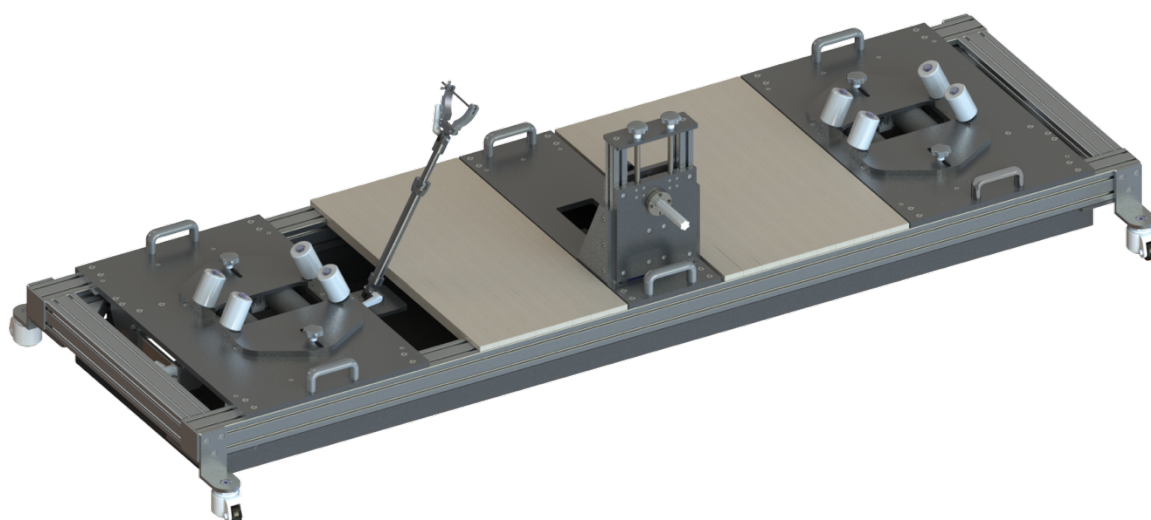


## Dynamometer for E-Bike according to new EPAC/EMC standard

Maturo 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  $75\% \pm 10\%$  according to CISPR 12
- Measurement of electromagnetic immunity with condition 90% of assistance speed

### 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 B 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  |
| Accessories   | DYNSoft PC   |
|   | Dyno Software  |
|   | 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 |

### 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.