

# 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 26  
Tested by Andrew Konoplev, Alina Shurupova  
Approved by Nikolay Zykov  
Date of issue 09-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 ABBГНr LS 3×6-0,66  
Trade mark YUZH CABLE  
Rating(s) U<sub>0</sub>/U 0,66  
Dates of receipt of test item 29-Jan-24  
Dates of performance of tests From 30-Jan-24 to 08-Feb-24  
Summary of test results PASS

Ref No.	Tests	Prescribed	Observed			Verdict
1	<b>Electrical tests</b>					
			GR	BK	GY	Pass
1.1	Resistance of conductors (Ω/km)	Max. 5,11	5,06	5,04	5,06	Pass
1.2	Volume resistivity of insulation at 20°C (Ω·cm)	Min. 10 <sup>13</sup>	7,27	7,18	7,22	Pass
	at 70°C (Ω·cm)	Min. 10 <sup>10</sup>	5,95	6,04	6,15	Pass
	Insulation resistance constant K <sub>i</sub> at 20°C (MΩ·km)	Min. 36,7	37,55	38,14	39,47	Pass
	at 70°C (MΩ·km)	Min. 0,037	0,062	0,065	0,059	Pass
1.3	Voltage test 2,4 kV/4 h	No breakdown of the insulation	No breakdown of the insulation			Pass
2	<b>Non-electrical tests</b>					
2.1	Measurement of thickness of insulation - value (mm)	1,0 <sub>0,2</sub>	1,05	1,03	1,03	Pass
2.2	Measurement of thickness of sheath - value (mm)	1,8	1,90			Pass

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Ref No.	Tests	Prescribed	Observed			Verdict
2.3	Mechanical properties of insulation					
	<i>Without ageing:</i>					
	Tensile strength (N/mm <sup>2</sup> )	Min. 12,5	14,4	14,8	14,5	Pass
	Elongation-at-break (%)	Min. 150	305	310	280	Pass
	<i>After ageing in air oven:</i>					
	Duration (h) / Temperature (°C)	168 / (100±2)				
	Tensile strength (N/mm <sup>2</sup> )	Min. 12,5	13,6	13,8	13,6	Pass
	Elongation-at-break (%)	Min. 150	282	285	260	Pass
	Tensile strength variation (%)	Max. ±25	-5,9	-6,8	-6,2	Pass
	Elongation-at-break variation (%)	Max. ±25	-7,7	-8,2	-7,2	Pass
2.3	<i>Pressure test at high temperature</i>					
	Duration (h) / Temperature (°C)	4 / (80±2)				
	Median of the depth of indentation (%)	Max. 50	22	20	20	Pass
2.3	<i>Heat shock test</i>					
	Duration (h) / Temperature (°C)	1 / (150±3) No cracks	No cracks	No cracks	No cracks	Pass
2.4	Mechanical properties of sheath					
	<i>Without ageing:</i>					
	Tensile strength (N/mm <sup>2</sup> )	Min. 12,5		14,1		Pass
	Elongation-at-break (%)	Min. 150		260		Pass
	<i>After ageing in air oven:</i>					
	Duration (h) / Temperature (°C)	168 / (100±2)				
	Tensile strength (N/mm <sup>2</sup> )	Min. 12,5		12,8		Pass
	Elongation-at-break (%)	Min. 150		233		Pass
	Tensile strength variation (%)	Max. ±25		-9,5		Pass
	Elongation-at-break variation (%)	Max. ±25		-10,2		Pass
2.4	<i>Heat shock test</i>					
	Duration (h) / Temperature (°C)	1 / (150±3) No cracks		No cracks		Pass
2.4	<i>Pressure test at high temperature</i>					
	Duration (h) / Temperature (°C)	6 / (80±2)				
	Median of the depth of indentation (%)	Max. 50		29		Pass

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Ref No.	Tests	Prescribed	Observed			Verdict					
2.5	Additional ageing test on pieces of completed cables	168 / (100±2)									
	Duration (h) / Temperature (°C)										
	<i>mechanical properties of insulation:</i>										
	Tensile strength variation (%)						Max. ±25	-6,5	-6,2	-6,8	Pass
	Elongation-at-break variation (%)	Max. ±25	-7,5	-7,0	-7,3	Pass					
	<i>mechanical properties of sheath:</i>										
	Tensile strength variation (%)						Max. ±25	-8,1			Pass
	Elongation-at-break variation (%)	Max. ±25	-9,3			Pass					
2.6	Vertical flame propagation	120									
	- time of application of flame s										
	- distance between the lower edge of the top support and the onset of charring mm						Min 50	371			Pass
	- distance between the lower edge of the top support and the charring extends downwards mm	Max 540	512			Pass					
2.7	Flame spread of vertically-mounted bunched cables category A	40									
	- time of application of flame min						Max 2,5	0,8			Pass
	- damaged part length m										
2.8	Smoke emission %	Min 60	73			Pass					
2.9	Assessment to halogens	<4,3									
	- pH						>10	3,6			Pass
	- conductivity μS/mm						≤150	22,1			Pass
	- amount of halogens mg/g							109,5			Pass

Nikolay Zykov,  
 Head of TCCP



Andrew Konoplev,  
 Head of the Laboratory of electrical tests



Alina Shurupova,  
 Head of Laboratory of promising developments

