PRODUCT SPECIFICATION

070 sr MULTILOCK * Connector
For Wire to Wire Application

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APP

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SHEET 1 OF 9

NAME
070 SERIES MULTILOCK
CONNECTOR FOR W.T.W. APPLICATION

1. SCOPE:

1.1 CONTENTS

This specification covers the requirements for product performance, test methods and quality assurance provisions of 070 sr. MULTILOCK Connector for Wire to Wire Application.

Part Number	Description
282374-1	Rec. contact
282375-1	Rec. contact
282376-1	Rec. contact
282377-1	Tab contact
282378-1	Tab contact
282379-1	Tab contact
282365-1,-2,-3,-4,-5	2 pos. plug housing
282627-1	3 pos. plug housing
282441-1,-2,-3,-4	6 pos. plug housing
282442-1,-2,-3,-4	6 pos. cap housing
282366-1,-2,-3,-4	8 pos. plug housing
282370-1,-2,-3,-4	8 pos. cap housing
282367-1,-2,-3,-4	12 pos. plug housing
282371-1,-2,-3,-4	12 pos. cap housing
282534-1	12 pos. plug housing
282535-1	12 pos. cap housing
282571-1	12 pos. plug housing
282368-1,-2,-3,-4	18 pos. plug housing
282372-1,-2,-3,-4	18 pos. cap housing
282369-1,-2,-3,-4	20 pos. plug housing

2. 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 AMP SPECIFICATIONS :

A. 109-5000 Test Specification, General Requirements for Test Methods
B. 114-20056 Application Specification for 070 sr. receptacle contact crimping version
C. 114-20057 Application Specification for 070 sr. tab contact.

2.2 COMMERCIAL STANDARD AND SPECIFICATIONS :

Low Voltage Stranded Cables for Automobiles acc. to FIAT Normation Table N° 91107/03

3. REQUIREMENTS:

3.1 DESIGN AND CONSTRUCTION:

Product shall be of the design, construction and physical dimensions specified in the applicable product drawing.

3.2 MATERIALS:

A. Contacts: Pre-tinned brass

B: Housings: PBT unfilled

3.3 RATINGS:

A. Current Rating : 6 A max. (with 0,5 mm^2- Rec. contact p/n 282374-1)
14 A max. (with 1,5 mm^2 wire and max six adjacent contacts)

B. Temperature Rating: -30°C to 105°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 AMP.

3.4 QUALITY ASSURANCE PROVISION:

A. Sample preparation:

The test samples to be used for the tests shall be prepared by randomly selected from the current production, and the 070 sr. rec./tab contacts crimped in accordance with the applic. spec. 114-20056 and 114-20057.

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

3.5 TEST REQUIREMENTS AND PROCEDURES SUMMARY:

Para.	Test Items	Requirements	Procedures
3.5.1	Confirmation of product	- Product shall be confirming to the requirements of applicable product drawing and Application specification	Visually, dimensionally and functionally inspected per applicable quality inspection plan.
		Electrical Requirements	
3.5.2	Voltage drop	- ≤ 3 mV/A on new contacts and after ten insertions/extractions (≤ 4 mV/A on contacts crimped onto 0.5 mm²)	Between a point of the wire at 1 cm from the conn. edge (for test current see Fig. 1)
3.5.3	Dielectric strength	- Neither creeping discharge nor flashover shall occur	≤ 1000 Vac for 1 minute. Between adjac. circuits of mated conn.
3.5.4.	Insulation resistance	- 10 MΩ Min.	Impressed voltage 500 Vdc. Between adjac. circuits of mated conn.
3.5.5	High temperature resist. with current load (example of 6 pos. conn.)	- Temperature increasing detected: ≤ 45°C (thermocouple placed on transition between contact body and wire barrel) - Voltage drop within limits indicated for new contacts - No damaging	On all ways contemporarily: - Not airy ambient with a test temp of 80 ± 2 °C - Test current on each way: 14A with a 1.5 mm² wire - Duration: 5 hours (for the acceptable current currying capacity / position of conn. / wire section see Fig. 2)
3.5.6	Current overload	Temperature increasing ≤ 60°C on transition between contact body and wire barrel - Voltage drop within limits indicated for new contacts - No damaging	On one way w/o housing: - Test current: 21 A (with a 1.5 mm² wire) - Duration: 500 cycles composed of 45' current "ON" 15' current "OFF"

Para.	Test Items	Requirements	Procedures
		Physical Requirements	
3.5.7	Vibration test	- Voltage drop within limits indicated for new contacts - No electrical discontinuity greater than 1 µsec. shall occur	2 hours for each axis: - Freq.: 10-500-10 Hz in 5 minutes - Displacement: 1.5 mmpp - Acceleration: 50 m/s2
3.5.8	Single contact engaging force	- Ist insertion ≤ 6 N - Ist insertion ≤ 3.5 N (rec. contact p/n 282374-1)	- Operation Speed: 50 mm/min. (Tab as shown on Fig. 3)
3.5.9	Single contact separating force	- Ist extraction ≤ 6 N - Xth extraction ≥ 3 N - Ist extraction ≤ 3.5 N (rec. contact p/n 282374-1) - Xth extraction ≥ 2 N (rec. contact p/n 282374-1)	- Same as point 3.5.8
3.5.10	Connector mating force	2 Pos: ≤ 20 N 3 Pos: ≤ 30 N 6 Pos: ≤ 50 N 8 Pos: ≤ 60 N 12 Pos: ≤ 80 N 18 Pos: ≤ 110 N 20 Pos: ≤ 120 N	- In working condition with header counterpart - Operation Speed: 50 mm/min. - Direction equal to contact axis
3.5.11	Connector unmating force	Ist extract. - Xth extract. 2 Pos: ≤ 20 N ≥ 3 N 3 Pos: ≤ 30 N ≥ 5 N 6 Pos: ≤ 50 N ≥ 10 N 8 Pos: ≤ 60 N ≥ 15 N 12 Pos: ≤ 80 N ≥ 25 N 18 Pos: ≤110 N ≥ 35 N 20 Pos: ≤120 N ≥ 40 N	- Same as point 3.5.10 but pressing on latching arm.
3.5.12	Connector locking strength	- 100 N Min.	- Operation Speed: 50 mm/min. - Apply an axial pull-off load to the cables bundle.

Para.	Test Items	Requirements	Procedures
3.5.14	Contact retention force (primary locking only)	- 80 N min.	- Apply an axial pull-off load to crimped wire. (Crimped wire 1.0 mm² min.) - Operation speed: 50 mm/min.
3.5.15	Contact retention force (secondary locking included)	- 100 N min.	- Same as point 3.5.14
		Physical Requirements	
3.5.16	Crimp tensile strength	Wire Size mm² / Crimp tensile N min. 0.35 — 50 0.5 — 70 0.75 — 90 1.0 — 115 1.5 (and 2.5) — 155	- Apply an axial pull-off load to crimped wire of contact secured on the tester. - Operation Speed: 25-50 m/min.
3.5.17	Durability (Repeated Mating/Unmating)	-Single eng./separating force -Conn.mating/unmating force	- Operation Speed: 50 mm/min., no. of Cycles: 10
3.5.18	--	--	--

Para.	Test Items	Requirements	Procedures
		Environmental Requirements	
3.5.19	Thermal cycling resistance	- No deformation or cracking of the plastic parts - Voltage drop ≤ 4.5 mV/A - Insul. resist., dielectr.resist., mech.feature at point 3.5.15 within limits indicated for new contacts	5 cycles composed of: - 2 hrs at +125 ± 2 °C - 2 hrs at + 40 ± 2 °C and 90-95% r.h. - 2 hrs at -30 ± 2 °C (mated connector)
3.5.20	Salt spray corrosion test	- Voltage drop: max 100% increase as indicated for new contact	- 150 hours of salt mist at 35 ± 2 °C, 5% of NaCl, pH 6.5-7.2 class 2 (single mated contacts)
3.5.21	Kesternich corrosion	- Voltage drop: max 100% increase as indicated for new contact	4 cycles composed of: - 8 hours of exposure to an atmosphere with 0.66% of So2 at 40± 2°C (method acc. to DIN 50180) - 16 hours in free air. (single mated contacts)
3.5.22	Accelerated aging test	- No deformation or cracking of the plastic parts and plastic material discoloration are admitted - Voltage drop: max 50% increase as indicated for new contact - Dielectr. resist. and mech.feature at point 3.5.15 within limits indicated for new contacts	- 200 hours at 125 °C (mated connector)

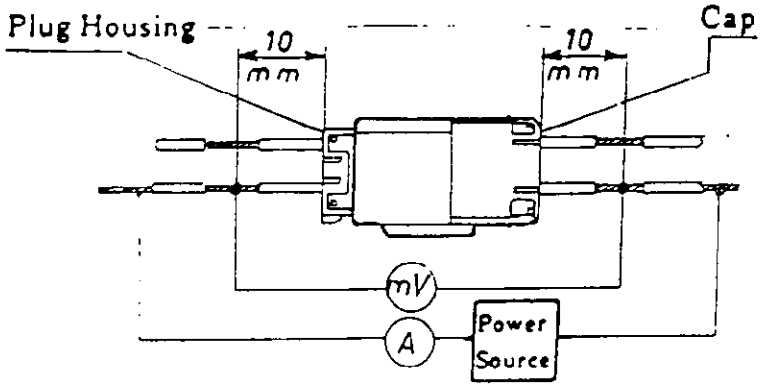
3.6 PRODUCT QUALIFICATION TEST SEQUENCE

Test Items	Test group												
	A	B	C	D	E	F	G	--	K	L	M	N	--
	Test sequence												
Confirmation of Product	1,5	1,7	1,8	1,3	1,8	1,5	1,5		1,7	1,5	1,5	1,5	
Single contact engaging force	2	2											
Single contact separating force	3	4											
Connector mating force			2										
Connector unmating force			3										
Durability (10 cycles)	4	5	4										
Voltage drop		3,6			2,4	2,4	2,4		2,4	2,4	2,4	2,4	
Cont. retention force (primary lock only)			6										
Cont. retention force (primary lock plus secon lock)			7		7				6				
Connector locking strength			5										
Dielectric strength					6				5				
Insulation resistance					5								
Crimp tensile strength				2									
Thermal cycling resistance					3								
High temp. resist. (in oven)						3							
Current overload (on free air)							3						

Accelerated aging test									3				
Salt spray corrosion test										3			
Kesternich corrosion											3		
Vibration test												3	

Voltage drop

FIG. 1



Wire Size (mm^2)	Current Max. (A)
0.35 mm^2	DC 3.5 A
0.5 mm^2	DC 6. A
0.75 mm^2	DC 8 A
1.0 mm^2	DC 11 A
1.5 mm^2	DC 14 A

FIG. 2

No. of Pos.	Reduction Coefficiency
2-6	1
7-10	0.7
11-14	0.6
15-19	0.5
> 20	0.4

Note : The acceptable current carrying capacity is obtained by the specified maximum coefficiency obtained by the number of contacts above table.

FIG. 3