

Docking Frame Series

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1. SCOPE

1.1. Content

This specification covers the performance, tests and quality standards for docking frame series **H6BP-T2-M/F, H10BP-T3-M/F, H16BP-T4-M/F and H24BP-T6-M/F.**

1.2. Qualification

When tests are performed, the following specified specifications and standards shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

2. APPLICABLE DOCUMENTS

The following documents form part of this specification to the extent specified herein. In the case of a conflict between the requirements of this specification and the product drawing or of conflicts between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1. TE Connectivity Documents

- A. Customer drawing and name
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2.2. Other Documents

- EN 61984: Connectors - Safety requirements and tests
- IEC 60068: Environmental testing
- IEC 60512: Connectors for electronic equipment -Test and measurements
- EN 61373: Railway application - Rolling stock equipment - Shock and vibration test

3. REQUIREMENTS

3.1. Design and Construction

Product shall be of the design, construction and physical dimensions specified on the applicable product drawing.

3.2. Materials

Materials used in the construction of this product shall be as specified on the applicable product drawing.

3.3. Rated

- Operation Temperature -40°C ~+125°C

3.4. Performance and Test Description

Product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Paragraph 3.5. Unless otherwise specified, all tests shall be performed at ambient environmental conditions per IEC 60512 / EN 61984.

3.5. Test Requirements and Procedures Summary

General			
No.	Test Items	Requirements	Condition according to
3.5.1	Visual and dimensional examination	Meets requirements of product drawing	Visual and dimensional examination IEC 60512-1-1/-2, Test 1a and 1b 6.2 of EN 61984

Mechanical			
3.5.2	Durability of marking	Marking shall be still readable according to 6.2 of EN61984 (If marking made by impression, molding, pressing or engraving or the like are not subjected to this test)	Test piston: Size 1 Wet test with liquid: water Duration: 10 cycles Force:5N IEC 60068-2-70 Test Xb 7.3.2 of EN61984
3.5.3	Module retention in frame	300 N Minimum	Test load applied in axial direction, test speed:20mm/min, permissible shift inserts of 1.0mm, Test 15a of IEC 60512-15-1
3.5.4	Mechanical strength impact	No damage likely to impair function	Dropping height: - 750mm for specimens of mass≤ 250g - 500mm for specimens of mass>250g Dropping cycles:8 positions in 45° step, one cycles per position IEC 60512-7-2 Test 7b

3.5.5	Mechanical Operation (Durability)	500 operation cycles; No damage likely to impair normal use	Shall be engaged and disengaged by means of A) a device simulating normal operating conditions at the speed of approximately 50mm/min B) manual mating/un-mating 300 Max. cycle per hour IEC 60512-9-1 Test 9a 7.3.9 of EN 61984
3.5.6	Vibration, Random	No damage likely to impair function	Frequency:5~150Hz Per EN 61373, Category 1, Class B (IEC60068-2-6 Test Fc)
3.5.7	Shock	No damage likely to impair function	Acceleration:50m/s ² Duration:30ms Total 18 shocks(three positive and three negative in each of the three orthogonal axes) Per EN 61373
Environmental			
3.5.8	Cold	No damage likely to impair function	Subject mated specimen to -40°C Duration time:16h, Test Ab Per IEC 60512-11-10 Test 11j (IEC 60068-2-1)
3.5.9	Dry Heat	No damage likely to impair function	Subject mated specimen to +125°C Duration time:168h Test Bb Per IEC 60512-11-9 Test 11i (IEC 60068-2-2)

Number of Specimen as below table 1:

Table 1 - Number of Specimen		
Test	Description	Numbers & consist of
Group A	Mechanical Test	3 pairs frame
Group B	Service life Test	3 pairs frame
Group C	Climatic Test	3 pairs frame
Group D	Vibration and Shock Test	3 pairs frame
Note: For connector family of the same design and comparable size, test may be made only on that member of the family which represents the worse case for that test.		

3.6. Test Sequences

Test or Examination	Test Group			
	A	B	C	D
	Test Sequence ¹⁾			
Visual and dimensional examination	1,4	1,4	1,4	1,4
Durability of marking	2			
Module retention in frame		2		
Mechanical strength impact	3			
Mechanical Operation (Durability)		3		
Vibration, Random				2
Shock				3
Cold			2	
Dry Heat			3	

Notes:

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

4. QUALITY ASSURANCE PROVISIONS

4.1. Qualification Testing

A. Specimen Selection

Specimens shall be prepared in accordance with product drawing and shall be selected at random from current production.

B. Test Sequence

The samples shall be prepared in accordance with product drawings. They shall be selected at random from current production.

4.2. Requalification Testing

If changes significantly affecting form, fit or functions are made to the product or manufacturing process, product assurance shall coordinate requalification testing, consisting of all or part of the original testing sequence as determined by development/product, quality and reliability engineering.

4.3. Acceptance

Acceptance is based on verification that the product meets the requirements of paragraph 3.5. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. If product failure occurs, corrective action shall be taken and specimens resubmitted for qualification. Testing to confirm corrective action is required before re-submittal.

4.4. Quality Conformance Inspection

The applicable quality inspection plan shall specify the sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with the applicable product drawing and this specification. Bulk wire resistance shall be subtracted from resistance readings.