

HYDRAULIC UNIT (**Application: Electric Bus**) 液压单元(应用：电动客车)

Front steering 前转向

This document describes the technical requirements applicable to front steering gear power pack for a **12m long** electrical bus. The bus is designed to run ~200km per day (18 hours of operation) for 365 days a year.

Quantity: 100, 200, 300 and 400/year

Please note that Detailed Technical Purchase specification will be provided later.

General requirements:

1. Characteristics

- a. The maximal pressure will be 170 bars at a maximal oil flow of 25L/min.
- b. The nominal pressure is 110 bars at 20 L/min.
- c. The 170 bars have to be reachable for a short period (few seconds).

2. Oil

- a. The unit will operate with any TE-ML 09 oil.
- b. Actually, they use TOTAL XLD FE

3. Filtering

- a. A return line filter, at least 40 μm (absolute, according to ISO 4548-12), with a max 2 bar bypass
- b. Any other filter adapted to the proposed solution

4. Monitoring

- a. Electrical box monitoring: 1 control system 100°C per box, in serial, with a Deutsch DT series interface.
- b. Low oil level: The unit has no visual access, so the oil level control will be electric to prevent any pump damage and give the information to the driver. A solution could be to use a ZF or Bosch type 7632 with electrical oil level indicator and transparent reservoir top.

5. Body Movements : The unit will be capable of operating on a slope of 10° (with $\pm 1\text{g}$ longitudinal dynamic) and for a roll angle of 30° (equivalent to $\pm 0.5\text{g}$ lateral dynamic).

6. Position : The unit will be placed under the carbody, in front of the front axle.

7. Electrical requirement : The equipment will fulfil the ECE R100 & ECE R10

8. Filling / Draining : Filling and draining of the unit will be operated without any oil contact for the operator. During such manipulation, the oil level will be easily checked.

9. Form Factor : Length: 325 mm / Width: 530 mm / Height: 360 mm

10. Electrical Interfaces

a. Power : 490 – 800 V DC

b. Command : 18 – 32 V DC

11. Communication / automatisms : Commands can be done electrically or by CAN. In case of CAN, system will be able to use protocol CAN J1939 with 250kbits/s speed (this speed could be configurable at 500kbits/s).

12. Noise level : 65 dbA max

13. Climatic conditions

a. Usage: -25°C / +50°C

b. Storage: -30°C / +55°C

14. Reliability : The target MTBF is $3,50 \cdot 10^{-6}$ per equipment.

15. Availability : The target MTBFS is $3,15 \cdot 10^{-6}$ per equipment.

16. Safety : ASIL QM

17. Lifespan : 10 years