

Rofan

The indoor-outdoor specialist



ZH4 and **ZH5** Hybrid Tractors

Rofan ZH4 and ZH5 – the indoor-outdoor specialist

The powerful hybrid tractor for flexible indoor and outdoor use



Powered by hydrostatic transmission, this Rofan tow tractor combines the power and reliability of a diesel drive with the economic efficiency and environmental friendliness of an electric engine.

The combination of electric and combustion engine means the hybrid drive system switches to the most efficient form of operation depending on the application. For indoor use, the quiet and emission-free battery operation protects both man and nature. For outdoor use, where heavy loads have to be speedily transported over long distances, a powerful diesel engine kicks in at the push of a button.

Like this, the diesel engine with at least 58 kW promptly works at full power to meet transport needs in baggage or cargo handling or in heavy industry without reaching its capacity limits.



reliable

The Rofan Hybrid can be depended upon. Our experience from more than 600 manufactured units using standard components and qualified personnel make it a reliable and unremitting support for the handling sector.

maintenance-friendly

Always ready for service! To ensure on-the-spot maintenance is as easy as possible, we make sure all components are quickly and easily accessible.

long-distance ability

Rofan Hybrid vehicles have twice the power. Powered by a diesel engine for outdoor work, they automatically recharge the battery for electric operation!

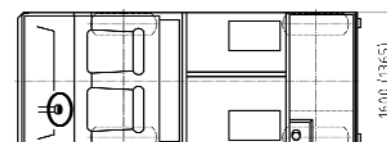
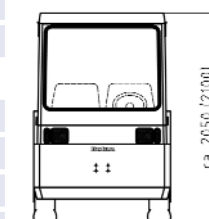
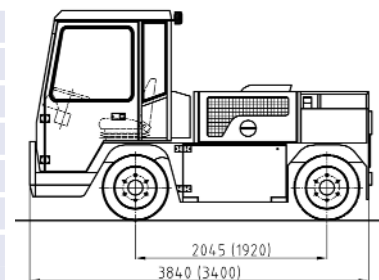


environmentally friendly

With Rofan you have a clean machine. For years, our hybrid vehicles have switched effortlessly to quiet, emission-free battery operation during indoor use.

Technical Data

Model	ZH4	ZH5
Weight	approx. 4.000 kg (incl. battery)	approx. 4.500 kg (incl. battery)
Engine	Deutz BF4L2011, 58 kW / 78 hp	Deutz BF4M2012, 65 kW / 87 hp
Motor	AC-Motor, 12 kW	AC-Motor, 14 kW
Battery	80 V / 240Ah	80 V / 240Ah
Drawbar pull	20 to 25 kN	20 to 25 kN
Maximum towing capacity	25 tons on flat surface	35 tons on flat surface
Maximum speed	programmed up to max. 35 km / h (D); 15 km / h (E)	programmed up to max. 35 km / h (D); 15 km / h (E)
Front axle	Spring-mounted with disc brakes	Spring-mounted with disc brakes
Rear axle	Spring-mounted with drum brakes	Spring-mounted with drum brakes
Steering	Hydrostatic power steering	Hydrostatic power steering
Dimensions	mm	mm
Length	approx. 3.400	approx. 3.840
Width	approx. 1.365	approx. 1.650
Height	approx. 2.100	approx. 2.050
Wheelbase	approx. 1.920	approx. 2.045
Ground clearance	approx. 150	approx. 150
Turning radius, between walls	approx. 4.150	approx. 4.900
Turning radius, between kerbs	approx. 1.580	approx. 2.100
Loading platform	approx. 700 × 1.360	approx. 900 × 1.540
Loading capacity	approx. 400 kg	approx. 600 kg
Fuel tank capacity	approx. 65 liter	approx. 85 liter



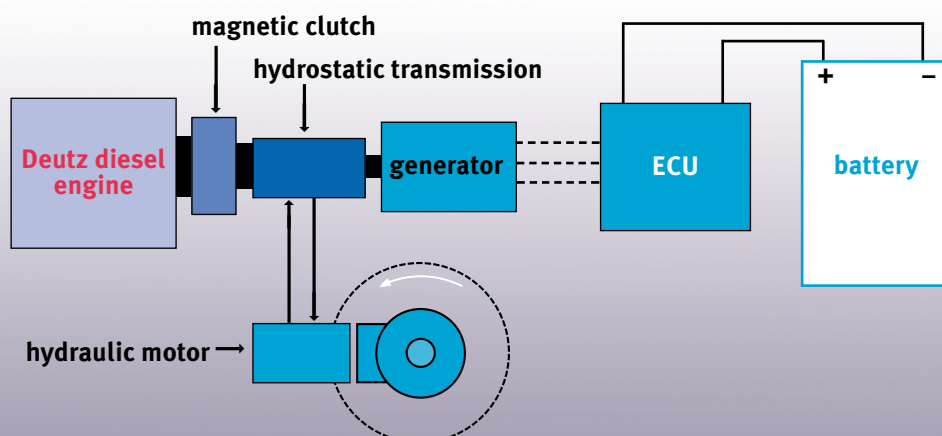
Function of a Dual-Hybrid

Diesel operation:

The clutch between the diesel engine and the hydrostatic pump is closed. The diesel engine drives the hydrostatic pump as well as the motor/generator. The battery is charged with up to 100 A. The hydraulic motor drives the rear axle – in principle a typical hydrostatic drive system.

Electric operation:

The clutch between the diesel engine and the hydrostatic pump is open. The motor/generator drives the hydrostatic pump, the diesel engine is not running – in principle a hydrostatic drive system, but in this case the motor / generator drives the system.



Model configurations for ZH4 and ZH5

	Standard	Option
Engine		
All engines comply with EC Stage II and EPA Tier 2	⊙	
Modern 4-cylinder water-cooled and turbo charged Deutz diesel engine BF4M2012 (ZH5)	⊙	
Modern 4-cylinder air-cooled and turbo-charged Deutz diesel engine BF4L2011 (ZH4)	⊙	
Power transmission		
Continous hydrostatic Bosch-Rexroth transmission	⊙	
Kessler rear axle with drum brake	⊙	
Driver's cab		
Extremely solid, completely insulated steel profile construction. Noise- and vibration-reduced, fixed on four rubber elements with big front and rear screen	⊙	
Two lockable doors with sliding windows	⊙	
Heating and ventilation system	⊙	
Driver's seat with hydraulic suspension with two-point safety belt	⊙	
Air-suspended driver's seat with two-point safety belt		⊙
Passenger seat with two-point safety belt	⊙	
Passenger seat with hydraulic suspension and two-point safety belt		⊙
Document console instead of passenger seat		⊙
Adjustable steering column	⊙	
Rotating amber beacon		⊙
Windscreen wiper with interval switch		⊙
Screen wiper for rear screen		⊙
Air flap or air ventilator		⊙
Heated front screen and / or rear screen		⊙
Comfort package (sun blend, footrest, coat hook)		⊙
Interior mirror, interior light		⊙
Two external mirrors	⊙	
Hour meter for diesel and electric operation	⊙	
Warning lamps for engine cooling temperature and fuel level	⊙	
Gauges for engine cooling temperature and fuel level		⊙
MDI gauge shows operating hours and battery condition	⊙	
Complete lighting system (without long-distance light)	⊙	
Working light front and / or rear		⊙
Inching control (automatic reversing system), buzzer		⊙
Radio		⊙
Preparation for customer radio system		⊙
Chassis frame		
Tires, pneumatic type	⊙	
Super elastic solid tires		⊙
Automatic coupler Rockinger 244 D rear	⊙	
Multi position coupler front or rear		⊙
Shunting coupler front		⊙
Remote control for automatic coupler		⊙
Protection grids for front and rear lights		⊙
Polyurethane bumpers front and rear or heavy-duty rubber bumpers		⊙
3-coat painting white RAL9010	⊙	
3-coat painting on customer's demand		⊙
Safety labels		⊙
Automatic greasing system		⊙
Other technical equipment on request		

Subject to change without notice. September 2005

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