

# HIGH POWER FACTOR TRANSIENT D.C.DRIVES

(Energy efficient)

**Application: MDCD** series of low time constant D.C.drives are available in more than 10 different models (10 to 10,000 kilo watts) including some tailor made models practically offering readymade drive for D.C. motors with very high power factor/lower harmonic distortion with transient response and improved protection features unlike S.C.R. drives. These drives have lower derating effect on supply transformer, thereby creating additional distribution margin. Better power factor Lower harmonics has lower degenerating effects on utility distribution system with energy saving from 15-30 percent. Only due to these reasons these are first choice of paper/textile, rolling mill, polymers, and yarn sugar and heavy electrical engineering industry. These drives can operate in parallel mode in synchronization.

## Operating Principle:

These drives can operate in both absorbing mode as well in sourcing mode (four/two/single quadrant) with smooth transition between each mode. While performing in regenerative mode, power is transferred into electricity main. With this type of controller an infinitely small variation in speed can be achieved at constant power/torque mode or profiled in specific manner.

Power/Torque absorbed/delivered by load controller is given as under....

Power/Torque absorbed/delivered by D.C.drives is given as under....

$$w = K_1 \cdot V_a / I_f - K_2 \cdot T / I_f^2$$

**w: speed,  $V_a, I_a$  : armature voltage/current, T: Torque,**

Feedback controlled power supply ensure fine resolution in loading i.e. 0.1% of torque/power OR derived unite at any time, with a very high degree of stability and repeatability.

## Technical specifications of Electronic load/source controller:

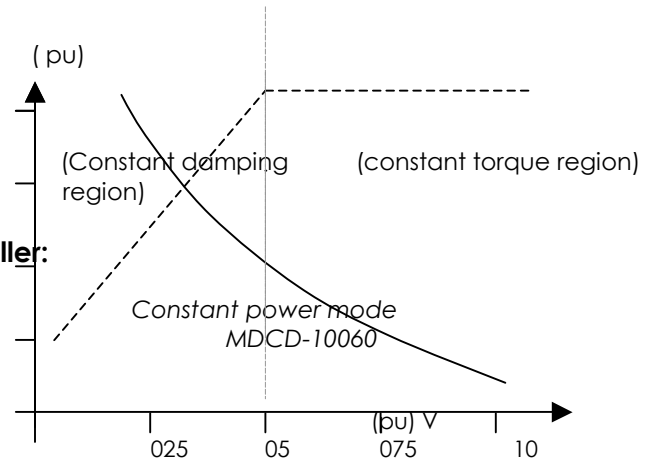
Operating Power supply 220 volts/50 Hz  
 Armature current as in data sheet  
 Real Power /Reactive power 0.9 and above  
 Conversion frequency of chopper 50 Hz-50 kHz  
 Control: cascade control (1. armature speed/current feed back)  
 Working in constant power/torque  
 Protection: over speed/ over load, FFR, single phasing etc  
 Repeatability 100 percent  
 Response time 0.5 -1.1 mill-seconds  
 Accuracy of loading: 100%  
 Interface Signal 0.0-12.0 volts D.C. (proportional to power)  
 Control range (torque/speed) 0.0-100%  
 Step down ratio 0-100%  
 Display : Voltage/vurrent/power /RPM over load/short circuit  
 Interface: RS-232

Control unit of load controllers are equipped with cooling water and exhaust gas temperature, exhaust calorimeter electronic flow meter for monitoring fuel consumption air, tachometer, torque (load cell) and real shaft power sensors interface to Digital controller

### HIGH FREQUENCY D.C.DRIVES dimension:

MDCD-000101	08X06X06	MDCD002004	14X12X12
MDCD000102	10X06X06	MDCD005004	16X14X14
MDCD000202	12X08X08	MDCD010008	18X16X16
MDCD000502	12X10X10	MDCD030008	20X18X18
MDCD001002	12X10X10	MDCD060008	20X18X18

Three numerals after MDCD indicates power x100 of drives and last three digit indicates K.VOLTS. All dimensions are in inches. Above models are in current range of production, however company Undertake any tailor made specification power supply.



## MOTORON SEMICONDUCTORS CORPORATION

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# HIGH POWER FACTOR TRANSIENT D.C.DRIVES

(Energy efficient)



**MDCD010008**

**MDCD030008**

## Technical specifications and selection chart (MDCD series) P<2000.0 kilowatts

Model	Power (K.W.)	Rated volt AC/DC (for m/c)	Non excited load %	Ampere AC/DC	Cooling Water/Air	Thermal rise °C (an hour)
MDCD150010	1500.0	1000	0.0	1500.0	Liquid	65
MDCD100010	1000.0	1000	0.0	1000.0	Liquid	65
MDCD075008	750.0	750.0	0.0	1000.0	Air	65
MDCD060008	600.0	400/800	0.0	1500.0/750.0	Air	65
MDCD030008	300.0	400/800	0.0	750.0/375.0	Air	65
MDCD010008	100.0	400/800	0.0	250.0/125.0	Air	65
MDCD005004	50.0	400	0.0	125.0	Air	65
MDCD002004	20.0	400	0.0	50.0	Air	65
MDCD001002	10.0	200	0.0	50.0	Air	65
MDCD000502	5.0	200	0.0	25.0	Air	65
MDCD000202	2.0	100/200	0.0	20.0/10.0	Air	65
MDCD000102	1.0	100/200	0.0	10.0/5.0	Air	65
MDCD000101	0.5	10/20/50	0.0	50/25/10	Air	65

Last two numeral after MDCD indicates volt.x100 an remaining numeral indicates power (kilo-watts).Company may develop electronic load tester on specific requirement.

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