



DOUBLE EFFICIENCY — THE BUSTRAIN

MASS MOBILITY

Public transport companies and institutions grapple with mobility every day. This means having to consider aspects of demographics, transport planning, town planning, economics and ecology. The passionate vehicle manufacturer HESS does not simply provide a broad range of buses for timely mobility solutions. HESS also provides advice to its customers on how to put together a suitable fleet.

HESS buses and utility vehicles embody top Swiss technology, quality and innovative power. As a flexible vehicle concept for various passenger frequencies, the BusTrain will travel at forefront of roads across the world. In the meantime it is permanently being used in many cities and on regional lines – in Switzerland, in Germany, Austria, Estonia and Luxembourg. This advantageous solution is enjoying ever greater popularity and demand.



EASY TO ADAPT

With the BusTrain, transport companies can react on-site to fluctuations in passenger numbers and save overcapacities and fuel: At lower passenger frequency, the economic standard bus is used, and at peak times, the trailer is used. As an ideal harnessed team, the BusTrain carries nearly twice as many travellers as without the trailer, in a quick coupling manoeuvre. The trailer is decoupled just as quickly and comfortably at off-peak times. That makes sense as articulated buses used throughout the day, although they travel half-empty for hours, are just as uneconomical as bus companies using a relief vehicle with an additional driver at peak times. In short: HESS BusTrains meet the pressing needs of our time for more mobility, flexibility and economy across the entire line.

BUSTRAIN: PLUS AND PLUS

- Couple and decouple in 2 minutes
- React flexibly to changing demand
- Double the capacity without additional drivers
- Tractor equipped with EBS/ABS/ASR and the trailer equipped with ABS
- Smaller turning circle than articulated buses
- Safe due to directional stability, even with a trailer



MORE FLEXIBLE =
MORE PROFITABLE



TECHNICAL FACTS & FIGURES

Length of entire train 23 m

Length of tractor only 12 m

Capacity for up to 180 people

EBS, ABS and ASR

High manoeuvrability due to two steered axles of the trailer

Excellent driving characteristics even in rain and snow

The BusTrain is highly recommended by smart calculators. This is because although its transport capacity is 15 to 20 % more than that of a articulated bus, the fuel consumption of the BusTrain – and therefore the harmful emissions too – is considerably lower. The fact that it allows appreciably higher capacity as needed, with the same staffing costs, makes it even more economical. As a real cost-saving model, the HESS BusTrain does, after all, have lower purchase and life cycle costs. Due to the particularly robust and durable structural parts used by HESS, the trailer is designed for double the life cycle of the tractor vehicle.

SERVICE AS NEEDED



The HESS BusTrain will also win you over with its high performance and economy due to its various possible uses. That applies just as much to operations in public transport as with service in private companies: A good example of this are schools which have to transport large quantities of pupils according to a block time model, or even industrial companies which have to transport their employees from A to B at different shift times.

The BusTrain can perfectly exploit its strengths on routes with greatly fluctuating passenger numbers. With a simple coupling and decoupling process, the capacities are adjusted – up or down. This work only takes the driver a few minutes. Even in large fleets, the flexible concept makes sense. If several tractor vehicles are equipped with a trailer, capacities can be flexibly increased with increased demand for transport. This is one option which, last but not least, pays off at large events such as football games, large fairs or festivals.



DRIVE SAFELY

BusTrains generally run on a diesel engine. But HESS also runs BusTrains as trolleys. In this way, they provide passengers both in the tractor and trailer comfortable and above all safe travel. Due to comprehensive security equipment – from the two-way intercom, through belts on intercity trips to video monitoring – dangerous situations may not occur at all.

In the same way, the driver enjoys the journey in the BusTrain, as he has everything in view and within reach. All the important functions of the entire train – doors, lights, steering system, heating – are operated comfortably, supported by cameras and monitoring screens, from his driver's seat. EBS, ABS and other technological equipment also contribute to the safety-first principle. Last but not least is the central tube trailer drawbar which – due to the back-up camera and perfect height – simple and fast coupling and decoupling is guaranteed without external assistance.



THE SAFETY EXTRAS

- Braking with anti-lock breaking system (ABS)
- Electronic braking system (EBS)
- Electronically controlled air suspension (ECAS) controls the travel height
- Built-in starting inhibitor if the trailer is coupled incorrectly
- Automatic video monitoring
- Wide-angle mirror system for complete monitoring
- Two-way communication between passenger and driver
- Reflectors and work light for safe coupling, even in the dark
- Central tube drawbar with sprung DIN towing ring

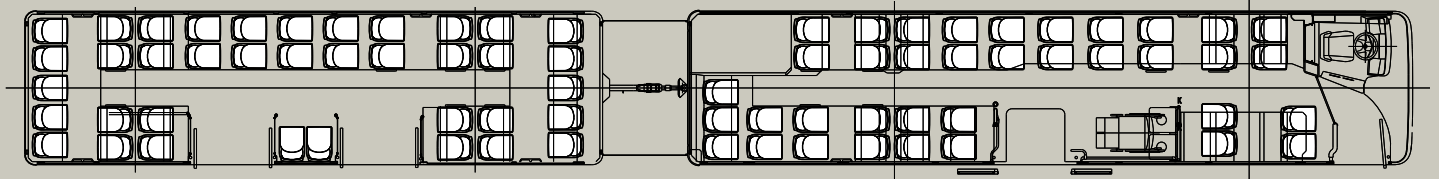
COMFORT FROM THE FRONT TO THE REAR

In years of tests as well as in day-to-day practice on the road, the outstanding drive properties of the BusTrain have been confirmed: The mechanical steering delay is one of the things that provides for this. Particularly with straight-ahead driving at high speed, the trailer is absolutely stable when following the tractor. On narrow curves and when manoeuvring, the patent two-partner is characterised by two steered axes of the trailer. Due to this technology, the entire composition with trailer can be used even under narrow street conditions. The single wheel suspension on both axes, the engine and therefore noiseless gliding and directional stability make driving with the trailer particularly pleasant. Due to the consistent low-floor construction, passengers are guaranteed effortless boarding and alighting at the front and back.

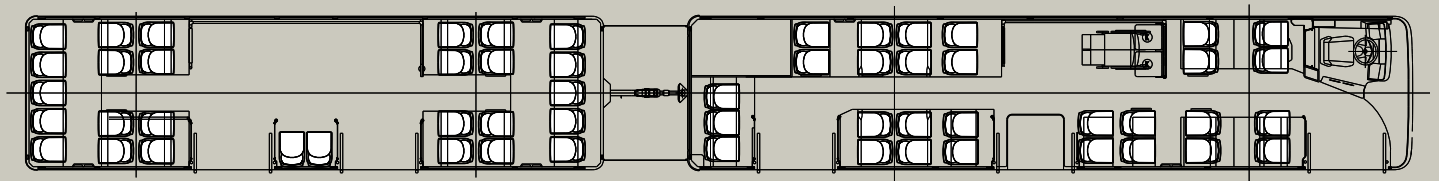
Numerous possible combinations of tractor vehicles and trailers can be achieved in any way according to the needs of customers and for most optimum use on city and intercity routes, each in a design that optimises seating or standing with a total of 3 to 5 doors.



SEATING-OPTIMISED DIESEL BUSTRAIN



STANDING-OPTIMISED TROLLEY BUSTRAIN



Standing room

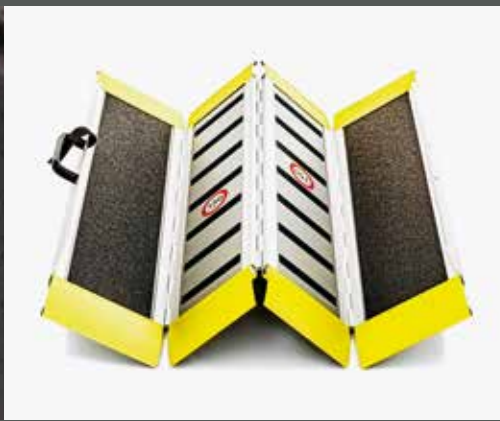
Seats

Subtotal of passengers

Total passengers of BusTrain

DIESEL BUSTRAIN			
Seating-optimised		Standing-optimised	
Trailer	Tractor vehicle	Trailer	Tractor vehicle
Approx. 32	Approx. 58	Approx. 57	Approx. 66
38	37 (+2)	28	29 (+2)
Approx. 70	Approx. 95 (+2)	Approx. 85	Approx. 95 (+2)
Approx. 165 (+2)		Approx. 180 (+2)	

SHAPE AND FUNCTION IN PERFECTION



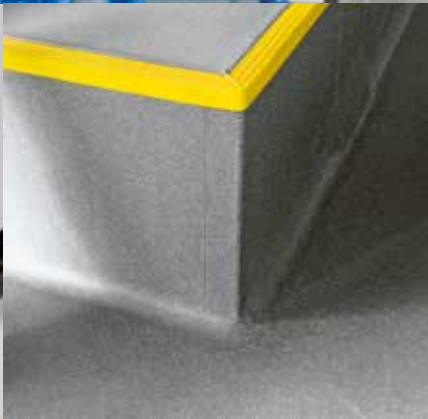
High functionality and perfect design make HESS BusTrains top class vehicles. A prime example of our technological leadership is the door systems. The glide doors, inward opening swingdoors and outward opening swingdoors come from one of our subsidiaries and are part of the modular CO-BOLT® system developed by HESS. Even the paintwork and glazing of our BusTrains meet the highest quality standards. Individual paintwork and marking according to customer wishes are no problem.

GLAZING

- Side and rear wall windows bonded
- Flush glazing for large-scale exterior advertising
- Single-pane safety glass or insulating glazing

DOORS

- Two- or three-door tractors
- Two-door trailers
- Entrances suitable for disabled persons with electric, manual or portable ramps



Large windows, bright interiors, low-floor entrances for the disabled, including wheelchair ramps, comfortable handrails, intelligently-designed interiors, comfortable chairs, attractive design and a whole range of details that make travelling comfortable: HESS BusTrains provide top driving pleasure. Also for drivers; their workplace leaves no wish unfulfilled. The BusTrain trailer can be equipped with a heating and air conditioning system (optional), independent of the trailer.

DRIVER'S COMPARTMENT

- Perfect ergonomic design
- VDV-compatible dashboard head
- Most modern, ergonomically-shaped driver seats
- Video surveillance system
- Driver's cab/trailer intercom system
- Modern and comfortable with an excellent visibility

ENTRY SYSTEMS

- Kneeling lowering system for ease of entry on all BusTrains
- Disabled entrances with manually-operated or folding ramps

INTERNAL EQUIPMENT

- Handrails in modern stainless-steel design or coloured
- Bright, light-flooded overall concept
- Generous standing places
- Complies with directive EEC 95/28 about burning behaviour of materials
- LED lighting

FLOOR COATING

- Antislip floor covering laid over a wooden floor
- Coupling joints welded tight
- A long service life
- Simple and rapid cleaning

SOLID BASE, INNOVATIVE EXTRAS



The chassis of HESS BusTrains are of best workmanship. The robust ladder-type frame has been designed especially for durability.

Stability, security and a good driving feeling are also guaranteed by the fully-pneumatic suspension with electronic levelling control and hydraulic steering support, which requires surprisingly little force when steering. Last, but not least, the solid floor provides the best HESS precision performance. Its insulating properties against air, noise and damp are unsurpassed. The chassis frame consists of thick-walled, multi-layered painted steel sections and is equipped with HESS's own corrosion protection.



STEERING SYSTEM

- Hydraulic ball nut power steering
- An auxiliary pump at standstill secures oil pressure and light steering
- Force required in the case of breakdown of the power-assisted steering less than 500 N
- Trailer: mechanically-steered axles with steering delay

PNEUMATIC SUSPENSION

- Electronic levelling control on all axles in production
- 2 roll bellows on the front axle, 4 on the drive axle
- 10 shock absorbers for driving comfort and best road positioning

AXLES

- Front axle of tractor vehicle and both trailer axles with independent wheel suspension
- Drive axle: ZF Portal axle with low floor height
- Very quiet running and a low noise level
- A continuous passenger compartment without steps and platforms

FLOOR CONSTRUCTION

- A birch plywood floor with local mats for additional insulation
- Floor plates glued resistant to boiling water
- Impact points and bearing surfaces specially sealed
- Extremely resistant to moisture
- Resistant to cold and hot water

ANTICORROSION PROTECTION

- 16 years guarantee against rusting through
- A hollow profile optimised with protective wax
- A wear layer in the wheel houses with AfraPlast
- No anticorrosion protection needed on the vehicle body structure



INGENIOUS CONSTRUCTION

The module system CO-BOLT® developed by HESS creates the common platform for our range of buses. CO-BOLT® fulfils the widest variety of requirements, has been tried and tested thousands of times, and is being continuously refined and expanded. The ingenious, ecologically sustainable construction offers a wide range of advantages concerning investment, driving characteristics and Life-Cycle-Costs.

AT A GLANCE

- A long, problem-free service life
- Rapid and simple repairs
- A high loading capacity thanks to the light construction
- Exactly fitting replacement parts
- Optimal anticorrosion properties
- Use of more than 80 % recycled aluminium
- Excellent energy absorption in the case of a crash

CO-BOLT® BODY

- A structure made out of extruded aluminium profiles in the CO-BOLT® 3 module system
- Connections by means of corner supports and clamping plates
- Screw locking device with a two-component glue
- The screws can easily be released at any time for repair work
- The side walls are prefabricated, roof with all components ditto
- Front, rear and roof covering made out of glass-fibre-reinforced plastic
- There are over 2,400 buses built globally in the CO-BOLT® system



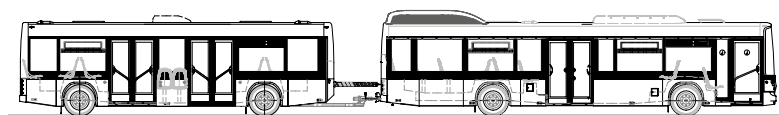
SERVICE INCLUDED

Our buses are only as good as their ease of maintenance and the service that we offer to our customers before, during and after the sale. The main emphasis is on reliability and passengers safety. In the case of repair work due to an accident, vandalism or other damages, you can count on prompt handling and fair prices. We perform all types of repair and maintenance work at various locations. To this end we use, among other things, our levelling system with an up to 4 m high straightening tower. Underbody coating and freshening up of paintwork in our paint booths are part of the HESS service packages, too.

By the way: By using our hotlines, you can count on getting around-the-clock assistance whether at home or abroad.

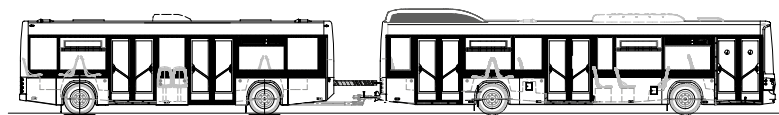


OVERVIEW OF MODELS



BusTrain 31

Length:	23 m
Width:	2.55 m
Seats:	75 (+2)
Total passengers:	Approx. 165



BusTrain 31

Length:	23 m
Width:	2.55 m
Seats:	57 (+2)
Total passengers:	Approx. 180

BOUNDLESS KNOW-HOW

- HESS GROUP
- Service Partner



LOCALLY WORLDWIDE

HESS solutions move the world. This is because we are cooperating closely with competent, local partners, who are in the best position to know about local issues. Due to high performance sales, development, manufacture as well as repair and servicing, we are your direct partner and starting point in Europe for contacting our licensees worldwide.

MOTION & EMOTION



- Licensees all over the world



Carrosserie HESS AG | Bielstrasse 7 | CH-4512 Bellach

Phone +41 32 617 34 11 | Fax +41 32 617 34 00 | www.hess-ag.ch | info@hess-ag.ch