

# COMPACT, RUGGED, FLEXIBLE: THE NEW VLEX

**Vollert** 

MADE IN GERMANY  
**ENGINEERING  
YOUR  
SUCCESS**

 ROAD-RAIL ROBOT

**VLEX**



## FROM TRACK TO ROAD AND BACK:

Road-rail robot with articulated steering for efficient shunting operations



**VLEX**



## FAST TRACK CHANGE IN CONFINED SPACE: ROAD-RAIL ROBOT VLEX

With the newly developed VLEX road-rail robot, Vollert offers an optimal solution for light shunting operations up to 300 tons.

It is radio-controlled and can change quickly and easily from track to road – or directly to the power outlet. Because it has a battery-powered electric drive, the shunting of wagons in outdoor and also closed storage and production areas is possible.

Track guide rollers are hydraulically lowered for rail travel. The hydraulic system ensures that the track guide units automatically re-adjust and compensate for each other. The steering can be hydraulically locked for required stability on the rail.

Solid rubber tires ensure optimum traction, additionally supported by the high self-weight of 4.5 tons.



High versatility employed in different applications

## REFERENCE FILM ON THE INTERNET:



Powerful maneuvering with 20 kN traction by powerful drive motors

## Traffic operations, ports, logistics centers, industry – VLEX delivers flexibility

Due to its high maneuverability because of a smart steering concept, the intelligent drive technology and the optimum traction, the road-rail robot is easy and safe to use in all maneuvering operations. Also, a one-man operation: By means of the joystick remote control with high coverage it is intuitively

navigated and accurate to the millimeter. A novel color design makes the VLEX particularly easy to control.

Various coupling systems, battery packs and ample extra and safety equipment are available to tailor the road-rail robot to your requirements.

## EMISSION-FREE AND LOW MAINTENANCE: E-MOBILITY WITH THE HIGHEST QUALITY STANDARDS

The rechargeable high capacity batteries, which are very easily accessible, allow you to work 100% free from emissions. Alternative battery capacities are available depending on the application, including in particular, low maintenance gel batteries.

Wear of the wheels is minimal thanks to the innovative steering technology used. The VLEX is extremely reliable due to being extremely rugged, with industrial components swiftly available and exclusively from reputable brand manufacturers.



## 1 WITH A BIG TWIST FOR RAIL AND ROAD: ARTICULATED STEERING

### Articulation steering means flexibility

Many shunting systems are too clumsy or involve high wear. The newly developed VLEX road-rail robot features a very special type of articulated steering. It is steered and controlled by radio control by means of four individually controlled wheel hub motors. Steering takes place via the speed control of the wheels, so that we could do without the steering cylinders commonly used in articulation steering systems.

The road-rail robot is thus compact and extremely maneuverable and therefore a real economic alternative to previously available shunting solutions.

### 360° turns are possible

The ingenious vehicle and steering geometry, combined with the new steering control system allow a turning radius of only 7.2 m that are gentle on the tires. If necessary, 360° turns on the spot are also feasible.



## 100% GRIP EVEN ON ROUGH GROUND: SWING AXLE FOR MAXIMUM TRACTION



One of the chassis axles is a swing axle. This ensures that all drive wheels always have maximum contact with the ground and can make use of their full power during rail and road travel.

The vehicle, thus masters smaller obstacles as well as chuckholes without any loss of structural stability and traction even on unpaved but load-bearing terrain.

### Versatile use

This makes the road-rail robot ideal for a wide range of applications – whether in tram transport operation, under the harsh conditions of container loading in a port environment or shunting of industry cargo wagons. Braking is carried out electrically. The spring-loaded multi-disc brakes on all wheels keep the vehicle safely in position.







## INTUITIVE INNOVATIVE: REMOTE CONTROL WITH NOVEL COLOR SYSTEM

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The joystick remote control is particularly easy to use with the novel color system. Steering and travel as well as lowering the track rollers are operated intuitively and without the need for major training measures by means of color-coded buttons.

The road-rail robot is controlled safely under all operating conditions thanks to the

high coverage. In majority of the European Union the radio frequency (433/434 MHz) is not subject to registration or approval.

### Everything at a glance

In addition, all other functions such as buttons for solo/loaded speed, locking of the steering function, working lights, the shunt coupling as well as an emergency stop button are always visible and selectable.



## EXTREMELY EASY TO MAINTAIN: EASY ACCESS TO ALL COMPONENTS

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The complete steel frame has an extremely rugged design and is all welded.

Access to all important components as well as for battery replacement is possible at any time via large gull-wing doors. This makes maintenance of the road-rail robot very easy. The recharge is carried out by means of an intelligent, high-frequency charger, with gentle charging control based

on the actual battery status. Equalizing and trickle charges are possible.

### Operating data always visible

All operating data are graphically shown on a 4.3 inch color display and are read by means of LED bars. Settings or parameters can be changed and adjusted at any time. In addition, the road-rail robot has a LED battery discharge level display and a electrolyte level warning light.





VLEX

## IN DETAIL: THE EQUIPMENT



4.3" DISPLAY



TRACK GUIDE ROLLER



CLUTCH ROD (OPTIONAL)



ROTARY BEACON WARNING LIGHT



EMERGENCY STOP BUTTON



WORKING LIGHT (OPTIONAL)

## MANEUVERABLE AND FLEXIBLE ON RAIL AND ROAD: FIGURES, DATA, FACTS



### PULL FORCE/SPEED

Pull force 20 kN, trailer load at 0 %  
300 t on straight, level track,  
speed 6 km/h or 3 km/h under load

### DRIVE MOTORS

All-wheel drive with full synchronized  
7.5 kW wheel hub motors, 96% energy  
efficiency, maintenance-free

### FRAME

Sturdy steel construction with a massive  
swing axle (6 - 20 mm steel sheets)

### LOCKING SYSTEM

Spring-loaded multi-disc brakes acting on  
all wheels

### OWN WEIGHT/DIMENSIONS

4.5 t own weight  
2,700 mm x 1,675 mm x 1,420 mm (L x W x H)  
Axis-center distance: 2,100 mm

### STEERING

± 45° passive articulated steering

### TRACK GUIDE/WHEELS

Track gauge: 1,000/1,435/1,520 mm  
Solid rubber tires: 610/150-410

Hydraulically actuated track guiding  
is adjusted/balanced to follow the track  
also accurately and safely in the event of  
bumps.

### TURNING RADIUS

Outer turning radius: 7.2 m  
Turning radius vehicle center: 5.2 m  
Inner turning radius: 3.1 m

### CONTROL UNIT

Outdoor safety control device for mobile use.  
Robust aluminum die-cast housing  
provides high security against electro-  
magnetic interference disturbances and  
protection against mechanical stress.

### BATTERY

High-performance traction battery  
Voltage: 80 V | Capacity: 360 Ah  
Discharge depth max. 80%, charging time  
8 - 12 h, lifetime approx. 1,500 cycles,  
electrolyte level warning display.

Electrolyte circulation has the advantages  
of shorter loading times, higher life expect-  
ancy and reduced energy consumption.

### CHARGER

Intelligent high frequency charger with  
gentle loading control based on actual  
battery status; equalizing and tickle  
charges are possible. 400 V AC/32A.

### DISPLAY INSTRUMENTS

4.3 inch color display for graphical display  
of operating data, settings or parameters  
can be changed and adjusted.  
Battery discharge level indication by  
means of LED bars.

All information without guaranty.

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**MORE INFORMATION:  
[WWW.VLEX-ROBOT.DE](http://WWW.VLEX-ROBOT.DE)**