Standard brush grades for carbon blocks

Hard carbon brushes

Grade	Specific resistance (Ohm* mm²/m)	Density (g/cm³)	Flexural strength (N/mm²)	Rockwell hardness HR 10/40	Continuous load (A/cm²)	Speed (m/s)	Voltage drop (V)	Friction coefficient µ	Metal content %
H2	40	1,45	18	110	7	25	n	m	
H4	45	1,52	24	110	8	40	n	n	
H4S2	45	1,53	23	112	8	40	n	m	
H6	40	1,53	38	115	8	30	n	n	
H47	250	1,46	20	102	8	40	h	m	
H67	250	1,48	18	110	8	40	h	m	
H6K*	5	2,20	50	124	12	25	n	h	30
H6Sb*	9	2,80	60	128	14	25	n	h	45
H6Mb*	5	3,40	70	130	15	25	n	h	55

* impregnated with metal

Carbon graphite brushes

V12	250	1,56	25	112	8	45	h	n	
H12	800	1,55	24	110	8	45	h	s.n.	
H16	500	1,34	18	60	8	45	h	s.n.	
H20	100	1,52	35	120	8	40	m	m	
H22	1000	1,60	28	120	8	45	h	n	

Graphite carbon brushes

G3	35	1,45	18	95	8	20	n	n	
G4	35	1,40	15	90	10	25	n	n	
G6	25	1,55	12	85	10	25	n	n	
G1	7	1,80	18	100*	10	35	n	n	
T1	12	1,48	15	100*	10	45	n	n	
TU	12	1,40	5	30*	10	60	n	n	
T3	25	1,45	7	75*	10	75	n	n	
G47	400	1,38	12	75	8	25	m	h	
G67	250	1,45	10	70	8	25	m	n	

* HR 10/20

Graphite carbon brushes, resin bonded

UG75	15	1,80	16	100	8	30	n	n	
UG	80	1,75	15	100	8	35	m	n	
UG1	450	1,70	31	110	5	35	s.h.	n	
UG2	600	1,65	37	115	5	35	s.h.	n	
UG8	120	1,75	18	100	8	40	h	n	
UG9	190	1,52	10	60	8	40	h	n	
UG12	220	1,75	22	105	8	40	h	n	
UG91	300	1,52	12	80	8	40	h	n	
V421	220	1,62	18	90	10	40	h	n	
V434*	2400	1,55	-	-	5	35	h	n	
UC4	350	1,75	25	110	9	40	h	n	
UC15	14	1,85	27	120	12	35	h	n	
UG25	-	1,55	20	110	8	35	Lubricating brushes	n	

* available as pressed-to-size (PTS)

Silver graphite brushes**

Grade	Specific resistance (Ohm* mm²/m)	Density (g/cm³)	Rockwell hardness HR 10/40	Continuous load (A/cm²)	Speed (m/s)	Voltage drop (V)	Friction coefficient µ	Metal content (%)
S5	0,03	7,80	118	35	20	s.n.	h	95
S10	0,05	6,80	110	30	20	s.n.	h	90
S20	1,00	5,20	105	28	25	s.n.	m	80
S30	2,00	4,30	103	25	25	s.n.	n	70
S35	4,00	4,00	100	20	30	s.n.	n	65
S50	5,00	3,20	95	20	30	n	n	50
S60	6,00	2,90	85	20	40	n	s.n.	40

** further silver grades on request

Electrographite carbon brushes

Grade	Specific resistance (Ohm* mm²/m)	Density (g/cm³)	Flexural strength (N/mm²)	Rockwell hardness HR $_{10/40}$	Continuous load (A/cm²)	Speed (m/s)	Voltage drop (V)	Friction coefficient µ
ET2	9	1,32	5	20	10	60	n	n
E	16	1,57	20	110	12	50	n	n
E00	20	1,60	20	105	12	40	n	n
E02	22	1,57	22	110	12	40	n	n
E04	28	1,60	23	112	12	40	n	n
E06	32	1,63	26	115	12	50	n	n
E08	45	1,58	28	118	12	50	m	n
E09	49	1,62	25	120	12	50	h	n
E09 G5*	48	1,62	24	118	12	50	h	n
E010	52	1,60	27	120	12	50	h	n
E012	90	1,42	20	115	12	50	h	n
E31	45	1,60	26	115	12	50	h	m
E661	35	1,60	17	110	12	40	s.h.	n
E861	40	1,60	14	115	12	40	s.h.	n
E961	48	1,62	18	115	12	40	s.h.	n
E062	52	1,62	15	118	12	45	s.h.	h

* formerly V436

Metal graphite brushes

Grade	Specific resistance (Ohm* mm²/m)	Density (g/cm³)	Flexural strength (N/mm²)	Rockwell-hardness HR $_{10/40}$	Continuous load (A/cm²)	Speed (m/s)	Voltage drop (V)	Friction coefficient µ	Metal content (%)
K	10	2,40	20	80	12	30	n	n	47
K3	8	2,80	27	90	13	25	n	n	60
K4	7	3,00	30	90	15	20	n	n	70
KM1	2	3,10	36	100	13	25	n	n	63
2378	0,5	3,90	28	100	15	35	n	n	70
3316	1,0	3,60	25	95	13	40	n	n	65
3344	1,2	3,50	21	95	13	40	n	n	60
4350	2,2	3,00	19	90	13	40	n	n	50
5246	5,0	2,70	17	85	12	40	n	n	40
6235	6,0	2,50	16	80	12	40	n	s.n.	30
7274	8,0	2,20	15	80	12	45	n	s.n.	20
065	0,5	4,00	26	100	15	35	n	n	70
N46	3,0	3,10	20	90	13	40	n	n	50
V444	0,5	4,00	30	110	15	35	n	n	75

Metal graphite brushes, hot pressed

0555	0,06	5,50	80	125	30	-	-	-	95
1503	0,08	5,30	62	110	25	-	-	-	90
1531	0,09	5,00	60	100	22	20	s.n.	n	87
BR	0,10	4,90	55	100	22	20	s.n.	n	85
2454	0,12	4,30	50	98	18	30	s.n.	n	75
3402	0,15	4,20	40	95	16	35	s.n.	s.n.	70
3450	0,15	4,00	30	90	15	40	s.n.	s.n.	65
085	0,3	5,40	90	110	30	20	n	n	96
N6	0,3	6,00	140	110	40	20	s.n.	m	91
N8	0,6	5,00	110	85	35	20	s.n.	n	86
N10	0,1	6,10	70	80	40	20	s.n.	n	93
N51	0,1	5,50	30	50	40	25	s.n.	n	90
N52	0,1	6,70	90	105	40	20	s.n.	m	95,5
N55	0,1	6,60	85	100	40	20	s.n.	m	95
N91	0,1	5,20	30	50	35	30	s.n.	m	86
V682	0,2	5,65	25	112	30	30	n	n	88
V816i	2	3,00	24	100	13	40	n	n	50

Key

Voltage drop:
s.n. (very low) = < 1,0 V
n (low) = 1,0 – 1,8 V
m (medium) = 1,8 – 2,5 V
h (high) = 2,5 – 3,5 V
s.h. (very high) = > 3,5 V

Friction coefficient:
s.n. (very low) = < 0,15
n (low) = 0,15 – 0,20
m (medium) = 0,20 – 0,26
h (high) = > 0,26