

ROVO robot platform (3rd generation)

Product documentation

Fully electrical drive system on caterpillar tracks



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1 Overview of ROVO robot platform (3rd generation)

The ROVO robot platform has a fully electrical drive system and runs on caterpillar tracks. It has been specially developed for off-road use.

The chassis is equipped with a powerful drive and a proprietary exchangeable rechargeable battery. The standard chassis is very well equipped to accept a wide variety of built-on equipment and superstructures. Many options are also available to adapt it to your requirements. Partner companies have developed suitable hardware and software extensions for this purpose.

HAWE offers a variety of hydraulic components that are compatible with the ROVO platform, meaning even complex hydraulic requirements and functions can be implemented flexibly.

Features and advantages

- Compact design
- Short charging times and long battery life
- Maximum payload of 500 kg
- Precise manoeuvrability
- Standardised interfaces (e.g. CAN bus)
- Speed of up to 30 km/h
- Slope/gradient of up to 100%
- Fording depth of 20 cm

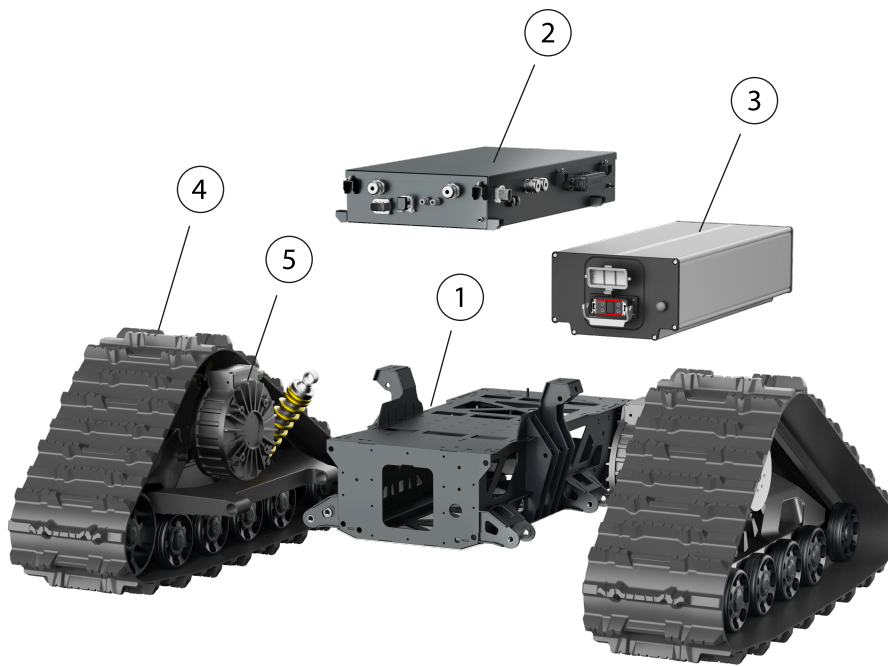
Intended applications

- Inspections and measurements in hazardous areas
- Transportation and logistics tasks under special conditions
- Use by search and rescue, mountain rescue, fire brigade and emergency response services
- Use underground in galleries and tunnels
- Agriculture: mowing, mulching and watering on impassable ground
- Marking out work
- Taking ground samples
- Disinfection of chambers and surfaces



ROVO robot platform (3rd generation)

Assembly



- 1 Chassis
- 2 E-box
- 3 Exchangeable rechargeable battery
- 4 Set of tracks
- 5 Motor-gearbox unit

2 Available versions

Ordering example

ROVO HD	9005	0	3	-STD PX SX	-H92 L28 L00	-RCX	-TH -FL
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2.1 "Basic type"

2.2 "Frame colour"

2.3 "Type of caterpillar track"

3rd generation

2.4 "Components attached on the frame"

2.5 "External power supply"

2.6 "Remote control"

2.7 "Further options"

2.1 Basic type

Type	Description	Gearbox	Power P (kW)	Speed v _{max} (km/h)	Torque M (Nm)	Payload (kg)
ROVO HD Heavy Duty	Off-road caterpillar tracks <ul style="list-style-type: none"> for use on impassable ground for high traction off-road high payloads 	i16	2 x 4.4	15	1000	500
ROVO PF Performance	Road-going caterpillar tracks <ul style="list-style-type: none"> for use on hard surfaces such as asphalt for high speeds smooth-running 	i7	2 x 4.4	30	500	300

2.2 Frame colour

Coding	Description
9005	Standard colour for frame parts
...	Any RAL Classic colour can be selected. It must be stated by specifying the relevant four-digit RAL number. Its availability as part of the production process must be checked.

2.3 Type of caterpillar track

Coding	Description	Track width (mm)	Profile depth (mm)
O	Off-road caterpillar track – Standard for the Heavy-Duty ROVO	310	30
S	Road-going caterpillar track – Standard for the Performance ROVO	290	15
N	narrow off-road caterpillar track	200	30

INFORMATION

As a basic principle, every type of caterpillar track can be installed on every basic type.

2.4 Components attached on the frame

Coding	Description
Frame parts	
FOO	Without frame parts; any attached components or superstructures supplied by the customer are screwed directly to the chassis
STD	Standard frame with a variety of M10 mounting points for superstructures supplied by the customer. Ideal for "rapid prototyping"
Platform adapter	
PX	without platform adapter
PV	2x platform adapter at the front
PH	2x platform adapter at the rear (required to mount storage boxes SL, SR, S2)
P2	4x platform adapter
Storage boxes	
SX	without storage boxes
SL	Storage box on the left
SR	Storage box on the right
S2	Storage box on the left and right

2.5 External power supply

Ordering example

H92 L28 L00

Coding	Description	Voltage U (V)	Current I (A)	Power P (W)	Comment
H00	High Power	without			
H92		96	220	22,000	Voltage range of 70 - 117 V depending on the ROVO's state of charge
H21		24	57	1,500	V _{max} 26.0 V
H11		12	108	1,500	V _{max} 13.8 V
L00		Low Power (Slot 1)	without		
L14	12		33	450	V _{max} 13.8 V
L18	12		60	830	V _{max} 13.8 V
L28	24		32	830	V _{max} 26.0 V
L00	Low Power (Slot 2)		without		
L14		12	33	450	V _{max} 13.8 V
L18		12	60	830	V _{max} 13.8 V
L28		24	32	830	V _{max} 26.0 V

2.6 Remote control

Coding	Description	Frequency range	Comment
RC0	Without radio remote control but configured for it		
S43	Standard	433 MHz	Standard

i **INFORMATION**
All ROVO models have an external CAN interface that enables it to be actuated via a control unit supplied by the customer.

i **INFORMATION**
The frequency range must comply with the legal requirements in force for the area of operation.

2.7 Further options

Coding	Description
Trailer coupling	
TX	without trailer coupling
TH	with trailer coupling

3 Parameters

3.1 General data

Designation	ROVO robot platform															
Design	fully electrical drive system on caterpillar tracks															
Drive	two independent electric drives, air-cooled															
Voltage	100.8 V															
Rechargeable battery system	<ul style="list-style-type: none"> ▪ 100.8 V lithium-ion exchangeable rechargeable battery ▪ 12 V backup battery ▪ Integral battery management system (BMS) <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td>Nominal voltage</td> <td>100.8 V</td> </tr> <tr> <td>Maximum voltage</td> <td>117.6 V</td> </tr> <tr> <td>Minimum voltage</td> <td>70 V</td> </tr> <tr> <td>Energy</td> <td>9.4 kWh</td> </tr> <tr> <td>Capacity</td> <td>93.6 Ah</td> </tr> <tr> <td>Nominal discharge current</td> <td>220 A</td> </tr> <tr> <td>Maximum discharge current (< 10 s)</td> <td>320 A</td> </tr> </table>		Nominal voltage	100.8 V	Maximum voltage	117.6 V	Minimum voltage	70 V	Energy	9.4 kWh	Capacity	93.6 Ah	Nominal discharge current	220 A	Maximum discharge current (< 10 s)	320 A
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Maximum voltage	117.6 V															
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Energy	9.4 kWh															
Capacity	93.6 Ah															
Nominal discharge current	220 A															
Maximum discharge current (< 10 s)	320 A															
Protection class	IP 65															
Range	up to 4 hours or up to 40 km															
Max. slope/gradient	45° / 45° (100%) without attachments															
Fording depth	20 cm															
Material	Welded sheet steel															
Temperatures	<ul style="list-style-type: none"> ▪ Ambient temperature during operation: -20°C to +45°C ▪ Charging temperature: 0°C to +45°C ▪ Storage temperature with high-voltage rechargeable battery: 0°C to +45°C ▪ Storage temperature without high-voltage rechargeable battery: -20°C to +45°C 															
Operating altitude	up to 2000 m above sea level															
Maximum payload	<table border="0" style="width: 100%;"> <tr> <td>Type</td> <td></td> </tr> <tr> <td>ROVO PF Performance</td> <td>= 300 kg</td> </tr> <tr> <td>ROVO HD Heavy Duty</td> <td>= 500 kg</td> </tr> </table>		Type		ROVO PF Performance	= 300 kg	ROVO HD Heavy Duty	= 500 kg								
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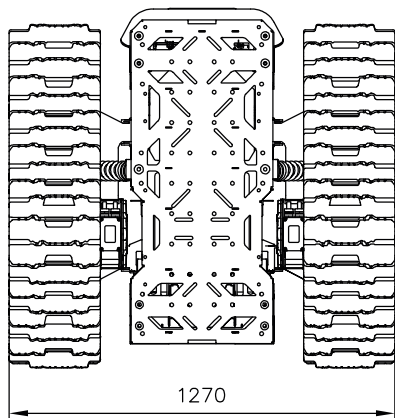
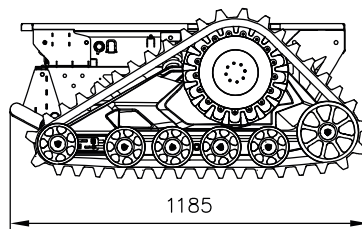
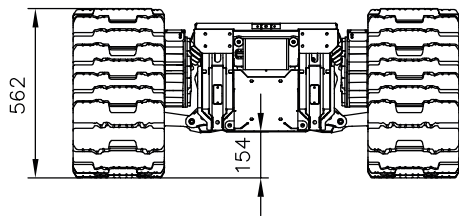
3.2 Weight

Vehicle	Type	
	ROVO (depending on equipment)	= approx. 290 kg
Exchangeable rechargeable battery	Type	
	EP 94	= + 58.5 kg

4 Dimensions

All dimensions in mm, subject to change.

ROVO (3rd generation)



! NOTICE

Reference to other document

Assembly instructions for caterpillar track vehicle type ROVO (3rd generation): B 6140

Available for this product: assembly instructions with notes on

- intended use,
- operating and maintenance,
- Assembly information

6 Other information

6.1 Accessories

Order coding	Order number	Description
Chargers		
MBC-EP94G-3-EU-00	2004 0090-05	<ul style="list-style-type: none"> ▪ Charger 3 kW external for EP94G with ground pin ▪ Type: Zivan NG3, IP 20 230 V ▪ 16 A fuse required ▪ EU version (Schuko plug) ▪ Standard parameter set
MBC-EP94G-5-EU-00	2004 0090-07	<ul style="list-style-type: none"> ▪ Charger 5 kW external for EP94G with ground pin ▪ Type: Zivan NG5, IP 20 400 V ▪ 16 A fuse required ▪ EU version (CEE plug) ▪ Standard parameter set
Batteries		
Energy Pack EP94G	2004 0090-11	<ul style="list-style-type: none"> ▪ Energy pack EP94 NMCA with Stäubli CombiTac plug with ground pin 96 V / 9.4 kWh ▪ Housing length: 710 mm ▪ ROVO 3 standard battery, not a direct replacement for the old EP88

References

Other products

- Energy pack type IEP: D 6130
- Energy pack type EP 94: M 6130 EP 94
- Type EP 88 battery pack
- Valve control type CAN-IO 14+: D 7845-IO 14
- Mobile controller type ESX 3CS: ESX-3CM
- Compact hydraulic power pack type HICON: D 8543
- Compact hydraulic power pack type HR050: D 6014
- Compact hydraulic power pack type HR080: D 6342
- Valve bank type TLC: D 6020 TLC 3
- Hydraulic cylinder type LVM: D 6053
- Diaphragm accumulator type AC: D 7969

