

# HBL PARK BRAKE LEVER



## PRODUCT OVERVIEW

Manual valve controlled by a lever which manages the park parking braking function. This valve allows the pressure to fall to the contact point of brake discs within the first few degrees of rotation of the lever, the subsequent stroke of the lever is used to modulate the pressure to the parking brakes until fully engaged.

This valve is peculiarly suitable for vehicle working in: agriculture&forestry, material handling, construction, mining and special vehicles.

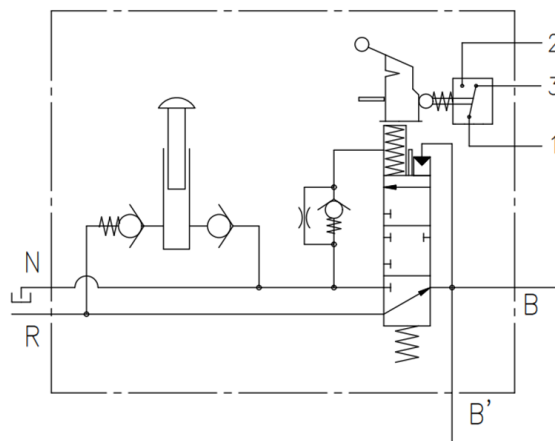
## FEATURES

- | Powered by vehicle's existing hydraulic circuit
- | Park brake pressure from 20 to 180 bar
- | Maximum inlet pressure 225 bar
- | Proportional application of the realising pressure

## OPTIONS

- | Available with built-in hand pump for SAHR manual releasing
- | Pressure switch

## HYDRAULIC SCHEME



# S6EK NEGATIVE POWER BRAKE VALVE



## PRODUCT OVERVIEW

S6EK is a reverse modulating power brake valve used in negative braking systems for the controlled actuation of a SAHR service brake. When the valve is actuated by Pedal or Pilot, the brake pressure at the brake is decreased to actuate the brake. 5 pressure configurations. Standard pedal angle 40°, adjustable between 25° and 50° in 5° increments. Total pedal stroke of 18°. Maximum Working Pressure allowed: 225 bar (3261 psi). The Kiss-point pressure range is from 55bar (798 psi) to 151bar (2190 psi). Pedal force with standard pedal starting from release position is between 250 N at 85 bar (1232 psi) and 440N at 200 bar (2901 psi).

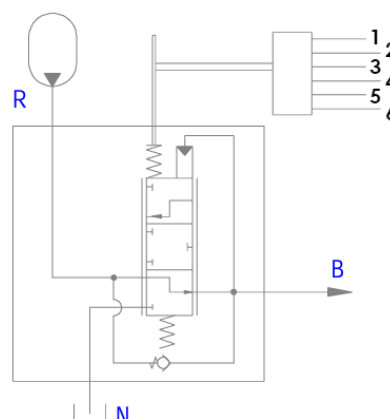
## FEATURES

- | Designed for Off-Highway applications including Mining and Earth-Moving
- | Robust design for extreme working conditions
- | Poppet design for zero leakage
- | HIGH flow rate of 100L/min from brake to tank
- | Smooth and stable brake modulation during actuation
- | Increased modulation between kiss-point and max braking pressure
- | Brake pressure curve is customizable to the application
- Balanced pedal feel
- | Customizable Pedal and Base assembly

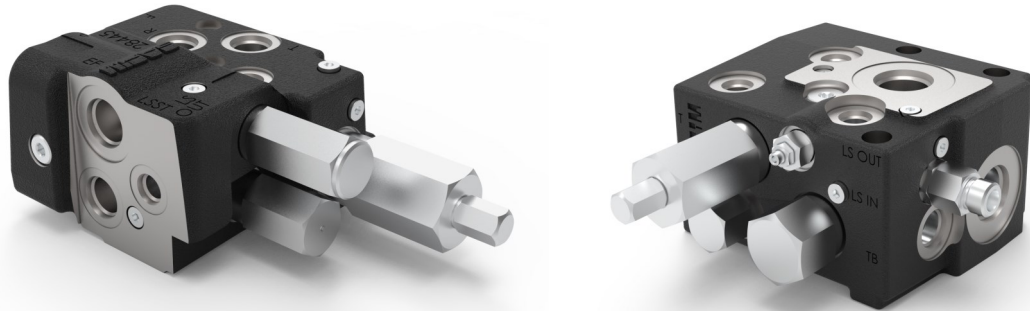
## OPTIONS

- | Mechanical actuation (pedal, push-rod or plunger)
- | Hydraulic Pilot actuation
- | Vertical floor mount or horizontal firewall mount with or without latch for parking and/or service braking
- | Optional Hall Effect Position Sensor available
- | Primer or high heat resistant paint
- | Multiple stage brake pressure curves available
- | Various pedal force options available

## HYDRAULIC SCHEME



# MPV-IL MASTER PRIORITY VALVES



## PRODUCT OVERVIEW

The master priority valve has been designed to deliver pump flow to 3 or more different functions with steering being the first priority, as well as service braking, and excess flow for auxiliary circuits, with low pressure drop on the feeding line.

Applications include: agriculture&forestry, material handling, construction, mining and special vehicles.

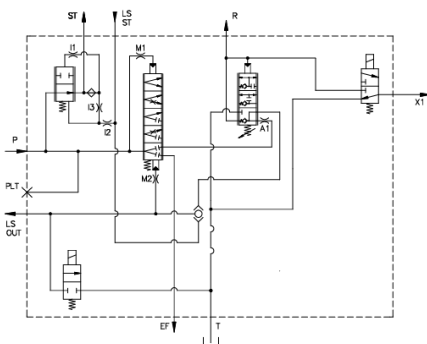
## FEATURES

- | Prioritizes machine applications in a preset order
- | Energy efficient
- | Steering load sensing signal dynamic and static

## OPTIONS

- | Trailer brake valve feeding line
- | Solenoid valve for parking brake
- | Solenoid valve for start unloading
- | Emergency steering accumulator
- | In line mounting and flanged mounted
- | Park braking with/without pressure reducing valve on the braking circuit
- | Maximum inlet pressure 250 bar
- | Available solutions with feed flow rate:
  - 80 lpm and feeding pressure 250 bar
  - 160 lpm and feeding pressure 320 bar
  - 250 lpm and feeding pressure 350 bar

## HYDRAULIC SCHEME



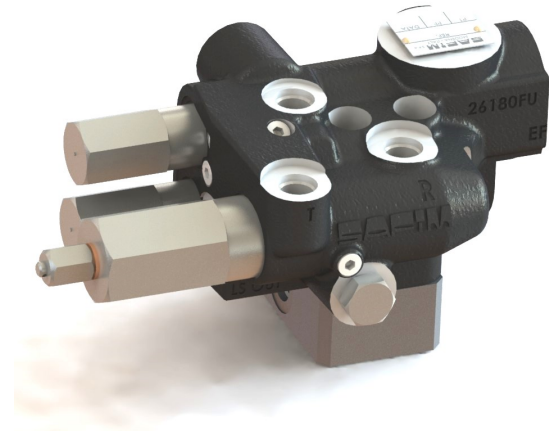
Safim S.r.L

Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

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# MPV-FL MASTER PRIORITY VALVES



## PRODUCT OVERVIEW

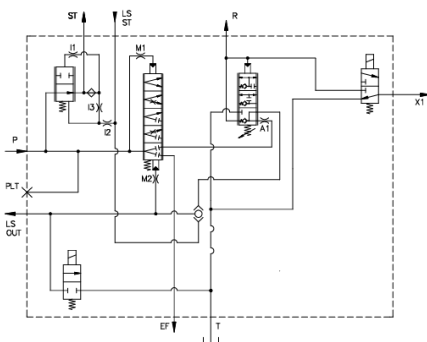
The master priority valve has been designed to deliver pump flow to 3 or more different functions with steering being the first priority, as well as service braking, and excess flow for auxiliary circuits, with low pressure drop on the feeding line.

Applications include: agriculture&forestry, material handling, construction, mining and special vehicles.

## FEATURES

- | Prioritizes machine applications in a preset order
- | Energy efficient
- | Steering load sensing signal dynamic and static

## HYDRAULIC SCHEME



## OPTIONS

- | Trailer brake valve feeding line
- | Solenoid valve for parking brake
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Safim S.r.L

Via D. Livingstone 6  
41123 Modena—Italy  
T. +39 059 894411

info@safim.it | www.safim.it

# MC-D MASTER CYLINDER DIRECT BORE WITH SENSOR



## PRODUCT OVERVIEW

The master cylinder converts force applied on pedal brake or push rod into hydraulic pressure, that assists in the braking of a vehicle. An integrated electrical position sensor provides a signal proportional the stroke of the piston.

Applications Include: agriculture&forestry, material handling, construction, mining and special vehicles.

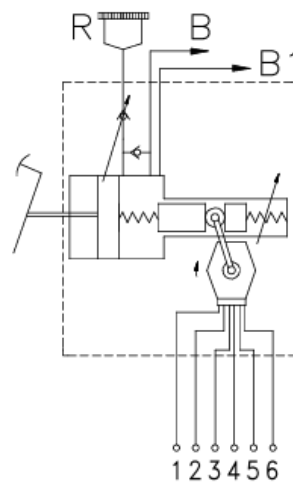
## FEATURES

- | Progressive braking
- | Compact dimensions

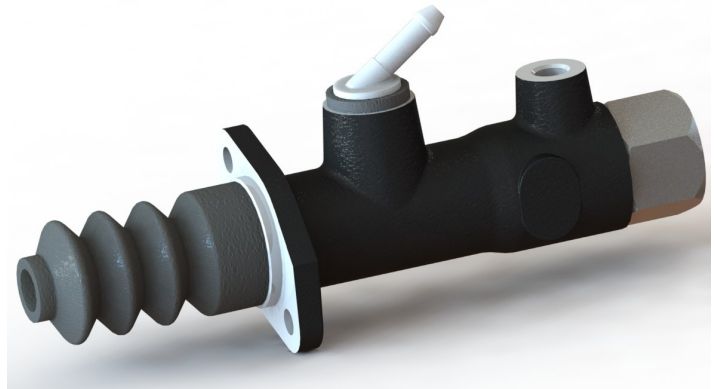
## OPTIONS

- | Available with pedal support
- | Various pedal force options

## HYDRAULIC SCHEME



# MC-SB MASTER CYLINDER



## PRODUCT OVERVIEW

The Step-Bore master cylinder generate higher brake pressure with less pedal effort vs. straight bore master cylinders without the aid of a hydraulic booster.

Application include: agriculture&forestry, material handling, construction, mining and special vehicles.

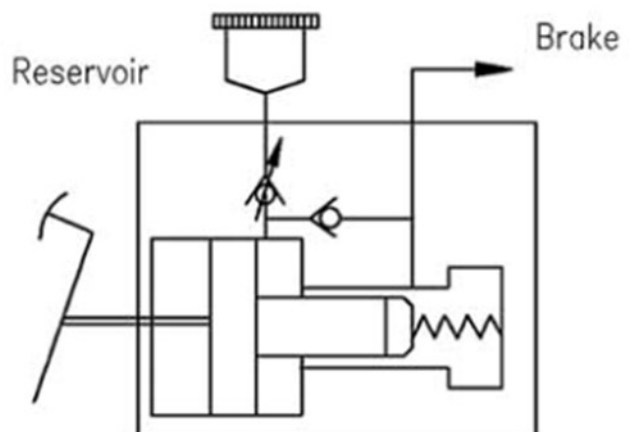
## FEATURES

- | Larger displacement with respect straight bore master cylinder
- | Compact dimensions
- | Large bore for brake fill, and a small bore to generate higher pressure
- | Achieve higher brake pressure without hydraulic booster

## OPTIONS

- | Available with pedal support
- | Various pedal force options

## HYDRAULIC SCHEME



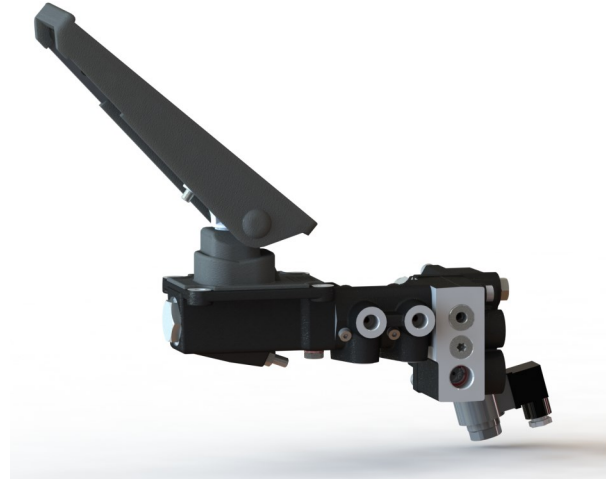
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Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

# S6M S6 BRAKE SYSTEM



## PRODUCT OVERVIEW

S6M is a compact assembly with all brake components grouped together in a single, modular, easy-to-adjust unit. The S6 is suitable for any type or size of vehicle.

Application include: agriculture&forestry, material handling, construction, mining and special vehicles.

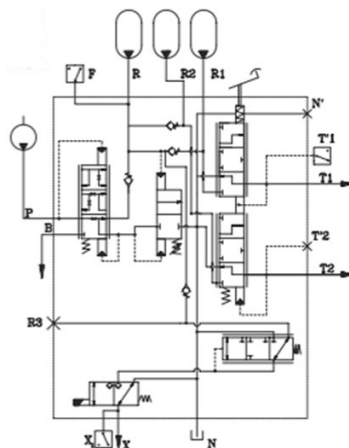
## FEATURES

- | A single, compact unit
- | Positive, progressive braking
- | Powered by vehicle's existing hydraulic circuit
- | Service brake pressure 20 to 180 bar
- | Maximum inlet pressure 225 bar
- | Pressure differentials between brakes
- | For use with both negative and positive brakes
- | Accumulator charging valve
- | Modular assembly
- | Easy to adjust
- | Low in maintenance

## OPTIONS

- | Available in horizontal or vertical versions
- | Adjustable pedal angle
- | Pedal support orientation
- | Vertical floor mount or horizontal firewall mount with or without latch for parking and/or service braking
- | Available with electric angle sensor
- | Multiple stage brake pressure curves available
- | Various pedal force options available

## HYDRAULIC SCHEME



# S6M-EH S6 BRAKE SYSTEM



## PRODUCT OVERVIEW

S6EH brake valves provide hydraulic service pressure to the brakes with the assistance of an existing hydraulic source already on the vehicle to modulate the brake pressure and volume for a smooth and controlled stop; the valve can also be piloted by integrated electro-hydraulic control for additional control options.

Application include: agriculture&forestry, material handling, construction, mining and special vehicles.

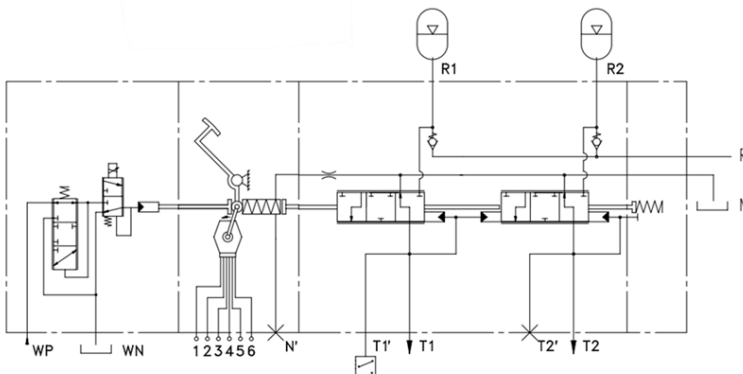
## FEATURES

- | Low hysteresis service brake pressure due to proportional valve Brake-by-Wire application
- | Built-in pressure reducing valve for the proportional valve feeding
- | Modular assembly, available with multiple configuration
- | Easy to adjust
- | Low in maintenance
- | Maximum inlet pressure 225 bar
- | Service brake pressure 20 bar to 170 bar

## OPTIONS

- | Horizontal & firewall installation
- | Adjustable pedal angle
- | Pedal support orientation
- | Available with electric sensor monitoring Brake-by-Wire loading
- | Multiple stage brake pressure curves available
- | Various pedal force options available
- | Pressure differentials between brakes circuits
- | Accumulator charging valve

## HYDRAULIC SCHEME



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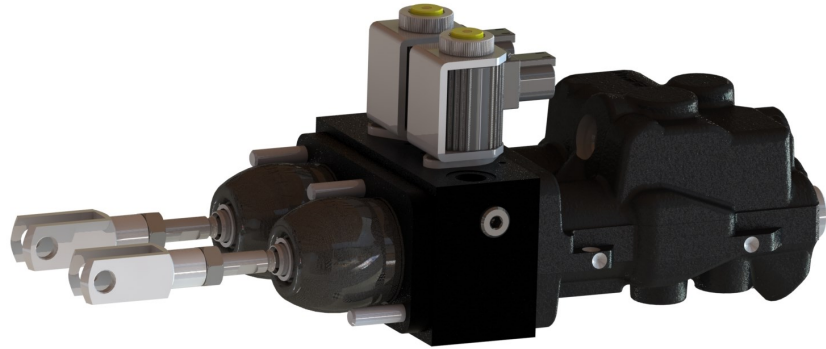
T. +39 059 894411

info@safim.it | www.safim.it



# S6T-EHS

## S6T BRAKE SYSTEM



### PRODUCT OVERVIEW

S6T valves are designed for brake assist steering with a single axle using single pedal or alternatively, all the 4 wheels of the vehicle using both pedals; electro-hydraulic piloting module can be added as an option for additional control.

Application include: agriculture&forestry, special vehicles.

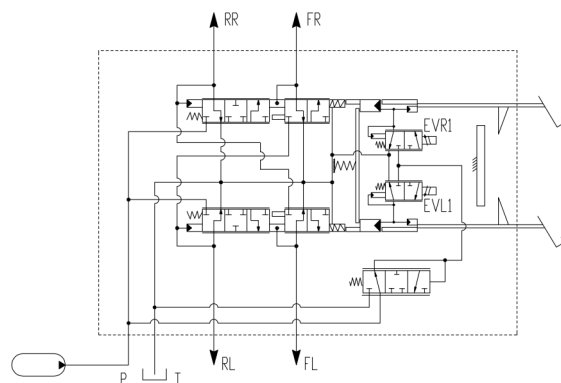
### FEATURES

- | Low hysteresis service brake due to proportional valve Brake-by-Wire application
- | Built-in pressure reducing valve for the proportional valve feeding
- | Positive, progressive braking
- | Low in maintenance
- | Maximum inlet pressure 225 bar
- | Service brake pressure 40 bar to 220 bar

### OPTIONS

- | Multiple stage brake pressure curves available
- | Various push rod options available

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Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

# S6T

## S6T BRAKE SYSTEM



### PRODUCT OVERVIEW

S6T valves are designed for brake assist steering with a single axle using single pedal or alternatively, all the 4 wheels of the vehicle using both pedals.

Application include: agriculture&forestry, special vehicles.

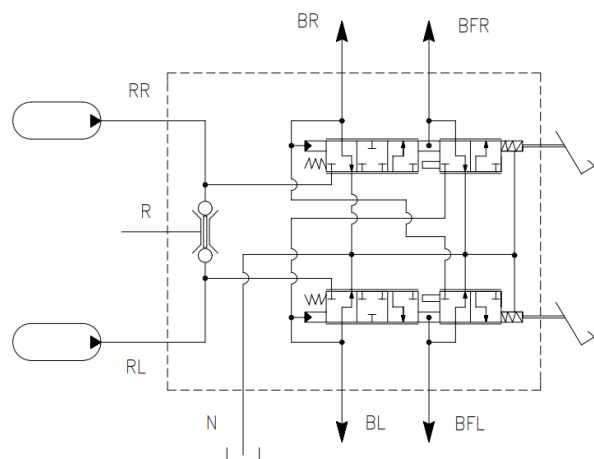
### FEATURES

- | Progressive service brake due to proportional valve Brake-by-Wire application
- | Positive, progressive braking
- | Low in maintenance
- | Maximum inlet pressure 225 bar
- | Service brake pressure 40 bar to 220 bar

### OPTIONS

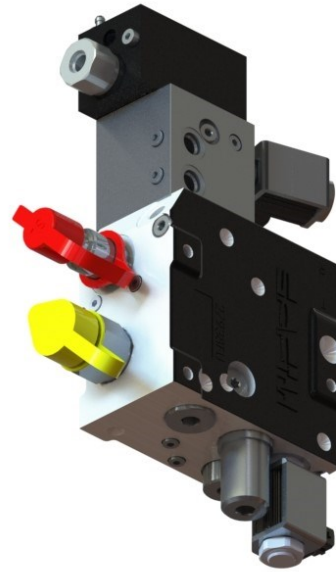
- | Multiple stage brake pressure curves available
- | Various push rod options available

### HYDRAULIC SCHEME



# TBU-P

## Trailer Brake Unit Valve



### PRODUCT OVERVIEW

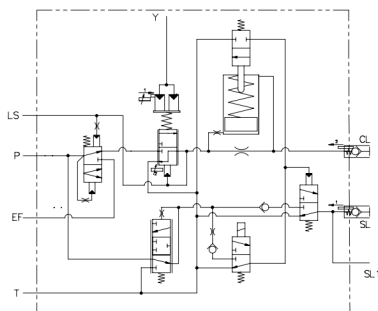
The trailer brake unit is a device that controls the trailer braking proportional to the tractor service brakes in compliance with standard EU 2015/68. The Dual Line Trailer Brake Unit provides complete control of the Control Line and/or the Supplementary Line in RVBR tractors. They can easily be installed in existing hydraulic systems, can be mounted in-line or flanged to the existing valve stack.

Application include: agriculture&forestry, material handling.

### FEATURES

- | Controls the positive and the negative brakes of trailers in compliance with EU 2015/68
- | Powered by vehicle's existing hydraulic circuit
- | Compact dimensions
- | Able to operate with single line service brake
- | Maximum inlet pressure 220 bar
- | Service brake pressure 0 to 150 bar
- | Safety functionalities required by EU 2015/68

### HYDRAULIC SCHEME



### OPTIONS

- | Load Sensing or Open Center hydraulic systems
- | Multiple installation location: rear of the tractor, between the control device, other tractor position
- | ADVANCE – valve device in-built that manage the tractor – trailer braking synchronization
- | SAHR device built-in which manages the parking brake of the trailer due tractor braking configuration
- | Possibility to command the trailer hydraulic brakes with the pneumatic service brakes of the vehicle
- | Available built-in device to avoid a dedicated feeding line to manage the emergency/parking brake of the tractor



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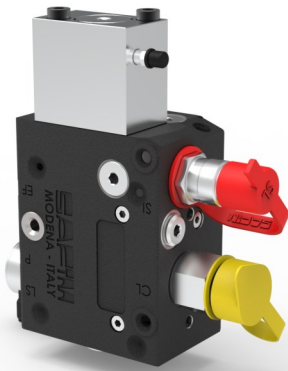
Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

# TBU-P | TBU-S

## Trailer Brake Unit Valve



### PRODUCT OVERVIEW

The trailer brake unit is a device that controls the trailer braking in synchrony with the tractor service brakes in compliance with standard EU 2015/68. The Dual Line Trailer Brake Unit provides complete control of the Control Line and/or the Supplementary Line in RVBR tractors. They can easily be installed in existing hydraulic systems, can be mounted in-line or flanged to the existing valve stack.

Application include: agriculture&forestry, material handling.

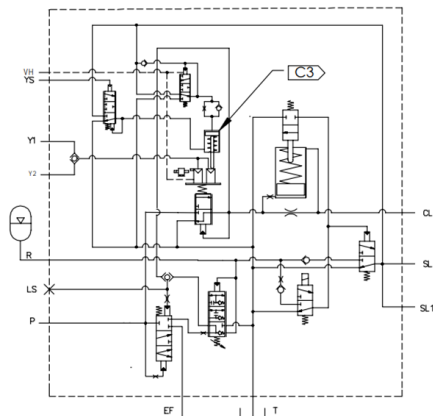
### FEATURES

- | Controls the positive and the negative brakes of trailers in compliance with EU 2015/68
- | Powered by vehicle's existing hydraulic circuit
- | Compact dimensions
- | Ready to connect trailers with single line service brake
- | Maximum inlet pressure 220 bar
- | Service brake pressure 0 to 150 bar
- | Safety functionalities required by EU 2015/68

### OPTIONS

- | Load Sensing or Open Center hydraulic systems
- | Multiple TBU installation locations :rear of the tractor, between the control device, other tractor position
- | ADVANCE – valve device in-built that manage the tractor – trailer braking synchronization
- | SAHR device built-in which manages the parking brake of the trailer due tractor braking configuration
- | Option to command the trailer hydraulic brakes with the pneumatic service brakes of the vehicle
- | Available built-in device to avoid a dedicated feeding line to manage the emergency/parking brake of the tractor

### HYDRAULIC SCHEME



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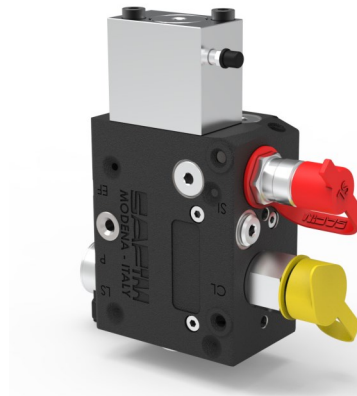
Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

# TBU-S

## Trailer Brake Unit Valve



### PRODUCT OVERVIEW

The trailer brake unit is a device that controls the trailer braking in synchrony with the tractor service brakes in compliance with standard EU 2015/68. The Dual Line Trailer Brake Unit provides complete control of the Control Line and/or the Supplementary Line in RVBR tractors. They can easily be installed in existing hydraulic systems, can be mounted in-line or flanged to the existing valve stack.

Applications include: agriculture&forestry, material handling

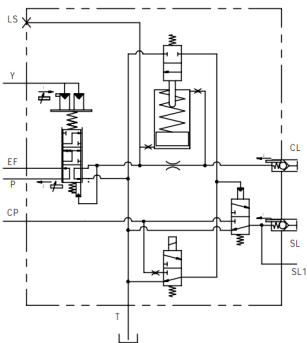
### FEATURES

- | Controls the positive and the negative brakes of trailers in compliance with EU 2015/68
- | Powered by vehicle's existing hydraulic circuit
- | Compact dimensions
- | Ready to connect trailers with single line service brake
- | Maximum inlet pressure 220 bar
- | Service brake pressure 0 to 150 bar
- | Safety functionalities required by EU 2015/68

### OPTIONS

- | Load Sensing or Open Center hydraulic system
- | Multiple installation locations: rear of the tractor, between the control device, other tractor position
- | ADVANCE – valve device in-built that manage the tractor – trailer braking synchronization
- | SAHR device built-in which manages the parking brake of the trailer due tractor braking configuration
- | Option to command the trailer hydraulic brakes with the pneumatic service brakes of the vehicle
- | Available built-in device to avoid a dedicated feeding line to manage the emergency/parking brake of the tractor

### HYDRAULIC SCHEME



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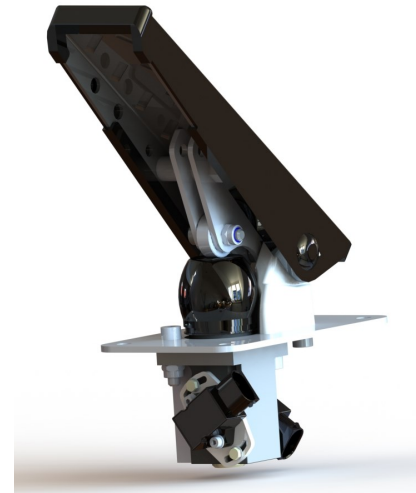
Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

# PEDAL-E

## Vertical Electric Pedal



### PRODUCT OVERVIEW

Electronic brake pedal incorporates a single or dual sensor that provides an electrical signal proportional to the pedal rotation.

Applications Include: agriculture & forestry, material handling, construction, mining, special vehicles.

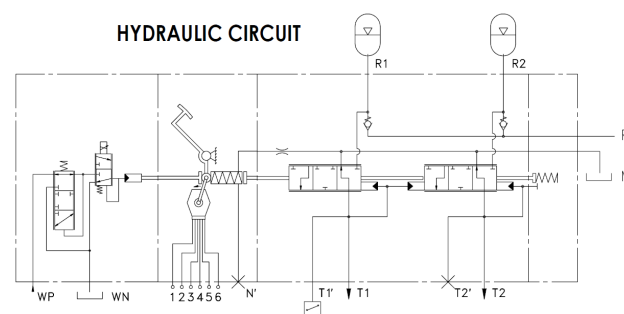
### FEATURES

- | Small installation sizes
- | Electronic signals proportional to pedal actuation
- | Multiple pedal angle available
- | Low maintenance

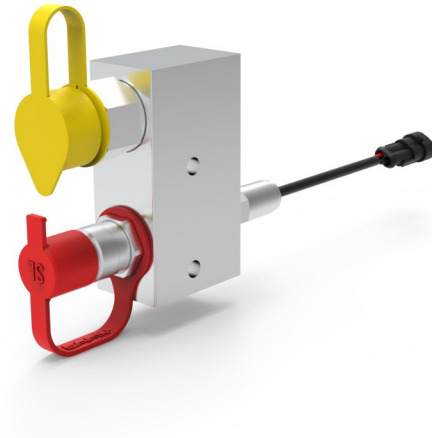
### OPTIONS

- | Second electric angle sensor for redundant applications
- | Multiple pedal effort available
- | Multiple types of sensor available (Hall effect)

### HYDRAULIC SCHEME



# DLC-ASS Rvbr Junction



## PRODUCT OVERVIEW

the RVBR junction allows the connection between trailer and the Trailer Brake Unit located in the rear part of the tractor. The Junction is designed for hydraulic trailer braking systems, accommodating both single-line and dual-line configurations.

Applications Include: agriculture&forestry and special vehicles.

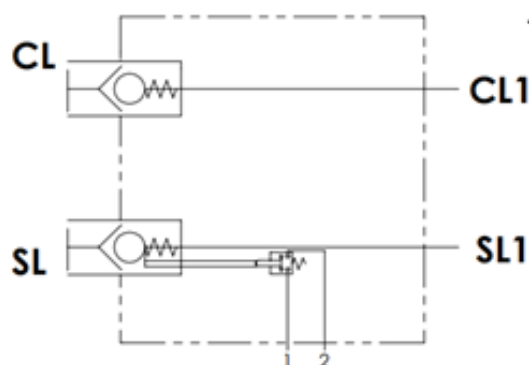
## FEATURES

- | ISO compliant connectors
- | Aluminum body

## OPTIONS

- | For single line trailer braking system
- | For dual line trailer braking system
- | For CUNA system trailer

## HYDRAULIC SCHEME



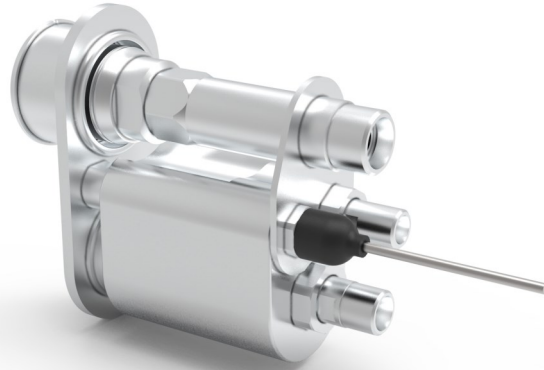
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Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

# DLC-RVBR DUAL LINE COUPLING



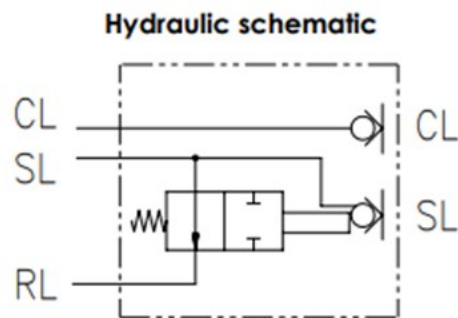
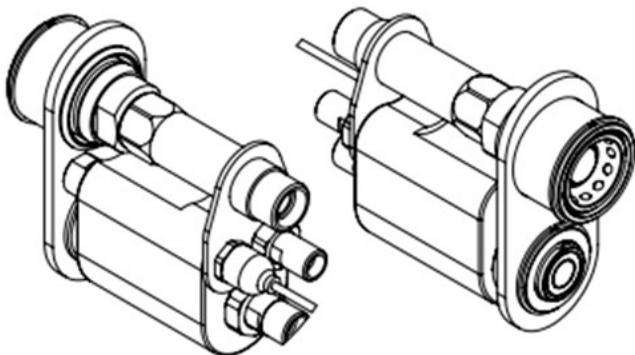
## PRODUCT OVERVIEW

The DLC connection coupling allows the trailer with dual line hydraulic braking system to be connected to the tractor.

The DLC connection coupling is compatible with both of Safim's dual line solutions, AS and CTS.

On the tractor side, the DLC joint has the two connections according to ISO 5676 (CL line) and ISO 16028 (SL line), while on the trailer side it

## HYDRAULIC SCHEME



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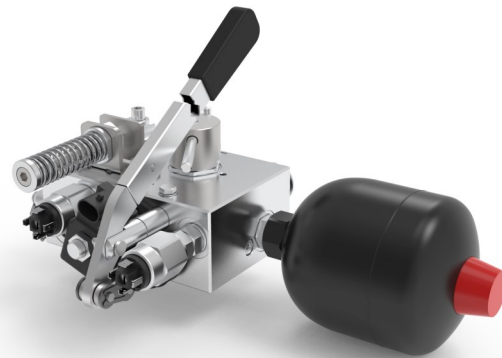
T. +39 059 894411

info@safim.it | www.safim.it



# EBV-RVBR

## Emergency Brake Valve



### PRODUCT OVERVIEW

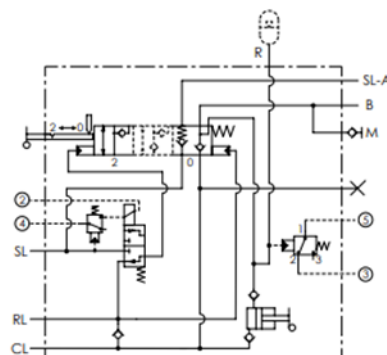
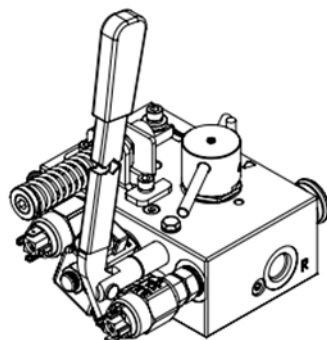
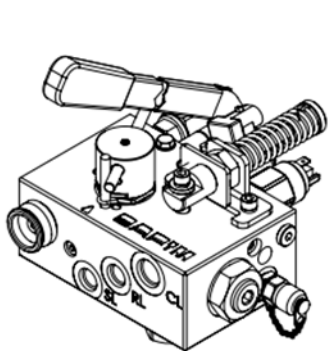
The EBV-RVBR is the main valve within AS-type dual-line braking systems, as it handles the activation of the trailer emergency braking in case of disconnection from the tractor or in case of pressure drop in the SL line.

The valve is equipped with hydraulic ports SL, RL and CL for connection to the DLC coupling, port B, for connection to the trailer cylinders or the brake corrector, if present, and port R for connection of the accumulator.

The oil, pressurized within the accumulator, in the event of trailer disconnection, is routed to the cylinders that then materially produce braking. The pressure drop inside the "Supplementary Line" (SL) activates the emergency braking, in fact the valve senses the pressure drop and then connects the accumulator with the cylinders generating the automatic braking. To remove the emergency braking can be done either manually or automatically. In fact, if it is necessary to move or move the trailer, which is not connected to the tractor, the valve lever can be operated manually and the oil can be returned to the accumulator. Otherwise, if the vehicle is reconnected to the dual-line tractor, the emergency braking is removed. For proper operation of the EBV-RVBR, in accordance with current regulations (EU 2015/68), in addition to the CL and SL hydraulic connections with the tractor, the electrical connection is also required, through the EL-COMP wiring harness, which allows the operator to be alerted in case of low pressure in the accumulator, and to activate the emergency braking in case of absence of power supply.

Available multiple versions with different and connections.

### HYDRAULIC SCHEME



Safim S.r.L

Via D. Livingstone 6  
41123 Modena—Italy  
T. +39 059 894411

info@safim.it | www.safim.it

# CIL-P

## Simple effect cylinder



### PRODUCT OVERVIEW

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Simple effect cylinder for dual line or single line trailer brake system applications.

Application include: agriculture&forestry.

### FEATURES

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- | Adjustable push rod length for easy lining wear recover
- | Rear fixing position
- | integrated bleed screw for easy air bleeding operations
- | Long life internal return spring

### OPTIONS

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- | Available differnt cylinder bores:  
28mm | 30 mm | 35 mm

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Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

# EL-COMP

## Electrical Harness



## PRODUCT OVERVIEW

Electrical harness for connecting the Emergency Brake Valve (EBV-RVBR) to the tractor.

The harness is dedicated for exclusive use in conjunction with Safim Emergency Brake Valves series 206094.

The harness features, on the tractor side, the ISO 7638-2 connector for power supply and in-cab indication of the low-pressure condition in the accumulator connected to the EBV-RVBR, indicating to the operator the need to recharge the accumulator through full braking of the tractor. On the EBV-RVBR side, however, the wiring harness features the two DIN EN175301-803 - A connectors for the pressure switches and the 2-pin AMP superseal connector for the solenoid valve of the EBV-RVBR.

The harness ensures activation of emergency braking in case of power failure or in case of pressure drop in the SL line of the tractor. The harness is available in 3-meter or 4-meter versions.

Safim S.r.L

Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

# S6E POWER BRAKE VALVE



## PRODUCT OVERVIEW

The S6E Power Brake Valves provide reduced pedal effort to generate higher pressure and flow to the brakes on larger vehicles, can be mounted Horizontally or Vertically, Negative or Positive Brakes, Single and Dual Circuits, Push rod, Firewall and Floor Mount Pedal assemblies.

Applications Include: agriculture & forestry, material handling, construction, mining and special vehicles.

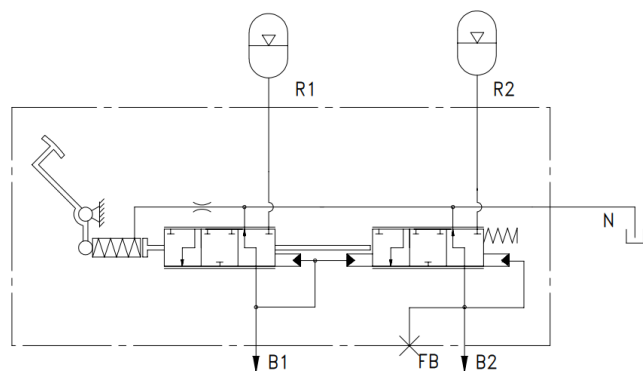
## FEATURES

- | Pilot operated
- | Position Sensor (non-contacting hall effect)
- | Service brake pressure 20 to 180 bar
- | Maximum inlet pressure 225 bar
- | Pressure differentials between brakes
- | Accumulator charging valve

## OPTIONS

- | Pedal support orientation available both in horizontal and vertical version
- | Vertical floor mount or horizontal firewall mount with or without latch for parking and/or service braking
- | Available with electric angle sensor
- | Multiple stage brake pressure curves available
- | Various pedal force options available
- | EH control

## HYDRAULIC SCHEME



Safim S.r.L

Via D. Livingstone 6  
41123 Modena—Italy  
T. +39 059 894411

info@safim.it | www.safim.it

# PROP-CYL

## Hydraulic Proportional Cylinder



### PRODUCT OVERVIEW

This cylinder converts a pressure value into a linear movement of its push rod, with a displacement that is directly proportional to the hydraulic input pressure.

The hydraulic proportional cylinder allows the use of resulting a very flexible device to transform a common automatic load sensing valve with mechanical lever movement on a vehicle with hydraulic suspensions.

This cylinder can be used in combination with mechanical automatic load sensing valves both on hydraulic or pneumatic brake systems, a common brake system for mechanical suspension vehicles into a brake system for hydraulic suspension vehicles.

In case of failure in the suspension hydraulic line, the cylinder incorporates a safety function which forces the cylinder push rod in the full extended position. Safety will be always guaranteed in any operating condition.

Applications Include: trailers, towed vehicles.

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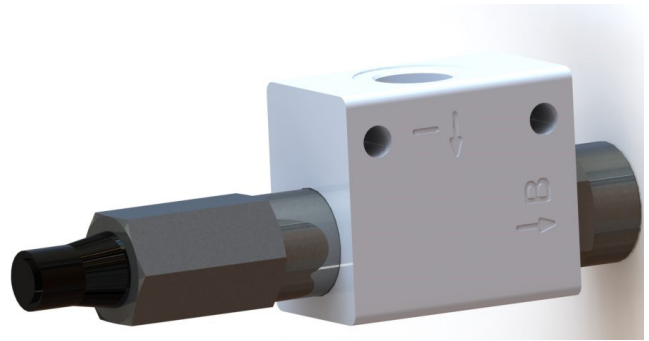
Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

# P-LIM RVBR

## Pressure Limiting Valve



### PRODUCT OVERVIEW

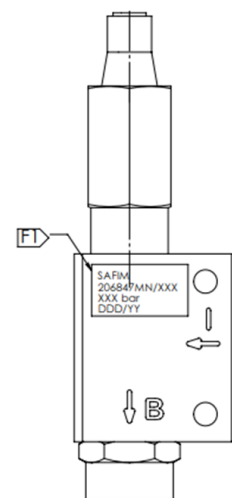
The High-flow pressure limiting valve is expressly developed for RVBR trailer applications. The valve has been designed for a huge oil flow thus to respect all response time requirements.

The valve can be used for several functions within the brake system.

One of such functions can be, for example, to limit the risk of rear axle wheel to lock, or even to prevent excessive mechanical stress related to the use of too high pressure.

The valve can be supplied already set and protected by an Anti-Tampering System of the setting or in a version to be configured on the vehicle.

PORTS		THREAD	MAX. TIGHTENING TORQUE
I	INLET PORT (CL)	M22X.15 DIN 3852-1X	65 Nm
B	OUTLET PORT (BRAKES)		



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Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

# REL-RVBR

## Relay Valve



### PRODUCT OVERVIEW

Relay valve with low pressure accumulator filled by trailer Supplementary Line.

No need for accumulator pressure warning lamp in the cabin: the SL supply system do not require any service brake action to recharge the accumulator, because the Supplementary Line is always in pressure when trailer is connected to the tractor.

3 or more axle vehicles can now match the requirements of the (UE) 2015/68 Regulation concerning response time tests.

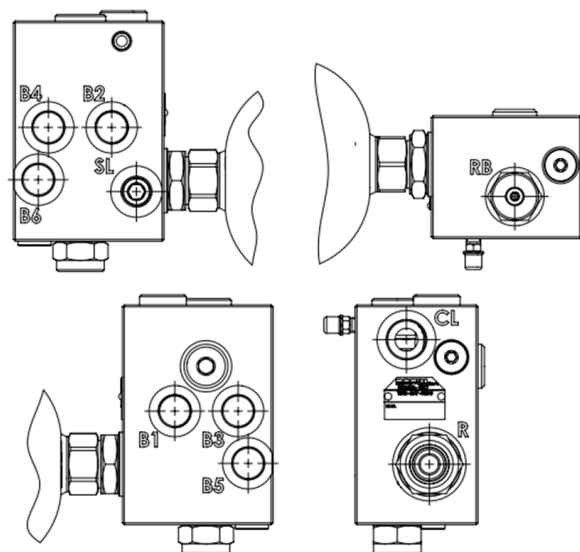
Internal balancing system for perfect correspondence between input and output pressures.

A pressure return signal can be connected to the relay valve to obtain the maximum response time improvement.

Availability of multiple output connection ports for an easy connection.

If properly installed, it can ease a lot the air bleeding procedure of the braking system.

PORTS		THREAD	MAX. TIGHTENING TORQUE
R	ACCUMULATOR	G 3/4 DIN 3852-2X	210 Nm
CL	TRACTOR CONTROL LINE	M22X.15 DIN 3852-1X	120 Nm
SL	TRACTOR SUPPLEMENTARY LINE	G 3/8 DIN 3852-2X	85 Nm
B1, B2, B3 B4, B5, B6	BRAKES	M18X.15 DIN 3852-1X	85 Nm
RB	BRAKE REACTION	M10X1 DIN 3852-1X	30 Nm



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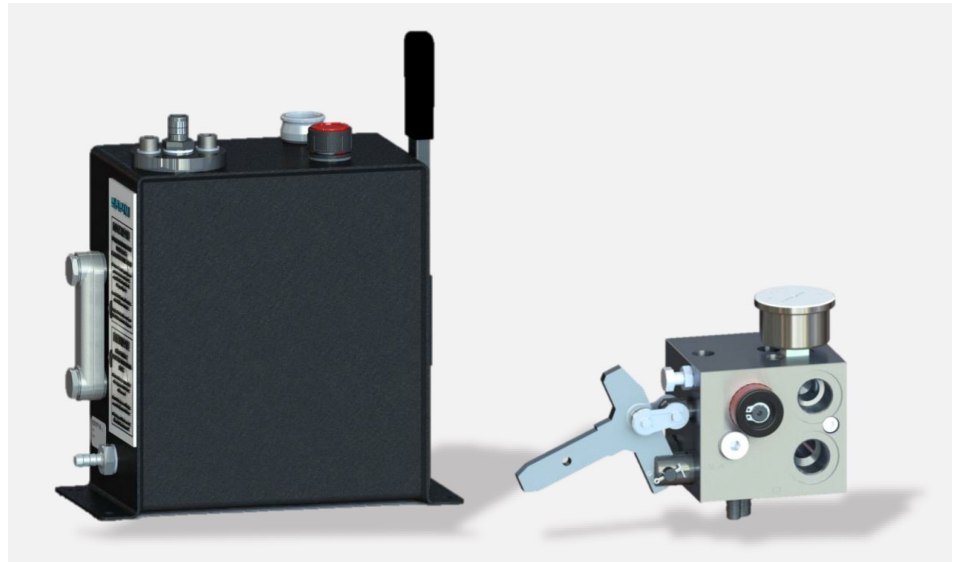
Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

# TANK TRAILER

## Emergency Brake Valve with Tank



### PRODUCT OVERVIEW

#### Easier Positioning

Valve and Tank can be installed separately one to the other. Their connection is carried out by using hydraulic hoses, thus solving installation problems typical of vehicles with small installation space availability.

#### New indication system

A red indicator appears when selecting the manual valve mode and disappears automatically as soon as the trailer is connected back to a dual-line tractor.

#### Protezione da sovrappressione

The relief valve prevents the pressure in the SL line from exceeding the safety limit avoiding accidental damages to the system.

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Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

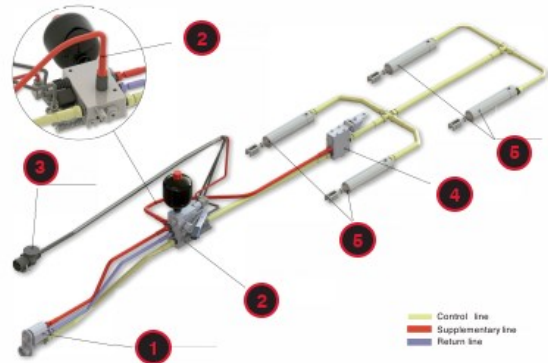


# AS & CTS SYSTEMS

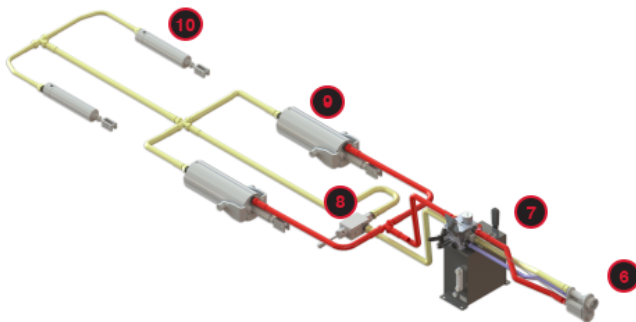
## AS & CTS Dual line braking system

- 1** **DLC**  
Giunto doppia linea.  
*Dual Line Coupling.*
- 2** **EBV-RVBR**  
Valvola per frenatura di emergenza.  
*Emergency brake valve.*
- 3** **EL-COMP**  
Cablaggio elettrico.  
*Electric harness.*
- 4** **LSV-AUTO**  
Correttore di frenata automatico.  
*Automatic load sensing valve.*
- 5** **CIL-P**  
Cilindro idraulico.  
*Simple effect slave cylinder.*

### AS – Accumulator System



### CTS – Cylinder & Tank System



- 6** **DLC**  
Giunto doppia linea.  
*Dual Line Coupling.*
- 7** **TANK-TRAILER**  
Valvola per frenatura di emergenza con serbatoio.  
*Emergency brake valve with tank.*
- 8** **LSV-MAN**  
Correttore di frenata manuale.  
*Manual load sensing valve.*
- 9** **COMBINED SAHR CYLINDER**  
Cilindro a molla composto.  
*Combined Sahr Cylinder.*
- 10** **CIL-P**  
Cilindro idraulico.  
*Simple effect slave cylinder.*

## PRODUCT OVERVIEW

### AS – Accumulator System

#### AS System

In event of emergency, the automatic braking function uses the pressurized oil stored in the accumulator. The benefit of this system is the compactness of the brake actuators, which can be located on trailers having limited room. This system can be used with the hydraulic brakes integrated on the hub too. Further to the standard two hydraulic lines, the system needs and electrical connection to the tractor (ISO 7638 – ABS plug).

### CTS – Cylinder & Tank System

#### CTS System

A CTS system uses a merely mechanical energy source to actuate the automatic emergency brake function. The compressed springs, located in one of the two cylinder sections of a combined cylinder, provide the energy. The Supplementary Line oil in pressure keeps the springs compressed, and releases them when the coupling disconnects from the tractor. This system does not need any electrical connection, because is connected to the tractor only via hydraulic hoses. Brake actuators are combined cylinders, made up of two sections, one for service brake function, the other for automatic brake and parking brake function. A separated tank collects the oil used to release the spring brakes. If it is necessary to remove the automatic braking function, a manual pump conveys the oil to the cylinders compressing again the springs.

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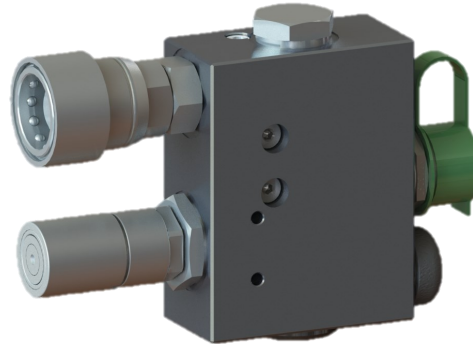
Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

# H2L-H1L CUNA

## Adapter dual-single line Cuna



### PRODUCT OVERVIEW

Allows an EU2015/68 dual-line tractor to tow a trailer with a single-line system according to CUNA NC341-01 (Italian national standard).

The adapter creates in the single line of the trailer a constant pressure between 10 and 15 bar (as per the Italian national standard), which allows the automatic braking of the trailer to be released, allowing it to move in combination with the dual line tractor.

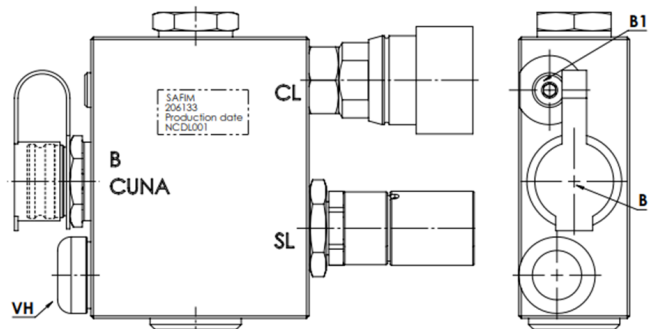
The installation and approval of the CUNA adapter on the tractor are regulated by Circular letters nr. 31141 dated 4/12/20218 and nr. 15881 dated 20/05/2019. The adapter has been approved by the Italian Ministry of Transportation on Safim's request in accordance to CUNA NC344-20 and with national regulatory requirements.

It is possible to define different installation kits for various existing tractor models, to take full advantage of the intelligent functionality of dual-line trailer brake valves (TBUs), ensuring the selection of the pilot ratio characteristic of single-line vehicles in combination with the adapter connection.

The adapter enables the following safety functions:

- | Automatic trailer braking in case of disconnection from the tractor
- | Automatic trailer braking in case of tractor parking brake application
- | Automatic trailer braking in case of tractor shutdown

PORTS		THREAD	MAX. TIGHTENING TORQUE
B	TRAILER BRAKE	MALE COUPLING ISO 5676	--
CL	TRACTOR CONTROL LINE	FEMALE COUPLING ISO 5676	--
SL	TRACTOR SUPPLEMENTARY LINE	FEMALE COUPLING ISO 16028	--
VH	VENT HOLE	--	--
B1	TRAILER BRAKE PRESSURE SWITCH	M10X1 ISO 6149 (PLUGGED)	30 Nm



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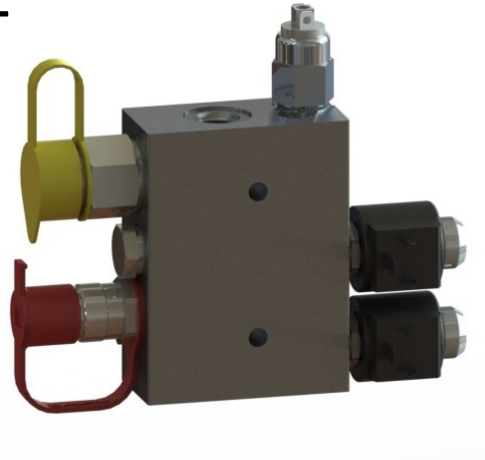
Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

info@safim.it | www.safim.it

# H1L-H2L CE

## Adapter for single-dual line CE



### PRODUCT OVERVIEW

This adapter enables a single-line tractor to tow a trailer with a dual-line braking system according to EU2015/68 (RVBR)<sup>[1]</sup>

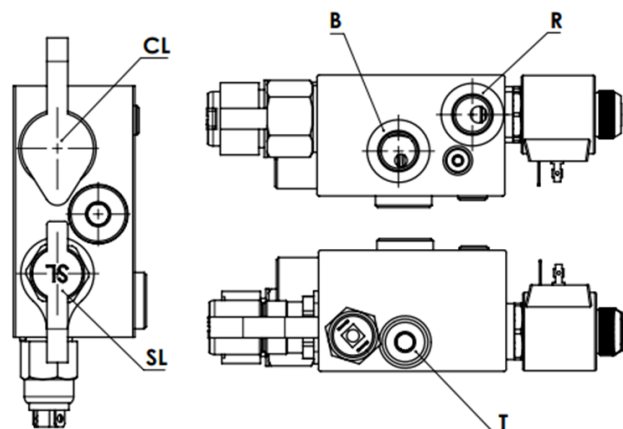
The adapter creates a stable and constant pressure in the SL line of the trailer, simulating the behavior of a dual-line tractor, with an EU2015/68-compliant braking system, and providing the safety functions required by the European standard for the dual-line trailer, such as:

- | Automatic trailer braking in case of disconnection from the tractor
- | Automatic trailer braking in case of absence of tractor power supply (for dual-line trailer systems with accumulator)
- | Automatic trailer braking in case of tractor shutdown

The adapter also allows the tractor driver to voluntarily apply automatic trailer braking in case of emergency.

<sup>[1]</sup>excluding Italian single-line tractors, which have been approved according to the national CUNA standard.

PORTS		THREAD	MAX. TIGHTENING TORQUE
B	BRAKE LINE (FROM SINGLE LINE TRACTOR)	M18X1.5 ISO 6149	120 Nm
CL	TRAILER CONTROL LINE	MALE COUPLING ISO 5676	--
SL	TRAILER SUPPLEMENTARY LINE	MALE COUPLING ISO 16028	--
T	TANK RETURN LINE (OPTIONAL)	M18X1.5 ISO 6149	120 Nm
R	ACCUMULATOR	M18X1.5 ISO 6149	120 Nm
F	ACCUMULATOR PRESSURE SWITCH	M10X1 ISO 6149	25 Nm
F1	ACCUMULATOR PRESSURE SWITCH (PLUGGED)	M10X1 ISO 6149	25 Nm



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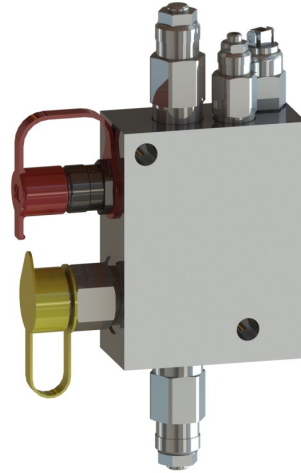
Via D. Livingstone 6  
41123 Modena—Italy

T. +39 059 894411

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# H1L-H2L CUNA

## Adapter for single-dual line Cuna



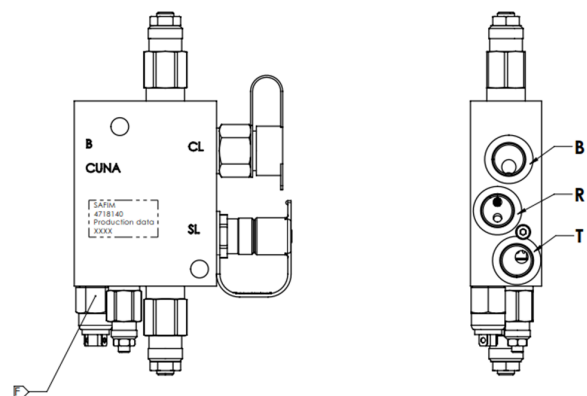
### PRODUCT OVERVIEW

This adapter allows a single-line tractor, approved accordingly to Italian national CUNA standard, to tow a trailer with a dual-line braking system approved accordingly to EU2015/68 (RVBR).

The adapter creates a stable and constant pressure in the SL line of the trailer, simulating the behavior of a dual-line tractor with an EU2015/68-compliant braking system and providing the safety functions required by the European standard for the dual-line trailer, such as:

- | Automatic trailer braking in case of disconnection from the tractor
- | Automatic trailer braking in case of tractor parking brake application
- | Automatic trailer braking in case of tractor shutdown

PORTS		THREAD	MAX. TIGHTENING TORQUE
B	BRAKE LINE (FROM SINGLE LINE TRACTOR)	M22X1.5 ISO 6149	120 Nm
CL	TRAILER CONTROL LINE	MALE COUPLING ISO 5676	--
SL	TRAILER SUPPLEMENTARY LINE	MALE COUPLING ISO 16028	--
T	TANK RETURN LINE	M22X1.5 ISO 6149	120 Nm
R	ACCUMULATOR	M22X1.5 ISO 6149	120 Nm
F	ACCUMULATOR PRESSURE SWITCH	M10X1 ISO 6149	25 Nm



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Via D. Livingstone 6  
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info@safim.it | www.safim.it