Glass SERVICE

SOLUTIONS FOR THE GLASS INDUSTRY

VENTURI MIXER

GENERAL DESCRIPTION

Glass Service produces a very precise and customizable venturi mixer to correctly manage the air/gas ratio in the glass industry applications

The mixer is composed of a cast iron shell with a tailor made venturi insert inside, calibrated according to the design specifications. Combining the Venturi principle and the use of a regulator needle allows for precisely the correct amount of gas to be pulled in with the force of airflow and the resulting mixture is sent to the burners. The proper air/fuel ratio is set initially by the valve built into the mixer.

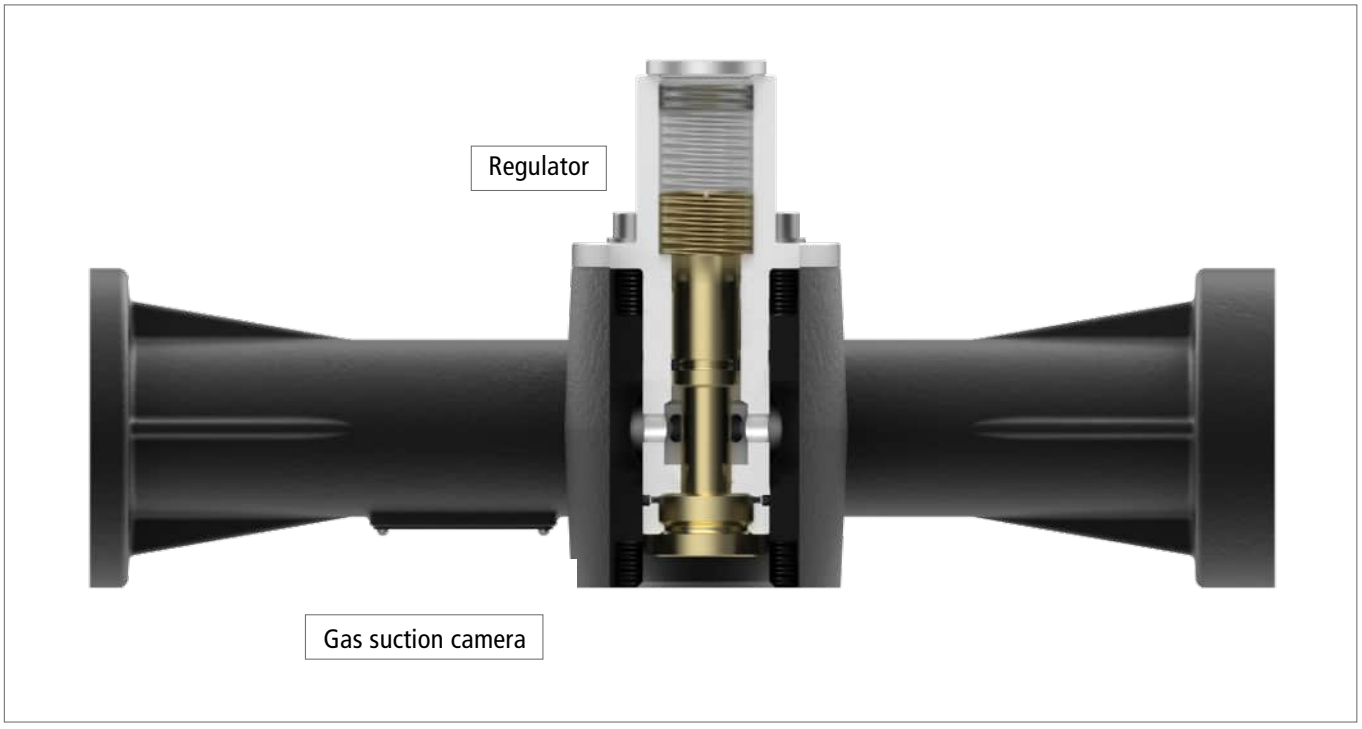
The main features of the mixer are:

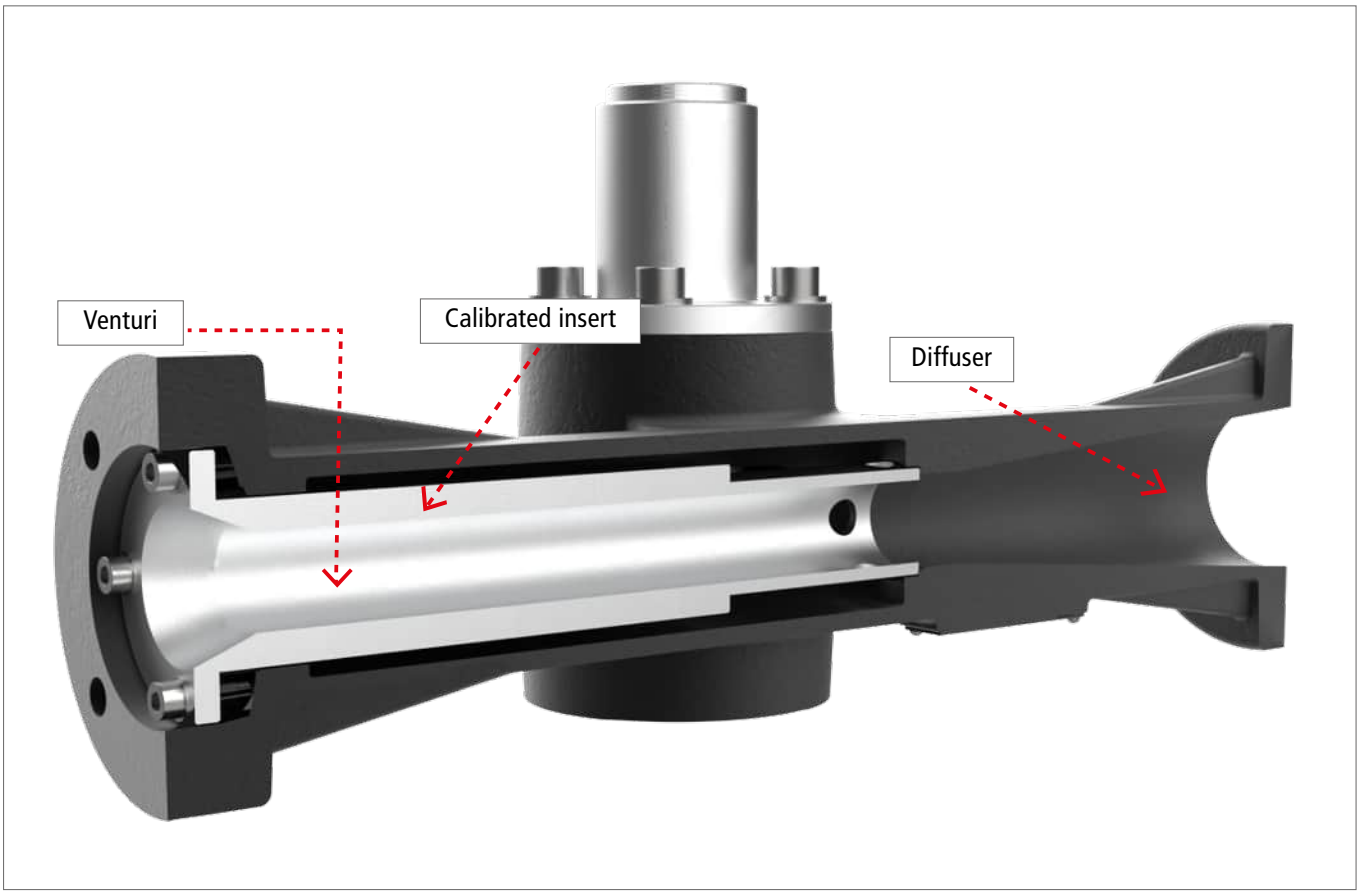
- Low pressure loss
- Multiple size combinations
- Flange connection to facilitate inspection, cleaning and regulation of capacity
- Compact and reversible design
- Solid construction
- High reliability due to the cast iron construction
- Orientation-free installation
- Built in gas adjustment valve
- Easy disassembly for fast maintenance and scalability
- Constant combustion ratio

VENTURI MIXER

GENERAL 3D VIEW

DETAILS OF THE MIXER

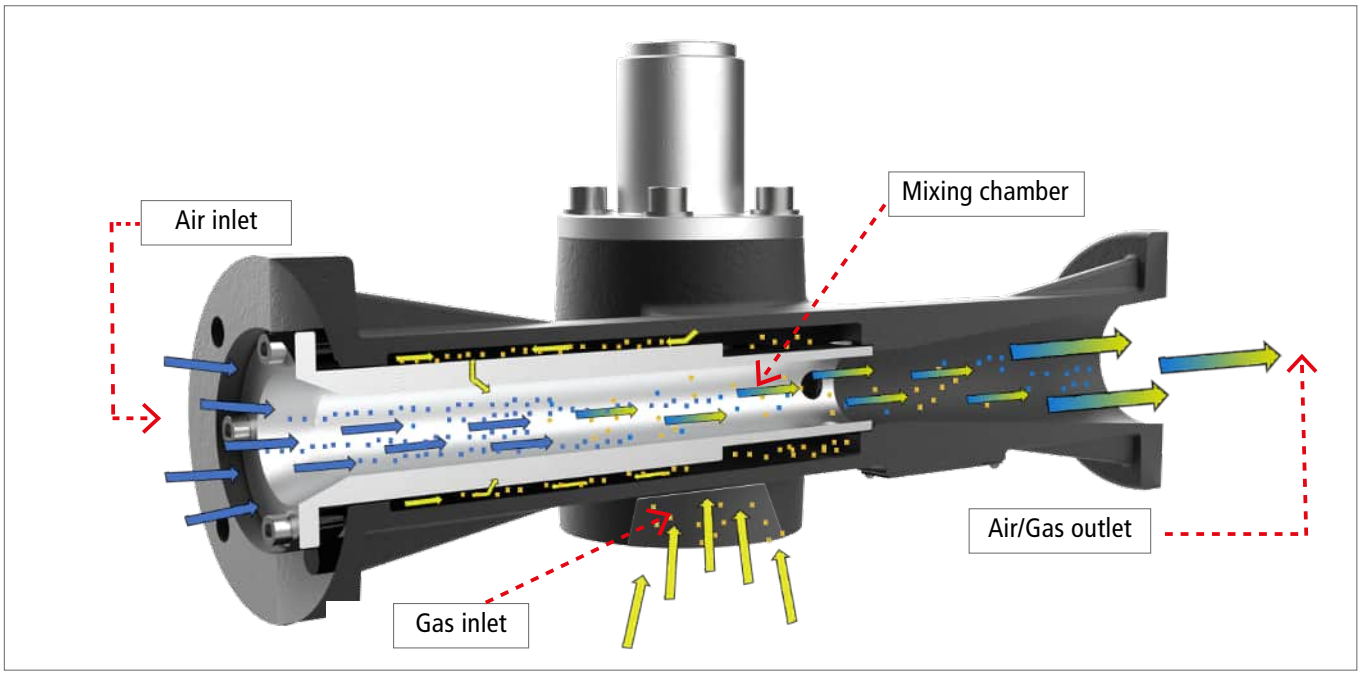




MATERIALS

The mixer body and the mixing chamber are machined from a cast iron piece, while the insert is made of Aluminum Anticorodal. The calibrated nozzle, made in brass, is also completely customizable.

PRINCIPLE OF OPERATION



The energy of air passing through the venturi throat generates a depression with a consequential suction effect that forces gas to exit from the gas nozzle. The air/gas mixture then recovers pressure in the mixing chamber at the expense of velocity of the flow. The correct amount of gas is controlled by the pin regulation valve.

DESIGN CRITERIA

Customarily, the air inlet pressure should be 3.5 times the mixer pressure. This ratio ensures enough airflow energy to pull the correct amount of gas into the mixer.

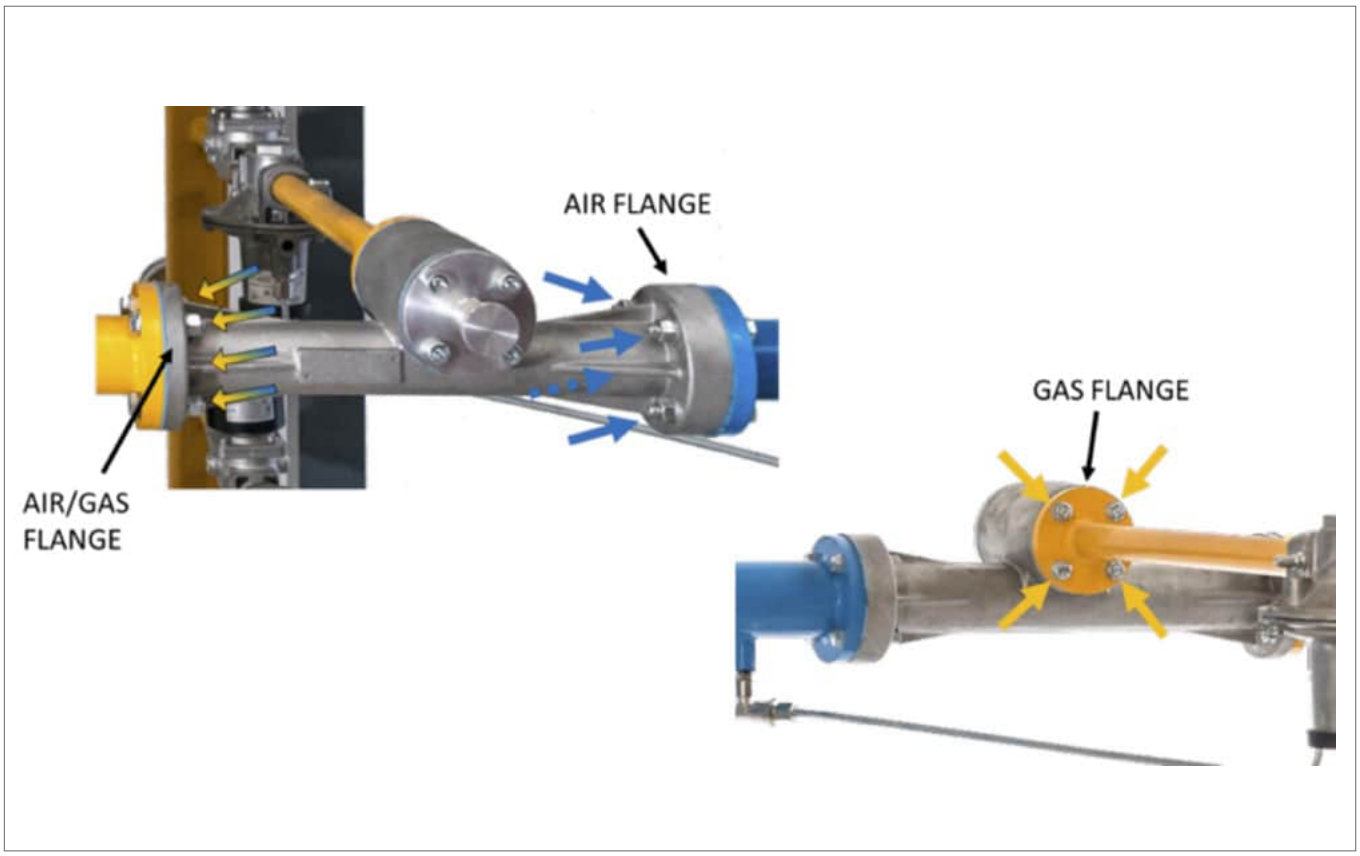
Another way to ensure that the system functions correctly is to consider a pressure drop in the venturi mixer of at least 66% of the entire system.

After testing, we have verified that with a ratio between (air inlet pressure)/(mixer pressure) of 3.5:1, the pressure drop in the venturi is 71%, which aligns to the second criteria.

A definitive relationship of about 2.5:1 should also be maintained between mixer air orifice area and burner exit port area.

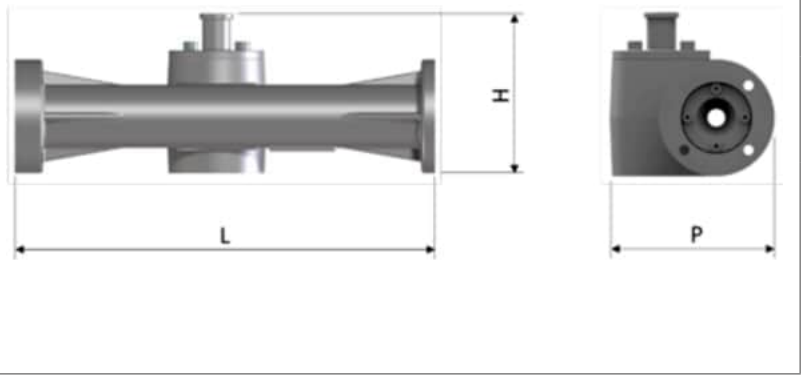
INSTALLATION

Installing the Glass Service venturi mixer is easy and fast: 4 screws for each flange and the mixer is ready to work.



GENERAL DIMENSIONS (mm) AND SIZES AVAILABLE

SIZE	H	L	P
DN40	142	325	124,5
DN50	142	375	143,3
DN65	154,5	425	163,5
DN80	193,5	605	185

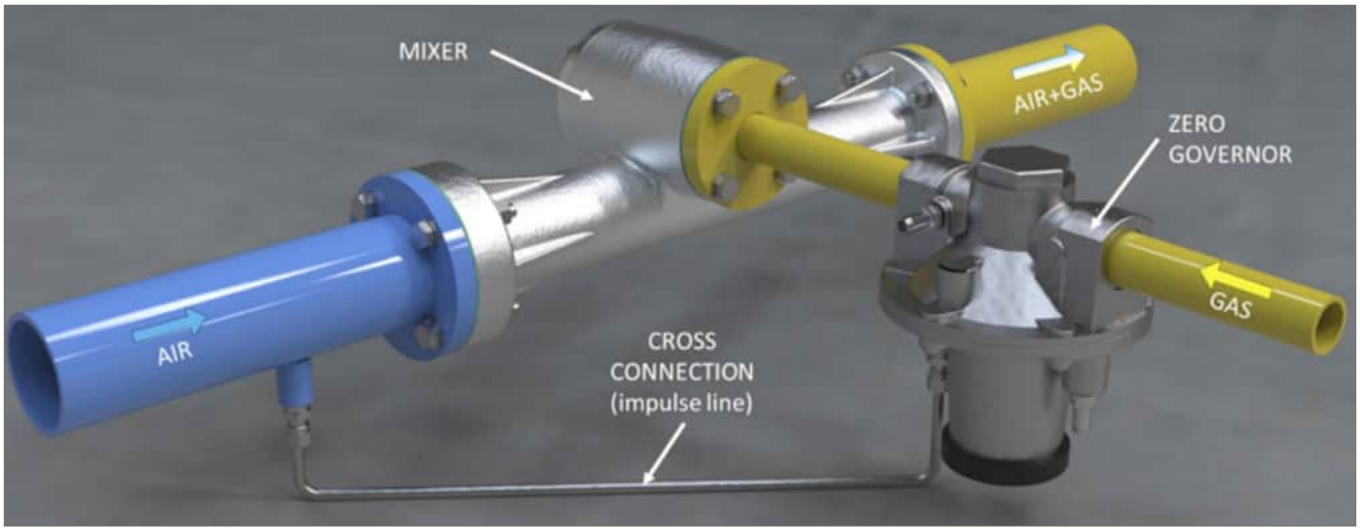


SIZE	POWER [kW]	MODEL	CODE	INNER INSERT Ø [mm]	SPUD DRILL Ø [mm]
DN40	98	G-MAIGLA00065MV	MV2-40	20	8
DN50	158	G-MAIGLA00066MV	MV2-50	26	12
DN65	265	G-MAIGLA00067MV	MV2-65	34	18
DN80	366	G-MAIGLA00069MV	MV2-80	40	22

These values are considered with a calorific power of 52 MJ/kg

ZERO GOVERNOR ratio regulator

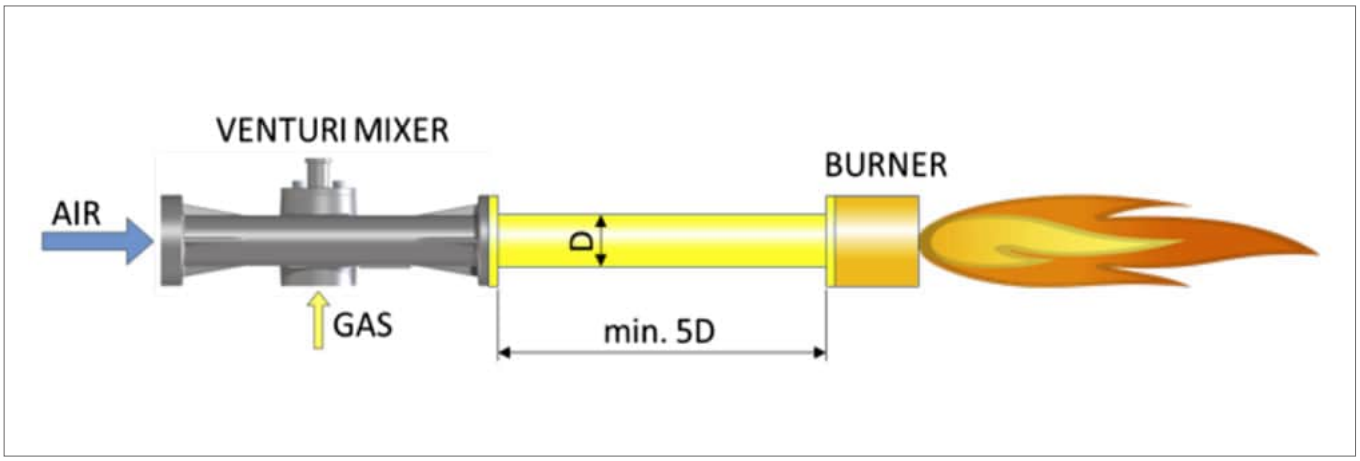
The Glass Service venturi mixer works in combination with the zero governor ratio regulator in order to control the fuel/air ratio in premix combustion systems. The zero governor works by maintaining atmospheric pressure, known as zero pressure, at the regulator outlet. Increased air flow through the venturi mixer increases suction on the gas line. In order to maintain its zero outlet pressure, the regulator automatically opens its gas valve to increase the amount of gas flowing into the mixer. When the air flow is reduced, suction decreases and the regulator valve closes in order to maintain zero pressure.



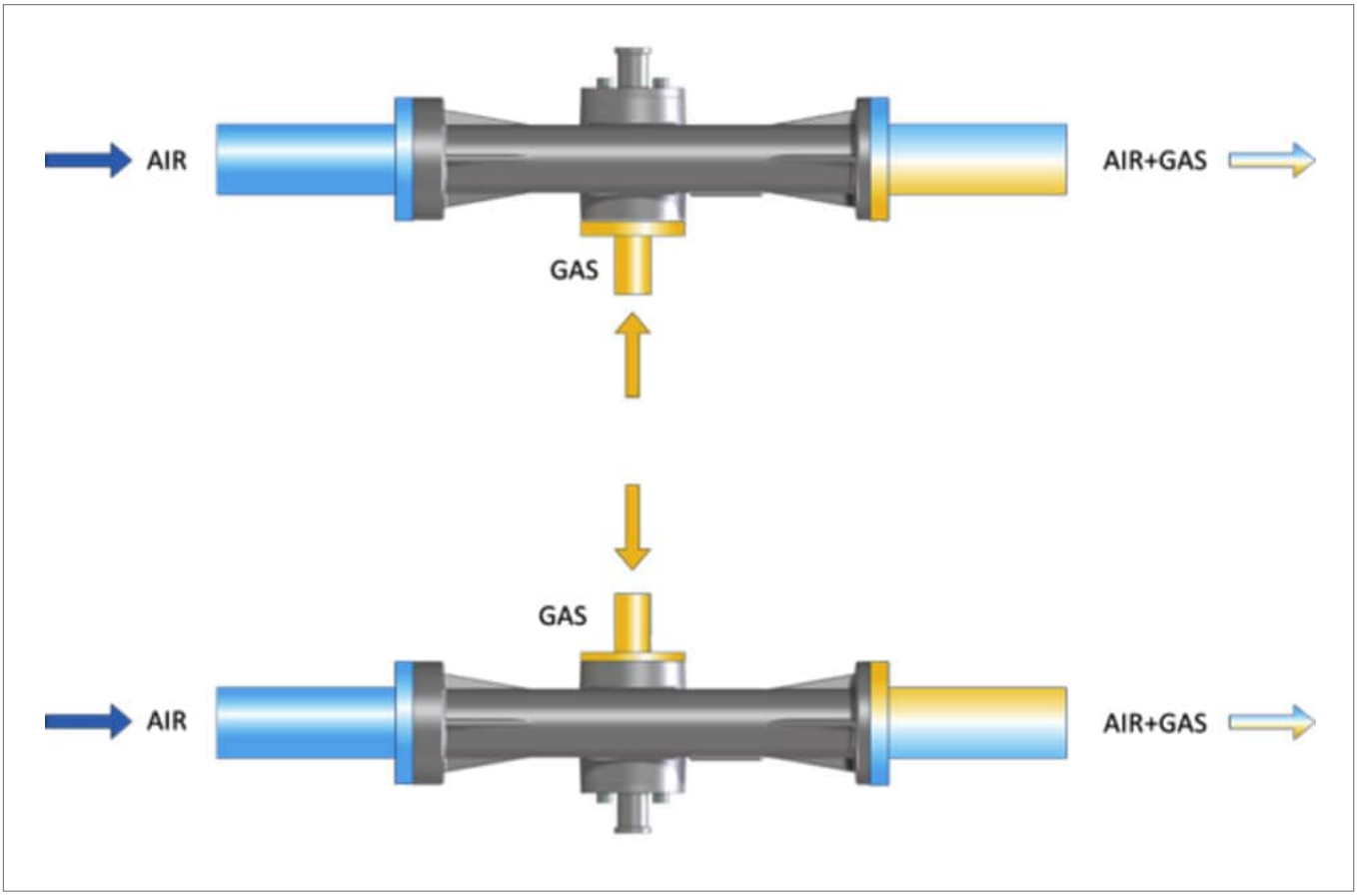
INSTALLATION TIPS

To avoid combustion instability, it is strongly recommended to:

- Not install elbows at the exit of the mixer
- Leave minimum distance of 5 times the tube diameter between the venturi mixer and the burner



As shown in the image below the venturi mixer can be installed in symmetrical configuration and, according to the gas arrival line, has interchangeable gas entrance.



MAINTENANCE:

Designed for easy use, the system meets the needs of those who use it, so the maintenance or the calibration phase is very fast. Remove a few screws and all the relevant parts are available.

CUSTOMERS WORLD WIDE

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boosters
bubblers
metallic recuperators
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control cabinets
SCADA and DCS
cooling systems

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