1. Scope :

1.1 Contents

This specification covers the requirements for product performance, test methods and quality assurance provisions of 025 IDC Connectors .

Applicable product description and part numbers are as shown in Appendix 1.

2. Applicable Documents :

The following documents form a part of this specification to the extent specified herein. In the event of conflict between the requirements of this specification and the product drawing, the product drawing shall take precedence. In the event of conflict between the requirements of this specification and the referenced documents, this specification shall take precedence.

2.1 AMP Specifications :

A.	109-5000	Test Specification, General Requirements for Test Methods
B.	114-5276	Application Specification : 025 IDC Connectors
C.	501-5375	Qualification Test Report
	501-5438	Qualification Test Report (Wire to Wire)

2.2 Commercial Standards and Specifications:

A.	JASO D605	Multi-pole Connector for Automobiles
B.	JASO D7101	Test Methods for Plastic Molded Parts
C.	JIS C3406	Low Voltage Wires and Cables for Automobiles
D.	JIS D0203	Method of Moisture, Rain and Spray Test for Automobile Parts
E.	JIS D0204	Method of High and Low Temperature Test for Automobile Parts
F.	JIS D1601	Vibration Testing Method for Automobile Parts
G.	JIS R5210	Portland Cement
H.	MIL-STD-202	Testing Method 208 : Method of Soldering

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3. Requirements :

3.1 Design and Construction :

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

3.2 Materials :

A. Contact :

Description	Material	Finish
Tab(Male)	Copper Alloy or Brass	Tin-Plating
Receptacle(Female)	Copper Alloy	Tin-Plating

Fig.1

B. Housing : PBT

3.3 Ratings :

A. Voltage Rating : 12 V DC

B. Temperature Rating :-30～80℃

3.4 Performance Requirements and Test Descriptions :

The product shall be designed to meet the electrical, mechanical and environmental performance requirements specified in Fig.2 and Fig.3 All tests shall be performed in the room temperature, unless otherwise specified.

3.5 Test Requirements and Procedures Summary :

Para.	Test Items	Requirements	Procedures
3.5.1	Confirmation of Product	Meets requirements of product drawing and AMP Specification 114-5276.	Visually ,dimensionally and functionally inspected per applicable quality inspection plan
		Electrical Requirements	
3.5.2	Termination Resistance (Low Level)	8 mΩ Max. (Initial) 16 mΩ Max. (Final)	Subject mated contacts assembled in housing to 20 mV Max. open circuit at 10 mA. Fig. 4 AMP Spec. 109-5311-1
3.5.3	Termination Resistance (Specified Current)	8 mV/A Max. (Initial) 16 mV/A Max. (Final)	Subject mated contacts assembled in housing to 12 V Max. open circuit at 1A. Fig.4 AMP Spec. 109-5311-2
3.5.4	Dielectric Withstanding Voltage	No creeping discharge nor flashover shall occur.	Impressed voltage 1kVAC for 1 min. Mated connector. Fig.5 AMP Spec. 109-5301
3.5.5	Insulation Resistance	100 MΩ Min. (Initial) 100 MΩ Min. (Final)	Impressed voltage 500VDC Mated connector. Fig.5 AMP Spec. 109-5302
3.5.6	Current Leakage	3mA Max.	Impressed voltage 14VDC Fig.6 AMP Spec. 109-5312
3.5.7	Temperature Rise	60°C Max.	Measure temperature rising at wire crimped by applied current to all positions. Fig.7 AMP Spec. 109-5310
3.5.8	Over Current Loading	No ignition is allowed during the test.	Apply the current to only one position. Applied Current : Fig. 8
		Physical Requirements	
3.5.9	Vibration (High Frequency)	No electrical discontinuity greater than 1 μ sec. shall occur. Satisfy requirements of test item on the "3.6 sequence".	Vibration Frequency : 20→200→20Hz/3min. Acceleration : 44.1 m / s^2 Vibration Direction : X, Y, Z Duration: 3hours each Mounting: Fig. 9

Fig.2 (To be continued)

Para.	Test Items	Requirements	Procedures
3.5.10	Shock	No electrical discontinuity greater than 1 μ sec. shall occur.	Acceleration : 980m/s^2 Waveform : Half sine wave Duration : 6msec.Velocity Number of Drops: 3 drops each directions of X,-X, Y,-Y,Z and -Z axes, totally 18 drops Mounting : Fig. 9 AMP Spec. 109-5208
3.5.11	Connector Mating Force	70N Max.	Operation Speed : 100mm/min. Measure the force required to mate connectors. AMP Spec. 109-5206
3.5.12	Connector Unmating Force	70N Max.	Operation Speed : 100mm / min. Measure the force required to unmate connectors. (without housing lock) AMP Spec. 109-5206
3.5.13	Connector Locking Strength	100N Min.	Apply an axial pull-off load to one of the mated housing, measure locking strength. Operation Speed : 100mm/min. AMP Spec. 109-5210
3.5.14	Tensile Strength of Wire Termination	Wire Size(mm^2) / 0.08 / 0.22 Initial / 10N Min. / 30N Min. Final / 7N Min. / 20N Min. Wire Size(mm^2) / 0.3 / 0.5 Initial / 55N Min. / 80N Min. Final / 40N Min. / 60N Min.	Apply a pull-off load to terminated wire of contact secured on the tester. Operation Speed : 100mm/min.
3.5.15	Contact Retention Force(Secondary Lock)	90N Min.	Measure contact retention force with secondary lock set it effect. Operation Speed : 100mm/min. AMP Spec. 109-5212
3.5.16	Resistance to "Kojiri"	Satisfy requirements of test item on the "3.6 sequence".	Repeated mating-unmating by hand in up-down and right-left directions for 10 cycles. AMP Specification, 109-5215
3.5.17	Handling Ergonomics	No abnormalities allowed in manual mating/unmating handling.	Manually operated.

Fig.2(To be continued)

Para.	Test Items	Requirements	Procedures
		Environmental Requirements	
3.5.18	Thermal Shock	Satisfy requirements of test item on the "3.6 sequence".	-30℃/30min., 80℃/30min. Making this a cycle, repeat 1000 cycles. Monitor resistance-variation at closed circuit current of 10mA during the test. AMP Spec. 109-5103
3.5.19	Humidity (Steady State)	Satisfy requirements of test item on the "3.6 sequence". Current Leakage : 3mA Max.	90～95%R. H. , 60℃ , 96hours Monitor current leakage during the test. AMP Spec. 109-5105
3.5.20	Industrial Gas (SO_2)	Satisfy requirements of test item on the "3.6 sequence".	Unmated connector SO_2 Gas : 25ppm, 75% R. H. 25℃, 96 hours AMP Spec. 109-5107
3.5.21	Temperature Life (Heat Aging)	Satisfy requirements of test item on the "3.6 sequence".	100℃, 120hours AMP Spec. 109-5104
3.5.22	Resistance to Cold	Satisfy requirements of test item on the "3.6 sequence".	-30℃, 120hours AMP Spec. 109-5108
3.5.23	Humidity-Temperatur e Cycling	Satisfy requirements of test item on the "3.6 sequence".	Condition : Fig. 10 Making this condition a cycle, repeat 10 cycles. Monitor resistance-variation at closed circuit current of 10mA during the test.
3.5.24	Dust Bombardment	Satisfy requirements of test item on the "3.6 sequence".	Subject JIS R 5210 cement blow of 14.7N per 10 seconds in 15 minutes intervals for 8 cycles, with mating/unmating per 2 cycles. AMP Spec. 109-5110

Fig.2 (To be continued)

Para.	Test Items	Requirements	Procedures
3.5.25	Compound Environment Resistance	Satisfy requirements of test item on the "3.6 sequence". No electrical discontinuity greater than 1 μ sec. shall occur.	Temperature : 80°C Vibration Frequency : 20→200→20Hz/3Min. (Log) Acceleration : 44.1m/s^2 Vibration Direction : X, Y, Z Duration : 300hours Test Current : Fig. 11 Mounting : Fig. 9 Monitor resistance-variation, and after this test check if instant cutoff occurs for an hour on "3.5.9 vibration".
3.5.26	Dew Formation Tset	Satisfy requirements of test item on the "3.6 sequence".	0°C/10min.,80°C/90~95%/30min. Making this a cycle, repeat 48 cycles. Monitor current leakage during the test.

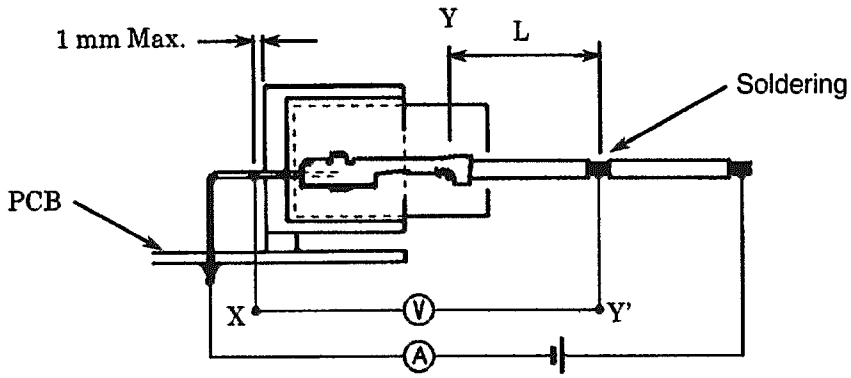
Fig. 2 (End)

3.6 Product Qualification Test Sequence

No.	Test Examination	Test Sequence[a]														
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
3.5.1	Confirmation of Product	1	1	1,5	1,6	1,4	1,5	1,5	1,5	1,5	1,5	1,3	1,5	1,6	1,6	1
3.5.2	Termination Resistance (Low Level)	3		2,6	2,7		2,6	2,6	2,6	2,6	2,6		2,6	2,7	2,7	
3.5.3	Termination Resistance (Rated Current)	4		3,7	3,8		3,7	3,7	3,7	3,7	3,7		3,7	3,8	3,8	
3.5.4	Dielectric withstanding Voltage	7							9				9			
3.5.5	Insulation Resistance	6							8				8			3
3.5.6	Current Leakage								4							2
3.5.7	Temperature Rise	5									8				9	
3.5.8	Over Current Loading			4												
3.5.9	Vibration (High Frequency)				5										5	
3.5.10	Shock					3										
3.5.11	Connector Mating Force	2														
3.5.12	Connector Unmating Force	8														
3.5.13	Connector Locking Strength		3					11	11		12		11			
3.5.14	Tensile Strength of Wire termination							10		8	11					
3.5.15	Connector Retention Force		2					9	10		10	5	10			
3.5.16	Resistance to "Kojiri"						4									
3.5.17	Handling Ergonomics							8			9	4	12			
3.5.18	Thermal Shock							4								
3.5.19	Humidity (Steady State)								4							
3.5.20	Industrial SO_2 Gas									4						
3.5.21	Temperature Life (Heat Aging)				4	2					4			4		
3.5.22	Resistance to Cold											2				
3.5.23	Humidity-Temperature Cycling												4			
3.5.24	Dust Bombardment													5		
3.5.25	Compound Enviroment Resistance														4	
3.5.26	Dew Formation Test															2

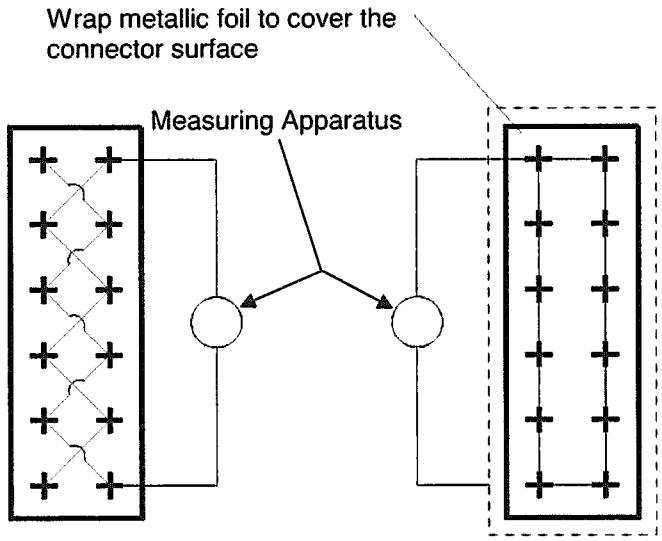
(a) Numbers indicate sequence in which tests are performed.

Fig.3(End)



Deduct resistance of Y-Y' (wire "L") from X-Y'

Fig. 4



Adjacent Contacts

Contacts – Housing

Fig. 5

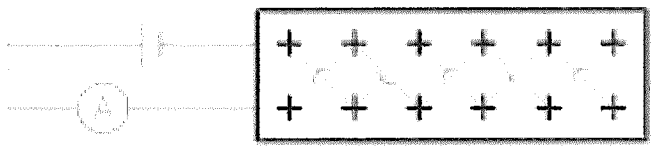


Fig.6

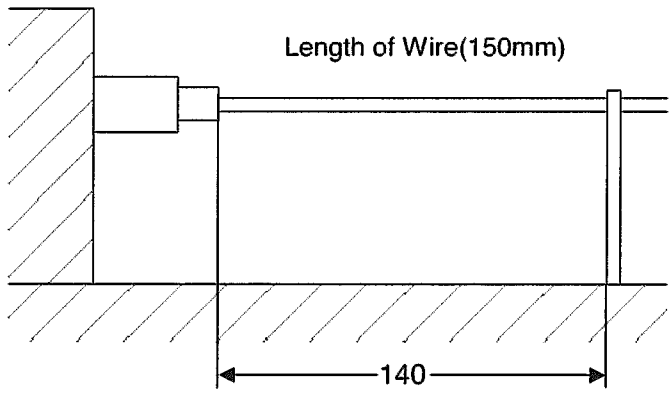
Test Current (A)

Kind of Connectors	Wire Size(mm^2) 0.08	0.22	0.3	0.5
4	0.9	3	4.2	6.6
8	0.825	2.75	3.85	6.05
12	0.75	2.5	3.5	5.5
16～20	0.6	2	2.8	4.4
24	0.45	1.5	2.1	3.3
32～40	0.3	1	1.4	2.2

Fig.7

Wire Size (mm^2)	Current (A)	Duration	Wire Size (mm^2)	Current (A)	Duration
0.22	8.2	60m	0.5	16.5	60m
	10.1	20s		20.2	200s
	11.3	5s		22.5	5s
	15	0.5s		30	1s
0.3	11	60m			
	13.5	10s			
	15	5s			
	20	1s			

Fig.8



Vibration Table

Fig. 9

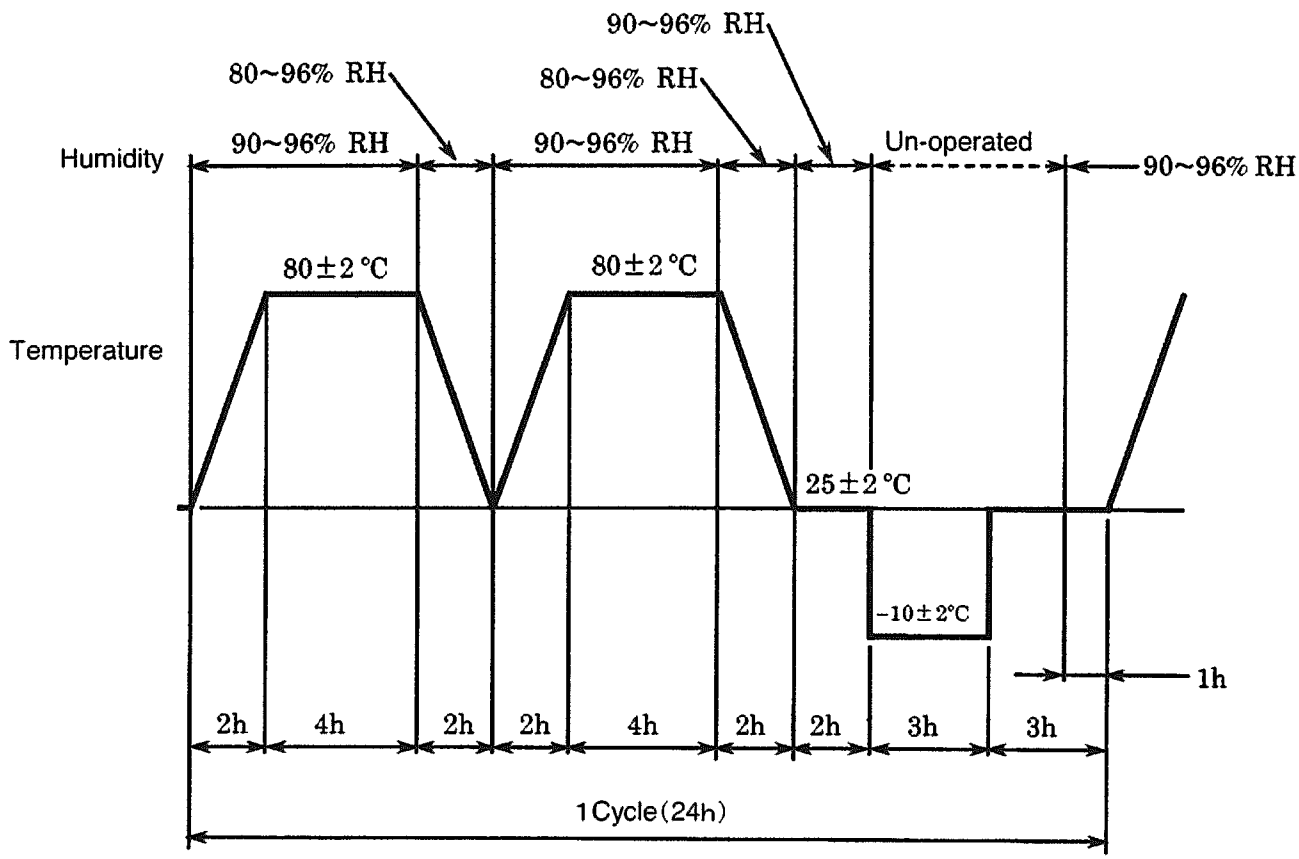


Fig.10

Test Current [A]

Kind of Connectors	Wire Size(mm^2) 0.08	0.22	0.3	0.5	Test Time
4	0.6	1.8	2.4	3.6	45min.ON 15min.OFF 300cycles
8	0.55	1.65	2.2	3.3	
12	0.5	1.5	2	3	
16～20	0.4	1.2	1.6	2.4	
24	0.3	0.9	1.2	1.8	
32～40	0.2	0.6	0.8	1.2	

Fig.11

Description and Product Part No

	Description Product Part No.*		
	FEMALE CONNECTOR	MALE CONNECTOR	
		W to W	W to B
4POS	IDC 4POS PLUG ASSEMBLY 1717248 (WITH A TERMINAL) IDC 4POS PLUG HOUSING 1473800 IDC 4POS LOCK HOUSING 1473801	CRIMP&IDC CAP ASSEMBLY 1473790	
8POS	IDC 4POS PLUG ASSEMBLY 1717248 (WITH A TERMINAL, 2PCS USAGE) IDC 4POS PLUG HOUSING 1473800 (2PCS USAGE) IDC 8POS LOCK HOUSING 1473802	CRIMP&IDC CAP ASSEMBLY 1473793	H-TYPE CAP ASSEMBLY 1376350
12POS	IDC 6POS PLUG ASSEMBLY 1717591 (WITH A TERMINAL, 2PCS USAGE) IDC 6POS PLUG HOUSING 1473809 (2PCS USAGE) IDC 12POS LOCK HOUSING 1473810	CRIMP&IDC CAP ASSEMBLY 1565894	H-TYPE CAP ASSEMBLY 1318772 V-TYPE CAP ASSEMBLY 1473898
16POS	IDC 8POS PLUG ASSEMBLY 1318690 (WITH A TERMINAL, 2PCS USAGE) IDC 8POS PLUG HOUSING 1318692 (2PCS USAGE) IDC 16POS LOCK HOUSING 1318694	CRIMP&IDC CAP ASSEMBLY 1473796	H-TYPE CAP ASSEMBLY 1318382 V-TYPE CAP ASSEMBLY 1565476
20POS	IDC 10POS PLUG ASSEMBLY 1717249 (WITH A TERMINAL, 2PCS USAGE) IDC 10POS PLUG HOUSING 1473807 (2PCS USAGE) IDC 20POS LOCK HOUSING 1473808	CRIMP&IDC CAP ASSEMBLY 1473750	
24POS	IDC 12POS PLUG ASSEMBLY 1746126 (WITH A TERMINAL, 2PCS USAGE) IDC 12POS PLUG HOUSING 1473803 (2PCS USAGE) IDC 24POS LOCK HOUSING 1473804		H-TYPE CAP ASSEMBLY 1318853 V-TYPE CAP ASSEMBLY 1376111

Appendix.1 (To be continued)

32POS	IDC 16POS PLUG ASSEMBLY 1717250 (WITH A TERMINAL, 2PCS USAGE) IDC 16POS PLUG HOUSING 1473805 (2PCS USAGE) IDC 32POS LOCK HOUSING 1473806	CRIMP&IDC CAP ASSEMBLY 1473799	H-TYPE CAP ASSEMBLY 1318745
40POS	IDC 20POS PLUG ASSEMBLY 1318691 (WITH A TERMINAL, 2PCS USAGE) IDC 20POS PLUG HOUSING 1318693 (2PCS USAGE) IDC 40POS LOCK HOUSING 1318695	CRIMP&IDC CAP ASSEMBLY 1747689	H-TYPE CAP ASSEMBLY 1318384 V-TYPE CAP ASSEMBLY 1376113
CONTACT (Tin-Plating)	IDC S size(0.08Sq):1565403 M size(0.22Sq):1565404 L size(0.3~0.5Sq):1318688	IDC S size:1473818 M size:1565406 CRIMP :1376109	

Appendix.1 (End)

* Note : Part number is consisted from listed base number and 1 digit numeric prefix and suffix with dash. Refer to catalog or customer drawing for specific part numbers for each base number. When prefix is zero, zero and dash are omitted.