The high quality Basic System

# T-3002-M

## Die Bonder & Component Placer

**T-3002-M** is equipped with wafer table and die ejector system

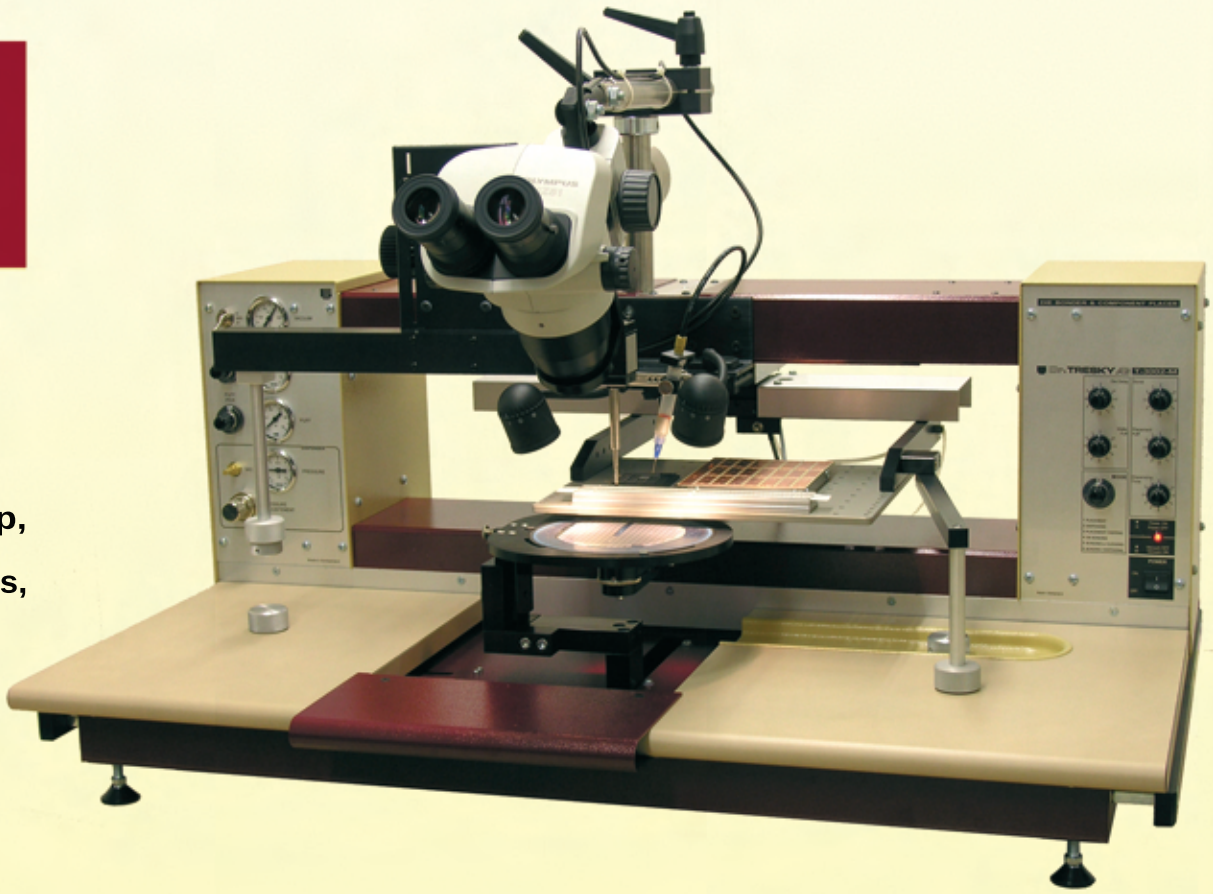
**T-3000-M** is designed to work on XY-table only.

flexible and easy to use

A precise, high quality, versatile die bonder & component placer with superior ergonomic design and a fix die ejector needle.

fields of application :

- **MCM,**
- **COB,**
- **Hybrid,**
- **Flip-Chip,**
- **Photonics,**
- **SMD,**
- **....**



Since 1980

Dr. TRESKY AG

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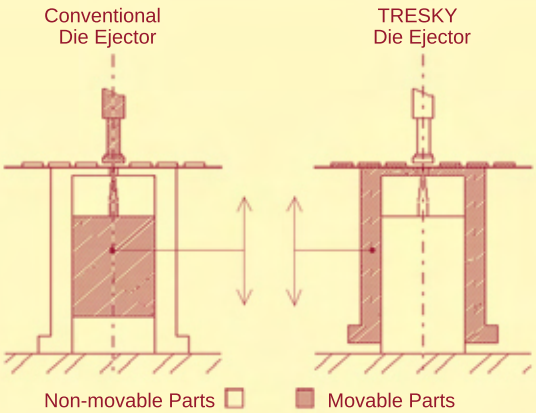
Excellent performance, ergonomically designed and high reliability make the T-3002-M ideal for small and medium production, runs with a cycle time of approx. 4 sec. (process depending) and various development applications.

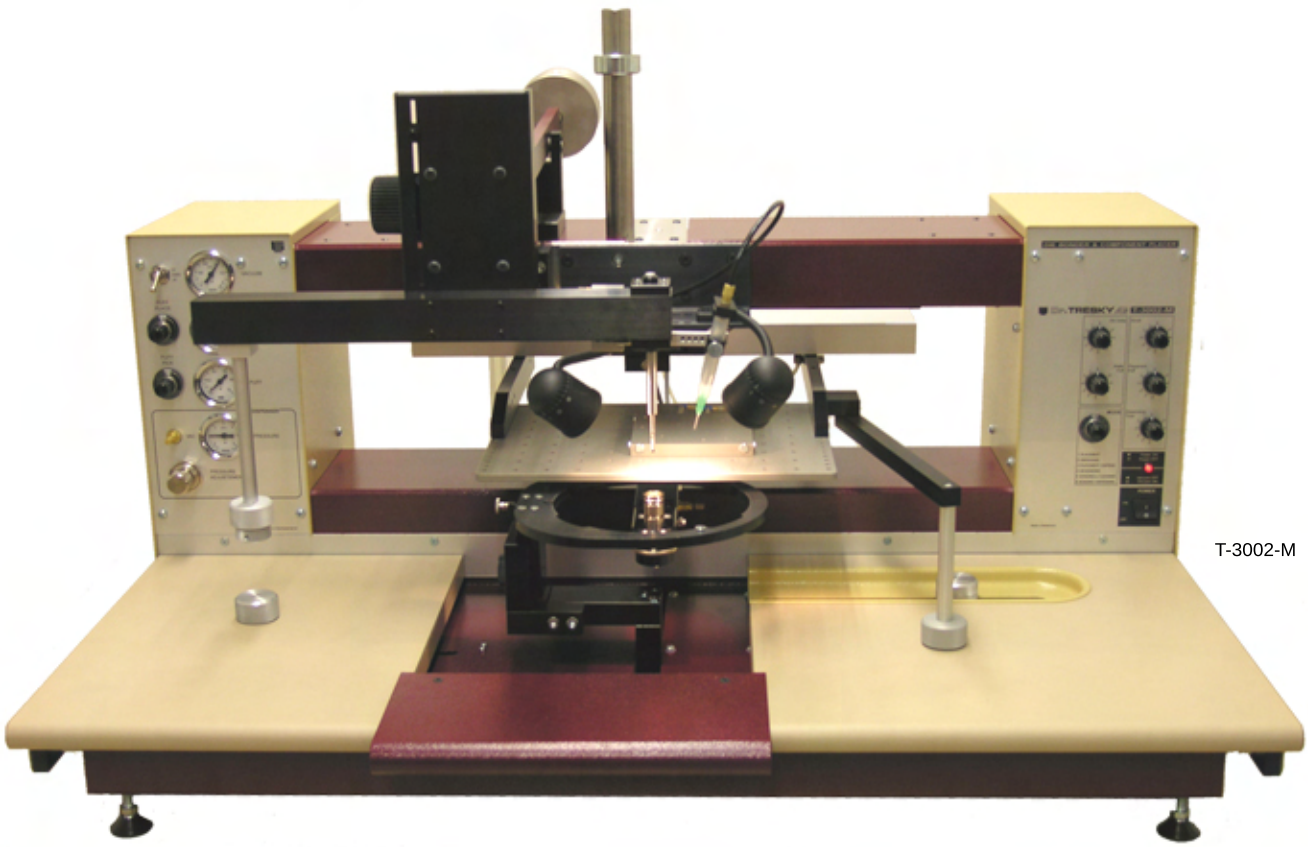
## TRESKY'S unique die ejector system

(Die pickup from wafer)

The advantage of this method is so significant that delicate dies, which need multiple needle ejector, can be picked-up by the same standard die ejector. This die ejector is suitable especially for all kind of Si, GaAs and InP dies.
Contrary to conventional die bonding methods, separation of the die from the foil ensues through the pull down of the foil, whereas the die supported by the fixed needle remains stationary. Therefore the usual dynamic forces arising through the acceleration of the die and all pick-up tool assembly parts, (vacuum tool, spindle, vacuum connector etc.) do not arise. This property reduces the danger of die failure and surface damage, features higher alignment accuracy between the pick-up tool and die ejector needle as well as increasing pick-up reliability.
The stroke and the speed of the die ejector barrel is easily adjustable and can be done very quickly without use of a tool.




The overlapping wafer & bonding levels reduce the necessary work - table movement to a minimum. The special automatic focusing facility compensates the difference between the two microscope working levels. Various video-systems are available for alignment (e.g. Flip-Chip option).



T-3002-M

The XY-wafer-table is located under the operation table. The XY-positioning knobs enable exact positioning of the dies.
The right knob operates the Y-movement and has to be used only once per row. It serves for the adjustment of the whole row of dies and features an adjustable friction break to prevent an accidental shift of the position. Therefore the right hand is free for the operation of the work-table. The left hand knob, coaxial to the vertical movement knob, serves for positioning of single dies within one row.

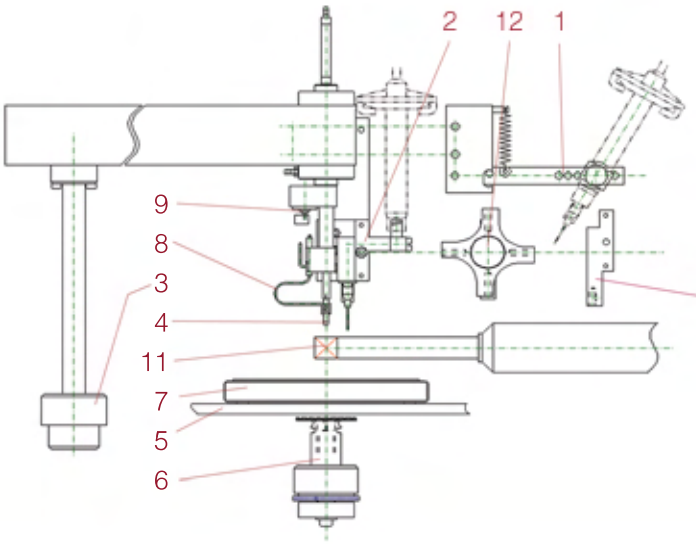
1 Dispenser for solder paste or adhesives (moves in a angle to the working position).

2 Dispenser for solder paste or adhesives (moves vertically to the working position).

3 XY-work table movement knob

4 Pickup tool

5 XY-work table for substrate, waffle pack,....




6 Tresky die ejector

7 Heating plate; various versions available for eutectic bonding (option).

8 Tool heating for eutectic bonding (option)

9 Scrub for eut. bond.(opt.)

10 2nd Spindle for placement of pre forms (option)

11 Flip-Chip optic for alignment of Flip-Chips, µBGA or other components (opt.).

12 4x revolving stamping head (option)

## MODES :

**1** Placement — This mode serves for die bonding of chips loaded in waffle packs as well as placement of all surface mounted devices. The tool-vacuum switches on or off automatically as soon as the pre-set pressure of the pick-and place tool onto the die has been reached or indicated manually. In the last case the pick-up or placement can be done without imposing any pressure on the component.

**2** Dispensing — The dispensing barrel moves to the working position upon selection of this function. The dispensing cycle starts either through a press on the foot switch or automatically after the dispensing tip has reached the adjusted height.

**3** Dispens./ Placem. — This function switches automatically programs 1 and 2 in a sequence after completion of each pick & place or dispensing cycle (E.g.: pick & place with UV glue).

**4** Die bonding 1 (only 3002-M) — As mode 1 (Placement) but the pick-up operation takes place at the wafer level and initiates the die ejector cycle. The focusing facility automatically compensates the difference between the two microscope working levels.

**5** Die bonding 2 (only 3002-M) — As mode 4 (Die Bonding 1) but with cleaning of the wafer in the pick-up area by means of blowing air or nitrogen through the pick-and place tool.

**6** Dispens./ Die bond. (only 3002-M) — This function switches automatically programs 2 and 4 in a sequence after completion of each bonding or dispensing cycle.

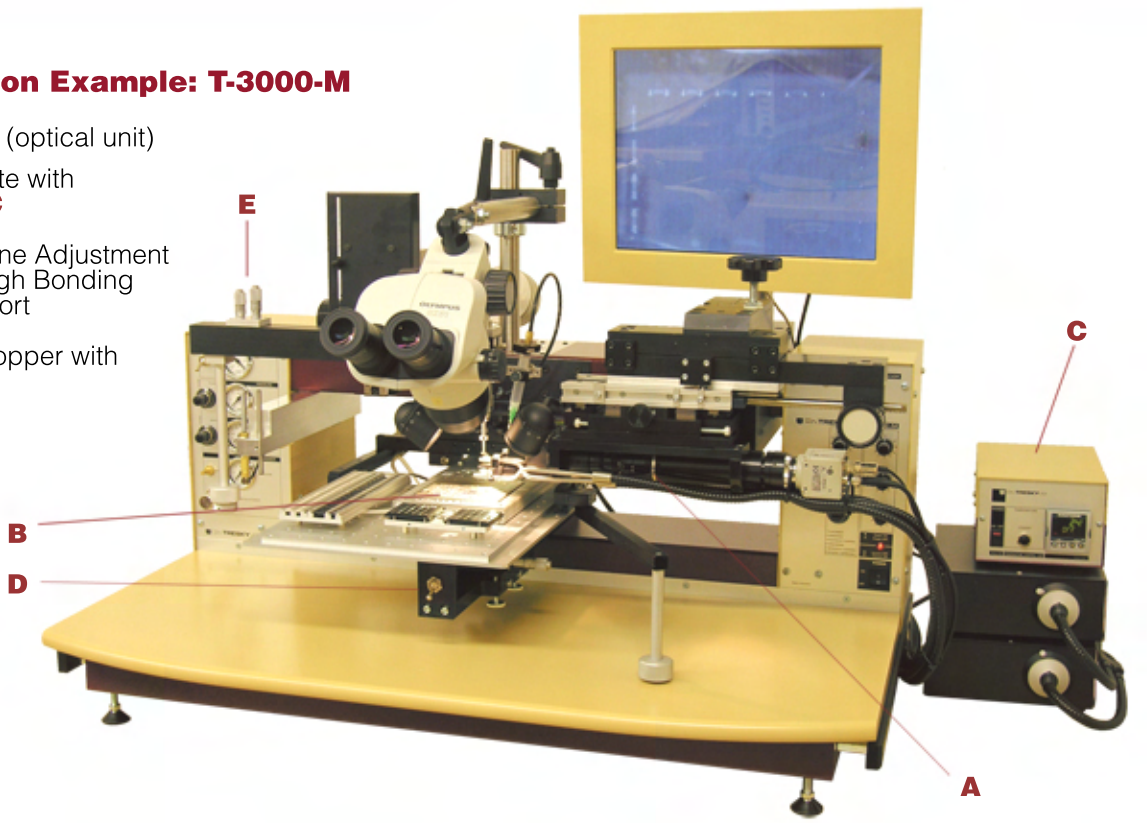
## Configuration Example: T-3000-M

**A** Flip-Chip IV (optical unit)

**B** Heating Plate with Controller **C**

**D** XY Micro Fine Adjustment Unit with High Bonding Force Support

**E** Z Height Stopper with Micrometer



## FURTHER OPTIONS:

**Flip-Chip IV:**

The basic part of this unit is a special beam splitter enabling a simultaneous view of the substrate and chip bump patterns. The field of view of the integrated zoom lens varies from 1 mm x 1mm to 4.6 mm x 4.6 mm, or from 2 mm x 2.6 mm to 12.7 mm x 16.7 mm.

**Eutectic Die Bonding:**

The optional equipment for Eutectic Bonding contains: **Standard Heating Plate, up to 500°C, with hot nitrogen circulation (nitrogen circulation can be converted to a hot plate cooling) ** Custom specific Cover Plate.** Bonding Tool Heating.** Hot Plate and Bonding Tool Temperature Control.
** Nitrogen Flow Control. Scrub Facility. ** Pre-Form Placement Unit.
** Index Station for Lead Frames (customer specific). ** Special Software.

**Eutectic Quick Heat:**

Small heated stage for fast heating and cooling controlled by PC, with integrated vacuum hold down and hot gas flow capability (max. temperature 450°C). Suitable for eutectic applications.

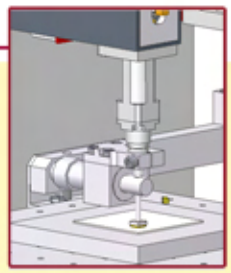
**Stamping Set:**

It contains a motorized container maintaining a defined and constant layer of flux or adhesives.

**Semi Automatic Die Bonder T-3200 and T3202:**

The T-3000-FC3 can be retrofitted to a semiautomatic Die Bonder with XY - or XYZ- NC– positioning system with manual wafer positioning. For further information, please ask for the T-3202 brochure.

**NEW** — Ultrasonic Bonding Head



## TECHNICAL DATA:

| | |
|---|---|
| XY- Movement (placement stage): | 220mm x 220mm (manual) |
| XY- Movement (wafer stage): | 220mm x 220mm (manual, only T-3002-M) |
| Z- Movement: | 95mm |
| Spindle Rotation: | 360° |
| Placement Speed: | approx. 3 Sec. to 6 Sec. per component (operator and process depending) |
| Max. PC Board-/ Substrate Size: | 400mm x 280mm |
| Min. Component Size: | 0.2mm x 0.2mm (smallest Tresky standard vacuum tool: external Ø 0.2 mm for smaller component sizes, contact Tresky Headquarters) |
| Positioning accuracy: | Operator and process depending (>5µm possible; depending on options) |
| Connections: | Compressed air 5 - 6 bar / Vacuum 0.6 bar (abs) |
| Dimensions: | 900mm x 800mm x 700mm |
| Weight T-3000-M / T-3002-M: | 60kg / 85kg |
| Voltage: | 110V / 220V |

Note: All specifications are subject to change without notice

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