

**TESTING CENTER OF CABLE PRODUCTS**

Autogennaya str. 7, Kharkov, 61099, Ukraine,  
 Phone: +38 057 754 52 75  
 E-mail: lab@yuzhcable.com.ua

Accredited by:  
 National Accreditation Agency of Ukraine - A national accreditation body of Ukraine  
 Certificate of Accreditation № 20353 dated January 16, 2024; Valid until January 15, 2029

**TEST REPORT**

Report reference number 21  
 Tested by Andrew Konoplev, Alina Shurupova  
 Approved by Nikolay Zykov  
 Date of issue 06-Feb-24  
 Testing laboratory Testing center of cable products,  
 Address Autogennaya str. 7, Kharkov, 61099, Ukraine,  
 Phone: +38 057 754 52 75, E-mail: lab@yuzhcable.com.ua  
 Manufacturer YUZH CABLE WORKS, PJSC  
 Address Autogennaya str. 7, Kharkov, 61099, Ukraine  
 Standard IEC 60502-1:2004 Power cables with extruded insulation and their accessories for rated voltages from 1 kV (Um = 1,2 kV) up to 30 kV (Um = 36 kV) - Part 1: Cables for rated voltages of 1 kV (Um = 1,2 kV) and 3 kV (Um = 3,6 kV)  
 Test procedure Tests  
 Cable type CABLU ARMAT 0,6/1 kV 4×50 Al  
 Trade mark YUZH CABLE  
 Rating(s) Uo/U 0,6/1  
 Dates of receipt of test item 22-Jan-24  
 Dates of performance of tests From 23-Jan-24 to 05-Feb-24  
 Summary of test results PASS

Ref No.	Tests	Prescribed	Observed				Verdict
1	<b>Electrical tests</b>		BU	BN	BK	GY	
1.1	Resistance of conductors (Ω/km)	Max. 0,641	0,637	0,635	0,635	0,638	Pass
1.2	Volume resistivity of insulation at (90±2)°C (Ω·cm)	Min. 10 <sup>12</sup>	6,12	6,15	5,85	6,33	Pass
	Insulation resistance constant K <sub>i</sub> at (90±2)°C (MΩ·km)	Min. 3,67	8,52	8,41	8,42	8,48	Pass
1.3	Voltage test 3,5 kV/5 min	No breakdown of the insulation	No breakdown of the insulation				Pass
2	<b>Non-electrical tests</b>						
2.1	Measurement of thickness of insulation - nominal value (mm)	1,0	1,07	1,07	1,05	1,06	Pass
2.2	Measurement of thickness of extruded inner covering - nominal value (mm)	1,1	1,42				Pass
2.3	Measurement of thickness of the armour galvanized steel tapes - value (mm)	0,5	0,5				Pass
2.4	Measurement of thickness of sheath - nominal value (mm)	2,0	2,08				Pass
2.5	Outer diameter of cable (mm)		36				

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Ref No.	Tests	Prescribed	Observed				Verdict
2.6	Mechanical properties of insulation						
	<i>Without ageing:</i>						
	Tensile strength (N/mm <sup>2</sup> )	Min. 12,5	22,1	22,2	21,8	22,5	Pass
	Elongation-at-break (%)	Min. 200	405	400	390	415	Pass
	<i>After ageing in air oven:</i>						
	Duration (h) / Temperature (°C)	168 / (135±3)					
	Tensile strength variation (%)	Max. ±25	-9,0	-8,4	-9,1	-8,6	Pass
	Elongation-at-break variation (%)	Max. ±25	-5,2	-6,0	-7,3	-5,9	Pass
	<i>Hot set test</i>						
	Time under load (min) / Temperature (°C)	15 / (200±3)					
mechanical stress (N/cm <sup>2</sup> )	20						
Elongation under load (%)	Max. 175	80	70	70	75	Pass	
Permanent elongation after cooling (%)	Max. 15	0	0	0	0	Pass	
<i>Water absorption</i>							
Duration (h) / Temperature (°C)	336 / (85±2)						
Increase of mass (mg/cm <sup>2</sup> )	Max. 1,0	0,18	0,18	0,19	0,19	Pass	
<i>Shrinkage test</i>							
Duration (h) / Temperature (°C)	1 / (130±3)						
Shrinkage (%)	Max. 4,0	2,0	2,0	2,1	2,1	Pass	
2.7	Mechanical properties of sheath						
	<i>Without ageing:</i>						
	Tensile strength (N/mm <sup>2</sup> )	Min. 12,5		23,8			Pass
	Elongation-at-break (%)	Min. 300		640			Pass
	<i>After ageing in air oven:</i>						
	Duration (h) / Temperature (°C)	240 / (110±2)					
	Elongation-at-break (%)	Min. 300		600			Pass
	<i>Shrinkage test</i>						
Duration (h) / Temperature (°C)	5 / (80±2)						
Heating, cycles	5						
Shrinkage (%)	Max. 3,0		1,2			Pass	
<i>Pressure test at high temperature</i>							
Duration (h) / Temperature (°C)	6 / (110±2)						
Median of the depth of indentation (%)	Max. 50		21			Pass	

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Ref No.	Tests	Prescribed	Observed				Verdict
2.8	Additional ageing test on pieces of completed cables						
	Duration (h) / Temperature (°C)	168 / (100±2)					
	<i>mechanical properties of insulation:</i>						
	Tensile strength variation (%)	Max. ±25	-9,9	-9,2	-9,0	-9,1	Pass
	Elongation-at-break variation (%)	Max. ±25	-7,9	-7,8	-7,1	-7,7	Pass
	<i>mechanical properties of sheath:</i>						
	Elongation-at-break (%)	Min. 300	585				Pass

Nikolay Zykov,  
 Head of TCCP

Andrew Konoplev,  
 Head of the Laboratory of electrical tests

Alina Shurupova,  
 Head of Laboratory of promising developments

