FASTIN-FASTON(*) Connector
2.8 – 4.8 – 6.3 – 7.9 and 9.5 mm srs.

1. SCOPE

This specification covers the performance requirements and test methods of 2.8 - 4.8 - 6.3 – 7.9 and 9.5 mm srs. FASTIN-FASTON* Connectors.
Sizes are designed to correspond to the mating tab width of 2.8 - 4.8 - 6.3 – 7.9 and 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 (involved P/ns are listed on page 7 of 7)

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

2.2 Materials

Contact : Brass and/or Phosphor Bronze (Tin or silver plated) and/or Steel nickel plated (♠).
Housing : According to Product drawings
(♠), Steel Nickel plated version has not been fully tested to insure this specification requirements.

2.3 Current Carrying Capacity

2.8 mm.	(.110” Sr.)……..	:	11A max with 1.0 or 1.5 mm² wire size
4.8 mm.	(.187” Sr.)……..	:	20A max with 2.5 mm² wire size
6.3/7.9 mm.	(.250” and .312” Sr.)…	:	28A max with 4 or 6 mm² wire size For steel nickel plated version use: 7A with 0.75-0.80 mm² wire, 8A with 1.0 mm² wire, 10A. with 1.5 mm² wire, 14A with 2.5 mm² wire.
9.5 mm.	(.375” Sr.)……..	:	50A max with 10 mm² wire size

2.4 Temperature rating

Temperature rating shall be within the range specified as following:
-30°C/+105°C for Brass versions
-40°C/+125°C for Phos. Bronze versions
-30°C/+240°C for Steel Nickel plated versions.
This range includes ambient temperature and temperature rising as a result of loaded current affection.

2.5 Application of the FASTIN-FASTON terminal

Crimp heights must be in accordance with the dimensions specified on plate of the relevant mini-applicator, supplied by TE Amp Italia for the terminal in subject.

2.6 Maximum operating voltage

250V AC/DC.

rev letter	rev. record	DR	CHK	Date
D3	UPDATED	H.Y.	G.T.	02 APR 2009
D2	ADDED NEW PART 293041	H.Y.	G.T.	02 AUG 2005
D1	ADDED NEW PART 160173, ET00-0049-03	H.Y.	C.T.	24 APR 2003
D	CHANGED PARAMETERS, ET00-0034-03	H.Y.	C.T.	06 MAR 2003
C1	NEW P/N.s ADDED FOR ET00-0082-02	H.Y.	C.T.	23 APR 2002
C	REVISED FOR ET00-0225-01	H.Y.	C.T.	14 FEB 2002
B4	REVISED ADDING .110” sr P/Ns & REDRAWN, ET00-0088-01	R.F.	C.T.	09 APR 2001

DR.	DATE	APVD	DATE
R. FABRIS		C. TARTARI	

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3. TEST REQUIREMENTS AND PROCEDURE SUMMARY

TEST DESCRIPTION		PROCEDURE	REQUIREMENT
P R O D U C T E X A M I N A T I O N			
3.1	Visual examination	Product shall be in accordance with the requirements of production drawing.	Visual, dimensional and functional check.
M E C H A N I C A L R E Q U I R E M E N T S			
3.2	Connector mating force	Female connector mated with proper tab connector (locking device not operating). Perform test at a rate of 25-50 mm/minute	1° Cycle 44N Max per pole for 2.8, 4.8 mm srs. 25N Max per pole for 6.3 mm srs. 35N Max per pole for 7.9, 9.5 mm srs. 40N Max per pole for 6.3 mm srs. when receptacle with dimple and tab with hole have been used.
3.3	Connector unmating force		1° Cycle: Not greater than connector mating force value. This is not applicable to receptacle contact with dimple and tab with hole. 10° cycle: 4N Min.per pole for Brass and Phos. Bronze versions, 13N Min. per pole for Steel nickel plated versions.
3.4	Engaging force	Single receptacle contact mated with tab contact	40N Max Per pole for 2.8. 4.8 mm srs. 22N Max For 6.3 mm srs. 32N Max For 7.9, 9.5 mm srs. 38N Max For 6.3 mm srs. when receptacle with dimple and tab with hole have been used.
3.5	Separating force		1° Cycle: Not greater than engaging force value. This is not applicable to receptacle contact with dimple and tab with hole. 10° cycle: 4N Min.for Brass and Phos. Bronze versions, 13N Min. for Steel nickel plated versions.
3.6	Durability		10 mating/unmating operations

<table>
<tr><th colspan="2">TEST DESCRIPTION</th><th>PROCEDURE</th><th colspan="2">REQUIREMENT</th></tr>
<tr><td>3.7</td><td>Contact retention force</td><td>Apply an axial load to contact at a rate of 25 mm / minute</td><td colspan="2">40N Min for 2.8, 4.8 mm srs.
60N Min for 6.3, 7.9, 9.5 mm srs.</td></tr>
<tr><td>3.8</td><td>Crimp tensile strength

(see note 3)</td><td>Subject crimped terminal to direct pull at a rate of 25-50 mm/min
(The wire insulation must be cut to avoid the plastic material contribution to the wire crimp tensile)</td><td>Wire Size (mm²)
0.25
0.35
0.5
0.75-0.8
1.0
1.5
2.5
4.0
6.0
10.0</td><td>N Min
40
60
70
90
115
155
235
320
400
600</td></tr>
<tr><td colspan="5">E L E C T R I C A L R E Q U I R E M E N T S</td></tr>
<tr><td>3.9</td><td>Millivolt drop, specified current

(see note 3)</td><td>As per Fig.1 and 2, page 6/7
Wire Size (mm²) / Test current (A)
0.25 / 2
0.35 / 3
0.5 / 5
0.75-0.8 / 8
1.0 / 10
1.5 / 14
2.5 / 20
4.0 / 28
6.0 / 36
10.0 / 50</td><td colspan="2">3 mV / A Max, (6mV/A Max. for steel version).
(Before and after ten in/out operations).</td></tr>
<tr><td>3.10</td><td>Insulation resistance</td><td>Test between adjacent contacts of connector assemblies.
500 Vd.c., hold 1 min.</td><td colspan="2">10 MΩ Min. for Brass and Phos. Bronze versions and 100 MΩ Min. for Steel Nickel plated versions.</td></tr>
<tr><td>3.11</td><td>Dielectric withstanding voltage</td><td>Test between adjacent contacts of connector assemblies.</td><td colspan="2">1000 V rms hold 1 minute for Brass and Phos. Bronze versions and 1750 V rms hold 1 minute for steel nickel plated versions.</td></tr>
<tr><td>3.12</td><td>Current overload</td><td>a) For 1 hour apply a current of 1.5 times the one specified at point 3.9 (point 2.3 for Steel version) to one way only
b) For 1 hour apply the 70% of the current specified at point 3.9 to all the ways of the connector</td><td colspan="2">Millivolt drop 6 mV/A Max
(8 mV/A Max for Steel version)</td></tr>
</table>

TEST DESCRIPTION		PROCEDURE	REQUIREMENT
3.13	Thermal cycling	Subject mated connectors to 5 cycles. Each cycle consists of : • 2 hrs at max. temperature specified in para. 2.4. • 2 hrs : +40°C ±2°C at 95% RH • 2 hrs : -30°C ±2°C	Millivolt drop 6 mV / A Max . (8 mV/A Max for Steel version). Shall meet the requirements of subsequent tests listed in para 5.
3.14	Current overloading, cyclic. (For steel nickel plated versions, .250" sr. only).	Test current 1.5 times the current specified at point 2.3. Duration: 250 cycles composed of: 45 min. current ON 15 min. current OFF	Voltage drop 8mVA max.
3.15	Accelerated ageing	Subject mated connectors to 200 hrs at max. temperature environment specified in para. 2.4.	Millivolt drop 6 mV / A Max., (8mV/A Max. for steel version). Shall meet the requirements of subsequent tests listed in para 5.
	E N V I R O N M E N T A L R E Q U I R E M E N T S		
3.16	Corrosion, salt spray (see note 3)	Subject mated connectors to 96 hrs at 5% concentration (Temperature : 35°C±2°C ; PH : 6.5 ÷ 7.2)	Millivolt drop 6 mV/A Max., (8mV/A Max. for steel version). Shall meet the requirements of subsequent tests listed in para 5.
3.17	Vibration	Subject mated connectors to 10-200-10 Hz traversed in 5 minutes at 1.5 mm total excursion 2 hrs in each of 3 mutually perpendicular directions. (10 g acceleration).	Millivolt drop 6 mV / A Max., (8 mV/A Max. for steel version). Shall meet the requirements of subsequent tests listed in para 5.

Notes :

1) Unless otherwise specified, all measurements and tests shall be made using tin plated receptacle contacts and plain tab contatcs at room temperature of 23°C ±5°C.
2) Corrosion resistance is not applicable to plain contacts.
3) For P/Ns 280075-… and 280756-… only : crimpable onto wire size 3 mm² too crimp tensile stregth: 260N min., test current for millivolt drop : 24A

4. QUALIFICATION

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

5. TEST SEQUENCE

DESCRIPTION	TEST GROUP AND SEQUENCE (a)									
	A1	A2	B	C	D	E	F	G (b)	H©	I©
Appearance	1.5	1.7	1.7	1.13	1.7	1.7	1.5	1	1-7	1-11
Mating force (Connector)				2.11				2		2-6
Unmating force (Connector)				3.12				3		3-7
Engaging force (Single contact)		2.5						4		
Separating force (Single contact)		3.6						5		
Contact retention force								6		
Crimp tensile								7		
Millivolt drop	2.4		2.6	4.8	2.5	2.5	2.4		2-6	4-9
Insulation resistance			3	5.9		3.6			3	10
Dielectric withstanding voltage			4	6.10	3.6				4	
Current overload			5							
Thermal cycling				7						
Accelerated ageing					4					
Corrosion, salt spray						4				8
Vibration							3			
Durability	3	4								5
Temperature rise with current overload, cycling									5	

(a) Numbers indicate sequence in which tests are performed
(b) Tests to be performed on separate samples
(c) For Steel Nickel plated version only.

FEMALE AND MALE CONNECTOR

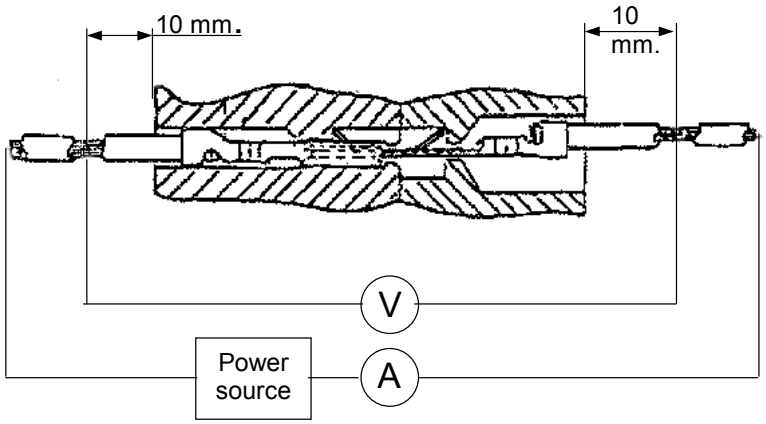

Figure 1

FEMALE CONNECTOR AND FIXED TAB

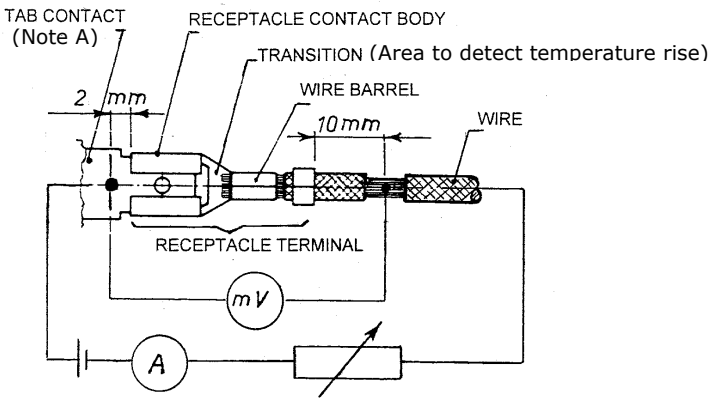

Figure 2

NOTE A) A male test tab having either a hole or dimple detent can be used (hole versions are preferred) .

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

TERMINALS							
2.8 mm. (.110" Sr.)		**4.8 mm.** (.187" Sr.)	**6.3 mm.** (.250" Sr.)		**7.9 mm.** (.312" Sr.)	**9.5 mm.** (.375" Sr.)	
RECEPTACLE	TAB	RECEPTACLE	RECEPTACLE	TAB	RECEPTACLE	RECEPTACLE	TAB
160366	160743	280313	42100	42098	160251	280076	280074
160950	160762	280919	180351	180352	160428	280755	280075
160729	160776	281197	180372	280080	160557	280756	
160864	160887	282180	180398 (*)	280081	160863	281091	
160684	160926	282331	180560	280096	160920		
160173	188352		280084	280425	180373 (*)		
	160888		280085	282170	180374 (*)		
	160923		280095	282186	180453		
			280098	160457	280315		
			280285	160691			
			280357 (*)	293041			
			280428				
			280923				
			282171				
			282176				
			282177				
			282178				
			180375				
			284340				
			284697(*)				

HOUSINGS							
2.9 mm. (.110" Sr.)		**4.8 mm.** (.187" Sr.)	**6.3 mm.** (.250" Sr.)		**7.9 mm.** (.312" Sr.)	**9.5 mm.** (.375" Sr.)	
RECEPTACLE	TAB	RECEPTACLE	RECEPTACLE	TAB	RECEPTACLE	RECEPTACLE	TAB
180912		281169	163007	180901	180913 (*)	280073	280072
282015		281750	180451	180906	280030	280771	280924
			180452	180908	280035	281993	281992
			180904	180916	280039		
			180905	180924			
			180907	180940			
			180914	180948			
			180918 (*)	280099			
			180922	280263			
			180923	280430			
			280036	280542			
			280262	163008			
			280289	180932			
			280314	280290			
			280543				
			280707 (*)				
			282448				
			284674				
			284698(*)				
			284699(*)				
			163120				
			180900				
			180929 (*)				
			180941				
			280035				
			280039				

(*) Flag version