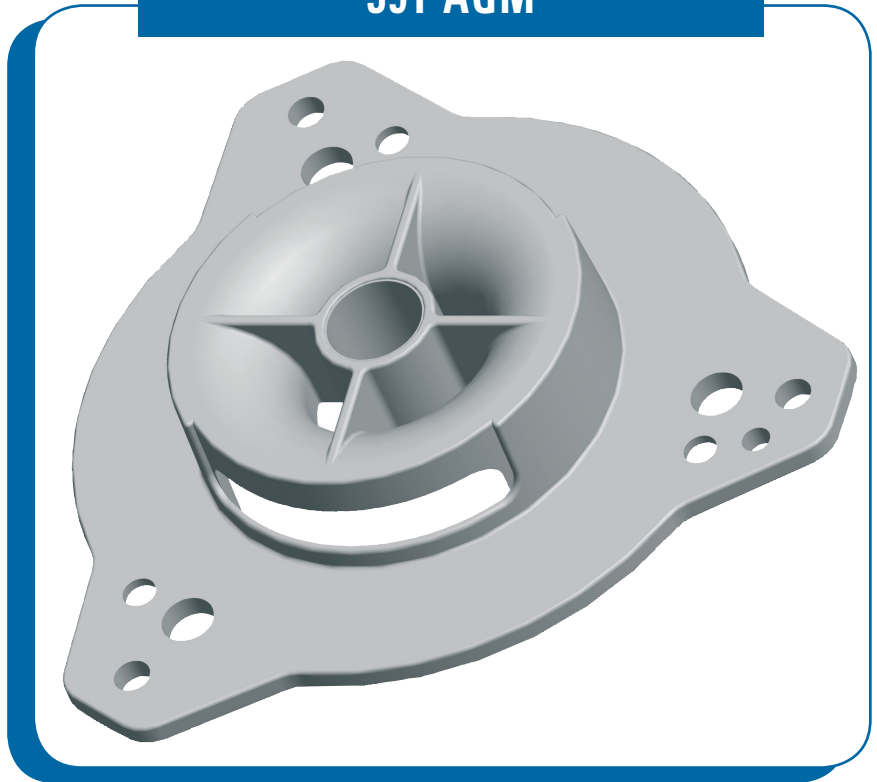




**SIT**Group

**NEW**

**391 AGM**



## **GAS/AIR FLOW CONTROL AND MIXING SYSTEM**

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### **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.



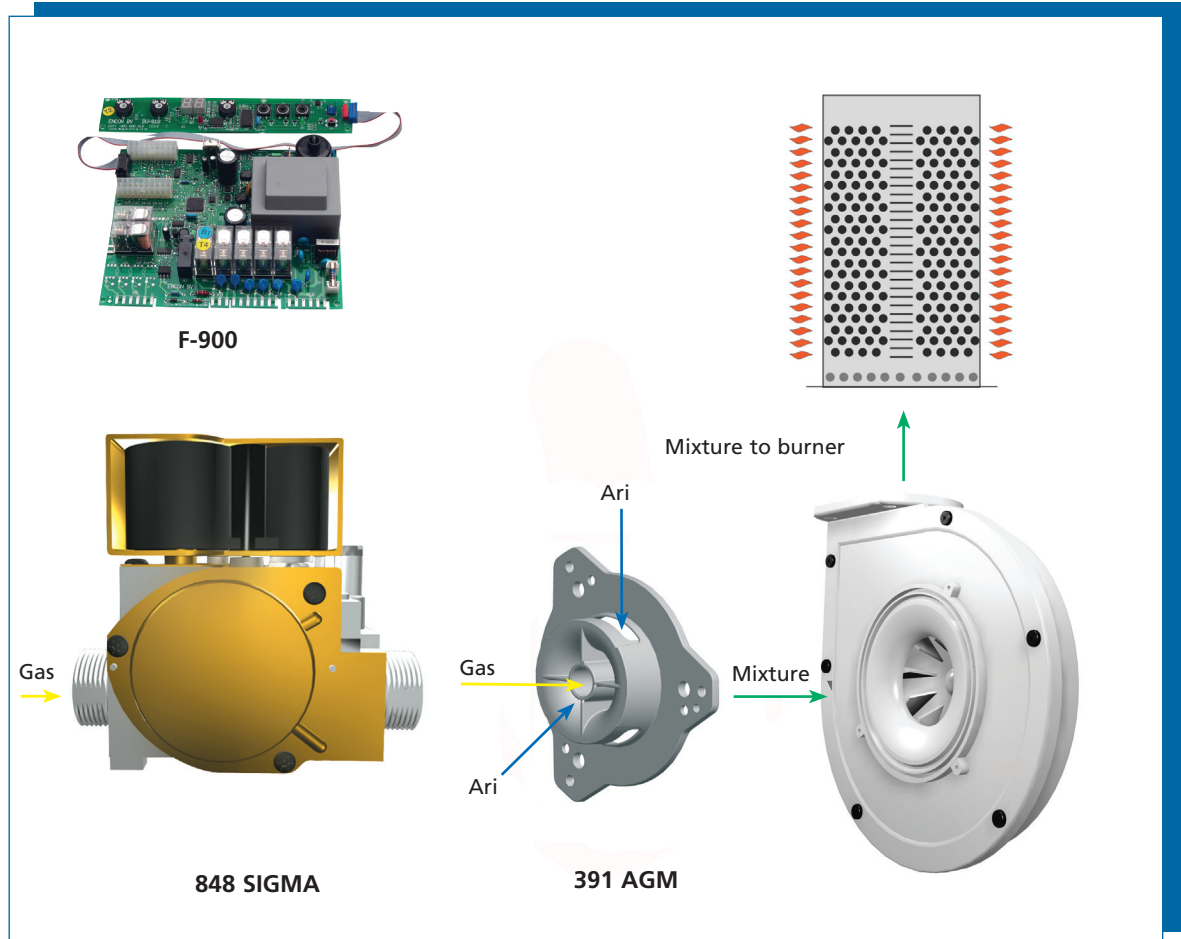
## THE SIT AIR/GAS SYSTEM

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.



## GENERAL DATA

### CONSTRUCTION CHARACTERISTICS

- Plastic body

### WORKING CONDITIONS

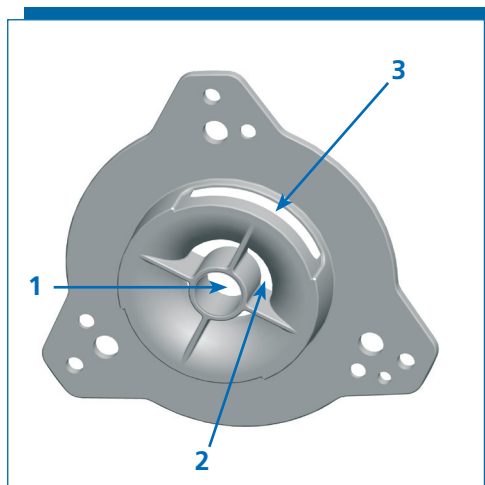
- Assembly position at fan inlet
- Ambient temperature the 391 AGM is suitable for the normal temperature range of domestic gas appliances (-20°C to +80°C)

### MECHANICAL CONNECTIONS

- Fan connection 3 holes M 4 on a pitch diameter of 100 mm and 3 holes M 6 on a pitch diameter of 80 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.

## DESCRIPTION

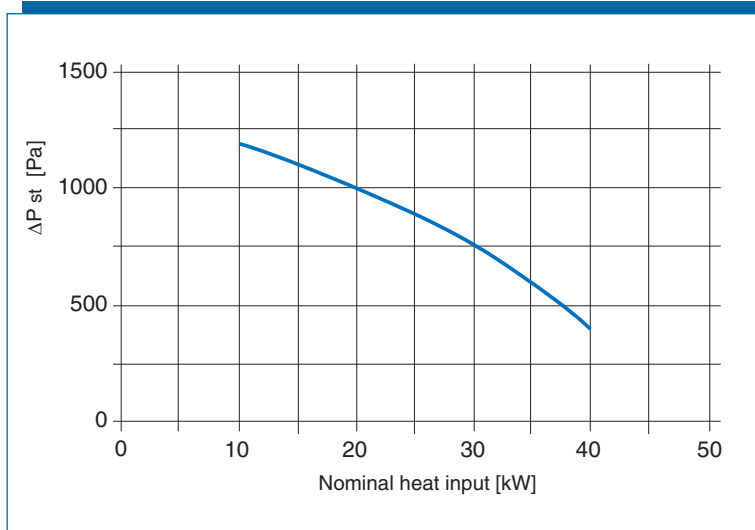
- 1 Gas injection
- 2 Axial air inlet
- 3 Lateral air inlet





# CHARACTERISTICS

## FLOW RATE/HEAD



The following diagram shows the operating curve for MVL RG130 230 Vac fitted with the 391 AGM.

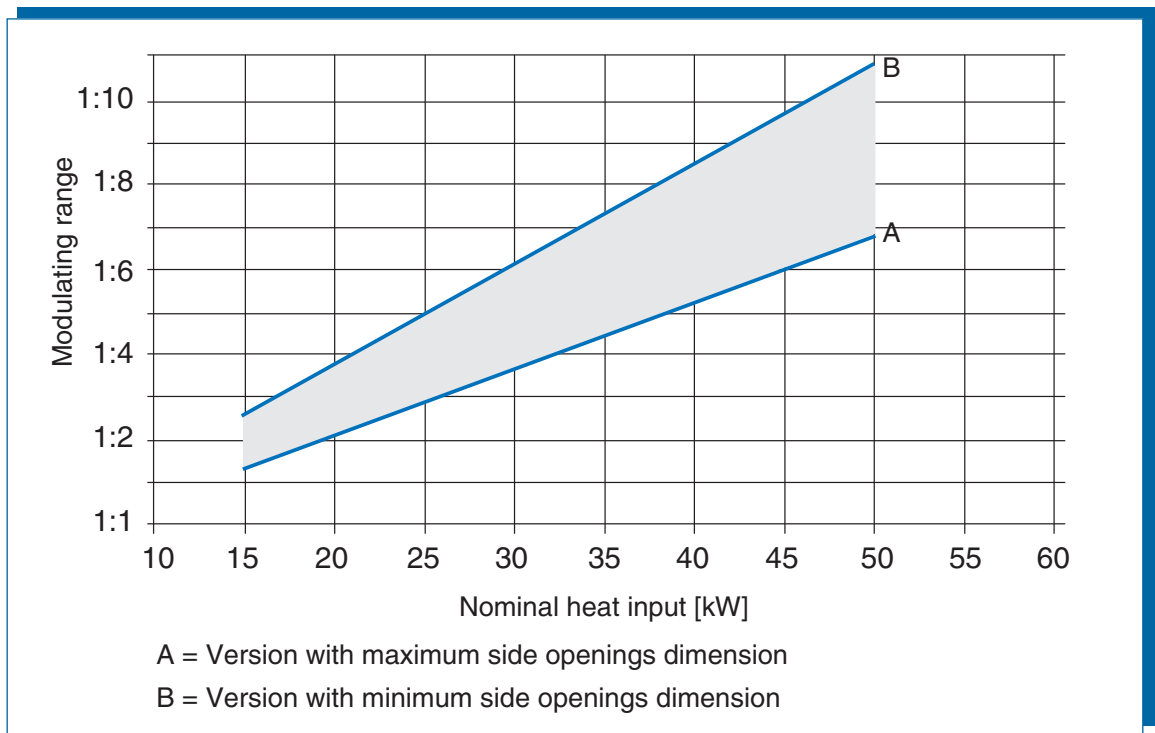
The curve refers to an operating condition of 6000 rpm, side opening fully open. The nominal heat input is on the assumption of a combustion process using gas G20, net calorific value,  $\lambda = 1.3$ .

## 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.

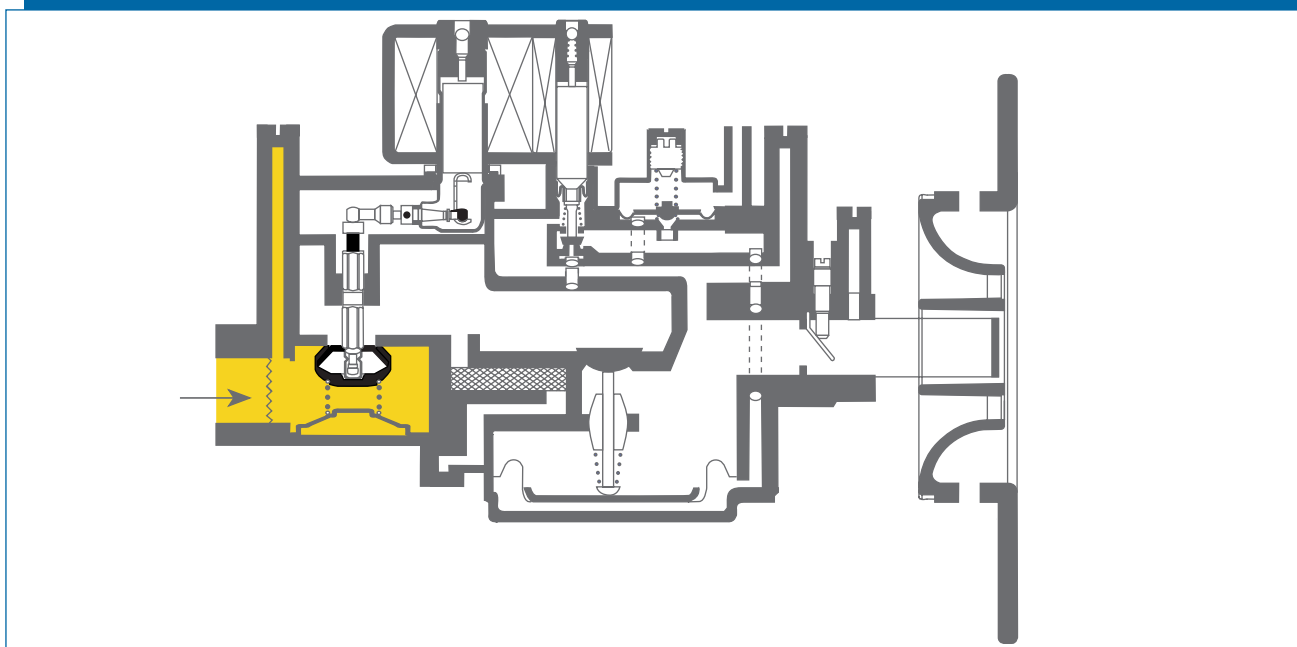
The two limit curves refer to the condition with side air inflow openings.

Reference conditions: gas G20, net calorific value,  $\lambda = 1.3$ .

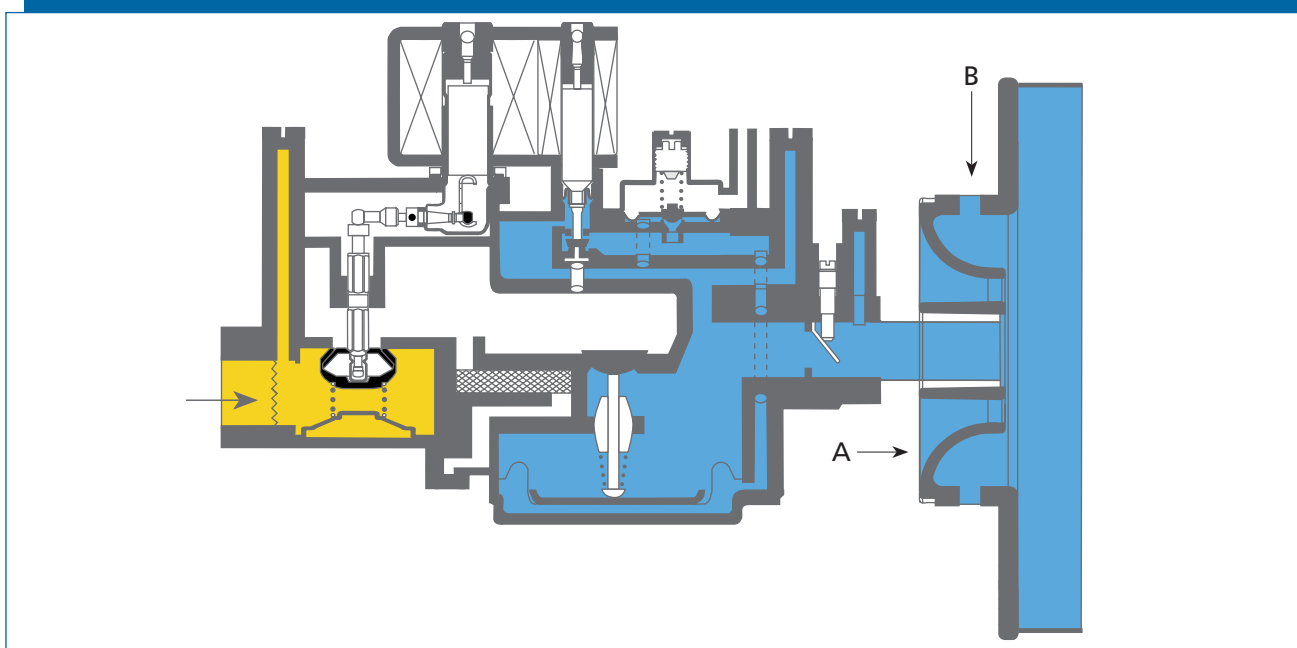


## OPERATION

**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.

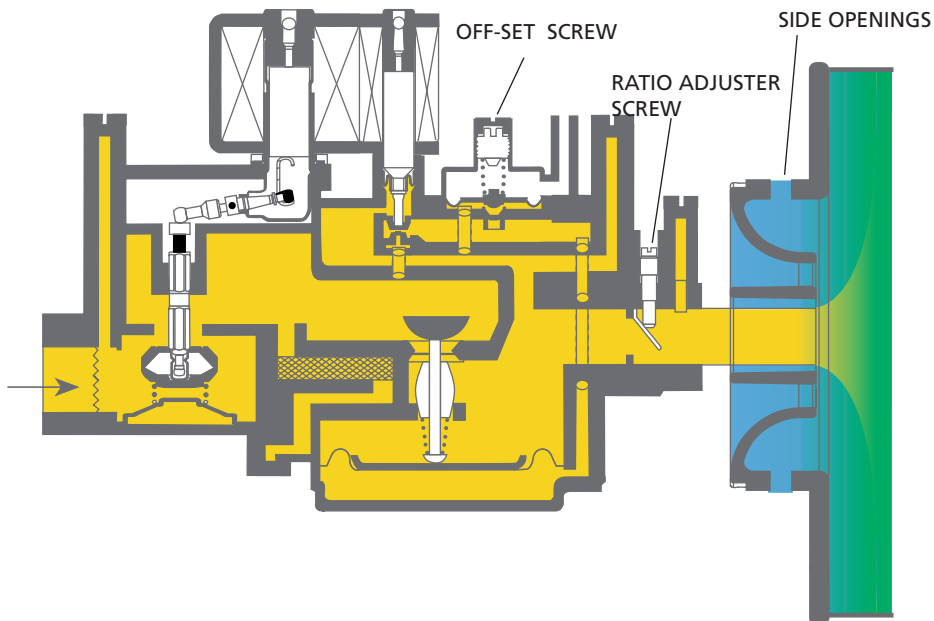


**Pre-purge** - In pre-purge conditions the air flow through the 391 AGM is enabled. The air is delivered in both the axial (A) and the transversal (B) directions.



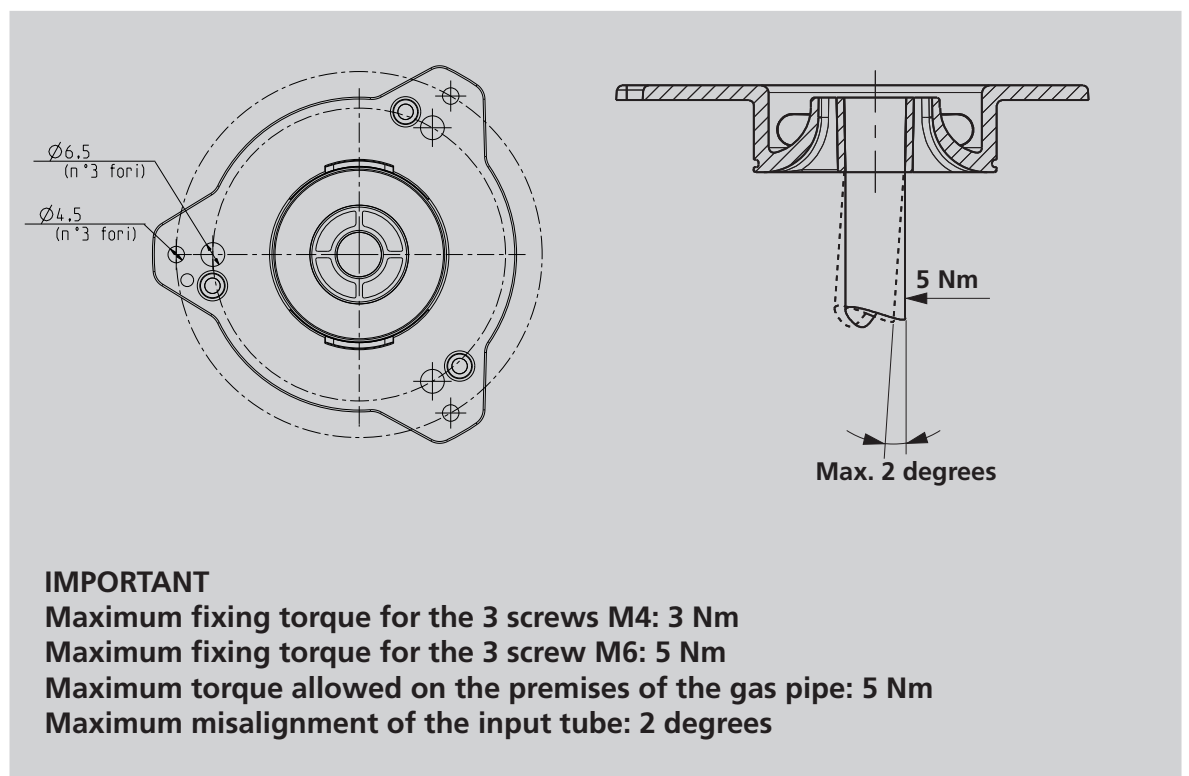


**Operation** - Both the automatic shut-off valves are open. The gas flows from the gas control to the 391 AGM, where it is injected into the mixing chamber. The air/gas mixture then flows to the burner.



## INSTALLATION

1) Assemble the mixer 391 AGM to the fan tightening the screws with the correct torque (see following drawing and dimensional drawing on page. 8):



If a gasket is interposed between the mixer and the fan, use an O-ring with rope  $\varnothing$  3 mm with a maximum compression of 15%.

- 2) Insert the tube of gas. During and after installing the pipe must not apply on the mixer a torque more than 5 Nm. The alignment of the tube may deviate by up to 2 degrees maximum from the axis of the mixer 391 AGM. During the mounting of the connection on the gas valve, it must be locked to avoid exercise pairs of torsion on the mixer.

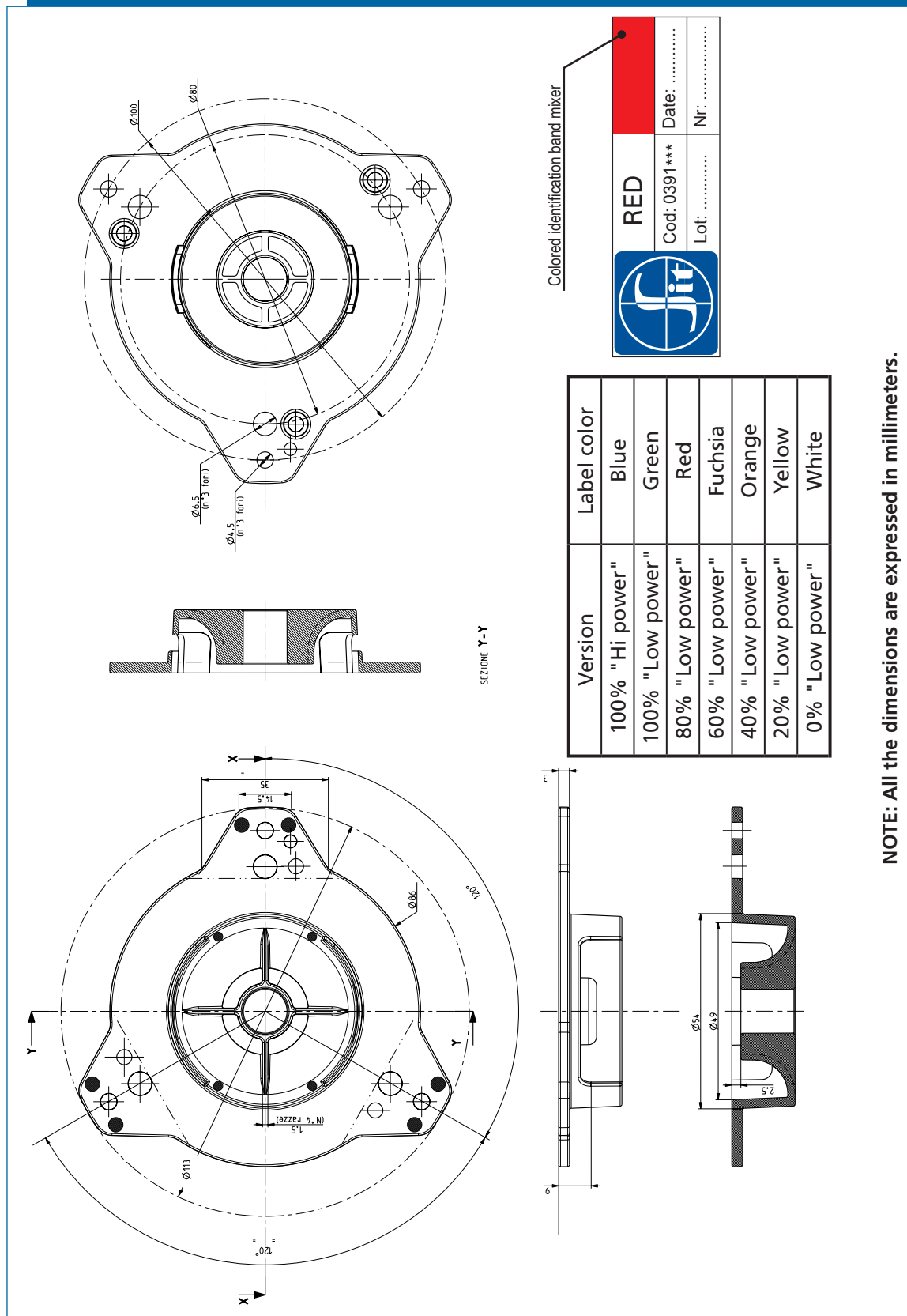
## **ADJUSTMENTS OPERATION**

There is nothing to adjust or calibrate in the 391 AGM.

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 adapted version of the 391 AGM and the 848 SIGMA with the ratio adjuster 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<sub>2</sub> value.
- 4) Then bring the fan down to its minimum operating speed and adjust the CO<sub>2</sub> to the expected value with the offset screw on the 848 SIGMA.
- 5) Bring the fan up to its maximum operating speed and move the ratio adjuster on the gas control, if necessary .

# DIMENSIONAL DRAWINGS



NOTE: All the dimensions are expressed in millimeters.



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