

ŠKODA ELECTRIC s.r.o.



the traditional trolleybus producer and global bus producer
presents a new low-floor trolleybus



The ŠKODA 24 Tr IRISBUS trolleybus represents a major step forward in the development of ŠKODA-brand trolleybuses. The new-generation traction electrical package from ŠKODA ELECTRIC s.r.o. is integrated into the body of the low-floor AGORA City Bus from the IRISBUS group's production. Thus, a high standard has been attained in all technical and utilisation properties and parameters of the vehicle, supported by a servicing network built up over the long term.

The project for the entire vehicle has been designed with the aim of achieving high reliability and safety. The container with the traction electrical package executed with high coverage is placed on the vehicle's roof so that the output and control electronics, including switching and other devices, can be operated in a "clean environment". The container also comprises a patented solution for elimination of danger voltage between the motor's frame and the vehicle's body.

From the very beginning, the design and development of the recuperation electrical package has been drawn up so as to meet all customer requirements and wishes. The electrical package's design and its integration into the trolleybus body allows for additional equipping of the vehicle by an auxiliary source of feeding from a diesel-electric set or traction batteries. It is also possible to additionally supply air-conditioning for the driver or the passenger space – the roof container is also constructed for possible mounting of a converter for air-conditioning. The trolleybus is also prepared for the installation of semiautomatic trolley wire collectors.

An essential feature of the project is unification of the mechanical and electrical design of the roof container. Just change the fitting by output blocks with IGBT for the main drive converter and the electrical package is ready to be placed in an articulated trolleybus.

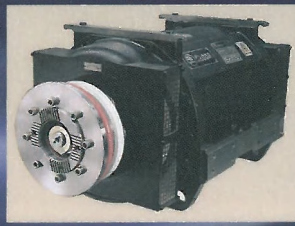
The modular layout of the electrical package in the roof container allows for quick and simple mounting and dismounting of individual blocks. Individual blocks form minimal replaceable components defined for maintenance and servicing.

When constructing and developing the electrical package and its integration into the vehicle, experience from delivering ŠKODA 21 Tr ACI trolleybuses, as well as electrical packages for trolleybuses, to Dayton, San Francisco and Boston, USA, was used. The tried-and-tested components and verified structural designs provide the preconditions for high reliability of the new ŠKODA 24 Tr IRISBUS trolleybus.

ŠKODA 24 Tr IRISBUS



Roof container with electrical package



7ML3550K/4 traction motor

Technical data

Trolleybus

Length/width/height	11990/2500/3500 mm
Length with collectors pulled down	12860 mm
Platform height of all doors	320 mm
Outer turning circle diameter	22600 mm
Basic emergency weight	11500 kg
Maximum set speed	65 km/h
Number of seats	30 os.
Number of standing places	69 os.
Front axle	Renault E 70 XH
Back axle	ZF-EBZ 4472635154
Total transmission ratio	9,82
Hydraulic power steering	ZF 80/98
Suspension	pneumatic
Screw compressor	5,5 C OPEN DD
Roof container	SJ1.1
ABS/ASR	in basic equipment
Heating	water, with electrical exchanger

Motor

Asynchronous traction motor	7ML 3550 K/4
Traction motor nominal power	210 kW
Traction motor cooling	external
Traction motor insulation class	200
Degree of coverage	IP 20

Diesel-electric unit – optional on request

Type 1 APU 80 IPME	
Nominal power	80 kW
Motor	IVECO DIESEL E13NEF oil-cooled
Weight without filling	appr. 810 kg
Type 2 APU 100 IPME	
Nominal power	100 kW
Motor	IVECO DIESEL E13NEF oil-cooled
Weight without filling	appr. 845 kg

Traction battery – optional on request

Cell type	STH600RC
Technology	NiCd – sintrované
Producer	SAFT Bordeaux
Cell nominal voltage	1,2 V
Cell weight	3,3 kg
Number of cells	132
Traction battery nominal voltage	158,4 V
Nominal capacity	60 Ah
Driving distance	15 km/h
Traction battery weight, including box	appr. 550 kg

Collectors

Manual collectors	typ TSS1.1
Semiautomatic collectors (on request)	TSS2.1

Roof container

Type	SJ1.1
Input voltage	600 V, 750 V DC (+20%, - 30%)
Nominal power of inverter for main drive	204 kVA
Nominal current of brake switch	400 A
Nominal output of converter for auxiliary drives	10 kVA
Nominal output of converter for air-conditioning (on request)	25 kVA
Nominal current of vehicle battery charger	220 A
Execution in insulation terms	”double“ insulation inside the container
Degree of covering net space	IP 54
Cooling	AF (forced-air)
Weight	760 kg

General features

- IGBT technology
- asynchronous drive; virtually maintenance-free, contactless transition to braking and change in driving direction
- 4-quadrant operation (driving and brake) with protection against trolley wire fault
- energy recuperation with brake (15 - 30 % energy saving)
- fluent regulation of moments up to zero revolutions
- electrical package control through CAN communication
- user-friendly diagnostic and information system through a notebook controlled from the vehicle's interior
- automatic switching-over in the case of changed trolley wire polarity
- possible operation at decreased feeding



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