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**DEUTSCH\* DRC13-70PX-B027 Series Connector System IP6K9K**

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**1. INTRODUCTION**

1.1. Purpose

Testing was performed on DEUTSCH DRC13-70PX-B027 series connector system to determine conformance to IP6K9K. Test procedures are given in DIN 40050 part 9, dated May 1993.

1.2. Scope

This report covers the environmental sealing performance of the DRC13-70PX-B027 series connector system. Testing was performed by an outside laboratory at the in 2005. 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	IPD051107-05
2	IPD051107-05

**Figure 1**

1.3. Conclusion

The DEUTSCH DRC13-70PX-B027 series connector system conformed to the environmental sealing performance requirements for IP6K9K when tested per the sequences shown in Figure 3 of this document.

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
DRC13-70PA-B027	70pin, Receptacle, Header, 90°	1,2
DRC16-70SA	70pin, Plug	1-2

**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 Sequences

TEST OR EXAMINATION	TEST GROUP (a)	
	1	2
	TEST SEQUENCE (b)	
Visual Examination	1,3	1,3
Protection Against Dust (IP6X)	2	
Protection Against High Pressure/Steam Jet Cleaning (IPX9K)		2

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

- Groups 1-2 specimens consisted of 70 position connectors with sealing plugs in all contact cavities.

(b) Numbers indicate sequence that tests were performed.

**Figure 3**

## 2. SUMMARY OF TESTING

### 2.1. Visual Examination (Groups 1-2)

- A. Procedure: Not Applicable
- B. Method: The visual examination should be performed prior to testing, noting in detail any manufacturing or material defects such as cracks, tarnishing, deformities, etc.
- C. Requirement: No physical defects detrimental to product performance.
- D. Result: **PASSED.**

### 2.2. Protection Against Dust (IP6X) (Group 1)

- A. Procedure: DIN 40050, Part 9
- B. Method: The mated assemblies were placed in a dust chamber at room ambient temperature with  $<35\% \pm 5$  RH and exposed to 20 cycles. Each cycle consists of an air-blast for 6 seconds, creating dust/ air movement in the dust chamber, then followed by a 15-minute pause of the air-blast.  
The chamber size is 14.3 cubic ft. (36"x24"x23"H) which required 8.8 lbs. of dust to meet the dispersion rate below. Blast of air is produced by one nozzle at 58 psi downward toward the dust pile creating an upward or vertical plume of dust which then settles down onto the test samples. The dust does not circulate. Type of dust used was Arizona Fine Dust. The dispersion or suspensions rate of dust was approximately 0.25 grams/m<sup>2</sup>.
- C. Requirement: No dust visible inside connector.
- D. Result: **PASSED.**

### 2.3. Protection Against High Pressure/Steam Jet Cleaning (IPX9K) (Group 2)

- A. Procedure: DIN 40050, Part 9
- B. Method: Mated assemblies were attached to a rotating table. The rotation speed of the table was set at  $5 \pm 1$  RPM. The sample was sprayed with a flat fan type nozzle for 30 seconds from approximately 5 inches (127 mm) while rotating. The water temperature was approximately  $80^{\circ}\text{C} \pm 5^{\circ}\text{C}$ . The spray nozzle was positioned at an angle of  $0^{\circ}$  to the test sample. This procedure was repeated three more times with the spray nozzle repositioned each time to spray at an angle of  $30^{\circ}$ ,  $60^{\circ}$ , and  $90^{\circ}$  to the test sample. The water flow rate was measured at approximately 14.5 LPM, and the water pressure measured at approximately 8274 KPa (1200 psi).
- C. Requirement: No water visible inside connector
- D. Result: **PASSED.**

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### 3.1 Revision History

Rev Ltr	Brief Description of Change	Date	Dwn	Apvd
A	Initial Release	11-Oct-2019	DM	DM