PRODUCT SPECIFICATION	DATE: 2009/12/23	PAGE:	1/7
PRODUCT NO： C2003 SERIES			

-Index-

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PRODUCT SPECIFICATION	DATE: 2009/12/23	PAGE:	2/7

PRODUCT NO： C2003 SERIES

1. Scope：

This product specification contains the test results that general performances of C2003 SERIES connector were examined.

2. Part name & part number：

Part name		
Housing		C2003HF/HM/HM(B)C
Terminal	F-T	C2003F-T
	M-T	C2003M-T

3. Construction、dimensions、material & surface finish：

Construction and dimensions shall be in accordance with the referenced drawings.

Material and surface finish shall be as specified below.

Part name		Material	Surface finish
Housing		Nylon 66	UL 94V-0
Terminal	F-T	Phosphor Bronze	Tin-plated
	M-T	Phosphor Bronze	Tin-plated

4. Characteristics：

Current rating： 2.0A AC,DC

Voltage rating：125V AC,DC

Temperature range：-40°C ~ 105°C

5. Conditions：

The conditions shall be in accordance with the referenced drawing of next page.

Number	Item	Requirement
(1)	Bend up	4°max.
	Bend down	4°max.
	Twisting	3°max.
	Rolling	8°max.
(2)	Bell mouth (flare)	0.2-0.5 mm
(3)	Cut-off tab length	0.2 mm max.
(4)	Extruded wire length	0-1.0 mm
(5)	Seam	Seam shall not be opened and no wire allowed out of crimping area
	Wire strip length	1.2-1.7 mm ref.
(8)	Lance height	0.3 mm ref.

6. Mechanical test：

6.1 Crimp width、crimp height & crimp strength

After crimping, the crimped areas [(6)、(7)] should be as follows.

Wire Size (AWG)	Terminal Part Number	Conductor(mm)		Insulation(mm)		Crimp Strength (Kg)
		Crimp Width	Crimp Height	Crimp Width	Crimp Height	
#24	C2003F-T C2003M-T	1.15±0.10	0.75~0.80	1.38±0.10	1.45(max)	2.00(min)
#26			0.70~0.75		1.28±0.05	1.50(min)
#28			0.67~0.72		1.35(max)	1.00(min)

Note：no distorted after terminal crimped.

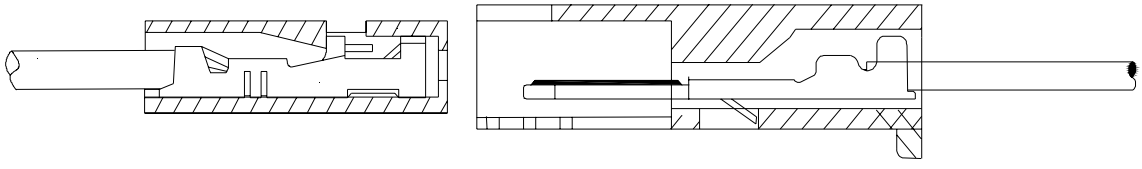
6.2 Insertion force (I.F.) & withdrawal force (W.F.)

(1) Requirement：(Single Row)

Number of Circuits	At initial		At 50th
	I.F. (max)	W.F. (min)	W.F. (min)
Single	0.70kg	0.20kg	0.15kg
2	1.00kg	0.25kg	0.20kg
3	1.40kg	0.30kg	0.25kg
4	1.80kg	0.35kg	0.30kg
5	2.20kg	0.40kg	0.35kg
6	2.60kg	0.45kg	0.40kg
7	3.00kg	0.50kg	0.45kg
8	3.40kg	0.55kg	0.50kg
9	3.80kg	0.60kg	0.55kg
10	4.20kg	0.65kg	0.60kg

(3) Test method：Housing with crimped terminal and wafer shall be mated and unmated on the same axis. Initial insertion and withdrawal forces and withdrawal forces at 50th shall be measured for single circuit and multi-circuits. For the measurement of single circuit , housing lock shall be removed.

Insertion and withdrawal speed：20±5 mm/minute.



PULL ◄——————————► PULL

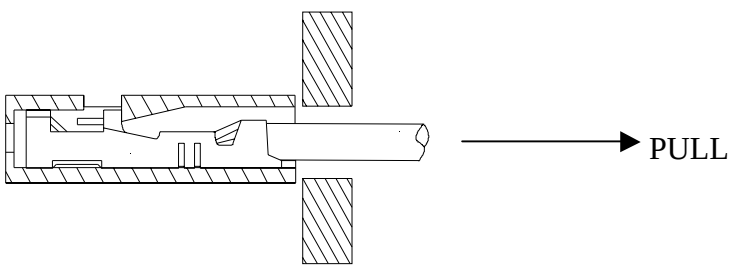
(4) Test results： (Single Row)

Number of Circuits		At initial		AT 50th
		I.F. (Kg)	W.F. (Kg)	W.F. (Kg)
Single	Max.	0.42	0.55	0.53
	Min.	0.31	0.34	0.32
	Ave.	0.39	0.42	0.39
2	Max.	0.60	1.03	0.99
	Min.	0.49	0.54	0.45
	Ave.	0.50	0.67	0.60
3	Max.	0.68	1.17	1.05
	Min.	0.54	0.73	0.79
	Ave.	0.57	0.89	0.88
4	Max.	0.82	1.25	1.23
	Min.	0.68	0.89	0.82
	Ave.	0.68	0.97	0.91
5	Max.	0.98	1.31	1.22
	Min.	0.74	0.95	0.87
	Ave.	0.79	1.08	1.02
6	Max.	1.10	1.40	1.32
	Min.	0.84	1.08	1.02
	Ave.	0.92	1.17	1.14
7	Max.	1.24	1.48	1.42
	Min.	0.95	1.09	1.04
	Ave.	1.08	1.26	1.25
8	Max.	1.33	1.51	1.46
	Min.	1.06	1.15	1.09
	Ave.	1.19	1.31	1.27
9	Max.	1.48	1.59	1.50
	Min.	1.18	1.18	1.11
	Ave.	1.22	1.40	1.28
10	Max.	1.54	1.66	1.52
	Min.	1.21	1.26	1.17
	Ave.	1.30	1.48	1.35

6.3 Contact retention force

(1) Requirement：1.00 Kg (min.)

(2) Test method：Crimped terminal shall be mounted in a housing(HF) and pulled in an alignment. The load to pull the terminal out of the housing shall be measured.



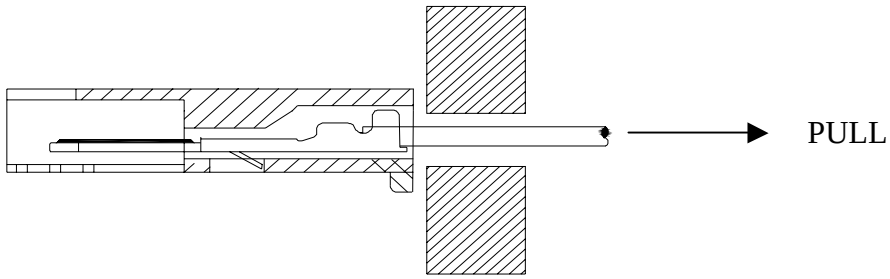
(3) Test results：

Max.	Min.	Ave.	N=10
3.05	2.08	2.44	

6.4 Contact retention force

(1) Requirement：1.0 Kg (min.)

(2) Test method：Crimped terminal shall be mounted in a housing(HM) and pulled in an alignment. The load to pull the terminal out of the housing shall be measured.



(3) Test results：

Max.	Min.	Ave.	N=10
2.69	2.03	2.45	

7. Electrical test：

7.1 Contact resistance

(1) Requirement：Initial : 20 mΩ (max.)
After environmental test : 30 m Ω (max.)

(2) Condition：Test current : 10 mA (DC)
Open voltage : 20mV (max.)

(3) Test result：See items 8.1 ~ 8.4

7.2 Insulation resistance

(1) Requirement：Initial : 1000 MΩ (min.)
After humidity test ：500 MΩ (min.)
After thermal shock test ：500 MΩ (min.)

(2) Test method：DC 500V shall be applied between outer surface of housing and terminal and between adjacent terminals to measure insulation resistance. (MIL-STD-202 , test method 302 , condition B)

(3) Test result：See items 8.1 & 8.3

7.3 Dielectric withstanding voltage

(1) Requirement：There shall be no breakdown nor flashover.

(2) Test method：Initially AC 500V (rms) and after humidity and thermal shock tests AC 250V (rms) shall be applied between outer surface of housing and terminal and between adjacent terminals for one minutes. (MIL-STD-202 , test method 301)
Test current : 1mA

(3) Test result：See items 8.1 & 8.3

8. Environment test：

8.1 Humidity

(1) Requirement：Contact resistance shall be 30 milliohms (max.) after the test. Insulation resistance shall be 250 megohms (min.) after the test. There shall be no breakdown nor flashover on dielectric withstanding voltage test.

(2) Test method：Mated connector shall be placed in a humidity chamber of the following conditions. After the test , contact resistance , insulation resistance and dielectric with-

Temperature : 40 ±2 °C

Humidity : 90% ~ 95% (RH)

Period : 240 hours continuously

(3) Test results：

Test item	Initial (mΩ)			After test (mΩ)			
Contact resistance	Max.	Min.	Ave.	Max	Min	Ave	
	4.35	3.01	3.48	4.25	2.98	3.37	N=30

Test item	Housing-Terminal (MΩ)		Terminal-Terminal (MΩ)		
Insulation resistance	Initial	After test	Initial	After test	
	500min	500min	500min	500min	N=20

Test item	Housing-Terminal (MΩ)		Terminal-Terminal	
D.W.V.	Initial	After test	Initial	After test
	Good	Good	Good	Good

(D.W.V. ：Dielectric withstanding voltage)

8.2 Salt spray

(1) Requirement：Contact resistance shall be 30 milliohms (max.) after the test.

(2) Test method：Mated connector shall be subjected to salt spray test of the following conditions. After the test, specimen shall be washed with running water and dried naturally before the measurement of contact resistance.

Temperature : 40 ±2 °C

Humidity : 90% ~ 95% (RH)

Period :8 or 16 or 24 or 32 or 48 hours

(3) Test result：

Test item	Initial (mΩ)			After test (mΩ)			
Contact resistance	Max.	Min.	Ave.	Max.	Min	Ave.	
	4.12	2.87	3.47	4.35	3.02	3.62	N=30

8.3 Thermal shock

(1) Requirement：Contact resistance shall be 30 milliohms (max.) after the test. Insulation resistance shall be 250 megohms (min.) after the test. There shall be no breakdown nor flashover on dielectric withstanding voltage test.

(2) Test method：Mated connector shall be subjected to thermal shock test of the following conditions. After the test , contact resistance , insulation resistance and dielectric withstanding voltage shall be measured.

1 cycle consists of：
-55 °C for 30 minutes
+85 °C for 30 minutes
Times of cycles：25 cycles

(3) Test results：

Test item	Initial (mΩ)			After test (mΩ)			
Contact resistance	Max.	Min.	Ave.	Max.	Min	Ave.	N=30
	4.57	3.10	3.54	4.32	3.12	3.52	

Test item	Housing-Terminal (MΩ)		Terminal-Terminal (MΩ)		
Insulation resistance	Initial	After test	Initial	After test	N=20
	500min	500min	500min	500min	

Test item	Housing-Terminal (MΩ)		Terminal-Terminal (MΩ)		
D.W.V.	Initial	After test	Initial	After test	N=20
	Good	Good	Good	Good	

D.W.V.：Dielectric withstanding voltage

8.4 Vibration

(1) Requirements：Contact resistance shall be 30 milliohms (max.) after the test. There shall be no current discontinuity longer than 1 microsecond during the test.

(2) Test method：Mated connector shall be mounted on a PCB and subjected to a vibration test of the following conditions. During the test , current continuity shall be checked. After the test , contact resistance shall be measured.

(MIL-STD-202 , test method 201)

Frequency : 10~55~10 Hz/min.
Amplitude : 1.5 mm
Direction : 1. Axis of up and down
2. Axis of right and left
3. Axis of front and back

Test item	Initial (mΩ)			After test (mΩ)			
Contact resistance	Max.	Min.	Ave.	Max.	Min	Ave.	N=30
	4.58	2.87	3.25	4.35	3.01	3.23	

Current discontinuity：There shall be no current discontinuity longer than 1 microsecond during the test.