Frame Mounting of TEBS E Modulators

To ensure safe and correct operation, please note the following requirements when installing TEBS E.

Read the TEBS E system description (chapter 8.3 ff. and chapter 3). Find your language versions: en, de, fr, es, it, nl, sv, tr

1. You will find further information in the outline drawing of the respective modulator (using the part number from the product catalogue INFORM on the web) as well as document 4801020890

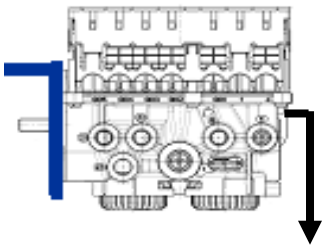
General requirements

- Only frame mounting of the TEBS E is allowed. We recommend the use of a cross beam that is welded or bolted directly to the longitudinal steel beams. Use a sufficiently sized U-section, angle section, or a suitable reinforced member that is at least 4 mm thick (applies to steel sections).
- The contact surface for assembly must be larger than the flange surface of the modulator.
- Washers or spring lock washers are only permitted directly under the nut. The tightening torque of the nuts is 85 Nm.
- The installation direction can either be in or against the driving direction (stud bolts of TEBS E point towards direction of travel).
- The installation position must be chosen so that the modulator is protected against stone impact.
- Install the modulator in a manner that ensures it can not be used as a tread or to deposit any weight on it, or apply appropriate protective equipment.
- The modulator must not be installed in the vicinity of heat radiation or hot air.
- To comply with the requirements relating to electrostatic discharge (ESD), please follow the instructions in chapter 3 of the TEBS E system description.

Fatigue test

This test can be used to assess the stability of the mounting construction. This is done using a static weight temporarily loaded to the modulator.

- Mount the TEBS E modulator at the desired position.
- Screw a piece of pipe or a coupling into port 1 of the modulator that you can use as a hook.
- Measure the height of the hook in relation to the frame.
- Carefully hang 80kg weight onto the hook.
- Measure the deflection by comparing the original height of the hook to the height to which it now adjusts itself. .



80 kg

Result

Deflection < 2.5 ... 4 mm = OK.
Deflection > 4 mm = construction too weak, not acceptable.

An excessive deflection result in intense vibration while driving with the risk of damaging the system.

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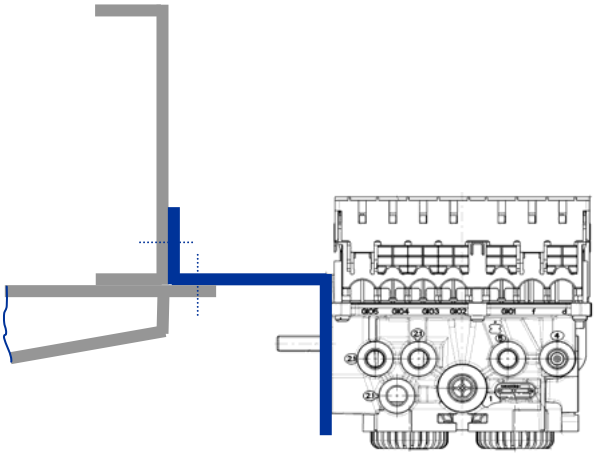
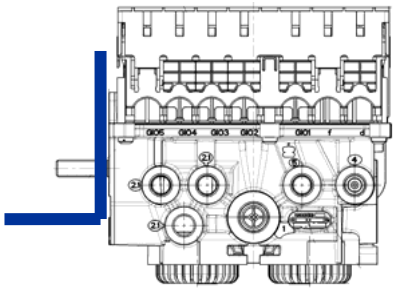
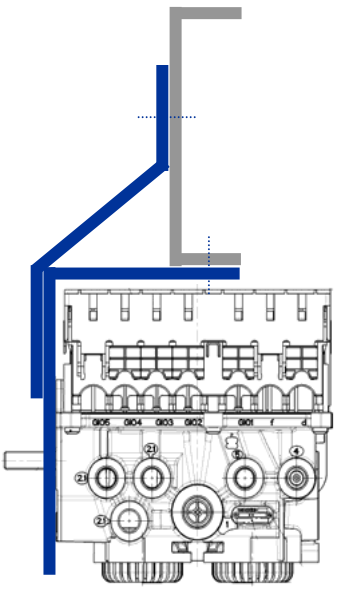
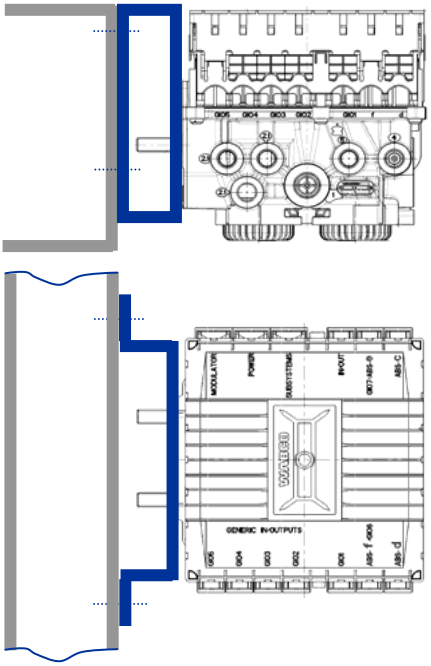
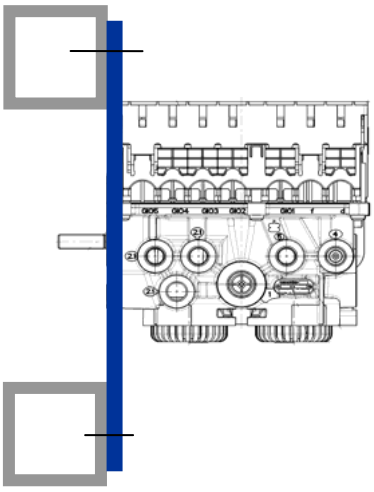
Experience with different concepts for fastening the TEBS E

Design	Specification	Test result
	5 mm thickness of sheet	Deflection during tensile test > 4mm High vibration levels between modulator and fastenings ✗
	5 mm thickness of sheet	Deflection during tensile test > 4mm High vibration levels between modulator and fastenings ✗
	5 mm thickness of sheet Lower vibration levels on fastenings	Deflection during tensile test ≈ 2mm ✓

	6 mm thickness of sheet	Deflection during tensile test < 1mm ✔
	8 mm thickness of sheet metal fastenings on two cross frames	No deflection ✔