

DESIGN OBJECTIVES

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2 POS. SPLASH PROOF FEMALE CONNECTORS WITH SEC. LOCKING DEVICE **(FOR JUNIOR POWER TIMER CONTACT)**

1. **SCOPE**

This specification covers features and performances of Splash Proof connector with the following AM P/N:

C-282788-1 to -8 : 2 pos. female connector (with internal spring - Type B)

with the relevant contacts - wire seals with AMP P/N :

C-929939-3 : contact "AMP Junior Power Timer" wire range 0,5-1 mm²

C-929937-3 : contact "AMP Junior Power Timer" with wire range > 1-2,5 mm²

C-929937-1 : contact "AMP Junior Power Timer" wire range > 1-2,5 mm²

C-828904-1 : wire seal for single wire (and contact C-929939-3)

C-828905-1 : wire seal for single wire (and contact C-929937-3, -1)

C-828906-1 : wire seal for single wire (and contact C-929937-3, -1)

C-828906-2 : cavity plug to close connector cavity (or, in alternative, P/N C-282081-1)

This connector is suitable for header counterpart, as shown on the AMP customer drawing C-282788 (sheet 2 of 2)

| | | | | | | | | |
|-------------------------------------|-----------------|--|--|-----|---|-----------------------|----------------------|--|
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| | | | DR R. MARTINI 20 Dec 95 | | AMP AMP ITALIA S.p.A. Corso F.lli Cervi, 15 Collegno (TORINO) | | | |
| | | | CHK C. TARTARI 20 Dec 95 | | | | | |
| | | | APP <i>[Signature]</i> | | LOC. I | NUMBER 108 - 20156 | REV. 0 | |
| | | | SHEET 1 OF 7 | | NAME SPLASH PROOF CONN. WITH SEC. LOCK FOR JUNIOR POWER TIMER 2 POS. TYPE "B", PRODUCT SPECIFICATION | | | |
| 0 FIRST ISSUE (ENGLISH VERSION) | | | - | - | - | | | |
| REV LTR | REVISION RECORD | | DR | CHK | DATE | | | |

2. CONNECTOR FEATURES :

- 2.1 Materials : - contacts : Phosphor Bronze, or Cu Fe alloy for contact 929937-1, bright tin plated
(with external reinforcement spring in stainless steel).
- housings : PA 6.6, glassfiber filled
(and retaining spring in stainless steel and frontal sealing in silicone rubber).
- single wire seals : silicone rubber.

- 2.2 Wire Range : - stranded cable acc. to FIAT normation table n° 91107/03
- | | | | | | |
|--|---|---------|---|------|--------------|
| 0.5 mm ² reduced insul. cable | " | phase 3 | " | dia. | 1.5 - 1.7 mm |
| 1.0 | " | " | " | " | 1.9 - 2.1 mm |
| 1.5 | " | " | " | " | 2.2 - 2.4 mm |
| 2.5 | " | " | " | " | 2.7 - 3.0 mm |

- 2.3 Current Rating : 20 A (with 2.5 mm² wire and contact 929937-1)

- 2.4 Working Temperature : -30 to +125 °C (with included the temperature increasing due to working current flow).

- 2.5 Degree of Protection : IP 5.4 according to IEC 529.

- 2.6 Female Housings: provided with secondary locking device like a door moulded at hinge and integral with housing body.
The sec. locking device hooks on the housing body after the complete introduction of contacts into their cavity; it ensures a correct holding of contacts in their cavity in case of primary lock bad working.

- 2.7 Maximum Operating Voltage: 24 V d.c. ; for application at higher voltage please contact AMP.



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SHEET

2 OF 7

LOC.

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0

3. FEATURES AND TEST CONDITIONS

| FEATURES | TEST CONDITIONS | LIMITS |
|---|---|---|
| 3.1 Connector mating force (with contacts inserted) | In working condition with header counterpart. Mating speed 50 mm/minute Direction equal to contact axis. | I st mating ≤ 60 N |
| 3.2 Connector unmating force (with contacts inserted) | like point 3.1 | I st unmating ≥ 60 N X th unmating ≥ 30 N |
| 3.3 Single contact insertion force | Single cont. (tab as shown in Fig.1) | ≤ 18 N I st insertion |
| 3.4 Single contact extraction force | Single cont. (tab as shown in Fig.1) | I st extr. ≤ 18 N X th extr. ≥ 4 N |
| 3.5 Retention force of the single contact from the housing | At temperature $+ 23 \pm 5^{\circ}\text{C}$ and at tensile speed of 50 mm/minute | Only with primary locking dev. ≥ 70 N Only with secondary locking dev. ≥ 30 N |
| 3.6 Crimping tensile strength | Tensile speed 25 - 50 mm/minute | 0.5 mm ² ≥ 70 N 1.0 mm ² ≥ 115 N 1.5 mm ² ≥ 155 N 2.5 mm ² ≥ 235 N |
| 3.7 Voltage drop | Between a point on the wire at 1 cm from the conn. edge and a point on the tab very closed to the conn.edge see Fig.2 as ref. | ≤ 3 mV/A on new contacts and after 10 insertions/extractions |

| FEATURES | TEST CONDITIONS | LIMITS |
|--|---|--|
| 3.8 Insulation resistance | Between two adjacent contacts apply 500 Vdc for 1 minute. | $\geq 10 \text{ M}\Omega$ |
| 3.9 Dielectric breakdown resistance | Between two adjacent contacts apply voltage for 1 minute | $\geq 1000 \text{ Vac}$ |
| 3.10 High temperature resist. with current load. | On all ways contemporarily : -Not airy ambient-with a test temp. of $80 \pm 2^\circ\text{C}$: -Test current on each way : 14 A (with a 1.5 mm ² wire) or 20 A (with a 2.5 mm ² wire) -Duration: 5 hours | Temperature increasing detected: $\leq 50^\circ\text{C}$ (thermocouple placed on transition between contact body and wire barrel) Voltage drop within limits indi- cated for new contacts. No damaging. |
| 3.11 Current overload | On one way only w/o housing : - Test current : 21 A (with a 1.5 mm ² wire) or 30 A (with a 2.5 mm ² wire). - Duration: 500 cycles composed of : 45' current "ON" 15' current "OFF". | Temperature increasing $\leq 60^\circ\text{C}$ on transition between contact body and wire barrel Voltage drop $\leq 4.5 \text{ mV/A}$ No damaging |
| 3.12 Thermal cycling resistance | 5 cycles composed of : 2 hrs. at $+125^\circ\text{C} \pm 2^\circ\text{C}$ 2 hrs. at $+40^\circ\text{C} \pm 2^\circ\text{C}$ and 90-95% R.H. 2 hrs. at $-30^\circ\text{C} \pm 2^\circ\text{C}$ (connector mated with header counterpart). | No deformat. or cracking of hsg. Voltage drop $\leq 4.5 \text{ mV/A}$ Insul resist., dielectr. breakdown resist.,and mech. features,at points 3.2 and 3.5,within limits indicated for new contacts. |
| 3.13 Accelerated ageing test | 200 hours at $+125 \pm 2^\circ\text{C}$ (Connector mated with header counterpart). | No deformat. or cracking of hsg., and plastic matl discol is admitted. Voltage drop $\leq 4.5 \text{ mV/A}$ Dielectr. breakdown resist.and mech. features, at points 3.2 - 3.5, within limits indic. for new cont. |

| FEATURES | TEST CONDITIONS | LIMITS |
|-----------------------------------|---|---|
| 3.14 Kesternich corrosion | 4 cycles composed of : 8 hrs of exposure to an atmosphere with 0.66% of SO ₂ at 40 ± 2°C (method acc. to DIN 50118) 16 hrs in free air. (Connector mated with header counterpart). | Voltage drop ≤ 4.5 mV/A Insulation resistance within indicated limits. |
| 3.15 Salt spray corrosion test | 150 hrs of salt mist at 35 ± 2°C, 5% of NaCl, pH 6.5-7.2 class 2. (Connector mated with header counterpart). | Voltage drop ≤ 4.5 mV/A Insulation resistance within indicated limits. |
| 3.16 Vibration test | 2 hours for each axis : Freq: 10-500-10 Hz in 5 minutes Displacement : 1.5 mmpp Acceleration : 25 g (Connector mated with header counterpart). | Voltage drop ≤ 3 mV/A No circuit break greater than 1μs |
| 3.17 Water resistance | Acc. to IEC norm.529 para. 7.4 and para. 8.4. Duration 2 hours. Test device acc. to Fig.4 Position of the conn.,connected with header counterpart, as required on the relevant Customer Dwg. NOTE : This test must be carried out after tests 3.12 + 3.13 | Insulation resistance within indicated limits. Dielectric breakdown resistance within indicated limits. Voltage drop ≤ 4.5 mV/A No water infiltration inside the connector. |

GENERAL NOTE : Each test must be carried out, if not otherwise specified, at an ambient temperature of 23 ± 5°C .
See also page 6 for test groups and sequencies.

| TEST TO BE CARRIED OUT | TEST GROUP AND SEQUENCY | | | | | | | | | | | |
|--|-------------------------|------|------|------|------|------|------|------|------|------|------|------|
| | A | B | C | D | E | F | G | H | I | L | M | N |
| - Visual examination | 1, 5 | 1, 7 | 1, 8 | 1, 3 | 1, 4 | 1, 4 | 1, 9 | 1, 8 | 1, 6 | 1, 6 | 1, 5 | 1, 9 |
| - Single contact mating force | 2 | 2 | | | | | | | | | | |
| - Single contact unmating force | 3 | 4 | | | | | | | | | | |
| - Connector mating force with contacts inserted | | | 2 | | | | | | | | | |
| - Connector unmating force with contacts inserted | | | 3 | | | | 5 | 5 | | | | |
| - Mechanical duration (10 cycles) | 4 | 5 | 4 | | | | | | | | | |
| - Voltage drop | | 3, 6 | | | 3 | 3 | 2, 4 | 2, 4 | 2, 4 | 2, 4 | 2, 4 | 2, 6 |
| - Retention force of the single contact in the housing | | | 7 | | | | 8 | 7 | | | | |
| - Crimping tensile strength | | | | 2 | | | | | | | | |
| - Insulation resistance | | | 5 | | | | 6 | | 5 | 5 | | 7 |
| - Dielectric breakdown resist. | | | 6 | | | | 7 | 6 | | | | 8 |
| - High temperature resistance with current load | | | | | 2 | | | | | | | |
| - Current overload | | | | | | 2 | | | | | | |
| - Thermal cycling | | | | | | | 3 | | | | | 3 |
| - Accelerated ageing test | | | | | | | | 3 | | | | 4 |
| - Kesternich corrosion | | | | | | | | | 3 | | | |
| - Salt spray test | | | | | | | | | | 3 | | |
| - Vibration test | | | | | | | | | | | 3 | |
| - Water resistance | | | | | | | | | | | | 5 |

TAB CONTACT IN BRIGHT TINNED BRASS

ALTERNATIVE SHAPE

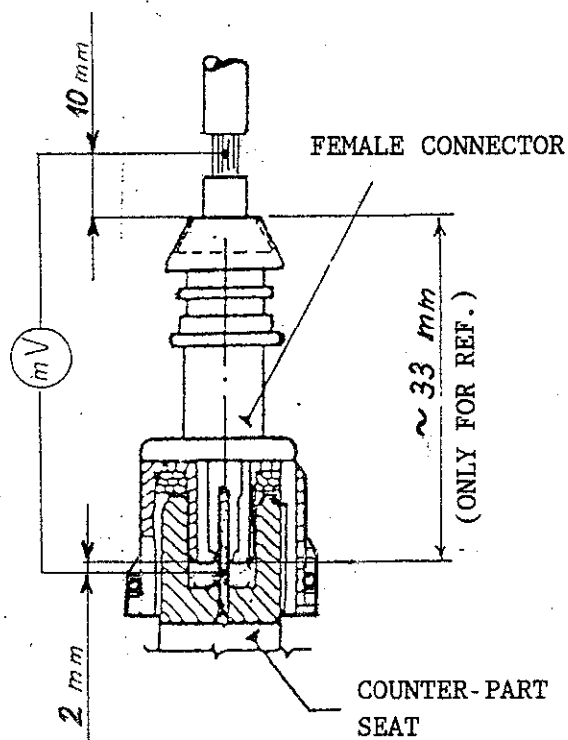
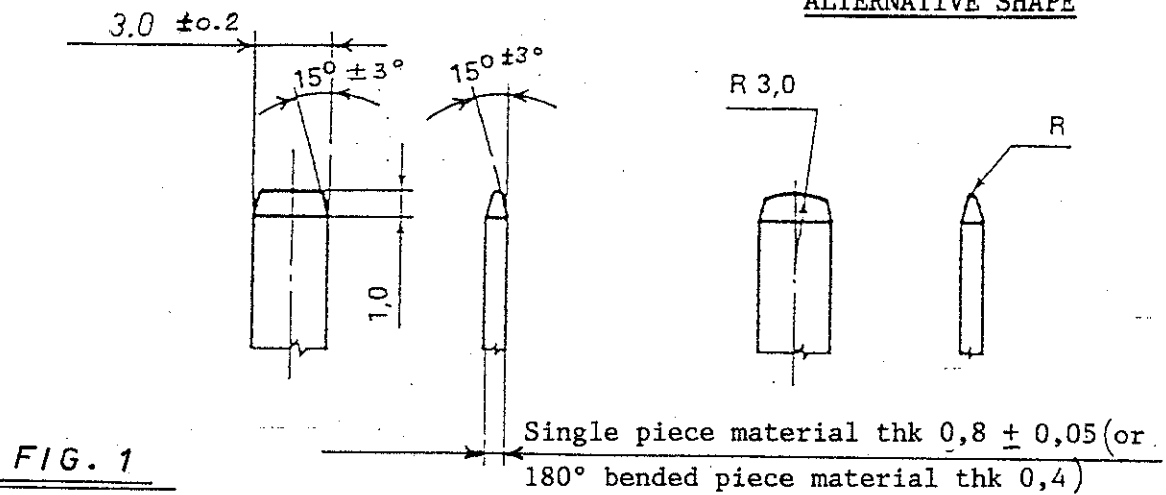


FIG. 2