



## TEST REPORT

Test Report No.: 020293-01/01

Issued: 24. 2. 2020

**Name of product:** Electrical cables with PVC thermoplastic insulation and sheath for fixed installation

**Type of product:** CYKY

**Ratings:** 3 x (1,5-16) mm<sup>2</sup>; 450/750 V

**Serial number:** -

**Manufacturer:** El Sewedy Cables – United industries company  
10th of Ramadan city – industrial zone A3, Cairo,  
the Arab Republic of Egypt

**Production site:** see manufacturer

**Ordering firm:** El Sewedy Cables – United industries company  
10th of Ramadan city – industrial zone A3, Cairo,  
the Arab Republic of Egypt

**Number of tested samples:** 2

**Samples submitted on:** 5. 2. 2020

**Location of testing:** Elektrotechnický zkušební ústav, s. p.

**Tests performed** from 5. 2. 2020 through 24. 2. 2020

**Other data:** -

**Tested according to:** ČSN 34 7411:2014

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Approved by: Jan Tůma  
Testing laboratory technical manager

No. of pages: 8

No. of annexes: 0

No. of annexes pages: 0

Test results stated in the test report apply only to the tested subject and unless specified otherwise in the test report, the tests were performed using the method and under the conditions determined in the test regulations, technical norm, instructions for use and information provided by the manufacturer on the tested subject and using accessories required by the manufacturer.  
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## 1) CYKY-J 3x1,5 RE

Test	Prescribed			Observed		
<b>Construction</b>						
by inspection, ČSN EN 60811-203, cl.4 ČSN 34 7411, cl.5 and 6 conductor				brown	blue	green/yellow
			circular, solid Cu 1,00 to 1,49	pass 1,37	pass 1,39	pass 1,36
- type		[mm]				
- material						
- outer diameter (Ø)						
insulation			TI 1 PVC brown, blue, green/yellow	pass brown, blue, green/yellow		
- type						
- material						
- color						
inner filling			extruded easily separable	extruded pass		
- material						
sheath			TM 1 PVC black	pass black		
- type						
- material						
- color						
Marking			trademark, brand type, color, number of cores, cross-cores, core shape	printing on sheath: =EL SEWEDY CABLES= 3x1,5 mm <sup>2</sup> CYKY-J (RE)		
- distance between marking	max.	[mm]	550	364		
<b>Core tests</b>						
<b>Electrical tests</b>						
Resistance of conductor ČSN EN 50395, cl.5 ČSN 34 7411, cl.7, tab.3 and 6				BR	BU	GNYE
			20			
- temperature		[°C]				
- resistance	max.	[Ω/km]	12,531	12,1168	12,1396	12,1263
<b>Insulation tests</b>						
<b>Non-electrical tests</b>						
Dimensions ČSN EN 50396, cl.4.1 ČSN EN 60811-201, cl.4 ČSN 34 7411, cl.7, tab.4 and 6 thickness				BR	BU	GNYE
			0,7 inf.			
- nominal value		[mm]				
- mean value		[mm]	-	0,7	0,7	0,7
- minimum value	min.	[mm]	0,53	0,65	0,67	0,67
Mechanical properties ČSN EN 60811-501, cl.4.2 ČSN EN 60811-401, cl.4.2 ČSN 34 7411, cl.7 and tab.6 TI1				BR	BU	GNYE
without ageing						
- tensile strength	min.	[N/mm <sup>2</sup> ]	12,5	16,14	15,69	16,07
- elongation at break	min.	[%]	125	204,70	181,75	190,50
after ageing						
- temperature		[°C]	80 ± 2			
- time of ageing		[h]	168			
- tensile strength		[N/mm <sup>2</sup> ]	12,5	15,99	15,81	15,68
- change after ageing	max.	[%]	±20	-0,93	+0,76	-2,43
- elongation at break		[%]	125	200,49	182,00	183,09
- change after ageing	max.	[%]	±20	-2,06	+0,14	-3,89

Test	Prescribed			Observed		
Loss of mass ČSN EN 60811-409, cl.4 ČSN 34 7411, cl.7 and tab.6 TI1 - temperature - duration of treatment - loss of mass				BR	BU	GNYE
	max.	[°C] [h] [mg/cm <sup>2</sup> ]	80±2 168 2	0,2093	0,2329	0,2241
Heat shock test ČSN EN 60811-509, cl.4.3 ČSN 34 7411, cl.7 and tab.6 TI1 - temperature - duration of treatment - result				BR	BU	GNYE
		[°C] [h]	150±2 1 without cracks	without cracks	without cracks	without cracks
Pressure test at high temperature ČSN EN 60811-508, cl.4.3 ČSN 34 7411, cl.7 and tab.6 TI1 - temperature - duration of treatment - penetration depth				BR	BU	GNYE
	max.	[°C] [h] [%]	80±2 4 50	29,17	27,78	28,17
Tests at low temperature ČSN EN 60811-504, cl.4.2 ČSN 34 7411, cl.7 and tab.6 TI1 - temperature - duration of treatment bending test - result				BR	BU	GNYE
		[°C] [h]	-15 16			
			without cracks	without cracks	without cracks	without cracks
<b>Electrical tests</b>						
High voltage test on cores ČSN EN 50395, cl.7 ČSN 34 7411, cl.7 and tab.6 - temperature - immersion time - duration - test voltage AC - requirement				BR	BU	GNYE
		[°C] [h] [minut] [V]	20±5 1 5 2000 no breakdown	no breakdown	no breakdown	no breakdown
Insulation resistance ČSN EN 50395, cl.8.1 ČSN 34 7411, cl.7 and tab.6 - temperature - insulation resistance				BR	BU	GNYE
	min.	[°C] [MΩ.km]	70±5 0,011	0,201	0,179	0,146
Long term resistance DC voltage ČSN EN 50395, cl.9 ČSN 34 7411, cl.7 and tab.6 - temperature - duration - test voltage DC - requirement				BR	BU	GNYE
		[°C] [h] [V]	60±5 240 220 no breakdown	no breakdown	no breakdown	no breakdown

Test	Prescribed		Observed
<b>Tests on sheath</b>			
<b>Non-electrical tests</b>			
Dimensions ČSN EN 50396, cl.4.2 ČSN EN 60811-202, cl.4 ČSN 34 7411, cl.7, tab.5 and 6 thickness			
- nominal value		[mm]	1,0 inf.
- mean value		[mm]	-
- minimum value	min.	[mm]	0,75
Mechanical properties ČSN EN 60811-501, cl.4.3 ČSN EN 60811-401, cl.4.2 ČSN 34 7411, cl.7 and tab.6 TM1			
without ageing			
- tensile strength	min.	[N/mm <sup>2</sup> ]	12,5
- elongation at break	min.	[%]	125
after ageing			
- temperature		[°C]	80±2
- time of ageing		[h]	168
- tensile strength	min.	[N/mm <sup>2</sup> ]	12,5
- change after ageing	max.	[%]	±20
- elongation at break	min.	[%]	125
- change after ageing	max.	[%]	±20
Loss of mass ČSN EN 60811-409, cl.6 ČSN 34 7411, cl.7 and tab.6 TM1			
- temperature		[°C]	80±2
- duration		[h]	168
- loss of mass	max.	[mg/cm <sup>2</sup> ]	2
Heat shock test ČSN EN 60811-509, cl.4.4 ČSN 34 7411, cl.7 and tab.6 TM1			
- temperature		[°C]	150
- duration		[h]	1
- requirement			without cracks
Pressure test at high temperature ČSN EN 60811-508, cl.4.4 ČSN 34 7411, cl.7 and tab.6 TM1			
- temperature		[°C]	80±2
- duration		[h]	4
- depth of indentation	max.	[%]	50
Tests at low temperature ČSN EN 60811-504, cl.4.3 ČSN EN 60811-506, cl.4 ČSN 34 7411, cl.7 and tab.6 TM1			
- temperature		[°C]	-15
- duration of treatment		[h]	16
bending test			
- result			without cracks

Test	Prescribed		Observed			
<b>Test on complete cable</b>						
<b>Non-electrical tests</b>						
Compatibility test ČSN EN 60811-501, cl.4 ČSN EN 60811-401, cl.4.2 ČSN 34 7411, cl.7 and tab.6, annex A, tab.A.1 after ageing on complete cable			sheath	insulation	sheath	insulation brown
- temperature		[°C]	80±2	80±2		
- time of ageing		[h]	168	168		
- tensile strength	min.	[N/mm <sup>2</sup> ]	12,5	12,5	15,59	16,40
- change after ageing	max.	[%]	±20	±20	-3,53	+1,61
- elongation at break	min.	[%]	125	125	208,64	194,34
- change after ageing	max.	[%]	±20	±20	-2,18	-5,06
Compatibility test ČSN EN 60811-501, cl.4 ČSN EN 60811-401, cl.4.2 ČSN 34 7411, cl.7 and tab.6, annex A, tab.A.1 after ageing on complete cable			insulation		insulation blue	insulation green/yellow
- temperature		[°C]	80±2			
- time of ageing		[h]	168			
- tensile strength	min.	[N/mm <sup>2</sup> ]	12,5		16,07	16,49
- change after ageing	max.	[%]	±20		+2,42	+2,61
- elongation at break	min.	[%]	125		177,54	190,72
- change after ageing	max.	[%]	±20		-2,32	+0,12
Test for vertical flame propagation ČSN EN 60332-1-2, cl.5 ČSN EN 60332-1-2, cl.6 - flame application time		[s]	60			
	min.	[mm]	50		357	
	max.	[mm]	540		489	
	max.	[mm]	450		132	
<b>Electrical tests</b>						
Voltage test of the completed cable ČSN EN 50395, cl.6 ČSN 34 7411, cl.7 and tab.6 - temperature		[°C]	20±5			
		[minut]	15			
- duration		[V]	2000			
- test voltage AC			no breakdown		no breakdown	
- requirement						

## 1) CYKY-J 3x10 RE

Test	Prescribed			Observed		
<b>Construction</b>						
by inspection, ČSN EN 60811-203, cl.4 ČSN 34 7411, cl.5 and 6 conductor				brown	blue	green/yellow
			circular, solid Cu 2,50 to 3,99	pass 3,51	pass 3,43	pass 3,49
- type		[mm]				
- material						
- outer diameter (Ø)						
insulation						
- type			TI 1	pass		
- material			PVC	brown, blue, green/yellow		
- color			brown, blue, green/yellow	brown, blue, green/yellow		
inner filling						
- material			extruded easily separable	extruded pass		
sheath						
- type			TM 1	pass		
- material			PVC	black		
- color			black	black		
Marking						
- distance between marking	max.	[mm]	trademark, brand type, color, number of cores, cross-cores, core shape  550	printing on sheath: =EL SEWEDY CABLES= 3x10 mm2 CYKY-J (RE)  326		
<b>Core tests</b>						
<b>Electrical tests</b>						
Resistance of conductor ČSN EN 50395, cl.5 ČSN 34 7411, cl.7, tab.3 and 6				BR	BU	GNYE
			20			
- temperature	max.	[°C]	1,880	1,7983	1,8166	1,8044
- resistance		[Ω/km]				
<b>Insulation tests</b>						
<b>Non-electrical tests</b>						
Dimensions						
ČSN EN 50396, cl.4.1 ČSN EN 60811-201, cl.4 ČSN 34 7411, cl.7, tab.4 and 6 thickness				BR	BU	GNYE
			1,0 inf.			
- nominal value		[mm]	-	1,1	1,0	1,1
- mean value	min.	[mm]	0,80	0,99	0,93	0,96
- minimum value		[mm]				
<b>Tests on sheath</b>						
<b>Non-electrical tests</b>						
Dimensions						
ČSN EN 50396, cl.4.2 ČSN EN 60811-202, cl.4 ČSN 34 7411, cl.7, tab.5 and 6 thickness						
			1,0 inf.			
- nominal value		[mm]	-		1,5	
- mean value	min.	[mm]	0,75		1,37	
- minimum value		[mm]				

Photo cable sample CYKY-J 3x1,5 RE mm<sup>2</sup>

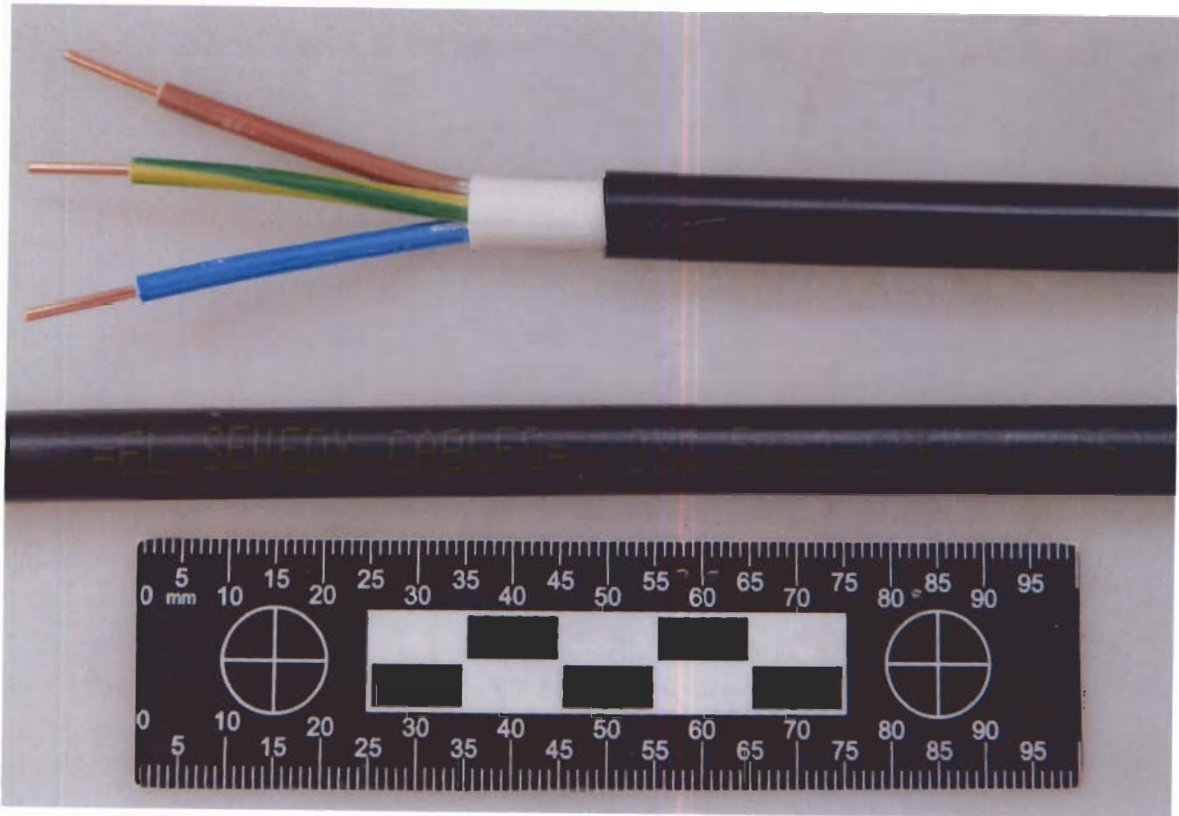
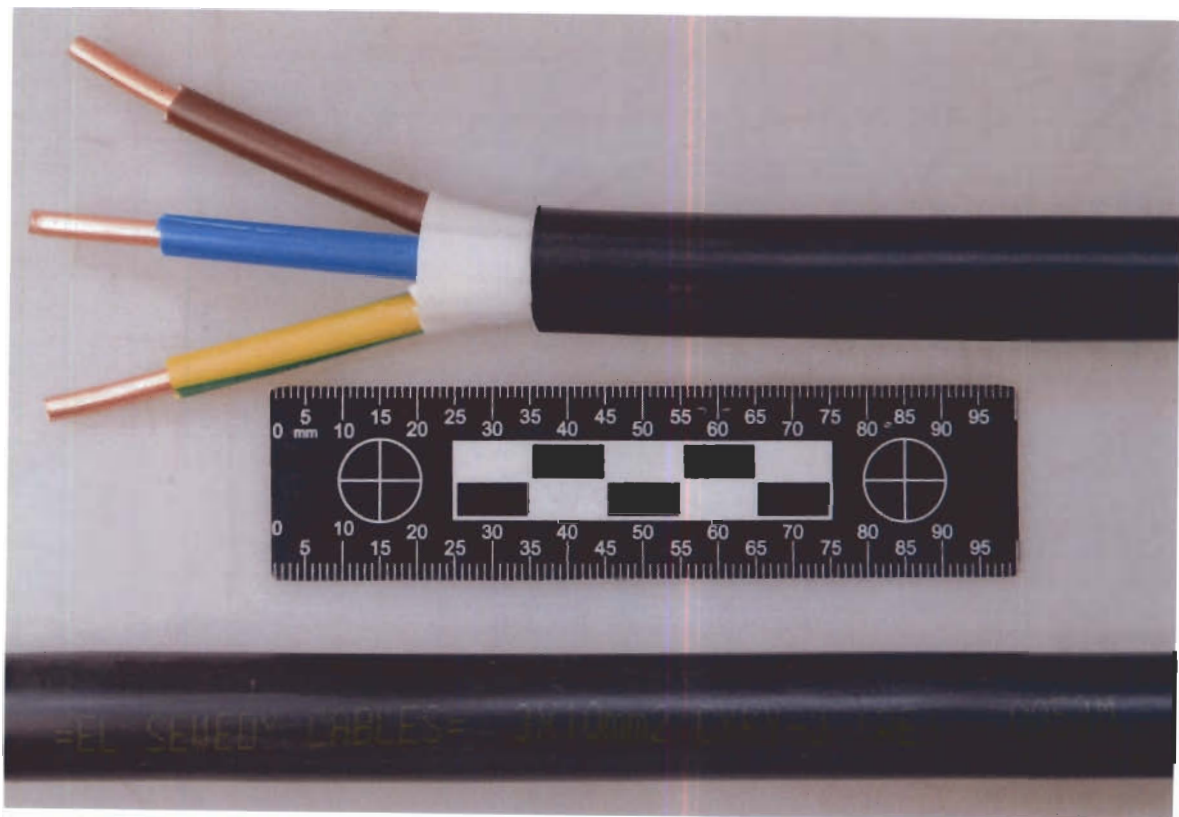


Photo cable sample CYKY-J 3x10 RE mm<sup>2</sup>



**Measuring and testing equipment**

Used	sort, type	key number
X	Ripper UTS 3 kN	110018
X	Teraohmmeter	006250
X	Profilprojector KSM	006323
X	Slide caliper	259
X	Weighing-machine Sartorius	110150
X	Thermometer	93 5494
X	Thermostat Heraeus (1)	110021/1
X	Thermostat Heraeus (3)	110021/3
X	Heat resistance	3286
X	Resistomat 2304	00-6251 + 00-6249
X	Test under fire conditions	20 780
X	Micrometer + stand and recorder - Mitutoyo	550032
X	Digital micrometer Mitutoyo	550042
X	Mettler KINEX 50 cm	N400005
X	Cooling equipment Figera	110286
X	Cold resistance by winding	95-5855
X	Electrical strength Kikusui	110336
X	Water bath	110132/NA1
X	Water bath (small)	110132/NA2
X	Stopwatch	N700456

If an uncertainty of measurement is given, the expanded a measurement uncertainty is the product of the standard measurement uncertainty and coverage factor  $k = 2$ , which corresponds to a coverage probability of approximately 95% in a normal distribution.

Laboratory conditions during the test were in accordance with specifications of the standards listed on the first page of this test report.

Compiled by: Vladimír Moždík



End of Test report