GM Transfer Prover

Gas Transfer Prover Test Bench

Itron has gained valuable expertise from its long history in the field of gas meters verification and calibration. Our knowledge and competence in gas meter testing, applied both in Itron worldwide production facilities and independent verification centre's, provide our customers with a guarantee of maximum metering efficiency.

DESCRIPTION

To meet various customer needs, our Calibration Equipment Division (CED) has developed a comprehensive range of calibration and testing equipment. Our mobile or stationary test prover offer: bell prover, wet meter, piston prover, S-Flow rotary meter, turbine meter, sonic nozzle and combined technologies as reference meters.

Itron transfer prover is widely use for calibrating and verifying a wide range of commercial and industrial meters. Our transfer prover is being deployed in worldwide known laboratories to provide commercial and industrial customers with immediate, highly accurate meter testing and validation services.

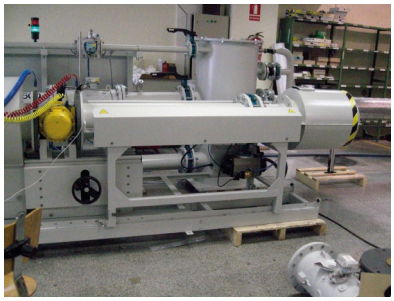
Itron transfer test prover covers from small portable test prover UT G65 skid mounted to high-end fully automatic calibration laboratory transfer prover, GM G6500.

SPECIFICATIONS

KEY FEATURES

» Master Meter in GM Series Test Prover

» Different pilot master meter lines with the common collectors and cabinet in the back



» Normal Working Condition

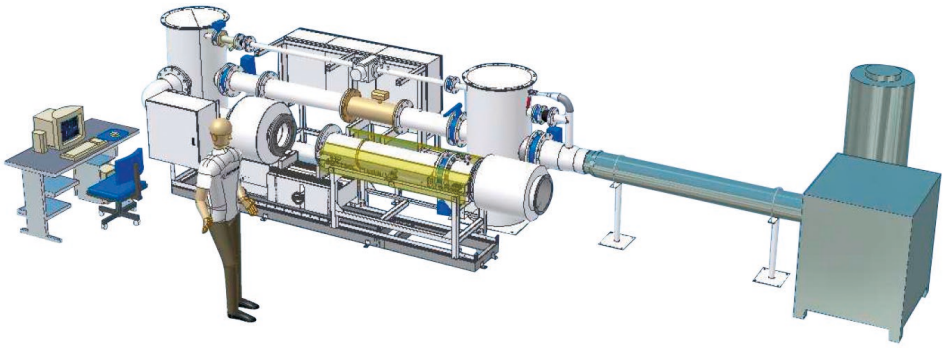
- Outside temperature: -20ºC to +50ºC
- Relative humidity: 20% to 95% RH

» Outlet filter and silencer

GM SERIES TEST PROVER

The GM series Test prover is a test bench specifically designed for ease of installation in gas laboratories and widely use for calibrating turbine and positive displacement meters which provides a traceable method based on an array of master meters.

The equipment is designed for automatic calibration of Turbine from G65 up to G6500 and rotary pistons meters from G10 up to G650.



The working principle of the GM transfer prover is by comparing volume passing through MUT against the volume passing through the master meter at MUT's pressure and temperature conditions with error correction from the official certificates.

The verification of meters is control by computer program called CALWIN GAS which controls the procedures and operations to perform the verification of the meter under test (MUT). Once the tests are completed, the obtained results are automatically displayed and stored in the computer for future retrieval.

The tests on the MUT is made by attaching a scanning head or pulse emitter from the MUT or manually with a snap switch push button in case the MUT is not equipped with any pulse emitter of optical reflector.

According to the test flow rate, the corresponding master meter will be automatically selected by the software application. This software will automatically acquire all the test parameters (temperature, pressure …) to make the corresponding corrections and obtain the final error of the MUT in comparison with the selected master meter.

A pneumatic clamping system is installed in the test prover to allow the installation of the meter to test. The clamping system is composed by a fix and a movable part that allows flexible adjustment of the clamping area to the different meter lengths and diameters with their corresponding couplings.

A centrifugal fan, located in an auxiliary room, is also supplied with the test prover as the flow source. The rotation speed of the fan is controlled by the software in order to adapt it to the test flow rate.

KEY FEATURES

» Master/Pilot References

Turbine meter (rangeability ≤ 10)

Turbine meter (rangeability ≤ 10)

REFERENCE STANDARD METERS (PILOTS)

Turbine TZ as Reference Standard

G-Size Rating	G400/G650/G1000/G1600/G2500/G4000/G6500
Flow rate range	100 – 10,000 m³/h (less than 10:1 of effective dynamic rangeability)
Linearity	Better than 0.5% from 20%Qmax to Qmax Better than 0.5% from Qmin to 20% Qmax
Measurement uncertainty	Better than 0.2% from Qmax to 20% Qmax Better than 0.3% from 20% Qmax to Qmin
Repeatability	Less than 0.05%

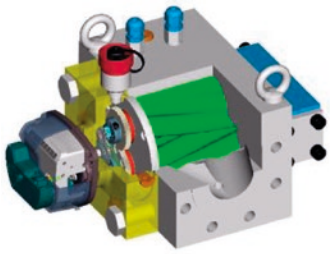
» Measurement uncertainty
Better than 0.3%

» Resonance Free Rotary S-flow meter

- Up to 2 HF could be supplied for S1-flow DN50
- Up to 3 HF could be supplied for S3-Flow DN150

S1/S3- Flow as Reference Standard

G-Size Rating	G65/G100 DN50 or G160/G250/G400/G650 DN150
Flow rate range	2 – 1000 m³/h
Linearity S1-flow	Better than 0.25% from 10 to 160 m³/h Better than 0.5% from 5 to 160 m³/h Better than 1% from 2 to 160m³/h
Linearity S3-flow	Better than 0.25% from 100 to 1000 m³/h Better than 0.5% from 50 to 1000 m³/h Better than 1% from 20to 1000m³/h
Measurement uncertainty	
S1-Flow	better than 0.2% from 5 to 160 m³/h better than 0.3% from Qmin to 5 m³/h
S3-Flow	better than 0.2% from 50 to 1000 m³/h better than 0.3% from Qmin to 50 m³/h
Repeatability	Less than 0.05%
MEBW (European office of legal metrology) certification for all the reference standard meters with traceability to PTB.	



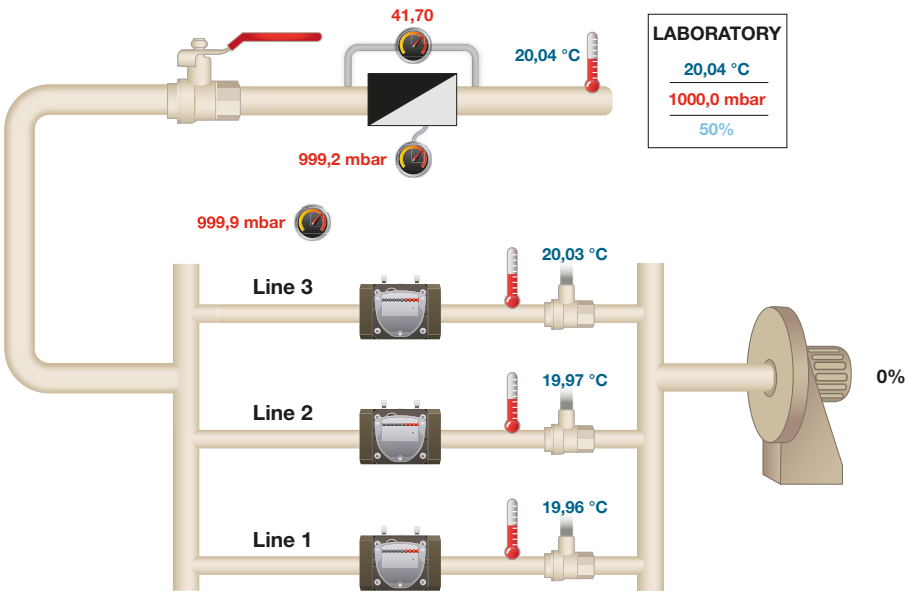
- Excellent metrological stability
- Repeatability less than 0.05%
- Uncertainty better than 0.25%

» Filters

SOFTWARE

CALWIN GAS running on Windows latest OS. The program adjusts automatically the flow rate and executes programmed sequence. All the test data, customer information and test meter data will be store into the laptop. This allows user to retrieve from the test program all the previous test results, meter history and client data using the meter under test identification.

For the ease of deployment and data security, the program allow user to have different access levels as user, administrator or technician. Different access level will limit the accessibility of the user to protect the integrity of the testing configuration and client data base.



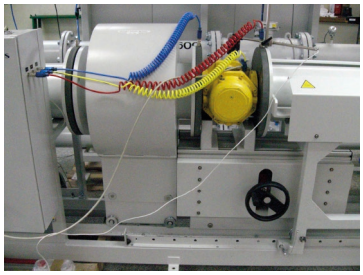
KEY FEATURES

» CALWIN GAS Program

- User-friendly and provided step by step guideline procedure
- Automatically compute all input variable
- Result generated in most popular database
- Multiple level of password protection
- Performed and displayed test result at the end of each test run to display meter accuracy, pressure absorption, provided options to save, print and retrieved historical data.

» MUT Signal Acquisition Ports

» Quick connect pressure tapping on the MUT



METERS UNDER TEST

Turbine	DN50, DN80, DN100, DN150, DN200, DN250, DN300, DN400 and DN500 (subject to the selected options).
Rotative pistons	DN40, DN50, DN80, DN100 and DN150
Diaphragm	Optional. (Subject to selected options)
Acquisition Signals MUT	Scanning head HF Namur LF Reed Start/stop snap switch

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