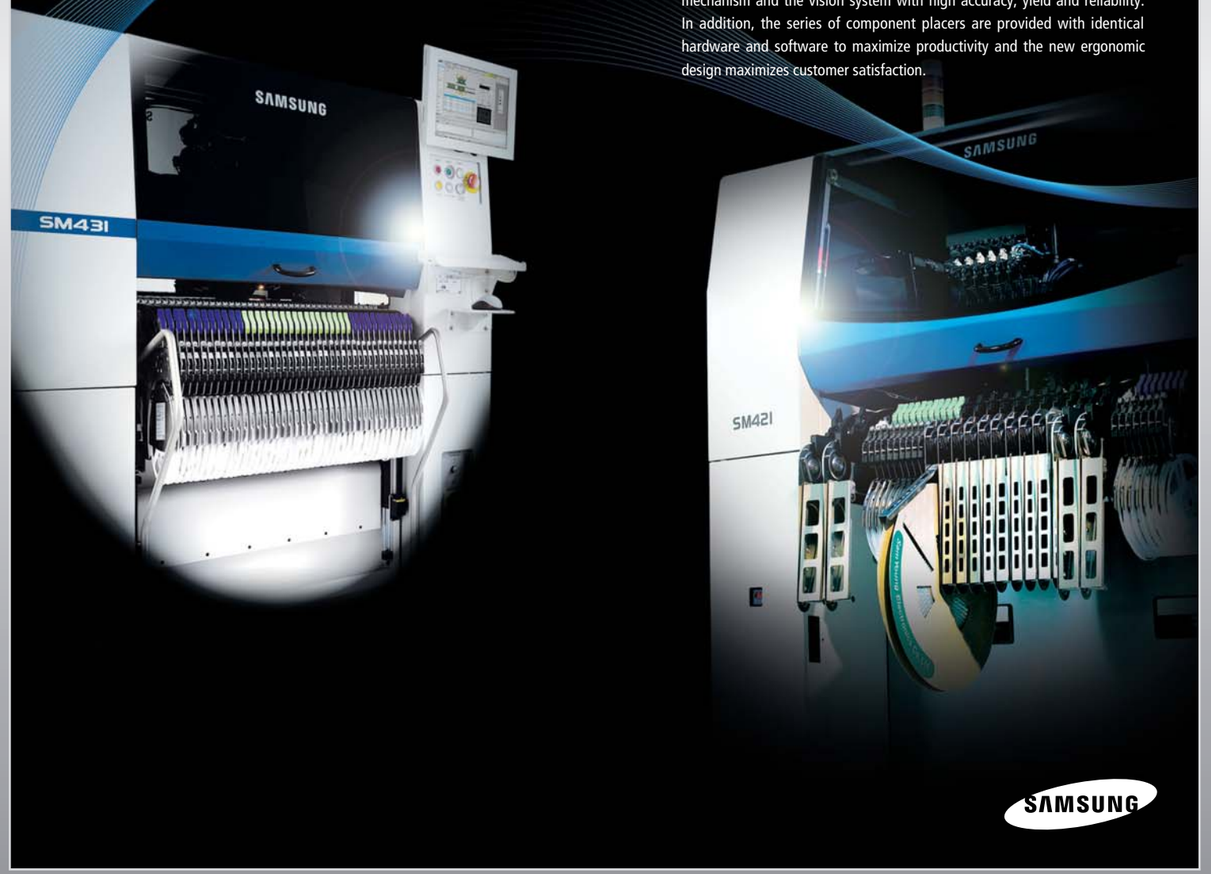
Simple & Easy • Modularity & Availability • Reliability & Throughput

New Smart Platform

SM400 Series

Samsung Techwin presents the new next generation component placer platform – the SM400 series. The SM400 series machines offer the world highest part placement capability among those of the same class by evolving the highly successful SM series machines.

From microchips for mobile devices to large boards for display, SM400 series machines provide optimum placement solutions to various needs of customers through the super-high speed On-The-Fly part placement mechanism and the vision system with high accuracy, yield and reliability. In addition, the series of component placers are provided with identical hardware and software to maximize productivity and the new ergonomic design maximizes customer satisfaction.



SAMSUNG

The new SM400 series component placer of provides optimum solutions to customers who desire to produce high quality products from mobile devices of high speed/high precision and DSC products to large display products. It is the next generation mounter platform from component placer by enhancing the modularity and performance of existing SM series machines in order to actively respond to various market requirements for changes.

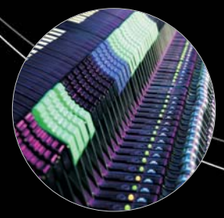
New Smart Platform
SM400 Series

Simple & Easy

- Intuitive operating environment through ergonomics analysis
- Smart system architecture for ease of maintenance and maximum stability
- Easy set-up identification through application of color coded clamp for feeder

Reliability & Throughput

- Robust ball screw drive overhead gantry design
- True On-The-Fly vision processing of all components
- Unique conveyor designs to maximize board handling efficiency



Modularity & Availability

- Convenient inline operation through unification of main modules and inline platform
- Rapid job change through reinforced networked Parts Library (Vista)
- Reinforced applicability to parts through reinforcement of mega pixel camera and parts registration algorithm
- Maximum PCB size among machines of the same class

New Smart Platform

From micro chips for mobile devices to large boards for display -
SM400 series machines provide optimum placement solutions to various needs of customers through the super-high speed On-The-Fly placement mechanism and the vision system with high reliability.

Reliability & Throughput

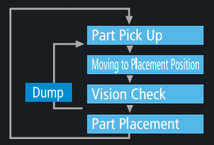
Realization of the highest throughput among machines of the same class

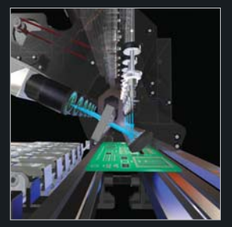
The SM400 series machines realized the highest placement performance with two gantries by adopting the twin servo mechanism to the Y axis and flying vision to minimize the moving speed of the head for part placement.

Part Placement through Nonstop On-The-Fly Recognition

The unique On-The-Fly image recognition technology of Samsung Techwin' own that allows part recognition without stopping after part pickup, minimizing the time of movement between pickup position and placement position and maximizing the placement speed by zeroing the recognition time.

- Placement Speed:
  42,000 CPH (IPC9850),
  55,000 CPH (Optimal Condition)

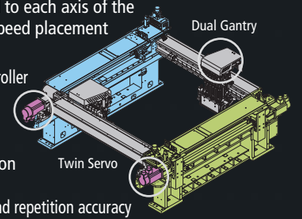




High Speed X-Y Driving Mechanism

The twin servo system applied to each axis of the gantry structure allows high speed placement by strong accelerating force.

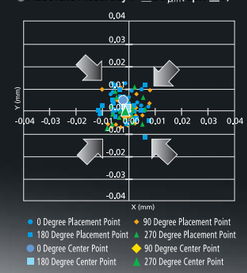
- Equipped with self motion controller
- Reinforced rigidity of driving system
- Implementation of high acceleration and low vibration
- Reduced setting time
- Reinforced absolute accuracy and repetition accuracy

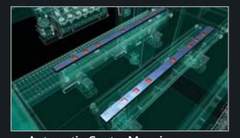


Placement Accuracy Calibration System

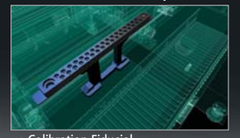
Chip ±50㎛ (Cpk≥1.0), IC ±30㎛ (Cpk≥1.0)
The newly upgraded placement accuracy calibration system automatically checks and calibrates the pickup point offset, head offset, C/V offset, etc. to allow reliable part placement.

● Absolute Accuracy : ±50㎛(Cpk ≥1)



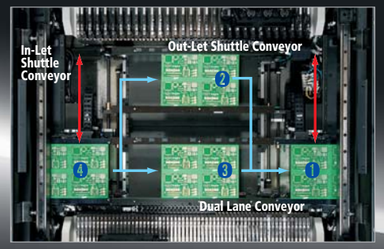

● Automatic Gantry Mapping


● Reference Mark for Accuracy Calibration


● Calibration Fiducial

'Zeroing' of PCB Loading Time

By adopting a dual work conveyor and shuttle inlet conveyor of first-in-first-out type, the PCB feeding type was minimized and gantry efficiency is maximized due to elimination of a common work area, thus maximizing the actual productivity. Each gantry can work at full speed independently without risk of interrupting the opposing gantry. In addition, it supports various placement modes according to production characteristics and board size.



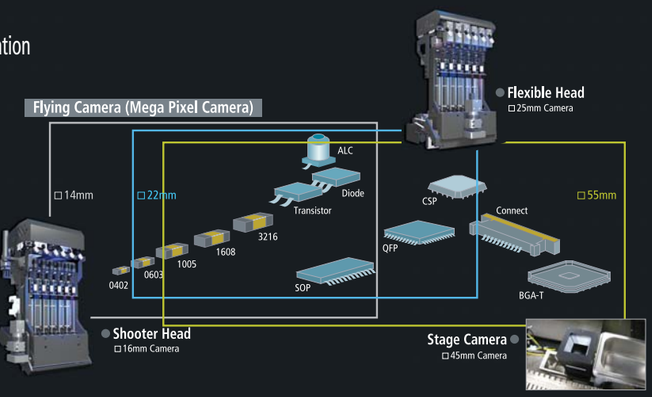
Modularity & Availability

Reinforced Modularity → Providing Optimal Solution

SM400 series machines are high scalability and allow easy optimization according to production type by unifying the operating system of hardware and software so that reconfiguration of lines and program portability are easily accomplished. Therefore, solutions can be quickly provided.

Reinforced Part Library Support and Quick Part Registration

It has an enhanced part registration library to allow quick part registration as well as stable part recognition and placement, and supports the polygon recognition related to unregistered part to allow the parts of complicated shape to be registered easily.

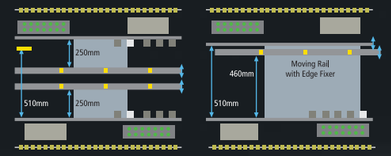


Reinforced Component Applicability by the Support of Mega Pixel Camera

The mega pixel camera allows the placement of parts from 0603(01005) micro chips. The SM400 series machine also allows recognition of larger parts with fine pitch or balls using 45mm camera such as □42mm with 0.4mm pitch by adopting a mega pixel vision system for the Stage camera.

Applicability to Long & Large PCBs among Those of Same Class

The SM Series dual-lane conveyor system accommodates PCBs up to 250mm, increasing the overall placement speed. The system can also accommodate PCBs up to 460mm on a single-lane conveyor.



SM411	Standard	Factory Option
Dual Lane(mm)	L50 x W40 ~ L460 x W250	L50 x W40 ~ L610 x W250
Single Lane(mm)	L50 x W40 ~ L510 x W460*	L50 x W40 ~ L610 x W460

*If PCB Length is in excess of 460mm, it is impossible to use buffer at the entrance and exit.

Productivity per Unit Area

The highest productivity compared to the area of machine : 26,700 CPH/m²

From micro chips for mobile devices to large boards for display -
SM400 series machines provide optimum placement solutions to various needs of customers through the super-high speed On-The-Fly placement mechanism and the vision system with high reliability.

Simple & Easy

Adoption of New Ergonomic Design

The operation environment of the SM400 series machines has been developed through careful consideration of the user oriented environment after ergonomics analysis. The high efficiency of operation space has been achieved through unification of the size of chip shooter and the odd shaped machine to maintain perfect straightness for inline configuration.

User Convenience – Position of Monitor and Operation Panel

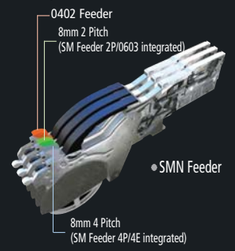
The height of the machine was lowered through ergonomic redesign and the operation panel and keyboard position were optimized for convenient operation.

Maintenance Convenience – Utility Position Improvement

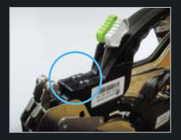
All utility connections are installed inside the machine to provide a clean and safe environment.

User Friendly Feeder Design

- Easy feeder identification



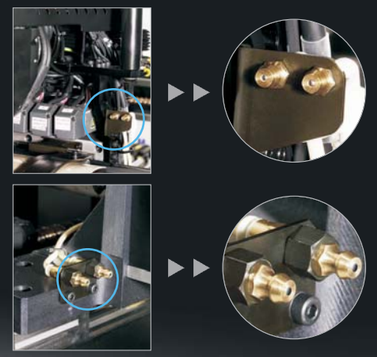
- Easy differentiation of feeder state



LED	Feeder State
	Normal operation
	Part placed at incorrect position
	Insufficient quantity of remaining parts

Location of Grease Injection Nipple

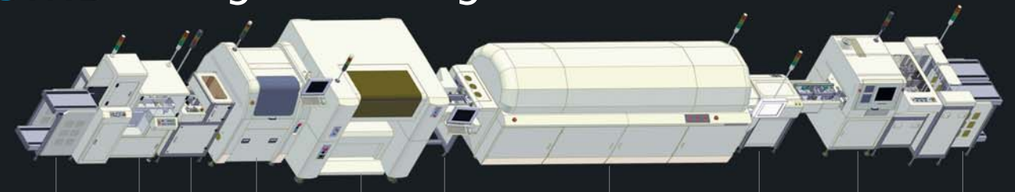
For the grease injection that is periodically performed during maintenance, the position of the nipple was considered for convenient grease injection.



Dual Operating Consoles

Two operating consoles allow access to system controls from both the front and rear sides of the machine.

SMD Configuration Diagram



SAMSUNG IN-LINE SYSTEM


LD-300/500

Magazine Loader

Transfers PCBs loaded onto the magazine rack to the next process machine using the pusher.


LD-150V

Vacuum Loader

Picks up a bare PCB by vacuum and transfers it the next process line. It can be configured into the line with the magazine loader.


IV-100

Inverter

Reverses PCB by 180° to perform work on both sides.


SP1

Screen Printer

Applies solder cream (lead included bonding agent) by stencil printing method at the area on the PCB surface to which electronic parts are to be placed.


SM431

Chip Mounter

Places various electronic parts (chip, IC, etc.) on the PCB surface on which solder cream is printed.


WS-200

Work Station

Provides space for visual inspection of the part placement status.


SRF70i Series

Reflow

Performs soldering and hardening of a PCB at an appropriate temperature on which electronic parts are placed.


WG-1250/1350/1400

Shuttle Gate Conveyor

Provides an intermediate path in the line in order to minimize the moving line of the operator.


SHS60

Vision Inspection System

Inspects the quality of printing, part placement and soldering in the SMD line. It is divided into a print inspection device, placement inspection device and soldering inspection device.


UL-400D

Shuttle Dual Unloader

As dual type machines, they check whether PCBs transferred to the shuttle conveyor after quality inspection are defective, and will load only non-defective PCBs.

Compact High Speed Chip Shooter

SM431

The SM431 is a high speed chip shooter with 2 gantries and 16 heads. It achieves high productivity while requiring a minimum amount of floor space. This high speed chip shooter is the best in its class requiring 25% less installation room while productivity per footprint is increased by up to 40% when compared with the SM411.
In addition, it adopts a new flying vision system that reduces head weight and improves reliability for the optimization of high speed part placement. The SM431 can place a variety of different chips, from the basic 0402mm chip up to □12 mm IC parts, and can handle PCB's up to L460 x W460mm.

Features
Placement Speed : Chip 42K CPH (IPC9850)
Applicable Parts : Max. 0402 ~ □12mm (Part height H=7mm)
Placement Accuracy : $\pm 50\mu m@\mu + 3\sigma$/Chip
Maximum PCB size : L330 x W250 x 2Lane(Standard) / Max. L460 x W460 x 1Lane
External Dimension : 1,240mm(L) x 1,660mm(D) x 1,420mm(H)

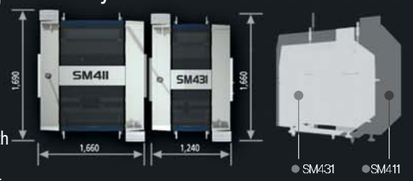
Providing Support of Various Placement Modes According to Production Characteristics

- Join Mode: Common use of front and rear feeders (less than 250mm lengthwise).
- Single Mode: For production of medium and large sized board (Greater than 250mm lengthwise).
- Twin Mode: Individual placement on front and rear sides (less than 250mm lengthwise).
- Even if one placement head has a problem or parts have run short on one side of thefeeder, the part placement can be done by another head, allowing continuous production without stopping the machine.
- Normal Mode PCB Double Side
- Simultaneous Production Mode

● Normal Mode ● PCB Double Side Simultaneous Production Mode

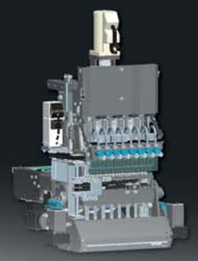
Greatly maximizes productivity per square meter.

- 55,000 CPH (Optimum Condition)
- Productivity has been increased by more than 40% when compared with the SM411
- Floor space/foot print has been reduced by 25%



New Head

- 8 Spindles 15mm Pitch
- New Flying Vision System



Compact High Speed Chip Shooter for Long Board

SM431L

The SM43L is a high speed chip shooter optimized for LED BLU, lighting and long board based on the SM 431 platform. It reinforces the applicability to LED placement by realizing functions specific to the LED, including LED rank management, special nozzles for LED, bowl feeder applicability and remaining part quantity management. In addition, the SM431L supports IT feeder systems and motor driven feeders to prevent part misplacement and to improve automatic recognition and productivity.

Features
Placement Speed : Chip 30K CPH (IPC9850)
Applicable Parts : Max. 0402 ~ □12mm (Part height H=7mm)
Placement Accuracy : $\pm 50\mu m@\mu + 3\sigma$/Chip
Maximum PCB size : L540 x W460 x 1Lane(Standard) / Max. L750 x W460 x 1Lane

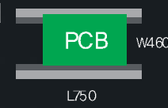
LED Rank Management System

As a system that manages the luminance of LED parts by rank, it compares and manages produced products and the rank information of LED parts by applying a barcode system.

- Rank Warning Function (Part Misplacement Prevention)
  Sounds an alarm alerting the operator to prevent part misplacement when there is difference in the rank between a product being produced and a part.
- Automatic Rank Change Function
  Automatically recognizes a part of the corresponding rank for placement when changing the rank. Since the rank can be changed without stopping the machine, it improves production efficiency and operating convenience.
- Remaining Part Quantity Alarm Function
  Shows the remaining part quantity during placement to prepare for part shortages in advance.

Reinforced Applicability to Long Board

- The SM431L allows part placement on large PCBs for LED BLU, LED lighting and display.
- Max. L750 x W460



Greatly maximizes productivity per square meter.

- 47,000 CPH (Optimum Condition)
- Productivity has been increased by more than 77% when compared with the SM411F.

● SM431L ● SM411F

From micro chips for mobile devices to large boards for display -
SM400 series machines provide optimum placement solutions to various needs of customers through the super-high speed On-The-Fly placement mechanism and the vision system with high reliability.

Dynamic Chip Shooter

SM411

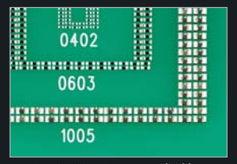
The SM411 has achieved the highest placement speed of 42,000 CPH for chips and 30,000 CPH for SOP parts (based on IPC, respectively) in the world among machines of the same class by adopting a dual gantry mechanism and On-The-Fly method, for which Samsung registered patents. In addition, by implementing high accuracy placement of 50 microns at high speed, it allows placement of parts from the smallest 0402 chip to □14mm IC part. In the aspect of PCB applicability, it allows simultaneous feeding of 2 L460 x W250 PCBs, increasing actual productivity. It also supports the production of L610mm long board for display as an option.

Features
Placement Speed : Chip 42K CPH (IPC9850)
Applicable Parts : Max. 0402 ~ □14mm (Part height H=12mm)
Placement Accuracy : $\pm 50\mu m@\mu+3\sigma$/Chip
Applicable PCBs : L460 x W250 x 2Lane (Standard) / L510 x W460 x 1Lane (Standard) / Max. L610 x W460 x 1Lane

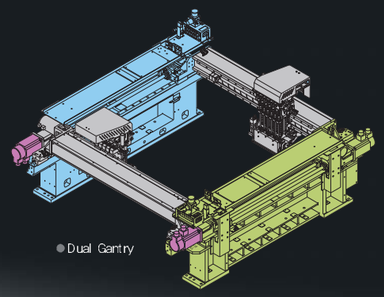
Providing Support of Various Placement Modes According to Production Characteristics

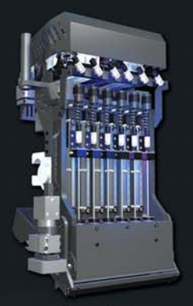
- Join Mode: Common use of front and rear feeders (less than 250mm lengthwise).
- Single Mode: For production of medium and large sized board (Greater than 250mm lengthwise).
- Twin Mode: Individual placement on front and rear sides (less than 250mm lengthwise).
- Even if one placement head has a problem or parts have run short on one side of the feeder, the part placement can be done by another head, allowing continuous production without stopping the machine.


● Dual – Lane Conveyor



● Max. 0402 ~ □14mm Applicable Parts


● Dual Gantry


● Shooter Head

High Speed Flexible Mounter

SM411F

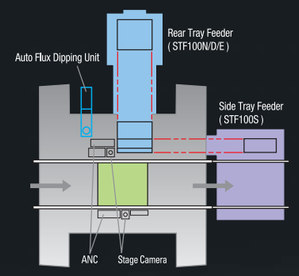
SM411F is a high speed component placer for placing odd shaped parts, which is equipped with the platform (dual gantry) of SM411, which is a chip shooter, and the vision system of SM421. It can maximize the production speed of odd shaped parts by up to 150% ~ 200% compared to that of SM421. In addition, the accessories including side tray and automatic flux dipping unit were improved and the operational convenience was enhanced by installing front/rear auxiliary tower lamps. It is also applicable to POP.

Features
Placement Speed : Chip 30K CPH (IPC9850) / SOP 23K CPH (IPC9850) / QFP 5.5K CPH (IPC9850)
Applicable Parts : Max. 0402 ~ □42mm (Part Height H=12mm)
Placement Accuracy : $\pm 50\mu m@\mu+3\sigma$/Chip, $\pm 30\mu m@\mu+3\sigma$/QFP
Applicable PCBs : L510 x W300 x 1Lane (Standard) / Max. L740 x W420 x 1Lane

Line Efficiency Maximization

- Odd shaped part production rate : Max. 150% ~ 200%

System Configuration Diagram



From micro chips for mobile devices to large boards for display -
SM400 series machines provide optimum placement solutions to various needs of customers through the super-high speed On-The-Fly placement mechanism and the vision system with high reliability.

Advanced Flexible Mounter

SM421

The SM421 can be applied to parts from 0603 microchip to □22mm IC part through On-The-Fly recognition technology, which is Samsung's proprietary technology that realizes the placement at the highest speed among medium speed chip mounters. It also allows recognition of parts with fine pitch such as □55mm with 0.4mm pitch by adopting a mega pixel vision system for the Stage camera. It allows IC parts to be placed with high accuracy of 30 microns. It also easily registers parts of complicated shape by supporting the polygon recognition algorithm.

Features
Placement Speed : Chip 21K CPH (IPC9850) / QFP 5.5K CPH (IPC9850)
Applicable Parts : Max. 0402 ~ □55mm (Part height H=15mm)
Placement Accuracy : $\pm 50\mu m@\mu+3\sigma$/Chip, $\pm 30\mu m@\mu+3\sigma$/QFP
Applicable PCBs : L460 x W400 x 1Lane (Standard) / Max. L740 x W460 x 1Lane

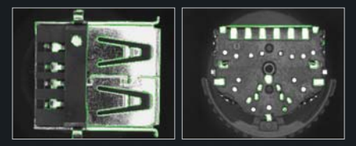
Powerful Vision Algorithm

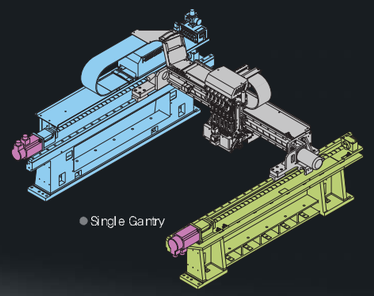
The SM Series increases recognition accuracy by removing component image noise function and implementing an automatic teaching function. The flying camera helps recognize and compensate for components such as chip, TR, BGA and QFP as they are picked up and transferred to the placement point. Productivity and economic efficiency are improved with a new function that recognizes the position of the tape pocket from which the component is picked up.

- Split Recognition for Large Component
  ~ □55mm BGA (1.0mm Ball Pitch) / Connector, 72mm long in the diagonal direction / Using 45mm FOV stage camera
- Real-Time Automatic Pickup Position Compensation

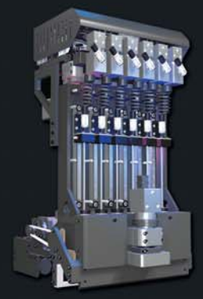
Polygon Function

The polygon recognition function was added to reinforce the applicability to odd shaped parts. The polygon recognition function, which extracts the part shape and recognizes the shape of the part entirely, provides optimal solution to the placement of irregular shaped SMD parts.





● Single Gantry



● Flexible Head

High Precision, Multi Function Component Placer

SM451

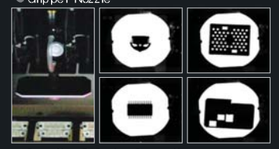
The SM451 is a high precision multi-functional chip shooter equipped with a high precision force control head based on the SM421 platform. It applies a linear scale to the X-Y axis to improve placement accuracy. Basically, it can be applied to various odd-shaped parts from 0402 fine chips to □57 x 42 mm IC parts, long connectors, bare chips and PIP insert parts. In addition, it also allows placement of special parts by providing gripper nozzles and supports the functions for part height adjustment of up to 28 mm, applicability to POP, lead lift-off check, and rear side reflection recognition.

Features
Placement Speed : Chip 8.5K CPH (IPC9850) / QFP 4K CPH (IPC9850)
Applicable Parts : Max. 0402 ~ □57 x 42mm (Part height H=28mm)
Placement Accuracy : $\pm 50\mu m@\mu+3\sigma$/Chip, $\pm 25\mu m@\mu+3\sigma$/QFP
Applicable PCBs : L460x W420 x 1Lane(Standard) / Max. L610 x W460 x 1Lane

Reinforced Applicability to Odd Shaped Parts

In order to reinforce the applicability to odd shaped parts, the function for lead lift-off check using gripper nozzle and laser sensor as well as the functions for rear side reflection recognition and PIN recognition for PIP insert part placement are added.

● Gripper Nozzle



● Rear Side Reflection Recognition

● Lead Lift-off Check

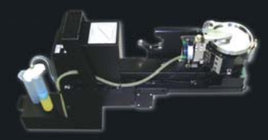
● PIN Recognition

High Precision Force Control System

Allows the placement of parts requiring precision placement at the Z axis, such as PIP insert parts and flip chips, by applying the Z axis force control system controlling the force widely from 0.1N to 50N.

Applicable to Special Package

- As equipment for special part placement, it is applicable to POP.



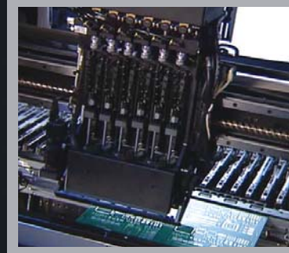
● Auto Flux Dipping Unit

New Head

- 4 Spindles 45mm Pitch

New Smart Platform

From micro chips for mobile devices to large boards for display -
SM400 series machines provide optimum placement solutions to various needs of customers through the super-high speed On-The-Fly placement mechanism and the vision system with high reliability.



Longer Mean Time Between Assists (MTBA)

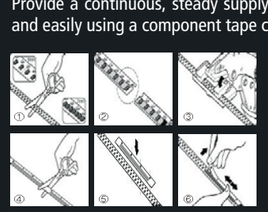
Top-quality accessories, such as non-stop tray feeders, increase overall system reliability and help significantly reduce amount of machine downtime.

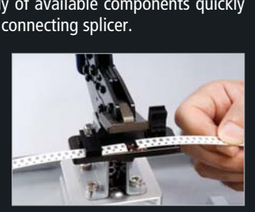
Non-Stop Tray Feeder
JEDEC tray cassettes are separated into upper and lower magazines, each having 12pallets and can operate independently. Tray components also can be reloaded while the machine is running, enabling consistent non-stop operation.

Non Stop Tray Feeder
STF100D

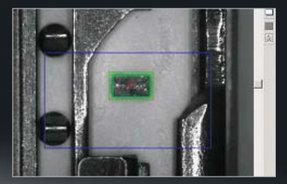
Side Tray Feeder
Entire JEDEC trays can be presented to the machine without any impact on PCB process width or available feeder slot locations, allowing for direct pick-up from tray and maximum efficiency of feeder space.

Non-Stop Tape Splicing
Provide a continuous, steady supply of available components quickly and easily using a component tape connecting splicer.





Automatic Pickup Position Adjustment
SM Series systems perform real-time recognition of a component as it is picked up from the component feeder. This feature provides the ability to automatically adjust the pickup position, ensuring that components are picked up consistently at the center, regardless of tape variations.



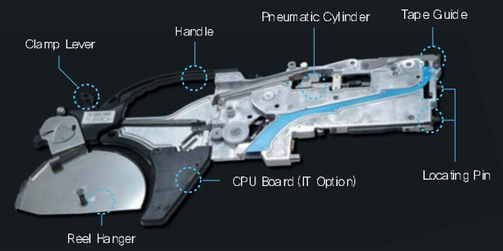
Quick Changeover

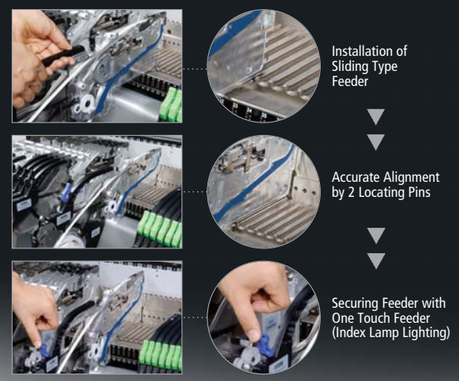
New Non-Stop Tape Feeder

Improved Accuracy
- High feeder base stability
- New mounting mechanism
- Two position-control pins at the front side
- Newly designed sprocket

Stable Indexing
- Built-in cylinder
- Optimized pressure control within the cylinder
- Increased pick-up speeds with the index sensor
- Tape guide automatically compensates for changes in tape thickness
- Variable tape support (for feeders accommodating tape widths of 12mm and higher)

Easy to Use
- Swing-type reel hanger (splicing/verification)
- Easy feeder identification by applying a different color for each clamp 8mm(0402, 2p, 4p), Large Size(12~88mm)
- Ergonomic handle design
- Manual index switch (IT option)
- Power supply indication lamp illuminates when fixed by the clamp
- Tape guide lift prevention through the use of the control pin





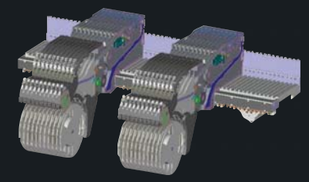
Collective Feeder Replacement System – Docking Feeder Cart System

Samsung's Docking Feeder Cart System is the key to rapid changeover. A Docking Feeder Cart can be loaded offline, and then quickly rolled up to the machine where it is pneumatically clamped to the feeder base. Both the front and rear sides of the SM Series machines are designed to accommodate the Docking Feeder Cart System.

- Significantly reduce changeover time
- Replace carts without halting production
- Accommodates up to 56 8mm feeders per cart
- Automatically connects to feeder power and air supply
- Easily set the cart height using adjustable feet

Minimal Model Changes – Feeder placement Commonization

Register up to 120 8mm feeders on one machine simultaneously. Concurrent optimizer support for 1 to 5 programs allows for multiple models to be arranged at the same time. The sliding-type feeder system permits the user to remove and replace feeders during operation without interrupting the overall system.

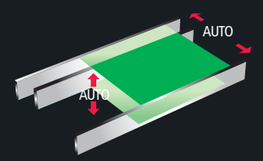


Changeover Report

The SM series can automatically generate a Job Change Order Sheet (feeder changeover report) while running production in order to minimize setup time. This report identifies only the feeders that need to be changed, eliminating the need to completely reload the machine.

Automatic Width Adjustment

The board transport system automatically adjusts to the precise board width in order to further facilitate quick changeover.



Common Nozzles

General Nozzles

Nozzle Name	CN020	CN030	CN040	CN065	CN140	CN220	CN400N	CN750	CN110
Shape									
Outer Diameter	Φ0.50	Φ0.60	Φ0.75	Φ1.20	Φ2.2	Φ3.6	Φ6.2	Φ9.0	Φ12.7
Inner Diameter	Φ0.16	Φ0.28	Φ0.38	Φ0.65	Φ1.4	Φ2.2	Φ4.0	Φ7.5	Φ11.0

SM Series systems use nozzles that are common to other Samsung SMT assembly systems, allowing for interchangeability and optimal line balancing. With the increase in popularity of more delicate micro components, SM series systems have incorporated features to handle the demands of such products, specifically using nozzles with compliant mechanisms in order to prevent component damage.

- Ceramic Nozzle
- Bare Component Soft PAD Nozzle (Optional)

Table. Examples of Applying General Nozzles to Components

Nozzle Name	Minimum Component Width	Major Component Types
CN020	0.2 ~ 0.5	0402 Chip 전용
CN030	0.3 ~ 1.5	0603 Chip 전용
CN040	0.5 ~ 1.25	1005 Chip 전용
CN065	0.8 ~ 2.5	1608, 2012, 3216, Melf, Hemf, SSOP(3), TR(23), TR2, Chip-Tantal(3012)
CN140	2.5 ~ 4.0	3216, 6432, Chip-Aluminum(5753), Chip-Tantal(7343), TR(13), Trimmer, SOP2(04), SOP(48), SSOP08
CN220	4.0 ~ 7.0	Chip-Aluminum(7268), SOP(48), Connector, QFP(48), Chip-Coil(8280), Chip-Tantal(8060)
CN400	7.0 ~ 10.0	Chip-Aluminum(9082), SOP(66), SOP(150), QFP(44), PLCC(18), SOJ2, Connector, TR(22), BGA(208G), Chip-Coil(1212)
CN750	10.0 ~	QFP(208), PLCC(32), SOP(66), SOJ(24), BGA(062G)
CN110	20.0 ~	QFP(256), BGA(388G)

New Smart Platform

From micro chips for mobile devices to large boards for display -
SM400 series machines provide optimum placement solutions to various needs of customers through the super-high speed On-The-Fly placement mechanism and the vision system with high reliability.

SMN Tape Feeder

Feeder Types/Sizes	Feeder Pitch(mm)
8mm (0402)	2
8mm (2P)	2
8mm (4P)	4
12mm	4, 8, 12
16mm	4, 8, 12
24mm	8, 12, 16, 20
32mm	8, 12, 16, 20, 24, 32
44mm	8, 12, 16, 20, 24, 32, 40
56mm	8, 12, 16, 20, 24, 32, 40
72mm	8, 12, 16, 20, 24, 32, 40
88mm	8, 12, 16, 20, 24, 32, 40

Model Name : SMN - 08 - 2P - 0402
- 08 — Component Tape Width
- 2P — Maximum Forward Movement Pitch
- 0402 — Applicable Component

Small Feeder

Large Feeder

SM Vibratory Feeder

- Adjustable frequency control
- 24 VDC, 0.8A ±0.8
- Maximum of four lanes
- Applicable components - SOP, SOJ, QFP, PLCC, connector, etc.

Non-Stop Tray Feeders

STF100D (Dual Tray Feeder)
- Has upper and lower magazines with 12 pallets each, allowing the part tray to be replaced without stopping the chip mounter during part placement.
- Large capacity tray feeder applicable for various odd shaped parts
- 24 trays with 24 stages (1 tray / 1 pallet)
- 48 trays with 24 stages (2 trays / 1 pallet)

STF100D

STF100S

STF100S (Side Tray Feeder)
- Lateral part feeding device
- Maximizes part feeding through 100% utilization of rear feeder base
- The connection C/V maximizes machine utilization
- Implements the non-stop function per pallet

STF100N
- Implementation of non-stop function per pallet
- 20 trays with 20 stages (1 tray / 1 pallet)
- 40 trays with 20 stages (2 trays / 1 pallet)

STF100N

Number of Available Units		100D	100S	100N
Magazine		2	1	1
Pallet		24	20	20
Tray	Standard	24	-	20
	JEDEC	48	20	40

*Standard Tray Size : 340(L) x 272(W)
*PCB Width Larger than > 400 : 1Tray / 1Pallet

SM Single-Layer Tray Feeder

- One-touch mounting allows the tray to be easily inserted and removed from feeder base.
- Flat tray installation surface enables high speed pickup.
- Multiple orientations, based on tray dimensions
- Applicable Trays : 2", 4", 136 x 316mm, 200 x 316mm, 272 x 316mm
- Type : Single-layer tray feeders (136 x 316mm) with 2 trays

FW-1-SM

Feeder Docking Cart

Significantly reduce changeover time using the SM Series Docking Feeder Cart System. The system allows for replacing a complete feeder configuration in just minutes.

Basic Set Configuration
- Docking Feeder Base
- Docking Cart

SM411, SM411F, SM421

SM431

SM Feeder Storage Rack / Feeder Exchange JIG

- Minimize the space required to store unused or staged SM feeders
- SM feeder storage rack with 100 slots provides storage capacity for up to 100 SM feeders (based on 8mm feeder)
- SM feeder storage rack with 20 slots and the Feeder Exchange JIG provides storage capacity for up to 20 SM feeders (based on 8mm feeder)
- Allows the user to replace tape reels in front of the machine, thus preventing feeder damage and improving work efficiency

FT-ST-SM-100S

FT-ST-SM-20S

Splicing Tool Set

Provide a continuous, steady supply of available components to increase productivity and reduce machine downtime.
- Manual Tape Splicing Tool • Portable Tape Splicing Tool
- Performs the tape connecting function that guarantees high quality by moving the tool in front of the machine.

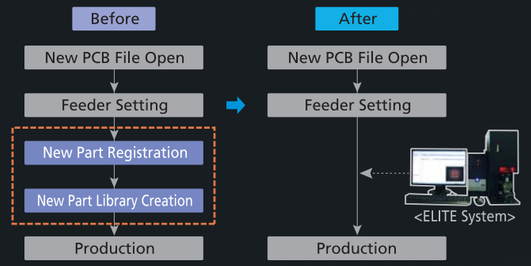
FT-100-NST

SM Feeder Calibration JIG

Verify and adjust the feeder tape pocket position with the SM Series Feeder Calibration JIG as part of a scheduled system maintenance program to ensure reliable component pickups.

ELITE System

Off-line Part Library Teaching
- Minimizes the loss due to the shutdown of the machine when performing new part and special part library teaching.
- Reduces setup time for a new model.

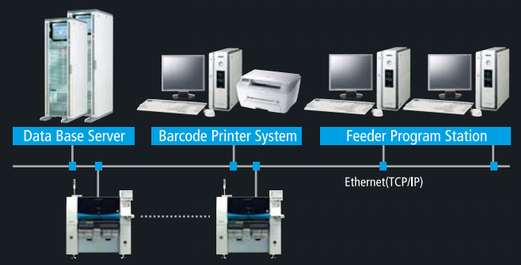


New Smart Platform

From micro chips for mobile devices to large boards for display -
SM400 series machines provide optimum placement solutions to various needs of customers through the super-high speed On-The-Fly placement mechanism and the vision system with high reliability.

Intelligent Feeder System

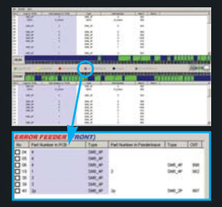
The IT feeder system that provides an integrated part misplacement prevention function and automatic part recognition function automatically recognizes the feeder while exchanging the feeder to avoid in advance the possibility of the part loss due to incorrect placement and incorrect insertion or the mistake of the operator. In addition, it allows efficient material management by checking the remaining part quantity by storing the part information in the database.



Prevent Incorrect Component Placements

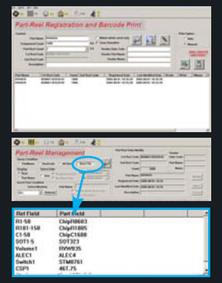
To prevent inaccurate component placements, the SM Series systems verify that the expected component feeders are indeed in the required locations. The verification is performed using barcode information that is obtained from the feeder and component when they are installed on the system. The operator is notified of any incorrectly mounted feeder or component before production begins.

- Stops operation after an error occurs if incorrect placement happens.
- Alerts the operator when corrective action is required.



Materials Management

Monitor real-time component inventory with barcode labels attached to the supply reels. Stock levels can be monitored once the reel is assigned to a SM IT Feeder. Monitoring component consumption using the common database allows the operator to replenish the system before the stock becomes depleted.



Minimized Job Change Over Time (Feeder Preparation Time)

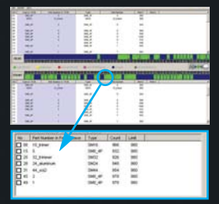
Pre-preparation of the Feeder Using MFB file

- Indicating LED's show the required feeders for job change over, minimizing pre-preparation of the feeder.

Low Component Supply Warning

The component shortage warning feature prevent component shortages in real-time during machine operation. This feature minimizes machine downtime by permitting the operator to replenish components in advance so as to not impact production.

- Monitor remaining quantity for each component tape reel
- Alert the user that a component shortage is imminent



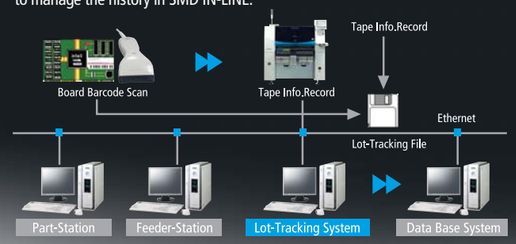
Off-line Feeder Loading Station

Load components onto the SM IT feeders using offline stations that are connected to the shared database. Assign components to specific feeders to reduce changeover time, and further ensure accuracy using the built-in barcode system.

- Minimize setup time using the Docking Feeder Cart
- Verify feeder and component setup prior to operation using OLP changeover reports

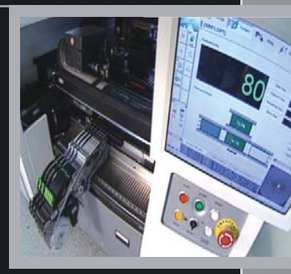
Lot Tracking System (Optional)

Lot Tracking, which is one of the options of IT Feeder System, traces and manages the history of the parts that were used when producing boards. It minimizes the range of recall by using the LOT Tracking history file if an external error occurs, and it helps to easily cope with an error that occurs while the machine is running. Lot Tracking data also can be integrated with the modules of TUIC Co., to manage the history in SMD IN-LINE.



EasyOLP Suite

The EasyOLP is a comprehensive management tool for the SMT line developed by Samsung Techwin. Since it performs job history management, converts various CAD or ASCII data into placement data for the chip mounter, and implements the line balance with optimum conditions between machines, the time required for programming can be minimized and the work program can be optimized to suit the environment of the machine, maximizing the productivity and increasing the production efficiency through machine monitoring.



Creation of Optimum On-Line Work Program for Chip Mounter

The CAD data, ASCII data, and the placement information on the program of the machine made by other companies can be changed accurately and easily and they can be verified using Gerber file. In addition, the work program can be easily changed in the line by readjusting the actual line balance results of existing job files. Furthermore, it is possible to check the improvement result.

Production index management of line and productivity improvement

It is possible to monitor various production indexes and work status as well as detail information of the machine and improve the operation rate and the defect rate of the line by providing the function that tracks an error when it occurs.

Real Time Line Status Monitoring

Single Line/Multi-Machine Monitoring

Dedicated Monitoring System

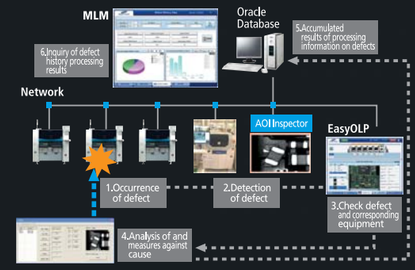
- Check the production status, operation rate and LOB status, and real time operation of each machine in the line

Multi-Line/Multi Machine Monitoring

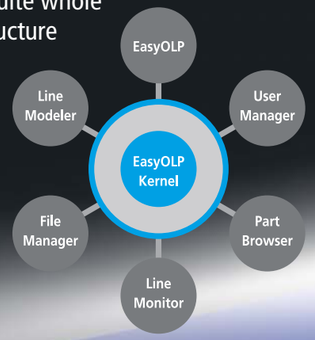
Entire Line Monitoring System

- The production status and product quality status for each line can be checked in real time from remote locations.

Defect Tracking and Feedback Management AOI Inspector



EasyOLP Suite whole system structure



Specification

Model Name			SM431	SM431L	SM411	SM411F	SM421	SM451
Alignment			Flying Vision	Flying Vision	Flying Vision	Flying Vision + Stage Vision	Flying Vision + Stage Vision (If a large conveyor is installed, only one stage vision can be installed)	Stage Vision
Number of Spindles			8 Spindles x 2 Gantry	8 Spindles x 2 Gantry	6 Spindles x 2 Gantry	6 Spindles x 2 Gantry	6 Spindles x 1 Gantry	4 Spindles x 1 Gantry
Placement Rate (IPC9850)	Flying Vision		Chip 1608 42,000 CPH	Chip 1608 30,000 CPH	Chip 1608 42,000 CPH SOP 30,000 CPH	Chip 1608 30,000 CPH SOP 23,000 CPH QFP 5,500 CPH	Chip 1608 21,000 CPH SOP 15,000 CPH QFP 5,500 CPH	Chip 1608 8,500 CPH SOP 7,000 CPH QFP 4,000 CPH
Placement Accuracy (Based on the standard chips)	Chip / QFP		±50㎛@㎛+3σ / Chip	±50㎛@㎛+3σ / Chip	±50㎛@㎛+3σ / Chip	±50㎛@㎛+3σ / Chip ±30㎛@㎛+3σ / QFP	±50㎛@㎛+3σ / Chip ±30㎛@㎛+3σ / QFP	±50㎛@㎛+3σ / Chip ±25㎛@㎛+3σ / QFP
Component Range	Flying Vision		0402 ~ □12mm Chip IC(Lead Pitch 0.4mm)	0402 ~ □12mm Chip IC(Lead Pitch 0.4mm)	0603 ~ □14mm Chip (Option : 0402) IC(Lead Pitch 0.5mm) BGA, CSP(Lead Pitch 0.65mm)	0603 ~ □14mm IC (Option : 0402)	0603 ~ □22mm IC (Option : 0402)	0603 ~ □22mm IC(Fix Type) (Option : 0402)
	Stage Vision		–	–	–	FOV 35(Standard) ~ □32mm IC (Lead Pitch 0.3mm)	FOV 35(Option) ~ □32mm IC (Lead Pitch 0.3mm) ~ □55mm (MFOV)	FOV 46 x 35(Option) ~ □43 x 32mm IC (Lead Pitch 0.3mm) ~ □55mm (MFOV)
			–	–	–	FOV 45(Option) ~ □42mm IC (Lead Pitch 0.4mm)	FOV 45(Standard) ~ □42mm IC (Lead Pitch 0.4mm) ~ □55mm (MFOV) ~75mm Connector	FOV 60 x 45(Standard) ~ □57 x 42mm IC (Lead Pitch 0.4mm) ~ □55mm (MFOV) ~100mm Connector
	Max. Height		H = 7mm	H = 7mm	H = 12mm	H = 12mm	H = 12mm (Flying Camera Standard) H = 15mm (Stage Camera Standard)	H = 28mm (Flying Camera Standard) H = 28mm (Stage Camera Standard)
Board Dimension (mm)	Minimum		50(L) x 40(W)					
	Maximum	Single Lane	460(L) x 460(W)	540(L) x 460(W) 640(L) x 460(W)(Option) 750(L) x 460(W)(Option)	510(L) x 460(W) 610(L) x 460(W)(Option)	510(L) x 300(W) 510(L) x 350(W)(Option) 610(L) x 350(W)(Option) 740(L) x 420(W)(Option)	460(L) x 400(W) 510(L) x 460(W)(Option) 610(L) x 510(W)(Option) 740(L) x 460(W)(Option)	460(L) x 420(W) 510(L) x 420(W)(Option) 610(L) x 460(W)(Option)
		Dual Lane	330(L) x 250(W) 460(L) x 250(W)(Option)	–	460(L) x 250(W) 610(L) x 250(W)(Option)	–	–	–
	PCB Thickness		0.38 ~ 4.2mm					
Feeder Capacity			84ea		120ea / 112ea (Docking Cart)			60ea / 56ea (Docking Cart) *Option : 120ea / 112ea (Docking Cart)
Utility	Power		AC200 / 208 / 220 / 240 / 380 / 415 V (50/60Hz, 3Phase)					
			Max. 4.0kVA	Max. 4.0kVA	Max. 5.0kVA	Max. 5.0kVA	Max. 4.7kVA	Max. 4.7kVA
	Air Consumption		0.5 ~ 0.7MPa (5.1 ~ 7.1kgf/cm²)					
			360N ℓ/min	360N ℓ/min	300N ℓ/min	300N ℓ/min	260N ℓ/min	220N ℓ/min
Mass(kg)			Approx. 1,500	Approx. 1,500	Approx. 1,820	Approx. 1,790	Approx. 1,680	Approx. 1,680
External Dimension(mm)			1,240(L) x 1,660(D) x 1,420(H)		1,650(L) x 1,690(D) x 1,485(H)		1,650(L) x 1,680(D) x 1,485(H)	

SAMSUNG

SAMSUNG TECHWIN CO., LTD.

MMS Division / SMT Overseas Business Dept.

- Main Office and Midland Business Office
  701, Sampyeong-dong, Bundang-gu, Seongnam-si, Gyeonggi-do, 463-400, Korea
- http://www.samsung-smt.com

※The specifications in this catalogue may be changed without prior notice for quality improvement.

Ver 2012. 07(E)