Innok Robotics

INDUROS

THE TRANSPORT ROBOT

INDOOR · OUTDOOR · BROWNFIELD

innok-robotics.de

Innok Robotics
Pionieers of Brownfield-Automation

We close the gap in intralogistics

Since its founding in 2012, Innok Robotics has had a clear mission: to bring autonomous robotics to places where it was previously considered impossible – out of clean halls and into the harsh reality of industry. As a technology leader for autonomous mobile robots (AMR) in outdoor and indoor environments, we are closing the gap in intralogistics that often ends at the factory door.

Our technological DNA is based on the modular robot platform **HEROS**, which has proven itself under the toughest conditions – from salt mines to agricultural fields. Our specialised series products are based on this robust foundation: the **RAINOS** as an autonomous irrigation robot for landscaping, municipalities and cemeteries, and the **INDUROS** as our flagship solution for material transport. At the heart of all our systems is the **Innok Cockpit**. This proprietary AI autonomy software acts as the central brain and, thanks to innovative sensor fusion, enables seamless plug-and-play navigation in complex brownfield environments – without the need for costly infrastructure changes. With development and production facilities in Germany, we offer the highest quality and innovative strength for the global market.

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Become part of our success story: The Innok System Partner Programme

The Innok Robotics partner network is growing steadily. We are always on the lookout for strong system houses, integrators and distributors who want to work with us to tap into new potential. With INDUROS in your portfolio, you can close the automation gap where conventional indoor AMRs and forklifts reach their limits. This allows you to offer your customers a seamless 24/7 solution for outdoor and brownfield areas – as an exclusive addition to your portfolio.

INDUROS – the definition of outdoor-intralogistics

Unlimited material flow:
The bridge between indoor and outdoor

The INDUROS is more than just a transport robot. It is the answer to logistical disruptions in modern industrial areas. Conventional AGVs fail when faced with door thresholds, potholes, rain or ageing hall floors. The INDUROS, on the other hand, connects warehouses, production and goods dispatch across all barriers. Thanks to its unique navigation system, it moves smoothly from narrow indoor corridors to spacious outdoor areas. It can handle gradients of up to 10%, overcome thresholds and manoeuvre safely on uneven asphalt or gravel in all weather conditions. This enables true end-to-end automation of material flow for the first time, without the need for manual transfer at the warehouse door.

Built for the elements:
Robustness meets precision

While other robots have to stand still in bad weather, the INDUROS' working day is just getting started. Designed to industry standards and protected against the elements (IP65), the fleet operates reliably in rain, snow, heat or cold. The special AI-based Innok Hybrid Navigation ensures that the robot can be precisely located even where GPS is obscured by buildings or laser scanners cannot find their bearings in open terrain. This combination of physical robustness and navigational intelligence makes INDUROS the world's leading solution for existing factories ('brownfield') where conditions are not ideal laboratory environments.

The INDUROS Familie – our models

With its expanded product family, Innok Robotics now offers the right traction vehicle for every load profile. The series comprises four models based on the same intelligent technology but optimised for different applications.

INDUROS
350s

The sprinter for long distances

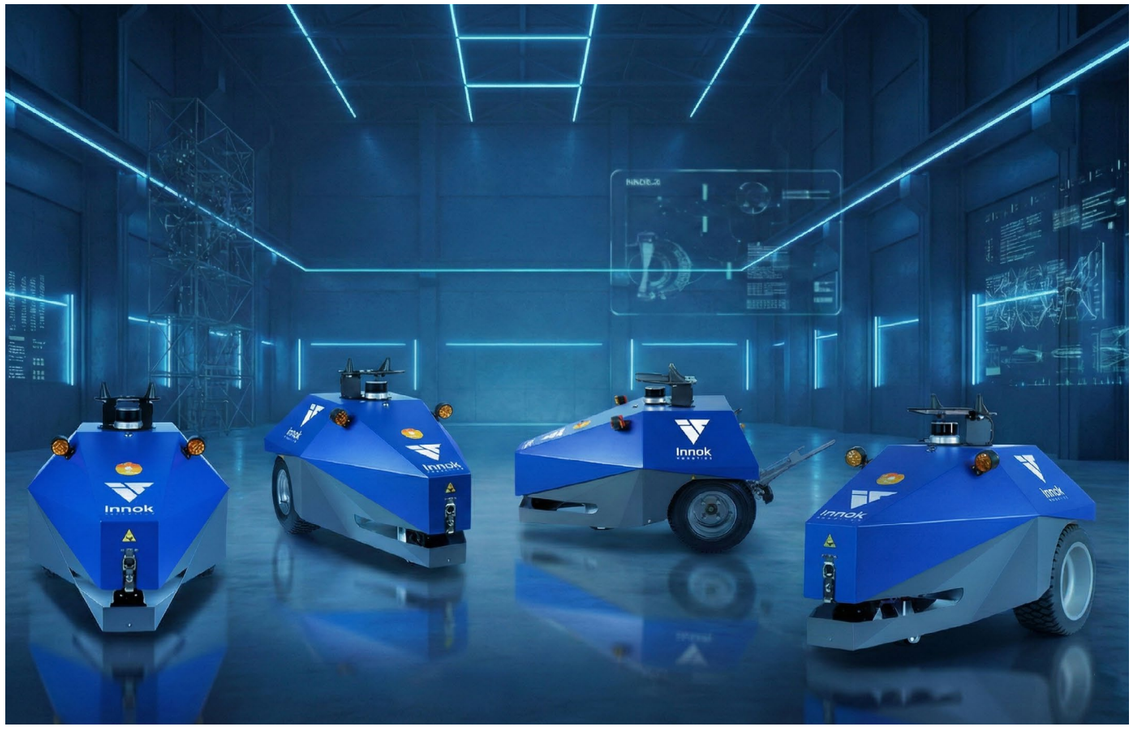
Speed meets efficiency. This model is specially designed for long distances between halls where time is of the essence but no extreme loads need to be moved. With a speed of up to 6.5 km/h and a towing capacity of up to 350 kg, it is the ideal courier for time-critical material flows on moderate inclines. It features battery runtimes of up to 16 hours with an appropriate load.

INDUROS
700

The economical allrounder

The proven standard for internal transport. As a robust entry-level model, the INDUROS 700 offers the best price-performance ratio for classic logistics tasks. It moves mesh boxes and pallet trucks weighing up to 700 kg reliably and safely at 3.2 km/h – the workhorse for daily routine operations.

A robot family for every requirement: Scalable performance up to 1.3 t



INDUROS
700s

The uncompromising premium solution

If you don't want to compromise: the 700s combines the power of an all-rounder with the speed of a sprinter. It is strong and fast. Designed for high handling frequencies, it transports a full 700 kg at double the speed (up to 6.5 km/h) – the first choice for performance-oriented logistics that demand both power and speed.

INDUROS
1300

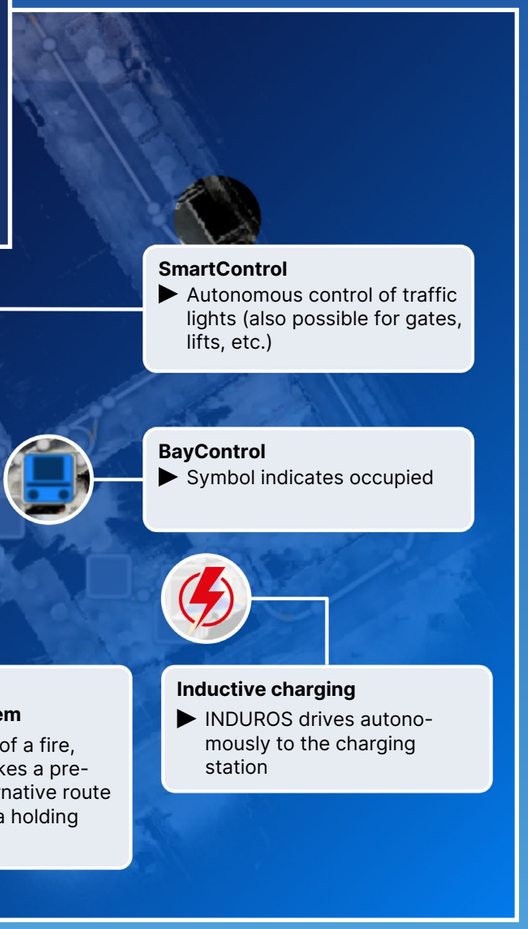
The powerhouse for heavy loads

The powerhouse for heavy loads Where others give up, the 1300 takes over. Designed for heavy weights and the demanding requirements of the automotive, supplier and battery industries, this model can safely pull up to 1,300 kg across factory premises. It is the definitive solution for transporting heavy machine parts or Euro pallets with maximum loads – maximum power for maximum loads.

Example mission
▶ No programming knowledge required

User interface – Focus on usability

The Innok Cockpit is web-based and device-independent. This means full control on any device.



Innok Cockpit & Physical AI

Intelligence that grows with you, intuitive to use

The hardware makes INDUROS robust, but it is the software that makes it intelligent. The **Innok Cockpit** is the central brain of our robot fleet. It was not developed in a laboratory, but in tough practical use to solve real problems.

Physical AI: Mastery of physical reality

At Innok, 'physical AI' means that the software understands and masters the physical conditions of the environment, creating the perfect digital twin of the robot. In future, physical AI will make it possible to learn dynamically, adapt to the environment and interact with it intelligently. Thanks to **Innok Hybrid Navigation**, the robot processes data from a wide variety of sensors simultaneously. The result: maximum **reliability** at all times. The robot finds its way precisely, whether on wet roads, slippery gravel or in narrow corridors. Where purely indoor systems come to a standstill, the INDUROS continues to move forward safely.

Full control on every device: PC, tablet & smartphone

Modern industrial software must adapt to the user, not the other way around. Innok Cockpit is web-based and device-independent.

In the office: The logistics manager plans routes and monitors the fleet conveniently from their desktop PC.

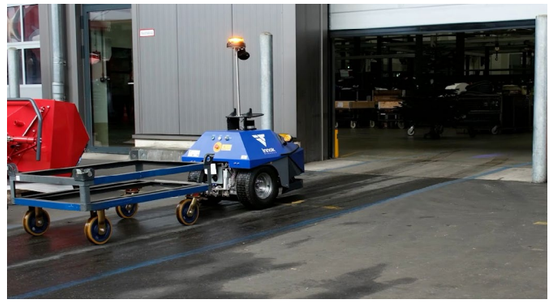
In the warehouse: The forklift driver uses a robust tablet to manage orders.

On the go: The foreman can even quickly check the robot's status via smartphone or call it to a station. No complicated software installation is necessary – a browser is all that is required. The user interface is so intuitive that new employees can immediately start working productively with the robot without lengthy training.

A key advantage for our customers is the fleet's update capability. The Innok Cockpit is a living platform. Features such as intelligent trailer detection and improved route planning algorithms are continuously being developed.

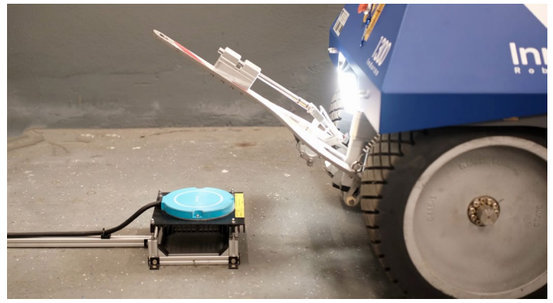
This means that an INDUROS you buy today will be even more powerful tomorrow. Existing customers benefit directly from new AI features that can be rolled out to the fleet via OTA (over-the-air) software updates, maximising investment security and extending the range of functions beyond the hardware's service life.

Technologie for practical use
Feature Fokus



Innok Smart Control

Autonomous opening of gates and doors.
The INDUROS communicates directly with your building infrastructure. It autonomously controls roller doors, barriers and even lifts, requests that they be opened and only passes through when the way is clear. This enables smooth through traffic without human intervention.

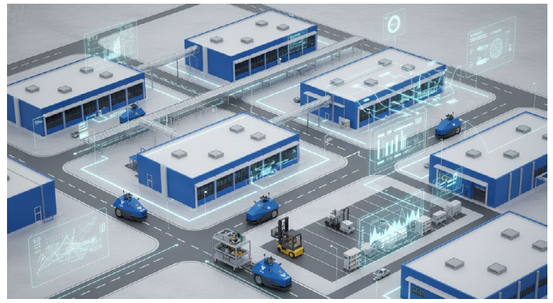


Wireless Charging

Wireless charging For 24/7 continuous operation, Innok relies on inductive charging.
The robot drives autonomously to charging stations and charges contactlessly in one piece or even between orders. This eliminates wear-prone charging contacts and guarantees maximum availability without manual charging processes.

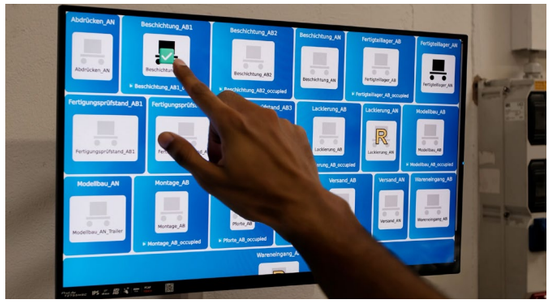
Trailer Reverse AI Pro

A highlight of physical AI.
Reversing with a trailer is considered the supreme discipline. Thanks to AI support, the INDUROS can perform this complex manoeuvre autonomously.
It can precisely reverse trailers into parking bays, docks or robot cells, which drastically reduces the space required in logistics.



Innok Fleet Management

Scaling made easy.
The fleet manager integrated into Innok Cockpit coordinates all Innok vehicles, prevents congestion and intelligently optimises order distribution.
It ensures that the robot in the best position always takes on the next order.



BayControl

Complex technology, easy to use.
With the BayControl interface on tablets, production employees can trigger transport orders at the touch of a button ('taxi principle') even without any robotics experience. The intuitive UI requires no IT knowledge and ensures high acceptance among the workforce.

No Infrastructure – Fast Setup

Thanks to intelligent navigation, there is no need to install guide rails, magnets or reflectors.
The robot maps its surroundings using sensors. This means no structural modifications, no interruption to production during installation and quick adaptability in the event of layout changes.

VDA 5050 Conformity

Investment security through standards.
INDUROS speaks VDA 5050, the central interface for fleet managers in intralogistics. This allows Innok robots to be seamlessly integrated into existing fleet managers and control systems and operated in mixed fleets with robots from other manufacturers.

Outdoor suitability without modifications

The INDUROS is a true 'brownfield' specialist.
It utilises existing paths, whether cracked asphalt or paving stones. Expensive renovations of outdoor areas or the construction of roofing are not necessary for its use.

W. Markgraf GmbH & Co KG
Case Study

Construction Logistics 4.0
Autonomous supply at the Kemnath site

The starting point: innovation meets everyday logistics

As one of the most successful medium-sized companies in the German construction industry, the MARKGRAF construction company placed great importance on innovation and sustainability when planning its new logistics centre in Kemnath. However, the operational challenge was a classic one: a sprawling site with two separate halls, a central workshop and a high volume of internal goods transport. Until now, these transports were carried out manually with forklift trucks. This tied up qualified specialists in unproductive driving times and caused unnecessary traffic on the company premises. The requirements for an automation solution were complex: the system not only had to serve indoor areas, but also reliably bridge the unprotected outdoor area between the halls in all weather conditions – a classic 'brownfield' scenario that ruled out conventional indoor AGVs.

The solution: INDUROS as the connecting link

The choice fell on the INDUROS (affectionately christened 'Klaus' by the MARKGRAF staff). Thanks to Innok Hybrid Navigation, the robot switches seamlessly between the halls and the outdoor area, overcomes gate thresholds and navigates safely on asphalt surfaces. It acts as a flexible link that significantly optimises two central logistics processes:

1. Construction site logistics reimagined

A core process at MARKGRAF is the provision of equipment for construction sites. Employees order equipment and materials, which are picked by the warehouse team. In the past, these goods had to be prepared and handed over manually. Today, the warehouse team picks the goods directly onto trailers. The INDUROS picks them up and transports them autonomously across the outdoor area to special 'pick-up garages'. This is where one of the highlights of **Physical AI** comes into play: the **Trailer Reverse AI Pro** feature. Since there is no room for turning manoeuvres in the garages, the INDUROS precisely reverses the trailers into the parking bays and automatically uncouples them.

The customer benefit:
Construction site personnel can pick up their ordered equipment at the garages at any time – completely independent of warehouse staff availability or goods issue opening hours. This decouples processes and creates maximum flexibility.

2. Internal factory transport:
Just-in-time to the workshop

The second use case concerns supplying internal departments. Spare parts and packages from the central goods receiving area must be distributed several times a day to the various production sites on the premises. Instead of employees repeatedly interrupting their work to find a forklift and fetch parts, the INDUROS takes care of these routine tasks. It travels autonomously between the central warehouse and the workshops.

The customer benefit:
The skilled workers in the workshop can concentrate more on value-adding activities, while the material flow runs automatically and reliably in the background.

Simplicity creates acceptance

A key success factor at MARKGRAF was usability. Since many different employees interact with the robot, **Innok BayControl** is used. Using permanently installed tablets, employees can call the robot like a taxi or send it to a destination at the touch of a button – without any training. The result: the robot was quickly accepted by the team and noticeably reduces the workload for the staff. In addition, safety on the premises has been further increased, as unstructured manual forklift traffic has been replaced by defined robot routes.

Innok BayControl

With this case study, MARKGRAF impressively demonstrates that consistently automating logistics processes – including outdoor areas – not only increases efficiency but also creates modern workplaces that focus on people rather than transport.

RIGDON GmbH
Case Study

Tyre logistics put to the test: 99.9% availability in brownfield sites

The challenge: transport over rough terrain

Tyre logistics put to the test:
99.9% availability in brownfield sites

At Rigdon, a leading tyre retreading specialist in Günzburg, manual intralogistics had reached its limits. Heavy tyre carcasses were previously transported manually between the rubber coating station and the pressing plant using forklift trucks. This tied up valuable skilled workers and resulted in high operating costs. The particular hurdle for automation lay in the infrastructure: the transport route, several hundred metres long, leads across the outdoor area and through older production halls ('brownfield'). Cracks in the ground, thresholds, uneven asphalt and the change between indoor and outdoor areas in wind and weather posed challenges that conventional indoor AGVs could not overcome.

The solution: autonomous shuttle service with INDUROS

Rigdon was one of the first customers ever to choose the INDUROS from Innok Robotics: the only solution that could master these 'multi-terrain' requirements without structural changes. The robot handles the entire shuttle service fully autonomously. It navigates safely over the damaged ground, switches smoothly between the halls and withstands rain and temperature fluctuations.
A key feature is **autonomous coupling**: the INDUROS approaches the tyre trailers precisely, couples them independently and uncouples them again at their destination. The process is completely unmanned, which enables Rigdon to operate efficiently, especially to relieve the burden of multi-shift operation.

Conclusion: Proven reliability in continuous use

The Rigdon project is long-term proof of the robustness of Innok technology. **After more than four years of continuous use, the INDUROS has an impressive technical availability of 99.9%.**

Employees have been freed from unproductive trips and can now fully apply their expertise to quality control and retreading. As a pioneering customer, Rigdon impressively confirms that autonomous outdoor logistics is no longer an experiment, but an absolutely reliable, low-maintenance constant that performs trouble-free for years, even under harsh industrial conditions.

Quote from Günter Ihle (CEO Rigdon):
'The INDUROS is the best investment I have ever made.'

RaaS, purchase and financing
Cost-effectiveness from day 1

Massive savings and simultaneous stabilisation of processes

At Innok Robotics, we understand that flexibility in procurement is just as important as technological performance. That's why, in addition to traditional purchasing and leasing, we also offer the innovative **Robots-as-a-Service (RaaS) model.**

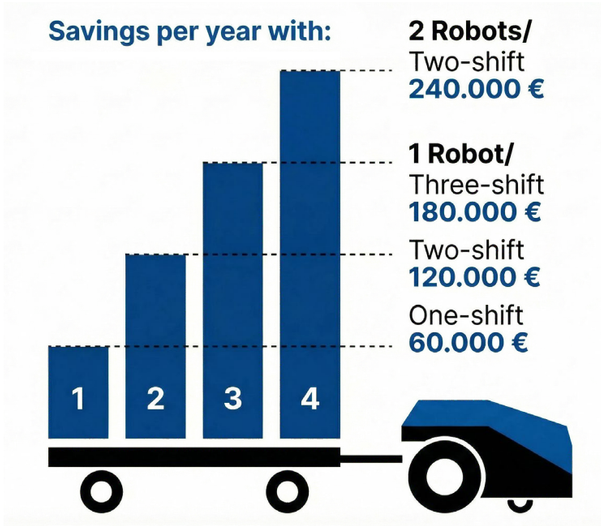
The zero CAPEX approach

With RaaS, there are no high initial investment costs (CAPEX). Instead, you rent the robot, including maintenance and software updates, at a fixed monthly rate. This preserves your liquidity and allows you to plan with a high degree of certainty and without risk.

Immediate ROI against the shortage of skilled workers

In times of severe staff shortages, the use of an INDUROS often pays for itself from the very first hour. The monthly RaaS rate is usually significantly lower than the full costs of manual forklift operation (personnel + equipment + energy costs) in single or multi-shift operation. The economic advantage is multiplied, especially in 2- or even 3-shift operation: a robot does not need breaks, holidays or shift allowances.
However, even when purchasing, most Innok customers often achieve a **return on investment (ROI) in less than two years.**

The clear advantage: massive savings while stabilising processes. With Innok, you not only protect yourself against the shortage of skilled workers, but also increase your competitiveness from day one.



Even a single INDUROS generates enormous savings for Innok customers and thus a very fast ROI. With RaaS, Innok's robots pay for themselves from day 2 of commissioning.

Technical data
INDUROS in general

INDUROS in general

Dimensions	approx. 115 × 80 × 100 cm (L x W x H)
Ground clearance	approx. 7 cm
Ambient temperature	-10 °C to +45 °C
Protection class	IP65
Battery	48 V, up to 4.0 kW continuous load Technology: Li-ion Capacity: approx. 2900 Wh Running time: up to 16 hours, depending on payload and route Charging time: approx. 2 hours (from 20% to 80%)
Radio networks	Wi-Fi or LTE
Localisation	Lidar Optional: RTK GNSS GPS/Galileo/Glonass/Baidu
Safety	Safety laser scanner Rotating beacon and indicator lights Warning tone Emergency stop button

Product data
Tech data

INDUROS 350s

Weight	Towing capacity*	Speed	Drive**
165 kg	up to 350 kg	6,5 km/h 1,8 m/s	2 × 400 W

INDUROS 700

Weight	Towing capacity*	Speed	Drive**
165 kg	up to 700 kg	3,2 km/h 0,9 m/s	2 × 400 W

INDUROS 700s

Weight	Towing capacity*	Speed	Drive**
165 kg	up to 700 kg	6,5 km/h 1,8 m/s	2 × 700 W

INDUROS 1300

Weight	Towing capacity*	Speed	Drive**
320 kg	up to 1300 kg	3,2 km/h 0,9 m/s	2 × 700 W

* Depending on ground conditions, route and speed

** Maintenance-free drive, max. continuous power

Innok Robotics

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ABB
HORSCH
SICK Sensor Intelligence.
Kubota
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Roche
SIEMENS
VOLVO
ZF
Zwick Roell
...and many more

CUSTOMERS & REFERENCES