

# SAYAKA

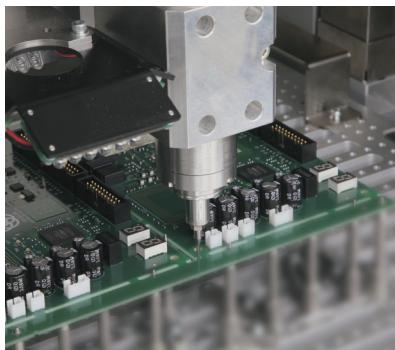
Product brochure

# We Provide the best machines with a variety of skills.

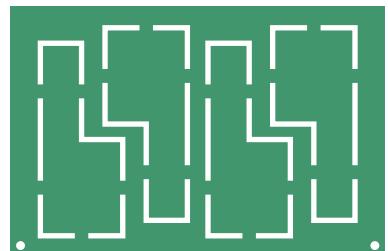
## Router PCB separator

### Cut free line by 3-axis controls.

This is also known as PCB depanelizer, cutter or splitter. A router bit used for slitting process of PCB bare board is equipped with high-speed spindle motor. It cuts bridges between PCB frame and products safely.



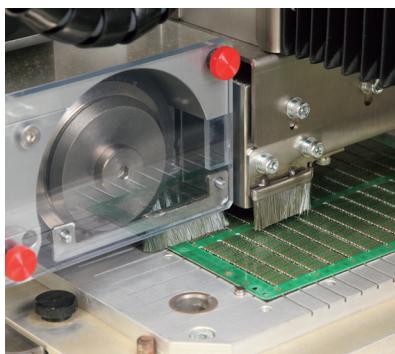
Sample target shape



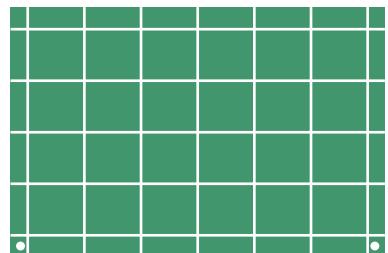
## Dry dicer

### Cut small PCB precisely and at high speed without using water.

Our dry dicers have its strong dust-vacuum system, and are used with originally-developed vacuum jig fixture for target board. It doesn't require water supply and drainage system or UV tape during its process, which reduces running cost. This machine is also good at cutting multiple board into individuals.



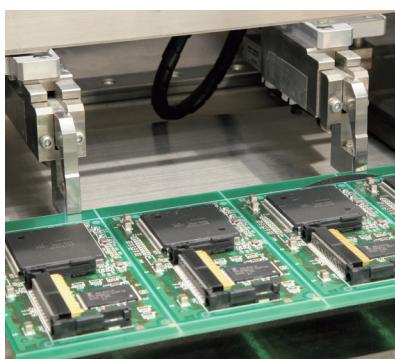
Sample target shape



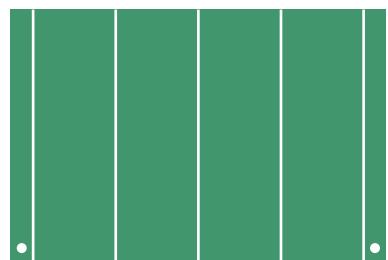
## Dry slicer

### Cut PCB efficiently by large-diameter blade.

This machine was developed to solve problems caused by the process of hand-splitting, hand-pushing device, and press machine. GC blade or chipped saw is used for this machine to cut straight line with or without V-groove. This also reduces PCB production cost, causes little stress on PCB, and makes its cutting line quite smooth.



Sample target shape



## Sample cutting machine

### Precisely cut a variety of sample objects.

This machine can cut and evaluate a variety of materials, such as ceramics, metals, electronic parts, and composite materials. We have 3 types of sample cutting machines along with the size of the object.



Sample material shape



## CONTENTS

- Standalone type P.3~7
- Desktop type P.8~10
- Inline type P.11~13
- Inline compatible type P.14



- Standalone type P.15
- Inline type P.15



- Standalone type P.16
- Desktop type P.17
- Inline compatible type P.18



- Standalone type P.19
- Desktop type P.20

- Product features P.21~22

## Router PCB separator

Standalone type



High-end router machine with management function to link each program with cutting conditions and router bit setting

# SAM-CT34/56XJ

Productivity is increased by camera teaching with image processing, short cycle time, auto router bit changer (Option)



### Features

- Specifications are designed assuming to be used in full-auto system
- Program teaching is operated while checking the camera image (CAD data is also available to create program)
- Practical functions are equipped as standard - auto program selection by reading QR code, fiducial mark reading, bad mark skip, etc
- Z axis automatically changeovers to prolong router bit's life span
- Component-mounted PCB can be cut safely and with little stress on it
- 3-axis servo controls allow precise cut with short cycle time

#### [Standard equipment]

- PCB floating detection sensor
- Router bit broken/fallen detection sensor

#### [Option]

- Auto Router bit changer
- Traceability
- Auto router bit diameter measurement

### Basic specifications

Model	SAM-CT34XJ	SAM-CT56XJ
Cutting range	300×400mm	500×600mm
Board thickness	t=0.4-3.0mm	
Material	FR4,CEM1,CEM3, etc	
Component height limit	Upper face:30mm (including PCB thickness)	
Router bit diameter	φ0.8-3.0mm	
Maximum cut speed	50mm/sec	
Maximum motion speed	1,200mm/sec	1,000mm/sec
Repeatability	±0.01mm or less	
Z axis stroke	40mm	
Spindle RPM	5,000-60,000rpm (changeable)	
X/Y/Z controls	AC servo motor	
Power supply	φ3 AC200V 50/60Hz	
Maximum electric consumption	approx. 3.0kVA (including standard dust collector[VNA-30])	
Air pressure	0.5-0.7MPa	
Air consumption	20-40L/min	
Outer size	W750xD1,215xH1,350mm (excluding PC and signal tower[Option])	W950xD1,620xH1,350mm (excluding PC and signal tower[Option])
Weight	approx. 380kg	approx. 570kg



High-end and high speed router machine with image processing

# SAM-CT23/34/56NJ

Easy teaching operation by image processing,  
short cycle time by 3-axis servo controls,  
high rigidity frame-based structure



## Features

- Program teaching is operated while checking the camera image (CAD data is also available to create program)
- Practical functions are equipped as standard: auto program selection by reading QR code, fiducial mark reading, bad mark skip, etc
- Z axis automatically changeovers to prolong router bit's life span
- Component-mounted PCB can be cut safely and with little stress on it
- 3-axis servo controls allow precise cut with short cycle time

## Basic specifications

Model	SAM-CT23NJ	SAM-CT34NJ	SAM-CT56NJ
Cutting range	250×350mm	300×400mm	500×600mm
Board thickness		t=0.4-3.0mm	
Material		FR4, CEM1, CEM3, etc	
Component height limit		Upper face: 30mm (including PCB thickness)	
Router bit diameter		φ0.8-3.0mm	
Maximum cut speed		50mm/sec	
Maximum motion speed		800mm/sec	
Repeatability		±0.01mm or less	
Z axis stroke		40mm	
Spindle RPM		5,000-60,000rpm (changeable)	
X/Y/Z controls		AC servo motor	
Power supply		φ3 AC200V 50/60Hz	
Maximum electric consumption		approx. 3.0kVA (including standard dust collector [VNA-30])	
Air pressure		0.5-0.7MPa	
Air consumption		20-40L/min	
Outer size	W800×D852×H1,322mm (excluding PC and signal tower [Option])	W900×D950×H1,327mm (excluding PC and signal tower [Option])	W1,140×D1,125×H1,410mm (excluding PC and signal tower [Option])
Weight	approx. 300kg	approx. 380kg	approx. 570kg

## Router PCB separator

Standalone type

High speed router machine with the rotary stage for PCB changeover and the camera image processing

# SAM-CT22 / 23NBS

Suitable for mass production and various kinds of products

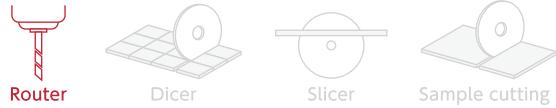


### Features

- Productivity increases by changing a PCB while cutting another
- Different kinds of PCB can be cut alternately
- Program teaching is operated while checking the camera image (CAD data is also available to create program)
- Practical options are equipped as standard: auto program selection by reading QR code, fiducial mark reading, bad mark skip, etc
- Z axis automatically changeovers to prolong router bit's life span
- Component-mounted PCB can be cut safely and with little stress on
- 3-axis servo controls allow precise cut with short cycle time

### Basic specifications

Model	SAM-CT22NBS	SAM-CT23NBS
Cutting range	200×250mm	250×350mm
Board thickness	t=0.4-3.0mm	
Material	FR4,CEM1,CEM3, etc	
Component height limit	Upper face:35mm(including PCB thickness)	
Router bit diameter	φ0.8-3.0mm	
Maximum cut speed	50mm/sec	
Maximum motion speed	800mm/sec	
Repeatability	±0.01mm or less	
Z axis stroke	40mm	
Spindle RPM	5,000-60,000rpm(changeable)	
X/Y/Z controls	AC servo motor	
Power supply	φ3 AC200V 50/60Hz	
Maximum electric consumption	approx. 3.0kVA (including standard dust collector[VNA-30])	
Air pressure	0.5-0.7MPa	
Air consumption	20-30L/min	
Outer size	W690×D1,030×H1,350mm (excluding PC and signal tower[Option])	W890×D1,220×H1,350mm (excluding PC and signal tower[Option])
Weight	approx. 500kg	approx. 600kg



High speed router machine with 2 cutting tables and camera image processing

# SAM-CT34NJW

Placing and picking a PCB while cutting another



### Features

- Productivity increases by changing a PCB while cutting another
- Different kinds of PCB can be cut alternately
- Program teaching is operated while checking the camera image (CAD data is also available to create program)
- Practical functions are equipped as standard: auto program selection by reading QR code, fiducial mark reading, bad mark skip, etc
- Z axis automatically changeovers to prolong router bit's life span
- Component-mounted PCB can be cut safely and with little stress on it
- Precise cutting with short cycle time is possible by 3-axis servo controls

### Basic specifications

Model	SAM-CT34NJW	
Cutting range	2tables	200×250mm
	1table	400×250mm
Board thickness		t=0.4-3.0mm
Material	FR4,CEM1,CEM3, etc	
Component height limit	Upper face:20mm (including PCB thickness)	
Router bit diameter	φ0.8-3.0mm	
Maximum cut speed	50mm/sec	
Maximum motion speed	800mm/sec	
Repeatability	±0.01mm or less	
Z axis stroke	40mm	
Spindle RPM	5,000-60,000rpm(changeable)	
X/Y/Z controls	AC servo motor	
Power supply	φ3 AC200V 50/60Hz	
Maximum electric consumption	approx. 3.0kVA (including standard dust collector[VNA-30])	
Air pressure	0.5-0.7MPa	
Air consumption	20-30L/min	
Outer size	W900×D1,255×H1,325mm (excluding PC and signal tower[Option])	
Weight	approx. 400kg	



Router machine with 2 tables for mass production

# SAM-CT23 / 34W

Placing and picking a PCB while cutting another



## Features

- Work efficiency increases by placing and picking a PCB while cutting another
- 2 tables can be united into 1 large table, which is capable of cutting max. 330mm x 500mm for 23W, and 380mm x 600mm for 34W
- Different kinds of PCB can be cut alternately
- Operation can be done by touch display
- Program teaching is done by just reading CAD data (DXF file) and clicking on PC
- Z axis automatically changeovers to prolong router bit's life span
- Component-mounted PCB can be cut safely and with little stress on it

## Basic specifications

Model	SAM-CT23W	SAM-CT34W
Cutting range	2tables 330x500mm	300x400mm 380x600mm
Board thickness		t=0.4-2.0mm
Material		FR4,CEM1,CEM3, etc.
Component height limit		Upper face:25mm(including PCB thickness)
Router bit diameter		φ0.8-2.0mm
Maximum cut speed		50mm/sec
Maximum motion speed		1,000mm/sec
Repeatability		±0.02mm or less
Z axis stroke		40mm
Spindle RPM		25,000-50,000rpm(changeable) Option:5,000-60,000rpm(changeable)
X/Y/Z controls		Stepping motor, Closed-loop control
Power supply		φ3 AC200V 50/60Hz
Maximum electric consumption		approx. 3.0kVA(including standard dust collector[VNA-30])
Air pressure		0.5-0.7MPa
Air consumption		20-30L/min
Outer size	W1,050xD1,250xH1,450mm (excluding signal tower[Option])	W1,150xD1,380xH1,470mm (excluding signal tower[Option])
Weight	approx. 530kg	approx. 600kg

The best solution router machine for dust collection

# SAM-CT23ZL

Downside cut for PCB with tall components near cutting lines

## Features

- Downside cut method can be adapted to PCB that can't be cut from above
- This method can cut PCB with components mounted over across 2 pieces of its individuals
- Dust is well collected by local dust vacuum from below
- Its small dust collector generates just about 65db[A] and saves working space
- Jig bit sensors automatically read and open an appropriate program out of 31
- Program teaching is done by just reading CAD data (DXF file) and clicking on PC
- Component-mounted PCB can be cut safely and with little stress on it

### [Standard equipment]

- Area sensor
- PCB detection sensor
- PCB floating detection sensor
- Router bit broken/fallen sensor



## Basic specifications

Model	SAM-CT23ZL
Cutting range	250×330mm
Board thickness	t=0.4-2.0mm
Material	FR4, CEM1, CEM3, etc
Component height limit	Upper face: 90mm (including PCB thickness) Bottom face: 5mm (excluding PCB thickness)
Router bit diameter	φ0.8-2.0mm
Maximum cut speed	50mm/sec
Maximum motion speed	500mm/sec
Repeatability	±0.02mm (X axis), ±0.01mm (Y axis) or less
Spindle RPM	25,000-50,000rpm (changeable)
X/Y controls	AC servo motor
Power supply	φ1 AC100V 50/60Hz
Maximum electric consumption	approx. 1.0kVA (including standard dust collector [VF-5N])
Air pressure	0.5-0.7MPa
Air consumption	400L/min (maximum instantaneous)
Outer size	W720×D900×H1,422mm
Weight	approx. 150kg



Router



Dicer



Slicer



Sample cutting

High spec router machine with image processing

# SAM-CT23S

Traceability to save data in QR code and data matrix on PCB



## Features

- Traceability function is equipped as standard
- Only AC100V is required as utility – air free
- Both mass production and test production are suited
- The compact width is best for cell production
- Program teaching is done while checking the camera image (CAD data is also available to create program)
- Practical functions are equipped as standard: auto program selection by reading QR code, fiducial mark reading, bad mark skip, etc
- Z axis automatically changeovers to prolong router bit's life span
- Component-mounted PCB can be cut safely and with little stress on it

## Basic specifications

Model	SAM-CT23S
Cutting range	250×350mm
Board thickness	t=0.4-2.0mm
Material	FR4, CEM1, CEM3, etc
Component height limit	Upper face: 23mm (including PCB thickness)
Router bit diameter	φ0.8-2.0mm
Maximum cut speed	50mm/sec
Maximum motion speed	720mm/sec
Repeatability	±0.02mm or less
Spindle RPM	40mm
X/Y controls	25,000-50,000rpm (changeable)
Power supply	Stepping motor, Closed-loop control
Maximum electric consumption	φ1 AC100V 50/60Hz
Air pressure	approx. 1.2kVA (including standard dust collector[VNA-15])
Air consumption	No pneumatic required
Outer size	W800×D700×H510mm
Weight	approx. 90kg



Multi-functions easy-use desktop router machine

# SAM-CT23V

Easy confirmation and editing of program data by connecting the machine and PC



## Features

- Wide opening in front allows operator to place and pick PCB easily
- The machine has energy-saving specs – air free
- The compact width is best for cell production
- Program teaching is done by just reading CAD data (DXF file) and clicking on PC
- Z axis automatically changeovers to prolong router bit's life span
- Component-mounted PCB can be cut safely and with little stress on

## Basic specifications

Model	SAM-CT23V
Cutting range	250×350mm
Board thickness	t=0.4-2.0mm
Material	FR4, CEM1, CEM3, etc
Component height limit	Upper face: 23mm (including PCB thickness)
Router bit diameter	φ0.8-2.0mm
Maximum cut speed	50mm/sec
Maximum motion speed	500mm/sec
Repeatability	±0.02mm or less
Z axis stroke	35mm
Spindle RPM	25,000-50,000rpm (changeable)
X/Y/Z controls	Stepping motor, Closed-loop control
Power supply	φ1 AC100V 50/60Hz
Maximum electric consumption	approx. 1.2kVA (including standard dust collector[VNA-15])
Air pressure	No pneumatic required
Cutting program capacity	max. 100 kinds
Outer size	W664×D715×H602mm
Weight	Approx. 65kg



Cost-effective desktop machine

# SAM-CT23 / 35 / 36Q

Easy program teaching with DXF data-support software



## Features

- The compact width is best for cell production
- Total specs are designed for easy operation
- Program teaching is done by just reading CAD data (DXF file) and clicking on PC
- Component-mounted PCB can be cut safely and with little stress on

## Basic specifications

Model	SAM-CT23Q(manual door・auto door)	SAM-CT35Q(auto door)	SAM-CT36Q(auto door)
Cutting range	250×350mm	350×500mm	350×600mm
Board thickness		t=0.4-2.0mm	
Material		FR4,CEM1,CEM3, etc	
Component height limit		Upper face:21mm(including PCB thickness)	
Router bit diameter		φ0.8-2.0mm	
Maximum cut speed		50mm/sec	
Maximum motion speed		400mm/sec	
Repeatability		±0.02mm(X・Y axes) or less	
Z axis stroke		25mm	
Spindle RPM	Standard 40,000rpm, Option 5,000-60,000rpm(changeable)	5,000-60,000rpm(changeable)	5,000-60,000rpm(changeable)
X/Y/Z controls	AC servo motor(X・Y axes) Air cylinder(Z axis)		
Power supply	φ1 AC100V 50/60Hz		
Maximum electric consumption	approx. 1.2kVA (including standard dust collector[VNA-15])		
Air pressure	0.5-0.7MPa		
Air consumption	approx. 10L/min		
Cutting program capacity	max. 60 kinds		
Outer size	W720×D640×H510mm(manual door) W720×D640×H533mm(auto door)	W820×D740×H533mm	W970×D740×H533mm
Weight	approx. 72kg	approx. 80kg	approx. 100kg

## Router PCB separator

Inline type



High-spec router machine with the management function of linking program with cutting conditions

# SAM-CT34XJi

ATC function (Option) available when the cut distance of router bit reaches a specific value



### Features

- Data in QR code and data matrix can be saved by traceability
- ATC function can replace router bit automatically when its cut distance reaches a specific value
- The machine can be used as full-auto system by options
- Easy program teaching is done while checking the camera image (CAD data is also available to create program)
- Practical functions are equipped as standard: auto program selection by reading QR code, fiducial mark reading, bad mark skip, etc
- Z axis automatically changeovers to prolong router bit's life span
- Component-mounted PCB can be cut safely and with little stress on
- 3-axis servo controls allow precise cut with short tact time

#### [Standard equipment]

- PCB floating detection sensor
- Router bit broken/fallen sensor

#### [Option]

- Auto router bit changer
- Traceability
- Router bit diameter auto measurement

### Basic specifications

Model	SAM-CT34XJi
Cutting range	300×400mm
Board thickness	t=0.4-3.0mm
Material	FR4, CEM1, CEM3, etc
Component height limit	Upper face: 30mm (including PCB thickness)
Router bit diameter	Ø 0.8-3.0mm
Maximum cut speed	50mm/sec
Maximum motion speed	1,200mm/sec
Repeatability	±0.01mm or less
Z axis stroke	40mm
Spindle RPM	5,000-60,000rpm (changeable)
X/Y/Z controls	AC servo motor
Power supply	Ø3 AC200V 50/60Hz
Maximum electric consumption	approx. 3.0kVA (including standard dust collector [VNA-30])
Air pressure	0.5-0.7MPa
Air consumption	20-40L/min
Outer size	W1,150×D1,550×H1,700mm (excluding PC and signal tower [Option], magazine loader, unloader)
Weight	approx. 600kg



Downside cut inline router machine  
for the best dust collection

# SAM-CT23ZLi

Downside cut for PCB with tall  
components near cutting lines



## Features

- PCB is fixed in place by conveyance unit which holds down PCB from above
- Downside cut method can be adapted to PCB that can't be cut from above
- This machine can cut PCB with components mounted over across 2 pieces of its individuals
- Dust is well collected by local dust vacuum from below
- Its small dust collector generates about 65db[A] and saves working space
- Program teaching is done by just reading CAD data (DXF file) and clicking on PC
- Jig bit sensors automatically read and open an appropriate program out of 31
- Component-mounted PCB can be cut safely and with little stress on

## 【Standard equipment】

- PCB detection sensor
- PCB floating sensor
- Router bit broken/fallen sensor

## Basic specifications

Model	SAM-CT23ZLi
Cutting range	250×350mm
Board thickness	t=0.4-2.0mm
Material	FR4, CEM1, CEM3, etc
Component height limit	Upper face: 35mm (including PCB thickness) Bottom face: 5mm (excluding PCB thickness)
Router bit diameter	φ0.8-2.0mm
Maximum cut speed	50mm/sec
Maximum motion speed	500mm/sec
Repeatability	±0.02mm or less
Z axis stroke	50mm
Spindle RPM	25,000-50,000rpm (changeable)
X/Y/Z controls	AC servo motor (X・Y axes)・Air cylinder (Z axis)
Power supply	φ3 AC200V 50/60Hz
Maximum electric consumption	approx. 3.0kVA (including body, conveyance area, JEDEC tray storage area)
Air pressure	0.5-0.7MPa
Air consumption	approx. 800L/min (A. N. R)
Outer size	W3,030×D1,080×H1,500mm (excluding signal tower[Option])
Weight	approx. 700kg

## Router PCB separator

Inline type

Versatile inline router machine

**SAM-CT23BPF**

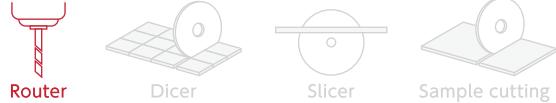
Flexible for PCB outfeed

**Features**

- P&P and conveyance can be customized for PCB outfeed
- The machine is conformed with safety specification category 3
- Jig bit sensors automatically read and open an appropriate program out of 31
- Program teaching is done by just reading CAD data (DXF file) and clicking on PC
- Z axis automatically changeovers to prolong router bit's life span
- Component-mounted PCB can be cut safely and with little stress on

**Basic specifications**

Model	SAM-CT23BPF
Cutting range	250x350mm
Board thickness	t=1.0-2.0mm
Material	FR4, CEM1, CEM3, etc
Component height limit	Upper face: 21mm (including PCB thickness)
Router bit diameter	φ0.8-3.0mm
Maximum cut speed	50mm/sec
Maximum motion speed	500mm/sec
Repeatability	±0.01mm or less
Z axis stroke	50mm
Spindle RPM	5,000-60,000rpm (changeable)
X/Y/Z controls	AC servo motor
Power supply	φ3 AC200V 50/60Hz
Maximum electric consumption	approx. 3.0kVA (including magazine loader and standard dust collector [VNA-15])
Air pressure	0.5-0.7MPa
Air consumption	approx. 200L/min
Outer size	W1,980xD880xH1,690mm (excluding signal tower [Option])
Weight	approx. 750kg



Downside cut inline machine for large target PCB up to 300mm x 400mm

**SAM-CT34ZF**

Downside cut for PCB with tall components near cutting line

**Features**

- Max. PCB size 300mm x 400mm can be cut
- PCB is fixed in place by the conveyance unit holding down PCB from above
- Downside cut method can be adapted to PCB that can't be cut from above
- This method can cut PCB with components mounted over across 2 pieces of its individuals
- Dust is well collected by local dust vacuum from below
- Its small dust collector generates about 65db[A] and saves working space
- Program teaching is done by just reading CAD data (DXF file) and clicking on PC
- Jig bit sensors automatically read and open an appropriate program out of 31
- Component-mounted PCB can be cut safely and with little stress on

**[Standard equipment]**

- PCB detection sensor
- PCB floating sensor
- Router bit broken/fallen sensor

**Basic specifications**

Model	SAM-CT34ZF
Cutting range	300x400mm
Board thickness	t=0.4-2.0mm
Material	FR4, CEM1, CEM3, etc
Component height limit	Upper face: 80mm (including PCB thickness) Bottom face: 5mm (excluding PCB thickness)
Router bit diameter	φ0.8-3.0mm
Maximum cut speed	50mm/sec
Maximum motion speed	500mm/sec
Repeatability	±0.01mm or less
Z axis stroke	25mm
Spindle RPM	5,000-50,000rpm (changeable)
X/Y/Z controls	AC servo motor (X-Y axes) · Air cylinder (Z axis)
Power supply	φ3 AC200V 50/60Hz
Maximum electric consumption	approx. 3.0kVA (including standard dust collector [VNA-5])
Air pressure	0.5-0.7MPa
Air consumption	approx. 400L/min
Outer size	W2,000xD1,070xH1,700mm (excluding signal tower [Option])
Weight	approx. 900kg

## Router PCB separator

Inline compatible type

Customized desktop router machine for automation

# SAM-CT23Qi

Program teaching is done simply by using DXF data



### Features

- The specifications are suited for pallet conveyance
- PCB can be placed and picked from above the cutting stage

### Basic specifications

Model	SAM-CT23Qi
Active range	250×350mm
Board thickness	t=0.4-2.0mm
Material	FR4,CEM1,CEM3, etc
Component height limit	Upper face:23mm(including PCB thickness)
Router bit diameter	φ0.8-3.0mm
Maximum cut speed	50mm/sec
Maximum motion speed	400mm/sec
Repeatability	±0.02mm or less
Z axis stroke	25mm
Spindle RPM	standard 40,000rpm Option:5,000-60,000rpm(changeable)
X/Y/Z controls	AC servo motor(X·Y axes) · Air cylinder(Z axis)
Power supply	φ1 AC100V 50/60Hz
Maximum electric consumption	approx. 1.2kVA (including standard dust collector[VNA-15])
Air pressure	0.5-0.7MPa
Air consumption	approx. 10L/min
Cutting program capacity	max. 60 kinds
Outer size	W720×D640×H533mm
Weight	approx. 65kg

Desktop router machine compatible with automation system

# SAM-CT23Vi

Easy confirmation and editing of program data by connecting the machine and PC



### Features

- The specifications are suited for pallet conveyance
- PCB can be placed and picked from above the cutting stage

### Basic specifications

Model	SAM-CT23Vi
Active range	250×350mm
Board thickness	t=0.4-2.0mm
Material	FR4,CEM1,CEM3, etc
Component height limit	Upper face:30mm(including PCB thickness)
Router bit diameter	φ0.8-2.0mm
Maximum cut speed	50mm/sec
Maximum motion speed	500mm/sec
Repeatability	±0.02mm or less
Z axis stroke	35mm
Spindle RPM	25,000-50,000rpm(changeable)
X/Y/Z controls	Stepping motor, Closed-loop control
Power supply	φ1 AC100V 50/60Hz
Maximum electric consumption	approx. 1.2kVA (including standard dust collector[VNA-15])
Air pressure	No pneumatic required
Cutting program capacity	max. 100 kinds
Outer size	W664×D715×H602mm
Weight	approx. 65kg

## Dry dicer

Standalone type

Inline type



High speed and precision dicing machine  
without using water

## SAM-CT1520D / 2533D

Dicing cut by high speed and precise motion of X/Y axes



High speed and precision inline dicing machine  
without using water

## SAM-CT1520DFA

Unmanned system with magazine loader and unloader



### Features

- The cutting speed is between 1 to 200mm/sec, the minimum cutting pitch is 0.2 to 0.5mm, and cutting line is corrected by reading fiducial marks
- Grinding by blade affects little stress on components on PCB
- Blade type can be changed according to target board
- The machine can detect wear or tear of the blade, and also ionize the target board
- Water doesn't need to be supplied or disposed because it is not required
- UV tape is not required because the target board is fixed in place by fixture jig
- Various cutting modes can be selected by keyboard

Error message is indicated on the display

### Basic specifications

Model	SAM-CT1520D	SAM-CT2533D
Board thickness	Cutting range	150×200mm
	Board thickness	t=0.4-2.0mm
	Material	FR4, CEM1, CEM3, etc
	Component height limit	Upper face: 4mm (including PCB thickness)
Blade	Active range	φ75×φ40×t=0.2-0.5mm
	370mm	520mm
X axis	Maximum motion speed · Scale resolution · Repeatability	500mm/sec · 0.001mm · ±0.01mm
	Active range	370mm
Y axis	Active range	350mm
	Maximum motion speed · Table motion speed · Scale resolution · Repeatability	500mm/sec · 1~200mm/sec · 0.001mm · ±0.01mm
Z axis	Active range	500mm/sec · 1~200mm/sec · 0.001mm · ±0.01mm
	Active range	27mm
θ axis	Motion speed · Scale resolution · Repeatability	1~50mm/sec · 0.001mm · ±0.01mm
	max. rotation angle	100° (-5° ~ +95°)
R axis	Repeatability	±3"
	Output	90W
Machine body	max. RPM	13,000rpm
	Power supply	φ3 AC200V 50/60Hz
	Maximum electric consumption	approx. 3.0kVA (including standard dust collector [VNA-15])
	Air pressure	0.5-0.7MPa
	Air consumption	approx. 300L/min
	Outer size	W800×D1,210×H1,300mm (excluding monitor and signal tower [Option])
	Weight	approx. 700kg
	Dust Collector (Output)	0.75kw
	Static eliminator	AC - high frequency fan type

### Basic specifications

Model	SAM-CT1520DFA	
Board thickness	Cutting range	150mm×200mm
	Board thickness	t=0.4-2.0mm
	Material	FR4, CEM1, CEM3, etc
	Component height limit	Upper face: 4mm (including PCB thickness)
Blade	Active range	φ75×φ40×t=0.2-0.5mm
	370mm	370mm
X axis	Motion speed · Scale resolution · Repeatability	500mm/sec · 0.001mm · ±0.01mm
	Active range	350mm
Y axis	Maximum motion speed · Table motion speed · Scale resolution · Repeatability	500mm/sec · 1~200mm/sec · 0.001mm · ±0.01mm
	Active range	350mm
Z axis	Motion speed · Scale resolution · Repeatability	1~50mm/sec · 0.001mm · ±0.01mm
	Active range	27mm
θ axis	max. rotation angle	100° (-5° ~ +95°)
	Repeatability	±3"
R axis	Output	90W
	max. RPM	13,000rpm
Target infeeding	X/Y axis stroke	650mm·50mm
Target outfeeding	X/Z axis stroke	700mm·50mm
Machine body	Power supply	φ3 AC200V 50/60Hz
	Maximum electric consumption	approx. 5.0kVA
	Air pressure	0.5-0.7MPa
	Air consumption	approx. 700L/min
	Outer size	W2,770×D1,330×H1,450mm (excluding monitor and signal tower [Option])
	Weight	approx. 1,000kg
	Cut area	Dust Collector (Output) approx. 0.75kw
Cleaning area	Dust Collector (Output)	400W (for brush cleaner)
The whole stage	Static eliminator	AC-high frequency-fan: 2 units

## Dry slicer

Standalone type



Router



Dicer



Slicer



Sample cutting

Auto dry slicer for mass production

# SAM-CT34NSL

High rigidity and precision cut and human error prevention

### Features

- Specifications of pallet-use or non-pallet-use can be selected according to PCB shape
- Easy program teaching can be done by operating the touch-display
- Running cost is reduced because PCB doesn't require V-groove process
- The cut face is ground and becomes quite smooth
- The stress affected on PCB is little comparing with other existed depaneling methods
- Cut line can be confirmed by monitor (option)
- Cutting speed can be adjusted for mass production



### Basic specifications

Model	SAM-CT34NSL	
Board thickness	Cutting range	330×400mm
	Board thickness	t=0.4-2.0mm
	Material	FR4, CEM3, etc
	Component height limit	Upper face:47mm Bottom face:10mm (including PCB thickness)
Blade	GC blade	φ125×φ40×t=0.2-0.5mm (standard t=0.3mm)
	Chipped saw	φ125×φ40×t=0.5mm (standard)
PCB hold	PCB directly	Mechanical chuck or slide rails
	Tig flux ture	fixing on jig
X axis	Motor	Stepping motor (Non step-out)
	Max. cut speed	300mm/sec
	Motion speed	300mm/sec
Y axis	Motor	Stepping motor (Non step-out)
	Conveyance speed	90mm/sec
	Motion speed	200mm/sec
	Repeatability positioning accuracy	±0.03mm
Z axis	Driving method	Air cylinder
R axis	Motor	Inverter-driven induction motor
	R-axis RPM	5,700rpm
Machine body	Power supply	φ1 AC100V 50/60Hz
	Maximum electric consumption	0.3kVA (excluding dust collector)
	Air pressure	0.4-0.5MPa
	Air consumption	approx. 70L/min
	Outer size	W900×D1,020×H1,330mm
	Weight	approx. 330kg
	Touch-display	7-inch frame
Cut PRG creation	Input method	Coordinate value input
	The number of programs	max. 300 in machine, max. 3,000 in SD card
	Power supply	φ1 AC100V 50/60Hz
Machine body	Maximum electric consumption	0.3kVA (excluding dust collector)
	Air pressure	0.4-0.5MPa
	Air consumption	approx. 70L/min
	Outer size	W900×D1,020×H1,600mm
	Weight	approx. 330kg

## Dry slicer

Desktop type

Semi-auto desktop dry slicer for both test cut and high mix low volume production

# SAM-CT3SLA

Easy program teaching is done on touch display



#### Features

- Cut position feeding is automated to improve operation efficiency
- Easy program teaching is done by touch display
- Running cost is reduced because PCB doesn't require V-groove process
- The cut face is ground and becomes very smooth
- The stress affected on PCB is little comparing with other existed depaneling methods
- The machine suits both test cut and high mix low volume production

#### Basic specifications

Model	SAM-CT3SLA	
Board thickness	X:max. PCB-holding length	standard:196mm, option:296mm
	Y:cut length (board length)	330mm
	Board thickness	t=0.5-2.0mm
	Material	FR4,CEM3, etc
	Component height limit	Upper face:47mm Bottom face:10mm (including PCB thickness)
	Maximum cut lines	16 Line
Blade	GC blade	$\phi 125 \times \phi 40 \times t=0.2-0.5\text{mm}$ (standard t=0.3mm)
	Chipped saw	$\phi 125 \times \phi 40 \times t=0.5\text{mm}$ (standard)
PCB hold	PCB directly	Mechanical chuck or slide rails
	Jig fixture	fixing on jig
Spindle	Motor	Inverter-driven induction motor (60W)
	Spindle RPM	0-5700rpm
Feed	Motor	DC motor
	Cutting speed	16mm-63mm
	Motion speed	47mm-88mm
Machine body	Power supply	$\phi 1 100V 50/60Hz$
	Maximum electric consumption	approx. 0.35kVA (excluding dust collector)
	Outer size	W475xD772xH401mm (Chuck unit/upper holder) W546xD772xH680mm (Chuck unit/upper holder)
	Weight	approx. 53kg
	Controller box size	W150xD520xH388.5mm
	controller box weight	approx. 12kg
	Program capacity	max. 100 kinds



Router



Dicer



Slicer



Sample cutting

Manual desktop dry slicer for both test cut and high mix low volume production

# SAM-CT3SLG

Less running cost due to no requirement of V-groove cut



#### Features

- Running cost is reduced because the machine can cut lines without V-groove on it
- The cut face becomes smooth by being ground
- The stress affected on PCB is little comparing with other existed depaneling methods
- The machine suits both test cut and high mix low volume production

#### Basic specifications

Model	SAM-CT3SLG	
Board thickness	X:max. PCB-holding length	standard:196mm, option:296mm
	Y:cut length (board length)	330mm
	Board thickness	t=0.5-2.0mm
	Material	FR4,CEM3, etc
	Component height limit	Upper face:47mm Bottom face:10mm (including PCB thickness)
	GC blade	$\phi 125 \times \phi 40 \times t=0.2-0.5\text{mm}$ (standard t=0.3mm)
Blade	Chipped saw	$\phi 125 \times \phi 40 \times t=0.5\text{mm}$ (standard)
	PCB hold	Mechanical chuck or slide rails
PCB hold	Tig flx ture	fixing on jig
	Spindle	Inverter-driven induction motor (60W)
Spindle	Spindle RPM	0-5700rpm
	Feed	DC motor
	Cutting speed	16mm-63mm
Machine body	Motion speed	47mm-88mm
	Power supply	100V 50/60Hz
	Maximum electric consumption	approx. 0.3kVA (excluding dust collector)
	Outer size	W475xD752xH401mm (Chuck unit/upper holder) W546xD752xH680mm (Chuck unit/upper holder)
	Weight	approx. 53kg
	Controller box size	W170xD420xH363.5mm
	controller box weight	approx. 12kg

## Dry slicer

Inline compatible type



Router



Dicer



Slicer



Sample cutting

The best suited machine for LED board with max. 650mm length

# SAM-CT26USL

Adaptive to inline system by adding infeed and outfeed units



### Features

- Long PCB can be cut: LED board and PCB with max. 650mm length
- Production efficiency increases by simultaneous cut with multiple blades
- Program teaching can be done by operating touch display
- Running cost is reduced because the machine can cut lines without V-groove
- The cut face becomes smooth by being ground
- The stress affected on PCB is little comparing with other existed depaneling methods
- This short cycle time is suited for mass production

### Basic specifications

Model	SAM-CT26USL	
Board thickness	Active range	250×650mm
	Board thickness	t=0.5-2.0mm
	Material	FR4,CEM3, etc
	Component height limit	Upper face:6mm(including PCB thickness)
Blade	GC blade	φ125×φ40×t=0.2-0.5mm (standard t=0.3mm)
	Chipped saw	φ125×φ40×t=0.5mm(standard)
PCB hold	fixing on jig	
X axis	Motor	Servo motor(200W)ballscrew drive
	Max. cut speed	300mm/sec
	Motion speed	500mm/sec
Y axis	Motor	Servo motor(200W)ballscrew drive
	Conveyance speed	90mm/sec
	Motion speed	200mm/sec
Repeatability positioning accuracy		±0.03mm
Z axis	Driving method	Servo motor(100W)ballscrew drive
R axis	Motor	Inverter-driven induction motor
	RPM (standard)	6,000rpm
Cut PRG creation	Touch-display	7-inch frame
	Input method	Coordinate value input
	The number of programs	max. 300 kinds
	Power supply	φ3 AC200V
	Maximum electric consumption	approx. 3.0kVA (including dust collector)
	Air pressure	0.4-0.5MPa
Machine body	Air consumption	approx. 300L/min
	Outer size	W1,450×D1,200×H1,450mm
	Weight	approx. 900kg

The best suited machine for LED board with max. 1,200mm length

# SAM-CT2MSL



### Features

- Long PCB can be cut : LED board and PCB with max. 1,200mm length
- Production efficiency increases by simultaneous cut with multiple blades
- Program teaching can be done by operating touch display
- Running cost is reduced because the machine can cut lines without V-groove
- The cut face becomes smooth by being ground
- The stress affected on PCB is little comparing with other existed depaneling methods
- This short cycle time is suited for mass production

### Basic specifications

Model	SAM-CT2MSL	
Board thickness	Active range	250×1,200mm
	Board thickness	t=0.5-2.0mm
	Material	FR4,CEM3, etc
	Component height limit	Upper face:6mm(including PCB thickness)
Blade	GC blade	φ125×φ40×t=0.2-0.5mm (standard t=0.3mm)
	Chipped saw	φ125×φ40×t=0.5mm(standard)
	Cut pitch	by blade collars
PCB hold	fixing on jig	
X axis	Motor	Stepping motor
	control	Ball screw
	Cutting speed	50~250mm/sec
	Returning speed	250mm/sec
Spindle	Motor output	1.5kW
	RPM	3,000-6,000rpm
Machine body	Power supply	φ3 AC200V/220V 50/60Hz
	Maximum electric consumption	approx. 5.0kVA (including dust collector)
	Air pressure	0.4-0.5MPa
	Air consumption	approx. 300L/min
	Outer size	W3,190×D907×H1,165mm (excluding signal tower[Option])
	Weight	approx. 600kg



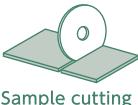
Router



Dicer



Slicer



Sample cutting

Sample cutting machine for large materials

# SAM-CT77WS

Cutting capacity of materials with  
max. 700mm length



## Features

- Materials with max. 700mm cutting length can be cut
- Many kinds of material can be cut by wet slicing
- Various material can be cut: ceramics, metals, PCB, composition materials
- Jig fixture is not required due to its designated holding unit
- Changing blade is quite easy, and operator can also do maintenance quickly

## Basic specifications

Model		SAM-CT77WS
Target Material	Cutting range	700×700mm (stroke 560mm)
	Material	Substrate, ceramics, glass, metal, electronic component, etc
	Height limit	Upper face: 40mm
Blade	GC blade	φ205×φ25.4×t=0.7-0.8mm
Object hold		fixing by 3 attachments
Spindle	Motor	DC brushless motor
	Spindle RPM	0-4,000rpm
	Feed	manual
	Cutting speed	Adjustable
Machine body	Power supply	φ3 AC200V 50/60Hz
	Maximum electric consumption	approx. 3.0kVA
	Outer size	W1,095×D1,884×H1,495mm
	Weight	approx. 500kg
	Dressing	Option

## Sample cutting machine

Desktop type



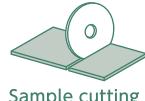
Router



Dicer



Slicer



Sample cutting

High precision test cutting machine for both dry and wet methods

# SAM-CT410RS

Movable table for adjusting cut range



### Features

- Wet or dry process can be selected according to target material
- Various material can be cut: ceramics, metals, PCB, composite materials
- Program teaching can be done by operating touch display
- Movable table can control cut position
- Operation efficiency increases by wide-open front door
- The blade automatically stops when cut process is completed

### Basic specifications

Model	SAM-CT410RS	
Target Material	Cutting range	100x100mm
	Material	Substrate, ceramics, glass, metal, electronic component, etc
	Height limit	Upper face:40mm
Blade	GC blade	$\phi 205 \times \phi 25.4 \times t=0.7-0.8\text{mm}$
Spindle	Object hold	Clamp jig
	Motor	DC brushless motor
	Spindle RPM	0-4,000rpm
	Feed	Stepping motor
Machine body	Cutting speed	0.01mm-99.9mm/sec
	Power supply	$\phi 3$ AC200V 50/60Hz
	Maximum electric consumption	approx. 0.35kVA (excluding dust collector)
	Outer size	W760xD620xH650mm
	Weight	approx. 390kg
	Dust collector	$\phi 1$ 100V 50/60Hz approx. 1kVA

Compact cost-effective sample cut machine

# SAM-CT33RS

Adaptive to various target shapes by designated jig



### Features

- Designated jig is available to adapt to various target shapes
- Blade RPM is changeable
- Target materials are cut highly precisely with our technology
- Various materials can be cut: ceramics, metals, PCB, composite materials
- X axis positioning is also possible (option)
- Polishing is also available (option)

### Basic specifications

Model	SAM-CT33RS	
Target Material	Cutting range	30x30mm
	Material	Substrate, ceramics, glass, metal, electronic component, etc
	Height limit	Upper face:30mm
Blade	GC blade	$\phi 75 \sim 125 \times \phi 12.7 \times t=0.6\text{mm}$
Spindle	Object hold	Clamp jig
	Motor	DC brushless motor
	Spindle RPM	5.3-267rpm
	Cutting speed	Adjustable with target's own weight
Machine body	X axis feed (option)	Micro meter head
	Power supply	$\phi 1$ AC100V 50/60Hz
	Maximum electric consumption	approx. 0.15kVA
	Outer size	W300xD300xH300mm
	Weight	approx. 310kg
	Dressing	Option

# Product features

## Router PCB separator

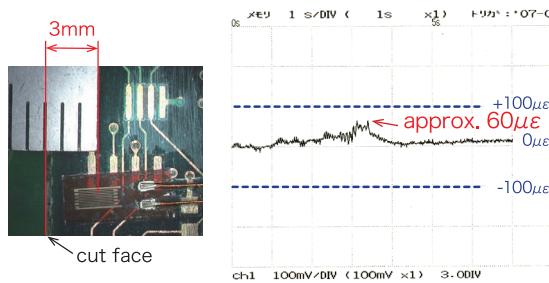
### 1 Smooth cut face

Our original router bit is the best solution for cutting resin substrate. It prevents PCB from flapping during the process, and makes its cut face smooth.

Cutting method	Enlarged pictures of cut face	
V-groove roller cutter		
Router PCB separator SAM-CT23NJ		

### 2 Little stress on target board

Cut by high-speed spindle motor affects little stress on PCB- 1/10th of Press cut, 1/100th of hand splitting.

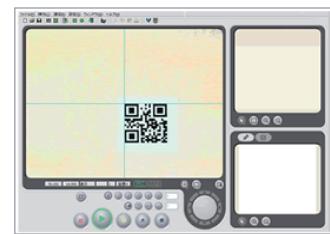


### 3 Free PCB design

Our PCB separator can create both straight and arch lines, which makes PCB design free.

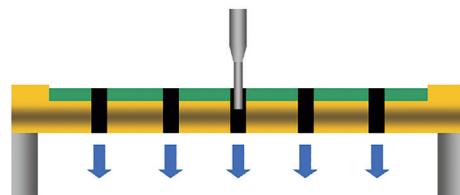
### 4 Prevention of human errors

Execution of wrong program is prevented by auto program selection or jig bit sensor.



### 5 Little dust adhesion to PCB

We make a designate jig for each PCB design. Its structure prevents dust from leaving on PCB.



Our machine's local vacuum system provides powerful dust collection.

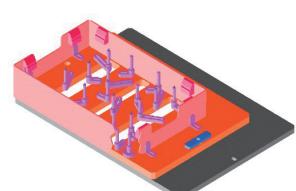
### 6 Fixture of PCB

Designated jig or universal jig are used according to PCB shape or process goal.

Designated jig



Universal jig



## Dry dicer

### 1 Smooth cut face

High-speed rotation of blade creates smooth cut face.



### 2 Little dust adhesion to PCB

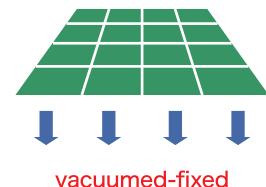
We make a designate jig for each PCB design. Its structure prevents dust from leaving on PCB.

### 3 No water supply required

Water supply and disposal are not necessary, which is more eco-friendly and cost-effective.

### 4 No UV tape required

The target board is fixed in place by jig fixture and vacuum suction. Consumables like UV tape are not necessary.



### 5 High precision cut

4-axis controls allow high precision cut.

### 6 Image processing CCD camera as standard

SAM-CT1520D/2533D has a CCD camera for image processing, being able to cut target board more precisely.

## Dry slicer

### 1 Smooth cut face

Cutting by GC blade makes cut face quite smooth.



### 2 Great dust collection

The upper holder equips dust collection, which efficiently removes dust generated by cut process.

### 3 No V-groove required

Target PCB doesn't require V-groove process, which reduces its warpage and cost.

### 4 Long life span of blade

Large-diameter blade used with the slicers has its long-life span and cost-effective.

### 5 Various options

We have various options: prior confirmation monitor for cut lines, Pallet detection, cleaning brush unit.

## High touch・High tech

Valuing the relationship with people,  
strengthening our skill.

As our management principle, High touch・High tech, we are proceeding business based on the idea that we consider the communication with our employees, business partners, customers, and other related people to be important. In those connections, our products are making further progress.

**SAYAKA** **SAYAKA Co. Ltd.**  
3-3 2-chome, Jonanjima, Ota-ku, Tokyo, Japan  
Phone: +81-3-37908911 Fax: +81-3-37908917



<http://sayaka.co.jp>

Issue 2022.11  
2211-000 (I)

The contents of this brochure may change without notification due to minor improvement of the products.