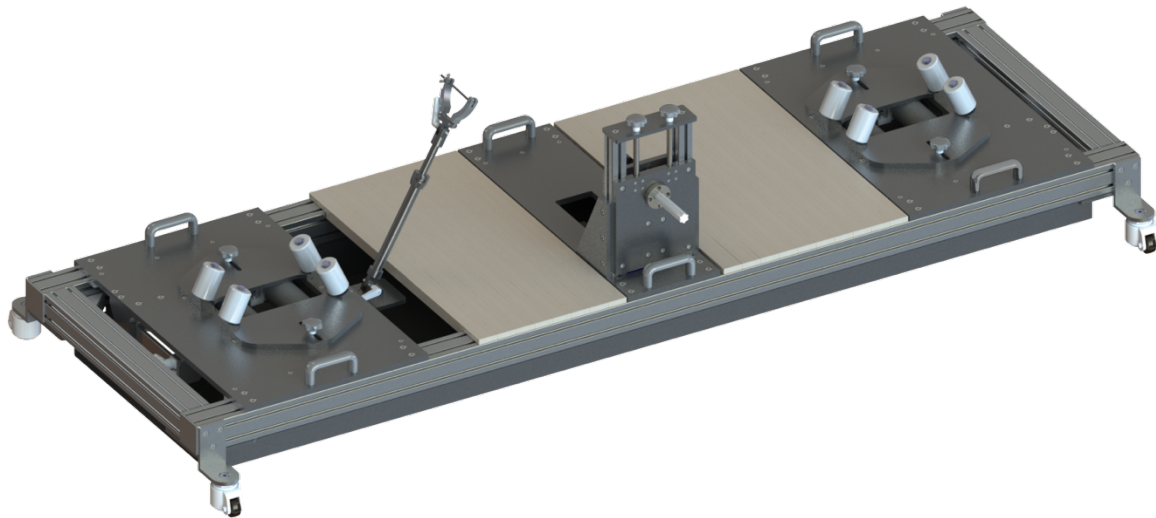


Dynamometer for E-Bike according to new EPAC/EMC standard

Matur GmbH designed the new state-of-the-art dynamometer for EMC testing of E-Bikes according to new Standard EN 15194:2018 for EPACs (Electrically Power Assisted Cycles).

Pedelecs (all motorised bicycles) have to fulfil from now on the same EMC test requirements as cars, motorcycles and mopeds according to new safety standard EN 15194.



Brief description:

The dynamometer for E-Bike allows the testing and inspection of bicycles with electromotive drive support (EPAC) in respect to the electromagnetic compatibility. No high frequency interference is created by the dynamometer, which could affect the test result.

The dynamometer is portable for use in anechoic chambers. The system itself does not create any major influence of the test results, except due to the construction.

Main features:

- Three independently selectable drive units for front-/rear- and pedal-powered drive
- Speed up to 120 1/min at the pedal
- Accurate readout and calculation of speed, torque and power
- Measurement of electromagnetic radiation with load of 75% ± 10% according to CISPR 12
- Measurement of electromagnetic immunity with condition 90% of assistance speed

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Technical data:

Load capability	100 kg
Speed adjustable	up to 120 1/min
Axis distance	0.7 m – 1.7 m
Roller diameter	70 mm
Roller coating similar to road surface	Rz 50 µm – 60 µm
Overall dimensions mm (L x W x H)	2380 x 1000 x 627
Total weight	approx. 170 kg
Tires height above floor	approx. 150 mm
Adjustable frame holder for E-Bikes made of plastic	
Motors	Servomotors
Rated power	each 500 W
Rated torque	each 2.0 Nm
Breaking power adjustable	up to 500 W
Control cable	Fibre optic lines
Required fuse	16 A
Voltage	380 V – 400 V, 50 Hz / 60 Hz, 3 phases
Temperature range	10°C – 35°C
	DYNSoft PC
	Dyno Software
Accessories	Emergency stop function in software
	Flat screen monitor, keyboard, mouse and required hardware
	Software

EMC - Performance:

Emission of the system	
typically 10 dB under limit according to CISPR 12 and CISPR 25	
Frequency range	30 MHz – 1 GHz
Measurement distance	10 m
Immunity of the system	
Continuous field strength	200 V/m
Frequency range	10 kHz – 18 GHz

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Further features:

- Sinus or uniform pedaling for optimum reproduction of the real pedaling
- Rear wheel speed transferable to front wheel
- Simulation of uphill and downhill
- Axis distance adjustable
- Wheel width adjustable
- Adaptation to the pedal crank while the crank arm is removed
- Torque or power control
- Rigging of the bike for better power transmission to the test bench
- Movable by integrated wheels
- All current values can be recorded as a csv file depending on the time and/or the distance travelled.
- All current values can be read out via analog voltages and thus be integrated with other systems.



Technical changes and errors excepted as improvements and adjustments are made regularly. Included images are for illustration only and do not show all possible configurations.

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