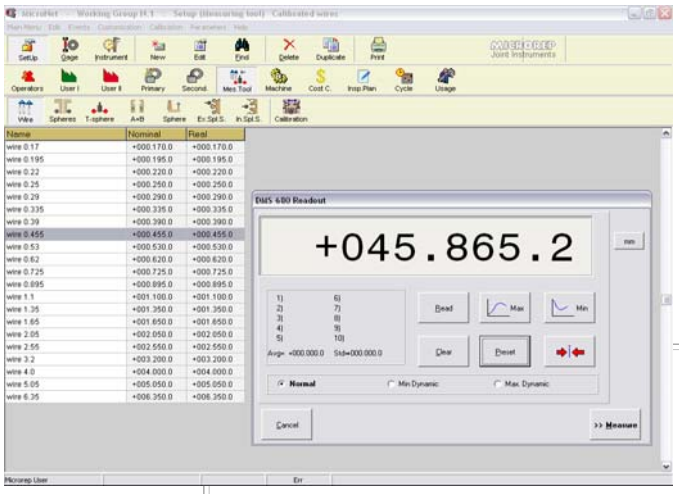
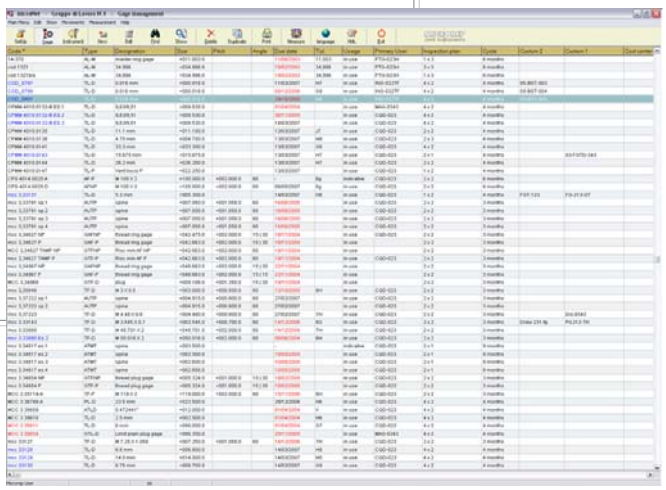
JOINT INSTRUMENTS

MicroNet X6

Gage Management and Measurement Software





AVAILABLE IN DIFFERENT LANGUAGES

MICROREP

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Benefits

Micro*Net* X6 is the natural extension of the DMS 680, universal length measuring system for gage inspection.

Developed for the DMS 680, it has been researched to reflect and match the real calibration procedures, as those are actually carried out.

Micro*Net* X6 and the DMS 680 provide together a comprehensive solution to the gage management and measurement needs, offering an unprecedented level of integration.

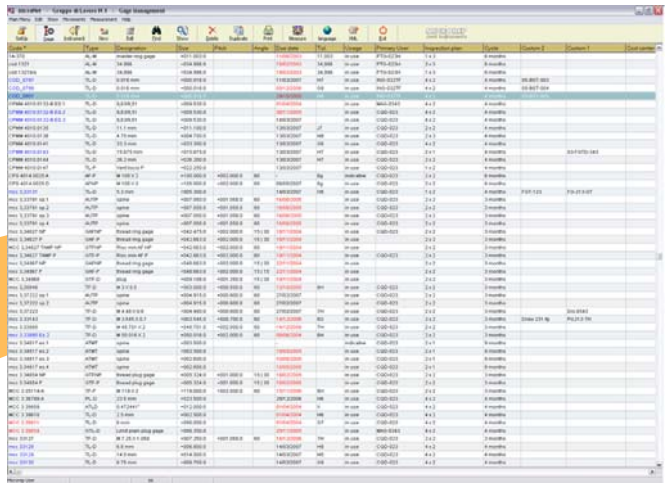
Micro*Net* X6 is supplied standard with the DMS 680

- Micro*Net* X6, to measure and manage solid gages and instruments as required by the ISO9000 series norms (QS9000, ISO/IEC 17025 and other).
- Gage Management and Measurement integrated in a single package
- Direct reading from the DMS 680, keyboard entry, RS-232 also available.
- Master gage management with automated due date notification
- Full measurements traceability
- Automated calibration certificate printout with instrument measurement charts
- Improves the quality system allowing accurate, reliable and repeatable calibrations
- Customizable calibration procedures
- Colorful icons and intuitive menus to access major functions
- Thread formulae are integrated including non symmetrical and multi-start threads,
- Easy operability to reduce the calibration costs and prevent the errors
- Standardized and proven methods for a good metrology practices
- Optimize the whole calibration process
- Eliminate errors due to procedure interpretation
- Works in network environment
- Possibility to export the content of each printout in different file format such as Excel (xls), Acrobat Reader (pdf), MSWord (doc), Rich text (rtf), HTML (html), etc.
- Support, updates and helpful information available via Internet

To Comply with the Standards

Micro*Net* X6, to manage and measure solid gages, instruments, measuring tools and masters, helping your operation to comply with the industry standards such as *ISO9000 series*, *QS9000*, *ISO/IEC 17025* and other norms.

Due date listing and advanced retrieval functions to locate gages by due date, location, size, type, usage and many other relevant data.



from Management ...

... to Measurement,

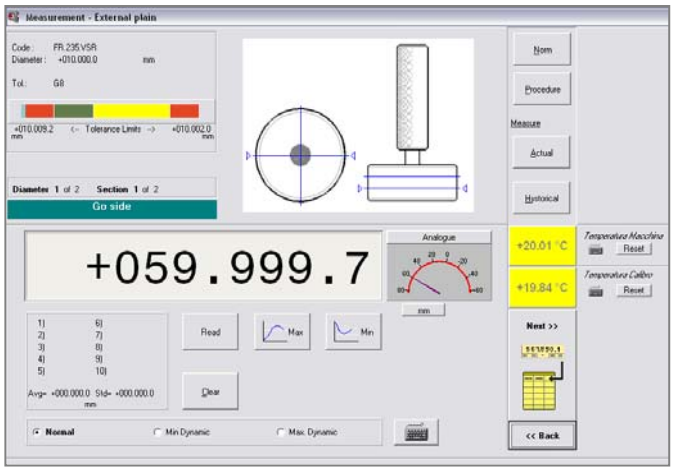
in one click !

Real Time Readings

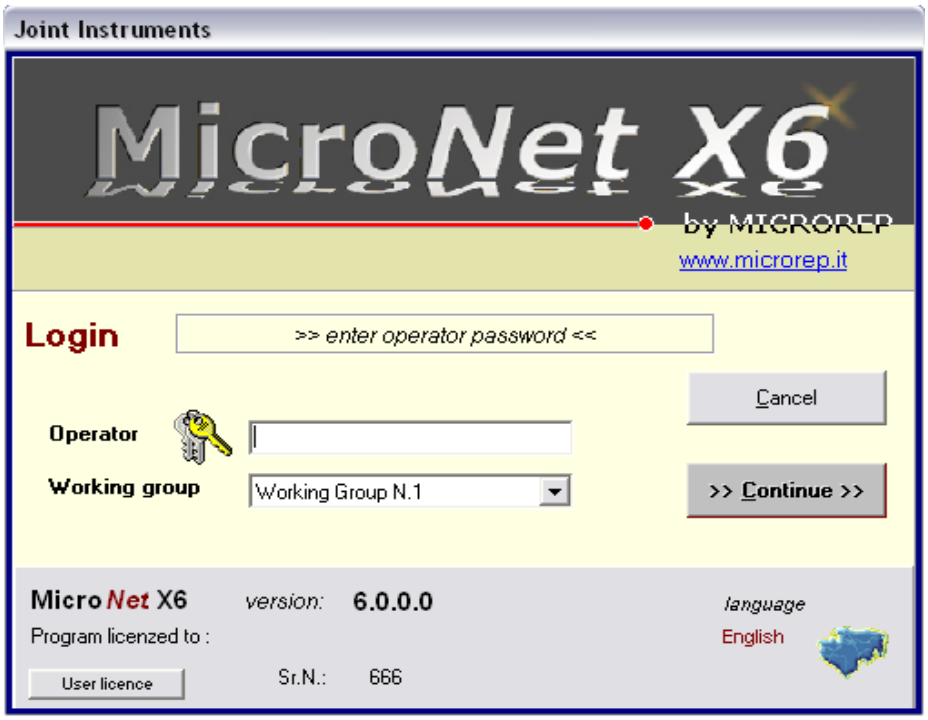
Direct reading of measurement value with automatic tolerances evaluation.

Measurement formulae and procedures integrated in the system.

Real time temperature compensation of the environment.



ALL integrated



Safe Data Storage

Protect your gage valuable information into a single safe point of storage.

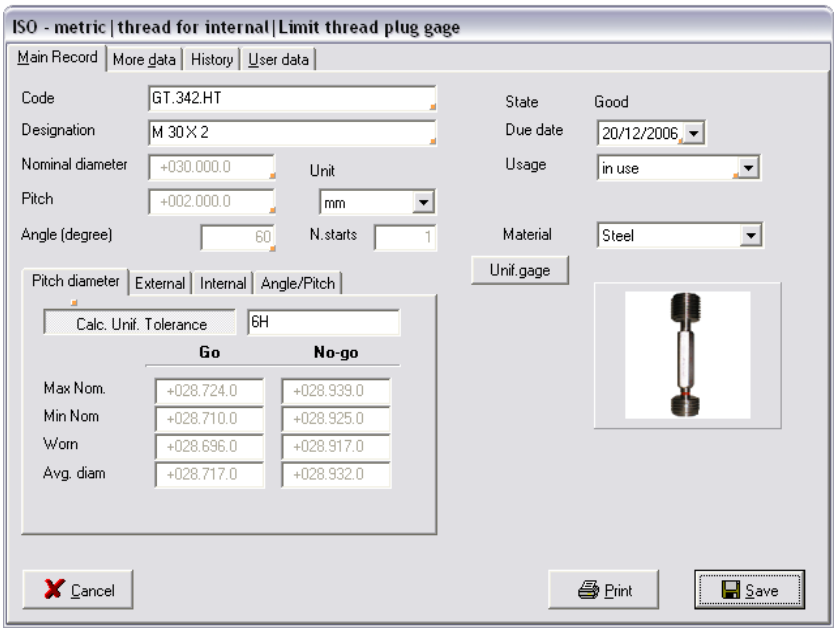
A personal password is required to access the software and increase data security.

Trough the password, Micro*Net* X6 will also detect the current user name and level so to build a traceable history.

All Gages Information

All gages relevant data are maintained into the system.
Each code file contains a variety of information such as:
- dimensional data,
- material,
- next due date,
- user,
- location,
- procedure

and many other useful information.
Multi start threads are also supported.

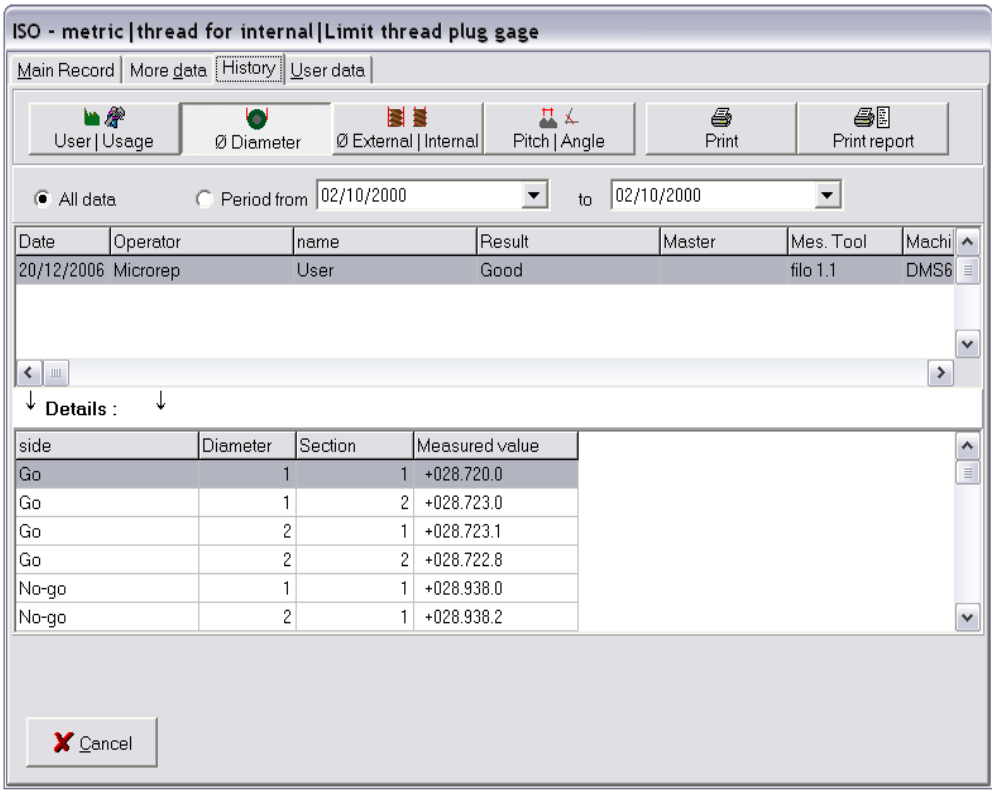


Automatic Tolerance Calculation

Tolerance limits are automatically calculated by the software according to the selected standard. Different modules available, including Iso norms, Ansi/Asme, British Standards, DIN, etc.

Historical Data and Traceability

Measurement history is provided, with a list of all acquired data as well as all the information needed for a correct metrology traceability.



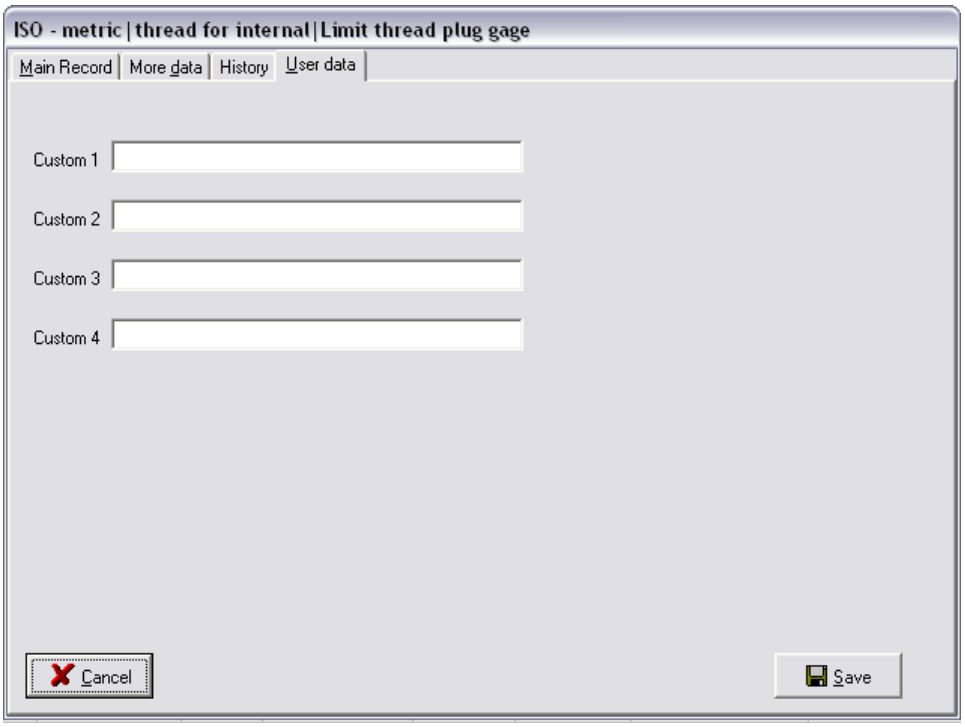
It is possible to brows trough all measurements done in the past and check the list of data acquired during each measurement section.

All users (locations) and usages (in-use, non-in-use, etc.) that have been associated to the specific code, are also stored in the gage history.

Customizable

Micro*Net* X6 can be adapted to match the user needs.
It is possible to change the gages tag or to add new instrument types than are not usually available between traditional gages.

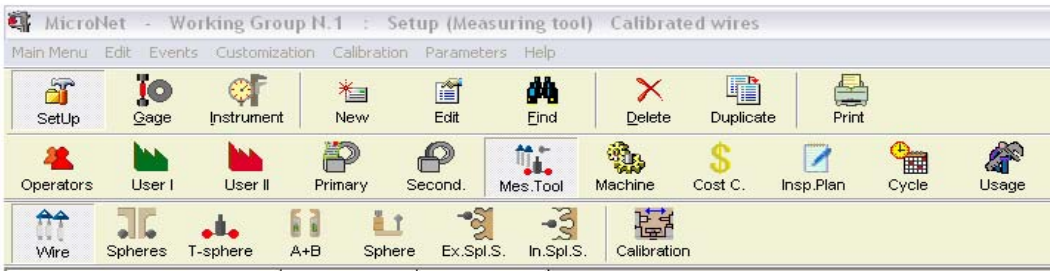
Each gage has an additional page available for user own data input.
Fields labels are customizable and retrievable.



Easy to Use

User-friendly buttons facilitate the program navigation reducing the time to calibration.

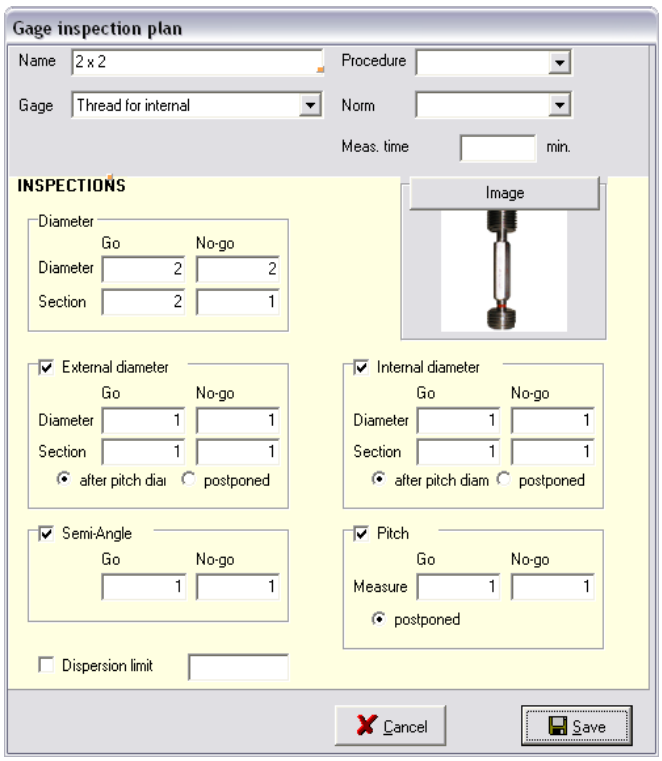
Colored icons are easily recognized by the user, improving the learning curve.



All procedures have been studied to optimize the number of steps (reduce the clicks trough) needed to accomplish a task.

Visual indications guide the operator trough measurement procedures.

Inspection Plans

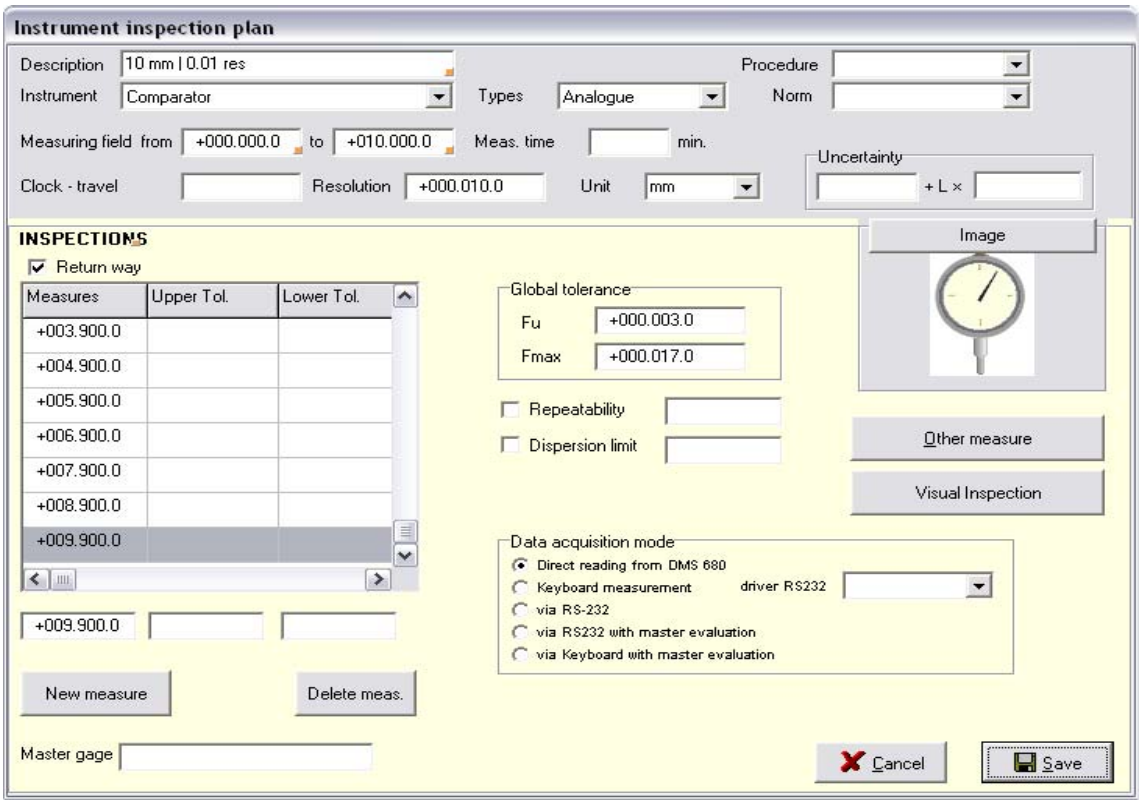


Detailed inspection plans can be created for solid gages and instruments.

Inspection plans can be created according to the standards or customized in relation to the real calibration needs.

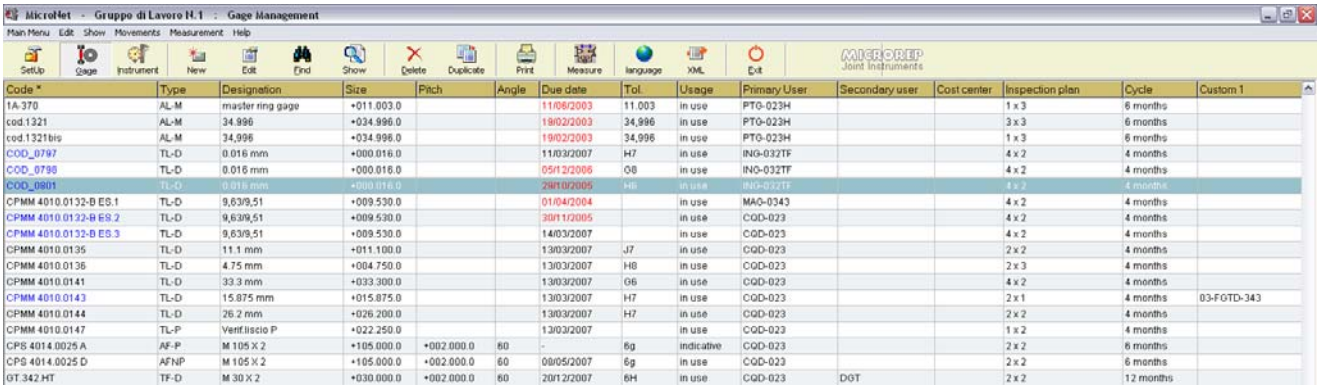
Data acquisition can be directly from the measuring system DMS 680 or via keyboard, so to allow the inspection of various types of instruments.

Instrument inspection plan can consist of both quantitative (measurement steps) and qualitative (visual inspections) checks.



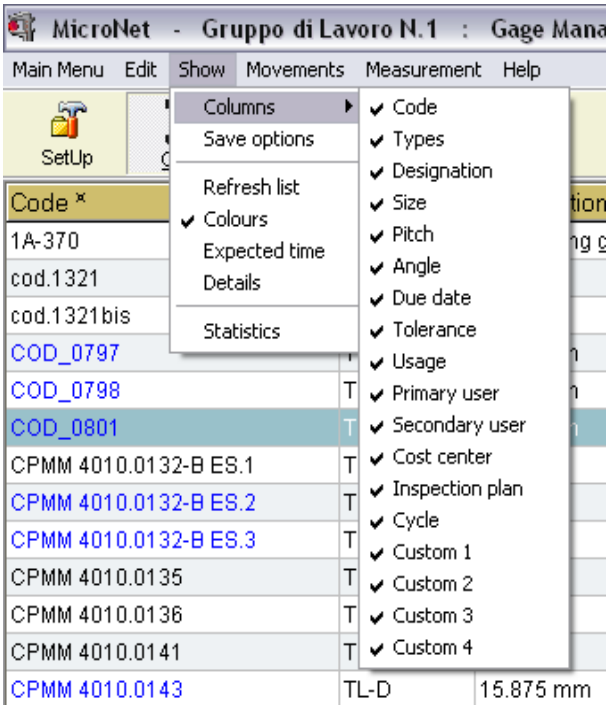
Gage Management

Micro*Net* X6 provides a complete solution for managing solid gages and instruments, helping your operation to comply with the standards' requirements.



Trough a flexible user interface it is possible to define the set of data to display as well as the listing criteria to use (such as code, due date, size, type, etc.).

Powerful **retrieval functions** help organizing the calibration activities.
It is possible to list gages according to the due date, location, size, type, usage and many other data.
Listing can be based on a single field or done matching multiple parameters at the same time.

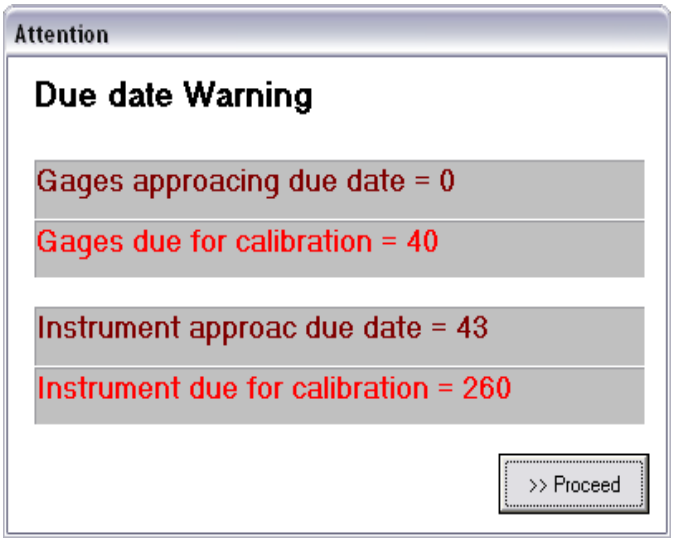


Measurement history is provided, with list of all acquired data as well as all the information required for a correct metrology traceability.
All users (locations) and usages (in-use, non-in-use, etc.) that have been associated to the code are also stored in the history section giving an helpful support during the fault analysis process.

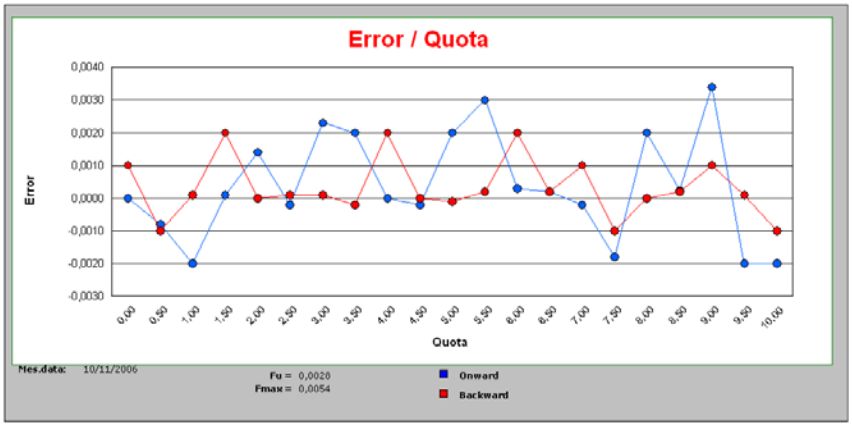
Default fields: to facilitate and expedite the gage introduction into the system, it is possible to predefine the content of some of the required fields.
In particular it is possible to pre-assign the content of the *inspection cycle* (such as. 1 year), the *inspection plan* (such as the number of measurements) and the *usage* (such as in use).

Therefore, each time a new code is entered into the system, the default values are automatically loaded into the record: the user can confirm those data with a simple “click” or change the selection according to his needs.

Automatic due date notifications: at program startup, it is possible to program an automatic check of the due dates.
In such case, the user is warned for solid gages or instruments due for calibration.
A forewarning time can be customized to evidence codes going to expire in a given period.



Instrument Graph
It is possible to create and print a graph of the measurements for an instrument. This can be done at the end of the calibration or from the instrument measurement history.



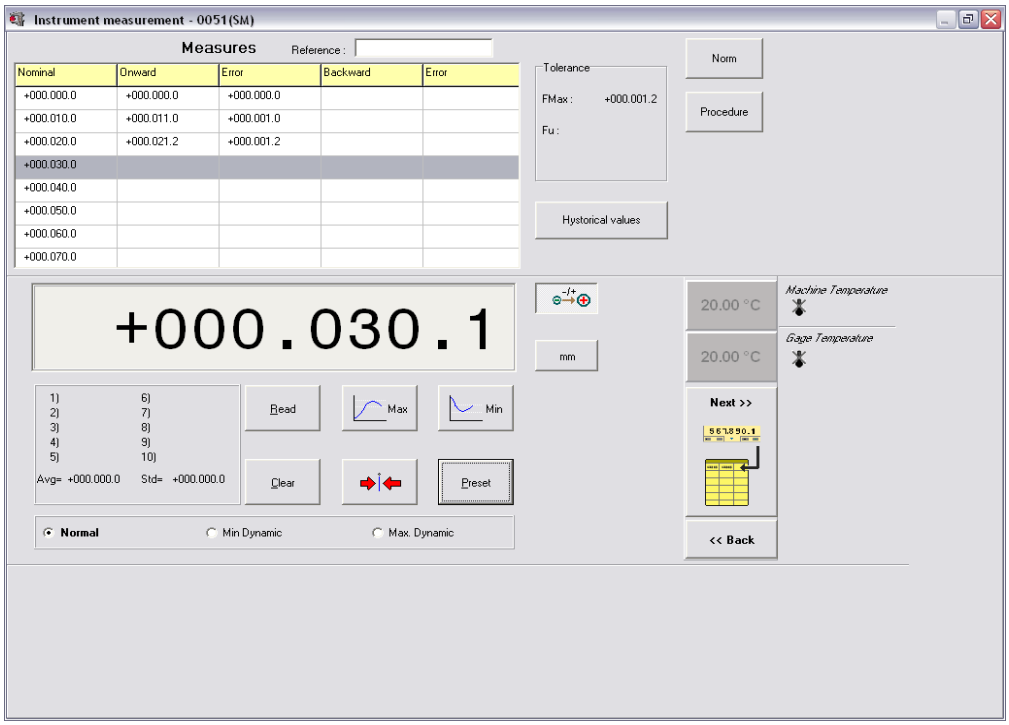
Measurement module

The reading interface is integrated into the software, offering comprehensive functions to the user.

The periodical inspection of gages is accomplished directly from the system and all required information are **automatically updated** and stored into the software.

Micro*Net* X6 is **fully integrated** with the measuring unit Joint Instrument **DMS 680** with all the measurement procedures of the machine built into the system.
Data acquisition can also be via keyboard, RS-232 or different Heidenhain reading systems.
Data input might both be in metric or inches mode.

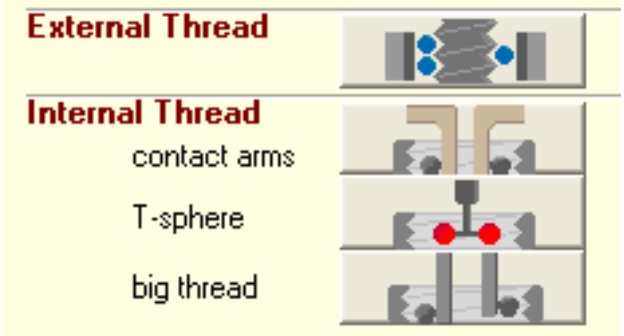
Micro*Net* X6 already contains some of the measurement procedures for solid gages and instruments (comparator, micrometer, caliper, bore gage, etc.) according to the more common practices and standards used in the mechanical industry.
Procedures might be changed and customized by the user or created according to company specifications.



The software **guides the operator** through the measurement procedures and calculates the instrument limits in terms of maximum error, error at each step, hysterisis, repeatability and reproducibility of the measures.

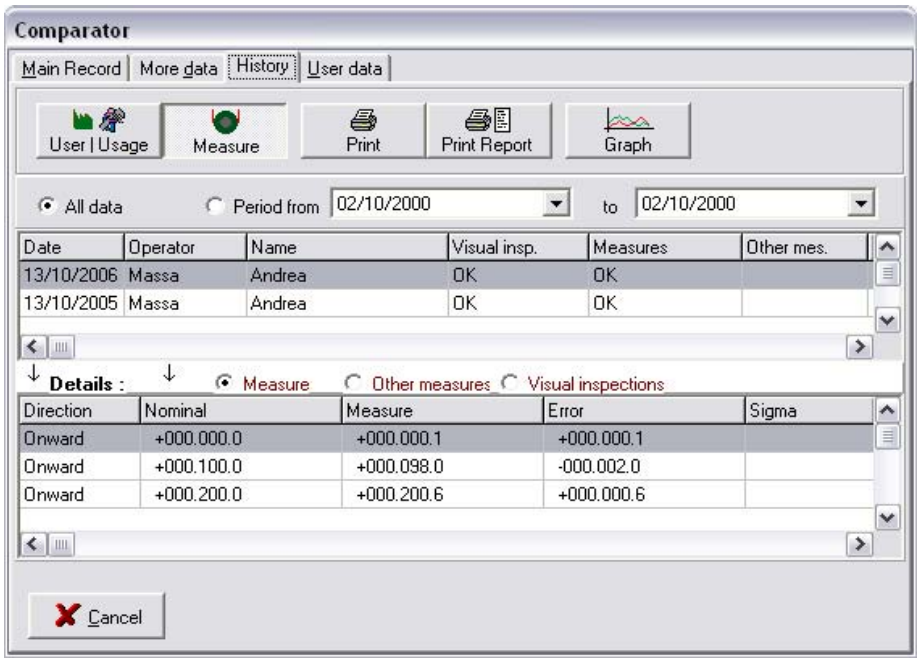
The measurement activity is easy, repeatable and moreover conforms to the norms prescriptions.

Thread solid gage measurement **formulae** are built into the software and provide pitch diameter automatic calculation according to the Berndt's method.



Wire and ball measurements are support with automatic selection of the best measuring tool (wire or ball) to be used for the measurement.

All data required for a **correct metrology traceability** are automatically recorded into the software: date, operator, machine used for the inspection, master gage and measuring tool (if any).



All calibration values are retrievable into the gage file.

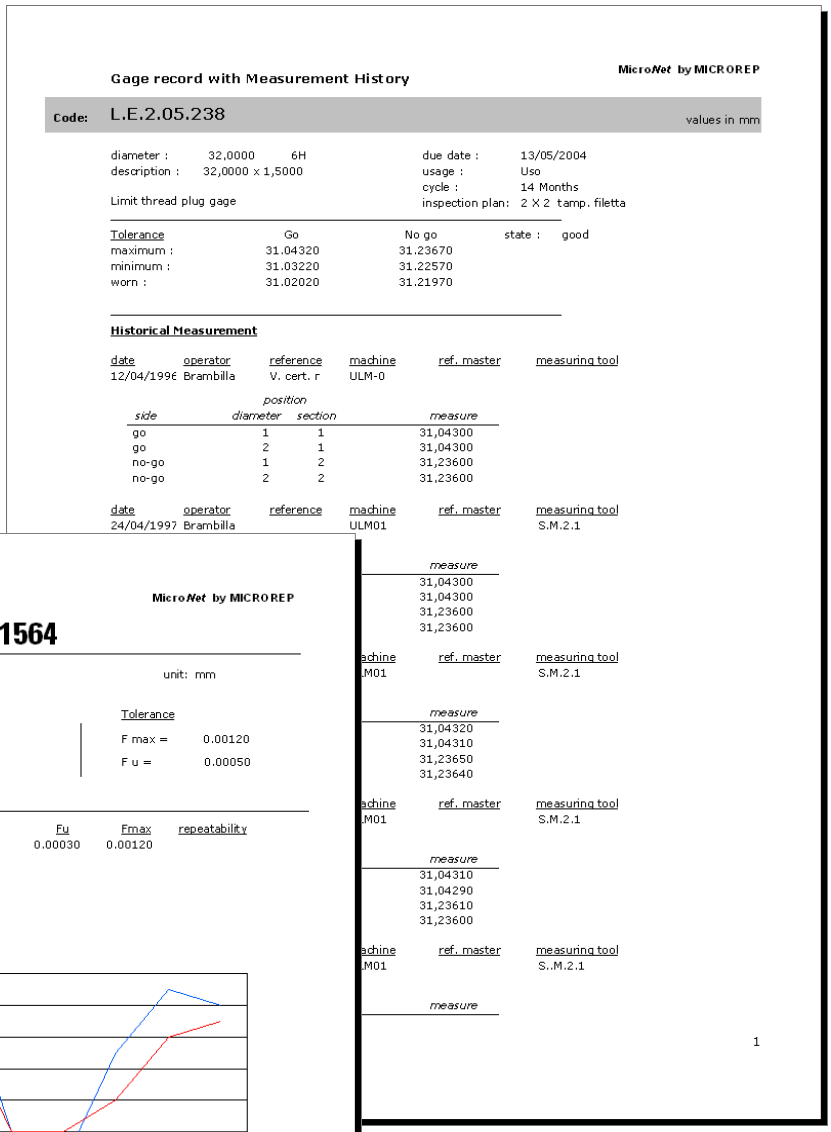
At the end of the measurement procedure a calibration report can be issued.

Reports

A variety of different reports is available and ready to use into Micro*Net* X6, including:

- gages due for calibration
- overdue gage listing
- gage list by size and type
- gages at each location
- statistics on gages due dates
- gages in use, lost, etc.
- calibration procedures
- cost centers
- instruments charts
- etc.

It is also possible to automatically issue a calibration report at the end of the measurement procedure.



Gage record with Measurement History

MicroNet by MICROREP

Code: L.E.2.05.238 values in mm

diameter : 32,0000 6H
description : 32,0000 x 1,5000
Limit thread plug gage

due date : 13/05/2004
usage : Uso
cycle : 14 Months
inspection plan: 2 X 2 tamp. filetta

Tolerance	Go	No go	state : good
maximum :	31.04320	31.23670	
minimum :	31.03220	31.22570	
worn :	31.02020	31.21970	

Historical Measurement

date	operator	reference	machine	ref. master	measuring tool
12/04/1996	Brambilla	V. cert. r	ULM-0		

side	position diameter	position section	measure
go	1	1	31,04300
go	2	1	31,04300
no-go	1	2	31,23600
no-go	2	2	31,23600

date	operator	reference	machine	ref. master	measuring tool
24/04/1997	Brambilla		ULM01		S.M.2.1

measure
31,04300
31,04300
31,23600
31,23600

achine ref. master measuring tool
LM01 S.M.2.1

measure
31,04320
31,04310
31,23650
31,23640

achine ref. master measuring tool
LM01 S.M.2.1

measure
31,04310
31,04290
31,23610
31,23600

achine ref. master measuring tool
LM01 S..M.2.1

measure

1

MicroNet by MICROREP

Calibration Report N. 1564

unit: mm

Code: 0051(SM)
Comparator
measuring field : -0.05000 ÷ 0.05000
issue date: 3-gen-07

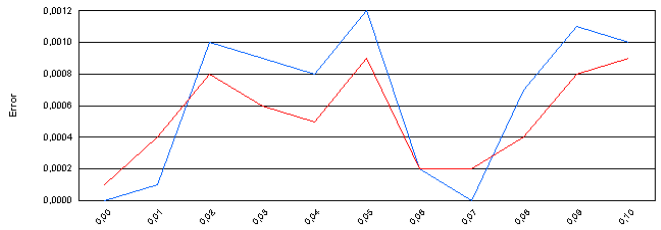
Tolerance	
F max =	0.00120
F u =	0.00050

Measures

inspection date	machine	reference	Fu	Fmax	repeatability
03/01/2007	DMS680-S/N.332		0.00030	0.00120	

NC Controllo scorrimento
NC assenza di ruggine
NC numeri visibili

Error



onward	0.00000	0.00000	0.00000
onward	0.01000	0.01010	0.00010
onward	0.02000	0.02100	0.00100
onward	0.03000	0.03090	0.00090
onward	0.04000	0.04080	0.00080
onward	0.05000	0.05120	0.00120
onward	0.06000	0.06020	0.00020
onward	0.07000	0.07000	0.00000
onward	0.08000	0.08070	0.00070
onward	0.09000	0.09110	0.00110
onward	0.10000	0.10100	0.00100
backward	0.00000	0.00010	0.00010
backward	0.01000	0.01040	0.00040
backward	0.02000	0.02080	0.00080
backward	0.03000	0.03060	0.00060
backward	0.04000	0.04050	0.00050
backward	0.05000	0.05090	0.00090
backward	0.06000	0.06020	0.00020
backward	0.07000	0.07020	0.00020

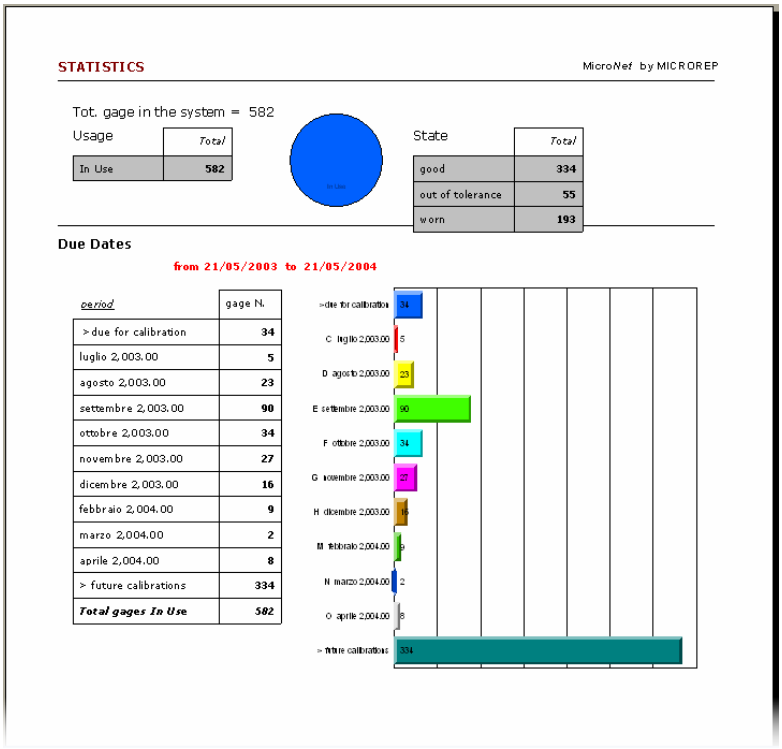
1

Export to file

Each printout format can be physically printed or exported to more common file formats such as Excel (XLS), Acrobat Reader (PDF), MSWord (DOC), Rich text (RTF), HTML (HTML), etc.

Statistic on gages

Gage statistics to evidence the number of gages to be calibrated in each month of the year or to show the amount of gages out of tolerances.



STATISTICS

MicroNet by MICROREP

Tot. gage in the system = 582

Usage	Total
In Use	582

State	Total
good	334
out of tolerance	55
worn	193

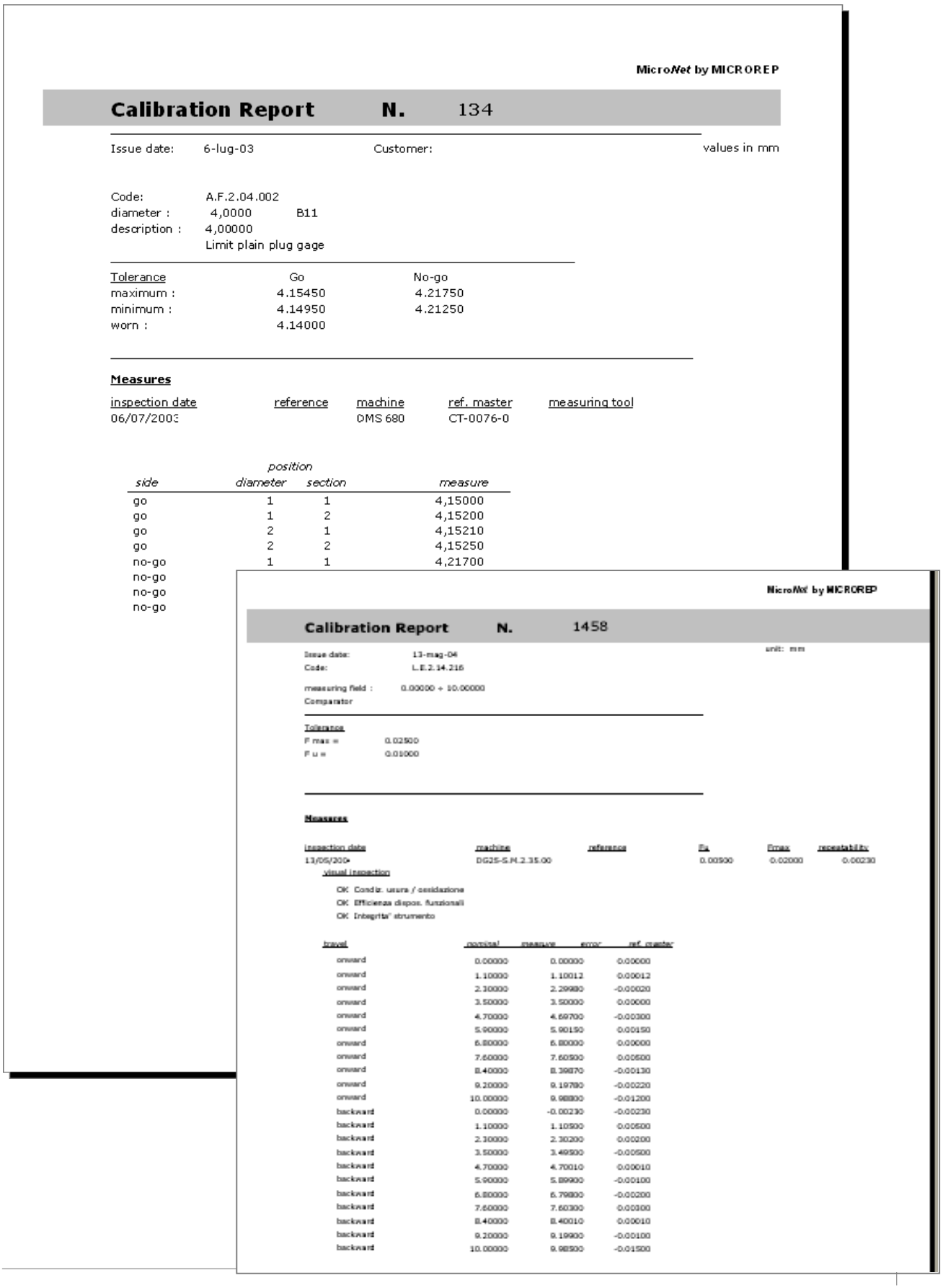
Due Dates

from 21/05/2003 to 21/05/2004

period	gage N.
> due for calibration	34
luglio 2,003.00	5
agosto 2,003.00	23
settembre 2,003.00	90
ottobre 2,003.00	34
novembre 2,003.00	27
dicembre 2,003.00	16
febbraio 2,004.00	9
marzo 2,004.00	2
aprile 2,004.00	8
> future calibrations	334
Total gages In Use	***582***

Custom Reports

Each report can be customized using the software Crystal Report®.



MicroNet by MICROREP

Calibration Report N. 134

Issue date: 6-lug-03 Customer: values in mm

Code: A.F.2.04.002
diameter : 4,0000 B11
description : 4,00000
Limit plain plug gage

Tolerance	Go	No-go
maximum :	4.15450	4.21750
minimum :	4.14950	4.21250
worn :	4.14000	

Measures

inspection date	reference	machine	ref. master	measuring tool
06/07/2003		DMS 680	CT-0076-0	

	position		
side	*diameter*	*section*	*measure*
go	1	1	4,15000
go	1	2	4,15200
go	2	1	4,15210
go	2	2	4,15250
no-go	1	1	4,21700
no-go			
no-go			
no-go			

MicroNet by MICROREP

Calibration Report N. 1458

unit: mm

Issue date: 13-mag-04
Code: L.E.2.14.216

measuring field : 0.00000 ÷ 10.00000
Comparator

Tolerance
F max = 0.02500
F u = 0.01000

Measures

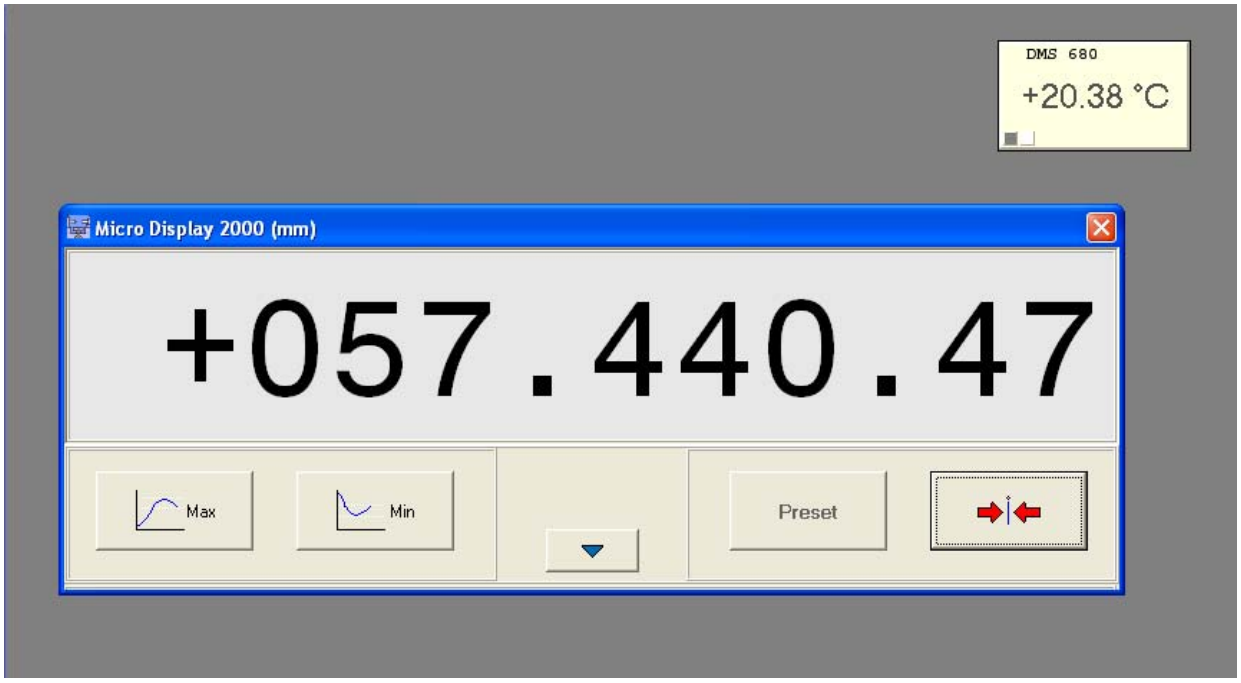
inspection date	machine	reference	Fu	Fmax	repeatability
13/05/2004	DG25-S.M.2.35.00		0.00500	0.02000	0.00230

visual inspection
OK Condiz. usura / ossidazione
OK Efficienza dispos. funzionali
OK Integrita' strumento

travel	nominal	measure	error	ref. master
onward	0.00000	0.00000	0.00000	
onward	1.10000	1.10012	0.00012	
onward	2.30000	2.29980	-0.00020	
onward	3.50000	3.50000	0.00000	
onward	4.70000	4.69700	-0.00300	
onward	5.90000	5.90150	0.00150	
onward	6.80000	6.80000	0.00000	
onward	7.60000	7.60500	0.00500	
onward	8.40000	8.39870	-0.00130	
onward	9.20000	9.19780	-0.00220	
onward	10.00000	9.98800	-0.01200	
backward	0.00000	-0.00230	-0.00230	
backward	1.10000	1.10500	0.00500	
backward	2.30000	2.30200	0.00200	
backward	3.50000	3.49500	-0.00500	
backward	4.70000	4.70010	0.00010	
backward	5.90000	5.89900	-0.00100	
backward	6.80000	6.79800	-0.00200	
backward	7.60000	7.60300	0.00300	
backward	8.40000	8.40010	0.00010	
backward	9.20000	9.19900	-0.00100	
backward	10.00000	9.98500	-0.01500	

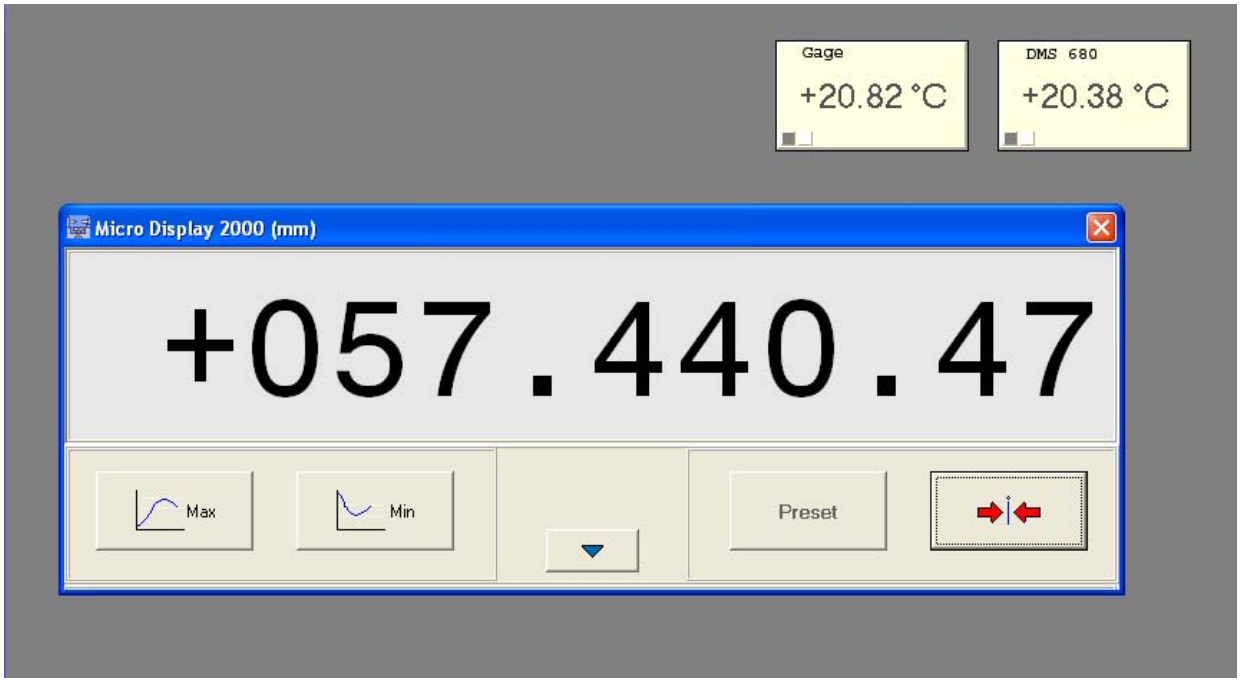
Real time Temperature Compensation

When used with the DMS 680, a real time temperature compensation provides unprecedented thermal stability.
Direct reading of the temperature on screen is provided standard.



Gage temperature compensation

A new optional USB interface allows to measure and read the gage temperature for gage real time temperature compensation.



XML - Export | Import Data

To improve the integration with other software packages, Micro*Net* offers the optional possibility to import and export data automatically via XML files.

Micro*Net* can read an XML file in input so to import the gage data into the system and it can generate an XML file in output to automatically send the calibration data to another software.

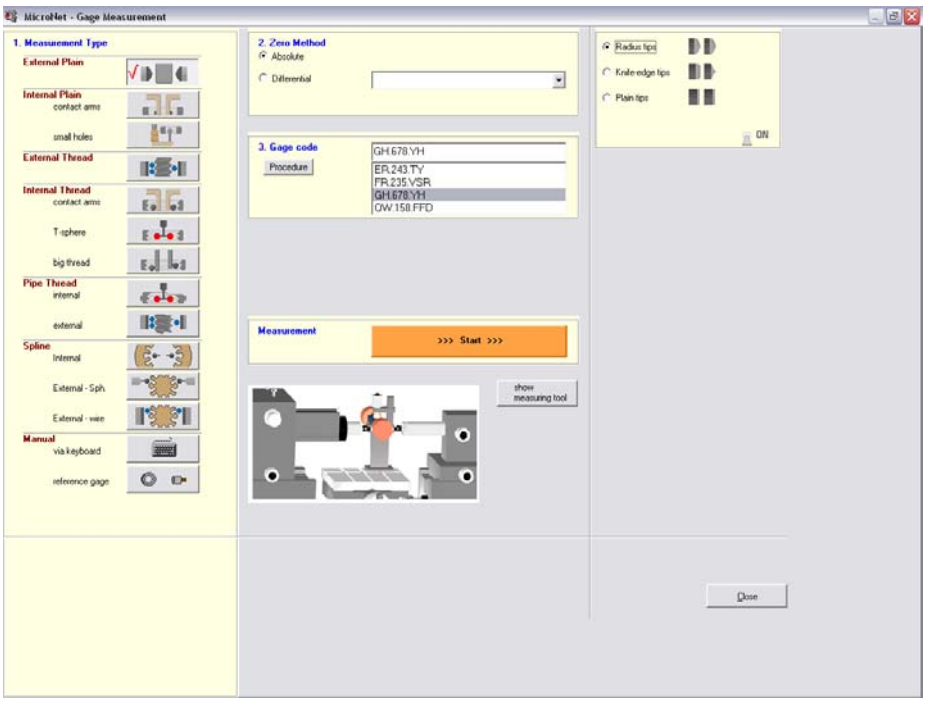
The XML files therefore allow to automate the data exchange to and from Micro*Net*.

Non-Linear Correction for user

This optional module allows the user to compensate the measurement error by loading a non linear compensation (given at points).

Contact Deformation Compensation

To reduce the possible sources of measurement error, we have developed this unique optional module to compensate the measurement error due to the contact deformation.
Taking into account the contact tips shape, the gage type, their materials and the deformation coefficients, we can predict and compensate the contact deformation.
This will reduce the real measurement error and increase the machine accuracy in real working conditions.



General Characteristics

Micro*Net* X6 is supplied standard with the DMS 680 in the following configuration:

Gage management software	●
Gage measurement software	●
Solid gages measurement procedures	●
Instruments measurement procedures	●
Master gage management	●
Measuring tools management	●
Direct reading of measurement value from the DMS 680	●
Keyboard (manual) data entry	●
RS-232 data entry	○
Real time temperature compensation	●
Gage measurement procedures integrated into the system	●
Custom fields can be defined by the user	●
Two levels users can be associated to each gage	●
Cost centre management	●
Instruments procedures can be composed of numerical and visual inspections	●
Thread formulae for automatic calculation of pitch diameter	●
Wire-sphere size automatic selection	●
All historical data are stored into the gage file	●
Full measurement traceability	●
Powerful retrieval functions with possibility to view and printout the resulting list	●
Variety of standard reports including gages due for calibration, overdue gages, etc.	●
Gage state active management (gages in use, non-in-use, lost, indicative, reparation, etc.)	●
Automated tolerances calculation for Iso-metric plain gage (detailed norms list available)	●
Automated tolerances calculation for Iso-metric thread gage (detailed norms list available)	●
Automated tolerances calculation for Ansi-Asme plain gage (detailed norms list available)	○
Automated tolerances calculation for Ansi-Asme thread gage (detailed norms list available)	○
Automated tolerances calculation for Ansi Pipe thread gage (detailed norms list available)	○
Automated tolerances calculation for Iso-Gas thread gage (detailed norms list available)	○
Automated tolerances calculation for Spline Gage (detailed norms list available)	○
Automated tolerances calculation for Whitworth thread gage (detailed norms list available)	○
Automated tolerances calculation for Buttress Gage (detailed norms list available)	○
Gage calibration cycle management	●
Works in network environment (addition licenses required and not included)	●
Automated calibration certificate printout	●
All reports can be exported to various formats (Excel, Acrobat Reader-pdf, MSWord, etc.)	●
Custom procedure text can be recalled during measurement	●
Statistical report on gages (number of gages due for calibration each month, etc.)	●
Gage temperature compensation	○
Works under Windows XP	●
Colorful icons to increase software usability	●
XML data import and export	○
User defined non linear compensation	○
Contact deformation compensation	○
	○

● Standard component

- Optional component