■Specification

Item \ Model			Fast Smart Modular Mounter RS-1R		
Conveyor specification			standard	150mm conveyor extensions, upstream and downstream	250mm conveyor extensions, upstream and downstream
Board size	minimum		50×50 ㎜		
	maximum	1 buffer	650×370 ㎜（Single clamping）		
			950×370 ㎜（double clamping）	1,100×370 ㎜（double clamping）	1,200×370 ㎜（double clamping）
		3 buffers	360×370 ㎜	500×370 ㎜	600×370 ㎜
Component height			25 ㎜		
Component size			0201*1 ～□74 ㎜ /150×50 ㎜		
Placement speed	Optimum		47,000CPH		
	IPC9850		31,000CPH		
Placement accuracy			±35μm（Cpk≧1）		
Feeder inputs			max.112*2		
Power supply			AC200 ～ 415V*3 3-phases		
Apparent power			2.2kVA		
Operating air pressure			0.5±0.05MPa		
Air consumption			200 l/min for internal vacuum generator, 50 l/min with optional vacuum pump		
Machine dimensions (W×D×H)*4			1,500×1,810×1,440 ㎜	1,800×1,810×1,440 ㎜	2,000×1,810×1,440 ㎜
Mass(approximately)			1,700kg		

*1 For metric 0201 compliance please contact us.
*2 Using RF(RF08AS) feeders
*3 A transformer unit (option) is necessary except AC 200 V.
*4 D dimension does not include the front operation monitor. H dimension does not include signal tower.

■Option

Recognitions system	10 / 27/ 54 mm view camera
Oparations system	Rear-side operation unit / keyboard (front only)
Inspection function	Coplanarity sensor / Component Verification System(CVS)*5
Conveyor	Conveyor extention *6 / support pin / support sponge
Electrical protection	CE compatible specification / Ground-fault interrupter
Force Control	Force control unit / Force control nozzle
Software*5	JaNets / IFS-NX / Flexline CAD
Component handling and feeders	Feeder Trolley RF feeder only / RF-EF dual servo *7) / Electric tape feeder (RF/EF*7) / EF feeder adapter*7/ Electric stick feeder*7(Type-N/Type-W) / Matrix tray server TR8SR, TR5SNX, TR5DNX / Matrix tray changer TR6SNV, TR6DNV / Dual tray server TR1RB / Nonstop oparation function / Tray Holder / IC collection belt / Tape reel mounting base(for RF / for EF) / Splicing jig / Electric Trolley Power Station PW02*8
Others	RS-1R・RS-1 nozzles(with or without RFID tags) / Splicing tape / Big foot / Offset placement after solder screen-printing Solder lighting / Mini-signal light / non-stop operation / FCS calibration jig / large ATC / vacuum pump

*5 Please contact for details.
*6 One side converyor extention is also possible.
*7 When EF feeders adapt the an attachment of EF feeder, the EF feeder can use on RF/EF feeder trolley and fixed bank (rear side). Please inquire details.
*8 Separate connection cables for each model are required.

JUKI ECO PRODUCTS — The RS-1R is an eco-friendly product which complies with JUKI ECO PRODUCTS standards for protecting the environment.

•The machine complies with the "JUKI Group Green Procurement Guidelines" on the use of hazardous substances, which is stricter than other restrictions, such as those of the RoHS Directive.

JUKI ECO PRODUCTS For details of JUKI ECO PRODUCTS, refer to: http://www.JUKI.co.jp/eco_e/index.html

*The RoHS Directive is an EU Directive limiting the use of 6 hazardous substances(lead, hexavalent chromium, mercury, cadmium,PBB and PBDE) in electrical and electronic equipment. The JUKI Green Procurement Guideline is the voluntarily established criteria to eliminate not only the aforementioned six substances, but also other ones which also adversely affect the environment.

MS JAB CM001 / JSA EMS JIS Q 14001 ISO 14001 JSAE389 / UKAS ENVIRONMENTAL MANAGEMENT 089

JUKI CORPORATION HEAD OFFICE
The activities of research, development, design, sales, distribution, and maintenance services of industrial sewing machines, household sewing machines and industrial robots, etc., including sales and maintenance services of data entry systems.

*Please refer to the product specifications for details.

JUKI®

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■JUKI Specifications and appearance may be changed without notice.
■This catalogue prints with environment-friendly soyink on recycle paper.

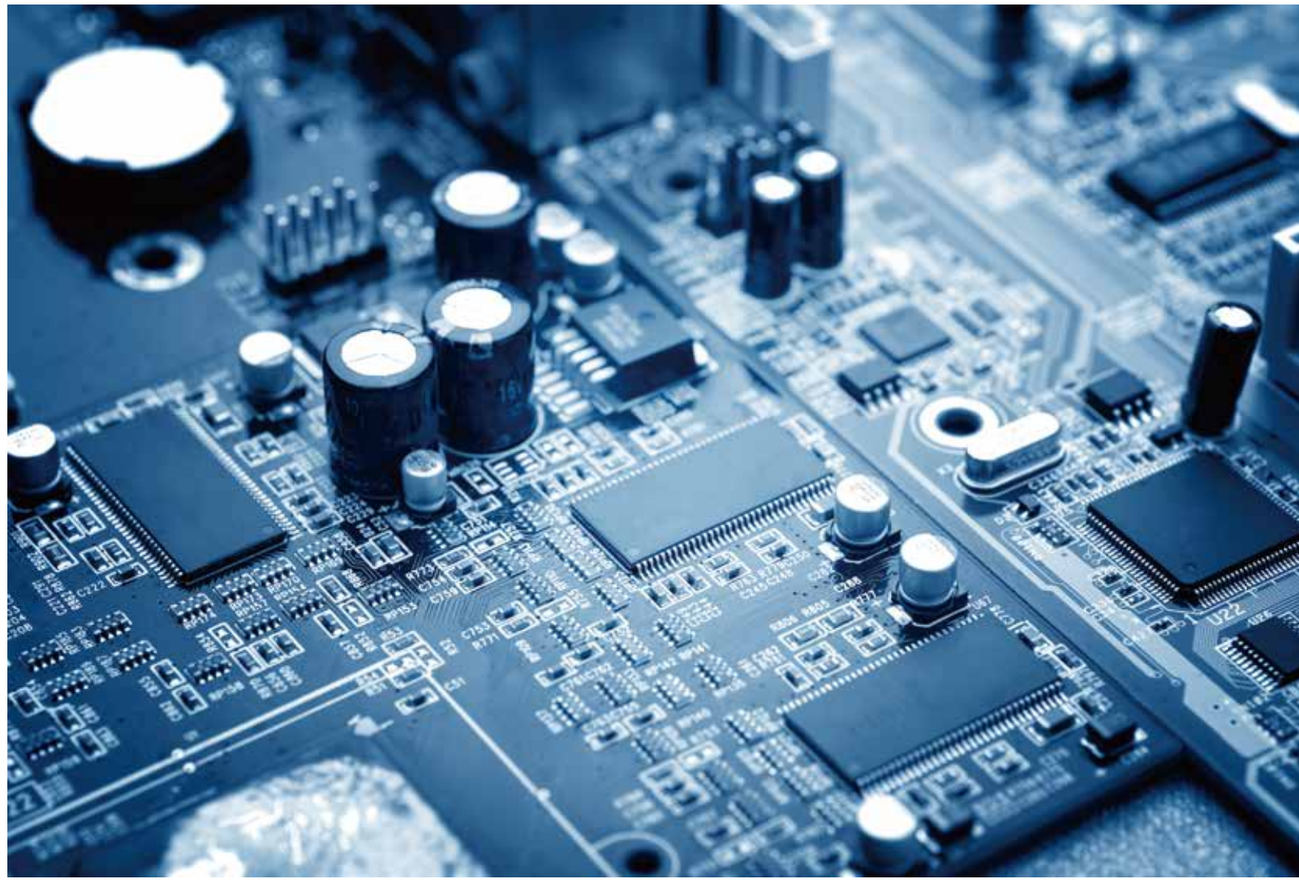
Feb-2019/Rev.00

JUKI

Fast Smart Modular Mounter

RS-1R

I-TRONIK



Superior Productivity. Versatility
With the best throughput in an advanced, all-in-one

BASIC FEATURES

- Class leading speed, up to 47,000 cph
- Newly developed "Takumi Head" with changing recognition sensor height
- Optimum line balance and highest throughput
- Wide component range from 0201 (metric) to large connectors and ICs
- Optimal for LED placement

RS-1R High-Speed Smart Modular Mounter

Feature 1 Class leading speed, up to 47,000 cph

●Class leading speed, up to 47,000 cph

Maximum speed of up to 47,000 cph*. This is made possible by a revolutionary head design that reduces the travel time and distance for every placement.

* Optimum

【Placement speed*2】

Conventional machine*1 RS-1R

42,000CPH → 47,000CPH

Comparison to conventional machine

112%

*1 RS-1 *2 Optimum

●New RF feeders are smaller, thinner, and lighter

The new RF feeders are smaller and lighter, but still maintain the same high degree of positional accuracy. The thinner width allows up to 112 feeder inputs.*

【Maximum number of feeders mounted*2】

112 units

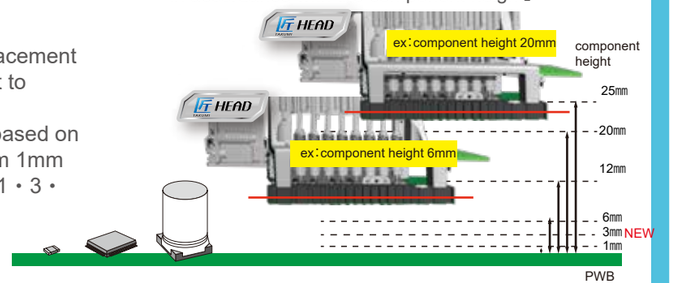
*2 Total for front and rear

Feature 2 Self-Optimizing Smart Head

"Takumi head" that automatically optimizes it's height between 6 different positions based on component height. Tact time is optimized by keeping the head as close to the PCB as possible for the components placed.

New Dynamic Height 8 nozzle placement head automatically adjusts height to optimize placement speed.
This head adjusts automatically based on the components to be placed from 1mm to 25mm in 6 different positions (1・3・6・12・20・25mm).

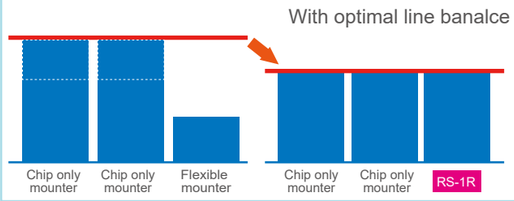
【Variable height of the laser sensor in accordance with the component height】



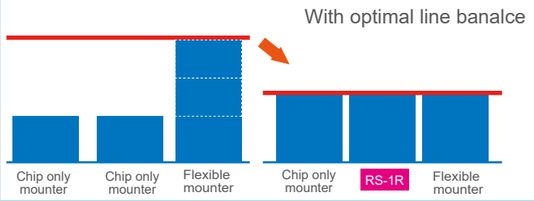
Feature 3 Optimum line balance and highest throughput

Changing the RS-1 functionality does not require head replacement. The revolutionary design self-optimizes based on the production requirements. The RS-1R can reduce the workload on high speed. A line with two or more RS-1Rs can adjust to a wide variety of production requirements from high speed to high flexibility.

【For PCBs with high placement count】



【For PCBs with many complex components】



Feature 4 Nozzle traceability function OP

RFID tags are mounted on each nozzle to improve control and traceability.
Nozzle maintenance can be monitored and traceability of performance is maintained.

Feature 5 Large Nozzle ATC OP

Changeable ATC plate supports nozzles up to 7x28mm. Large nozzles for large or heavy components are available.

Feature 6 Wide component range from 0201 (metric) to large connectors and ICs

RS-1R supports components from 0201*1(metric) up to 74mm square or 50x150 retangular parts.
Component height up to 25mm.

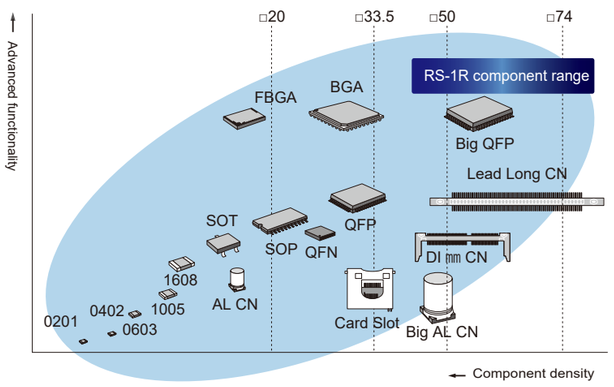
*1 With 10mm view camera Please contact in detail.

【Part correspondence power】

0201*2 ～□74mm

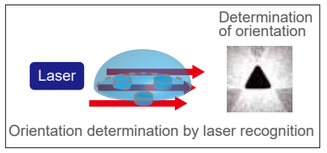
50×150mm

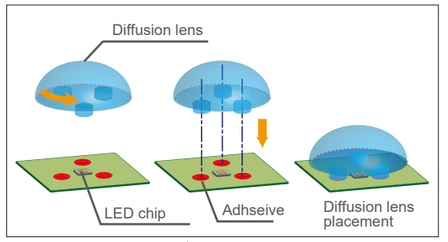
*2 Please contact for details.



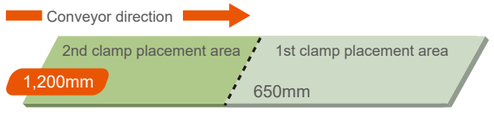
Feature 7 Optimal for LED placement

●High-precision placement of diffusion lenses.
RS-1R can use either vision or laser centering for diffusing lenses, depending on the component requirements.
A wide range of lens styles can be placed.





●Long PCB Support
Up to 650 x 370mm with single clamping.
Up to 950 x 370mm with dual clamping, or up to 1200 x 370mm with optional conveyor extensions.



Recognition Technology

Component Recognition Technology (54, 27, 10mm field of view)

OP Image

Component shape, lead and ball details are accurately captured using our VCS camera. Component problems such as missing ball detection or bent leads are also detected.
A wide variety of components including BGAs and QFPs and many more are supported.

●360 degree part recognition technology
Components that are supplied incorrectly can be corrected and accurately placed using 360 degree recognition technology.

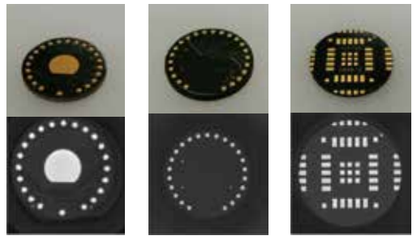
●Front/back detection
Components can be checked to see if they are face up/face down in the feeder.

●Small chip recognition
Components down to 0201 metric can be centered using the 10mm FOV camera.

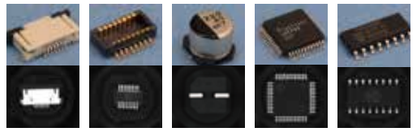
●Three color recognition lighting
The color of lighting can be changed to match the component requirements for stable, accurate centering.

●Wide component range
Hundreds of nozzles to choose from and flexible vision to support difficut parts. Simplified data creation make it easy to handle complex components.

●Faster image recognition
◎A new VCS unit can center up to 4 parts in a single image, reducing centering time by 25% with the 54mm field of view VCS.
◎Strobing vision can be used with the 10mm and 27mm FOV cameras for faster tact tim

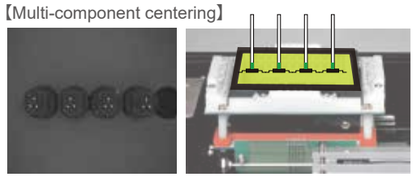


Reflection recognition　Reflection recognition　Transmission recognition



Sample components and images

【Multi-component centering】



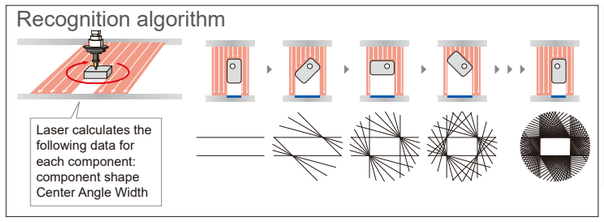
Sample images　　Up to 4 components are centered in a single image

*KE-3010A

JUKI's proprietary laser recognition technology is flexible, accurate and reliable.

Laser

Components from 03015 metric to 50mm square SOP, PLCC, and QFP are supported.
Laser centering provides stable, accurate centering and is not affected by variations in component color or shape. Component data is simple, making new part creation faster.



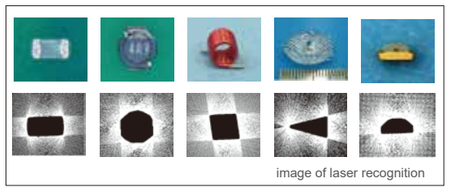
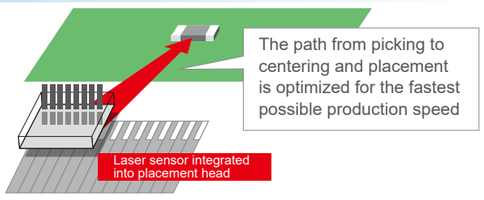


image of laser recognition

8-nozzle simultaneous, on-the-fly centering for high-speed

Laser

The laser sensor is mounted on the head to minimize head travel.
The head moves directly from the pick position to the placement position for the shortest travel time

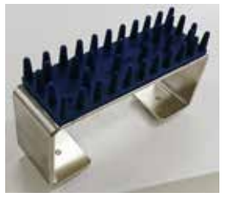


Productivity

Support sponge

Standard

Soft under board support reduces defects caused by PCB warpage. This unit uses soft pillars that will not damage components on the bottom side and do not require setup for each different PCB. They are easy to removed with a simple magnetic base.

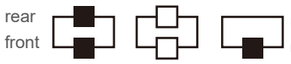


Support sponge

Bank specification can be selected

OP

Feeder banks are available in either fixed or easy to replace trolley configurations.*1



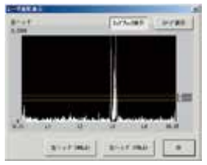
■fixed bank specification
□exchange truck specification*2

＊1　Please contact detail.
＊2　Option

Proactive maintenance warnings

Standard

Dirty laser, low vacuum and upward looking camera condition are all checked prior to production starting to warn the operator of potential problems and prevent defects.



Laser condition check

Flexible vision teaching

Standard

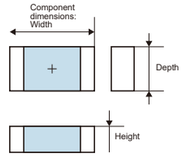
Complicated programming of odd-shaped components is made easier by following step-by-step guidelines, reducing programming
time significantly. Data is created automatically from a pictur of the component.

Flexible vision teaching

Ease-of-operation improved by automatic component measurement

Standard

Component data can be programmed simply by typing approximate dimensions, type and packaging information. Accurate dimensions, number of leads and lead
pitch are measured and programmed automatically by the machine.



Full virtual keyboard

Standard

Standard touchscreen keyboard for fast data entry.

Automated pre-production check list

Standard

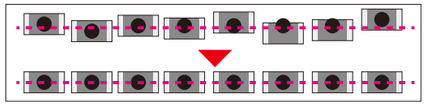
Operators can use the automated pre-production check list to make sure all required operations have been completed.
Ensures consistency and reduces overlooked operations.

Setup preparation menu

Pick Position Auto-correction

Standard

The feeder pick position is automatically adjusted based on centering results to improve simultaneous picking and increasing throughput.



Feeder pick position auto-correct

Quality

Incorrect component prevention Component Verification System (CVS)

OP

By measuring the resistance, capacitance, or polarity before production starts, the machine can prevent incorrect components from being placed. The new CVS unit can check six components simultaneously, reducing the check and changeover times.

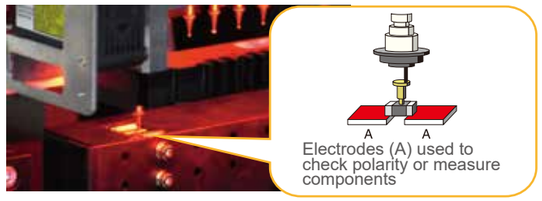
Check the Resistance,Capacitance and Polarity before production starts.

▼

Prevents incorrect component/reel from being used

▼

Prevents incorrect component placement

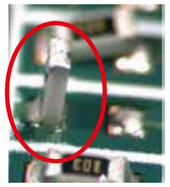


Electrodes (A) used to check polarity or measure components

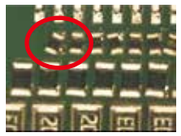
Reduce errors due to solder paste alignment Offset Placement After Solder Screen printing

OP

●The OPASS function uses the machine's downward looking camera to check the location of solder paste vs. the pads and corrects the placement accordingly. This function reduces defects caused by misalignment of the paste on the pads.

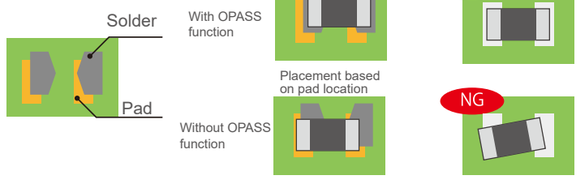


Manhattan phenomenon



Displacement

[A printing misalignment occurs]



▶ Reduction in the percentage defective

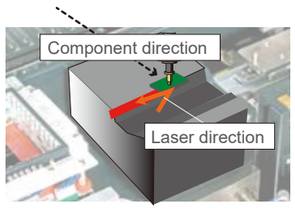
●Solder paste for fiducials

Solder printed pads can be used in place of fiducials for circuit boards that do not have fiducials. This is especially helpful on long PCBs that require double clamping and do not have a fiducial in the appropriate area.

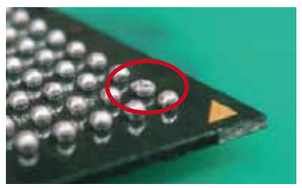
Coplanarity sensor - checks balls and leads

OP

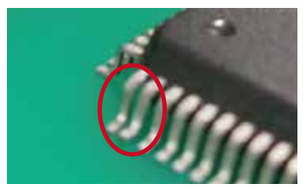
Prevents placement of defective component by checking lead float of lead component and nick of ball component. High accurate and high speed coplanarity check will improve the products' reliability.



Coplanarity sensor



BGA ball defect



Lead float defect

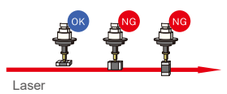
Improved qualtiy using component checking

Laser

Component presence is monitored from pick to placement, reducing defects.

①Tombstone detection

Tombstone parts can be detected by laser and rejected

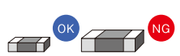


②Orientation check

Component width/length ratio can be checked to ensure the part was picked in the correct orientation

③Dimension check

Component width and length can be verified to esure it is the correct component



④Part drop check

Component presence is verified using the laser to ensure it has not fallen off the nozzle

⑤Release check

The laser checks the nozzle after placement to ensure the part was released on the PCB

Other Options

Tray Component Supply

OP

Several options are available to present components in trays.
The compact width of the TR8 means there is still room for up to 20 8mm feeders on the same bank. A single tray holder and dual tray server are also available.
The rear operation unit makes production more efficent by reducing the time the operator has to move around the line.

Matrix tray holder

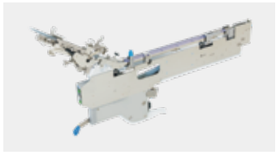
Dual tray server

TR8S

Stick feeder

OP

Single lane stick feeders install and remove as fast as tape feeders. Belt drive provides smooth, vibration free operation. LED indicates the feeder status.

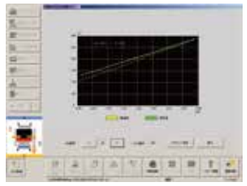


Electric stick feeder

Load Cell

OP

Load cell measures the placement force precisely for each nozzle. The risk of damaging fragile components is reduced during both pick and placement. The load can be set individually for each part number.



Data check on the monitor screen

Feeder Setup Stand

OP

The feeder setup fixture is used to load reels offline quickly and easily. It is safer and easier to use than laying feeders on a table.

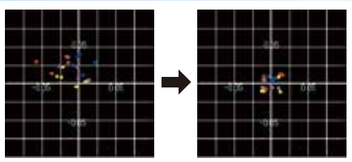
Mountable also on the rear side (front is standard)

Feeder Setup Fixture for RF feeder

FCS (Flex Calibration System)

OP

JUKI's highly regarded easy maintenance just got even easier! The optional FCS calibration jig is a simple to use system to re-calibrate placement accuracy. The machine automatically picks and places jig components, then measures the error and adjusts all necessary calibrations. (optional)



FCS image

Non-stop Operation

OP

Non-stop operation allows the operator to replace feeders while the machine continues to run at full speed.

The IC collection belt

OP

The IC collection belt provides a safe method to handle rejected parts while also protecting them from further damage. Belt pitch can be set for different size parts.

The IC collection belt