# Quality management manual



## RMG Messtechnik GmbH

Butzbach / Beindersheim / Zorneding

**02/01/2019**

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## Release and history of changes

This document has been reviewed and approved by Thorsten Dietz (GF), Dr Jörg Riedel (head of testing centre) and Jörg Hasselbach (QM) of RMG Messtechnik GmbH.

## Revision history

| Version | Date | Description | Reviewed by |
|---|---|---|---|
| Initial release | 04/11/2011 | Newly drawn up in order to meet the requirements of the Global Honeywell HPS QMS. | Albrecht Jakob |
| 1st edition | 26/11/2012 | Incorporation of the Measuring Instruments Directive (2014/32/EU) and the ATEX Directive (94/9/EC) into the glossary. Removal of the Gas Appliances Directive. | Albrecht Jakob |
| 2nd edition | 31/10/2013 | 5.4.2 Expansion of the point with documented QM measures 5.5.2 commissioned for Ex protection, Pressure Equipment Directive as representative of the top management incorporated. 7.4.1 Definition of the quality requirement for suppliers in accordance with the Directives (94/9/EC, 97/23/EC, 2014/32/EU). | Tobias Windrich |
| 3rd edition | 23/12/2014 | Change of company address from Ebersberg to Zorneding. Incorporation of the German Weights and Measurements Act/Ordinance. SCC$^{P}$ – Certification incorporated into the obligations of the management. | Thorsten Dietz |
| 4th edition | 04/10/2016 | Change of the GF, update of Directives. | Dr. Michael Grexa |
| 5th edition | 09/03/2017 | Adaptation to ISO 9001:2015, completely revised. | Dr. Michael Grexa<br>Dr. Jörg Riedel |
| 6th edition | 01/02/2018 | Editorial changes were made to improve content. Supplements to the requirement of DIN EN ISO 9001:2015 were updated. | Dr. Michael Grexa<br>Dr. Jörg Riedel |
| 7th edition | 02/01/2019 | Change of the General Management. | Thorsten Dietz<br>Dr. Jörg Riedel |



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# 4 CONTEXT OF THE ORGANISATION

## 4.1 Understanding the organisation and its context

This manual defines the specific local processes and methods. It serves executives and employees as a guideline and working document for the design and implementation of business processes and workflows.
Furthermore, in relations to the outside world, it constitutes proof and evidence of the applied Management System's structure and effectiveness. For customers and suppliers, it creates transparency in view of the quality-relevant activities.
The context of the organisation at RMG is classified into external and internal topics which are relevant for the organisation's objective and strategic alignment and affect our capabilities. The understanding of the context is portrayed in consideration of the following aspects:

- Values of RMG
- Interaction with employees
- State of the art
- Age structure of the personnel
- Market and competition
- Statutory/official requirements
- Image of RMG

## 4.2 Requirements and expectations of interested parties

Perpetuation of the organisation and capability of providing products and services, the management is obligated to define, monitor and review the interested parties of the company and the relevant requirements of said parties.

## 4.3 Area of application of the quality management system

The quality management manual applies for the locations of RMG Messtechnik GmbH in Butzbach, Beindersheim and Zorneding.

Measuring devices for gas flow and gas quality, as well as conversion systems are developed and produced in Butzbach according to the latest technologies and methods. These devices and systems offer the highest precision and reliability in practical applications.
RMG has an officially recognised testing centre for gas measuring devices approval for custody transfer applications. The testing centre is approved for standard flow rates of up to 25,000 m3/h.

RMG Messtechnik GmbH is the successor to the company Pintsch Bamag Gastechnik. The gas measuring technology company was acquired by the RMG Group in 1981.
In 2005 the group merged with Karl Wieser GmbH, Ebersberg under the name RMG Messtechnik GmbH. This enabled a uniform product assortment and service, as well as more effective development of complete systems.
In August 2009 the RMG group was acquired by the American Honeywell corporate group in which it has been allocated to the Honeywell Process Solution (HPS) business unit.
After RMG Messtechnik was sold by the Honeywell corporate group to Energas Turbines B.V., the company resumed independent operation under the responsibility of the management with the company name **RMG Messtechnik GmbH** on 1 October 2016.

### 4.3.1 Specific stipulations from the range of requirements

4.3.1.1 Regulations / Directives / Laws / Standards

| | |
|---|---|
| DIN EN ISO 9001:2015 | Quality Management Systems – Requirements |
| 2014/68/EU | Pressure Equipment Directive (PED) |
| 2014/34/EU | ATEX Directive |
| 2014/32/EU | Measuring Instruments Directive (MID) |
| 2014/35/EU | EMC Directive |
| MessEG | German Weights and Measurements Act |
| MessEV | German Weights and Measurements Ordinance |
| SCC$^{P}$ | Safety Certificate of Contractors for Petrochemicals |
| CSA | Canadian Standards Association |
| DIN EN 10204:2005 | Types of Inspection Documents – Metallic Materials |

4.3.1.2 Abbreviations

| | |
|---|---|
| SOP | **S**tandard **O**peration **P**lans (standard work process), |
| ROS | **R**MG **O**perating **S**ystem |
| HSE&F | **H**eath, **S**afety, **E**nvironmental & **F**acility. |
| OTTR | **O**n **T**ime **T**o **R**equest – Delivery reliability on the desired delivery date. Figure which is used for the regular evaluation of delivery reliability to the customers and from the supplier. |
| PPM | **P**arts **P**er **M**illion – Quantity of defective parts per one million supplied parts. The figure is used for the regular evaluation of supplier and customer complaints. |
| COPQ | **C**ost **O**f **P**oor **Q**uality – cost of poor quality (for turnover). The figure is calculated for the regular evaluation of internal and external quality for turnover. |
| QMM | **Q**uality - **M**anagement - **M**anual |
| QMS | **Q**uality - **M**anagement - **S**ystem in accordance with DIN EN ISO 9001:2015 |
| TPM | **T**otal **P**roductive **M**aintenance |

## 4.4 Quality management system and its processes

The introduction, documentation, maintenance and continuous improvement correspond to the requirements of DIN EN ISO 9001:2015. The location-specific requirements are described in the process description, test instructions, work instructions, standard operation plans (SOPs), checklists, forms and land registries and outlined in the process matrix

# 5 MANAGEMENT

## 5.1 Management and obligation

### 5.1.1 General information

The top management has defined the objective of supplying customers with products and services of outstanding quality and in compliance with ATEX (2014/34/EU), PED (2014/68/EU), MID (2014/32/EU), EMC (2014/35/EU) Directives or to bring devices to market in accordance with the MessEG/EV. The performances are based on the requirements of the interested parties. The specifications of the quality management system in accordance with DIN EN ISO 9001:2015 are used to achieve this objective.
Our quality policies and quality goals and incessant pursuit of continuous improvement constitute the basis and guideline of our customer orientation (interested parties). Key figures and activity lists support the improvement process.
The evaluation of the quality management system is carried out through regular reviews.

### 5.1.2 Customer orientation

Our quality policies and incessant pursuit of continuous improvement constitute the basis and guideline of our customer orientation. ROS, KAIZEN, Six-Sigma tools. Quality targets and key figures support the improvement process.
The company is obligated to satisfy statutory and official requirements of the customers, as well as to work towards improvement of customer satisfaction. Activities are defined in meetings which take place regularly.
Risks and opportunities which analyse the conformity of products and services are analysed and evaluated and corrective actions are initiated as necessary.
We provide products and services to the gas industry. To accomplish that we maintain a close relationship with our interested parties. Each and every enquiry is an opportunity to address their specific requirements and expectations.
Qualified advice, selecting suppliers to the point and, if necessary, handling complaints so as to resolve issues – those are the basic values of our customer orientation.

## 5.2 Quality policy

The quality policy defined in the process description applies for RMG Messtechnik GmbH. The top-level management supports the implementation of the policy by ensuring that it is accessible to and understood by all employees and interested parties.

## 5.3 Roles, responsibilities and authority in the organisation

### 5.3.1 Responsibility and authority

The management makes sure that the leadership of the individual departments assures the adherence to the tasks in their respective area of responsibility. The supervisor is responsible for the knowledge (education, training and use of qualified personnel). The supervisor must assume the short and mid-term planning of strategy, personnel, capacity and cost, as well as the monitoring of these tasks within his/her area of responsibility.

### 5.3.2 Representative of the top-level management

The quality representative, Ex representative, acceptance representative (in accordance with the Pressure Equipment Directive in accordance with DIN EN 10204), waste representative, fire protection representative, customs representative, exports representative, company doctor, occupational safety officer, safety representative, responsible electrical engineer, industrial truck operator and crane operator are identified in writing. The representatives maintain the quality management system according to DIN EN ISO 9001:2015, Directive 2014/34/EU (ATEX), Directive 2014/68/EU (PED), Directive 2014/32/EU (MID), the MessEG/EV, SCC$^{P}$ rules and regulations and CSA within the organisation and notify the management about improvements and their effectiveness. Legally binding appointments are represented in the organigram.
The quality representative ensures that all relevant processes for the quality management system are introduced, verified and validated.

The testing centre manager is available for all questions relating to the MessEG/EV and MID. They advise and train the relevant employees of the company in matters of metrology as needed.

# 6 PLANNING OF QUALITY MANAGEMENT SYSTEM

## 6.1 Actions for dealing with risks and opportunities

The quality management system was planned, implemented and validated in order to meet the requirements from the standard DIN EN ISO 9001:2015, the conformity of the products according to the Directives and all legal and technical requirements. Specified requirements and actions are described and documented in process instructions.
The risk-based approach is evaluated in a comprehensive risk assessment over business processes and products. This involves determining risks and opportunities which contributed to achieving the desired result and continuous improvement.

## 6.2 Quality objectives and planning for their achievement

The company management defines internal quality objectives for the essential functional areas in harmony with the quality policy. The status of the key figures discussion is reviewed regularly and corrective measures are identified, if necessary.

## 6.3 Planning of changes

Necessary changes are carefully planned, verified and introduced into the system in such a manner that the functionality of the system is maintained.

# 7 SUPPORT

## 7.1 Resources

The company management assures that sufficient resources are available for the maintenance and continuous improvement of the effectiveness of the QMS and for the increase of awareness of the interested parties.

### 7.1.1 General information

The company assures that the quality management system is realised and maintained and that its effectiveness is continuously improved. For this purpose, the necessary resources are determined and provided.

### 7.1.2 Personnel

Through the personnel policy, the company ensures that only qualified employees with sufficient experience are used for the respective areas of activity. It is the responsibility of the managers and executives to determine the requirement and scope of training measures. The selection of employees takes place according to the skill matrix.

### 7.1.3 Infrastructure

The management determines the resources required for the product realisation. These are verified and validated in the company planning. The infrastructure required for the efficient product realisation is continuously reviewed for its functionality, performance and appropriateness, as well as the need for updating.
The production, assembly and testing equipment are continuously monitored (TPM) in order to assure their suitability for use.

### 7.1.4 Environment for implementation of processes

The safety and health of our employees is given the highest priority. The HSE+F manager supports the managers and executives in the implementation in order to fulfil all legal and official requirements. All employees should be sensitised in regard to the key figures and the regular reporting of near accidents and they should be motivated to become more alert. Regular, documented inspections take place with the responsible persons from the technical departments.

### 7.1.5 Resources for monitoring and measurement

The monitoring of the testing and measuring equipment is controlled through an Excel file. The calibration is performed by recognised and certified testing laboratories. The measuring equipment is ascribable to national standards and provided with an identification number as well as the next test date.
Faulty and defective measuring equipment are immediately identified, sorted out and stored separately so that further use is eliminated.

### 7.1.6 Knowledge of the organisation

The knowledge of the organisation is represented for the assignment of perspectives: "Determining, maintaining, communicating and expanding". Suitable actions for further activities are defined the level of knowledge is determined.

## 7.2 Expertise

The organisation determines the necessary expertise to positively influence the performance and effectiveness of the quality management. Employees can enhance their knowledge with training and continuing education. Certifications are filed according.

## 7.3 Awareness

The top-level management supports the implementation of the quality policy and objectives by ensuring that they are accessible to and understood by all employees.

## 7.4 Communication

The management of the company assures through regular publications, town hall meetings, newsletters, announcements, reviews and meetings that the requirements, targets and results of the quality policy are disclosed to the departments.

## 7.5 Documented information

### 7.5.1 General information

The QMS – documentation is comprised of specifications / requirements of ISO 9001:2015 and the local process descriptions. There are process instructions available from the requirements of DIN EN ISO 9001:2015 for a clear presentation.

### 7.5.2 Creation and updating

All QMS documents are checked for correct contents before they are published (four eyes principle). The technical managers are responsible for creation and updating of process descriptions.

### 7.5.3 Control of documented information

During business processes, any and all determinations established, measures executed, data ascertained and results obtained are to be documented in the corresponding quality records. Such quality records serve the purpose of ensuring the traceability of transactions carried out, the analysis of measures taken and the design and initiation of suitable remedies and preventive measures to be taken, if and where necessary.
A special matrix created for that purpose contains rules concerning creation and access as well as the location and duration of stocking such documents and quality records.

# 8 OPERATION

## 8.1 Company planning and control

The company plans and develops processes for the manufacture of its products and provision of services. In the process, conformity with the quality management system is observed. Important changes and/or events are meaningfully documented and stored.

## 8.2 Requirement for products and services

### 8.2.1 Communication with the customer

The company communicates with its customers in a variety of ways:

- Field staff / sales representatives,
- Customer meetings / employee visits,
- Handling of customer property,
- Provision of information about products and services,
- Publications in trade periodicals,
- Participation in trade fairs and committees,
- Internet presence (RMG home page),
- Request handling / order processing,
- Complaint handling from customer feedback.

### 8.2.2 Determination of requirements for products and services

With the knowledge / updating of directives, laws and standards, all requirements and changes are taken into account and adapted to the requests of the customer.

### 8.2.3 Review of the requirements for products and services

All requirements on the product are entered, linked and documented through the ERP system. The feasibility is already checked in the sales department with appropriate checking at the time of the order entry. With special designs or non-standard requirements, the "Technology" department is called upon to review the implementation. All changes are documented for traceability.

## 8.3 Development of products and services

### 8.3.1 General information

A process described in detail is available to the company for the development of products and services. All phases in the development of products and services are saved as documented information.

### 8.3.2 Development planning

Development projects are defined, prioritised and budgetised in collaboration with the marketing and product management departments. After the release of projects and the budget by the management, all new developments are entered in the central system for traceability.

**8.3.3** Development input

The specification booklet is prepared by the marketing department on the basis of the requirements and expectations of customers or the market. In the process, legal and/or official regulations, as well as specifications from standards, directives and bodies of rules and regulations are taken into account.
The specifications are described in detail in the specific requirements and implemented.

**8.3.4** Development control

The development stages for a product are subdivided into individual phases. An evaluation of the current status is carried out by the committee for the transition to the next phase. A phase change can only take place after a positive evaluation. The result is documented.
All current development projects are verified by the development department in regular intervals. The corresponding documentation (e.g. test records / reports, calculations, simulations, test plans) is reviewed and additional measures are determined, if necessary.
In order to ensure that the product meets the design specifications and thus the requirements of the market/customer, a validation is carried out.
In most cases the development results are submitted to external organisations, such as DVGW, TÜV or the customer, for verification and validation. Records are kept for the results of the release.

**8.3.5** Development results

The development results are documented and presented so that they can be verified against the specifications. Prior to release, the results are reviewed by the internal committee according to the process description.

**8.3.6** Developmental changes

Design changes are documented in the ERP system and in a database. All changes undergo the change process and all internal interested parties are informed accordingly.

## 8.4 Control of externally provided processes, products and services

**8.4.1** General information

In order to ensure the quality of the in-house products, the suppliers as well as the sourced products and services are reviewed with respect to the sourcing requirements prior to the initial order submission.
The type and scope of monitoring in this connection depend on the sourced product. Suppliers of products or services which may interfere with compliance of the product with the relevant regulations and requirements of the Directives (ATEX, MID, EMC, MessEG/EV, CSA, PED) must only be chosen after an evaluation has demonstrated that all specified requirements have been fulfilled.

**8.4.2** Type and scope of control

The specifications for the sourcing (order requirements) is a clear description for the suppliers of the product to be supplied, the service to be provided and/or the required documentation; if necessary, drawings and a specification booklet are made available to the supplier as well.
The selection and evaluation of the suppliers take place with the purchasing department with the support of the representatives on the basis of defined criteria. The suppliers' quality and adherence to schedules are continuously monitored and the results are documented. A regular evaluation of the suppliers takes place on the basis of these results.

The verification of the sourced products takes place through incoming goods inspections or by inspections by the supplier.

**8.4.3** Information for external providers

The basis of the information for external providers is the description of processes, products and services to be provided. The external providers are notified of the requirements for approval with respect to products and services, as well as their approval, in addition to methods, processes or equipment.
The qualification and requisite competence of the assigned personnel are represented. Requirements for the collaboration of interfaces within the value-added chain of both management systems are communicated. The intended type of control, monitoring, verification and validation by external providers are coordinated when the order is issued.
The appropriate of the defined requirements is ensured by RMG.
The defined deviations from the internal control and evaluations for products and services are incorporated into the evaluation of suppliers.

## 8.5 Production and service provision

**8.5.1** Control of production and service provision

The processes necessary for production and provision of services are planned and monitored with computer support.
The production manager is responsible for the timely and qualitatively faultless delivery of the products. Through his/her employees, the production manager ensures that only qualified and trained staff is used at the individual work stations.
In the scope of his/her responsibility, the production manager ensures that suitable production, assembly and testing equipment, as well as measuring equipment are available and that they remain in proper condition.

**8.5.2** Identification and traceability

All of our delivered products and devices are uniquely identified with a serial number.
In order to be able to assure unlimited traceability for all assemblies requiring verification in accordance with the Pressure Equipment Directive, MID, ATEX Directive, EMC Directive, MessEG/EV CSA, consistent charge documentation is kept through the entire company. Thanks to a unique identification, the status of each product and assembly can be recognised. All storage locations and areas are uniquely identified and allocated.

**8.5.3** Property of the customer or external providers

If property of the customer is provided for further processing or for integration, it must be handled like all other purchase parts in regard to controls, testing and storage.

**8.5.4** Preservation

Suitable means for the preservation of the product are available to the individual departments during the internal processing and delivery. This is assured during the processing through transport and storage in proper containers and with appropriate transport equipment. The personnel entrusted with these tasks is trained and instructed accordingly. Suitable packaging and transport aids are available for the shipping of our products.

**8.5.5** Activities after delivery

The legal and official requirements, customer requirements and feedback of customers are taken into consideration for processes after delivery.

**8.5.6** Monitoring of changes

All processes carried out in the company are monitored. These processes are validated through reviews which take place regularly.
Important processes of the company are controlled through key figures. Regular reviews of the key figures take place in order to assure alignment with the goals. Measures resulting from this process are documented and pursued by the responsible functions.

## 8.6 Approval of products and services

The safety of our products is one of our most important requirements, which is why the company continuously and permanently monitors all critical parameters. Corresponding testing and release criteria are defined in all areas. All tests are conducted by trained and experienced personnel. Test and work instructions regulate how the testing is conducted.

## 8.7 Control of non-compliant results

If errors or defects are discovered in the testing, these products are identified and the discovered error is documented in a test report. The quality department determines the further procedure (reworking, scrap, follow-up, etc.). The rejected units are stored separately until the decision is made (quarantined stock).

# 9 EVALUATION OF THE PERFORMANCE

## 9.1 Monitoring, measurement, analysis and evaluation

**9.1.1** General information

Test instructions or test plans are provided for all relevant testing, which assures that the quality requirements placed on the product are fulfilled. Potential for improvement is recognised through regular evaluations of the quality figures and internal quality meetings and measures are introduced.

**9.1.2** Customer satisfaction

The satisfaction of our customers is our foremost aim. We maintain close and direct contact through participation in trade fairs, conferences, regular customer visits and RMG product trainings in order to learn about changed requirements or new market needs well in advance. The occurrence of complaints or deviations in our delivery accuracy are analysed and evaluated so that corrective and preventive measures can be implemented for continual improvement.

Through regular customer questionnaires, we receive direct feedback about satisfaction with our products and services. The resulting measures are incorporated into the continuous improvement process.

**9.1.3** Data analysis

The company identifies, collects and analyses data, facts and information from customers, markets, processes, suppliers and other interested parties.

The various function areas analyse and evaluate the information in regular reviews.

## 9.2 Internal audit

In order to determine the effectiveness of the quality management system, internal audits are planned and conducted.

Any deviations discovered from internal or external audits are documented with corrective measures and forwarded to the parties responsible for rectifying the situation. The control of the audits and measures is supported by a central data storage.

## 9.3 Management evaluation

**9.3.1** General information

The management regularly evaluates the quality management system. In the process, the possibilities for improvements and changes of the quality management system are assessed.

In doing so, the appropriateness and effectiveness of the system in regard to the requirements of ATEX, PED, MID, EMC, the MessEG/EV, DIN EN ISO 9001:2015, SCC$^{P}$ rules and regulations and CSA, the aforementioned quality policy and the quality targets are assured.

**9.3.2** Factors for the evaluation

The following factors are taken into account for the management evaluation:

- Status of activities after prior management evaluation

- Changes for external and internal topics
- Information about the services and effectiveness of the QM system
- Appropriateness of resources
- Effectiveness of activities performed in connection with risks and opportunities
- Possibilities of improvement
- Results of the internal and external audits
- Customer feedback and complaints
- Quality figures
- Delivery accuracy
- Supplier quality
- Preventive and corrective measures
- KAIZEN considerations
- Lean Operating System (ROS)
- Accident statistics
- Important changes pertaining to the QM system
- Content from the occupational safety management
- Consideration from the annual plans of QM and HSE

**9.3.3** Results of the evaluation

The results of the management evaluation include decisions and measures for the improvement of the effectiveness of the QMS and its processes, for the improvement of the product in regard to the customer requirements and the need for resources.

# 10 IMPROVEMENT

## 10.1 General information

The company strives to continuously improve the effectiveness of its quality management system and to advance it.

In addition to the work with the key figures, ROS represents one of the most important initiatives. Through the consistent implementation of the ROS philosophy and tools in the entire company, a continuous and thorough improvement process is assured.

## 10.2 Non-conformity and corrective action

Quality-assuring and improvement measures are determined and used for corrective measures in documented processes.

A responsible person and a valid date are identified for each completed corrective measure. The status of the implementation is queried and documented in regularly occurring meetings.

## 10.3 Continuous improvement

Preventive measures are an active process with which the potential occurrence of errors should be eliminated and which additionally serves for the elimination of the causes of a potential error, deficiency or other undesired situation in order to prevent their occurrence. For this purpose, various tools are used by ROS / Six Sigma. The results are recorded and evaluated.