NATIONAL ELECTRICAL SAFETY BOARD

NKS ATEX Joint Cross Border Market Surveillance Campaign on cable glands

Campaign target – Cable glands

- Widely used in many applications
- Plays a major role in safety of installations
- Different sizes and materials

The Campaign

- Schedule: The campaign kicked off in the spring of 2022 and were finalized during autumn of 2023
- Participants: Finland, Norway and Sweden
- In total 18 different products were purchased and tested
- All products tested at same test lab
- Formal requirements checked by MSAs

Sampling

- The MSAs paid special attention to products
  - manufactured in its own country
  - the importer of products was located to its country
- Only d, e and t protection
- Sizes limited to M20 and M40

Formal requirements - Traceability

Table 1 – Compliance with traceability requirements			
Requirement of traceability	Number checked	Number compliant	Compliance (%)
Identification requirements (type designation)	18	14	77
Name of the manufacturer	18	14	77
Address of the manufacturer	18	1	5
Name of the importer (if needed)	-		
Address of the importer (if needed)	-		

Formal requirements - CE marking

Table 2 – Compliance with requirements of the CE marking			
Requirement of CE marking	Number checked	Number compliant	Compliance (%)
CE-mark affixed	18	14	94
Layout of CE marking	17	14	82
Height of CE marking	17	0	0
NB number	17	17	100

Formal requirements – ATEX markings

Table 3 – Compliance with ATEX markings

Requirement of traceability	Number checked	Number compliant	Compliance (%)
Year of construction	18	4	22
Specific marking of explosion protection (, equipment group and category)	18	12	66
Letter ‘G’ and/or the letter ‘D	18	12	66
Other essential safety use marking	18	10	56

Formal requirements - DoC

Table 4 – Compliance with DoC requirements				
Number of EUT assessed	DoC available	DoC not made available	DoC with no issues found	Overall DoC compliance (%) *
18	17	1	10	56

Formal requirements – Language requirements

Table 6 – Compliance with language requirements of instructions		
Number assessed	Compliant Manual	Overall instruction compliance (%)
18	4	22

Testing - Resistance to impact test

Table 7 – Compliance with Resistance to impact test

Type of product	Number checked	Number compliant	Compliance (%)
Metal cable gland (M20)	6	6	100
Plastic cable gland (M20)	5	0	0
Plastic cable gland (M40)	2	2	100
Blanking element (M20/M40)	4	4	100

Testing – Visual IP test

Table 8 – Findings of Visual IP test

Findings	Number of findings
No issues found	7
Sample was provided with a flat gasket, but instructions did not specify tolerance for the clearance hole, likely not an issue due to large margin in flat gaskets	2
Sample was provided with an O-ring, but instructions did not specify tolerance for the clearance hole	4
Sample did not have any gasket, but the instructions mention a specific gasket is required for dust applications according to EN 60079-31:2014	1
Sample did not have any gasket and the instructions do not mention a gasket needs to be used in dust applications according to EN 60079-31:2014	3

Testing - Instructions

Table 9 – Compliance with Instructions requirements

Instructions requirement	Number compliant	Compliance (%)
Minimum and maximum diameter of the cable of circular cables	17	100
Minimum and maximum dimensions of non-circular and metal-sheathed cables	N/A	N/A
Tightening process of the compression element, including the tightening torque (only gable glands)	11	85
For compound-filled glands, details on the installation of the filling compound	N/A	N/A
For compound-filled glands, the maximum diameter over cores of the cable that the gland is intended to accept and the maximum numbers of cores that can pass through the compound	N/A	N/A

Testing – Instructions

Table 9 – Compliance with Instructions requirements		
For entries into enclosures: Threaded entries		
Thread size	15	88
Tolerance class	5	29
Enclosure material limitations	14	82
Enclosure interface sealing method	14	82
Maximum surface roughness of the enclosure face for sealing	4	24
Thickness range of the enclosure wall (minimum)	8	47
Thickness range of the enclosure wall (maximum)	3	18
Perpendicularity	5	29
Permitted use and location of any earth tags	-	
For entries into enclosures: Clearance holes		
Hole dimensions, including tolerance	9	53
Enclosure material limitations	N/A	N/A
Thickness range of the enclosure wall (minimum)	7	41
Thickness range of the enclosure wall (maximum)	3	18
Enclosure interface sealing method	14	82
Maximum surface roughness of the enclosure face for sealing	4	24
Perpendicularity	5	29
Cable gland securing details	15	88
Permitted use and location of any earth tags	-	

Findings

- Only 56 % of the products had a correct Declaration of Conformity.
- 78 % of the products lacked instructions of use in correct language. This means that the installer may not fully understand how to install and use the gland safely.
- No plastic cable glands of smaller size (M20) passed the impact test. The reason could be to the lack of correct instructions.
- Lack of clear instructions on how to mount and use the glands in different applications, with or without gasket.

Conclusions

- The manufacturer needs to ensure that sufficient instructions of use, in the correct language is to be supplied with the product. Otherwise, the product cannot be used safely.
- The installer must be observant and read the user instructions of use carefully. It is easy to miss a needed gasket or any other detail that can make a big impact on the overall safety of the electrical installation. If instructions are missing, the electrician must report this to the manufacturer.
- There are some unclear issues with what the directive states as needed in instructions, the standard and Notified bodies. These differences are to be discussed further between the involved parties.

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