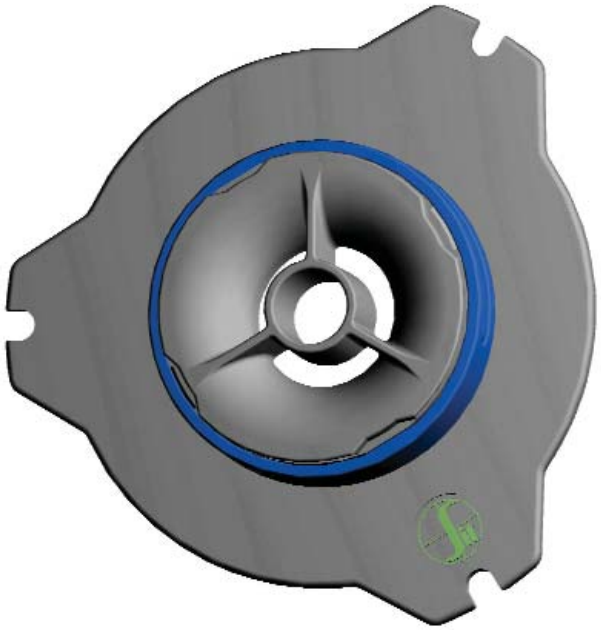
SITGroup

391 AGM



GAS/AIR FLOW CONTROL AND MIXING SYSTEM

Application

Fan-assisted gas-fired appliance with premix burner.
The AGM system is particularly suitable for modulating condensing boilers.

Main features

Advanced gas/air mixing system (patent pending).
Features compact dimensions with an extremely straightforward integration onto the fan.

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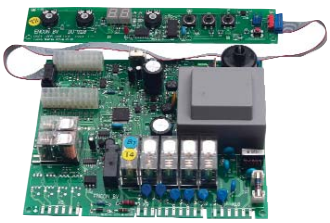
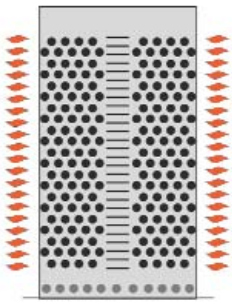
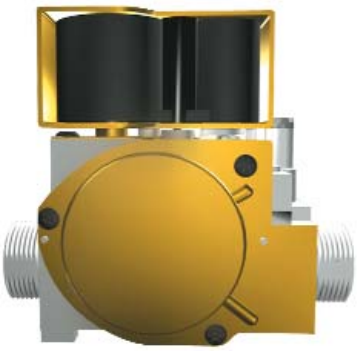
THE SIT AIR/GAS SYSTEM

SIT offers a complete and innovative control system specifically designed for condensing boilers with air/gas control. The system has been designed and manufactured with a view to ensuring the top-level performance required for condensing appliances in terms of efficiency, modulating range, advanced functions and silent operation.
Each of the components has been certified according to the reference standards and complies with the highest specifications in terms of quality and reliability, in tune with the advanced technological characteristics of the appliances in which they are installed.
The system components are available both in combination or separately for partial integration. The 391 AGM (Air Gas Mixer) is the heart of the system and has been designed with the aid of specific fluid dynamic trials and accurate laboratory tests to ensure both a high mixing efficiency and a limited noise level in all working conditions. In particular, this latter aspect has been studied in depth using simulation programs and lab tests to guarantee results in most types of application.
The AGM incorporates both axial and radial mixing techniques and the radial inflow openings are variable to adapt the system's performance to the needs of the appliance.

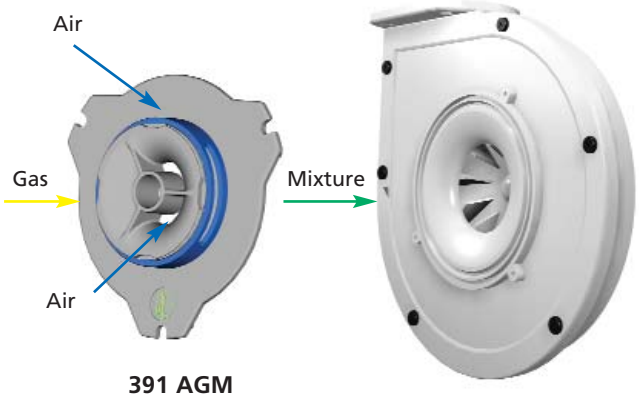


F-900





848 SIGMA



391 AGM

GENERAL DATA

CONSTRUCTION CHARACTERISTICS

- Aluminium body

WORKING CONDITIONS

• Assembly position	at fan inlet
• Ambient temperature	the 391 AGM is suitable for the normal temperature range of domestic gas appliances (-20°C to +100°C)

MECHANICAL CONNECTIONS

• Fan connection	3 holes on a pitch diameter of 100 mm are provided for making the connection to any of the fans commonly available on the market with M6 screws.
• Gas injection	designed for metal pipes with an outer diameter of $12\ ^{+0.07}_{+0.02}$ for positioning inside the cylindrical injection holder.
• Gas control connections	using specific accessories, you can make compact 391 AGM/848 SIGMA systems in the two, axial and lateral options.

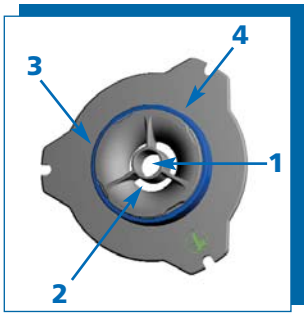
DESCRIPTION

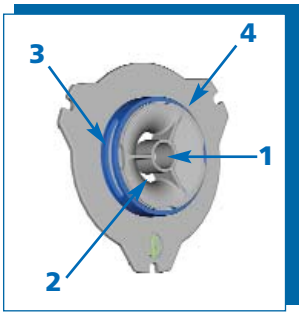
1 Gas injection

2 Axial air inlet

3 Lateral air inlet

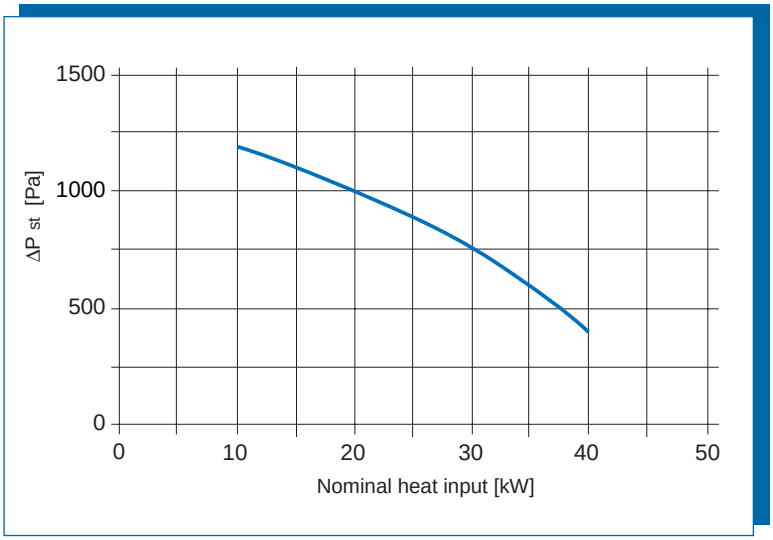
4 Plastic air inflow adjusting ring





CHARACTERISTICS

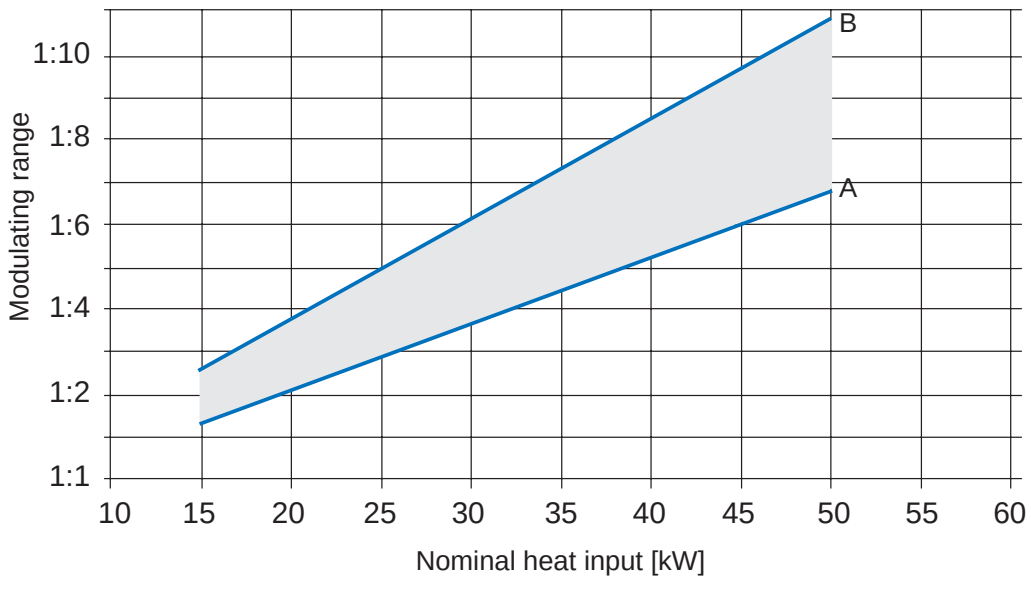
FLOW RATE/HEAD



The following diagram shows the operating curve for MVL RG130 230 Vac fitted with the 391 AGM.
The curve refers to an operating condition of 6000 rpm, side opening fully open.
The nominal heat input is on the assumption of a combustion process using gas G20, net calorific value, $\lambda = 1.3$.

MODULATING RANGE

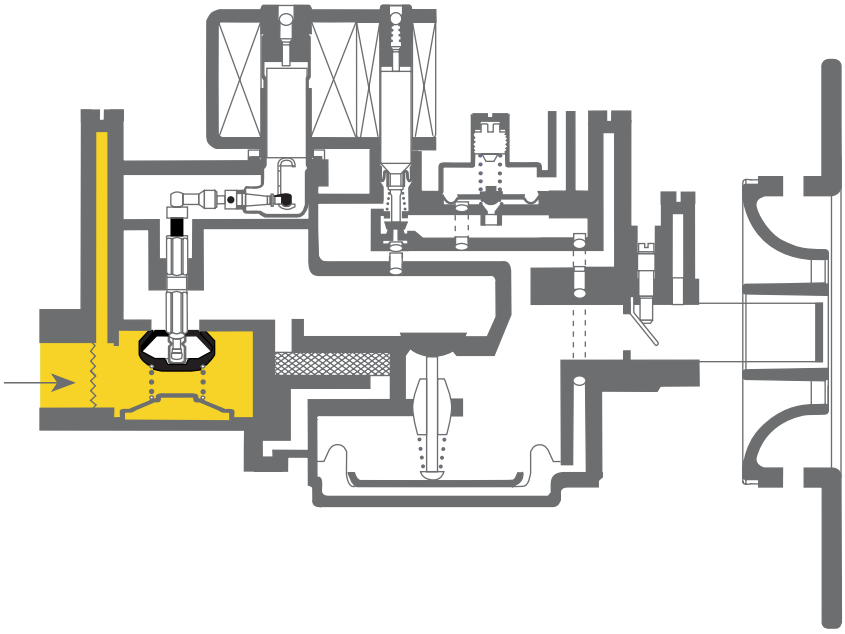
The maximum and minimum heat inputs are strictly related to the characteristics of the appliance. The following graph gives you an idea of the modulating range at different rated maximum heat inputs of the appliance in the reference conditions with a minimum pressure drop of 50 Pa in the gas injection section.
The two limit curves refer to the condition with side air inflow openings.
Reference conditions: gas G20, net calorific value, $\lambda = 1.3$.



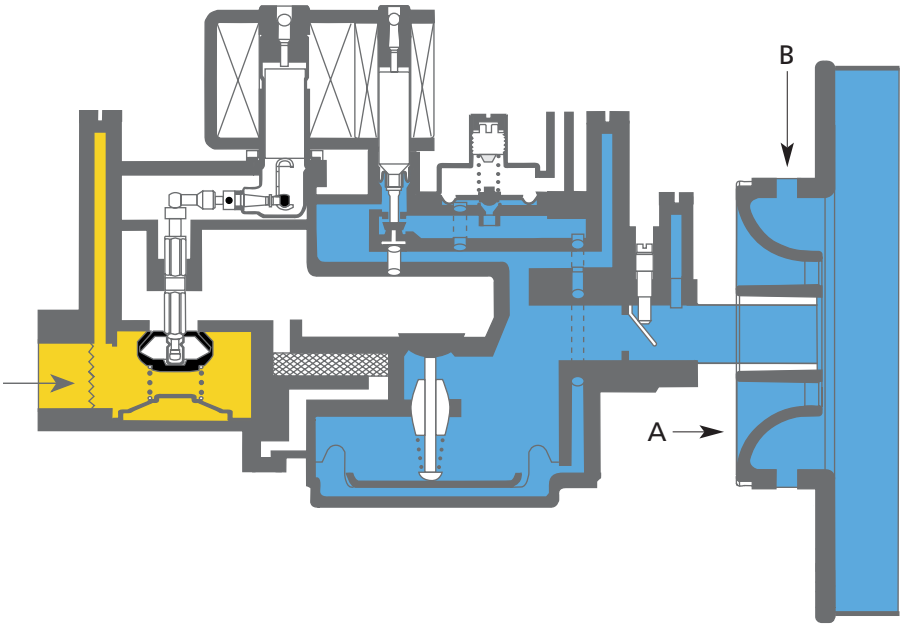
A = Side openings fully open
B = Side openings fully closed

OPERATION

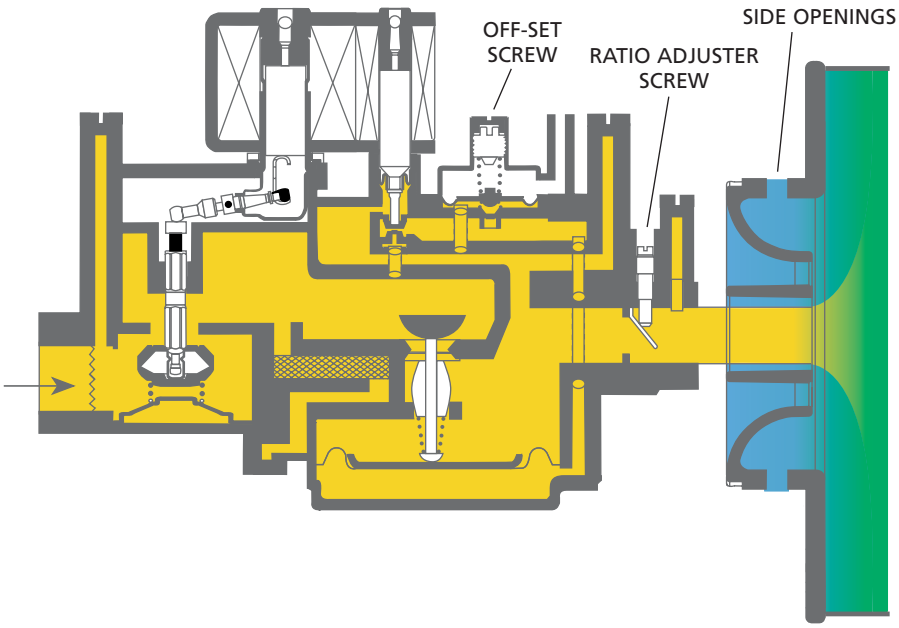
Standby - With the appliance on standby there is no air flow through the 391 AGM and the path of the gas is intercepted by the multifunctional air/gas control.



Pre-purge - In pre-purge conditions the air flow through the 391 AGM is enabled. The air is delivered in both the axial (A) and the transversal (B) directions.



Operation - Both the automatic shut-off valves are open. The gas flows from the gas control to the 391 AGM, where it is injected into the mixing chamber. The air/gas mixture then flows to the burner.



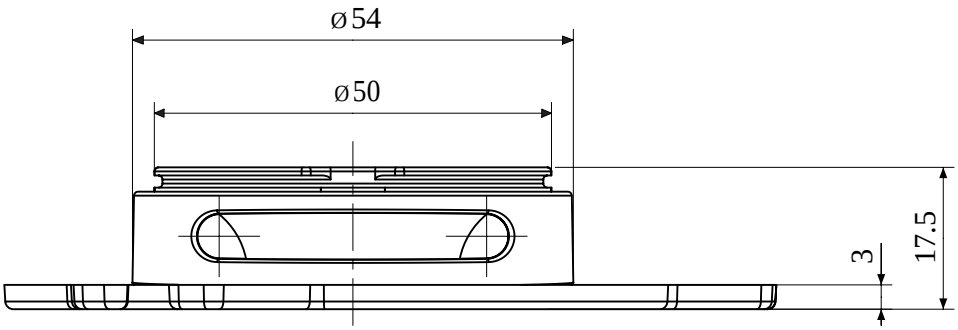
ADJUSTMENTS OPERATION

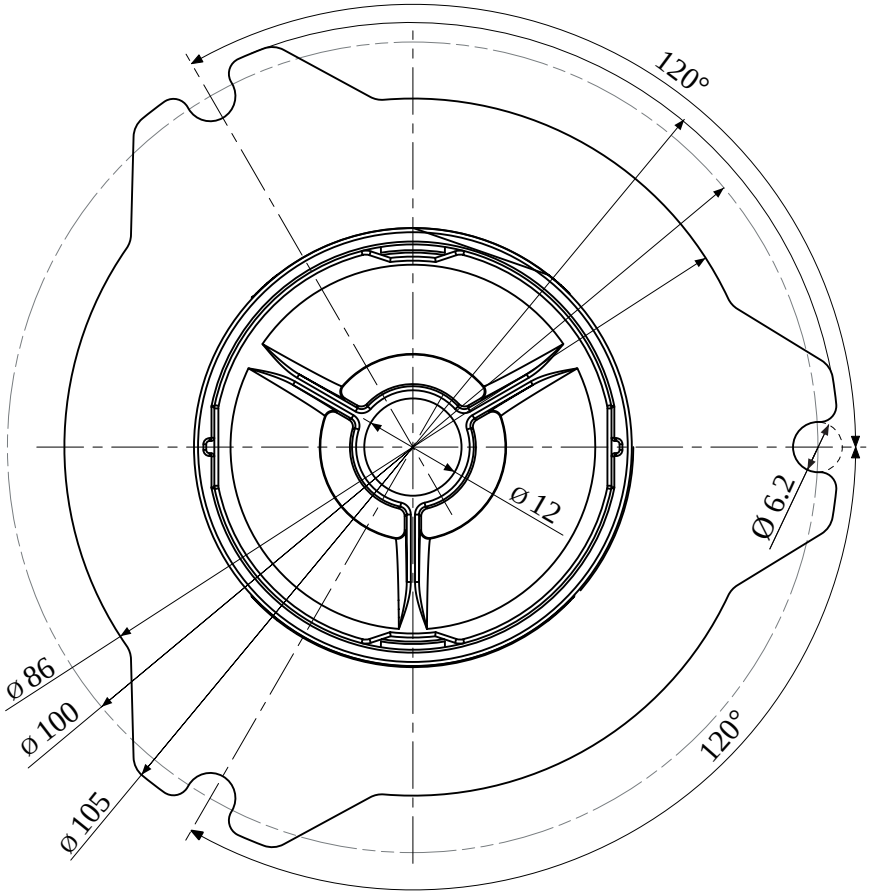
There is nothing to adjust or calibrate in the 391 AGM. The positioning of the side air openings is established at the factory, once this has been completed, it must not be modified in any way.

The following are a few recommendations concerning the preliminary operations involved in the application of the 391 AGM for establishing the correct air/gas configuration.

1) Install the 391 AGM with the side air openings fully open and the 848 SIGMA with the mixer completely open.
2) Bring the fan up to its maximum operating speed.
3) Power on the 848 SIGMA to open the gas flow. Once ignited, use the ratio adjuster situated on the gas control to obtain the required CO_2 value.
4) Check the input. If it is higher than the required value, begin to close the side openings progressively, step by step and simultaneously close the ratio adjuster to obtain the right CO_2 value.
5) Then bring the fan down to its minimum operating speed and adjust the CO_2 to the expected value with the offset screw on the 848 SIGMA.
6) Repeat the operations with maximum and minimum fan speed once again.
7) Make a record of the position of the side openings and offset adjustment. You can also define an equivalent gas injector instead of using the ratio adjuster.

DIMENSIONAL DRAWINGS





NOTE: All the dimensions are expressed in millimeters.

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