

Electric Wire and cable business

OKI Robot Cable Series

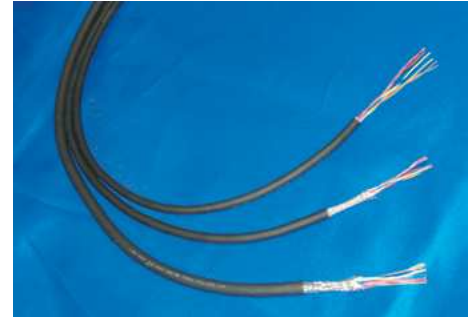
Small-diameter, highly bendable robot cable

ORP slim cable series

Fixed	Torsion
Swinging bending	Sliding bending

UL 758 Style 2464 80°C 300 V

Designed as a small-diameter model of the ORP cable series. Our unique special elastomer is used to insulate the core wire. Suitable for all robot moving parts.



Features

- About 20% flatter than ORP cables.
- Available in a wide range of types (sliding, swinging, and twisting) for all robot movements.
- Excellent flexibility, which makes routing easier.
- Quick delivery available for your desired volume starting from 10 m (1 m units).

Specifications

Material/configuration

Conductor	Tin-plated, soft copper, twisting cable
Insulator	Special elastomer
Insulator identification	According to (Table 1) and (Table 2)
Shielding	Tin-plated, soft copper cable; braided
Sheath material (sheath color)	Oil-proof PVC (black matte)

Usage environment

Application	Fixed and moving parts between equipment and within equipment indoors
Operation temperature range	-10 to 80°C

Line-up

Shielding	Twisted pair type	Layer-twisted type
Without shielding	Conductor size: 0.1 to 0.3 sq. mm Number of pairs: 1 to 10	Conductor size: 0.1 to 0.3 sq. mm Number of core wires: 3 to 10
With shielding	Conductor size: 0.1 to 0.3 sq. mm Number of pairs: 1 to 10	—

Applicable standards

UL758 Style 2464 (Rating: 80°C, 300 V)

Build-to-order manufacturing of UL listing (CL 3) standard-compliant products is available.

Sheath labeling

ORP-SL □ SQ △△ OKI ELECTRIC CABLE  AWM 2464 80C 300V VW-1 #####

□ : Conductor cross-sectional area (mm²) 0.1/0.2/0.3 △△ : Without shielding: No indication/With shielding: -SB #####: Lot No.

Special characteristics

Electrical performance

Conductor cross-sectional area	Conductor resistance Ω/km (20°C)	Insulator resistance MΩ-km (20°C)	Withstand voltage V·1 minute interval
0.1 sq. mm (AWG28)	205 or less	100 or more	AC 2000
0.2 sq. mm (AWG25)	102 or less	100 or more	AC 2000
0.3 sq. mm (AWG23)	68 or less	100 or more	AC 2000

Mobility

Mode	Performance	Test conditions
Sliding bending	100 million times or more	Bend radius R: about 6 times the outer diameter of the cable Sliding speed: 70 times per minute Movement distance: 350 mm
Swinging bending	20 million times or more	Bend radius R: about 8 times the outer diameter of the cable Bend angle: ±90° Bend speed: 40 times per minute Load: 4.9 N Count: one round trip is one count
Torsion	20 million times or more	Torsion angle: ±180° Torsion speed: 70 times per minute Interval X: 500 mm

Note. Under Oki test conditions and methods. For details, see page 3.
These values are for reference only and are not guaranteed values.

Line-up

Twisted pair type

Display of product name

● Without shielding: ORP-SL (1) SQ × (2) P (2464)

● With shielding: ORP-SL (1) SQ × (2) P (SB) (2464)

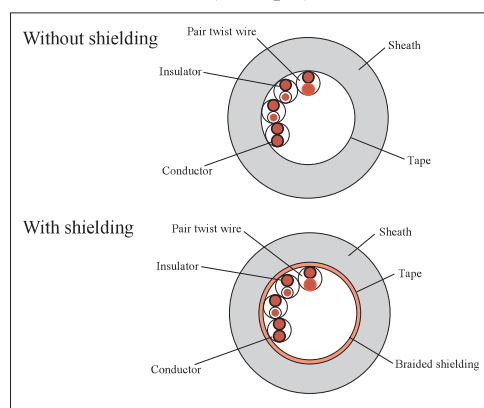
(1): Conductor sq. mm (mm²) (2): Number of pairs
(See the chart below.)

Construction

Conductor			Core wire diameter mm	(2) Number of pairs	Without shielding		With shielding		Permitted electric current* A (30°C)
(1) sq. mm	AWG size	Configuration			Outer diameter mm	Approximate weight kg/km	Outer diameter mm	Approximate weight kg/km	
0.1	28	49/0.05	0.74	1	3.3	13	3.8	21	2.4
				2	4.4	20	4.8	30	1.8
				3	4.7	23	5.1	34	1.6
				4	5.0	27	5.4	38	1.4
				5	5.3	32	5.7	43	1.3
				6	5.6	36	6.0	48	1.2
				7	5.6	39	6.0	50	1.2
				8	6.0	43	6.4	56	1.1
				10	6.6	52	7.0	66	1.0
				0.2	25	102/0.05	0.93	1	3.7
2	5.0	27	5.4					37	3.0
3	5.3	34	5.7					45	2.6
4	5.7	39	6.3					51	2.3
5	6.1	47	6.5					60	2.1
6	6.6	54	7.1					69	2.0
7	6.6	58	7.1					73	1.9
8	7.1	65	7.6					80	1.8
10	7.8	80	8.2					97	1.7
0.3	23	108/0.06	1.09					1	4.0
				2	5.5	36	5.9	44	4.0
				3	5.9	42	6.4	54	3.5
				4	6.3	51	6.7	64	3.2
				5	6.9	61	7.3	76	2.9
				6	7.4	72	7.8	87	2.7
				7	7.4	78	7.8	94	2.5
				8	8.0	88	8.4	105	2.4
				10	8.8	110	9.2	130	2.3

*The permitted electric current value is calculated with a straight installation in air. It is not a guaranteed value.

Cross-section view (example)



(Table 1) Wire-pair configuration table

Corresponding no.	Insulation body color	
	No.1 core wire	No.2 core wire
1	Blue	White
2	Yellow	Brown
3	Green	Black
4	Red	Gray
5	Purple	Orange
6	Blue	Brown
7	Yellow	Black
8	Green	Gray
9	Red	Orange
10	Purple	White

Layer-twisted

Display of product name

● ORP-SL (1) SQ × (2) C (2464)

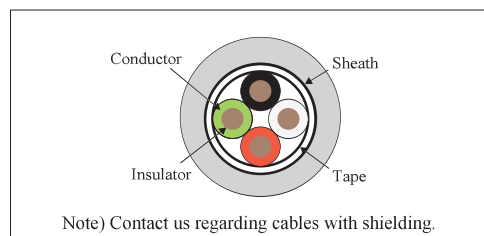
(1): Conductor sq. mm (mm²) (2): Number of core wires
(See the chart below.)

Construction

Conductor			Core wire diameter mm	(2) Number of core wires	Outer diameter mm	Approximate weight kg/km	Permitted electric current* A (30°C)				
(1) sq. mm	AWG size	Configuration									
0.1	28	49/0.05	0.74	3	3.6	15	2.1				
				4	3.8	17	1.8				
				5	4.0	19	1.7				
				6	4.2	22	1.6				
				7	4.3	23	1.5				
				8	4.4	25	1.4				
				10	4.8	29	1.3				
				0.2	25	102/0.05	0.93	3	4.0	20	3.3
								4	4.2	23	3.0
								5	4.5	27	2.8
6	4.8	31	2.6								
7	4.9	33	2.4								
8	5.1	37	2.3								
10	5.5	43	2.1								
0.3	23	108/0.06	1.09					3	4.3	24	4.5
								4	4.6	29	4.0
								5	4.9	34	3.8
				6	5.3	39	3.5				
				7	5.4	43	3.3				
				8	5.6	48	3.2				
				10	6.1	56	2.9				

*The permitted electric current value is calculated with a straight installation in air. It is not a guaranteed value.

Cross-section view (example)



(Table 2) Core wire configuration table

Core wire no.	Insulator body color
1	Black
2	White
3	Red
4	Green
5	Yellow
6	Brown
7	Blue
8	Gray
9	Orange
10	Purple

Electric Wire and cable business

OKI Robot Cable Series

Highly bendable robot cable for power sources

ORP-D cable series

Fixed	Torsion
Swinging bending	Sliding bending

UL 758 Style 2586 105°C 600 V

Power/drive cable of the ORP cable series.

Supports a 600 V rating while having the small diameter of a 300 V rating product.



Features

- Employs our unique special elastomer insulation to balance both excellent mobility and low-cost.
- Supports a 600 V rating while having the small diameter of a 300 V rating product! Compatibility with standard 300 V rated cables is guaranteed.
- Because of their excellent flexibility and routing, optimal for small devices with limited mounting space and troublesome wiring.
- Quick delivery available for your desired volume starting from 10 m (1 m units).

Specifications

Material/configuration

Conductor	Tin-plated, soft copper, twisting cable
Insulator	Special elastomer
Insulator identification	By (Table 1)
Shielding	Tin-plated, soft copper cable; braided
Sheath material (sheath color)	Oil-proof PVC (black matte)

Usage environment

Application	Fixed and moving parts between equipment and within equipment indoors
Operation temperature range	-10 to 105°C

Line-up

Shielding	Layer-twisted type
Without shielding	Conductor size: 0.5 to 5.5 sq. mm Number of core wires: 2 to 10
With shielding	Conductor size: 0.5 to 5.5 sq. mm Number of core wires: 2 to 10

Applicable standards

UL758 Style 2586 (Rating: 105°C, 600 V)

Build-to-order manufacturing of UL listing (CL 3) standard-compliant products is available.

Sheath labeling

ORP-D □ SQ △△ OKI ELECTRIC CABLE AWM 2586 105C 600V VW-1 #####

□ : Conductor cross-sectional area (mm²) 0.5/0.75/1.25/2/3.5/5.5 △△ : Without shielding: No indication/With shielding: -SB #####: Lot No.

Special characteristics

Electrical performance

Conductor cross-sectional area	Conductor resistance Ω/km (20°C)	Insulator resistance MΩ -km (20°C)	Withstand voltage V-1 minute interval
0.5 sq. mm (AWG21)	40 or less	100 or more	AC 2000
0.75 sq. mm (AWG19)	26 or less	100 or more	AC 2000
1.25 sq. mm (AWG17)	16 or less	100 or more	AC 2000
2 sq. mm (AWG15)	9.3 or less	100 or more	AC 2000
3.5 sq. mm (AWG12)	5.3 or less	100 or more	AC 2000
5.5 sq. mm (AWG10)	3.4 or less	100 or more	AC 2000

Mobility

Mode	Performance	Test conditions
Sliding bending	100 million times or more	Bend radius R: about 6 times the outer diameter of the cable Sliding speed: 70 times per minute Movement distance: 350 mm
Swinging bending	20 million times or more	Bend radius R: about 8 times the outer diameter of the cable Bend angle: ±90° Bend speed: 40 times per minute Load: 4.9 N Count: one round trip is one count
Torsion	20 million times or more	Torsion angle: ±180° Torsion speed: 70 times per minute Interval X: 500 mm

Note. Under OkI test conditions and methods. For details, see page 3.
These values are for reference only and are not guaranteed values.

Line-up

Display of product name

● Without shielding: **ORP-D (1) SQ × (2) C (2586)**

(1): Conductor sq. mm (mm²) (2): Number of core wires
(See the chart below.)

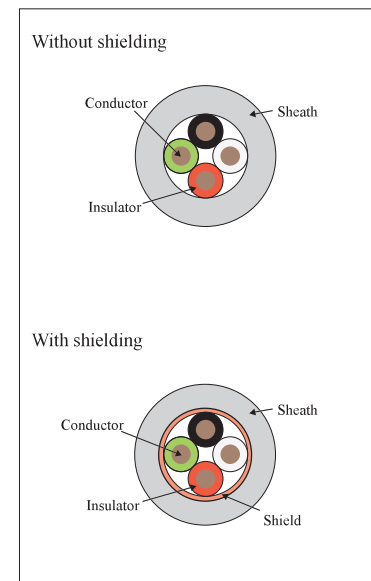
● With shielding: **ORP-D (2) SQ × (2) C (SB) (2586)**

Construction

Conductor			Core wire diameter mm	(2) Number of core wires	Without shielding		With shielding		Permitted electric current* A (30°C)
(1) sq. mm	AWG size	Configuration			Outer diameter mm	Approximate weight kg/km	Outer diameter mm	Approximate weight kg/km	
0.5	21	100/0.08	1.52	2	5.3	34	5.7	45	9.2
				3	5.5	41	5.9	53	8.0
				4	5.9	49	6.3	61	7.2
				5	6.3	58	6.7	72	6.7
				6	6.8	66	7.2	83	6.2
				8	8.0	90	8.4	110	5.6
0.75	19	150/0.08	1.73	10	8.9	110	9.3	130	5.1
				2	5.7	41	6.1	53	12.0
				3	5.9	51	6.3	62	10.5
				4	6.4	63	6.8	75	9.4
				5	6.9	74	7.3	88	8.7
				6	7.4	87	7.8	105	8.1
1.25	17	7/36/0.08	2.20	8	8.8	120	9.3	145	7.3
				10	9.7	145	10.3	175	6.7
				2	6.6	58	7.0	72	17.3
				3	7.0	75	7.4	89	15.1
				4	7.5	92	7.9	110	13.5
				5	8.1	110	8.7	135	12.6
2	15	7/57/0.08	2.60	6	8.8	130	9.3	155	11.7
				8	10.5	180	11.1	210	10.6
				10	11.6	220	12.1	250	9.7
				2	7.4	79	7.8	94	23.6
				3	7.8	105	8.2	120	20.6
				4	8.5	130	9.0	155	18.4
3.5	12	7/64/0.10	3.40	5	9.2	155	9.7	185	17.2
				6	10.0	185	10.5	220	15.9
				8	12.0	250	12.5	290	14.4
				10	13.2	310	13.7	350	13.2
				2	9.3	125	9.8	155	35.5
				3	9.8	165	10.3	195	30.9
5.5	10	7/100/0.10	4.15	4	10.7	210	11.2	240	27.6
				5	11.9	270	12.4	280	25.8
				6	12.9	290	13.4	330	23.9
				8	15.5	430	16.0	470	21.6
				10	16.9	510	17.4	560	19.8
				2	11.2	190	11.7	220	48.7
5.5	10	7/100/0.10	4.15	3	11.8	250	12.3	280	42.4
				4	12.9	290	13.4	320	38.0
				5	14.3	390	14.8	430	35.4
				6	15.5	470	16.0	510	32.9
				8	18.6	620	19.1	670	29.7
				10	20.5	760	21.0	820	27.2

*The permitted electric current value is calculated with a straight installation in air. It is not a guaranteed value.

Cross-section view (example)



(Table 1) Core wire configuration table

Core wire no.	Insulator body color
1	Black
2	White
3	Red
4	Green
5	Yellow
6	Brown
7	Blue
8	Gray
9	Orange
10	Purple