1. SCOPE

1.1. Content

This specification covers the general requirements for product performance and tests methods of AMP* 6,35 Series E-SPRING High Temp. CONTACT* Receptacle. PN involved are the nickel steel versions of: 336075, 336076 and 1644008.

These terminals are suitable for consumer Goods application in which low insertion and high retention forces are needed.

1.2. Qualification

When tests are performed on the subject product line, the procedures specified in this Product Specification shall be used.

All inspections shall be performed using the applicable inspection plan and product drawing.

2. APLICABLE DOCUMENTS

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

In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take the precedence.

2.1. AMP specifications

A:	109	-	1	General Requirements For Test Specifications
B:	114	-	22017	E-SPRING Receptacle Contacts, Application of
C	108	-	22128	E-SPRING Receptacle Contacts Product Spec
D	108	-	22149	E-SPRING Sleeves Product Spec
E	108	-	22150	E-SPRING High Temp Contacts Product Spec

2.2. Comercial Standards

IEC 512, Publication
IEC 760, Publication first edition (1983)
UNE 20 - 606 (equivalent to IEC 512)
UNE 20 - 680 - 87 (equivalent to IEC 760, 1983)
DIN 46249 part 1
EN 61210
VDE 06.13 (equivalent to EN61210)

3. REQUIREMENTS

3.1. Design and construction

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

3.2. Materials

Receptacle shall be fabricate of the material specified in the applicable product drawing.

→ Material: Steel, according to EN10139/10140, DC04, C590.

→ Finish: Nickel plated

3.3. Ratings

A: Current / Voltage : 240 Vac at 16 amperes maximum

B: Operating Temperature: - 40º C to + 250º C

4. PERFORMANCE AND DESCRIPTION

Terminals shall be designed to meet the electrical, mechanical and enviromental performance requirements specified in Figure 1.

4.1. Test Requirements And Procedures Summary

Table 1

TEST DESCRIPTION	REQUIREMENTS	PROCEDURE
Examination of product	Meets requirements of product drawing and AMP Specification 114 - 22017	Visual, dimensional and functional per applicable inspection plan
MECHANICAL		
Insertion Forces	45 N max. Individual force for each of the 12 samples	Test shall be performed in accordance with test 13b of UNE 20606/7 or IEC 512 - 7. ▪ Male tabs AMP PN 928814-3 brass plain shall be used or equivalent with hole ▪ Insertion withdrawal speed shall be 10 mm/minute. max. ▪ Other details, as specified in part 16d of UNE 20680 or CEI 760
Withdrawal Forces	Same 12 samples 1st withdrawal (N) Maximum 80 Individual 25 min. 6st withdrawal (N) Individual 20 min.	

4.1. Test Requirements And Procedures Summary (Cont.)

<table>
<tr><th colspan="5">MECHANICAL (Cont.)</th></tr>
<tr><td>Crimp Tensile</td><td>Conductor Secc. mm^2</td><td>Minimum Strengh (N)</td><td colspan="2" rowspan="2">10 samples for each wire size. Terminals crimped or wires with insulation support.
Speed of tensile testing machine 50 mm/min. Test until breakage or pull-out.
In double crimping case, the crimp tensile test must be done pulling only the less wire section and the minimum force to test will be the same with simple crimping with the same wire section.</td></tr>
<tr><td></td><td>0.5
0.75
1.0
1.5
2.5</td><td>60
80
110
150
230</td></tr>
<tr><th colspan="5">ELECTRICAL</th></tr>
<tr><td>Contact Resistance, Rated current</td><td>Wire Size mm^2

0.5
0.75
1.0
1.25
1.5
2.5</td><td>Test Current Amperes

4
6
8
9
10
16</td><td>Resistance Milliohms Max.(initial)

5
5
5
5
5
5</td><td>20 samples for each wire size. Measure potential drop of mated contacts according to UNE 20 - 606 - 2, test 2b with details specified in UNE 20680 part 3.1 or according to test 2b of IEC 512 - 2 with details specified in IEC 760 part 13.1.</td></tr>
<tr><td>Temperature Rise</td><td colspan="3">Temperature rise of any individual termination shall not exceed 30º C
(temp rise= temp of conn -room temp.)</td><td>12 samples for each wire size. Temperature rise at rated current; according to test 5ª of UNE 20606/3, IEC 512 - 3 or EN 61210 with details specified in part 14,1 of UNE 20680 or IEC 760.</td></tr>
<tr><td>Temperature / Humidity Cycling</td><td colspan="3">To apply with 10 samples, 2 Cycles</td><td>Conditions:
Upper temperature: 40ºC
Lower temperature: 25ºC
Relative Humidity: 95 %
IEC 68-2-30
At the end of this test the Contact Resistance must meet the values of the Contact Resistance Rated Current test</td></tr>
</table>

<table>
<tr>
<td>Electrical Overload Cycling</td>
<td>After 24 cycles and at the completion of 500 cycles for the same 12 samples of the Temperature Rise test, the temperature rise of each termination when cycled at 24 and 500 cycles at the the following rates shall not exceed the following values
<table>
<tr><th>Wire Section (mm^2)</th><th>Test Current (A)</th><th>Temp. rise at 24 Cycles (ºC)</th><th>Temp. rise at 500 Cycles (ºC)</th><th>Temp. rise at 500-24 Cycles (ºC)</th></tr>
<tr><td>0,5</td><td>8</td><td>85</td><td>85</td><td>15</td></tr>
<tr><td>0,75</td><td>11</td><td>85</td><td>85</td><td>15</td></tr>
<tr><td>0,5+0,75</td><td>19,5</td><td>85</td><td>85</td><td>15</td></tr>
<tr><td>1,5</td><td>18 (*)</td><td>85</td><td>85</td><td>15</td></tr>
<tr><td>2,5</td><td>22,5 (*)</td><td>85</td><td>85</td><td>30 (*)</td></tr>
</table></td>
<td>Same 12 samples for each wire size. Subject mated contacts to 500 cycles at indicated current for 45 minutes ‘ON’ - 15 minutes ‘OFF’.

Test shall be performed in accordance with test 9.4 of EN61210 except indicated values with (*).</td>
</tr>
<tr>
<td>Raised Temperature test</td>
<td>Using the same 12 samples of the electrical overload test
Temperature rise must not exceed 45ºC applying the following current:
<table>
<tr><th>Wire section (mm^2)</th><th>Current (A)</th></tr>
<tr><td>0,5</td><td>4</td></tr>
<tr><td>0,75</td><td>5,5</td></tr>
<tr><td>1</td><td>7,5</td></tr>
<tr><td>0,5+0,75</td><td>9,5</td></tr>
<tr><td>1,5 (only for 336076-5)</td><td>12</td></tr>
</table></td>
<td>Test shall be performed according to test 9.5 of EN 61210. Apply 8 cycles; each cycle consist of: 24 hours at indicated current and 1 hour without current. Samples in a cabinet at maximum operating temperature minus 45 K for the first hour. After the first hour adjust cabinet temp. to the maximum operating temp. during the rest of the test
Leave samples to cool down and measure the Temp. Rise, not to be more than 45 K.</td>
</tr>
<tr>
<td>Corrosion salt spray</td>
<td>Millivolt drop 6m V/A max.
Shall meet the requirements at sudsequent tests listed in Figure 2.</td>
<td>Subject unmated conn. 5 to 48h. at 5% concentration.
Temperature 35º C +/- 2º C
PH 6.5 / 7,2
Test shall be performed in accordance with test 11f of UNE 20606 - 6 or IEC 512 – 6</td>
</tr>
</table>

4.2. Connector test and sequences

Table 2

TEST OR EXAMINATION	TEST GROUP (a)				
	1	2	3	4	5
	TEST SEQUENCE (b)				
Examination of product	1	1	1	1	1-5
Insertion Forces	2				
Extraction Forces	3				
Crimp Tensile		2			
Contact Resistance			2	2-4	2-4
Temperature Rise			3		
Electrical Overload Cycling			4		
Raised Temperature Test			5		
Temperature / Humidity Cycling				3	
Corrosion salt spray					3

a) See paragraph 4.1.
b) Numbers indicate the sequence in which tests are performed

5. QUALITY ASSURANCE PROVISIONS

5.1. Qualification testing

a) Sample selection

Samples shall be prepared in accordance with applicable instructions sheets. They shall be selected at random from current production. Each group shall consist of 12 or more samples per wire size.

b) Test Sequence

Qualification inspection shall be verified by testing samples as specified in Figure 2.

c) Acceptance

→ Failure attributed to equipment, test set-up, or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification.

5.2. Requalification Testing

Requalification shall be established by the cognisant divisional engineering function and may consist of all any part of the overall qualification program provided that it is conducted within the required period.

5.3. Quality Conformance Inspection

The applicable AMP inspection plan will 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.

6. DERATING CURVE