

Innovation, measurement and technological support for the entire sector

Enagás is a leading energy infrastructure operator and manager of natural gas and renewable gas transmission networks.

Innovation and development are at the heart of our business, with much of this work centred at our Metrology and Innovation Centre in Zaragoza. This is where our R&D Centre, Central Laboratory and our second data centre, the Green Data Centre, are located.



ACCREDITED SERVICES*



- Calibration and testing of Accredited Services and instruments related to **flow rate measurement and determination of the energy content** of natural gas and biomethane
- **Determination of the composition** of natural gas and biomethane samples

* Scope published at www.enac.es

HIGHLY SPECIALISED TECHNICAL SERVICES

- **Testing of equipment and installations** for conformity assessments
- **Training of technical staff**
- **Technological support**
- **Advisory and consulting services**

Hyloop+ enhances Enagás' existing metrological capabilities at its Central Laboratory, where it operates alongside other laboratories.

One of these, the High Pressure Meter Calibration Laboratory (LACAP), is a collaborating laboratory of the Spanish Metrology Centre (CEM).

Collaborating Laboratory
of the Spanish Metrology Centre

Colaborating Laboratory

CEM

CENTRO ESPAÑOL
DE METROLOGÍA

Resolution of 15 January 2020
(Official State Gazette 27/01/2020)



Find out more about the **technical details** of our instrumentation, measurement and gas quality services.



Metrology and Innovation Centre
A2, km 306,4
50012 Zaragoza
(+34) 976 469 835
lcontadores@enagas.es

Enagás, S.A.
Paseo de los Olmos, 19
28005 Madrid
(+34) 917 099 200

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Hyloop+

An international benchmark in the field of hydrogen flow rate measurement

Europe's first industrial multi-gas laboratory with a primary standard



A key facility for Europe's hydrogen network

Hyloop+ is the first calibration laboratory for industrial multi-gas meters in Europe to have a primary standard, enabling to reproduce the operating conditions representative of future hydrogen infrastructure.

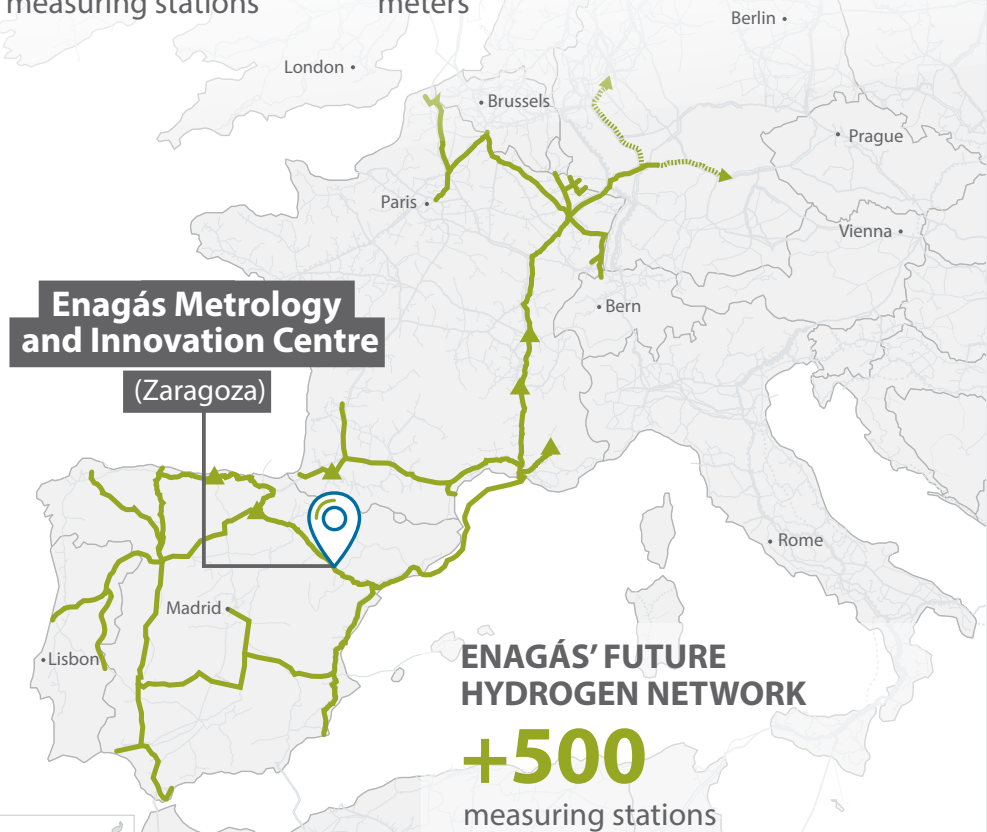
Located at the Enagás Metrology and Innovation Centre in Zaragoza, it will be a strategic facility for future hydrogen networks in Spain and Europe. Thanks to HyLoop+, Enagás will be able to operate with the lowest possible level of uncertainty, ensuring metrological traceability for the flow meters to be calibrated and providing the necessary accuracy to enable hydrogen to be transported, traded and used on a large scale with complete confidence. This new laboratory is set to become a reference centre, serving manufacturers, operators and infrastructure developers across Europe.

An innovative and pioneering development on a global scale, designed in collaboration with metrological institutes and specialised companies will help accelerate the development of European technical standards, facilitate infrastructure adaptation, and strengthen Spain's and Aragon's position within the European ecosystem of innovation and advanced services linked to the hydrogen economy.

ENAGÁS' CURRENT NATURAL GAS NETWORK IN SPAIN

+400 measuring stations

+1.500 meters



Enagás Metrology and Innovation Centre (Zaragoza)

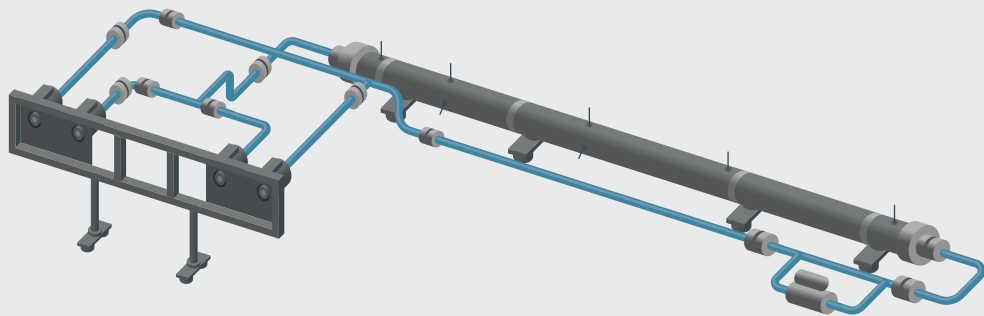
ENAGÁS' FUTURE HYDROGEN NETWORK

+500 measuring stations

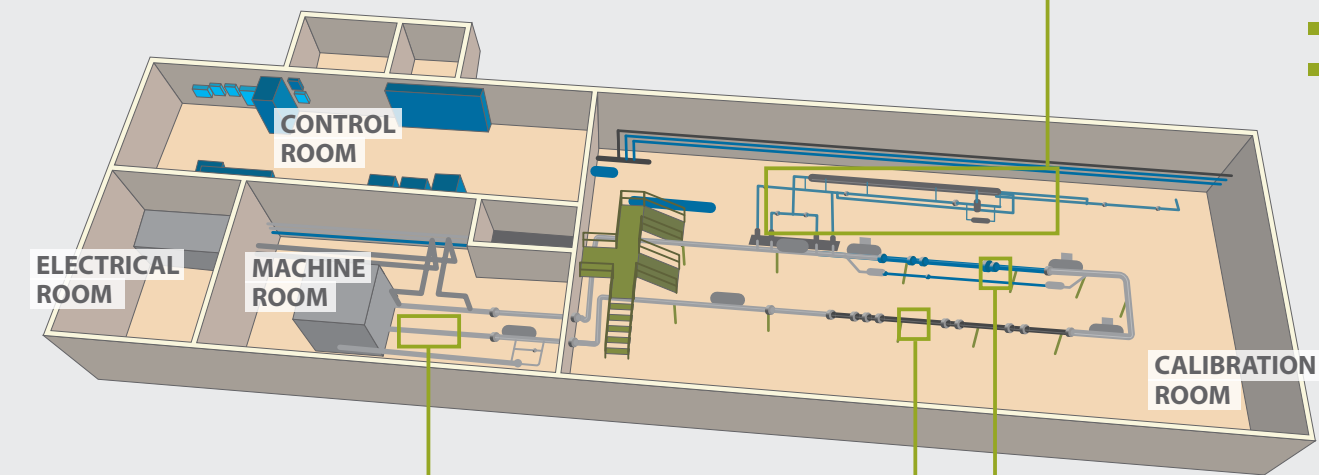
Hyloop+, synonymous with the highest quality standards

The primary standard is the most accurate reference system used in metrology for calibrating gas flow meters.

This high-pressure piston-cylinder standard provides the primary reference for volume measurement for hydrogen and natural gas. It enables the establishment of a national chain of traceability based on the fundamental units of length, mass and time. This puts it at the same technological level as other European laboratories and strengthens the national metrology infrastructure.



- HPPP HIGH-PRESSURE PISTON PROVER**
- Reference system based on a primary standard:
- Piston-cylinder
 - Flow rate range: 3 m³/h - 160 m³/h
 - Volume measurement uncertainty: better than 0.10%
 - Bootstrapping system with Transfer Standards: 2 turbine meters



BLOWER AND HEAT EXCHANGER MODULE

It allows the fluid to circulate through the loop at a stable temperature. Electric motor-driven blower

MUT 'METER UNDER TEST' / LINE CUSTOMER METERS

Installation of up to 3 meters in series, ranging from 2" to 6"

MASTER METERS

G65 and G400 Working Standards, as master meters
G65 and G400 turbine meters, for verification

The calibration, operational and safety procedures of the Hyloop+ will also support **ENAC accreditation under the ISO UNE-EN 17025 standard**, as a guarantee of compliance with the highest quality standards in the measurement of hydrogen and/or natural gas.

AN UNPRECEDENTED SYSTEM

- **Multi-gas:** Hydrogen, natural gas and mixtures HENG (up to 20% H₂)
- Calibration of turbine, ultrasonic, rotary displacement and Coriolis meters
- Up to 3 meters in series
- Primary standard

FLOW RATE

3 m³/h - 650 m³/h
(under measurement conditions)

PRESSURE

3 bar- 90 bar
(gauge pressure)

TEMPERATURE

15 °C – 35 °C

NOMINAL DIAMETER

DN50 – DN150 (2" – 6")

FLANGES

ANSI 150 – ANSI 300 – ANSI 600

CALIBRATION LINE LENGTH

Maximum 7,500 mm

REFERENCE STANDARD SYSTEM

2 Rotary displacement meters
2 Turbine meters for verification

CALIBRATION AND MEASUREMENT CAPABILITY (CMC)

0.15% - 0.30% (www.enac.es)