


TECHNICAL CHARACTERISTICS
INSTRUCTIONS FOR USE, ASSEMBLY INSTRUCTIONS,
MAINTENANCE INSTRUCTIONS



MODEL 23M

MANUALLY OPERATED VALVE WITH THERMOELECTRIC FLAME
SUPERVISION AND ADJUSTABLE MECHANICAL THERMOSTAT

	
EN 126 EN13611	
model	23M (51BR3390)

GENERAL INSTRUCTIONS

Feature	Description
Type	adjustable mechanical thermostat
Applications	ovens
types of gas used	1 st – 2 nd – 3 rd family
group	1
thermoelectric flame supervisor class	B (10,000 cycles)
number of outlets	2
nominal diameter	8
maximum working pressure	6.5 kPa
minimum working temperature (body)	0°C
maximum working temperature (body)	80/130°C
nominal flow rate	0.332 m ³ /h (test gas: air - pressure drop 125 Pa - AS 4624) 0.297 m ³ /h (test gas: air - pressure drop 100 Pa - EN 126)
reduced flow rate	0.07 m ³ /h (test gas: air - pressure drop 125 Pa - AS 4624) 0.063 m ³ /h (test gas: air - pressure drop 100 Pa - EN 126)
opening angle of max. flow rate	231°
opening angle of min. flow rate	52°
external leak tightness	leakage ≤ 60 cc/h (1 ml/min) (air - pressure 15 kPa)
internal leak tightness	leakage ≤ 20 cc/h (0.3 ml/min) (air - pressure 15 kPa)
gas valve continued operation	10,000 cycles (EN 126 - EN 13611) 10,000 cycles (AS 4624)
Flame supervisor device continued operation	10,000 cycles (EN 126 - EN 13611) 2,000 cycles (AS 4624)
inlet gas connection	bracket, flange (see attached sheets)
outlet gas connection	see attached sheets
storage temperature range	-15°C to + 50°C
hold-on current/drop-out current (safety device)	≤ 180 mA / ≥ 60 mA (version 1) ≤ 110 mA / ≥ 20 mA (version 2) ≤ 60 mA / ≥ 10 mA (version 3)
Themocouples maximum closing time	90 sec
sensor's maximum temperature (bulb)	315 °C
temperature adjustment range	100 – 300°C
temperature tolerance	+ 8.5°C
assembly position	Any position
Range of modulation	30°C
operating torque	≤ 30 N
mechanical differential	8°A
Temperature variation (130°C)	17°C
Temperature tolerance	± 10°C
Drift for thermal overload	±5°C

If applicable,

TABLE 1 - MICROSWITCH CHARACTERISTICS	
Nominal tension	250 V
Method for operation	push-button
Max. operating temperature	125 °C
Contact distance	small – standard
Protection level	IP00
Insulation class	I
Pollution situation	standard
Heat-resistance	category D
Tracking index	PTI250

These valves can be used with pipes of various diameters and flat manifolds.

To ensure a perfect seal, place an elastomer gasket between the manifold and the valve.

Gaskets of different materials can be used for the manifold depending on the temperature reached: silicon elastomer gaskets are resistant up to 130°C while nitrile elastomer gaskets are resistant up to 80°C.

INSTRUCTIONS FOR USE

Starting from position “A” (pilot outlet closed / main burner outlet closed) turn the operating spindle anti-clockwise 62°A (angular degrees). In this position (“B” – pilot outlet ignition / main burner outlet closed) press completely the spindle to open the safety valve and allow the gas to flow only through the pilot outlet (in this position the main burner outlet of the thermostat is closed).

When the spindle is completely pressed, keep it pressed a few second and at the same time turn it anti-clockwise a few degrees, until you find a stop.

The pilot outlet can be opened only in “B” position, in all the other allowed rotations isn’t possible to open the safety valve and consequently hold-on the magnet.

If the flame at the pilot outlet should accidentally go out, the thermocouple cools and the current is reduced, the safety magnet is closed and the flow of gas to the pilot outlet is blocked after a few seconds.

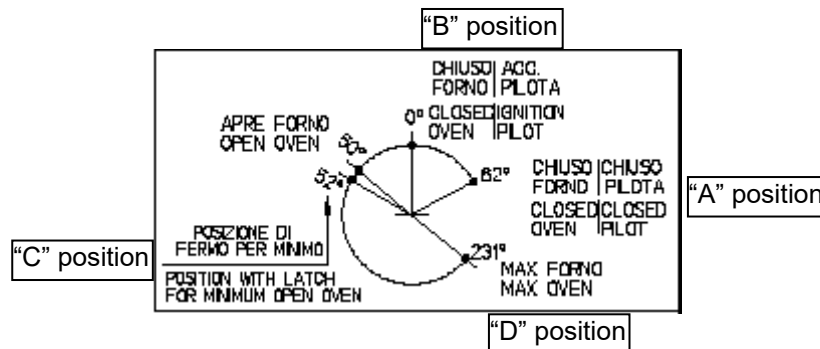
After the ignition of the pilot burner, release the spindle and the turn it anti-clockwise 52°A (“C” position – main burner minimum open position): the gas flows through the main burner giving the minimum adjustable temperature. This is a latched position, to increase the gas flow rate through the main burner (and consequently the temperature) press completely the spindle and at the same time turn it anti-clockwise: the spindle can be turned until “D” position (main burner maximum open position) giving a continuous increase in temperature.

To close the gas flow through the main burner turn the spindle clockwise until “B” position.

To close also the pilot gas flow press completely the spindle, keeping it pressed and at the same time turn it clockwise a few degrees, until you find a stop. Then release the spindle and turn it clockwise 62°A (“A” position).

Temperatures may be adjusted from 128°C (262.4°F) to 300°C (572°F).

The thermostat can be equipped with one or more other microswitches. The microswitches are activated by simply pushing the spindle inward or by rotation of the spindle – see table 1.



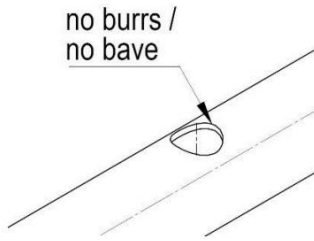
ASSEMBLY INSTRUCTIONS

The thermostats are designed to be used inside the gas cooking appliances, protected from any possible infiltrations of liquid or dirt and from the atmospheric agents. The non-observance of this prescription can compromise the correct working and the safety of the product.

The thermostats are designed to be used with manifolds with different diameters using flange or bracket fastenings.

To ensure a perfect seal:

- Place an elastomer gasket between the manifold tube and the thermostat
- Realize, on the manifold, the seating holes according to the table “inlet variants” and ensure they are free of burrs (see following sketch)



The outlet is designed for a connection pipe to the burner.

Calibration is determined in the factory and should not be altered even by qualified personnel. In case of irregularity, the whole thermostat should be replaced.

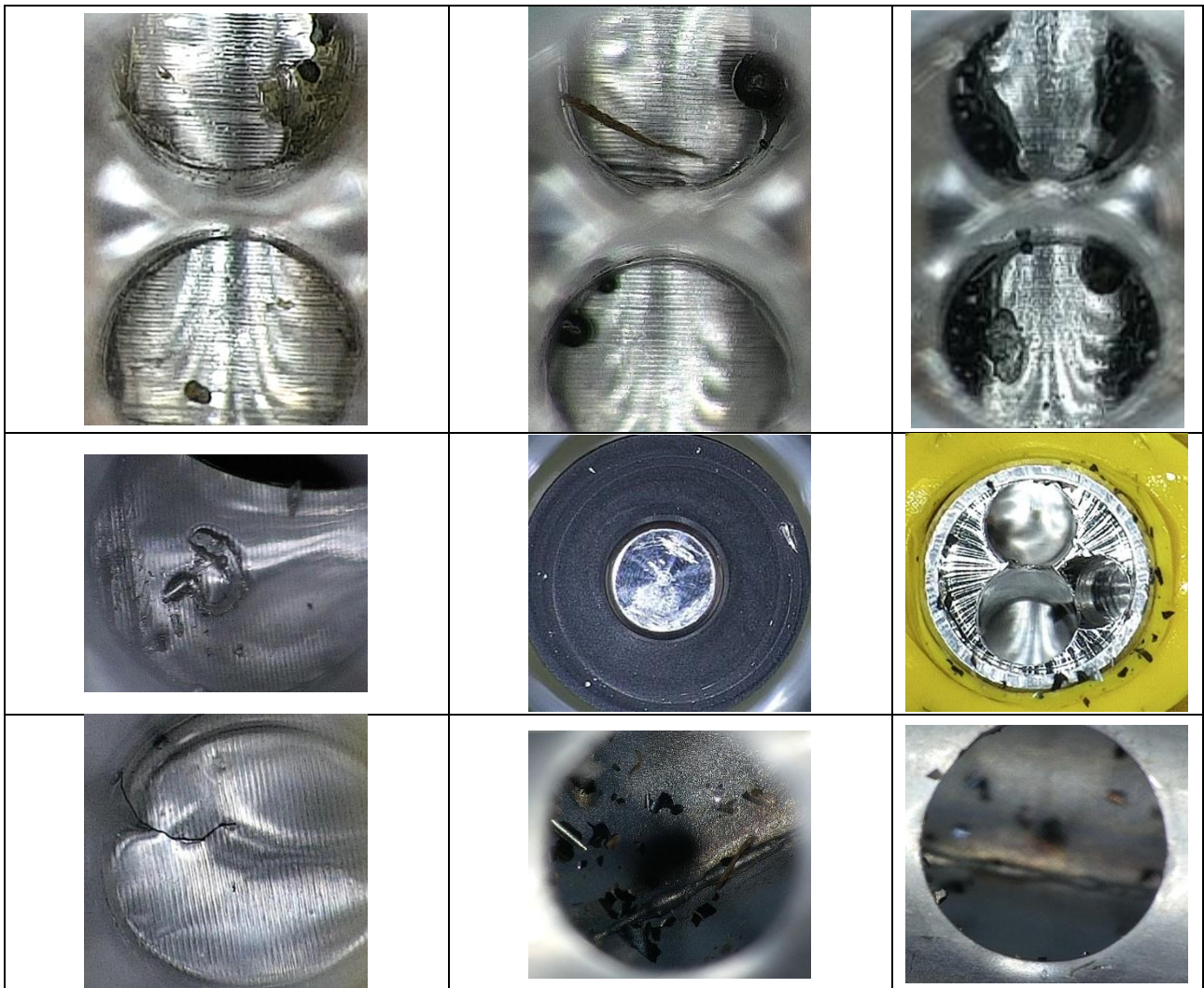
To avoid damage that may compromise correct functioning of the thermostats, do not exceed the tightening torques listed in the table "maximum torque value".

To avoid dirt or other material (solid or liquid) entering the equipment which may affect functionality of the thermostat, a suitable filter should be mounted on the manifold inlet.

The thermostat has to be stored and assembled in a cleaned area to avoid any contamination.

To avoid any damage on the thermostat, the manifold must be completely cleaned and free of burrs before the thermostat assembling. In order to guarantee a cleaned manifold, moreover an air blowing process, a degreasing washing system has to be considered, like an ultrasonic system.

Examples of possible particles contamination that could come in the thermostat from the inlet compromising its functionality:



MAINTENANCE INSTRUCTIONS

Maintenance of the taps is not foreseen, in case of failure or incorrect operation replace the tap with a new one (same model and same characteristics).

NB.: Leak test should be performed using a suitable appliance. Leak test mustn't be done by means of a flame or immersion of the valve in water or other liquids. The non-observance of this prescription can compromise the correct working and the safety of the product.

SAFETY & ENVIRONMENT INSTRUCTIONS

Please note that none of our products / components contain substances that may be released intentionally during normal or reasonably foreseeable use.

The normal or reasonably foreseeable use of our items does not involve particular precautions; only for disposal at the end of their life, it is recommended not to subject the products / components to mechanical processing such as cutting or drilling, which could cause exposure to the substances contained in the products / components or their dispersion into the environment.

VARIANTS

INLET VARIANTS

inlet	denomination	assembly
1 – 1N	single bracket 1 screw	tube diameter 14 mm (hole diameter 8.2 mm)
2 – 2N	single bracket 1 screw	tube diameter 16 mm (hole diameter 8.2 mm)
5 – 5N	single bracket 1 screw	tube diameter 18 mm (hole diameter 8.2 mm)
8 – 8N	bracket 2 screws	tube diameter 18 mm (hole diameter 8.2 mm)
9 – 9N	bracket 2 screws	tube diameter ½"gas (hole diameter 8.2 mm)
13 – 13N	bracket 2 screws	tube diameter 16 mm (hole diameter 8.2 mm)
15 -15N	bracket 2 screws	tube diameter 8 mm (hole diameter 5.7 mm)
16 – 16N	bracket 2 screws	tube diameter 10 mm (hole diameter 5.7 mm)
17 – 17N	bracket 2 screws	tube diameter 14 mm (hole diameter 8.2 mm)
19 – 19N	bracket 2 screws	tube diameter 19 mm (hole diameter 8.2 mm)
20 – 20N	bracket 2 screws	tube diameter 17 mm (hole diameter 8.2 mm)

OVEN OUTLET VARIANTS

outlet	denomination	assembly
A	tube diameter 6 mm	compression fitting
B	tube diameter 8 mm	compression fitting
C	tube diameter 10 mm	compression fitting
D	tube diameter 6 mm	compression fitting
E	tube diameter 8 mm	compression fitting
F	G 3/8"	flared tube
G	G 1/4"	flared tube
H	M 14 x 1.5	flared tube
L	tube diameter 9.525 mm	compression fitting
M	tube diameter 7 mm	compression fitting
N	tube diameter 8 mm	compression fitting
O	tube diameter 6.35 mm	compression fitting
S	tube diameter 6.35 mm	compression fitting
T	tube diameter 10 mm	compression fitting
X	tube diameter 7 mm	compression fitting
Z	tube diameter 4 mm	compression fitting

PILOT OUTLET VARIANTS

outlet	denomination	assembly
A	tube diameter 3.175 mm (1/8")	compression fitting
B	tube diameter 4 mm	compression fitting
C	tube diameter 4.76 mm (3/16")	compression fitting
D	tube diameter 6 mm	compression fitting
E	tube diameter 6.35 mm (1/4")	compression fitting
F	tube diameter 3.5 mm	compression fitting
G	tube diameter 3.175 mm (1/8")	compression fitting
H	tube diameter 4 mm	compression fitting
I	tube diameter 4.76 mm (3/16")	compression fitting
L	tube diameter 6 mm	compression fitting
M	tube diameter 6.35 mm (1/4")	compression fitting
N	tube diameter 3.5 mm	compression fitting
O	tube diameter 3.175 mm (1/8")	compression fitting
R	tube diameter 4 mm	compression fitting
S	tube diameter 4.76 mm	compression fitting
x	tube diameter 3.75 mm	compression fitting

Maximum torque values:

Maximum torque value		
Component	Nm	lbf.in
Nut + olive + aluminium tube for oven outlet of thermostats	15	133
Nut + olive + copper tube for oven outlet of thermostats	15	133
Nut + olive + steel tube for oven outlet of thermostats	10	89
Nut + tapered aluminium tube (bundy) for oven outlet of thermostats	15	133
Nut + boulged aluminium tube for oven outlet of thermostats	15	133
Nut for fixing thermocouple to magnet	4	35
Screws for brackets	1.5	13

MANUFACTURING DATE CODES

MONTH	CODE
JANUARY	N
FEBRUARY	O
MARCH	P
APRIL	R
MAY	S
JUNE	T
JULY	U
AUGUST	V
SEPTEMBER	W
OCTOBER	X
NOVEMBER	Y
DECEMBER	Z

YEAR	CODE
1992	A
1993	B
1994	C
1995	D
1996	E
1997	F
1998	H
1999	I
2000	J
2001	K
2002	L
2003	M
2004	4
2005	5
2006	6
2007	7
2008	8
2009	9
2010	0
2011	1
2012	2
2013	3
2014	4
2015	5
2016	6
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EXAMPLE: A COMPONENT PRODUCED IN APRIL 2004 IS MARKED

R4

Alternatively, on the component can be marked a four digit code indicating the week (first two digits) and the year of production (last two digits).

EXAMPLE: A COMPONENT PRODUCED THE 14TH WEEK OF 2004 IS MARKED

1404

Alternatively, on the component can be marked the day (first digits), the month (according with the code in table above) and the year of production (last two digits).

EXAMPLE: A COMPONENT PRODUCED IN APRIL, 19 2004 IS MARKED

19 R 04