Physikalisch-Technische Bundesanstalt
Braunschweig and Berlin
National Metrology Institute

Euramet project no. 1224 - Comparison VSL - PTB

Volume flow for Natural Gas under High Pressure

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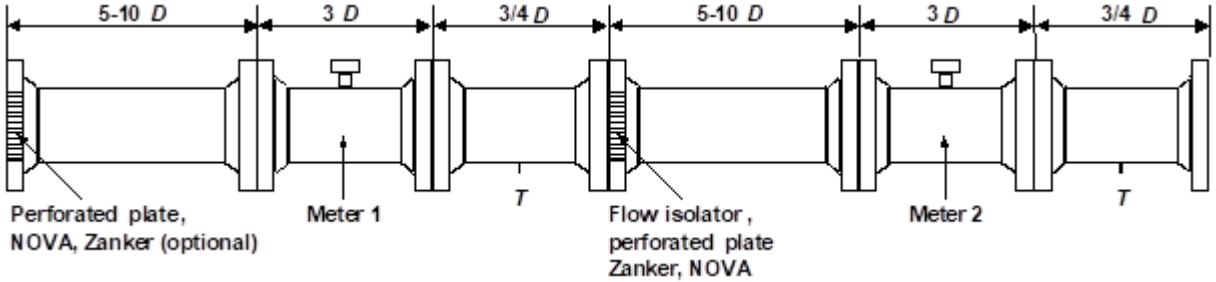
Comparison VSL - PTB Volume flow for Natural Gas under High Pressure

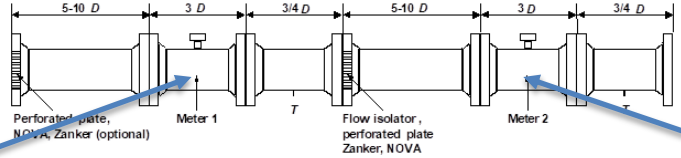
- **AIM:** ***The bilateral comparison will be performed according to the procedure of CCM.FF-KC5a.1, EURAMET.M.FF-K5.a and CCM.FF-KC5a.2. A similar protocol will be applied. The transfer standards are kept unchanged compared to CCM.FF-KC5a.2.***
- **Euroloop (VSL) was a new facility, and its performance should be checked.**
- **The comparison was not completed due to technical fail but there are some aspects to be learned from the lesson.**

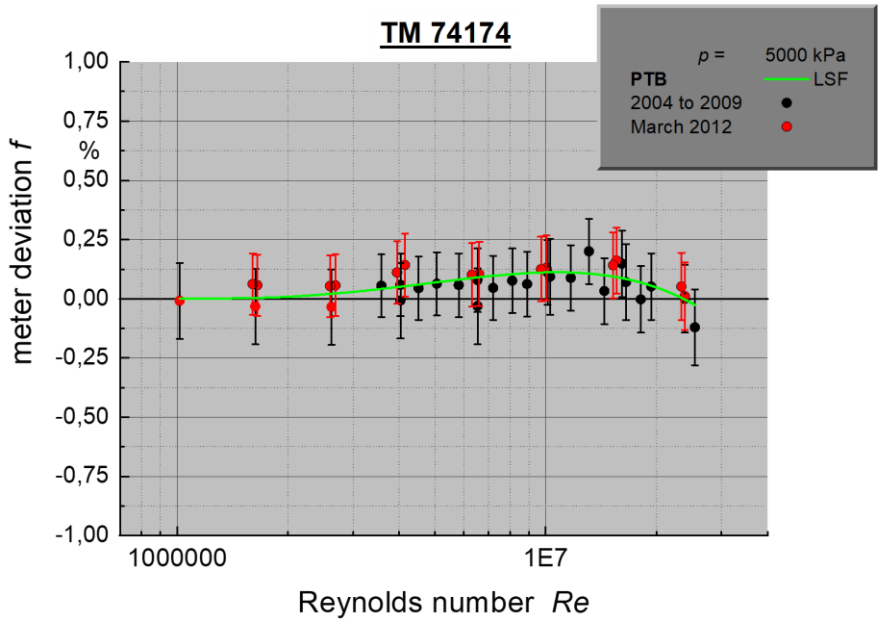
Euramet project no. 1224

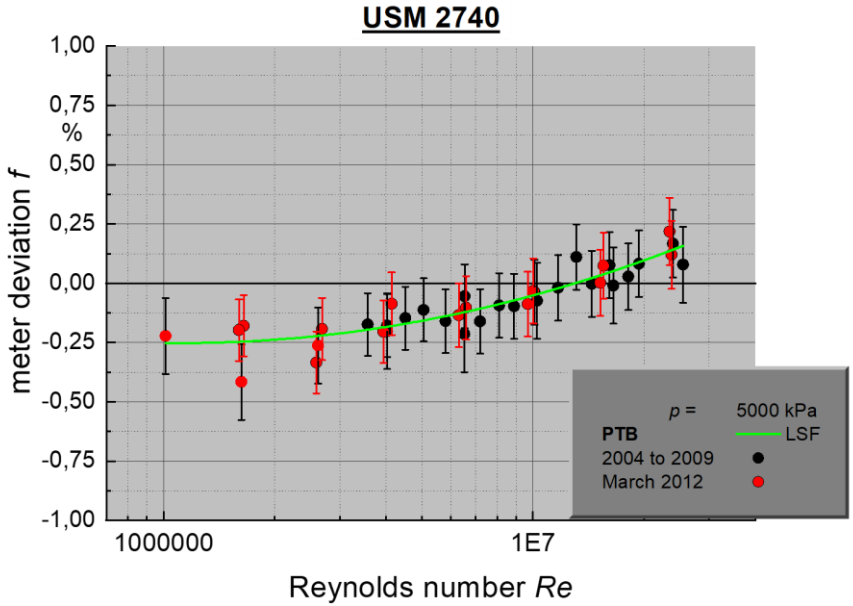


Size (Q_{max}, Diameter):	6500 m^3/h; DN = 300 mm = 12 inch
total length of package:	32 D = 9,6 m
type of meter 1:	**turbine G4000**
manufacturer:	Instromet
Length of part 2: (inlet, meter 2, outlet)	10 D; 3 D; 3 D;
type of meter 2:	**ultrasonic G4000**
manufacturer:	Instromet
Length of part 1: (inlet, meter 1, outlet)	10 D; 3 D; 3 D;

Euramet project no. 1224 : Start March 2012







Euramet project no. 1224 : @VSL May 2012

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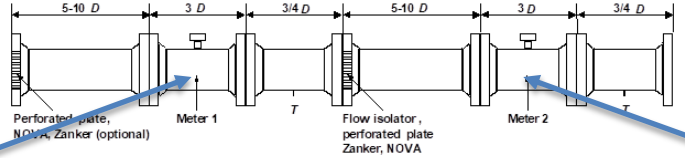
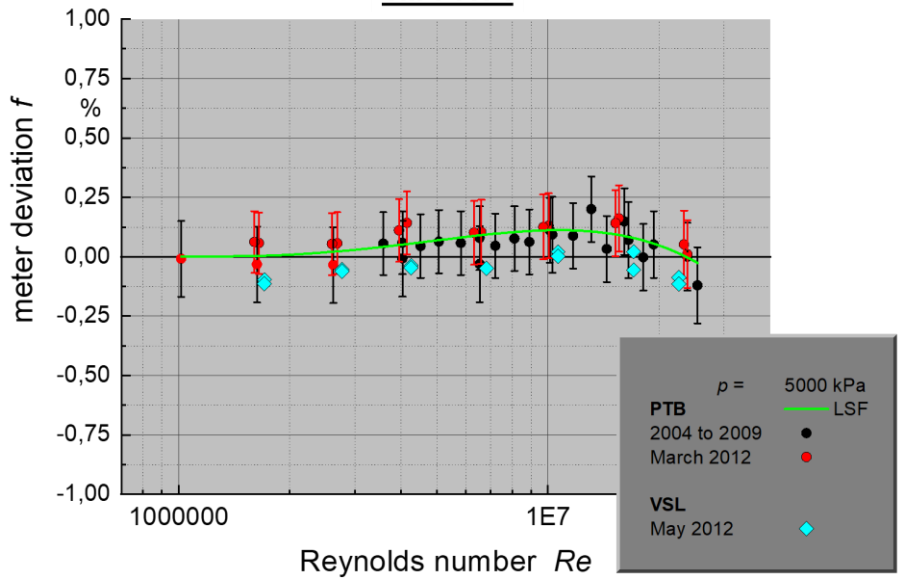
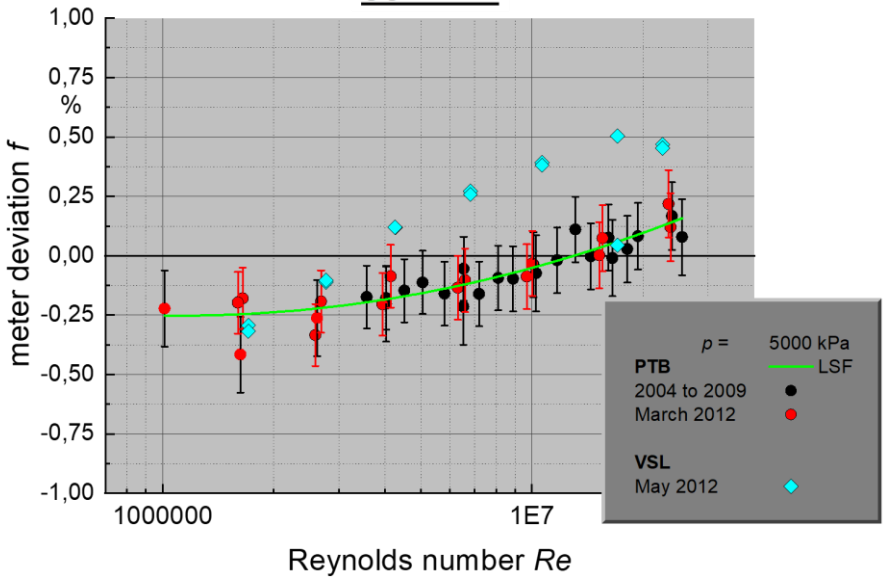


shift: …+0.5 %

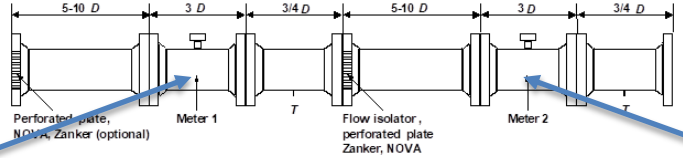
TM 74174



USM 2740



Euramet project no. 1224 : back @PTB July 2012

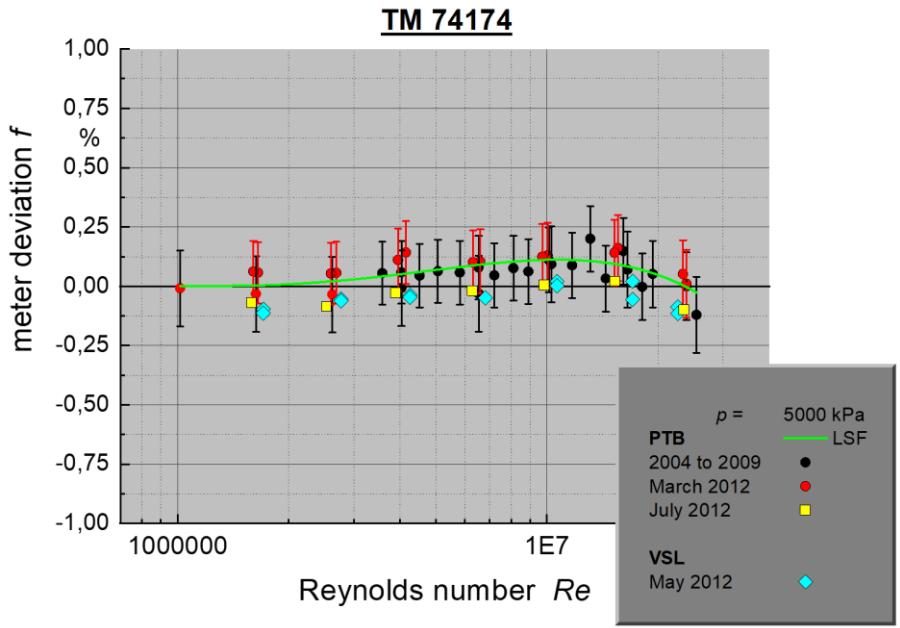


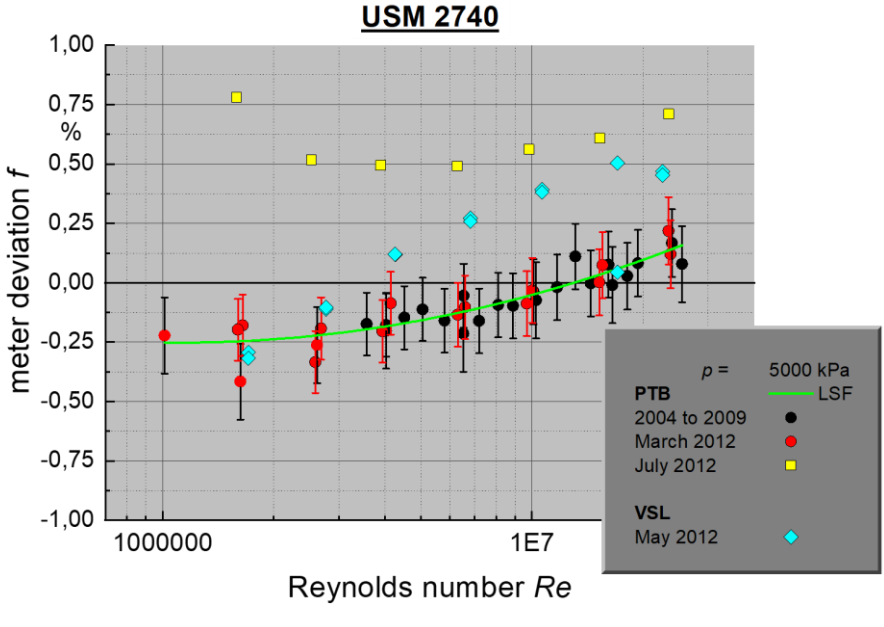
shift: **-0.1 %**

-0.1 %

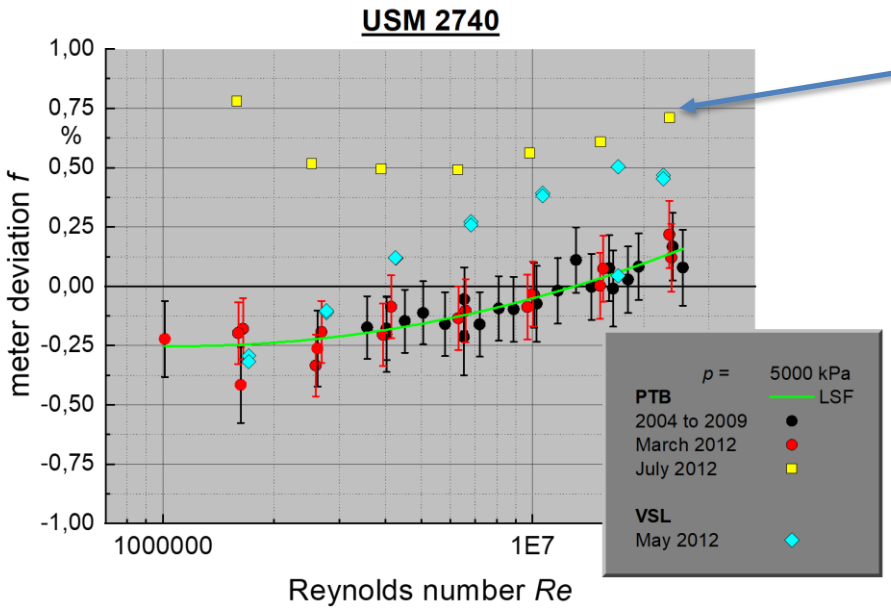
shift: **…+0.5 %**

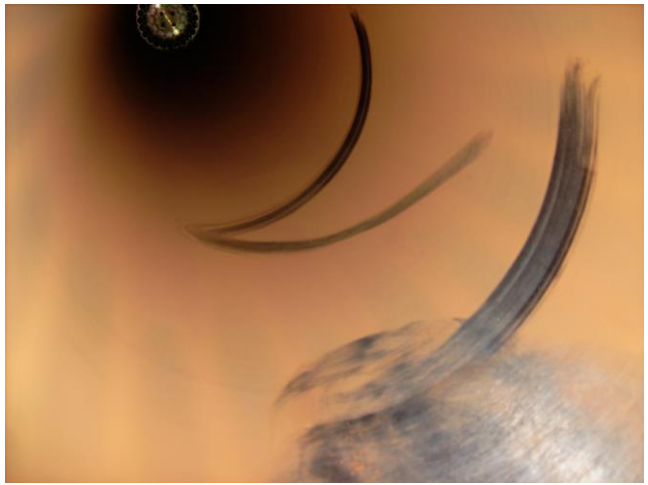
+0.5..1 %



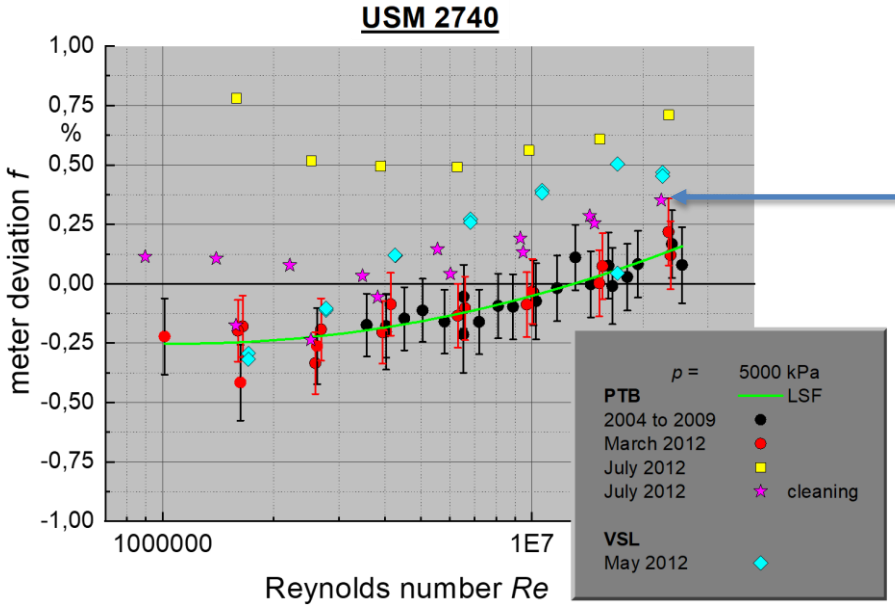


Euramet project no. 1224 : back @PTB July 2012



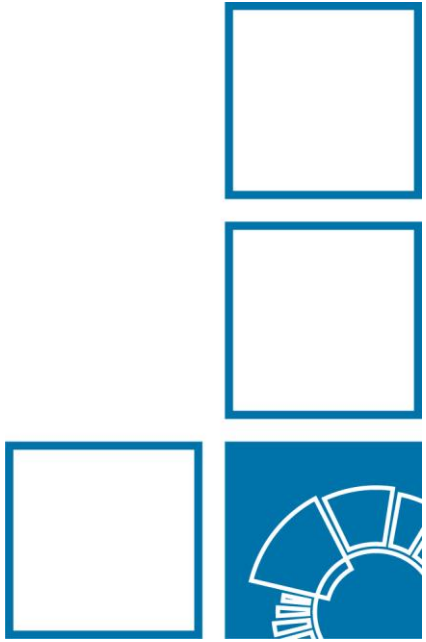


Euramet project no. 1224 : try to clean up



Summary

- **Be careful with new facilities**
  do not do pressure safety tests with water when there is non-stainless steel inside!!
- **Even small fraction of dust can influence your USM**
  even more than “real” dirt!
- **Cleaning is nice but it has to done at a real high level,**
  only a tissue is not sufficient.
- **The turbine was influenced only by 0.1% and cannot be cleaned so easily**
  => it has been drifting back step by step in the past ten years.



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