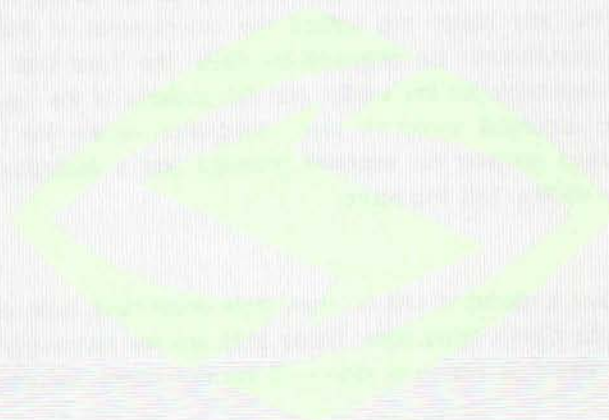




# TEST REPORT



**한국전기연구원**  
**KOREA ELECTROTECHNOLOGY**  
**RESEARCH INSTITUTE**





# TEST REPORT

2015TS00318

1/16

CLASSIFICATION Type Test

TEST OBJECT Heat shrinkable cable joint

DESIGNATION MDJK-4-01-D  
0.6/1.0(1.2) kV 4C×300 mm<sup>2</sup> Type II

RECEIPT No. TRD14S01866 (June 09, 2014 )

APPLICANT Shanghai Jiameng International Trading Co., Ltd.  
Room 4F, No.58 Xinqiniao Road, Pudong New Area, Shanghai, China

MANUFACTURER Jiangsu Jiameng Electrical Equipment Co., Ltd.  
No.5 Zhongli Road, Littoral Industry Park, Qidong Economic Development Zone,  
Jiangsu Province, China

DATE OF TESTS July 17, 2014 ~ November 20, 2014

DATE OF ISSUE February 09, 2015

The test object, constructed in accordance with the description, essential drawings and photographs incorporated in this Type Test Report has been subjected to the series of proving tests in accordance with

BS EN 50393:2006

This Type Test Report has been issued by KERI.

The results are shown in the record of Proving Tests and the oscillograms attached hereto. The values obtained and the general performances are considered to comply with the above Standard and to justify the ratings assigned by the manufacturer as listed on page No. 3.

The Type Test Report applies only to the test object. The responsibility for conformity of any apparatus having the same designations with that tested rests with the Manufacturer.

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TOTAL No. OF PAGES(16) : records (9), photographs (2), circuit diagrams (0),  
drawings & descriptions (1), attachments(2), oscillograms (2)



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**Table of contents**

Items	Sheet No.
Table of contents	2/16
Ratings	3/16
List of the tests	4/16
Test results	5/16 ~ 9/16
Photographs	10/16 ~ 11/16
Circuit diagrams and parameters	-
Drawings	12/16
Attachments	13/16 ~ 14/16
Oscillograms	15/16 ~ 16/16

**Tested by :**

Kim Ji-hwan

KERI

**Witnessed by :**

Zhangjie Tang

Jiangsu Jiameng Electrical Equipment Co., Ltd.

Jason Liu

Jiangsu Jiameng Electrical Equipment Co., Ltd.

**Drawings :**

The manufacturer guarantees that the test object submitted is manufactured in accordance with the following drawings. KERI verified that these drawings adequately represented the test object.

The following drawings are included in this test report.

Reference No.	Drawing No.	Revision No.	Date
001	T1GLM-1	B2	29-05-2012



**Heat shrinkable cable joint**

Applied standard	BS EN 50393:2006
Manufacturer	Jiangsu Jiameng Electrical Equipment Co., Ltd.
Designation	MDJK-4-01-D
Date of manufacture	2014.05.20

**Ratings of the test object assigned by manufacturer and proved by tests :**

Rated voltage $U_0/U(U_m)$	0.6/1.0(1.2) kV
Nominal cross-sectional area	300 mm <sup>2</sup>
Number of cores	4
Type of joints	II

**Ratings of the test object assigned by manufacturer :**

Cable used for testing	
Conductor	Stranded aluminium
Insulation	XLPE
Rated voltage $U_0/U(U_m)$	0.6/1.0(1.2) kV
Nominal cross-sectional area	300 mm <sup>2</sup>
Number of cores	4



**List of the tests**

Test items	Standard and clauses	Test date	Sheet No.
1 AC voltage withstand test in air	BS EN 50393, 8.3	July 17, 2014	5/16
2 Insulation resistance test in air	BS EN 50393, 8.4	July 17, 2014	5/16
3 Impact at ambient temperature	BS EN 50393, 8.5	July 17, 2014	5/16
4 AC voltage withstand test in water	BS EN 50393, 8.3	July 17, 2014	6/16
5 Insulation resistance test in water	BS EN 50393, 8.4	July 17, 2014	6/16
6 Heating cycle test in air	BS EN 50393, 8.6	September 4, 2014 ~ September 25, 2014	7/16
7 Heating cycle test in water	BS EN 50393, 8.6	September 29, 2014 ~ October 20, 2014	7/16
8 AC voltage withstand test in water	BS EN 50393, 8.3	October 24, 2014	8/16
9 Insulation resistance test in water	BS EN 50393, 8.4	October 24, 2014	8/16
10 Examination (for information only)	BS EN 50393, 8.8	November 20, 2014	8/16
11 Description of tests	-	-	9/16





### 1 AC voltage withstand test in air

Test voltage	Test frequency	Test duration	Requirement	Voltage applied to	Earth connected to	Test result
4 kV	60 Hz	1 min	No failure	R	Y G B	No failure
				Y	R G B	No failure
				G	R Y B	No failure
				B	R Y G	No failure
* Atmospheric condition : 25.3 °C, 64 % RH, 1 010 hPa * Phase conductor : R, Y, G * Neutral conductor : B						

### 2 Insulation resistance test in air

Test voltage	Test duration	Requirement	Measuring points		Test result
DC 1 kV	1 min	$\geq 50 \text{ M}\Omega$	R	Y G B	$\geq 99.9 \text{ G}\Omega$
			Y	R G B	$\geq 99.9 \text{ G}\Omega$
			G	R Y B	$\geq 99.9 \text{ G}\Omega$
			B	R Y G	$\geq 99.9 \text{ G}\Omega$
* Atmospheric condition : 25.3 °C, 64 % RH, 1 010 hPa * Phase conductor : R, Y, G * Neutral conductor : B					

### 3 Impact at ambient temperature

Test method	Test result
<p>The joint shall be placed on a hard surface.</p> <p>The impacting tool shall be a wedge-shaped steel block of 4 kg having 90 ° angle with a 2 mm radius impacting edge of minimum width 50 mm.</p> <p>The block shall be dropped on to the joint from a height of 1 000 mm so that the impacting edge is horizontal, at right angles to the axis of the accessory, and centered on the point of impact.</p> <p>The impact shall be made at each cable entry within 10 mm of the edge of the oversheath on the joint side.</p> <p>In addition one impact shall be made over the connector.</p>	Refer to the test results of 4, 5, 6, 7, 8 and 9





#### 4 AC voltage withstand test in water

Test voltage	Test frequency	Test duration	Requirement	Voltage applied to	Earth connected to	Test result
4 kV	60 Hz	1 min	No failure	R Y G B	Water	No failure
				R	Y G B & Water	No failure
				Y	R G B & Water	No failure
				G	R Y B & Water	No failure
				B	R Y G & Water	No failure
* Atmospheric condition : 25.3 °C, 64 % RH, 1 010 hPa						
* Phase conductor : R, Y, G						
* Neutral conductor : B						

#### 5 Insulation resistance test in water

Test voltage	Test duration	Requirement	Measuring points		Test result
DC 1 kV	1 min	$\geq 50 \text{ M}\Omega$	R Y G B	Water	$\geq 99.9 \text{ G}\Omega$
			R	Y G B & Water	$\geq 99.9 \text{ G}\Omega$
			Y	R G B & Water	$\geq 99.9 \text{ G}\Omega$
			G	R Y B & Water	$\geq 99.9 \text{ G}\Omega$
			B	R Y G & Water	$\geq 99.9 \text{ G}\Omega$
* Atmospheric condition : 25.3 °C, 64 % RH, 1 010 hPa					
* Phase conductor : R, Y, G					
* Neutral conductor : B					





## 6 Heating cycle in air

Test method and requirement	Test result
<p>The temperature of the phase conductor shall be raised to (95 ~ 100) °C by heating the assembly, by passing current through the cables.</p> <p>A steady conductor temperature shall be maintained for not less than 2 h. After the 2 h minimum steady temperature period the current shall be switched off and the cable allowed to cool naturally to within 10 K of ambient within a period not less than 3 h.</p> <p>The test assembly shall be subjected to 63 cycles in air.</p>	Refer to the test results of 8 and 9
* Refer to the Osc. ET01	

## 7 Heating cycle in water

Test method	Test result
<p>The cable cores shall be exposed at the entry to the joint by removing an oversheath together with any bedding or filling material of at least 50 mm length and between 50 mm and 150 mm from the exterior of the accessory. The exposure of cores shall be made on the side with the shorter sealing length between the sheath cut back and connectors.</p> <p>The assembly shall be placed in a water bath with a water height of 1 000 mm.</p> <p>During the heating cycle temperature of the water shall be (20 ± 15) °C.</p> <p>The temperature of the phase conductor shall be raised to (95 ~ 100) °C by heating the assembly, by passing current through the cables.</p> <p>A steady conductor temperature shall be maintained for not less than 2 h. After the 2 h minimum steady temperature period the current shall be switched off and the cable allowed to cool naturally to within 10 K of ambient within a period not less than 3 h.</p> <p>The test assembly shall be subjected to 63 cycles in water.</p>	Refer to the test results of 8 and 9
* Refer to the Osc. ET02	





## 8 AC voltage withstand test in water

Test voltage	Test frequency	Test duration	Requirement	Voltage applied to	Earth connected to	Test result
4 kV	60 Hz	1 min	No failure	R Y G B	Water	No failure
				R	Y G B & Water	No failure
				Y	R G B & Water	No failure
				G	R Y B & Water	No failure
				B	R Y G & Water	No failure
* Atmospheric condition : 22.6 °C, 63 % RH, 1 019 hPa						
* Phase conductor : R, Y, G						
* Neutral conductor : B						

## 9 Insulation resistance test in water

Test voltage	Test duration	Requirement	Measuring points		Test result
DC 1 kV	1 min	$\geq 50 \text{ M}\Omega$	R Y G B	Water	$\geq 99.9 \text{ G}\Omega$
			R	Y G B & Water	$\geq 99.9 \text{ G}\Omega$
			Y	R G B & Water	$\geq 99.9 \text{ G}\Omega$
			G	R Y B & Water	$\geq 99.9 \text{ G}\Omega$
			B	R Y G & Water	$\geq 99.9 \text{ G}\Omega$
* Atmospheric condition : 22.6 °C, 63 % RH, 1 019 hPa					
* Phase conductor : R, Y, G					
* Neutral conductor : B					

## 10 Examination (for information only)

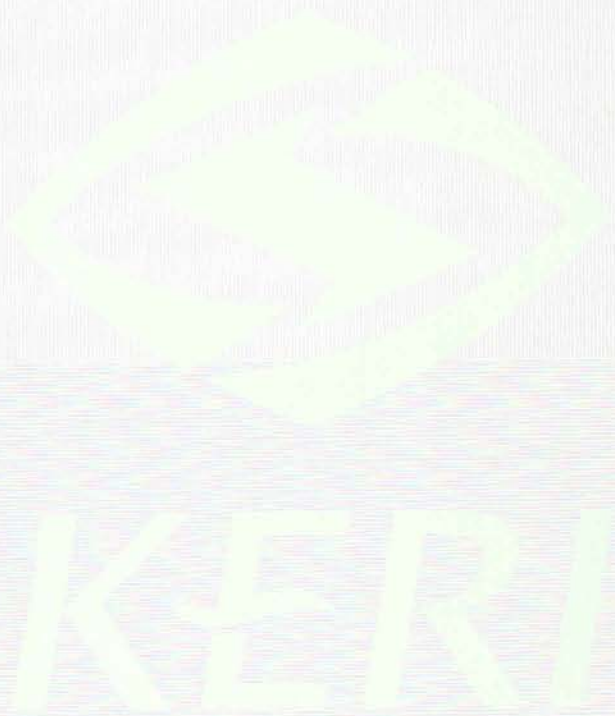
Test method	Test result
After completing the test, the assembly shall be dismantled. Examine the joint for the effectiveness of the moisture seals	No ingress of water
* Refer to the Photo. ET02	





## 11 Description of tests

- 11.1 The above tests were carried out on the test objects submitted and confirmed by the applicant in accordance with BS EN 50393:2006 (Test methods and requirements for accessories for use on distribution cables of rated voltage 0.6/1.0 (1.2) kV).
- 11.2 The above tests were carried out on one test sample in sequence. The end.







## Photographs



<Before assembling>



<After assembling>

Apparatus : Heat shrinkable cable joint  
Designation : MDJK-4-01-D  
Ratings : 0.6/1.0(1.2) kV 4C × 300 mm<sup>2</sup> Type II  
Manufacturer : Jiangsu Jiameng Electrical Equipment Co., Ltd.

Photo. ET01 : Test object





## Photographs

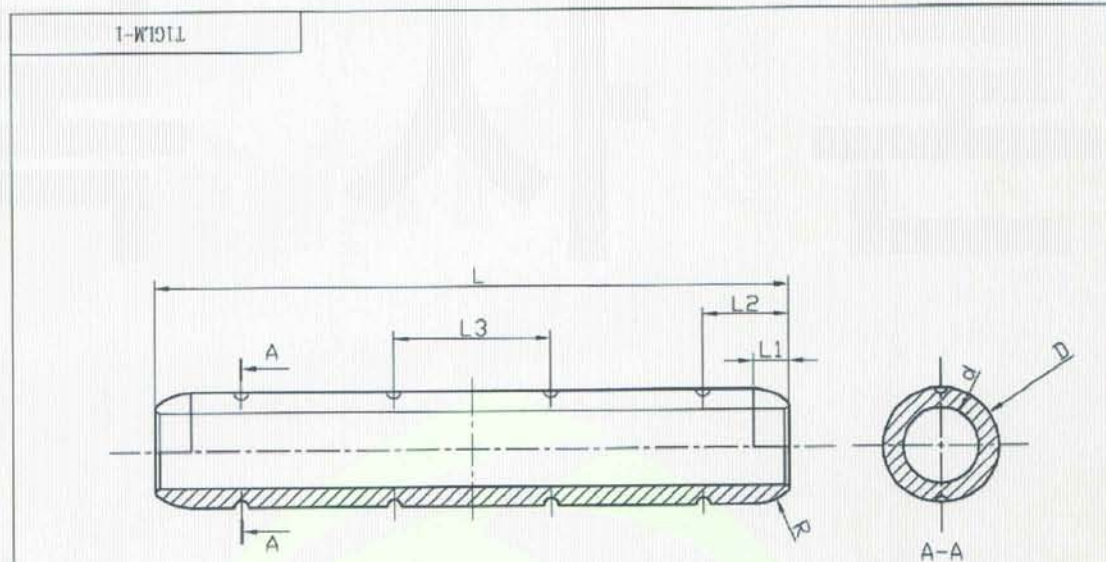


Photo. ET02 : Examination after completing the test





## Drawings



SIZE	L		$D \pm 0.2$	$d \pm 0.2$	$L1 \pm 1.5$	$L2 \pm 1.5$	$L3 \pm 1.5$	$R \pm 1.5$
GLM-16	90	$\pm 1$	11	6	5.5	11	22	8
GLM-25	90.5		16	6.5	5.5	11	22	8
GLM-35	90.5		16	8	5.5	11	22	8
GLM-95	106.5	$\pm 1.5$	20	12.5	6	13	26	12
GLM-185	143.5		32	17	9	18	36	16
GLM-240	143.5		32	19.5	9	18	36	16
GLM-300	218	$\pm 2$	40	23.3	9	27	54	17
GLM-400	218		40	26	9	27	54	17
GLM-500	218.5		47	29.1	10	27	54	17
GLM-630	218.5		47	32.5	10	27	54	17

## Technical Detail:

1. Greased and capped on the two sides of the aluminum tube.
  2. Marking: Pad printing. Colour: Black.
  3. Unmarked tolerance are according to ISO 2768-1.
- All dimensions are in mm.



JIANGSU JIAMENG  
ELECTRICAL EQUIPMENT CO., LTD

Material: AL-1350

Edges



TITLE:

ALUMINIUM JOINTING FERRULE

Approved by:

於海燕

Checked by:

张建华

Product No.

Rev.

Designed by:

张建华

Product Type

GLM

B2

Date:

29-05-2012

Scale:

Sheet 1 of 5





# Attachments

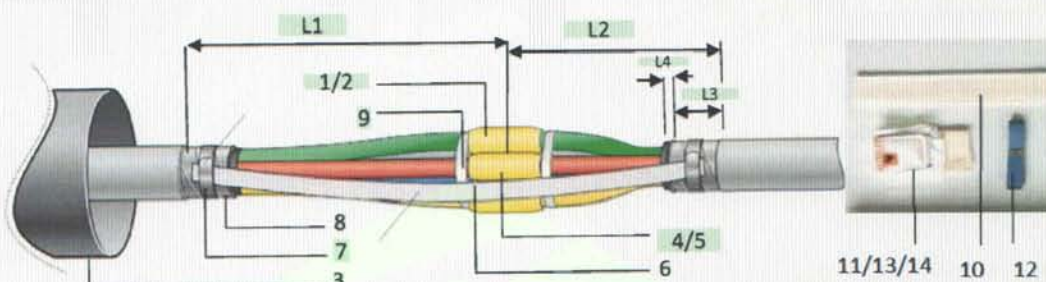


Jiangsu Jiameng Electrical Equipment Co.,Ltd.  
No5,Zhongli road, binhai industrial zone, Qidong, Jiangsu province, china  
Tel: +86-513-8390 0000 Fax: +86-513-8360 1898  
www.melec.com.cn

Designation:MDJK-4-01-D

Product name:Heat shrinkable straight-through joint

Diagram:



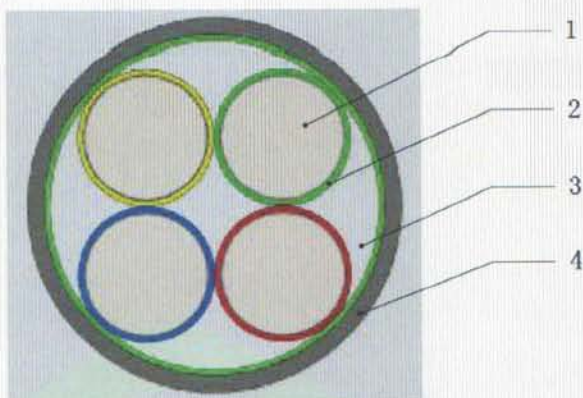
The Cable cross-sectional area		L1	L2	L3	L4
4*300mm <sup>2</sup>		650mm	400mm	30mm	10mm
No	Description	Item	Length ( mm )	Quantity ( pcs )	
1	Aluminium Connector	GLM	/	4	
2	Heat Shrinkable Inner Insulation Tubing	MRA2	450	4	
3	Sealing Tape(Red )	MMFJ	360	4	
4	Pvc Tape(Black)	MPJD	5000	1	
5	Aarmor Ground Braid	MDX	1000	1	
6	Copper Binding Wire	MTZX	1000	2	
7	Constant Force Spring	MTH	/	2	
8	Void Filling Tape(Black)	MTCJ	500	2	
9	Heat Shrinkable Outer Sheath Tubing	MRA3	1000	2	
10	Cable Preparation Tissue	MQJB	/	4	
11	Sandcloth Tape	MSZ	500	2	
12	Cleaning Cloth	MMB	/	1	
13	Installation Instructions	/	/	1	
14	Package List	/	/	1	
Date		Draw up	Auditing	Approve	
2014-5-20		Jie Zhu	Zhangjie Tang	Haiyan Yu	

Attachment ET01 : Assembling diagram





## Attachments



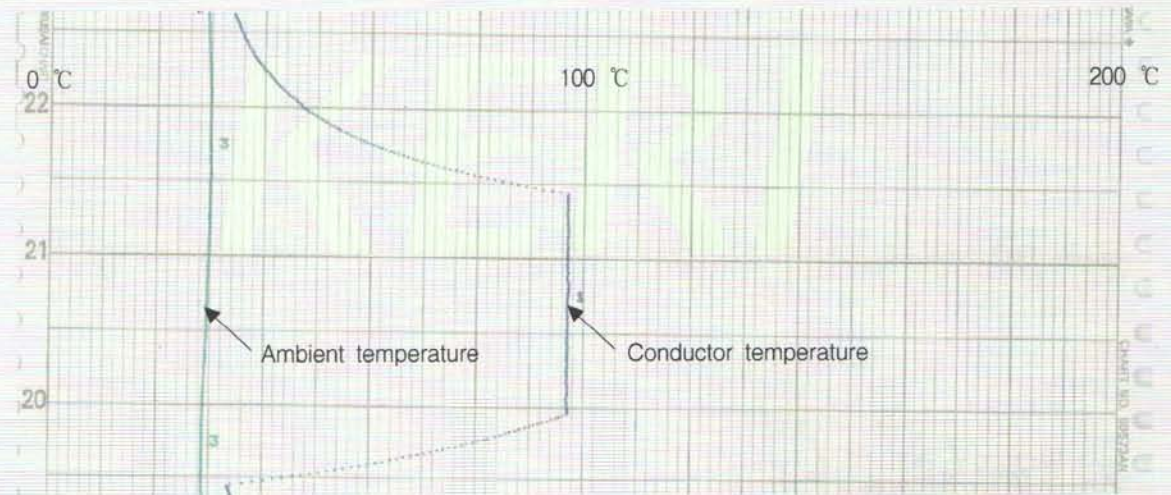
SN	STRUCTURE		UNIT	DATA
1	conductor	size		4x300
		nominal area	mm <sup>2</sup>	300
		piece/single core diameter	NO. /mm	61/2.5
		the max resistance at 20℃	Ω /km	0.0607
2	insulation	material	XLPE	
		nominal thickness	mm	1.8
3	laying up	wrapping material	non-woven fabrics	
		layers/thickness	NO. /mm/mm	2/0.2
		laying up thickness	mm	51.2
4	sheath	material	PVC	
		nominal thickness	mm	3.1
		cable diameter	mm	67.0
		approximately weight	kg/km	5747.0
5	test	testing voltage/time	kV/min	3.5/5

Attachment ET02 : Construction of cable used for testing





## Oscillograms

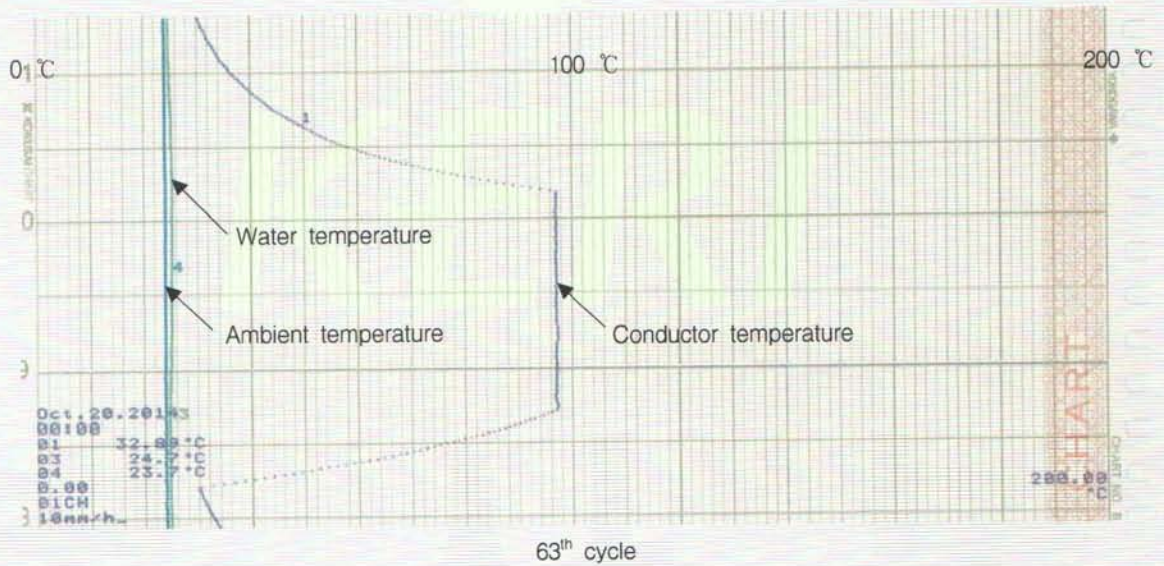
1<sup>st</sup> cycle63<sup>th</sup> cycle

Osc. ET01 : Heating cycle in air





## Oscillograms



Osc. ET02 : Heating cycle in water