

Intertek C&E Management System		Page 1 of 5
Work Instruction (Inspection)		Document No.: WI-R-EMEA-CERT-INSP-PCS024
EMEA CERTIFICATION SCHEMES - PRODUCT CONTROL SPECIFICATIONS		
Issue Date:	Revision Date: 11 th Feb 2015	Approved by: Anders Delsborn
	Effective Date: 19 th Feb 2015	

1.0 Purpose

Product Control Specifications (PCS) specify the requirements for routine inspections, tests, Product Verification Tests and sample selection for products certified under an Intertek EU Type 5 certification scheme (including GS, S, BEAB, ASTA, ENEC, BAUART and TICK MARK). They are for use by manufacturers and by factory inspectors.

2.0 Scope

Products: Circuit-breakers for equipment
Standards: IEC/EN 60934
Marks: S, BG, TICK

3.0 Routine inspections and tests

3.1 General

The following requirements apply to most products.

Variations may be permitted by prior, written agreement from the certification body.

The factory should have a quality plan defining all inspections and tests on materials, components and completed products as appropriate.

Completed products shall be marked to confirm satisfactory completion of all required testing.

Any products which fail inspection or testing shall be segregated and not allowed to continue through the process until rectified and re-inspected or retested.

Products shall not be released until the testing equipment has been checked again following a production batch.

Records of inspections and test should be maintained and held for at least two years.

Records shall include:

- Type of product
- Date of test
- Place of manufacture
- Quantity tested
- Number of failures and actions taken

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Intertek C&E Management System		Page 2 of 5
Work Instruction (Inspection)		Document No.: WI-R-EMEA-CERT-INSP-PCS024
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3.2 Required inspections and tests

Inspection/test	Test parameters					Sampling plan
Verification of the tripping characteristic	Mode of tripping	Test current	Initial conditions	Time	Required result	100%
	TO	2 I_n	Cold (a)	Defined by the time-current zone indicated by the manufacturer	tripping	
	MO	0,95 I_{ni}	Cold (a)	0,1 s	no tripping	
	MO	1,05 I_i	Cold (a)	within 0,15 s	tripping	
	TM	0,95 I_{ni}	Cold (a)	0,1 s	no tripping	
	TM	1,05 I_i	Cold (a)	0,1 s	tripping	
	TM	2 I_n	Cold (a)	Defined by the time-current zone indicated by the manufacturer	tripping	
	HM	2 I_n	Cold (a)	Defined by the time-current zone indicated by the manufacturer	tripping	
	HM	6 I_n	Cold (a)	Defined by the time-current zone indicated by the manufacturer	tripping	
	EH	Two currents specified by the manufacturer	Cold (a)	Defined by the time-current zone indicated by	tripping	

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Intertek C&E Management System		Page 3 of 5
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	<table border="1"> <tr> <td></td> <td></td> <td></td> <td>the manufacturer</td> <td></td> </tr> <tr> <td colspan="5">(a) The term "cold" conditions means without previous loading (see IEC/EN 60934, annex A)</td> </tr> <tr> <td>Mode of tripping</td> <td colspan="4">Designation</td> </tr> <tr> <td>– thermal</td> <td colspan="4">TO</td> </tr> <tr> <td>– thermal-magnetic</td> <td colspan="4">TM</td> </tr> <tr> <td>– magnetic</td> <td colspan="4">MO</td> </tr> <tr> <td>– hydraulic-magnetic</td> <td colspan="4">HM</td> </tr> <tr> <td>– electronic-hybrid</td> <td colspan="4">EH</td> </tr> <tr> <td colspan="5">NOTE Electronic-hybrid type means an electronically controlled device associated with any of the other modes of tripping.</td> </tr> </table>				the manufacturer		(a) The term "cold" conditions means without previous loading (see IEC/EN 60934, annex A)					Mode of tripping	Designation				– thermal	TO				– thermal-magnetic	TM				– magnetic	MO				– hydraulic-magnetic	HM				– electronic-hybrid	EH				NOTE Electronic-hybrid type means an electronically controlled device associated with any of the other modes of tripping.					
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Checking of dielectric strength	<p>Table 20 – Test voltage</p> <table border="1"> <tr> <td>Rated voltage or working voltage V</td> <td>≤ 50</td> <td>> 50 ≤ 125</td> <td>> 125 ≤ 250</td> <td>> 250 ≤ 440</td> </tr> <tr> <td>Test voltage for dielectric strength tests acc. to 9.7.3 and 9.7.4a) V</td> <td>500</td> <td>1000</td> <td>1500</td> <td>2000</td> </tr> <tr> <td>Test voltage for dielectric strength tests according to 9.7.4b) V</td> <td>250</td> <td>500</td> <td>1000</td> <td>1500</td> </tr> </table> <p>A voltage of substantially sine wave form, of values specified in table 20 having a frequency of 50 Hz or 60 Hz is applied for 1 s</p> <p>a) with the CBE in the open position, between the terminals which are electrically connected together when the CBE is in the closed position;</p> <p>b) with the CBE in the closed position between each pole of</p>	Rated voltage or working voltage V	≤ 50	> 50 ≤ 125	> 125 ≤ 250	> 250 ≤ 440	Test voltage for dielectric strength tests acc. to 9.7.3 and 9.7.4a) V	500	1000	1500	2000	Test voltage for dielectric strength tests according to 9.7.4b) V	250	500	1000	1500	100%																														
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Intertek C&E Management System		Page 4 of 5
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	<p>the CBE in turn and the other poles connected together.</p> <p>No flashover or breakdown shall occur.</p> <p>Alternatively any convenient method of verification of the clearances between contacts (for example X-ray verification) may be used.</p>	
Verification of clearances by Impulse withstand voltage Clause 9.7.6	This is applicable only for clearances smaller than those specified in clause 8.1.3.1.4 Table 1 and which during the type test has been verified by impulse withstand voltage and also for CBEs classified as suitable for isolation see clause L 8.1.3	100%

4.0 Product Verification Tests/Periodic testing (refer to CIG 021 clause 4.8)

Product verification tests are in addition to the production line inspection and routine tests and are performed on samples taken randomly from the production line. The manufacturer is responsible for conducting or arranging for the following periodic testing to be completed. Records shall be available for review during factory inspection visits.

Certification Mark	Frequency	PVT/periodic testing required
SEMKO BG TICK	Annual	<p>For each basic type certified, the following tests according to the product standard:</p> <ul style="list-style-type: none"> 8.1.3 Clearances and creepage distances 9.3 Indelibility of marking 9.4 Reliability of terminals, current-carrying parts and connections 9.5 Reliability of terminals for external conductors 9.6 Protection against electric shock 9.7 Dielectric properties and isolating capability 9.10 Tripping characteristics 9.13 Mechanical stresses

5.0 Surveillance testing by the Certification Body

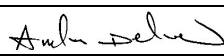
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Intertek C&E Management System		Page 5 of 5
Work Instruction (Inspection)		Document No.: WI-R-EMEA-CERT-INSP-PCS024
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If required, samples are selected during the factory inspection and the manufacturer should send these to the address provided. If samples are required but not available at the time of the inspection, the manufacturer should send these as soon as they become available. If there is no stock or production, the manufacturer should advise the certification body that samples will not be provided due to no production.

The certification body will arrange for the required testing to be completed. This will be charged to the manufacturer or Licence holder. A report of the testing will be provided.

Certification Mark	Surveillance testing requirements
SEMKO, BG, TICK	Regular selection of samples is not required. Samples may be required if any deviations to the type tested or non-compliance with the product standard are suspected

Document History				
Revision No.	Date	Changes	Name & Title	
			Author	Approving Official
1	11/02/2015	Original issue	Paul Klemets/ R W Hayward	

End of Document

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