DEUTSCH* DRC22-50PXX Series Connector System

1. INTRODUCTION

1.1. Purpose

This report summarizes the results of testing performed on DEUTSCH DRC22-50PXX series connector system to determine conformance to the requirements of product specification 108-151073.

1.2. Scope

This report covers the electrical, mechanical, and environmental performance of the DEUTSCH DRC22-50PXX series connector system. Testing was performed at the DEUTSCH Industrial Products Division Laboratory in 2001. The test file numbers for this testing are listed in Figure 1. This documentation is on file at, and available from Product Engineering, Industrial Commercial Transportation (ICT) Laboratory.

Test Group	Test Report
1	010227-01 010227-02 010321-01 010322-03 010326-02 010416-01
2	010322-02 010420-01 010416-02 010516-01

Figure 1

1.3. Conclusion

The DEUTSCH DRC22-50PXX series connector system products listed in Paragraph 1.4 conform to the electrical, mechanical, and environmental performance requirements given in product specification 108-151073.

1.4. Test Specimens

Test specimens were representative of normal production lots. Specimens identified with the part numbers given in Figure 2 were used for testing.

DEUTSCH PART NUMBER	DESCRIPTION	TEST GROUP
DRC22-50P01	50pin Receptacle, Header	1-2
DRC26-50S01	50pin Plug	
1062-20-0144	Size 20 S&F Socket, Gold	

Figure 2

1.5. Environmental Conditions

Unless otherwise stated, the following environmental conditions prevailed during testing:

Temperature: 15° to 35°C

Relative humidity: 25 to 75%

1.6. Qualification Test Sequence

TEST OR EXAMINATION	TEST GROUP (a)	
	1	2
	TEST SEQUENCE (b)	
Visual Inspection	1,8	1,6
Temperature Life	3	2
Thermal Cycle	5	
Water Immersion	2,4,6	3,5
Fluid Resistance	7	4

(a) Specimens were prepared in accordance production drawings and were selected at random from current production.

- Groups 1-2 specimens consisted of 50-position connectors with DEUTSCH stamped and formed terminal system size 20 gold sockets with 20 AWG wire.

(b) Numbers indicate sequence that tests were performed.

Figure 3

2. TEST METHODS AND RESULTS

2.1. Visual Inspection (Groups 1,2)

A. Procedure: Not Applicable

B. Method: Examine samples for defects or damage (i.e. torn seals, cracked plastic, missing parts, arching, charring, identification, finish, interchangeability, workmanship, etc.)

C. Requirement: Free of defects that could affect the electrical or mechanical performance of the part or degrade the long term performance of the part.

D. Result: **PASSED.**

2.2. Thermal Cycle (Group 1)

A. Procedure: Not Applicable

B. Method: The test samples shall be cycled between -40°C to 120°C temperature extremes.

1. Cool the test samples to the lower operating temperature limit. The minimum dwell times at the temperature extremes are a function of the mass of the sample and are listed below.

2. Bring the environmental chamber to the opposite temperature limit at a rate of 2°C to 5°C per minute. Dwell at the limit temperature for at least the minimum time per below table.

3. Repeat step 2 39 times for a total of 20 cycles. For ease of testing, samples may be held at the temperature extremes for extended time, such as overnight. On the last cycle, thoroughly soak the test samples to -50°C for 8 hours.

WEIGHT OF SPECIMEN (GRAMS)	MINIMUM TIME (HOURS)
<136	0.5
136 TO 1.36 K	1.0
1.36 K TO 13.6 K	2.0
13.6 K TO 136 K	4.0
>136	8.0

C. Requirement:

D. Result: **PASSED.**

2.3. Water Immersion (Groups 1,2)

A. Procedure: Not Applicable

B. Method: Place the wired mated connectors in an oven at 50±5°C for 2 hours. Immediately immerse samples in a container of 21±5°C tap water (electrically conductive) to a depth of 90 cm for 120 minutes. The container shall be large enough, so the sample does not increase the water temperature more than 1°C. The wire leads shall be long enough to extend outside the container with sealed ends.

C. Requirement: Inspect for leakage inside dried sample

D. Result: **PASSED.**

2.4. Temperature Life (Groups 1,2)

A. Procedure: Not Applicable

B. Method: Mated connectors shall be exposed to a temperature of 120 ± 3 °C for 500 hours.

C. Requirement: There shall be no evidence of cracking, distortion, or detrimental damage.

D. Result: **PASSED.**

2.5. Fluid Resistance (Groups 1,2)

A. Procedure: Not Applicable

B. Method: Test sample are to be tested in a temperature chamber with the fluid stabilized to the chamber temperature listed below. Test sample shall be properly assembled and mated connectors. One sample is required for each fluid. On day 1 the sample shall be dipped for 5 seconds, removed and allowed to drip dry for 1 hour at the chamber temperature. Repeat test 6 times and allow sample to drip dry overnight at the chamber temperature. Fluid shall not be drained from recesses on sample. Repeat the 7 immersions for 4 more days.

FLUIDS	FLUID AND CHAMBER TEMPERATURE
DIESEL FUEL	60±3°C
ENGINE OIL	100±3°C
ETHYLENE GLYCOL (50%)-WATER (50%)	100±3°C
BRAKE FLUID	25±3°C

C. Requirement: Inspect for damage, such as cracked housing, seal displaced from housing, loose parts, inability to mate or unmate or couple housing, etc.

D. Result: **PASSED.**

3. REVISION HISTORY

Rev Ltr	Brief Description of Change	Date	Dwn	Apvd
A	Initial Release	21-Oct-2019	DM	DM