



DELIVRE A <i>ISSUED TO</i>	T. BICHLER MUNK GmbH RUDOLF-DIESEL-STRASSE 23 D-89312 GÜNZBURG - GERMANY
OBJET <i>SUBJECT</i>	CEILING HOOK
FABRICANT <i>MANUFACTURER</i>	MUNK GmbH
REFERENCE(S) TESTEE(S) <i>REFERENCE UNDER TEST</i>	110011
REFERENTIEL(S) APPLIQUE(S) <i>STANDARD</i>	EN 60243-1 (2013)
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I ITEM IDENTIFICATION

- The tests were conducted on five ceiling hooks and their extensions, which were identified as follows (See Appendix 1):
 - 26-13/1.1 : Ceiling hook. color: black, ref 110011
 - 26-13/1.2 : Ceiling hook extension, color: black,ref 110011

 - 26-13/2.1 : Ceiling hook, color: black, ref 110011
 - 26-13/2.2 : Ceiling hook extension, color: black, ref 110011

 - 26-13/3.1 : Ceiling hook, color: black, ref 110011
 - 26-13/3.2 : Ceiling hook extension, color: black, ref 110011

 - 26-13/4.1 : Ceiling hook, color: black, ref 110011
 - 26-13/4.2 : Ceiling hook extension, color: black, ref 110011

 - 26-13/5.1 : Ceiling hook, color: black, ref 110011
 - 26-13/5.2 : Ceiling hook extension, color: black, ref 110011

- The products were received on March 6, 2026 and have been stored in the test laboratory under the following atmospheric conditions : $(23 \pm 5) ^\circ\text{C}$ / $(50 \pm 25) \% \text{RH}$.

II PROGRAM AND TESTS MODALITIES

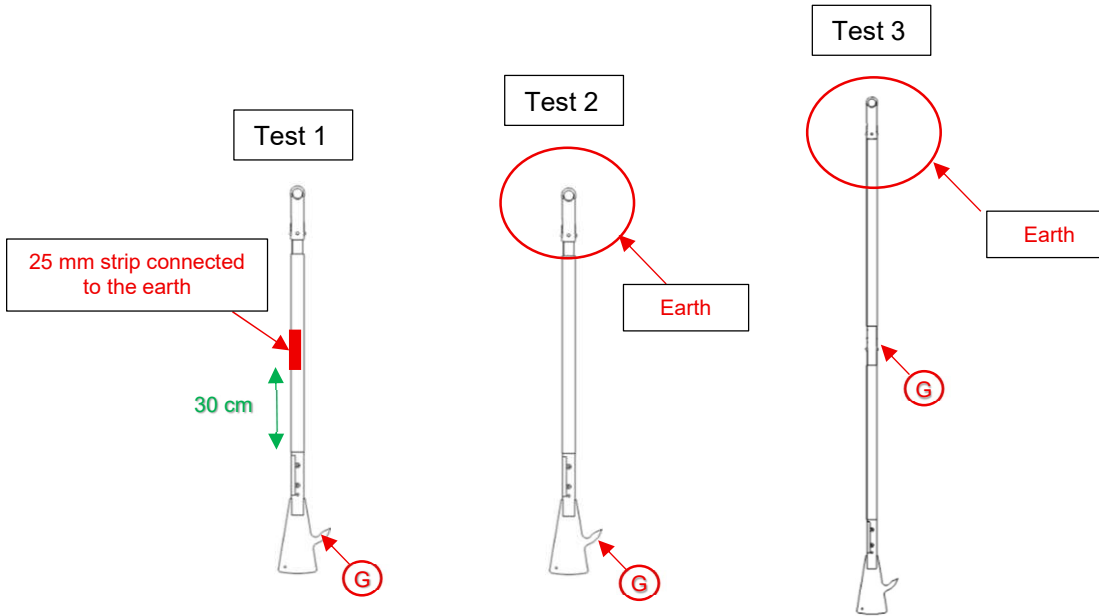
- The test program and procedures are based on the EN 60243-1 (2013) standard and customer specifications.
- The products must be stored for 24 hours at 23°C / 50% RH. The test parameters are as follows:
 - Voltage rise time: 500 V/s
 - High-voltage generator trigger threshold: 40 mA
 - Test pass criterion: median electrical breakdown voltage of 5 tests performed greater than 1000 V
- The tests were conducted on 5 products, in the order shown in the table below:
 - Test No. 1: Tests to increase the voltage until dielectric breakdown occurs between the flat hook and the insulating medium covered with a 25-mm-wide conductive strip.
 - Test No. 2: Voltage rise test until breakdown between the end cap of the hook and the end of the handle.
 - Test No. 3: Test of voltage increase until breakdown between the extension and the cap covered with a conductive sheet.
- To declare the conformity or none conformity, the uncertainty of the result was not taken into account.
- The information provided by the customer, which may affect the validity of the result, disengages the responsibility of the testing laboratory.

III OBTAINED RESULTS

III.1 Summary of test results

Test	Referential chapter	Sanction
Test No. 1	Customer's request	Satisfactory test
Test No. 2	Customer's request	Satisfactory test
Test No. 3	Customer's request	Satisfactory test

III.2 Electrical test on Ceiling hook



G = Phase generator

III.2.1 Test No. 1: Dielectric test between the hook and the insulating medium

- The test was carried out at a temperature of 21.2 °C, relative humidity of 53 % and atmospheric pressure of 10015 mbar.
- Tests between the flat hook connected to the phase and the insulating medium covered with a 25 mm wide conductive strip connected to the earth (see Appendix 2).
- The voltage must be increased from zero at a constant rate until breakdown occurs.

Product	Test number	Breakdown voltage (kV)	Observation
26-13/1.1	1	29.68	Nothing to report
	2	7.93	Nothing to report
	3	7.07	Nothing to report
	4	6.66	Nothing to report
	5	5.77	Nothing to report
26-13/2.1	1	26.52	Nothing to report
	2	15.82	Nothing to report
	3	15.64	Nothing to report
	4	15.55	Nothing to report
	5	15.05	Nothing to report
26-13/3.1	1	27.78	Nothing to report
	2	10.36	Nothing to report
	3	5.84	Nothing to report
	4	5.32	Nothing to report
	5	2.45	Nothing to report
26-13/4.1	1	28.49	Nothing to report
	2	18.88	Nothing to report
	3	7.96	Nothing to report
	4	5.41	Nothing to report
	5	5.14	Nothing to report
26-13/5.1	1	23.56	Nothing to report
	2	8.39	Nothing to report
	3	9.39	Nothing to report
	4	8.75	Nothing to report
	5	8.32	Nothing to report

- At the end of the test, a perforation was observed beneath the copper strip at the tool. This could explain why the initial tension was higher than the subsequent ones

III.2.2 Test No. 2: Dielectric test between the flat hook and the end of the handle

- The tests were carried out at a temperature of 21.1°C, a relative humidity of 52% and an atmospheric pressure of 1014 mbar.
- Tests between the flat hook connected to the phase and the end of the handle covered with conductive paper and earth-connected.
- The voltage must be increased from zero at a constant rate until breakdown occurs.

Product	Test number	Breakdown voltage (kV)	Observation
26-13/1.1	1	15.38	Perforation where the ground electrode is located on the handle
	2	5.74	
	3	5.27	
	4	4.81	
	5	4.55	
26-13/2.1	1	15.60	Perforation where the ground electrode is located on the handle
	2	16.14	
	3	15.26	
	4	15.37	
	5	6.74	
26-13/3.1	1	16.80	Perforation where the ground electrode is located on the handle
	2	16.43	
	3	15.73	
	4	15.37	
	5	15.98	
26-13/4.1	1	16.36	Perforation where the ground electrode is located on the handle
	2	8.87	
	3	7.17	
	4	6.48	
	5	6.82	
26-13/5.1	1	17.83	Perforation where the ground electrode is located on the handle
	2	15.97	
	3	9.10	
	4	9.26	
	5	7.84	

- At the end of the test, a puncture was observed beneath the conductive paper under the handle, which could explain why the first voltage reading was higher than the subsequent ones (See Appendix 3).

III.2.3 Test No. 3: Dielectric test between the extension and the handle

- The tests were carried out at a temperature of 21.1°C, a relative humidity of 52% and an atmospheric pressure of 1014 mbar.
- Tests between the extension connected to the phase and the handle covered with a conductive sheet connected to the earth.
- The voltage must be increased from zero at a constant rate until breakdown occurs.

Product	Test number	Breakdown voltage (kV)	Observation
26-13/1.1 + 26-13/1.2	1	8.98	Perforation at the location of the ground electrode where the handle is located (See Appendix 5)
	2	8.20	
	3	8.76	
	4	8.03	
	5	6.99	
26-13/2.1+ 26-13/2.2	1	7.60	Perforation at the location of the ground electrode where the handle is located (See Appendix 5)
	2	7.08	
	3	6.62	
	4	5.81	
	5	5.29	
26-13/3.1+ 26-13/3.2	1	13.17	Perforation at the location of the ground electrode where the handle is located (See Appendix 5)
	2	14.93	
	3	14.87	
	4	14.31	
	5	14.87	
26-13/4.1+ 26-13/4.2	1	8.22	Perforation at the location of the ground electrode where the handle is located (See Appendix 5)
	2	7.65	
	3	7.49	
	4	7.32	
	5	6.99	
26-13/5.1 + 26-13/5.2	1	8.03	Perforation at the location of the ground electrode where the handle is located (See Appendix 5)
	2	7.82	
	3	6.94	
	4	6.74	
	5	6.62	

IV MOYENS D'ESSAIS UTILISES / TESTING EQUIPMENT USED

N° CATU	Equipment name	N° Certificate	Validity date
16964	Thermo- hygrometer FI 361-2	CEC F4/23095	06/06/2026
15858	Atmospheric pressure gauge	F526539-CEC	06/01/2028
15887	kilovoltmeters 0-40 KV	P256172-DMSI-1&2	22/01/2027
5117	Ruler	P248347-DMSI-1	04/04/2027
15849	Switchgear Panel H.T.A 0-40 KV	-	-
-	15887_Metrological_Monitoring_12	-	-

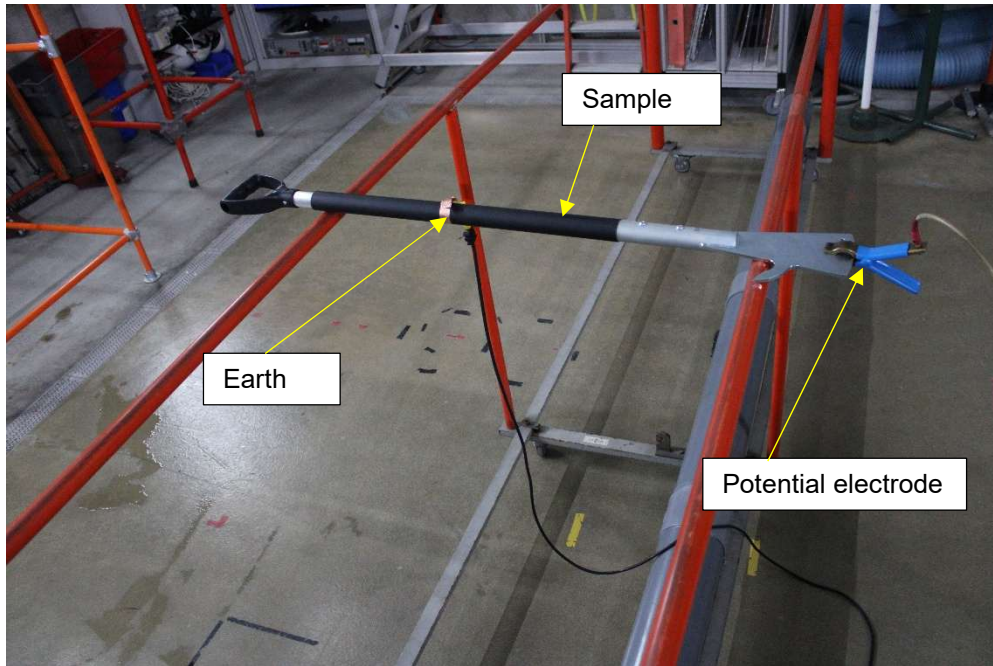
V ANNEXES / APPENDIX

V.1 Appendix 1: Product presentation

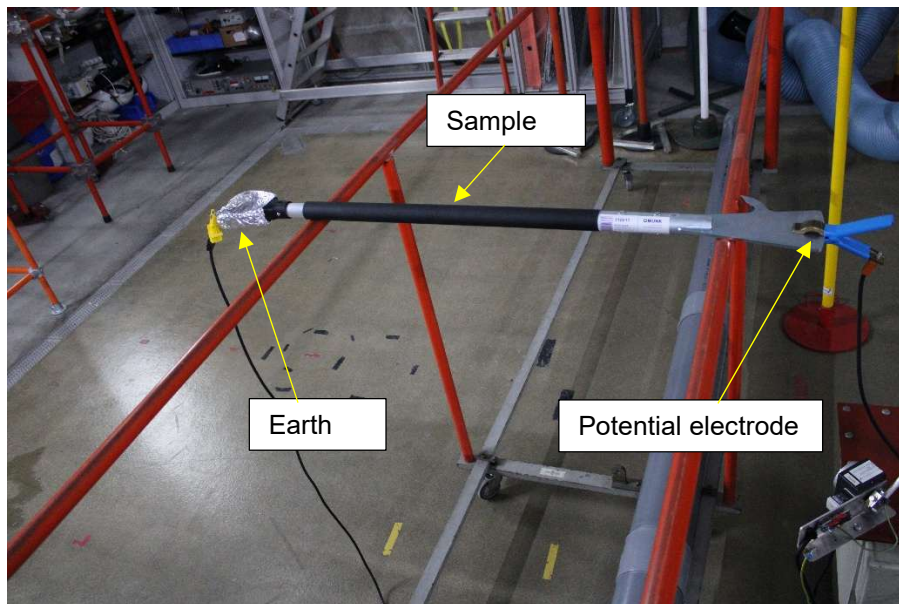


Presentation of a Ceiling Hook Sample

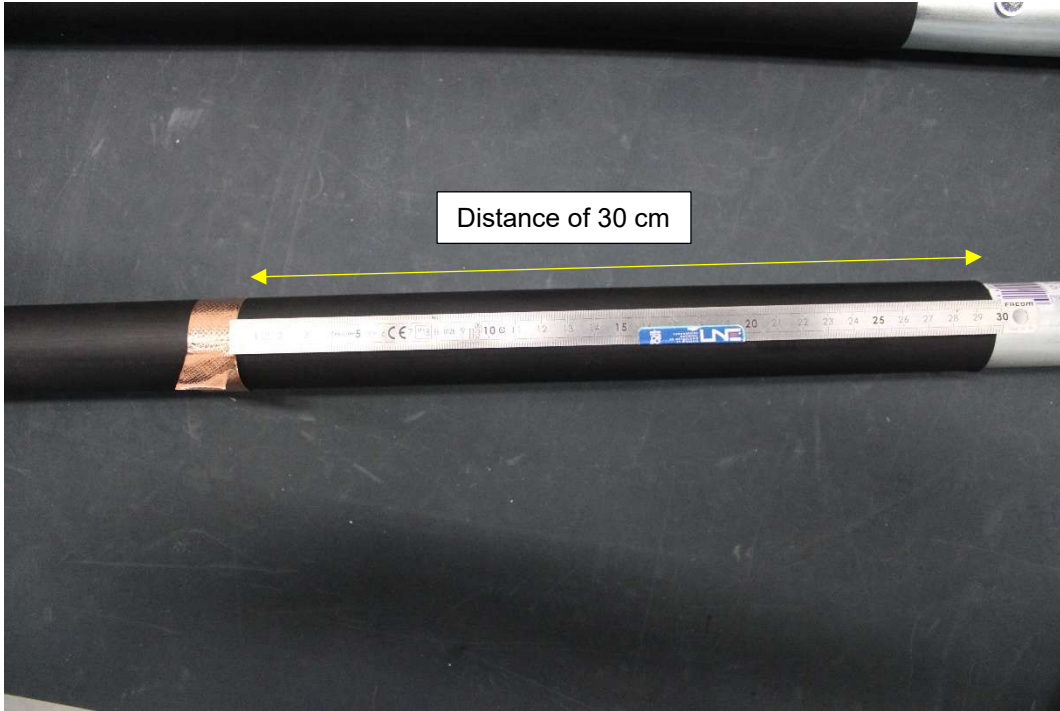
V.2 Appendix 2 : Test setup No. 1



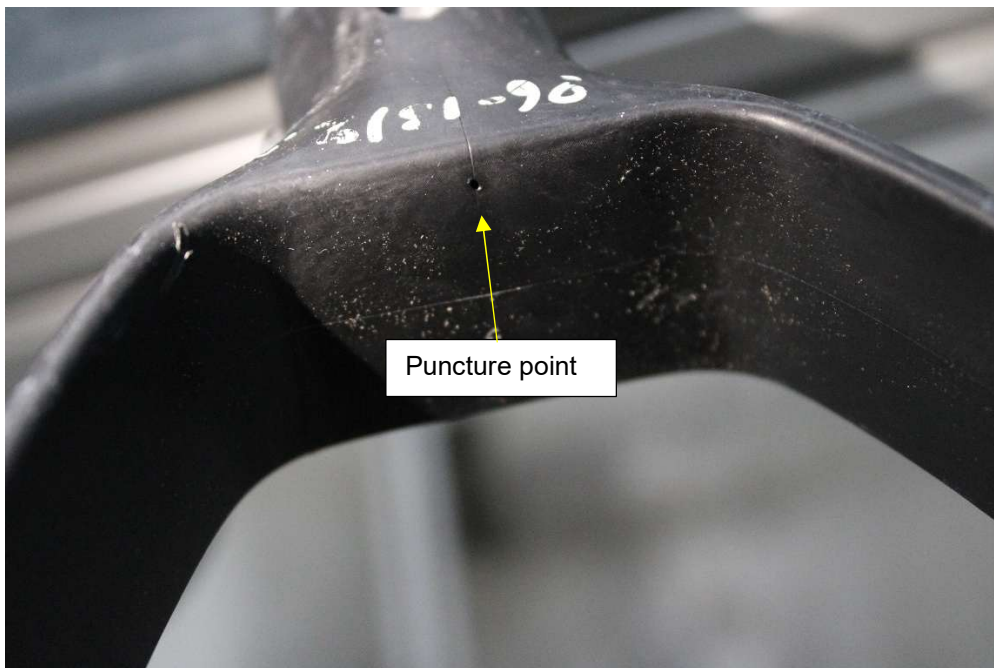
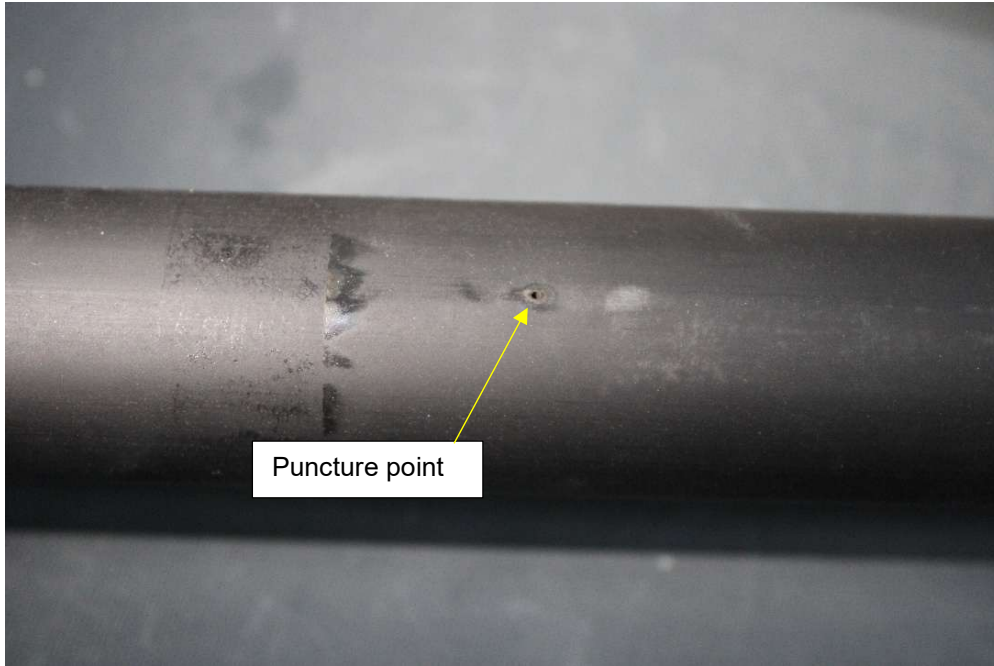
V.3 Appendix 3 : Test setup No. 2



V.4 Appendix 4 : Electrode placement distance for Test No. 1



V.5 Appendix 5 : Example of one of the perforations after testing



*** End of report ***