

Summary

RWE Eurotest performed a type test according to DIN EN 50393 (VDE 0278-393):2006-11 on the cast resin joint 0.6/1 kV, type HCRK-S6 4x185-300 mm² manufactured by Hongshang Heat Shrinkable Materials Co., Ltd. with 4x185 mm² conductor size.

The type test had the following result:

The cast resin joint 0.6/1 kV, type HCRK-S6 4x185-300 mm² manufactured by Hongshang Heat Shrinkable Materials Co., Ltd. qualified in the type test with 4x185 mm² conductor size according to DIN EN 50393 (VDE 0278-393):2006-11.

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Annex:

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1. Applied test regulations

DIN EN 50393 (VDE 0278-393):2006-11

Test methods and requirements for accessories for use on distribution cables of rated voltage 0,6/1,0 (1,2) kV

2. Technical data of the test object

Resin branch joint 0,6/1 kV:

Type:	HCRK-S6 4x185-300 mm ²
Appellation:	Cast resin joint
Nominal voltage $U_0 / U (U_m)$:	0.6 /1.0 (1.2) kV
Installation instructions:	See Annex 01
Manufacturer:	Hongshang Heat Shrinkable Materials Co., Ltd.

Mechanical connectors with 4 shear-off-head bolts:

Type:	SE 150300 (T)-(V)-K
Installation instructions:	See annex 02
Manufacturer:	Nexans Power Accessories Germany GmbH

Resin:

Type:	PU 25 2 x 2560 ml component A (Resin) 1 x 2048 ml component B (Hardener)
Manufacturer:	Hongshang Heat Shrinkable Materials Co., Ltd.

Test cable:

The technical data of the cable used in the tests is summarized in table 1.

Specification	Main cable
Manufacturer	Nexans
Standard	DIN VDE 0276-603: 2000-05
Rated voltage	0,6/1 kV
Cable construction	4-core, individually insulated
Conductors	Aluminium, solid
	185 mm ² shaped
Insulation	PVC
Oversheath	PVC
Water blocking	none
Cable marking	NAYY-J 4x185 SE
Principal dimensions of cable	according to DIN VDE 0276-603:2000-05
- Conductor	b: (17.97-18.09) mm d: (13.56-13.58) mm
- Insulation thickness	1.99-2.03 mm
- Inner covering thickness	1.33 mm
- Oversheath thickness	2.84 mm
- Cable diameter	50.19 mm
Year of manufacture	2008

Table 1: Technical data of the cables

Structure of the test lengths:

The test objects were assembled according to DIN EN 50393 (VDE 0278-393):2006-11, table 6a, sequence A1 by the manufacturer. One test length was made (figure 1):

Test length 1: Test object with conductor size 4x185 mm²

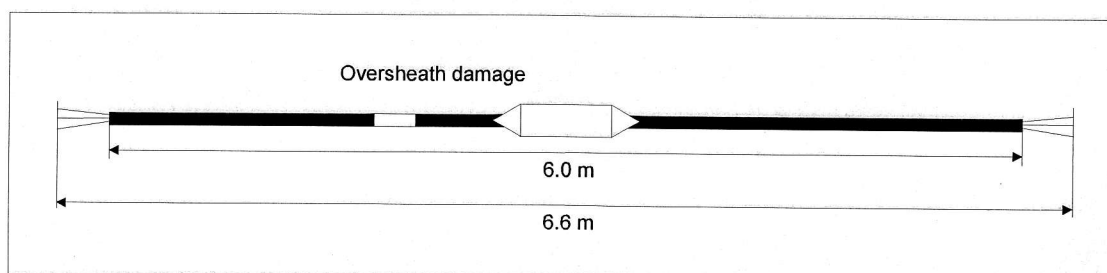


Figure 1: Schematic structure of the test lengths

3. Test and measuring equipment

Equip.- No.	cal.	Equipment	Type	Manufacturer
32	*	High voltage test generator	PGK 10 AC/DC	BAUR
36	*	High current test equipment	Rack- variable transformer	RWE- Eurotest
483	*	Isolations- measurement instrument	BM 21	MEGGER
260	*	Current converter	UGSS 306	Ritz
735	*	Data Acquisition Switch Unit	34970A	Agilent
		Thermocouple 0,5/1,5 mm	NiCr-Ni	Rössel

*) Measuring equipment is calibrated based on national and international reference standards. Calibration certificates can be inspected on request.

Table 1: Test and measuring equipment

The measurement uncertainty of the measuring instruments has been calculated and is archived by RWE Eurotest. Documents can be inspected on request.

4. Tests carried out and results

Realization of the tests

The calibration of conductor temperature was carried out according to DIN EN 50393 (VDE 0278-393):2006-11, annex 1, section A.3.3, method 3: Test using a control cable (cable length about 6.6 m).

Result of the tests

The tests were performed according to DIN EN 50393 (VDE 0278-393):2006-11, table 3. The results of the tests with 185 mm² conductor size are summarized in table 3.

Test according to DIN EN 50393 (VDE 0278-393):2006-11, table 3, Type of joints III, test sequence A1/B1 Test with 4x185 mm ² conductor cross section					
Test	¹⁾	Requirements	Result	pass	²⁾
Impulse voltage test	8.2	With 20 kV (10 pos. and neg.)	No breakdown	Yes	
AC voltage test (in air)	8.3	1 min at 4 kV No breakdown	No breakdown	Yes	
Insulation resistance (in air)	8.4	>= 50 MΩ	>= 50 MΩ	Yes	
Heating cycle test in air	8.6	63 cycles (70 °C +5 to 10 K)		Yes	02
Heating cycle test in water (oversheath damage)	8.6	63 cycles (70 °C +5 to 10 K)		Yes	03
AC voltage test (in water)	8.3	1 min at 4 kV No breakdown	No breakdown	Yes	
Insulation resistance (in water)	8.4	> 50 MΩ	>= 50 MΩ	Yes	
Screen short-circuit	8.9	Not applicable			
1) DIN EN 50393 (VDE 0278-393) section					
2) Annex					

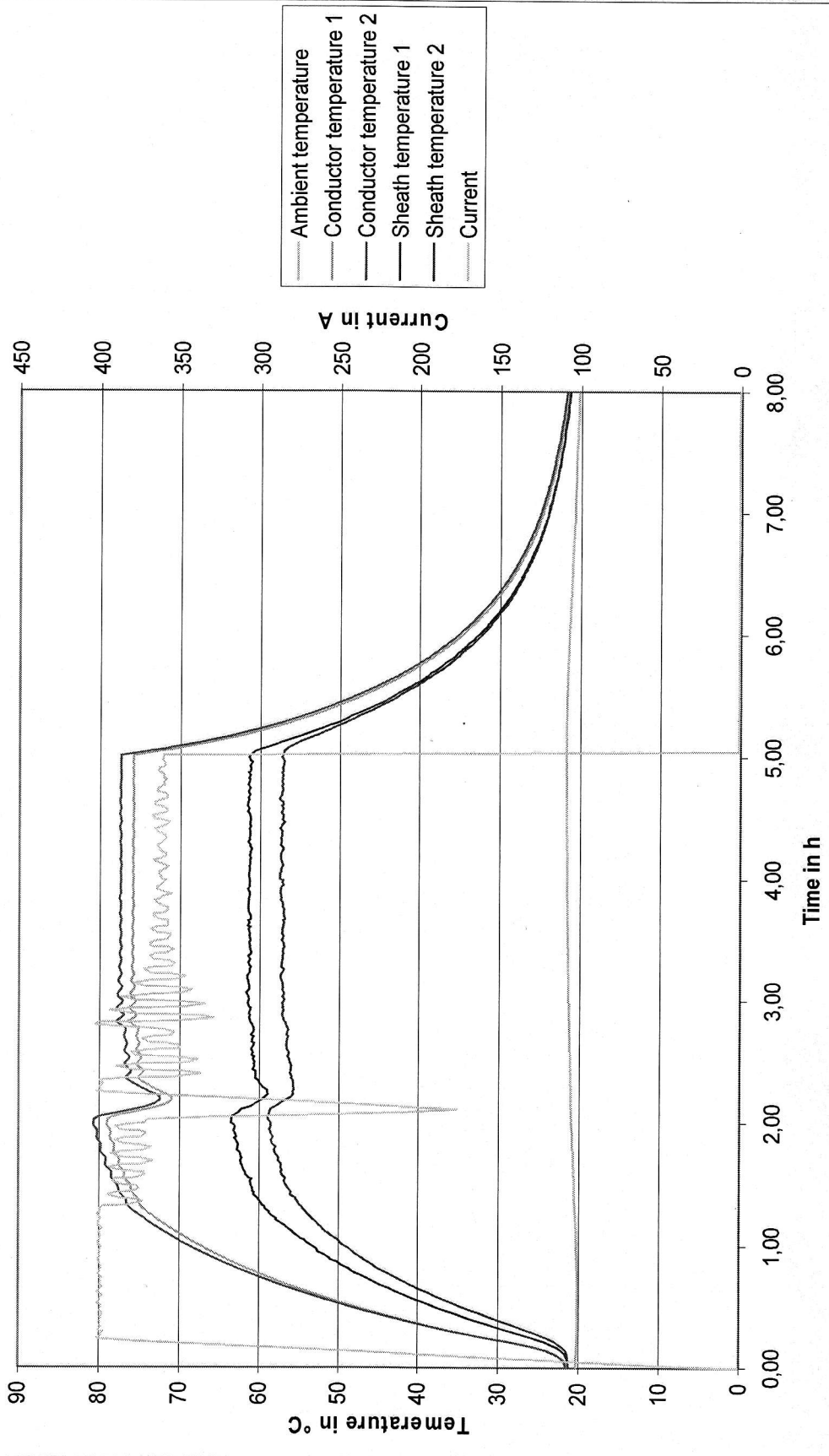
Table 3: result of the tests

5. Overall result

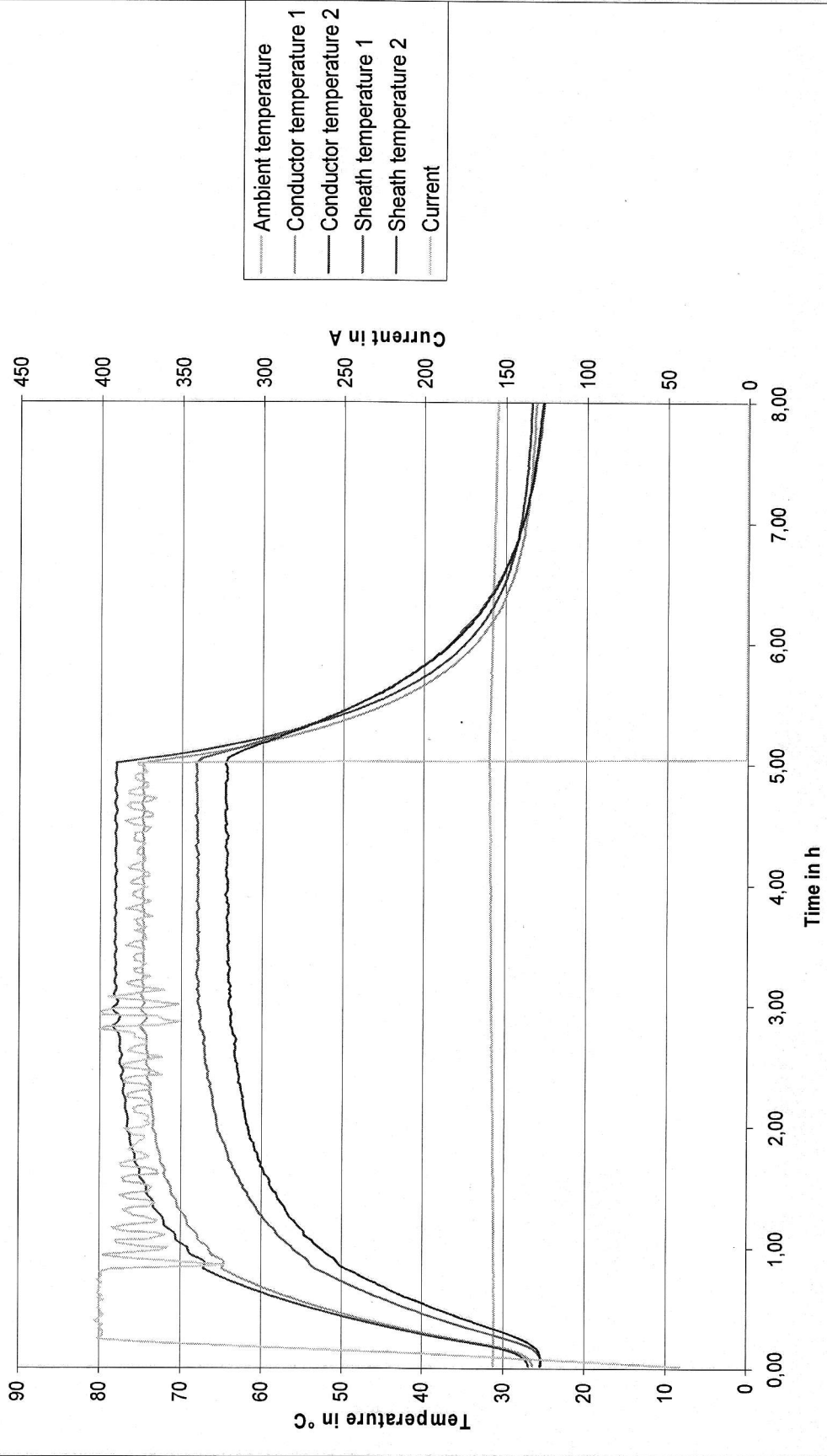
The cast resin joint 0.6/1 kV, type HCRK-S6 4x185-300 mm² manufactured by Hongshang Heat Shrinkable Materials Co., Ltd. qualified in the type test with 4x185 mm² conductor size according to DIN EN 50393 (VDE 0278-393):2006-11.

- End of report -

Heat-Cycle-Test 15 in air
 NAYY-J 4x185 mm² SE
 Current and temperatures



**Heat-Cycle-Test 78 in water
NAYY-J 4x185 mm² SE
Current and temperatures**



RWE Eurotest GmbH - Testing Laboratory

Testing Laboratory

The RWE Eurotest Testing Laboratory is an independent institute that has been approved according to European standards.

Our testing laboratory, accredited in conformity with DIN EN ISO/IEC 17025, is at the disposal of manufacturers and users alike for testing the conformity of electro technical products against standards and confirming fitness for use. Our accreditation by the Deutsche Akkreditierungsstelle Technik (DATEch e.V.), a member of the Deutscher Akkreditierungsrat (DAR) accreditation council, guarantees our customers uniform testing procedures in conformity with European testing regulations and thus internationally accepted test results:

Whether you are a manufacturer or a user, you will have a strong partner with many years of testing experience at every stage of the product cycle. We will provide the following support for you:

- Type tests
- Sample tests
- Routine tests
- Commissioning tests
- Damage and fault analysis
- Material tests for safety features and equipment

Scope of accreditation

RWE Eurotest is accredited to carry out testing in the fields:

- High-voltage appliances and installations
- Low-voltage switchgear and control gear assemblies
- Cables
- Power cable accessories
- Pressed connectors and detachable cable clamps
- Corrosion protection
- EMC-testing
- Oil-examinations

The detailed listing of the scope of accreditation is available at our homepage www.rweeurotest.com.

Documentations

- Test certificates will be issued for passed tests performed against standards in the scope of accreditation.
- Test reports will be issued for tests at least performed against one standard in the scope of accreditation.