

CASE STUDY

# Project Glasgow SPT United Kingdom

CLEARLY  
THE BEST



## Stadler, Glasgow, United Kingdom

**SPT has ordered 17 new metro trains in March 2016 as part of the Glasgow subway system modernization program from Stadler.**

Glasgow Subway is the third oldest metro system in the world. The opening of the Glasgow subway was in December 1896. Although the Victorian tunnels are very narrow in diameter.

Stadler has succeeded to build a compact vehicle that meets the needs of demanding passengers. The existing interior is optimally used and also offers space for wheelchairs. The interior is open and friendly. The newly developed bogie with air suspension contributes to a more comfortable driving experience.

The vehicles are fully automatic and driverless. The power is supplied via a third rail with 600 V DC. The vehicles are at a top speed of 58 km/h.

### **Wiper system characteristics:**

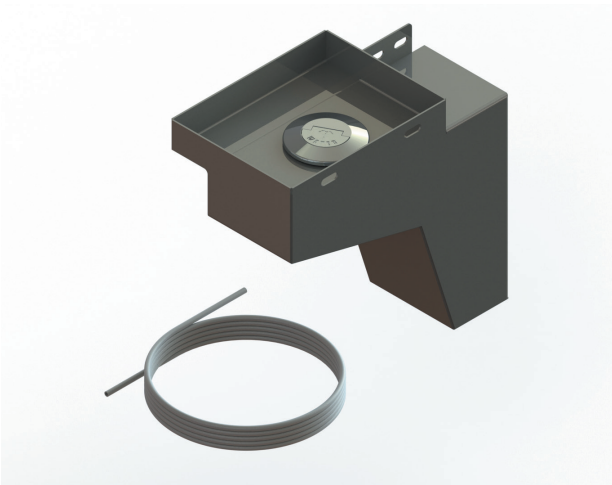
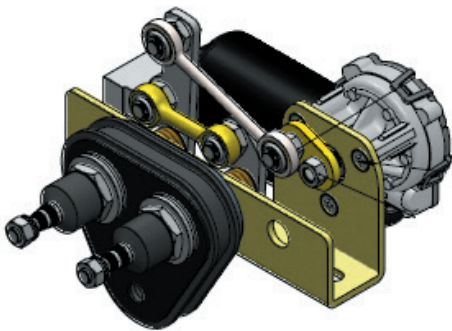
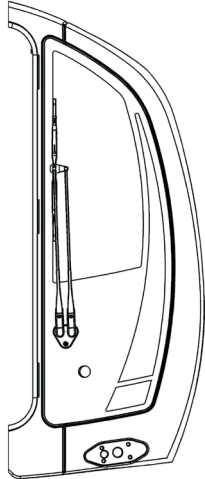
Because of very limited space in the front of the cabin and, the demand to integrate the wiper drive unit into the glass, Exalto designed a special glass fitting solution that will accepted the rest of the long list of requirements. Exalto already have a long experience with glass mounting of wiper motors in the marine industry. This expertise is utilized for this project. Together with 10 mm square wiper arm legs and, a 25 Nm/24VDC electric motor the system will fulfill the customers and local climate requirements. The 6 liter wash tank is specially designed to fit in the limited space available. The tank is equipped with a wash pump and a low level sensor.

### **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 stock – shock and vibration tests



## Technical Description

### Wiper Drive Unit

The WDU consists of a electric motor (25 Nm/24VDC/IP23) built in a steel galvanized housing. The rubber sealing block allows the glass fitting. This allows a force less drive of linkage system with shafts for a pantograph wiper arm (700 mm) and a 610 mm wiper blade. The wiping pattern will be achieved with a multi spindle system. Most components of the spindle sets are 304 stainless steel Wiping arc is only 30 degrees.

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

### Wiper arms and blades:

The stainless steel (304), 10 mm box section, wiper arm is straight 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

### Wash system:

Exalto will provide a 304 stainless steel liquid tank (6 liter) with a mechanical level indicator and a 24VDC pump. The liquid detergent replenishment shall be made easily feasible from the cab interior or from the outside.

Hoses will be provided to connect the liquid tank with the spray jets on the wiper arms. All return valves and bulkhead fittings are included. Water tanks can be designed for the perfect fit in the train.