

# D.C. TRACTION MOTOR & CONTROLLERS/UTILITIES

MDCTM-Series

## Introduction:

MDCTM series of d.c.traction motors/utilities are available in more than 100 different models (100 to 100.0 kilo watts), virtually offering solutions to control very reliably and are ideally suitable for public transport, fork-lift, paper, machine-tools, excavation, rubber, hoist, sugar, textiles, heavy electrical/mechanical industries and many research and development / defense applications. Special machine design, updated design topology and material ensure better efficiency and enhanced torque transmission with improved controllability. Company offers tailor made solution to / requirement.

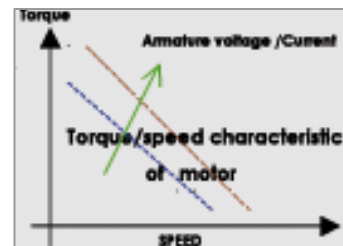
## Operating Principle:

Primary element of this motors is special material/design rotor of by virtue of which such .traction charateritic is achieved. These motors normally operate in constant power mode and hence as the load on motor rises, its speed falls or vice versa. These motors are most suitable for auto torque regulation applications. Its torque or speed can be stably controlled using an AC/DC or DC/DC controller operating in feedback. These motors are electrically impedance matched to deliver maximum output.

Numerically, the approximate torque and power relation is as under....

$$T = k_1 \cdot I_r^2 \cdot R_r / \omega_r \quad k_1 = \text{constab depending on no. pole/conductor}$$

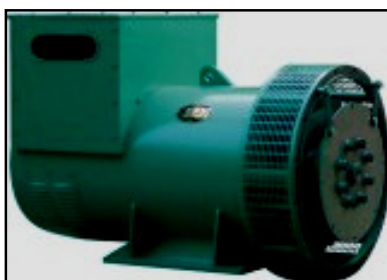
$$P = k_1 \cdot M_s \cdot I_r^2 \cdot R_r \quad I_r = \text{rotor current, } \omega_r = \text{effective rotor speed}$$



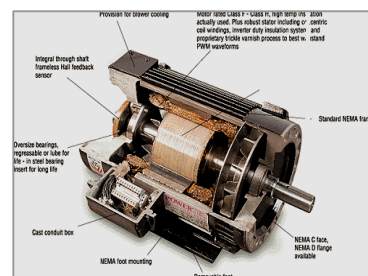
characteristic of traction motor



MDCTM-0500010



MDCTM-0030015



sectional view of traction motor

## Mechanical Specifications of D.C. traction motors:

Model	Power Watts	Torque n.m.	rpm x10 (max)	Residual Torque x10 <sup>-2</sup>	Volt	Model	Power Watts	Torque n.m.	rpm X10 (max)	Residual Torque x10 <sup>-2</sup>	Volt
MDCTM-0005030	500.0	1.59	300	0.008	120/96/72	MDCTM-0100030	10000.0	286.2	300	0.50	120/96/72
MDCTM-0008015	735.0	2.33	300	0.010	120/96/72	MDCTM-0200010	20000.0	190.0	100	0.70	120/96/72
MDCTM-0010030	1000.0	3.18	300	0.015	120/96/72	MDCTM-0500010	50000.0	636.9	075	0.90	120/96/72
MDCTM-0010015	1000.0	6.36	150	0.020	120/96/72	MDCTM-0750008	75000.0	955.4	075	1.00	120/96/72
MDCTM-0030030	3000.0	9.54	300	0.030	120/96/72	MDCTM-1000008	100000.0	1273.8	075	3.00	120/96/72
MDCTM-0030015	3000.0	19.1	150	0.050	120/96/72	MDCTM-2000006	200000.0	2547.7	075	5.00	120/96/72
MDCTM-0050030	5000.0	15.9	300	0.070	120/96/72	MDCTM-5000006	500000.0	7961.7	060	7.00	120/96/72
MDCTM-0050015	5000.0	31.8	150	0.090	120/96/72	MDCTM-8000006	800000.0	12738.8	060	8.00	120/96/72

## Electrical Specifications of D.C.Traction motors Controller:

Operating voltage 220/120 volts, 1/3 phase A.C./200/400 Volt D.C.  
 Chopping frequency 50/400/1000 Hz or optional  
 Pulse width 0.0-80 %  
 Excitation current 0.0- 500.0 amps(max)  
 Torque control 0.1 –1000.0 kg.m  
 RPM control range 1:100  
 Regulation better than 0.5 % of set speed /torque  
 Accuracy 99.5% of set of speed/torque  
 Response time 0.05 –10.0 sec  
 Interface Signal 0.0-12.0 volts D.C./4-20 mili.amp  
 Control option constant mode/synchronous mode/soft start  
 Display ampere-hour/RPM/Torque in 3½ & 4½ digit red glow LED/LCD display  
 Protection: Over/under voltage & frequency with power on Indication

OTHERS FEATURES: REGENERATIVE BRAEKS /semi-active suspension



MDCTM-030100

## MOTORON SEMICONDUCTORS CORPORATION

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**D.C.TRACTION MOTOR & CONTROLLERS/UTILITIES**

MDCTM-Series

**High frequency Chopper Electrical Specification Specification:**

Model	Power watts	Volts X100	Current Amps	Repetition rate pulse/sec maximum	cooling	Model	Power watts	Volts X100	Current Amps	Repetition rate Pulse/sec maximum	Cooling
MTCC-030100	03000	03.0	010.0	100	Air/oil	MTCC-030010	06000	08.0	020.0	100	Air/oil
MTCC-050040	02000	03.0	020.0	100	Air/oil	MTCC-050010	05000	08.0	030.0	100	Air/oil
MTCC-050100	05000	03.0	030.0	100	Air/oil	MTCC-050020	01000	08.0	040.0	100	Air/oil
MTCC-050020	02000	03.0	040.0	100	Air/oil	MTCC-050040	02000	08.0	050.0	100	Air/oil
MTCC-010050	05000	03.0	050.0	100	Air/oil	MTCC-050100	05000	08.0	060.0	100	Air/oil
MTCC-010100	01000	03.0	060.0	100	Air/oil	MTCC-100010	01000	08.0	080.0	100	Air/oil
MTCC-010500	05000	03.0	075.0	100	Air/oil	MTCC-100020	02000	08.0	100.0	100	Air/oil
MTCC-010999	10000	03.0	090.0	100	Air/oil	MTCC-100050	05000	08.0	200.0	100	Air/oil
MTCC-020050	01000	50.0	100.0	100	Air/oil	MTCC-100100	10000	10.0	100.0	100	Air/oil
MTCC-020100	02000	50.0	200.0	100	Air/oil	MTCC-200200	10000	12.0	050.0	100	Air/oil
MTCC-020500	10000	50.0	300.0	100	Air/oil	MTCC-200200	20000	12.0	075.0	100	Air/oil
MTCC-020999	20000	50.0	400.0	100	Air/oil	MTCC-400050	20000	15.0	050.0	100	Air/oil

Three numeral after Product code MTCC indicates d.c.voltageX100 and remaining three numeral indicates current.

**High frequency Chopper mechanical specifications:**

MTCC-030100	08X06X06	MTCC-0105002	14x14x14	MTCC-030010	20x16x16	MTCC-1000202	28x16x16
MTCC-050040	12x08x08	MTCC-0109992	18x16x16	MTCC-050010	22x18x18	MTCC-1000502	28x18x18
MTCC-050100	12x10x10	MTCC-0200502	20x16x16	MTCC-050020	24x18x18	MTCC-1001002	28x20x20
MTCC-050020	12x10x10	MTCC-0201002	22x18x18	MTCC-050040	24x20x16	MTCC-2002002	28x22x22
MTCC-010050	14x10x10	MTCC-0205002	24x18x18	MTCC-050100	28x14x14	MTCC-2002002	28x22x24
MTCC-010100	16x12x12	MTCC-0209992	24x20x16	MTCC-100010	28x14x14	MTCC-4000502	28x24x24

ALL DIEMENSION ARE IN INCHES

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# D.C. TRACTION MOTOR & CONTROLLERS/UTILITIES



STEEL COMPOSITE TOURS VEHICLES (15 H.P.)



STEEL COMPOSITE TOURS VEHICLES(7.5 H.P.)



STEEL COMPOSITE FLAT TRUCK (15 H.P.)



STEEL COMPOSIT TROLLEY(12 H.P.)



STEEL COMPOSITE TRANSPORT VEHICLE (37 H.P.)



STEEL COMPOSIT GENERAL TRANSPORT VEHICLE(22 HP)

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