FASTON* Connector Terminal, Receptacle Contact 2,8-4,8-5,0-6,3-9,5 mm. Series, Straight Version

1. SCOPE

This specification covers the performance requirements for FASTON* Connector Receptacle Contacts, Straight Version.
Sizes are designed to correspond to the mating tab width of 2.8 - 4.8 – 5.0 - 6.3 - 9.5 mm. acc. to the IEC 760.
These terminals are suitable for Automotive, Consumer Goods, Computer, Telecommunications and Industrial Controllers Applications.

2. REQUIREMENTS

2.1 Design and construction

Connectors shall be of the design, construction and physical dimensions specified on the applicable product drawings, called Customer drawing (C-.... Amp Part Number)

2.2 Materials

Brass, spec.# 100-86, plain, or tin plated, or silver plated.
Phosphor Bronze, spec.# 100-221, plain, or tin plated, or silver plated.
Steel, spec.# 100-021, nickel plated.

2.3 Application of the FASTON terminal*

Crimp height must be in accordance with the dimensions specified on the relevant Application Spec., on plate of the relevant mini-applicator, or the Instruction Sheet of the hand tool.

2.4 Current Carrying Capacity

2.8 mm. (.110" Sr.)	14 A max with 1.5 mm² wire size
4.8 (&5.0) mm. (.187"&.197" Sr.)	20 A max with 2.5 mm² wire size
6.3 mm. (.250" Sr.)	28 A max with 4 or 6 mm² wire size
	For steel nickel plated version use: 16 A max with 2.5 mm2 wire or 10 A max with 1.5 mm2 wire.
9.5 mm. (.375" Sr.)	50 A max with 10 mm² wire size

2.5 Operating conditions

Maximum operating temperature, including the temperature increasing due to working current flow :

+ 90°C Plain connection
+ 105°C Tin Plated connection
+ 130°C Silver Plated connection
+ 250°C Steel, Nickel Plated connection

Product Code: **1110**

E2	REVISED FOR ET00-0003-05	H.Y.	05 JAN 2005	G.T.	05 JAN 2005
E1	REVISED FOR ET00-0059-01	H.Y.	20 FEB 2001	C.T.	20 FEB 2001
E	REVISED FOR ET00-0238-00	H.Y.	21 SEP 2000	C.T.	21 SEP 2000
D	REVISED FOR ET00-0381-99	H.Y.	05 JAN 2000	C.T.	05 JAN 2000
C	ADDED TEST SEQUENCE TABLE FOR ET00-0326-99	H.Y.	15 OCT 1999	C.T.	15 OCT 1999
B	REVISED, ET00-0258-99	R.F.	28 JUL 1999	C.T.	28 JUL 1999
A	REVISED & ACTIVATED, ET00-0058-99	H.Y.	22 FEB 1999	C.T.	22 FEB 1999
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DR. H. YAALI	DATE	APVD C. TARTARI	DATE

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2.6 Preferred relationship between the cross-sectional area of the conductors and the nominal width of male tabs

0.3 to 1.5 mm² : 2.8 - 4.8 (&5.0) - 6.3 mm.
0.3 to 2.5 mm² : 4.8 (&5.0)- 6.3 mm.
0.3 to 6.0 mm² : 6.3 mm.
4.0 to 10 mm² : 9.5 mm.

2.7 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 pression : 800÷1000 Bar.

3. TEST REQUIREMENTS AND PROCEDURE SUMMARY

TEST DESCRIPTION		PROCEDURE		REQUIREMENT		
3.1	Examination of the product	Visual inspection, dimensional and material control.		Meets requirements of Product Drawing (see para 2.1)		
3.2	Millivolt drop specified current	Measured between mating and wire, crimped on Faston* Connector receptacle, including 10 mm. length of the wire.		Millivolt drop required (without 10 mm. mV drop of the wire)		
		WIRE SECTION (mm²)	TEST CURRENT (A)			
		0.3 ÷ 0.35	3	18 mV max		
		0.5	5	18 mV max		
		0.75 ÷ 0.80	8	20 mV max		
		1	10	20 mV max		
		1.5	14	25 mV max		
		2.5	20	30 mV max		
		4	28	35 mV max		
		6	36	40 mV max		
		10	50	80 mV max		
3.3	Mating force See also notes 2), 3)	Terminal FASTON* Connector rec to be mated with plain test tab, according to IEC 760, at a 50 mm/minute speed.		TAB SIZE (mm)	FIRST INSERTION (N)	
				2.8	60 max	
				4.8 (&5.0)	70 max	
		NOTE: Use plain steel tab for Steel rec. versions.		6.3	80 max	
				9.5	100 max	
3.4	Unmating force See also notes 2), 3)	Terminal FASTON* Connector Rec to be unmated with plain test tab , according to IEC 760, at a 50 mm/minute speed.		TAB SIZE (mm)	FIRST EXTRACTION (N)	TENTH EXTRACTION (N)
				2.8	60 max	10 min
				4.8 (&5.0)	70 max	15 min
		NOTE: Use plain steel tab for Steel rec. versions.		6.3	80 max	20 min
				9.5	100 max	30 min

TEST DESCRIPTION		PROCEDURE	REQUIREMENT	
3.5	Crimp tensile strenght	Subject terminal to direct pull at a rate of 25÷50 mm/minute (The wire insulation must be cut to avoid the plastic material contribution to the wire crimp tensile).	WIRE SECTION (mm²)	MINIMUM TENSILE FORCE (N)
			0.3 ÷ 0.35	60
			0.5	80
			0.75 ÷ 0.80	95
			1.0	115
			1.5	150
			2.5	220
			4	300
			6	450
			10	600
3.6.1	Electrical overload resistance	Subject FASTON* Connector receptacle, mated with plain test tab , to a current 1.5 times the one specified at the point 3.2 for 1 hour.	No functioning breakdown or damage. Maximum mV drop must be the same as specified at the point 3.2.	
3.6.2	Temperature rise with current overloading, cyclic	Subject FASTON* Connector rec., mated with plain test tab , to a current 1.5 times the one specified at the point 3.2 for 500 cycles. Each cycle consists of : • 45' under overload current • 15' at no load	The temperature rise $\Delta t1$ (the difference between the connection temperature and the ambient temperature) of any individual connection is measured after the 24th cycle and the temperature rise $\Delta t2$ after the 500th cycle. The $\Delta t2$ value shall not exceed by 15°C the $\Delta t1$ value and neither rise shall exceed 85°C on transition between contact body and crimp wire barrel.	
3.6.3	Temperature rise with current overloading, cyclic. (for Steel Nickel plated versions, .250" sr. only)	Subject FASTON* Connector rec., mated with plain test tab , to a current of 16 A max. with wire 2.5 mm2 & to a current of 10 A max. with wire 1.5 mm2, for 500 cycles. Each cycle consists of : • 45' under overload current • 15' at no load	The temperature rise of any individual termination shall not exceed 30°.	
3.7	Temperature cycling	Subject FASTON* Connector rec. mated with plain test tab to 5 cycles : Each cycle consists of : • 2h : +100°C ± 2°C • 2h : + 40°C ± 2°C (U.R. 90÷95%) • 2h : - 25°C ± 2°C	Maximum mV drop can be the double of the one specified at the point 3.2	
3.8	Corrosion, salt spray	Subject FASTON* Connector rec., mated with plain test tab to 96 hours at 5% concentration of NaCl. (temperature : 35°C±2°C; PH : 6.5÷7.2)	Maximum mV drop can be the double of the one specified at the point 3.2	

3.9	Vibrations	Subject FASTON* Connector rec. mated with plain test tab, to 10÷100÷10 Hz at 10 g. acceleration; 2 hours in X and Y and Z directions - rate 1 octave/minute amplitude of oscillation 0.75 mm.	Maximum mV drop can be the double of the one specified at the point 3.2

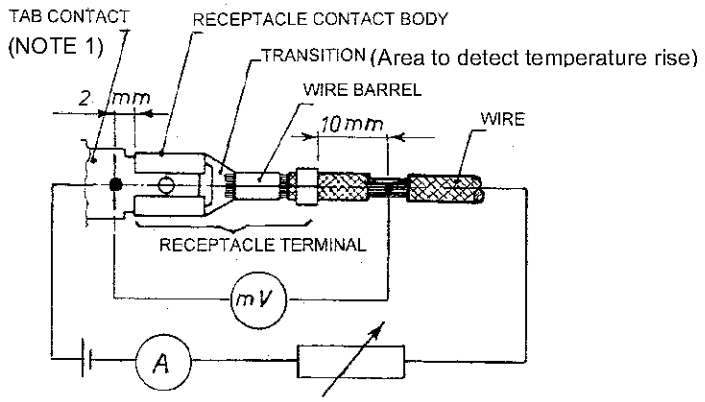
4. TEST SEQUENCE

	TEST GROUP AND SEQUENCE						
	A	B	C	D	E	F	G
Appearance	1,7	1,3	1,4	1,3	1,4	1,4	1,4
Mating force (single contact)	2						
Unmating force (single contact)	4						
Durability	5						
Millivolt drop	3,6		3		3	3	3
Crimp tensile strength		2					
Temp. cycling			2				
Temp. rise with current overloading				2			
Corrosion, salt spray					2		
vibration						2	
Electrical overload resistance							2

5. QUALIFICATION

When all the tests have been successfully performed on the subject product line, the product is qualified according to the present specification.

ARRANGEMENT FOR THE VOLTAGE DROP MEASUREMENT FOR RECEPTACLES



NOTE:
1) A male test tab having either a hole or dimple detent can be used (hole versions are preferred)
2) Design objective: First insertion 80N max., First extraction 40N min., 10th extraction 20N min.
3) Design objective: First insertion 50N max., First extraction 50N min., 10th extraction 25N min.

INVOLVED P/Ns (Base No. without prefix and suffix)

2.8 mm. (.110" Sr.)	**4.8 mm.** (& 5.0 mm) (.187" & .197" Sr.)	**6.3 mm.** (.250" Sr.)	**9.5 mm.** (.375" Sr.)
180420 180423 180436 180437 180457 280006 281470 281624 160196 160315 280429	100097 100098 160429 160430 160431 160433 160713 160778 282183 (5.0 mm) 282332 (5.0 mm) 281369 (5.0 mm)	140760 160301 160389 160608 160807 160808 160854 160855 160911 160912 160915 160916 180363 280000 280001 1-280001-1 (see Note 3 on page 4) 1-280001-2 (see Note 3 on page 4) 282172 282179 160256 160432 160465 280079 160739 1-280079-2 (see Note 2 on page 4)	160521 160602 160866 280223 281091