

Siechem

Wires & Cables

Fluoro Elastomer 200°C Cables

Fluoro Elastomer 200 flexible singlecore Electron Beam Cross linked cables are designed for Diesel Locomotive applications like Traction motor lead cables & brush gear connector cables. Enhanced Electrical, Mechanical & Thermal properties. This material is flame-retardant, Oil, greese & moisture resistant.

Salient Features

- Operating temperature -55°C to +200°C
- Used in traction motor lead cables & windmill applications
- Enhanced thermal properties
- No risk of deformation above short circuit temperatures
- Flame retardant
- Enhanced abrasion / scrape & cut-through resistance
- Outstanding fluid resistance - Resistant to variety of reactive chemicals, oil and solvents
- Excellent fire resistance, low smoke, low toxic, zero halogen emission
- No environmental hazard
- High current ratings
- Enhanced electrical properties
- EBXL cables are much reliable and cheaper than silicone cables
- Enhanced mechanical properties
- Oil, greese & moisture resistant



Cable Construction

- Conductor : Tinned Flexible Copper Conductor-Class 6 of JIS C 3152
- Separator : Polyester Tape
- Insulation : Fluoro Elastomer 200°C
- Colour : Black or As per Customer Order

Traction Motor Connection Leads



Siechem Wires & Cables Meet EU RoHS Directive

Lead Free	Hg Free	Cd Free	Cr ⁶⁺ Free	PBB Free	PBDE Free
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Fluro Elastomer 200°C

Fluro Elastomer cables are globally used in Diesel Locomotives for a continuous operating temperature range of -55°C to +200°C and the voltage grade of 1500V. The cable is expected to have a minimum useful life of 25 years when applied at an appropriate duty cycle and environment. The cables have withstood at continuous operating temperature of 200°C for 20,000 hours without deterioration of the insulation layer.

FLURO ELASTOMER 200°C SINGLECORE FLEXIBLE CABLES

Part Number	Nom. Cross Sectional Area (Sq.mm)	No. of Wires / Max. Strand Dia. of Conductor (Nos/mm)	Nom. Conductor Diameter (mm)	Nom. Insulation Thickness (mm)	Nom. Overall Cable Diameter (mm)	Cable Weight (Approx.) (Kg/Km)	Max. DC Resistance at 20°C (Ω/Km)
6993404	50	950 / 0.26	10.2	2.5	15.4 ± 0.8	625	0.394
699A1204	80	1501 / 0.26	12.7	2.5	17.9 ± 0.9	925	0.249
6993904	100	1887 / 0.26	14.4	2.5	19.6 ± 0.9	1120	0.198
6994204	150	2812 / 0.26	17.5	2.5	22.7 ± 1.0	1600	0.133
699A0704	200	3774 / 0.26	20.2	3.0	26.4 ± 1.1	2150	0.0991
699A0804	250	4697 / 0.26	22.6	3.0	28.8 ± 1.2	2630	0.0804

● Other sizes are as per customer order

TECHNICAL DETAILS

MECHANICAL PROPERTIES

S.No.	Properties	Fluoroelastomer 200°C
1	Tensile strength	> 10 MPa
2	Elongation at break	> 250%
3	Conductor Construction	Class 6
4	Short term ageing at high temperature	240°C for 48 hrs No dripping & No cracks
5	Slippage test	The relevant displacement of the conductor with Insulation shall not be more than 5 mm for cables up to 25mm dia and 10mm for cables more than 25mm dia.
6	Abrasion Resistance	Min. 2500 cycles (5000 strokes)
7	Cross linking degree test by gel fraction method	Gel fraction min 85%
8	Crush Resistance	4000 lbs.Min

RESISTANCE TO LOW TEMPERATURE TEST

S.No.	Properties	Fluoroelastomer 200°C
1	Elongation test	(-40 ± 2)°C Elongation : 30%
2	Impact (IEC-811-1-4)	(-40 ± 2)°C (For Power Cable) No cracks & No breakdown
3	Windability - bending (IEC-811-1-4)	(-40 ± 2)°C No cracks & No breakdown

RESISTANCE TO FIRE

S.No.	Properties	Fluoroelastomer 200°C
1	Assesment of halogen (IEC 60754)	pH ≥ 4.3 Conductivity ≤ 10µS/mm
2	Amount of halogen	HCl & HBr ≤ 0.5% HF ≤ 0.1%
3	Toxicity	< 3
4	Smoke density (IEC 61034)	Light transmission 70% Min.
5	Flame retardance for single cable	IEC 60332-1
6	Flame Propagation on bunched cable	IEC 60332-3

ELECTRICAL PROPERTIES

S.No.	Properties	Fluoroelastomer 200°C
1	Operating temperature	- 55°C to 200°C
2	Insulation resistance at room temperature	As per JIS C 3005
3	Dielectric strength	> 20 kV
4	Test voltage	20 kV
5	DC stability	Not mentioned
6	Surface leakage resistance	JIS C 3005

RESISTANCE TO FLUIDS & ENVIRONMENT

S.No.	Properties	Fluoroelastomer 200°C
1	Oil resistance at 120°C for 18 hrs	Tensile strength variation : 60% Elongation at break variation : 60%
2	Fuel resistance at 25 ± 5°C for 100 hrs	Increase in diameter 20%
3	Acid and alkali resistance	Superior acid & alkali resistant
4	Ozone resistance at 275 ± 25 ppm for 96 hrs at room temperature	No break down
5	UV resistant	Yes

VOLTAGE WITHSTAND (DIELECTRIC TEST)

S.No.	Conductor Size (Sq.mm)	AC test Voltage (kV)	DC test Voltage (kV)
1	100	5.4	24.0
2	150	5.4	28.5
3	200	5.4	28.5
4	250	5.4	31.5

INSULATION RESISTANCE & SURFACE LEAKAGE RESISTANCE

S.No.	Conductor Size (Sq.mm)	Min. Insulation Resistance at 20°C (MΩ/Km)	Min. Surface Leakage Resistance (MΩ)
1	50	1000	100
2	80	1000	90
3	100	1000	80
4	150	900	70
5	200	1000	60
6	250	900	50

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