow in g/h
- + Integrated controller in relation with water flow and / or residual by an expert system PID/PIR
- + Quality Assurance: auto-registration with dated events for traceability
- + Position of the valve controlled by an optical encoder without maintenance
- + Step by step motor. Direct drive, without gear or maintenance.
- + Designed and manufactured in France



Until lowest capacity:

The lowest possible ranges of this new valve are the following: 1 to 12 g/h - 2 to 19 g/h - 4 to 45 g/h - 6 to 60 g/h - 10 to 100 g / h. It solves all problems of chlorination with a low variable water flow.

Chloraflon construction with interchangeable tubes and needle valves.

Monoblock designed, the modulating valve is made of **Chloraflon**, a special Fluor polymer like Teflon. Changing capacity is simply and quick. It consists in changing the graduated tube, and eventually the valve if the new tube is not compatible with the existing needle. A setting by keyboard on several values of flow allows the valve to return to service.

Electronic with microprocessor:

- The valve linearity:

The valve's terminal includes a microprocessor that makes linear the opening of the valve.

- Simple interface, user manual integrated:

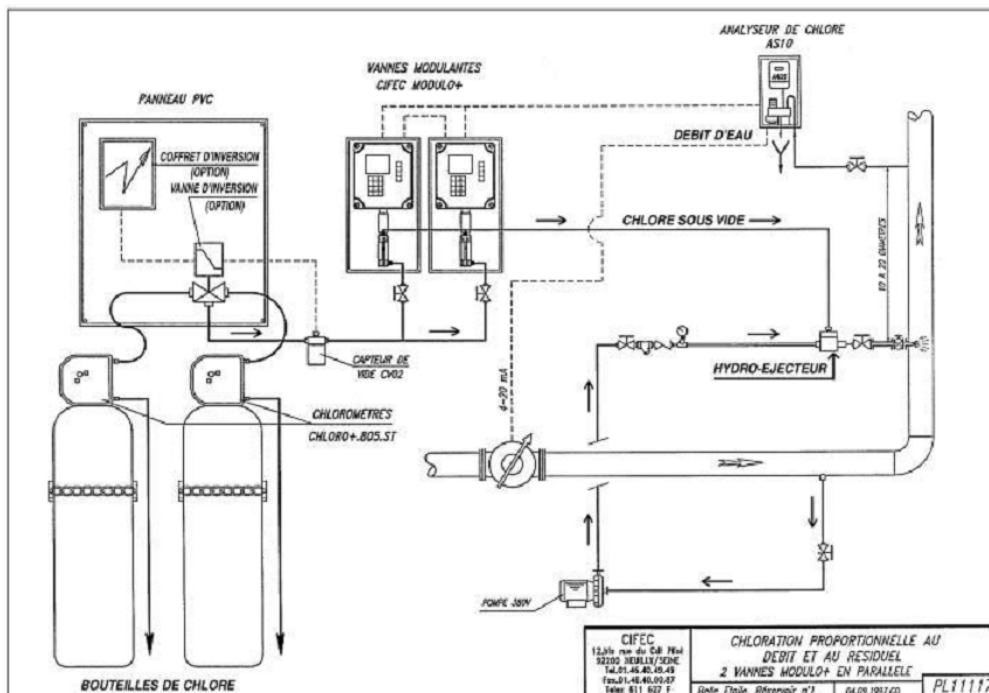
User interface, keyboard and display have been developed to simplify the use, and avoid misunderstanding. User is guided by clear menus in English. Figures are displayed with usual units.

The graphic LCD screen includes a backlight with light-emitting diode (lifetime > 10 years). This characteristic allows reading both in daylight and darkness.

The waterproof keyboard with tactile sensation and beep confirmation permits making all adjustments and settings without opening the terminal.

- Possibility to install two valves in parallel

With the juxtaposition of two modulating valves, it is possible to increase **the accuracy and the range of treatment**. The terminal of one of the valves regulates automatically the opening of the other. The two modulating valves automatically communicate between each other.



- Autocontrol

Maintenance is made easy by a series of terminal's integrated tests of inputs / outputs. The microprocessor controls the motor and reports on any fault.

- Analogical and Digital Communication

Analogical inputs and outputs through 4-20 mA signals and Digital port RS485 (Jbus protocol master / slave) permits monitoring every information on a automaton or a PC supervisor via a 2 or 4 wires network.

- Memorization of Events

A historical of calibrations and faults is stored and displayed, permitting to know date and time of the last events (calibrations, alarms and faults).

- Flow and / or residual regulation

The regulation software permits to control the chlorine gas via the modulating valve in many ways. It can simply work according to a given 4-20 mA, or according to a demanded rate of free chlorine set in the Modulo+ menu. In that case the regulation can work with a residual chlorine signal measured by an automatic analyzer and/or with the signal of the water flow.

- Compact Conception

The valve has a compact conception, wall-mounted, on the chlorine line in vacuum conditions. The CIFEC valve includes the necessary electronics to proportionally work on the electric signal. This avoids the need of a complementary terminal.

- Without any regulator of differential pressure

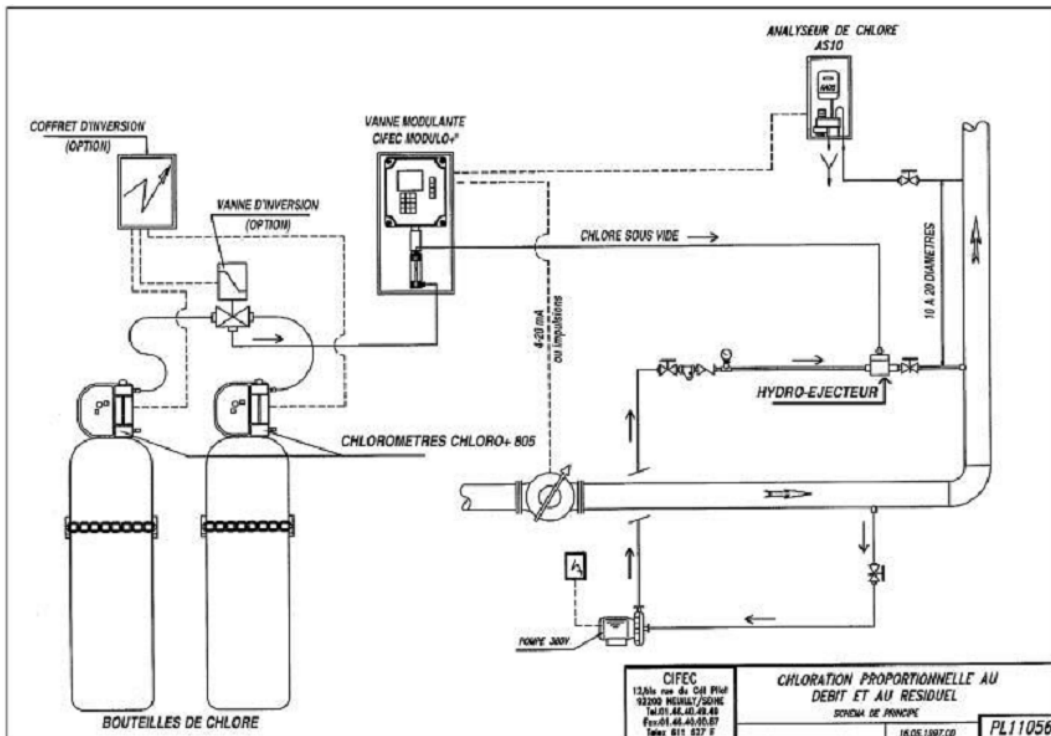
The sonic velocity of the travelling gas in the valve avoids using a differential pressure regulator. Therefore, it simplifies maintenance by reducing the number of items needed.

- Indicator of position incorporated

The valve's position is clearly indicated in g/h of chlorine gas. It makes possible to check the exact calibration of the valve at a glance. It is also copied out via a 4-20 mA signal and a numerical RS485 signal.

- Operation

The automatic valve CIFEC MODULO + is installed after the chlorinator and as close as possible to the injector.



The 4-20 mA signal given by the internal controller is compared to the valve's position. It follows an automatic opening or closing by an endless step to step motor until concordance between the position and the electric order signal.

As the motor is endless, it avoids difficult adjustments, and the risk of desynchronization of the limit switches at the engine/valve reconnection.

- Variable Rate

In the case of a regulation according to a variation water flow, chlorine rate may be increased or decreased either by using the keyboard, or by the 4-20 mA order signal.

- Manual mode

A manual operation is possible thanks to a manual order menu. It permits to open or close the valve by using the keyboard. A 'closed valve' contact is available at the valve's terminal for the injector's service water

opening / closing. Finally, engine end valve can also be disconnected easily without tools, to have a complete manual control of the valve.

Technical characteristics :

- **Dimensions:** 640 x 300 x 180 mm.
- **Weight:** 6 kg.
- **Power supply:** 110/230 V 50 Hz
- **Terminal:** IP68 - EMC CE.
- **Power:** 5VA at rest
30 VA operating.
- **Display:** instantaneous valve's flow g/h
water flow in m3/h.
- **Inputs:**
 - * valve command : 4-20 mA,
 - * Chlorine Residual: 4-20 mA,
 - * Water flow: 4-20 mA or impulses
- **Outputs:**
 - * Chlorine gas flow : 4-20 mA signal,
 - * Small valve orders : 4-20 mA signal
 - * Contact "valve closed",
 - * on/off switch: all or nothing.
 - * Chlorine failure: all or nothing
- **Securities:**
 - * Valve contact or order signal failure
 - * Possibility to set a fallback value for the 4-20 mA signal output,
 - * Historical of failures and rates of treatment.
 - * Maximum chlorine gas flow can be limited. A failure signal is copied out if that flow is reached.
 - * Valve blockage detection
- **Regulation:**
 - * chlorine gas flow regulation software taking into consideration the water flow and/or residuals, PID/PIR type
- **Capacities:**
1-12 g/h, 2-19 g/h, 4-45 g/h, 6-60 g/h, 10-100 g/h, 20-200 g/h, 35-350 g/h, 70-800 g/h, 120- 1200 g/h, 250-2500 g/h, 340-3400 g/h, 700-7000 g/h. Possibility of juxtaposing two modulating valves with different capacities, for increasing the range of chlorine flow.

**A low-cost version of the MODULO+ valve is available :
MODULECO**

It is the same system of dosing than MODULO+, with the same motor and same flowmeter made of chloraflon but there isn't any PIR regulation, no additional setting menus, and no report by 4-20 mA or RS485

It can reports a default by a single dry electrical contact.
This valve needs to have a regulated 4-20 mA input to fonctionnate. It can not calculate anything
Any other function does not exist on MODULECO. If they are needed please purchase MODULO+



Certifié ISO9001



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