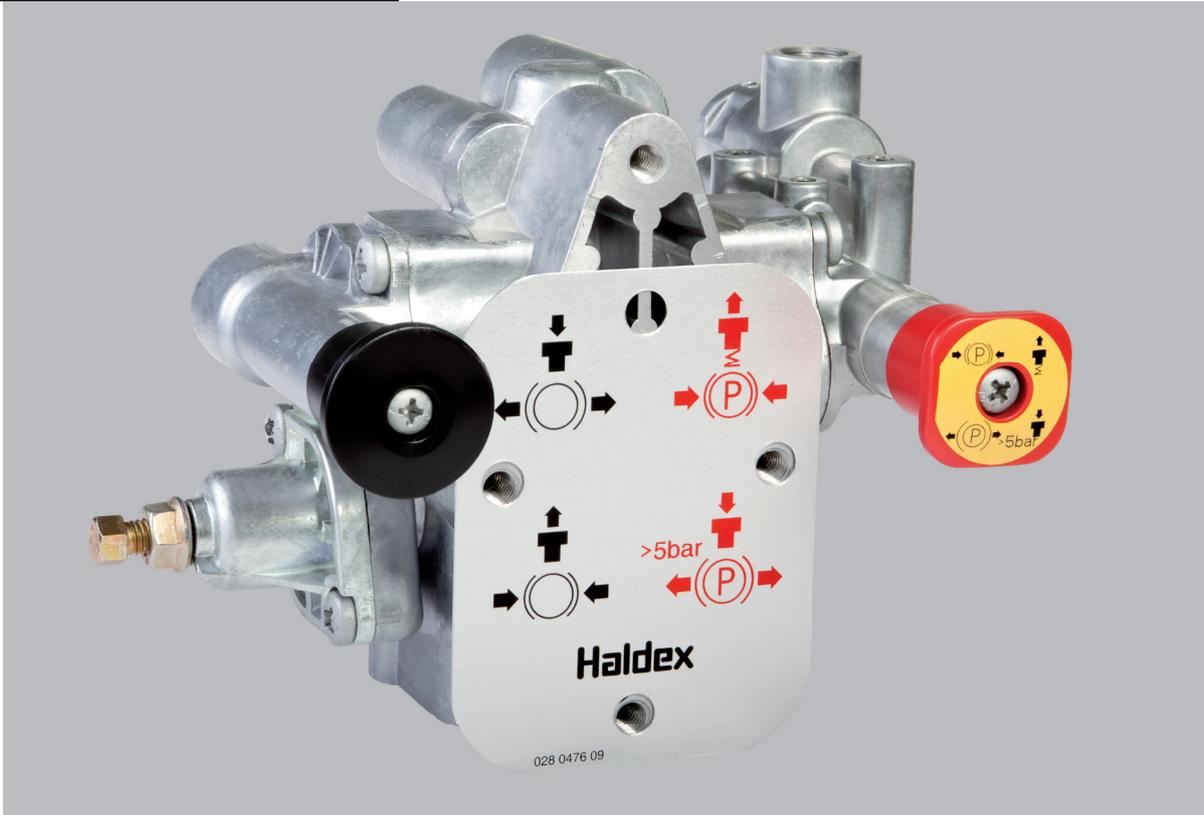


Installation Instructions

352 067 ...

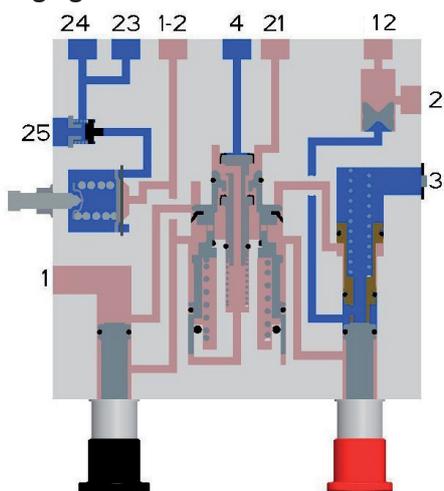
02/10



Installation Instructions for **TRCM+**

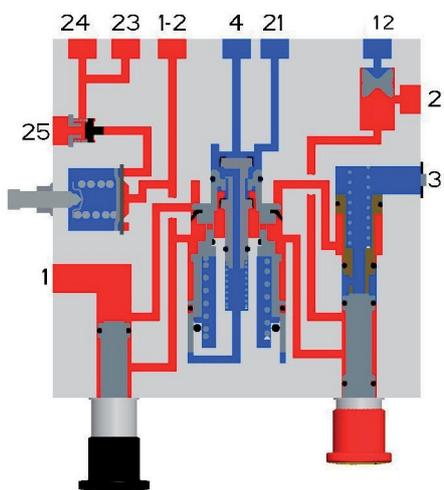
Initial charging

1



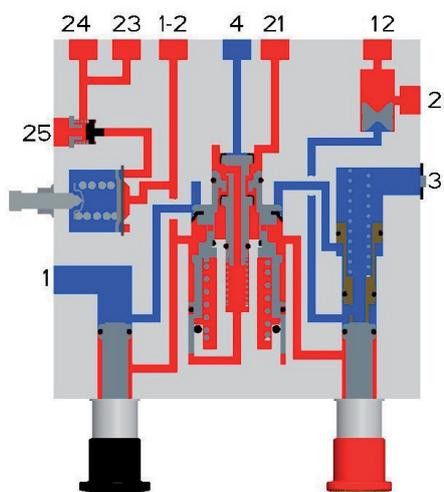
Pressure rise approx. 6.2 bar

2



Emergency braking

3



Warning - Danger!

There must not be anybody in the hazardous area when coupling or uncoupling.

Use

Parking and manoeuvring valve with integrated emergency braking valve for the service brake system, as well as a pressure protection valve for auxiliary devices (e.g. air suspension) for twin-line air brake equipment in trailer vehicles. The TrCM+ has a flange-fitted shunt valve and a parking valve for the service brake and the spring brake. „Parking Hold“ is a new, additional function, whose effect is that, when coupling, although the service brake releases, the spring brake cylinders enter/stay in the braking position.

Before starting the journey, the spring brake cylinder must be released manually using the parking valve. In particular, the Trailer Control Module+ satisfies the requirements of EEC Braking Systems Directive 71/320 and ECE Regulation R 13.

Method of Operation 1, 2, 3, 4, 5, 6

Supply line coupled 1, 2

When the supply line is connected, the supply pressure provided by the tractor is available to the braking system in full, the service brake is released and the spring brakes are operating. When the overflow pressure is exceeded, supply pressure is also available to the auxiliary devices.

Brake air pipes coupled 2,5

When pressure is introduced through the service coupling, the pressure is passed on to port 21 through control port 4 without reduction (no relay effect).

Actuation of parking brake 5, 6

When the parking valve (red button) is pulled, the spring brake unit at port 2 is connected to the exhaust port 3. The pressure in the spring brake unit therefore falls, and the parking brake is applied.

When the parking valve (red button) is pushed, the spring brake system at port 12 is connected to the air supply reservoir, ports 1-2. The pressure in the spring brake system therefore rises, and the parking brake is released again.

The parking brake system must always be released manually after uncoupling. The release can, however, only be effected when a pressure of at least 5.0 bar is available in the supply reservoir.

Release device for service braking system 3, 4

The shunt valve makes it possible to release the automatic braking („emergency braking“) that is triggered when the supply line is disconnected (cf. EG-RL, Annex I, Paragraph 2.2.2.11 or ECE-R13, Paragraph 5.2.2.11). The automatic braking of the service braking system is cancelled when the shunt valve (black button) is pressed (with the supply line / brake line uncoupled). This is done by separating the connection between port 21 and port 1-2, while establishing a (exhausted) connection from port 4 to port 21. When the supply line is reconnected and compressed air is applied, the shunt valve automatically switches back into the normal operating position.

Manoeuvring operation 4

In order to manoeuvre the uncoupled vehicle, both the operating knobs, black service braking system and red spring braking system, must be pressed. Only this ensures that the service braking system / spring braking system are released and that the vehicle is not braked. The parking valve must be pulled again when the manoeuvring process is complete.

**Loss of pressure in the supply line
Effect on the service braking system 3**

If the pressure in the supply line falls by at least 1 bar per second, the automatic brakes of the trailer vehicle will come on before the pressure in the supply line falls to 2 bar. This establishes a direct connection between the supply reservoir (port 1-2) and port 21. An automatic braking is carried out by the service brake unit, and ABS remains in operable condition.

Effect on the service braking system supply reservoir and the auxiliary devices

If the supply line (red coupling head) is pulled off, loss of supply air from the trailer vehicle's supply reservoir and the auxiliary devices is prevented by the integrated low pressure check valve.

Effect on the spring braking system 3

The parking valve is pushed out automatically when the spring braking system is released (red button pressed); the parking braking actuator is kept released through the integrated 2-way valve.

As a result, the pressure at ports 21, 2 and 1-2 is the same. If the pressure in the supply reservoir falls further, ports 21 and 2 are vented at the same time; this automatically activates the spring braking system and in that way prevents the trailer vehicle from rolling away.

Pressure loss in the auxiliary devices, effect on the service braking system* supply reservoir

If pressure is lost through an auxiliary device, a "safety pressure" is maintained in the supply reservoir of the service brake equipment by the integrated pressure protection valve.

Applying pressure through the service coupling, supply reservoir not coupled

If pressure is introduced through the service coupling (e.g. when the tractor vehicle's parking brake is active) the braking supply reservoir (and therefore the auxiliary devices as well) are filled with a pressure that is reduced by the overflow loss.

Filling the auxiliary devices depends on reaching the pressure at which the integrated pressure protection valve will open.

As a result of this, a braking system that is empty or only partially pressurised is charged even before the palm coupling supply is connected.

Fitting guidelines

The TrCM+ should be attached to the vehicle chassis through its mounting flange, using two or three M8 screws and spacing washers, tightened to a maximum torque of 15 NM. The maximum tightening torque for the threaded bushings is 34 NM.

The 028 04777 09 10 function plate must be attached to a visible area near the palm coupling.

Ensure that the operating equipment is easily accessible.

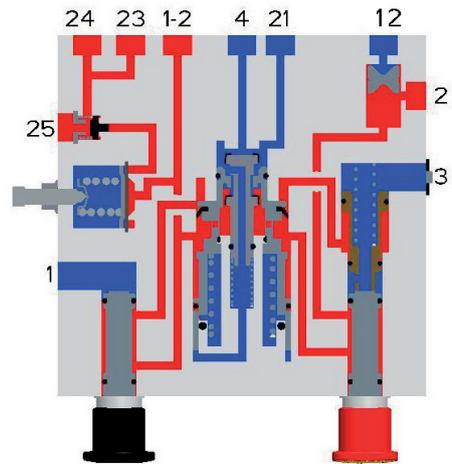
Ports that are not needed must be closed off.

When painting, the valve openings must be protected to prevent paint penetration.

Refer to the respective manufacturer's instructions for the screwed/push-in fittings.

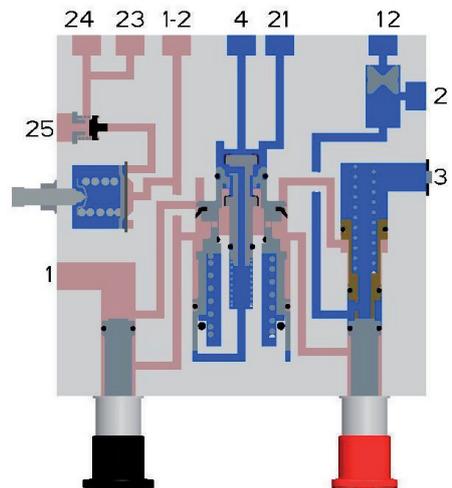
Manoeuvring when uncoupled

4



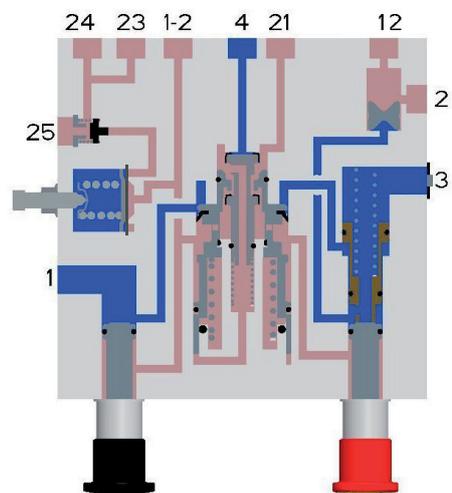
Activating the parking brake when coupled

5



Releasing the parking brake when uncoupled

6

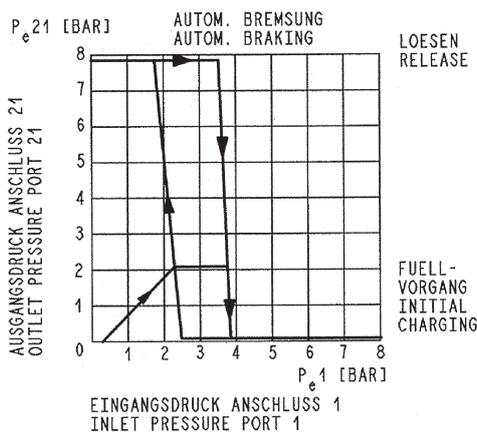


Warning - Danger!

Before starting the journey, the spring brake cylinder must be released manually using the parking valve.

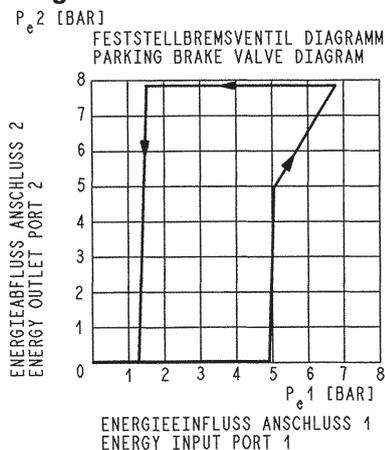
Function diagram

7



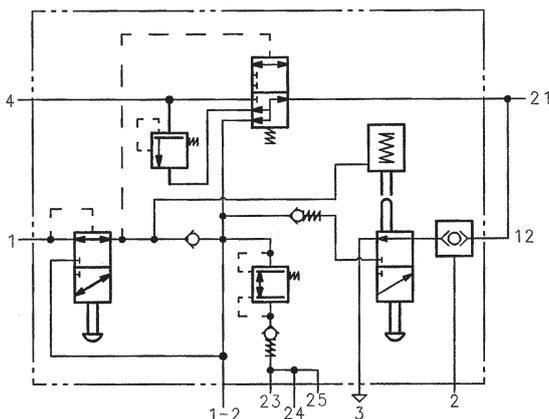
Function diagram

8



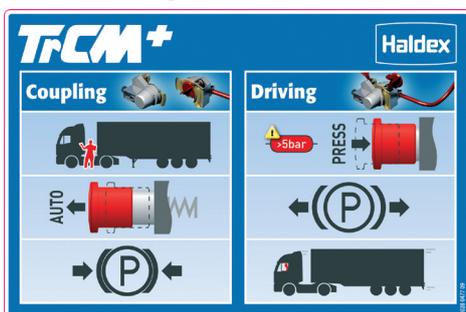
DIN ISO 1219 function symbol

9



028 0477 09 Function plate

10



Technical data

Operating pressure	$p_e = 10 \text{ bar}$
Operating temperature	$-40^\circ\text{C} - +70^\circ\text{C}$
Medium	Air
Weight	approx. 1.7 kg
Pneumatic Ports	6 x M 16 x 1.5 1 x M 22 x 1.5 / 1 x M 12 x 1.5
Pressure protection valve	DIN 74279-C 6-22
Opening pressure	$p_e = \text{approx. } 6.2 \text{ bar}$
Closing pressure	$p_e = \text{approx. } 5.2 \text{ bar}$

Port designations

- 1 = Inlet port (coupling head supply line)
- 1-2 = inlet/delivery port (reservoir)
- 3 = exhaust (spring brake actuator)
- 4 = control port (service coupling)
- 21 = delivery port (EBS/ABS)
- 12 = delivery port (2-way valve)
- 2 = delivery port (spring brake actuator)
- 23, 24, 25 = delivery port (pressure protection valve)

Check 7,8

Check the TrCM+ for tightness and proper functions as described below.

1. System without pressure

Shunt valve (black button) must be pushed in (securing the trailer vehicle previous to this test), parking valve (red button) automatically pushed out.

2. Initial charging

Apply pressure to port 1; the shunt valve (black button) must go into the operating position (jump out). The parking valve (red button) remains pushed out.

3. Automatic emergency braking

Lower the pressure at Port 1 to 0 bar; the port 21 emergency braking must activate automatically.

4. Pressure protection valve

Instructions for adjustment may be found in the fitting instructions, order no.: 000 314 012.

5. Parking brake valve (red button)

Apply pressure to port 1. Parking valve (red button) automatically pushed out, push the parking valve (red button) in, at least 5.0 bar in the supply reservoir, pull the parking valve (red button), port 2 (spring brake system) must vent down to 0 bar, vehicle braked.

Maintenance

According to legal registering country requirements or the statutory regulations of § 29 StVZO. If defects are discovered, either during examination of the vehicle or when travelling, the valve must be replaced.

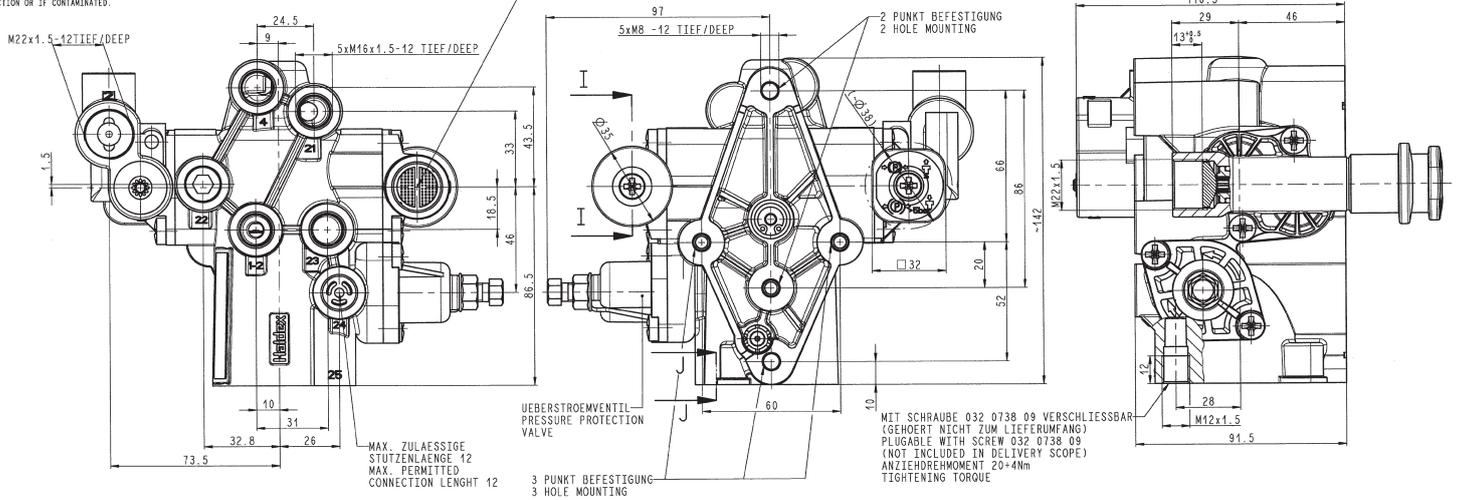
The cage filter 029 0004 09 in Port 1 is to be exchanged when soiled or damaged.

Versions

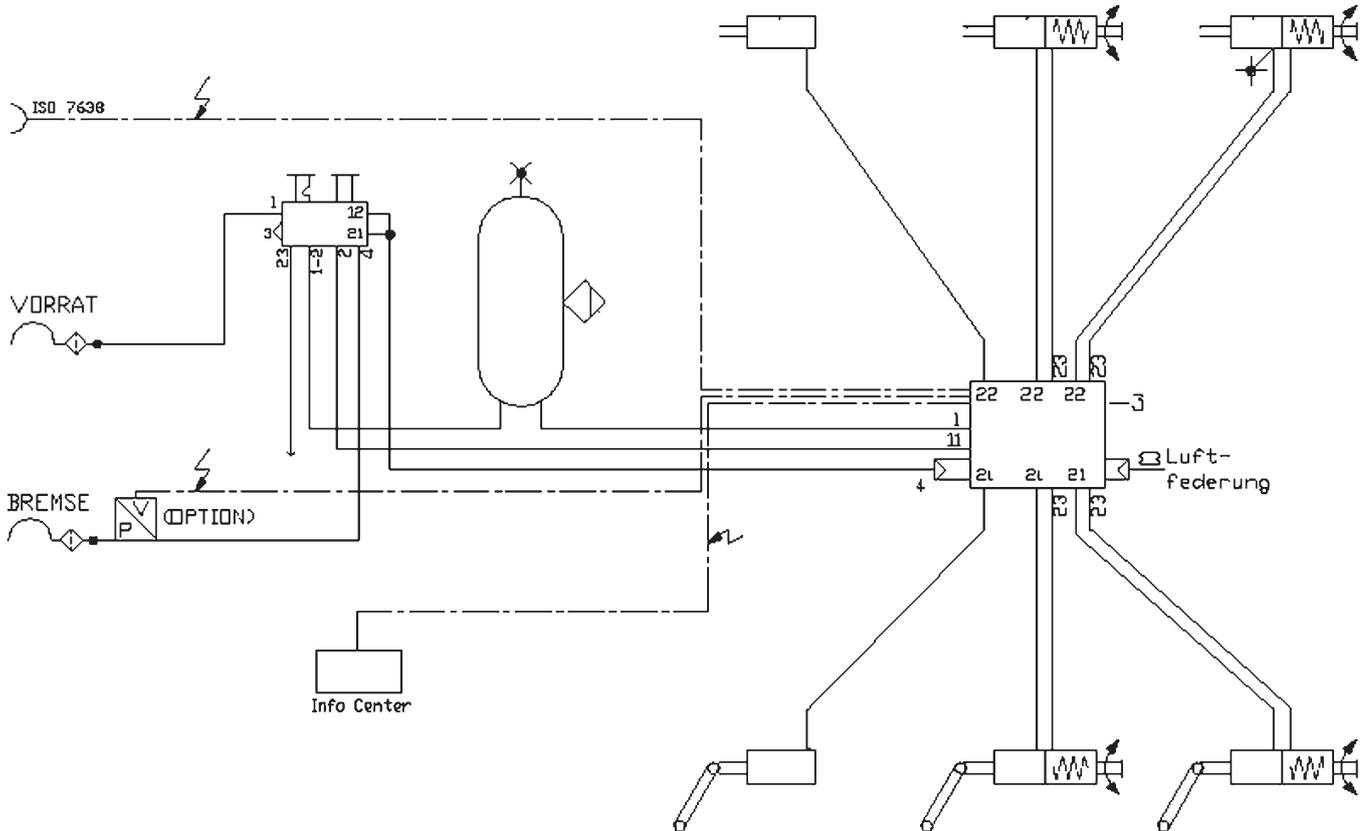
- 352 067 ...** With instruction plate, with pressure protection valve
- 352 067 ...** With instruction plate, without pressure protection valve
- 028 0476 09** Instruction plate
- 028 0477 09** Function plate

Mounting drawing 352 067 ...

SERVICE:
 VORFILTER BESTELL-NR.: 029 0004 09 IN ANSCHLUSS 1, IST IM RAHMEN DER SP UND SONSTIGEN
 FAHRZEUGUNTERSUCHUNGEN ODER BEI VERSCHMUTZUNGEN AUSZUTAUSCHEN.
 FILTER INSERT PART-NO.: 029 0004 09 IN PORT 4, HAS TO BE REPLACED DURING THE VEHICLE
 INSPECTION OR IF CONTAMINATED.



Schematic mounting diagram (example)



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Haldex is listed on the Stockholm Stock Exchange. Haldex has a yearly turnover of close to 8.5 billion SEK and employs 4,700 people.

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