Harmonisation in times of COVID-19

The year 2020 is very much influenced by the corona virus. Due to the subsequent travel impediments the annual meetings have now been replaced by more frequent web meetings. Also, the new harmonisation intercomparison is progressing. Initial results show reproducible results. Of course, new Intercomparisons are being planned as you can see in the update figure below. The next one is in 2021. Also, one of the EuReGa partners ordered a new 24" ultrasonic gasmeter which will enable to expand the harmonised range up to 30000 m³/h.

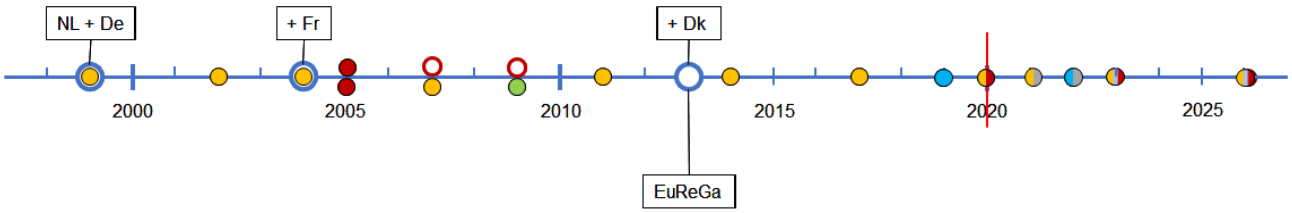

Figure 1: Updated timeline of intercomparisons using turbine gasmeters intended for high-pressure natural gas. The yellow dots indicate harmonisation intercomparisons, the red dots key comparisons, the yellow-red dots combined harmonisation and key comparisons, the red rings subsequent bilateral comparisons, the green dot a EURAMET bilateral comparison, and the blue dots the primary standards' intercomparison. Symbols marked with grey indicate planned intercomparisons. The white flags mark the dates at which the labs participated in the harmonisation consortium. In 2013 the cooperation was renewed under the EuReGa label.

Web meetings

Due to the COVID-19 virus and the subsequent travel impediments, web meetings were introduced. These work quite well as the participants know each other personally. In this way also more frequent meetings are possible, which facilitates the management of ongoing projects.
Another effect of the corona virus is that EuReGa partners stopped visits to their labs entirely. This to protect staff and guarantee uninterrupted calibration services. So far it works; there are no corona infections reported by the partners at their calibration facilities.

Intercomparison 2020

The 2020 harmonisation intercomparison was already announced last year [1]. The protocol for the supplementary comparison (SC) has been agreed by EuReGa's Team of Experts and will be registered with BIPM. Technical problems at one of the labs forced their calibrations to be rescheduled within the existing project schedule. The labs have calibrated the transfer packages. The initial results appear to reproduce with the previous intercomparison exercise. The pilot labs will recalibrate the packages. It this way we will be able to detect damages or drifts of the transfer packages. Euroloop will repeat the measurements early next year as they are currently updating their traceability system together with VSL. The new harmonised cubic metre will be available in the first quarter of 2021.

Extending the intercomparison range

Currently, the range of harmonized flowrates is limited between 25 m³/h and 6500 m³/h. It is EuReGa's ambition to extend this range to approximately 30000 m³/h. One of the EuReGa partners ordered a 24" ultrasonic meter according to the specifications drafted last year. Delivery times for ultrasonic meters are typically one week per inch diameter. After its construction, the meter will be subjected to the agreed test programme that consists of a dry calibration as part of the factory acceptance test (FAT) and a site acceptance test (SAT).
In addition, Euroloop is refurbishing a 24" turbine gasmeter. EuReGa aims to perform tests with both meters in series. In this way the facilities of FORCE and Euroloop, and the new Closed Loop facility of pigsar (CLP) can be compared in the upper flow range using a two transfer gasmeters.

Decarbonisation

At present the gas industry is very active on road mapping the use of hydrogen in the natural-gas infrastructure. The use of hydrogen enriched natural gas (HENG), is likely to influence the performance of the existing gasmeter principles. Scaling models for critical follow Venturi nozzles that are used as secondary gas flow standards, and a newly constructed primary standard [2] will enable the traceability of new test facilities. EuReGa partners are currently seeking cooperation with the industry to share

infrastructure and to cooperate in the design of new test facilities.

Outlook

For next year the following activities have been planned, which is graphically displayed in Figure 1.

- The current intercomparison will result in an updated harmonised cubic meter.
- In 2021 a bilateral comparison of the piston provers of FORCE and VSL will be performed using a dual piston rotary gasmeter.
- The tests of the new ultrasonic meter and the refurbished 24" turbine meter is planned for summer next year.
- In 2022 a new intercomparison of piston provers is planned.
- In 2023 and 2026 the new harmonisation intercomparisons will take place following a three-year period.

EuReGa Governance

At this moment three members of the Team of Experts are also member of the Assembly of Representatives. The latter body is intended for escalation in case the Team of Experts cannot reach an agreement. Although this never happened in the past seven years, dual functions could be obstructing the purpose of the Assembly. So next year the three persons will either give up their seat in the Assembly of Representatives or stop in the Team of Experts.

Conclusion

EuReGa looks back at a successful year and has a lot of plans for the years to come.

References

[1] EuReGa Communique No 4: 20th anniversary of the harmonized cubic metre, https://tinyurl.com/yzmf85zn

[2] Bodo Mickan, Jos van der Grinten and Thomas Kappes (2020): Primary and secondary flow standards for a wide variety of gas compositions – a solid base for reliable traceability facing the energy transition, 38th International North Sea Flow Measurement Workshop, 26 – 29 October 2020.