



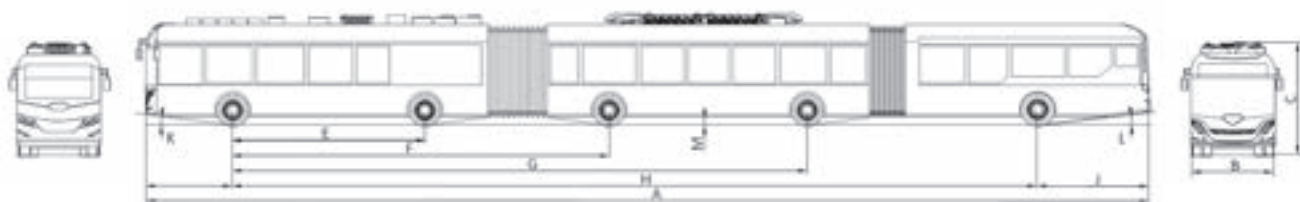
AutoTram[®] Extra Grand



WITTUR Electric
Drives GmbH



TECHNISCHE
UNIVERSITÄT
DRESDEN



TECHNICAL DATA

Dimensions and Weights

Overall length	A	30,730 mm
Overall width (without ext. mirrors)	B	2,550 mm
Total height	C	3,400 mm
Wheel base	E / F / G / H	5,880 / 11,514 / 17,579 / 24,629 mm
Overhang front/rear	I / J	2,656 / 3,445 mm
Angle of approach/departure	K / L	7°
Ground clearance	M	250 mm
Permissible total weight*		42,235 kg
Axle loads (axle 1/2/3/4/5)*		7,245 / 11,500 / 7,245 / 7,245 / 9,000 kg
Tank volume diesel		280 l
Minimum turning circle		24,726 mm

Passenger Capacity

Seats	96
Standing capacity (depending on equipment)	up to 160

Built-Up

Frame structure	Monocoque construction, frame structure from stainless steel
Articulation joint front/back	HÜBNER hinge articulation / universal articulation
Lining	Roof made of plastic, side wall trim and rear trim made of GFRP
Doors	Electrically-powered inward opening doors
Entrance width	1,200 mm
Entrance height	320 mm
Glazing	Single or double safety glazing

* provisional values



Bundesministerium
für Bildung
und Forschung





Chassis & Brakes	Axle 1	Axle 2	Axle 3	Axle 4	Axle 5
Type	ZF-independent wheel suspension RL 75 EC	ZF portal axle AV 132	ZF-independent wheel suspension RL 75 EC	ZF-independent wheel suspension RL 75 EC	ZF APL9000
Steering	ZF Servocom 8098	-	Electrohydraulic	Electrohydraulic	Electrohydraulic
Brake	Disk brake	Disk brake	Disk brake	Disk brake	Drum brake
Wheels & tires	275/70 22.5	275/70 22.5 (twin)	275/70 22.5	275/70 22.5	305/70 22.5
Suspension		ECAS			
Service brakes		Elektropneumatic braking system EBS, ABS, ASR			
Additional retarding braking system		Electrical with braking resistance			

Hybrid Propulsion System	Main Power Pack	Secondary Power Pack
Type	KIRSCH diesel generator	IVI diesel generator
Diesel engine	IVECO N60	Mercedes OM629
Generator	PSM	STW PowerMela 2 x PSM
Max. power	220 kW	235 kW
Nominal engine speed	2,400 rpm	3,600 rpm
Displacement	5,900 cm ³	3,996 cm ³
Cylinders	6 cylinders in line	8 cylinders
Emission category	EURO V	-
Weight	ca. 1,400 kg	ca. 1,000 kg
Traction converter	M&P 2 x DC/AC, water-cooled	
Traction engine	Wittur 2 x PSM (rated output 160 kW, max. power 240 kW), air-cooled	
Controller	M&P traction controller	

Dual-Mode Energy Storage	Lithium-Ion Battery	Capacitor Storage
Useable energy content	35 kWh	0.94 kWh
Storage cells	264 x LiTec HEI40	480 x Maxwell BCAP3000
Max. power	120 kW	420 kW
Cooling	Air	Air
System weight	ca. 660 kg (without air conditioning)	ca. 700 kg
Converter	M&P 2 x DC/DC, water-cooled	M&P 2 x DC/DC, water-cooled

Interior Fitting	
Driver's workplace	Instrument panel with VDV instrumentation
Driver's seat	Type Isringhausen 6860 with lumbar support
Seating	Bucket seat

Heating & Air Conditioning	
Passenger compartment	Convectors with integrated fan coolers and automatic control of temperature in passenger compartment, optional air conditioning of vehicle with air con mounted on roof with defined ventilation ducts and integrated air outlets. In case option air con is chosen, driver's station is also included.
Driver's station	Heating and/or air conditioning of driver's station is operated via heater at driver's station. This heater is positioned maintenance-friendly in the center of the vehicle front. It is operated by the driver via control unit.

Electric System	
High-voltage dc link	650 - 800 VDC
Ancillary circuit	400 VAC
Converter for ancillary devices	M&P DC/AC, water-cooled
Vehicle electrical system	24 VDC
Vehicle electrical system converter	PrismaEcotech 2 x DCI11a, water-cooled
Electrical-system battery	2 x 225 Ah
Communication	CAN bus system with complete diagnostic functions