Joint Stock company “Scientific Research Institute of Electrical Carbon Products” (JSC «NIIEI»)

NIIEI

JSC «NIIEI»- Russia's only Institute where created and made current collecting brush for all types of electric machines.The Institute has created brushes for machines operated in a variety of conditions, including extreme ones, such as in open space, deep vacuum, and at high pressures in a closed volume. Today, it is difficult to find an industry where electric machines with brushes created in NIIEI are not used.All brushes produced at various Russian factories are manufactured using technologies and in accordance with the documentation developed at the Institute. JSC «NIIEI» produces more than 1200 types of current-removing brushes designed for use in various electric machines.Brushes are classified according to the materials used for their manufacture and the features of the manufacturing process.

70 YEARS OF EXPERIENCE IN THE DEVELOPMENT OF ELECTRIC MACHINE BRUSHES

Electrographic brushes

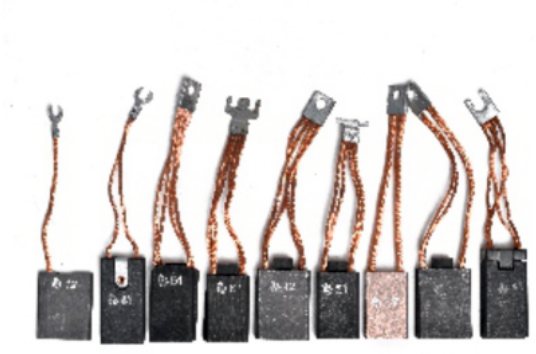
are used in electric machines, generators and traction motors for railway transport, excavators, metallurgical industry, DC generators of automotive electrical equipment, electric machines with severe switching conditions

Material brand	Hardness, H	Resistivity, мкОм*м	Coefficient of friction, not more than	The nominal current density, А/см2	Transient voltage drop on a pair of brushes, В	Push on the brush, кПа	The linear velocity of the collector, м/с
611А	3-8	10-22	0,31	12	1,1-2,1	35	≤ 15(25)
ЭГ2А	7-21	11-27	0,23	12	0,9-1,9	25	31-45
ЭГ2АП	8-29	20	0,23	15		15-21	90
ЭГ4	2-6	6-16	0,25	12	0,8-2,0	20	≤ 45(60)
ЭГ14	8-30	20-38	0,25	12	1,1-2,1	40	≤ 45
ЭГ141	10-30	20-40(60)	0,30	11 (17)	1,0-2,0	30	40(50)
ЭГ61А	20-65	36-60	0,15	17	1,7-3,2		60
ЭГ61АИ		36-72					
ЭГ74	15-49(55)	35-75	0,22	15(20)	1,2-2,4	40	46-60
ЭГ75		35-65	0,17	15(20)	1,5-3,2	40	50(60)
ЭГ841	-	40-80	0,16	17	1,7-3,7	40	46-60
ЭГ841И	15-49		0,17				55
ВТ5	20-50	35-65	0,22	30		60	50
ЭГ39	8-40	20-38	0,25	12		40	45

Carbon graphite brushes

carbon-graphite brushes of brands Г3, Г20, Г21, Г23, Г 33 And others are used in DC machines and AC collector machines, electric motors of household appliances, engines of electric machines operating under low atmospheric pressur.

Material brand	Hardness, H	Resistivity, мкОм*м	Coefficient of friction, not more than	The nominal current density, А/см2	Transient voltage drop on a pair of brushes, В	Push on the brush, кПа	Linear velocity of the collector, m / s
1	2	3	4	5	6	7	8
Г3	7-19	8-20	0,30	12	1,9	25	60
Г5	5-20	н/б 100	0,25	25		40	10
Г20	12-22	35-120	0,17	15	2,9	50	40
Г21	20-60	150-450		8,5	2,5-5,5		30
Г21Д	15-39	160-610	0,32	25		70	6
Г22	17-55	100-230	0,25	10	2,2 ≤	40	≤ 30
Г23	8-25	0,2-1,5	0,20	15		50	10
Г26	9-25	70-170	0,26	10	2,0 ≤	20	≤ 35
Г27	8-33	18-40	0,27	30		50	60
Г30	7-24	150-310	0,25	10	3,0 ≤	20	≤ 30
Г32	8-35	12-55	0,30	20		60	30
Г33И	20-70	300-1100	0,45	10		40	35
Г33МИ	25-71	600-1900	0,40	10		40	35
Г42	14-35	80 ≤	0,21	10		40	45



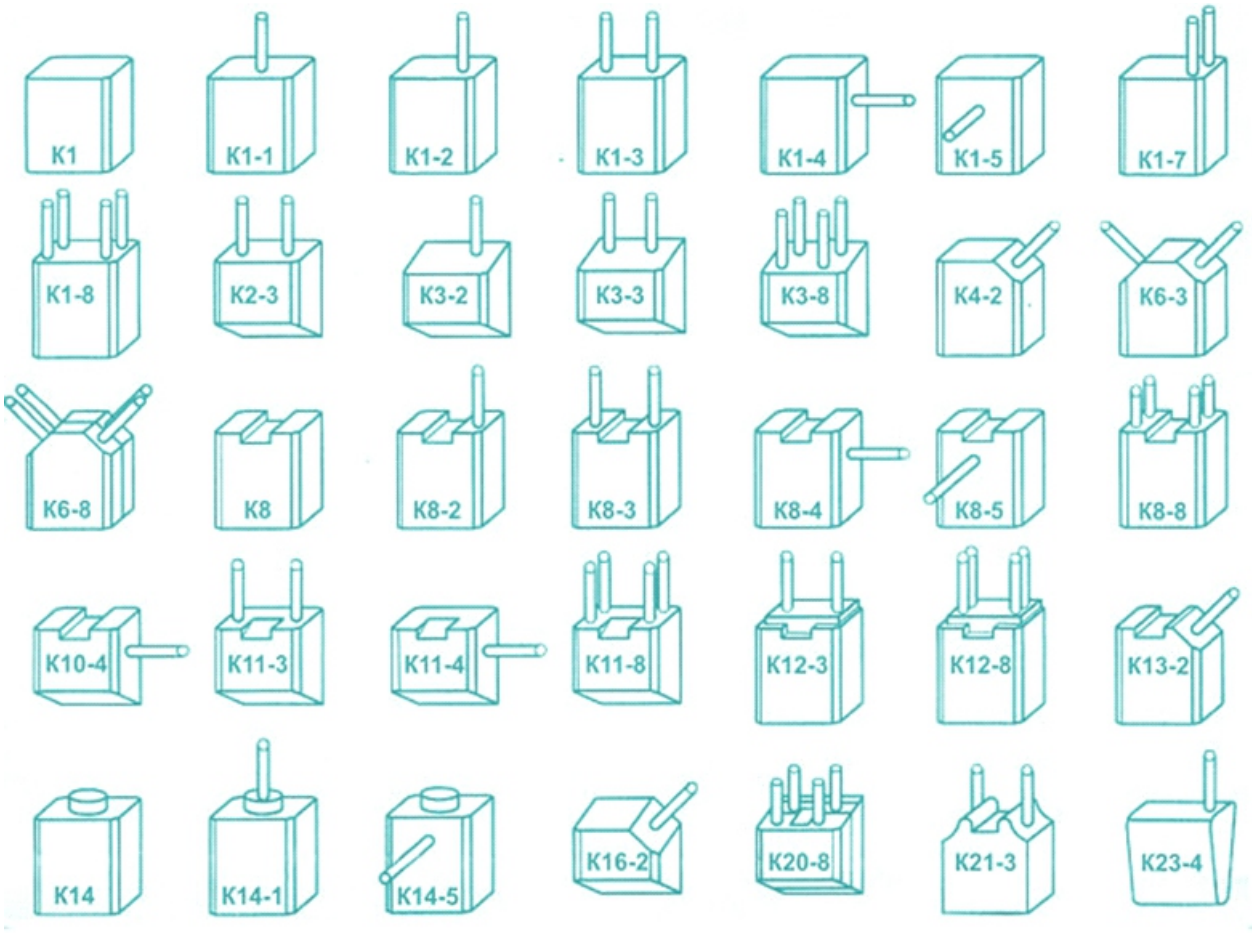
Metallographic brushes

metallographic brushes of 611om, M1, MG, MG4, MGS5, MGSOA, etc. are used in electric machines, generators, current converters, asynchronous motors, starters, low-voltage machines with high current density, motor reducers, actuators for motor transport, etc.

Material brand	Hardness, H	Resistivity, мкОм*м	Coefficient of friction, not more than	The nominal current density, А/см2	Transient voltage drop on a pair of brushes, В	Push on the brush, кПа	Linear velocity of the collector, m / s
611ОМ	5-11 (6-12)	8-28	0,30	15	0,7-1,7	30	60(90)
М1	8-24	2-8	0,25	25	1,0-1,8	20	16-30(33)
МГ	4-14	≤ 0,12 (0,03-0,4)	0,30(0,20)	30	≤ 0,3(0,4)	20	≤ 30
МГ4	10-22	≤ 1,3	0,20	24	≤ 1,6	25	≤ 30
МГИ	13-25	4-40	0,30	25		70	20
МГМ1	13-43	0,4-24	0,32	25		100	20
МГС5	6-20	2-15	0,22	45	0,7-1,9	40	16
МГС7	10-33	1,5-2,0	0,30	30	1,2-2,6	60	≤ 55
МГС7И	12-27	2-18	0,30	30		60	≤ 55
МГС8	10-32	4-15	0,20	28		60	55
МГСО	5(6)-20	≤ 0,3 (2-15)	0,24(0,25)	30	≤ 0,35	25	≤ 30
МГСОА	14-45	≤ 0,3		100	0,1-0,45		15

Design type

Types of electric machine brushes



Types of overlays

Types of tips

Trolleybus inserts

JSC «NIIEI» makes contact current-removing devices trolleybus inserts based on carbon, type VTL. Inserts provide silent operation at the joints contact network, significantly reduce radio and TV interference. The use of inserts does not cause wear of the contact copper wire and structural elements of the current collector unit(cheeks).It is environmentally friendly in operation.

Li-ion batteries

JSC «NIIEI» has many years of experience in the development and production of lithium-based chemical current sources and materials for them.
The specific characteristics of lithium-ion batteries are 2-4 times higher than those of lead, Nickel-cadmium, and Nickel-metal hydride batteries. The voltage of a single battery is two to three times the voltage of traditional batteries (3.7 V). Long service life (5-10 years with 1000 cycles of deep discharge), maintenance-free, tightness, reliability and ease of operation expand the possibility of their application in various fields of technology.

Graphite electrode

Spectral electrodes are high-purity carbon-graphite products.The electrodes are available in various designs.At the request of the customer, spectral electrodes can be manufactured with a diameter from 4 to 18 mm and a length of up to 400 mm, of any geometric configuration. Non-standard electrodes are manufactured according to the customer's drawings. Spectral shaped electrodes can be made with the following contentimpurities of electrodes markiseu, SEU-1SE-analog of S-3, S-ZM, osch 7-3,SEU-analog of S-2, osch 7-4 SEU-1-increased cleaning.They are used for determining the composition of ores and minerals by emission spectral analysis, the content of impurities in metals and their alloys, semiconductors, solutions, aviation and automotive oils and other materials. They can be used to produce fullerenes and nanotubes. Carbon electrodes are intended for air-arc cutting of metals, removal of profits and casting defects, gouging of electric hooks and welds at a current strength of up to 1000 A, for welding of metals and other works. Carbon electrodes are available in diameter: 2; 4; 6; 8; 10; 12; 13; 15 mm, longfrom 250 to 350 mm. At the request of the customer, the length may be different. The resistivity, depending on the size of the electrode, varies inin the range from 50,0 to 100,0 mkom×m, the bending strength is 11,70-42,95 MPa.

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