ANHUI FEICHUN SPECIAL CABLE CO., LTD.

安徽飞纯特种电缆有限公司

CONTACT INFORMATION

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TENAX-LUMEN

(N)TSCGH3S | 6 - 10 KV

TENAX-LUMEN is a self-illuminating medium voltage trailing cable designed for the power supply to large mobile equipment in mines, such as shovels and draglines. This cable is especially intended for applications where, to guarantee the safety of personnel and equipment, the cable must be visible in the dark.

The active illuminating element, embedded under a transparent polyurethane outer sheath, allows the cable illumination even when not energized. The outer sheath is extremely robust and tough against abrasion and tearing, making it suitable for fully flexible operation down to -50°C in the most demanding mining environments.

STANDARDS & APPROVALS

DIN VDE 0250-813

General Requirements

DIN EN 60228 / IEC 60228 / VDE 0295

Conductor Standards

DIN EN 60332-1-2 / IEC 60332-1-2

Fire Performance

IEC 60754-2

Fire Performance Testing

DIN VDE 0298-4

Electrical Parameters

DIN EN 60811-404 / IEC 60811-404

Chemical Behaviour

GOST -R/-K/-B

Fire Certificate of Certifications / Approvals Russian Federation



TECHNICAL PARAMETERS

THERMAL PARAMETERS

Max. Conductor Temperature	90 °C
Max. Conductor Temperature at Short Circuit	250 °C
Ambient Temperature Fixed Installation (min)	-50 °C
Ambient Temperature Fixed Installation (max)	80 °C
Ambient Temperature Flexible Installation (min)	-50 °C
Ambient Temperature Flexible Installation (max)	60 °C

CHEMICAL PARAMETERS

Flame Retardant	EN/IEC 60332-1-2
Halogen Free	Yes
Oil Resistant	Yes
Ozone Resistance	Yes
Resistant to UV	Yes

MECHANICAL PARAMETERS

Permanent Tensile Strength (rule)	25 N/mm² static
Bending Radius (Fixed Installation)	6 × D
Bending Radius (Flexible Operation)	10 × D
Min Distance with S-type Directional Changes	20 × D

ELECTRICAL PARAMETERS

Rated Voltage U_o/U (U_m) - 3.6/6 KV	3.6/6 (7.2) kV
Test Voltage - 3.6/6 KV	11 kV
Nominal Voltage U - 3.6/6 KV	6,000 V
Rated Voltage U_o/U (U_m) - 6/10 KV	6/10 (12) kV
Test Voltage - 6/10 KV	17 kV
Nominal Voltage U - 6/10 KV	10,000 V

LUMEN ILLUMINATION SYSTEM PARAMETERS

Voltage (max)	125 V AC
Frequency (max)	2000 Hz
Current Absorption	~ 15 A/km
Heat Development	None
Light Homogeneity	> 95%
Irradiation	360°

CABLE CONSTRUCTION

LAYER STRUCTURE

1. **Conductor:** Finely stranded copper, tinned, class 5. PE: Finely stranded copper, tinned, class 5 with semi conductive special rubber compound
2. **Inner Semi-conducting Layer:** Semi-conductive EPR
3. **Core Insulation:** EPR rubber Special compound 3GI3
4. **Core Arrangement:** Cores laid up around semiconductive central filler with aramid yarns; EL-strings in the outer interstices
5. **Outer Semi-conducting Layer:** Semi-conductive NBR easy strip
6. **Pilot Element:** Copper, tinned, class 5; EPR-insulation
7. **Electro-luminescent String:** Special electroluminescent string designed for high visibility and low power consumption
8. **Outer Sheath:** Polyurethane (PUR) Special compound transparent

CABLE PROPERTIES - TENAX-LUMEN (N)TSCGH3S 3.6/6KV

Basic Construction	Conductor Ø (mm)	Cable Ø Min (mm)	Cable Ø Max (mm)	Cable Weight (kg/km)	Max Tensile (N)	Capacitance (nF/km)	Inductance (mH/km)	Resistance (Ω/km)	Current (A)
3x35+3x25/3	7.5	45.2	48.5	3,100	2,625	260	0.34	0.565	162
3x35+2x16+1x16	7.5	44.5	48.5	3,150	2,625	260	0.34	0.565	162
3x50+2x16+1x16	9	49.3	53.8	3,800	3,750	290	0.32	0.393	202
3x70+3x35/3	10.6	52	56	4,650	5,250	320	0.3	0.277	250
3x95+2x25+1x16	12.6	58.9	63.4	5,750	7,125	370	0.29	0.21	301
3x70+2x25+1x16	10.6	52	56	4,700	5,250	320	0.3	0.277	250
3x150+2x35+1x16	16	68.8	72.4	8,350	11,250	440	0.27	0.132	404
3x120+2x35+1x16	14.8	60.5	64.5	6,700	9,000	400	0.28	0.164	352
3x185+2x50+1x16	17.7	71.7	76.2	9,850	13,875	480	0.27	0.108	461
3x240+2x70+1x16	20.3	74.3	78.3	12,000	18,000	540	0.26	0.0817	540

CABLE PROPERTIES - TENAX-LUMEN (N)TSCGH3S 6/10KV

Basic Construction	Conductor Ø (mm)	Cable Ø Min (mm)	Cable Ø Max (mm)	Cable Weight (kg/km)	Max Tensile (N)	Capacitance (nF/km)	Inductance (mH/km)	Resistance (Ω/km)	Current (A)
3x35+2x16+1x16	7.5	46	50	3,380	2,625	240	0.35	0.565	162
3x50+2x16+1x16	9	49.2	53.2	3,950	3,750	270	0.33	0.393	202
3x70+2x25+1x16	10.6	53.5	57.5	4,850	5,250	310	0.31	0.277	250
3x95+2x25+1x16	12.6	57	61	5,700	7,125	340	0.3	0.21	301
3x120+2x35+1x16	14.8	61.7	65.7	6,990	9,000	380	0.29	0.164	352
3x150+2x35+1x16	16	65.5	69.5	7,800	11,250	410	0.28	0.132	404
3x185+2x50+1x16	17.7	72.8	76.8	10,000	13,875	440	0.27	0.108	461
3x240+2x70+1x16	20.3	77.3	81.3	12,500	18,000	490	0.26	0.0817	540
3x50+3x25/3	9	49.2	53.2	3,900	3,750	270	0.33	0.393	202
3x70+3x35/3	10.6	53.5	57.5	4,800	5,250	310	0.31	0.277	250

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