



DEUTSCH* DRC22-40PX Series Connector System

1. SCOPE

1.1. Content

This specification covers performance, tests and quality requirements for the TE Connectivity (TE) DRC22-40PX Series Connector System.

1.2. Qualification

When tests are performed on the subject product line, procedures specified in Figure 2 shall be used. All inspections shall be performed using the applicable inspection plan and product drawing.

1.3 Successful qualification testing on the subject product line was completed in 2009. The Qualification Test Report number for this testing is [501-151074](#). These documents are on file at and available from Product Engineering, Industrial Commercial Transportation (ICT).

2. APPLICABLE DOCUMENTS AND FORMS

The following documents and forms constitute a part of this specification to the extent specified herein. Unless otherwise indicated, the latest edition of the document applies.

2.1 TE Connectivity (TE) Documents

- [109-1](#) General Requirements for Testing
- [108-151052](#) DRC26 Product Specification
- [408-151007](#) Instruction Guide DEUTSCH Extraction Tools
- [501-151052](#) DRC26 Qualification Test Report
- [501-151074](#) DRC22-40PX Qualification Test Report
- Product Drawings

X refers to A to B keys

DRC22-40PX	40pin Receptacle
DRC26-40SX	40pin Plug

2.2 Industry Documents

- DIN 72551-6: Road Vehicles—Low-Tension Cables—Part 6: Single-Core, Unscreened with Thin Insulation Wall; Dimensions, Materials, Marking
- ISO 6722: Road Vehicles—60 V and 600 V Single-Core Cables—Dimensions, Test Methods, and Requirements
- SAE J1128: Low Voltage Primary Cable
- SAE J2030: Heavy-Duty Electrical Connector Performance Standard

3. REQUIREMENTS

3.1 Design and Construction

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

3.2 Ratings

- Voltage: 250 VAC/VDC
- Current (Amp): See Figure 1

Contact Size	Wire Size AWG [mm ²]	All Circuits Energized (A)
20	16 [1.5-1.0]	7.5
	18 [0.8-0.75]	
	20 [0.5]	
	22 [0.35]	5

Figure 1

- Temperature: -55°C to +125°C
- Ingress Protection: Not tested
- Flammability: Not tested. Housing material is UL V-0.

3.3 Test Requirements and Procedures Summary

Unless otherwise specified, all tests shall be performed at ambient environmental conditions.

Test Description	Requirement	Procedure														
Examination of Product	Free of defects that could affect the electrical or mechanical performance of the part or degrade the long term performance of the part.	Examine samples for defects or damage (i.e. torn seals, cracked plastic, missing parts, arching, charring, identification, finish, interchangeability, workmanship, etc.)														
ELECTRICAL																
Insulation Resistance	1000 MΩ minimum	Check each contact to all other contacts and the shell, if shell is conductive. Test to be performed using a 500 VDC ±10% Megohmmeter.														
ENVIRONMENTAL																
Thermal Shock	No evidence of cracking, chipping, or other damage detrimental to the normal operation of the connector.	SAE J2030 Mated connector shall be subjected to 10 cycles of thermal shock. 1 cycle shall consist of a soak time at -55°C ambient, then a transition within 2 minutes to an ambient of 125°C, with a soak time there and then a transition back to -55°C ambient within 2 minutes. The soak times shall be established as the time necessary to bring the internal connector temperature on test to within 5°C of each of the ambient temperatures.														
Water Immersion	Insulation resistance 1000 MΩ minimum	Mated connectors shall be placed in an oven at +125 ±3°C for 2 hours minimum then immediately be placed in water with a 5% slat by weight content and 0.1 g/L wetting solution to a depth of 3 feet for 4 hours minimum. The free ends of the mated connectors must remain out of the water to prevent wicking of the water through the open wires. Water temperature to be +23 ±3°C.														
Fluid Resistance	No evidence of cracking, chipping, or other damage detrimental to the normal operation of the connector.	Subject each sample group to one fluid only. The wired mated connectors shall be submerged in the fluids below at the temperatures listed. Each connector shall be submerged for 5 minutes, then removed from the fluid to air dry for 24 hours. This cycle is to be completed a total of 5 cycles. <table border="1" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th>Fluid</th> <th>Temperature ± 3°C</th> </tr> </thead> <tbody> <tr> <td>Motor Oil 30 weight</td> <td>+60 [140]</td> </tr> <tr> <td>Brake Fluid (disc type 1)</td> <td>+60 [140]</td> </tr> <tr> <td>Gasoline</td> <td>+25 [77]</td> </tr> <tr> <td>Diesel Fuel #2</td> <td>+60 [140]</td> </tr> <tr> <td>50/50 Antifreeze/Water mixture</td> <td>+60 [140]</td> </tr> <tr> <td>Transmission Oil 90 weight</td> <td>+60 [140]</td> </tr> </tbody> </table>	Fluid	Temperature ± 3°C	Motor Oil 30 weight	+60 [140]	Brake Fluid (disc type 1)	+60 [140]	Gasoline	+25 [77]	Diesel Fuel #2	+60 [140]	50/50 Antifreeze/Water mixture	+60 [140]	Transmission Oil 90 weight	+60 [140]
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Figure 2

i **NOTE**

a) All cavities wired with the minimum approved wire gauge per SAE J1128 suitable for the terminal size and with enough length to accommodate testing. Wire insulation shall be minimum diameter per SAE J1128 and shall be verified to be within the connector wire sealing range. Crimp characteristics (i.e. height, width, etc.) shall be checked prior to testing.

All unsealed cavities shall be secured with sealing plugs. To prevent capillary action on the sealed connector, all free wire ends and test points (i.e. millivolt test connection) shall be sealed with alcohol-based RTV silicone or equivalent and covered with heat shrink tubing.

b) Specimens shall be prepared in accordance with applicable production drawings and shall be selected at random from current production.

3.4 Product Qualification and Requalification Test Sequence

TEST OR EXAMINATION	TEST GROUP (a)	
	1	2
	TEST SEQUENCE (b)	
Examination of Product	1,6	1,7
Insulation Resistance	2,5	2,5
Thermal Shock	3	3
Water Immersion	4	4
Fluid Immersion		6

i **NOTE**

(a) Specimens shall be prepared in accordance with applicable Instruction Sheets and shall be selected at random from current production.

- Groups 1-2, Specimens shall consist of 40 position connectors with DEUTSCH Solid Terminal System size 20 gold pins with 20 AWG and DEUTSCH Stamped and Formed Terminal System size 20 gold sockets with 20 AWG wire.

(b) Numbers indicate sequence in which tests are performed.

3.5 Revision History

Rev Ltr	Brief Description of Change	Date	Dwn	Apvd
A	Initial Release	22-Oct-2019	DM	DM