Empl Recovery Vehicle-EH/W200 Bison

EMPL heavy recovery vehicle, type EH/W 200 BISON
Technical description

mounted on suitable 3-axle truck chassis, wheelbase 1st - 2nd axle min. 4,500 mm, incl. PTO
or on suitable 4-axle truck chassis, wheelbase 1st - 3rd axle min. 4,500 mm, incl. PTO

Chassis requirements 3-axle truck

- Wheelbase 1st to 2nd axle at least 4500mm
- Permissible axle load front axle at least 9,000kg
- Permissible axle load rear axle unit at least 24,000kg

Chassis requirements 4-axle truck

- Wheelbase 1st to 3rd axle at least 4500mm
- Permissible axle load front axle unit at least 15,000kg
- Permissible axle load rear axle unit at least 24,000kg

PTO Minimum requirements:

- Pump connection with splined shaft according to DIN ISO 14
- Min. torque 600Nm
- Preferably gearbox-dependent and switchable

Hydraulic recovery and towing body with wheel-lift - fully hydraulic system:
The body, specially developed for the toughest operating conditions, is suitable for the recovery and transport of all road vehicles such as cars, vans, buses, trucks, articulated lorries, low-loader semitrailers, etc.
The fully hydraulic recovery and towing system is operated via the truck's power take-off.

Subframe:
The continuous subframe consists of square profiles and is connected to the chassis by means of a bolted connection in accordance with the truck manufacturer's body guidelines.

Main boom:
The main boom, made of high-strength fine-grained steel, is equipped with an integrated mounting plate for the main recovery winch at the front end. The box construction of the main boom provides optimum strength for all recovery and towing operations.
The main boom is raised and lowered by two telescopic hydraulic cylinders. To achieve the highest possible working position, the main boom has a maximum lifting angle of approx. 25°.
At the rear end of the main boom there is a rotatable rope guide pulley (propeller pulley 360°) to support and guide the steel wire of the main recovery winch. The rotatable rope guide pulley allows side pull up to 90° on each side.

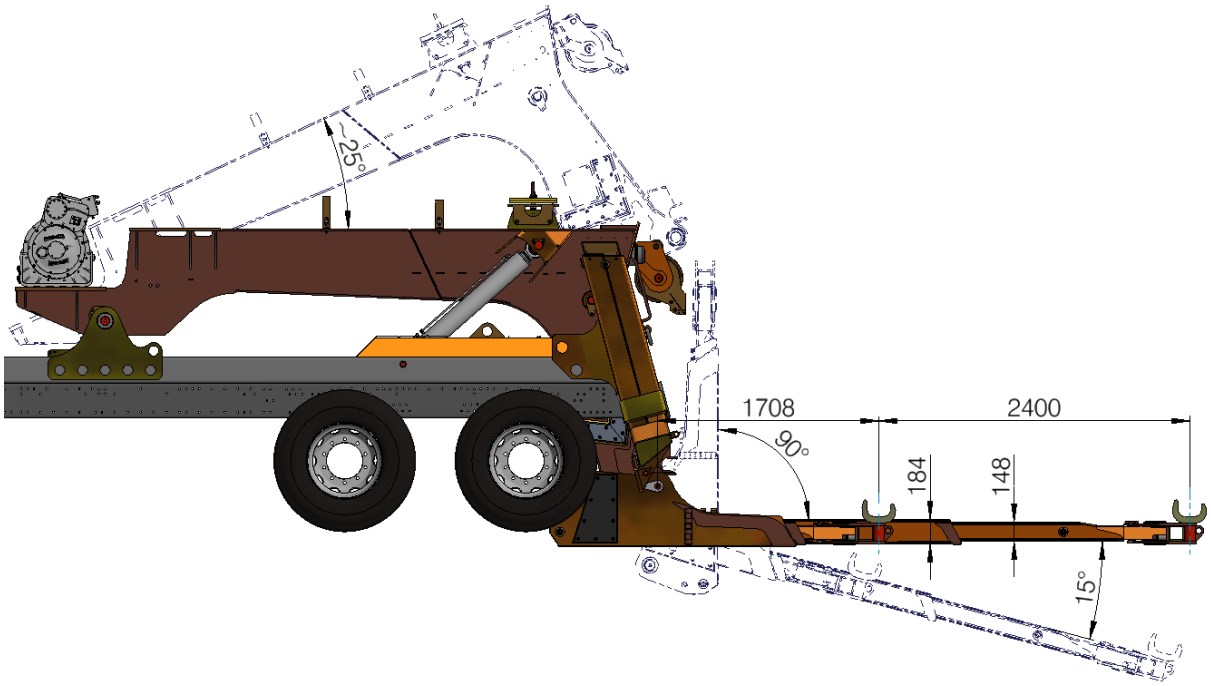
Spare wheel holder:
On the top of the main boom a spare wheel holder is provided. The spare wheel is secured by a wing screw including a padlock.

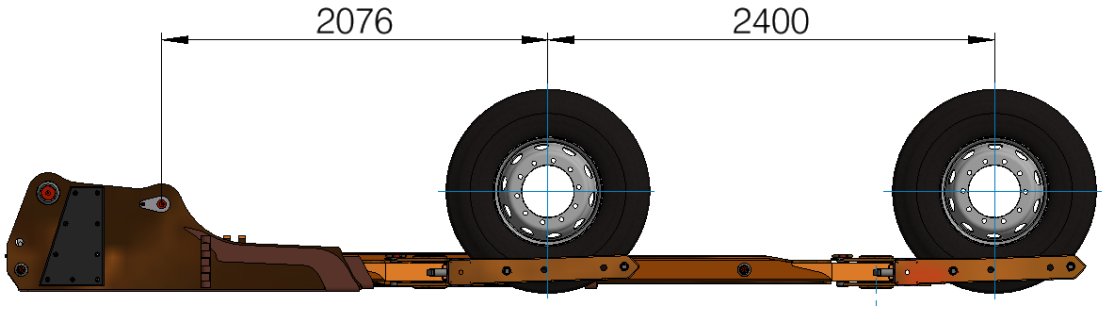
Underlift in extra-slim design:
The wheel-lift is mounted on the main boom and consists of high-strength, welded steel profiles. An articulated cylinder enables the telescopic extension to be folded up and down. The telescopic double extension is retracted and extended by means of a double-acting hydraulic cylinder. The height of the extension boom is specially designed for vehicles with low ground clearance. The extension boom is equipped with special sliding packages and can thus be extended and retracted smoothly even under full load.

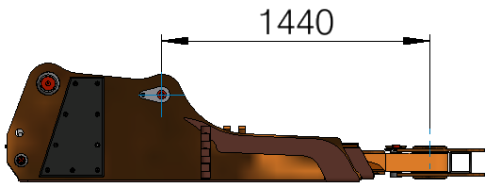
• Max. Reach from underlift bearing to centre of lifting fork	approx.	4,100 mm
• Max. Max. reach from underlift bearing to centre of wheel grid	approx.	4,400 mm
• Max. hydraulic extension	approx.	2,400 mm
• Max. angle of the underlift extension boom in upper position	approx.	90°
• Min. angle of the underlift extension boom in lowered position	approx.	-15°
• Max. Height 1st extension / 2nd extension		184 mm/ 148 mm

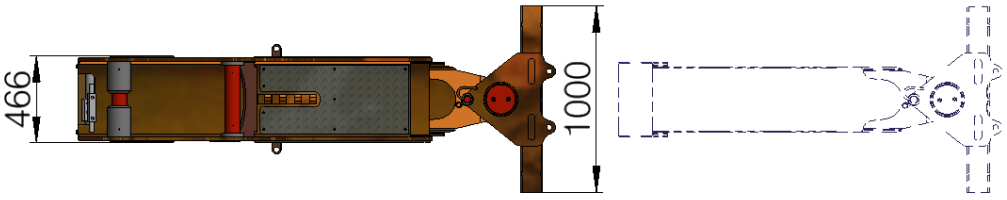
Special high-performance function "Power-Tilt":
The extra strong design of the articulation and extension cylinder, in combination with the integrated load-holding valves, allow all movements of the system under **full load**! The load-holding valves integrated in the system allow both the articulated boom and the extension boom to be held in any position without additional mechanical securing.

System data:









Maximum lifting capacities (vehicle supported / outriggers extended)

• Extension boom retracted - capacity of articulated boom	approx.	20 t
• Extension boom retracted - capacity main boom	approx.	16 t
• Extension boom extended	approx.	10 t

Recovery capacities while driving

• Max. Towing capacity while driving*	approx.	6 - 14 t

**** The actual possible movable load must be calculated individually for each vehicle and depends on the technical data of the truck chassis (axle configuration, technical axle loads, wheelbases, rim and tyre type, towing speed, empty truck weight,....).***

Main winch - 20 to capacity:

The drum winch with a max. technical pulling force of up to 20 tonnes on the bottom rope layer is mounted on an integrated mounting plate at the front end of the main boom.

The winch is driven by hydraulic motors and features a drum and housing made of ductile iron for added strength and structural integrity.
Furthermore, the winch is equipped with a spring-operated, pressure-relieving multi-disc brake and the ideal drum-to-wire rope ratio of at least 10:1, which significantly increases the service life of the rope.

The winch cable is guided backwards via the main boom to the cable guide pulley. The optimised distance between the rope drum and the rope guide pulley ensures correct winding of the rope on the drum winch under tension.

The end of the winch rope consists of a pressed-on thimble, a shackle and hook.

Technical data:

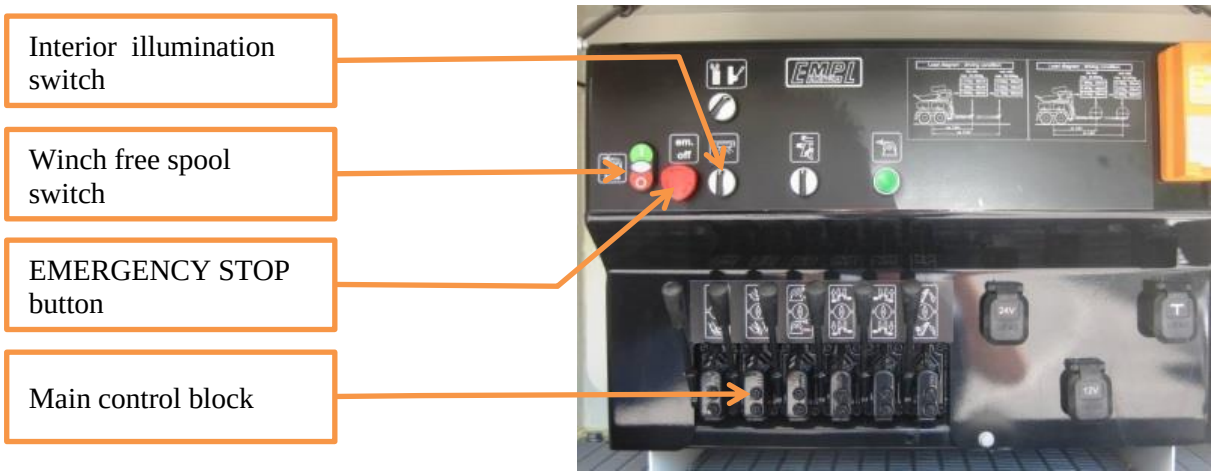
• Pulling force bottom rope layer	approx.	200	kN
• Pulling force top rope layer	approx.	130	kN
• Rope speed in low gear, bottom rope layer	approx.	3,0	m/min.
• Rope speed in low gear, top rope layer	approx.	5,0	m/min.
• Rope speed in fast gear, bottom rope layer	approx.	10,0	m/min.
• Rope speed in fast gear, top rope layer	approx.	15,0	m/min.
• Rope diameter		24	mm
• Total rope length	min.	60	m

Manual rope pull-out:

The winch is equipped with a pneumatic free spool, which can be operated via a 2-hand safety device and is controlled from the control panel. A pressure roller and a rope drum brake prevent the wire rope from tangling during manual unwinding.

Control panel:

- Main control block in the rearmost stowage box on the right-hand side
- Switch for free spool of the main winch
- Switch for storage box interior illumination
- Switch for working lights
- EMERGENCY STOP button



Hydraulic system:

- 1 circuit hydraulic system with high pressure filter and proportional valves
- Hydraulic pump mounted on the power take-off of the truck chassis
- Hydraulic oil tank with filler neck incl. strainer, return filter and level indicator on hydraulic oil tank
- All hydraulic functions are equipped with safety valves to:
    - Prevent pressure loss in the hydraulic system in the event of hose damage
    - Avoid damage to the system in case of overpressure

Rear stabilisers:

There are two hydraulic stabilisers at the rear end of the body:

- Support width approx. 2,450 mm
- Independently operated by hydraulic cylinders with system-integrated block-valves to prevent uncontrolled movement of the stabilizers
- Support plates with swivelling part, "toothed" for working off-road and "smooth" for working on asphalt
- 4 lashing options for slings
    - 2 lashing rings (1 per side), 8 t each
    - 2 heavy duty hinges (1 per side) 20 t each

Storage boxes:

The body is fitted with steel panelling along the entire length behind the driver's cab on the left and right. In the front area there is one storage space on each side. The control panel is located in a separate storage space at the rear right. The rear of the body is equipped with steps and handles on both sides (anti-slip foil on all accessible surfaces). Mudguards with rubber flaps are integrated into the steel panelling.

All storage spaces are equipped with:

- Lockable steel doors and/or flaps
- Rubber mats on the floor
- Uniform locking system (master key) for all doors
- Gas struts to hold the doors in the open position
- Interior illumination
- Ventilation grille on the rear of the storage box
- Brackets for the supplied equipment
- Brackets for wheel chocks (chocks are provided by the truck manufacturer)
- Licence plate holder

Brackets for spectacle lift and lifting yoke extensions:

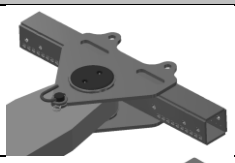
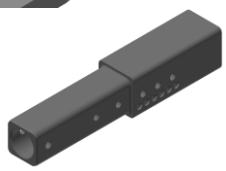
A bracket for wheel grids is fitted on the underbody of the truck, incl. locking bracket and padlock.

Lighting system:

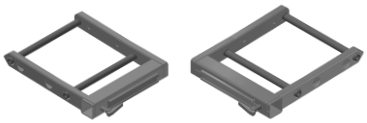
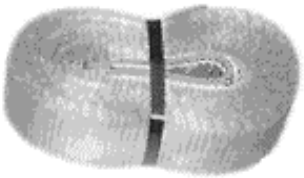
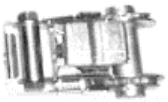
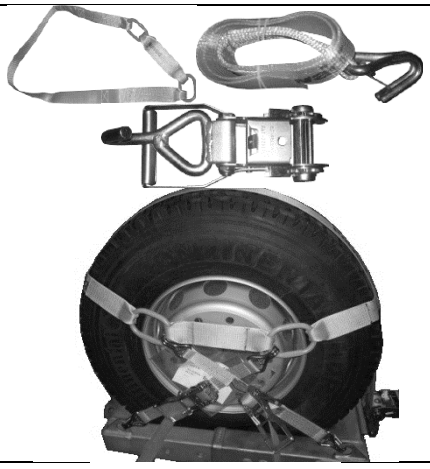
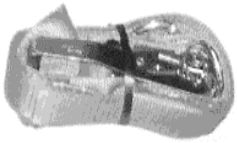
- 2 rotating spot lights at the rear in LED execution
- Installation of the side marker lights provided (side marker lights are provided by the truck manufacturer)
- Relocation of the original rear lights of the chassis and mounting at the rear of the storage boxes

Basic recovery equipment:

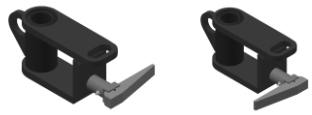
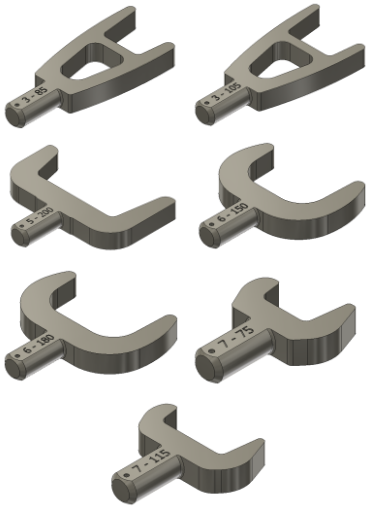
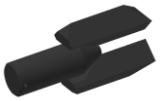
1. Complete set **UNIVERSAL LIFTING YOKE**, consisting of:

POS	Number	Description	Image
1)	1	Universal lifting yoke Part no.: 8022916	
2)	2	Lifting yoke extensions, standard L = 300mm Part no.: 8022954	
3)	2	Safety bolts for lifting yoke extensions Part no.: 0725183	

2. Complete set of **WHEEL LIFT ACCESSORIES**, consisting of:

POS	Number	Description	Image
1)	2	Adjustable wheel grid in one-piece design including 4 pieces of staking tubes (for different wheel sizes) Part no.: 8021870 / 8021876	
2)	2	Tyre belts with open end, with ring and hook, ZG 200 Z W= 75 mm, L= 4,500 mm, for trucks and buses Part no.: 0711631	
3)	2	Heavy duty ratchets Part no.: 0713511	
4)	1	Clamping lever for heavy duty ratchet Part no.: 0706104	
5)	1	<u>Belt set included:</u> 2 tyre belts 4 lashing straps with ratchet Part no.: 8040310 / 8040311 / 8040312	
6)	2	Tyre belts for small trucks and cars, ZG 100 Part no.: 0723520	

3. Complete set **AXLE FORK**, consisting of:

POS	Number	Description	Image
1)	2	Axle fork adaptors (1x left, 1 x right) Part no.: 0725209 / 0725210	
2)	2	Axle fork adaptors high execution (1 x left, 1 x right) Part no.: 0725211 / 0725212	
3)	7	Pair of axle forks in different sizes 1 pair type 3-85 Part no.: 0725200 1 pair type 3-105 Part no.: 0725201 1 pair type 5-200 Part no.: 0725202 1 pair type 6-150 Part no.: 0725203 1 pair type 6-180 Part no.: 0725204 1 pair type 7-75 Part no.: 0725205 1 pair type 7-115 Part no.: 0725206	
4)	2	Chain adapter Part no.: 0725245	
5)	2	Lashing straps for axle forks, 2 t L=1,000 mm Part no.: 0720572	

4. Complete set of, **TOWING PINS** consisting of:

POS	Number	Description	Image
1)	1	Adapter for towing pin, incl. 2 bearing bolts and 2 splints Part no.: 0725481	
2)	1	Towing pin 39 mm with ball head for trailers, incl. clamping nut with split pin Part no.: 0725482	
3)	1	Towing pin 49 mm, incl. cotter pin Part no.: 0725483	
4)	1	Towing pin 55.8 mm, incl. cotter pin Part no.: 0725485	

5. Complete set for **GROUND LEVEL WINCHING** consisting of:

POS	Number	Description	Image
1)	1	Rope guide pulley for ground-level winching, 600kN Part no.: 8041456	
2)	1	Connection hinge for heavy duty hinge on towing arm Part no.: 8222887	
3)	1	Safety bolt for suspension piece Part no.: 8051220	

6. Adapter for **SPARE WHEEL MANIPULATION**, consisting of:

POS	Number	Description	Image
1)	1	Adapter for spare wheel incl. chain Part no.: 0186186	
2)	1	Towing pin Ø 39mm without offset with cotter pin for spare wheel Part no.: 0726160	

7. Other towing accessories:

POS	Number	Description	Image
1)	2	Wedge-shaped wooden jacking aids 600mm / 200mm / 100mm Part no.: 0864506	
2)	2	Lashing straps with ratchet L=5,000 mm Part no.: 0161075	

Paintwork:

- Sandblasting of all steel parts
- Epoxy primer
- Top coat recovery system in truck chassis frame colour
- Top coat of paint for storage boxes in one colour as requested by customer (metallic paint available on request at extra cost)
- The towing accessories are black KTL-coated (cathodic dip coating)

Conservation:

- Body cavity protection
- Wax preservation of the underbody and all critical body areas

Labelling / Marking :

- EMPL rating plate
- Labelling of the operator information in the control panel
- Warning signs (stickers)
- Anti-slip coating on all surfaces intended for foot traffic

Documentation:

- Standard operating and maintenance instructions
- Basic spare parts catalogue
- All documents monolingual in German or English according to commercial standards
- 1 set in printed form and 1 digital copy (in PDF format)

Additional recovery accessories and equipment included as follows:

EMPL #	Description
930470	Max. ballast weight behind cab - front mounted depending on possibilities of chassis/cab and tyres for max. recovery capacity
940354	2x chain with hook and eye 2000mm, 2.500kg (WIN IA8W-HSW) 2x chain with hook and eye 2000mm, 6.700kg (WIN IA8W-HSW) 1x 2-strand chain with hook and eye 2000mm, 9,500 kg (WIN 13 II A8W-HSW) 2x RS-sling 5, 5.000kg, L = 4000mm 2x RS-sling 10, 10,000 kg, L = 4000mm 2x shackle curved 6.5 t 2x shackle curved 8.5 t 2x shackle curved 12t

930912	Rear-equipment for vehicles which have to be recovered (following compulsory widenings and connections have to be delivered with the truck: 7-pin-socket, 2-line pneumatic connections)
930494	Brake hoses and illumination cables to recover trailers and semi-trailers
940313	Radio remote control (for underlift system) – 5 functions: main boom, folding boom, underlift extension, 2 x winches (safety-control winch free spooling included) 
930475	Fix mounted flyer with light-bar and 2 integrated yellow rotating lights plus 2 search lights 
930501 *940504*	Main winch with 30 tons capacity instead of 20 tons including: 2 x RS 30 round sling, 30.000 kg, L = 4.000 mm 2 x shackle curved 30 tons
940286	Support winch, rear mounted, hydraulically operated Support winch required in case only one heavy duty winch is installed, to pull out heavy rope of main winch (in case main winch 30 tons)

931102	Special equipment set including following items: - 4 safety helmets - 4 pairs of gloves - 2 warning jackets - 2 warning beacons - 5 guiding cones with - 1 signal light battery-operated
931015	Camera rear mounted and monitor in driver cab
930927	Special seawax preservation

EMPL reserves the right to make technical modifications in view of its continuous product development.