THREE PHASE ASYNCHRONOUS TRACTION MOTOR

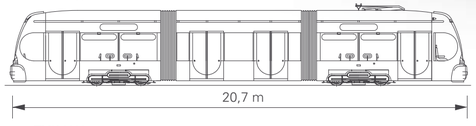
- IGBT inverter-fed motor
- hydraulic brake mounted on motor axle
- built-in speed sensor
- resistance thermometers in winding

TECHNICAL DATA

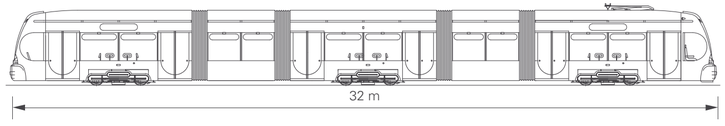
Power:	85 kW
Voltage:	400 V
Maximum speed:	4580 rpm
Insulation class:	200
Degree of protection:	IP 20
Method of cooling:	IC01
Weight:	350 kg
Standards:	IEC 60349-2

INTERIOR DESIGN

TMK 2200 - K



TMK 2200



KONČAR

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KONČAR

TMK 2200

LOW-FLOOR TRAMCAR

LOW-FLOOR TRAMCAR

TMK 2200 is a 100% low-floor tramcar. The state-of-the-art concept, 300 mm entrance height, air-conditioning, ergonomic seats and panoramic glazing together with fine-tuned hydraulic suspension and rubber cushioned wheels provide a comfortable ride. The car body is articulated, made of welded steel construction with powered bogies. Three-phase asynchronous motors, driven by IGBT inverters, provide a maximum speed of 70 km/h. The main vehicle control unit connected by modern communication protocols to vehicle subsystems (converters, brakes, suspension, doors and air conditioning) together with the ergonomically shaped and air-conditioned driver's cabin ensures a comfortable and user-friendly working environment for the driver.

Vehicle Type	TMK 2200	TMK 2200-K
Rail Gauge	1.000 mm	1.000 mm
Maximum Speed	70 km/h	70 km/h
Overhead Contact Line Voltage	DC 600 (+20%, -30%)	DC 600 (+20%, -30%)
Car Body Length	32 m	21 m
Car Body Width	2,3 m	2,3 m
Car Body Height, ARL	3,4 m	3,4 m
Floor Height, ARL	350 mm	350 mm
Entrance Height, ARL	300 mm	300 mm
Passenger Seats	41	27+ 8
Standees	161 (4 pass/m^2)	95 / 84 (4 pass/m^2)
Wheel Diameter New/Worn	660 / 605 mm	660 / 605 mm

BOGIE

The state-of-the-art bogie is manufactured in KONČAR factories from cast and welded steel parts. Hydraulic suspension and asynchronous driving engines without a rigid axle between the wheels create a complete low-floor feature. It is equipped with electric, hydraulic and track brakes.

CARBODY

Welded steel construction with bonded steel parts. Carbody is constructed with the latest computer design and engineering methods CAD & CAE.

DRIVER'S CABIN

Comfortable working space for the driver, with air conditioning and ergonomic design.

VEHICLE CONTROL UNIT

A fully redundant (two identical channels) Vehicle Control Unit supports control, regulation, measuring, sequencing, protection, supervision and communication tasks within the whole car. It also controls and coordinates electric, hydraulic and traction brakes. Communication with other intelligent units is distributed in the car through CAN communication channels. Most of the intelligent nodes can be accessed remotely, which enables advanced diagnostic possibilities.

MAIN DRIVE CONVERTER

PGP-130 consists of a three-phase IGBT inverter, IGBT brake chopper, main contactor, charging circuit, line filter and microprocessor traction control unit. The air-cooled container of the traction converter provides the power supply for two parallel connected three-phase asynchronous squirrel cage traction motors driving one tramcar bogie. The converter satisfies all the requirements regarding regulation, control, anti-skid protection, measuring, energy recuperation, sequencing and communication functions related to the bogie.

TECHNICAL DATA

Rated input voltage:	600 V DC, +20/-30%
Rated output current:	3x320 Arms
Max. output current:	3x670 Arms
Output frequency:	0...143 Hz
Size (LxWxH):	1800x1000x556 mm
Cooling:	Forced with air
Mass:	420 kg

AUXILIARY POWER SUPPLY CONVERTERS AND ENERGY STORAGE DEVICE

Static converters transform electrical energy from contact line voltage into alternating and direct current, in order to supply the auxiliary services of the tramcar: air conditioning, ventilation, lighting and battery charging. A capacitive storage device has been designed as an energy source to be placed at the DC link of the DC/AC power converters to cover input voltage drops.

PPB- 35 Auxiliary power supply converter

TECHNICAL DATA

Rated input voltage:	600 V DC, +20 /-30%
Three phase output:	3 x 400 V, 50 Hz, 20 kVA
Single phase output:	1 x 230 V, 50 Hz, 2, 2 kVA
DC output:	24 V, 400 A
Size (L x W x H):	1800 x 1000 x 556 mm
Cooling:	Forced with air
Mass:	430 kg

PP-25 Auxiliary power supply converter

TECHNICAL DATA

Rated input voltage:	600 V DC, +20 /-30%
Three phase output:	3 x 400 V, 50 Hz, 25 kVA
Size (L x W x H):	1800 x 800 x 556 mm
Cooling:	Forced with air
Mass:	350 kg

KBT - Energy storage device

TEHNICAL DATA

Autonomy	for >250 ms with load of 20 kW
Size (L x W x H):	932 x 540 x 271 mm
Cooling:	Natural
Mass:	60 kg