

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 20
Tested by Andrew Konoplev, Alina Shurupova
Approved by Nikolay Zykov
Date of issue 20-Jan-25
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 АПвБ6Шп-1 4×70
Trade mark YUZH CABLE
Rating(s) Uo/U 0,6/1
Dates of receipt of test item 08-Jan-25
Dates of performance of tests From 09-Jan-25 to 17- Jan-25
Summary of test results PASS

Ref No.	Tests	Prescribed	Observed				Verdict
1	Electrical tests						
			BU	BN	BK	GY	
1.1	Resistance of conductors (Ω/km)	Max. 0,443	0,439	0,440	0,440	0,438	Pass
1.2	Volume resistivity of insulation at (90±2)°C (Ω·cm)	Min. 10 ¹²	3,02	3,05	2,95	3,12	Pass
	Insulation resistance constant K _i at (90±2)°C (MΩ·km)	Min. 3,67	9,01	9,08	9,12	9,04	Pass
1.3	Voltage test 3,5 kV/5 min	No breakdown of the insulation	No breakdown of the insulation				Pass
2	Non-electrical tests						
2.1	Measurement of thickness of insulation - nominal value (mm)	1,1	1,15	1,15	1,13	1,13	Pass
2.2	Measurement of thickness of extruded inner covering - nominal value (mm)	1,2	1,52				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)	2,2	2,26				Pass
2.5	Outer diameter of cable (mm)		38				

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Ref No.	Tests	Prescribed	Observed				Verdict
2.6	Mechanical properties of insulation <i>Without ageing:</i>						
	Tensile strength (N/mm ²)	Min. 12,5	21,5	21,1	20,2	21,3	Pass
	Elongation-at-break (%)	Min. 200	390	380	385	370	Pass
	<i>After ageing in air oven:</i>						
	Duration (h) / Temperature (°C)	168 / (135±3)					
	Tensile strength variation (%)	Max. ±25	-6,6	-4,4	-4,0	-5,6	Pass
	Elongation-at-break variation (%)	Max. ±25	-3,3	-5,0	-6,1	-6,4	Pass
	<i>Hot set test</i>						
	Time under load (min) / Temperature (°C)	15 / (200±3)					
	mechanical stress (N/cm ²)	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 ²)	Max. 1,0	0,14	0,14	0,16	0,15	Pass
	<i>Shrinkage test</i>						
	Duration (h) / Temperature (°C)	1 / (130±3)					
	Shrinkage (%)	Max. 4,0	1,8	1,8	2,0	1,9	Pass
2.7	Mechanical properties of sheath <i>Without ageing:</i>						
	Tensile strength (N/mm ²)	Min. 12,5		23,0			Pass
	Elongation-at-break (%)	Min. 300		655			Pass
	<i>After ageing in air oven:</i>						
	Duration (h) / Temperature (°C)	240 / (110±2)					
	Elongation-at-break (%)	Min. 300		625			Pass
	<i>Shrinkage test</i>						
	Duration (h) / Temperature (°C)	5 / (80±2)					
	Heating, cycles	5					
	Shrinkage (%)	Max. 3,0		1,6			Pass
	<i>Pressure test at high temperature</i>						
	Duration (h) / Temperature (°C)	6 / (110±2)					
	Median of the depth of indentation (%)	Max. 50		17			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) <i>mechanical properties of insulation:</i> Tensile strength variation (%) Elongation-at-break variation (%)	168 / (100±2) Max. ±25 Max. ±25	-5,9 -6,9	-6,2 -6,8	-5,0 -6,1	-5,1 -5,7	Pass Pass
	<i>mechanical properties of sheath:</i> Elongation-at-break (%)	Min. 300	605				Pass

Nikolay Zykov,
Head of TCCP

Andrew Konoplev,
Head of the Laboratory of electrical tests

Alina Shurupova,
Head of Laboratory of promising developments

