

Main Tasks of an independent Testing-Laboratory for Heat Meters at the Times of MID-Regulations in Europe

by Günter Leitgen
WSG Wärmezähler-Service GmbH, Essen, Germany



WSG Essen, a Survey of the Company

- **Foundation of the Company in the Year 1984**
- **Total Investment : 6 Mio €**
- **Turnover : 3 Mio €/ a**
- **Employed Persons : 22**
- **Total Number of Heat Meters in Service (mounted in different Networks) : 60.000 Meters**
- **Main Tasks and Goals :**

Technical Specification, Conformity Assessment / Delivery-Checkup as Producer-Independent Facility; Consulting for Customers, Quality-Checkup, Repairing and Correction after the Period of Use, different technical Services according to the Application of Heat Meters

Special Requirements for the Usage of Heat Meters within Utility-Networks – Status Quo



- Heat Meters have to be exchanged after five Years of Usage because of the low Reliability at the present Time (there is only a little hope for the future...)
- Extending the Period of Usage by Sampling Inspection actually have only small Chances of Success . Bad Parameters in Networks and – in Addition – too small Amounts of „Samples for a Finite Batch“ of Meters have to be recognized; Production-Life-Cycles lower than 2 Years without Changing relevant Attributes of Meters indicate one of the Reasons for this Statement
- The Market for Heat Meters is different in its Requirements - **This basic Point of View** is not realized within the Regulations of the MID. It will probably have fatal Consequences for Producers and Users
- The „Ex and Hop“ Scheme of Usage is not User-oriented for Utilities because of economic Reasons
- Meters of high Quality – designed for Usage within different Periods have a higher economic Efficiency (i. e. 15 to 20 Years of lifetime) and have shown their higher Reliability
- A new QM-System for Heat Meters must show a „Closed Loop“ of Transfer according to basic Knowledge and Know How, beginning with Design and Production, following to the Marketing-Process and the Usage of the Meters and then back to the Producer for redesign advanced Products
- **Independent Testing-Laboratories have to close this fatal leakage - shown in the new Regulations of the MID (missing Feedback out of the application-field)**

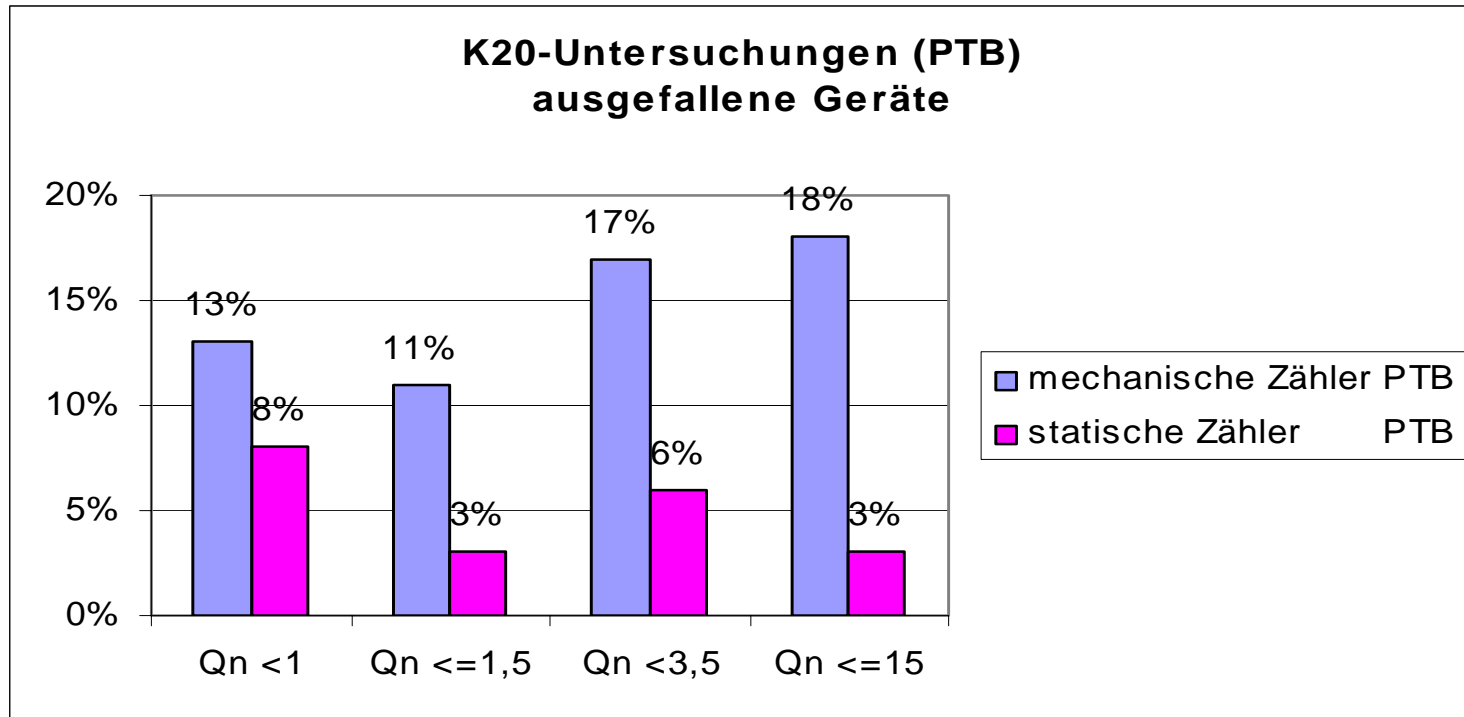
Quality-Management Process during „Sales-Promotion“ and „Billing-Process“



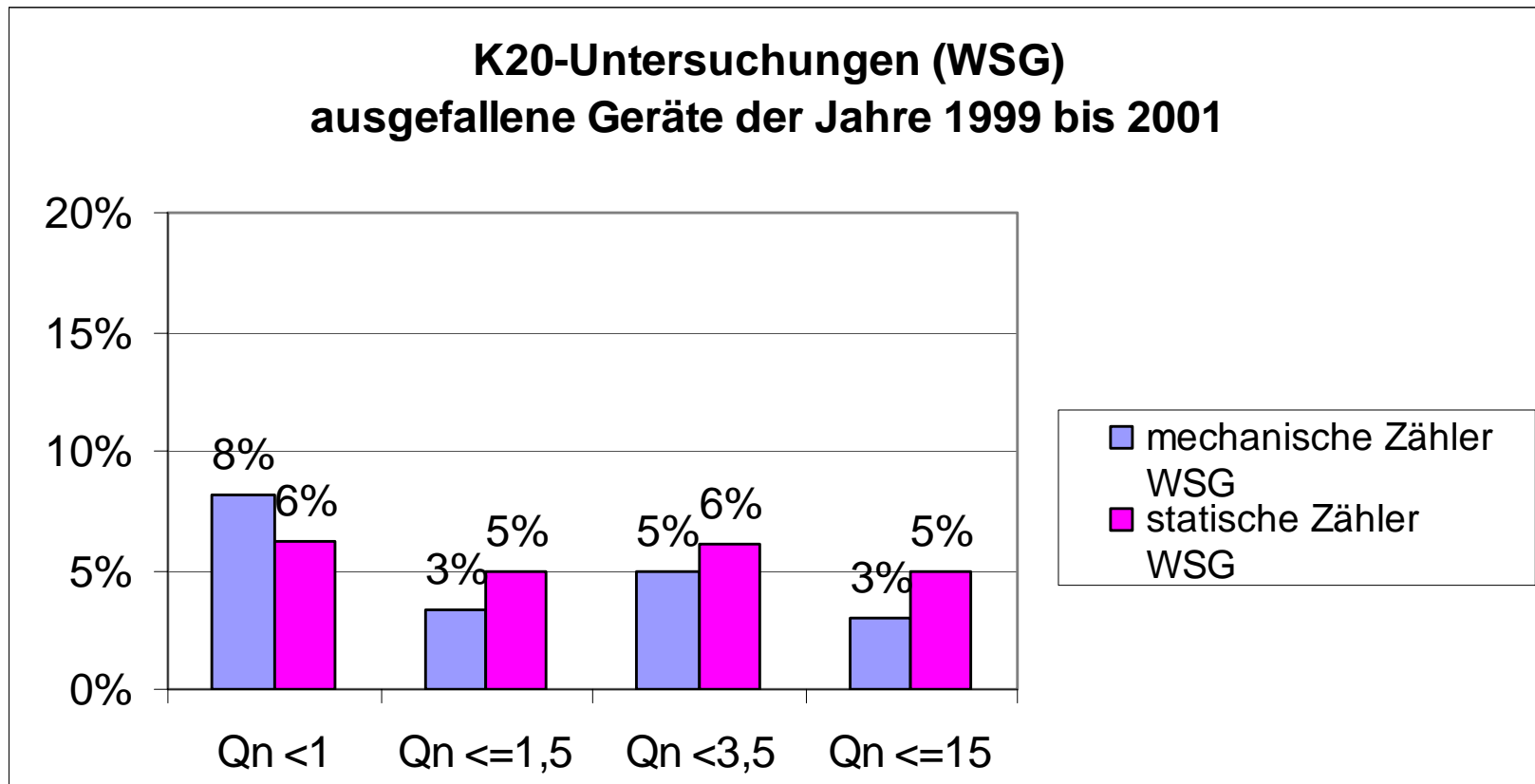
- To install a complete QM-Process is well-known in all different Industries – Why do we miss it when Producing and Using Utility-Meters?
- A convincing system of Independent Testing-Laboratories and its controlling Legal Authorities is required because of the existing technical Results and Resources, individual Know How and its effective Usage
- „Notified Bodies“ executing “Quality Assessment Modules” of the MID (with all possible different Combinations) – do need the Feedback out of the Field of Application - combined with the Usage of Data out of the different Installations and its Experiences
- Independent Laboratories – situated at the “Handshaking” of Production and Installation should be able to execute the “Module F” of the Directive “MID”. **Avoiding duplicated Tests and Calibrations** within the Production-Line and again after the Marketing-Process within the Facilities of the Users **reduces Costs** – and it is the **common Usage of all the industrial Experiences in the modern World**



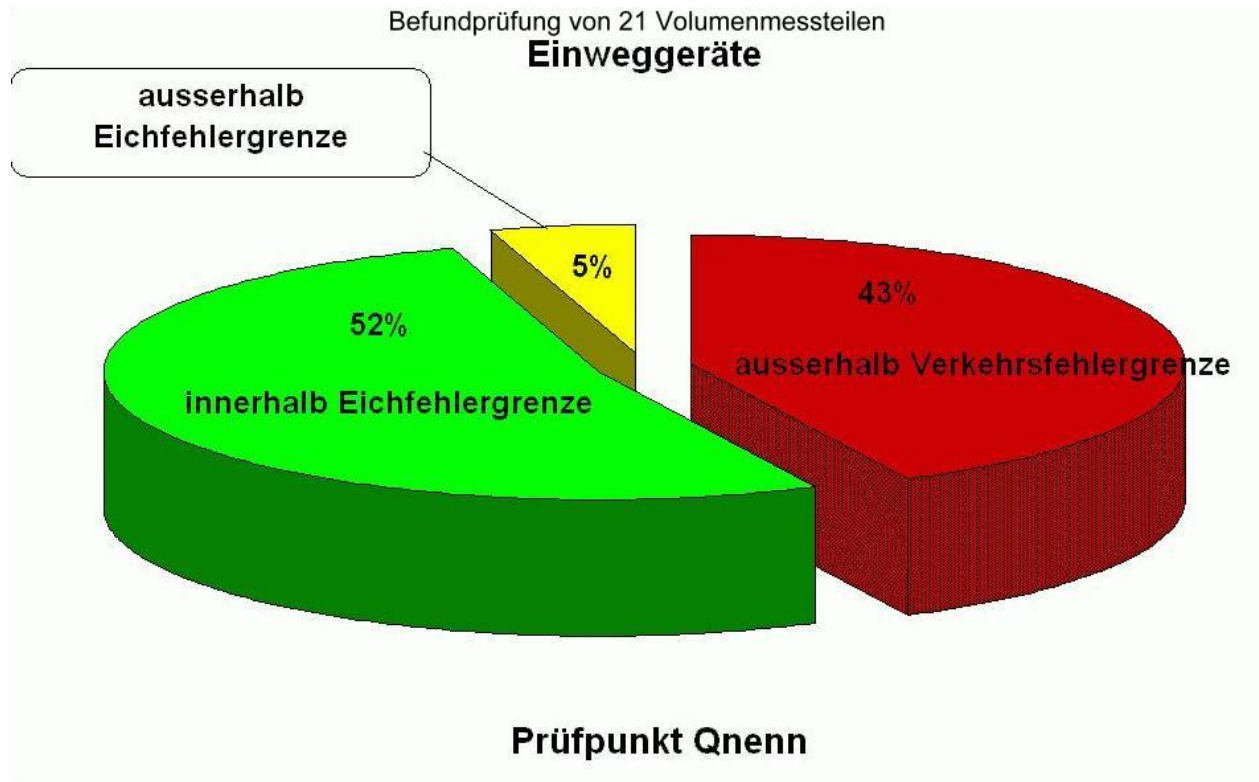
„State-of-the-Art “ or the actual disadvantages with Measuring Thermal Heat“ (German Results, published by PTB)



Advantages by forcefully Support 100% Testing and Calibrating–(published by WSG)

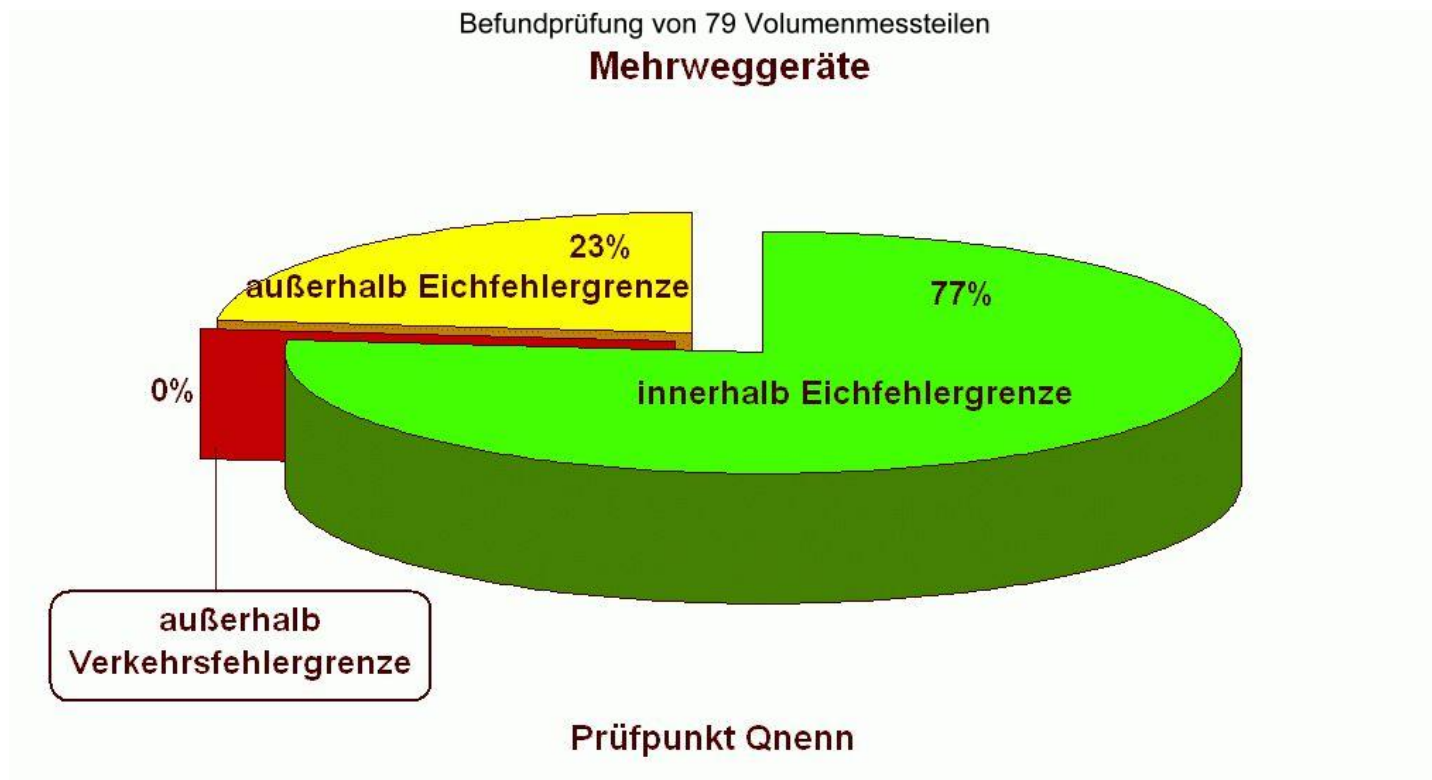


Unacceptable Products in the Market and the Consequences for Consumer and Utilities



1% Mismeasurement is equal to 200 Mio € Mismeasurement during one Period of Usage in the Billing-Application for District-Heating in the Federal Republic of Germany

Reliable Heat Meters with sophisticated Design and Long-Term-Usage



What is the Importance of a „High-Level-Maintenance“ and Repair of Heat Meters?



- There are actually no Legal Requirements for the Quality of Repairs according to Heat Meters. The German **AGFW-Arbeitsblatt FW 201** „Ordnungsgemäße Instandsetzung von Wärmezählern und Wärmezähler-Komponenten“ defines a basic Level and is updated in 2005 – among others for Avoiding dubious Repairs in the Market
- The Parameters **Pressure, Temperature, Chemical Consistence of the Fluid and its Dirtiness**, as well as the **Damp Heat in the Environment** of the local Situation of the Meters do make a lot of Stress to our “Basic Equipment for the Billing-Process”
- A Repair in proper Form must be required for reaching a second successful Usage-Period of Heat Meters
- An accurate Inspection of the inner Parts of all Components while disassembling all critical Parts, a meticulous Cleaning and the Replacement of all aged devices can avoid wrong Measuring-Results and total Dropouts
- Die „Light-Method“ flushing and/or Sampling-Inspection by using „Endoscopes“ for the inner Parts of the Volume-Sensor with a following new Adjustment at the hydraulic Test-Benches is cheaper indeed, but disastrous for the economy of the Utility
- The **Loss** of an inaccurate Billing-Process **by early Dropouts** of Meters and its **Loss of accumulated Energy** - as well as the **Costs for Exchanging the Meter** and – last but not least – the **Loss of Image by Customer-Relations** is obviously far beyond the Value of the Meter itself

The Importance of an exactly Specification of Heat Meters



- As a Result of some previous Considerations we have to realize, that the QM-Processes - according to the Directive “MID“ hardly cannot be the same Procedures for all Appliances. There should be different Points of View in the Use for **Heat Cost-Allocation** and as a **Meter for Billing on the Basis of public Tariffs!**
- Nevertheless we have to consider, that the Review of the Performance of valid QM-Elements leads to one Fact: It is impossible to divide these Elements in
 1. Requirements valid **EU-wide** for Producer of Meters and
 2. Requirements valid only **nationwide** and having an Impact on Users only

Complete Parts of the economic System would be in Danger – a Quality-Price-Spiral with Utility-Meters leading downwards is already a Matter of Fact!
- **Producer-Independent Facilities will have a significant Impact on the Definition of an adequate Quality for the specified Purpose** because they have plenty of Results out of the Praxis to their disposal. Only these Results will lead to exactly and sufficient Specifications
- Die German District-Heating-Association - AGFW – has decided long ago, that – according to the Definitions of the Directive MID **only one** Quality-Assessment-Procedure is useful for their Application: **The Usage of the Modules B and F are strictly preferred!**



Two Systems – One Task

- the future European Module F and national Calibrations -

Question:

What is the difference between the Conformity-Assessment-Procedure including Module F and the national Regulation for legal Calibration (nationale Eichung) after the first or second Usage in a Network with Repair of the Meter in Addition?

Answer:

In the practical View we find nothing!

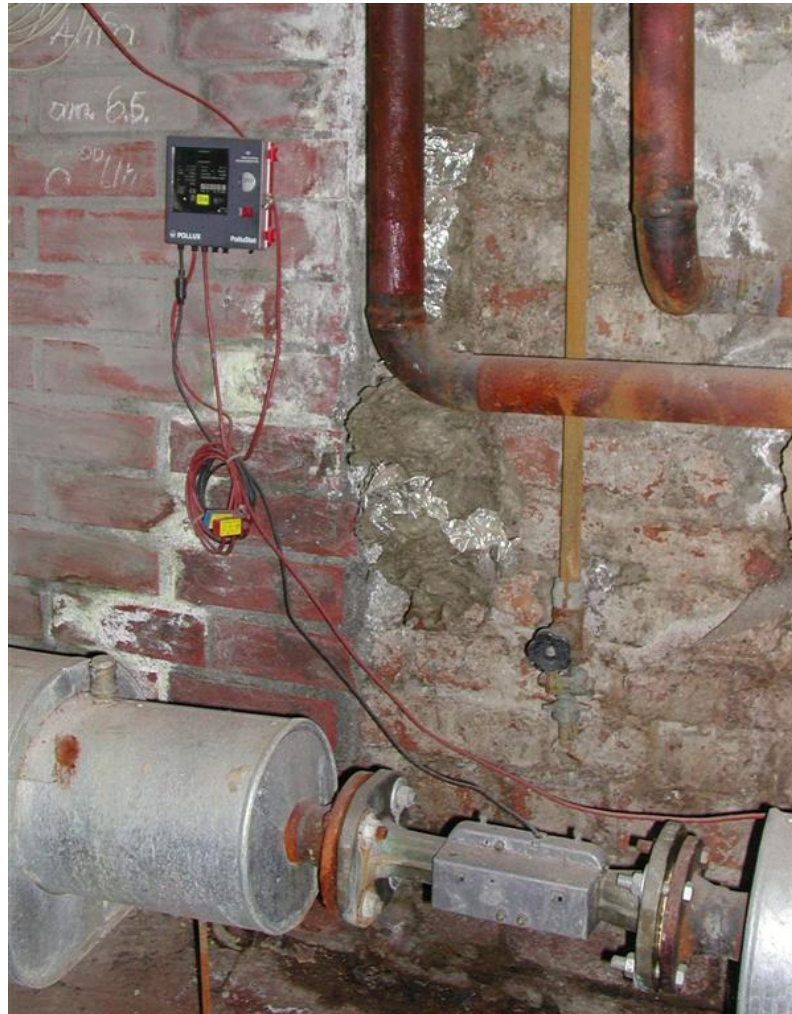
Result:

We require one consistently Procedure and one Monitoring System carried out by public Authorities

Practical Combination of Modules...



Or as well: The practical View versus some idealistic legal Regulations...



Modulcombination „Transport“



Thank You for Your Attention!

- Your Contact Persons at WSG in Essen:
- Dipl.-Ing. Günter Leitgen tel. 0201 801 5820
- Dipl.-Ing. Reiner Schupp tel. 0201 801 5824
- Dipl.-Phys. Bernhard Markowitz tel.:0201 801 5849

- E-Mail info@wsg-essen.de
- Web: www.wsg-essen.de