

EVAFLEX® 5-SE
(0.5mm pitch FPC/FFC Conn.)
Part No. 20526-0**E-01

Test Report

Product Specification no. PRS-1562

10	T21142	November 4, 2021	K.Hashimoto	M.Muro	H.Ikari
9	T19154	November 19, 2019	S.Shigekoshi	M.Muro	H.Ikari
8	T18109	September 24, 2018	H.Kaneko		Y.Shimada
7	T18105	September 14, 2018	H.Kaneko		Y.Shimada
Rev.	ECN	Date	Prepared by	Checked by	Approved by

1. Purpose

To evaluate the performance of EVAFLEX5-SE Connector in accordance with PRS-1562.

2. Specimen

(1) Connector : EVAFLEX5-SE Connector (P/N : 20526-0**E-01)

(2) FFC : Made by Sumitomo Electric Industrial, Ltd.

Thickness Lead : $t=0.3\pm0.05$ (Actual measurement: 0.30~0.31mm)

Made by Hitachi Cable Fine-Tech, Ltd.

Thickness Lead : $t=0.3\pm0.05$ (Actual measurement: 0.31~0.33mm)

(3) FPC(125°C heat resistant FPC) : Made by NIPPON MECTRON, Ltd.

Thickness Lead : $t=0.3\pm0.05$ (Actual measurement: 0.303~0.306mm)

3. Test Sequence

All the evaluations were performed in accordance with Table 1. Test Sequence.

4. Result

Using FFC test result see Table 2-1 to 2-4, Graph 1 to 16.

Using FPC test result see Table 3-1 to 3-4, Graph 17 to 32.

For the details of the testing conditions and requirements, see PRS-1562.

The "n" in the tables show the number of measurement points.

5. Conclusion

All the specimens met the requirements of PRS-1562.

Table 1 Test Sequence and Sample Quantity

Test Item	グループ／Group																	
	A	B	C	D	E	F	G	H	I	J	K	L	N	P	Q	R	S	T
Contact Resistance	2,6				1,3,5	1,3	1,3	1,3	1,3	1,3	1,3	1,5	1,3	1,3	1,3			
Insulation Resistance												2,6						
D. W. Voltage												3,7						
Temperature rising																		1
Mating Force	1,5																	
Unmating Force	3,7																	
Durability	4																	
FPC/FFC Retention Force		1																
Contact Retention Force			1															
HoldDown Retention Force				1														
Vibration					2													
Shock					4													
Fretting corrosion						2												
High Temp. Life							2											
High Temp. Operation								2										
Cold Temp. Life									2									
Cold Temp. Operation										2								
High Humidity Life											4							
High Humidity												2						
Thermal Shock													2					
SO2 Gas														2				
Salt Water Spray															2			
Soldering Heat Resistance																1		
Solderability																	1	
Specimen Quantity.	10 pcs	10 pcs	10 pcs	10 pcs	10 pcs	10 pcs	10 pcs	10 pcs	10 pcs	10 pcs	10 pcs	10 pcs	10 pcs	10 pcs	10 pcs	10 pcs	10 pcs	5 pcs

※Numbers indicate sequence in which tests are performed.

Table 2-1 Test Result : ①Using FFC

Test Item	Measurements		Spec.	Set	n	DATA					Judge
						AVE.	MAX.	MIN.	s	X±3s	
A Group Durability (※1.)	Contact Resistance (mΩ)		Initial	5	300	35.049	39.94	30.53	1.839	40.566	Pass
			After 30th Cycle			0.080	3.82	-3.30	1.325	4.055	Pass
	10P	Mating Force (N)	Initial	5	5	3.958	4.02	3.90	0.060	4.138	Pass
			After 30th Cycle			3.339	3.55	3.30	0.194	3.921	Pass
		Un-mating Force (N)	Initial	5	5	2.256	2.39	2.16	0.120	1.896	Pass
			After 30th Cycle			2.224	2.33	2.12	0.105	1.909	Pass
		Mating Force (N)	Initial	5	5	5.793	5.89	5.69	0.100	6.093	Pass
			After 30th Cycle			4.980	5.29	4.79	0.271	5.793	Pass
		Un-mating Force (N)	Initial	5	5	3.260	3.56	3.05	0.267	2.459	Pass
			After 30th Cycle			3.323	3.50	3.14	0.180	2.783	Pass
	22P	Mating Force (N)	Initial	5	5	7.740	8.04	7.30	0.389	8.907	Pass
			After 30th Cycle			6.877	7.26	6.50	0.380	8.017	Pass
		Un-mating Force (N)	Initial	5	5	4.920	5.17	4.66	0.255	4.155	Pass
			After 30th Cycle			4.797	5.12	4.49	0.315	3.852	Pass
	30P	Mating Force (N)	Initial	5	5	8.878	8.93	8.80	0.069	9.085	Pass
			After 30th Cycle			7.619	7.95	7.34	0.312	8.555	Pass
		Un-mating Force (N)	Initial	5	5	4.929	5.16	4.66	0.251	4.176	Pass
			After 30th Cycle			4.741	5.09	4.38	0.355	3.676	Pass
	40P	Mating Force (N)	Initial	5	5	12.253	12.60	11.88	0.360	13.333	Pass
			After 30th Cycle			10.075	10.42	9.68	0.373	11.194	Pass
		Un-mating Force (N)	Initial	5	5	6.707	7.21	6.26	0.477	5.276	Pass
			After 30th Cycle			6.526	7.28	5.72	0.779	4.189	Pass
	45P	Mating Force (N)	Initial	5	5	15.875	16.25	15.38	0.446	17.213	Pass
			After 30th Cycle			13.980	14.23	13.58	0.348	15.024	Pass
		Un-mating Force (N)	Initial	5	5	9.963	10.03	9.84	0.105	9.648	Pass
			After 30th Cycle			9.372	9.58	9.17	0.204	8.760	Pass
	50P	Mating Force (N)	Initial	5	5	14.621	14.89	14.33	0.284	15.473	Pass
			After 30th Cycle			12.085	12.25	11.91	0.170	12.595	Pass
		Un-mating Force (N)	Initial	5	5	8.589	8.83	8.33	0.251	7.836	Pass
			After 30th Cycle			8.144	8.88	7.48	0.703	6.035	Pass

(※1.) 10P, 15P, 22P, 45P, 55P are the results of using FFC made by Hitachi Cable Fine Tech, Ltd,
and other core numbers are the results of using FFC made by Sumitomo Electric Industries, Ltd.

Table 2-2 Test Result : ①Using FFC

Test Item	Measurements			Spec.	Set	n	DATA					Judge
							AVE.	MAX.	MIN.	s	X±3s	
A Group Durability (※1.)	55P	Mating Force (N)	Initial	33.0N MAX.	5	5	20.058	20.62	19.70	0.494	21.540	Pass
			After 30th Cycle	33.0N MAX.			17.216	17.84	16.55	0.642	19.142	Pass
		Un-mating Force (N)	Initial	4.95N MIN.	5	5	12.029	12.76	11.65	0.632	10.133	Pass
			After 30th Cycle	4.95N MIN.			11.414	11.68	11.01	0.357	10.343	Pass
	60P	Mating Force (N)	Initial	36.0N MAX.	5	5	17.086	17.58	16.68	0.455	18.451	Pass
			After 30th Cycle	36.0N MAX.			14.648	15.44	13.87	0.783	16.997	Pass
		Un-mating Force (N)	Initial	5.40N MIN.	5	5	10.191	10.96	9.35	0.809	7.764	Pass
			After 30th Cycle	5.40N MIN.			9.811	10.18	9.47	0.353	8.752	Pass
B Group FFC Retention Force (※1.)	10P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	32.260	32.93	31.48	0.731	30.067	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	15P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	32.070	33.06	31.40	0.875	29.445	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	22P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	32.227	33.52	30.31	1.693	27.148	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	30P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	32.431	34.08	29.23	1.900	26.731	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	40P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	34.140	36.90	32.40	1.852	28.584	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	45P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	35.473	36.72	33.62	1.635	30.568	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	50P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	35.509	36.56	34.16	0.915	32.764	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	55P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	39.890	40.36	39.61	0.410	38.660	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	60P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	35.874	37.33	34.75	1.110	32.544	Pass
		Appearance		No deformation	5	5	No deformation					Pass

(※1.) 10P, 15P, 22P, 45P, 55P are the results of using FFC made by Hitachi Cable Fine Tech, Ltd,
and other core numbers are the results of using FFC made by Sumitomo Electric Industries, Ltd.

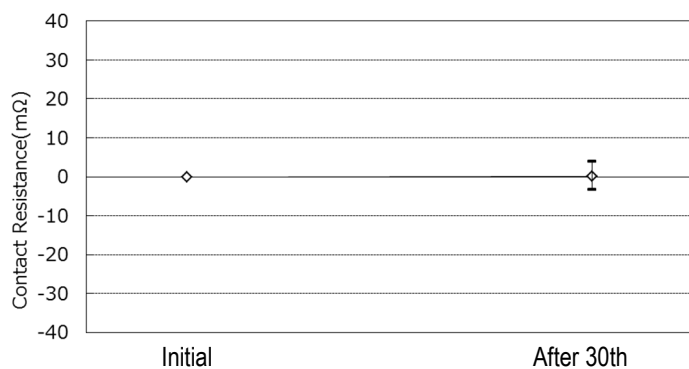
Table 2-3 Test Result : ①Using FFC

Test Item	Measurements		Spec.	Set	n	DATA					Judge
						AVE.	MAX.	MIN.	s	X±3s	
C Group Contact Retention Force	Contact Retention Force (N)		0.6N MIN.	—	20	1.030	1.24	0.94	0.073	0.811	Pass
D Group Hold Down Retention Force	Hold Down Retention Force (N)		1.47N MIN.	—	10	2.795	3.15	2.33	0.261	2.012	Pass
E Group Vibration & Shock	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	33.235	39.72	27.86	2.299	40.132	Pass
		After Vibration	ΔR=40mΩMAX.			-0.254	6.19	-6.15	2.809	8.173	Pass
		After Shock				0.996	6.37	-5.14	2.427	8.277	Pass
	Electrical Discontinuity	During Vibration	1μsec. MAX.	5	5	No discontinuity					Pass
		During Shock				No discontinuity					Pass
	Appearance	After Vibration	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					Pass
		After Shock				No Abnormality					Pass
F Group Fretting corrosion	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	34.597	40.48	28.30	2.218	41.251	Pass
		After Testing	ΔR=40mΩMAX.			-0.990	5.36	-5.61	2.196	5.598	Pass
	Appearance	After Testing	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					Pass
G Group High Temp. Life	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	35.706	40.85	31.11	2.069	41.913	Pass
		After Testing	ΔR=40mΩMAX.			-0.707	4.27	-5.47	1.662	4.279	Pass
H Group High Temp. Operation	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	34.095	39.81	29.48	2.136	40.503	Pass
		After Testing	ΔR=40mΩMAX.			-0.868	5.70	-5.98	2.655	7.097	Pass
J Group Cold Temp. Life	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	32.651	38.60	28.74	2.001	38.654	Pass
		After Testing	ΔR=40mΩMAX.			-0.273	4.33	-5.17	1.637	4.638	Pass
K Group Cold Temp. Operation	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	32.680	38.40	28.74	1.941	38.503	Pass
		After Testing	ΔR=40mΩMAX.			0.656	6.84	-5.90	2.686	8.714	Pass
L Group High Humidity Life	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	35.399	41.06	30.18	2.216	42.047	Pass
		After Testing	ΔR=40mΩMAX.			-0.654	5.75	-6.40	2.548	6.990	Pass
	Insulation Resistance (MΩ)	Initial	500MΩ MIN.	5	150	5×10 ⁵ MΩ MIN					Pass
		After Testing	500MΩ MIN.			3×10 ³ MΩ MIN					Pass
	D.W.Voltage	Initial	No abnormality adversely affecting the performance shall occur.	5	150	No Abnormality					Pass
		After Testing				No Abnormality					Pass
M Group High Humidity	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	33.830	41.20	30.00	2.470	41.240	Pass
		During Testing	70mΩ MAX.			34.555	40.29	31.09	2.089	40.822	Pass

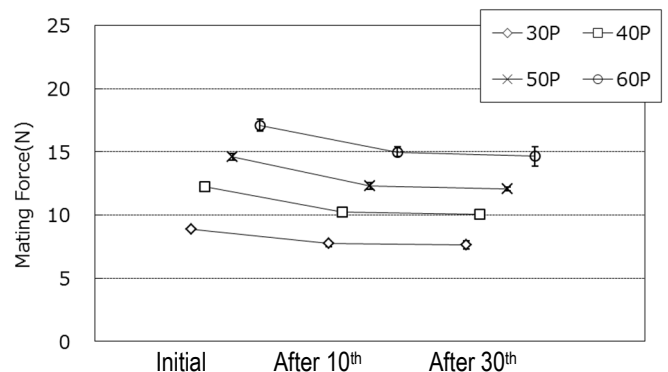
Table 2-4 Test Result : ①Using FFC

Test Item	Measurements		Spec.	Set	n	DATA					Judge
						AVE.	MAX.	MIN.	s	X±3s	
N Group Thermal Shock	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	35.777	40.84	31.18	2.090	42.047	Pass
		After Testing	ΔR=40mΩMAX.			-0.634	5.01	-5.88	1.953	5.225	Pass
P Group GAS (SO ₂)	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	34.552	39.57	29.23	2.083	40.801	Pass
		After Testing	ΔR=40mΩMAX.			-0.747	4.75	-5.88	1.891	4.926	Pass
Q Group Salt Water Spray	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	33.345	40.35	28.41	2.478	40.779	Pass
		After Testing	ΔR=40mΩMAX.			-0.200	5.09	-6.45	2.143	6.229	Pass
R Group Soldering Heat Resistance	Appearance		No abnormality adversely affecting the performance shall occur.	10	10	No Abnormality					Pass
S Group Solderability	Appearance		Fillet is made (Fillet angle ≤ 90°)	10	10	No problem					Pass
T Group Temperature Rise	0.35A/Pin(60Pin)		ΔT=30K MAX.	5	5	ΔT=21.7K MAX.					Pass
	0.50A/Pin(15Pin)		ΔT=30K MAX.	5	5	ΔT=27.6K MAX.					Pass

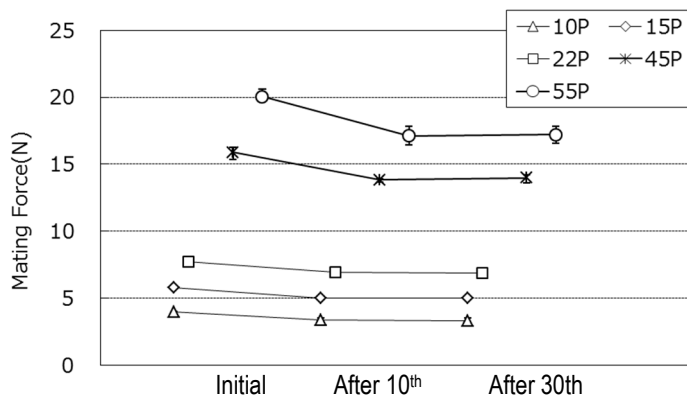
(※2.) Graph2, Graph4 are the results of using FFC(30P,40P,50P,60P) made by Hitachi Cable Fine Tech, Ltd,
and Graph2, Graph4 are the results of using FFC(10P,15P,22P,45P,55P) made by Sumitomo Electric Industries, Ltd.



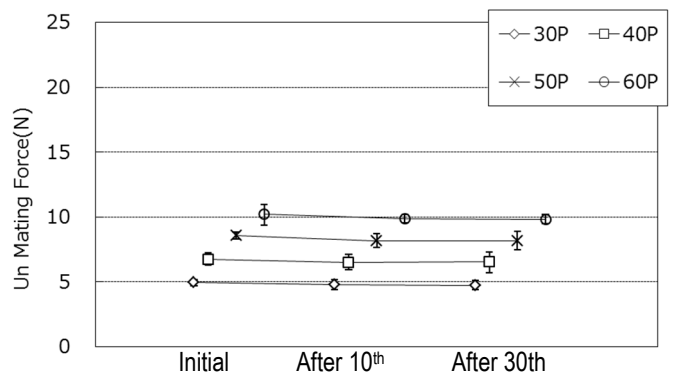
Graph1. A change of contact resistance
(A Group:Durability)



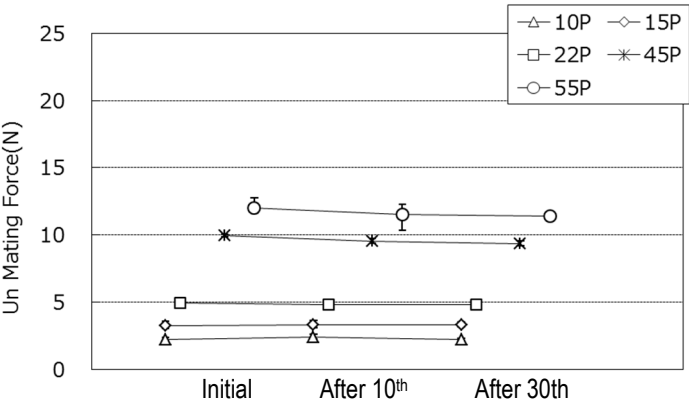
Graph2. A change of mating force
(A Group:Durability)



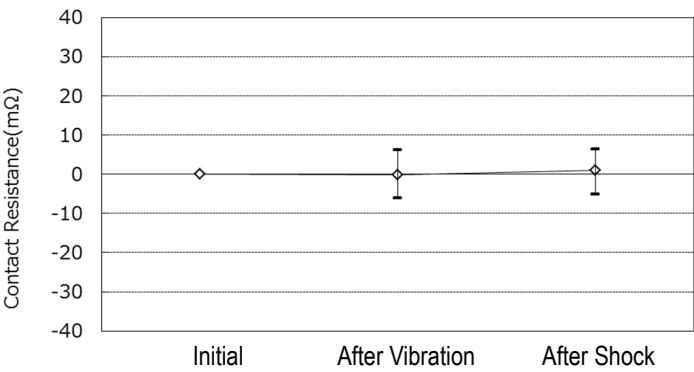
Graph3. A change of mating force
(A Group:Durability)



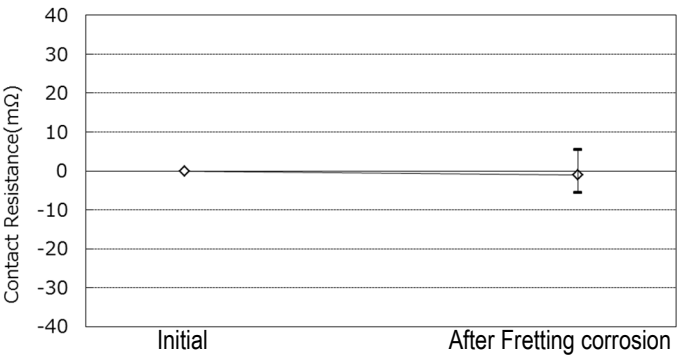
Graph4. A change of un mating force
(A Group:Durability)



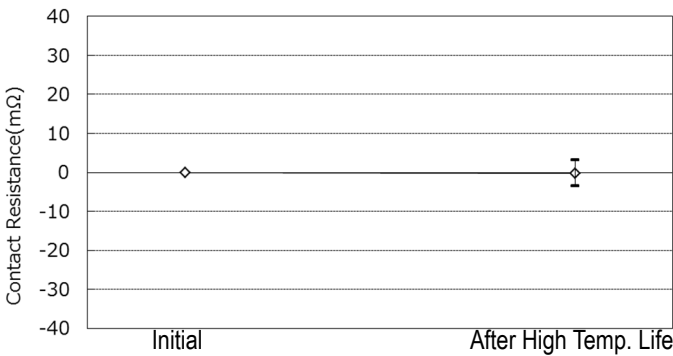
Graph5. A change of mating force
(A Group:Durability)



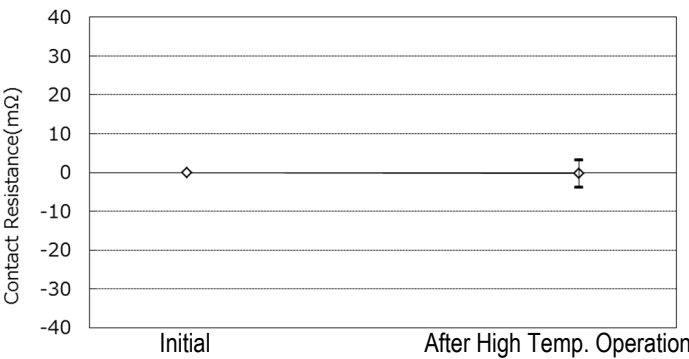
Graph6. A change of contact resistance
(E Group:Vibration & Shock)



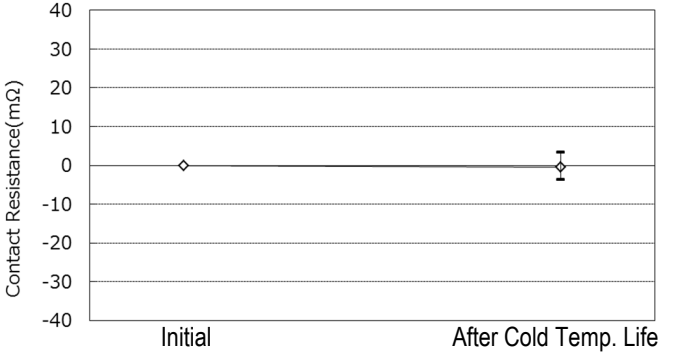
Graph7. A change of contact resistance
(F Group:Fretting corrosion)



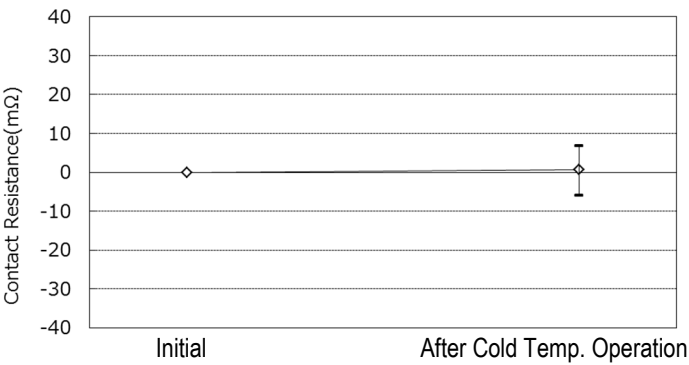
Graph8. A change of contact resistance
(G Group:High Temp. Life)



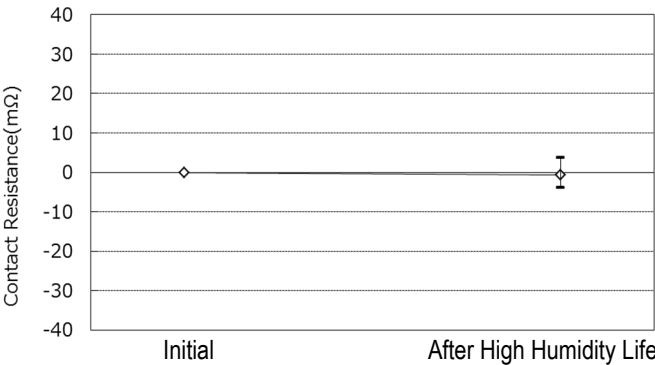
Graph9. A change of contact resistance
(H Group:High Temp. Operation)



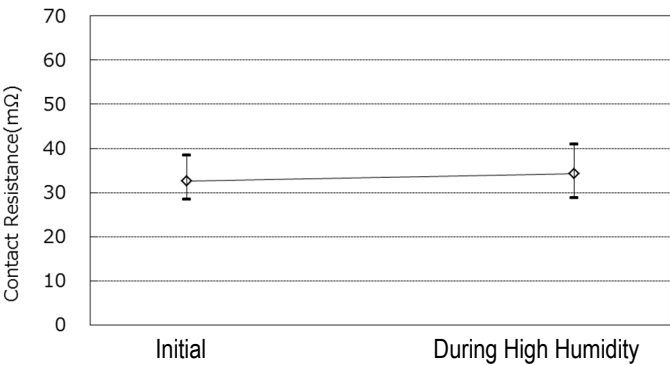
Graph10. A change of contact resistance
(J Group:Cold Temp. Life)



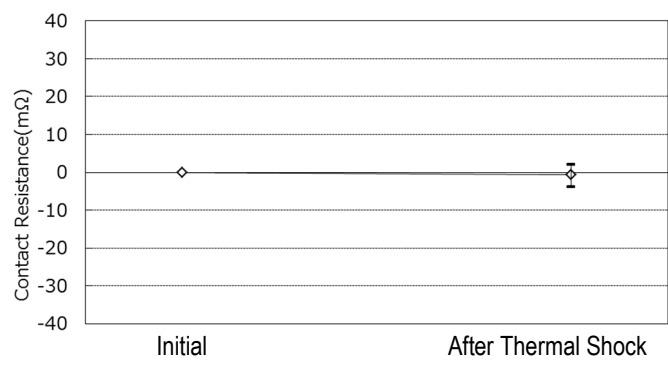
Graph11. A change of contact resistance
(K Group: Cold Temp. Operation)



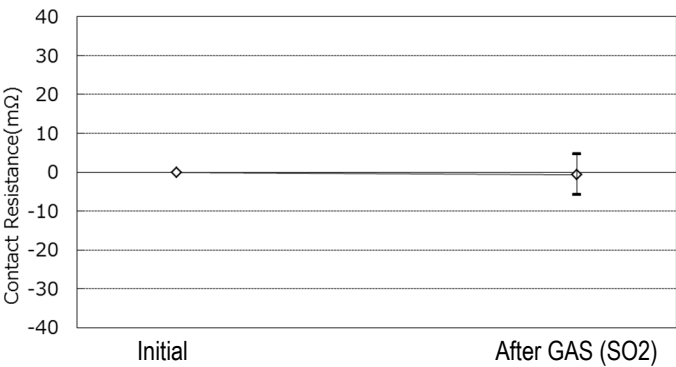
Graph12. A change of contact resistance
(L Group: High Humidity Life)



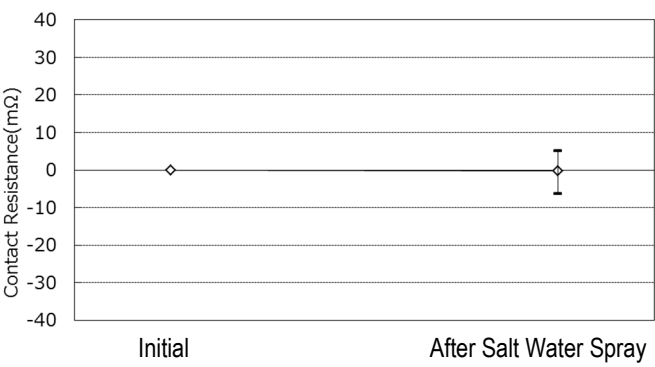
Graph13. A change of contact resistance
(M Group: High Humidity)



Graph14. A change of contact resistance
(N Group: Thermal Shock)



Graph15. A change of contact resistance
(P Group: GAS (SO2))



Graph16. A change of contact resistance
(Q Group: Salt Water Spray)

Table 3-1 Test Result : ②Using FPC

Test Item	Measurements		Spec.	Set	n	DATA					Judge	
						AVE.	MAX.	MIN.	s	X±3s		
A Group Durability (※1.)	Contact Resistance (mΩ)		Initial	70mΩ MAX.	5	300	35.021	40.20	30.29	1.845	40.556	Pass
			After 30th Cycle	ΔR=40mΩMAX.			0.078	4.73	-5.72	2.258	6.852	Pass
	10P	Mating Force (N)	Initial	6.0N MAX.	5	5	2.730	2.94	2.43	0.216	3.378	Pass
			After 30th Cycle	6.0N MAX.			2.368	2.51	2.23	0.101	2.671	Pass
		Un-mating Force (N)	Initial	0.90N MIN.	5	5	2.718	2.98	2.48	0.186	2.160	Pass
			After 30th Cycle	0.90N MIN.			1.972	2.15	1.84	0.116	1.624	Pass
	15P	Mating Force (N)	Initial	9.0N MAX.	5	5	3.740	4.08	3.55	0.214	4.382	Pass
			After 30th Cycle	9.0N MAX.			3.268	3.41	3.10	0.126	3.646	Pass
		Un-mating Force (N)	Initial	1.35N MIN.	5	5	3.897	4.39	3.17	0.461	2.514	Pass
			After 30th Cycle	1.35N MIN.			2.647	2.81	2.47	0.141	2.224	Pass
	22P	Mating Force (N)	Initial	13.2N MAX.	5	5	5.036	5.57	4.72	0.332	6.032	Pass
			After 30th Cycle	13.2N MAX.			4.390	4.54	4.18	0.185	4.945	Pass
		Un-mating Force (N)	Initial	1.98N MIN.	5	5	5.422	6.11	4.69	0.557	3.751	Pass
			After 30th Cycle	1.98N MIN.			3.852	4.09	3.70	0.153	3.393	Pass
	30P	Mating Force (N)	Initial	18.0N MAX.	5	5	6.790	7.16	6.48	0.301	7.693	Pass
			After 30th Cycle	18.0N MAX.			6.100	6.49	5.69	0.294	6.982	Pass
		Un-mating Force (N)	Initial	2.7N MIN.	5	5	7.128	7.49	6.34	0.452	5.772	Pass
			After 30th Cycle	2.7N MIN.			4.976	5.45	4.62	0.349	3.929	Pass
	40P	Mating Force (N)	Initial	24.0N MAX.	5	5	8.852	9.55	8.47	0.453	10.211	Pass
			After 30th Cycle	24.0N MAX.			7.890	8.33	7.49	0.312	8.826	Pass
		Un-mating Force (N)	Initial	3.6N MIN.	5	5	9.500	9.94	9.26	0.275	8.675	Pass
			After 30th Cycle	3.6N MIN.			6.336	6.93	6.03	0.353	5.277	Pass
	45P	Mating Force (N)	Initial	27.0N MAX.	5	5	10.184	10.81	9.77	0.396	11.372	Pass
			After 30th Cycle	27.0N MAX.			9.042	9.47	8.68	0.357	10.113	Pass
		Un-mating Force (N)	Initial	4.05N MIN.	5	5	10.377	11.06	9.99	0.439	9.060	Pass
			After 30th Cycle	4.05N MIN.			7.049	7.39	6.50	0.421	5.786	Pass
	50P	Mating Force (N)	Initial	30.0N MAX.	5	5	11.642	12.06	11.31	0.273	12.461	Pass
			After 30th Cycle	30.0N MAX.			10.724	10.98	10.27	0.274	11.546	Pass
		Un-mating Force (N)	Initial	4.5N MIN.	5	5	11.302	11.76	10.76	0.414	10.060	Pass
			After 30th Cycle	4.5N MIN.			7.858	8.25	7.58	0.243	7.129	Pass

Table 3-2 Test Result : ②Using FPC

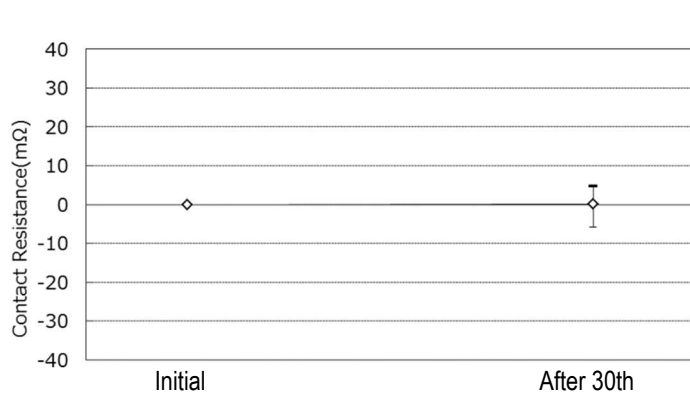
Test Item	Measurements			Spec.	Set	n	DATA					Judge
							AVE.	MAX.	MIN.	s	X±3s	
A Group Durability (※1.)	55P	Mating Force (N)	Initial	33.0N MAX.	5	5	12.598	12.73	12.39	0.129	12.985	Pass
			After 30th Cycle	33.0N MAX.			11.348	11.70	10.88	0.297	12.239	Pass
		Un-mating Force (N)	Initial	4.95N MIN.	5	5	12.563	13.00	12.21	0.346	11.525	Pass
			After 30th Cycle	4.95N MIN.			8.483	8.84	7.98	0.355	7.418	Pass
	60P	Mating Force (N)	Initial	36.0N MAX.	5	5	13.598	13.94	13.21	0.327	14.579	Pass
			After 30th Cycle	36.0N MAX.			12.654	12.87	12.40	0.176	13.182	Pass
		Un-mating Force (N)	Initial	5.40N MIN.	5	5	13.730	14.41	13.11	0.562	12.044	Pass
			After 30th Cycle	5.40N MIN.			9.247	9.72	8.87	0.415	8.002	Pass
B Group FFC Retention Force (※1.)	10P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	29.611	30.74	29.09	0.671	27.598	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	15P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	30.790	31.51	30.04	0.662	28.804	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	22P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	32.315	33.40	31.53	0.719	30.158	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	30P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	33.021	33.66	32.22	0.519	31.464	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	40P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	34.393	35.73	33.43	0.978	31.459	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	45P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	35.270	36.14	34.84	0.551	33.617	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	50P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	36.195	36.99	35.66	0.582	34.449	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	55P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	37.456	38.19	36.30	0.783	35.107	Pass
		Appearance		No deformation	5	5	No deformation					Pass
	60P	FPC/FFC Retention Force (N)		25.0N MIN.	5	5	38.623	39.50	37.38	0.834	36.121	Pass
		Appearance		No deformation	5	5	No deformation					Pass

Table 3-3 Test Result : ②Using FPC

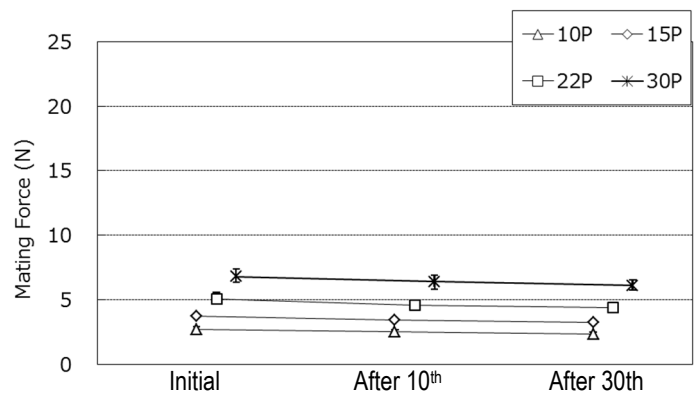
Test Item	Measurements		Spec.	Set	n	DATA					Judge
						AVE.	MAX.	MIN.	s	X±3s	
C Group Contact Retention Force	Contact Retention Force (N)		0.6N MIN.	—	20	1.030	1.24	0.94	0.073	0.811	Pass
D Group Hold Down Retention Force	Hold Down Retention Force (N)		1.47N MIN.	—	10	2.795	3.15	2.33	0.261	2.012	Pass
E Group Vibration & Shock	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	33.268	39.72	28.75	2.245	40.003	Pass
		After Vibration	ΔR=40mΩMAX.			-0.234	4.87	-4.80	2.298	6.66	Pass
		After Shock				0.653	4.63	-4.04	1.930	6.443	Pass
	Electrical Discontinuity	During Vibration	1μsec. MAX.	5	5	No discontinuity					Pass
		During Shock				No discontinuity					Pass
	Appearance	After Vibration	No abnormality adversely affecting the performance shall occur.	5	5	No Abnormality					Pass
		After Shock				No Abnormality					Pass
	F Group Fretting corrosion	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	34.729	40.63	29.45	2.121	41.092
After Testing			ΔR=40mΩMAX.	-0.870			5.37	-4.69	2.196	5.718	Pass
Appearance		After Testing	No abnormality adversely affecting	5	5	No Abnormality					Pass
G Group High Temp. Life	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	35.713	40.64	31.27	2.069	41.920	Pass
		After Testing	ΔR=40mΩMAX.			7.853	15.52	-0.29	3.896	19.541	Pass
H Group High Temp. Operation	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	32.964	38.98	26.34	2.523	40.533	Pass
		After Testing	ΔR=40mΩMAX.			0.154	6.76	-6.22	2.568	7.858	Pass
J Group Cold Temp. Life	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	32.400	37.77	26.58	2.087	38.661	Pass
		After Testing	ΔR=40mΩMAX.			0.048	5.99	-4.96	2.501	7.551	Pass
K Group Cold Temp. Operation	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	32.784	37.84	27.61	1.842	38.310	Pass
		After Testing	ΔR=40mΩMAX.			0.333	4.50	-5.88	2.337	7.344	Pass
L Group High Humidity Life	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	35.482	40.07	29.75	1.970	41.392	Pass
		After Testing	ΔR=40mΩMAX.			34.749	39.60	30.04	1.812	40.185	Pass
	Insulation Resistance (MΩ)	Initial	500MΩ MIN.	5	150	5×10 ⁵ MΩ MIN					Pass
		After Testing	500MΩ MIN.			3×10 ³ MΩ MIN					Pass
	D.W.Voltage	Initial	No abnormality adversely affecting the performance shall occur.	5	150	No Abnormality					Pass
		After Testing				No Abnormality					Pass
M Group High Humidity	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	33.874	40.17	28.89	2.118	40.228	Pass
		During Testing	70mΩ MAX.			0.603	4.86	-4.70	2.314	7.545	Pass

Table 3-4 Test Result : ②Using FPC

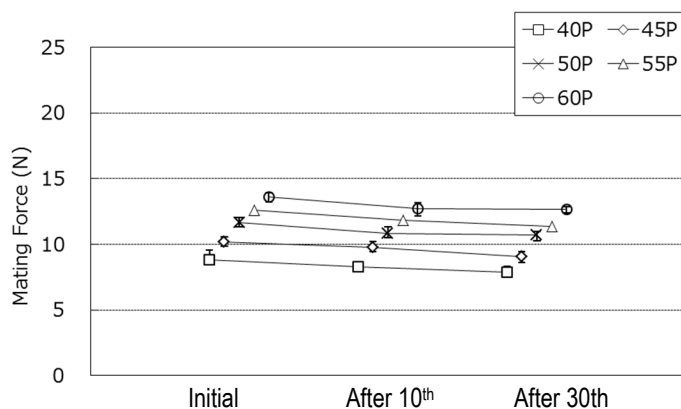
Test Item	Measurements		Spec.	Set	n	DATA					Judge
						AVE.	MAX.	MIN.	s	X±3s	
N Group Thermal Shock	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	35.769	40.56	31.29	2.078	42.003	Pass
		After Testing	ΔR=40mΩMAX.			2.996	15.08	-5.39	4.074	15.218	Pass
P Group GAS (SO2)	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	34.536	40.07	28.80	2.090	40.806	Pass
		After Testing	ΔR=40mΩMAX.			-0.483	4.75	-5.98	2.324	6.489	Pass
Q Group Salt Water Spray	Contact Resistance (mΩ)	Initial	70mΩ MAX.	5	300	33.422	39.70	28.11	2.323	40.391	Pass
		After Testing	ΔR=40mΩMAX.			-0.243	4.60	-4.97	2.439	7.074	Pass
R Group Soldering Heat Resistance	Appearance		No abnormality adversely affecting the performance shall occur.	10	10	No abnormality					Pass
S Group Solderability	Appearance		Fillet is made (Fillet angle ≤ 90°)	10	10	No problem					Pass
T Group Temperature Rise	0.35A/Pin(60Pin)		ΔT=30K MAX.	5	5	ΔT=20.8K MAX.					Pass
	0.50A/Pin(15Pin)		ΔT=30K MAX.	5	5	ΔT=27.7K MAX.					Pass



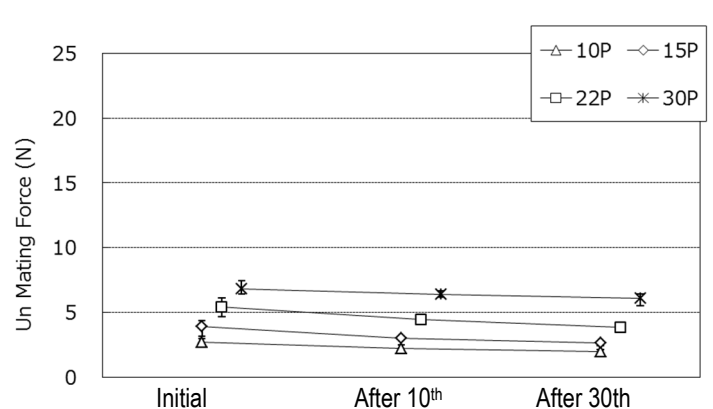
Graph17. A change of contact resistance
(A Group:Durability)



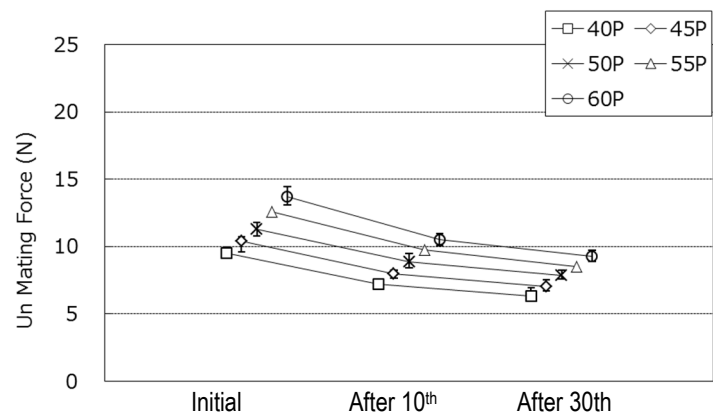
Graph18. A change of mating force
(A Group:Durability)



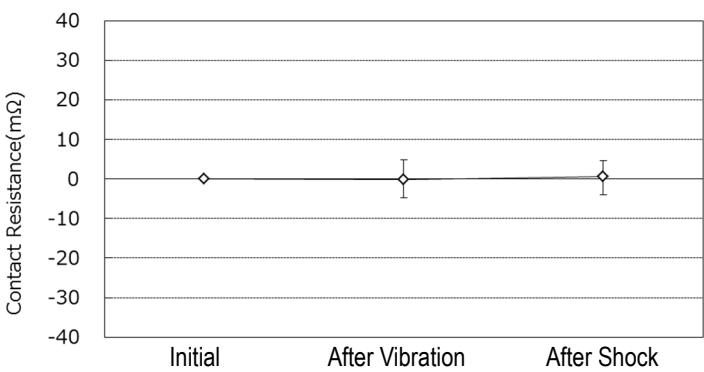
Graph19. A change of mating force
(A Group:Durability)



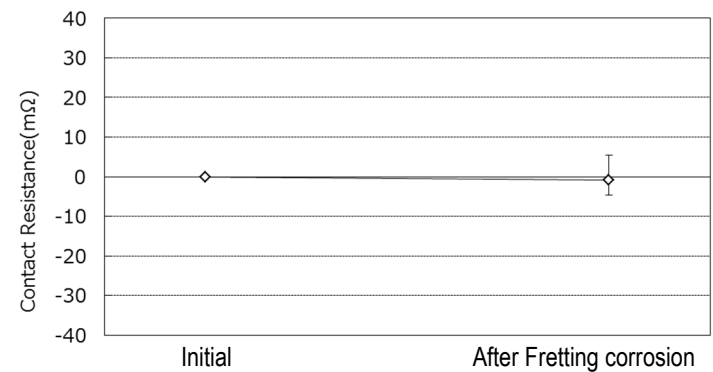
Graph20. A change of un mating force
(A Group:Durability)



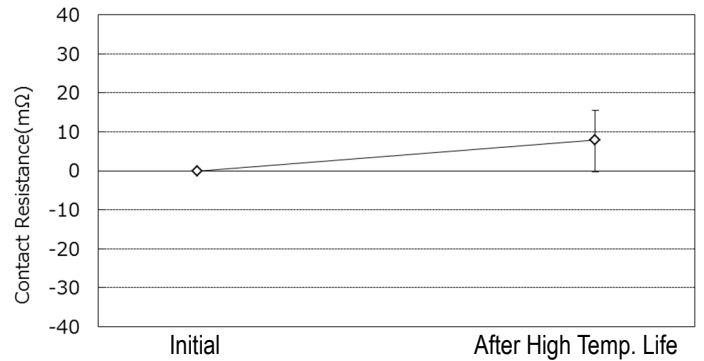
Graph21. A change of mating force
(A Group:Durability)



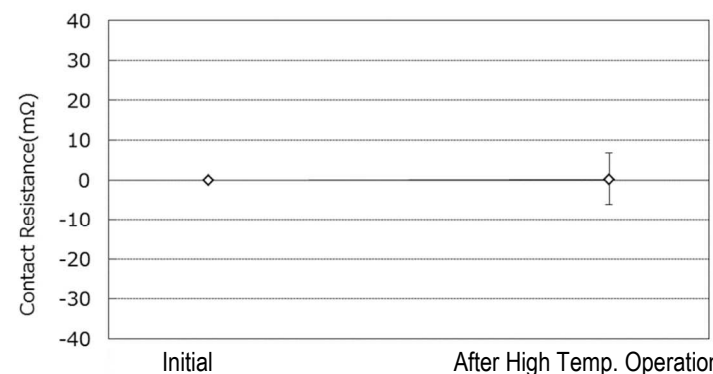
Graph22. A change of contact resistance
(E Group:Vibration & Shock)



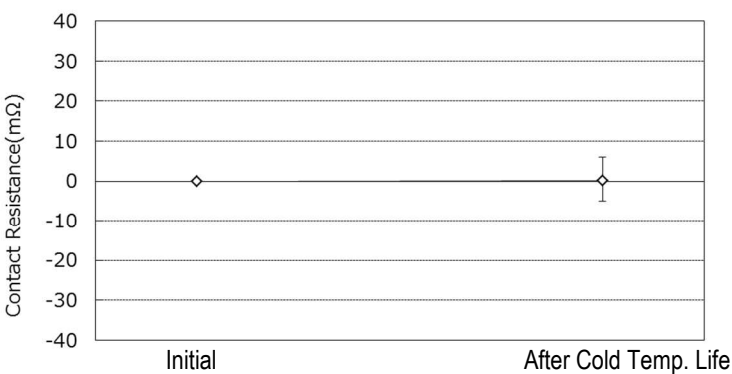
Graph23. A change of contact resistance
(F Group:Fretting corrosion)



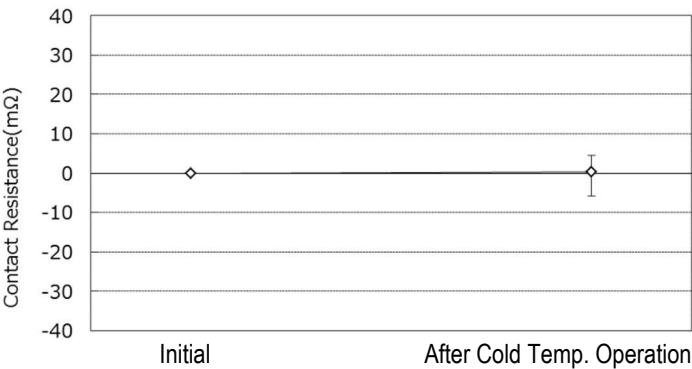
Graph24. A change of contact resistance
(G Group:High Temp. Life)



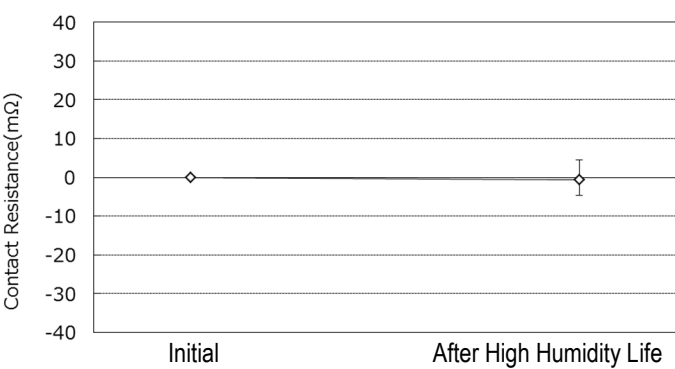
Graph25. A change of contact resistance
(H Group:High Temp. Operation)



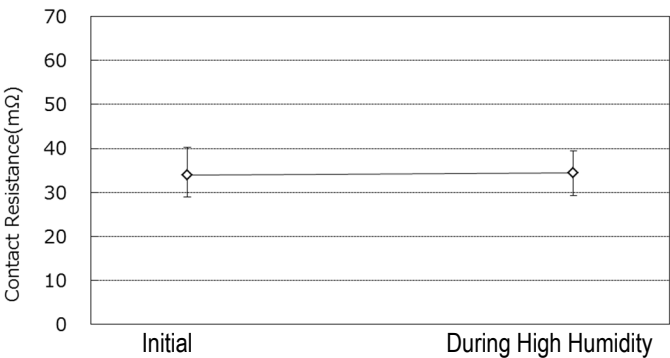
Graph26. A change of contact resistance
(J Group:Cold Temp. Life)



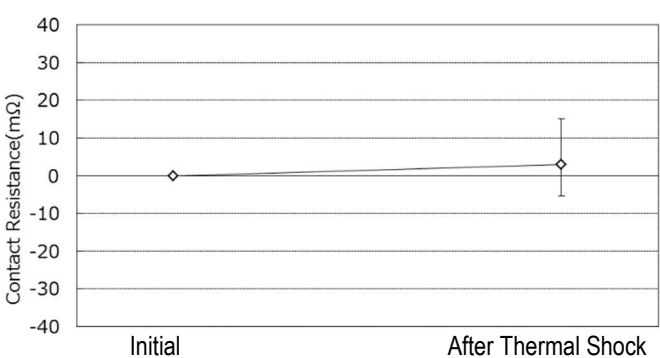
Graph27. A change of contact resistance
(K Group: Cold Temp. Operation)



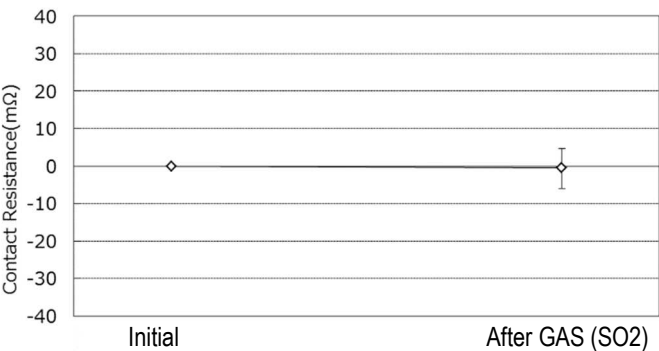
Graph28. A change of contact resistance
(L Group: High Humidity Life)



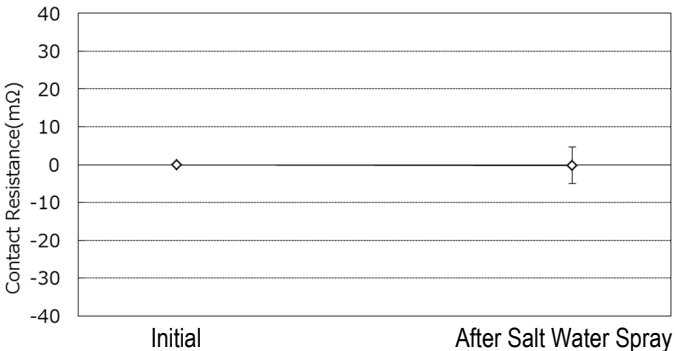
Graph29. A change of contact resistance
(M Group: High Humidity)



Graph30. A change of contact resistance
(N Group: Thermal Shock)



Graph31. A change of contact resistance
(P Group: GAS (SO2))



Graph32. A change of contact resistance
(Q Group: Salt Water Spray)