

cat^{AP}

Clever Assembly Tool for Advanced Packaging

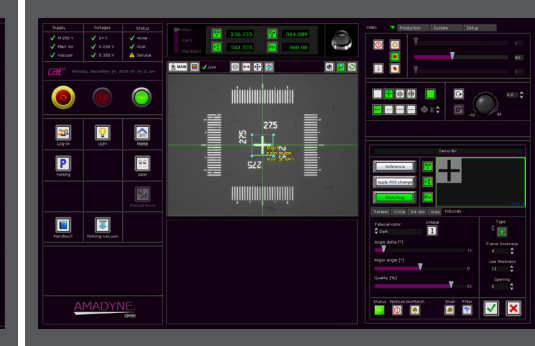
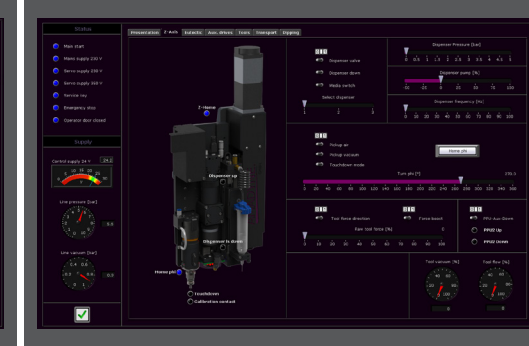
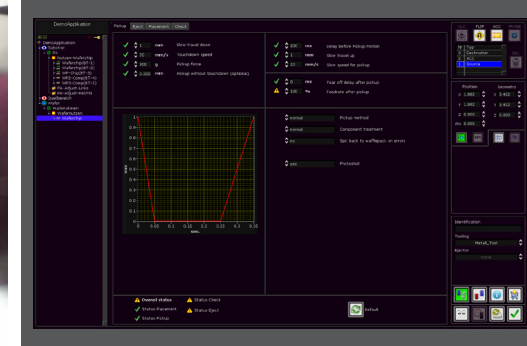
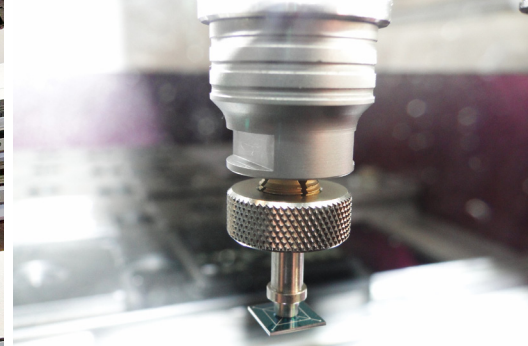
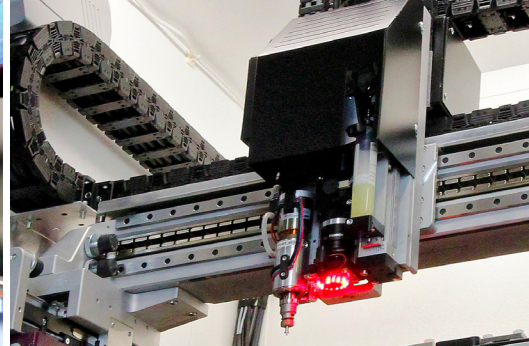


- Stand alone system designed for
 - short setup times
 - fast product changeovers
 - small-medium volume production batches
 - standard & advanced packaging processes
- precision placement with linear xy motors
- versatility with multiple options

AMADYNE.

GMBH

www.amadyne.net



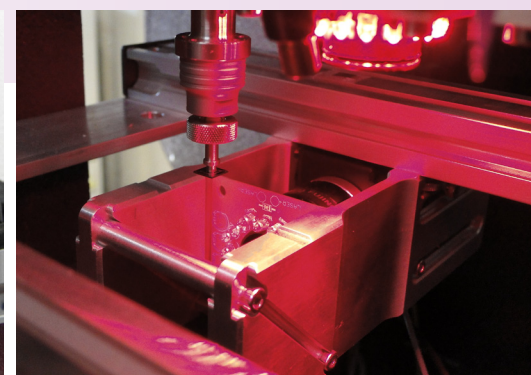
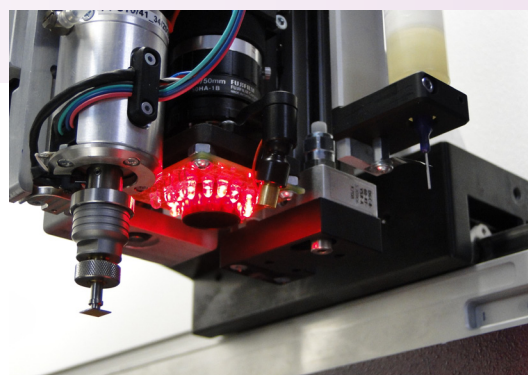
CAT^{AP}



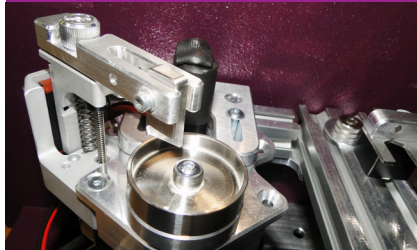
The CAT^{AP} is an automatic Micro Assembly System for picking and placing of components from various presentation formats, as well as for applying adhesives. Typical applications include: Manufacturing of prototypes, samples, small-medium production batches or process evaluations utilizing micro system technology. Utilizing AMADYNE's advanced software platform with its fully developed process capabilities, the system is quick to program and simple to operate.

Key features

- 300 x 400mm assembly area for the xy axis
- Basic system with ironless linear motors and versatile hardware configuration for advanced packaging
- Hardware options like Toolbox, Dispenser, Eutectic station, chip eject system, tape feeder and upward looking camera are available
- Flexible design for fast and easy integration of customer specific requirements
- Short product setup and product change times
- Robust "Linux" based software architecture
- Proven User Interface easy to program and operate



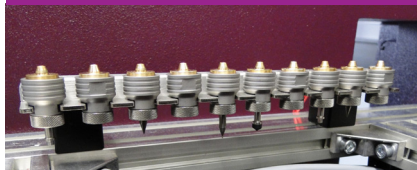
Stamping unit



Single squeegee with selectable speed and adjustable epoxy film thickness

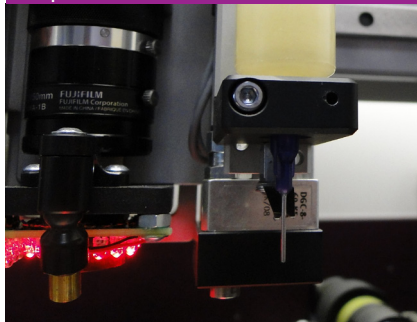
Cat^{AP}

Toolbox



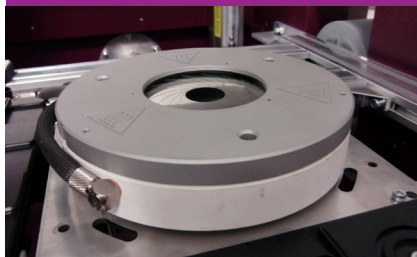
Toolbox for up to 10 tool holders

Dispenser



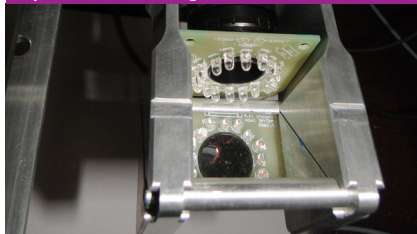
Free moveable writing time/pressure or rotary micro valve dispenser

Eutectic unit



Eutectic unit for soldering processes

Upward looking camera



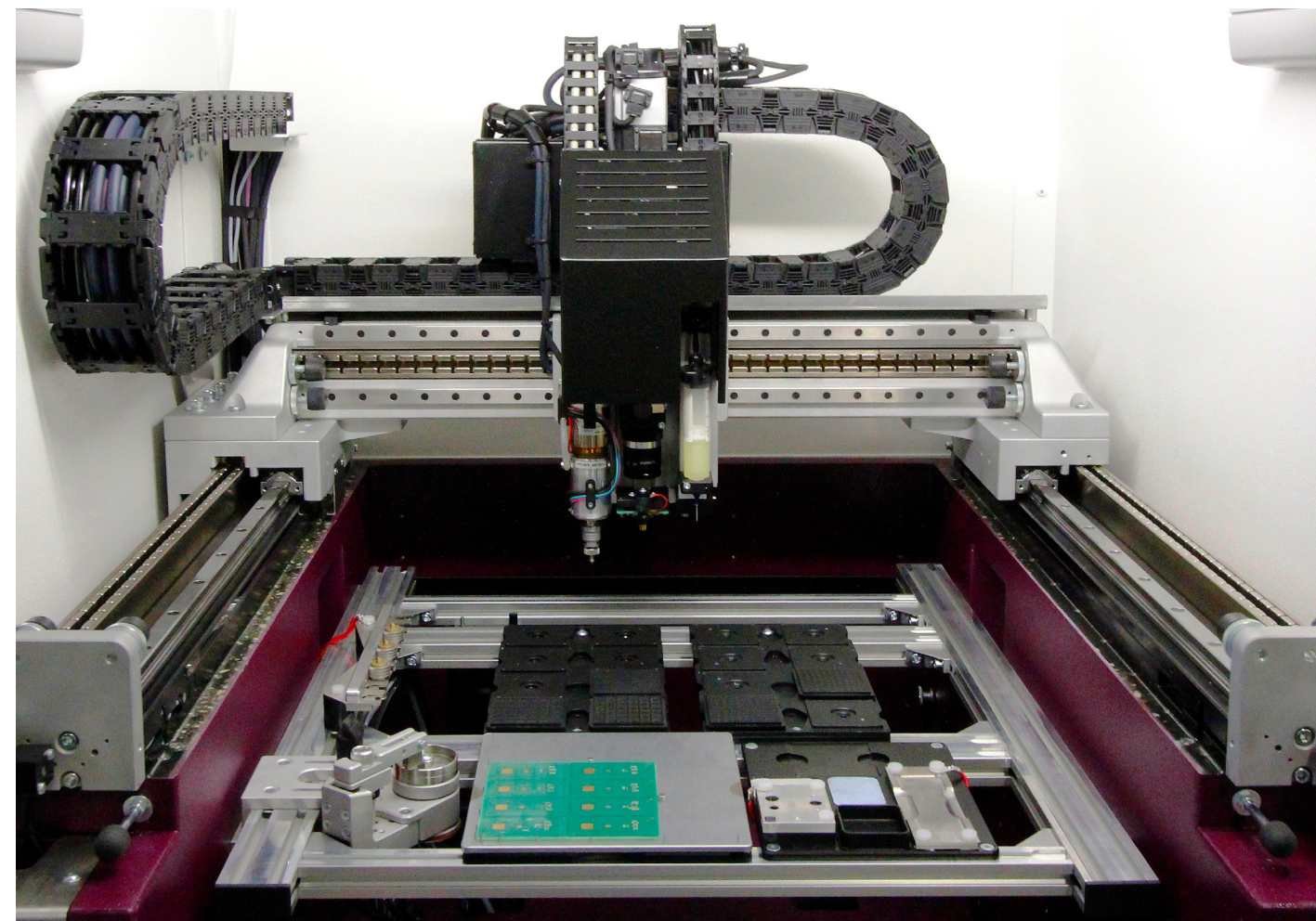
Upward looking camera with coaxial- and ring light

Hardware Basics

- Functional rugged compact mineral molded casting
- PC system with quad core processor
- Precision ironless linear motors for xy axes
- Full 360° tool rotation

Software Basics

- Open software architecture with SQL backend
- GUI, graphical user interface supported with expert panels
- Linux-4.x operating system
- Image recognition feature based with pattern matcher, circle, edge and ink dot matching
- Easy to operate and program



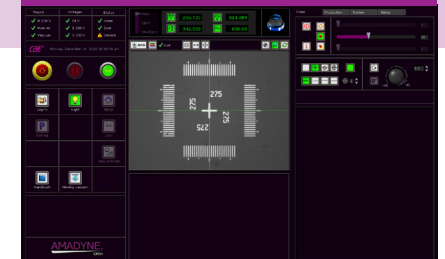
Options

- Toolbox
- Dispenser system
- Chip eject system
- Upward looking camera
- Eutectic unit
- Stamping unit
- Tape Feeder

Options

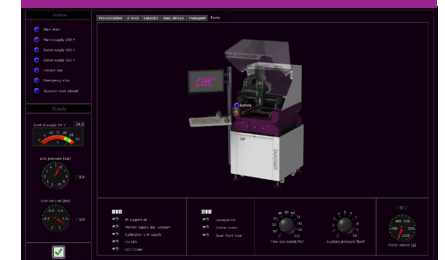
- Wafermapping
- Post-place Inspection
- Remote application support & maintenance system
- Manual pick&place mode
- Tracking of production data

Basic user interface



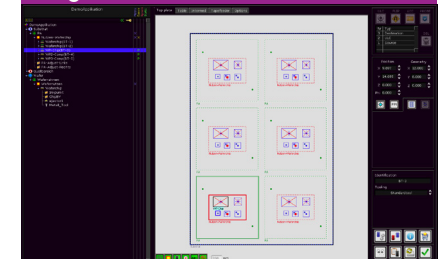
With live video, production window and status readouts

Service menu



Operating of actuators, display of sensor states, system diagnosis

Program editor



Graphical display of presentation area and tree based program structure

Parameter setting



Separate tabs to set parameters for the different diebonding processes

Specification CAT^{AP} Stand alone Micro Assembly System

Micro Assembly System for a variety of technologies and processes

Advanced Packaging technologies like COB, MCM, FC, COC, eutectic soldering and others.

Testing, Sorting and Inspection of components from any presentation form.

Integration of customer specific requirements

PC system	
PC	Min. 3.5 GHz, Intel quad core series CPU, SSD min. 250GB, 2048 MB RAM
Operating system	Linux-4.x, 64 bit
Programming	Teach in mode with expert panels for operator assistance
Data Storage	Solid State Drive / flash drive
User Interface	Keyboard, Trackball, Space navigator, 22" wide screen TFT-monitor
Data transfer	Ethernet TCP/IP to different operating systems
Software	
User Interface	GUI, full graphical user interface
Operator Interface	Icon driven interactive operation with shiftable additional texts, dialogue menus in German, English, French or Russian
Indication Instruments	Integrated in graphical user interface
Live Video Camera	Camera live video fully integrated into the user interface, video snapshot function, main image processing feature based matching, pattern (independent of rotation), circle and ink dot matching
Programming	Dialogue windows for standard operation
Joy pad axis movement	Space navigator and keyboard, selecting the position displayed in the video screen
Standard auxiliary	Automatic routines for offset calibration of tool and dispenser, automatic camera calibration
Camera system	
Camera	Industrial USB series camera (different resolutions available)
Objective	Typical field of view 3.8 x 3.0 mm *
Illumination	LED ring light fixed to camera, coaxial and side light *
Handling system	
System design	Standalone version
Working area	12" x 16" (300 mm x 400 mm)
Z-axis movement	Up to 110 mm
Clamping system	Customized plates for mechanical or vacuum clamping, easy exchangeable
Materials & Substrates	
Chip dimension	0.01" up to 1" (0.25 mm up to 25 mm), other chip dimension upon request
Max. Component height	1" (25 mm)
Component presentation format	Waffle pack 2" or 4", GEL PAK 2" or 4", tape strips, customer specific carrier *, bulk goods format * Wafer on blue foil
Destination formats	Waffle pack 2" or 4", GEL PAK 2" or 4", boat, ceramic board, pcb board, packages, customer specific formats *

Machine capability	
Axis resolution	< 0.2 µm xy axis, < 1 µm z axis, < 0.03° rotational axis
XY-Axis repeatability	±5 µm @ 3 sigma
Rotational repeatability	Up to ± 0.12° @ 3 sigma *
Pick&Place repeatability	±15 µm @ 3 sigma, ± 0.5° @ 3 sigma (standard version) *
Placement feature	Full 360° rotation, integrated touch down sensor, magnetic pickup tool holder for standard, shank (Ø 3.175 mm, length 17 mm)
Bond force	30–1500 g steplessly adjustable * lower bondforce with special toolholders
Placement rate	Up to 700 CPH *
Services	
Power Supply	230 V, 50/60 Hz
Power Consumption	1 KVA
Air pressure and vacuum	5.0 bar (72.5 PSI), 0.8 bar (25 inches HG)
Dimensions and weight	
Width, depth, height	900 mm, 900 mm, 1800 mm
Weight	Approx. 500 kg depending configuration

Options (not included in the standard machine)	
Toolbox	Up to 10 different pickup tools, max. tool diameter is 15 mm
Dispensing	Pressure / time dispenser or rotary micro valve dispenser, dispensing of dots or patterns possible *
Stamping unit	Rotating squeegee unit, selectable speed, constant epoxy film thickness adjustable with motor or micrometer screw
Uplooking camera	Industrial USB series camera (different resolutions available), typical field of view approx. 2.8 mm x 4.7 mm *
Eutectic unit	Substrate size up to 30 mm, max temp. 450°C, inert gas flooding process area * **
Chip eject system	1 x Wafer up to 8" single eject unit, single or multiple needle for chip size from 0.2 up to 25 mm **
Tape Feeder	For 8, 12, 16 and 24 mm tape, maximum 9 lanes with 8 mm tape
Software options	
Inspection	Post-place Inspection, Inspection of the chip after placement
Wafer mapping	SEMI Standard G81/G85; chip size > 1.5 mm
Traceability	Production data is saved to a text file
Remote maintenance system	AMADYNE specific option for hardware monitoring functions, debugging, application support and hardware diagnostics. (RMS require Internet connection)

* Modifications and detailed information on request

** Not all options can be combined together in one system. More information on request.

We reserve the right to make design and engineering changes to the product, in order to improve its performance and flexibility.

Design: www.reicher.at, 12/19

AMADYNE.

GMBH

AMADYNE GmbH
Industrielle Automatisierungstechnik
Draisstraße 11a
D 77815 Bühl / Germany
Tel +49 / (0)7223 407 989 0
Fax +49 / (0)7223 281 84 85
E-mail info@amadyne.net
www.amadyne.net

REPRESENTED BY

