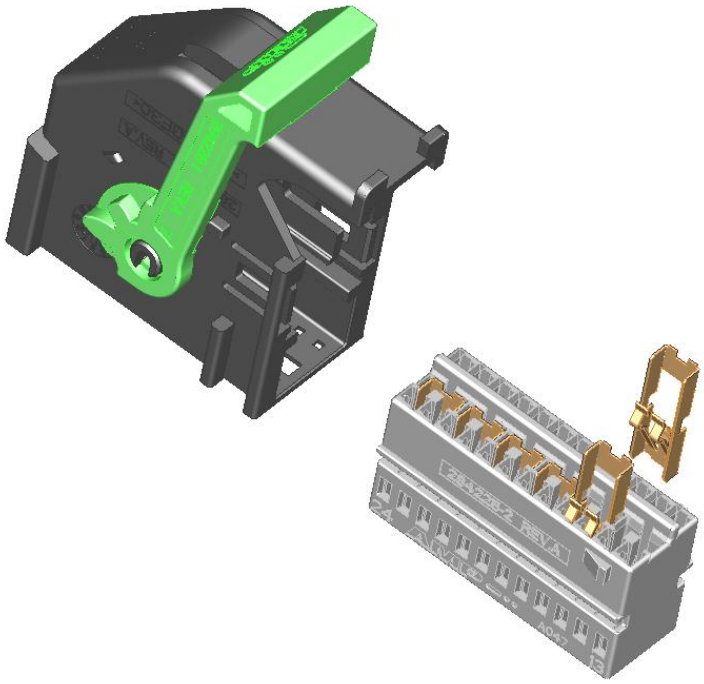
AIR BAG CONNECTOR SYSTEM 24 + 24 POSITIONS



rev letter	rev. record	DR	Date	CHK	Date
C	Updated Requirements	C.A.	21/10/2017	M.G.	23/10/2017
B	Updated Values and Add P/N 2817815-X	C.A.	28/07/2017	G.Z.	06/09/2017
A4	Updated paragraph 2.7	M.P.	09/04/2015	M.G.	06/04/2015
A3	Updated logo & P/N's table	M.B.	09/10/2009	A.G.	09/10/2009
A2	Updated P/N's table ET00-0029-02	M.B.	15/05/2002	O.C.	23/06/2006
A1	Active ET00-0207-01	M.B.	25/09/2001	O.C.	11/06/2004
A	First issue ET00-0102-99	P.C.	17/03/1999	A.G.	08/05/2002

DR. DATE APVD DATE

INDEX

4.2 SALT SPRAY
4.3 KESTERNICH CORROSION

1.0 SCOPE

This specification intends to cover all the electro-mechanical and environmental performances of the 24+24 pos. air bag connector system.

1.1 COMPONENT LIST

PART NUMBER	DESCRIPTION
284224-1,-2,-5,-6,-7	Housing for 24 pos. with short circuit bar
284223-3,-4,-5,-6,-7	24 pos. Kit assembly
1745034-1,-2,-3,-4,-5	24 pos. Kit assembly for Korean car makers
1703795-1,-2	24 pos. Kit assembly for Korean car PSA
2817815-3, -4, -5, -6, -7	24 pos. Kit assembly without short circuit spring
144969-2	MQS contact gold plated version
953621	Header 24+24 pos.
1355737	Header 24+32 pos.

1.2 APPLICABLE DOCUMENTS

Product drawings have to be considered part of this specification. In case of conflicts between specification and referenced documents, this specification shall take precedence.

1.3 AMP SPECIFICATION

A. 109-1 Test Specification, General Requirements for Test Methods

1.4 COMMERCIAL STANDARD SPECIFICATIONS

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

1.5 RATINGS

A. CURRENT RATINGS:

6.0 A max with 0.50 mm^2 wire

3.5 A max with 0.35 mm^2 wire

Current rating per wire section a.m. are according to Fiat spec. 91107/03

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 TE Connectivity)

1.6 QUALITY ASSURANCE PROVISION

A. Sample preparation
The test samples to be used for the test shall be prepared by random selection from the current production and the contact shall be crimped in accordance with the application specification 114-15077.
No sample shall be re-used, unless otherwise specified.

B. Test condition:
All test shall be performed under any combination of the following test condition, unless otherwise specified:
Room temperature: 23±5°C
Relative humidity: 45÷75%
Atmospheric pressure: 860÷1060 mbar

1.7 PRODUCT DESCRIPTION

The system includes a header with two recess, each with 24 pins 2.54 mm pitch on two rows. Pins are gold plated on connector mating part, while on the other side are tin plated to be soldered on a P.C.B. (1.6 mm thickness). In each header recess there are special finger actuating the short circuit bar when the male connector is mate.
The male connectors have cavities suitable for MQS contacts gold plated version and in between the two contacts cavities rows are assembled six short circuit bar gold plated.
The short circuit bars work with a contact row only, putting the female contacts MQS in short circuit when the system is not closed (male connector not inserted into the header).
The connectors are provide with a secondary lock, which do not allow to assembly the housing 24 pos. into the frame, when a contact is not fully inserted into his cavity.

TEST PROCEDURE

Test Description	Requirements	Procedure
1.9 Confirmation of product	- Product shall confirm the requirements of applicable product drawing and Application specification.	Visually, dimensionally and functionally inspected per applicable quality inspection plan.
1.10 Visual examination	- Any visible damage, cracking or defect when the product is new and even after environmental, mechanical and electrical test.	Visual inspection.

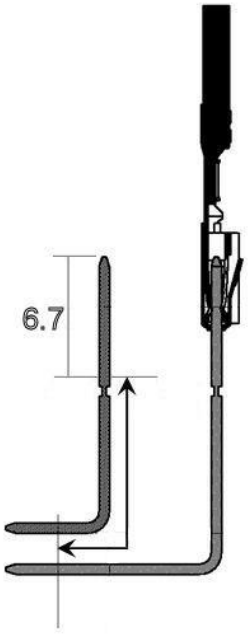
2.0 MECHANICAL REQUIREMENTS

Test Description	Requirements	Procedure
2.1 Connector mating force	≤ 70 N At new and after 10 cycles of mating/un-mating. Electrical continuity between two contacts and the relative short circuit bar.	All contacts (24) inserted into the frame housing. Test to be performed with correspondent header counterpart, all assembled moving the lever with an operation speed of 50 mm/min.
2.2 Connector un-mating force	≤ 70 N At new and after 10 cycles of insertion/un-mating. Electrical continuity between two contacts and the relative short circuit bar.	All contacts (24) inserted into the frame housing Test to be performed with correspondent header counterpart, all assembled moving the lever with an operation speed of 50 mm/min.

2.3 Connector locking strength	100 N min.	Connector fully loaded assembled with the correspondent header counterpart Operating speed: 50 mm/min. Apply a pull-off load to the cables bundle in two directions: 1- axial direction 2- perpendicular direction
2.4 Retention force housing/frame	100 N min.	On assembled housing, fully loaded, with the corresponded frame. Pulling by wire bundle in an axial direction.
2.5 Lever retention when closed	100 N min.	Connector mated into the correspondent counterpart header. Without disengaging the lever hook, apply the load of 100 N per 30 sec. to the lever. No lever disengage shall occur.
2.6 Contact insertion force (into the cavity)	≤ 10 N	Crimped contacts onto 0.5 mm^2 Use a free-floating fixture with a operation speed of 25.4 mm/min.
2.7 Contact extraction force	≥ 30 N with Primary Lock only ≥ 60 N with Primary Lock and Secondary Lock	Pull out the contacts from the cavity with an operation speed of 25.4 mm/min.

2.8 Secondary lock effectiveness	80 N min.	Force applied to the connector housing when a contact is not fully insert into its own cavity, shall not produce the insertion of the housing into the cover. Insertion speed: 25.4 mm/min
2.9 Connector polarization effectiveness	150 N	Force applied on the assembled connector, rotated of 180 degree in the mating direction with the correspondent header, shall not produce the insertion of the connector into the header
2.10 Vibration test (Random - passengers compartment)	- Voltage drop within limits indicated for new contacts - No electrical discontinuity greater than 1 micro sec. shall occur - Electrical continuity between two contacts and the relative short circuit bar.	On mated connector with the counterpart Random vibration test as per diagram 1 enclosed Duration: 16 hrs on the direction of mating axis. Wires bundle fixed at 20 cm Test current: 1 mA

3.0 ELECTRICAL REQUIREMENTS

Test Description	Requirements	Procedure
3.1 Voltage drop	-≤ 5,0 mV/A wire size: 0.5 mm² for a single contact At new and after ten insertion/extraction	Between a point of the wire at 1 cm from the conn. Edge and a point very close to the header edge (single contact). Termination resistance is obtain after subtraction of resistance due to wire used for termination and due to male pin (length 10 mm min as shown in the following picture). 
3.2 Dielectric strength	Neither creeping discharge or flashover shall occur	≥ 1000Vac for 1 minute. Test between adjacent circuits of mated connectors
3.3 Insulation resistance	10 MΩ min.	Applied voltage: 500 V dc

3.4 Temperature rise over Oven Temperature (esercizio gravoso).	-Temperature increasing :≤ 50°C (Thermocouple placed on transition between contact body and wire) -Voltage drop within limits indicated for new contacts -No damaging	On 6 adjacent ways contemporary - not airy ambient with a test temp. of 80 ±2°C. - Test current on each way: see par. 0.6 - Duration: 5 hours
3.5 Current overload	Temperature rise increase: ≤ 60°C (thermocouple placed on transition between contact body and wire barrel) -Voltage drop within limits indicated for new contacts -No damaging	On one way without housing: Test current 1.5 nominal current (see par. 0.6) -Duration 500 cycles composed of: • 45' current ON • 15' current OFF

4.0 ENVIRONMENTAL REQUIREMENTS

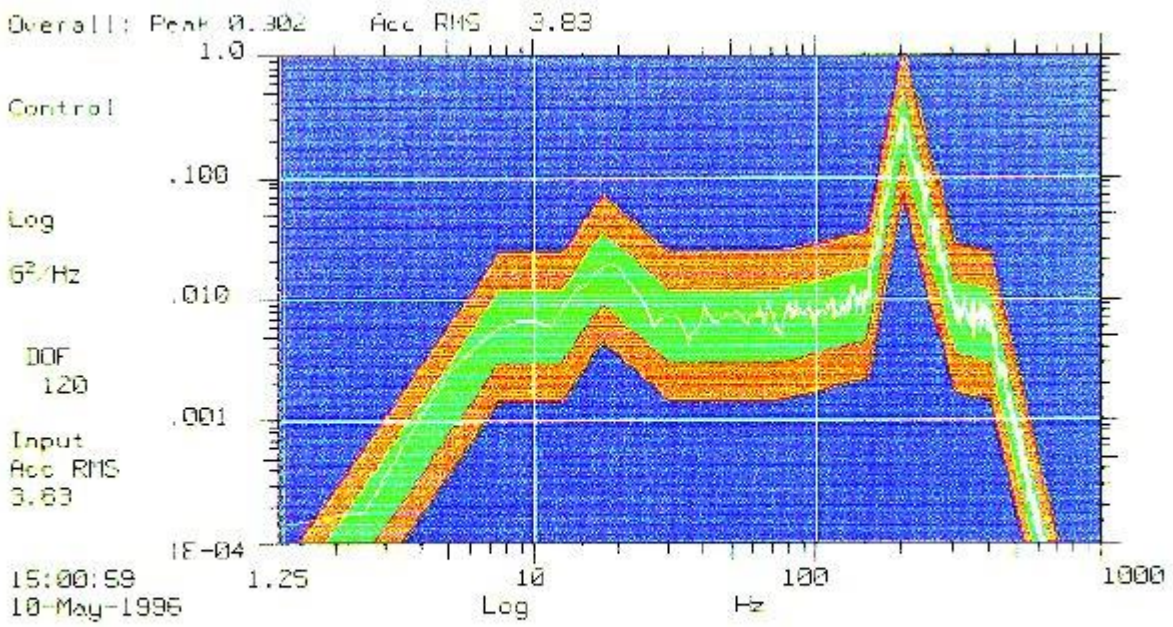
Test Description	Requirements	Procedure
4.1Thermal cumulative ageing	-No deformation or cracking of the plastic parts -Voltage drop: :≤ 10 mVA -Insulation resistance within indicated limits -Electrical continuity between two contacts and the relative short circuit bar.	On mated connectors: 5 cycles composed of: -4 hrs at 105°C ± 2°C -4 hrs -30°C± 2°C 5 cycles composed of: -4 hrs at 105°C ± 2°C -4 hrs at + 40°C ± 2°C and 90-95% r.h. -4 hrs -30°C± 2°C 200 hrs at 105 °C
4.2 Salt spray corrosion test	-Voltage drop: ≤ 10 mVA -Insulation resistance within indicated limits -Electrical continuity between two contacts and the relative short circuit bar.	-98 hours of salt mist at 35°C± 2°C, 5% of NaCl , pH 6.5-7.2 class 2 (mated connector)

4.3 Kesternich corrosion	-Voltage drop :≤ 10 mVA -Electrical continuity between two contacts and the relative short circuit bar.	4 cycles composed of: -8 hrs of exposure to an atmosphere with 0.66% of SO_2 at +40°C ± 2°C (method acc. to DIN 50118) -16 hours in free air (mated connectors)

PRODUCT QUALIFICATION TEST SEQUENCE

TEST GROUP

ITEM	DESCRIPTION	A	B	C	D	E	F	G	H	I	L	M	N
1.9	Visual examination	1,9, 11	1,3	1,3	1,3	1,6	1,4	1,5	1,6	1,5	1,6	1,5	1,5
2.1	Connector mating force	2,6											
2.2	Connector un-mating force	4,8											
2.3	Connector locking strength	10											
	Durability (10 cycles)	5											
2.4	Retention force housing/frame						2						
2.5	Lever retention(when it's closed)						3						
2.6	Contact insertion force (into the cavity)		2										
2.7	Contact extraction force			2									
2.8	Secondary lock effectiveness				2								
2.9	Connector pol. effectiveness					5							
2.10	Vibration					3							
3.1	Voltage drop	3,7				2,4		2,4	2,5	2,4	2,4	2,4	2,4
3.2	Dielectric strength								4				
3.3	Insulation resistance								3		5		
3.4	Temp. rise (in oven)									3			
3.5	Current over-load							3					
4.1	Thermal cum. Ageing										3		
4.2	Salt spray											3	
4.3	Kesternick corrosion												3



f (Hz)	8	12	18	30	50	72	150	200	300	400
G²/Hz	0,006	0,006	0,018	0,006	0,006	0,006	0,009	0,28	0,007	0,006

diagram1