



## OBMW2.E79028 Magnet Wire - Component

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### Magnet Wire - Component

See General Information for Magnet Wire - Component

**RIKEN ELECTRIC WIRE CO LTD**

E79028

KONWA BLDG  
12-22 TSUKIJI 1-CHOME  
CHUO-KU  
TOKYO, 104-0045 JAPAN

Mtl Dsg	Coating Type		ANSI Type	TI
	BC	TC		
AIW	Polyamide-Imide	—	—	220
CW-4E++	Polyurethane	Polyester	—	130
CW-4N++	Polyurethane	Polyamide	—	130
EIW-H	Polyester-Imide	—	MW30-C	180
PEW	Polyester	—	MW5-C	155
PEW-Y	Polyester	Amide	MW24-C	155
UEW-H or UEW-HF	Polyurethane	—	MW79-C	155
UEW-L	Polyurethane	—	MW75-C	130
UEW-N	Polyurethane	—	MW75-C	130
UEW-Y	Polyurethane	Amide	MW28-C	130
UEW-UA	Polyurethane	—	—	130
UEW-USG	Polyurethane	—	MW75-C	130
UEW-USL	Polyurethane	—	MW75-C	130
CW-4UB	Polyurethane	Polybutyral	—	130
CW-4UNL	Polyurethane	Polyamide	—	130
FLSEW1	Modified Polyester	—	MW5-C	155
FLSEW2	Polyurethane	—	MW79-C	155
UEW-UF	Polyurethane	—	MW75-C	130
UEW-PL	Polyurethane	—	MW75-C	130
UEW-TF	Polyurethane	—	MW75-C	130
EIW-RS	Polyester-Imide	—	MW30-C	180
PEW-SH	Polyester(imide)	—	MW77-C	180
HSEW-H	Polyester(imide)	—	MW77-C	180
UEW-HC	Polyurethane	—	MW79-C	155
HSEW	Polester-imide	—	MW30-C	180

Marking: Company name and material designation on package or reels.

Last Updated on 2007-05-04

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## OBMW2.E79029 Magnet Wire - Component

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### Magnet Wire - Component

See General Information for Magnet Wire - Component

TOTOKU ELECTRIC CO LTD

E79029

238 KAMIMARUKO

UEDA-SHI, NAGANO-KEN 386-0404 JAPAN

Mtl Dsg	Coating Type		ANSI Type	TI
	BC	TC		
<b>Magnet wiring coatings.</b>				
UEW-1	Polyurethane	—	MW2-C	105
UEW-2	Polyurethane	—	—	130
UEW-3@#	Polyurethane	—	MW75-C	130
UEW-3@#-TC	Polyurethane	—	MW75C	130
UEW-4@#	Polyurethane	—	MW79C	155
			MW75C	130
UEW-5@	Polyurethane	—	MW79-C	155
			MW75-C	130&
UEY	Polyurethane	Nylon	MW28-C	130
UEY-2@	Polyurethane	Polyamide	MW80C	155
		(Nylon)	MW28C	130&
PEW	Polyester	—	—	155
PEY	Polyester	Nylon	MW24-C	155
EIW@	Polyester-	—	—	220
	imide			
EIW-3@	Polyester-	—	MW74-C	200&
	imide			
2EIW0.55	Polyester-	—	MW740-C	200&
	imide			
AIW@	Polyamide-	—	MW81-C	220
	imide			
MZW	Polyurethane	Polyvinyl	—	130
		Butyral		
LOCKW	Polyurethane	Polyamide	—	130
PESW	Polyester	Polyamide	—	155
EILOCKW	Polyester-	Modified	—	200
	imide	Epoxy		
SF.BW@-TC	Modified Polyester	—	MW26-C	155

SF.BW@	Modified	-	MW26-C	155
	Polyester			
SF.H EIW@#	Modified	-	MW77C	180
	Polyesterimide			
THW @	Polyester- imide	Polyamide- imide	MW35C	200
LOCK Y	Polyurethane	Polyamide	-	130
SF.B MZW	Modified	Polyvinyl	-	155
	Polyester	Butyral		
SF.B LOCK@	Modified	Polyamide	MW-27C	155
	Polyester			
SF.FLW	Modified Polyester	-	MW26C	155
SF.EIW@	Modified Polyesterimide	-	MW77C	180
SF.EIW@-TC	Polyesterimide	-	MW77C	180
CFUEWB	Polyurethane	-	MW75C	130
FL.EILOCKY	Modified	Polyamide	-	155
	Polyester			
LSUEW	Polyurethane	-	-	130
SF.BY@	Modified	Nylon	MW27-C	155
	Polyester			
SF.FLY@	Modified	Nylon	MW27-C	155
	Polyester			
SF.BLOCKBS	Modified	Modified	-	155
	Polyester	Polyamide		
SF.EILOCKY@	Modified	Polyamide	-	180
	Polyesterimide			
SF.EILOCKBS@#	Modified	Modified	-	180
	Polyesterimide	Polyamide		
EILOCKY	Polyesterimide	Polyamide	-	180
PESVW-2	Polyester	Polyamide	MW24C	155
UEW-4#	Polyurethane	-	MW75C	130
SFFW#	Polyurethane	-	MW79C	155
EIATW	Polyester	Polyamide	MW35C,	200
	imide	imide		
SFFY#	Polyurethane	Polyamide	MW80C	155
EIW-2	Polyesterimide	-	MW74C	200
LSFFW	Polyurethane	-	MW79C	155
LUY	Polyurethane	Polyamide	MW28C	130
LSFFY	Polyurethane	Polyamide	MW80C	155
PEW-5	Polyester	-	MW5C	155
SFFY-2	Polyurethane	Polyamide	MW80C	155
SFFW-2	Polyurethane	-	MW79C	155

EISVW	Polyesterimide	Polyamide	MW76C	180
SFHY	Polyurethane	Polyamide	MW83C	180
PIW@	Polyimide	-	-	220
SF.BW-2@#	Modified Polyester	-	MW26C	155&
SF.BY-2@	Modified	Nylon	MW78C,	180
	Polyester		MW27C	155&
UEW-M@#	Polyurethane	-	MW75C	130
UEW-S@#	Polyurethane	-	MW79C	155

# - Indicates wire wrapped with Polyethylene Terephthalate Fiber. The fiber has not been investigated as part of the overall Insulating Properties of the wire.

@ - May be suffixed by LZ, EL, LZL or HVL, as appropriate.

LZ - signifies magnet wires twisted together; EL - signifies base coated magnet wire laid parallel with top coat applied overall; LZL - signifies base coated magnet wire twisted together and covered with top coat overall; HVL - signifies base coated magnet wire twisted together and covered with base coat overall.

CHV - Signifies basecoat twisted together and recoated again with the same basecoat and the entire bundle overcoated with self bonding polyamide.

TC signifies wire with polyethylene terephthalate fiber. The fiber has not been investigated as part of the overall insulating properties of the wire.

& - This magnet wire may perform better than its temperature rating reflects. Hence, it may not be suitable to be used in an insulation systems thermal aging program.

# TOTOKU

Marking: Company name or trademark and material designation on shipping container.

Last Updated on 2007-11-07

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Co. Reg. No. 197301455R

15, GUL WAY, SINGAPORE 629193. TEL: 6861 4477 FAX: 6861 3422

M/S : PANASONIC ELECTRONIC DEVICES CO., LTD

SPEC. NO : SC-037J

ISSUED DATE : 27 MARCH 2007

SPECIFICATION

FOR

BUNCH-STRANDED POLYURETHANE MAGNET WIRE

PREPARED BY: KOO KONG FEE  
( QA ENGINEER )

APPROVED BY: NAH KOK MENG  
( QA MANAGER )

Acknowledgement &  
Acceptance of Specification

PANASONIC ELECTRONIC DEVICES SINGAPORE PTE. LTD.  
NO 3, BEDOK SOUTH ROAD, SINGAPORE 469269  
TECHNICAL SECTION  
INDUCTIVE DEPARTMENT

company stamp & signature



SUMITOMO ELECTRIC WINTEC ( SINGAPORE ) PTE LTD  
SUMITOMO ELECTRIC WINTEC ( MALAYSIA ) SDN BHD

## Specification Revision Record

Revision No.	Revision Date	Nature Of Change	Remarks
	17.01.89	1) First issue	
A	24.01.89	-	Past records on change cannot be traced.
B	07.12.92	-	
C	20.04.93	-	
D	30.04.99	1) To include new sizes/strands - LZ 2-UEW(P17) 0.15 mm / 17 strands - LZ 2-UEW(P15) 0.30 mm / 7 strands	
E	10.05.02	1) To include new sizes/strands - LZ 1-UEW(P10) 0.12 mm / 10 strands - LZ 1-UEW(P10) 0.20 mm / 10 strands - LZ 1-UEW(P17) 0.15 mm / 17 strands - LZ 1-UEW(P15) 0.20 mm / 8 strands - LZ 2-UEW(P13) 0.20 mm / 17 strands - LZ 2-UEW(P15) 0.25 mm / 7 strands 2) To revise pinhole spec to from Max 4 (LZ 1-UEW) & Max 8 (LZ 2-UEW) to Max.5 /m for both. 3) To revise the pitch - 1PHLW-10028 from 12 to 13 - 2PHLW-602 from 13 to 10	As per Tajima Matsushita Electric Spec. As per Tajima Matsushita Electric Spec.
F	11.07.02	1) Amend Overall Diameter and Pinhole for size LZ 1-UEW(P18) 0.15mm / 30 2) Amend symbol for size - LZ 1-UEW(P15) 0.20mm / 10 strands 3) To include new sizes / strands - LZ 1-UEW (P10) 0.10mm / 20 strands	As per Tajima Matsushita Electric Spec.

## Specification Revision Record

Revision No.	Revision Date	Nature Of Change	Remarks
G	07.04.06	<ol style="list-style-type: none"> <li>1) To change customer's name from Matsushita Electronic Components (S) Pte Ltd to Panasonic Electronic Devices Co. Ltd.</li> <li>2) To include Bobbin &amp; Container Labels indication under 6 Marking.</li> <li>3) To include RoHS indication under 8.</li> <li>4) To include new sizes / strands as below :- <ul style="list-style-type: none"> <li>- LZ 1-UEW(P10) 0.10 mm / 10 strands</li> <li>- LZ 1-UEW(P30) 0.10mm / 30 strands</li> <li>- LZ 1-UEW(P30) 0.10mm / 40 strands</li> <li>- LZ 1-UEW(P30) 0.10mm / 50 strands</li> <li>- LZ 1-UEW(P28) 0.10mm / 80 strands</li> <li>- LZ 1-UEW(P10) 0.20mm / 5 strands</li> <li>- LZ 1-UEW(P10) 0.20mm / 6 strands</li> <li>- LZ 1-UEW(P15) 0.20mm / 7 strands</li> <li>- LZ 1-UEW(P15) 0.20mm / 10 strands</li> <li>- LZ 1-UEW(P18) 0.20mm / 15 strands</li> <li>- LZ 2-UEW(P12) 0.20mm / 5 strands</li> <li>- LZ 2-UEW(P10) 0.25mm / 10 strands</li> </ul> </li> </ol>	
H	21.07.06	<ol style="list-style-type: none"> <li>1) To include Panasonic Order No.</li> <li>2) To indicate original polyurethane wires are certified by UL.</li> <li>3) To include UL listing under 8. Remarks.</li> <li>4) To include 'U' in Ref Panasonic's Symbol that denotes UL.</li> </ol>	
I	11.09.06	<ol style="list-style-type: none"> <li>1) To change the title of 9 from Others to Environmental Compliance.</li> <li>2) To include PED Chemical Substances Management Guidelines under 9.</li> </ol>	As per PED Co.'s request
J	27.03.07	<ol style="list-style-type: none"> <li>1) Under 3. To include wires with UL code UEWU with reference to WI-06-001.</li> <li>2) Under 8. To include "Indonesia File No.: E176282".</li> </ol>	To include WIN-I MW as supply wires to LZ wires.



**Specification for Bunch-stranded Polyurethane Magnet Wire**

1. **Scope**  
This specification specifies Bunch-stranded Polyurethane Magnet Wire to be used in transformers and coils etc.
2. **Type and symbol**  
The type and symbol shall be as Table 1.

Table 1

Type	Symbol	Panasonic Order No.
Bunch-stranded Class 1 Polyurethane	LZ 1-UEW	1PHLWU
Bunch-stranded Class 2 Polyurethane	LZ 2-UEW	2PHLWU

3. **Characteristics Of The Original Polyurethane Magnet Wire**  
The characteristics of the original polyurethane magnet wire 1-UEW & 2-UEW shall comply with the specification SC-036 & WI-06-001.  
  
UEX & UEWU are the Material Designation under UL listing.
4. **Characteristics Of The Bunch-stranded Wires**  
The characteristics of the bunch-stranded wires shall comply with Attached Table 1 & 2.

5. **Packing**

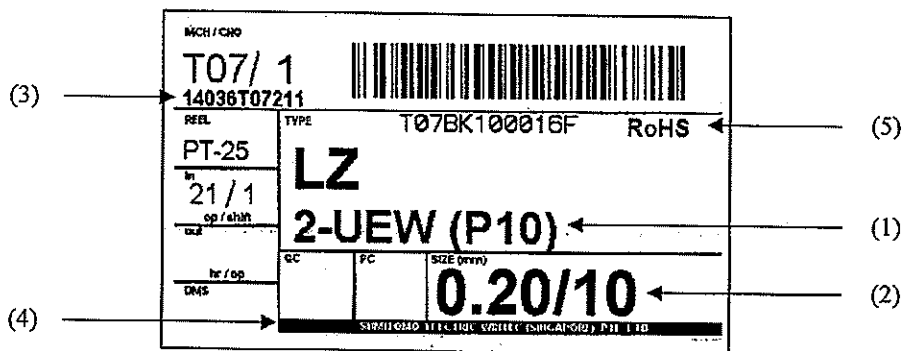
The wire shall be wound, without slackness or tangle on a bobbin of suitable size according to the conductor diameter, and shall be suitably packed as not to be damaged or entangled in transportation.

6. **Marking**

The bobbin or container shall be marked at a suitable place with the following items :-

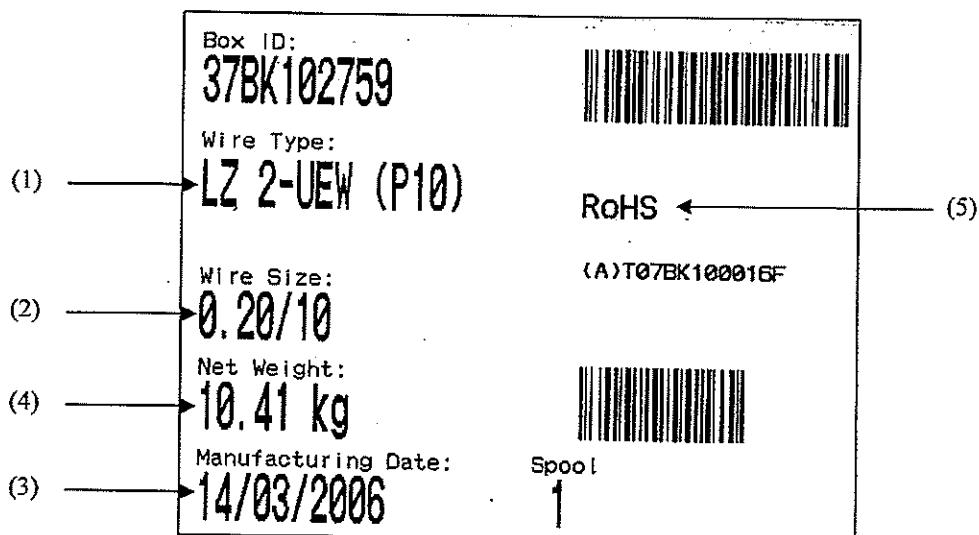
A) The bobbin shall be marked with the following items :

- 1) Symbol
- 2) Size / number of strands
- 3) Lot Number ( Manufacturing Date )
- 4) Manufacturer's name or mark
- 5) RoHS Indication



B) The container shall be marked with the following items :

- (1) Symbol
- (2) Size / number of strands
- (3) Manufacturing Date
- (4) Net Weight
- (5) RoHS Indication



7. **Designation**

The product shall be designated by product symbol and size / number of strands.

Example: LZ 1-UEW (P10) 0.10 / 10

8. **Remarks**

The UL listing can be obtained from On-line Certificate Directory:

<http://www.ul.com/>

Singapore File No. : E94304

Malaysia File No. : E135754

Indonesia File No. : E176282

9. **Environmental Compliance**

a) This product complies with the Panasonic Electronic Devices Chemical Substances Management Guidelines ( the latest revision ).

b) This product is in compliance to RoHS ( Directive 2002/95/EC ) & the word "RoHS" shall be indicated on the labels of the bobbin & container.

Attached Table 1

Characteristic of LZ 1-UEW

Symbol	Size / no. of strands mm. / strands	Pitch mm.	Overall Diameter mm.	Pinhole per meter	Ref. Panasonic's symbol
LZ 1-UEW	0.10 / 10	10 ± 2.0	Approx. 0.4	5 max.	1PHLWU - 1001
	0.10 / 20	10 ± 2.0	" 0.6	5 max.	1PHLWU - 2001
	0.10 / 30	1 <sup>st</sup> 20 ± 3.0 ( 6pcs ) 2 <sup>nd</sup> 30 ± 3.0 ( 5pcs )	" 0.8	10 max.	1PHLWU - 3001
	0.10 / 40	1 <sup>st</sup> 20 ± 3.0 ( 10pcs ) 2 <sup>nd</sup> 30 ± 3.0 ( 4pcs )	" 0.9	10 max.	1PHLWU - 4001
	0.10 / 50	1 <sup>st</sup> 20 ± 3.0 ( 10pcs ) 2 <sup>nd</sup> 30 ± 3.0 ( 5pcs )	" 1.0	10 max.	1PHLWU - 5001
	0.10 / 80	1 <sup>st</sup> 20 ± 3.0 ( 16pcs ) 2 <sup>nd</sup> 28 ± 3.0 ( 5pcs )	" 1.4	10 max.	1PHLWU - 8001
	0.12 / 10	20 ± 3.0	" 0.6	5 max.	1PHLWU - 10012
	0.15 / 17	18 ± 3.0	" 0.9	"	1PHLWU - 17015
	0.15 / 23	18 ± 3.0	" 1.1	"	1PHLWU - 23015
	0.15 / 30	18 ± 3.0	" 1.2	10 max.	1PHLWU - 30015
	0.20 / 5	10 ± 2.0	" 0.6	5 max.	1PHLWU - 502
	0.20 / 6	10 ± 2.0	" 0.6	"	1PHLWU - 602
	0.20 / 7	15 ± 2.0	" 0.7	"	1PHLWU - 702
	0.20 / 8	15 ± 2.0	" 0.7	"	1PHLWU - 802
	0.20 / 10	15 ± 2.0	" 0.8	"	1PHLWU - 10020
	0.20 / 15	18 ± 2.0	" 1.0	"	1PHLWU - 15020
	0.26 / 3	10 ± 1.5	" 0.6	"	1PHLWU - 3026
	0.28 / 10	13 ± 2.0	" 1.2	"	1PHLWU - 10028
	0.30 / 5	10.5 ± 1.5	" 0.9	"	1PHLWU - 503
	0.30 / 7	15 ± 2	" 1.1	"	1PHLWU - 703
0.32 / 5	10 ± 2	" 1.0	"	1PHLWU - 5032	

Attached Table 2

Characteristic of LZ 2-UEW

Symbol	Size / no. of strands mm. / strands	Pitch mm.	Overall Diameter mm.	Pinhole per meter	Ref. Panasonic's symbol
LZ 2-UEW	0.15 / 17	17 ± 2	Approx. 0.8	5 max.	2PHLWU - 17015
	0.20 / 5	12 ± 3	" 0.5	"	2PHLWU - 502
	0.20 / 6	10 ± 2	" 0.6	"	2PHLWU - 602
	0.20 / 7	15 ± 3	" 0.6	"	2PHLWU - 702
	0.20 / 10	10 ± 2	" 0.8	"	2PHLWU - 1002
	0.20 / 17	13 ± 3	" 1.1	"	2PHLWU - 1702
	0.25 / 7	15 ± 2	" 0.8	"	2PHLWU - 7025
	0.25 / 10	10.5 ± 2	" 1.0	"	2PHLWU - 10025
	0.30 / 3	10.5 ± 1.5	" 0.7	"	2PHLWU - 303
	0.30 / 7	15.5 ± 2	" 1.1	"	2PHLWU - 703