# Cable Gland Series

## 1. INTRODUCTION

### 1.1 Purpose

This document provides the qualification test summary of TE Connectivity Cable Gland Series of HDC connector.

### 1.2 Scope

This specification covers the electrical, mechanical and environmental performance of cable gland.

### 1.3 Conclusion

Based on the test results, all meet the requirements according to TE Connectivity Design Objectives 108-137475.

### 1.4 Product Description

The following products are available in this system:

| Item | Type |
|---|---|
| 1 | Metal cable gland |
| 2 | Multiple sealing insert metal cable gland |
| 3 | Metal cable gland special sealing |
| 4 | Metal cable gland EMC |
| 5 | Metal flat glands with multiple seal |
| 6 | Metal flat glands with normal seal |
| 7 | Clamp gland with normal seal |
| 8 | Metal clamp glands with multiple seal |
| 9 | Plastic cable gland |
| 10 | Plastic cable gland, thread lengthen |

1.5 Qualification Test Sequence

| Test or Examination | Test Group | | | |
|---|---|---|---|---|
| | A | B | C | D |
| | Test Sequence [1)] | | | |
| Visual and dimensional examination | 1,5 | 1,5 | 1,5 | 1,3 |
| Durability of marking | 2 | | | |
| Cable retention | 3 | | | |
| Cable anchorage | 4 | | | |
| Cold | | 3 | 3 | |
| Dry Heat | | 4 | 4 | |
| Degree of protection IP6X | | 2 | | |
| Degree of protection IPX8 | | | 2 | |
| Salt Mist Cyclic Test | | | | 2 |

***Notes:**

1) Numbers indicate the sequence in which the tests are performed.

## 2. TEST PROCEDURE

| General | | | |
|---|---|---|---|
| **No.** | **Test Items** | **Requirements** | **Condition according to** |
| 2.1 | Visual and dimensional examination | Meets requirements of product drawing | Visual and dimensional examination per 7.1 of IEC 62444 |

| Mechanical | | | |
|---|---|---|---|
| 2.2 | Durability of marking | Marking shall be still readable according to 6.2 of EN61984<br>(If marking made by impression, molding, pressing or engraving or the like are not subjected to this test) | Test piston: Size 1<br>Wet test with liquid: water<br>Duration: 10 cycles<br>Force:5N<br>IEC 60068-2-70 Test Xb<br>7.3.2 of EN61984 |
| 2.3 | Cable retention | The displacement of mandrel shall not exceed 3 mm. | Loading a force on mandrel and maintaining for 5 min. Loading force See IEC 62444 9.2. |
| 2.4.1 | Cable anchorage | The test mandrel shall not turn by more than an angle of 45°. | Twist test for 1 min, twist value See IEC 62444 Table 3.<br>IEC 62444 9.3. |
| 2.4.2 | Cable anchorage (only for armoured cable) | The max slip allowed is less than 3mm. | Loading a force on mandrel and maintaining for 5 min. Loading force See IEC 62444 Table 2 Type C.<br>IEC 62444 9.4 |

| Environmental | | | |
|---|---|---|---|
| 2.5 | Cold | No damage likely to impair function | Subject mated specimen to -40℃ Duration time:16h, Test Ab Per IEC 60512-11-10 Test 11j (IEC 60068-2-1) |
| 2.6 | Dry Heat | No damage likely to impair function | Subject mated specimen to +100℃ Duration time:168h Test Bb Per IEC 60512-11-9 Test 11i (IEC 60068-2-2) |
| 2.7 | Degree of protection IP6X | No ingress of dust | Test IP 6X according to IEC 60529 |
| 2.8 | Degree of protection IPX8 | No ingress of water | Test IP X8 according to IEC 60529 Water immersion: 1m, 24Hours, No water immerge.<br>7.3.6.3&7.3.7of EN61984 |
| 2.9 | Salt Mist Cyclic Test | No damage likely to impair function | Follow: ASTM B117-11<br>Test Condition:<br>1).Salt spray:（5±1）% NaCl （m/m）concentration solution;<br>2).Temperature（35±1）℃<br>3). Precipitation rate of salt spray(1.0-2.0）ml（/ 80cm*h）<br>4).PH value：6.5-7.2<br>5).Duration:72H |

## 3. SUMMARY OF TEST RESULTS:

### Examination of product – all test group

| Test Group | Test Item | Test Result | Requirement | Judgment |
|---|---|---|---|---|
| Group A | Visual and dimensional examination | No physical damage | Meets requirements of product drawing | passed |
| | Durability of marking | No physical damage | No damage likely to impair function | passed |
| | Cable retention | No physical damage. The displacement of mandrel exceed less than 3 mm. | No damage likely to impair function | passed |
| | Cable anchorage | No physical damage. The max slip allowed is less than 3mm. | No damage likely to impair function | passed |
| | Visual and dimensional examination | No physical damage | Meets requirements of product drawing | passed |
| Group B | Visual and dimensional examination | No physical damage | Meets requirements of product drawing | passed |
| | Degree of protection IP6X | No ingress of dust | No ingress of dust | passed |
| | Cold | No physical damage | No damage likely to impair function | passed |
| | Dry Heat | No physical damage | No damage likely to impair function | passed |
| | Visual and dimensional examination | No physical damage | Meets requirements of product drawing | passed |
| Group C | Visual and dimensional examination | No physical damage | Meets requirements of product drawing | passed |
| | Degree of protection IPX8 | No ingress of water | No ingress of water | passed |
| | Cold | No physical damage | No damage likely to impair function | passed |
| | Dry Heat | No physical damage | No damage likely to impair function | passed |
| | Visual and dimensional examination | No physical damage | Meets requirements of product drawing | passed |
| Group D | Visual and dimensional examination | No physical damage | Meets requirements of product drawing | passed |
| | Salt Spray Test | No physical damage | No damage likely to impair function | passed |
| | Visual and dimensional examination | No physical damage | Meets requirements of product drawing | passed |