



TIRUPATI CARBON PRODUCTS PVT LTD

www.tirucarbon.com

ELECTRICAL CARBON – GRADES

TCP is manufacturing all grades of Carbon Blocks, Tablets and Brushes now is in a position to adapt itself swiftly to the market demands and to respond at any time to customer's requirements, from conception to the packaging of the final products.

In TCP, Quality is more than a concept From the time of purchasing the raw materials, binders, and additives used to make the various recipes for carbon block till the delivery various quality checks are performed to ensure that carbon blocks meet and exceed the expectations of the customers.

Various grades of Carbon blocks manufactured at TCP are:

- Resin Bonded (RB)**
- Silver Graphite (SG)**
- Hard Carbon (HC)**
- Metal Graphite (MG)**
- Carbon Graphite (CG)**
- Natural Graphite (NG)**
- Electro Graphite (EG)**

RESIN BONDED (RB) CLASS

Grade	Equivalent	Application C-Commutator S-Slipping	Resistivity micro-ohm-cm	Transverse Strength Kgf/cm ²	Apparent Density gms/cc	Scleroscope Hardness shore	Contact drop Volt /brush	Current Density Amps/cm ²	Coefficient of friction	Max operating speed mtr/sec	Pressure of gf/cm ²	Application Guidance
TR3	IM3	C	11400	245	1.85	21	1.40	6.5	0.17	30	180-210	High contact drop grade suitable for D.C. and FHP milters.
TR6	IM6	C	66000	270	1.55	35	1.8	3	0.03	30	180-350	A exceptionally high contact drop grade suitable for D.C. and FHP motors with recessed intersegmental insulation.
TR76	IM8876	C	18000	465	1.825	48	2	7	0.04	30	180-210	A high contact drop commutator grade suitable for stator feed and schrage type A.C. commutator motors and also for 12V and 20V Lucas Dynamo.
TR101	IM9101	C	10150	440	1.85	47	1.55	8.5	0.05	30	180-210	A low grade with good commutating ability suitable for D.C. motors with long periods of light load running.



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TR23	IM23	C	12000	420	1.75	36	1.4	9.5	1.17	30	210	A high contact· drop grade suitable for schrage type A.C. commutator motors and for slow FHP motors.
TR100	H100	C	4000	200	1.7	30	0.95	12	0.11	30	180- 210	Suitable for adverse environments. Used on low voltage auto generators.
TR634	CE634											

SILVER GRAPHITE (SG) CLASS

TS -1	ASG1	45.0	500	4.20	17							
TS-5	ASG-5	4.50	1050	6.70	12							
TS-6	ASG-6	135.0	400	3.20	16							Suitable for technogenerator applications

HARD CARBON (HC) CLASS

TB	Link B	Auto	2500	260	1.55	39	0.95	8.5	0.22	20	140- 80	Graphite grade of high conductivity for machines presenting no commutation problem.
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METAL GRAPHITE(MG) CLASS

Grade	Equivalent	Application C-Commutator S-Slipping	Resistivity micro-ohm-cm	Transverse Strength Kgf/cm ²	Apparent Density gms/cc	Scleroscope Hardness shore	Contact drop Volt /brush	Current Density Amps/cm ²	Coefficient of friction	Max operating speed mtr/sec	Pressure of gf/cm ²	Application Guidance
TC51 BM51	BM51 CMIS	S	38.0	1150	5.60	11	0.40	23.1	0.17	30	140	For Earthing Brushes of Locomotives and for very special slipping applications.
TC0	CM+O	C	7.00	850	6.30	7.5		18		20	490+	A highly metallic clean running grade, widely used on automobile starters. Particularly suitable for commutators with flush insulation.
		S						20				
TC122	CM122	C	1150.0	335	2.75	21	0.6	11	0.1	30	140- 280	A 50% Resin bonded Copper grade suitable for low voltage D.C. machines.
		S						12				
TC40	M14E CMO	S	6.00	710	5.66	8	0.40	23.2	0.17	20	140	Lucas design, induction motors, sliprings, circuit breakers and elevator controller contacts.
TC40S	M14ES	AUTO	6.00	710	5.66	8	0.40	17	0.17	20	140	A special grade developed to suit Lucas 12V Self-starters.
TC4	M14R CM	S	5.50	710	6.4	9	0.40	23.1	0.17	20	140	Highly conductive and low wearing grade specially used on sliprings with high current density.
TC5	M15E CM3H	S	13.5	345	4.58	8	0.40	15	0.17	30	210	Rotary converters and Induction motor sliprings of AEI, Siemens and NGEF.
TC6	M16E CM5H	C-S	68.0	475	3.86	18	0.40	11.5	0.13	30	210	Rotary converters and Induction motor sliprings of NGFE make and generators from 12-30 Volts.



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TC6X	M16EX	S	68.0	475	3.86	18	0.40	11.5	0.13	30	210	Special grade with extremely smooth texture and very low friction. Suitable for LUCAS 24V self-starters.
TC7	M17E CM3B	S	135	255	3.60	15	0.40	11.5	0.13	30	210	Suitable for slirings for totally enclosed Induction Motors.
TC8	M18E CM6	S	80.0	465	3.57	18	0.40	11.5	0.17	30	175	Highly lubricating grade with low metal content used in Leyland Comet and CAV self starters, slirings of induction motors and welding generators.
TC28DX	M28DX		15.0	750	4.66	20	0.40	14	0.10	25		Automotive Accessory Motors.
TC100	M100	C	1100.0	240	2.00	25	0.55	11.5	0.13	30	140	Highly Lubricating grade with very low metal content.
TC155	M145E CM2	S	11.0	480	4.65	9	0.40	8.5	0.17	30	175	Most suitable for Induction motors slip rings. Approved for slirping motors.
TC75	M175E	S	135	255	3.60	15	0.40	11.5	0.13	30	210	Suitable for slirings for totally enclosed Induction Motors.
TC85	M185E CM9	S	160	255	3.35	16	0.40	11.5	0.17	30	140	Suitable for screen wiper motors and Auto Alternators.
TC199	CM199											Starter Motor 1.2 to 2.2 KW



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TC198	CM198											Starter
TC1325	CM1325											Alternator
TC2221	BE2221											
TC1423	KE1423											

CARBON GRAPHITE (CG) CLASS

TCG	PM9	C	76000	160	1.55	36	1.27	6.5	0.41	20	210-490	Particularly applicable to FHP motors. Suitable for flush mica and flush paper commutator insulation. Used for both A.C. and D.C. machines and gives good results on semi conductor fed machines
TCG32	PM32											



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TCG70	PM70	C	72000	150	1.4	41	1.7	4	0.25	20	210-490	A relatively high resistance grade developed for FHP machines. Recessed intersegmental insulation preferred.
TCG561	PM561		46500	118	1.51	45						
TCG42	L42											
TCG53	L53											

NATURAL GRAPHITE (NG) CLASS

TN2/3	HM2/3	C	1300	140	1.80	23	≥0.6	10	≤0.10	50	140	A grade suitable for use in older breed rolling mill D.C. Generators where difficulties are caused by running on light load. Also on reversing mill motors with top speed around 125 to 150 RPM where EG grades are sensitive to frequent change in direction of rotation and violent brush chatter or sparking occurs.
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TN5	HM5	S	1020	100	1.85	12.5	≥0.8	11.5	0.10- 0.15	50	140	A smooth running grade used on Synchronous motor slipping, excitors and medium size D.C. Motors.
TN6R	HM6R	S	2200	160	1.4	16	1.66	10	0.14	80	140- 180	Suitable for very high speed turbo alternators with helically grooved steel rings.
TN24	HM24	S	2200	160	1.4	16	1.66	10	0.14	80	140- 180	Suitable for very high speed turbo alternators with helically grooved steel rings.
TN100	HM100	S	2200	160	1.4	16	1.66	10	0.14	80	140- 180	Suitable for very high speed turbo alternators with helically grooved steel rings.



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ELECTRO GRAPHITE (EG) CLASS

Grade	Equivalent	Application C-Commutator S-Slipping	Resistivity micro-ohm-cm	Transverse Strength Kg/cm ²	Apparent Density gms/cc	Scleroscope Hardness shore	Contact drop Volt /brush	Current Density Amps/cm ²	Coefficient of friction	Max operating speed mtr/sec	Pressure of gf/cm ²	Application Guidance
TEGO	EGO	C	1200	160	1.55	37	0.95	11.5	0.11	20	180	High Conductivity suitable for Low Voltage, high current machines, also medium size slow speed D.C. Motors and Hydro Exciter.
TEGOR	EGOR	S	1200	195	1.55	41	0.95	10	0.11	20	180	Oil impregnated to increase its operating speed. Recommended for steel and bronze slippings of low current density.
TEG3	EG3	C	2900	165	1.67	53	1.15	8.5	0.13	20	140	Recommended for small and medium size industrial motors.
TEG10	EG10	C	3050	175	1.68	70	0.60	9.5	0.10	30	175	Suitable for use on D.C. Machines of moderate speed and on A.C. Motors a low voltage between adjacent segments.
		C-traction							0.20		420	
TEG11S	EG11S	C	2500	175	1.57	63	0.90	12.5	0.10	50	180	Fairly dense end strong grade. Suitable for large size D.C. Machines. Also used on high speed traction motors of A.G. locos.
		C-traction									210	



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TEG12	EG12	C	2500	175	1.57	63	0.90	12.5	0.10	50	180-350	A cool running grade with good current collecting and commutating properties suited to D.C. Machines of sustained high output or prolonged overload like welding generator.
TEG12K	EG12K	C	3000	140	1.55	42	≥0.60	10	0.10 0.15	50	175	Used mainly in welding generators.
TEG14	EG14	C	4900	175	1.57	62	0.92	10	0.16	45	210	A popular industrial grade suitable for wide range of D.C. motors and generators with steady load and not too difficult commutating conditions, used on train fighting dynamos with good collecting and commutating ability and brush life.
TEG14D	EG14D	C	4900	225	1.67	66	1.10	10	0.10	30	210	Stronger version of EG14 with long life. Suitable for heavy loaded D.C. motors and generators. Can withstand severe mechanical shocks.
		C-traction					0.82		0.20			
TEG16	EG16	C	4000	185	1.58	57	≥0.6	11	0.10-0.15	50	210	Porous structure to give good and stable current collection. Good commutating ability.
TEG16K	EG16K	C	5253	160	1.55	57	1.05	12	0.10	50	210	Similar to EG16; used in traction auxiliary application.



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TEG17	EG17	C	5250	210	1.62	70	1.10	10	0.10	50	210	A grade suitable for use under fluctuating load conditions such as steel mill motors and generators. Particularly good on large reversing blooming mill motors.
	0.95						0.13		490			
TEG105	EG105	C	5250	210	1.58	66	≥0.7	10	0.10- 0.15	50	210	A newly developed grade suitable for high speed traction motors of A.C locos. Very good commutating and light load running ability. A grade of medium strength. Recommended traction pressure not to exceed 350gms/cm ²
		C- traction										
TEG105S	EG105S	C	5250	210	1.62	70	0.87	12.5	0.12	50	490	A stronger version of EG105 having low friction end good commutating ability. Particularity suitable for traction motors and some industrial applications.
TEG111	EG111	C	4500	170	1.6	67	≥0.60	10	≤0.10	50	180	A very open structure material with film recovery property and commutating ability. Most suitable for motors with fluctuating load.
TEG116	EG116	C	5350	165	1.63	70	1.20	11	0.11	50	210	Good collecting, commutating and film forming ability. Suitable for wide range industrial D.C. machines of modern design.



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TEG116S	EG116S	C	5000	210	1.67	70	0.87	12.5	0.12	50	490	An open texture and cool running grade with good collecting, commutating and film forming ability. Particularly suitable for use on traction motors of high speed A. C locos.
		C- traction										
TEG202D	EG202D		2000	195	1.55	41	1.15	10	0.10	50	210	Most suitable for traction motor LJM-450-2 of WAG6A and also for D.C. Motors.
TEG224	EG224	C	4800	150	1.60	60	1.00	10	0.10	50	180- 360	Suitable for medium size D.C. Motors Handles fluctuating loads. Used on D.C. Motors on ships and also Kirloskar Motors.
TEG225	EG225	C	3600	140	1.60	43	1.07	10	0.09	50	210	Good commutating grade. Suitable for Traction Generator of Diesel Locomotives.
TEG236S	EG236S	C	5253	160	1.55	57	1.05	12	0.10	50	210	Well suited for large D.C. Motors and for Traction Generator of Diesel Locomotives.
TEG251	EG251	C	5200	170	1.62	60	≤1.0	9.5	≥1.0	50	210	Suitable for all types of D.C. motor and generator applications, specially BHEL make.



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TEG259	EG259	C	5750	210	1.75	77	≥1.0	10	≤0.1	50	210	Similar to EG 236, but gives longer life suitable for Traction Generators, Exciters etc. Also recommended for Thyristor Drives, Pressure sensitive grade, recommended max 210gf/cm ² .
TEG260	EG260	C S	1200	155	1.60	41	0.8	10	0.17	30	210	Specially treated. Makes it very suitable for a wide range of Thyristor controller motors.
TEG898	EG898	C	5253	160	1.55	57	1.05	12	0.10	50	210	Suitable for pilot exciters.
TEG284	EG284	C	5150	220	1.60	68	1.12	12.5	0.13	55	350-560	Suitable for all types of D.C. motors and generator applications, specially BHEL make.
		C- traction										
TEG6345	EG6345	C	2850	200	1.66	70	≥0.5	9.5	0.13	30	175	A good commutating grade having excellent film forming ability. Suitable for D.C. generator application, specially for dragline.