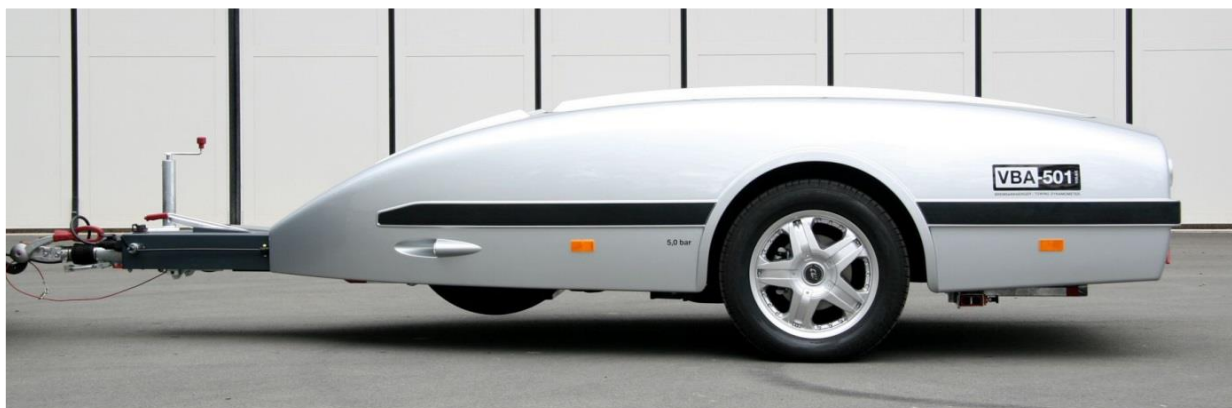


## VOLKE Towing Dynamometer VBA15-5xx 300kW – 15kN



Maximum drawbar pull	15.000 N (limited by maximum power above 72 kph, cf. drawbar map page 5)
Continuous drawbar pull	14.000 N up to 40 kph 10.000 N up to 72 kph 4.500 N up to 160 kph  Detailed information in drawbar pull map (page 5)
Max.-/ continuous power	300 / 200 kW
Speed range	0 - 160 kph (max. speed on public road based on country-specific regulations) Limitation of operation speed is applicable by a password query
Continuous braking device	1 Air-cooled eddy current brake (ECB) with air ducts and additional electric fan to improve cooling capacity  Operated by thyristor-impulse-controller  Rev limiter: When reaching the ECB rev limit, Dynamometer and remote control resound a warning tone
Transmission	Two-speed gearbox, shiftable at standstill via remote control - Neutral gear - 1 <sup>st</sup> gear (up to 80 kph), - 2 <sup>nd</sup> gear (up to 160 kph)  Axle gear oil-cooled
Drawbar pull measurement	Via linear roller-bearing-mounted towbar and HBM U2A load cell
Speed measurement	Via ABS wheel speed sensors (slip-dependant)
Public road approval	„100-kph-permission“ for motor highways (Germany)  Option: Operating permission for public roads. Modified ballast weight and additional lighting needed. (High-gear use only)  This option is part of the option package. Operating permission carried out by the respective local approval body.

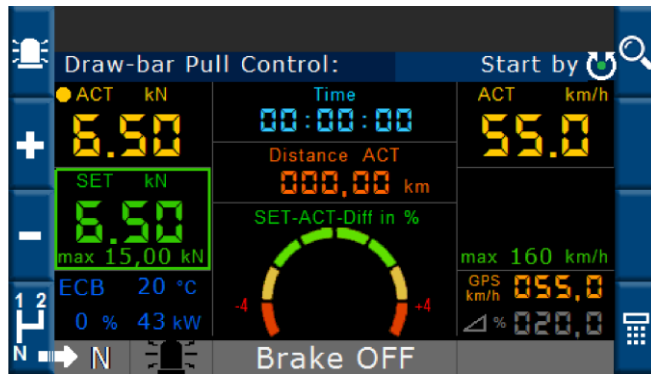
Trailer superstructure and hood	<p>Hot-dip galvanized and powder coated steel tube frame with hinged fiberglass hood. Support for ballast weight. Storage box for accessories sealed against dust and road spray.</p> <p>Forklift suited lifting points at the rear, workshop lifting platform compliant. Multiple lashing points available</p>
Chassis	<p>Independent suspension, semi-trailing link type, load capacity up to 2.450 kg</p> <p>Alloy-wheels, dim. 6,5J x 16, fitted with 225 /75 R16C tyres</p> <p>Hydraulic overrun brake operating hydraulic disc brakes. For reversing purpose a back pressure valve is activated by the towing vehicle's backup light signal.</p> <p>Parking brake operation on brake discs with warning device</p>
Electrics	<p>2 Bosch generators, combined charging current: 200 A</p> <p>Charging capability above 11 kph</p> <p>Optional: Charging capability above 5 kph</p> <p>24 V main power supply, 2 batteries</p>
Weights	<p>Laden weight approx.: 2.500 kg (for drawbar pull up to 15.000 N)</p> <p>Unladen weight approx.: 1.600 kg (for drawbar pull up to 9.600N)</p> <p>Tongue load: 75 - 100 kg</p>
Outer dimensions	<p>length: 4.950 mm width: 1.900 mm height: 1.070 mm (approx.)</p>



Control	<p>Waterproof (IP67) control unit, passive cooled</p> <p>Powerful, robust and modular control system( National Instruments), controller and FPGA</p> <p>Diagnosis functions and monitoring of various system parameters, e.g. battery voltage, ECB voltage and temperature, air temperature etc.</p> <p>Acoustic warnings during operation in case of unlocked hood, active parking brake or reaching ECB rev limit.</p>
Remote control	<p>4,3" TFT LCD integrated in casing.</p> <p>Dimensions approx.: 200 x 11 x 65 mm (WxHxD)</p> <p>Menu based control via function buttons, push/turn control knob and an emergency shut-off button.</p> <p>User interface displays all current operation parameters and warnings.</p> <p>Communication between remote control and towing dynamometer via CAN-Bus, cable connection to remote control Ø approx.. 7 mm</p> <p>Additional CAN-Bus interface for data logging process parameters by remote control (e.g., drawbar pull, speed)</p> <p>Externally supplied setpoint via CAN-Bus</p> <p>Online help function with brief instruction, security advices etc.</p> <p>Available menu languages: english, german</p>



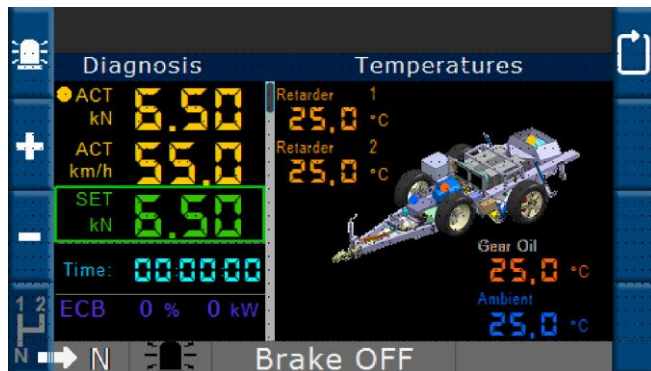




Operational View (Draw-bar Pull Control)



Drivers Display (option)



Extensive diagnostic options

The image shows the 'Editor für creating hill profiles (option)' software interface. It includes a 'VOLKE' logo, a 'VBA-Profiler' section, and a 'Zugfahrzeug simuliert' section. The 'Zugfahrzeug simuliert' section contains a table with columns for 'Weg [m]', 'v [km/h]', 'Steigung [%]', 'Fahrerzeit [min. 30 Zeichen]', 'Signalfahrer T', 'Zeit [s]', 'Höhe [m]', 'Beschleunigung [m/s²]', and 'Zugkraft [kN]'. The table is currently empty.

Editor für creating hill profiles (option)



<b>Control functions in standard configuration</b>	<b>Drawbar pull control</b> <b>Speed control</b> <b>Anti-lock braking system (ABS)</b> (If tyre slip exceeds threshold the drawbar pull is reduced for a short term)
<b>Optional features</b>	<b>Remote control via wireless connection and interruption-free power-supply by the towing vehicle.</b> <b>Driver assistant display -</b> <b>Additional windscreen-mounted driver assistant display</b> <b>containing realtime operation parameters and driving hill profiles.</b> <b>Set point ramp for speed control</b> <b>In speed control mode a slew rate is integrated into the setpoint adjustment.</b> <b>CAN-data logger for logging operation parameters, also used for troubleshooting and support.</b> <b>CAN-analog-converter to display analog signals containing actual drawbar pull and speed in the remote control user interface.</b> <b>Constant slope mode and trailer simulation-</b> <b>Menu based calculation of drawbar pull with user-editable slope, towing vehicle and trailer parameters (e.g. drag coefficient, towing vehicle weight)</b> <b>Hill profile mode -</b> <b>Menu based hill profile input, realtime drawbar pull control with user-editable towing vehicle and trailer parameters (e.g., drag coefficient, towing vehicle weight).</b> <b>Dynamic trailer simulation -</b> <b>Simulation of mass inertia of the trailer via drawbar pull control during acceleration and deceleration.</b> <b>Online slope correction –</b> <b>Actual slope is detected via Sensors and compensated by drawbar pull control for slope independent drawbar pull.</b> <b>Dead weight trailer simulation -</b> <b>Simulated increase of trailer mass via drawbar pull control during acceleration, deceleration and downward force due to actual slope</b> <b>GPS-measurement for actual speed, displayed and loggable via remote control.</b> <b>2 spare wheels and wheel retaining mounts inside the chassis, covered by the hood.</b> <b>Transport platform for transport damage prevention.</b> <b>For transportation duties the towing dynamometer will be tied down on the platform, forklift suited lifting points on both sides.</b> <b>Additional control regarding actual towing vehicle values (e.g., fuel injection rate) on request.</b>
<b>Documentation</b>	<b>User manual including brief instruction and maintenance interval in english or german language.</b> <b>Wear and spare part list. These are mainly available from automotive suppliers.</b> <b>Electric wiring diagram</b>

## Drawbar Pull Map Towing Dynamometer VBA15-5xx (300 kW - 15 kN)

