

ROBOTICS FOR INDUSTRY
ROBOTS - COMPONENTS - ACCESSORIES



www.wobit.com.pl



www.reach4robotics.com

Reach for Robotics





About us

WOBit company exist on the Polish market over 27 years and is able to deliver the full spectrum of up-to-date automation products. The results of our work can be seen in every aspect of the functioning of our firm, starting with our new headquarters through a consistently growing level of services up to innovative products.

Passion is our key to development since the beginning. Our staff has passion and eagerness to develop new solutions and change the course of automation history.

Our team consist of engineers and specialist with many years of experience in such fields like measurements, drives and control and mechanics. Highly competent and professional team allow us to solve the most complex applications.

Today the most important organizational aim is providing our customers with the support necessary for their needs analysis, which makes it possible to find an optimum solution for their application problem. Then, through selection of standard components, manufacturing of non-standard elements, as well as our programming services, WOBit can comprehensively handle projects with a high degree of complexity.

Dynamically developing product group is industrial robotics. We offer SCARA, DESKTOP, AGV, TOWER and CARTESIAN robots manufactured by our own, also we can prepare tailored solutions.



Creating can be our common passion

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Selected examples of applications

Thanks to many years of its application experience, engineering knowledge, broad product offer and as well as its high-tech machine park the WObit company offers bespoke mechatronic systems, in addition to standard solutions.



Cartesian robot for nailing and screwing

Cartesian robot is designed for automatic nailing and screwing wooden upholstered furniture.

Construction consist in one or two rotary tables and two-axle cartesian robot.

Robot can be freely programmed depend on sewed furniture using 10" operator panel. Application allows saving several programs which allows to mount different elements.



Three-axle Cartesian robot for pick&place applications

Based on WObit linear modules, three-axle Cartesian robot was prepared it allows free manipulation of details up to 5 kg.

Construction basis is made of steel profiles, which provides rigidity and stabile mounting to the ground.

Inner robot space allows to lead manipulated detail (e.g. on transport conveyor), gripping it and placing to other place within robot operating space.

For robot was prepared control cabinet including i.a. MIC488 controller. Robot software was based on MIC488 software.



Dedicated linear axis with controller

The axis design is reinforced and is designed for higher payloads.

Control cabinet is integrated in the back part of the construction.

Control panel on cable is built-in control cabinet, which allows distance control up to 5 m.

- Max speed 20 mm/s
- Operation range 380 mm



Laser profilograph

The profilograph is a device used to measure pavement surface roughness in range of 45 up to 90 mm. It allows to specify the road surface state by checking depth of ruts, chaps or ravel.

Benefits for the customer:

- Mobile construction with battery supply
- Automatic measurement process
- Data record directly into SD memory or to PC

Selected examples of applications



2D/3D measuring system

2D/3D measuring system is designed for height measurement based on profile analysis (difference between cusp and element base) with $\pm 10 \mu\text{m}$ accuracy.

- The measurement is executed with 1 mm step lengthwise of the element
- Data collection and analysis through dedicated software on PC
- Function of measurement of width of the element
- Time of the measurement max. 10 s
- Function of signaling deviation from data set by user with tolerance
- Option of recording measuring points to a file in *.csv form for analysis



Pan-Tilt-Zoom

Pan-Tilt-Zoom system for regulation of the camera tilt and for panning in CCVT. Other typical applications are security monitoring and in film industry.

Depending on the size of Pan-Tilt-Zoom system an appropriate motor with a controller should be used.

The device has an appropriate controlling system based on the motion control system with power stages and two stepper motors for the system that allows positioning with $< 0.1^\circ$ accuracy.



Drive and control system for DPPE-65 Multisaw

Drive and control system allows to set up to 20 different plank of beam width ranges for sawing. For each width range can be programmed eight cut variants.

- Data displaying on MT4403T HMI panels at digital and graphic version
- For feed the drive was used SMH80S servo motor with a servo drive from the CD series

Use of the above mentioned components in the DPPE-65 Multisaw increased its performance thereby creating new opportunities for mechanization of flexible sawmill production lines.



A device for touch panel testing

Based on MLA linear modules, the WObit specialists prepared Cartesian system for testing touch panels. In this case 57BYGH stepper motors have been used to drive the system, along with SMC104 stepper motor drivers.

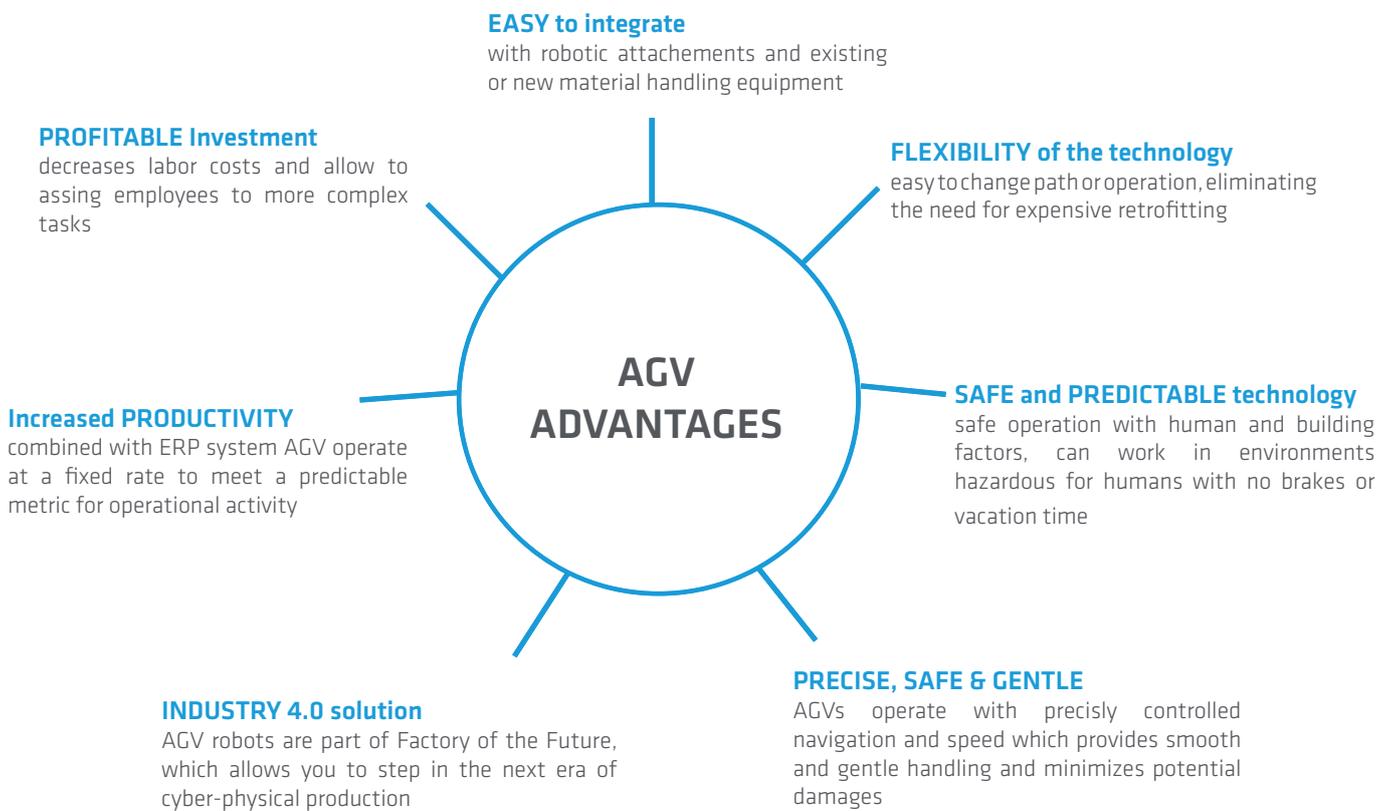
The control is executed by MIC series trajectory generator, which is a versatile device used for generating motion trajectory for up to four stepper (or servo) motors by any power controller, SMC104 used here.

Industrial robots

MOBOT® AGV are mobile robots used for automatic and autonomous transport of goods and its movement is executed on an appointed path without the need for an onboard operator or a driver.

Why use AGV?

- Replace manually operated material handling vehicles
- Good response to labor shortage
- Allow employees to be reassigned to areas where they can add value to the product
- Provide safe, efficient, cost-effective movement of materials



Industrial robots

MOBOT® AGV eRunner robot

MOBOT AGV eRunner (Automated Guided Vehicle) is a mobile robot for transport of goods autonomously between selected points. Control of robot operation is made using HMI operator panel located in basis point.

Compact & modern design

eRunner is the smallest robot in MOBOT AGV family. The robot housing is made in composite material with round shapes. The robot has modern and safe design, proper to multiple applications, not only at industry.

Safety

Safety is guaranteed by using safety laser scanner with safety function (conform with SIL2), which allows to set protection and warning zones. Safety functions prevent collisions and provide reliable operation of the robot.

Advantages

- Operating time up to 8 h
- Weight of transported goods up to 100 kg
- Wi-Fi communication
- Compact & modern design

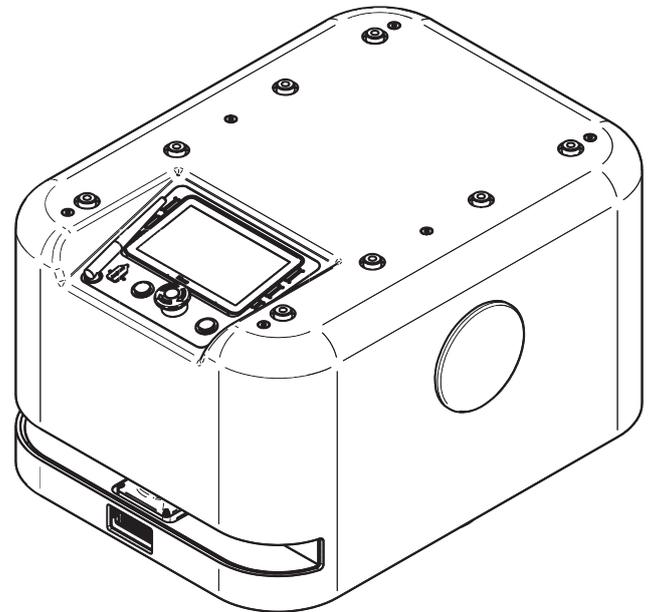
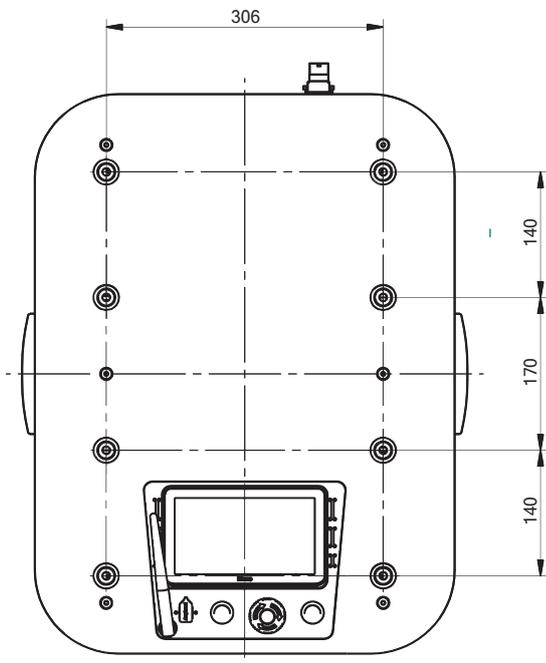
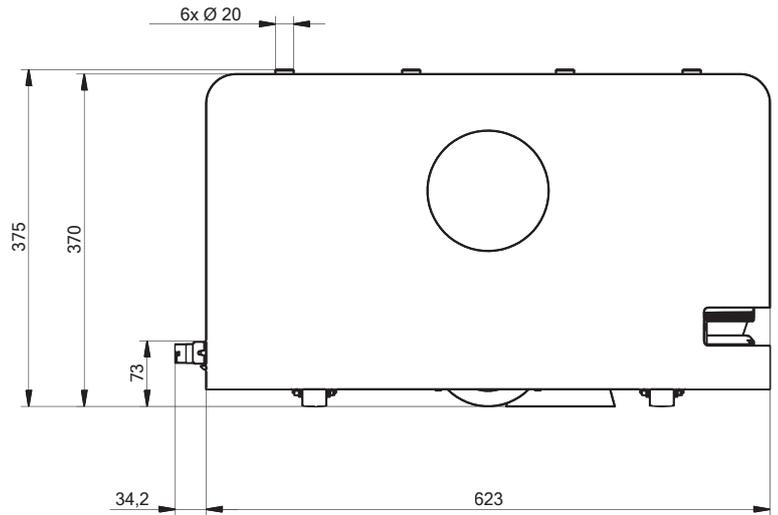
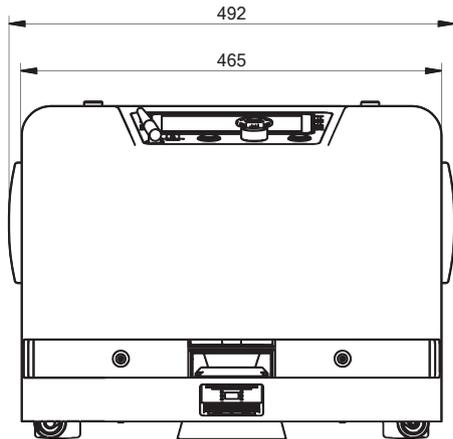
Applications

- Automatic transport of goods
- Automation of production lines
- For hospitals, offices, laboratories, electronic production



Industrial robots

Dimensional drawing of MOBOT® AGV eRunner robot



All dimensions are approximate values and can change.

Industrial robots

MOBOT® AGV CubeRunner robot

MOBOT® AGV CubeRunner (Automated Guided Vehicle) is a mobile robot for automatic transport of goods. Robot autonomously attaches trailers using two retractable pins. Due its compact design CubeRunner is adjusted to tow different types of trailers, e.g. with rollers. It fits perfectly for applications in automotive, FMCG and in all general manufacturing production applications.

Navigation

In standard robot is equipped with colored line navigation system, Optionally robot can be equipped with magnetic tape with RFID marks or with Laser Mapping System which uses laser scanner for navigation.

Design

In standard the MOBOT® AGV CubeRunner is executed in single-directional version, allowing one-side movement and turning around at spot. Optionally robot can be equipped with symmetric drive system, double positioning system and two safety laser scanners which allows two-way movement without turning back (bidirectional version).

Charging option

Robot is equipped with 2 batteries in cassette, which enable quick swapping. it can also be charged using wire charging station, optionally there is possibility of use an automatic charging station.

Speed

The maximum speed of this model is up to 3 km/h.

Advantages

- Operating time up to 12 h
- Weight of towed trailer up to 200 kg
- Wi-Fi communication
- Compact design perfect for narrow spaces

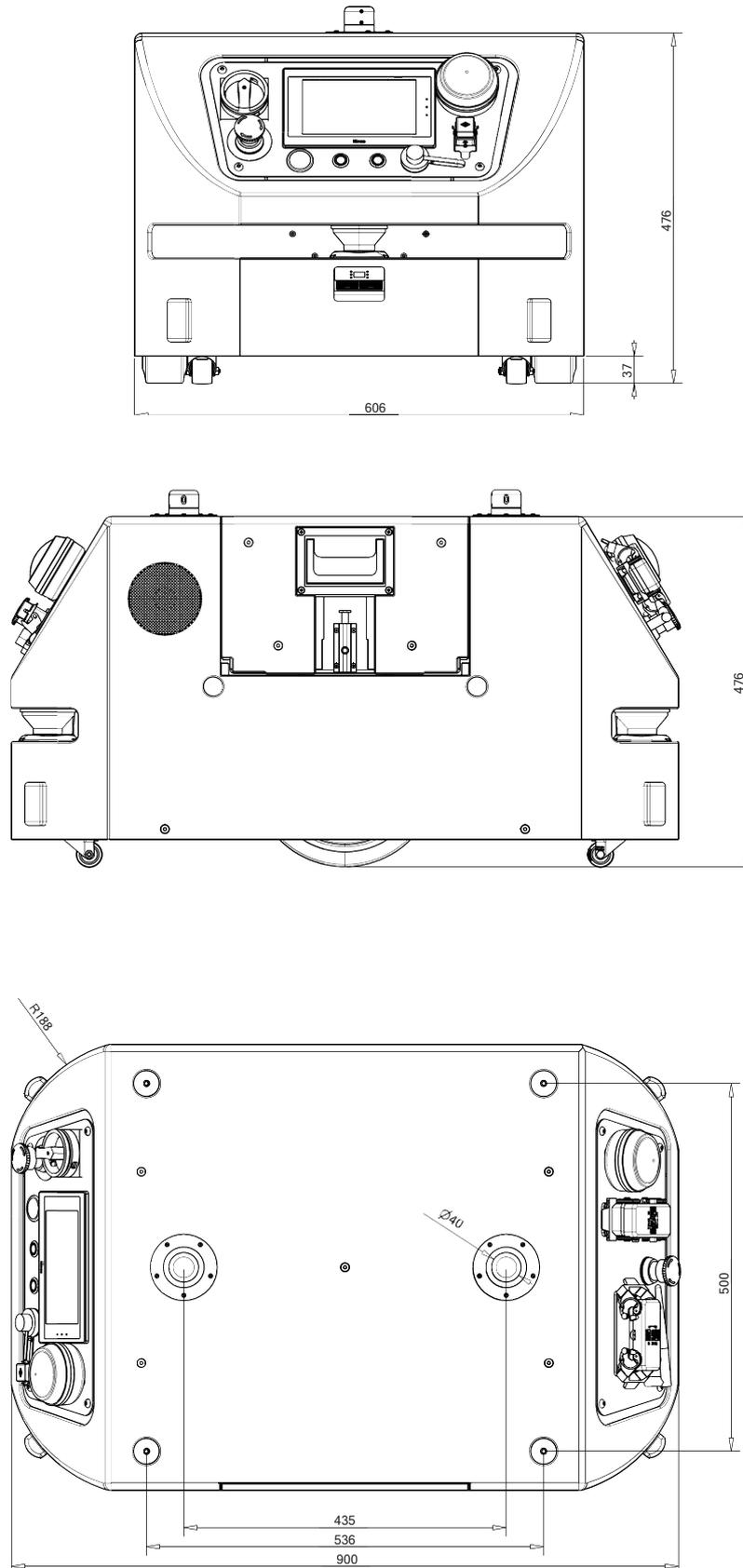
Applications

- Automatic transport of goods
- Automation of production lines
- Option of operation with palletising robots



Industrial robots

Dimensional drawing of MOBOT® AGV CubeRunner robot



All dimensions are approximate values and can change.

Industrial robots

MOBOT® AGV EcoRunner robot

MOBOT AGV EcoRunner (Automated Guided Vehicle) is a mobile robot for transport of goods, in which movement is executed on an appointed path. It allows execution of an autonomic movement to selected point along path made on a magnetic tape. Robot recognizes selected stations on base RFID marks located next to the robot movement path, in front of proper station.

Safety

Safety is guaranteed by using of two safety switches (one in front, second in back of the robot). Pushing of some safety switch cause turning off of drives and immediate stop of the device.

Collision avoidance

Robot is equipped with laser range finder with safety function (conform with SIL2). With the help of his, it is possible to scan the space in front of the robot to react in to objects on robot movement path to avoid collision. Scanned space is divided into several areas. Detection of an odstacle can slow down or stop the robot, depends on area of detection of an obstacle.

Advantages

- Operating time up to 12 h
- Weight of towed carriage up to 350 kg
- Wi-Fi communication
- Option of control the robot with tablet or smartphone

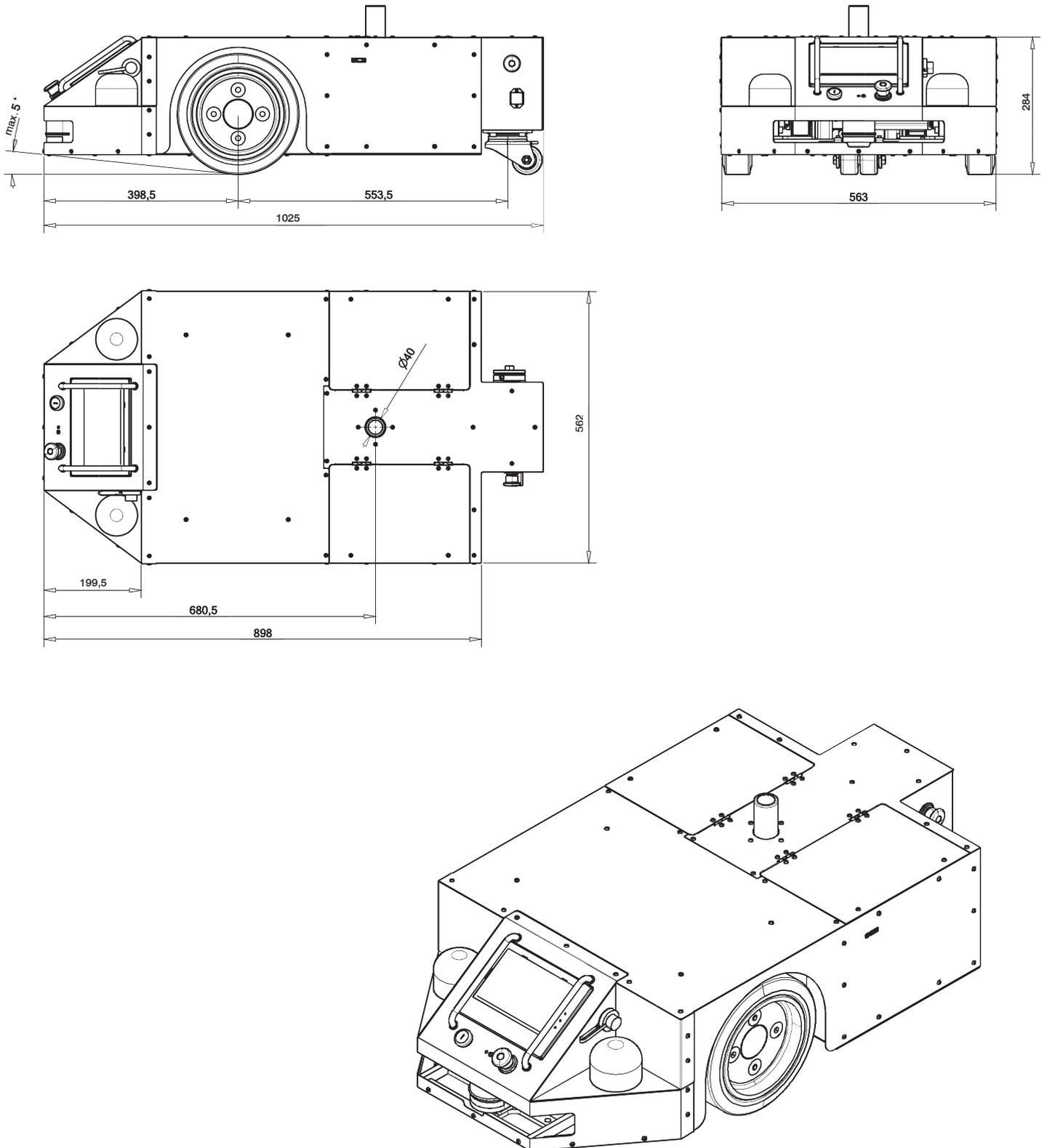
Applications

- Automatic transport of goods
- Automation of production lines
- Option of operation with palletising robots



Industrial robots

Dimensional drawing of MOBOT® AGV EcoRunner robot



All dimensions are approximate values and can change.

Industrial robots

MOBOT® AGV FlatRunner/HT robot

MOBOT AGV FlatRunner (Automated Guided Vehicle) is a mobile robot for transport of goods, in which movement is executed on an appointed path. Its main task is to tow autonomously a trailer between selected points. Robot autonomously attaches trailers using two retractable pins. Control of robot operation is made using HMI operator panel located in basis point.

Guide path

Guide path is made on a colored tape/paint and characteristic points like stations, brake points or turns are additionally marked by DataMatrix codes. AGV is equipped with positioning system to track colored path and detect DataMatrix codes which guarantee its precise and reliable operation. Optionally robot can be equipped with RFID head and use RFID marks as characteristic points along path.

Safety

Safety is guaranteed by using safety laser scanner with safety function (conform with SIL2), which allows to set protection and warning zones. Safety functions prevent collisions and provide reliable operation of the robot.

Functionality

Thanks to use of symmetric drive system, double positioning system and two safety laser scanners robot can execute two-way movement without turning back. This design allows to save space and time needed for additional moves, it is suited for transport of pallets.

Advantages

- Operating time up to 12 h
- Weight of towed carriage up to 300 kg /500 kg -HT
- Wi-Fi communication
- Symmetric design allowing two-way movement

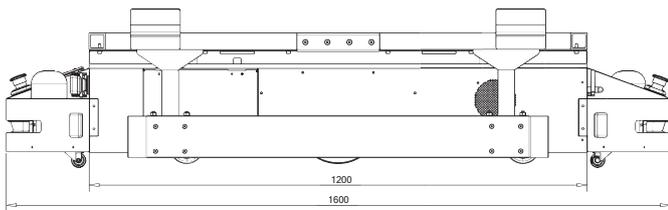
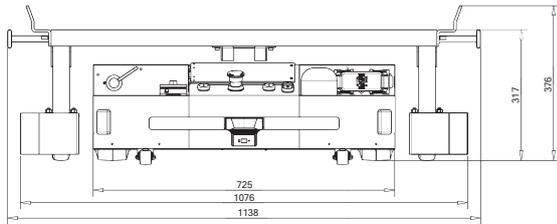
Applications

- Automatic transport of goods
- Automation of production lines
- Option of operation with palletising robots

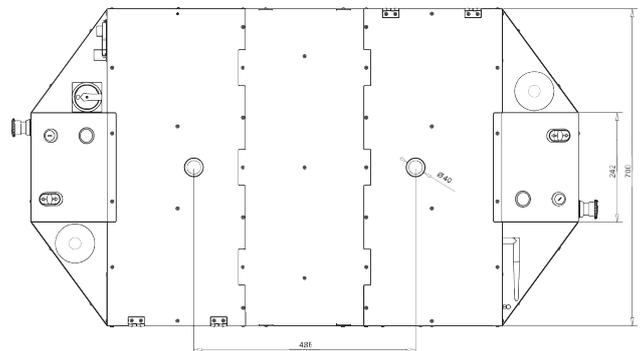
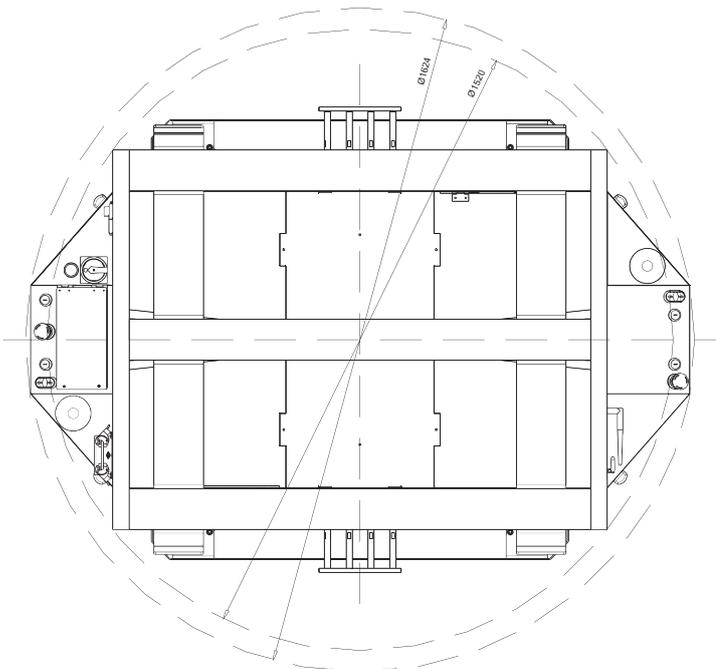
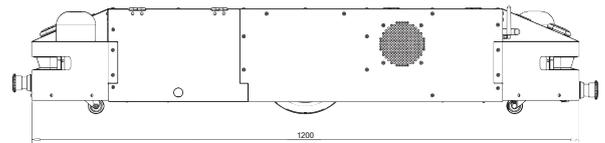
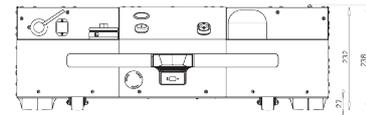


Industrial robots

Dimensional drawing MOBOT® AGV FlatRunner HT robot



MOBOT® AGV FlatRunner robot



All dimensions are approximate values and can change.

Industrial robots

MOBOT® AGV FlatRunner MW

MOBOT® AGV FlatRunner MW (Automated Guided Vehicle) is a mobile robot for transport of goods, in which movement is executed on an appointed path. Its main task is to autonomously transport goods on it or to tow a trailer between selected points. Trailers are attached autonomously by the robot. Way of transport (on the robot or using a trailer) is selected while ordering. Control of robot operation is made using HMI operator panel located in basis point.

Navigation

Robot can be navigated using all three available methods: laser mapping system, colored line, magnetic tape.

Unlimited mobility

Robot drive system is equipped with Mecanum wheels, which allows movement in any direction and execute 360-degree rotations. A wheel consists of several rollers that are each aligned at an angle of 45 degrees relative to the axle. This excellent maneuverability shortens throughput times and reduces idle times in the manufacturing process. Along with safety scanners and laser navigation, this solution vastly increase possibilities of robot application and allows safe and precise movement even in the tightest spaces.

Charging option

Robot is equipped with 2 batteries in cassette, which enable quick swapping, it can also be charged using wire charging station, optionally there is possibility of use an automatic charging station.

Advantages

- Operating time up to 8 h
- Weight of transported goods up to 1500 kg
- Wi-Fi communication
- Mecanum wheels provide movement in any direction
- Obstacle avoidance

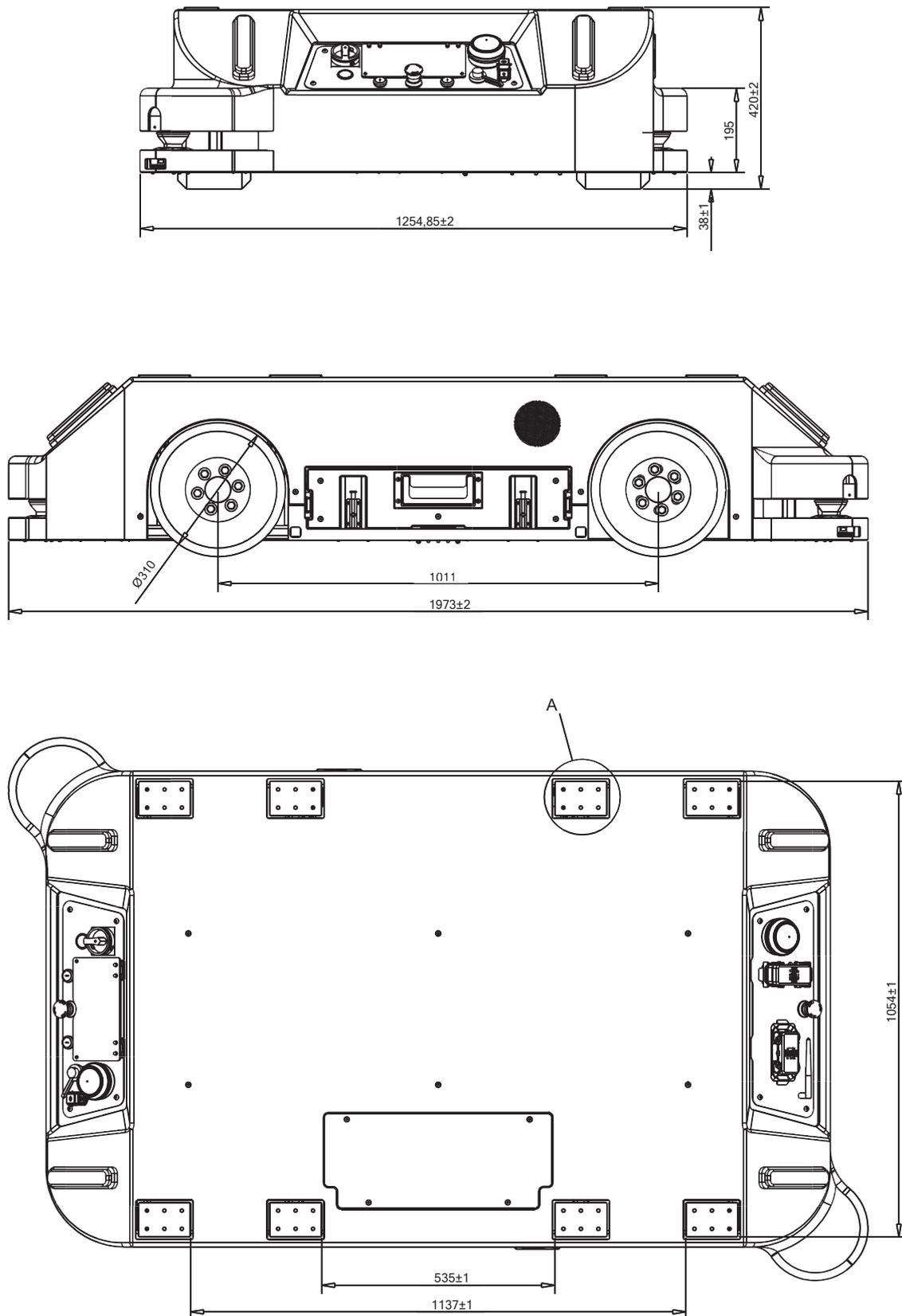
Applications

- Automatic transport of goods
- Automation of production lines
- Option of operation with palletising robots
- Transport of robotic arm



Industrial robots

Dimensional drawing MOBOT® AGV FlatRunner MW robot



All dimensions are approximate values and can change.

Industrial robots

Tower robot - TR300

Application

Robot Tower is designed for pick & place applications, packaging, palletisation, assembling and sorting. Robot has 4 degrees of freedom allowing complex movement.

High-precision gearbox

Robot basis is equipped with high quality cycloidal gearbox, allowing transition of high rotary torques and torsional moments. Gearbox is attached with vertical motion system, which consist of ball screwdrive.

Design

Arm construction based on MLAS16 module allows achieving high movement velocities. Gripper motion system is equipped with a drive which allows turn on its own axis. This construction allows mounting any kind of gripper*. There is an option to use an automatic or pneumatic tool changer for exchange grippers*.

Drive & control

All robot axes are driven by high efficient servo motors, which along with high quality mechanical system guarantee good positioning repeatability. Robot offers payload up to 15 kg (including weight of used gripper) at maximal reach up to 500 mm (standard reach is 300 mm). Robot controller is placed in separate control cabinet. Programming of the robot is made using WBCprog software installed at PC computer with Windows operating system. There is an option to connect a HMI panel to the robot controller by RS485 port to increase its functionality.

Additional equipment

TR300 can be additionally equipped with different sensors or machine vision, which gives information about location or orientation of element to be transported, a convoluted rubber boot of vertical axis for dust protection. Robot construction can be adjusted for mounting it on robot transport unit, consist of linear rails and high precision roller pinion system. Thanks that robot gain additional motion axis, longways it can shift around with payload (length of the transport unit can be adjusted). There is an option of modification of robot reach too.

* At basic version robot is delivered without a gripper.

Advantages

- 4 degrees of freedom
- Compact dimensions
- High operating precision
- Payload up to 15 kg

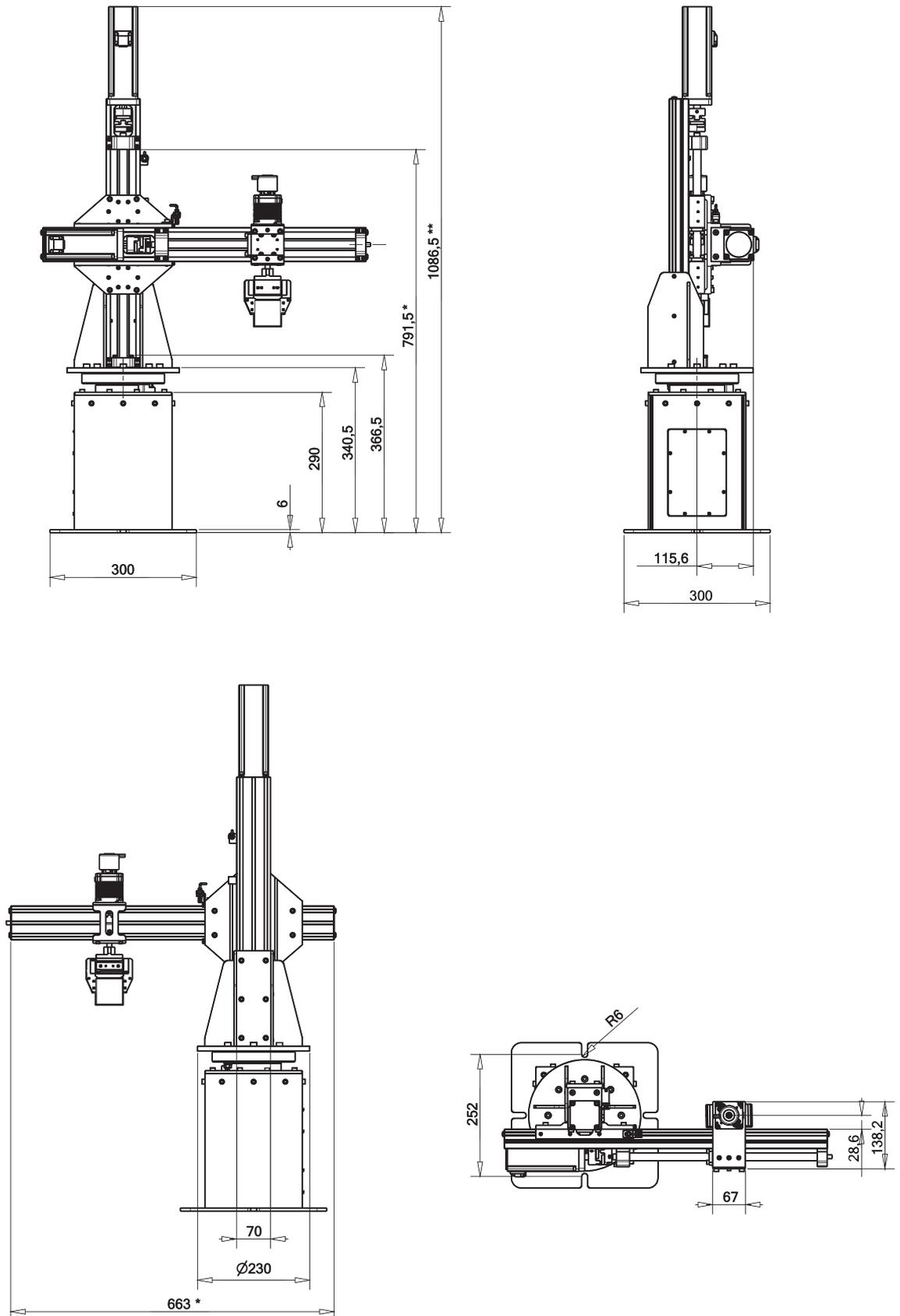
Applications

- Pick & place
- Packaging applications
- Palletisation
- Sorting
- Assembling



Industrial robots

Dimensional drawing of TR300 robot



All dimensions are approximate values and can change.

Industrial robots

Technical data

Robot model	TR300-200-MLxx	
Robot type	Tower	
Degrees of freedom	4	
Operating range	J0	360° *
	J1	200 mm **
	J2	300 mm**
	J3	360°
Maximal speed	J0	360°/s***
	J1	1000 mm/s***
	J2	1000 mm/s***
	J3	360°/s***
Positioning accuracy	J0	0.1°
	J1	0.01 mm
	J2	0.01 mm
	J3	0.1°
Positioning repeatability	J0	0.1°
	J1	0.05 mm
	J2	0.05 mm
	J3	0.1°
Protection of J1 axis	Electromagnetic brake of servo drive	
Maximum load	15 kg	
Robot controller	Dedicated controlling system	
Way of programming	By computer (RS232)	
Interface	RS232, RS485, digital I/O	
Supplied with pneumatics	4-5 bar	
Power supply	AC 380 V 50 Hz	
Operating temperature	5-40°C	

* depends on way of mounting cables and customer's requirements

** standard operating range, which can be modified according to customer's requirements

*** depends on type of handled element and way of gripping

J0 - rotation at robot basis

J1 - vertical axis

J2 - horizontal axis

J3 - gripper rotation

Industrial robots

The Tower robot software

The Tower robot software allows it fast and easy programming for different applications.

Software enables creating and edition of robot motion program. It allows drives configuration and manual control.

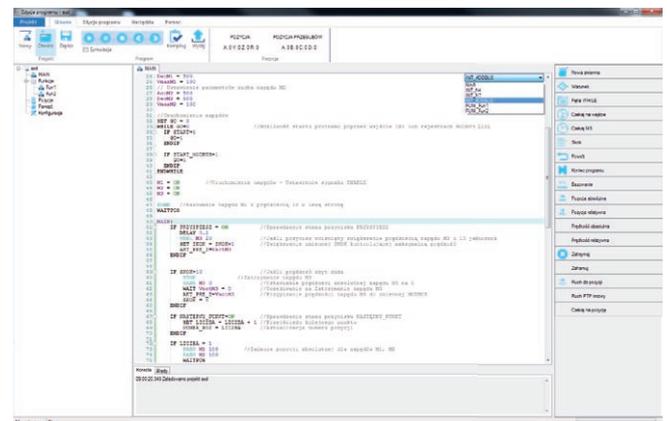
User can preview robot inputs and outputs.

Functions

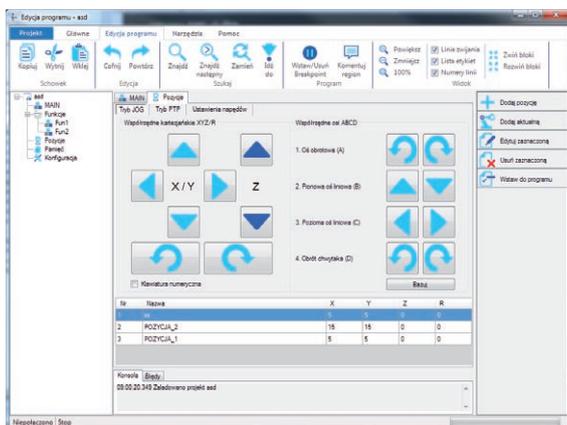
- Option of setting and saving robot motion trajectory
- Intuitive interface



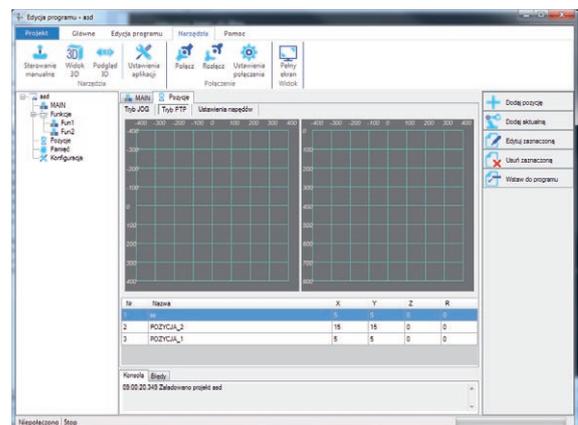
Main programming window



Robot motion program editon window



Robot drives manual control window - PTP mode



Robot drives manual control window - JOG mode

Industrial robots

Tower robot - TR1000

Applications

Tower robot TR1000 is designed for pick&place applications. Robot has 3 degrees of freedom and it can be mounted on transport unit, due that it gain additional motion axis.

High-precision gearbox

Robot basis is equipped with high quality cycloidal gearbox, allowing transition of high rotary torques and torsional moments. Thanks to use hollow shaft gearboxes all cables are lead inside the robot. On the gearbox is mounted a vertical motion system, which consist of ball screw drive.

Design

All robot axes are driven by high efficient servo motors, which along with high quality mechanical system guarantee good positioning repeatability. This construction allows mounting any kind of gripper*, there is an option to use an automatic or pneumatic tool changer for exchange grippers*. Robot offers payload up to 25 kg, at maximal reach up to 1000 mm. The payload includes weight of used gripper.

Control

Robot controller is placed in separate control cabinet. Programming of the robot is made using WBCprog software installed at PC computer with Windows operating system. There is an option to connect a HMI panel to the robot controller by RS485 port to increase its functionality.

Additional equipment

The TR1000 robot can be additionally equipped with: different sensors or machine vision, which gives information about location or orientation of element to be transported, a convoluted rubber boot of vertical axis for dust protection. Robot construction can be adjusted for mounting it on robot transporting unit, consist of linear rails and high precision roller pinion system. Thanks that robot gain additional motion axis, longways it can shift around with payload (length of the transport unit can be adjusted). There is an option of modification of robot reach too.

* At basic version robot is delivered without a gripper.

Advantages

- 3 degrees of freedom
- Payload up to 25 kg
- High operating precision
- Maximal reach up to 1000 mm

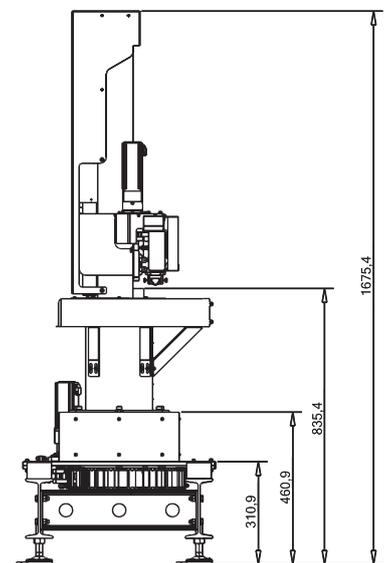
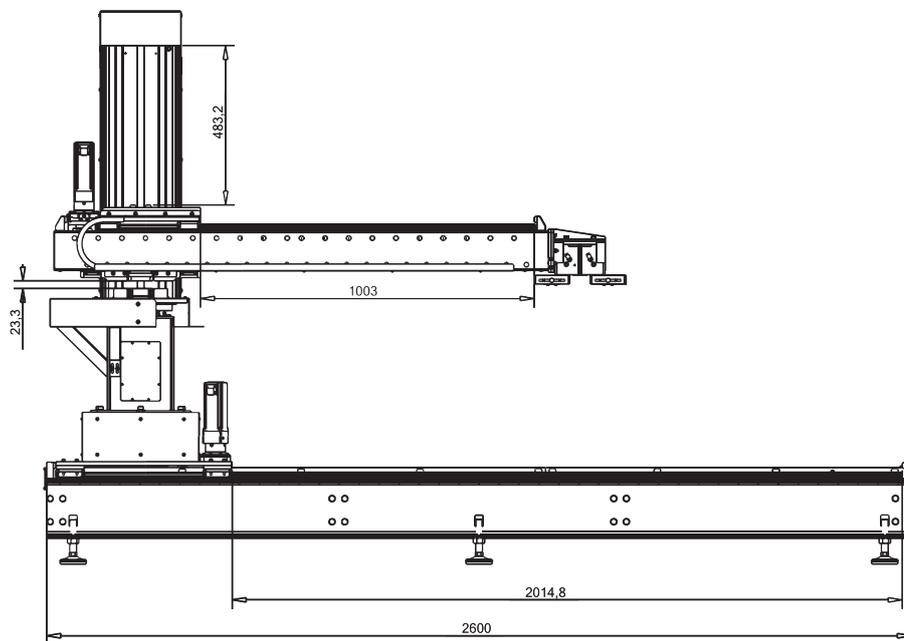
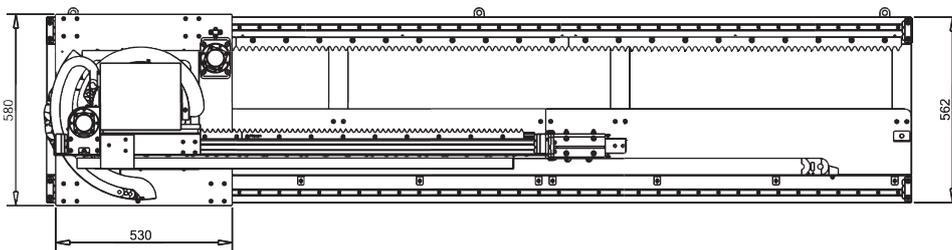
Applications

- Pick & place
- Automation of milling and lathe machining centers
- Products transport in Logistics
- Cooperation with automatic transporters and AGV robots



Industrial robots

Dimensional drawing of Tower robot - TR1000



All dimensions are approximate values and can change.

Industrial robots

Tower robot - TR1200

Applications

Tower robot TR1200 is designed for packaging and palletisation. Robot has 4 degrees of freedom allowing complex movement.

High-precision gearbox

Robot basis is equipped with high quality cycloidal gearbox, allowing transition of high rotary torques and torsional moments. Thanks to use of hollow shaft gearboxes all cables are lead inside the robot. On the gearbox is mounted a vertical motion system, which consist of ball screw drive.

At robot arm is used toothed belt drive for positioning of gripper motion system (moving forward, back and turning around).

Design

The robot construction allows mounting any kind of gripper*. There is an option to use an automatic or pneumatic tool changer for exchange grippers. Robot offers payload up to 100 kg (including weight of used gripper) at maximal reach up to 1200 mm.

Control

Robot controller is placed in separate control cabinet. Programming of the robot is made using WBCprog software installed at PC computer with Windows operating system. There is an option to connect a HMI panel to the robot controller by RS485 port to increase its functionality.

Additional equipment

Robot can be additionally equipped with: different sensors or machine vision, which gives information about location or orientation of element to be transported, a convoluted rubber boot of vertical axis for dust protection. Robot construction can be adjusted for mounting it on robot transport unit, consist of linear rails and high precision roller pinion system. Thanks that robot gain additional motion axis, longways it can shift around with payload (length of the transport unit can be adjusted). There is an option of modification of robot reach too.

* At basic version robot is delivered without a gripper.

Advantages

- 4 degrees of freedom
- Payload up to 100 kg
- High operating precision
- Maximal reach up to 1200 mm

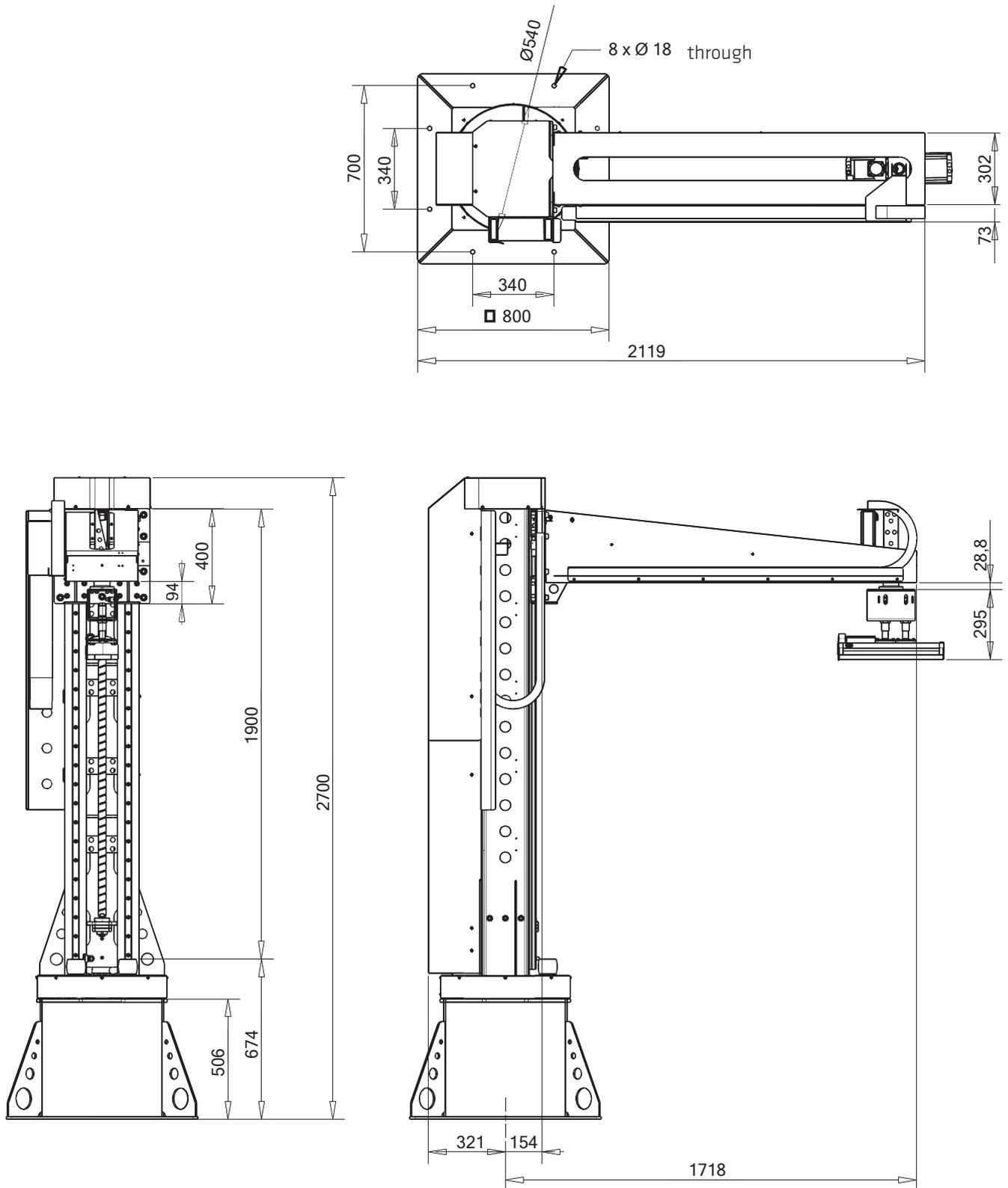
Applications

- Packaging
- Palletisation
- Pick & place



Industrial robots

Dimensional drawing of Tower robot - TR1200



All dimensions are approximate values and can change.

Industrial robots

Technical data

Robot model	TR1200-1500-SVC(001)	
Robot type	Tower	
Degrees of freedom	4	
Operating range	J0	340°
	J1	1500 mm
	J2	1200 mm
	J3	720°*
Maximal speed	J0	150°/s
	J1	1000 mm/s
	J2	1000 mm/s
	J3	360°/s
Positioning accuracy	J0	0.1°
	J1	0.01 mm
	J2	0.01 mm
	J3	0.1°
Positioning repeatability	J0	0.1°
	J1	0.05 mm
	J2	0.1 mm
	J3	0.1°
Protection of J1 axis	Pneumatic clampings on linear guides	
Maximal load	100 kg	
Controller	Dedicated controlling system	
Way of programming	By computer (RS232)	
Interface	RS232, RS485, digital I/O	
Supplied by pneumatics	4-5 bar	
Power supply	AC 380 V 50 Hz	
Operating temperature	5-40°C	

J0 - rotation at robot basis

J1 - vertical axis

J2 - horizontal axis

J3 - gripper rotation

* - depend on gripper parameters

Industrial robots

SCARA SRC1000-200-SV-ZS model

SCARA robot SRC1000-200-SV-ZS has 4 degrees of freedom and payload up to 20 kg. Along with wide reach up to 1000 mm it allows easy adjustment for the application.

Design

Design is equipped with two highly precise cycloidal gears, which helps to execute in rotary movement (J0 & J1 axis) and also equipped at the end with ball screw with double nut for executing linear (J3 axis) and rotary (J4 axis) movement. The second arm of the robot is supplied with pneumatics and electrical connections that enable mounting of pneumatic or an electrical gripper. The compact and robust construction guarantees its reliability.

Control and Programming

All robot axes are driven by high efficient servo motors, which along with high quality mechanical system guarantee good positioning repeatability. Robot controller is placed in separate control cabinet. Programming of the robot is made using WBCprog software installed at PC computer with Windows operating system. There is an option to connect a HMI panel to the robot controller by RS485 port to increase its functionality.

Advantages

- Arms' reach up to 1000 mm
- Payload up to 20 kg
- 4 degrees of freedom
- High operational dynamics with AC servo motors
- A free robot configuration software and programming tool

Applications

- Pick & Place
- Material handling
- Dosing applications
- Assembly



Industrial robots

The SCARA Robot Software

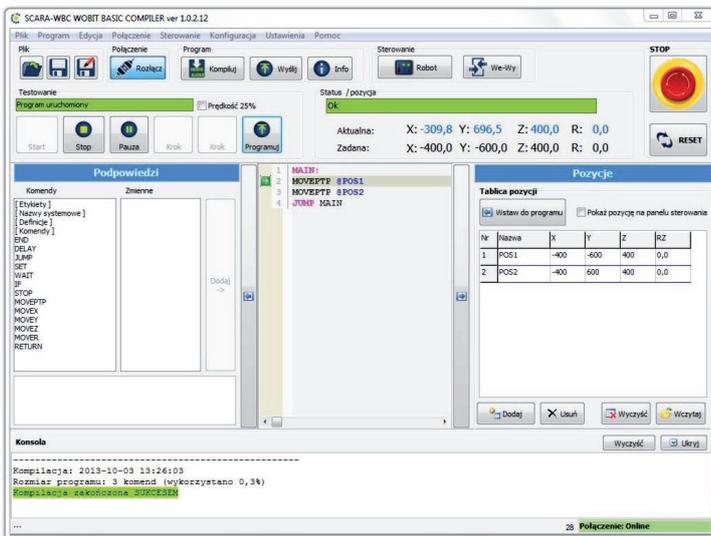
A free software, providing fast configuration and record of machine motion trajectory. Supplied software has an intuitive interface, which guarantees easy programming and service of the robot.

Motion programs are created in simple string data type by introducing commands like "WAIT 1000" which means 1000 ms of delay or "MOVEPTP @POS1" which means movement of robot effector to position called @POS1. Commands can be introduced also by the help panel, including a description of all functions available.

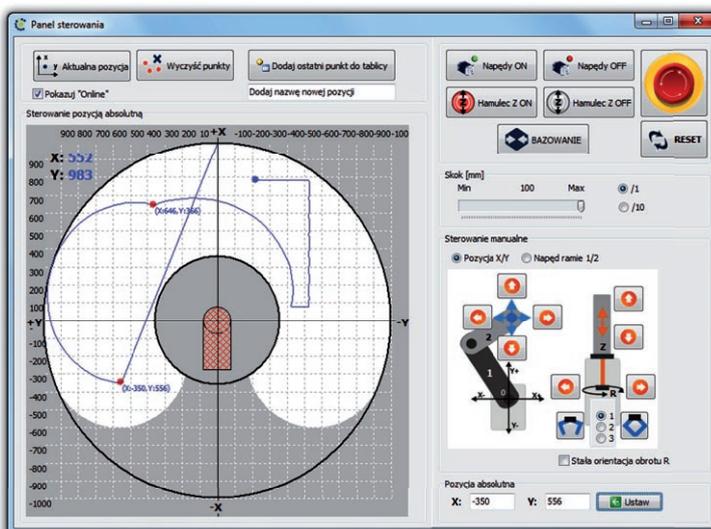
The application allows fast testing of created program by START/STOP/PAUSE/STEP OPERATION buttons highlighting the currently executed line.

Functions

- Intuitive interface
- Option of setting and saving robot motion trajectory



Free software for robot configuration and programming



Manual control window

Industrial robots

Desktop robot

Design

The robot has a desktop type Cartesian base which allows execution of displacement in 4 axes (3 axes execute linear movement and 1 axis does rotary movement).

Applications

The robot is primarily used as an autonomic stand or in a production line.

Control

An appropriate controller has been designed for controlling the robot movement. It enables generating the motion trajectory for all axes and control of other process functions.

Additional equipment

Based on an application the robot can be equipped with proper accessories for tasks like drilling, soldering and components handling, etc.

Advantages

- Movement in 4 axes
- Very good price/quality ratio
- Compact size
- High precision operation
- Large operating area

Applications

- Screw's nut driving
- Dosing
- Measuring
- Soldering
- Assembling

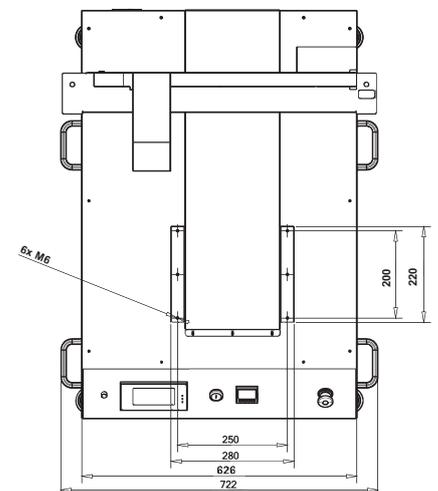
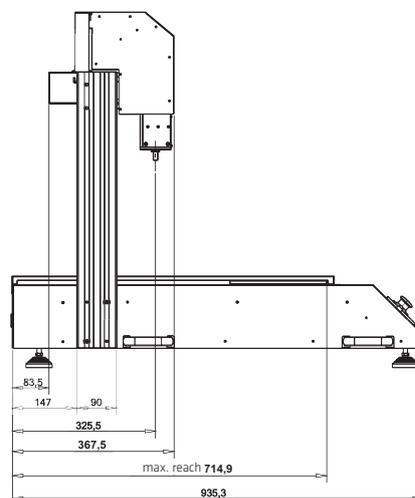
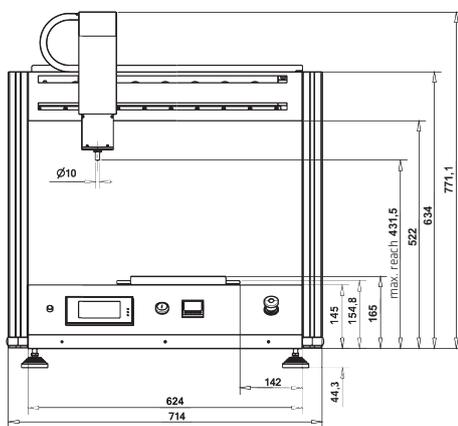


Industrial robots

Desktop robot

Technical data

Robot model	CDR480-STBS-S(001)	
Robot type	Desktop	
Degrees of freedom	4	
Operating range	X axis	480 mm
	Y axis	480 mm
	Z axis	100 mm
	R axis	340°
Maximal speed	X axis	200 mm/s
	Y axis	200 mm/s
	Z axis	110 mm/s
	R axis	340°/s
Positioning resolution	X axis	0.006 mm
	Y axis	0.006 mm
	Z axis	0.003 mm
	R axis	0.1°
Positioning repeatability	X axis	0.05 mm
	Y axis	0.05 mm
	Z axis	0.05 mm
	R axis	0.2°
Maximal load	10 kg	
Controller	Dedicated controlling system	
Way of programming	By computer	
Way of selection of the program	4.3" display or externally by RS485 bus	
Interface	USB, RS485, universal I/O	
Device for temperature control	Dedicated controlling system with feedback	
Supplied with pneumatics	4-5 bar	
Power supply	AC 230 V 50 Hz	
Operating temperature	5-40°C	
Dimensions (HxWxL)	855x713x935 mm	



All dimensions are approximate values and can change.

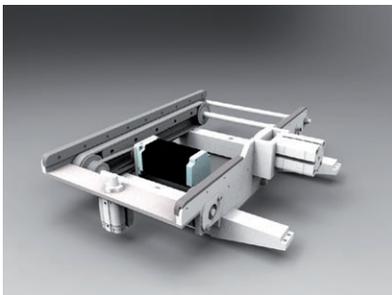
Industrial robots

Desktop Robot - Transport Systems

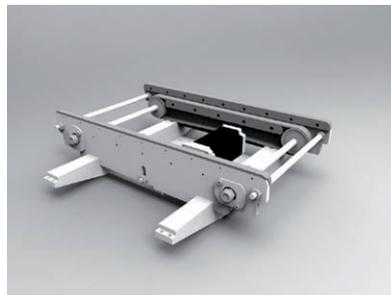
This robot is adjusted for operation with an appropriate transporter. It allows execution of an automated process. The system consists of the main module which is mounted on a moving table of the robot and of the side modules for elements handling.

Technical data:

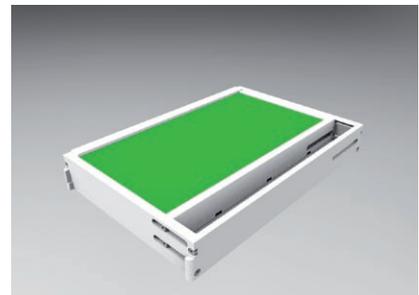
Transporter model	TR-240/415-M (main module) TR-240/415-A (additional module)
Transporter construction	1 main module - mounted on moving table of the robot + 1 side robot
Transporter type	Drive belt
Max. speed	400 mm/s
Width of transported frames	240 mm with possibility of retooling into 415 mm
Length of transported frames	Up to 425 mm
Way of positioning the frame	2 pneumatic shock absorbers + blocking actuator
Way of frame detection	Non contact proximity sensor
Weight of frame	1.6 kg for 240 mm frame, 2.6 kg for 415 mm frame
Way of positioning form in frame	By technical holes in form
Drive	Stepper motor
Controller	External controller
Power supply	230 VAC / 50 Hz



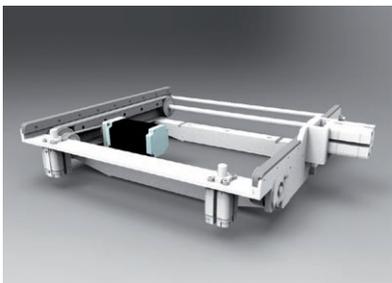
Main module for transporting 240 mm frames



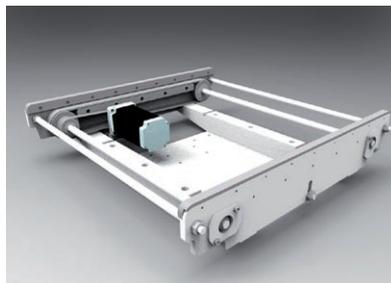
Side module for transporting 240 mm frames



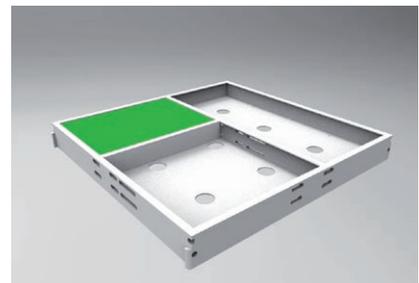
240 mm frame



Main module for transporting 415 mm frames



Side module for transporting 415 mm frames



415 mm frame

Industrial robots

The Desktop robot software

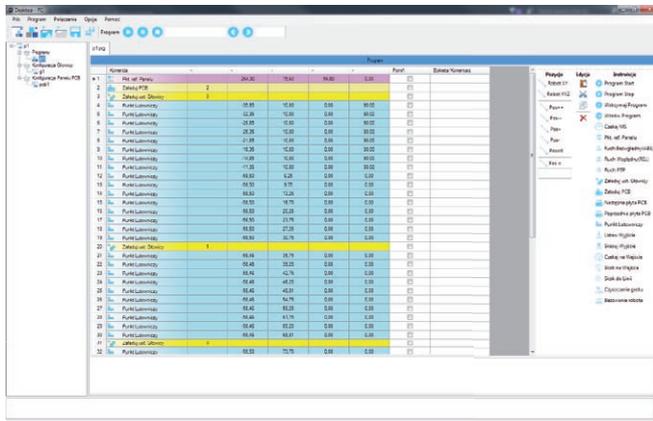
Software designed for through-hole soldering of PCB.

It allows programming robot movement by defining soldering points. It is possible to set panel consist in several same PCB.

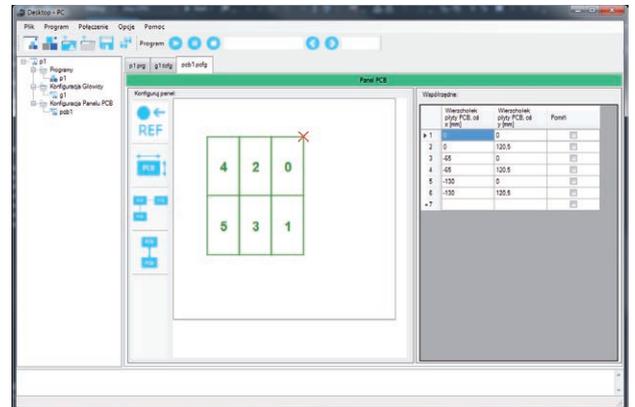
Software enables manual control of robot drives and configuration of drive operation parameters and soldering head parameters.

Features

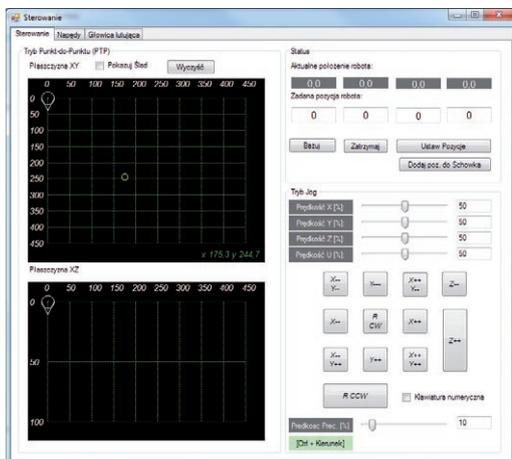
- Loading Gerber files and automatic transition of soldering points position to robot program
- Intuitive interface



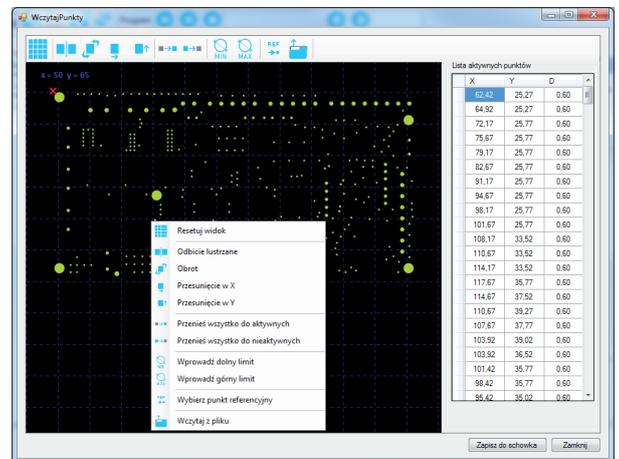
Robot moves programming



PCB board configuration window



Drives manual control window



Import of Gerber files window

Industrial robots

Cost-Effective Cartesian Robot

The most cost-effective version is a robot, the construction of which is based on MLA modules. Based on the application required, a stepper motor, DC, BLDC or servo drive can be used for driving.

Modular design

The MLA modules allow to prepare very effective tailor-made solutions. The maximum operating range in one axis is 2800 mm and the positioning accuracy is up to 0.1 mm.

Control

Motor control can be accomplished in many ways. The first is by use of the MLA modules with build-in electronics, which can be controlled by a master device like a PLC driver or HMI panel. A universal MIC488 controller for max. 4 axes can also be used instead of a PLC driver. Modules with integrated electronics can be replaced by MLA-SIC with an intelligent controller.

Additional equipment

Depending on the intended use of the robot it can be equipped with grippers or various measuring devices like laser scanners.

Advantages

- Positioning accuracy up to 0.1 mm
- Operating range in one axis up to 2800 mm
- Easy to use
- Very good price/quality ratio

Applications

- Material handling
- Dosing applications
- Pick & Place
- Packaging



Positioning accuracy	0.1 mm
Positioning resolution	0.02 mm
Operating range in 1 axis	up to 2800 mm
Speed of linear displacement	1 m/s

Example of cost-effective Cartesian Robot

Industrial robots

Precise Cartesian Robot

Higher precision

In case of applications which require higher precision and for handling higher loads, the best solution is the Cartesian robot based on MLAS modules equipped with a ball screw. Positioning accuracy for this type of construction is up to 0.01 mm/300 mm. The maximum operating range in one axis is 1000 mm.

Control

Controllers of the module are located in an external control cabinet. Motor control can be accomplished in a number of ways. The first one is the use of MLA modules with external electronics, which can be controlled by a master device like PLC driver or HMI panel. A universal MIC488 controller for max. 4 axes can also be used instead of PLC driver.

Additional equipment

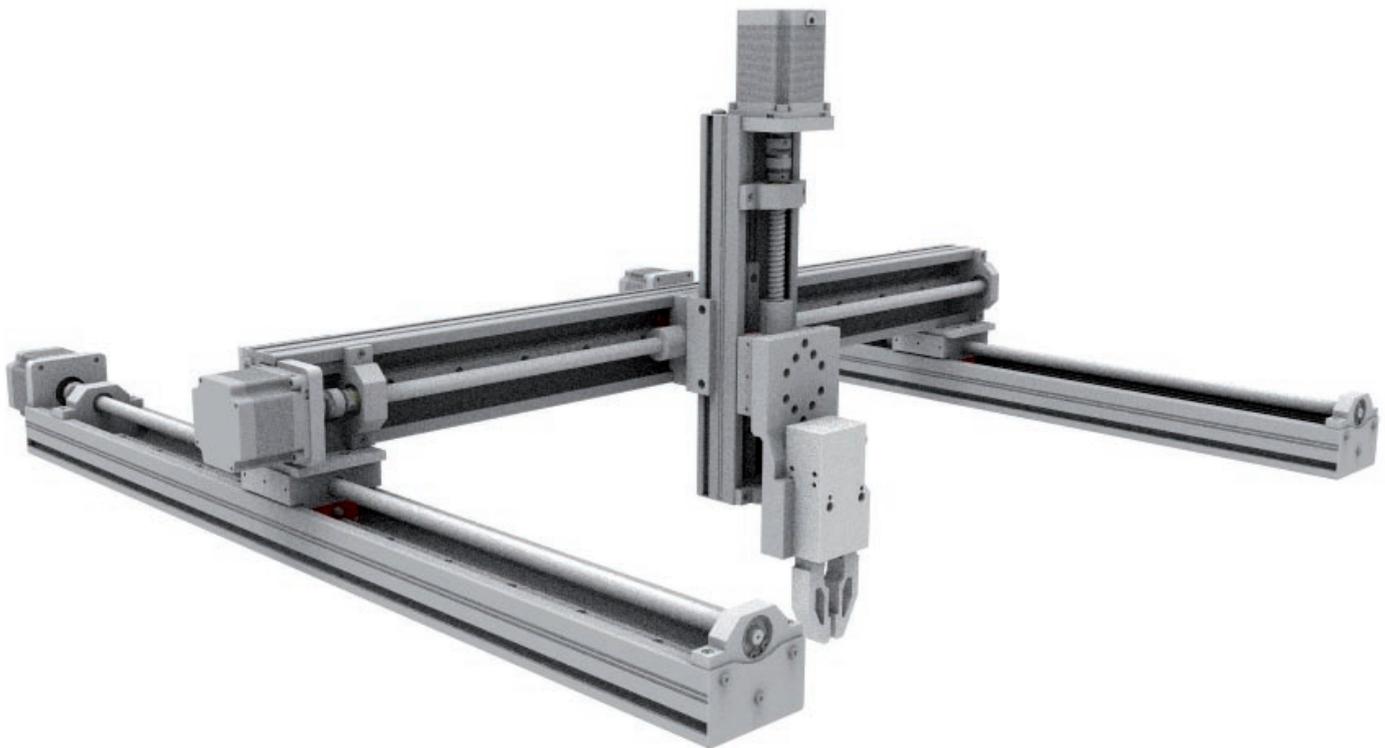
Depending on the intended use of the robot it can be equipped with grippers or various measuring devices like laser scanners.

Advantages

- High positioning accuracy up to 0.01 mm/300 mm
- Max. operating range in one axis up to 1000 mm
- Payload up to 100 kg

Applications

- Material handling
- Dosing applications
- Pick & Place
- Packaging



Example of Precise Cartesian Robot

Positioning accuracy	0.01 mm
Positioning resolution	0.005 mm
Operating range in 1 axis	up to 1000 mm
Speed of linear displacement	0.8 m/s*

* There is an option to achieve higher thrust velocity using MLAS16 design

Industrial robots

High dynamic Cartesian robot

Dynamic solution

Construction of the most dynamic Cartesian robot in the WObit offer is based on Servo Tube linear motors. This solution guarantees acceleration up to 586 m/s², speed up to 9.3 m/s and repeatability up to 0.012 mm.

Applications

Thanks to the compact construction of ServoTube motors and its great parameters we are able to prepare robots operating in gate systems and multi-axis applications. Servo Tube motors used in this systems are characterized by compact construction, which requires high dynamics, positioning precision and low weight of the detail.

Control

Controlling of motors is achieved with mcDSA series controllers which can be controlled by a master device like a PLC driver or HMI panel.

Additional equipment

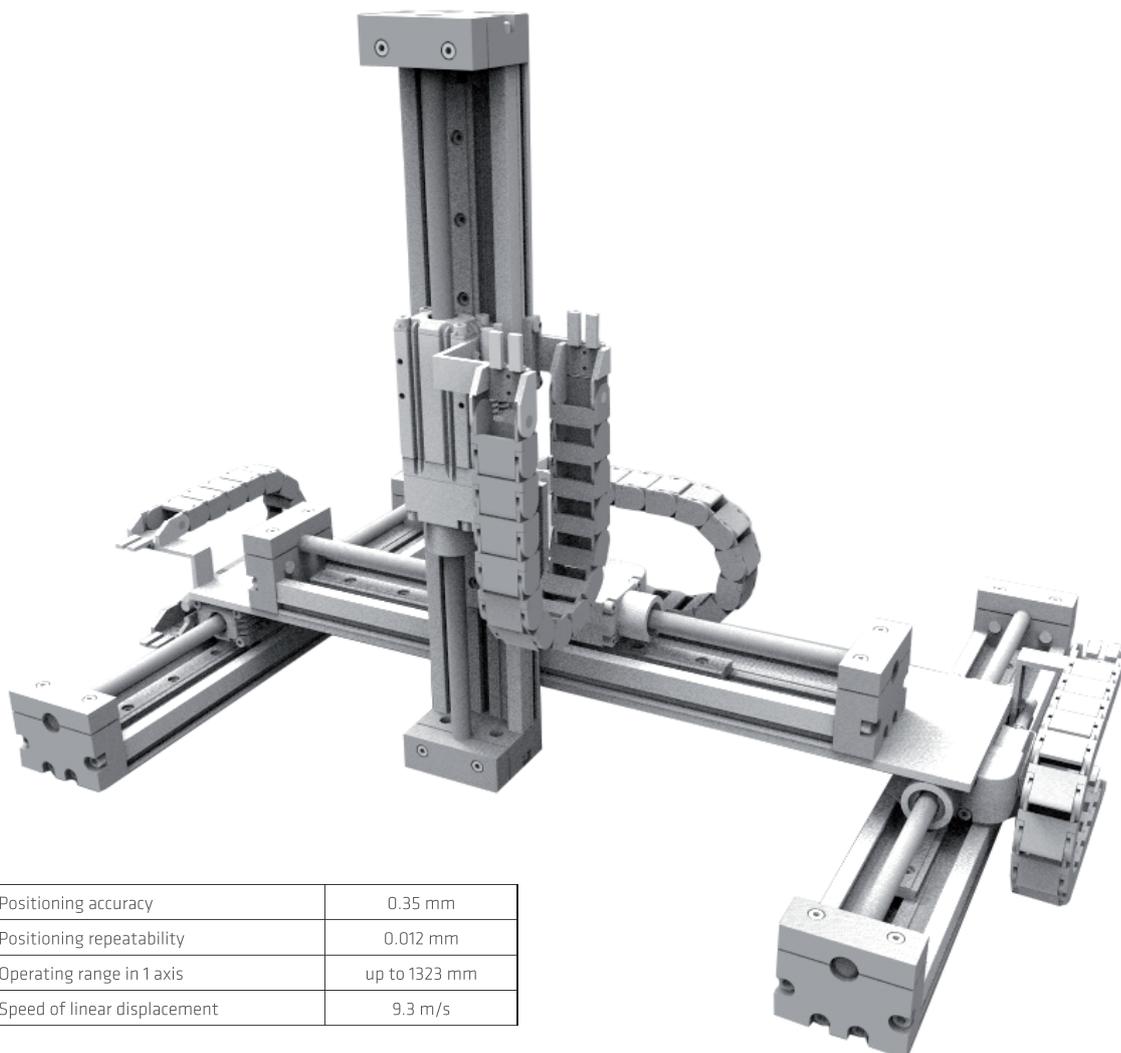
Depending on the intended use of the robot it can be equipped with grippers or various measuring devices like laser scanners.

Advantages

- Acceleration up to 586 m/s²
- Speed up to 9.3 m/s
- Repeatability up to 0.012 mm

Applications

- Material handling
- Dosing applications
- Pick & Place
- Packaging



Positioning accuracy	0.35 mm
Positioning repeatability	0.012 mm
Operating range in 1 axis	up to 1323 mm
Speed of linear displacement	9.3 m/s

Example of High Dynamic Cartesian Robot

Industrial robots

Cartesian Robots – Controllers

MIC488 4-axe trajectory controller



- Motion trajectory controller designed for controlling up to 4 drives
- Dedicated software for diagnostics and programming
- Controlling signals STEP, DIR, ENABLE (control of servo or stepper motor)
- Possibility of integration with an incremental encoder for master control of position
- 8 universal inputs, 8 universal outputs
- 2 universal analog inputs 0...10 V
- Interfaces: USB, RS232, RS485 (Modbus-RTU)
- 4 encoder inputs

SIC184 stepper motor trajectory generator



- Servo driver for stepper motors with current up to 4 A
- Build-in trajectory generator (possibility of setting the speed, acceleration and position)
- Build-in indexer (possibility of execution of pre-programmed motion programs, up to 300 commands)
- Possibility of integration with encoder for master control of position
- 6 universal inputs, 2 universal outputs
- 1 universal analog input 0...10 V
- Interfaces: USB, RS232, RS485 (Modbus-RTU)

FD25 servo motor driver



- Driver designed for servo motors
- Single phase power supply 220-380 VAC
- Output power up to 2.3 kW
- Interfaces: RS232, RS485, CAN BUS
- External I/O: 7 inputs, 5 outputs
- 2 analog inputs -10...+10V
- Encoder input 2500 rpm, 16 bit multi-turn absolute encoder, 20 bit single-turn absolute encoder

mcDSA-E67 DC & BLDC motor driver



- Driver designed for DC and BLDC motors
- Motor power supply up to 9-60 VDC
- Max. current up to 30 A
- Weight: 30 g
- Interface: CANopen

SID116 DC motor driver



- Maximal current up to 16 A
- 11 DI (8 opt insulated), incl. 2 fast input for CLK, DIR interface, encoder, controlling signals
- 2 opt insulated transistor outputs up to 2 A, 3 LED
- 1 analog input 0...10 V for setting value
- MODBUS-RTU (RS485) communication
- Controlling signals: enable, stop, direction, brake, proximity sensor, signalisation/error reset
- Dynamic braking (resistor)/regenerative brake
- USB connector for configuration
- Overload and thermal protection

Components for building Your Own Robot

HMI panels

Graphic human machine interface is important part of the robot.

Available several series of control panels with display from 4.3" up to 15", designed for different applications also with increased protection degree (up to IP65).

Panels are equipped with RS485, CANopen, Ethernet or Profibus and can operate in a wide temperature range.

Advantages

- Different display sizes
- Version with increased degree of protection
- Easy programming

SZ7 handled panels

	<ul style="list-style-type: none"> ■ Two hand held design ■ High safety performance ■ Flexible programmable buttons ■ Hanging mounting or rack mounting ■ Front panel: IP62
--	--

Panels with high degree of protection

	<ul style="list-style-type: none"> ■ Degree of protection: IP65 whole body ■ Option of operation with over 200 PLC ■ RS485, USB, Modbus ■ Display of 7" up to 10" ■ Can be integrated in control panel
---	---

Standard panels MT series

	<ul style="list-style-type: none"> ■ Economic and advanced series ■ Option of operation with over 200 PLC ■ Modbus, Ethernet, Profibus, CANopen, MPI ■ Display from 4.3" up to 15" ■ Can be integrated in control panel ■ Front panel: IP65
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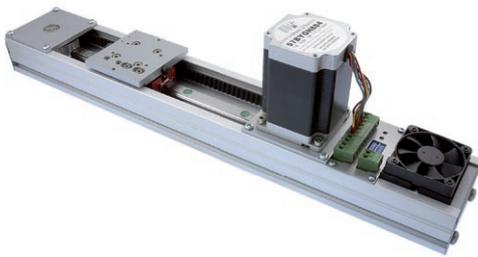
Components for building Your Own Robot

Linear modules

MLA

MLA Linear Module is an economic solution for linear displacement applications which require positioning. Its construction is based on aluminum profile and linear guide, block is driven by tooth belt.

Standard version of MLA module is driven by stepper motor. It enables controlling in an open loop without any additional position sensor. On request it can be equipped with a DC, BLDC, servo motor or crank for positioning of the block.



MLA2P - reinforced version with additional dust protection

Linear module with rigid construction allows moving higher loads. Block is driven by tooth belt. Module has compact design with dust protection. There is an option to integrate an encoder and to adjust the module to customer's requirements.



MLA Slim - module for photography and scanning

Compact linear module in low design with integrate drive - 1.61.077.4xx DC motor with a gear and build-in encoder. There is an option to integrate controller in a module. This version is perfect for measurement applications, scanning, photography and filming. Drive can be adjusted for customer's requirements.



Advantages

- Max. linear speed* 1 m/s
- Positioning accuracy* 0.1 mm
- Max. force Fmax* 100 N
- Drive ratio 1 rpm/150 mm
- Max. operating range 2500 mm

*Parameters depend on the motor used.

Advantages

- Max. linear speed 2 m/s*
- Positioning accuracy 0.1 mm
- Max. force 500 N*
- Drive ratio 1 rpm/160 mm
- Max. operating range 2800 mm

*Parameters depend on the motor used.

Advantages

- Max. linear speed 0.35 m/s*
- Positioning accuracy 0.1 mm*
- Max. force Fmax 50 N*
- Drive ratio 1 rpm/90 mm

*Parameters depend on the motor used.

Components for building Your Own Robot

MLAS

The MLAS construction is based on an aluminum profile, a linear guide and a ball screw.

Thanks to the ball screw the module ensures high positioning accuracy of up to 0.01 mm and displacement of high payload.



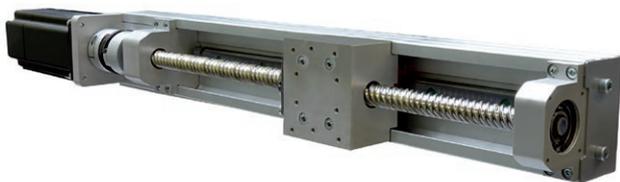
Advantages

- Max. linear velocity* 0.25 m/s
- Positioning accuracy* 0.01 mm
- Max. force F_{max} * 1000 N
- Drive ratio 1 rpm/ 4 or 5 mm
- Max. operating range 600 mm

*Parameters depend on the motor and ball screw used.

MLAS16 - reinforced version of the module

Linear module with drive transition made by $\varnothing 15$ or $\varnothing 16$ ball screw with increased maximal operating range up to 1 m. There is an option to integrate an encoder and to adjust the module to customer's requirements. We offer wide range of drives and external drivers for the module.



Advantages

- Max. linear velocity 0.8 m/s*
- Positioning accuracy 0.01 mm
- Max. force 1000 N*
- Drive ratio 1 rpm/ 5, 10 or 20 mm
- Max. operating range 1000 mm

* Parameters depend on motor and ball screw used

MLAS20 - version with rigid design

Linear module with rigid design, made of steel which allows displacement of higher loads. Drive transition is made using $\varnothing 20$ ball screw.



Advantages

- Max. linear velocity* 1 m/s
- Positioning accuracy 0.01 mm
- Max. force 1000 N*
- Drive ratio 1 rpm/ 5, 10 or 20 mm
- Max. operating range 1300 mm

*Parameters depend on the motor used.

Components for building Your Own Robot

Online module selection guide

On ml.wobit.com.pl website is available linear modules selection guide. It allows fast and easy selection of proper module.

In the beginning user select construction version - with belt or ball screw. Then choose such parameters like operation range, drive, way of control and operation mode. User can also select necessary mounting elements.

Linear modules selection guide presents product visualisation and basic module parameters depend on selected drive and construction. At the end is shown product code which can be used to order selected module.

Using website is possible to send an inquiry with selected module, download a datasheet and contact with technical advisor.

Konstrukcja urządzeń pomiarowych
Urządzenia wykonawcze
Linie produkcyjne
Transport

M L
MODUŁY LINIOWE

MLA MLAS

Wizualizacja produktu. Może różnić się od rzeczywistego wyglądu przedmiotu.

Konfigurator modułu

Efektywny zakres ruchu [mm]: 100

Skok śruby: 5 mm

Ilość wózków: jeden

Napęd: silnik krokowy

Model silnika: 57BYG1802

Przekładnia: brak

Sterowanie: brak

Encoder: brak

Czujnik krańcowy: brak

Tryb pracy układu: poziomo

Jeżeli interesujące opcje nie można wybrać lub potrzebne jest wykonanie specjalne (większa ilość elementów, malowanie na konkretny kolor), prosimy o kontakt z doradcą.

MLAS
moduł liniowy ze śrubą kulową

Symbol zamówieniowy:
MLAS-0100-5EKO
Długość całkowita modułu: 320 ±1 mm
Maksymalna siła: 633 ±1 N
Maksymalna masa na wózek: 220 ±1 kg do przyspieszenia 1 m/s²
Maksymalna prędkość: 25 ±1 mm/s

wydaj zapytanie ofertowe | wydaj konfigurację e-mailem | pobierz dokumentację

symbol	silnik	moment	prąd
K0	57BYG1802	0.8 Nm	1.5 A
K1	57BYG1804	1.2 Nm	3 A

Elementy mocujące

MLA-KM1 0 ▲ Komponent mechaniczny umożliwiający montaż do płytki modułu liniowego pod kątem 90°. Długość modułu liniowego lub dowolny element mechaniczny.

MLA-KM2 0 ▲ Ten element różni się od poprzednika możliwością zamocowania do płytki modułu w celach potrzebnych do jego odpowiedniego odwrócenia.

MLA-KM3 0 ▲ Element umożliwiający zamocowanie drugiego modułu liniowego równoległe "jeden na drugim" lub "jeden na drugim" pod kątem 90°.

MLA-KM4 4 ▲ Kompleks elementów umożliwiający zamocowanie modułu liniowego do gościa lub do innego modułu liniowego. Elementy mają się składać do łączenia z innymi profilami aluminiowymi.

Przykładowy moduł liniowy ze śrubą kulową i silnikiem krokowym o symbolu MLAS-0100-5EKO

Components for building Your Own Robot

Linear guides

The ARC/HRC/ERC Ball Type Linear Guide Series use four rows of re-circulating steel balls arranged in O-shape and at 45° contact angle with the raceway, achieving superior load capacity and track rail rigidity. The use of larger steel balls in greater quantities helps increase the load capacity, moment capacity and rigidity.

Miniature linear guide MR series use 2-rows circulation ball system.

Advantages

- High load
- Dustproof design
- High rigidity structure

Standard linear guides	
	<ul style="list-style-type: none"> ■ Standard wide and high version of runner block ■ Standard rail length up to 4 m with option of rail joining ■ Available version with built-in lubricant storage and supply system ■ Option of use additional seals ■ Velocity up to 10 m/s (using reinforcement plate, standard 5 m/s)

Miniature linear guide	
	<ul style="list-style-type: none"> ■ Rails from 3 mm up to 42 mm ■ Standard and wide version of rail ■ Short and long block version ■ Option of additional seals and reinforcement plates ■ Standard is made of stainless steel with option of carbon steel version ■ Standard rail length up to 1 m

Ball screws

Ball screw allows precise positioning of high loads.

While selection of series please take into consideration of demanded accuracy (grade - C7, C5, etc.), speed (lead), total length of travel distance (shaft diameter), rigidity (preload), etc.

It is also important to choose nut that best fits application - consider axial force (which also affects required preload) service life and loads (dynamic load rating), flange design and other constructional factors.

Advantages

- High precision
- Wide range of nuts
- Profitable price

Ball screw mechanisms	
	<ul style="list-style-type: none"> ■ Available at C5 and C7 precision grade ■ Diameter from 6 up to 80 mm ■ Screw lead from 1 up to 50 mm ■ Efficiency coefficient 0.95

Components for building Your Own Robot

Servo Tube Linear motors

Innovative 3 phase linear motors are designed for use as electric actuators. Their main features are high dynamics, resistance for external noises, high accuracy and positioning repeatability up to 6 µm.

Applications

Cost-effective and advanced Servo Tube motors are used in different applications like food and packaging industry for handling, cutting, filling, at cutting machines and at press.

Advantages

- Very low audible noise
- Velocity up to 9.3 m/s
- Repeatability up to 0.006 mm
- IP67 protection class

Servo Tube Linear motors



- Momentary force from 46 up to 1860 N
- External bearings required
- Built-in heatsink
- Built-in position sensor
- Very low audible noise
- IP67 protection class

Linear Motor Modules



Linear motor modules are ready-to-use and equipped with bearing rail, limit switches and drag-chain. A linear encoder option is available for high precision applications.

- Built-in position sensor
- Linear encoder option
- Single bearing rail
- Limit switch options
- Drag chain
- Bellows option
- Mount load directly to forcer
- Built-in heatsink
- Standard 3 phase winding

Components for building Your Own Robot

Ironless linear motors

Design

Ironless linear motors are composed of two pieces: a Coil Assembly (forcer) and a Stationary Magnetic Way (stator).

The Coil Assembly is an ironless design with the coils placed in a precisely molded resin shell. Ironless Assembly results in zero cogging and super smooth motion.

The Magnetic Way consist of two parallel steel plates with embedded rare-earth magnets facing each other. The two plates are joined at one end to create space for the Coil Assembly to run.

Lower weight - higher dynamics

Absence of iron results higher acceleration and deceleration rates as well as a higher mechanical bandwidth.

Large air gap allows easy installation and alignment.

Applications

Without conventional transmission structure, gear gap do not exist in linear motor. No more dirt accumulated between gear gaps. Without ball screws no more lubrication grease need to be apply, perfect for clean room environment. Along motor can be implemented a magnetic linear sensor to provide operation in a closed loop.

Advantages

- Easy mounting and calibration
- High operational dynamic
- Low noise operation
- Ideal for clean applications

LM series



- Rated power up to 0.6 kW
- Maximal power up to 10.8 kW
- Maximal force up to 4.3 kN
- Forcer length from 40 up to 626 mm
- Forcer weight from 0.04 up to 7.3 kg

CLS series



- High rigidity and compactness
- Lightweight, high velocity and high acceleration
- Smooth motion
- High precision
- Multiple sliders
- Integrated linear guide

Components for building Your Own Robot

BLDC motors

Brushless motors offer several advantages, including more torque per weight, more torque per watt (increased efficiency), increased reliability, reduced noise, longer lifetime (no brush and commutator erosion), elimination of ionizing sparks from the commutator, and overall reduction of electromagnetic interference (EMI).

With no windings on the rotor, they are not subjected to centrifugal forces, and because the windings are supported by the housing, they can be cooled by conduction, requiring no airflow inside the motor for cooling. This in turn means that the motor's internals can be entirely enclosed and protected from dirt or other foreign matter.

Advantages

- Long life
- High dynamics
- Wide speed range
- Robust design
- Possibility of additional equipment like encoder, brake or gearbox

BG series



These electronically-commutated DC motors can be combined with control electronics, gearboxes, and encoders in a modular system to provide a flexible, adaptable, market-oriented solution. The main advantages are: very long life, high efficiency, highly dynamic acceleration, good regulation characteristics, maintenance-free and robust design.

- Power range from 10 up to 1100 W
- Rated rotational speed up to 4050 rpm
- Rated torque from 2 up to 290 Ncm
- Voltage from 12 up to 42 V
- Interfaces for motors with build-in controller: CANopen, Profibus, EtherCAT

1.25.xxx.xxx series



This series mark long life, high efficiency and maintenance-free operation. Combined with countless accessory parts such as Hall sensors, encoders, sheet metal parts, gearboxes, also possibility of coil modifications, different shaft give you individual solution to your drive tasks.

- Power range from 40 up to 325 W
- Rated rotational speed up to 3550 rpm
- Rated torque from 11 up to 65 Ncm
- Voltage from 12 up to 40 VDC

RP series



RP series Brushless DC Motors (BLDC) are designed for high performance. BLDC motors are ideal for applications where rapid acceleration and high accuracy are called for. RP series Rapid Power and Rapid Power Plus BLDC motors have an efficient, compact design, with high torque density defined by high torque relative to frame size.

With efficient design, speed, accuracy, and reliability, RP series BLDC motors are a found in a variety of mission critical medical, military, automation, and other precision applications.

- Rated rotational speed up to 11400 rpm
- Rated torque from 8 up to 221 N cm
- Voltage from 24 up to 160 VDC

Components for building Your Own Robot

Servo drives

A servomotor allows precise control of angular position, velocity and acceleration. It consists of a suitable motor coupled to an encoder for position feedback. It also requires a relatively sophisticated controller, often a dedicated module designed specifically for use with servo motors.

Using high quality permanent magnets allowed for decreasing weight and sizes of the motor, keeping the same power. Servo motors feature low noise, efficient torque performance, and smooth vibration-free operation.

With a wide range of torque ratings and motor options, outstanding efficiency, reliability, and electromagnetic immunity SMH servo motors meet any application requirements. The combination of SMH servo motors and FD servo drives delivers an optimal solution for high performance motion applications.

Controller

Dedicated controller allows operation at several modes like: STEP/DIR (by analogy to stepper motors), velocity, position, torque control and reaching the set end position.

Advantages

- Long life
- High dynamics
- Rated torque up to 48 Nm
- Servo controller with broad range of functions

SMH servo motor series	
	<ul style="list-style-type: none"> ■ Rated torque from 0.16 up to 48 Nm ■ Rated rotational speed from 1500 up to 3000 rpm ■ Rated power from 50 W up to 7.5 kW ■ Voltage from 24 up to 325 V ■ Option with a brake
FD2S servo driver series	
	<ul style="list-style-type: none"> ■ Single phase power supply 220-380 VAC ■ Output power up to 2.3 kW ■ Interfaces: RS232, RS485, CAN BUS ■ External I/O: 7 inputs, 5 outputs ■ 2 analog inputs -10...+10V ■ Encoder input 2500 rpm, 16 bit multi-turn absolute encoder, 20 bit single-turn absolute encoder
SMS servo motor series with absolute encoder	
	<ul style="list-style-type: none"> ■ Rated torque from 0.64 up to 2.39 Nm ■ Rated power from 200 up to 750 W ■ Rated rotational speed 3000 rpm ■ Voltage 325 V ■ Option with brake ■ Encoder resolution 16 bit single-turn and 20 bit multi-turn

Components for building Your Own Robot

Economic planetary gears

An epicyclic gear train consists of two gears mounted so that the center of one gear revolves around the center of the other. A carrier connects the centers of the two gears and rotates to carry one gear, called the planet gear, around the other, called the sun gear.

The planet and sun gears mesh so that their pitch circles roll without slip. A point on the pitch circle of the planet gear traces an epicycloid curve. The combination of epicycle gear trains with a planet engaging both a sun gear and an annular gear is called a planetary gear train.

Gears operate with low noise (< 65 dB). High quality provides high output torque - the industry's highest torque density.

Advantages

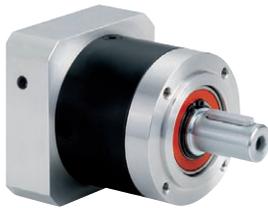
- High efficiency which boost energy and decrease operating costs
- Low backlash provides high positioning accuracy
- Easy and quick assembly due preparation for drive

PLFE series



- Flange version for direct assembly
- Low backlash
- High stiffness
- High efficiency (up to 96%)
- 16 ratios ($i=3, \dots, 100$)
- Operable in any mounting positions
- Precise, easy and flexible motor mounting
- Lifetime lubrication

PLE series



- With round output flange
- Low backlash
- High efficiency (up to 96%)
- 24 ratios ($i=3, \dots, 512$)
- Operable in any mounting positions
- Precise, easy and flexible motor mounting
- Lifetime lubrication

WPLE series



- For application with small mounting space
- Low backlash
- High efficiency (up to 94%)
- 24 ratios ($i=3, \dots, 512$)
- Operable in any mounting positions
- Precise, easy and flexible motor mounting
- Lifetime lubrication

Components for building Your Own Robot

Precise planetary gears

An epicyclic gear train consists of two gears mounted so that the center of one gear revolves around the center of the other. A carrier connects the centers of the two gears and rotates to carry one gear, called the planet gear, around the other, called the sun gear.

The planet and sun gears mesh so that their pitch circles roll without slip. A point on the pitch circle of the planet gear traces an epicycloid curve. The combination of epicycle gear trains with a planet engaging both a sun gear and an annular gear is called a planetary gear train.

Gears can be operated in any mounting position. It is very quiet (<65 dB). High quality provides high output torque - the industry's highest torque density.

Advantages

- High efficiency which boost energy and decrease operating costs
- Low backlash provides high positioning accuracy
- Easy and quick assembly due preparation for drive

PLFN series

	<ul style="list-style-type: none"> ■ In-line rotating flange gearhead ■ Minimal backlash (<1') ■ High efficiency (up to 98%) ■ 13 ratios (i=4,...,100) ■ Operable in any mounting positions
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PLN series

	<ul style="list-style-type: none"> ■ In-line gearhead ■ Minimal backlash (<1') ■ High efficiency (up to 98%) ■ 15 ratios (i=3,...,100) ■ Operable in any mounting positions
---	---

WPLN series

	<ul style="list-style-type: none"> ■ Right angle gearhead ■ Minimal backlash (<5') ■ Compact dimensions ■ High efficiency (up to 96%) ■ 11 ratios (i=4,...,100) ■ Operable in any mounting positions
---	---

WGN series

	<ul style="list-style-type: none"> ■ Hollow shaft ■ Low backlash (<5') ■ Small installation space ■ High efficiency (up to 96%) ■ 4 ratios 4:1 up to 10:1
---	---

Components for building Your Own Robot

Cycloidal precision gears

The input gear transmits the rotation of the servo motor to the spur gears. The speed is reduced according to the transmission ratio between the input and spur gears. The spur gears are connected directly to the eccentric shaft by a spline shaft. Depending on the gear size, there are two or three of these shafts. The eccentric sections move the cam discs over needle bearings. They are supported by tapered roller bearings in the drive shaft and the retaining flange. The cam discs move around the connection base between the output flange and retaining flange.

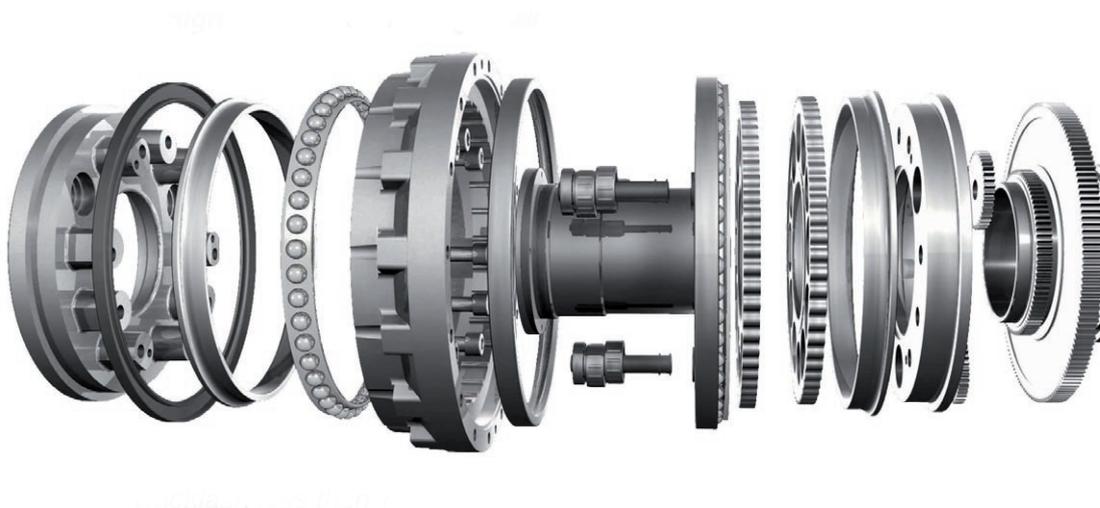
The outer pins are arranged according to the pitch of the cam discs in the cycloidal ring. The cycloidal ring has a higher pitch than the cam discs. If the eccentric sections move an entire rotation, the cam discs rotate eccentrically one pitch of a pin. In the process, all the cams of the cam disc come into contact with the pins. The drive shaft transmits the rotation to the eccentric sections through the spur gear. These sections roll off the cam discs in the cycloidal ring, thus reducing the speed.

The entire reduction ratio is the product of the first and second reduction ratios.

The gears are available in version ready for mounting (RD2 series) and in version without housing and sealing designed for integration in robot's arm (RV).

Advantages

- High efficiency which boost energy and decrease operating costs
- Low backlash provides high positioning accuracy
- Easy and quick assembly due preparation for drive



Components for building Your Own Robot

Cycloidal precision gears

	<p>RDS-E series</p> <p>Straight input solid shaft series</p> <ul style="list-style-type: none"> ■ Torque: 58 - 3136 Nm ■ Gear ratio i = 31 - 185 		<p>RDP-E series</p> <p>Pulley input solid shaft series</p> <ul style="list-style-type: none"> ■ Torque: 167 - 3136 Nm ■ Gear ratio i = 57 - 81
	<p>RDS-C series</p> <p>Straight input hollow shaft series</p> <ul style="list-style-type: none"> ■ Torque: 98 - 3136 Nm ■ Gear ratio i = 81 - 258 		<p>RDP-C series</p> <p>Pulley input hollow shaft series</p> <ul style="list-style-type: none"> ■ Torque: 98 - 3136 Nm ■ Gear ratio i = 99.82 - 157
	<p>RDR-C series</p> <p>Right angle input hollow shaft series</p> <ul style="list-style-type: none"> ■ Torque: 98 - 3136 Nm ■ Gear ratio i = 81 - 258 		<p>GH series</p> <p>The reduction gears of the GH series are the „easy-to-use“ version of the RV series. They have impressive output speeds of up to 250 rpm and a impact load resistance of up to seven times the rated torque. The gears are typically used for robot automation, machine tools and conveying systems.</p> <ul style="list-style-type: none"> ■ Torque: 68 - 980 Nm ■ Gear ratio i = 10.7436 - 31.4348
	<p>RF-P series</p> <p>Gears for fast applications with limited mounting space. Ideal for Delta and SCARA robots.</p> <ul style="list-style-type: none"> ■ Rotational speed up to 200 rpm¹ ■ Torque 570 - 960 Nm ■ Gear ratio i = 31 - 56* <p>*for request</p>		<p>RDR-E series</p> <p>Right angle input solid series</p> <ul style="list-style-type: none"> ■ Torque: 58 - 3136 Nm ■ Gear ratio i = 31 - 185

Lubricant for cycloidal gears

	<p>Molywhite RE 00</p> <p>The lubricant Molywhite RE 00 is an EP lithium soap grease with excellent wear resistance. The lubricant is based on a combination of synthetic and mineral oils with an organic molybdenum compound.</p> <ul style="list-style-type: none"> ■ Resistant for high pressure ■ Effectively assures the performance of the gearbox ■ Increases efficiency and service life of the gearbox ■ Thanks to low viscosity, the lubricant easily flows into every angle of the complex lubrication system of the gearbox
	<p>Vigogrease RE0</p> <p>The new mixture ratio of additive takes into account the elevated requirements on environmental compatibility and health protection.</p> <ul style="list-style-type: none"> ■ Resistant for high pressure ■ Resistant for high temperatures ■ Increases efficiency and service life of the gearbox ■ Improved efficiency (by 5 per cent in comparison to Molywhite RE 00) ■ Fulfilles high requirements of environment compatibility and health protection

Accessories for Robots

Pneumatic grippers

2-Jaw Parallel grippers		2-Jaw Angular Grippers	
GPP series		GZ series	
	<ul style="list-style-type: none"> ■ Robust, universal gripper ■ Stroke per Jaw from 2 up to 30 mm ■ Gripping force from 0.14 up to 13.5 kN ■ Weight from 0.08 up to 13.7 kg ■ IP64, for request IP67 		<ul style="list-style-type: none"> ■ Stroke per Jaw from 5 to 10° ■ Gripping force from 0.5 up to 135 N ■ Weight from 0.015 up to 0.38 kg
GP series		MGW series	
	<ul style="list-style-type: none"> ■ For high moment load ■ Stroke per Jaw from 3 up to 40 mm ■ Gripping force from 4 up to 19275 N ■ Weight from 0.033 up to 22 kg 		<ul style="list-style-type: none"> ■ Stroke per Jaw 37.5° ■ Gripping force from 0,03 up to 5.2 N ■ Weight from 0.01 up to 0.45 kg
MGP series		GK series	
	<ul style="list-style-type: none"> ■ Robust, lightweight construction ■ Stroke per Jaw from 1 up to 12 mm ■ Gripping force from 6 up to 400 N ■ Weight from 0.008 up to 0.46 kg 		<ul style="list-style-type: none"> ■ Stroke per Jaw 90° ■ Gripping force from 70 up to 4250 N ■ Weight from 0.1 up to 4.1 kg
3-Jaw Concentric Grippers		GG series	
GPD series		GG series	
	<ul style="list-style-type: none"> ■ Robust, universal gripper ■ Stroke per Jaw from 2 up to 30 mm ■ Gripping force from 0.31 up to 32.4 kN ■ Weight from 0.14 up to 30.5 kg ■ IP64, for request IP67 		<ul style="list-style-type: none"> ■ Stroke per Jaw from 20 up to 90° ■ Gripping force from 4150 up to 36000 N ■ Weight from 0.25 up to 13 kg
GD series		2-Jaw Parallel Grippers with long stroke	
	<ul style="list-style-type: none"> ■ Stroke per Jaw from 3 up to 30 mm ■ Gripping force from 0.12 up to 34700 N ■ Weight from 0.08 up to 24 kg 	GH series	
MGD series			<ul style="list-style-type: none"> ■ Long stroke gripper ■ Stroke per Jaw from 40 up to 200 mm ■ Gripping force from 130 up to 3400 N ■ Weight from 0.47 up to 22.7 kg
	<ul style="list-style-type: none"> ■ Stroke per Jaw from 1 up to 12 mm ■ Gripping force from 30 up to 1420 N ■ Weight from 0.025 up to 2 kg 	Grippers for special tasks	
			<ul style="list-style-type: none"> ■ For gripping rings, pipes, cardboard boxes etc. ■ High functionality, ready to operate at different environment ■ Various shapes available for different tasks

Accessories for Robots

Electrical grippers

Grippers for special tasks	
	<ul style="list-style-type: none"> For gripping cardboard boxes etc. Easy configuration of Jaw stroke
2-Jaw Parallel electrical grippers with long stroke	
GEH series	
	<ul style="list-style-type: none"> Long stroke gripper Stroke per Jaw from 0 up to 80 mm Holding force from 1000 up to 3200 N Weight from 0.7 up to 10 kg
2-Jaw Parallel electrical grippers	
GEP series	
	<ul style="list-style-type: none"> Plug&Play gripper Stroke per Jaw from 6 up to 10 mm Gripping force from 0.96 up to 1.9 kN Weight from 0.79 up to 1.66 kg IP64, on request IP67 Integrated controller
3-Jaw concentric electrical grippers	
GED series	
	<ul style="list-style-type: none"> Stroke per Jaw from 6 up to 10 mm Gripping force from 0.96 up to 1.9 kN Weight from 1.09 up to 2.33 kg IP64, on request IP67 Integrated controller

Rotary modules

Pneumatic	
MSF series	
	<ul style="list-style-type: none"> Torque from 0.3 up to 1.2 Nm Bearing load: <ul style="list-style-type: none"> - axial from 215 up to 520 N - radial from 5.5 up to 19 N Weight from 0.17 up to 0.46 kg
SF series	
	<ul style="list-style-type: none"> Torque 130 Nm Bearing load: <ul style="list-style-type: none"> - axial from 490 up to 7000 N - radial from 24 up to 1253 N Weight from 0.6 up to 41.1 kg
SW series	
	<ul style="list-style-type: none"> Torque from 1.5 up to 120 Nm Bearing load: <ul style="list-style-type: none"> - axial from 490 up to 7000 N - radial from 25 up to 1250 N Weight from 1.2 up to 48.2 kg
Electrical	
DES series	
	<ul style="list-style-type: none"> Freely positionable Max torque from 12 up to 62 Nm Weight from 4 up to 15.9 kg

Grippers for collaborative robots

R800 series	
	<p>R800 grippers are designed for human-machine interaction and provide anti-crushing protection thanks to mechanical gripping force limitation and outstanding mechanical properties. It offers a rounded design without sharp edges that reliably prevents getting caught by mistake. The mechanical fail safe function ensures that the gripper fingers disconnect from the gripper automatically when exceeding a defined force, reliably protecting people in the working area of the robot.</p> <ul style="list-style-type: none"> Stroke per jaw 40 mm Max gripping force 1250 N

Accessories for Robots

Laser scanners

Non-contact profile sensor 2D/3D

The scanCONTROL laser-line profile sensor makes use of the triangulation principle for the two-dimensional acquisition of profiles on the most varied of target surfaces. In contrast to familiar point laser sensors, a line optical system projects a laser line onto the surface of the object to be measured.

Advantages

- High accuracy and profile frequency
- High performance signal processor
- Trigger and synchronization options
- Different types for customized integration available
- Complete solution

Model	scanCONTROL 26x0	scanCONTROL 29x0	gapCONTROL	scanCONTROL BL
Picture				
Description	Perfect for automation	High End scanner	Laser scanner with specific software for gap measurement	For red-hot glowing metals as well as on transparent and organic materials measurement
Measuring range [mm]	z axis: up to 390 x axis: up to 143.5			
Linearity	z axis: up to 0.16% (3sigma)			
Resolution	x-axis: 640 points/profile	x-axis: 1280 points/profile	x-axis: 1280 points/profile	x axis: 1280 points/profile
Profile frequency [Hz]	up to 4000	up to 2000	up to 4000	up to 2000

Scanning laser rangefinders

The scanning laser rangefinders are non-contact measurement devices used for industrial and robotic applications. These sensors act as the “eyes” for autonomous robots in guide path planning and obstacle detection. As the most compact two-dimensional (2-D) laser range scanners on the market, these devices offer navigation support on unmanned vehicles, collision prevention, object position determination and perimeter monitoring. This allows for greater flexibility in robotic design while meeting the need for precise area recognition.

Safety laser scanners are used in a wide array of mobile and stationary factory automation applications that require non-contact area monitoring, access protection and collision prevention.

Advantages

- Short response time
- Wide measuring range
- For external use

Model	UXM-30LX-EW	PBS-03JN	UTM-30LX	UAM-05LP	UAM-02LP	URG-04LX-UG01
Picture						
Measuring range [m]	30	3	30	5	2	4
Accuracy [mm]	50	60	30	10	10	30
Resolution	0.25°	-	0.25°	-	-	0.36°
Scanning range	190°	180°	270°	270°	190°	240°
Scanning time [ms]	50	28	25	30	30	100
Interface	Ethernet	RS232	USB	USB/Ethernet	USB	USB

Accessories for Robots

USB thermal imagers

Plug&Play thermal imager

Powered from a single USB cable, the system is truly plug-and-play. Data is streamed in real time from the camera to the software via USB 2.0. This process and analysis tool, provided with every camera, enables the user to capture, record and monitor real time thermal process images at 128 Hz.

The software will store the data to a file, which enables playback at user-defined speeds, e.g. in slow motion, or frame-by-frame if required. The images can be viewed and monitored either online with the camera connected, or off line at a later time without the camera being connected. A perfect tool for R&D applications, failure diagnostics or process monitoring.

In addition, the software can be used as a runtime application where the user is able to program and configure a custom environment (multiple monitoring windows, alarms, hot spot localization, line profiling etc.) A programmable process interface, hard wired input and output, (PIF in) enables external control and communication for the emissivity of the target material, trigger functions, shutter control or alarm outputs and other useful features.

Advantages

- Easy to use
- Non-contact measurement without influencing the target object
- Enables inspection of hot, fast moving or hard to access objects in hazardous environments
- Rapid detection of weak points in power distribution systems, machines and production processes

Applications

- R&D electronic
- Process control extrusion
- R&D mechanical components
- Process control calendaring
- Production of solar panels
- R&D electronic devices

Model	thermoIMAGER TIM 160	thermoIMAGER TIM 200/300	thermoIMAGER TIM 400/450	thermoIMAGER TIM 640
Picture				
Description	Standard model	BI-SPECTRAL technology	High resolution model	VGA resolution
Temperature ranges	-20°C up to 900°C (special edition 1500°C)			-20°C up to 900°C
Thermal sensitivity	0,08K (NEDT)		0,08K response 0,04K (NEDT)	0,075K (NEDT)
Exchangeable lenses	6° FOV, 23° FOV or 48° FOV		Exchangeable lenses and industrial accessories	33° FOV
Additional	Real time video recording at 120 Hz frame rate with slow motion playback capability	Real time video recording at 128 Hz frame rate with slow motion playback capability	Real time video recording at 80 Hz frame rate with slow motion playback capability	Real time video recording at 32 Hz frame rate with slow motion playback capability
	Power supply and operation via USB 2.0 interface			
	Extremely lightweight (195g) and rugged (IP67)		rugged (IP67)	rugged IP67
	Very compact 45x45x62 mm Analogue input and output, trigger interface Complex image analysis and process monitoring software with custom configuration and SDK	Very compact 45x45x62 mm Analogue input and output, trigger interface Complex image analysis and process monitoring software with custom configuration and SDK Time synchronic visual image recording with 32 Hz (640 x 480 pixel)	Analogue input and output, trigger interface	Very compact and lightweight; Analogue input and output, trigger interface

Accessories for Robots

Drive system for AGV robots

Design

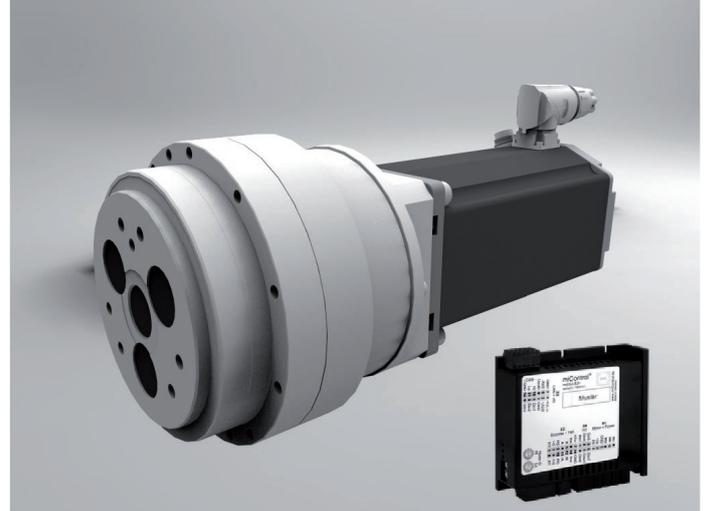
Complete drive system for AGV robots consist in efficient BG95x80 BLDC motor with integrated RF-19P precise cycloidal gearbox and mcDSA-E25 controller.

Dynamic features

Standard gearbox ratio is $i=31:1$ which allows output torque 90 Nm at 113 rpm velocity. Directly on gearbox can be mounted robot wheel with minimal dimension 280 mm, providing linear velocity 6 km/h. This wheel size enables thrust force 500 - 550 N.

Control

mcDSA-E25 driver is equipped with digital I/O, analog inputs, CAN protocol and option of operation with encoder and Hall sensors. Device allows control using analog signal, at CANopen protocol, current control and energy return to supply.



Transport unit for industrial robots

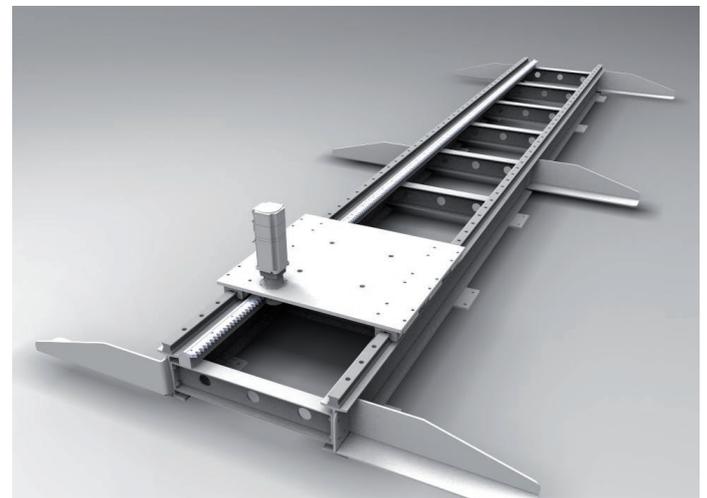
Design

Robot transport unit consist of linear rails and high precision roller pinion system (RPS) which allows dynamic and precision transport of robot.

RPS system driven by servo motor allows positioning with zero backlash and repeatability up to 0.02 mm.

Applications

Thanks using transport unit robot gain additional motion axis, longways it can shift around with payload (length of the transport unit can be adjusted).



Software

SCADA PcVue

PcVue is a fully-featured product that represents the latest advances in SCADA software for multi-station monitoring and control.

The new PcVue range has been designed using recommendations from integrators, OEMs and end-users, and based on ARC Informatique's considerable experience in the industrial automation sector. PcVue features modern ergonomics and tools based on object technology to minimize the time for application development, including the latest tools from Microsoft user interface standards and the security features of Windows® platforms.

PcVue provides a flexible solution for supervising industrial processes, utilities and infrastructure. It meets industrial standards of reliability and performance while maintaining the user-friendliness of an office application. It spans requirements from single-user applications to complex client-server applications with redundancy.

PcVue 11.1 includes the Application Explorer, an "All in one" configuration tool for configuration and diagnosis, the Application Architect to modelize objects and create applications, and the Smart Generators a suite of import tools for mass configuration from third-party or in-house configuration tools (PLC programs, CAD drawings, user software and legacy SCADA/Building Management Systems).

PcVue is designed to support multi-station architectures, offering a high scalability of the system and flexible deployments solutions. Inter-messaging and redundancy mechanisms for critical applications are built-in and easy to configure using a networking wizard.

PcVue is mobile-ready: access the data of your application from a tablet or a smartphone is easy using TouchVue app or a web browser using the light web client WebVue.

Advantages

- A handy and powerful graphic interface that facilitates the operator work and that reduces the users' training time
- Flexible and scalable platform that adapt to system changes
- Reduction of development costs thanks to the object-based approach and modelization tools
- A modular offer for all kinds of processes, affording great reusability without further investment

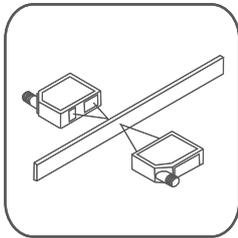
Main markets

- Industry
- Energy
- Building magement system
- Infrastructure
- Transportation
- Water & wastewater utilities

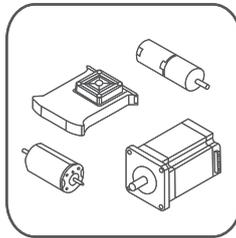




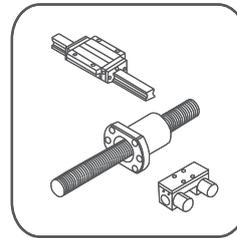
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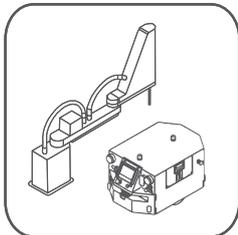
**SENSORS AND
MEASUREMENT
DEVICES**



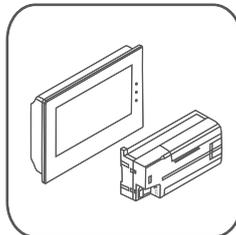
**DRIVES AND
CONTROL**



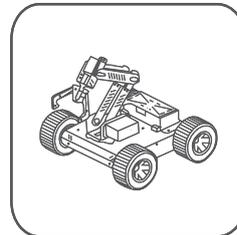
MECHANICS



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