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Ontploffing Beskermingsdienste
Explosion Prevention Services

REQUIREMENT INFORMATION FOR SUBMITTING SAMPLES **FOR FLAMEPROOF TYPE TESTS**

Background:

The purpose of a type test evaluation is to determine if the equipment or device can meet the requirements of SANS 60079-0 & SANS 60079-1. This is done by placing the test sample(s) under a variety of tests, some of which can potentially be destructive, as set out in the standards mentioned. The sample must be in the condition as the device would be used i.e. populated with all the equipment or with dummy models of the enclosed equipment or it will be certified as a "component".

MTEx Laboratories might rely on the client to supply special tools or even to assist with opening and closing the devices if special tools and assembly techniques are required. Some samples might also require minor modification such as additional entries, fitment of adapters or blanking elements for fitting test equipment.

Some of the information was obtained from IECEx OD 017 © IEC: 2012(E) this document can be read additionally.

Purpose of the Documentation (as from IECEx OD 017):

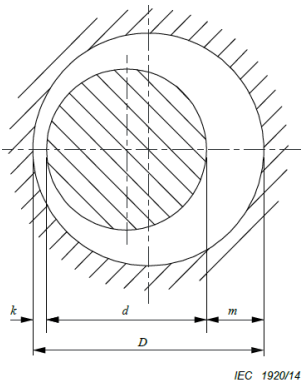
The drawings and other documentation used to demonstrate explosion protection conformity of the product are used by the certifying body for comparison with a prototype or sample and in conjunction with an "Ex" test report to demonstrate conformity with the standard(s).

The drawings and other documentation that forms part of the specification of the product used to demonstrate explosion protection conformity are a definitive specification of the product that has been certified.

The certificate holder/manufacture uses the drawings and documents to record the controlled details (the elements of the design which provide the protection for the applicable explosion protection technique(s)). It is recommended that manufacturers prepare drawings specifically for the purpose of certification and do not necessarily provide every detail necessary to manufacture the product. The details provided in these drawings may only be modified by reference to the certifying body.

Changes to the certification drawings and documents can be implemented only after the certification body has issued a revision to the certificate to incorporate the new drawings and documents.

Submission of a new prototype must typically include the following:

Description	✓
<p>1. A working sample (sample(s) will be available for collection after testing).</p> <p>4 Samples of the non-metallic material (if any) for parts and enclosures (Clause 26.4 of SANS 60079-0) (two samples can be used but the tests might take longer).</p>	
<p>2. Detailed mounting arrangements (orientation of device and internal components, also see drawings, SANS 60079-1, Clause 15).</p>	
<p>3. Material specification (composition of the materials used on the enclosure, Clause 7 of SANS 60079-0)</p>	
<p>4. Fasteners (some of this information can be on the drawings):</p>	
<p>4.1. Documentation to indicate that the special fasteners comply with ISO262, ISO 965-1 and ISO 965-3.</p> <ul style="list-style-type: none"> • Length • Size • and minimum yield strength or grade of fasteners. 	
<p>4.2. Fastener data and characteristics may be included in a table cross referenced to the applicable drawing(s) .</p>	
<p>4.3. Size and tolerance of clearance holes for fasteners. This may be included in a table cross referenced to the applicable drawing(s).</p>	
<p>4.4. Depth of drilling and tapping. This may be included in a table cross referenced to the applicable drawing(s).</p>	
<p>4.5. Minimum thickness of metal around holes. This may be included in a table cross referenced to the applicable drawing(s).</p>	
<p>4.6. Location and details of threaded entries, including:</p> <ul style="list-style-type: none"> • range of sizes • and maximum number, • pitch, • class of fit, • length of thread provided in enclosure (chamfers and undercuts taken into account). 	
<p>5. Rotating Machines:</p>	
<p>5.1. Maximum and minimum diameter of shafts and bores together with maximum “m” and minimum “k” radial clearances of rotating parts.</p>	
<p>5.2. Values of ‘m’ and ‘k’ (Figure 20 of SANS 60079-1)</p>  <p style="text-align: center;">IEC 1920/14</p> <p>Key</p> <ul style="list-style-type: none"> <i>k</i> minimum radial clearance permissible without rubbing <i>m</i> maximal radial clearance taking <i>k</i> into account <i>D-d</i> diametrical clearance <p style="text-align: center;">Figure 20 – Joints of shaft glands of rotating electrical machines</p>	

Description	✓
5.3. Cowl/fan hood and fan specifications (material composition and dimensions, as per Clause 17.1.2 of SANS60079-1).	
5.4. For ventilation fans (and motors) the power rating of the fan and motor (Clause 17.1.5 of SANS60079-0:2012).	
6. Where cemented joints exist the material data sheet to indicate what its suitable continuous operating temperature (COT) specification (Clause 17.2 of SANS60079-0:2012).	
7. Drawings:	
7.1. Overall dimensions of the enclosure including minimum wall thickness.	
7.2. Length of flamepath and maximum flamepath gap for each constructional gap/joint with maximum constructional tolerance (the testing officer will verify the dimensions of the sample).	
7.3. Spacing of boltholes in covers.	
7.4. Area in which cable entries, switch operators, windows, receptacles etc may be fitted to be shown on a drawing.	
7.5. Hole spacing on face of enclosure where a certified component is to be fitted.	
7.6. Weld type and size (if welded).	
7.7. Minimum thickness of window (if fitted), material and method of mounting.	
7.8. State gross and net internal volumes if not evident from general dimensions.	
7.9. Length and diameters for press-fitted or interference fitted part.	
<p>7.10. Layout and heat dissipation (power rating also usable) of internal components showing location and approximate dimensions of each component, including clearances between components and the nearest sidewall.</p> <p>The purpose is to control:</p> <ul style="list-style-type: none"> • Location of sources of heat, for temperature classification purposes, for temperature withstand of plastic parts, window cement, other potting materials, cable entries, etc., • and for confirming the local ambient for items such as IS safety barriers. • Dimensions relevant to pressure piling effects. • Where the certificate is to cover variations in content, sufficient detail of the range must be given so that the design limits for each variant are absolutely clear.. <p>The ATL can then select the worst case arrangement(s) for test purposes.</p>	
7.11. Surface roughness of flamepaths.	
7.12. Washers (if used), washer thickness.	
8. Cemented joints require cement to be specified and manufacturers data sheet submitted and the shortest distance through the cemented joint is to be specified.	
9. Setting compounds used in stopping boxes etc must be specified and data sheet provided.	
10. Sintered metal components forming part of an enclosure or combustible sensor are to be fully specified – material, max bubble pore size, minimum density, dimensions etc.	
11. For ventilation fans (and it motors):	
11.1. Fhe power rating of the fan and the power rating of the motor (Clause 17.2 of SANS60079-0:2012).	
11.2. For ventilation fans the bearing lubricant COT (Continuous Operating Temperature) for ventilation fans must be known (Clause 17.2 of SANS60079-0:2012	

Description	✓
12. Disconnections (if any) intended load of operation and load rating (Clause 18.2 of SANS60079-0:2012).	
13. Method of retaining a non threaded fitting e.g. a fitting having a spigot joint.	
14. Intended marking of the device must be known (refer to clause 29 of SANS60079-0:2012).	
15. Documentation that indicate sodium lamps (if used) complies with IEC 60662 and are high pressure lamps (other sodium lamps not permitted as per Clause 21.4 SANS60079-0:2012).	
16. Cable type and specifications for handheld lights (where applicable) as per 22.2 of SANS60079-0:2012.	
17. Batteries (if fitted):	
17.1. Battery pack details (if fitted) as per Clause 30.2, SANS60079-0:2012).	
17.2. Declare any cells/batteries and precautions taken.	
17.3. Details of safety devices for battery protection against excessive temperature, reverse polarity and exceeding the manufacturer charging specification	
17.4. Cell/battery type and specification if used (Clause 23.3, SANS60079-0:2012).	
18. For non-metallic parts (except for glass) their resistance to light (ISO179 and ISO4892-2) properties (SANS60079-0:2012 Clause 26.10.1).	
19. The intended marking must be supplied (SANS60079-0, Clause 29.3).	
20. Comparative Tracking Index (CTI) for insulating material subject to electrical stress if the type of protection depends on it, e.g. through going bushes.	
21. Details and location of any internal thermal protective devices.	
22. Identification of grease if applied to the joints and specification data sheet with details on ageing process, solvent evaporation, corrosion, flash point.	
23. Thickness of electroplating of flamepaths if relevant.	
24. Additional information may be required and the testing officer will let you know should it be required for your specific device.	

Additional for Non-metallic parts and non-metallic enclosures:

Testing without any complication can take up to 4 weeks depending on the current workload of the Laboratory, thereafter a report and certificate (if successful) will be issued to the customer. The customer can retrieve regular feedback as the Laboratory progresses with the evaluation. Any complications encountered during the evaluation period will be communicated to the customer immediately.

We sincerely hope that you find our service satisfactory and kindly ask to provide us with feedback you can following the link to complete the convenient online survey:

<http://mtexlab.co.za/contact.html>.