



**aquatherm Australia Pty. Limited**

Ecological pipe systems: just say yes to a better world!



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# Quality Assurance



## System control

The production of a quality controlled pipe system demands the supervision, regulation and control of all work operations. All results and processes have to be documented.

This requires

- **Test and acceptance of incoming goods**
- **Process control**
- **In-process inspection and test**
- **Final inspection and test**

Relevant regulations for the quality control of potable water pipe systems are:

- **DIN guidelines**
- **DVGW work sheets**
- **Supervisory Regulations of the SKZ (Süddeutsches Kunststoff Zentrum)**

These standards and guidelines detail the minimum requirements for internal control.





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Conformance to the standards is verified by independent institutes in form of international audits and laboratory tests.



**Aquatherm** has many years of experience in extrusion and injection moulding and is the market leader and pioneer in the manufacture of Polypropylene pipe systems.



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colours of innovation





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This experience is reflected in internal quality standards and laid down procedures, which are taken strongest note of and are documented by the constant quality of our products.



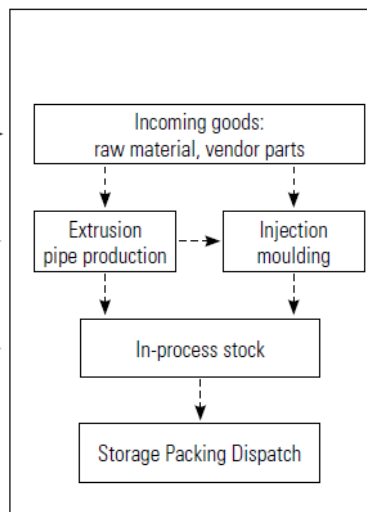
## INTERNAL CONTROL SYSTEM CONTROL

### TEST AND ACCEPTANCE

### IN-PROCESS INSPECTION PROCESS MONITORING

### FINAL INSPECTION

DIMENSIONAL CONTROL  
SURFACE FINISH  
MELT FLOW INDEX  
IMPACT BENDING TEST  
HEAT REVERSION TEST  
HOMOGENITY  
HYGIENICAL AND TOXICOLOGICAL  
TEST



In addition to the permanent internal quality control, an external control is made by i.e. SKZ, SAI, TGM, Hygieneinstitut.







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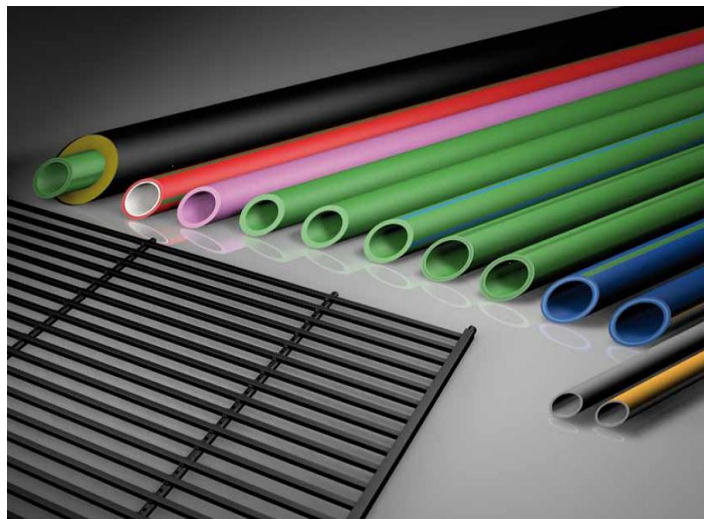
## Internal control

Trained and qualified employees and a modern equipped laboratory ensure that all tests are carried out and regulations are complied with in accordance with the quality control policy, which includes

- **Control of inspection, measuring and test equipment process and**
- **Production control**
- **Receiving inspection test**
- **In-process inspection**
- **Final inspection**

All internal quality controls are documented and recorded in accordance with the quality control policy.

**Aquatherm** has its own laboratory in the main site in Attendorn (Germany). This laboratory meets **NATA** standards. This does not only guarantee constant quality controls but also the further development of the basic material to be prepared for the most different product requirements as well as to develop innovative materials for new fields of application.





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## Quality assurance

### Test and acceptance of incoming goods

All incoming goods are subject to a test. This ensures that incoming products conform to specified requirements. Goods, which have not been tested, are not released for production.



### In-process inspection and test

The quality plan requires that tests and inspections are carried out before and during production. At the start of production all quality relevant data are checked by the quality assurance department. Preproduction samples are tested by the laboratory technicians for

- Surface finish
- Dimensional accuracy of the test samples
- Data from extrusion and injection moulding machines

The goods will be released for production only if optimal test results are achieved. These tests are carried out at the beginning of each production series to ensure perfect system quality.



### Process control

Ultrasonic measurements and process data recording in the field of extrusion are only one example of the extensive quality control process.

This equipment enables constant observation and control of production.

Ultrasonic sensors automatically measure and report any deviations in tolerance to the cutting device on the extrusion machine so that the sizing plant automatically isolates a substandard product. This ensures that only perfect quality products are packed and stored.

All data received during production is analysed in detail.





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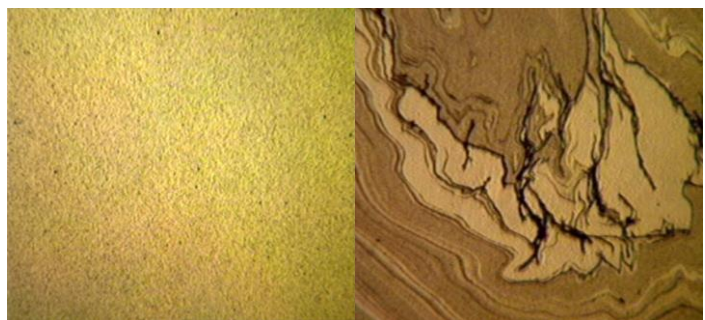
## Final inspection and test

The quality plan requires that inspections and tests are carried out on all finished products. The results are documented in test reports. Finished products are only released to stock when all tests and inspections conform to the prescribed procedures and specifications.

The final inspection and test includes time lapse procedures. This enables statements regarding the usability of the products in their later field of application.

These tests are the method for quality assurance during production and for design tests. This is to discover and remove production weaknesses. The results document the system quality and optimize the manufacturing processes. The final inspection and test covers the following test procedures:

- Dimensional control
- Surface finish
- Measurement of the melt flow index
- Impact bending test
- Heat reversion test
- Homogeneity of the material
- Internal pressure test



In addition to the tests mentioned above, daily hygiene tests in accordance with KTW/DVGW Guidelines are carried out regularly in the company's own sensory analysis laboratory.







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## External Quality Control

External supervision consists of tests of a defined scope and in defined intervals. The respective supervising institutions appoint authorised test organisations to carry out these tests.

The external supervision includes external tests of the products and

- Internal audit of **aquatherm's** quality assurance system and test procedures.
- Calibration of the test equipment and
- Hygienic and toxicity tests.

The results of the supervisory visits as well as external tests made on pipe and fitting samples are confirmed to **aquatherm** in test certificates.

In Germany the external supervision of the **aquatherm pipe** system is carried out by the

- SKZ** (Süddeutsches Kunststoff Zentrum Würzburg)
- Institute for Hygiene, Gelschenkirchen** (Hygieneinstitute Gelschenkirchen)

who are authorized by the DVGW (German Institute for Gas and Water) as controlling organisation.

The external supervision for certificates from abroad is carried out in a similar way.

## Storage / packing / dispatch

Upon successful release the products are stored in suitable warehouses.

Internal instructions control the method of packing, storage and dispatch of the products. The warehouse staff is responsible for control of the stored product.





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## Transport and storage

**Aquatherm PP-R pipes** may be stored outside at any temperature. A solid base for the pipe is very important to avoid a deformation of the pipes while in transport and storage.

At temperatures below 0°C it is possible to damage the pipes through strong impacts. The material has to be treated with caution at low temperatures.

In spite of its high resistance **aquatherm pipes** should be treated with care.

UV radiation has effects on all high polymer plastics. Do not store permanently outdoors. Maximum storage time (outdoor) is 3 months (applicable for Australia).







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## Tested quality – Highest standards

## Certifications in accordance with ISO 9001, 14001 & 50001

Since 1996 aquatherm has been meeting the requirements of the certifiable **quality management system** according to DIN **ISO 9001**.

The 2012 **TÜV certificate** was extended by the **environment management system** according to **ISO 14001** and currently by the **energy management system** according to **ISO 50001**.



**“We set the standards for quality and reliability  
Request the original, beware of imitation!”**



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