

Table 1, Comparison of required property values for cables for industrial and transportation equipment in various applications

use for	Required characteristics							
	Long-term heat resistance	Embrittlement test at low temperature	Tensile strength	Tensile elongation	Oil resistance	Flexural modulus	Dielectric breakdown voltage of AC	Extrusion molding temperature
	°C	°C	Mpa	%		Mpa	kV/mm	°C
Wire harnesses for automotive	>200	<-40	>10	>200	JIS No.2 oil (ASTM No.2) 85° C, 80% residual	<100	>15	<240
Precision sensor cables for fuel	>200	<-40	>10	>150	Gasoline 40° C, 85% residual	<100	>15	<240
Motor lead wires	>200	<-40	>10	>200		<100	>15	<240
Power cable for ship	>200	<-40	>10	>150	JIS No.2 oil (ASTM No.2) 120° C, 80% residual	<100	>15	<240
Cooking Appliances (microwave ovens, refrigerators, etc.)	>200	<-40	>10	>200		<100	>20	<240
Wires for equipment for ironworks	>200	<-40	>10	>200		<100	>20	<240
Servo motors	>200	<-40	>10	>150		<100	>20	<240
Motors for inverter	>200	<-40	>10	>150		<100	>20	<240
Spindle motors	>200	<-40	>10	>150		<100	>20	<240
Power cables for elevator	>200	<-40	>10	>150		<100	>20	<240

Table 2, Comparison of properties of fluoroelastomers and other alternative materials

Material	Characteristics							
	Long-term heat resistance	Embrittlement test at low temperature	Tensile strength	Tensile elongation	Oil resistance	Flexural modulus	Dielectric breakdown voltage of AC	Extrusion molding temperature
	°C	°C	Mpa	%		Mpa	kV/mm	°C
Fluoro Rubber	200	-50	15	300	Good	100	30	80
PEEK	260		100	100	Good	4,200	18	450
EPDM	150	-60	15	400	Bad			100
Silicone rubber	180	-90	8	400	Bad		20	25
Mica				Bad	Good			Bad
Soft vinyl chloride compound	60	-30	15	300	Bad	100	20	170
Soft heat-resistant vinyl chloride compound	105	-30	15	300	Bad	100	20	170
PE (polyethylene terephthalate)	75	-70	20	1,000	Bad	400	40	120
XLPE	90	-70	20	800	Bad	400	40	120
Ceramic base				Bad	Good			Bad
Polyamide	120	-60	30	500	Bad	400		260
Polyimide	260		18	70	Good	7,980	0	450