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PSP Elem./Q Notif./Process No		<h1>Test report</h1>					
F62-50852444							
Document/Part Doc. No/Version		FE8: Oil Q8 EL-4122: Oil suitability for bearing lubrication in the dryer section of paper machines tested at modified temperature conditions					
000-289-783/000/00		Date of Report		Date of Order		Drawing	
Requested by		2007-09-11		2007-02-21		81212.801865.H109	
N.Kirchgessner		Costs		Pages / Appendices		Drawing	
Dept./Tel.		ST/SWE-TMT / 3436		1/8			
Purpose: Measurement				Assessment:			

1. Objectives

Internal Order and Report no. (SWE): FE8-07009 / U07TVT7295

Mechanical-dynamic FE8 test of the oil Q8 EL-4122 (ISO VG 220) for ageing and residue formation at water addition and at modified test temperature conditions. Test ordered by Q8

Operating conditions

- Test rig: FAG FE8, two bearing locations per test rig
- Test bearing: Cylindrical roller thrust bearing 81212MPB
- Lubrication: Oil Q8 EL-4122 (ISO VG 220), circulation lubrication with filtering, 0.1 l/min per bearing, lubrication system and setup with preheating container see enclosure 1
- Test condition: Axial load 20 kN (P/C=0.14), speed 750 rpm ($\approx 58,500 \text{ min}^{-1} \times \text{mm}$), oil outlet temperature 100 °C (temperature at PM standard tests: 140 °C)
- Running time: 500 hours (one test run)
- Measures: Frictional moment, wear of the bearing parts, outer ring temperature, running time

2. Summary of Results

Testing period: 07 - 08/2007

- The specified nominal running time of 500 hours was reached.
- No filter problems during the test run.
- No residues on all test rig parts.
- Wear of rolling elements and cages (Weibull values at 10% and 50% wear probability) and frictional moment value.

Oil	Wear (mg)				Frictional moment (Nm) of the bearing pair
	Rollers		Cage		
	mw ₁₀	mw ₅₀	mk ₁₀	mk ₅₀	
Q8 EL-4122	- *	- *	5	35	approx. 3.5

* : Calculation of weibull values not possible as no measurable wear available

Wear and friction behaviour and the documentation of bearings and the preheating container see enclosures 2-8.

3. Conclusions

Clearance of test report between orderer and responsible engineer:

The available results are used for the assessment of the lubricant performance. **ST/SWE-TMT**

The test batch will be disposed w/o consultation two years after the release of this report.
Without statistical evaluation the reported results are only valid for the tested units.

Responsible Engineer		Checked by		Approved by	
R.Baumann		W.Zabel		W.Zabel	
Distribution List					
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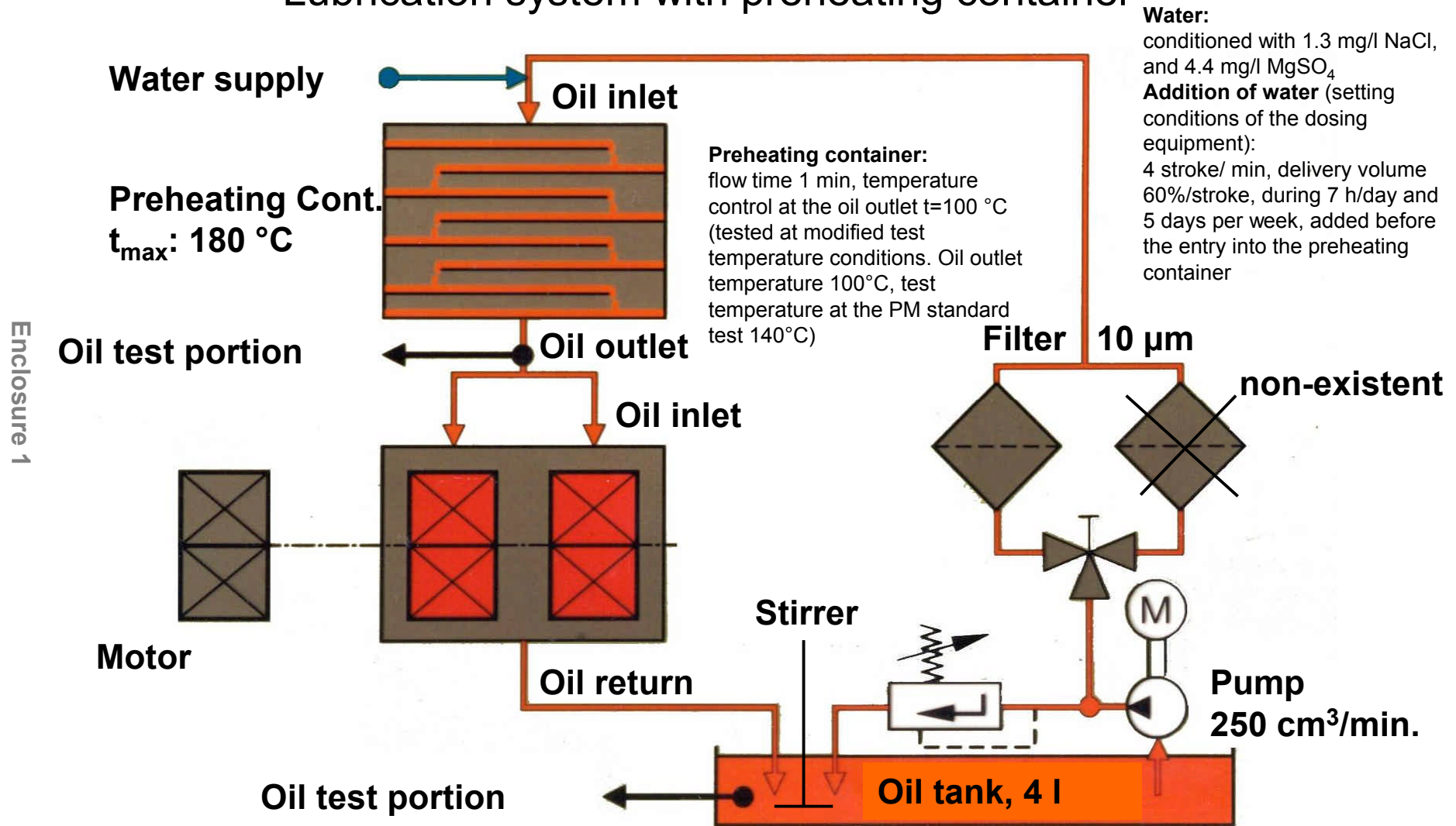
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Test Report U07TVT7295

Inspection of the oil suitability for paper machine applications



Lubrication system with preheating container



Test Report U07TVT7295

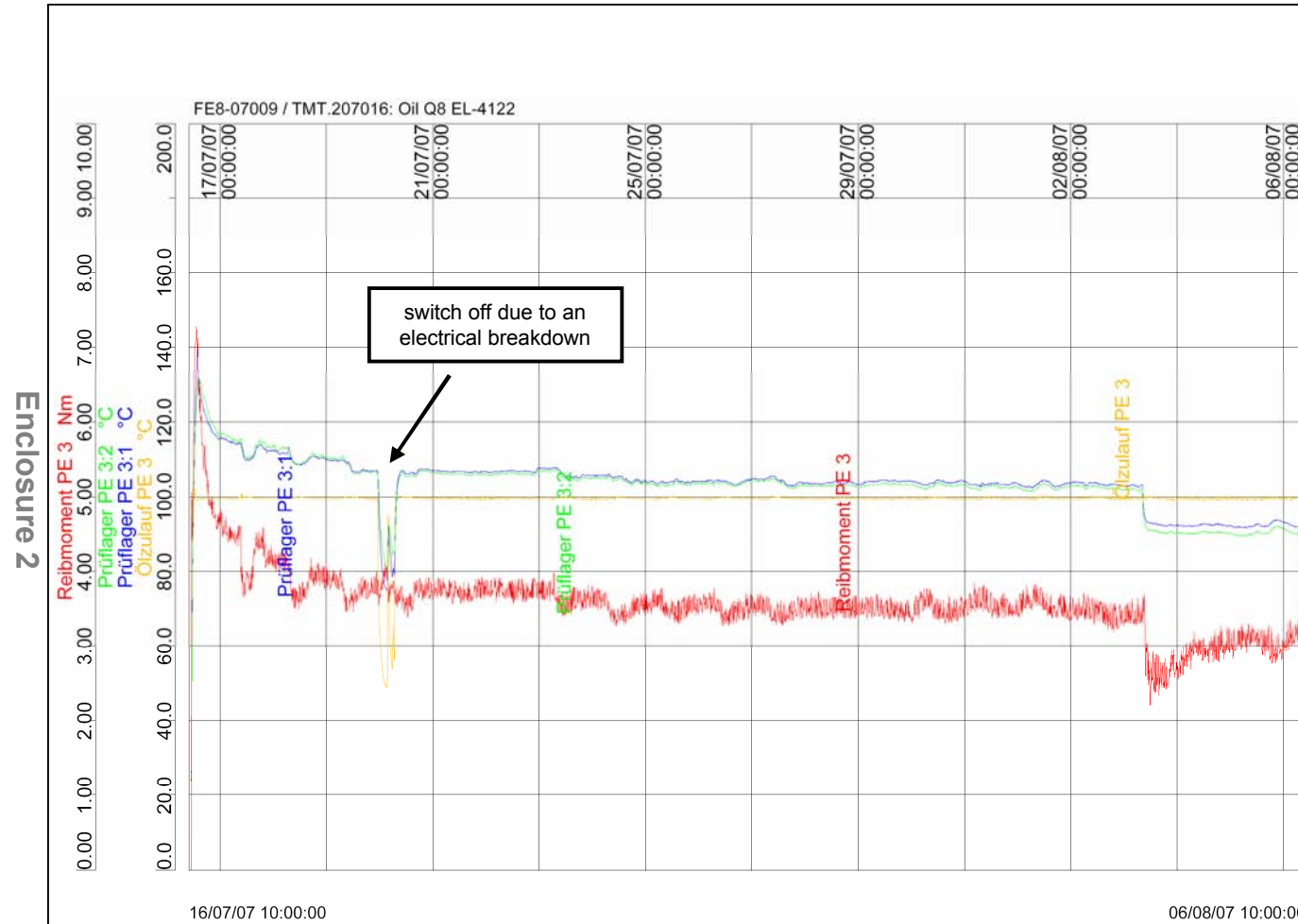
Inspection of the oil suitability for paper machine applications *



*Tested at modified test temperature conditions. Oil outlet temperature 100°C, test temperature of the PM standard test 140°C

SAP no.	F62-50852444
Order no.	TMT.207016
Run no.	FE8-07009
Oil	Q8 EL-4122 (ISO VG 220)
Batch	-
Test rig	FE8-3
Bearing type	81212.801865.H109
Speed [rpm]	750
Axial load [kN]:	20
OT-Temperature [°C]	self conditioning
Test runs	1
Running time [h]	500

Bearing no.	25	26
Steady temperature [°C]	approx. 105	approx. 105
	Wear [mg]	
Rolling element set	0	0
Cage	17	65
Housing washer	0	0
Shaft washer	0	0



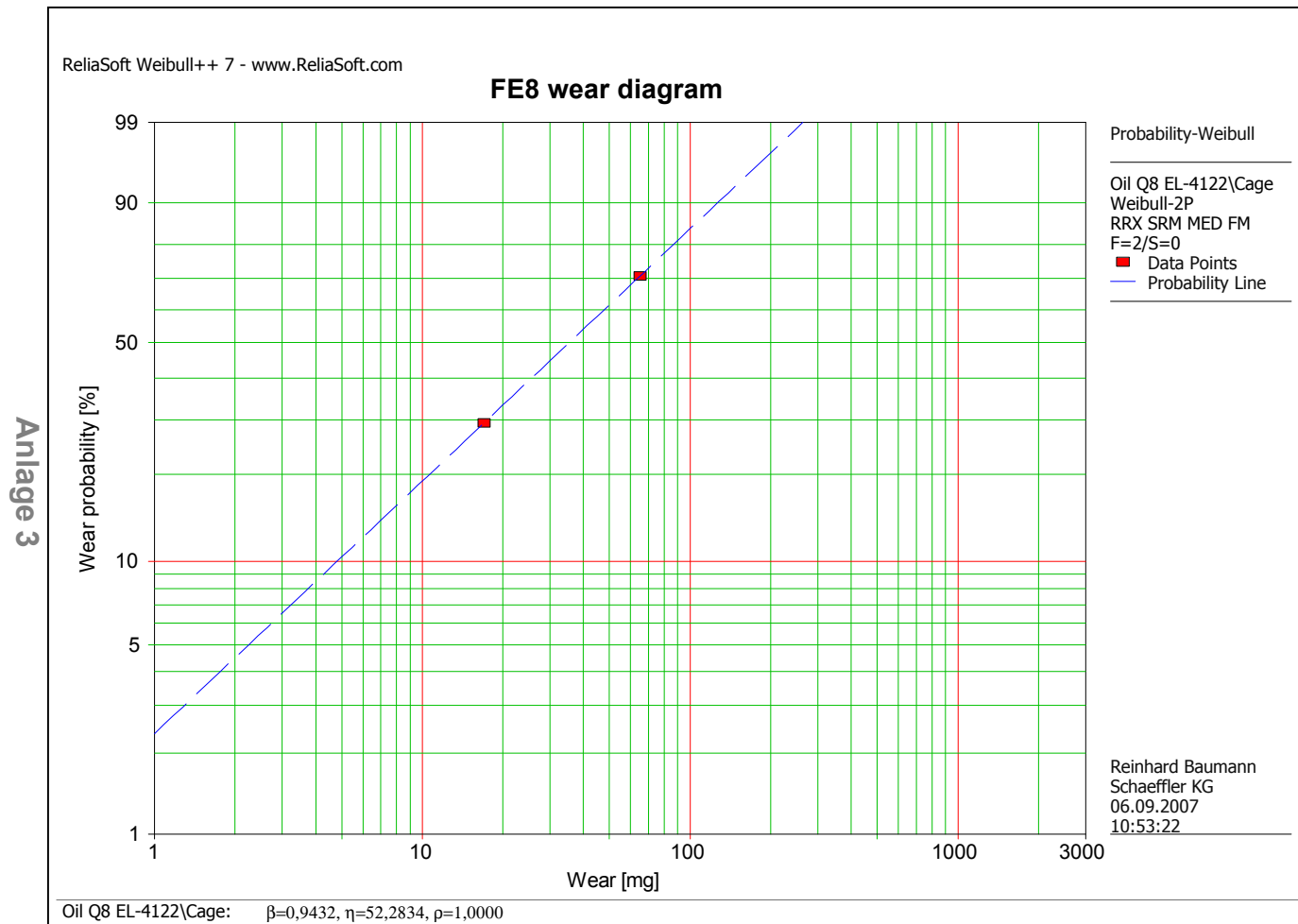
The tested bearings as well as the lubricant (used respectively not used) will be disposed 2 years after end of order without further consultation

Test Report U07TVT7295

Inspection of the oil suitability for paper machine applications *



*Tested at modified test temperature conditions. Oil outlet temperature 100°C, test temperature of the PM standard test 140°C



SAP no.	F62-50852444
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Batch	-
Test rig	FE8-3
Bearing type	81212.801865.H109
Speed [rpm]	750
Axial load [kN]:	20
OT-Temperature [°C]	self conditioning
Test runs	1
Running time [h]	500

* Calculation of weibull values not possible as no measurable wear available

Wear	m_{10} [mg]	m_{50} [mg]
Rollers	- *	- *
Cage	5	35

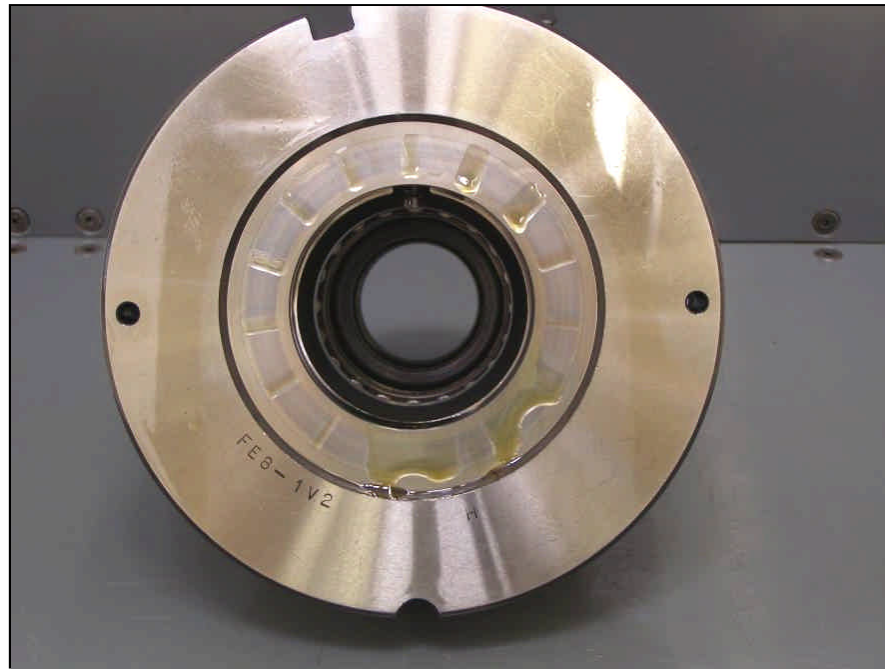
Die gelaufenen Lager sowie der Schmierstoff (gebraucht bzw. nicht gebraucht) werden ohne weitere Rücksprache 2 Jahre nach Auftragsende entsorgt.

Test Report U07TVT7295

Inspection of the oil suitability for paper machine applications *



*Tested at modified test temperature conditions. Oil outlet temperature 100°C, test temperature of the PM standard test 140°C



Bearing no. 25

Enclosure 4

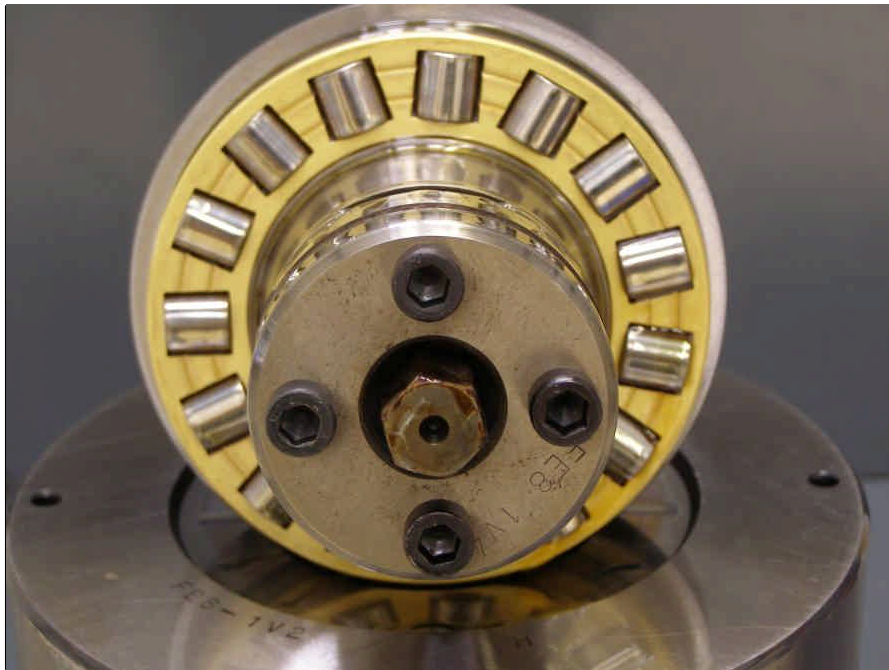
Test Report U07TVT7295

Inspection of the oil suitability for paper machine applications *



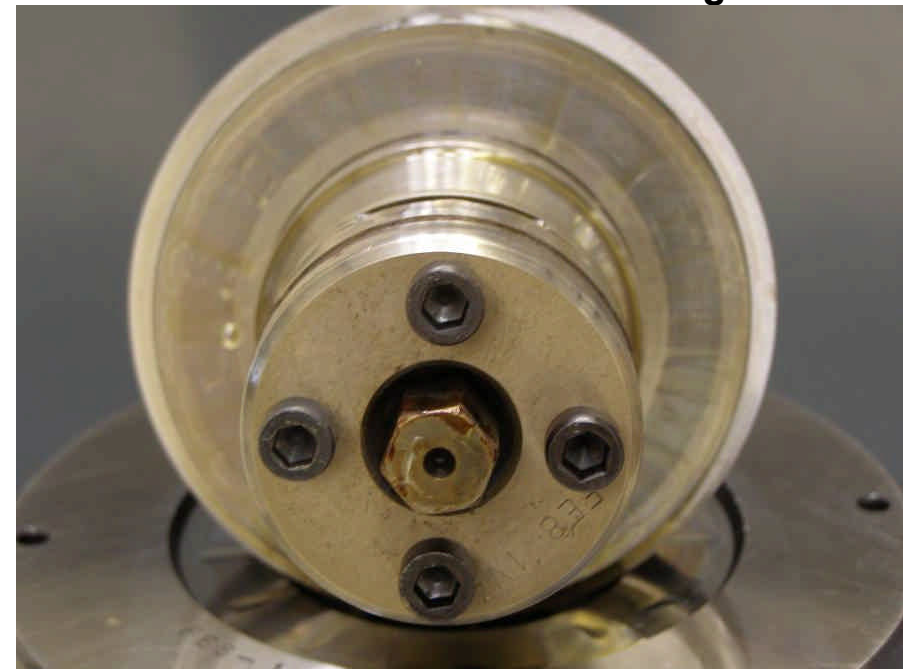
*Tested at modified test temperature conditions. Oil outlet temperature 100°C, test temperature of the PM standard test 140°C

Enclosure 5



bearing no.: 25

bearing no.: 25



Test Report U07TVT7295

Inspection of the oil suitability for paper machine applications *



*Tested at modified test temperature conditions. Oil outlet temperature 100°C, test temperature of the PM standard test 140°C

Enclosure 6



guiding plates of preheating container

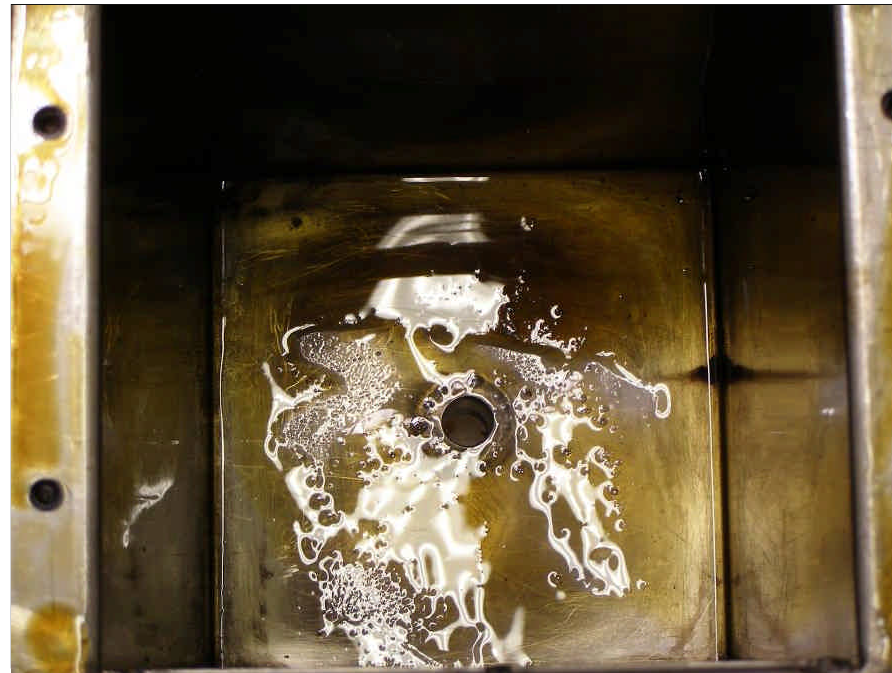


Test Report U07TVT7295

Inspection of the oil suitability for paper machine applications *



*Tested at modified test temperature conditions. Oil outlet temperature 100°C, test temperature of the PM standard test 140°C



preheating container

Enclosure 7

Test Report U07TVT7295

Inspection of the oil suitability for paper machine applications *



*Tested at modified test temperature conditions. Oil outlet temperature 100°C, test temperature of the PM standard test 140°C

Plausibility check



Test rig: FE8

Measurand	Measuring set-up				checked as
FE8: 1-15					
Temperature	Thermocouple Type K	Siematic Control	Monitor Display		After Run Start
Speed	Rotation Test Rig Shaft				Visual
Frictonal force radial	Load cell Z8	Siematic Control	Display HBM Amplifier		Manual Control
Bearing force axial	Load cell 100 kN	DC Voltage Amplifier	Measurement Data Processing Card/Amplifier displa		Manometer Display
Cooling	Fan			optional	Manual
Water supply	Pump			optional	Visual
Oil quantity	Pump			optional	Visual

Enclosure 8