

FASTON STEEL NICKEL PLATED**1 SCOPE****1.1 Content**

This specification covers the performance requirements for FASTON Steel Ni plated receptacle contacts, 6.3mm series, LIF (Low Insertion Force).

The product is suitable for appliance applications which require low insertion force and operates at high temperatures.

1.2 Qualification

When tests are performed on subject product line, procedures specified in this specification shall be used. All inspections shall be performed using applicable inspection plan and product drawing.

2 APPLICABLE DOCUMENTS

The following documents form a part of this specification to the extent specified herein. Unless otherwise specified, latest edition of the document applies.

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

For test reports, contact Engineering.

2.1 TE Documents

Drawings for the relevant part numbers

2.2 Design and Construction

The receptacles shall be of the design, construction and physical dimensions specified on the applicable product drawings.

2.3 Material and Finish

Carbon steel with pre-Ni finish

2.4 Application of the FASTON terminal

Crimp height must be in accordance with the dimensions specified on the relevant Application specification, the Log of the mini-applicator or the instruction sheet of the hand tool.

2.5 Operating conditions

Maximum operating temperature, including the temperature increasing due to working current flow to be 250°C.

3 PERFORMANCE AND TEST DESCRIPTION

Terminals shall be designed to meet the electrical, mechanical and environmental performance requirements below specified.

Unless otherwise specified, all measurements and tests shall be made at-

Room temperature: 23±5°C, Relative humidity: 45-75%, Atmospheric pressure: 800-1000 bar.

TABLE 1

TEST DESCRIPTION		PROCEDURE	REQUIREMENT		
3.1	Examination of the product	Visual,dimensional and functional as per applicable inspection plan and no physical damage. Test Method”EIA-364-18 B	Meets requirements of the product drawings and no physical damage		
3.2	Crimp tensile strength	Speed of tensile testing machine to be 50 mm/ min. test until breakage or pull-out as per DIN 46249	Wire section (AWG)	Minimum tensile force (N)	
			24	28	
			22	36	
			20	58	
			18	89	
			16	133	
			14	223	
			12	311	
10	356				
3.3	Insertion force	Measure force to push terminal onto test tab at the rate of 10 mm/ min. IEC60512-7, test 13b as per details in IEC 61210.	1 st insertion – 35N max.		
3.4	Withdrawal force	Measure force to pull terminal from test tab at a rate of 10 mm/ min. IEC60512-7, test 13b as per details in IEC 61210.	1 st withdrawal – 25N ave. min. 6 th extraction – 20N min.		
3.5	Contact resistance, Rated current	Measure potential drop of mated contacts according to test 2b of IEC60512-2.	Wire Size (AWG)	Test Current (A)	Max. Resistance (mΩ)
			24	2	5
			22	3	5
			20	5	5
			18	7	5
			16	10	5
			14	15	5
			12	18	5
10	20	5			
3.6	Temperature rise	Temperature rise at rated current as per IEC 61210	Temperature rise of any individual termination shall not exceed 30°C (temp. rise = temp. of contact – room temp.)		
3.7	Vibration	Subject receptacle mated with test tab to 10-100-10Hz at 10g acceleration for 2 hours each in X,Y and Z directions – rate 1 octave/ minute amplitude of oscillation 0.75mm	No physical damage. No discontinuities than 1 microsecond		
3.8	Current cycling	Terminals terminated on max. wire 10AWG, and 18, 24 AWG . Overload test current to be 150% of the nominal test current. One cycle 45 min. on / 15 min. off, duration of 500 cycles as per IEC 61210.	The temperature rise Δt1 of any individual connection is measured after the 24 th cycle and Δt2 after the 500 th cycle. The Δt2 value shall not exceed by 15°C the Δt1 value and neither rise shall exceed 85°C on transition between contact body and		

			crimp wire barrel
3.9	Temperature and humidity cycling	Conditions: Upper temperature – 40 °C Lower temperature – 25 °C Relative humidity – 95%, duration 2 cycles, as per IEC 60068-2-30	Voltage drop to be < 1.5 times the initial value
3.10	Thermal shock	Subject receptacle mated with test tab to 5 cycles, each consisting of: (a) 2 hours at 100±2°C (b) 2 hours at 40±2°C and 90-95% humidity (c) 2 hours at 30±2°C	Voltage drop to be < 1.5 times the initial value.
3.11	Flowing mixed gas corrosion	Subject mated specimen as per test 11g of IEC 60512, with a choice of method 1 or method 4 (see table 1 of IEC 60512-11-7). The test duration shall be 4 days, according to IEC 61984 Alternative: Corrosion test according to ISO 6988, according to details in IEC 61984	Corrosion shall not impair safety with regard to electrical characteristics
3.12	Electrical overload resistance	Subject receptacle mated with test tab to a current 2 times the rated value for a duration of 1 hour	No functioning breakdown or damage. Voltage drop to not drop below the initial value
3.13	Dry Heat	Subject mated connector assemblies to the condition: 250 °C ,duration time :96 hours per:EIA-364-17C	No physical damage

3.1 Product Qualification and Requalification test sequence

TABLE 2

	TEST GROUP AND SEQUENCE								
TEST OR EXAMINATION	A	B	C	D	E	F	G	H	I
VISUAL EXAMINATION	1,5	1,	1,4	1,5	1,4	1,	1,4	1,4	1,4
MATING FORCE (SINGLE CONTACT)	2								
UNMATING FORCE (SINGLE CONTACT)	4								
CONTACT RESISTANCE	3		3	4	3	3	3	3	3
CRIMP TENSILE STRENGTH		2							
TEMPERATURE HUMIDITY CYCLING			2						
CURRENT CYCLING				2					
THERMAL SHOCK					2				
TEMPERATURE RISE				3					
FLOWING MIXED GAS CORROSION						2			
VIBRATION							2		
ELECTRICAL OVERLOAD RESISTANCE								2	
Dry Heat									2

4 QUALITY ASSURANCE PROVISIONS

4.1 Qualification testing

4.1.1 Sample selection

Samples shall be prepared in accordance with applicable instruction sheets. They shall be selected at random from current production. Each test group from A to I shall consist of 5 minimum samples per wire size.

4.1.2 Test sequence

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

4.2 Requalification testing

If changes affecting significantly form, fit and function are made to the product or manufacturing process, partial or complete requalification testing will be implemented, according to requirements established by product engineering and quality assurance.

4.3 Acceptance

Acceptance is based on verification that product meets requirements of table 1. Failures attributed to equipment, test setup or operator deficiencies shall not disqualify the product. When product failure occurs, corrective action shall be taken and samples resubmitted for qualification. Testing to confirm corrective action is required before resubmittal.

4.4 Quality conformance inspection

Applicable TE quality inspection plan will specify sampling acceptable quality level to be used. Dimensional and functional requirements shall be in accordance with applicable product drawings and specifications.