

# MODEL: BS391V1 / BS391V2 SMT PICK & PLACE MACHINE



## SUMMARY

- High Accuracy and high Flexibility for 0201 (0.6 mm x 0.3 mm), SOIC, PLCC, BGA,  $\mu$ BGA, CSP, QFP (0.3 mm pitch)
- Smart Feeder System provides Automatic feeder position checking, Automatic component counting, Production data Traceability
- Perfect for small, medium and higher volume production
- COGNEX Alignment System "Vision on the Fly"
- Bottom Vision Alignment System for fine pitch QFP & BGA
- Built in Camera System with Auto Smart Fiducial Mark Learning
- Dispenser system
- Vision Inspection before and after production
- Windows 2000 Software
- Universal CAD Conversion
- Placement rate: up to 6.400 CPH
- Suitable for 160 intelligent Auto Tape Feeder
- Tray Handler access up to 14 waffle Trays

The SMT Pick & Place machines of **BS391-series** were especially designed for small, medium and higher volume batch sizes. Various models are provided for different applications. Two different models are available, which distinguish between their placement speeds.

BS391 is fully compatible with BS384- and BS683-series and even the feeders are interchangeable. By this means most reliability and easy maintenance for all models is guaranteed. Non-contact Linear Encoders together with DC-servo motors provide an extremely high repeatability and stability.

Additionally, the BS391 series feature COGNEX vision processing and head-mounted for non-contact "Vision on the Fly" alignment.

MODEL: BS391V1 / BS391V2  
SMT PICK & PLACE MACHINE



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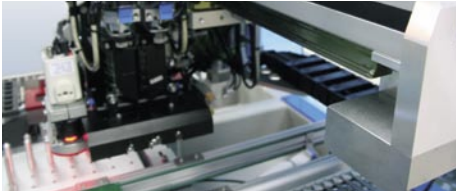
## DETAILS

### Strong and rigid mechanical design

BS391 using welded steel frame and also heavy duty and high precision Linear Ball Rail system to provide strong, rigid and long life time mechanism.

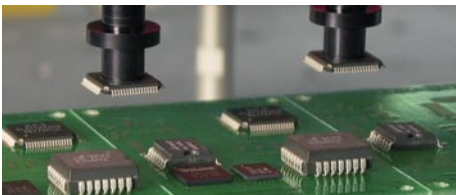
### Non-contact Linear Encoder System

By using „Closed Loop“ DC-Servo motors with non-contact Linear Encoder System, provide extremely high repeatability and stability.



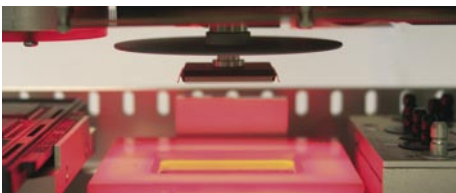
### COGNEX Alignment System "Vision on the Fly"

The BS391-series feature COGNEX vision processing and head-mounted for non-contact "Vision on the Fly" alignment. The machine BS391 assures high-precision placement of the full range of SMDs, from the smallest 0201 devices through CSPs,  $\mu$ BGAs, flip-chips, ultra-fine-pitch (0,3mm lead pitch) QFPs, even odd-form components.



### Bottom Vision Alignment System

A Bottom Vision Camera is used for large components up to 38 x 38 mm and devices with alignment features on their bottom side.



### Dispenser System

Optional stand alone dispenser head for adhesive & solder paste dispensing. Perfect for quick, small volume production without making stencil.

### Smart Fiducial System

Besides the standard fiducial mark, either square SMD PCB pad or plate-through hole also can be trained as fiducial mark.

### Tray Handler System

Optional IC tray handler system can access up to 14 sets of waffle Trays automatically.

### Universal CAD Conversion

Beside the direct input of data by teach-in camera, an optional CAD conversion program for directly transfer of CAD generated pick and place data is available.

### Auto Tape Feeder (KFTA)

The innovative design of KFTA feeder bases and mounting hardware allows almost limitless flexibility in feeder combinations and arrangement schemes, as almost every feeder can be ordered, loaded, programmed and mounted independently. KFTAs are available from 8 mm up to 72 mm tape width.



### Feeder Rack (FR-48K)

Included in delivery are 2x FR-48K, each is suitable for 48 x 8 mm KFTA Feeders or 40 x 8 mm IC-Sticks.

### Conveyor System

The conveyor system with SMEMA Interface speeds up the handling of PCB and in-line production.



### Universal IC Tube Feeder

KFTB universal tube feeder combines vibration and belt driven technique. It is able to handle IC-Sticks with max. 50 mm width. KFTB-2 (10 pcs of 8 mm IC-Sticks) KFTB-4 (20 pcs of 8 mm IC-Sticks)



### Flexible Waffle Tray Station

Up to 4 Waffle Trays can be installed. Bulk pack component also can be handle under semi-auto mode.

### Buffering Nozzle

The spring buffering design of Nozzle adjust the placement pressure for different heights of components automatically.

### Vision Inspection

With the built-in software, the camera can automatically move and display the image in the computer screen, user can manually check the printing accuracy of solder paste, quality of the soldering, accuracy of component placement, etc.

### Remote Service Kit

Optional Remote Service Kit allows a remote access to machine by Internet, so that programming, calibration and service can be done by our worldwide remote service center.

## SPECIFICATION

- Number of Heads (Vision on the Fly):  
BS391V1: 1 / BS391V2: 2
- Max. Speed (under the optimum condition):  
BS391V1: 4000 CPH / BS391V2: 6400 CPH
- Feeder capacity (8 mm) without conveyor:  
up to 160 Tape Feeders
- Feeder capacity (8mm) with conveyor:  
up to 96 Tape Feeders
- IC Tray capacity:  
up to 4 Waffle Trays  
up to 14 Waffle tray with TH-14 Tray Handler (option)
- Component Size (mm)  
- Smallest: 0.6 x 0.3 mm  
- Largest: 16 x 14 mm  
38 x 38 mm (by optional bottom vision BV-38)  
50 x 50 mm (by optional bottom vision BV-50)
- Resolution:  
X / Y axis 0.005 mm DC Servo Motor (Linear Encoder)  
Z axis 0.02 mm DC Servo Motor
- Rotation:  
0 to 360° (0.045°/ step) DC Servo Motor
- Repeat Accuracy: +/- 0.03 mm
- X-Y Repeatability: +/- 0.01 mm
- Placement area w/o conveyor:  
Up to 660 x 365 mm without Waffle Tray  
Up to 660 x 335 mm with 1 Waffle Tray
- Placement area with conveyor: Min. 50 x 50 mm  
Max. 660 x 330 mm without Waffle Trays  
Max. 660 x 283 mm with 1 Waffle Tray  
Max. 660 x 180 mm with 2 Waffle Trays  
Max. 660 x 155 mm with 3 Waffle Trays
- Programming:  
- Direct input  
- Vision teach-in  
- CAD Access
- Component Sense: Vision detection
- Main Control: Industrial PC
- Machine Size: 1150 x 1100 x 1350 mm (L x B x H)
- Weight: 550 kg
- Power: 230 V / AC  
BS391V1: 1800 W / BS391V2: 2100 W
- Pressure: 75 psi (5.5 bar)

We reserve the right to make changes without notice.