

REGENERATIVE DYNAMOMETERS & CLUTCHES

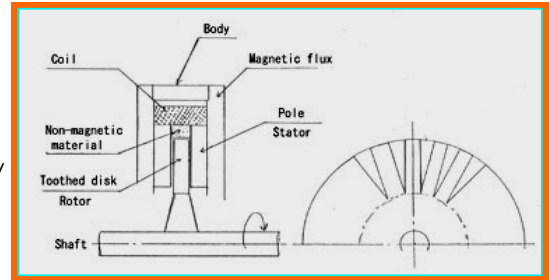
(swinging type/programmable)

Application:

MRDC series of D.C. Dynamometers are available in more than 30 different models (100 watts to 1000 kilo watts/ 500 to 50,000 rpm) including some tailor made models practically offering readymade solution in measurement, testing / diagnostic of any principal parameter like power, rpm and torque as well as other inferential parameter like rated power/torque capacity, overload power/torque capacity, efficiency, plotting torque/speed and power/speed curve, desired phase trajectories of any diesel engine/automobile (low/high rpm). These fast responding dynamometers possess least mechanical time constant, windage losses, least rheological problem, mechanical black-lash/ dead band, and exhibits a repeatable and hysteresis less Torque/Power Vs Excitation current characteristics which guarantees accurate identification of parameters during steady state/transient conditions

Operating Principle:

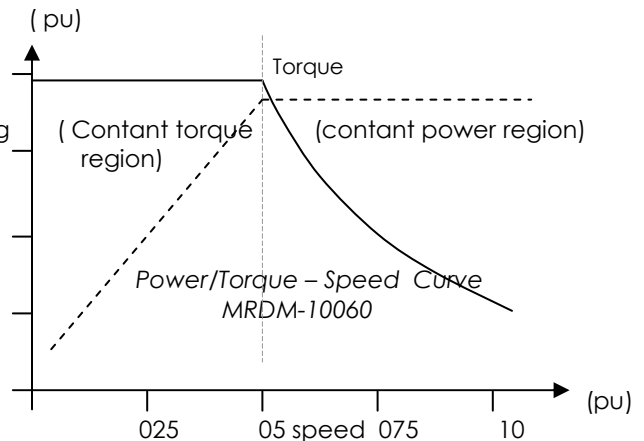
These d.c. dynamometer can operate either in both absorbing mode as well as motoring mode with smooth transition between each mode. While performing in regenerative mode, power is transferred into Electricity main. With this type of dynamometer an infinitely variable load can be applied at constant speed or set to a constant load with a variable speed. It offers linear/stable torque/speed behaviour, especially at lower speed range with speed holding within +0.1% of full speed. These dynamometers can also be used to estimate internal losses in engine while working in motoring mode.



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

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

(Maximum torque varies between 0.3 lbs-ft to 1000.0 lbs-ft)
Feedback controlled power supply ensure fine resolution in loading i.e. 0.1% of torque/power at any time, with a very high degree of stability and repeatability.



Technical specifications of dynamometer controller:

Operating Power supply	220 volts/50 hz
Excitation current	15 amps (max)
Torque pulsation	100 ppm
Current ripple	50 micro amp
Conversion frequency of chopper	50 Hz/50 kHz
Display	Power/Torque/Speed (3-1/2 digit)
Short-circuit	50% of rated current
Equivalent magnetic field	0.0 to 1.0 tesla.

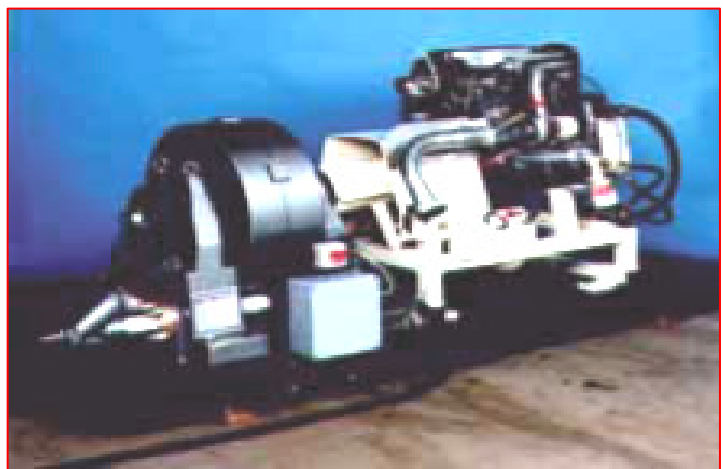
Control unit of dynamometers are equipped with cooling water and exhaust gas temperature, exhaust calorimeter electronic flow meter for monitoring fuel consumption air, tachometer, torque (load cell) and real shaft power sensors interface to Digital controller / SCADA system with facility to simulate desired characterization with consistency and accuracy.

Weight/ Size (inches):

MRDC20002	4.5kg/4x5x5	MRDC20010	10 .0kg/6x7x7
MRDC20003	5.0kg/4x5x5	MRDC20015	12.0kg/6x7x7
MRDC20004	6.0kg/4x6x6	MRDC20020	15.0 kg/6x8x8
MRDC20005	7.0kg/6x6x6	MRDC20050	20.0kg/6x10x10



Dynamometer controller MRDC-20005



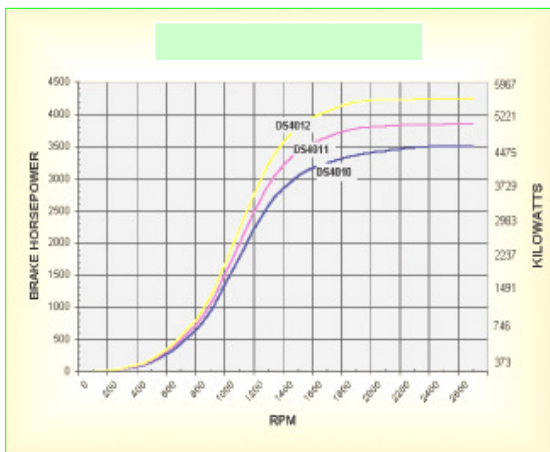
Dynamometer Test Bench(Diesel Engine)

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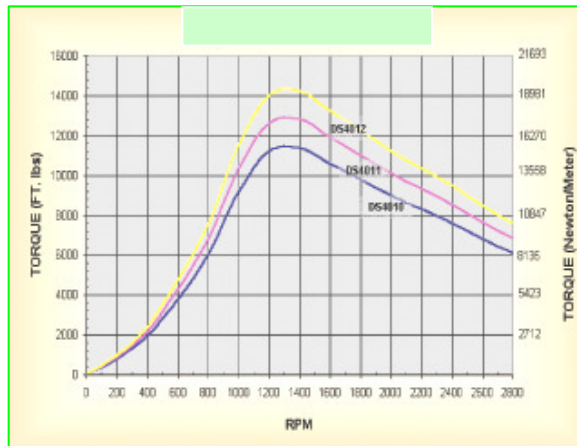
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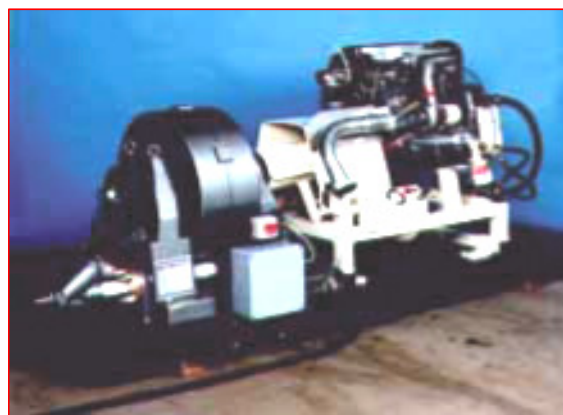
Horse-power Vs Speed characterization
Diesel-Dynamometer-MRDA-80005



Torque Vs Speed characterization
Diesel dynamometer- MRDA-150003



Chassis dynamometer (Two wheeler)
MRDA-10060



Dynamometer Test bench(Diesel- engine)
MRDA-50120

Technical specifications and selection chart (MEDA- series)

P<2000.0 kilo.watts

Model	Power (kilo watts)	Rated Torque N.m	Non excited torque % R.T.	RPM/ Other RPM optional	Cooling Water/Air	Thermal rise °C (an hour)
MRDA150003	1500.0	4700	0.0	300	Liquid	65
MRDA080005	1000.0	1900	0.0	500	Liquid	65
MRDA075010	750.0	7160	0.0	1000	Air	65
MRDA050015	500.0	3180	0.0	1500	Air	65
MRDA025030	250.0	790	0.0	3000	Air	65
MRDA010060	100.0	160	0.0	6000	Air	65
MRDA050120	50.0	38.9	0.0	12000	Air	65
MRDA020150	20.0	12.7	0.0	15000	Air	65
MRDA010200	10.0	7.9	0.0	20000	Air	65
MRDA005300	5.0	1.6	0.0	30000	Air	65
MRDA002300	2.0	0.63	0.0	30000	Air	65

Last two numeral after MRDA/MRDC indicates rpm.x100 an remaining numeral indicates power(kilo-watts)

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