

安装说明书

Installation Instructions

QC4.10-cds 连接器

QC4.10-cds Connector



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1.警告 Warning

1.1 在自行安装时，如果所有的零件和工具不是 QC 所规定的，或者忽略了准备和安装操作，我们将不保证产品安全性和技术参数一致性。

During yourself installation, if the used part and tool are not ruled by QC or if you ignore the preparation and operation, we won't insure the safety and compatible of the product technology yourself installation.

1.2 为防止电击，在拆装时 PV 连接器必须断开电源。

For protecting against electric shock, please cut off the power when installing PV connector.

1.3 终端产品必须提供防电击功能。

The final products must be supplied with the function electric shock proof.

1.4 不建议使用 PVC 电缆。

PVC Cable is not recommended.

1.5 在负载情况下拔出：在有负载的情况下，不能拔出 PV 插头连接器！关掉 DC/AC 直流 - 交流变频器或打开 DC 交流电路断路器，使 PV 接头连接器处于无负载的状态，则可在允许范围内带电插拔。

Don't pull out the PV connector under loading. Turn off the DC/AC inverter or tum on DC circuit interrupter, making PV connector in unloading. Then insert and extract under voltage is permitted.

1.6 建议不要使用无镀锡电缆，因为电缆铜线被氧化后，压接部位的接触电阻可能会超过允许值。

H07RN cables without tinned are not recommended. Because the contact resistance of crimping place will probably exceed the permitted value since the copper wires are oxidized.

1.7 断开的连接器必须使用防护帽，以防止灰尘、水或其他异物进入。

Sealing cap must be used for disconnected connector, avoiding dust and water.

1.8 连接器内腔不可有昆虫或其它脂类异物进入，需观察确认产品内腔清洁后方可对插。

No insects or other lipid foreign bodies can enter the inner cavity of the connector. Please observe and confirm that the inner cavity of the product is clean before inserting.

1.9 插入部件防水等级 IP68。它们不能长久置于水下使用。不要将 QC-PV 连接器放在屋顶表面。

Waterproof degree for inserted parts is IP68. They can't be put under water for long time. Don't put QC-PV connector on the roof of surface.

1.10 产品不得在含有烃、酚、酮、氨合物等与塑料有腐蚀的环境中使用。安装过程中，禁止在连接器里添加或涂抹任何油脂及润滑剂。（详见耐化学品附表 1）

Do not use under hydrocarbon, phenol, Ammine and plastic corrosive environment. During installation process, do not add any grease and lubricant in the connector. (See 1)

2.技术参数 Product Specifications



PV- 正极连接器 PV- Female Connector

PV- 负极连接器 PV- Male Connector

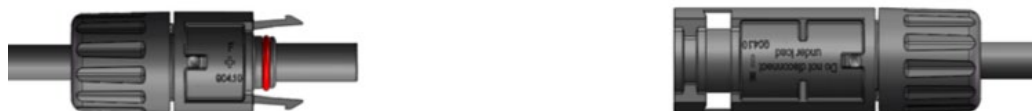
技术参数 Product Specifications

认证 Certificate	UL	TUV
名称 Product Name	Series QC4.10, followed by -a5, may be followed by none, followed by c12, c13, c14 or c15, followed by d1 or d3, followed by e2 or e4, may be followed by f1, and may be followed by g1.	QC4.10 (PLUS)
认证型号 Certified Model	QC4.10-a5CDEf1g1	QC4.10-cds
额定电压 Rated Voltage	UL1500V	IEC1500V
额定电流 Rated Current	30A for 14AWG 35A for 12AWG 50A for 10AWG	36A for 2.5mm ² 41A for 4.0mm ² 46A for 6.0mm ²
线缆规格 Cable Specification	900C 2000V, Strands of Conductor 41~84/0.25~0.3, OD5.9~7.2mm, 14 AWG, 12 AWG, 10 AWG	IEC 1500V, Strands of Conductor 41~84/0.25~0.3, OD 4.7~7.2mm, 2.5mm ² , 4.0mm ² , 6.0mm ²
防护等级 IP degree	N/A	IP65/IP68(1m,1h)
安全等级 Protection Class	N/A	Class II
接触电阻 Resistance of Connector	Max 0.3mΩ	Max 0.3mΩ
防火等级 Flammability Class	UL94 V-0	UL94 V-0
温度范围 Temperature Range	-40°C~ +85°C	-40°C~ +85°C
Caution	"Do Not Disconnect Under Load: PV plug connections must not be disconnected while under load. They can be placed in a no load state by switching off the DC/AC converter or breaking the AC circuit" .	N/A

<p style="text-align: center;">UL 命名 UL NOMENCLATURE</p>	<p style="text-align: center;">TUV 命名 TUV NOMENCLATURE</p>
<p>NOMENCLATURE: QC4.10 – $\frac{x}{A} \frac{x}{B} \frac{x}{C} \frac{x}{D} \frac{x}{E} \frac{x}{F} \frac{x}{G}$</p> <p>Where: A – Maximum System Voltage a5 – 1500V B – Connector Type none – locking type C – PV Wire Type c12–2000V, 12AWG, 48/0.30 (str/dia) c13–2000V, 12AWG, 56/0.285 (str/dia) c14–2000V, 10AWG, 84/0.285 (str/dia) c15–2000V, 14 AWG, 41/0.25 (str/dia) D – Material of Connector Housing d1 – EXL9330(GG)(X)(f1)(B1)(IP) d3 – PV40Z(f1) E – Material of Cover Nut e2 - A3XZG5(f1) e4 - PA66 T303(XX)GF BK - D(f1) F - construction f1 - Connectors with 18.6 mm outer diameter (Plus Construction) G – Type of Pin Crimp Connector (male) and SocketConnector (female) g1 – With an Electric Lock integrated, only for F=f1</p> <p>Caution: 1.For Copper Stranded Wire Only. 2.The product installation and use meet the requirements of PV modules. 3.The connector is considered to be in compliance with UL 6703, Connectors for Use in Photovoltaic Systems, Edition 1, Revision Date 06/10/2021 only when assembled in the manner specified by these assembly instructions.</p> <p>This connector is suitable for use only with Class B and C stranded copper conductors (See NFPA 70, National Electrical Code, Edition 2020, AMD 1 - 17, Revision Date 04/12/2022, Chapter 9, Table 10).</p>	<p>Type Designation: QC4.10-cds</p> <p>Remark: QC4.10-cds is a general designation. The prefix letter “c”、“d”、“s” denotes different technical and design meanings.</p> <p>1.c=3 or 4 c=3 denotes rated voltage 1500V with baffle plate; c=4 denotes rated voltage 1500V without baffle plate;</p> <p>2.d=4 or 5 or 6 d=4 denotes rated current 36A with stamping; d=5 denotes rated current 41A with stamping; d=6 denotes rated current 46A with stamping;</p> <p>3.s= 1 (Plus constructure)</p> <p>Wire cross section area or cross section range: 1 x 2,5mm² for QC4.10-341; QC4.10-441; 1 x 4,0mm² for QC4.10-351; QC4.10-451; 1 x 6,0mm² for QC4.10-361; QC4.10-461;</p>

3.产品信息 Product Information

3.1 产品图片 Picture



3.2 产品图纸 (预组装状态) Drawing (pre-install status)

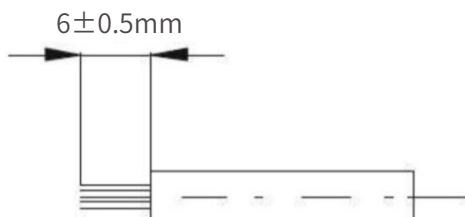


4. 机器组装工艺流程 Machine assembly process

将密封胶均匀地放在盒体背面，如图所示的密封轨迹。外层硅胶宽度至少为 2mm。

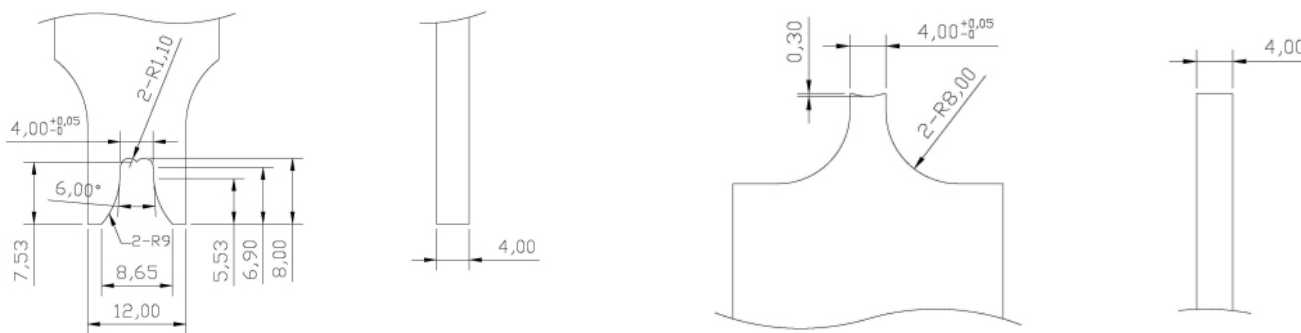
Put the Sealing tool to the backside of Box equably, like the sealing contrail marked in the picture. The outer silicone width is at least 2mm.

4.1 剥线 Stripping



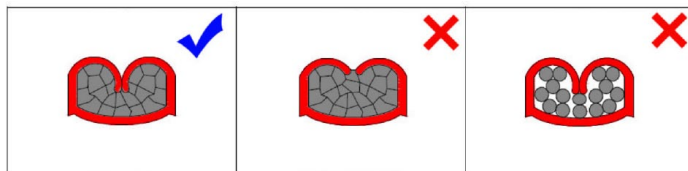
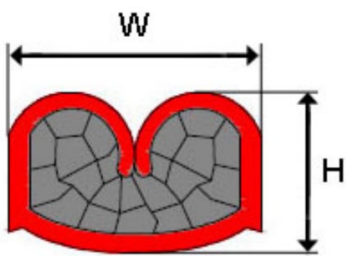
剥线尺寸: 6 ± 0.5mm

4.2 铆接 Crimping

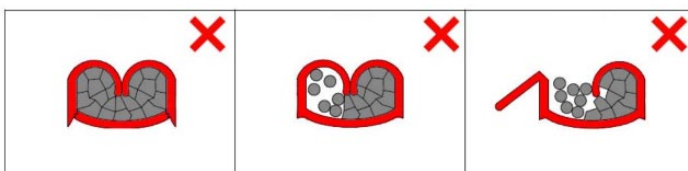
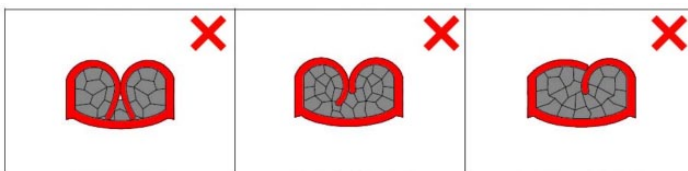


上刀尺寸 Tool Size(Up)

下刀尺寸 Tool Size(Down)



电缆规格 Cable Spec	铆接高度 (H) Crimping(H)	铆接宽度 (W) Crimping(W)
2.5mm ² /14AWG	2.6±0.1mm	3.8±0.1mm
4mm ² /12AWG	2.1±0.1mm	4.1±0.1mm
6mm ² /10AWG	2.6±0.1mm	4.3±0.1mm
压缩比 Compression ratio: 70% ≤ X ≤ 90%		



4.3 线束组装 Cable assembly



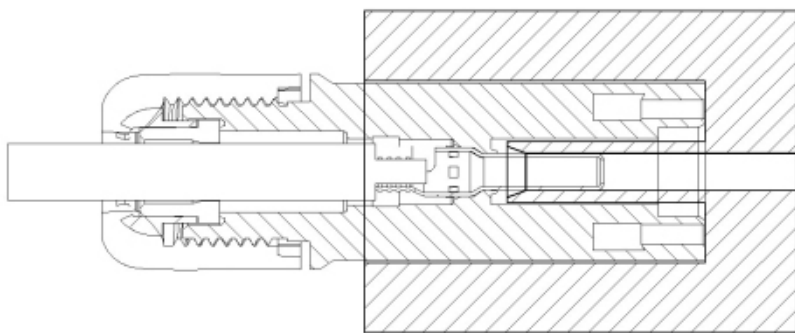
将铆接好的线束插入正极负极绝缘本体，直至金属件与本体啮合，轻轻拉动导线，检查金属件是否啮合牢固。

Push the riveted pin into the insulator until they engage. Pull lightly on the lead to check that the metal part has engaged.

4.4 螺帽组装 Nut assembly

在锁紧连接器螺帽时，定位治具须配有导正结构，方可使用。

When locking the connector nut, the positioning jig must be equipped with a guiding structure before it can be used.



序号 No.	线径 Cable Diameter(mm)	管控间隙 Control gap(mm)	参考扭力 Reference torque(N*m)	备注 (remark)
1	$4.7 < OD \leq 6$	$0 < X \leq 1.0$	$2 \pm 1 N^*m$	电缆线径越小，扭力值会越小；安装时满足间隙标准即可，扭力值作为参考使用；电缆线径越小管控间隙越小。 The smaller the cable diameter is, the smaller the torque value will be. When installing, the clearance standard can be met, and the torque value is used as a reference; The smaller the cable diameter, the smaller the control gap.
2	$5.6 \leq OD \leq 6.8$			
3	$6.0 \leq OD \leq 7.2$			

5. 人工组装工艺流程 Manual installation process

5.1 工具要求 Requirements for tools

Manufactured by QC Solar (Suzhou) Corporation			
	(1) 工具箱 Tool Box 型号 Type: 02.04.165		(2) 扳手 1套=2片 Spanner 1 set=2 pieces 型号 Type: 04.06.1004
	(3) 剥线钳 Strip Clamp 型号 Type: 02.04.008		(4) 铆接钳 Rivet Clamp 型号 Type: 02.04.007

Mark	Crimping Range	
2.5/14	2.5mm ²	14AWG
4.0/12	4.0mm ²	12AWG
6.0/10	6.0mm ²	10AWG

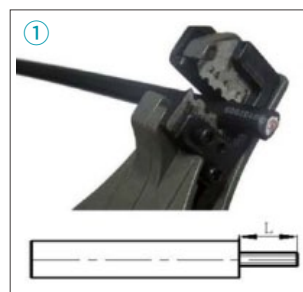
Mark	Riveting Range	
2.5/14	2.5mm ²	14AWG
4.0/12	4.0mm ²	12AWG
6.0/10	6.0mm ²	10AWG

5.2 组装步骤 Assembly steps

① 剥线 Stripping

剥离电缆绝缘长度 : $L=6\pm 0.5\text{mm}$ ，注意不要切断绝缘层下的线芯。

Strip the insulating layer of cable. $L=6\pm 0.5\text{mm}$. pay attention not to cut off the wire core.



② 铆接插针插套 Riveting

需保证金属件和电缆线的同心度。铆接后电缆线与金属件的拉力需 $\geq 310\text{N}$ 。

Rivet terminal. Ensure the concentricity of metal parts and cable at same level, crimped metal parts and cable pull tension $\geq 310\text{N}$.



③ 插入 Insertion

将铆接好的插头插入插座或插头的绝缘套，直至其啮合。轻轻拉动导线，检查金属件是否啮合牢固。

Push the riveted pin into the insulator until they engage. Pull lightly on the lead to check that the metal part has engaged.



④ 安装螺帽 Install the cable gland

先用手预拧紧，再用扳手旋紧电缆螺帽（间隙参考 4.4 章节要求）。拧螺帽时，需保证电缆线与螺帽同心。连接器螺帽为可拆卸螺帽。原厂扳手可用于施工现场组装，不适用于工厂内部批量组装。

First screw it by hands, then lock tightly by spanner (pls refer the gap sheet for detailed gap from page one). Ensure the concentricity of cable and cable gland when screw cable gland. Cable gland is detachable, original factory spanner can assembly in site, but not suitable for mass quantity assembly.

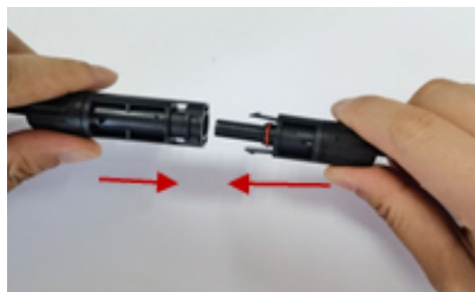


6. 连接器对插及解锁 Connecting and disconnecting

6.1 连接器对插 Connecting

将连接器正负极对插，直到啮合。轻轻拉动，以检查是否啮合牢固。

Plug the coupling together until they engage. And pull lightly to check correct engagement.



6.2 连接器解锁 Disconnecting

此插头连接，只能使用扳手工具解锁。

This connection can only be unlocked with spanner.

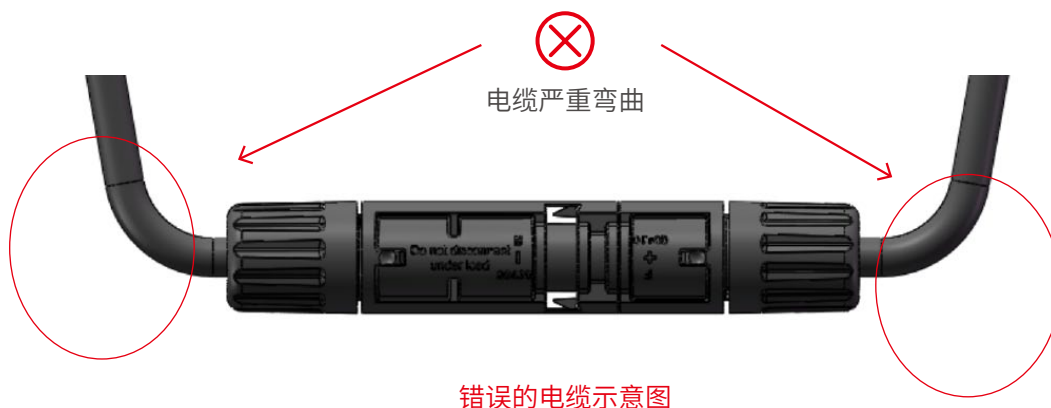


7. 线缆状态 Cable status

7.1 线缆接线 Cable's connection

电缆根部建议保留至少 20mm 未折弯长度，以免因线缆折弯产生的外力引起连接器密封件变形。

lease refer to the detailed instruction ones of the min bend radius given by manufacturer.

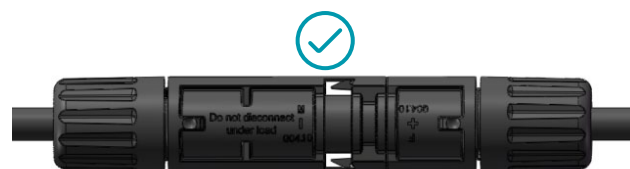
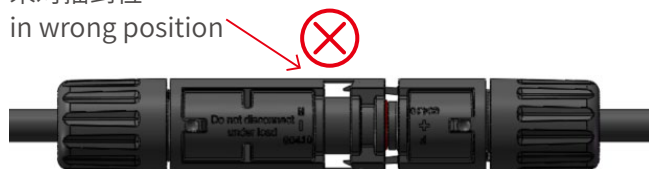


注：请参考电缆生产商的最小弯曲半径的详细要求。

7.2 接合状态 The state after connection

未对插到位

in wrong position



8. 附件 Annex

8.1 耐化学品附表 Chemical resistance form

表 1

Ingredient	Material	Manufacturer	Critical Stress (%) 23°C	Grade
黏合剂 Binder	KE45W/ KE4828W	Shin-Etsu Chemical	> 1.0	A
	TSE382W/ TSE392W	Momentive	> 1.0	A
	PV804/PV8101	Dow Corning	> 1.0	A
	VHB/TAPE 4941	3M	> 1.0	A
	APF125	Wacker Chemical	> 1.0	B
	Chemlok	LORD	0.2-0.5	C
填充剂 Filler	PV7010	东丽道康宁 (Dow Corning)	> 1.0	A
	KE200/CX 200	信越化学 (Shin-Etsu Chemical)	> 1.0	A
	KE210F/CAT 210	信越化学 (Shin-Etsu Chemical)	> 1.0	A
	RAKUSIL A/B	德国蓝浦 (RAMPF)	> 1.0	A
	VU4459/41 SVHF	德国彼德仕公司 (LACKWERKE PETERS GmbH)	0.2-0.5	C
脂类 Greases	Z260/ A7002	/	> 1.0	A
表面活性剂 Surfactant	Charmy V quick	花王 (Kao)	> 1.0	A
导热复合物 Heat reactivator	SC102 compound	东丽道康宁 (Dow Corning)	> 1.0	A
脱模剂 Mold release	Telicoat A	极东油化 (Kukdong oil&chem)	> 1.0	A
	KF-96SP	信越化学 (Shin-Etsu Chemical)	0.2-0.5	C
	Telicoat S-6	极东油化 (Kukdong oil&chem)	0.2-0.5	C
	Snowwhit EC	荷兰 (Sonneborm Refined Products B.V)	0.2-0.5	C
	PANDO 39D	三键化工 (Three Bond)	< 0.2	D
防锈剂 Antirust	WD40	WD-40	0.5-1.0	B

Ingredient	Material	Manufacturer	Critical Stress (%) 23°C	Grade
防锈剂 Antirust	Antikor RS Aerosol	technik GmbH	0.2-0.5	C
	D1 MIST	山一化学 (Yamaichikagaku)	0.2-0.5	C
	Barrier Guard PART II	山一化学 (Yamaichikagaku)	< 0.2	D
	TFP Spray	住矿润滑剂 (SUMICO LUBRICANTCO.,LTD)	< 0.2	D
胶带粘胶剂 Adhesive	CEMEDINE SuperX No.8008	施敏打硬 (CEMEDINE CO.,LTD)	0.5-1.0	B
	CEMEDINE SuperX No.8008Y6	施敏打硬 (CEMEDINE CO.,LTD)	> 1.0	A
	CEMEDINE SuperX SX720B	施敏打硬 (CEMEDINE CO.,LTD)	0.2-0.5	C
	Chemlok 487A/B	LORD Corporation	< 0.2	D
	Chemlok 7701	LORD Corporation	< 0.2	D
醇酸碱 ALK	甲醇 (Methanol)	/	> 1.0	A
	乙醇 (Ethyl alcohol)	/	> 1.0	A
	25% 氨水溶液 (25% Ammonium water)	/	> 1.0	A
	氯化钠固体 (Sodium chlorid)	/	> 1.0	A
	60% 磷酸溶液 (60% phosphoric acid water)	/	> 1.0	A
	异丙醇 (Isopropyl alcohol)	/	0.5-1.0	B
	Ethylene glycol	/	0.5-1.0	B
	50% 硫酸溶液 (50% sulfuric acid water)	/	0.5-1.0	B
酮类 Ketone	丙酮 (Acetone)	/	< 0.2	D
	丁酮 (2-Butanone)	/	< 0.2	D
碳氢化合物 Hydrocarbon	甲酚 (Cresol)	/	0.5-1.0	B
	甲苯 (Toluene)	/	< 0.2	D
	二甲苯 (Xylenes)	/	< 0.2	D
油类 Oil	Heat transfer oil	/	> 1.0	A

Ingredient	Material	Manufacturer	Critical Stress (%) 23°C	Grade
油类 Oil	High temperature grease	/	> 1.0	A
	Dry oil	/	> 1.0	A
	DiaCut	Oelheld	0.5-1.0	B
	Oily sealing agent	/	< 0.2	D
	Engine oil	/	< 0.2	D
	Base oil	/	< 0.2	D
	kerosene	/	< 0.2	D
	Gasoline	/	< 0.2	D
	varnish	/	< 0.2	D
	Forming oil	/	< 0.2	D
	Cutting oil	/	< 0.2	D
	Lube oil	/	< 0.2	D
其它 Others	凡士林 (Vaseline)	/	> 1.0	A
	护手霜 (Hand cream)	/	0.5-1.0	B
	橄榄油 (Olive oil)	/	0.5-1.0	B
	黄油 (Butter)	/	0.2-0.5	C
	人造黄油 (margarine)	/	0.2-0.5	C
	大豆油 (Soybean oil)	/	0.2-0.5	C

表 2 油类物质 Oil-speculation

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
CRYSTOL 172	埃索石油 (Esso)	G703H	23	1.03	A
SILICON OIL KF96	信越化学 (Shin-Etu Chemical)	240V,240Z	23	1.50<	A

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
SILICON OIL KF96	信越化学 (Shin-Etu Chemical)	220V	80	1.50<	A
SILICON OIL SH200	东丽硅 (Dow Corning Si)	140V,140Z	23	1.50<	A
SILICON OIL SH200	东丽硅 (Dow Corning Si)	100V,100Z	65	1.50<	A
TEMP 78	美孚石油 (Mobil Oil)	240V,240Z	23	1.50<	A
CRYSTOL 172	埃索石油 (Esso)	G703H	80	0.7	B
FLOIL 946P	关东化成工业 (KANTO KASEI)	X503V,X504V	23	0.55	B
FLOIL 948P	关东化成工业 (KANTO KASEI)	540H,600H,X603V	23	0.96	B
冲击切削油 (Impact-cutting oil)	协和石油 (HIP WO PETROLEUM)	240V,240Z	23	0.56	B
SHELL TELLUS R46	壳牌石油 (Shell petroleum)	X534Z,X1812,X504V	80	0.2	B
L702G	日兴产业 (NIKKO SANGYO)	540V,540Z	23	0.6	B
#46	日本石油 (Nippon Oil Corporation)	300H	23	0.7	B
FBK	日本石油 (Nippon Oil Corporation)	240V,240Z	23	0.56	B
FBK R068	日本石油 (Nippon Oil Corporation)	240V,240Z	23	0.54	B
DIAMOND LUBE L056	三菱石油 (Mitsubishi oil)	240V,240Z,220V	23	0.58	B
TEMP 78	美孚石油 (Mobil Oil)	220V	80	0.66	B
FLOIL 946P	关东化成工业 (KANTO KASEI)	X1812	60	0.43	C
冲击切削油 (Impact-cutting oil)	协和石油 (HIP WO PETROLEUM)	220V	65	0.38	C
MALPA 10	日本石油 (Nippon Oil Corporation)	140V,140Z	23	0.34	C
涡轮油 (Turbine oil)	日本石油 (Nippon Oil Corporation)	220V	65	0.38	C
FBK R068	日本石油 (Nippon Oil Corporation)	220V	65	0.26	C
DIAMOND LUBE L521	三菱石油 (Mitsubishi oil)	540V,540Z	23	0.3	C
DIAMOND LUBE L521	三菱石油 (Mitsubishi oil)	500V,500Z	80	0.2	C
LATHCUT SP	山一化学 (YAMAICHI)	540V,540Z	23	0.3	C

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
防锈油 (Antirust oil)	山一化学 (YAMAICHI)	500V,500Z	65	0.2	Ⓒ
Daphne Multi Oil 5	出光兴产 (Idemitsu Kosan)	140V,140Z	23	0.14	D
Daphne Multi Oil 5	出光兴产 (Idemitsu Kosan)	100V,100Z	65	0.1	D
Daphne Multi Oil 5	出光兴产 (Idemitsu Kosan)	100V,100Z	65	0.1	D
TURBO OIL 2380	埃索石油 (Esso)	220V	80	0.1	D
PUNCH OIL 703M	埃索石油 (Esso)	540V,540Z,500V	23	0.13	D
冲压油 (Stamping oil)	日兴产业 (NIKKO SANGYO)	640V,640Z	80	0.16	D
6300	日本工作油 (NIHON KOHSAKUYU)	340V,340Z	23	0.16	D
工作油 (Operating oil)	日本工作油 (NIHON KOHSAKUYU)	300V,340Z	80	<0.15	D
液压油 (Hydraulic oil)	日本石油 (Nippon Oil Corporation)	300H	80	0.11	D
MALPA 10	日本石油 (Nippon Oil Corporation)	100V,100Z	65	0.14	D

表 3 润滑脂类物质 Grease 1- speculation

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
SUNCALL GLO-230	三启化学 (CELL INSPIRE CHEMISTRY)	X603V,X1915	23	1.04	A
SUNCALL ME-1	三启化学 (CELL INSPIRE CHEMISTRY)	X603V,X1915	23	1.25	A
SUNCALL MEN-135G	三启化学 (CELL INSPIRE CHEMISTRY)	540Z,X1916	23	1.2	A
SUNCALL MF-105	三启化学 (CELL INSPIRE CHEMISTRY)	X351V,X351Z	23	1.50<	A
SUNCALL MF-105	三启化学 (CELL INSPIRE CHEMISTRY)	X352V,X1509	23	1.50<	A
HANARL FG-53C	关东化成工业 (KANTO KASEI)	X1916	23	1.00<	A
FLOIL G-311S	关东化成工业 (KANTO KASEI)	540V,540Z	23	1.33	A
SUNCALL FG-84	三启化学 (CELL INSPIRE CHEMISTRY)	X603V,X1915	23	0.85	B
SUNCALL FG-84M	三启化学 (CELL INSPIRE CHEMISTRY)	540V,540Z	23	0.85	B

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
SUNCALL FG-87H	三启化学 (CELL INSPIRE CHEMISTRY)	X303V, X333V	23	0.73	B
SUNCALL FG-87HS	三启化学 (CELL INSPIRE CHEMISTRY)	X1584, X1812, X504V	23	0.61	B
HILUBE A-1004	HARVES	X351V, X351Z	23	0.73	B
HILUBE A-1004	HARVES	X352V, X1509	23	0.73	B
HILUBE A-1276	HARVES	X1584, 500H	23	0.97	B
HANARL FL-955	关东化成工业 (KANTO KASEI)	340V, 340Z	23	0.74	B
FLOIL G-474B	关东化成工业 (KANTO KASEI)	X1519, X1511	23	0.71	B
FLOIL G-474C	关东化成工业 (KANTO KASEI)	X1519, X1511	23	0.6	B
FLOIL G-484	关东化成工业 (KANTO KASEI)	340V, 340Z	23	0.65	B
FLOIL G-526	关东化成工业 (KANTO KASEI)	540V, 540Z	23	0.6	B
FLOIL G-742	关东化成工业 (KANTO KASEI)	340V, 340Z	23	0.6	B
FLOIL G-742	关东化成工业 (KANTO KASEI)	300V, 300Z	23	0.6	B
SUNCUT TF20	日本润滑脂 (Japanese grease)	G702H, 600H	23	0.37	C

表 4 润滑脂类物质 Grease 2- speculation

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
FLOIL SG-474B	关东化成工业 (KANTO KASEI)	X1915, X603V	23	1.2	A
MOLYKOTE EM-30L	道康宁 (Dow Corning)	X332V, X352V	23	1.50<	A
MOLYKOTE EM-60L	道康宁 (Dow Corning)	X1519, X1511	23	1.11	A
MOLYKOTE FPG-663	道康宁 (Dow Corning)	340V, 340Z	23	1.11	A
SGL50	索尼化学 (Sony Chemicals)	X332V, X1508	23	1.50<	A
FLOIL G-902S	关东化成工业 (KANTO KASEI)	240V, 240Z	23	0.5	B
FLOIL GP-837DE	关东化成工业 (KANTO KASEI)	X351V, X352V	23	0.57	B

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
FLOIL GP-837DE	关东化成工业 (KANTO KASEI)	X1508,X332V	23	0.57	B
FLOIL GS-2920	关东化成工业 (KANTO KASEI)	540V,540Z	23	0.65	B
FLOIL PN-474C	关东化成工业 (KANTO KASEI)	X1519,X1511	23	0.6	B
FLOIL SG-918	关东化成工业 (KANTO KASEI)	X1915.X603V,X643V	23	0.51	B
MOLYKOTE EM-30LG	道康宁 (Dow Corning)	X351V,X352V	23	0.61	B
MOLYKOTE EM-D110	道康宁 (Dow Corning)	X333V,X352V	23	0.87	B
MOLYKOTE EM-D110	道康宁 (Dow Corning)	X1508,340V	23	0.87	B
MOLYKOTE E PASTE	道康宁 (Dow Corning)	X333V,X1519	23	0.92	B
MOLYKOTE PG-641	道康宁 (Dow Corning)	X304H	23	0.87	B
MOLYKOTE FPG-662	道康宁 (Dow Corning)	X351V,X352V	23	0.75	B
MOLYKOTE FPG-662	道康宁 (Dow Corning)	X333H,X332V	23	0.75	B
MOLYKOTE EM-50L	道康宁 (Dow Corning)	340V,340Z	23	0.44	C
MOLYKOTE EM-50L	道康宁 (Dow Corning)	300V,300Z	23	0.44	C

表 5 润滑脂类物质 Grease 2- speculation

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
FLOIL SG-474B	关东化成工业 (KANTO KASEI)	X1915,X603V	23	1.2	A
MOLYKOTE EM-30L	道康宁 (Dow Corning)	X332V,X352V	23	1.50<	A
MOLYKOTE EM-60L	道康宁 (Dow Corning)	X1519,X1511	23	1.11	A
MOLYKOTE FPG-663	道康宁 (Dow Corning)	340V,340Z	23	1.11	A
SGL50	索尼化学 (Sony Chemicals)	X332V,X1508	23	1.50<	A
FLOIL G-902S	关东化成工业 (KANTO KASEI)	240V, 240Z	23	0.5	B
FLOIL GP-837DE	关东化成工业 (KANTO KASEI)	X351V,X352V	23	0.57	B

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
FLOIL GP-837DE	关东化成工业 (KANTO KASEI)	X1508,X332V	23	0.57	B
FLOIL GS-2920	关东化成工业 (KANTO KASEI)	540V,540Z	23	0.65	B
FLOIL PN-474C	关东化成工业 (KANTO KASEI)	X1519,X1511	23	0.6	B
FLOIL SG-918	关东化成工业 (KANTO KASEI)	X1915.X603V,X643V	23	0.51	B
MOLYKOTE EM-30LG	道康宁 (Dow Corning)	X351V,X352V	23	0.61	B
MOLYKOTE EM-D110	道康宁 (Dow Corning)	X333V,X352V	23	0.87	B
MOLYKOTE EM-D110	道康宁 (Dow Corning)	X1508,340V	23	0.87	B
MOLYKOTE E PASTE	道康宁 (Dow Corning)	X333V,X1519	23	0.92	B
MOLYKOTE PG-641	道康宁 (Dow Corning)	X304H	23	0.87	B
MOLYKOTE FPG-662	道康宁 (Dow Corning)	X351V,X352V	23	0.75	B
MOLYKOTE FPG-662	道康宁 (Dow Corning)	X333H,X332V	23	0.75	B
MOLYKOTE EM-50L	道康宁 (Dow Corning)	340V,340Z	23	0.44	C
MOLYKOTE EM-50L	道康宁 (Dow Corning)	300V,300Z	23	0.44	C

表 6 润滑剂 Lubricant

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
HANARL SEL-9	关东化成工业 (KANTO KASEI)	X504V,X333V	23	1.50<	A
DRYSURF A-1266	HARVES	540Z,500V	23	1.50<	A
HANARL SEL-9	关东化成工业 (KANTO KASEI)	X1915,X603V	23	1.50<	A
HANARL SEL-9	关东化成工业 (KANTO KASEI)	X332V,X1519	80	1.50<	A
HANARL FL-95M	关东化成工业 (KANTO KASEI)	X1916	23	1.50<	A
DRYSURF 6500	HARVES	X351V,X352V, X1508	23	1.50<	A
DRYSURF MD-2000	HARVES	X1915,X603V	23	1.50<	A

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
DRYSURF MD-2000	HARVES	X504V,X1812	80	1.50<	A
DRYSURF MD-2000	HARVES	X333V,X1519	80	1.50<	A
DRYSURF A-6063	HARVES	X333V,X1519	23	1.50<	A
DRYSURF A-6063	HARVES	X1812,X504V	50	1.50<	A
DRYSURF A-7129	HARVES	X333V,X1519	23	1.50<	A
DRYSURF A-7129	HARVES	X1812,X504V	50	1.50<	A
DRYSURF A-1058	HARVES	X332V,X1508	23	1.50<	A
DRYSURF A-1058	HARVES	340V	60	1.50<	A
DRYSURF A-1011	HARVES	300H,340V	23	1.50<	A
DRYSURF A-1011	HARVES	340Z	80	1.50<	A
DRYSURF A-1266	HARVES	500H,540V	23	1.50<	A
DRYSURF A-1266	HARVES	500Z	80	1.50<	A
CFD-029-15	三启化学 (CELL INSPIRE CHEMISTRY)	X404H,X434H X304H	23	1.50	A
DRYSURF A-7134	HARVES	X333V,X332V	23	0.55	B
DRYSURF MY-2500K	HARVES	X333H,X303H	23	0.92	B
HANARL FL-95M	关东化成工业 (KANTO KASEI)	X1916	80	0.39	C
DRYSURF A-6156	HARVES	X1915,X603V	23	0.44	C
DRYSURF A-6156	HARVES	X504V,X1812	80	0.27	C
DRYSURF A-6157	HARVES	X1915,X603V	23	0.44	C
DRYSURF A-6157	HARVES	X504V,X1812	80	0.27	C
DRYSURF A-7103	HARVES	X1915,X603V	23	0.32	C
DRYSURF A-7103	HARVES	X504V,X1812	80	0.27	C
DRYSURF A-7134	HARVES	X1508,X1519	80	0.28	C

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
CFD-005HY-10	三启化学 (CELL INSPIRE CHEMISTRY)	540Z,540V	23	0.38	C
CFD-005HY-10	三启化学 (CELL INSPIRE CHEMISTRY)	340Z,340V	80	0.22	C
CFD-029-15	三启化学 (CELL INSPIRE CHEMISTRY)	X404H,X434H	80	0.28	C

表 7 橡胶、聚氯乙烯 (PVC)、增塑剂 Rubber, polyvinyl chloride (pvc), plasticizer

Name for chemicals	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
氯丁橡胶 (Chloroprene rubber)	540V, 540Z, 500V	23	1.05	A
丁基橡胶 (Butyl rubber)	X351 V, X352V	23	1.50<	A
减震器用 (for shock absorber)	X351 V, X352V	60	1.50<	A
软质 PC (Soft PC)	540V, 540Z, 500V	23	0.5	B
非移行型 (nontransitional form)	500Z	80	0.29	C
包覆用 (for coating)	500Z	60	0.3	C
偏苯三酸三辛酯 (Trioctyl Trimellitate) (TOTM)	540V, 540Z, 500V	23	0.6	B
偏苯三酸三辛酯 (Trioctyl Trimellitate) (TOTM)	500Z	65	0.3	B
偏苯三酸三辛酯 (Trioctyl Trimellitate) (TOTM)	/	95	<0.10	B
邻苯二甲酸衍生物 (O-Phthalic acid derivatives)	540V, 540Z, 500Z	65	<0.10	C
低分子量聚酯 (Low molecular weight polyester)	540V, 540Z, 500Z	65	0.3	D
低分子量聚酯 (Low molecular weight polyester)	540V, 540Z, 500Z	95	0.2	D
邻苯二甲酸二辛酯 (Diocetyl-Phthalate) (DOP)	540V, 540Z, 500Z	23	0.13	D

表 8 脱模剂 Release agent

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
PELICOAT B	中京化成 (CHUKYOKA)	540V,540Z	23	1.50<	A
PELICOAT B	中京化成 (CHUKYOKA)	500V,500Z	80	1.50<	A
硬脂酸锌 (Zinc stearate)	/	540V, 540Z	23	1.50<	A
硬脂酸锌 (Zinc stearate)	/	500V, 500Z	80	1.50<	A
H-15-1	极东贸易 (Kyokuto Trading)	140V,140Z	23	0.28	C
PELICOAT H	中京化成 (CHUKYOKA)	540V,540Z,500V	23	0.49	C
PELICOAT SH5	中京化成 (CHUKYOKA)	140V,140Z	23	0.41	C
PELICOAT SH5	中京化成 (CHUKYOKA)	240V,240Z	65	0.23	C
PELICOAT S-3-5	中京化成 (CHUKYOKA)	540V,540Z	23	0.4	C
PELICOAT S-3-5	中京化成 (CHUKYOKA)	500V,500Z	65	0.35	C
PELICOAT S-3	中京化成 (CHUKYOKA)	240V,240Z,220V	23	0.27	C
PELICOAT S-6	中京化成 (CHUKYOKA)	1 40V,1 40Z	23	0.39	C
PELICOAT DL	中京化成 (CHUKYOKA)	240V,240Z, 220V	23	0.24	C
PELICOAT KP	中京化成 (CHUKYOKA)	240V,240Z, 220V	23	0.27	C
A-F-L	日本工材 (Japanese industrial materials)	540V, 540Z	23	0.3	C
(PAINTABLE)	日本工材 (Japanese industrial materials)	500V, 500Z	65	0.25	C
RELEASAGEN H-15	极东贸易 (Kyokuto Trading)	240V,240Z,220V	23	<0.10	D
(PAINTABLE)	极东贸易 (Kyokuto Trading)	100V,100Z	65	0.17	D
PELICOAT F	中京化成 (CHUKYOKA)	540V,540Z,500V	23	<0.10	D
PELICOAT S-6	中京化成 (CHUKYOKA)	1 00 V,1 00 Z	65	<0.10	D

表 9 焊料 Solder

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
H-15-1	Kyokuto Trading	140V,140Z	23	0.28	C
PELICOAT H	中京化成 (CHUKYOKA)	540V,540Z,500V	23	0.49	C
PELICOAT SH5	中京化成 (CHUKYOKA)	140V,140Z	23	0.41	C
PELICOAT SH5	中京化成 (CHUKYOKA)	240V,240Z	65	0.23	C
RELEASAGEN H-15	Kyokuto Trading	240V,240Z,220V	23	<0.10	D
(PAINTABLE)	Kyokuto Trading	100V,100Z	65	0.17	D
PELICOAT F	中京化成 (CHUKYOKA)	540V,540Z,500V	23	<0.10	D
Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain(%)	Grade of Judgment
H-15-1	Kyokuto Trading	140V,140Z	23	0.28	C
PELICOAT H	中京化成 CHUKYOKA	540V,540Z,500V	23	0.49	C
PELICOAT SH5	中京化成 (CHUKYOKA)	140V,140Z	23	0.41	C
PELICOAT SH5	中京化成 (CHUKYOKA)	240V,240Z	65	0.23	C
RELEASAGEN H-15	Kyokuto Trading	240V,240Z,220V	23	<0.10	D
(PAINTABLE)	Kyokuto Trading	100V,100Z	65	0.17	D
PELICOAT F	中京化成 (CHUKYOKA)	540V,540Z,500V	23	<0.10	D

表 10 日用品、表面活性剂、食品 Daily necessities, surfactants, foodstuffs

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
MYPET (10% solution)	花王 (Kao)	G702H, 600H	23	1.08	A
BATH MAGICLEAN (10% solution)	花王 (Kao)	540V,540Z,500V	23	1.50<	A
BIOREU liquid soap (stock solution)	花王 (Kao)	G702H, 600H	23	1.50<	A
MERIT conditioner	花王 (Kao)	G702H, 600H	23	1.50<	A

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
BUB	花王 (Kao)	G702H, 600H	23	1.50<	A
MAMAROYAL	狮王 (Lion)	G702H, 600H	23	1.50<	A
MAMALEMON	狮王 (Lion)	540V, 540Z	23	1.50<	A
植物物语 (原液) Shokubutsu (stock solution)	狮王 (Lion)	G702H	23	1.50<	A
得斯清 (DUSKIN)	得斯清 (DUSKIN)	540V, 540Z	23	1.50<	A
车窗清洗液 (Windshield washer fluid)	AUTOBACS SEVEN	540V,540Z	23	1.50<	A
METASHAN/ 汽车清洗剂 (car cleaning agent)	桑泰克 (SUNTEC)	540V,540Z	23	1.20<	A
酱油 (Soy sauce)	龟甲万 (Kikkoman)	G702H,600H	23	1.50<	A
英国辣酱油 (British chili sauce)	牛头犬调味品公司 (Bull-Dog Sauce)	G702H,600H	23	1.50<	A
甜料酒 (Mirin)	宝酒造 (TAKARA SHUZO)	G702H,600H	23	1.50<	A
味滋康醋 (Mizkan vinegar)	味滋康 (Mizkan)	G702H,600H	23	1.50<	A
糖水 (饱和溶液) Sugar water (saturated solution)		G702H,600H	23	1.50<	A
MYPET (stock solution)	花王 (Kao)	G702H, 600H	23	0.53	B
BATH MAGICLEAN (stock solution)	花王 (Kao)	G702H, 600H	23	0.96	B
EMERON 身体乳 (EMERON body lotion)	狮王 (Lion)	540V, 540Z, 500V	23	0.55	B
得斯清 (DUSKIN)	得斯清 (DUSKIN)	540V, 540Z	23	0.51	B
液体得斯清 (Liquid DUSKIN)	得斯清 (DUSKIN)	540V, 540Z	23	0.6	B
MAGICLEAN	花王 (Kao)	G702H, 600H	23	0.44	C
液体得斯清 (原液) Liquid DUSKIN(stock solutio)	得斯清 (DUSKIN)	540V, 540Z	23	0.33	C
色拉油 (Salad oil)	日清制油 (Nisshin Seiyu)	G702H,600H	23	0.45	C
色拉油 (Salad oil)	日清制油 (Nisshin Seiyu)	500H	60	0.3	C

表 11 粘着剂、密封胶、胶带 Adhesives, sealants, adhesive tapes

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
1500	施敏打硬 (CEMEDINE CO., LTD)	640V,640Z	23	1.50<	A
3000RS	施敏打硬 (CEMEDINE CO., LTD)	540V,540Z,500V	23	1.50<	A
SE9166	道康宁 (Dow Corning)	540V,540Z	23	1.50<	A
TSE3944-W	东芝硅 (TOSHIBA Si)	540V,540Z	23	1.50<	A
TSE3945	东芝硅 (TOSHIBA Si)	540V,540Z	23	1.50<	A
LOCTITE No.3-C	乐泰化学 (LOCTITE Chemical)	540V,540Z	23	1.50<	A
LOCTITE No.3-C (H)	乐泰化学 (LOCTITE Chemical)	540V,540Z	23	1.50<	A
ARON ALPHA 802	东亚合成 (Toagosei Company)	540V,540Z,500V	23	1.50<	A
1401	THREEBOND	540V,540Z,500V	23	1.50<	A
CYANON TG	高压气体工业 (High Pressure Gas Industrial)	540V, 540Z, 500V	23	1.50<	A
寅式盐 45 (412635) Celite 45(412635)	信越硅 (Shin-Etsu Si)	540V, 540Z, 500V	23	1.3	A
M FLEX EF-356BK	第一工业制药 (Dai- Ichi Kogyo Seiyaku Co., Ltd.)	G701 V, G702V	23	1.50<	A
透磁合金 T-4000 (Permalloy T-4000)	索尼化学 (Sony Chemicals)	340V, 340Z	23	1.50<	A
No.500	日东电材 (NITTO Electric Materials)	340V, 340Z	23	1.50<	A
8080	大日本油墨 (DIC Corporation)	340V, 340Z	23	1.50<	A
PATI	琳得科 (LINTEC Corporation)	340V, 340Z	23	1.50<	A
三悠树脂 UF820 (Sanyu Resin UF820)	三悠树脂 (Sanyu Resin)	540V, 540Z	23	0.55	B
DN297A	野上化学 (NOGAMI KAGAKU)	640V,640Z	23	0.37	C
SUPER X	施敏打硬 (CEMEDINE CO., LTD)	X1812,X504V	23	0.43	C
EP001	施敏打硬 (CEMEDINE CO., LTD)	X1812,X504V	23	0.46	C
ARON ALPHA 201	东亚合成 (Toagosei Company)	540V,540Z,500V	23	0.3	C
2500	THREEBOND	540V, 540Z, 500V	23	0.2	C

Name for chemicals	Manufacturers	Trademark	Service temperature (°C)	Critical strain (%)	Grade of Judgment
1324N	THREEBOND	540V, 540Z, 500V	23	0.26	C
High Touch	施敏打硬 (CEMEDINE CO., LTD)	540V,540Z,500V	23	<0.10	D

临界点说明 Chemical resistance form

Critical tress (%)	Remark	Grade
> 1.0	开裂的次要因素。 Secondary factor of cracking.	A
1.0-0.5	基本上在应力集中区域，会有一些开裂。需要特别注意化学品的使用。 Basically, there will be some cracking in the stress concentration area. Need to pay special attention to the use of chemicals.	B
0.5-0.2	不管有静态或动态的应力，都存在开裂的风险。特别注意不要与化学品接触。 Regardless of the static or dynamic stress, there is a risk of cracking. Special attention should not be in contact with chemicals.	C
< 0.2	与化学品接触，会有很高的开裂风险。 Exposure to chemicals will have a high risk of cracking.	D

备注：对于上表未列明的化学品，需经确认无影响后再使用

Remarks: For chemicals not listed in the above table, they must be confirmed to have no effect before use.

8.2 连接器责任免除条款 The Connector liability exemption clause

有违反下列情况之一者，并导致产品出问题，造成任何损失，我公司将不承担任何责任。

There exist following case, and lead to product goes wrong, any loss caused, product manufacturers will not take any responsibility.

1. 产品运输、仓储 Product transportation and storage

1.1 产品在运输、仓库过程中，不可与“8.1”表中有关化学品存放在一起，使产品经受这些化学品污染；

Products in the process of transportation, warehouse, can not stored with "8.1" in the table of chemicals together that lead the product pollution with these chemicals;

1.2 产品在运输、仓库过程中，不可对产品过分承压，撞击等破坏产品行为；

Products in the process of transportation, warehouse, can not pressure too much on products and such as impact damage behavior;

1.3 产品在运输、仓库过程中，常温存储，应注意避光、防水、防尘等方面防护，以免降低产品相关性能，电站现场应特别注意；

Products in the process of transportation, warehouse, should room temperature storage, avoid light, should waterproof, dustproof, and should be paid attention to protection, so as not to reduce product performance, pay special attention to product when in power station;

1.4 产品包装完整情况下存储时间 2 年

The product is stored for 2 years with complete packing.

2. 产品安装、使用环境 Product installing and operating environment

2.1 产品正常工作环境温度 -40~+85°C;

The product health working environment temperature - 40 ~ + 85 °C

2.2 产品现场安装，需按照“快可”产品“安装使用说明书”操作；

The Product installing should be in accordance with the QC Solar product installation instructions.

2.3 产品在沿海、沙漠等粉尘、粉尘、灰尘多的地域使用，产品出厂前必须带防尘帽；

Products in the coastal, desert dust, dust more regional use, before the products leave the factory, they must take the dust cap

2.4 产品在屋顶电站使用时，连接器不可直接放在屋顶表面；

Products used in roof power station, the connector shall not directly on the surface of the roof.

3. 产品与化学品兼容性见“表格 8.1-8.11”。

Products and chemical compatibility See table 8.1-8.11.

4. 连接器在未耦合情况下，产品将不能满足任何 IP 防护等级，也不能正常使用。

The connector under the condition of disconnect, the product will not be able to meet any IP protection grade, also can't normal use.

4.1 产品插合后满足 IP68 防护等级要求，但不能长期置于水下或屋顶上工作。

Products meet IP68 degree of protection requirement after connects, while it can't work under water for a long time, or on the roof.

4.2 连接器在未对插的情况下，不可长时间放置于户外，这样可能会造成金属件腐蚀，并使连接器性能降低。

Connector in the case of disconnect, should not placed in the outdoor for long time, so may be the cause of the corrosion of the metal, and lower the connector performance.

4.3 连接器在户外安装、使用过程中，如果不能及时对插，请做好连接器防护工作，将连接器端口插上“防尘帽”，防止连接器受到水、尘等的污染，影响产品使用性能。

Connector in the process of outdoor installation and use, if not to connect in time, please do a good job in the connector protection, put on the dust cap and protect the connector from water, dust and other pollution, affect the product performance.

5. 连接器在安装、使用过程中，不可将连接器过分碰撞，拖在水中、草丛中、地上等防止连接器使用前，内部受到污染，降低产品性能。

Connector in the process of installation and use should not be collision, drag in the water, grass, and the ground to prevent the pollution of inside the connector before use, reduce the product performance.

6. 连接器对插

Connector connect right one

6.1 “快可”品牌连接器必须与“快可”品牌连接器正、负极进行对插，不可与市场上其它品牌连接器对插。

QC Solar brand connector must be connect with the brand "QC Solar", can not connect with other brands on the market.

6.2 如果客户现场需要与其它品牌连接器正、负极对插，请事先与生产厂家联系。

If the customer need connect with other brand connector, please contact the manufacturer in advance.

10.联系方式 Contact us

如本说明书所述内容与您收到的产品不符，请以实收产品为准。本说明书可以根据顾客要求配发，在公司网站可以提供有条件下载服务，如果您需要更多的说明书，请来电与我们联系，所有公司技术资料仅作为使用产品时的参考用，不得利用它进行其他的商业活动。

If the product is not match with what described in the manual, please regard what you received as the right one. This manual can be dispensed according to customers' requirements, the company's Web site can provide conditional download service, if you need more brochures, please contact us. All technical data is only as a reference when using the product, it can not be used for other business activities.

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