

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 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 4×50

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. 0,641	0,637	0,635	0,635	0,638	Pass
1.2	Volume resistivity of insulation at (90±2)°C (Ω·cm)	Min. 10 ¹²	6,12	6,15	5,85	6,33	Pass
	Insulation resistance constant K _i 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	Non-electrical tests						
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				

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

Ref No.	Tests	Prescribed	Observed				Verdict
2.6	Mechanical properties of insulation <i>Without ageing:</i>						
	Tensile strength (N/mm ²)	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 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	0,18	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 ²)	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

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

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	-9,9 -7,9	-9,2 -7,8	-9,0 -7,1	-9,1 -7,7	Pass 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

