




Hy4Heat WP4b

Appliances summary flyer



Founded in Bologna in 1940, Pietro Fiorentini is a leading industrial company in North-East Italy. With more than 80 years of experience across the entire Natural Gas supply chain, today the Group has expanded its horizons towards the development of **technologies and solutions for a sustainable, digital world**, with a particular focus on renewable energy projects. The goal is to be a leading player in the changes that will distinguish the playing field that our company inhabits and operates within in the coming years, such as digitalisation, the transition towards cleaner energy sources and greater responsibility regarding economic, social and environmental sustainability.

Within the scope of Hy4Heat Wp4b initiative, Pietro Fiorentini developed and tested technologies suitable for the energy transition from Natural Gas to Hydrogen. The project scope included the development and testing of a whole range of ancillary components for the gas meter set, such as **Pressure Regulator**, **Emergency Control Valve**, **Excess Flow Valve** and **Flexible hose and fittings** suitable for 100% hydrogen applications following a three steps process:

1. Study of existing available literature.
2. 3rd party laboratory tests on critical materials.
3. In-house and 3rd party tests (Kiwa, DVGW, BV) on finished developed products.



Pressure Regulator

Designed and tested according specifically for 100% Hydrogen, according IGEM/PRS/3 standard guidelines, but also suitable for Natural Gas.



Emergency Control Valve

Designed and tested according specifically for 100% hydrogen, according EN331 and GIS V7:3 standard guidelines, but also suitable for Natural Gas.



Excess Flow Valves

Designed and tested a range of EFVs specifically for 100% Hydrogen, according DIN 30652 standard guidelines.



Flexible Hose

Designed and tested specifically for 100% hydrogen, according to ISO10380 and BS669-2 standard guidelines, but also suitable for Natural Gas.

Conclusions

It has been demonstrated that there are commercially available materials suitable for 100% hydrogen applications.

Due to lack of standards for hydrogen applications, all the developed components were tested according to existing standard already developed for Natural Gas, adjusted to consider the different physical characteristic between the two gases.

The cost of materials used is aligned with actual components for Natural Gas. The final products price might be influenced by more stringent test procedures required by dedicated hydrogen Standards under development and economy of scale.