

# Gauge management

*Gauges are the technical basis for quality assurance. Miscalibrated gauges inevitably cause a production that deviates by this deficiency. The management of gauges sometimes changes dramatically from company to company. Economic considerations often are important and thus may lead to the employment of an external calibration service. The gauge-related modules of iQ-Basis account for that and are designed to perform gauge-control with as less administrative effort as possible.*

## Workflow

Every gauge management requires a smart way of registration and maintenance of the accompanied master data. In order to achieve maximum efficiency iQ-PMV organizes the gauges hierarchically into three levels: gauge classes, gauge types and individual gauges. Information that is entered on a superimposed level is automatically inherited by subordinate levels and can again be overwritten there to gain diversification. Furthermore all changes are recorded in a history for every single level.

Of course just recording the data is not enough to meet the requirements of a gauge management. In fact it is also essential to record and trace the typical movement actions and to shape the basis of a usage decision.

## Overview of important features and tables

### The gauge-class

- Summary of similar gauge-types (e.g. all micrometer-screws of different manufacturers)
- 4 free phraseable attributes per class (e.g. span, measuring accuracy, display form and operational conditions for micrometer-screws). The attribute specifications are shown depending on class-membership at creation of the gauge-type and individual gauge. The characteristics of the relative gauge are inserted here (e.g. span: 25, measuring accuracy: 0.001 etc.)
- Changes made on class-level will be handed down to the accompanied types and individual gauges.
- In addition to the gauge-class, the general class-system is also available through *iQ-GL*.

### The gauge-type

- Predefined masters for similar gauges, meaning all entries act as alterable pre-set attributes in all of the gauges related to the gauge-type.
- Determination of general master data for gauges of the specified type, e.g. class, search term, storage location, producer or vendor, associated calibration service, one or more measuring spans, accompanying documents, designations to the attributes or cost objectives maintained in the class-system
- Determination of master data needed by gauge-control (see *iQ-PMÜ* also for every gauge of the gauge-type like a quality control plan, used to do an attributively accurate inspection, the place of inspection (externally at a calibration service, in a laboratory of the company or directly at the site) or defaults for term inspection
- Revision state for gauge-drafts: line up a gauge for changes on the spot, at next calibration or not at all
- Controlling minimum amount and recorder point

### *Defaults for term inspection in detail:*

- Constant term, e.g. in two years and the same month. This guarantees a consistent utilization of the test laboratory.
- Dynamic terms of usage; the time of storage until the next term inspection will not be taken into account.
- If a constant term and a term of usage are entered simultaneously the inspection will take place when the first term is expired.
- Tightened inspection; if an attribute of a gauge exceeds a warning limit, the system will suggest shortening the interval of inspections in order to make sure that a gauge, which does not fulfill the specifications anymore, is not used.
- No inspection; if it is nonobligatory to inspect the gauge.
- Gauging duty; some gauge-types (scales, flowmeter for fillings etc.) are subject to official revision. There is a gauging term for this which is controlled independent from term inspection.

### The individual gauge

- Every gauge can inherit the master data of the related gauge-type.
- Individual master data not inherited from the corresponding type are for example: the status, inventory no., serial no. of the manufacturer, site and user, exact parameters for the next term inspection or gauge accessory including relevant acquisition information, like dates of order and delivery, acquisition or maintenance costs.

### Gauge organisation

- Management of every characteristic moving action
- Recording of a history for every moving action so that a complete vita of a gauge is available. Not only a general survey is generated in the process, but all recorded information is accessible.

### Managed moving actions in detail:

- Acquisition, including all commercial details of the order and delivery transaction
- Initial test after acquisition, repair or return from calibration service
- Return to cost unit, person or machine
- Retraction after use, inspection term or due to defect
- Hand-over for external inspection, gauging, repair
- Assistance of mass-movement

### Usage decision

- On retraction from the calibration service the test-result or certificate are summarized.
- On in-house inspection without *iQ-PMÜ* results can for example be adopted from a transfer file. The external report is stored in the maintenance history file.

- On in-house inspection with *iQ-PMÜ* the result is automatically stored in the maintenance history file.
- The stored result becomes the basis for the decision of further usage of the gauge

### Rental of gauges

- Management of the complete course of a gauge rental, may it be to a foreign site or a supplier (e.g. lengthened workbench)

### Lists and evaluations

- Collection list after expiry of term interval
- Reminder list after the gauge was not retracted in due time
- Banning list when a reminder was not followed
- Inventory for sundry selection and sort criteria
- Automatic e-mail sending of the lists (see *iT-MAIL*)

The screenshot shows the 'Edit gauges' window with the following data:

Test eq.	1	Measuring slide 200 *****	Engineering rev.	1
Test equipment type	MESSSCHIEBER200	Measuring slide 200 *****	Engineering rev.	1/UCC
Status	USE	in use	Kind of gauge construction	6
Gauge class	MESSSCHIEBER	Measuring slide	Doc. part	Test eq.
Inventory no.	INV0412-99.01	/ 01	Lookup term	TABELLE
Owner	0001 / 4650	Quality engineering	Sub site	
Site	0002 / 4913	Turning shop	Bin location	Schrank C / 25a /
User			Custody	
Storage location	0001 / 4645	Gauge management	Serial number	SN0412-99.01
Calibration lab	0001 / 4645	Laboratory	Model	
Provider	D1	Kalibrierlabor Nord GmbH	Messspanne	150
At serv. organ.			Teilung	0.01
Manufacturer	MITUTOYO	Mitutoyo Meßgeräte	Inspection decision	OK OK
Anzeige-Form	Digital		Insp. strategy	/
Spitzenform			Next inspection	19.09.2009
No inspection	<input type="checkbox"/>		Next inspection	19.09.2009
Inspection plan	2618-09.1	MESSSCHIEBER	Sp. period	
Locat. of insp.	INT	internal (in-house self-test)		
Const. per time	9 month	Aggravated		
Period of usage	6 month	Aggravated		
Reference to period	LID	to last actual inspection date		

### Interface to other modules

- *iQ-PMÜ* for gauge control
- *iQ-PM-Beanst* for assisting a complaint process with automatic reminding
- *iQ-PMF* for gauge capability analysis
- *iQ-PMS* for managing the for calibration at a calibration service
- *iQ-GL* for central maintenance of master data of any module
- *iT-MAIL* for automated sending of e-mails
- *iQ-DOKU*, in order to store a calibration certificate of a certain gauge
- *iQ-INFO* for self-created evaluations (e.g. with Crystal Reports)
- *iT-OBJEKTE* to assist in object allowance all across the gauge organisation