

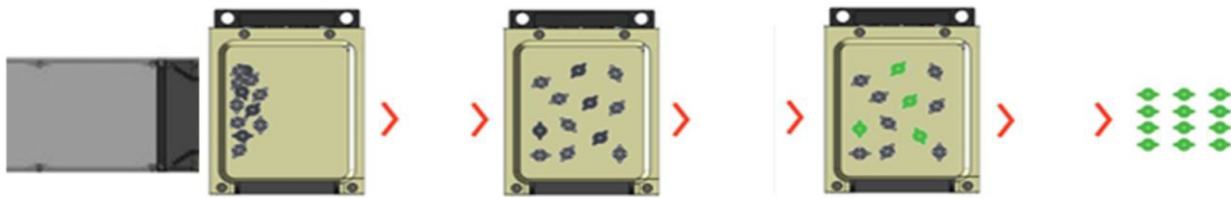
FLEXTYPE P

The new flexible FlexType P feeding system with intelligent vibration platform for all robots or gantry handling.

With the core part of the installation, a vibratory plate, the movement of the component parts in xyz direction can be programmed in such a way as to achieve a targeted manipulation of the parts. As a result, the parts are moved so efficiently with regard to their nature that a high number of parts is prepared for the correctly oriented robotic pickup. Compared to the uncontrolled vibration platforms, higher cycles are achieved this way. Free programming of the throw of parts makes it possible to even put up longish parts or to fill chambers that are fixed directly on the plate.

With the new flexible feeding systems of the FLEXTYPE series by RNA, you will get the best and most versatile solution on the market, especially for applications with frequently changing part geometries. They can be combined with all different kinds of robotic and control systems.

Feeding principle:



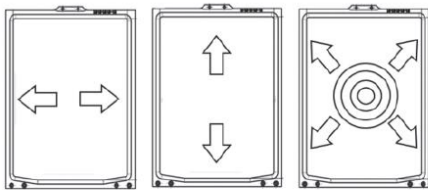
Bulk parts are fed onto the vibratory platform

Parts are evenly distributed by the **intelligent 3-axis system**

Vision system detects all properly oriented parts

Parts are picked by robot for downstream assembly

Smart 3-axis vibratory technology:



Parts can be moved in all directions thanks to the patented 3-axis vibration technology:

- Choice of optimum amplitude for flipping different parts
- Combination of structured base plates with intelligent vibration patterns for separating and orienting different parts
- Distribute your parts on the pick-up surface faster, gentler and more efficiently than ever before

Advantages of parts feeding with FlexCubes

Compatible with all parts geometries: 99% of all parts can be separated by this feeding system, including parts featuring complex outer geometries, and highly fragile parts.

Minimum change-over times: easy exchange of part-specific vibratory plates provides for flexible and future-proof production systems.

Extremely gentle part handling with patented 3-axis vibratory system: Parts can be moved in all directions and flipping parameters can be stored for each specific part.

Free movement of parts in all directions thanks to the use of magnetic coil actuators, for optimal acquisition by camera system with the objective of presenting the parts in the shortest possible time.

No transmission of vibrations to the rest of the line thanks to decoupling of vibratory platform from the casing.

Systematic part orientation using intelligent vibration cycles.

Easy configuration with the feeding software.



General design features

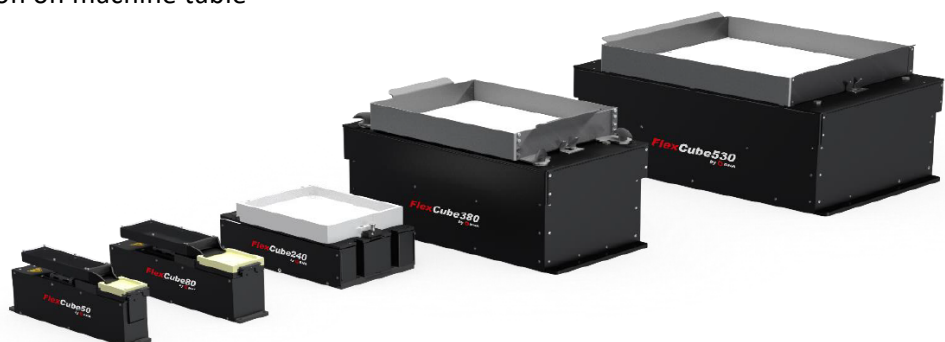
Platform: precision-manufactured platforms adapted to the parts geometry of parts and the task on hand

FlexCube: available with and without backlighting
available backlighting: Red / white / green / blue / infrared

Communication: Ethernet (TCP/IP), Modbus TCP, EtherNet/IP, EtherCAT, PROFIBUS, SERCOS

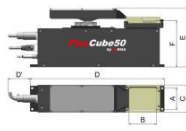
Software: easy configuration and integration via enclosed operating software

Miscellaneous: input for backlighting for synchronisation with vision system
2 digital inputs/outputs, e.g. for synchronisation of 2 hoppers
easy installation on machine table

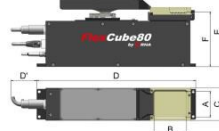


Available sizes:

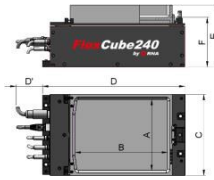
FlexCube 50



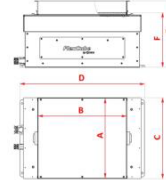
FlexCube 80



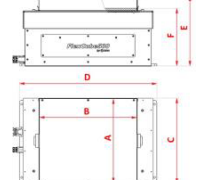
FlexCube 240



FlexCube 380



FlexCube 530

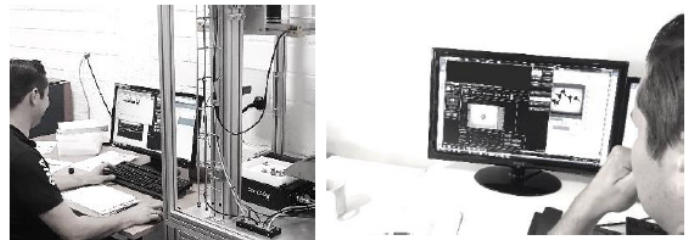


Typical part dimensions	<0.1 - 5 mm	3 - 15 mm	5 - 40 mm	15 - 60 mm	30 - 150 mm
Available vibratory plate surface areas	A = 34 mm B = 45 mm	A = 52 mm B = 65 mm	A = 150 mm B = 195 mm	A = 254 mm B = 325 mm	A = 371 mm B = 427 mm
Overall dimensions (mounting footprint)	C = 46 mm D = 293 mm	C = 65 mm D = 320 mm	C = 171 mm D = 300 mm	C = 257 mm D = 499 mm	C = 372 mm D = 600 mm
Length incl.	D' = 343 mm	D' = 370 mm	D' = 355 mm		
Overall height	E = 140 mm	E = 140 mm	E = 132 mm	E = 1307 mm	E = 320 mm E' = 360 mm
Pick-up height	F = 110 mm	F = 111 mm	F = 105 mm	F = 245 mm	F = 255 mm
Power supply	24V / 4A	24V / 6A	24V / 8A	24V / 20A	24V / 20A

Options:

Feasibility studies

Feasibility studies for project reliability: our in-house testing lab allows RNA's technical experts to conduct feasibility studies for our partners. Such studies will help you select the optimum component configuration to satisfy your requirement. The results of these studies are documented in comprehensive reports and presented with analyses, software parameters, video imagery and consulting. This enables you to plan, carry out and start up your project more reliably and efficiently.



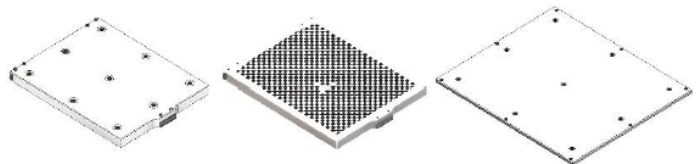
Platforms with part-specific surfaces

Systematic part orientation: plate geometries are adapted and optimized for the parts on hand to promote correct part orientation for vision systems and robots.



Calibration plates for robot / vision system

Easy calibration: RNA's calibration plates assist users in setting up their ts and vision systems with simple means for the FlexCubes used. The X-Y coordinates are easily determined with the help of the calibration plate.



Quick emptying devices

Quick emptying: standardised concepts for FlexCube240, FlexCube380 & FlexCube530 ensure easy and automatic quick emptying of platforms and hopper systems without manual interventions in the robot cell.



Ejection system for quick emptying

Quick emptying: compact vibratory feeder to discharge parts from the robot cell.



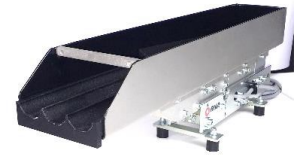
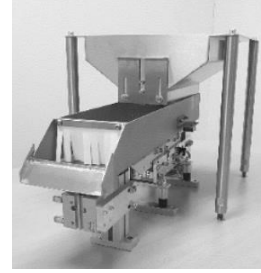
Hopper Systems

Compatibility: RNA BVL-P hopper systems have been developed to fit the various platform sizes and feeding tasks.

Plug and play: our hopper systems come factory-tuned and are easily integrated in the complete concept thanks to the enclosed control system. The discharge height is adapted for part transfer to the downstream FlexCube system.

Demand-based feeding: BVL-P hopper systems are designed for optimized part transfer rates to the sorting platform, which are key to achieving short sorting cycle times.

Enhanced autonomy: the filling volume is easily adaptable to your needs through the addition of static or upstream hopper units. And of course, communication between these hopper systems can be handled by RNA controllers.



SmartSight vision & control system

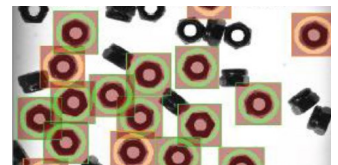
Eagle-eye lens units: camera resolutions of 1.4Mpx, 5Mpx or 9Mpx for every platform size and different working heights.

Rapid integration: direct output of parts coordinates to robot, fully automatic control of vibratory plate and parts detection.

Easy integration: easy-to-use control software for intuitive teaching, configuration and calibration. Gripper geometries are taken into account to prevent collisions. Compatible with all PLCs and industrial robots.

Intelligent vision: discrimination of 2 different part types or attitudes possible. This results in shorter cycle times.

Superior performance optimized hardware for connection and control of up to 7 FlexCubes with vision feature by one single SmartSight PC.



References:

Presentation of diverse spiral springs: configuration of RNA's range of components so that springs are lying flat for presentation to the robot.

Only untangled springs are transferred to the platform. Fast presentation through use of a specific plate geometry for springs. Automatic quick emptying for part type changes without intervention inside the robot cell.

Presentation of diverse steel balls: Configuration of RNA's range of components so that balls are presented in stable manner for pick-up.

Fast presentation through use of a specific plate geometry for balls. Automatic quick emptying for part type changes without intervention inside the robot cell.



RNA Automation Ltd
Unit C Castle Bromwich Business Park, Tameside Drive, Birmingham B35 7AG, UK
Tel: +44 (0)121 749 2566 • Fax: +44 (0)121 749 6217
Email: sales@rnaautomation.com • Web: www.rnaautomation.com