



- ✓ HYDROGEN BLENDING
- ✓ DISTRIBUTION GAS NETWORK
- ✓ HIGH PRECISION

## A SOLID BUSINESS CASE IN COLLABORATION WITH PIETRO FIORENTINI

### GENERAL INFORMATION ABOUT THE PROJECT



#### TARGET OF THE PROJECT:

Hydrogen experimentation: New requirements of transport and distribution gas network.



#### DEPARTMENT:

R&D Advanced Technologies



#### HEAD OF PROJECT MANAGEMENT:

Daniele Rossi



#### ROLE OF MCQ INSTRUMENTS:

To provide an effective solution for mimicking different mixtures of natural gas with controlled amounts of hydrogen

### MORE INFORMATION ABOUT THE COMPANY

The history of Pietro Fiorentini represents an Italian success story about a company that was able to conquer the world. After all, for those of us whose mission it is to overcome any and all barriers and achieve objectives that seem impossible, expansion is a natural instinct.

This has been the case since 1940, when the company was established, with constant growth that today makes us a Group with over 2,800 employees spread across more than 40 international locations, with a strategic commercial presence in more than 100 countries worldwide.

## DESCRIPTION OF THE APPLICATION AND THE TARGET

Hydrogen will represent one of the key players in the challenge to meet the net zero targets in the fight against the climate emergency. It can provide long-term energy storage for the electric power sector, fuel for heavy-duty transportation, heat for hard-to abate industry sector, and, on top of that, it can be produced from water and renewable sources.

In the next few years, the carbon-emitting natural gas network will progressively switch to hydrogen, which doesn't produce greenhouse gas carbon dioxide when burned: instead, it yields water.

Rome wasn't built in a day, and the gas

infrastructure will face an extensive transformation during the next years by progressively reducing the volumes of transported fossil fuel, and by accepting greater and greater amounts of hydrogen blended with natural gas.

Advanced Technologies research group in Pietro Fiorentini is an interdisciplinary team devoted to developing new solutions for the upcoming new requirements of transport and distribution gas networks. The team is mainly focused on exploring new technologies to improve the efficiency of gas infrastructure and to leverage energy transition towards alternative and green fuels.

## BENEFITS AND SAVINGS

MCQ Instruments provided an effective solution for mimicking different mixtures of natural gas with controlled amounts of hydrogen that are representative of the forthcoming blends of the future gas network. Gas blender 100 plus allowed to produce hundreds of distinct combinations of the main constituents of the gas mixture helping to assess and characterize the effect they have on the new tools under development.



### COST & SPACE SAVINGS:

Our Gas Mixers offer a simple solution. Say goodbye to expensive, challenging-to-store, slow-to-deliver pre-mixed cylinders. With our easy-to-use gas mixers and software, create your perfect gas mixtures effortlessly. Just grab a pure gas cylinder, click a few buttons, and voila! Custom gas mixtures tailored to your needs at any time, hassle-free.

Cost Saving: Approximately 80%

Time Saving: Approximately 60%



### EASY TO USE:

Our Gas Mixers offer an easy-to-use and FULLY AUTOMATED solution. No specific skills are required to start creating your Gas Mixtures using our Touch Display or PC software. Fast, stable, and accurate, they assure top performances even when managing low flow rates.



NO CUT-OFF

### HIGH ACCURACY ON LOW FLOW:

Unlike (MFCs) with a cut-off of at least 2-10%, our solution stands out. With our advanced technology, we can precisely control flows from as low as 0.1% of the full scale up to 100%, ensuring impeccable management even for flows below 500 mL/min. This sets us apart from traditional MFCs, which cannot match the same level of precision and reliability.



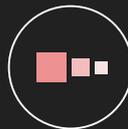
### AUTOMATION & FLEXIBILITY:

Save and recall your different gas mixtures. Create your gas mixing program by setting a sequence of gas mixing, for a certain time (sec, min, hours) with/without pause and cycles.



### FLOW STABILITY:

Thanks to our revolutionary method every gas flow has a great stability making possible to have a high repeatability also for lower flow-range.



### SUCCESSFUL ACHIEVEMENT:

The MCQ gas blender is used to produce hundreds of distinct combinations of the main constituents of the gas mixture helping to assess and characterize the effect they have on the new tools under development, in a much easier way, saving a large amount of costs and time.

## READY TO TALK ABOUT YOUR SOLUTION?

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