

**This is a general documentation; for specific applications not covered by this leaflet, please consult us.**

The SUNTEC M3C multifunctional gas valve is a 1-stage system.

This multifunctional gas valve consists of 2 safety valves and constant pressure regulator controlled by a servo-regulator.

## APPLICATIONS

The SUNTEC multifunctional gas valve is recommended for collective or industrial pressure jet burners.

The use of the SUNTEC multifunctional gas valve is recommended in all gas installations requiring a safety shutoff and pressure control, for inlet pressure up to 160 mbar. It is suitable for use with 1st, 2nd and 3rd family gases (according to EN 437).

## OPERATION PRINCIPLE

### Safety valve

M3C multifunctional gas valve comprises two class B automatic safety valves, direct-acting, electrically operated.

At rest, both safety valves are closed; thus gas cannot flow beyond chamber ①.

When energized, the coils open and release the gas flow from chamber ① to chamber ② for safety valve V1 (from ③ to ④ for safety valve V2).

When de-energized, each safety valve closes within 0.2 s.

### Pressure regulator

The gas pressure regulator is normally closed type, pneumatically operated by a servo system. The servo system controls the main regulator valve opening to equilibrate – through a diaphragm – the downstream pressure (in chamber ③) to a setpoint adjusted by the screw S.

In relation to this given set point, if the gas pressure in the chamber ③ is :

- Lower, the servo-regulator opens and sends pressure into the chamber ⑤ to lift the main diaphragm. The pressure regulator then opens.  
→ The regulated pressure (in chamber ③) increases.
- Upper, the servo-regulator closes and sends less pressure into the chamber ⑤ to lower the main diaphragm. The regulator closes partially.  
→ The regulated pressure (in chamber ③) decreases.
- Equal to the set pressure, the servo-regulator maintains its opening to maintain the pressure in the chamber ⑤.  
→ The regulated pressure (in chamber ③) remains stable.

This design allows for excellent precision when regulating the downstream pressure, regardless to upstream pressure variation or downstream flow changes.

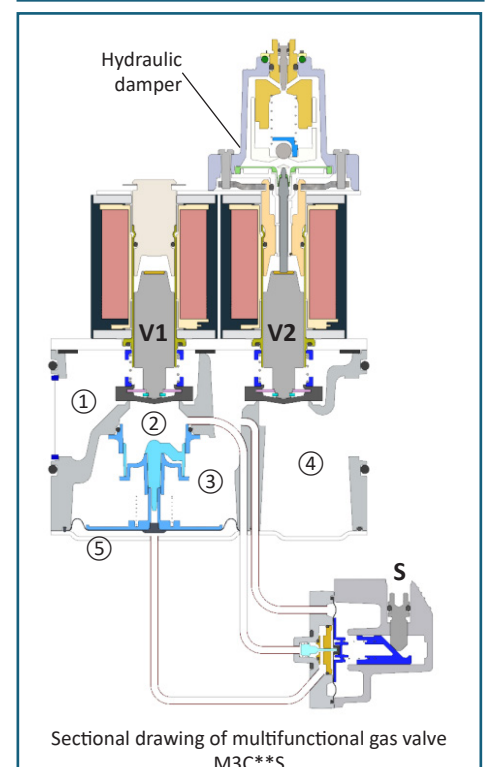
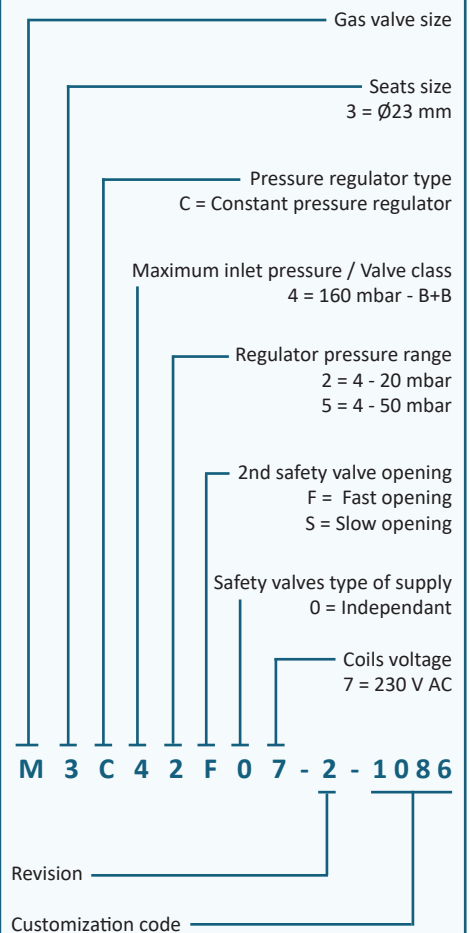
### Slow opening (M3C\*\*S)

A hydraulic damper, placed above the safety valve V2, offers the possibility to dampen the movement of the safety valve V2 and thus apply a progressive gas flow in the combustion chamber in the starting phases.

This device allows a fast initial opening (ignition flow) of the safety valve V2, adjustable up to 80% of the maximum flow.

## MULTIFUNCTIONAL GAS VALVE IDENTIFICATION

(Not all model combinations are available. Consult your Suntec representative)



## TECHNICAL SPECIFICATIONS

### General

Maximum operating pressure	160 mbar
Ambient temperature range	-20°C to +60°C
Operation with	Air and gas of 1st, 2nd and 3rd families
Body	Aluminium
Weight	<ul style="list-style-type: none"> <li>M3C**F : 2.3 kg</li> <li>M3C**S : 2.5 kg</li> </ul>
Certification	CE: Certificate n°1312CU6361
Inlet/outlet flanges	<ul style="list-style-type: none"> <li>DN15 (Rp1/2")</li> <li>DN20 (Rp3/4")</li> </ul>
Pressure taps	G1/8" connections Supplied in 3 locations on the multifunctional gas valve, and on inlet/outlet flanges.
Inlet strainer	Mesh size : 0.6 mm. Replaceable filter.
Pressure switch (optional)	Factory mounted on inlet flange. When suitable configuration, can be side-mounted.

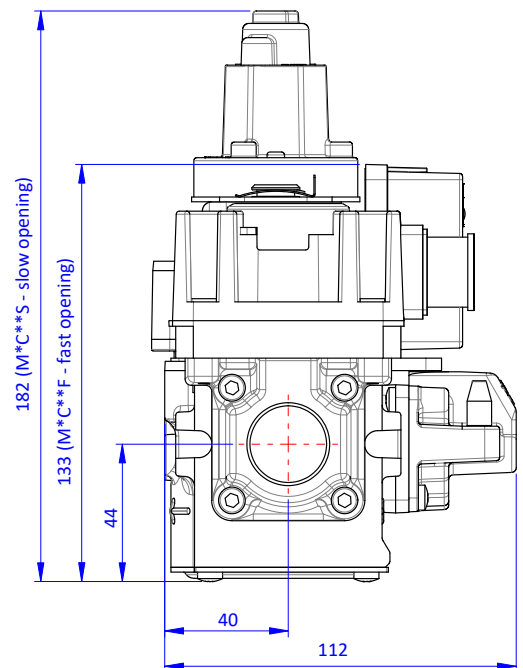
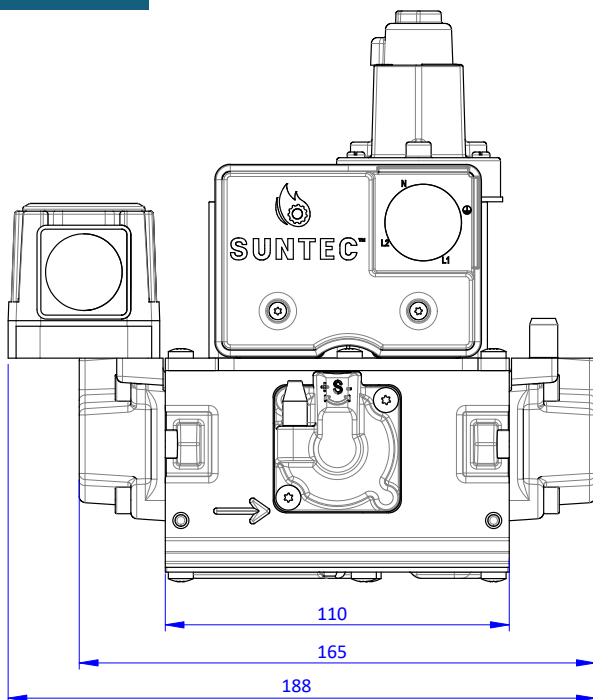
### Safety valve characteristics

Leakage class	Class B+B
Opening time (EN 161)	<ul style="list-style-type: none"> <li>M3C**F : &lt; 0.5 s</li> <li>M3C**S : &lt; 10 s (For other setting, contact SUNTEC.)</li> </ul>
Closing time (EN 161)	<ul style="list-style-type: none"> <li>M3C**F : &lt; 0.2 s</li> <li>M3C**S : &lt; 0.2 s</li> </ul>
Voltage	230 V AC, 50/60 Hz
Consumption	34 VA
IP rating	IP54 (with suitable connector) according to EN 60529 standard.

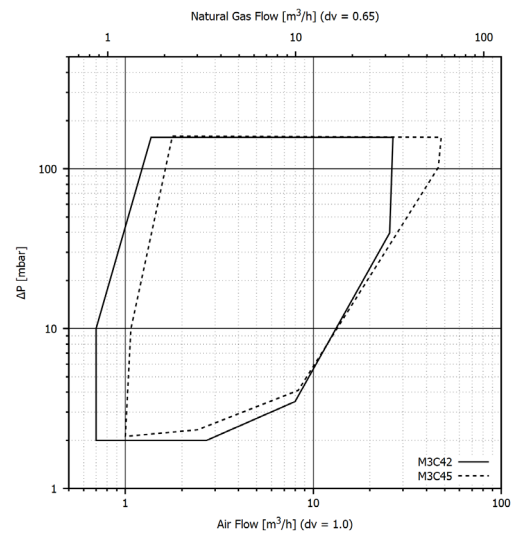
### Pressure regulator

Pressure regulator	Class B according to EN 88-1, placed between the safety valves V1 and V2.
Regulated pressure range	<ul style="list-style-type: none"> <li>4-20 mbar (M3C42F07 - M3C42S07)</li> <li>4-50 mbar (M3C45F07 - M3C45S07)</li> </ul>
Delivery pressure	10 mbar

## DIMENSIONS



## FLOW CURVES



P burner = 3 mbar  
Flange = Rp3/4"

Maximum flow can be reduced when other flanges are connected with.