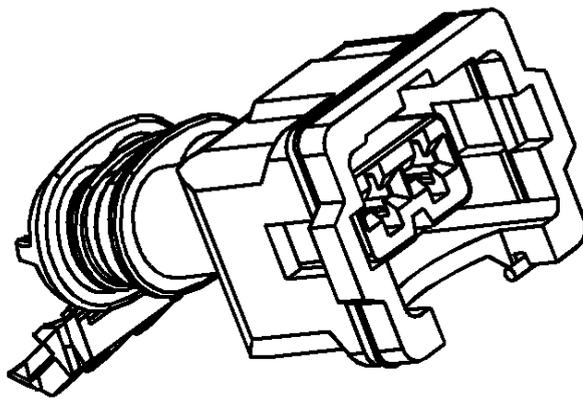
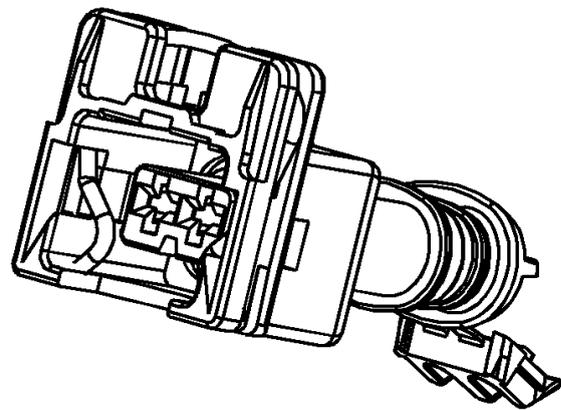


Description

**2 POS. SPLASH PROOF PLUG CONNECTOR FOR 2.8mm
 SENSOR-FLAT CONTACTS (SFK)**



(Type "B")



(Type "A")

Product Code: 4073

GPL: 157

A	REVISED AND REDRAWN	M.G.	05/09/01	R.M.	06/09/01
0	FIRST ISSUE (ENGLISH VERSION)	R.M.	29/08/96	C.T.	29/08/96
rev letter	rev. record	DR	Date	CHK	Date
DR.		DATE	APVD		DATE

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1.0 SCOPE:

This specification covers the requirements for products performance, test methods and quality assurance provisions of following products:

Tyco Part Number	Description "Trade Mark"	Wire range (for contact only)
282956-1 to -8	2 POS.SPLASH PROOF CONN. WITH EXT. SPRING - TYPE "A"	/
284504-1 to -8	2 POS.SPLASH PROOF CONN. WITH INT. SPRING - TYPE "B"	/
967541-1	2.8mm SENSOR-FLAT CONTACT	0.35mm ²
967542-1	2.8mm SENSOR-FLAT CONTACT	0. 5÷1.0mm ²
967543-1	2.8mm SENSOR-FLAT CONTACT	1. 5÷2.5mm ²
828904-1/-2	SINGLE WIRE SEAL	1.2÷2.1mm DIA
828905-1	SINGLE WIRE SEAL	2.2÷2.7mm DIA
282536-1	SINGLE WIRE SEAL	>2.7÷3.0mm DIA
828906-2 or, in alternative, 282081-1	CAVITY PLUGS	/

These connectors are suitable to mate on relevant counterpart or interface:

Counterpart Part Number	Interface Part Number	Drawing Available
/	/	Y (see sheet 2 of 2 of a.m. connector Customer drawings)
106462-1 (wire to wire)	/	Y

2.0 APPLICABLE 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 precedence.

2.1 TYCO SPECIFICATIONS:

Tyco Spec.	Description
109-5000	Test specification, general requirements for test methods
114-18144	Application Specification for 2.8mm Sensor Flat type receptacle contacts
107-20047	Packaging Specification for 2 to 7 pos. Splash Proof connectors

2.2 CUSTOMER SPECIFICATIONS (only for ref.):

Customer Norm	Description
9.91320/02 (FIAT AUTO)	GENERAL CONNECTORS SPECIFICATION
7.Z8260 (FIAT AUTO)	CONNECTORS PERFORMANCE STANDARD

REQUIREMENTS:

3.0 DESIGN AND CONSTRUCTION:

Product shall comply with the design, construction and physical dimensions specified in the applicable product drawing.

3.1 MATERIALS:

Components	Material	Finish
Contacts	Copper alloy CuNiSi (with external reinforcement spring in stainless steel)	Tin plated
Housings	PA 6.6, glassfiber filled	/
Retaining spring	Stainless steel	/
Frontal sealing & single wire seals	Silicone rubber	/

3.2 RATINGS:

- A. Current Rating : 20A max. with 2,5 mm² wire for SFK contact P/N 967543-1.
- B. Temperature Rating: -30°C to +125°C including the temperature increasing due to working current flow.
- C. Maximum Operating Voltage: 24 V d.c.. For application at higher voltage please contact Tyco Electronics.
- D. Protection Degree: IP X4, according to IEC 529.

3.3 QUALITY ASSURANCE PROVISION:

A. Sample preparation:

The test samples to be used for the tests shall be prepared by randomly selecting from the current production, and the contact crimped in accordance with the Application Specification.

No sample shall be reused, unless otherwise specified.

B. Test Condition:

All the tests shall be performed under any combination of the following test conditions, unless otherwise specified.

Room temperature: 23 ± 5°C
Relative Humidity: 45÷75%
Atmospheric Pressure: 860÷1060 mbar

3.3 TEST REQUIREMENTS AND PROCEDURES SUMMARY:

FEATURES	TEST CONDITIONS	LIMITS
3.3.1 Connector Mating Force (with contacts inserted)	In working condition with header counterpart. Speed 25-100mm/minute Direction equal to contact axis. (tab cont. as shown in Fig. 1).	$\leq 70 \text{ N}$
3.3.2 Connector Unmating Force (with contacts inserted)	like point 3.3.1. For type A pressing on the retaining spring.	Type A 1st extr. $\leq 20 \text{ N}$ Xth extr. $\geq 8\text{N}$ Type B $\geq 40 \text{ N}$, 1st extr.
3.3.3 Connector pull-out force (Only for Type A)	Connector mounted onto counterpart without pressing onto the retaining spring. Apply an axial pull-off load to the conn. and note the force needed to remove,even if partially, the connector from its counterpart. Speed: 25-100mm/min	$\geq 40 \text{ N}$
3.3.4 Single Contact Mating Force	Engage single rec.ctc. onto tab counterpart using a free floating fixture with a rate of 25-100mm/min of travel speed (tab as shown in Fig.1)	$\leq 15 \text{ N}$ 1st insertion
3.3.5 Single Contact Unmating Force	Separate single rec.ctc. from tab counterpart using a free floating fixture with a rate of 25-100mm/min of travel speed (tab as shown in Fig.1)	1st extr. $\leq 15 \text{ N}$ Xth extr. $\geq 4 \text{ N}$

FEATURES	TEST CONDITIONS	LIMITS
3.3.6 Retention force of the single contact in the housing	Apply an axial force to pull out rec. ctcs. from relevant hsg. cavity using a free floating fixture with a tensile speed of 25-100mm/minute	Only with primary locking dev. ≥ 70 N With primary e secondary lock ≥ 90 N
3.3.7 Crimping Tensile Strength	Pull out rec. contact from the relevant wire using a free floating fixture at a tensile speed of 25 - 100 mm/minute	$0.35 \text{ mm}^2 \geq 60$ N $0.5 \text{ mm}^2 \geq 70$ N $0.75 \text{ mm}^2 \geq 90$ N $1.0 \text{ mm}^2 \geq 115$ N $1.5 \text{ mm}^2 \geq 155$ N $2.5 \text{ mm}^2 \geq 235$ N
3.3.8 Voltage Drop	(mated connectors) Between a point on the wire at about 1 cm from the connector exit and a point onto the tab of the counterpart very close to the plug connector edge. (see Fig.2)	≤ 4 mV/A on new contacts and after 10 insertions/extractions
3.3.9 Insulation Resistance	Between two adjacent contacts apply 500 Vdc for 1 minute. (mated connectors)	≥ 10 M Ω
3.3.10 Dielectric withstanding voltage	Between two adjacent contacts apply voltage for 1 minute	> 1000 Vac

FEATURES	TEST CONDITIONS	LIMITS
3.3.11 High Temperature Resist. with current load (“esercizio gravoso”)	On all ways simultaneously: 5 temperature cycles composed of: -5 hours in oven at $80\pm 2^{\circ}\text{C}$ without air ventilation, with rated current according to wire size. -2 hours in freezing cell at -30°C , without current. -4 hours reconditioning at environmental temperature (mated connectors)	-Temperature increase: $\leq 45^{\circ}\text{C}$ after first cycle; $\leq 50^{\circ}\text{C}$ after 5 cycles. (Thermocouple placed on transition zone between contact body and wire barrel) -Voltage drop within limits specified for new contacts. -No damaging.
3.3.12 Current Overload	On mated contacts (w/o housing) : - Test current : 30 A (with a 2.5mm^2 wire) - Duration: 500 cycles composed of 45' current "ON" 15' current "OFF".	-Temperature increase $\leq 70^{\circ}\text{C}$ on transition between contact body and wire barrel -Voltage drop within 50% increase of limits specified for new contacts. -No damaging
3.3.13 Accelerated aging	a) 5 cycles with shock composed of : 2 hrs. at $+125^{\circ}\text{C} \pm 2^{\circ}\text{C}$ 2 hrs. at $-30^{\circ}\text{C} \pm 2^{\circ}\text{C}$ Note: time interval in passing from one ambient temperature to the next one must not exceed 3 minutes. b) 5 cycles w/o shock 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 $-30^{\circ}\text{C} \pm 2^{\circ}\text{C}$ c) 200 hrs. At $+125^{\circ}\text{C} \pm 2^{\circ}\text{C}$ (connector mated with counterpart)	-No deformation or cracking of hsg. -Voltage drop within 50% increase of limits specified for new contacts. -Insulation resistance, dielectric withstanding voltage within limits specified for new contacts. After 10 In/Outs: mechanical features at points 3.3.2 and 3.3.6 within 50% increase of limits specified for new contacts

FEATURES	TEST CONDITIONS	LIMITS
3.3.14 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. Single contacts mated in free air	Voltage drop within 100% increase of limits specified for new contacts.
3.3.15 Salt Spray Corrosion Test	150 hours of salt mist at 35°C ± 2°C, 5% of NaCl, pH 6.5-7.2 class 2. Single contacts mated in free air	Voltage drop within 100% increase of limits specified for new contacts. No corrosion traces on base metal
3.3.16 Vibration Test	60 hours for each axis : Freq: 10-500-10 Hz in 5 minutes Displacement : 1.5 mm peak to peak Acceleration : 25 g (FIAT norm.7.Z8510).	Voltage drop within 50% increase of limits specified for new contacts. No circuit break greater than 1 µs
3.3.17 Water Tightness	Acc. to IEC norm.529 para. 7.4 and para. 8.4. Duration 4 hours. NOTE: This test must be carried out after test 3.3.13	Voltage drop, Insulation resistance and dielectric withstanding voltage within indicated limits. No water infiltration inside the connector.

NOTE: SEE PAGE 9 of 10 FOR TEST GROUPS AND SEQUENCY.

TEST TO BE CARRIED OUT	<u>TEST GROUPS AND SEQUENY</u>											
	A	B	C	D	E	F	G	H	I	L	M	N
- Visual examination	1,7	1,5	1,6	1,3	1,3	1,4	1,4	1,9	1,5	1,5	1,5	1,8
- Single contact mating force	2,5											
- Single contact unmating force	3,6											
- Connector mating force with contacts inserted			2									
- Connector unmating force with contacts inserted			3					5				
- Connector pull-out force				2								
- Mechanical duration (10 cycles)	4	3	4									
- Voltage drop		2,4				3	3	2,4	2,4	2,4	2,4	2,5
- Retention force of the single contact in the housing			5					8				
- Crimp tensile strength					2							
- Insulation resistance								6				6
- Dielectric withstanding voltage								7				7
- High temperature resistance with current load						2						
- Current overload							2					
- Accelerated aging								3				3
- Kesternich corrosion									3			
- Salt spray										3		
- Vibration											3	
- Water tightness												4

TAB CONTACT IN BRIGHT TINNED COPPER ALLOY

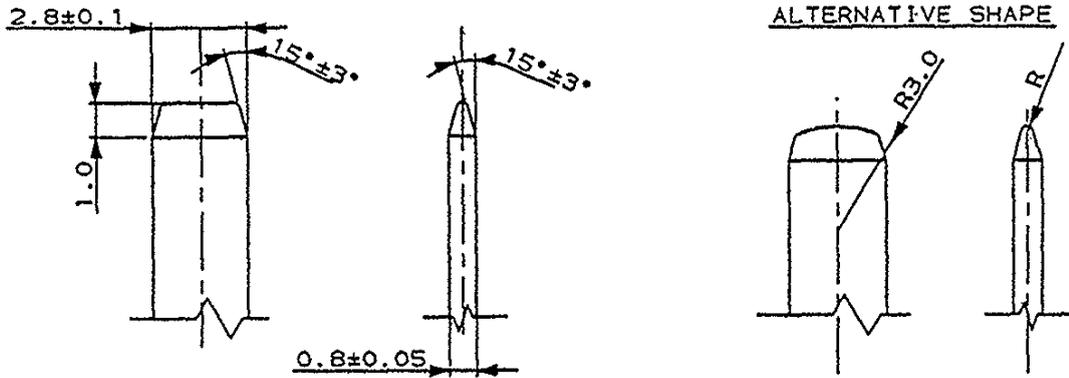


FIG. 1

(DIMENS. IN mm)

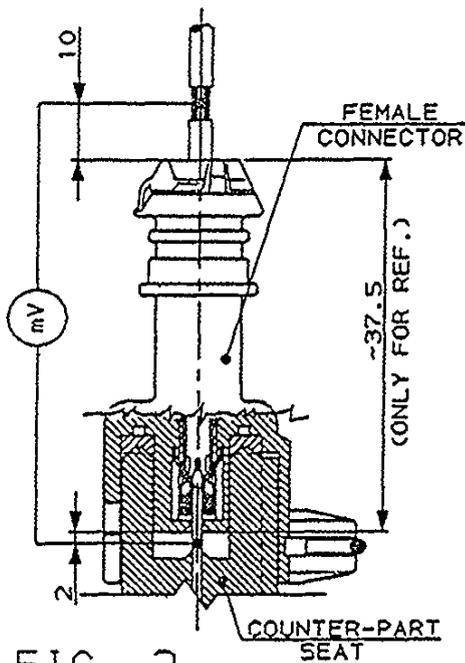
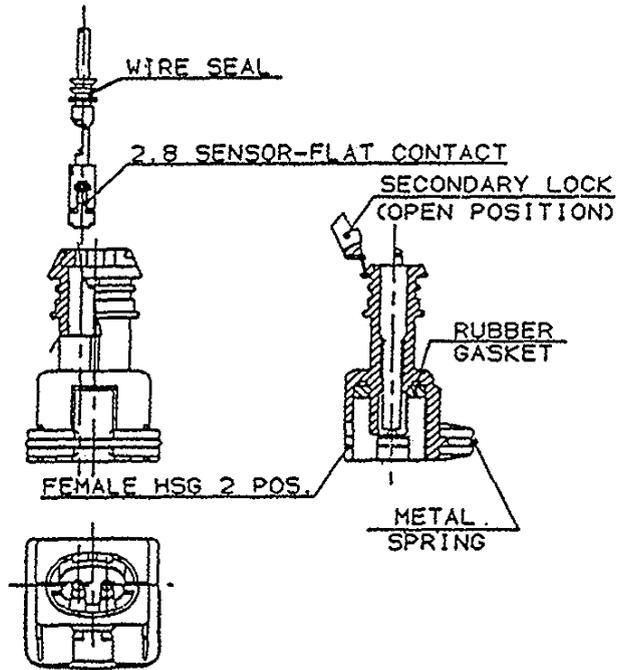


FIG. 2

(DIMENS. IN mm)



TYPICAL TRANSVERSAL AND
LONGITUDINAL SECTION
(ONLY FOR REFERENCE)