CEEES-Meeting Interlaken

6. – 8. October 2010

International
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“Environmental conditions, classification and methods of tests“

Plenary meeting

Meeting of maintenance teams, working groups and project teams

Frankfurt, Germany, VDE/DKE Premises

3. – 6. May 2010

Member of IEC TC 104

Australia AU	O-Member
Austria AT	O-Member
Belgium BE	O-Member
China CN	P-Member
Czech Republic CZ	P-Member
Denmark DK	O-Member
Finland FI	P-Member
France FR	O-Member
Germany DE	P-Member
Hungary HU	O-Member
India IN	O-Member
Italy IT	P-Member
JapanJP	P-Member
KoreaRepublic KR	P-Member
Mexico MX	O-Member
Netherlands NL	O-Member
Pakistan	P-Member
Poland PL	O-Member
Portugal PT	O-Member
Romania RO	O-Member
Russian Federation RU	P-Member
Spain ES	O-Member
Sweden SE	P-Member
Switzerland CH	P-Member
Thailand TH	O-Member
Turkey TR	O-Member
United Kingdom GB	P-Member
United States US	P-Member

Number of Participating countries : 13
Number of Observer countries : 15

IEC TC104 “Environmental Conditions, Classification and Methods of Test“

Chairman: Hermann Ruoss, DE
Secretary: Alf Olsson, SE

•MT16 Climatic conditions and tests	Convenor: P. Chiaro, US
•MT17 Dynamic conditions and tests	Convenor: B. Tyler, GB
•MT18 Special cases	Convenor: H. Ruoss,DE
•WG 14 Climatic field data including validation	Convenor: A. Lindbergh, SE
•WG 15 Dynamic field data including validation	Convenor: D. Richards, GB

Scope TC104

1. Standardization of environmental condition classes which represent the conditions to which products are most likely to be subjected whilst being:

- transported,
- stored,
- installed and
- used.

The classification shall use validated environmental parameters and provide guidance in the selection and use of those classes intended for the preparation of relevant specifications.

2. Standardization of environmental test methods intended for the preparation of relevant specifications and to provide guidance in the selection and use of those methods.

3. The correlation and transformation of environmental condition classes to environmental tests.

4. Provision of the Horizontal Safety Function for:
- methods for climatic tests
- methods for testing mechanical robustness.

5. Excluded from the scope of this committee are those matters which are within the scope of other IEC Committees, such as Electromagnetic Compatibility (TC 77 and CISPR), Safety (TC 62, TC 66 and TC 74), Fire Hazard (TC 89), Ionizing Radiation (TC 45), Explosive Atmospheres (TC 31) and Dependability (TC 56). Internal liaisons are maintained with those IEC committees which are specifically excluded from the scope.

7 MT 16 Climatic conditions and tests

The convener Mr. P Chiaro reported that the meeting held at VDE/DKE-Premises in Frankfurt, Germany had been attended by 9 experts from 5 countries. The following documents and actions were discussed.

IEC 60068-3-1, Environmental testing - Part 3-1: Supporting documentation and guidance - Cold and dry heat tests. Comments received from the international review of the CDV were addressed as well as those received during the meeting.

TC 104 decided that the project leader, Peter CHIARO should revise the document and provide the secretariat by the end of June with a draft FDIS after a quick review by the MT.

IEC 60721-2-1, Classification of environmental conditions. Part 2: Environmental conditions appearing in nature. Temperature and humidity. A CD was prepared for review by the project leader, Peter CHIARO. The revision was based on the Technical Report 62130 from WG 14, "Temperature and humidity data validation and recommendations".

TC 104 noted that the CD version had been finalized and provided to the secretary for issuance as a CD.

IEC 60721-2-2, Classification of environmental conditions. Part 2: Environmental conditions appearing in nature. Precipitation and wind. A CD was drafted by the project leader, Anders LINDBERGH.

TC 104 noted that the draft CD will be edited and formatted by the project leader and provided to the TC104 secretary by the end of May 2010 for issuance as a CD.

IEC 60721-2-3, Classification of environmental conditions - Part 2: Environmental conditions appearing in nature. Air pressure.

TC 104 noted that the document had been discussed and edited by the project leader, Anders LINDBERGH and that it will be provided to the TC104 Secretary for issuance as a CD.

TC 104 furthermore accepted the following recommendations of the MT review of the Maintenance Program, document 104/511/DC.

60068-2-30 – The document had been reviewed by MT 16 and it was decided to recommend that the stability date be changed from 2012 to 2017.

60068-2-39, -40, -41, and -3-2 will be combined to form a single standard. The project leader will be Klaus RAABE. A CD will be prepared for MT16 review for the next meeting tentatively planned for early 2012.

60068-2-60 – MT 16 decided to recommend that the document be issued as an MCR with a decision as to whether to revise the standard based on the results of the international review.

TC 104 decided upon the request by MT 16 to recommend that the document be issued as an RR (former MCR) in order to obtain the basis for a future decision whether to revise IEC 60068-2-60 or not.

The reason for this decision is that the MT 16 at the time of the meeting in Frankfurt, May 2010, did not have sufficient knowledge of the use or applicability of this particular test method "corrosion testing". The comments received on 104/511/DC did not provide MT 16 with any useful advice. MT 16 is responsible for maintaining all "climatic tests" in the IEC 60068-2- series and all aspects for standardisation of environmental parameters and their classification in the IEC 60721-series. The intention with circulating this RR is to attract the attention of NCs to the need for additional experts for this particular IEC publication for corrosion testing and the support of the MT 16 work in general. If this initiative does not result in anything then the secretariat will suggested that either box 1 – withdraw, or box 2 - confirm - be x-ed in the next issue of the RR for IEC 60068-2-60 together with appropriate dates for the respective action.

Note from IEC CO:

An administrative circular 104/522/AC was circulated to the National Committees to call for experts to contribute to the works of MT 16 in the field of corrosion testing.

60068-2-78 – The document had been reviewed by MT 16. It was noted that a number of references needed to be changed due to the revision of those documents referenced.

Based on the group review it was decided to start a new project to revise the standard. The new project will be led by Toshimi ISHIDA and Peter CHIARO. A CD will be prepared and provided to the TC104 secretary by the end of June. Particular attention will be made to the references used and existing chapter 11 which should be revised based on the recently revised IEC 60068-2-1 and 2-2.

60721-2-5 – This document will need to be revised but for now, it was decided to increase the stability date by 3 years until 2015.

9 MT 18 Special Cases

The convener Mr. Hermann Ruoss reported that:

IEC 60068-1 General and guidance with project Leader Mr. Markku Juntunen, FI, had been forwarded during the meeting to the IEC representative Mr. Daimen Lee and that it would be circulated as CDV within short. The reason for the delay, after the Barcelona meeting, was that it had been mixed up with IEC 60068-3-1 during the translation into French.

IEC 60068-2-5 Ed. 2.0: Environmental testing - Part 2-5: Tests -Test Sa: Simulated solar radiation at ground level and guidance for solar radiation testing, document 104/500/FDIS was approved and had been published shortly before the TC meeting in Frankfurt in spite of 3 NCs voting negatively. Two more NCs had commented the document and the UK HOD had prior to the meeting expressed his firm opinion that the document was technically incorrect due to several errors which the UK committee had not been able to identify during the voting period due to lack of time and expertise. The Chairman and Secretary had urged the IEC CO to await the meeting in Frankfurt before publishing the standard because they were at the time unable to provide proper advice on how to deal with the comments and how to correct it. The IEC CO went in spite of this request by the Committee leaders and the experts they had consulted ahead and published the standard. The committee found itself in and unsatisfactory position and could only request that the IEC now assist in correcting the errors in the document.

The project leader Mr. Klaus Raabe explained that the errors had been partly caused by changes of the Irradiance values in the reference documents. Calculations based on those values were subsequently incorrect. One figure had been copied from another IEC Publication without proper corrections.

TC 104 prepared during the meeting the basis for a corrigendum of the document. It was decided that the proposed corrigendum should be sent to the IEC CO for publication together with an explanation.

IEC 60068-2-53 Ed. 2.0: Environmental testing - Part 2-53: Tests and guidance - Combined climatic (temperature/humidity) and dynamic (vibration/shock) tests, document 104/499/FDIS had also been approved. The project leader Mr. Klaus Raabe explained that the three EG comments could not be approved and that most of the CZ comments sent directly to the secretary had been approved. These comments had not been recognised by the IEC CO before publication.

IEC 60068-2-18 Environmental testing - Part 2-18: Tests - Test R and guidance: Water. It had been decided already in Oak Ridge 2008 that the stability period should be extended to 2013 in abeyance of the amendment to IEC 60529 being prepared in IEC TC 70. TC 104 would only act when this amendment was available.

The maintenance cycle report, document 104/511/DC was also reviewed by MT 18.

IEC 60068-2-74 Part 2: Tests - Test Xc: Fluid contamination should be confirmed for another 5 years period until 2017.

IEC 60721-2-7 Part 2: Fauna and flora should be confirmed for another 3 years until 2014.

IEC 60721-2-8 Part 2: Section 8: Fire exposure should also be confirmed for another 3 years until 2014. The secretary should ask if IEC TC 89 Fire hazard testing have an interest in taking over this work from TC 104. TC 89 could, as e g TC 91, maintain this publication in its original IEC 60721-2-series of publications.

Umgebungsbedingungen IEC 60721-2-1: Temperatur und Feuchte

Figure A.1, Climate Types

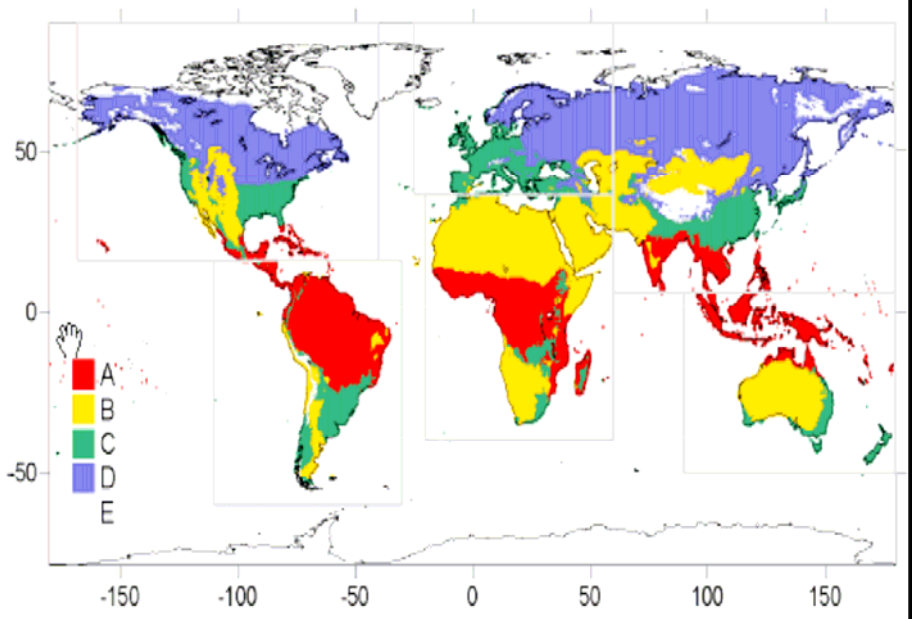


Table 1. Climatic types.

New Types	Previous 60721-1 classes when combined
Polar	Extremely cold and Cold
Snow	Cold temperate
Warm temperate	Warm temperate and Warm dry
Arid	Mild Warm Dry and Extremely Warm Dry
Equatorial	Warm damp and Warm Damp, Equable

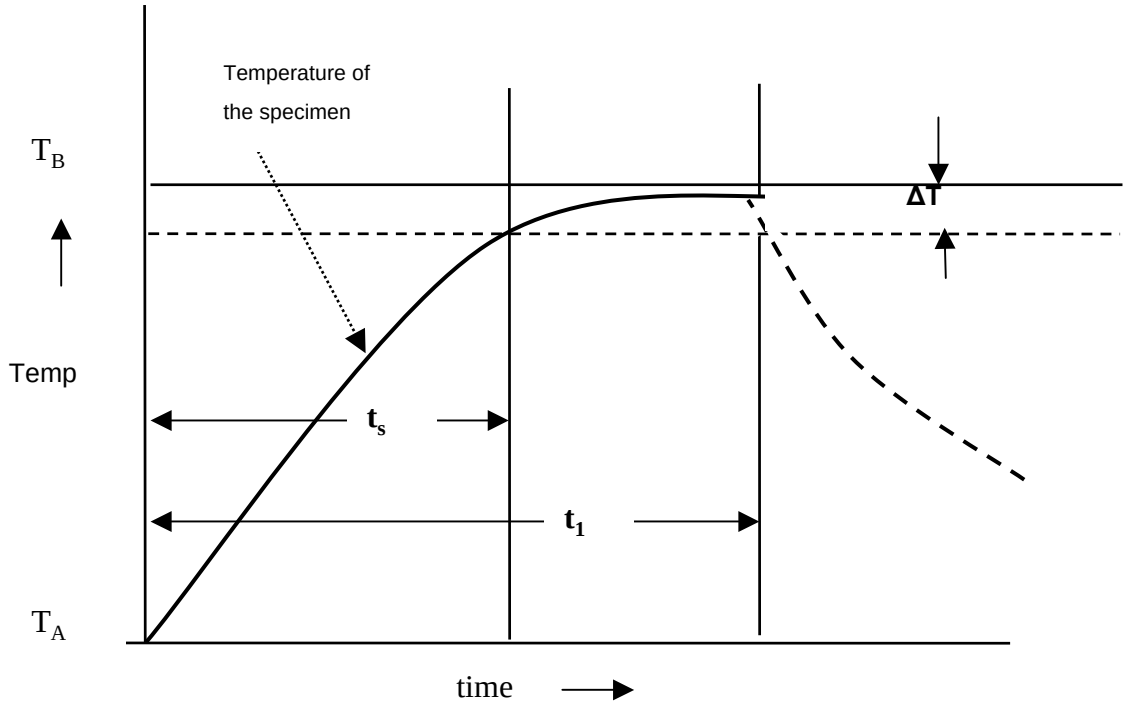
Table 2. Climate Type Definition

Climate type	Definition
Polar	Cold snow climates. Mean temperature of the warmest month below 10 °C.
Snow	Boreal forest and snow climates. Mean temperature of the warmest month exceeding 10 °C and a mean temperature of the coldest month below –3 °C.
Warm temperate	Temperate rain climates where the mean temperature of the coldest month is between –3 °C and +18 °C
Arid	Arid climates with rainfall less than 500mm
Equatorial	Tropical rain climates where the mean temperature of the coldest month exceeds +18 °C.

IEC 60068-2-53 Combined tests

Dynamic tests / Climatic tests	Shock IEC 60068-2-27	Vibration (sinusoidal) IEC 60068-2-6	Vibration (broad band random) IEC 60068-2-64	Vibration (mixed mode) IEC 60068-2-80
Cold IEC 60068-2-1	X	X	X	X
Dry heat IEC 60068-2-2	X	X	X	X
Change of temperature IEC 60068-2-14	X	X	X	X
Damp heat, cyclic IEC 60068-2-30	X	X	X	X
Damp heat, constant IEC 60068-2-78	X	X	X	X

IEC60068-2-14, Bestimmung der Verweildauer t_1



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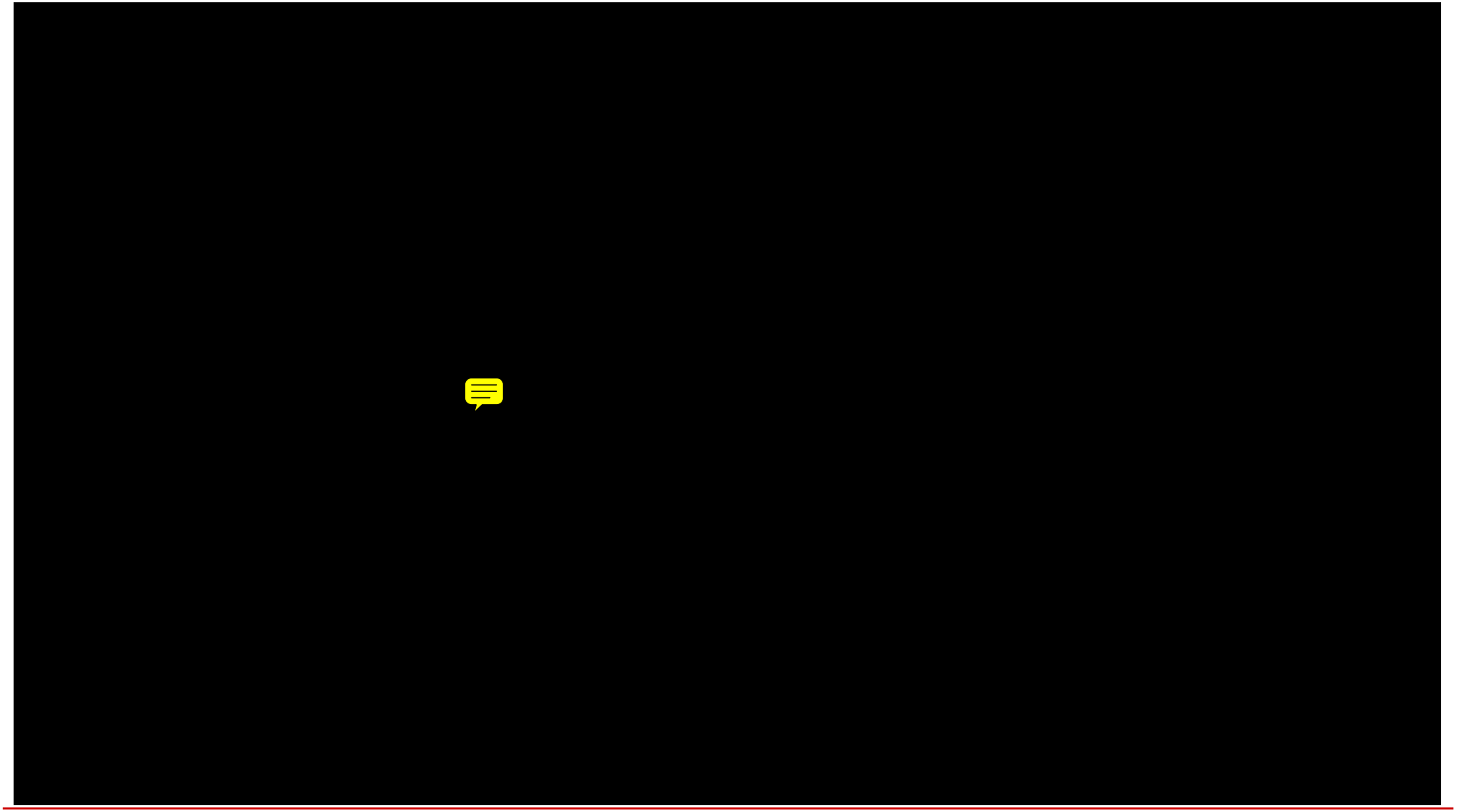
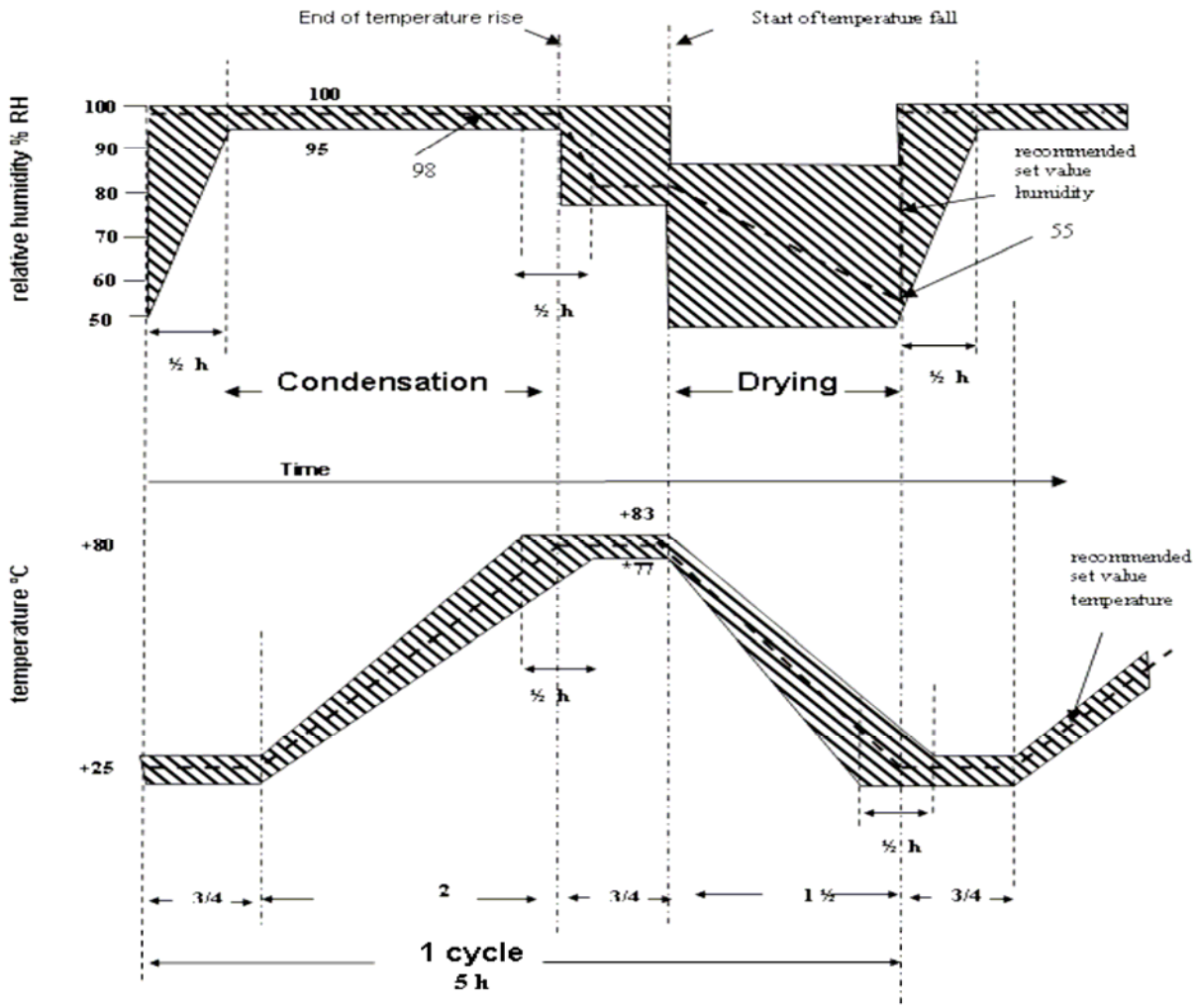


ISO 16750-4

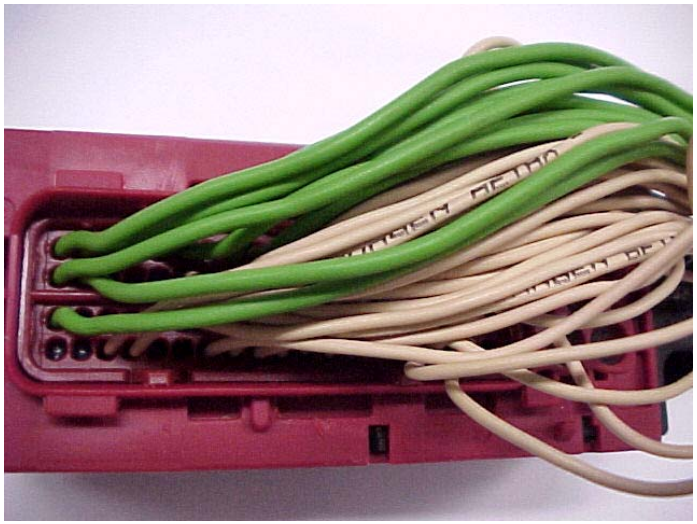
Dew test



ISO 20653 ISO TC22 SC3 WG13

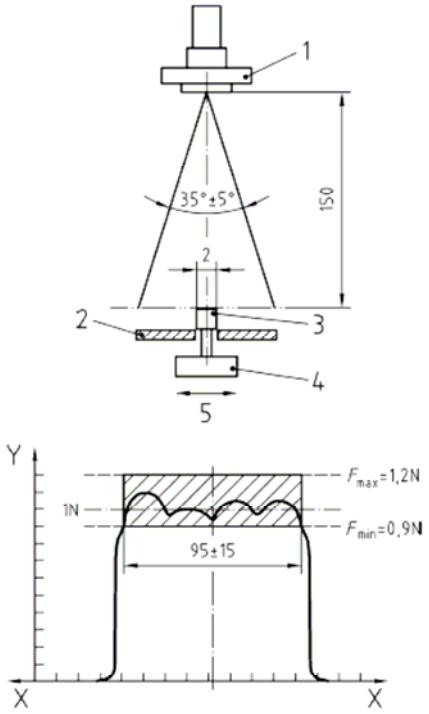
IEC60529 IP-degrees

IEC TC70 in Germany DKE K212 Schutzarten



Jet-distance 150 mm, waterpressure 80 bar, watertemperature 80°C:
left „Lechler“, right „Kärcher“

IEC TC 70 IP-Code IEC 60529

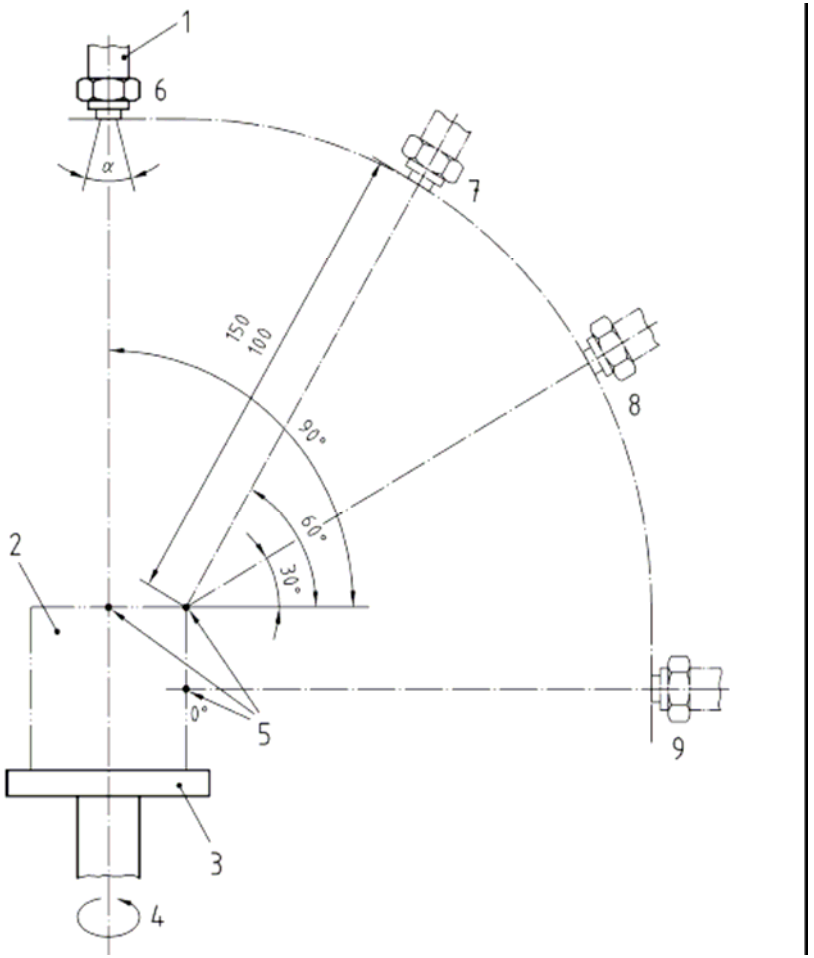


a) Set-up for measuring the impact force of the water jet

Key:

1 fan jet; pressure (100 ± 5) bar; volume (15 ± 1) l/min
2 cover plate
3 impact plate 2 x 30 mm
(2mm in direction of movement)
4 force absorber
5 working width

b) Distribution of impact force



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