

CASE STUDY

Project Tango TPG, Switzerland



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Stadler, Basel & Geneva, Switzerland

Tango takes over the streets of Geneva and Basel. Since 2010, the Genfer Verkehrsbetriebe (TPG) ordered new Tango trams from Stadler.

The tram is used for the cities Geneva and Basel suburban network at a running speed of 80 km/h and for metre-gauge routes. It has a low-floor share of 75 per cent. The tram is a bi-directional vehicle consisting of six modules. With a length of 44 metres and a width of 2.30 metres, it has seats for 80 passengers and a total capacity of 261 passengers.

The HVAC system considerably improves passenger comfort. There are seven doors on each side, enabling passengers to enter and exit quickly. The bogies with pneumatic suspension guarantee a quiet ride, which adds to the feeling of comfort for Tango passengers.

Wiper system characteristics:

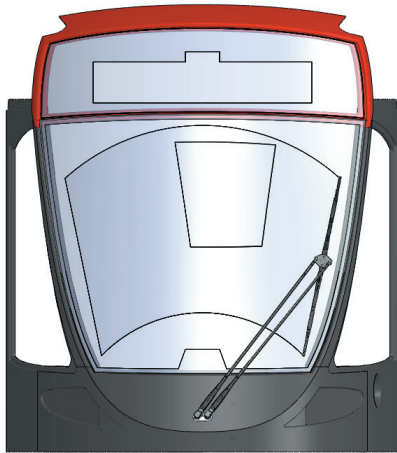
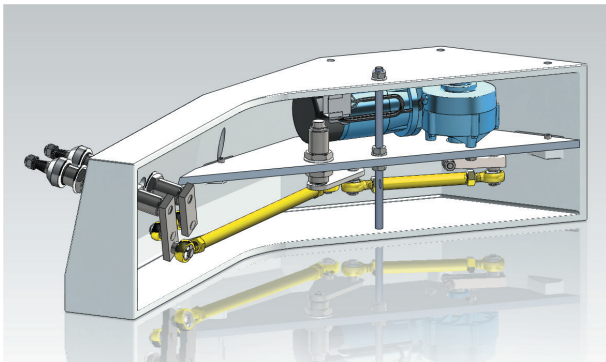
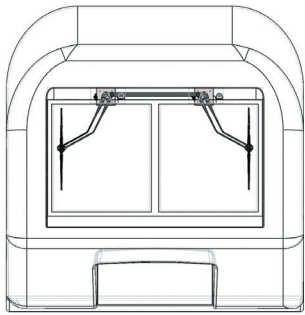
Because of the very curved windscreen and long wiper arms, the wiper system has been executed with extra strong wiper arm heads configuration. Because the standard wiper motor position in the center of the cabin was occupied, Exalto designed a long distance motor drive at the side of the cabin integrated in an all-aluminum housing. Together with strong 16 mm square wiper arm legs and a 85 Nm/24VDC electric motor the system will fulfill the customers and local climate requirements.

Standards:

- All welding to the system components is in accordance with EN 15085 CL-2
- Fire safety in accordance with EN 45545-2
- Electromagnetic compatibility 94/54/EC

Environmental testing:

- Vibration: broadband random guidance IEC 60068-2-64:2008
- Shock: guidance IEC 60068-2-27:2008
- Test spec: IEC 61373-2010 Railway applications – rolling shock and vibration tests



Technical Description

Wiper Drive Unit

The WDU consists of a electric motor (85 Nm/24VDC/IP23) built in an aluminum frame with distance corner movement to allow the drive of linkage system with shafts for a pantograph wiper arm (1200 mm) and a 1100 mm wiper blade.

The wiping pattern will be achieved with a multi spindle system. All components of the spindle sets are 304 stainless steel. Wiping arc is 70 degrees.

The system contains of durable components to reduce maintenance activities to a minimum.

Wiper arms and blades:

The stainless steel (304), 16 mm box section, wiper arms is cranked to obtain the requested wiping area. The arms are fitted with brass heads to provide a maximum fitting onto the spine shaft of the WDU.

The wiper arm is treated and coating is standard black matt powder coating. The material base is SS 304. With special surface treatment procedure the paint is resistant to weather end mechanical impact to ensure a long life. The end of the wiper arm is equipped with multiple spray jets.

The Exalto wiper blades have proven a durable life and high performance under a variety of circumstances. The base backing of the blade is of 316 stainless steel