

Operational Qualification Manual

Rheomat R 180

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Index

1	Modification Table	2
2	Purpose	2
3	Chart	3
4	System description and use	3
5	System instruction	4
6	Procedure of a viscosity measurement	4
6.1	Voltage	4
6.2	Optical and mechanical check of the R 180	5
6.3	Optical check of the measuring system	5
6.4	Thermostating unit.....	5
6.5	Processing viscosity measurements.....	5
6.6	Cleaning of the measuring system	5
7	Check of function by viscosity measurement	6
7.1	Necessary Equipment.....	6
7.2	Procedure	6
7.3	Evaluation of measurement.....	6
8	Calibration of the system.....	7
9	List of complaints	8
10	Annex	8
11	Annex OQ Logbook Personal.....	9
12	Annex OQ Logbook.....	10
13	Annex Form OQ Complaint proof.....	11
14	Annex Function check R180 by viscosity	12

1 Modification Table

Date	Modification	Author
2006-12-11	Version pR-180-8376 Stand 12/2006	J. Schelske-Gehm proRheo GmbH

2 Purpose

The Operational Qualification Manual (OQM) documents if the instrument works according producer's specifications and if it is suitable for measuring viscosity.

The system may be used by qualified personal only, see list OQM Logbook Personal. Any malfunctions as well as services and calibrations are to be documented in the OQM- Logbook.

Prior to the first starting up of the system the activities of the IQ Handbook have to be processed.

3 Chart

System	Rheomat 180
Serial Number	
Producer	proRheo GmbH
Supplier	Fuchs AG

Location	
Inventory Number	
System responsible	
Tel.	
System category	
Cost location	

Please fill in the grey marked squares.

4 System description and use

The rheometer system includes the following components:

- Measuring head with power supply
- Measuring bobs
- Measuring tubes with cap
- Stand
- User Manual and Short Instructions

The Viscometer Rheomat R 180 is suitable for determination of viscosity of liquids.

5 System instruction

	Activity	Criterion of acceptance	No. of complaint
	System instruction	The system may be operated by instructed personal only.	
The instruction has to be documented in the IQ Logbook Personal.			

6 Procedure of a viscosity measurement

The following points have to be processed one after the other:

OQM-Chapter	Description
4.1	Voltage
6.2	Optical and mechanical check of the R180
6.3	Optical check of the measuring system
6.4	Thermostating Unit
Fehler! Verweisquelle konnte nicht gefunden werden.	Processing of a viscosity measurement
6.6	Cleaning of the measuring system

6.1 Voltage

The R180 must either be net connected or be operated by it's internal battery which has to be sufficiently loaded. For details see user manual.

Test	Criterion of acceptance	No. of complaint
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Switch on power of the R 180.	On the Display: proRheo R 180	
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6.2 Optical and mechanical check of the R 180

The instrument has to be checked on soiling. Especially no dirt or particles are to be on the instrument base and the socket for measuring bobs.

6.3 Optical Check of the measuring system

Especially to be checked for mechanical damage: the surface of the measuring bob and the inner surface of the measuring tube. The axis of the measuring bob has to be checked on deformation. For details please see user manual.

6.4 Thermostating unit

Measurements of viscosity should be done with temperature control. The thermostating unit has to be fully functional.

6.5 Processing viscosity measurements

6.5.1 Fitting the measuring system

Optical check of correct circular turning of the measuring bob.

6.5.2 Zero point setting

Process zero point setting with fitted measuring bob

6.5.3 Filling of the measuring system

Weigh out product or filling unto the mark on the measuring tube. Fix the measuring tube on the instrument.

6.5.4 Thermostating measuring system

Wait until display of temperature on the R 180 is stable

6.5.5 Start measurement

Choose measuring program: hand or automatic
Take up measuring values.

6.6 Cleaning of the measuring system

Take off the measuring system from the R 180.

Clean the measuring system with appropriate material.

Clean Pt 100 Sensor on R180 with appropriate material.

7 Check of function by viscosity measurement.

This test checks the tolerance of the measuring unit. This test does not replace a proper system calibration.

The tolerance of the viscosity displayed on the instrument must be $\pm 3\%$ of the actual measured value.

A function test must be processed at least every 3 months.

7.1 Necessary Equipment

Newtonian liquid (not necessarily calibration oil) with known viscosity

Suitable Measuring System

Standard reference thermometer

7.2 Procedure

Practice a measurement as described under **Fehler! Verweisquelle konnte nicht gefunden werden..**

Measurements at different rotational speeds with linear spreading of measurement points, Notation of values in table.

Date	Temperature		Viscosity		Divergence	Signature
	rated	actual	rated	actual		

The according data sheet is to be found in the annex.

7.3 Evaluation of measurement

The linear presentation of the measured values have to show a streight line.

The measuring curve has to pass zero on the system of coordinates.

Test No.	Function test of the R 180 by viscosity	Crterion of acceptance	No. of complaint

proRheo GmbH	Operation Qualification Manual	Bulletin: pR-180-8376 (D)
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	Curve of measurement values	linear	
	Point of intersection on system of coordinates	In Zero	

If one of these criteria is not met, the measurement has to be repeated.

If the repeated measurement does not meet the criteria of acceptance either, the system has to be locked and calibrated by an authorized person.

8 Calibration of the system

To obtain the tolerance of $\pm 3\%$ of the actual value the system must be calibrated at least every 12 months.

This calibration can be done on site or in a proRheo-workshop (outside of Germany through authorized service partners only).

Details of the nearest service partner can be found under www.proRheo.de

9 List of complaints

OQM – List of complaints		Appearance		Redressal	
No. of complaint	Key word	Date	Signature	Date	Signature

10 Annex

No	Titel	Pages
	Annex OQ Logbook Personal	
	Annex OQ Logbook	1
	Annex Form OQ Complaint proof	
	Annex Check of function R180	

13 Annex Form OQ Complaint proof.

No. of complaint		
Rheomat R180	Ser. No.:	
Date	Signature	
Notes:		
Solution	Date:	Signature:

In case of complaint this part has to be filled and signed by the user after solution/repair by internal Qual/Val.:

Solution	Date:	Signature:

Form to be copied and filled. A copy of the filled form is to be filed in the IQ Handbook.

The complaint is to be listed in the List of complaints. The original form is to be sent

to: _____

14 Annex Function check R180 by viscosity

	Activity	Criterion of acceptance	No. of complaint
	Determination of viscosity with standard liquid	Tolerance of related and actual value is less than +/- 3 %.	
A measurement has to be processed. The measured values are to be documented in the list.			

Date	Temperature		Viscosity		Divergence	Signature:
	Rated	Actual	Rated	Actual		

Date:

Signature:

Form to be copied and filled. Filled copy to be filed in the OQM Handbook.