GRAVITY ANT LIFTING MANIPULATOR




EMERGENCY STOP
FLOAT
ASSEMBLY / SPEED

PRODUCT DESCRIPTION

GRAVITY ANT – INTELLIGENT ELECTRIC LIFTING MANIPULATOR

Gravity Ant is a fast and ergonomic electric lifting manipulator for repetitive lifting, moving and assembly work. The servo-driven device follows the operator's movement precisely and allows light handling of the load without constantly pressing the buttons of a conventional hoist.

Gravity Ant is especially suited to production, assembly, machining, packing and other work stages where loads are handled frequently and precise positioning is important.

Lifting capacity 50–300 kg – lifting height up to 3 metres – reach up to 5 metres.

More than an ordinary hoist

Gravity Ant combines the features of a hoist, a balancer and a manipulator. Its stepless speed control responds naturally to the operator's movements, so lifting, lowering and positioning the load is fast and controlled.

In Float Mode the load can be brought to an almost weightless state. The operator can then move the load up and down by guiding the load or lifting tool directly, without using separate lift buttons.

The solution reduces physical strain, speeds up work stages and helps prevent handling errors.

Who is Gravity Ant for?

Gravity Ant is a good solution when:

- many lifts are made during a shift
- the load is too heavy or awkward to lift by hand
- the load must be positioned precisely
- a standard dual-speed hoist is too slow or imprecise
- you want to improve ergonomics
- the springiness of a pneumatic balancer interferes with the work
- you want to shorten production lead times.

Typical applications include machine shops, assembly lines, the automotive industry, warehouses, packing facilities, and machine and component manufacturing.

Key benefits of Gravity Ant

- Fast and precise load handling

- Stepless lifting speed control
- Float Mode balancing function
- Ergonomic one-hand control
- Suited to repetitive, fast-paced lifting
- No springiness or sway typical of pneumatic systems
- Runs on a standard single-phase 230 V supply
- Compact design and quick commissioning
- Several mounting and suspension options
- Grippers and lifting tools designed for the load

Float Mode – move the load by hand

Float Mode makes the load almost weightless from the operator's point of view. Once activated, the operator can raise and lower the load simply by guiding it by hand.

The function is particularly suited to:

- precise positioning of components
- assembly of machines and equipment
- loading parts into machine tools
- handling boxes, sacks and packages
- repetitive production line lifts
- handling fragile products.

The load moves in a controlled way without the springiness typical of pneumatic balancers. This improves positioning accuracy and keeps operation stable even in fast, repetitive work.

Ergonomic IBOX control

Gravity Ant is operated with the ergonomic IBOX controller. With the sliding handle mechanism, the operator controls lifting direction and speed with a natural hand movement.

Controller features include:

- stepless lifting and lowering speed control
- real-time load display
- one-button Float Mode activation
- presence sensor that detects the operator's hand
- adjustable interface for a hook or load-handling device.

Comprehensive safety features

Gravity Ant has monitoring functions to protect the load and the operator:

- STO safety function for fast stopping (Safe Torque Off [servomoottori])
- operator hand detection on the controller
- slack wire rope monitoring

- adjustable virtual lifting zones
- virtual slow-down zones
- automatic speed adjustment to the load
- Float Mode fall protection – stops the load if the operator stumbles or falls against it.
- automatic wire rope service life monitoring
- load cell calibration self-check
- mechanical holding of the load during power failure and overload.

The settings can be adapted to the application, the load and the working area.

Mounting options

Gravity Ant can be configured in several ways depending on the workstation and the required range of movement.

Articulated arm model

The articulated arm allows the load to be moved flexibly over a wide working area. Suited to individual assembly and production stations.

Linear jib model

Combined with a profile jib, this model suits work where the load is moved in a controlled way within a defined area.

Linear rail model

Combined with a light crane system, Gravity Ant serves several workstations or a larger rectangular working area.


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Technical data

Feature	Gravity Ant
Lifting capacity	50, 100, 200 or 300 kg
Lifting height	1,800, 2,500 or 3,000 mm
Arm reach	2,000–5,000 mm depending on model
Max. speed without load	26–75 m/min
Max. speed with load	17–60 m/min
Speed in Float Mode	16–50 m/min
Operating voltage	230 V AC, single-phase
Duty class	FEM 4m / ISO M7 / HMI H5
Enclosure class	IP54
Operating temperature	–10…+50 °C
Control	IBOX ergonomic controller
Speed control	Stepless servo drive

Technical values depend on the selected capacity, lifting height and mounting method. Gravity Ant can also be supplied customised for non-standard applications.

Speeds by model

Capacity	Without load	With load	Float Mode
50 kg	75 m/min	60 m/min	50 m/min
100 kg	60 m/min	50 m/min	45 m/min
200 kg	35 m/min	25 m/min	24 m/min
300 kg	26 m/min	17 m/min	16 m/min

Load-specific grippers

The full benefit of a lifting manipulator is achieved with a gripper designed for the product being handled. Gravity Ant can be fitted with, for example:

- a mechanical gripper
- a vacuum gripper
- a magnetic gripper
- a hook or lifting eye
- a gripper for sheets and boxes
- a reel and shaft gripper
- a tilting or rotating lifting tool.

Tuotetekno designs and supplies the complete package according to the workstation, the load and the customer's production process.

Accessories

Several accessories supporting operation and maintenance are available for Gravity Ant:

- separate operation and service display
- movable base plate
- IoT monitoring for usage and operating hours data
- remote status monitoring
- external arm brake
- external remote control.

With the movable base plate, in some applications the system can be installed without permanent floor fixing and later moved to another workstation.

Design, delivery and commissioning

Tuotetekno supplies Gravity Ant lifting manipulators as ready-to-use packages. We dimension the capacity, lifting height and working area and design the required arm, crane track and load-handling device.

The delivery can include:

- site survey
- system design
- load-specific gripper
- steel structures or light crane track
- installation
- commissioning and load testing
- operator training
- servicing and inspections.

Request a quote for the Gravity Ant lifting manipulator

Looking for a fast, ergonomic solution for repetitive lifting or precise load handling? Contact us and we will design a Gravity Ant package for your workstation.