

INTERNATIONAL DIRECTORY OF FLIP-CHIP DIE ATTACH BONDERS/ALIGNERS

Company Name Address ☎ Phone ☎ Fax 📅 Year Founded ★ President ◆ CEO Advertisers are listed in boldface type.	Model ☒ Introduced ⓐ Level of Automation: M=Manual, S=Semi-Automated, A=Automated Ⓢ Price (USD)	✕ Wafer Size Range Ⓟ Placement Accuracy, μm@3 sigma Ⓩ Z-Axis Travel	ⓓ Die Edge Length Capability Ⓣ Footprint (Width by Depth, mm)	① Primary Applications ② Secondary Applications Ⓟ Bonding Methods: A=Adhesive, E=Eutectic, F=Flip Chip, P=Preform, S=Solder, T=Tape, O=Other Ⓢ Special Features	[web site] ✱ Technical Contact ☎ Phone ☎ Fax 🌐 Additional Offices
Alphaset AG A Dover Technologies Company Andhauserstrasse 64 CH-8572 Berg/TG, Switzerland ☎ +41.71.637.63.63 ☎ +41.71.637.63.64 📅 1979 ★ Hans Rudolf Meister	Easyline 8032 ☒ May 2002 ⓐ A Ⓢ \$120-170K	✕ 100-200mm Ⓟ ±38μm@3 sigma Ⓩ 8mm	ⓓ 0.25-20.3mm Ⓣ 900 x 1100mm	① MLP/QFN ② SOIC, TSOP, PLCC, QFP Ⓟ A	[alphaset.com] ✱ Philippe Gaille alphaset.sales@alphaset.com 🌐 Alphaset Corp. 2117 S. 48th St., Ste. 106 Tempe, AZ 85282 ☎ 602.431.6655
	Swissline 9022 ☒ May 2001 ⓐ A Ⓢ \$210-350K	✕ 100-300mm Ⓟ ±30μm@3 sigma Ⓩ 30mm	ⓓ 0.5-30mm Ⓣ 1703 x 1200mm	① BGA, CSP ② QFP, LOC/BOC Ⓟ A	
ASM Pacific Technology Ltd. 4/F, Watson Centre 1 Kung Yip Street, Kwai Chung N.T., Hong Kong ☎ +852.2619.2000 ☎ +852.2619.2118 📅 1975 ★ Arthur H. del Prado	Flip Chip Bonder AD900 ☒ 2001 ⓐ A Ⓢ \$250-280K	✕ 200mm Ⓟ ±10μm@3 sigma Ⓩ 40mm with 1.25μm resolution	ⓓ 0.25-17.7mm Ⓣ 1270 x 1100mm	① Flip chip in package ② Opto FC Ⓟ A, S, Flux	[asmpacific.com] ✱ Jerry Dellheim, Vice President—Strategic Mktg. jdellheim@asmpacific.com ☎ 408.451.0800
ATS Automation Tooling Systems Inc. 250 Royal Oak Rd. Box 32100, Preston Center Cambridge, Ontario Canada N3H 5M2 📅 1978 ◆ Klaus Woerner	Flexsys 3000 ☒ March 2002 ⓐ A Ⓢ \$250-500K	✕ 50-300mm Ⓟ ±2μm@3 sigma Ⓩ X=600mm, Y=900mm, Z=50mm	ⓓ 400μm Ⓣ 1117 x 1371mm	① Die attach/flip chip ② Opto fiber alignment Ⓟ A, P, S, T Ⓢ Flexible standard platform, vision guided motion, scalable resolution	[atsautomation.com] ✱ Eric Kiisel ekiisel@atsautomation.com ☎ 519.653.4483 x7177
DATACON Technology AG Innstrasse 16 A-6240 Radfeld Tyrol, Austria 📅 1986 ★ Helmut Rutterschmidt	2200 apm die attach/ flip-chip bonder ☒ April 2000 ⓐ A	✕ 203.3mm max. Ⓟ 10μm@3 sigma Ⓩ -35mm (-47mm special (-0.1μm))	ⓓ 0.17-35mm (Up to 62mm with custom apps.) Ⓣ 800 x 1200mm	① MCM ② Flip Chip Ⓟ A, F, P, S, T	[datacon.at] ✱ Dana Baedke, Marketing Comm. Manager dana.baedke@datacon.at ☎ 215.245.3052 🌐 Datacon North America Seven Neshaminy Interplex 116 Treviso, PA 19053 ☎ 215.245.3050 ☎ 215.245.3060
	2200 apm+ ☒ July 2001 ⓐ A	✕ 304.8mm max. Ⓟ 10μm@3 sigma Ⓩ -35mm (-47mm special (-0.1μm))	ⓓ 0.17-50mm (Up to 62mm with custom apps.) Ⓣ 800 x 1200mm	① MCM ② Flip Chip Ⓟ A, F, P, S, T	
DIAS Automation (HK) Ltd. Merit Industrial Building Kowloon Hong Kong SAR, China 📅 1985 ★◆ Mr. W.S. Leung	A-8020 ☒ December 1999 ⓐ A Ⓢ \$120-160K	✕ 100-300mm Ⓟ 25μm@3 sigma (-0.001mm) Ⓩ -30mm (-4μm)	ⓓ NA Ⓣ 1200 x 1150mm	① Epoxy die attach ② Pick & place Ⓟ A, E Ⓢ Die sort XYZ precision pick from tray	[diasautomation.com] ✱ Bally Bang ☎ +852.2333.6298
	DA-3020 ☒ January 1999 ⓐ A, S Ⓢ \$70-120K	✕ 100-200mm Ⓟ 40μm@3 sigma (-0.016mm) Ⓩ -30mm (-4μm)	ⓓ NA Ⓣ 1200 x 1150mm	① Die attach ② Die sort Ⓟ A, E	
ESEC SA Hinterbergstrasse 32 CH-6330 Cham Switzerland 📅 1968 ◆ Hans Wunderl	Micron 5003 ☒ July 2001 ⓐ A	✕ 150-300mm Ⓟ 5μm@3 sigma Ⓩ 149mm travel, -5μm	ⓓ 25mm from wafer, 50mm from tape or waflie pack Ⓣ 1955 x 1534mm	① Flip Chip ② Eutectic bonding for optoelectronics Ⓟ A, E, P, S, T, fluxing Ⓢ 5μm placement accuracy, large work envelope of 522 x 960 mm	[esec.com] ✱ Walter Gisler walter.gisler@esec.com 🌐 ESEC (USA) Inc. ☎ 480.893.6990 ☎ 480.893.6793
F&K Delvotec Bondtechnik GmbH Daimlerstr. 5-7 85521 Ottobrunn Germany ☎ +49.89.62995.0 ☎ +49.89.62995.100 📅 1978 ★ Dr. Farhad Farassat	4501 (Single-Station, Large Area Multi-Chip Multi-Placement Die Bonder) ☒ January 2001 ⓐ M, S, A Ⓢ \$187-350K	✕ Up to 200mm Ⓟ ±12μm@3 sigma Ⓩ A	ⓓ 0.25-20mm Ⓣ 1200 x 1500mm	① Opto ② Hybrids Ⓟ A, E, P	[fkdelvotec.com] [fkdelvotecusa.com] ✱ Desmond Bradley desmond.bradley@de.fkdelvotec.com ☎ +49.89.62995.120 🌐 California Rick Bailey, Sales Manager rick.bailey@fkdelvotecusa.com ☎ 949.595.220.225
	4500 (Double-Head, Multi-Chip Multi-Placement Die Bonder) ☒ 1998 ⓐ S, A Ⓢ \$185-450K	✕ Up to 200mm Ⓟ ±12μm@3 sigma Ⓩ A	ⓓ 0.25-20mm Ⓣ 1200 x 1500mm	① Opto ② Hybrids Ⓟ A, E, P Ⓢ Flexible die input, various handling systems	

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F&K Delvotec Bondtechnik GmbH Daimlerstr. 5-7 85521 Ottobrunn Germany ☎ +49.89.62995.0 ☎ +49.89.62995.100 📅 1978 ★ Dr. Farhad Farassat	4410 (Double-Head, Single-Chip Multi-Placement Die Bonder) ☒ 1998 ⓐ A Ⓢ \$120-390K	✕ Up to 200mm Ⓟ ±30μm@3 sigma Ⓩ A	Ⓧ 0.25-20mm Ⓣ 1200 x 1500mm	① Leadframe ② BGA Ⓡ A, E, P Ⓢ Flexible die input, various handling systems	[fkdelvotec.com] [fkdelvotecusa.com] ✱ Desmond Bradley desmond.bradley@de.fkdelvotec.com ☎ +49.89.62995.120 🌐 California Rick Bailey, Sales Manager rick.bailey@fkdelvotecusa.com ☎ 949.595.220.225
	4420 (Double-Head, Single-Chip Multi-Placement Die Bonder) ☒ 1998 ⓐ A Ⓢ \$150-430K	✕ Up to 200mm Ⓟ ±12μm@3 sigma Ⓩ A	Ⓧ 0.25-20mm Ⓣ 1200 x 1500mm	① COB ② SAW-Filters Ⓡ A, E, P Ⓢ Same as above	
Finetech Inc. 1334 E. Chandler Blvd. 5D 5D22 Phoenix, AZ 85048 ☎ 480.460.8777 ☎ 480.460.8778 📅 1991 ◇ Chris Underhill (GM)	Lambda ☒ 1996-2002 ⓐ M, S Ⓢ \$50-110K	✕ 250 x 250mm substrate Ⓟ 1μm Ⓩ NA	Ⓧ Up to 65mm Ⓣ 609.6 x 609.6mm	① Opto ② Flip chip Ⓡ A, E, F, P, T, O=all Ⓢ Thermocompression, Thermosonic	[finetech.de] ✱ Robert Avila ra@finetechusa.com ☎ 480.893.1630
	PICO ☒ 1994-2002 ⓐ M, S, A Ⓢ \$25-65K	✕ 250 x 500mm substrate Ⓟ 5μm Ⓩ NA	Ⓧ Up to 75mm Ⓣ 609.6 x 609.6mm	① Flip chip ② Epoxy/eutectic Ⓡ A, E, F, P, T, O=all Ⓢ Flip chip, epoxy/eutectic	
Newport Corporation, MRSI Division 101 Billerica Ave. N. Billerica, MA 01862 ☎ 978.667.9449 ☎ 978.667.6109 📅 1984 ◇ Neil Srivastava (VP/GM)	MRSI-375FC ☒ May 1998 ⓐ A Ⓢ \$200-225K	✕ 50-200mm Ⓟ ±10μm@3 sigma Ⓩ 16mm with place to a force accuracy	Ⓧ 0.20mm with no max. Ⓣ 863 x 1194mm	① Flip Chip in Package ② Flip Chip on Board Ⓡ S, E, A, P Ⓢ Parallel processing motions, force control	[newport.com] ✱ Dan Crowley dcrowley@newport.com ☎ 978.667.9449
	MRSI-575 ☒ 2003 ⓐ A Ⓢ \$400-450K	✕ 200-300mm Ⓟ ±8μm@3 sigma Ⓩ 16mm with place to a force accuracy	Ⓧ Up to 53mm Ⓣ 1000 x 1200mm	① Flip Chip in Package ② Flip Chip on Board Ⓡ S, E, A, P Ⓢ Parallel processing motions, 300mm capability	
Palomar Technologies 2230 Oak Ridge Way Vista, CA 92083 ☎ 760.931.3600 📅 1995 ★◇ Kevin Conlon	Laser Diode Attach (LDA) Die Bonder ☒ March 2001 ⓐ A Ⓢ \$330K	✕ 50-300mm Ⓟ 5μm@3 sigma Ⓩ 50.8mm	Ⓧ 177.8-508mm Ⓣ 1524 x 1070mm	① RF Eutectic ② Optical Device Attach Ⓡ A, E, P, S, T, O= Thermocompression Ⓢ 2°C repeatability, SMEMA compatible, Digital Dispense™ adhesive capable	[palomartechnologies.com] ✱ Jeff King sales@bonders.com ☎ 760.931.3600
Semiconductor Equipment Corp. 5154 Goldman Ave. Moorpark, CA 93020 ☎ 805.529.2293 ☎ 805.529.2193 📅 1975 ★ Don Moore	410XP Precision Die Bonder ☒ 2001 ⓐ S Ⓢ \$115K	✕ NA Ⓟ 1-2μm	Ⓧ 0.254-25.4mm Ⓣ 2032 x 1473mm	① Photonic ② Flip Chip Ⓡ A, E, P, S	[semicorp.com] ✱ Don Moore dmoore@aol.com ☎ 805.529.2293 x22
	860 Omni Die Bonder ☒ 1999 ⓐ S Ⓢ \$59K	✕ NA Ⓟ ±5μm	Ⓧ 0.152-25.4mm Ⓣ 1016 x 914mm	① Photonic ② Flip Chip Ⓡ A, E, P, S	
Shinkawa USA Inc. 1930 S. Alma School Road, Suite D-107 Mesa, AZ 85210 ☎ 480.831.7988 ☎ 480.831.9480 📅 1959 ★ Sadashi Iida	SPA-300 ☒ 2001 ⓐ A	✕ 150-300mm Ⓟ ±25μm@3 sigma Ⓩ Theta -0.5°	Ⓧ 0.8-25mm Ⓣ 1365 x 1230mm	① Epoxy die attach ② Flip chip attach Ⓡ A Ⓢ High speed, thin die capability	[shinkawausa.com] ✱ Doug Day d_day@shinkawausa.com ☎ 480.831.7988
	SFB-200 ☒ 2002 ⓐ A	✕ 150-200mm Ⓟ ±5μm@3 sigma Ⓩ NA	Ⓧ 0.3-3.0mm Ⓣ 1000 x 1100mm	① Thermosonic flip chip ② Thermocompression Ⓡ O=Thermocompression Ⓢ High speed, small footprint	

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SUSS MicroTec AG Schleissheimer Strasse 90 PO Box 1809 D-85748 Garching Munich, Germany ☎ +49.89.32007.110 ☎ +49.89.32007.106 📅 1949 ◆ Dr. Franz Richter	Universal Device Bonder FC150 ☑ 1990 Ⓐ M, S 💰 \$200-250K	✕ 150mm Ⓟ 3μm@3 sigma Ⓩ 7mm	Ⓛ 0.2-40mm (80-100mm option) Ⓣ 750 x 1220mm	① Flip chip bonding ② R&D multipurpose Ⓡ A, E, P, S, T Ⓢ Granite structure for long-term stability and reliability, temperature and compression force profiling to maximize process flexibility	[suss.com] ✳ Gilbert Lecarpentier, Strategic Marketing Manager glecarpentier@sussmicrotec.fr 🌐 France: SUSS MicroTec S.A. Avenue des Colombieres-BP 24 Saint-Jeoire F-74490 ☎ +33(0)4.50.35.83.92 ☎ +33(0).4.50.35.88.01
	Automated Device Bonder FC150 ☑ 1992 Ⓐ A 💰 \$450-700K	✕ 150mm Ⓟ -1μm@3 sigma Ⓩ ±7mm	Ⓛ 0.2-40mm (100mm option) Ⓣ 980 x 1500mm	① FPA ② Opto Ⓡ E, A, F, S Ⓢ Wafer-to-wafer bonding capability, fragile components handling	
	Production Device Bonder FC250 ☑ 1999 Ⓐ A and production 💰 \$700-1,000K	✕ 100mm wafer max. Ⓟ -3μm@3 sigma with -1μm post-bond accuracy Ⓩ 244mm with 0.07μm step with -7°, 1 rad step	Ⓛ 0.2-40mm Ⓣ 1250 x 2240mm	① Flip chip bonding ② Opto Ⓡ A, E, P, S, T Ⓢ Fluxless soldering technology, high speed, flexible pattern recognition measurement system, full automation	
Toray Engineering Co. Ltd. 1-45, Oe 1-Chome Otsu, Shiga 520-2141, Japan ☎ +81.77.544.6221 ☎ +81.77.544.1940 📅 1960 ★ Junichi Ujike	FC2000 ☑ October 2001 Ⓐ A 💰 \$550K	✕ 200mm max. or substrate from 50 x 30mm min. to 120 x 120mm max. Ⓟ ±4μm@3 sigma Ⓩ ±5μm	Ⓛ 3-20mm Ⓣ 1300 x 1300mm	① Flip Chip ② Opto, MEMS Ⓡ A, E, F, S, T, O=Thermocompression	[toray-eng.com] ✳ USA: Kyoji Ishikawa kyoji_ishikawa@toray-eng.co.jp ☎ 408.506.8044 ✳ Japan: Tatsuo Nagamatsu/Sales tatsuo_nagamatsu@toray-eng.co.jp ☎ +81.77.544.6221
	DC2000 ☑ August 2001 Ⓐ A 💰 \$450K	✕ Up to 200mm or substrate from 40 x 40mm min. to 120 x 40mm max. Ⓟ ±10μm@3 sigma Ⓩ Not supplied	Ⓛ 0.5-20mm (Gelpack or Waffle Pack) Ⓣ 980 x 1250mm	① Flip chip die attach ② NA Ⓡ E, S, O=Thermocompression	
Tresky Corporation 50 Route 9, Suite 304 Morganville, NJ 07751 ☎ 732.536.8600 ☎ 732.810.0433 📅 1980 ★ Dr. M. Tresky	T-3200 Series Die Attach/Flip Chip Bonder ☑ March 2003 Ⓐ S 💰 \$90-105K	✕ 300mm Ⓟ ±1μm@3 sigma Ⓩ NA	Ⓛ 0.20-50mm Ⓣ 1060 x 600mm	① IC assembly ② Opto Ⓡ A, E, P, S	[tresky.com] ✳ Allen Weil sales@tresky.com ☎ 732.536.8600 ☎ 732.810.0433
Universal Instruments Corp. A Dover Company P.O. Box 825 Binghamton, NY 13902 ☎ 607.779.4992 ☎ 607.779.5105 📅 1919 ★ Ian McEvoy ◆ Richard Boulanger, VP-Advanced Semiconductor Assembly Division, boulange@uic.com	GSMxs 5785A ☑ 1998 Ⓐ A 💰 \$250-350K	✕ 100-300mm Ⓟ ±9μm@3 sigma Ⓩ 12.7mm	Ⓛ 0.20-5mm (Gelpack or Waffle Pack) Ⓣ 1407 x 1549mm	① Flip Chip ② Opto Ⓡ A, E, P, S, T Ⓢ Multiple heads and cameras, parallel processing using multiple pick tools	[uic.com] ✳ Jacques Coderre, coderre@uic.com ☎ 607.779.4362 🌐 China: Universal Instruments (Shenzhen) Co. Ltd. 2/F, Technology Building, 7th Industry Road Shekou Industry Area, Shenzhen 518067, PRC 🌐 Europe: Universal Instruments GmbH Konrad-Adenauer-Allee 10 61118 Bad Vilbel, Germany

INTERNATIONAL DIRECTORY OF FLIP-CHIP WIRE BONDERS

Company Name Address ☎ Phone ☎ Fax 📅 Year Founded ★ President ◆ CEO	Model ☑ Introduced Ⓐ Level of Automation 💰 Price (USD) Ⓞ Method/Type	① Principal App. ② Secondary App. Ⓞ Bond Pitch Capability ☑ Bonding Area X, Y (mm)	⌚ Conversion Times S= Same Leadframe Type D= Different Leadframe Type ✧ Bond Placement Repeatability Consult manual for exact repeatability and accuracy in X, Y, Z & theta	Ⓜ Material Handling Systems Ⓢ Package/Leadframe Dimensions (L=Length, W=Width, T=Thickness) Ⓣ Footprint (WxD in mm)	[web site] ✳ Technical Contact ☎ Phone ☎ Fax 🌐 Additional Offices
DIAS Automation (HK) Ltd. Unit A7, 3/F Merit Industrial Building 94 Tokwawan Road Kowloon Hong Kong SAR, China 📅 1985 ★◆ Mr. W.S. Leung	US-2900B ☑ January 2000 Ⓐ A, S 💰 \$50-80K Ⓞ Al/Au wedge rotary head	① COB ② MCM Ⓞ 70μm ☑ X: 203.2mm Y: 152.4mm	⌚ S= <10 min. D= <10 min. ✧ ±3μm	Ⓜ Loading plate magazine feeder Ⓢ L=400mm W=150mm T=0.1mm-3mm Ⓣ 760 x 850mm	[diasautomation.com] ✳ Bally Bang ☎ +852.2333.6298
	UB-280 ☑ January 2001 Ⓐ A, S 💰 \$20-30K Ⓞ Al/wedge	① COB ② MCM Ⓞ 70μm ☑ X: 381mm Y: 381mm	⌚ S= <8 min. D= <8 min. ✧ ±5μm	Ⓜ Not supplied Ⓢ L=200mm W=10mm T=0.1mm-3mm Ⓣ 700 x 700mm	

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ESEC SA Hinterbergstrasse 32 CH-6330 Cham Switzerland 📅 1968 ◆ Hans Wunderl	WB 3088iP ☑ November 2001 Ⓐ A Ⓢ Not supplied ● Thermosonic, gold ball bonder	① IC ② MCM ○ 50µm inline @ 3 sigma ☑ X: 52mm Y: 64mm	⌚ <3 min. Thermosonic <5 min. Gold ball bonder ❖ ±3.5µm @ 3 sigma	Ⓜ Leadframe, flat boat, J-boat, reel-to-reel, manual Ⓢ L=120-260mm W=15-90mm T=0.1-0.6mm ⑦ 850 x 1000mm	[esec.com] ❖ Joe Lippincott, ESEC (USA) Inc. joli@esec.com ☎ 480.893.6990
F&K Delvotec Bondtechnik GmbH Daimlerstr. 5-7 85521 Ottobrunn Germany ☎ +49.89.62995.0 ☎ +49.89.62995.100 📅 1978 ★ Dr. Farhad Farassat	High Speed Heavy Wire Bonder 6600 ☑ January 2002 Ⓐ M, S, A Ⓢ \$130-210K ● Ultrasonic wedge	① Power modules ② Discretes ○ 50µm @ 3 sigma ☑ X: 200mm Y: 150mm	⌚ S= App. dependent D= App. dependent ❖ ±3µm @ 1 sigma	Ⓜ Leadframe, boats, substrates, Lindberg strips Ⓢ L=300mm max. in Y W=Unlimited in X T=NA ⑦ 580 x 1000mm	[fkdelvotec.com] [fkdelvotecusa.com] ❖ Desmond Bradley desmond.bradley@de.fkdelvotec.com ☎ +49.89.62995.120
	Thin Wire Rotary Head Bonder 6400 ☑ January 2000 Ⓐ M, S, A Ⓢ \$130-210K ● Ultrasonic & thermosonic wedge	① Hybrids ② COB ○ 40µm @ 3 sigma ☑ X: 200mm Y: 150mm	⌚ S= App. dependent D= App. dependent ❖ ±3µm @ 1 sigma	Ⓜ Leadframe, boats, substrates, Lindberg strips Ⓢ L=300mm max. in Y W=Unlimited in X T=NA ⑦ 580 x 1000mm	
	Thin Wire Rotary Head Bonder 6400 DA ☑ January 2000 Ⓐ M, S, A Ⓢ \$140-220K ● Ultrasonic & thermosonic wedge	① Microwave ② Fiberoptics ○ 40µm @ 3 sigma ☑ X: 200mm Y: 150mm	⌚ S= App. dependent D= App. dependent ❖ ±3µm @ 1 sigma	Ⓜ Leadframe, boats, substrates, Lindberg strips Ⓢ L=300mm max. in Y W=Unlimited in X T=NA ⑦ 580 x 1000mm	
Kaijo Corp. Hamura City Tokyo, Japan 205-8607 📅 1948 ★ Ryuzou Ohruai	MPB Series ☑ 2000 Ⓐ M, S, A ● Thermosonic gold bonder	① Fine pitch ICs ② Hoop leadframes ○ 50µm ☑ X: 55mm Y: 65mm	⌚ S= >5 min. D= >15 min. ❖ ±4.5µm @ 3 sigma	Ⓜ NA Ⓢ L=90-270mm W=15-80mm T=0.1-0.5mm ⑦ NA	[kaijo.co.jp] [texmac.com] ❖ Texmac Inc., Manufacturer's Representative Peter Genio, Sales Engineer peter-genio@texmac.com ☎ 408.970.9171
	Fb150 Series ☑ January 2000 Ⓐ M, S, A ● Thermosonic gold bonder	① Large-area bonding ② FPDs ○ 50µm ☑ X: 117mm Y: 117mm	⌚ S= >5 min. D= >15 min. ❖ ±4.5µm @ 3 sigma	Ⓜ Leadframe, substrate Ⓢ L=360mm W=120mm T=2mm ⑦ 1100mm x 1170mm	
Kulicke & Soffa Industries 2101 Blair Mill Road Willow Grove, PA 19090 📅 1951 ◆ C. Scott Kulicke	WaferPro Stud Bump Bonder ☑ July 2001 Ⓐ A (up to 16 bumps/sec.) Ⓢ \$229K (w/o options) ● Thermosonic, ball	① SAW filters ② Memory ○ 65µm inline ☑ X: 405mm Y: 330mm	⌚ S= <1 min. Same wafer type D= <10 min. Same wafer type ❖ ±5µm bonded ball accuracy	Ⓜ Cassette-to-cassette auto wafer handling vacuum wafer chuck thin wafer handling	[kns.com] ❖ Steve Gudknecht sgudknecht@kns.com ☎ 215.784.6649
Palomar Technologies 2230 Oak Ridge Way Vista, CA 92083 ☎ 760.931.3600 📅 1995 ★ Kevin Conlon	Gold Bumper ☑ July 2002 Ⓐ A Ⓢ \$205K ● Thermosonic, ball	① Flip Chip ② Wireless ○ 80µm @ 3 sigma ☑ X: 300mm Y: 150mm	⌚ S= <5 min. D= <15 min. ❖ ±5µm @ 3 sigma	Ⓜ Continuous bonding handlers, standard Auer boats, custom handling, SMEMA compatible Ⓢ Not supplied	[palomartechnologies.com] ❖ Jerry Jordan jjordan@bonders.com ☎ 760.931.3600 ❖ sales@bonders.com ☎ +65.6779.2766 (Asia) ☎ +49.9131.480093 (Europe)
	CBT 6000 ☑ July 1998 Ⓐ A Ⓢ \$150-195K ● Thermosonic, ball	① Hybrids ② Opto ○ 80µm @ 3 sigma ☑ X: 300mm Y: 150mm	⌚ S= <5 min. D= <15 min. ❖ ±5µm @ 3 sigma	Ⓜ Continuous bonding handlers, standard Auer boats, custom handling, SMEMA compatible Ⓢ Not supplied	
	2470-V ☑ July 1994 Ⓐ A Ⓢ \$100-140K ● Thermosonic, wedge	① Hybrids ② Ribbon ○ 50µm @ 3 sigma ☑ X: 300mm Y: 127mm	⌚ S= <5 min. D= NA ❖ ±12µm @ 3 sigma	Ⓜ Manual or fully automatic handling of multiple packages SMEMA compatible Ⓢ Not supplied ⑦ 1219 x 813mm	
	2460-V ☑ April 1994 Ⓐ A Ⓢ \$85-100K ● Thermosonic, ball	① Hybrids ② Opto ○ 115µm @ 3 sigma ☑ X: 300mm Y: 127mm	⌚ S= <5 min. D= NA ❖ ±12µm @ 3 sigma	Ⓜ Manual or fully automatic handling of multiple packages SMEMA compatible Ⓢ Not supplied ⑦ 1219 x 813mm	
Shinkawa USA Inc. 1930 S. Alma School Road, Suite D-107, Mesa, AZ 85210 ☎ 480.831.7988 ☎ 480.831.9480 📅 1959 ★ Sadashi Iida	UTC-1000 ☑ 2001 Ⓐ A ● Gold thermosonic wire bonder	① ICs ② Multichip including stacked CSP ○ 45µm ☑ X: 55mm Y: 65mm	⌚ S= <3 min. D= <5 min. ❖ ±2µm @ 3 sigma	Ⓜ Strip, flat carrier, tape BGA Ⓢ L=95-262mm W=20-80mm T=0.07-0.7mm ⑦ 700 x 700mm	[shinkawausa.com] ❖ Doug Day d_day@shinkawausa.com ☎ 480.831.7988