

KUKA



Mobile robotics_KMP 1500



KMP 1500

Autonomy, intelligence, precision

Shorter response times and greater flexibility going beyond full automation: these are the new requirements of automotive producers that are changing at an ever faster pace. The industrial manufacturing of the future will require new, modular, versatile and, above all, mobile manufacturing concepts. KUKA has risen to this challenge: with the KUKA mobile platform (KMP) 1500, the new omnidirectional mobile platform from KUKA controlled with the latest KUKA Sunrise controller. This opens up entirely new, scalable and reconfigurable production concepts. The KMP 1500 enables the cost-effective use of automation resources by employing only those resources actually needed for warehouse management or between manufacturing processes.



Autonomous navigation. The KUKA Navigation Solution opens up a wide range of potential applications for the KMP 1500 platform. The system enables the fully autonomous motion of the mobile platforms – with absolutely no risk of collision and without the need for artificial markings in their environment. The KUKA Navigation Solution software acquires the data of the safety laser scanners and wheel sensors and uses them to create a corresponding map of the surroundings by means of the SLAM method (SLAM = Simultaneous Localization and Mapping). The platform can then localize itself using this map. The system responds to changes in the environment – which occur frequently in a flexible logistics system. Furthermore, the autonomous path planning has been expanded. Use of virtual paths makes it possible to move the platform exclusively along defined routes. It nonetheless retains its maximum flexibility at all times.



Transport the car body through entire production process. The mobile platform offers a payload capacity of 1,500 kg, makes it possible to transport the car body through the entire manufacturing process. The KMP 1500 meets all required safety standards for autonomous guided vehicles, offering high load capacity with maximum safety.



Warehouse management
Thanks to its innovative navigation system, the KMP 1500 operates autonomously and is able, for example, to set down machined work-pieces or fetch required components.

Enabled by  **KUKA Sunrise.OS**

Factory automation – the next level.

Taking production flexibility to a new dimension. The factory of the future will not have any predefined routes or rigid processes. Intelligent autonomous vehicles will equip robots and machines “on the fly” with other tools, enabling production to be carried out with a previously inconceivable degree of flexibility. Welcome to the world of the KMP 1500.



KUKA mobile platform

+



KUKA Sunrise.OS

+



KUKA Navigation Solution

=

your solution

KMP 1500

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Freely scalable, modular system. The unbeatable combination of the service-proven KUKA robot technology and state-of-the-art KUKA Sunrise control technology provides a mobile solution for all conceivable scenarios. The KUKA Sunrise controller offers all the necessary interfaces for standard robots. This allows the platform to be extended easily with any special equipment or sensors, for example conveyors.



Maximum flexibility and unrestricted maneuverability. Where manufacturing processes are subjected to continual changes, one thing counts more than anything else: flexibility. The KMP 1500 stands for unlimited adaptability. The omnidirectional wheel concept enables unrestricted motion in any direction from a standing start. Furthermore, the immense working range opens up a wide range of options for entirely new production concepts and increased cost-effectiveness in logistics management.



Utmost precision and simple operator control. With the omnidirectional wheel technology, the KMP 1500 moves safely to the desired position, even in confined spaces, with a positioning accuracy of up to ± 5 mm – irrespective of driven distance to the workplace. For the first time, the KMP 1500 makes it possible to utilize the efficiency and reliability of KUKA robotic technology for large-area automation solutions in the logistics sector.



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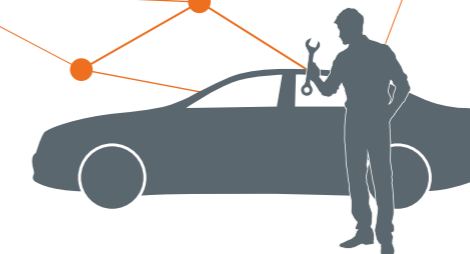
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Car Body
With its streamlined design, the KMP 1500 is mainly dedicated for automotive body shop production lines. The KMP 1500 is responsible for autonomously transporting the car body between all process steps through the entire production.



Human-robot collaboration (HRC) / safety
The KMP 1500 supports the operator during assembly tasks by providing him with an ergonomic work situation at the desired height. Thanks to a safety laser scanner integrated into the platform, different degrees of automation can be implemented.

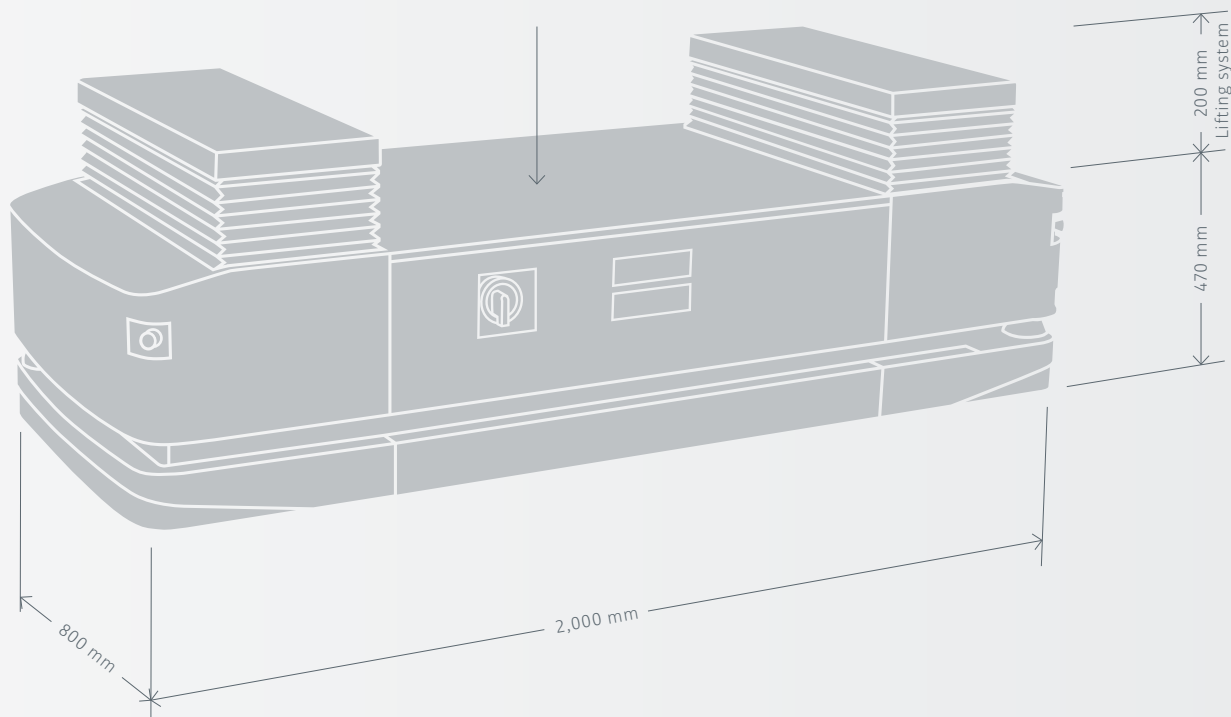


Mobile robotics from KUKA

Technical data



Lithium Ion battery technology with integrated Battery Management System



KMP 1500

Length with scanners	2,000 mm
Width with scanners	800 mm
Height	470 mm
Min. / max. weight	711 kg / 935 kg
Max. payload	1,500 kg
Max. velocity straight ahead	1 m/s
Max. velocity diagonally and sideways	0.56 m/s
Wheel diameter	310 mm
Battery capacity	52 Ah / 96 V (Minimum 4 hours)
Charging time	1 hour

KMP 1500 norms

EN ISO 12100	Safety of machinery
EN ISO 13849-1	Safety of machinery
EN ISO 13849-2	Safety of machinery
EN 60204-1	Safety of machinery
EN 1175-1	Safety of industrial trucks
EN 1525	Safety of industrial trucks
EN 1526	Safety of industrial trucks
EN ISO 3691-4	Safety of industrial trucks
EN 1570-1	Safety of lifting tables

KUKA Mobile Platform – additional options

Lifting system

Max. lift table height	200 mm
Max. lift table velocity	50 mm/s
Weight of lifting system	144 kg

Battery system Extender

Battery capacity	104 Ah / 96 V (Minimum 8 hours)
Charging time	2 hours
Weight of extender	80 kg

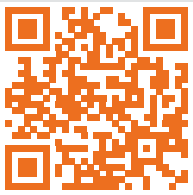
Radio control unit	
Floor contact plate	
Brake release device	

Customer interfaces

X96V System voltage	100.8 VDC / 20 A
X24V Controller voltage	24 VDC / 5 A
X24V Actuator voltage	24 VDC / 5 A
XPN Network connection	PROFINET
XEC Network connection	EtherCAT

KUKA interfaces

X19	smartPAD interface
XBR	Connector for brake release device
KLI	Network connection



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