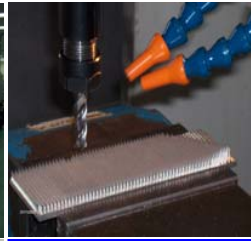




Why work with MATRIX ?
We Listen and Adapt

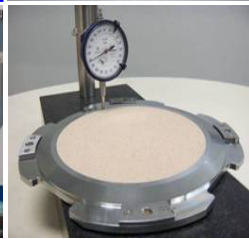
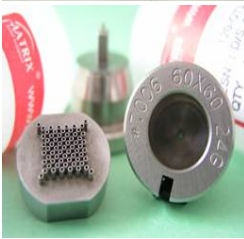
2010



Precision Tooling Center



PCB Refurbishment Center



Automation Solutions Center



Used equipment Sales Center



OEMs Manufacturing Center



Air Spindles & Wafer Chucks Refurbishment Center



MATRIX

total support

www.matrixtech.com.sg



CATALOGUE '10



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sales@matrixtech.com.sg







Web site:
<http://www.matrixtech.com.sg>

This catalogue supersedes all former catalogue.

Changes of any kinds or printing errors in prices and technical data do not justified claims.

Next new edition – 2011

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MATRIX® PRODUCT IDENTIFICATION SYSTEM

PRODUCT SERIES

- 10 Series MACHINE'S TOOL ACCESSORIES
- 11 Series PICK-UP TOOLS
- 12 Series DISPENSING TOOLS
- 13 Series EJECTOR PINS AND HOLDERS
- 14 Series WIRE-BOND CLAMPS
- 15 Series CUSTOM / PRECISION TOOLING
- 16 Series IC TESTING AND HANDLING TOOLS
- 18 Series MACHINE MODULES / AUTOMATION ASSEMBLY
- 21 Series RGB TO VGA VIDEO SCAN CONVERTER
- 22 Series MATRIX® GLASS CERAMIC MACHINING

IDENTIFICATION NUMBER

XX

XX - XXX - XX-X

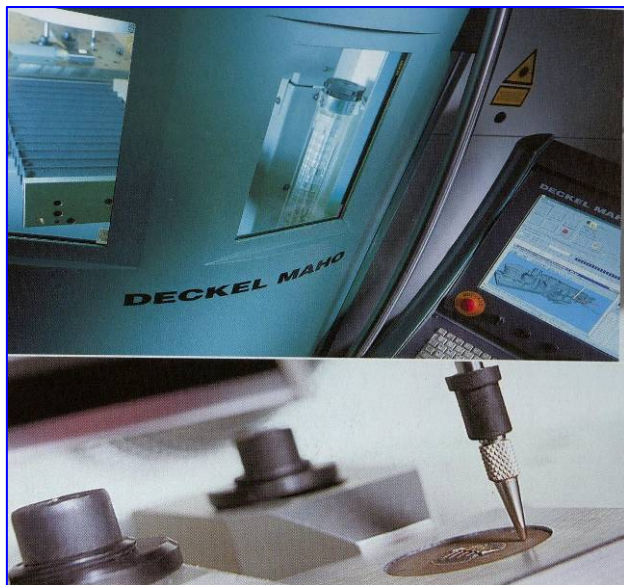
PRODUCT GROUPING

- Rubber Collet
- Hi-Temp Rubber Collet
- Plastic Collet
- Delrin Collet
- Vacuum Wand Tools
- Tube Dispensing Tools
- Groove Dispensing Tools
- Hole Dispensing Tools
- Dispensing Tools
- Epoxy Stamping Tools
- Carbide Die Collet
- Ejectors Pins
- Ejector Pins / Coated
- Wire-Bond Clamps
- Pull Test Pins
- Shear Test Pins
- Electrode Torch
- Adjustable Arms
- Ejector Pins Holder
- Rubber Collets Shank
- Surface Mount Tools
- Plastic Collet Adaptors

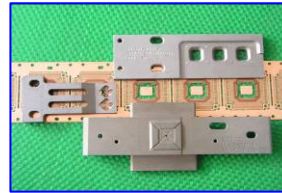
REVISION NUMBER

1 to 9

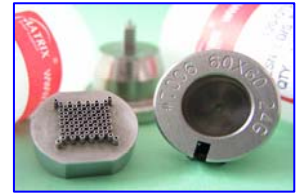
We design, manufacture and supply precision tooling and consumables through the application of state-of-the-art CAD/CAM systems and advanced manufacturing technologies. You are assured of innovative solutions delivered to you on time and at competitive prices.



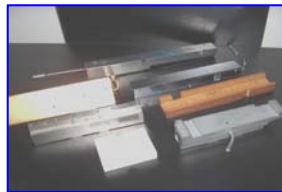
Do visit us at www.matrixtech.com.sg for more information.



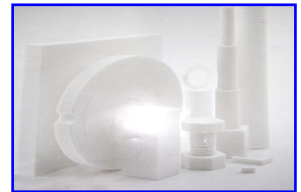
WIRE BOND CLAMPS



DISPENSING TOOLS



HEATER BLOCK



MATRIX GLASS CERAMICS



COPPER CAP SCREWS



PULL TEST PINS



PLASTIC COLLETS



VACUUM CHUCKS



EJECTOR PINS



WAFER MOUNT CUTTERS



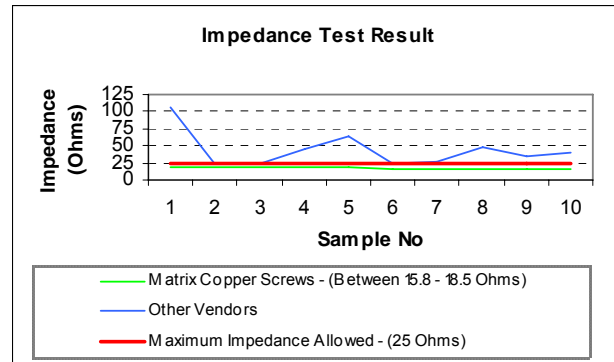
RUBBER COLLETS & HOLDER



CUSTOM MADE PARTS

Please contact us for other tooling and consumables not shown above

10 Series – Machine’s Tool Accessories CAP SCREWS – BLACK (TORX® 7 SOCKET HEAD)



A. SPECIAL SELECTED ALLOY MATERIAL AND CALIBRATED HARDNESS

Our alloy screws material are specially selected and treated to a desirable hardness whereby the screws will not break easily during wire bonding. These cap screws are able to withstand torque force of more than 4.0 kgf-cm.

B. SPECIFIED PLATING

A specified minimum layer of ZINC is introduced over our alloy screws to maintain consistency in bonding impedance. The cap screw has to be replaced once it is used.

C. TORX® ENGAGEMENT

To prevent operators/technicians using an allen key to tighten the capillary transducer when torque wrench is not available. Usually a lot of production downtime and cost are lost while setting up a new capillary transducer horn when the cap screws ceased or broken. Customers are advised to tighten the cap screws at 2.0 kgf-cm with the torque wrench.

D. ENDORSEMENT

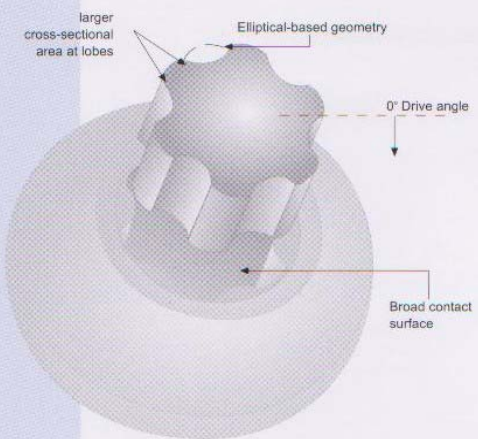
Our cap screws are tested and recognized by a reputable wire-bond machine supplier and used by customers worldwide.

Ordering Code	Description	M/C Model	Additional		
			Spacer	Bush	Nut
10 - 005 - 010	TORX® 7 CAP SCREW, #080X4.05; OD=2.34 mm	ASM 339/Eagle 60/ESEC 3088 / Delvotec 6200	NA	NA	NA
10 - 005 - 020	TORX® 7 CAP SCREW, M1.6 X 3.8; OD=3.40 mm	K&S 8020 / 8028	10 - 005 - 080	10 - 005 - 090	10 - 05 - 100
10 - 005 - 030	TORX® 7 CAP SCREW, #080 X 1/8";OD=2.40 mm	ESEC 3006F / FX	NA	NA	NA
10 - 005 - 040	TORX® 7 CAP SCREW, M2.0 X 4.0; OD=2.80 mm	KAIJO 118	NA	NA	NA
10 - 005 - 050	TORX® 7 CAP SCREW, M1.6 X 5.8; OD=2.80 mm	KAIJO 128 / 131	NA	NA	10 - 008 - 040
10 - 005 - 060	TORX® 7 CAP SCREW, M1.6 X 4.9; OD=2.80 mm	SHINKAWA	NA	NA	NA
10 - 005 - 070	TORX® 7 CAP SCREW, M1.6 X 4.5; OD=2.40 mm	K&S 1488	NA	10 - 005 - 110	10 - 005 - 120
10 - 005 - 080	TORX® 7 CAP SCREW, M1.6 X 4.05;OD=2.90 mm	MAXUM PLUS	NA	NA	NA

Please contact us for other machine models not shown above.

Note: Copper, Nickel, Gold Plating & Teflon Coating is also available, do contact us for more information.

10 Series – Machine’s Accessories CAP SCREWS (TORX® 7 MALE SOCKET HEAD)



TORX® / TORX PLUS®

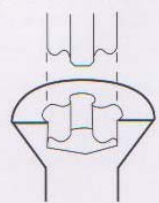
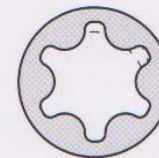
The main benefits of Torx Plus® drive are as follows

Straight sidewalls
The straight, vertical sidewalls of the TORX PLUS® Drive **virtually eliminate camout**. Also, the TORX PLUS® recess completely encloses the drive tip, **reducing tool slippage** as well as costly and unsightly damage to the fastener and surrounding surfaces.


Elliptically-based geometry and lobe engagement
The elliptically-based geometric configuration of the TORX PLUS® Drive **maximizes engagement between driver and fastener**. It spreads driving forces over the surface area, extending tool life.

0° Drive angle
The TORX PLUS® Drive is the only drive system designed to ensure optimal torque transmission, and, as a result, required clamp load. With a true 0° drive angle, the TORX PLUS® Drive virtually eliminates the radial stress that can cause stress on fastener recesses.

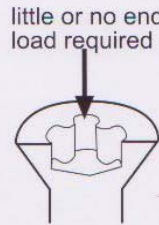
Broad Contact surface and larger Cross-sectional area at lobes
Ergonomic studies demonstrates that the TORX PLUS® Drive can reduce fatigue and muscular stress during the assembly of fasteners. That is because little or no end load is required to keep the driver engaged in the recess.

0° Drive angle



little or no end load required



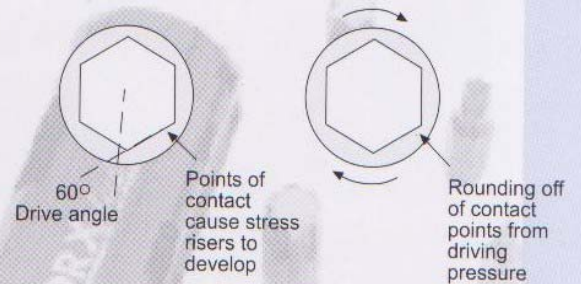
10 Series – Machine’s Accessories

CAP SCREWS (TORX® 7 MALE SOCKET HEAD)

Why other drive system causes problems in the assembly line

HEX

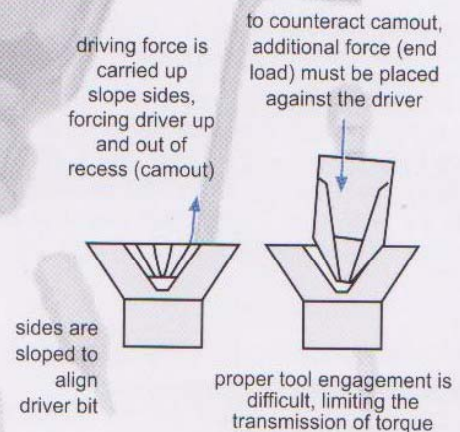
- Point contact causes stress risers to develop, which damages driver bit and fastener recess
- 60° drive angle is inefficient in transferring torque



CRUCIFORM

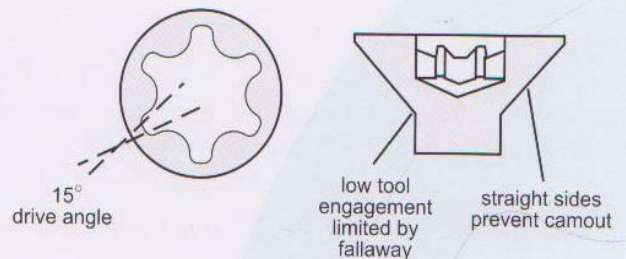
(includes Phillips, ACR® Phillips II and Pozidriv®)

- Camout, which forces the drive tool out of the recess, is common
- Camout and its limit on torque transfer can prevent a fastener from being fully sealed
- Excessive end-load, required to prevent camout, can reduce bit life and cause worker fatigue and injury
- Camout and tool/recess wear can create debris in an application



TORX® DRIVE

- Allows higher torque transmission
- 15° drive angle still permits a small amount of radial stress, which can reduce bit life
- Tool may be difficult to align properly in high-speed assemblies



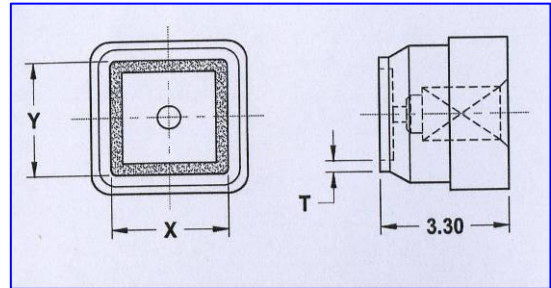
11 Series - Pick Up Tools SQUARE RUBBER COLLETS

Type of Tool: 11-XXX -XXX

Material: 1) Body – Stainless Steel, 2) Tip – NBR Rubber

Application:

To pick and place the silicon chips in die-bonding process. The tip is made of NBR rubber material to replace carbide die collets, delrin plastic and other hard surface pick-up tool. It is available also in Round and Rectangular designs.



Delivery: Ex-Stock

Packing: 20 pcs per bag. **Minimum order:** 100 pcs.

Ordering Code 11-XXX-XXX	X		Y		Wall Thickness		Rubber Collets Shank
	mm	inch	mm	inch	mm	inch	
11-030-030	0.64	.030	0.64	.030	0.10	.004	Pls contact us!
11-040-040	0.76	.040	0.76	.040	0.20	.008	
11-050-050	0.89	.050	0.89	.050	0.20	.008	
11-060-060	1.02	.060	1.02	.060	0.20	.008	
11-070-070	1.27	.070	1.27	.070	0.30	.012	
11-080-080	1.52	.080	1.52	.080	0.30	.012	
11-090-090	1.78	.090	1.78	.090	0.30	.012	
11-100-100	2.03	.100	2.03	.100	0.30	.012	
11-120-120	2.29	.120	2.29	.120	0.30	.012	
11-140-140	2.54	.140	2.54	.140	0.30	.012	
11-150-150	3.80	.150	3.80	.150	0.30	.012	
11-160-160	3.05	.160	3.05	.160	0.30	.012	
11-180-180	3.56	.180	3.56	.180	0.30	.012	
11-200-200	4.06	.200	4.06	.200	0.30	.012	
11-240-240	5.08	.240	5.08	.240	0.30	.012	
11-280-280	7.11	.280	7.11	.280	0.30	.012	
11-320-320	8.13	.320	8.13	.320	0.40	.016	
11-360-360	9.14	.360	9.14	.360	0.50	.020	
11-400-400	10.16	.400	10.16	.400	0.50	.020	
11-480-480	12.00	.480	12.00	.480	0.50	.020	

* Please contact us for other sizes not shown above

Ordering Example: If you would like to order a tool of **0.030** square design,
Please specify the ordering code as follows: **11-030-030**

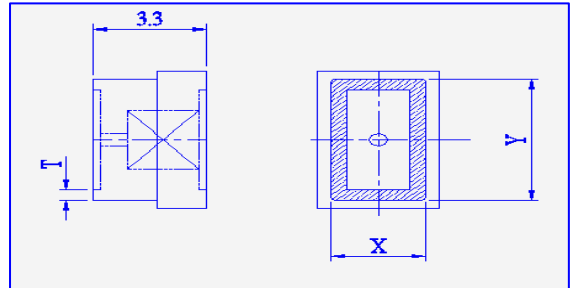
11 Series - Pick Up Tools RECTANGULAR RUBBER COLLETS

Type of Tool: 11-XXX -XXX

Material: 1) Body – Stainless Steel, 2) Tip – NBR Rubber

Application:

To pick and place the silicon chips in die-bonding process. The tip is made of NBR rubber material to replace carbide die collets, delrin plastic and other hard surface pick-up tool. It is available in Round and Square designs.



Delivery: Ex-Stock

Packing: 20 pcs per vile. **Minimum order:** 100 pcs.

Ordering Code 11-XXX-XXX	X		Y		Wall Thickness		Rubber Collets Shank
	mm	inch	mm	inch	mm	inch	
11-030-045	0.75	.030	1.15	.045	0.10	.004	Pls contact us
11-040-060	1.00	.040	1.50	.060	0.15	.006	
11-050-075	1.25	.050	1.85	.075	0.20	.008	
11-060-090	1.50	.060	2.25	.090	0.20	.008	
11-070-105	1.75	.070	2.60	.105	0.20	.008	
11-080-120	2.00	.080	3.00	.120	0.30	.012	
11-090-130	2.25	.090	3.25	.130	0.40	.016	
11-100-150	2.50	.100	3.75	.150	0.40	.016	
11-120-180	3.00	.120	4.50	.180	0.50	.020	
11-140-210	3.50	.140	5.25	.210	0.40	.016	
11-160-240	4.00	.160	6.00	.240	0.50	.020	
11-180-270	4.50	.180	6.75	.270	0.50	.020	
11-200-300	5.00	.200	7.50	.300	0.50	.020	
11-030-060	0.75	.030	1.50	.060	0.10	.004	
11-040-080	1.00	.040	2.00	.080	0.15	.006	
11-050-100	1.25	.050	2.50	.100	0.15	.006	
11-060-120	1.50	.060	3.00	.120	0.25	.010	
11-080-160	2.00	.080	4.00	.160	0.40	.016	
11-090-180	2.25	.090	4.50	.180	0.40	.016	
11-100-200	2.50	.100	5.00	.200	0.40	.016	
11-120-240	3.00	.120	6.00	.240	0.50	.020	
11-140-280	3.50	.140	7.00	.280	0.50	.020	
11-160-320	4.00	.160	8.00	.320	0.50	.020	
11-180-360	4.50	.180	9.00	.360	0.50	.020	
11-200-400	5.00	.200	10.00	.400	0.50	.020	

* Please contact us for other sizes not shown above

Ordering Example: If you would like to order a tool of **0.030 X 0.045** rectangular design, Please specify the ordering code as follows: **11-030-045**

11 Series – Pick Up Tools LEAD-FRAME SUCTION CUPS

Type of Tool: 11-XXX-XXX

Material: High Purity Material

Application:

To pick and place the lead frames in assembly process. The material is made of High Purity Material. There are wide range sizes to cater for most lead frames.

Delivery: Ex-Stock (Dia 2, 4 & 6; others TBA)

Packing: 20 pcs per vile. **Minimum order:** 100 pcs.

ESEC DIE BONDERS

Ordering Code 11-002-XXX	Dia A (mm)
11 – 002 – 010	TBA
11 – 002 – 020	2.0
11 – 002 – 030	TBA
11 – 002 – 040	4.0
11 – 002 – 050	TBA
11 – 002 – 060	6.0
11 – 002 – 070	TBA
11 – 002 – 080	8.0
11 – 002 – 090	TBA

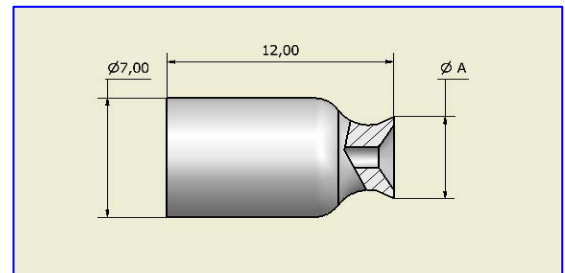


OTHER M/C

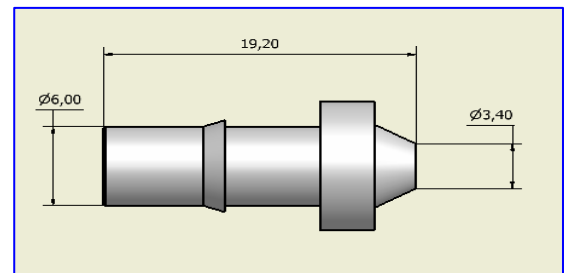
Ordering Code 11-XXX-XXX	M/C TYPE
11 – 136 – 000	TBA
11 – 137 – 000	TBA
11 – 138 – 000	ASYMTEK DJ - 9000
11 – 139 – 000	DISCO

* Please contact us for other types/sizes not shown above.

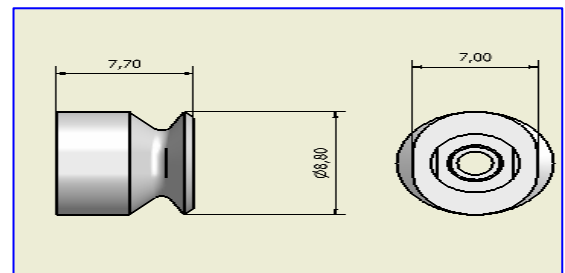
Ordering Example: If you would like to order a tool with diameter 2.0 mm, please specify the ordering code as follows: **11-002-020**.



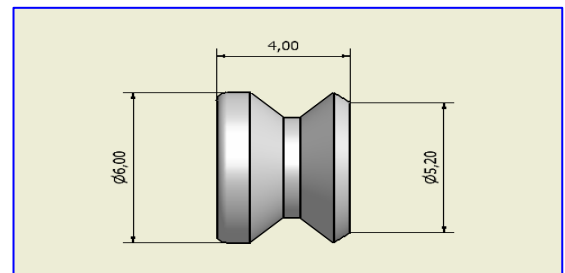
ESEC SUCTION CUP
11 – 002 – XXX



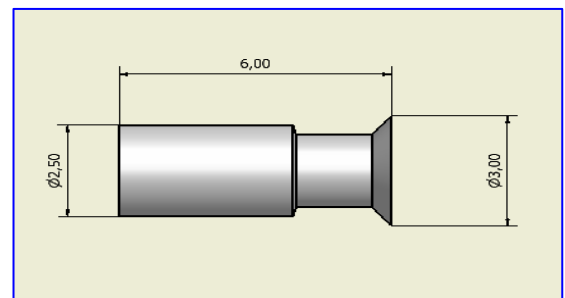
ASYMTEK SUCTION CUP
11 – 138 – 000 (ASYMTEK DJ - 9000)



DISCO SUCTION CUP
11 – 139 – 000 (LELT – 910080 – 0)



OTHER M/C SUCTION CUP
11 - 136 - 000



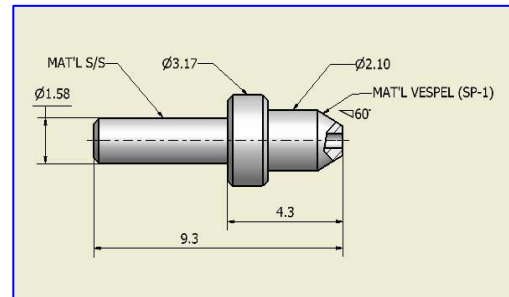
OTHER M/C SUCTION CUP
11 - 137 - 000

11 Series – Pick Up Tools PLASTIC COLLETS FOR ESEC MACHINES

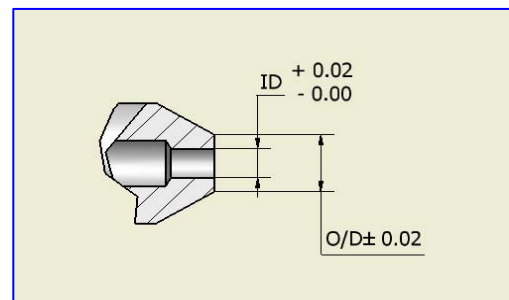
Type of Tool: 11-004-XXX
Material: 1) Body – Stainless Steel 2) Tip - Vespel (SP-1)
Surface Treatment: Nil

Application:
 For small dies, transistor, opto and LED application (epoxy & eutectic). It's also use to replace carbide collets. The vespel plastic can withstands temperature up to 480°C.

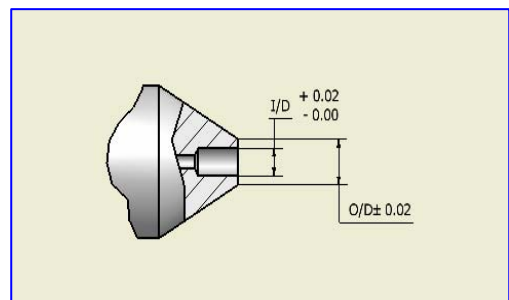
Delivery: Ex-Stock
Packing: 1 pc per vile. **Minimum order:** 10 pcs.



Ordering Code 11-004-XXX	Tip Design 'A' or 'B'	OD dia mm (inch)	ID dia mm (inch)
11-004-010	A	0.25 (.010)	0.10 (.004)
11-004-020	A	0.30 (.012)	0.15 (.006)
11-004-030	A	0.35 (.014)	0.20 (.008)
11-004-040	A	0.40 (.016)	0.25 (.010)
11-004-050	A	0.45 (.018)	0.30 (.012)
11-004-060	A	0.50 (.020)	0.35 (.014)
11-004-070	A	0.55 (.022)	0.40 (.016)
11-004-080	A	0.60 (.024)	0.45 (.018)
11-004-090	A	0.65 (.026)	0.50 (.020)
11-004-100	A	0.70 (.028)	0.55 (.022)
11-004-110	A	0.75 (.030)	0.60 (.024)
11-004-120	A	0.80 (.032)	0.65 (.026)
11-004-130	A	0.85 (.034)	0.70 (.028)
11-004-140	A	0.90 (.036)	0.75 (.030)
11-004-150	A	0.95 (.038)	0.80 (.032)
11-004-160	B	1.00 (.040)	0.85 (.034)
11-004-170	B	1.25 (.050)	1.00 (.040)
11-004-180	B	1.50 (.060)	1.25 (.050)
11-004-190	B	1.75 (.070)	1.50 (.060)
11-004-200	B	2.00 (.080)	1.75 (.070)



DESIGN A



DESIGN B

* Please contact us for other sizes not shown above

Ordering Example: If you would like to order a tool of **O.D 0.55 & I.D 0.40** mm, Please specify the ordering code as follows: **11-004-070**

11 Series – Pick Up Tools PLASTIC COLLETS FOR SHINKAWA MACHINES

Type of Tool: 11-005-XXX

Material: 1) Body – Stainless Steel 2) Tip - Vespel (SP-1)

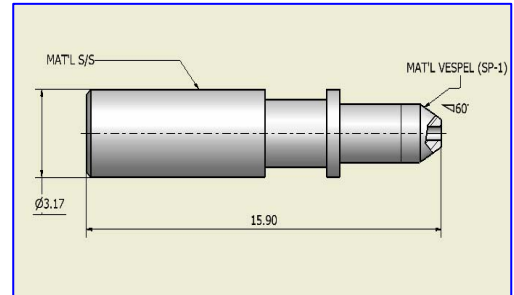
Surface Treatment: Nil

Application:

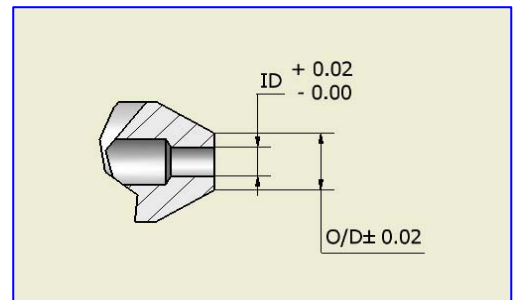
For small dies, transistor, opto and LED application (epoxy & eutectic). It's also use to replace carbide collets. The vespel plastic can withstands temperature up to 480°C.

Delivery: Ex-Stock

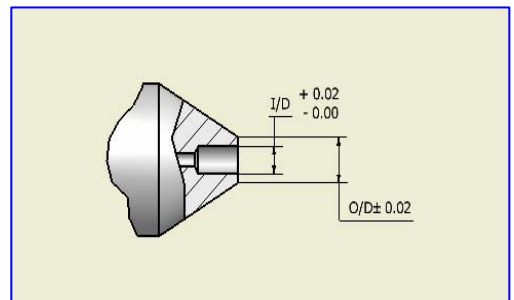
Packing: 1 pc per vile. **Minimum order:** 10 pcs.



Ordering Code 11-005-XXX	Tip Design 'A' or 'B'	OD dia mm (inch)	ID dia mm (inch)
11-005-010	A	0.25 (.010)	0.10 (.004)
11-005-020	A	0.30 (.012)	0.15 (.006)
11-005-030	A	0.35 (.014)	0.20 (.008)
11-005-040	A	0.40 (.016)	0.25 (.010)
11-005-050	A	0.45 (.018)	0.30 (.012)
11-005-060	A	0.50 (.020)	0.35 (.014)
11-005-070	A	0.55 (.022)	0.40 (.016)
11-005-080	A	0.60 (.024)	0.45 (.018)
11-005-090	A	0.65 (.026)	0.50 (.020)
11-005-100	A	0.70 (.028)	0.55 (.022)
11-005-110	A	0.75 (.030)	0.60 (.024)
11-005-120	A	0.80 (.032)	0.65 (.026)
11-005-130	A	0.85 (.034)	0.70 (.028)
11-005-140	A	0.90 (.036)	0.75 (.030)
11-005-150	A	0.95 (.038)	0.80 (.032)
11-005-160	B	1.00 (.040)	0.85 (.034)
11-005-170	B	1.25 (.050)	1.00 (.040)
11-005-180	B	1.50 (.060)	1.25 (.050)
11-005-190	B	1.75 (.070)	1.50 (.060)
11-005-200	B	2.00 (.080)	1.75 (.070)



DESIGN A



DESIGN B

* Please contact us for other sizes not shown above

Ordering Example: If you would like to order a tool of **OD 0.55 & I.D 0.40** mm. Please specify the ordering code as follows: **11-005-070**

12 Series – Dispensing Tools

OPTIMISING EPOXY COVERAGE FOR MATRIX® TUBE DISPENSING TOOLS

In the modern day competitive business environment, companies always trying to stay ahead of competition. One way is through the application of intelligent CAD (Computer Aided Design), which not only quickens the response to customers' request, but also helps to cut costs by applying simulation technology before the actual production process.

To capitalize on the advantage of intelligent CAD, Matrix Technologies developed a program written in 'C' programming language that would be capable of running in the AutoCAD environment for computer-aided design of die attachments and automatic generation of the NC codes. The following describes the project in more detail.

The application of epoxy to substrates in one small but critical step in the manufacturing of package IC (integrated chips) in the electronics industry. Bonding the ICs to the substrates affects the overall quality of finished products as well as the manufacturing process on the production line.

Epoxy is applied in its wet state to the required positions using a die attachment fixed to dispensing machines. The epoxy pattern is applied in the printed manner all at one through the die. This dispensing die attachment consists of a number of tubes with fine inner and outer diameter, arranged in a certain pattern for effective epoxy dispensing.

The design of the dispensing die attachment involves the selection of the tube dimension, the relative positions of the tube and tube patterns. To make it simple to use, a parametric program written in 'C' program language, running in the AutoCAD ADS environment, is developed to automate the design as much as possible. AT the same time shop floor fabrication drawings, sales illustrations and the NC-code for production are also generated.

The main featured of the program are as follows:

1. Programmable dialogue box data entry

The data needed for design are entered through the dialogue box. This makes the sequence of data entry less important and more users friendly. Based on the data given, the tube pattern is generated by the program. There are total of 3 basic patterns in this program and it checks the design using some establish rules, such as the minimum number of tubes required and the wall-to-wall distances of adjacent tubes.

2. Generation of drawings

Sales illustration and details fabrication drawings can be plotted on the required layout automatically. Before the printout is generated, the drawing can be previewed.

3. Extraction of data and NC code generation

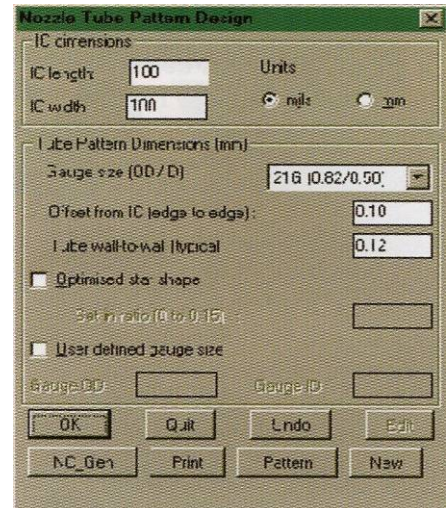
Information on the tube center coordinates can be extracted from the drawing. This information is needed on the shop floor.

4. Simulation for the epoxy dispensed

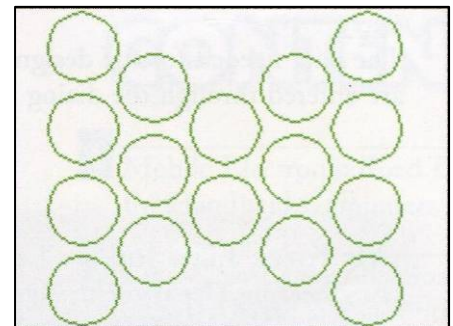
A simulation of the amount and shape of the epoxy dispensed is provided in the program. It gives a 'close to actual' shape in the three-dimensional space of the dispensed epoxy using the designed die attachment under normal dispensing condition. In the simulation, areas on the boards that do not have sufficient epoxy for bonding are shown as flat surface for easy identification.

The program provides Matrix® the following benefits:

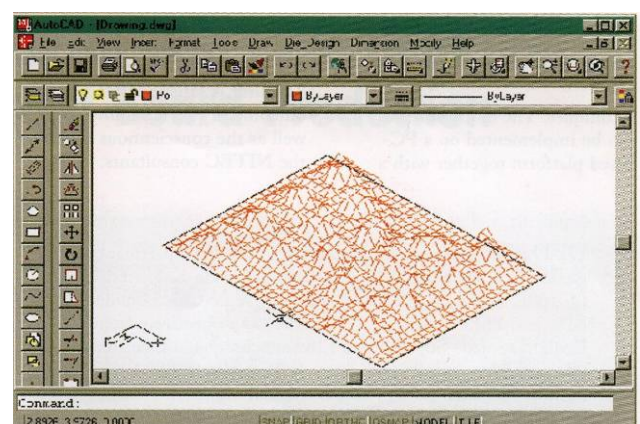
1. The repetitive and tedious task of drawing the tube pattern during the design process has been simplified or reduced significantly.
2. The company can respond rapidly to client's request, as the design can be obtain almost instantaneously.
3. The expected dispensed epoxy shape is made even before the production of attachment.



Main dialogue box for data entry



Simple Die Attachment design



Simulation result for epoxy dispensing

12 Series – Dispensing Tools ESEC PEN DISPENSING ASSEMBLY AND PUMP ACCESSORIES

Type of Tool: XX – XXX - XXX

Material: -

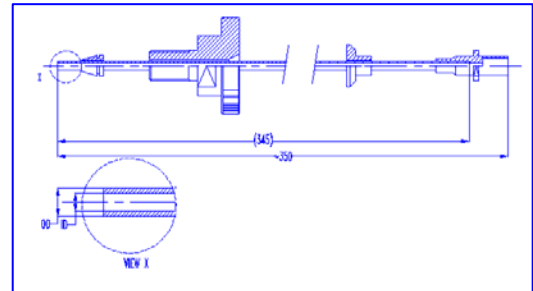
Surface Treatment: Nil

Application:

Pens dispensing assembly is used on the ESEC 2007 programmable die-attach machine.

Delivery: 5-10 workdays.

Packing: 1 set per bag / vile.



Ordering Code	OD mm	ID mm	Hose Color
PEN DISPENSING ASSEMBLY (180-0008-XX)			
18 – 008 – 010	1.58	0.7	Green
18 – 008 – 040	2.00	1.0	Blue
EPOXY WRITING PENS (150-0450-XX)			
12 – 005 – 010	0.40	0.20	
12 – 005 – 020	0.50	0.30	
12 – 005 – 030	0.60	0.40	
12 – 005 – 040	0.70	0.50	
12 – 005 – 050	0.80	0.60	



OTHERS ACCESSORIES

Ordering Code	Reference	Description
12 – 006 – 010	-	Valve Disc Rotary
12 – 006 – 020	889.1127	Piston Seal



• Please contact us for other sizes not shown above

13 Series – Ejector Pins and Holders

EJECTOR PINS

Type of Tool: 13 – 001 - XXX

Material: Tungsten Carbide – 0.7diameter

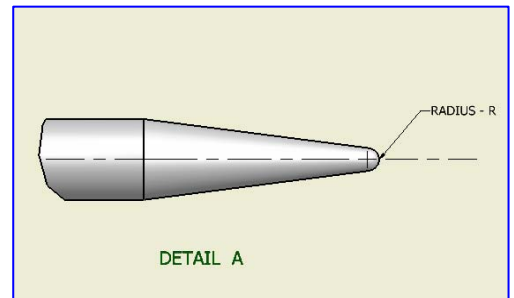
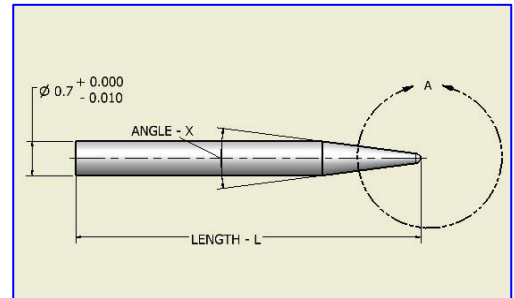
Surface Treatment: Nil

Application:

For die ejection during die attach process. Our material is specially selected to prevent frequent needle tip breakage, and causing crack on die.

Delivery: 5 – 10 workdays.

Packing: 20 pcs per vile. **Minimum order:** 100 pcs.



Ordering Code 13-001-XXX	Length - L mm	Angle -X deg	Radius – R mm
13-001-001	12.0	10	.025
13-001-002	12.0	15	.050
13-001-003	12.0	15	.100
13-001-004	14.3	10	.025
13-001-005	17.0	15	.050
13-001-006	18.0	15	.050
13-001-007	18.0	15	.100
13-001-008	19.0	10	.025
13-001-009	19.0	15	.050
13-001-010	19.0	15	.100
13-001-011	20.0	10	.025
13-001-012	20.0	15	.050
13-001-013	20.0	15	.100
13-001-014	18.0	15	.018
13-001-015	18.0	10	.033
13-001-016	8.0	10	.030
13-001-017	8.0	10	.100
13-001-018	8.0	12	.200
13-001-019	14.3	10	.075
13-001-020	18.0	15	.025
13-001-021	12.5	10	.025
13-001-022	18.0	10	.025
13-001-023	7.62	15	.015
13-001-024	7.62	15	.015
13-001-025	17.0	15	.030
13-001-026	17.0	15	.300
13-001-027	17.0	15	.110
13-001-028	8.0	15	.200
13-001-029	8.0	15	.250
13-001-030	8.0	15	.300

- Please contact us for other sizes not shown above.

13 Series – Ejector Pins and Holders

EJECTOR PINS

Type of Tool: 13 – 001 - XXX

Material: Tungsten Carbide – 0.7diameter

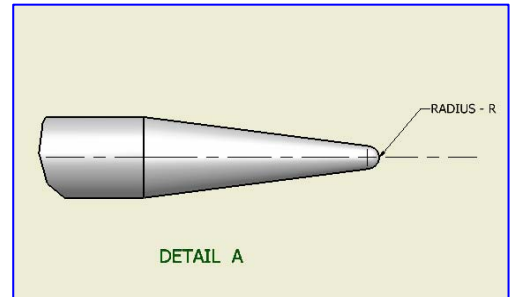
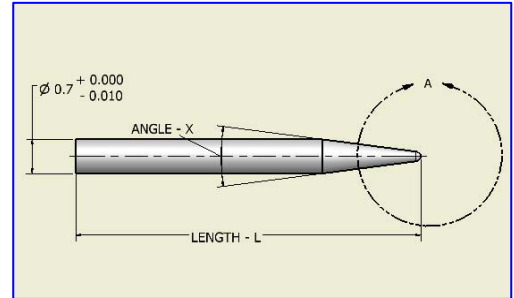
Surface Treatment: Nil

Application:

For die ejection during die attach process. Our material is specially selected to prevent frequent needle tip breakage, and causing crack on die.

Delivery: 5 – 10 workdays.

Packing: 20 pcs per vile. **Minimum order:** 100 pcs.



Ordering Code 13-001-XXX	Length - L mm	Angle -X deg	Radius – R mm
13-001-031	8.0	15	.150
13-001-032	14.15	15	.025
13-001-033	18.0	10	.018
13-001-034	8.0	15	.010
13-001-035	17.0	15	.100
13-001-036	8.0	15	.022
13-001-037	8.0	10	.200
13-001-038	8.0	10	.300
13-001-039	17.0	10	.100
13-001-040	17.0	10	.300
13-001-041	23.0	15	.250
13-001-042	23.0	15	.150
13-001-043	18.0	15	.125
13-001-044	8.0	10	.018
13-001-045	8.0	10	.033
13-001-046	8.0	10	.070
13-001-047	0.50"	15	.003"
13-001-048	12.0	10	.025
13-001-049	8.0	10	.035
13-001-050	8.0	5	.018
13-001-051	8.0	5	.033
13-001-052	8.0	10	.033
13-001-053	17.0	15	.022
13-001-054	9.50	20	.050
13-001-055	10.0	10	.025
13-001-056	25.0	10	.255
13-001-057	15.0	10	.100
13-001-058	18.0	15	.070
13-001-059	25.0	50	2.000
13-001-060	0.748"	15	.005"

◆ Please contact us for other sizes not shown above.

13 Series – Ejector Pins and Holders

EJECTOR PINS

Type of Tool: 13 – 001 – XXX

Material: Tungsten Carbide – 0.7diameter

Surface Treatment: Nil

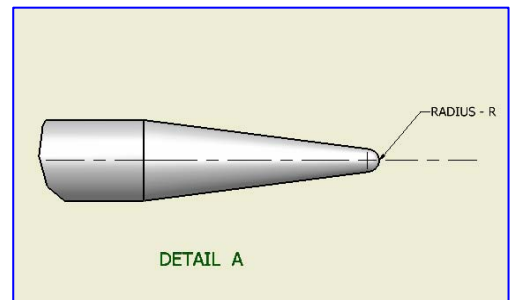
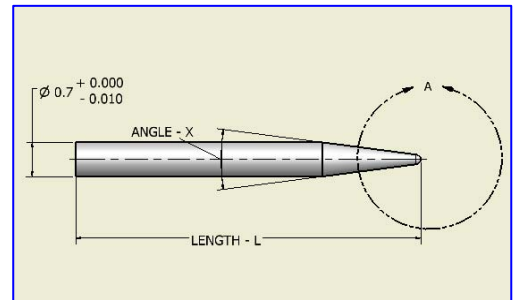
Application:

For die ejection during die attach process. Our material is specially selected to prevent frequent needle tip breakage, and causing crack on die.

Delivery: 5 – 10 workdays.

Packing: 20 pcs per vile. **Minimum order:** 100 pcs.

Ordering Code 13-001-XXX	Length - L mm	Angle -X deg	Radius – R mm
13-001-061	50.0	15	.100
13-001-062	19.0	FLAT	.700
13-001-063	19.0	NA	NA
13-001-064	13.0	14	.050
13-001-065	18.0	10	.100
13-001-066	15.0	20	.030
13-001-067	12.0	18	.040
13-001-068	17.0	15	.025
13-001-069	8.0	15	.050
13-001-070	17.5	15	.100
13-001-071	17.5	15	.300
13-001-072	8.0	15	.350
13-001-073	8.0	15	.500
13-001-074	17.0	15	.070
13-001-075	17.0	10	.200
13-001-076	17.0	15	.350
13-001-077	20.0	15	.050
13-001-078	10.0	15	.050
13-001-079	8.0	10	.018
13-001-080	15.0	10	.022
13-001-081	12.0	10	.025
13-001-082	13.9	10	.050
13-001-083	13.9	10	.125
13-001-084	9.0	10	.125
13-001-085	17.0	10	.022
13-001-086	15.0	10	.070
13-001-087	15.0	10	.150
13-001-088	17.0	10	.025
13-001-089	7.5	10	.100
13-001-090	6.5	10	.100



- Please contact us for other sizes not shown above.

13 Series – Ejector Pins and Holders

EJECTOR PINS

Type of Tool: 13 – 001 – XXX

Material: Tungsten Carbide – 0.7diameter

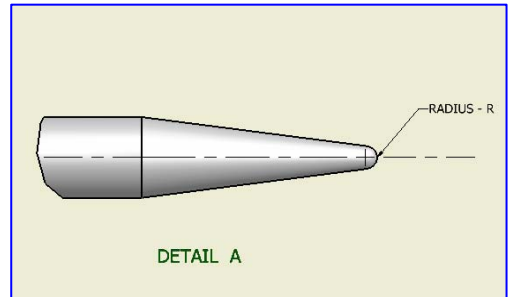
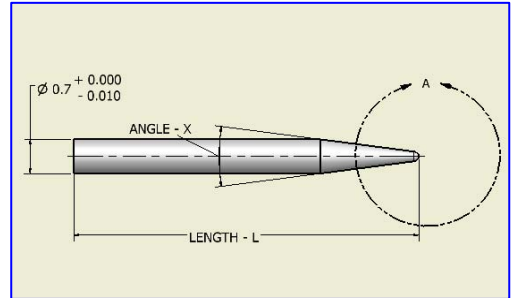
Surface Treatment: Nil

Application:

For die ejection during die attach process. Our material is specially selected to prevent frequent needle tip breakage, and causing crack on die.

Delivery: 5 – 10 workdays.

Packing: 20 pcs per vile. **Minimum order:** 100 pcs.

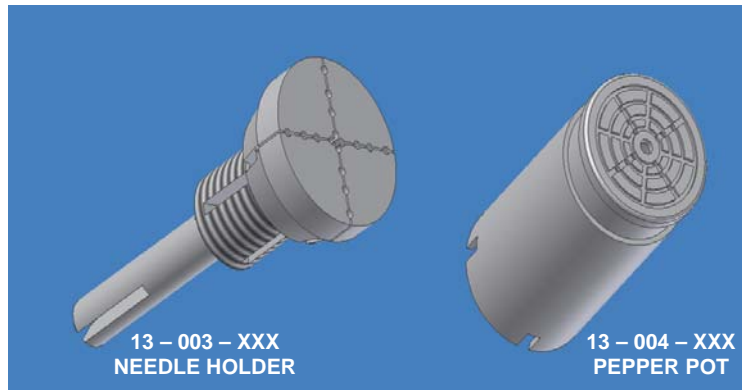


Ordering Code EP-XX	Length - L mm	Angle -X deg	Radius – R mm
13-001-091	8.0	10	.030
13-001-092	10.0	10	.125
13-001-093	18.0	10	.050
13-001-094	18.0	10	.075
13-001-095	18.0	11.5	.125
13-001-096	10.0	15	.075
13-001-097	12.0	10	.040
13-001-098	19.0	15	.076
13-001-099	11.5	20	.076
13-001-100	19.05	20	.100
13-001-101	12.0	15	.127
13-001-102	19.05	20	.076
13-001-103	19.0	15	.050
13-001-104	11.5	10	.050
13-001-105	10.0	15	.100
13-001-106	13.0	11.5	.050
13-001-107	13.0	11.5	.125
13-001-108	13.0	11.5	.075
13-001-109	9.0	10	.076
13-001-110	10.0	15	.025
13-001-111	18.0	15	.130
13-001-112	12.0	15	.080

* Please contact us for other sizes not shown above.

13 Series – Ejector Pins and Holders

NEEDLE HOLDER AND PEPPER POT (FOR ESEC 2006 DIE BONDER)



Type of Tool: 13 – 003 – XXX and 13- 004 - XXX

Material: S/S 440C

Surface Treatment: Pepper Port – HRC 58 & Black Chrome
Needle Holder – HRC 58

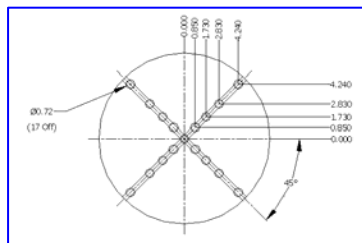
Application:

These ESEC needle holders and pepper pots are primary used for ejecting of IC dies on die bonding process.

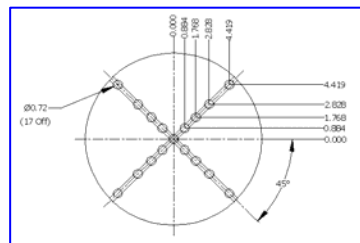
Delivery: 3 – 4 weeks.

Packing: per set. **Minimum order:** 1 set.

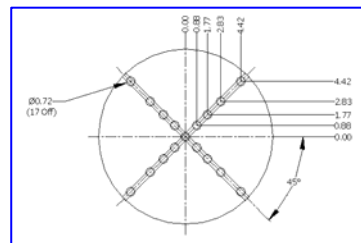
Range of pattern available



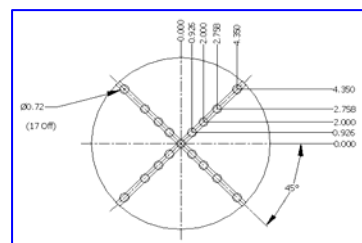
13 – 003 – 130 / 13 -004 - 130



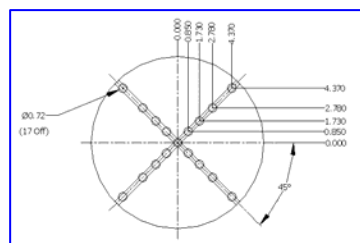
13 – 003 – 040 / 13 -004 - 040



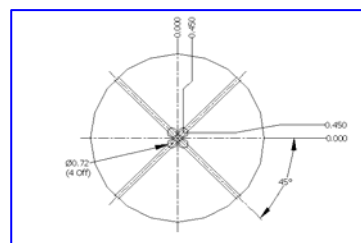
13 – 003 – 160 / 13 -004 - 160



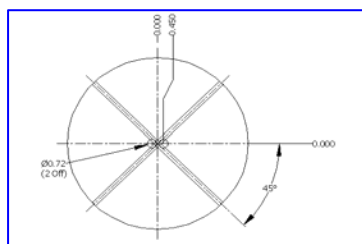
13 – 003 – 170 / 13 -004 - 170



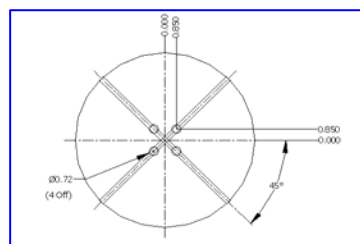
13 – 003 – 180 / 13 -004 - 180



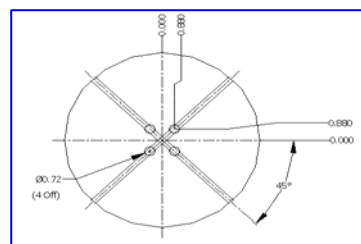
13 – 003 – 030 / 13 -004 - 030



13 – 003 – 020 / 13 -004 - 020

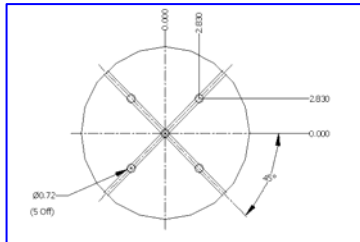


13 – 003 – 140 / 13 -004 - 140

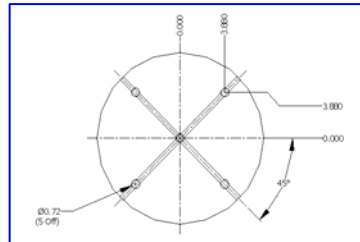


13 – 003 – 080 / 13 -004 - 080

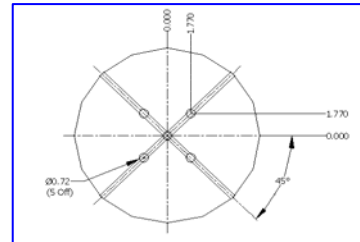
13 Series – Ejector Pins and Holders NEEDLE HOLDER AND PEPPER POT



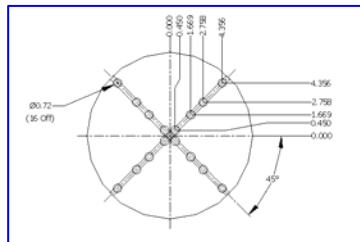
13 – 003 – 070 / 13 -004 - 070



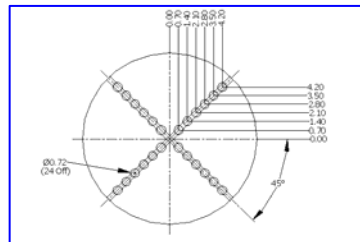
13 – 003 – 090 / 13 -004 - 090



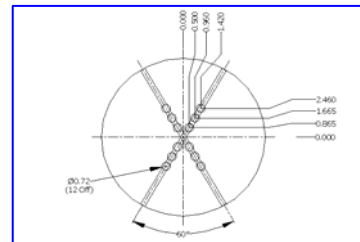
13 – 003 – 100 / 13 -004 - 100



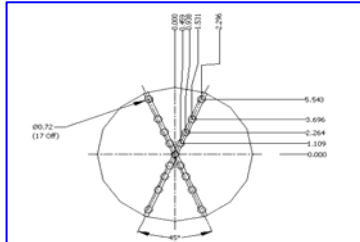
13 – 003 – 120 / 13 -004 - 120



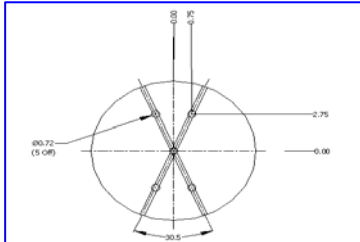
13 – 003 – 210 / 13 -004 - 210



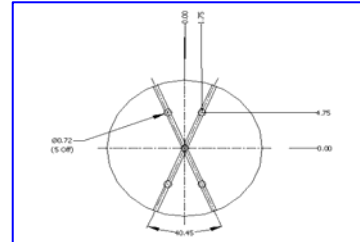
13 – 003 – 110 / 13 -004 - 110



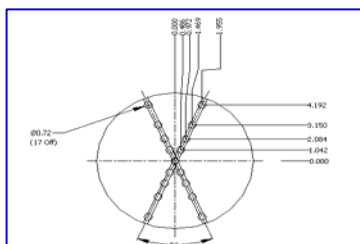
13 – 003 – 150 / 13 -004 - 150



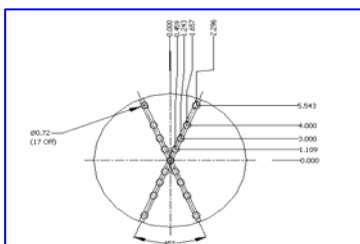
13 – 003 – 050 / 13 -004 - 050



13 – 003 – 060 / 13 -004 - 060



13 – 003 – 190 / 13 -004 - 190



13 – 003 – 200 / 13 -004 - 200

◆ Please contact us for other m/c and other sizes not shown above.

13 Series – Ejector Pins and Holders

NEEDLE HOLDER AND PEPPER POT FOR CANON BESTEM DO2 DIE BONDER

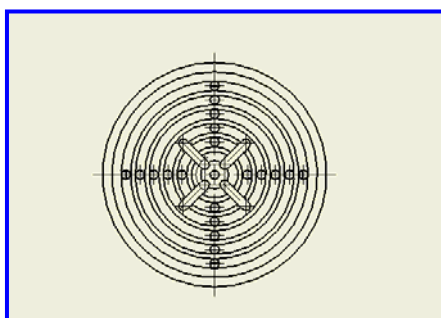


Type of Tool: 13 – 005 – XXX and 13- 006 - XXX
Material: S/S 440C for Needle Holder and ALU6061 for Pepper Pot
Surface Treatment: Pepper Port – Black anodized
 Needle Holder – HRC 58

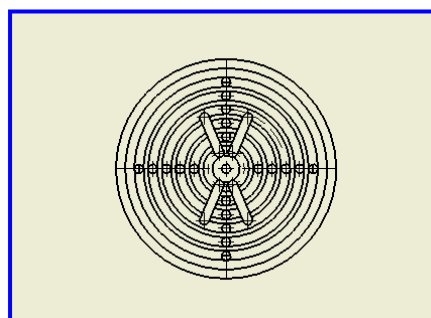
Application:
 These Canon needle holders and pepper pots are primary used for ejecting of IC dies on die bonding process.

Delivery: 3 – 4 weeks.
Packing: per plastic vile. **Minimum order:** 1 set.

Range of patterns available:



13 – 005 – 010 / 13 -006 – 010
Square Model



13 – 005 – 020 / 13 -006 – 020
Rectangle Model

Ordering Code	Description
13 – 005 – 010	Needle holder (Pin Holder) Square Type
13 – 006 – 010	Pepper Pot (Vacuum Stage) Square Type
13 – 005 – 020	Needle holder (Pin Holder) Rectangle Type
13 – 006 – 020	Pepper Pot (Vacuum Stage) Rectangle Type
18 – 226 – 000	Needle Holder Assembly (Attachment Body) - Needle holder and Pepper Pot excluded -

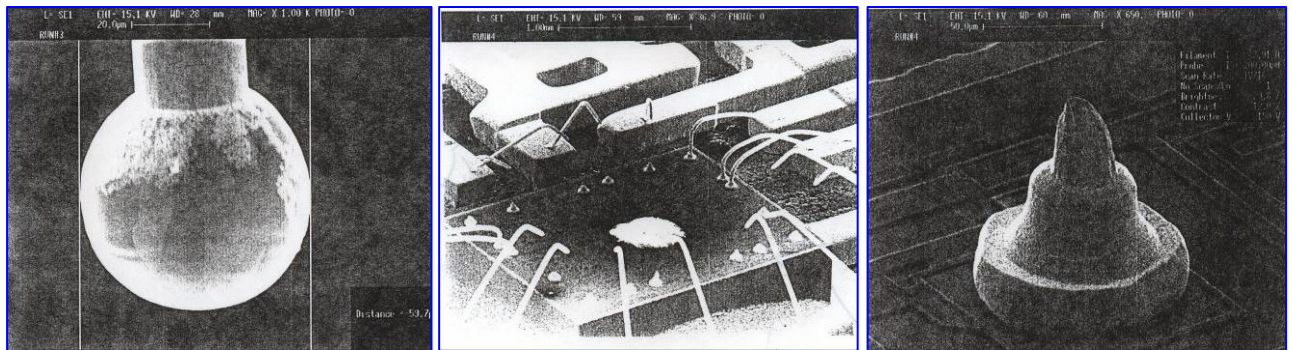
14 Series – Wire-Bond Clamps ELECTRODE TORCH (EFO)

New development of EFO by MATRIX®Technologies improves performance of Wire-Bonding process. With new alloy material, MATRIX®'s EFO give consistent sparking effect. These EFO also can cater for fine-pitch and ultra fine-pitch bonding application. Good EFO will gives:

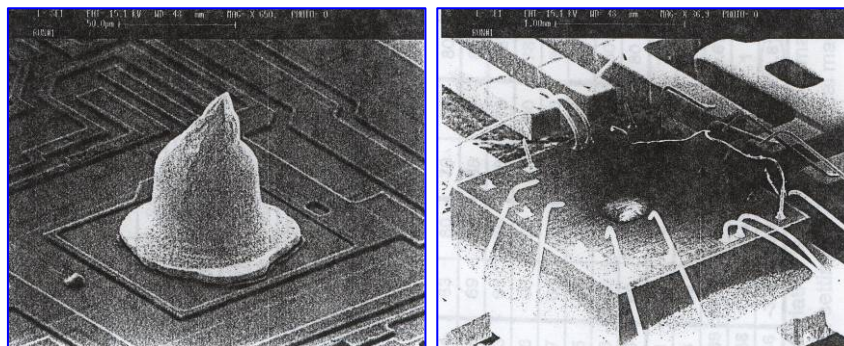
- Ball shape uniformity
- Consistent ball size control
- Consistent free air ball formation

Other factors need to be considered is longer life span. Longer life span means reduce your operational cost by reducing number of changing EFO. With MATRIX®'s EFO, you will get better wire-bonding result and longer life span

2 group of pictures below show us how good ball shape can be performed by MATRIX®'s EFO compare to other picture, which ball shape not consistent.



Good Ball Shape



Inconsistent Ball Shape

14 Series - Wire-Bond Clamps ELECTRODE TORCH (EFO)

Type of Tool: 14-010-XXX

Material: Crimped or Brazed Platinum Tip.

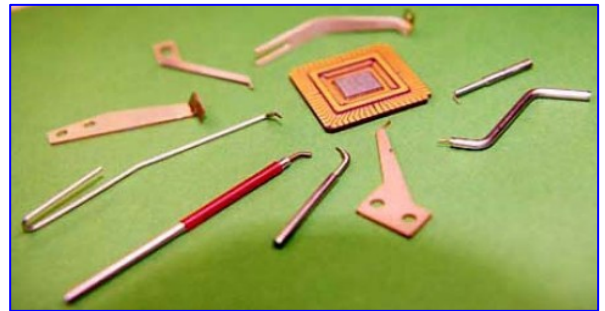
Surface Treatment: - NIL

Application:

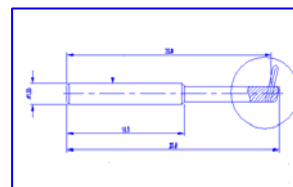
Sparking gold wire to form a gold ball at the top of the wire.

Delivery: 5 - 10 work days.

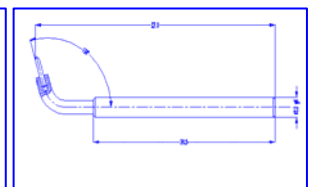
Packing: 1 pc per vile. **Minimum order:** 10 pcs.



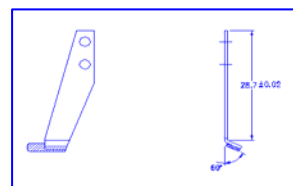
Ordering Code	M/C Model
14 - 010 - 010	ASM AB309
14 - 010 - 020	ASM AB339 / Eagle 60
14 - 010 - 030	ESEC 3006F/ FX / 3088
14 - 010 - 040	KNS 1488, 8020 , 8028
14 - 010 - 050	KNS 8020 - RING TYPE
14 - 010 - 060	KNS - Standard EFO
14 - 010 - 070	KNS - Fine Pitch
14 - 010 - 080	KNS - Moving Fine Pitch (Platinum)
14 - 010 - 090	KNS Maxum - Stationary Standard.
14 - 010 - 100	KNS 8028PPS - Stationery Fine Pitch.
14 - 010 - 110	KNS Maxum - Ultra / Elite
14 - 010 - 120	KAIJO FB 118
14 - 010 - 130	KAIJO FB 128 / 131
14 - 010 --140	KAIJO FB 738
14 -- 010 --150	DEVOLTEC 6400
14 -- 010 --160	SHINKAWA
14 -- 010 --170	SHINKAWA UTC 200 / 300
14 -- 010 --180	TOSHIBA 902 BONDER
14 - 010 -- 190	TOSHIBA 921 BONDER



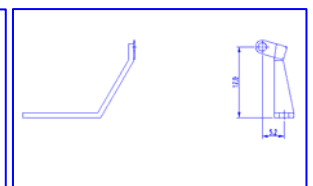
EFO ASM AB309



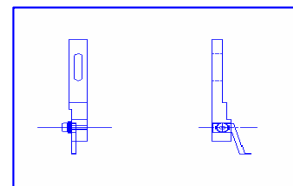
EFO ASM AB339



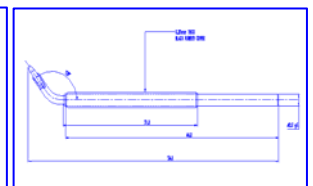
EFO ESEC 3006F



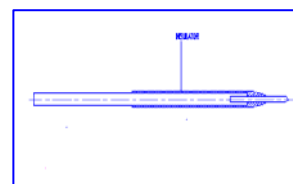
EFO K&S 8020 RING TYPE



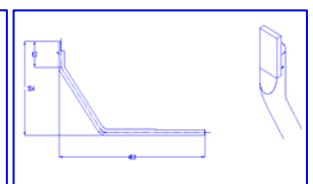
EFO DELVOTEC



EFO SHINKAWA



EFO SHINKAWA UTC 200



EFO TOSHIBA 921

- Please contact us for other machine models not shown above

14 Series - Wire-Bond Clamps K&S EFO AND ACCESSORIES

Type of Tool: 10-XXX-XXX & 14-XXX-XXX
Material: Crimped or Brazed Platinum Tip
Surface Treatment: - NIL

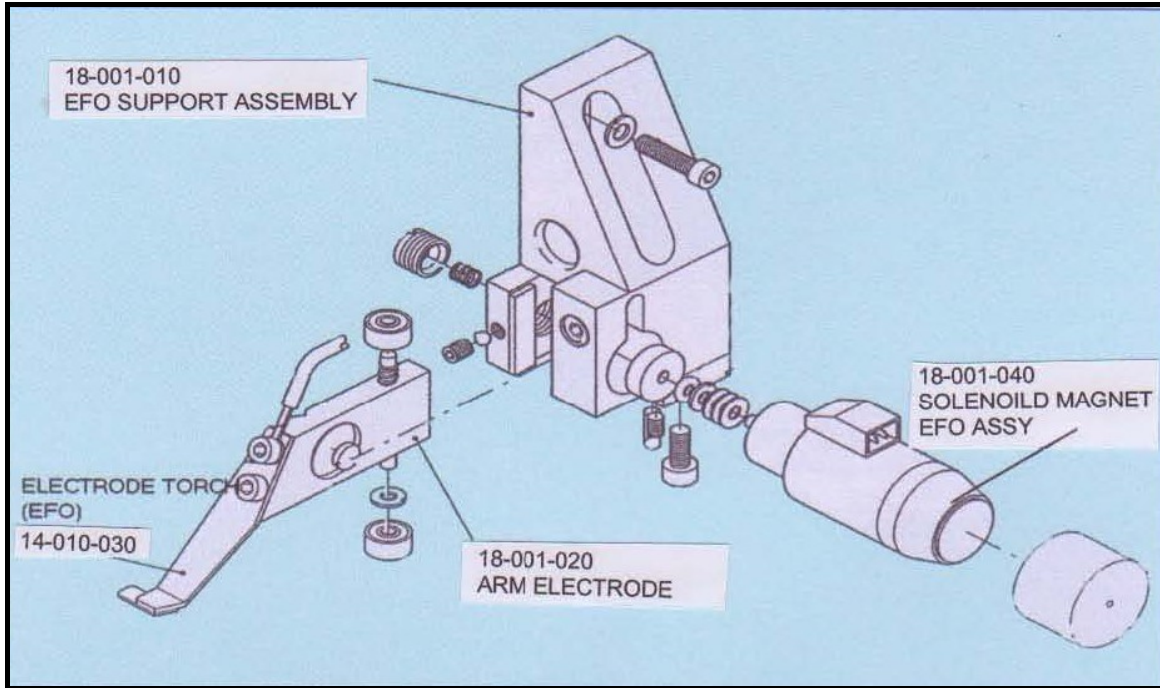
Application:
 For wire bonding process.

Delivery: 5 - 10 workdays
Packing: 1 pc per vile. **Minimum order:** 10 pcs

Ordering Code	Reference	Description	M/C Model	Picture
10 - 007 - 080	08020-0083-002-01	Transducer screw & washer	KNS MaxumPlus, Maxum, 8028PPS	
14 - 010 - 060 14 - 010 - 070 14 - 010 - 080 14 - 010 - 090 14 - 010 - 100	1. 08020-0515-000-00 2. 08088-0516-000-00 3. 08088-0517-000-00 4. 08088-0518-000-00 5. 08088-0519-000-01	Standard EFO Fine Pitch Moving Fine Pitch (platinum) Stationary Standard Stationary Fine Pitch	KNS MaxumPlus, Maxum, 8028PPS	
10 - 007 - 000 10 - 008 - 010 10 - 008 - 020 10 - 008 - 030	01488-0157-000-04	Large Head transducer screw assembly Brass Threaded Key Matrix Plain Key Metric	KNS8020, 8028, S	
14 - 010 - 200	08021-0069-000-01	Electrode Assembly	KNS8020, 8028, S	

* Please contact us for other machine models not shown above

14 Series - Wire-Bond Clamps
ESEC 3006 EFO ASSEMBLY



Ordering Code	Description	Reference
18 - 001 - 010	ESEC 3006 EFO ASSEMBLY	902.439
14 - 010 - 030	ELECTRODE TORCH (EFO)	902.494
18 - 001 - 020	ARM ELECTRODE	902.443
18 - 001 - 030	EFO SUPPORT	902.440
18 - 001 - 040	SOLENOID MAGNET EFO	130-0164

◆ Please contact us for other machine models not shown above

14 Series - Wire-Bond Clamps
REFURBISH WIRE CLAMPS



APPLICATION

They are found in Gold Wire Bonding machines (eg. Shinkawa Machines). These high-speed machines bond gold wires from the terminal of the microchip to the lead frame. These clamps assist in pulling the gold wire as part of the feeding operation. Due to the high-speed operation, these clamps are subjected to wear and tear. Currently most customers are replacing these worn clamps with new clamps. These clamps are expensive due to the material used in the manufacturing in which is titanium.

These clamps can be re-conditioned (re-polished) to be as good as new. The important areas are flatness and in particular surface finish. Breakage of the thin gold wires occurs when the surface finishing is poor and down time of the machine is costly for the changing clamps.

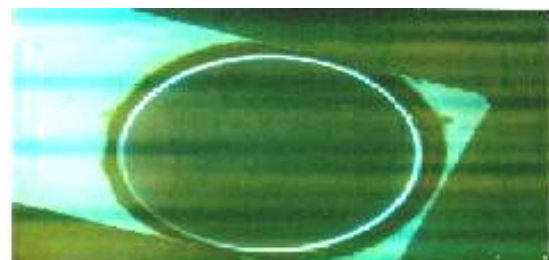
RESULT



BEFORE
Worn surface finish

BEFORE

Photograph illustrates a worn clamp prior to the refurbishing



AFTER
Highly reflective finish

AFTER

Surface finish after a 2 stage lapping and polishing process shows a scratch free finish. This highly reflective finish is most suited for wear resistant

14 Series - Wire-Bond Clamps

REFURBISH WIRE-BOND CLAMPS

APPLICATION

After excessive usage, copper or silver-plating of the lead frame will embed to the clamps. Some of L/F made of poor quality are having peeling of copper and silver-plating flakes. If plating flakes have been embedded to the clamps, it's too late to salvage it. Usually they are scrapped. The machines will be stopped often once the heater plates are having too much plating debris on the surface. Results in poor productivity and many hours lost in production times. These clamps can be re-conditioned by sandblast and TAC Coat; it will be extend life span of the clamps without ordering new ones.

Ordering Code	Description
14-013-010	Sandblast
14-013-020	Sandblast and Black Chrome
14-013-030	Sandblast and TAC Coat

ta-C vs DLC Coatings

ta-C与DLC薄膜比较

Name of Company 公司名称	Company using Conventional Technologies 用常规科技的公司	TAC Coating 纳峰科技	
Sample Photograph 样品照片			
Coatings 薄膜	DLC(Diamond Like Carbon) Coating DLC 类金刚石薄膜	ta-C(Tetrahedral Amorphous Carbon) Coating ta-C 非晶四面体碳薄膜	
Process Description 方法描述	CVD/PVD (Conventional Technologies) 常规技术	FCVA (Filtered Cathodic Vacuum Arc) FCVA (过滤阴极真空电弧法)	
Substrate 基材	Carbide Tools 硬质合金工具		
Thickness of the Coating / μm 薄膜厚度/微米	~ 1.5	~ 0.6	
Max. Process Temperature / $^{\circ}\text{C}$ 最高加工工艺温度/ $^{\circ}\text{C}$	up to 200	~ 80	
Deposition Rate (nm/s) 沉积速率(nm/s)	up to 0.5	up to 1.5	
Physical Properties 物理性质	Hardness 硬度	~15 Gpa	~ 64 Gpa
	E-Modulus 杨氏模量	~ 120 Gpa	~ 509 Gpa
	Frictional Coeff. 摩擦系数	~ 0.14	0.08
	Critical Load 临界负载	~ 190 mN	up to 1250 mN
Applicable Substrates 适用衬底(材料)	Metal, ceramic, glass etc. 金属, 陶瓷, 玻璃等	Metal, ceramic, glass, plastic etc. 金属, 陶瓷, 玻璃, 塑料等	

ta-C (non-hydrogenated DLC) film deposited by Filtered Cathodic Vacuum Arc (FCVA) technology was found to have superior quality over tradition DLC film. ta-C film is found to be harder, smoother, more elastic and have better adhesion to the substrate material.

用过滤阴极真空电弧 (FCVA) 技术沉积的ta-C (不含氢的类金刚石) 薄膜被证实比传统的类金刚石薄膜具有更高的品质, ta-C 薄膜具有高硬度、更光滑的表面以及更好的均匀性和重复性, 并可以更好地黏附在基材上。



14 Series – Wire-Bond Clamps HEAT RESISTANCE TAPE

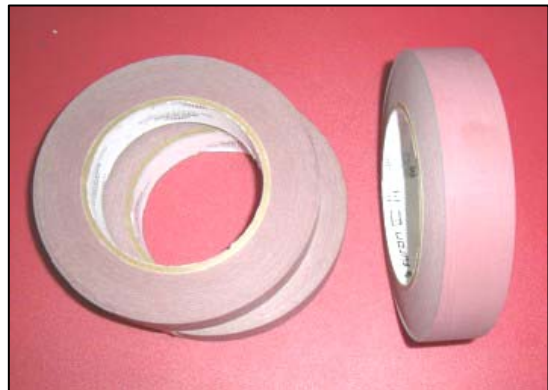
TEMP-R-TAPE RULON

PRODUCT DESCRIPTION

Temp-R-Tape RU is manufactured from 8.0 mils skived film of compounded Teflon® PTFE Rulon material, with 2.0 mils of pressure sensitive silicone adhesive. RU offers a low coefficient of friction and the high temperature stability of Teflon. RU also offers outstanding abrasion resistance, which equates to a 500 folds increase in wear resistance over PTFE in rotating bearing tests.

APPLICATION ADVANTAGES

- Film surface is self-lubricating
- Rulon backing offers excellent high temperature resistance
- Rulon backing is chemically inert
- Tape construction is weather resistant
- Tape construction is stable and non-toxic
- Tape is supplied with a peel off release liner
- Backing is conformable



PHYSICAL PROPERTIES *

Total thickness	(inch)	.010"
Backing thickness	(inch)	.008"
Adhesive type		Silicone
Adhesion	(oz/inch width)	25
Break strength	(lbs/inch width)	15
Elongation	(%)	225
Temperature range	(°C)	-73 +260

*All properties are typical values and should not be used for writing specifications.

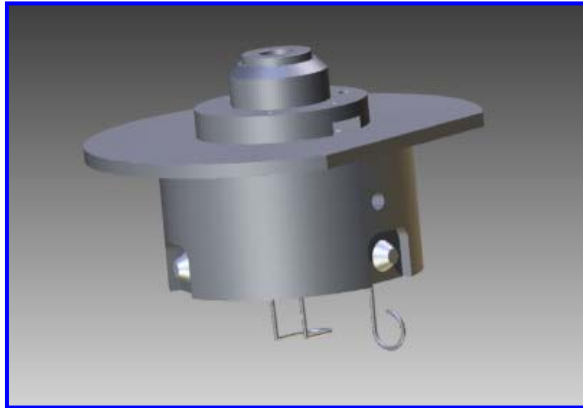
Ordering Code	Description
14 – 014 – 010	Heat Resistance Tape (1" x 18 yards)
14 – 014 – 020	Heat Resistance Tape (2" x 18 yards)

AVAILABILITY

Factory stock is in master log form 16.5mts long x 431mm wide.
Rolls can be slit 12mm wide – 431mm wide.

14 Series – Wire-Bond Clamps

CONDUCTIVE SPOOL ASSEMBLY FOR KNS WIREBONDERS



Matrix's Conductive Spool Assembly

Type of Tool: 18 – 225 – 000
Material: Black Delrin and S/S Spring
Surface Treatment: Nil

Application:

Matrix's conductive spool assemblies are designed to reduce the possibility of debris contamination and heavy scratches found on the wire spool containers during mounting of new gold wire spools. And most suppliers will not trade in those empty spool containers that found to have heavy scratches on the wire spool container's surface.

Delivery: Ex-Stock.

Packing: 1 set per box

Ordering Code	Description
18 – 225 – 000	Conductive Spool Assembly for KnS Wirebonder

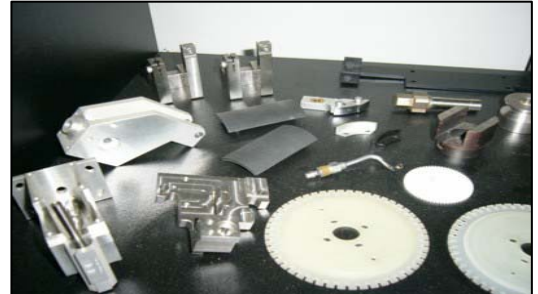
Note: Trade in available for existing OEM's Conductive Spool Assembly. Please contact Matrix's sales representative for more information.

15 Series – Custom Made Tools
VARIOUS MACHINE PARTS/ACCESSORIES

Type of Tool: 15 – XXX – XXX

We use state of art cad-cam and programming machines centers to meet your production demands of parts quickly and precise in small and huge variety.

To order new tooling, please send us your drawing or sample. We will assign a part number and quote you officially.



SAMPLES OF VARIOUS PRODUCTS:



Heater Blocks



Inspection Jig



Adjustable Arms Support



Plastic Gear



Heat Insulators



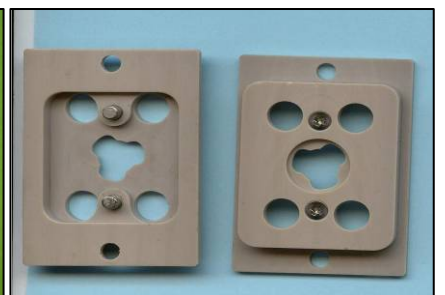
Hub Flange Nut



Gripper Insert



Lead Frame Gripper



Stud Top Clamp

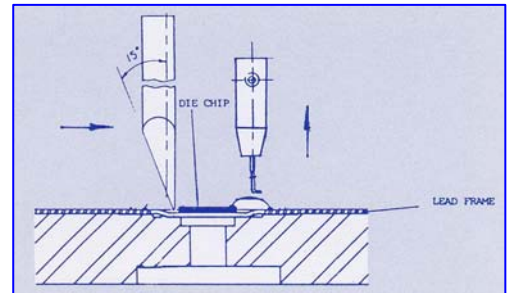
* Please contact us for other custom made tooling models not shown above

16 Series – IC Testing & Handling Tools SHEAR TEST PINS – DAGE / ROYCE

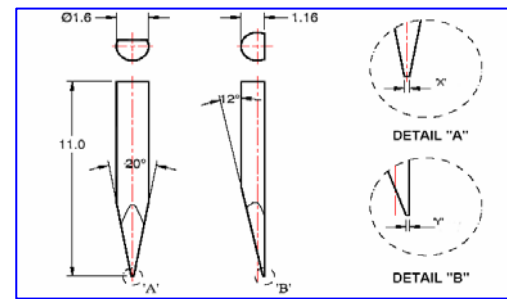
Type of Tool: 16 – 004 - XXX
Material: Carbide
Surface Treatment: Nil

Application:
 These tools are primary used to aid the IC's testing equipments.

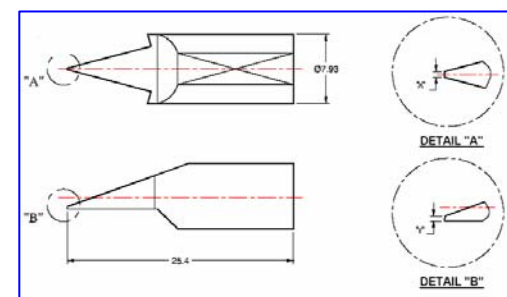
Delivery: 5 – 10 days
Packing: 1 pc per vile, **Minimum order:** 10 pcs



Ordering Code	Width 'X'		Width 'Y'	
	mm	inch	mm	inch
BALL SHEAR PINS - DAGE				
16-004-010	TBA	TBA	TBA	TBA
16-004-020	0.050	.002	0.05	.002
16-004-030	0.076	.003	0.05	.002
16-004-040	0.100	.004	0.05	.002
16-004-050	0.127	.005	0.05	.002
16-004-060	0.150	.006	0.05	.002
16-004-070	0.200	.008	0.10	.004
16-004-080	0.250	.010	0.10	.004
BALL SHEAR PINS - ROYCE				
16-015-010	0.050	.002	0.10	.004
16-015-020	0.050	.002	0.25	.010
16-015-030	0.076	.003	0.25	.010
16-015-040	0.100	.004	0.25	.010
16-015-050	0.127	.005	0.25	.010
16-015-060	0.150	.006	0.25	.010



BALL SHEAR PINS - DAGE



BALL SHEAR PINS - ROYCE

* Please contact us for other sizes and machine models not shown above.

16 Series – IC Testing & Handling Tools SHEAR TEST PINS – DAGE / ROYCE

Type of Tool: 160 – OTX – STP - XX

Material: Carbide

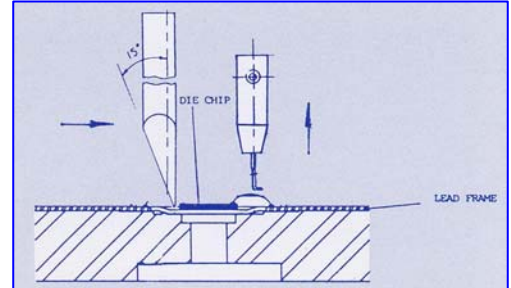
Surface Treatment: Nil

Application:

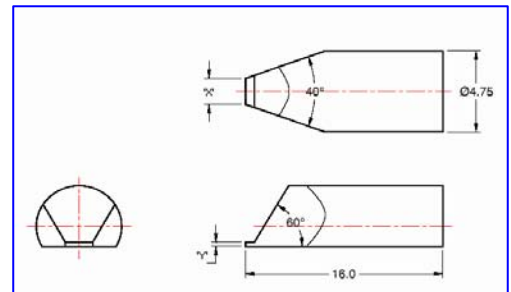
These tools are primary used to aid the IC's testing equipments.

Delivery: 5 – 10 days.

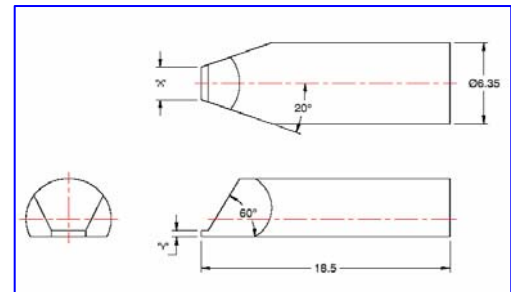
Packing: 1 pc per vile, **Minimum order:** 10 pcs



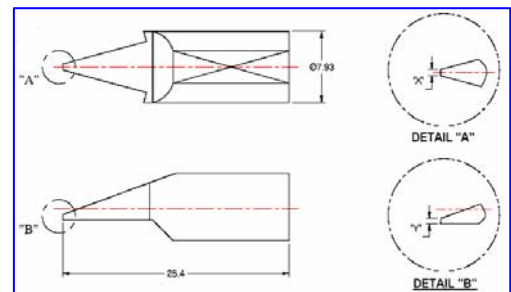
Ordering Code	Width 'X'		Width 'Y'	
	mm	inch	mm	inch
DIE SHEAR PINS – DAGE (OT16)				
16-016-010	0.25	.010	0.25	.010
16-016-020	0.50	.020	0.25	.010
16-016-030	0.76	.030	0.25	.010
16-016-040	1.00	.040	0.25	.010
16-016-050	1.27	.050	0.25	.010
16-016-060	1.50	.060	0.25	.010
DIE SHEAR PINS – DAGE (OT17)				
16-017-010	1.27	.050	0.50	.020
16-017-020	1.80	.070	0.50	.020
16-017-030	2.50	.100	0.50	.020
16-017-040	3.80	.150	0.50	.020
16-017-050	5.60	.220	0.50	.020
DIE SHEAR PINS – ROYCE				
16-018-010	0.38	.015	0.25	.010
16-018-020	0.50	.020	0.25	.010
16-018-030	0.76	.030	0.25	.010
16-018-040	1.00	.040	0.25	.010
16-018-050	1.27	.050	0.25	.010
16-018-060	1.50	.060	0.25	.010
16-018-070	1.80	.070	0.25	.010



DIE SHEAR PINS – DAGE (OT16)



DIE SHEAR PINS – DAGE (OT17)



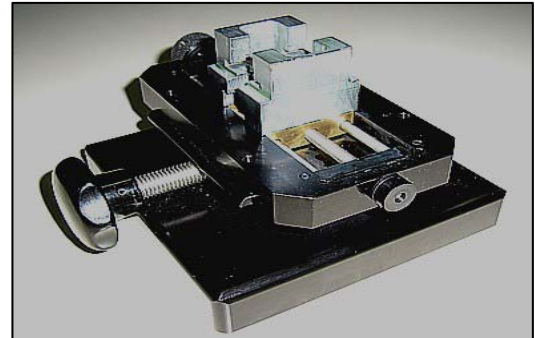
DIE SHEAR PINS – ROYCE

- Please contact us for other sizes and machine models not shown above.

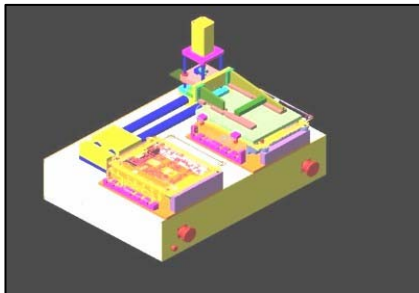
18 Series – Machine Modules / Automation Assembly MACHINE MODULES

Type of Tool: 18 – XXX - XXX

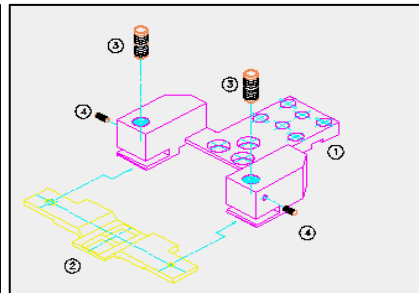
We will assist you in selecting the right machining and inspection methods to fulfill your requirement of parts and machine modules in its highest quality.



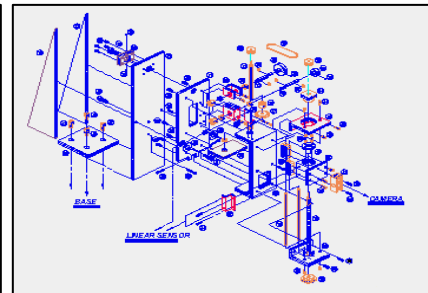
SAMPLE OF VARIOUS MACHINE MODULES



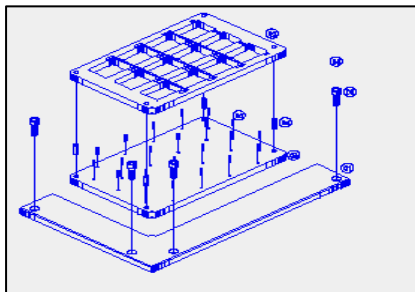
Casing Jig Assembly



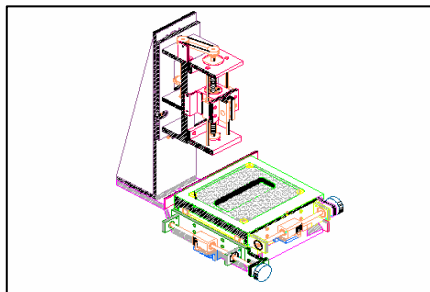
ASM 309 Clamps Assembly



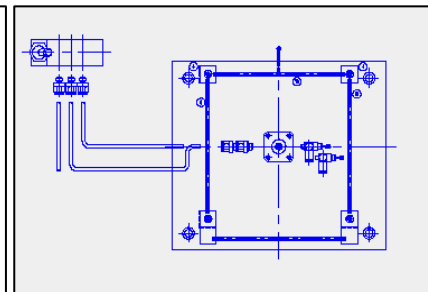
Y Table Assembly



Inspection Jig



Scope's Jig Assembly



Wafer Stage Assembly

* Please contact us for other machine modules not shown above.

22 Series – Ceramic Machining

MATRIX® GLASS CERAMIC

- is **MACHINABLE** with ordinary metal working tools
- allows **FAST TURNAROUND**, no post firing required
- holds **TIGHT TOLERANCES**, up to .0005”
- withstands **HIGH TEMPERATURE**, up to 1000°C (no load)
- is **CLEAN**, no outgasing and zero porosity

Properties

Matrix® Glass Ceramic has continuous use of temperature of 800°C and a peak of 1000°C. Its coefficient of thermal expansion readily matches most metals and sealing glasses. It is nonwetting, exhibit zero porosity, and unlikely ductile material, won't deform. It is an excellent insulator at high voltages, various frequencies, and high temperatures. When properly baked out, it won't outgas in vacuum environments.

Machining

Machining tolerances are surprisingly tight, up to .0005”. It can be machined to a surface finish of less 20µin., and polished to a smoothness of 0.5µin –AA. Configurations are limited only by available equipment and the experience of machinist.

Sealing, Joining and Metalizing

MGC can also be joined or sealed – both to itself and to other materials – in a number of ways: metalized parts can be soldered together and brazing has proven an effective method of joining the material to various metals; epoxy produces a strong joint, and sealing glass creates a vacuum tight seal. Even a straightforward mechanical joint is possible.

It can be thick metalized using metal inks, or thin film metalized by sputtering.

Composition

Matrix Glass Ceramic is a white, odorless, porcelain-like (in appearance) material composed of approximately 55% fluorophlogopite mica and 45% borosilicate glass. It has no known toxic effects; however, the dust created in machining can be an irritant. Good housekeeping and appropriate machining techniques can avoid this irritation. The material contains the following compounds:

	Approximate Weight %
Silicon – SiO ₂	46%
Magnesium – MgO	17%
Aluminium – Al ₂ O ₃	16%
Potassium – K ₂ O	10%
Boron- B ₂ O ₃	7%
Fluorine – F	4%

22 Series – Ceramic Machining WIRE CLAMP JEWELS

Type of Tool: 22-007-XXX

Material: Zirconia

Surface Treatment: Nil

Problem: A high speed gold wire-bonder machine used a polish carbide clamps to position a gold wire for wire-bonding of IC's. In short period of time, the rubbing of the wire damaged the clamp faces which then caused damaged to the gold wire. This requires shutting down the machine, re-polishing the wire-clamp faces to smooth spot and re-starting the machine. The resulting downtime, wire loss from abrasions, and replacement of new clamps become costly and difficult to manage.

Solution: Matrix engineers, working with the OEM wire-bond machine makers proposed changing the wire-clamps to a hot isostatic pressed zirconia embedded with carbide material for electrical contacts. Significantly improving wear quality when compared to polish carbide clamps and even most other technical ceramics.

Result: Matrix precision fabricated the new zirconia wire clamps, and after **2 years of used** there is **NO** noticeable wear on the clamp faces, **NO** wasted material run, and virtually **NO** downtime. The end users are extremely pleased with the results and ordered more wire-bonders equipped with this new zirconia material machined by Matrix.

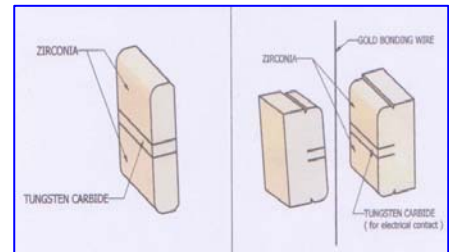
Delivery : 5 – 10 days.

Packing : 1 pc per vile. **Minimum order:** 2 pcs.

Ordering Code	Description	Reference
22 - 007 - 010	Wire Clamp Jewel – ESEC 3006	Zirconia
22 - 007 - 020	Wire Clamp Jewel - ASM	Zirconia
22 - 007 - 030	Wire Clamp Jewel – Delvotec 6200	Zirconia
22 – 007 - 040	Wire Clamp Jewel – Shinkawa UTC 200	Zirconia
22 – 007 - 050	Wire Clamp Jewel – Shinkawa UTC 200	Tungsten Carbide

Note: Customers to strip the existing tungsten carbide jewels & install the new zirconia clamp jewels into their wire-clamp assembly.

* Please contact us for other machine models not shown above.



ESEC 3006



ASM 339 / Eagle 60



DELVOTEC 6200



SHINKAWA UTC 200

22 Series – Ceramic machining FICO CERAMIC PUNCHES

Type of Tool: 22-003-XXX

Material: Ceramic

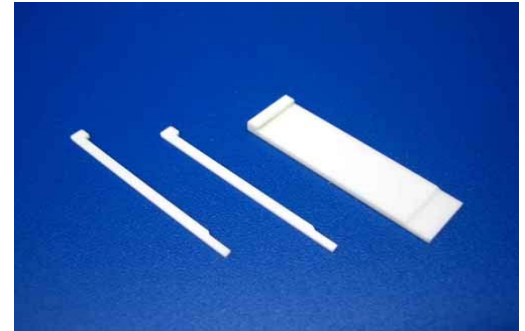
Surface Treatment: Nil

Application:

These ceramic punches are primarily used to replace current carbide made punches whereby they're easily worn & damaged. Changing these worn carbide punches frequently will dramatically reduce the production units on the IC's leads stamping machines.

Delivery: 1-2 weeks.

Packing: 1 pc per vile. **Minimum order:** 2 pcs.

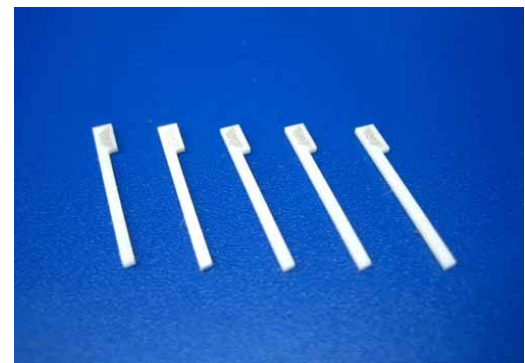
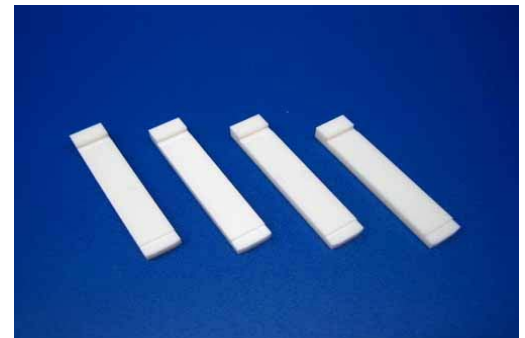


P/N: 22-00X-XXX
FICO Ceramic Punch

Patent Pending

Note: Customers are advise to select & buy number of ceramic punches according to their machine's testing requirement.

Ordering Code	Description	Reference
	Ceramic Punch Length – 15.0 mm	
22 – 003 - 010	FICO Ceramic Punch – 0.50 mm	S – FCP 0.50-15
22 – 003 - 020	FICO Ceramic Punch - 0.55 mm	S – FCP 0.55-15
22 – 003 - 030	FICO Ceramic Punch - 0.60 mm	S – FCP 0.60-15
22 – 003 - 040	FICO Ceramic Punch - 0.65 mm	S – FCP 0.65-15
22 – 003 - 050	FICO Ceramic Punch - 0.70 mm	S - FCP 0.70-15
22 – 003 - 060	FICO Ceramic Punch - 0.75 mm	S – FCP 0.70-15
22 – 003 - 070	FICO Ceramic Punch - 0.80 mm	S – FCP 0.80-15
	Ceramic Punch Length – 19.0 mm	
22 – 004 - 010	FICO Ceramic Punch - 0.50 mm	S – FCP 0.50-19
22 – 004 - 020	FICO Ceramic Punch - 0.55 mm	S – FCP 0.55-19
22 – 004 - 030	FICO Ceramic Punch - 0.60 mm	S – FCP 0.60-19
22 – 004 - 040	FICO Ceramic Punch - 0.65 mm	S - FCP 0.65-19
22 – 004 - 050	FICO Ceramic Punch - 0.70 mm	S – FCP 0.70-19
22 – 004 - 060	FICO Ceramic Punch - 0.75 mm	S – FCP 0.75-19
22 – 004 - 070	FICO Ceramic Punch - 0.80 mm	S – FCP 0.80-19



* Please contact us for other machine models not shown above.



17 Series - New Air Spindles & Services
AIR SPINDLES REFURBISHMENT

Matrix' Air Spindle Refurbishment Center specialize in repair and service all types of PCB CNC high speed precision drilling, routing spindle, air bearings and ball-bearings.

Air spindles received for repair are registered into the repair database. Spindle is disassembled into its major components with all critical features and tolerances inspected for damage and wear. An estimate amount for the cost of repair, including parts and services will be generated for customers approval prior to any work progress.

All air spindle components are thoroughly cleaned and assembled. Any irregularity present on the spindle will be reworked to specification. New replacement parts are assembled as OEM original parts unless otherwise specified by the customer. Polar system representation of the balancing ISO grade G 0.1 is represented to the operator on two vectormeters as well as the exact digital indication. A well balanced shaft is the pre-requisite of a quality repair. All armature shafts are balanced to less than 0.0127 Gram/mm. After balancing and reassembly, both spindle and tool to static runout, dynamic runout vibration will be checked.



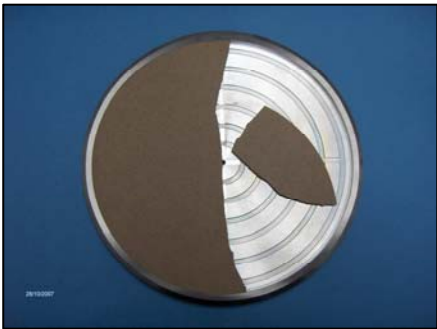
Aluminum Ceramic Porous Vacuum Chucks:

Our aluminum ceramic porous vacuum chucks are ideal for extremely thin-walled work pieces, very soft materials (i.e. rubber, foils, metal bands etc.) or use in precision optical work.

Ideally suited for extremely thin work pieces (<1mm finished Dim., depending on the material) and equally for foils down to less than 0.1mm thickness.

Due to the absence of grooves and holes work pieces are not easily deformed.

Frequently use in precision machining in the optical industry and for measuring and checking in micrometer and nanometer range. Our aluminum ceramic porous chucks must be covered entirely or the largest possible extent. Covering unused areas with foil also improves the holding force.



18 Series – Wafer Chucks & Services
REFURBISHMENT WAFER CHUCKS

The picture shows a Typical Vacuum Chuck used in the Semi-Conductor Industries for holding Sic Wafers during the following processes:

- a) Dicing And Slicing
- b) Back Grinding
- c) Lapping And Chemo-Mechanical Polishing

These Vacuum Chucks cost between USD 1,500.00 to USD 1,800.00 each and are thrown away when it wears or when they “run out” of flatness.

Most users do not know that these Vacuum Chuck could be refurbished for at least 3 to 5 times (dependant on the depth of wear) resulting in substantial savings in their production cost.



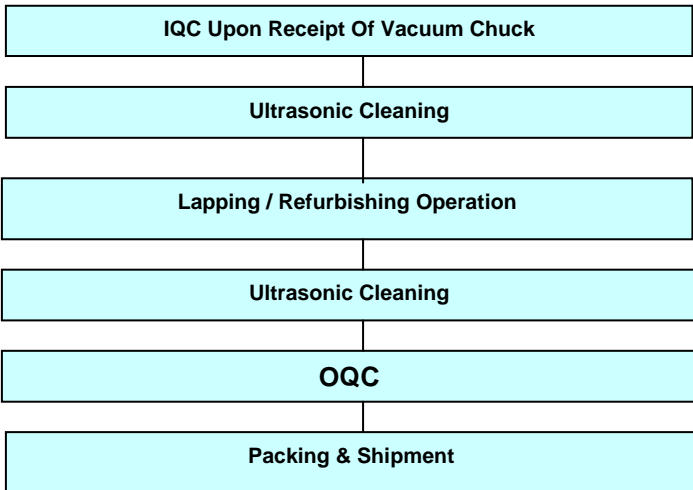
Customer's Requirement :

Specification comparison between a New Vacuum Chuck and a Refurbished Vacuum Chuck.

S/No	Description	Flatness	Parallelism	Surface Finishing	
				Ra micron	Rmax (Din)
1	New Vacuum Chuck	0.006mm	0.01mm	9.5	54.0
2.	Refurbished Vacuum Chuck	0.002mm	0.005mm	7.2	52.0

Typical Refurbishing Process

Process Flow:



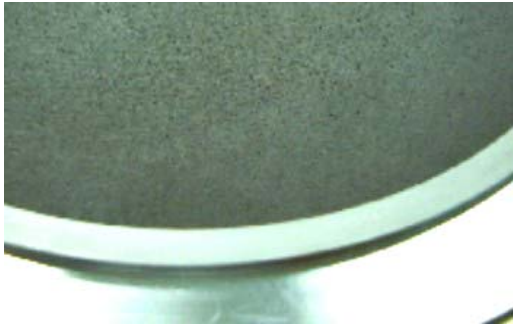
18 Series – Wafer Chucks & Services
REFURBISHMENT WAFER CHUCKS

Results:-

Comparison between a used Vacuum Chuck and A Refurbished Vacuum Chuck.



Closed Up View Of A Used Vacuum Chuck



Closed Up View Of A Refurbished Vacuum Chuck

Area Marked	Surface Finish Measured		Flatness	Parallelism
	Ra Micron	Rmax (Din)		
A	9.5	54.0	0.015mm	0.015mm
B	11.0	69.0		

Area Marked	Surface Finish Measured		Flatness	Parallelism
	Ra Micron	Ra max (Din)		
Total	7.2	52	0.002mm	0.005mm

Note:
 For identification purposes, usually all our refurbished chucks are engraved as R/No: 4XXXX/X. A new revision letter is added if the refurbished/overhaul is sent for 2nd or 3rd refurbished onwards (eg: R/No: 4XXXX/A, R/No: 4XXXX/B).

18 Series – Wafer Chucks & Services OVERHAUL WAFER CHUCKS

For precision semiconductor wafer dicing and hybrid circuit substrate sawing, vacuum chucks in perfect condition are necessity. Vacuum chucks are manufactured to extreme limits of flatness, parallelism, thickness tolerances and surface finish. The surface condition of chucks is extremely important for wafer reference throughout the critical processing and alignment in various fabrication processes.

In dicing operation chucks are easily damaged. Harsh environment, continuous use and accidents all contribute to dicing chucks damage. Most of chucks can be restored to the original condition. Depending on size, flatness is possible to $\frac{1}{4}$ wave, parallelism to 50 millionths of an inch, thickness tolerance usually 0.001" or tighter and surfaces polished to mirror finished when required. Vacuum Chuck could be refurbished for at least 3 to 5 times (dependant on the depth of wear) resulting in substantial savings in their production cost.

In case when the damaged is too bad, the porous material can be replaced with new one and refurbish chucks back to the customer specification.



Damaged Vacuum Chuck



Smashed Porous Insert



After Overhaul

18 Series – Wafer Chucks & Services

WAFER CHUCK'S CALIBRATOR KIT

Portable; Easy - to - use

Kit set can be use for 5", 6", 8" & 12" wafer chucks.

Application:

To ensure & minimize frequent damaged of silicon wafers, wafer chucks have to be monthly or periodically calibrate & refurbished / overhauled if the warped of the wafer chuck is more than 5 microns. Deep scratches & dents found on the wafer chuck surface may also cause damage to the silicon wafers during sawing operation.

Delivery: Ex-Stock

Packing: One Aluminum Carry Tool Case.

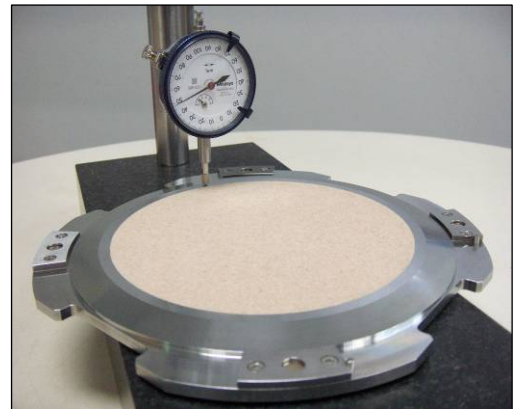
Wafer Chuck's Calibrator Kit Consists:

18-211-010	Gage Holder	1
18-211-050	Precision Granite Table	1
18-211-110	Mitutoyo Dial Gage – .001mm	1
18-211-120	Aluminum Carry Case	1

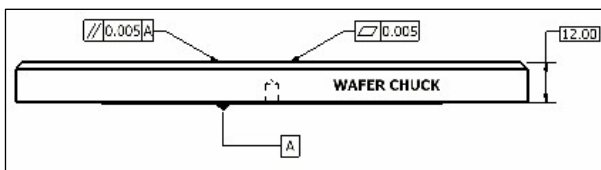
* Total Weight – 17.1 kg



Wafer Chuck's Calibrator Kit sold as a set
18-211-000



Inspection of wafer chuck's parallelism
18-211-050

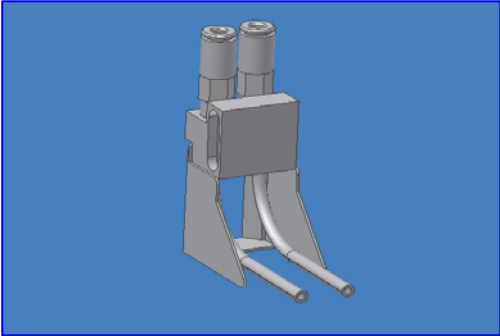


Inspection of wafer chuck's flatness
18-211-010

18 Series – Nozzle Assembly
SPRAY NOZZLE ASSEMBLY / MACHINE BELLOWS

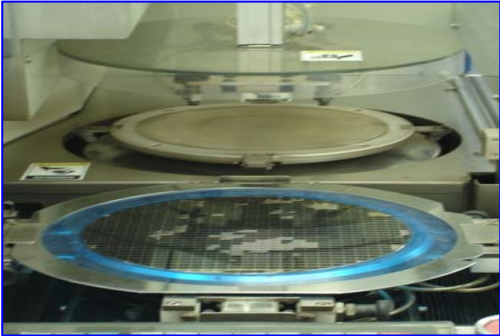
Spray Nozzle Assembly

Matrix spray nozzle assembly provides accurate spray placement onto the blade during die sawing. To fully optimize the performance of nozzle we recommended to maximize cycle speed, utilized Pulse Wide Modulated flow control, validate spray operation and implement other control methods. We can help to evaluate the various control options and choose the solution that will best meet your application requirement.



NOZZLE ASSEMBLY FOR DISCO DAD6340
 18 – 222 – 000 / LJTZ – 910012 - 2

Ordering Code	M/C Mode	Reference
18 – 222– 000	DAD6340	LJTZ – 910012 - 2



Machine Bellows

Fabric bellows provides maximum protection in rugged industrial environment and prevent foreign particles from entering the hydraulic or pneumatic systems of the equipment inside.



Ordering Code	M/C Mode	Reference
18 – 223– 000	DISCO 650/651	LHLX – 910010 - 0

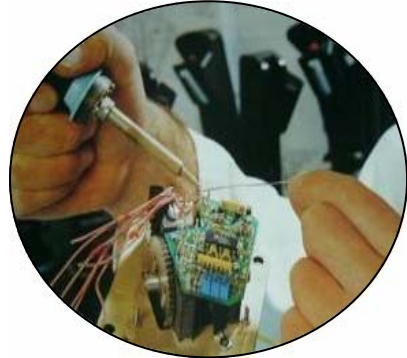


MACHINE BELLOWS

- Please contact us for other machine models not shown above.



Refurbish PCB Boards
SEMICONDUCTOR PACKAGING EQUIPMENT AND OTHERS



MATRIX® PCB Refurbishment Center offers a revolutionary PC Boards refurbishing service for semiconductor FOL machines. These include die bonders, wire bonders and die saw machines. By adopting best practices, we strive to help you save costs and improve machines' uptime.

The Center's refurbishment process is divided into 3 phases comprising 7 stages with individual technicians specializing in each repair stage. This minimizes unnecessary movement while maximizing productivity and expertise.



HOW YOU BENEFIT

◆ **Guaranteed Delivery Time**

With this guarantee, you can organize and plan your production schedule better.

◆ **Shorter Repair Time**

Through specialization and improved efficiency, this shorter repair time will translate into better turn-around time for your machines.

◆ **Value for Money**

You will get better value for money through lower repair cost and avoid costly purchases of replacement boards from OEMs.

◆ **Warranty**

We offer 6 months' warranty on all parts and labour associated with each repair job. This will put your mind at ease. All our refurbish boards are individually identify and tag with a SR# Number. Example: SR# 400001

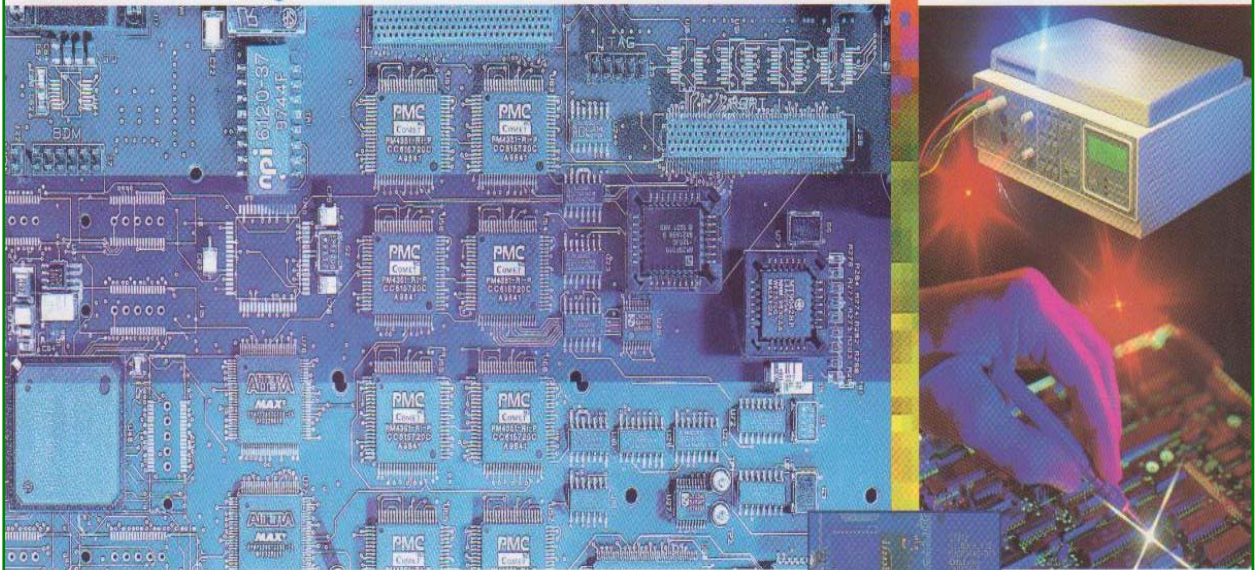


SR# 400001

Board's Identification Number

Multilayer Shorts Locator – Toneohm 950

Multilayer Shorts Locator



*Multilayer shorts location made simple
on bare and assembled PCBs*

Toneohm 950

*Ideal for assembly and
fabrication*

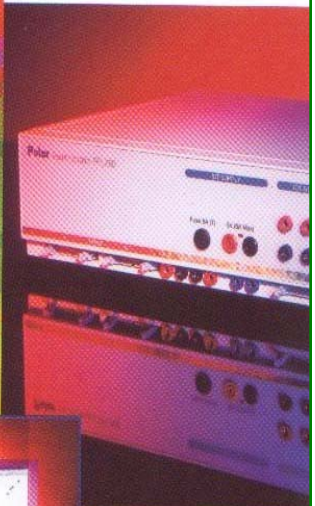
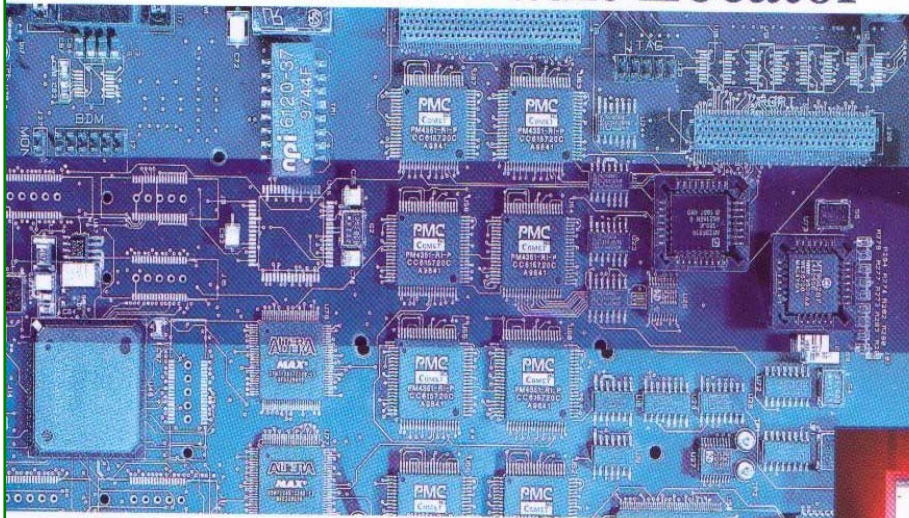
*Pinpoints virtually all types
of PCB shorts*

Handles all PCB technologies

*Finds power to ground
plane shorts*

PCB Fault Locator – PLF 780

PFL780 PCB Fault Locator



*Successful Faultfinding
on assembled PCBs*

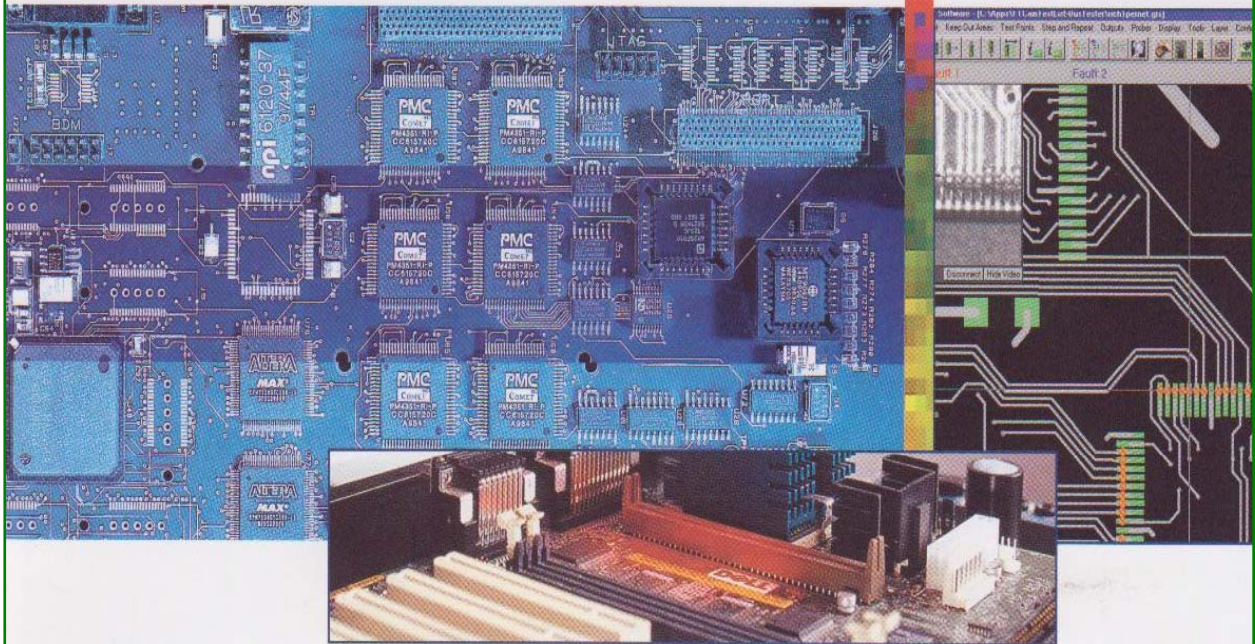
*Effective in Production &
Manufacturing*

Proven in Service & Repair

*Ideal for CEMs making
small to medium batches*

PCB Repair Test System – GRS 500

Prototypes, short production runs,
new product launches.
Deliver your product to market
on time and on budget



PCB repair test system

GRS500

Increase prototype yields

*Designed for short series
production*

*Fast programming
from data*

Low cost of ownership

21 Series - New PCB Boards

RETROFIT KIT MONITOR CTX (VME2/VME1/STD)

PROGRAMMABLE RGB TO VGA VIDEO SCAN CONVERTER

Features

- Programmable to accept wide range of RGB signals formats.
- Input H-Sync and V-Sync can be as low as 15Khz and 50 Hz respectively.
- 24bit true color VGA output up to 800 x 600 pixels.
- VGA output directly compatible with multiscan VGA monitors.
- Easy installation without the need to alter any part of the equipment.
- Wide input power supply range 8V-30V
- Lower consumption <3W



Application

- Upgrading of semiconductor equipments, CNC machines, medical instruments, etc.
- VME2 is VME card with two video format conversion channels
- VME1 is VME card with single video format conversion channels
- VME-ST is standalone version with single video format conversion channels.

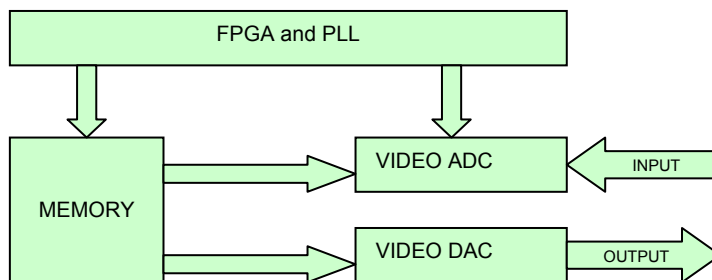
Description

VME is a high-quality video scan converter to convert legacy video signals including analog RGB, CGA and EGA to VGA. It uses high-speed video ADC, DAC and PLL to convert input video signals without losing fidelity. It also has a board power supply so that wide range of DC supply can be used directly. The converter is extremely easy to use without any intervention of the host system.

The VME2 is specially designed for ESEC 3006 Wirebonder and ESEC 2006 Diebonder. The VME-OT is the customized version that can be programmed to convert other type of video signal to VGA signal upon request. VME-OT can accept composite sync, sync-on-green and separate H-sync and V-sync. With the proprietary sync separation technology, video sync signals can be recovered from incomplete composite syncs.

Ordering Code	Description	M/C Model	Reference
21-001-010	VME1 – Retrofit Kit Monitor CTX	ESEC 3006	
21-001-020	VME2 – Retrofit Kit Monitor CTX	ESEC 3006 and ESEC 2006	951.7000
21-001-030	VME-ST – Retrofit Kit Monitor CTX	ESEC 3006 and ESEC 2006	
21-001-XXX	VME-OT – Retrofit Kit Monitor CTX	Customized Version	

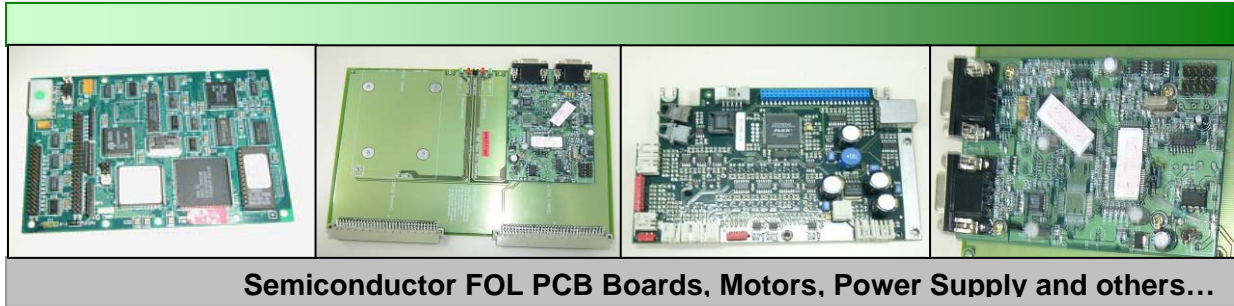
System Block Diagram



Specification

Parameter	Specification	Units
Power Supply	7-24	Volt
Power Consumption	3	Watt
Vertical Sync Frequency	50-75	Hz
Horizontal Sync Frequency	15-40	kHz
Pixel Clock frequency	20-40	MHz
Max output resolution	800 x 600	Pixel
Input Video Signal Level	0.6-2.0 (p-p)	Volt
Output Video Signal Level	0.7 (p-p)	Volt
RGB Resolution	24	bit

21 Series - Refurbish PCB Boards
SEMICONDUCTOR PACKAGING EQUIPMENT AND OTHERS



No	AREA	M/C Model	Remark
1	WIRE BOND	ASM AB339	
2	WIRE BOND	DIAS IS & IS 33 SERIES	Inspection M/C
3	WIRE BOND	ESEC 3006 F	
4	WIRE BOND	ESEC 3006 FX	
5	WIRE BOND	ESEC 3018	
6	WIRE BOND	ESEC 3088	
7	DIE ATTACH	ESEC 2006 HR	
8	DIE ATTACH	ESEC 2006 PI	
9	DIE ATTACH	ESEC2007 HS	
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Do visit us at www.matrixtech.com.sg for more information.

21 Series - Refurbish PCB Boards

ASM AB339

No	ORDERING CODE	DESCRIPTION	MODULE	REPAIR STATUS
1	03-20140-06	MBI Single Servo Control Board Assy (L)		YES
2	03-20140-07	MBI Single Servo Control Board Assy (R)		YES
3	03-20240-03	MBI Quad Stepper Control Board Assy (L)		YES
4	03-20240-04	MBI Quad Stepper Control Board Assy (L)		YES
5	03-20351	RS232 Isolator Board Assy		YES
6	03-28087	SG Control Board Assy		YES
7	03-28088	SG Power Supply Board		YES
8	03-28089	SG HV-Board Assy		YES
9	03-28091	SG Relay boards Assy		YES
10	03-28104-01	Process Mounting Module Assy		YES
11	03-28104-02	Process Mounting Module Board Assy		YES
12	03-28104-03	138KHz Process Monitoring Boards Assy		YES
13	03-28117	PC Keypad Controller Board		YES
14	03-28161-01	Frequency Control Module Assy		YES
15	03-28161-02	Frequency Control Module Board Assy		YES
16	03-28163-01	ADSP-6809 BH Servo Control Board (64KHz)		YES
17	03-28163-02	ADSP-6809 BH Servo Board Assy (100KHz)		YES
18	03-28163-03	ADSP-6809 BH Servo Board Assy (138KHz)		YES
19	03-28164	ADSP-6809 X-Y Servo Control Board Assy		YES
20	03-28174	Solenoid Driver Board Assy		YES
21	03-28175	Work Holder I/O Board Assy		YES
22	03-28176	Bonder & WH CPU Board Assy		YES
23	0328176-01	Work Holder CPU Board Assy		YES
24	0328177	PC/SI Interface Card C/W D.P.R Assy		YES
25	03-28178	PC/SI Interface Card W/O D.P.R Assy		YES
26	03-28179	SI Board Assy		YES
27	03-28182	Bonder I/O Board Assy		YES
28	03-28185-01	High Power Drv Board (Low Profile) Assy		YES
29	03-28186	AB339 Back Plane Board Assy		YES
30	03-28194-01	Power Converter Board Assy		YES
31	03-28196-02	Power Converter Board 2 Assy		YES
32	03-28196-04	Power Converter Board 2 Assy		YES
33	03-28210	SG & BS Board Assy		YES
34	03-28211	Bond Stick Detector Board 2 Assy		YES
35	03-28228	WS Drover & End Detect Board Assy		YES
36	03-28244	MB1 Dual Stepper Controller Board Assy		YES
37	03-28247-03	In House 138KHz FCM Assy		YES
38	03-28283-01	240V TVS Board Assy		YES
39	03-28283-02	240V TVS Board Assy		YES

Note:

Items found excessive damaged will be return or offer a re-con set if available.
All items will have six-months warranty after delivery from Matrix's office.

21 Series - Refurbish PCB Boards

ESEC 3006 F

No	ORDERING CODE	DESCRIPTION	MODULE	REPAIR STATUS
1	901.182	SUPERVISION CONTROL PCB	MAIN POWER SUPPLY	YES
2	230.0061.1	TEMP CONTROLLER EUROTHERM-808	MAIN POWER SUPPLY	YES
3	930.050	COMPUTER CPU BOARD 147SRF	VME CARD	TBA
4	932.050	GRAPHICS BOARDS HRGH	VME CARD	TBA
5	931.050	PROGRAM IN / OUT BOARDS VP10	VME CARD	TBA
6	901.310	DC TO DC CONVERTER 5V/30A	VME CARD	YES
7	901.311	DC TO DC CONVERTER 12V/10A	VME CARD	YES
8	901.312	DC TO DC CONVERTER 12V/5A	VME CARD	YES
9	901.328	DC TO DC CONVERTER 24V/10A	VME CARD	YES
10	901.314	DC TO DC CONVERTER 15V/3A	VME CARD	YES
11	901.315	DC TO DC CONVERTER 5V/10A	VME CARD	YES
12	960.180	CAMERA INTERFACE	VME CARD	TBA
13	960.181	FRAME G	VME CARD	TBA
14	960.182	VISION PROCESSOR	VME CARD	TBA
15	960.183	MICRO COMPUTER	VME CARD	TBA
16	945.050	CHOPPER 150V XY-AXIS	CHOPPER RACK ASSY	YES
17	944.050	CHOPPER 150V Z-AXIS	CHOPPER RACK ASSY	YES
18	944.051	CHOPPER 48V INDEXER	CHOPPER RACK ASSY	YES
19	943.050	ILLUMINATION CONTROL (943.052)	PERIPHERAL RACK ASSY	YES
20	946.050	SCAM X-Y AXIS	PERIPHERAL RACK ASSY	YES
21	946.051	SCAM Z-AXIS AND INDEXER (946.055)	PERIPHERAL RACK ASSY	YES
22	942.050	ACCO	PERIPHERAL RACK ASSY	YES
23	947.050	NSD	PERIPHERAL RACK ASSY	YES
24	941.050	USCO	PERIPHERAL RACK ASSY	TBA
25	940.050	NEFO	PERIPHERAL RACK ASSY	YES
26	947.051	BOND PROCESS ANALYZER	PERIPHERAL RACK ASSY	YES
27	627.020	5 PHASE STEPPING MOTOR	IN/OUT MAGAZINE HANDLER	YES
28	760.186	IN/OUT MH GRIPPER PCB (760.0900)	IN/OUT MAGAZINE HANDLER	YES
29	760.180	IN/OUT PLATFORM PCB	IN/OUT MAGAZINE HANDLER	YES
30	751.040	INTERFACE PCB W COMP REEL	IN/OUT MAGAZINE HANDLER	YES
31	632.180	SENSOR INTFC PCB W COMP 16-PORT /O	IN/OUT MAGAZINE HANDLER	YES
32	730.192	PI INTERFACE PCB / SIGNAL PI	INDEXER	YES
33	730.190	CLAMP DRIVER PCB	INDEXER	YES
34	950.180	KEYBOARD INTERFACE PC BOARD	KEYBOARD	YES

Note:

Items found excessive damaged will be return or offer a re-con set if available.
All items will have six-months warranty after delivery from Matrix's office.

21 Series - Refurbish PCB Boards
ESEC 3006 FX

No	ORDERING CODE	DESCRIPTION	MODULE	REPAIR STATUS
1	901.182	SUPERVISION CONTROL PCB	MAIN POWER SUPPLY	YES
2	230.0061.1	TEMP CONTROLLER EURO THERM-808	MAIN POWER SUPPLY	YES
3	930.050	CPU 3006	VME CARD RACK	TBA
4	932.050	VGA HRG4	VME CARD RACK	TBA
5	931.050	VPIO	VME CARD RACK	TBA
6	631.182/2	HIFG	VME CARD RACK	TBA
7	934.0002	VGA CONVERTER	VME CARD RACK	YES
8	901.310	DC TO DC CONVERTER + 5V/30A	PSU VME CARD	YES
9	901.311	DC TO DC CONVERTER + 12V/10A	PSU VME CARD	YES
10	901.312	DC TO DC CONVERTER - 12V/5A	PSU VME CARD	YES
11	901.328	DC TO DC CONVERTER + 24V/10A	PSU VME CARD	YES
12	901.314	DC TO DC CONVERTER ± 15V/3A	PSU VME CARD	YES
13	901.315	DC TO DC CONVERTER +5V/10A	PSU VME CARD	YES
14	940.050	NEFO CONTROL UNIT	PERIPHERAL RACK ASSY	YES
15	941.050	USCO	PERIPHERAL RACK ASSY	TBA
16	947.050	NSD/FOCO BOARD	PERIPHERAL RACK ASSY	TBA
17	947.056	UF CONTROL BOARD	PERIPHERAL RACK ASSY	TBA
18	942.050	ACCO	PERIPHERAL RACK ASSY	YES
19	946.051	SCAM Z-AXIS, PI (946.055)	PERIPHERAL RACK ASSY	YES
20	946.052	SCAM X-Y AXIS (946.056)	PERIPHERAL RACK ASSY	YES
21	943.050	ILLUMINATION CONTROL	PERIPHERAL RACK ASSY	YES
22	945.052	PCB CHOPPER XY-AXIS 150 (945.053)	CHOPPER RACK ASSY	YES
23	945.051	PCB CHOPPER Z-150 (945.054)	CHOPPER RACK ASSY	YES
24	944.051	PCB CHOPPER P/I F/X (945.053)	CHOPPER RACK ASSY	YES
25	730.7181	PCB DRIVER/INTERFACE PUSH-IN UNIT	PUSH IN	YES
26	950.190	PCB KEYBOARD CPU	KEYBOARD	YES
27	730.780	PCB DRIVER INDEXER CLAMPS	INDEXER	YES
28	730.192	PCB INTERFACE INDEXER	INDEXER	YES
29	730.193	PCB DRIVER PI Y-SHIFTER	INDEXER	YES
30	760.186	PCB MAGAZINE GRIPPER (760.0900)	MAGAZINE HANDLER	YES
31	627.021	5 PHASE MOTOR (LOW TORQUE)	MAGAZINE HANDLER	YES
32	760.180	PCB PLATFORM MAGAZINE CONVEYOR	MAGAZINE HANDLER	YES
33	901.181	PCB PNAL	PNAL	YES

Note:

Items found excessive damaged will be return or offer a re-con set if available.
 All items will have six-months warranty after delivery from Matrix's office.

21 Series - Refurbish PCB Boards ESEC 3018

No	ORDERING CODE	DESCRIPTION	MODULE	REPAIR STATUS
1	945.061	PCB CHOP 150 XY XX-RANGE (2 PCS)	LEFT UPPER RACK	YES
2	945.054	PCB CHOP 150 Z (1 PC)	LEFT UPPER RACK	YES
3	944.054	PCB PI CHOPPER F/XX (1 PC)	LEFT UPPER RACK	YES
4	940.050	PCB NEFO	RIGHT UPPER RACK	YES
5	941.054	PCB USCO (118 KHz)	RIGHT UPPER RACK	TBA
6	947.060	PCB BPAC PROCESS ANALYZER	RIGHT UPPER RACK	TBA
7	948.0001	PCB FOCO	RIGHT UPPER RACK	TBA
8	942.051	PCB ACCO	RIGHT UPPER RACK	YES
9	946.057	PCB SCAM-SMD Z	RIGHT UPPER RACK	YES
10	946.056	PCB SCAM-SMD XY	RIGHT UPPER RACK	YES
11	943.051	PCB ILCO ILLUM CONTROL	RIGHT UPPER RACK	YES
12	693.505	VME-PC EPC-8-ESO-04 ASSY	MAIN BOARD RACK	YES
13	693.501	VME-PC EXM-MX 500 (HARDISK)	MAIN BOARD RACK	YES
14	930.053	VME 147-022	MAIN BOARD RACK	TBA
15	931.054	PI040 PART A+B	MAIN BOARD RACK	TBA
16	901.090	POWER SUPPLY VME	MAIN BOARD RACK	YES
17	901.181	PCB PNAL	PNAL	YES
18	730.7181	PCB DRIVER PUSH-IN UNIT	PUSH-IN	YES
19	627.021	PCB MOTOR DRIVE 5 PHASE	MAGAZINE HANDLER	YES
20	760.189	PCB TUNNEL BUFFER (2 PCS)	MAGAZINE HANDLER	YES
21	901.192	MAGAZINE PLATFORM PCB (2 PCS)	MAGAZINE HANDLER	YES
22	769.0903	PCB MAGAZINE HANDLER GRIPPER (2 PCS)	MAGAZINE HANDLER	YES
23	760.191	PCB CLAMP CONTROL TOP	MAGAZINE HANDLER	YES
24	210.2657	POWER SUPPLY PULSE	LEFT LOWER RACK (PSU BLOCK)	YES
25	955.0001	PCB ITEC COMPLETE	LEFT LOWER RACK (PSU BLOCK)	YES
26	901.123	PCB CONTROL PRINT	LEFT LOWER RACK (PSU BLOCK)	YES
27	902.1212	PCB BHSP XX RANGE	BOND HEAD	TBA
28	905.0918	BPSS PCB W COMP PROG IND F/XX	INDEXER	YES
29	905.0204	PCB BACK RAIL W/ COVER	INDEXER	YES
30	950.190	PCB KEYPAD CPU	KEYBOARD	YES

Note:

Items found excessive damaged will be return or offer a re-con set if available.
All items will have six-months warranty after delivery from Matrix's office.



PART SERVICE REPORT

Part Service Report No:

Customer Name:

Company:

Telephone: Fax:

Email:

Machine manufacturer: Model:

Serial No: Unit No:

Part Number:

Part Description:

Defective Condition:

For Internal Use Only

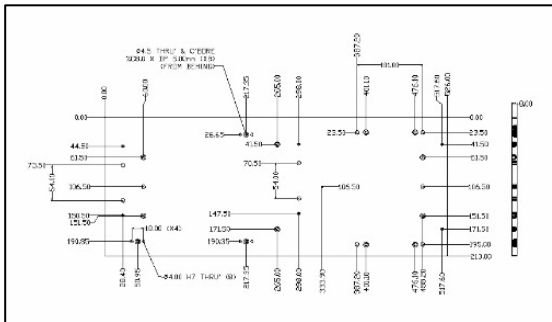
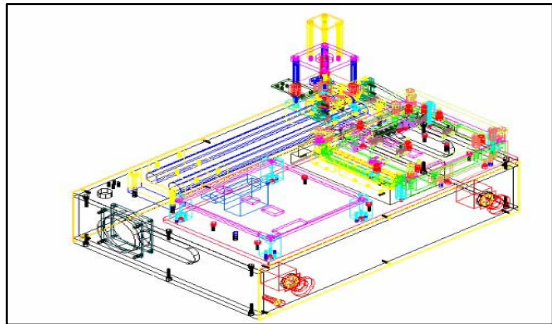
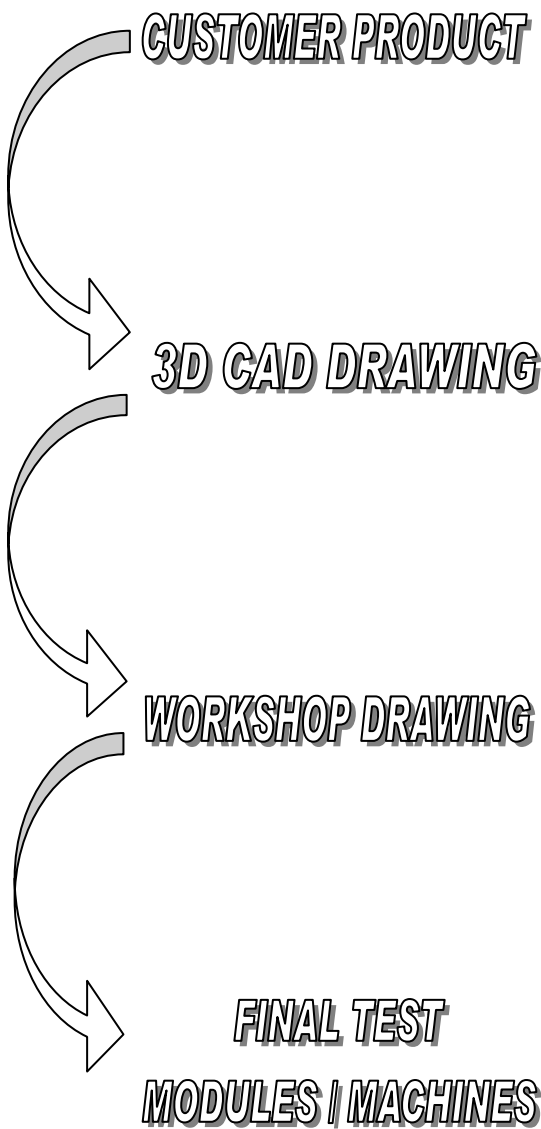
Part Replaced & Estimate Cost					
Part Code	Part Number	Qty	Unit Price	Amount (S\$)	Status
Work Performed:					
Total Amount					

Checked By: (Date / Time): Approved By / Date:

Note: Customers are advise to use the above form and send in together with the faulty PCB Boards to MATRIX®



We provide innovative automation solutions incorporating Product Conceptualization, Design, Prototyping, and Production. We are well supported by experienced and approved automation expertise.



23 Series – Desktop Robot
23 - 001 - 000



Desktop Robot Series DR8000

New Product Launch



A multi-purpose, highly versatile desktop size machine to support small-volume, high-quality work cell production.

Comes In : 4-axes control, 3-axes control, and 2-axes control

- ± 0.01 mm repeatable positioning accuracy (X,Y axis)
- Software available for easy operation
- PC based, easy program teaching, loading / saving for new products
- Easy programs selection

23 Series – Desktop Robot
23 - 001 - 000



**Desktop Robot
Series DR8000**

PRODUCT DESCRIPTION

The SINTEC Desktop Robot Series DR8000 has a 300 by 320 mm range of operation. This robot is available to meet your process requirements in four different configurations offering: 2,3, 4 and Rotary axes, The simultaneous control over all axes provides for 3D linear and arc interpolation that are required for complicated dispensing or inspection processes.

This unit is fully compliant with most industrial safety guidelines. Programming accessories, dispensing systems, vision systems, screw driving, PCB routing integration packages with their respective mounting hardware are sold separately. SINTEC has special application specific software that simplifies programming of the robot.

PRODUCT FEATURES

- ± 0.01 mm repeatable positioning accuracy (X,Y axis)
- Software available for easy operation
- PC based ,easy program teaching, loading / saving for new products
- Easy programs selection
- Integrated solution -plug and play
- Low cost operation and ownership
- Compact size
- Application specific software
- Wide variety of mounting hardware available

APPLICATIONS (Optional)

- Vision Inspection
- Glue Dispensing
- PCB Routing
- Screw Driving
- Soldering



23 Series – Desktop Robot

23 - 001 - 000

Unit Specifications

Item		4-axes	3-axes	2-axes
Work envelop	X axis	350 mm		
	Y axis	350 mm		
	Z axis	100 mm		—
	R axis	360° / s	—	
Maximum speed*3	X axis	300 mm/s *1		
	Y axis	300 mm/s *2		
	Z axis	200 mm/s *1	300 mm/s *1	—
	R axis	720° / s	—	
Pose repeatability*4 (positioning accuracy)	X axis	±0.01 mm		
	Y axis	±0.01 mm		
	Z axis	±0.02 mm		—
	R axis	±0.05°	—	
Maximum load capacity		10 kg		
Unit weight		Approx.58 kg	Approx.55 kg	Approx. 52 kg
Ambient operating temperature		0 – 40 °C		
Transport and storage temperature		-40 °C -60 °C		
Power supply voltage		AC200 ~ 240 V ±10% , 50/60 HZ		
Power consumption		300 VA		
Grounding		Type D grounding		

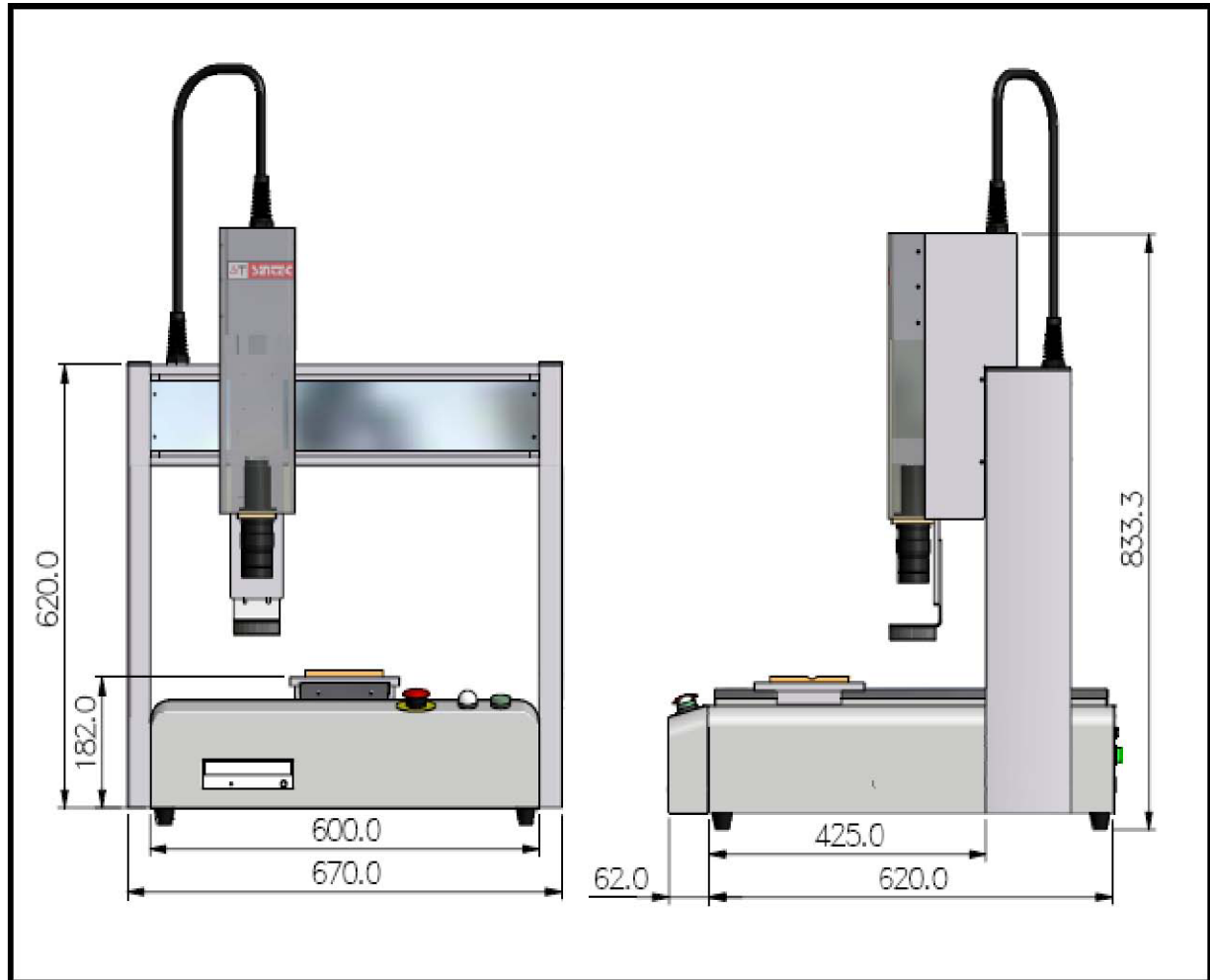
*1. When the tool is 1.5kg or less. Set the speed based on the use conditions. *2.When the work place is 6kg or less. Set the speed based on the use conditions. *3 .Speed can be set . May not reach the specified value depending on the travel distance. *4 Conditions: temperature 20 +/-0.2°C measured from one direction

Control Specification

Drive method	5-phase pulse motor (open loop control)
Movement method	PC base control
Control axis count	Maximum of 4 axes (simultaneous control of all axes possible)
Speed control	Maximum 7000 pps
Programming method	Through simple and intuitive Graphic User Interface (GUI)
Program capacity	Maximum of 1000++ work programs
Teaching method	Direct teaching from GUI program using icons, toolbars, taskbars, & other point & click functions
Point data storage capacity	9999
Internal PC function	Programming method : Boolean ...
User I/O points	Up to 36 I/O points (Optional)
Serial I/F	2 USB 2.0

23 Series – Desktop Robot
23 - 001 - 000

■ External Dimensions



Safety Notice: For your safety , please read the Instruction manual carefully before using the product. Specifications and appearance are subject to change without prior notice

23 Series Semi – Auto Die Sorter Machine
23 - 002 - 000



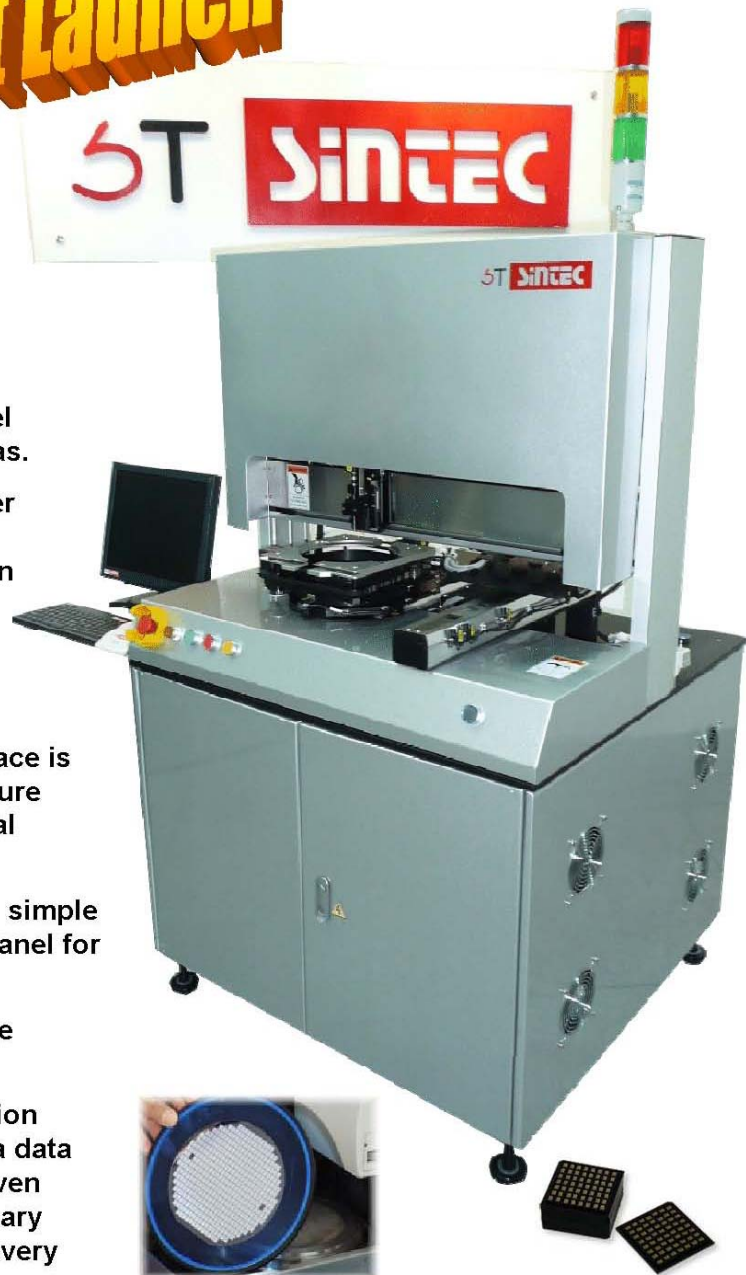
Semi-Auto Die Sorter Machine Series DS8000

New Product Launch

A highly precise and reliable Die Sorter used for delicately picking up of small dies from Wafer / Film Frame after 'Die Sawing' and sort them into Standard trays, waffle paks, gel paks or other packaging medias.

The Semi-Automated Die Sorter is competitively priced to help our Valued Customers invest in automation.

- The high speed Pick and Place is Servo ball screw driven to ensure smooth and accurate positional accuracy and repeatability
- User- friendly Software with simple push buttons on the Control Panel for ease of operation
- PC based control with all the necessary sensing needs
- Our proprietary SINTEC Vision captures all dies X/Y and Theta data and the Stepper ball screw driven Wafer Table will do the necessary positional correction prior to every pick up.



Wafer mounted on foil

23 Series Semi – Auto Die Sorter Machine

23 - 002 - 000

PRODUCT DESCRIPTION

The SINTEC Semi Auto Die Sorter Series DS8000 is designed with highly advanced technologies but yet competitively priced to handle 6 and 8 inches wafers. A motorized Wafer expander stretches the UV Tape to a predetermined amount to allow positive vision capture and dies pick up. Dies position will be captured by means of our proprietary vision system and will be feedback to the sturdy XY Theta table. The XY Theta table will then do the necessary positional correction to center the dies to ensure positive pick up of the dies every time.

The vision system is also capable of identifying ink dots to distinguish between 'good' and 'bad' dies. SINTEC can also provide special wafer mapping software that reads dies information directly to tell the machine which dies to be pick and sorted.

This machine is fully compliant with most industrial safety guidelines.

PRODUCT FEATURES

- ± 0.050 mm repeatable placement accuracy (X,Y axis)
- Machine is easy to set up and operate
- PC based control with all the necessary safety interlock sensors
- Easy programs set-up, selection and Production Lot Change
- Integrated solution -plug and play
- Low cost operation and ownership
- Compact size

OPTIONAL OUTPUT CONFIGURATIONS

- Auto Waffle Pak Tray Stacker
- Gel Pak
- JEDEC/ EIAJ Trays
- Tape and Reel
- Bins or Tubes



23 Series Semi – Auto Die Sorter Machine

23 - 002 - 000

Unit Specifications

◆ <u>Material Specification</u>		
□ Die Sizes	:	1.0 x 1.0mm to 10.0 x 10.0 mm
□ Wafer size	:	6 inches and 8 inches Wafers on FLEX Frame
□ Trays Configuration	:	2 x 2in or 4 x 4in Waffle Packs or GEL Packs
<i>(Other packages and tray types and sizes please consult SINTEC)</i>		
◆ <u>Load / Unload Configuration</u>		
□ Wafer Frames	:	Manual Load / Unload of Wafer Frames
□ Devices	:	Continuous Load / Unload of Waffle Packs
◆ <u>Vision Specification</u>		
□ Camera type	:	256 Grey level (Standard Resolution)
□ Resolution	:	640 pixels x 480 pixels
□ Positional Accuracy	:	± ½ pixels
□ Die alignment		
□ Ink Dot recognition		
◆ <u>Pick and Place Specification</u>		
□ Bond force	:	30 to 1000g
□ Placement Accuracy	:	±50µm
□ Die Accuracy	:	±3°

Performance Specification

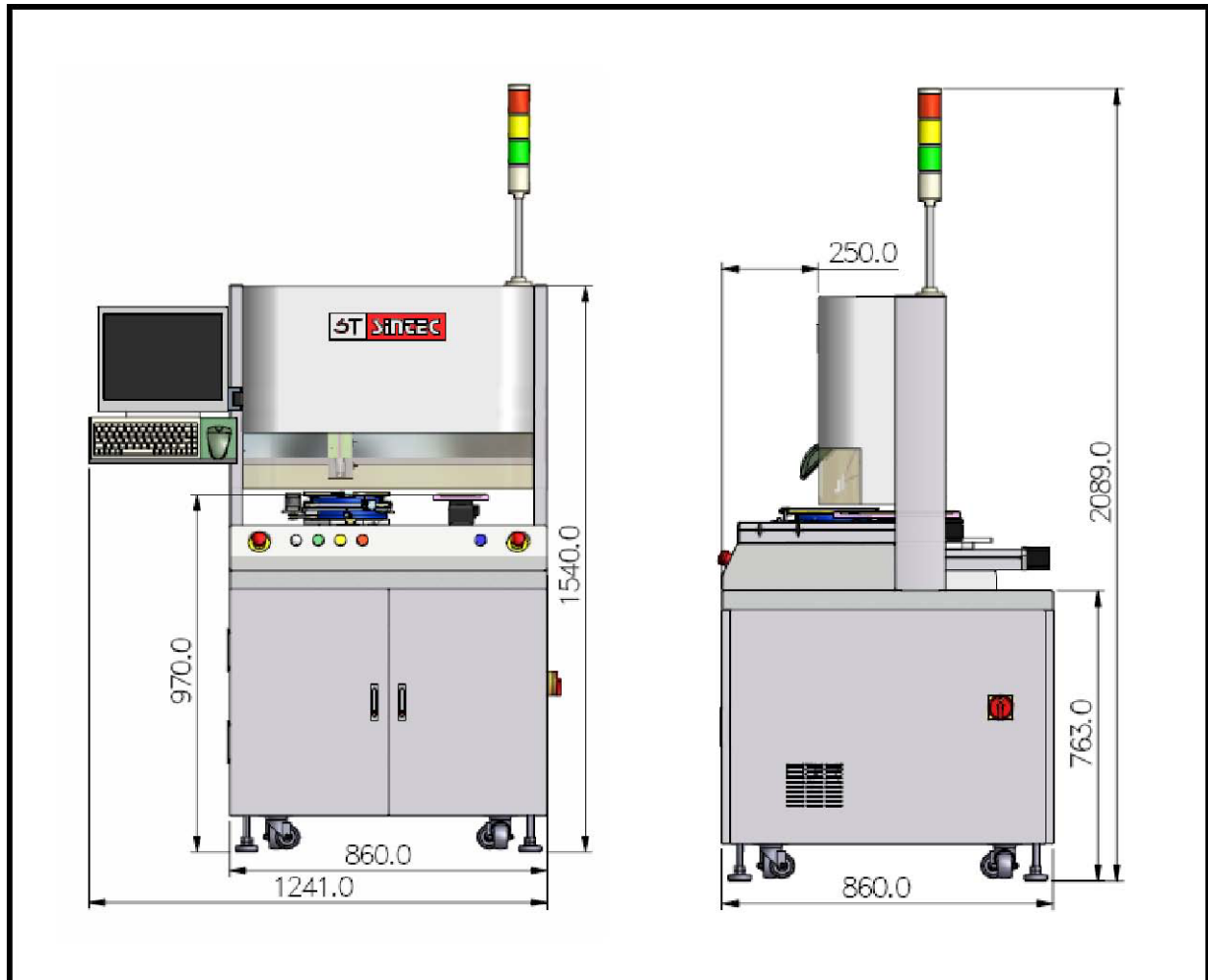
□ MTBA	>	60 min
□ MTBF	>	500 hours
□ MTTR	<	1 hour
□ MTTA	<	5 min
□ Machine UPH	~	4000
□ System down time	<	2%
□ Conversion time	<	30 minutes

Note:

Machine performance data may differ from different customers subjected to application studies due to materials and processes variation beyond our control.

23 Series Semi – Auto Die Sorter Machine
23 - 002 - 000

External Dimensions



Safety Notice: For your safety , please read the Instruction manual carefully before using the product. Specifications and appearance are subject to change without prior notice

AIGO – Digital Microscope GE- 5

Type of tool: 23 - 003 - 000

Material: NA

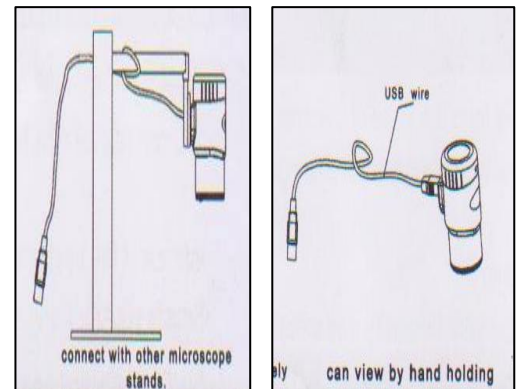
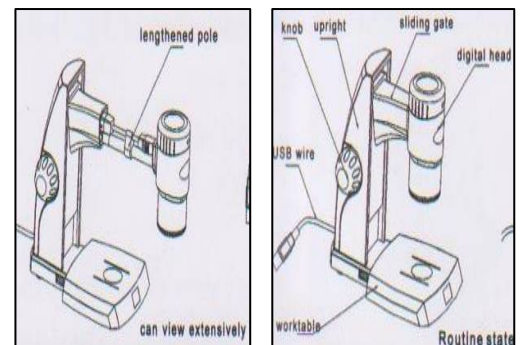
Surface Treatment: Nil

Application:

A video function that enables to shoot and record the dynamic process of the objects viewed and can measure or convert the length, circle, diameter, angle, area and polygons, etc. of any tiny object.

Delivery: Ex-Stock

Packing: 1 set per box



Ordering Code	Description	Remarks	
23 - 003 - 000	Digital Microscope	-	
DATASHEET:			
Product Type	Name of Product	Image Sensor	Image output
GE – 5	Aigo Digital Microscope	1.2 color CMOS image sensor	USB 2.0, 480Mb/s
Pixel Size	Spectrum Response	Sensitivity	Power Supply
5.2um x 5.2um	400nm - 1000nm	1.8V/lux – sec @550 nm	USB 2.0 power supply, 800ma
Scan method	Shutter type	Resolution	Dynamic range
No interlace	ERS (Electronic Rolling Shutter)	Professional grade 1.3 mega pixels 1280x1024	62dB
Frame rate	White balance	Automatic exposure control	Operating temperature
16f/s @ 1280x1024	Support automatic / manual adjustment	Support automatic / manual adjustment	0 – 50 degrees
Magnification	Illumination control	Programmable control	
30x, 60x, 180x, 720x	Laser location, grade control, independent top & bottom illumination	Image size & quality, brightness, gain, exposure time, contrast, saturation, sharpness and gamma	

- Do contact us for more information.

LED Illuminator

Type of tool: 23 - 004 - 000

Material: NA

Surface Treatment: Nil

Application:

Our new LED's ring lamp primary used for ESEC die bonders & microscope works. Presently customers are using original circular fluorescent lamp and experiencing very poor image recognition and causes picking up many wrong dies. With this new LED's ring lamp, the PRS of the die bonding machine can clearly recognized and pick the good die more accurately than ever before. One customer already placed a blanket order of 35 sets to replace their existing circular fluorescent lamps after numerous of test compared with our new LED's ring lamp.



Specification:

- 60 pcs LED
- Colour temperature 6400K
- 20K life span
- Power: 90 – 250V
- Plastic LED casing
- Opening 62 mm
- Built-In brightness control knob



Ordering Code	Description	Reference
23 – 004 – 000	LED Illuminator	Model: DGS-RL60

- Please contact us for other models not shown above.

23 Series - Peel Force Tester
23 - 005 - 000



Peel Force Tester Series PF8000

New Product Launch



A highly reliable and accurate table top tester for checking the peel force of cover to carrier tapes adhesion after Tape and Reel process.

Key Features:

- 'Built-in' PC Control with user-friendly GUI and Statistical Software Package
- Design in compliance with EIA-481 Standard and rugged construction
- Simple Calibration procedure with *optional ISO traceable weights set*
- Test result data logging and storage for future reference

23 Series - Peel Force Tester

23 - 005 - 000

■ Specification

Tester

<input type="checkbox"/> Peel Force Range	:	0 ~ 500gf
<input type="checkbox"/> Force Gauge Accuracy	:	±0.1gf
<input type="checkbox"/> Tape width	:	8 ~ 80 mm
<input type="checkbox"/> Pull Speed	:	100 ~ 300mm/min
<input type="checkbox"/> Peeling Angle	:	165 ~ 180 degrees
<input type="checkbox"/> Pull Length	:	Approx. 200 mm

Force Data Software

- Force and Length range can be software settable
- Upper and Lower Limit can be set to define Pass / Fail
- Auto capture and display Max / Min / Average readings
- Results can be printed directly or saved for future reference

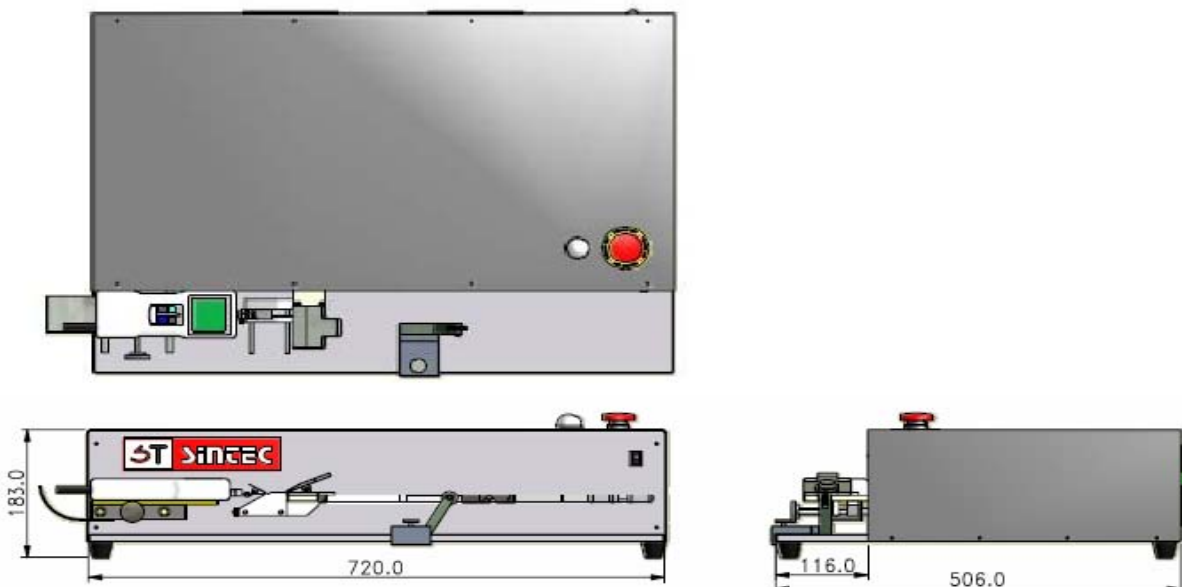
Force Sensor

<input type="checkbox"/> Units	:	N / gf / oz Selectable
<input type="checkbox"/> Resolution	:	0.001N
<input type="checkbox"/> Sampling Speed	:	Maximum 1000 times / sec
<input type="checkbox"/> Display Update	:	10 times / sec
<input type="checkbox"/> Capacity	:	Up to 5N

Utilities

<input type="checkbox"/> Power Supply	:	220VAC / 50Hz
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■ External Dimensions



Safety Notice: For your safety , please read the Instruction manual carefully before using the product. Specifications and appearance are subject to change without prior notice

23 Series - Reel Inspection System
23 - 006 - 000



Reel Inspection System Series RI8000

POST TAPING INSPECTION

A high speed and highly reliable 'Post Taping' Vision Inspection System incorporating optional motorized zoom that can perform Post Seal Check, Mark and Gross 2D Lead Inspection of 2 or 4-sided 'Gull Wing' devices. It comes with a reject identification ink marker that will identify the locations of rejects for easy rework or verification.

The Fully Automatic Reel Inspection System is competitively priced to help our Valued Customers invest in automation.

- The high speed Reel Indexing mechanism is pulse motor driven to ensure smooth, fast and accurate indexing of the carrier tape
- User- friendly Software with simple push buttons on the LCD Display Panel for ease of operation
- PC based control with all the necessary sensing needs
- Our proprietary SINTEC Vision System will inspect all devices for Seal Quality, Pin 1, Mark and Gross Lead rejects to ensure only Good reels are shipped to Customers.



Standalone Part Counting Machine
(Without Vision System)



(Model: PCM8000)

23 Series - Reel Inspection System

23 - 006 - 000

PRODUCT DESCRIPTION

The SINTEC Reel Inspection System Series RIS8000 is designed with highly advanced technologies but yet competitively priced to handle all 2 or 4 sided 'Gull Wing' devices. Carrier Reels after Taping of IC Devices are presented to the machine for Post Taping Check prior to shipment. The reels shall be indexed through the machine one pitch at a time for the vision system to capture and process the inspection results. Upon receiving the results as a reject, the reject marker shall mark on the reject location.

The Vision system is capable of inspecting Post Seal Quality, Pin 1 orientation, Mark and Gross Lead defects. SINTEC Reel Inspection System uses a high speed, highly reliable pulse motor driven indexing mechanism to feed the carrier tape through the vision module.

This machine is fully compliant with most industrial safety guidelines.

PRODUCT FEATURES

- Machine is easy to set up and operate
- PC based control with all the necessary safety interlock sensors
- Easy programs set-up and selection
- Integrated solution -plug and play
- Low cost operation and ownership
- Compact in size

OPTIONAL ITEMS

- Motorized Zoom feature

23 Series - Reel Inspection System

23 - 006 - 000

Specifications

◆ Mark Inspection

- Wrong Orientation
- Empty Pocket
- Mixed Marking
- Offset Marking
- Misaligned
- Angled
- Double Mark

◆ Seal Quality Check

- Carrier Tape Width
- Cover Tape Width
- Seal Width
- Index Hole Pitch
- Alignment of Seal Line with Carrier Tape
- Alignment of Cover Tape with Carrier Tape

Lead Vision Specification

Standard camera with 768 X 576 pixels				
Filed of view = 15mm X 11mm. Typically TSSOP8L, SOIC8-16L packages				
	spread	spacing	skew	tweeze
Accuracy	25um	10um	25um	20um
	1.0mil	0.4mil	1.0mil	0.8mil
Repeatability (3 sigma)	25um	10um	25um	20um
	1.0mil	0.4mil	1.0mil	0.8mil
Filed of view = 25mm X 18mm. Typically TSSOP40/48/56L, SOIC20-28L packages				
	spread	spacing	skew	tweeze
Accuracy	38um	17um	38um	35um
	1.5mil	0.7mil	1.5mil	1.4mil
Repeatability (3 sigma)	38um	17um	38um	35um
	1.5mil	0.7mil	1.5mil	1.4mil

Performance Specification

<input type="checkbox"/> MTBA	>	60 min
<input type="checkbox"/> MTBF	>	1000 hours
<input type="checkbox"/> MTTR	<	1 hour
<input type="checkbox"/> MTTA	<	1 min
<input type="checkbox"/> Machine UPH	~	Up to 10000 (depending on package type)
<input type="checkbox"/> System down time	<	2%
<input type="checkbox"/> Conversion time	<	30 minutes

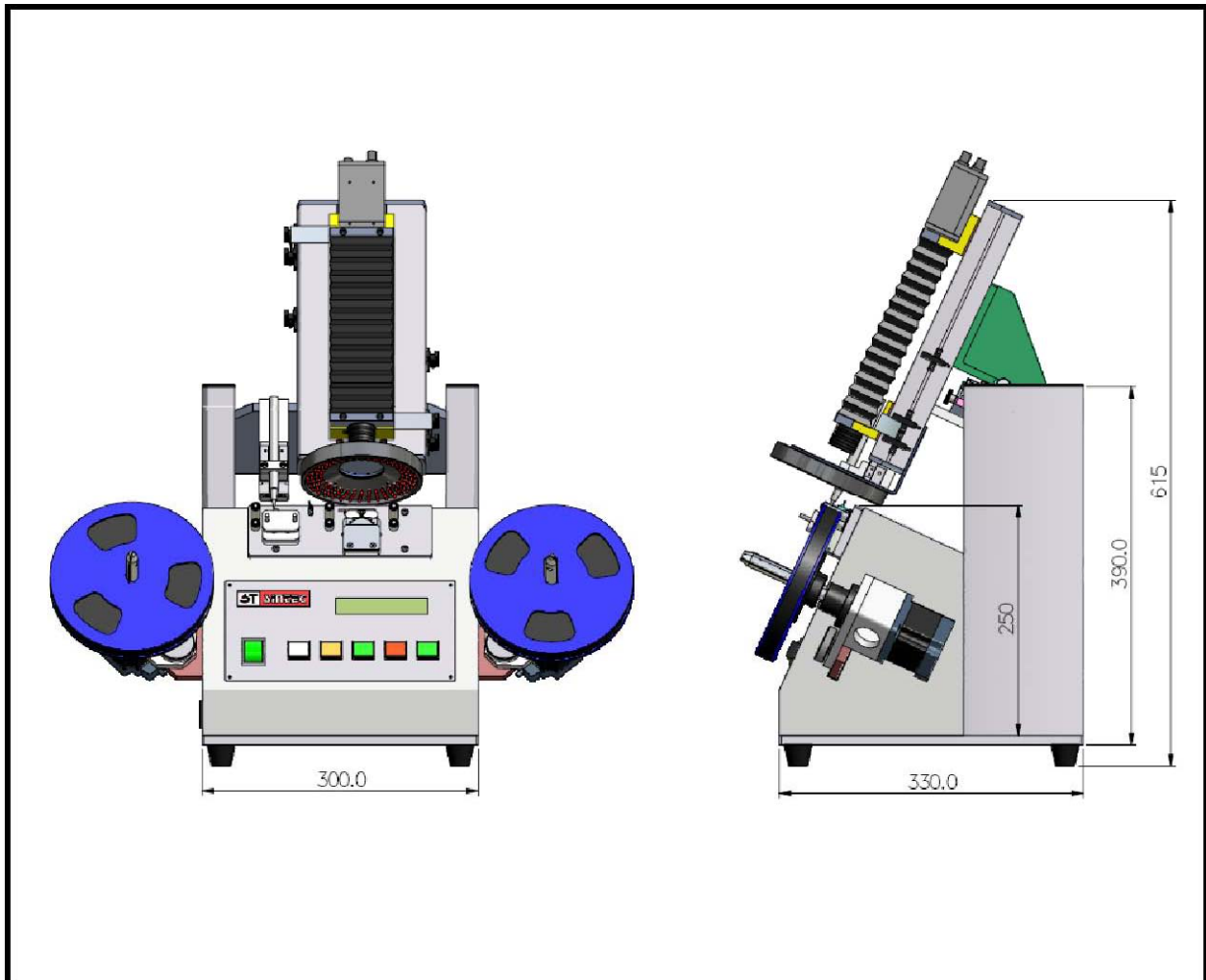
Note:

Machine performance data may differ from different customers subjected to application studies due to materials and processes variation beyond our control.

The Specifications for accuracies and repeatability may differ subjected to qualities and conditions of Cover and Carrier Tapes.

23 Series - Reel Inspection System 23 - 006 - 000

External Dimensions



Safety Notice: For your safety , please read the Instruction manual carefully before using the product. Specifications and appearance are subject to change without prior notice

23 Series – Semi-conductor Dicing Cleaning System
23 - 007 - 000

最佳效能 頂尖科技
Optimum Efficacy & Topnotch-Tech



CL-6801 / 1201 半導體切割用清洗機
CL-6801 / 1201 Semi-conductor Dicing Cleaning System

專業晶圓製程的高技術指標「CL-6801 / 1201 半導體切割用清洗機」，以邏輯式微處理器控制，可選擇高壓水或利用二流體的高壓氣加上細粒水珠，達成剔除晶圓切割後，表面及切割道內所殘留之廢屑，提供晶圓切割製程中關鍵的清洗效果。高效率、多功能，可配合企業不同生產及產品需求，創造出清洗製程之最佳效能



CL-6801 / 1201 Semi-conductor Dicing Cleaning System - Hi-Tech target of the professional wafer proceeding.

CL-6801 / 1201 Semi-conductor Dicing Cleaning System is controlled by logical microprocessor; which applies high pressure water or gas of atomizing nozzle with tiny glob to remove residue in the micro cutting channel after wafer diced. Which provides the important cleaning purpose from the wafer proceeding. With high efficacy and multi-functions - It could meet the diverse product needs of customers and create the best efficiency from cleaning procedure.



23 Series – Semi-conductor Dicing Cleaning System

23 - 007 - 000

● Specification

● 規格 Specification	CL-6801 (T)	CL-1201 (T)
工作物尺寸 Work-piece Size (mm)	6"~8"	6"~12"
適用 Frame 尺寸 Applicable Tape Frame (mm)	2-6 2-6-1 2-8-1	2-6-1 2-8-1 2-10-1 2-12-1
高壓淨水壓力 Pressure Pump Unit (Mpa)	2~12	2~12
真空吸盤(供電)轉數 Table Rotation Speed (mm/rpm)	0~3000	0~3000
效能 Utilities		
電源供應 Power Supply	AC110 / 220 V	AC110 / 220 V
氣壓量 Air Pressure (kgf/cm ² +G)	6	6
最大氣流量 Air Flow Rate (L/min(ANR))	Max. 100	Max. 150
水壓量 Water Pressure (kgf/cm ² L)	2~3	2~3
最大水流量 Water Flow Rate (L/min)	Max. 10	Max. 15
氮氣壓力 N ² Pressure (kgf/cm ² +G)	4~5	4~5
最大氮氣流量 N ² Flow Rate (L/min(ANR))	Max. 100	Max. 150
最小吸風量 Duct Required Suction (m ³ /min)	Min. 5.0	Min. 5.0
機台尺寸 Machine Size (mm)	850 x 450 x 1200	850 x 550 x 1200
機台重量 Machine Mass (kg)	90	120

★ T 系列機種為二流體與高壓水柱共存系統，非 T 系列機種時，二流體為標準配備。

● 應用產品 Applicative products

切割產品：晶圓 / 玻璃 / 機板 / 陶瓷類 …等等。

Dicing/Cuting Production: Wafer / Glass / Substrate / Ceramics...etc.

● 選配項目 Options

- 光閘安全感應器 Door Safty Sensor
- 清洗劑泵浦 Purger Pump
- 不斷電系統 UPS
- 其他程式功能 Other Requested Software
- 其他配備需求 Other Requested Accessories



Used Equipment Sales SEMICONDUCTOR PACKAGING EQUIPMENT AND OTHERS



MATRIX[®]'s market knowledge combined with our expertise in the semiconductor industry will enhance our unique position to assist our customers in their equipment needs.

By utilizing our service, you are tapping on to our one-stop-shop that provides a source for the equipment, technical expertise, installation & upgrading services, and follow-through service. All these come with the knowledge that MATRIX[®] has an outstanding reputation in the industry for quality products and excellent customer service.





MATRIX[®] has built up lasting relationships with many customers and brokers so that we can provide referrals if we do not have your specific requirement in stock.

Our Capabilities:

- "All-In-One" capability: Sales, Service and Training
- Equipment available in "As Is" or "Refurbished" condition
- Strong Relationships with Customers and Brokers

Used Equipment Sales SEMICONDUCTOR PACKAGING EQUIPMENT AND OTHERS



Lot #	Title	Manufacturer	Model	Year	Qty	Price	Location	Status
4001	Sonic Cleaner 	CREST	OC4.1622	1994	1	USD 5,500.00	Asia	SOLD
4002	Laminar Flow Bench 	ESCO	-	1999	1	USD 1,500.00	Asia	SOLD
4003	Wire Bonder 	ESEC	3006F	1994	1	USD 6,000.00	Asia	SOLD
4004	Wire Bonder 	ESEC	3006F	1994	1	USD 6,000.00	Asia	SOLD
4005	Wire Bonder 	ESEC	3006F	1994	1	USD 6,000.00	Asia	SOLD
4006	Wire Bonder 	ESEC	3006F	1994	1	USD 6,000.00	Asia	SOLD
4007	Wire Bonder 	ESEC	3006F	1994	1	USD 6,000.00	Asia	SOLD
4008	Wire Bonder 	ESEC	3006F	1994	1	USD 6,000.00	Asia	Available
4009	Wire Bonder 	ESEC	3006F	1994	1	USD 6,000.00	Asia	Available
4010	Wire Bonder 	ESEC	3006F	1994	1	USD 6,000.00	Asia	Available
4011	Wire Bonder 	ESEC	3006F	1994	1	USD 6,000.00	Asia	Available
4012	Wire Bonder 	ESEC	3006F	1994	1	USD 6,000.00	Asia	Available
4013	Termohygrograph 	SATO KEIRYOKI	R-704	-	1	USD 300.00	Asia	SOLD
4014	Termohygrograph 	SATO KEIRYOKI	NSII-Q	-	1	USD 300.00	Asia	SOLD
4015	Wire Bonder 	KULICKE & SOFFA	1488L TURBO	1996	1	USD 12,000.00	Asia	Available
4016	Wire Bonder 	KULICKE & SOFFA	1488L TURBO	1996	1	USD 12,000.00	Asia	Available
4017	Wire Bonder 	KULICKE & SOFFA	1484L XQ	1993	1	USD 8,000.00	Asia	Available
4018	Glue Dispensing Machine 	SEIKO EPSON		1994	1	USD 3,500.00	Asia	Available
4019	Glue Dispensing Machine 	SEIKO EPSON		1994	1	USD 3,500.00	Asia	Available
4020	Glue Dispensing Machine 	SEIKO EPSON		1994	1	USD 3,500.00	Asia	Available

Used Equipment Sales
SEMICONDUCTOR PACKAGING EQUIPMENT AND OTHERS

Matrix Lot # 4021

Inline Automated Fluid Dispensing System



Manufacturer : ASYMTEK
Model : A-618C
Year of Manufacture : 1995

Product Spec

Serial Number : 6033
 Voltage : 240 VAC
 Dimension
 Length : 1.15 m
 Width : 1.30 m
 Height : 1.30 m
 Weight : ± 300 kg
 Drive System
 X-Y Speed : 0-508 mm/s (0-20 in./s).
 Repeatability : 0.025 mm (0.001 in.)
 Positional Resolution: 0.025 (0.001 in.)
 Computer
 Pentium based PC
 Speed of Conveyor: Programmable up to 25.4 cm/s (10 in./s)
 Conveyor Compatibility: SMEMA
 Board Carrier Flow Direction: Filed Programmable, right to left or left to right

Additional Information:

Ideal for medium volume production. Can be configured to dispense a wide variety of fluids, from gasketing material to solder mask and solder paste. Easy-to-use, flexible, DOS-based Fluidmove® software for CAD download or move-teach programming. Vision system to optimized programming accuracy. Needle sensor for automatic compensation of XYZ changes.

Sale Information

Asking Price : USD 12,000.00 (Negotiable)
 Payment Term : 30% down payment upon confirmation. Balance 70% must be made and machine collect within 7 days. Otherwise, down payment will be forfeited.
 Validity : 2 Weeks
 Shipment : Ex Factory
 Delivery : Ex Stock

Condition, Warranties and Location

Condition : Not tested (Sold as is without installation)
 Manufacturer warranty : None
 Seller's warranty : None
 Location of Equipment : Asia

Note:

This equipment information supersedes all former information. Changes of any kinds or printing errors in prices and technical do not justified claims.

Last update : 1 January 2005



Enhance Lead-time Reduction; System and OEM relationships are in place to facilitate Concurrent Manufacturing. A network of supplier is working with MATRIX to meet stringent Quality Control and Supply demands.



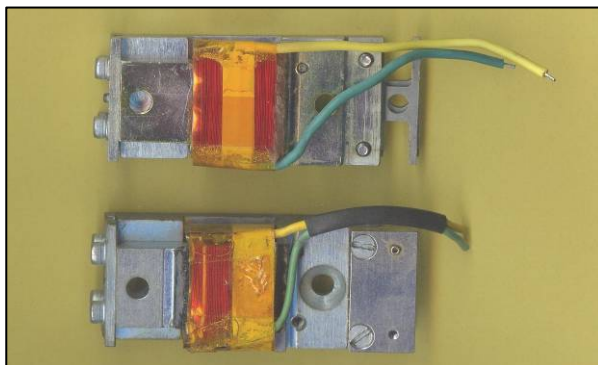
Heater Assembly



EFO Accessories Assembly



Case Fixture Assembly



Leadframe Gripper Assembly



Heater Block Assembly





Important Mailing Information Update

To ensure that you continue to receive our latest products information, please provide us with your current employment status.

Simply complete this form and return it to us by mail or fax it to us at (65) 6484 2898

I have receive your Catalogue '09, please continue to mail me your next issue.

1. Name: _____ Dept / Ext: _____
2. Company: _____
3. Address: _____

4. Telephone / Fax: _____
5. Email: _____

Please include the following persons in your next mailing lists

1. Name: _____ Dept / Ext: _____ Email: _____
2. Name: _____ Dept / Ext: _____ Email: _____
3. Name: _____ Dept / Ext: _____ Email: _____
4. Name: _____ Dept / Ext: _____ Email: _____
5. Name: _____ Dept / Ext: _____ Email: _____
6. Name: _____ Dept / Ext: _____ Email: _____
7. Name: _____ Dept / Ext: _____ Email: _____
8. Name: _____ Dept / Ext: _____ Email: _____
9. Name: _____ Dept / Ext: _____ Email: _____
10. Name: _____ Dept / Ext: _____ Email: _____

Thank you for your reply

Do visit us at www.matrixtech.com.sg for more information.

STAMP

**To: MATRIX TECHNOLOGIES PTE LTD
BLK 5, ANG MO KIO INDUSTRIAL PARK 2A
#02 – 06, AMK TECH II
SINGAPORE 567760**
