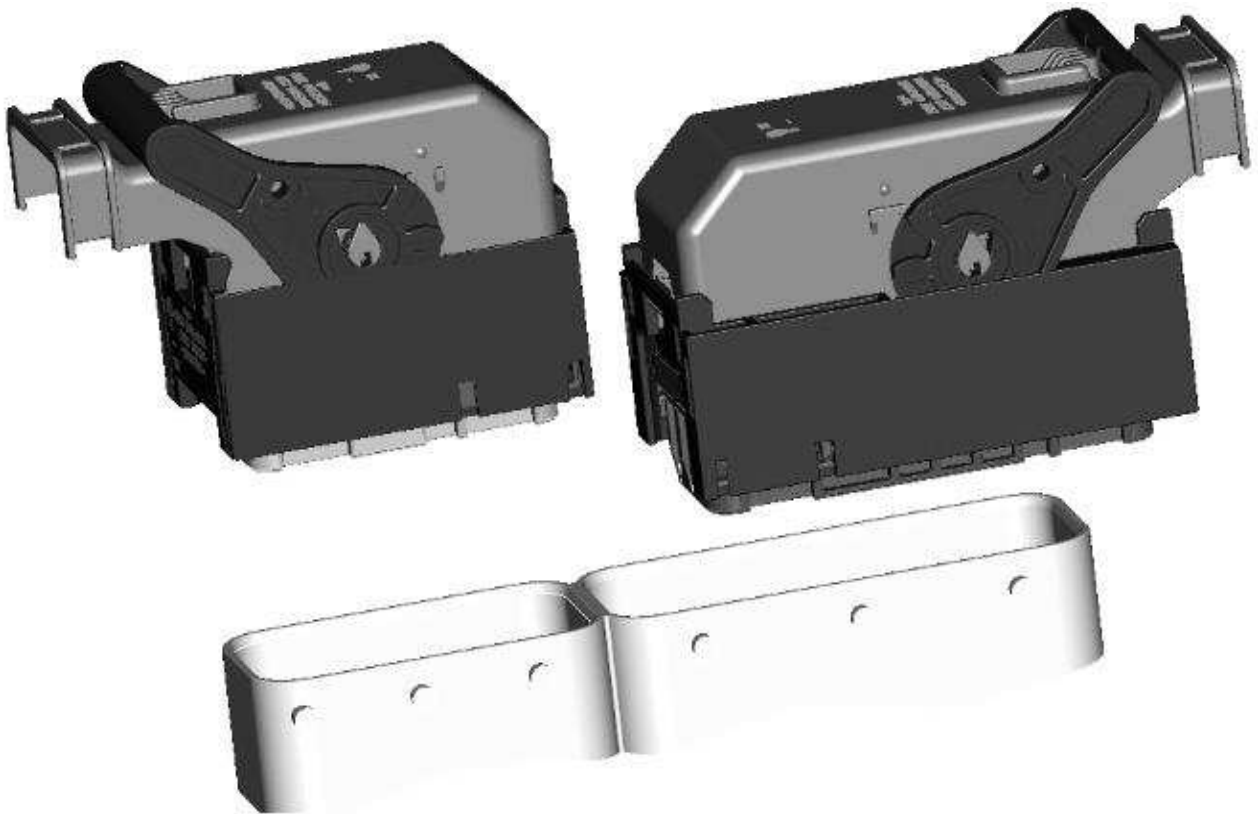




## **MODULAR CONNECTOR**

**154 (58 AND 96) POS,  
WATERPROOF**

## **PRODUCT SPECIFICATION**



**108-18965**



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**MODULAR CONNECTOR 154 (58 AND 96) POSITION, WATERPROOF**

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**CONTENT:**

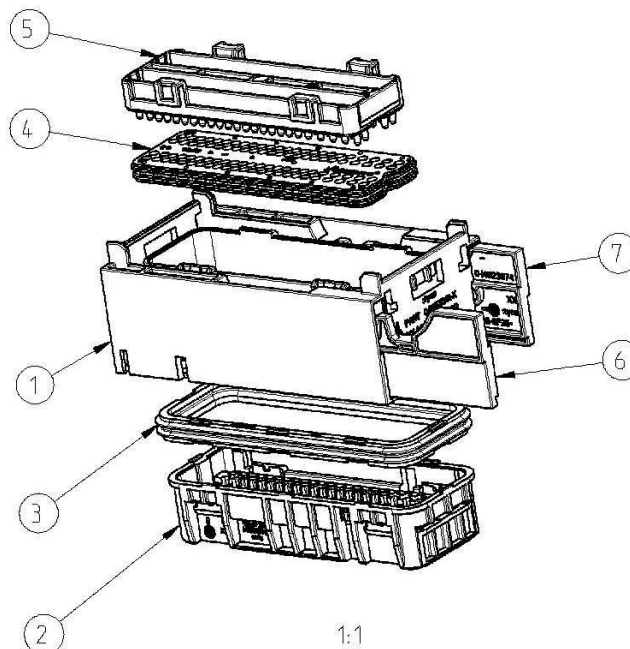
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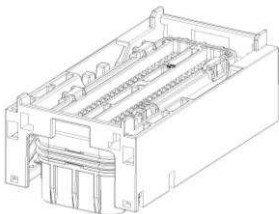

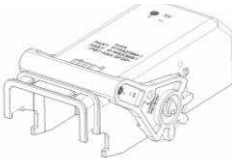
# 1 PRODUCT OVERVIEW

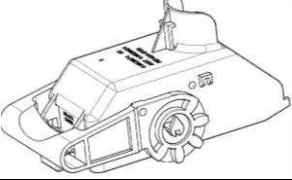
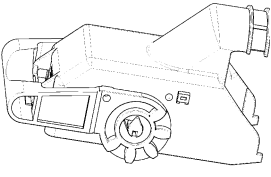
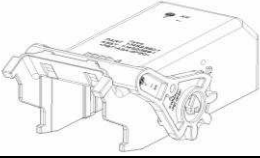
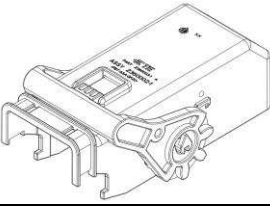
## 1.1 96 POS. CONNECTOR

THE 154 POS. PLUG-TYPE CONNECTOR IS USED FOR THE CONNECTION OF ENGINE CONTROL UNITS INSIDE THE VEHICLE ALSO AT VARIOUS INSTALLATIONS IN THE ENGINE COMPARTMENT. ON THE CABLE SIDE, THE SYSTEM HAS A MODULAR DESIGN, PERMITTING THE CONNECTION OF A SEPARATE ENGINE AND/ OR VEHICLE CABLE HARNESS.

- 1.- HOUSING
- 2.- CAVITY INSERT
- 3.- PERIPHERAL SEAL
- 4.- MAT SEAL
- 5.- COVER FOR FAMILY SEAL
- 6.- SLIDE LEFT
- 7.- SLIDE RIGHT



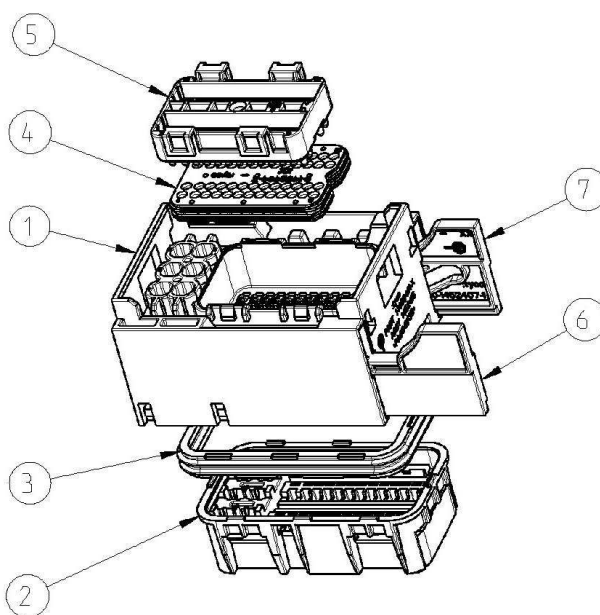
<p><b>ASSY 96 POS. CONNECTOR</b></p> <p>(applicable cable OD, shown on specific customer drawings)</p>	<p>PN 1452380                  PN 2141628                  PN 1418360                  96 x ( 0.5 - 0.75 mm<sup>2</sup> FLR)</p> <p>PN 1452423                  72 x ( 0.5 - 0.75 mm<sup>2</sup> FLR)                  24x ( 1 - 1.5 mm<sup>2</sup> FLR)</p> <p>PN 1452419                  86 x ( 0.5 - 0.75 mm<sup>2</sup> FLR)                  10x ( 1 - 1.5 mm<sup>2</sup> FLR)</p> <p>PN 1563173                  PN 1564284                  ( 0.35 - 0.75 mm<sup>2</sup> FLR)                  ( 0.5 - 1.5 mm<sup>2</sup> FLR)</p>	
<p><b>96 POS. TPA FOR TYCO 1.2 mm TERMINAL</b></p>	<p>PN 0-1452388-1                  PN 0-1452388-2</p>	
<p><b>ASSY 96 POS. COVER 90° CABLE EXIT</b></p>	<p>PN 0-1452389-1</p>	

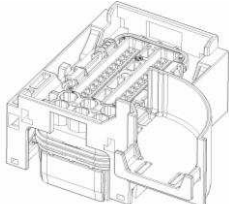
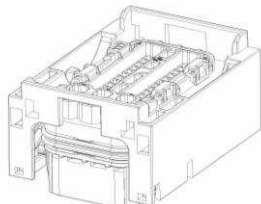



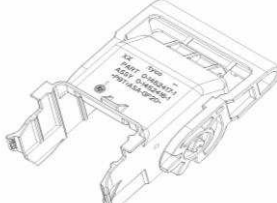

ASSY 96 POS. COVER 180° CABLE EXIT	PN 0-1452862-1	
ASSY 96 POS. COVER 90° CABLE EXIT	PN 0-1452988-1	
ASSY 96 POS. COVER 150° CABLE EXIT	PN 1-1452389-1	
ASSY 96 POS. COVER 90° CABLE EXIT (with lever locking latch overstress protection)	PN 0-2360002-1	

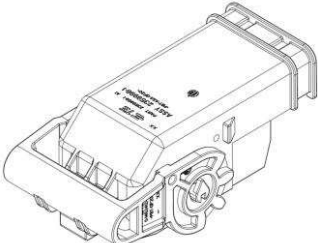
## 1.2 58 POS. CONNECTOR

THE 154 POS. PLUG-TYPE CONNECTOR IS USED FOR THE CONNECTION OF ENGINE CONTROL UNITS INSIDE THE VEHICLE AND ALSO AT VARIOUS INSTALLATIONS IN THE ENGINE COMPARTMENT. ON THE CABLE SIDE, THE SYSTEM HAS A MODULAR DESIGN, PERMITTING THE CONNECTION OF A SEPARATE ENGINE AND/ OR VEHICLE CABLE HARNESS.

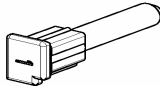
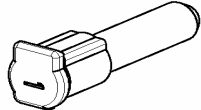

- 1.- HOUSING
- 2.- CAVITY INSERT
- 3.- PERIPHERAL SEAL
- 4.- MAT SEAL
- 5.- COVER FOR FAMILY SEAL
- 6.- SLIDE LEFT
- 7.- SLIDE RIGHT



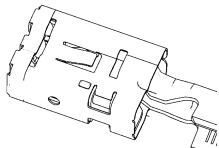
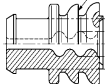
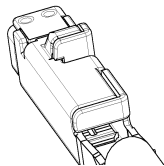
<p><b>ASSY 58 POS. CONNECTOR CABLE EXIT „L“</b> (applicable cable OD, shown on specific customer drawings)</p>	<p><b>PN 1452400</b> 52x ( 0.5 - 0.75 mm<sup>2</sup> FLR)</p>	
<p><b>ASSY 58 POS. CONNECTOR</b> (applicable cable OD, shown on specific customer drawings)</p>	<p><b>PN 1452415 PN 1418361 PN 1823127</b> 52x ( 0.5 - 0.75 mm<sup>2</sup> FLR)</p> <p><b>PN 1563172 PN 1564285</b> ( 0.35 - 0.75 mm<sup>2</sup> FLR)</p>	
<p><b>58 POS. TPA FOR MCP 2.8 mm TERMINAL</b></p>	<p><b>PN 0-1452408-1 PN 0-1452408-2</b></p>	
<p><b>58 POS. TPA FOR TYCO 1.2 mm TERMINAL</b></p>	<p><b>PN 0-1452409-1 PN 0-1452409-2</b></p>	
<p><b>ASSY 58 POS. COVER CABLE EXIT „L“</b></p>	<p><b>PN 0-1452410-1</b></p>	
<p><b>ASSY 58 POS. COVER CABLE EXIT 180 °</b></p>	<p><b>PN 0-1452416-1</b></p>	
<p><b>ASSY 58 POS. COVER CABLE EXIT 90 °</b></p>	<p><b>PN 0-1452421-1</b></p>	

<p>ASSY 58 POS. COVER CABLE EXIT 90 °</p>	<p>PN 0-2359998-1</p>	
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### 1.3 BLIND PLUGS FOR 96 POS. AND 58 POS. CONNECTOR

<p>BLIND PLUG <b>0,5-0,75 mm<sup>2</sup></b> FOR 96 POS. AND 58 POS. CONNECTOR</p>	<p>PN 0-1452424-1 COLOUR: GREY (0,5-0,75mm<sup>2</sup> FLR)</p> <p>PN 1-1452424-1 COLOUR: BROWN (0,5-0,75mm<sup>2</sup> FLR)</p>	
<p>BLIND PLUG <b>1,0-1,5 mm<sup>2</sup></b> FOR 96 POS. CONNECTOR</p>	<p>PN 0-1452424-2 COLOUR: GREEN (1 - 1,5mm<sup>2</sup> FLR)</p> <p>PN 1-1452424-2 COLOUR: BLUE (1 - 1,5mm<sup>2</sup> FLR)</p>	
<p>CAVITY PLUG FOR 2.8AMP MCP, 58POS. CONNECTOR</p>	<p>PN: 0-828906-2 COLOUR: BROWN</p>	

### 1.4 TERMINALS AND SWS FOR 96 POS. AND 58 POS. CONNECTOR

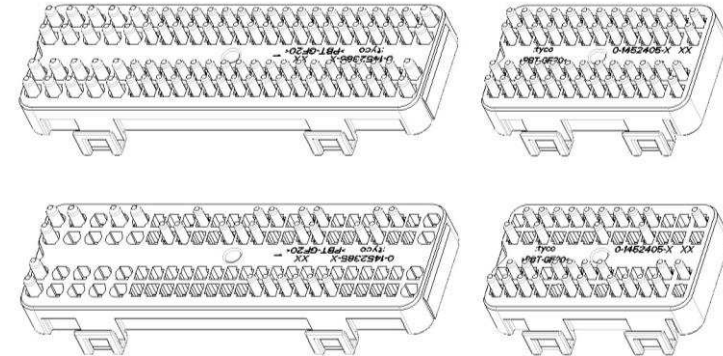
<p>APPLICABLE AMP MCP 2,8 TERM. <b>0.5-2,5mm<sup>2</sup></b> FOR 58 POS. CONNECTOR</p>	<p>PARTNUMBERS: 1-968882-x 1-968855-x 1-968857-x</p> <p>PROD SPEC 108-18513 APPL SPEC: 114-18148</p>	
<p>APPLICABLE SWS FOR AMP MCP 2,8 TERMINAL</p>	<p>828904-x 828905-x</p>	
<p>AMP MCP 1.2 CB TERMINAL <b>0,35-1,5mm<sup>2</sup></b> FOR 58 POS. CON.</p>	<p>1394897-x 1452503-x 1534594-x 1670144-x</p> <p>PROD SPEC 108-18782 APPL SPEC: 114-18464</p>	

## 1.5 WATERPROOFED APPLICATION

PERIPHERAL, THE CONNECTOR IS SEALED BY A PERIPHERAL SEAL.

THE CABLE EXIT OF THE CONNECTOR IS SEALED BY A MAT SEAL. THE SEALING HOLES IN THE MAT SEAL CAN BE CLOSED (SEALED) BY A WIRE WITH CONTACT OR BY A PLUG MOLDED ON THE COVER FOR FAMILY SEAL.

**EXAMPLE:** UNSTAMPED COVER FOR FAMILY SEAL



**EXAMPLE:** COVER FOR FAMILY SEAL STAMPED TO INDIVIDUAL PINOUT CONFIGURATIONS.

## 1.5 VALID TE SPECIFICATIONS

a) THIS PROD. SPEC. IS BASED ON THE LATEST VALID CUSTOMER DRAWING.

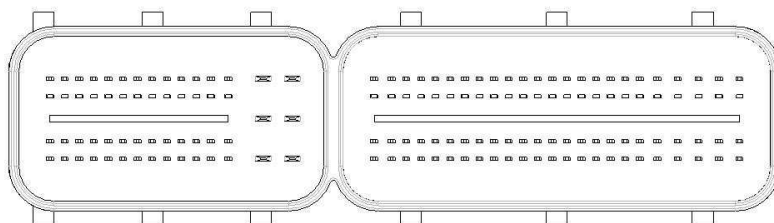
C1452380	ASSY 96 POS. CONNECTOR, (0.5 - 0.75 mm <sup>2</sup> )
C2141628	ASSY 96 POS. CONNECTOR, (0.5 - 0.75 mm <sup>2</sup> )
C1418360	ASSY 96 POS. CONNECTOR, (0.5 - 0.75 mm <sup>2</sup> )
C1563173	ASSY 96 POS. CONNECTOR, (0.35 - 1.5 mm <sup>2</sup> )
C1564284	ASSY 96 POS. CONNECTOR, (0.35 - 1.5 mm <sup>2</sup> )
C1452419	ASSY 58 POS. CONNECTOR, (> 0.75 – 1.50 mm <sup>2</sup> )
C1452423	ASSY 58 POS. CONNECTOR, (> 0.75 – 1.50 mm <sup>2</sup> )
C1452388	96 POS. TPA (2-NDARY LOCK), TYCO 1.2 MM
C1452389	ASSY 96 POS. COVER, CABLE EXIT 90 / 150 ANGLE
C1452862	ASSY 96 POS. COVER, CABLE EXIT 180 ANGLE
C1452988	ASSY 96 POS. COVER, CABLE EXIT 90 ANGLE
C2360002	ASSY 96 POS. COVER, CABLE EXIT 90 ANGLE (with lever locking latch overstress protection)
C1452400	ASSY 58 POS. CONNECTOR, CABLE EXIT LEFT
C1452415	ASSY 58 POS. CONNECTOR
C1418361	ASSY 58 POS. CONNECTOR
C1823127	ASSY 58 POS. CONNECTOR
C1563172	ASSY 58 POS. CONNECTOR
C1564285	ASSY 58 POS. CONNECTOR
C1452408	58 POS. TPA (2-NDARY LOCK), MCP 2.8 MM
C1452409	58 POS. TPA (2-NDARY LOCK), TYCO 1.2 MM
C1452410	ASSY 58 POS. COVER, CABLE EXIT LEFT „L“
C1452416	ASSY 58 POS. COVER, CABLE EXIT 180 ANGLE
C1452421	ASSY 58 POS. COVER, CABLE EXIT 90 ANGLE
C2359998	ASSY 58 POS. COVER, CABLE EXIT 90 ANGLE
C1452424	BLINDPLUGS

b) LATEST VALID APPLICATION SPECIFICATION

114-18576-	INSTRUCTION SHEET FOR 154 Pos. CONNECTOR
114-18534-1	APPLICATION SPEC. FOR THE MODULAR CONNECTOR, 154 POS.
114-18966	APPLICATION SPEC. FOR THE MODULAR CONNECTOR, 154 POS.

c) LATEST VALID INTERFACE SPECIFICATION.


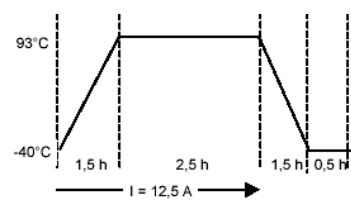
MUST BE ACORDING TO THE INTERFACE SPEC: 114-18615.



ENGINE MODULE  
(HEADER)



## 2. RATING DATA

	Test Description	Requirement	Procedure
	Examination of product.	Meets requirements of product drawing.	Visual, dimensional and functional per Applicable quality inspection plan.
<b>Connector Electrical Tests</b>			
1	<b>Termination resistance</b>	10 milliohms maximum initial. Maximum / minimum $\Delta R$ 10 milliohms	<p>Max. 10 milliohms initial.</p> <p>0.75 mm<sup>2</sup> FLR - 7.5 A</p>  <p>1.5 mm<sup>2</sup> FLR - 12.5 A</p>  <p>60 cycles = 360h</p>
2	<b>Insulation resistance</b>	R >20 megohms / 500V DC	Test between adjacent contacts of unmated samples.
<b>Connector – Mechanical Tests</b>			
3	<p><b>Terminal-Connector retention force for signal terminals.</b></p> <p>Temporary terminal retention without 2-dary lock</p> <p>Terminal retention wit primary and 2-dary lock.</p> <p>Terminal retention wit primary and 2-dary lock after high temperature exposure. Temperature class 3 acc. USCAR-2 (125°C).</p>	<p>Min. 50 N</p> <p>Min. 90 N</p> <p>Min. 48 N</p>	<p>V= 50 mm/min</p>

4	<p><b>Terminal-Connector retention force for power terminals.</b></p> <p>Temporary terminal retention without 2-dary lock</p> <p>Terminal retention with primary and 2-dary lock.</p> <p>Terminal retention with primary and 2-dary lock after high temperature exposure. Temperature class 3 acc. USCAR-2 (125°C).</p>	<p>Min. 60 N</p> <p>Min. 100 N</p> <p>Min. 100 N</p>	<p>V= 50 mm/min</p>
5	<p><b>Connector-Connector Mating Force</b></p> <p>96 pos.</p> <p>58 pos.</p>	<p>Max. 90N</p> <p>Max. 90N</p>	<p>Fully populated with silver plated terminals.</p>
6	<p><b>Connector-Connector Unmating Force with the Lock disengaged</b></p> <p>96 pos.</p> <p>58 pos.</p>	<p>Max. 75N</p> <p>Max. 75N</p>	<p>Fully populated with silver plated terminals.</p>
7	<p><b>Cover Retention Force</b></p> <p>Cover for 58 pos. Connector:</p> <p>Cover for 96 pos. Connector:</p>	<p>Min.150 N</p> <p>Min.150 N</p>	<p>V= 50 mm/min</p>
<p>Connector Environmental Test</p>			
8	<p><b>Thermal Shock</b></p> <p>Qualification acc. To USCAR-2 §5.6.1 Rev. 3</p>	<p>Signal terminal: <math>\Delta R \leq 10 \text{ m}\Omega</math></p> <p>Power terminal: <math>\Delta R &lt; 5 \text{ m}\Omega</math></p>	<p>-100 cycles ( 100h) – 30 min. (-40°C) and 30 min. (+125°C) transfer in less than 5 min.</p> <p>-12 V DC at 100 mA</p> <p>-For Ag plated terminals.</p>

9	<b>Temperature/Humidity Cycling</b> Temperature class 3, acc. to USCAR-2 Rev.3	Signal terminal: $\Delta R < 10 \text{ m}\Omega$  Power terminal: $\Delta R < 5 \text{ m}\Omega$	40 cycles (320h) between T1= -25 °C / T2=+85°C / T3= +145°C at 85% RH.  For Ag, plated terminals.
10	<b>High Temperature Exposure</b>  Qualification acc. To USCAR-2 §5.6.3 Rev. 3 Temperature class 3 (125°C).	Signal terminal: $\Delta R < 10 \text{ m}\Omega$  Power terminal: $\Delta R < 5 \text{ m}\Omega$	1008h heat soak at 125° C  For Ag, plated terminals.
11	<b>Random vibration</b> Grms 8,4	-Electrical resistance does not exceed 70ohms during a period of 1 microsecond.	Vibration after temperature cycling as follows:  -40°C dwell time 1,0h -40°C -> +125°C 1,5h +125°C dwell time 1,0h +125°C -> -40°C 1,5h  Duration of each cycle: 5h, 50 cycles, total time:250h  Vibration must be realized at the end of temperature cycling.  16 h each axis; total time: 48h each sample
<b>Sealing Tests</b>			
12	<b>Submersion after high temperature exposure</b> Qualification acc. To USCAR-2 §5.6.5 Rev. 3	No water ingress  Isolation Resistance > 20 MOhm	-10 mating cycles -Dry heat storage at 125°C / 1008h -Submerge the samples within 30s after removing from the heat chamber in 5% salt water with liquid washing soap (22°C) to a depth of 30 – 40 cm for 30 minutes. -After 30min remove samples from salt water solution and perform the Isolation Resistance Test at 500V, DC (min. 20 MOhm acceptance criteria).
13	<b>Pressure/Vacuum Leakage after high temperature exposure</b> Qualification acc. To USCAR-2 §5.6.6 Rev. 3	No water ingress	-10 mating cycles -Submerge the samples in salt water solution (22°C) -Air Pressure Test up to 48 KPa (0,5 bar) Observe samples for 15 seconds and verify that there are no air bubbles -Vacuum Test 48 Kpa (7psi) / 15s -Isolation Resistance Test -Visual Inspection after disconnection -Dry heat storage at 125°C / 1008h -After heat soak perform immediately Pressure Leak Test up to 28 KPa. (4psi) -Vacuum Test 28 Kpa (4psi) / 15s -Isolation Resistance Test -Visual Inspection after disconnection