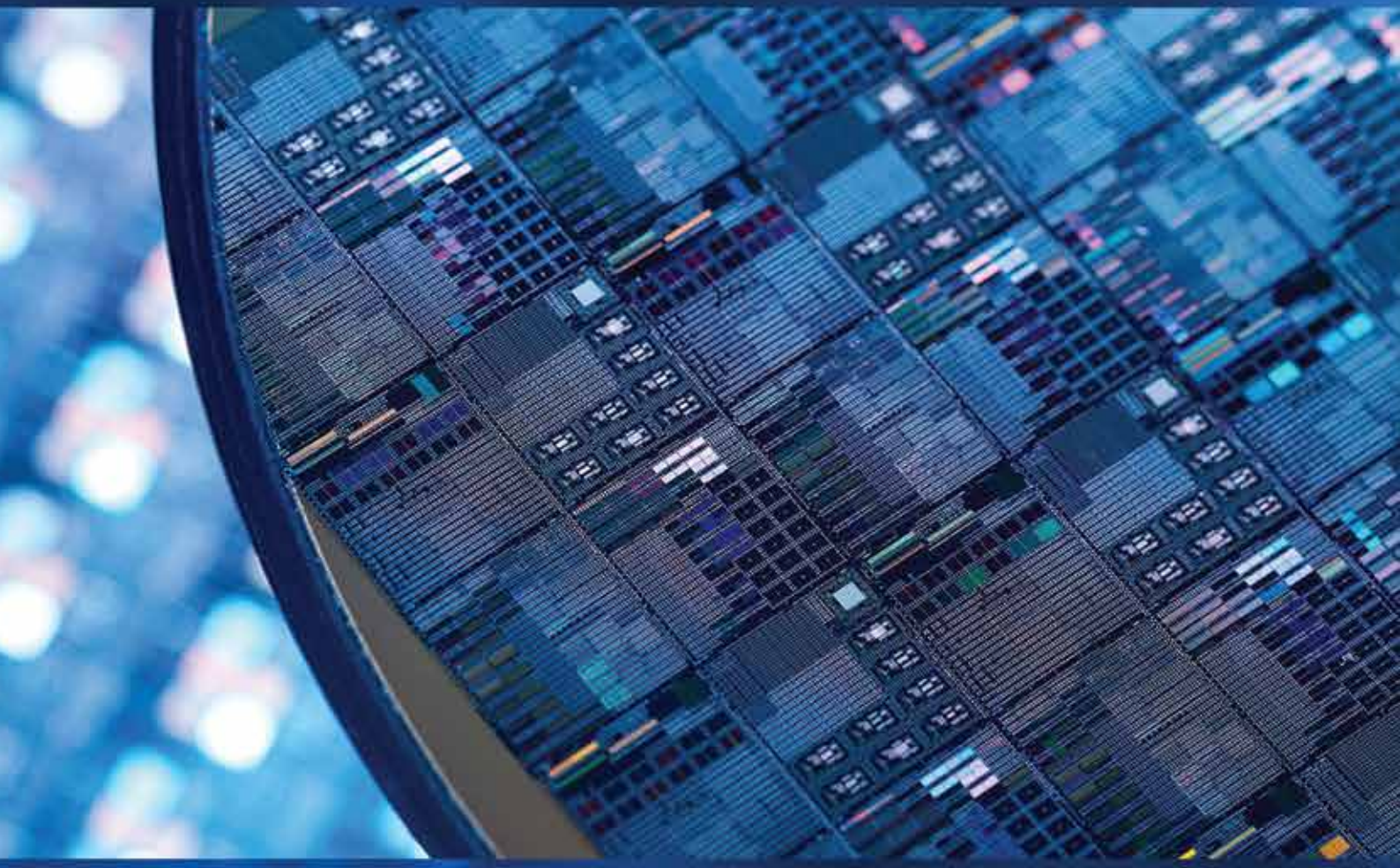
RICUS
SEMICON SOLUTIONS

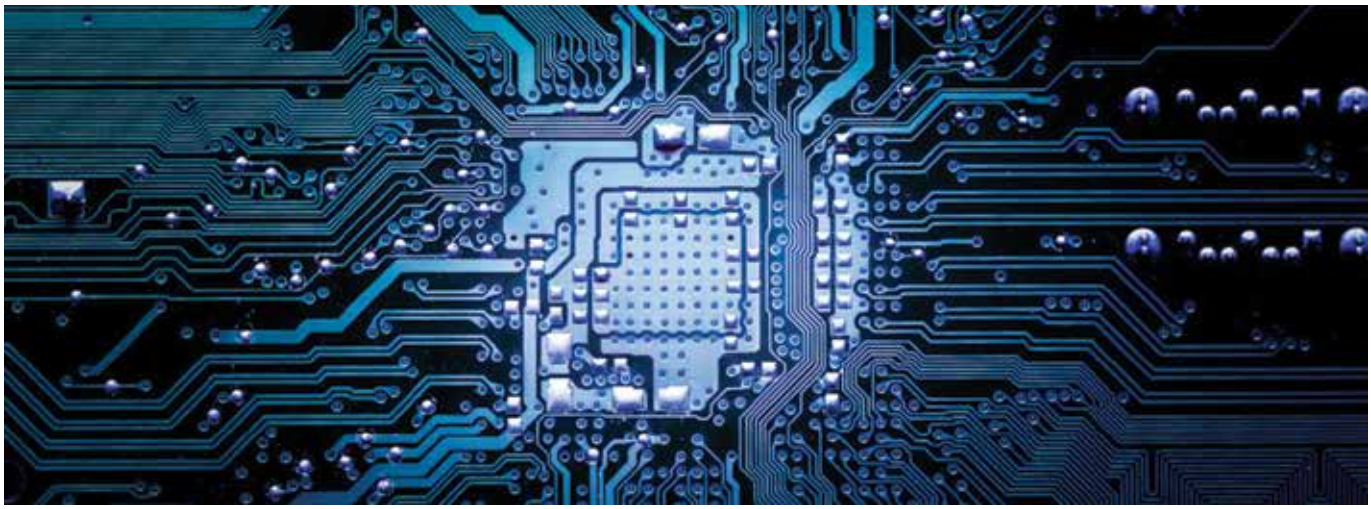
Semiconductor Backend Tools Catalog



2022

ORICUS
SEMICON SOLUTIONS

AT A GLANCE



Oricus Semicon Solutions is an innovative Semiconductor Tools manufacturing company who, with almost 100 years of collective expertise, craft high tech bespoke tooling solutions for the global Semiconductor Assembly and Test industry.

From one-off customised products to large scale production, our R&D strength, precision manufacturing experience and problem-solving capabilities are impeccable. With a passion for engineering and customer oriented service, we deliver price competitive precision Semiconductor Tooling solutions to a global market with a local presence.

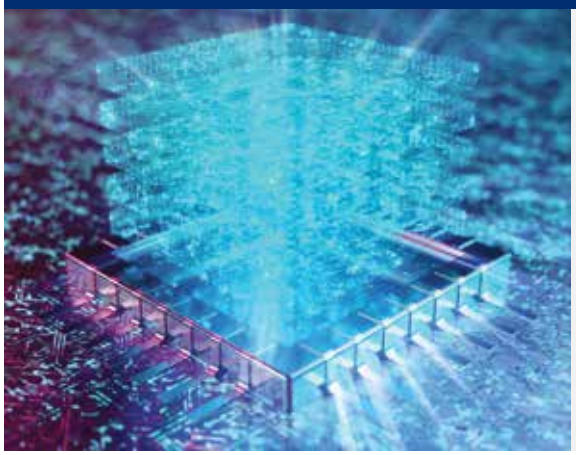
Oricus is a made up of a global network of professionals with strong commitment and passion for our work. The company is managed and operated with a spirit of professionalism based on the foundation of integrity, equality and respect. We are determined, objective with a sense of ownership to deliver on our goals. We value our values, professionalism, passion, perseverance and our relentless pursuit to deliver value for our customers.

Authenticity **Expertise** **Professionalism** **Perseverance** **Passion** **Community**

Oriented to Customer's needs

We excel at creating specials – one of a kind pieces, with one of a kind craftsmanship combining with the latest in manufacturing technology to produce micro precision tooling. Oricus can Design and Manufacture either one-offs or high volume orders to your unique specifications, from High Temperature resistant tools for Power Devices to tools with complex geometries for 3D Advanced Packaging.

Industry Leading Solutions

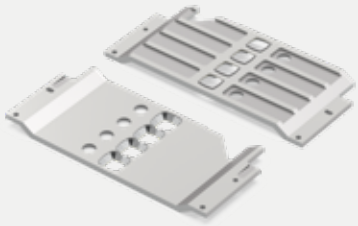


Our Technical Sales Consultants and R&D teams of seasoned Semiconductor Assembly and Test industry professionals will study your chip and package requirements and offer effective and competitive tooling solutions that will work right out of the box. Oricus has the solution to your tooling requirements. Leave it to us and you can focus on your key processes.

Research and Development

R&D is the cornerstone of our commitment to deliver market leading tooling solutions. Our Material Science know-how, coupled with our Manufacturing Expertise and knowledge on the latest demands of Integrated Circuits Packaging allow us to offer tools that maximizes productivity and minimizes downtime.

Wire Bond. Product Families

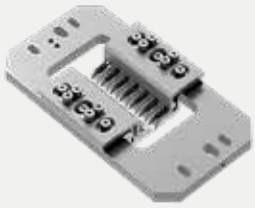


Window Clamp Inserts

Custom designed to your package, the Window Clamp holds leadframe fingers to the Heat Block Insert for precise wirebonding of interconnects to be performed.

Heat Block Inserts

Consists of a frame supporting face and a die pad supporting face and used as a leadframe support plate during the Wirebond process.



Finger Clamps and Bridges

Bridges are used to hold the Finger Clamps in place, while the Finger Clamps contact the lead of the leadframe for the Wedge Bonding process.

Anvil Blocks

Wedge Bonding Anvil Blocks are used as a platform to support the leadframe pad and fingers when the finger clamps applies a downward force for the bonding process.

Part Numbers And Ordering

Type Code

T - Window Clamp Insert
H - Heater Block Insert
S - Window Clamp + Heater Block Insert (Set)
P - Sub-Parts

Material Grade

A to Z. Refer to material tables for full listing

Machine Model

A to Z. According to different machine models

Design Version

1 to 99

WB	W	—	S	M	—	K	A	0001	—	1

Product Code

WB - Wire Bond

Material Code

L - Stainless Steels
S - Steels

Machine Make

M - ASM
E - ESEC
K - K&S
U - Shinkawa

Running Serial

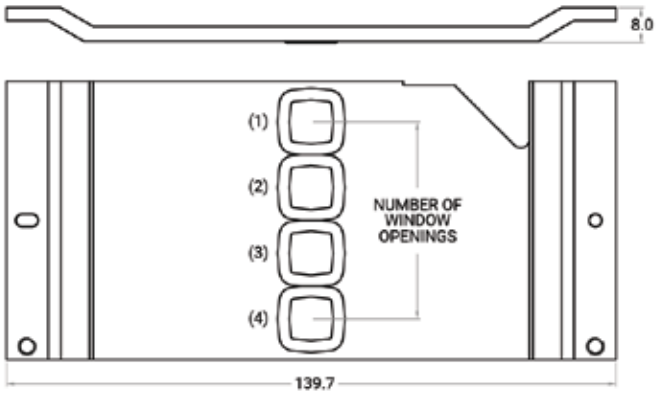
0001 - 9999
Serial to identify the specific design of this tool

Window Clamp Insert

Window Clamp Inserts are made up of an array of multiple Wirebonding windows with corresponding cavities that are designed and manufactured to the relative position of Semiconductor dies that are to be wirebonded.

The Window Clamp Insert holds leadframe fingers to the Heat Block Insert to allow for wirebonding interconnects to be made between the leadframes and Integrated Circuit (IC) components.

Oricus manufactures a wide range of Window Clamp Inserts to fit a wide range of machines from OEMs such as K&S, ASM, Shinkawa and more.



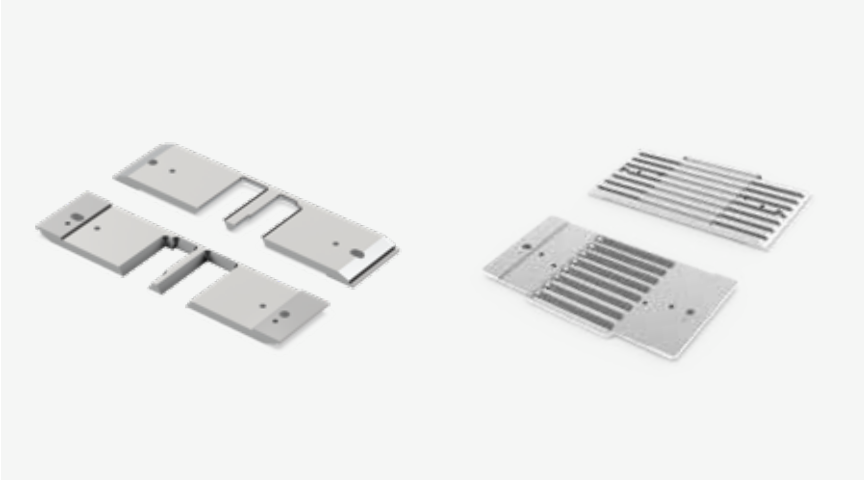
Features

- Suitable for use in a wide range of Wirebonding machines
- Cavity openings are designed and manufactured according to exacting standards to avoid the common issues such as Non-Stick On Lead (NSOL)
- Width cavity openings machined to precision tolerances for optimal perpendicularity, concentricity and minimum hole-to-hole offset

Benefits

- Our Window Clamp Inserts are designed and manufactured for a perfect fit to your specific application and equipment
- Plug-and-Play convenience that reduces set up time
- Manufactured to allow for uniform clamping force to be applied around the lead fingers or substrate for maximum stability
- Designs are catered towards the elimination of float during the wirebonding process
- In depth understanding of the benefits and limitations of various Wirebond equipment allows us to design the best tool for your particular application

Part Number	Number of Window Openings
WBW-SM-KA0001-01	4
WBW-SM-KA0002-01	5
WBW-SM-KB0001-01	4
WBW-SM-KB0002-01	6
WBW-SM-KC0001-01	5
WBW-SM-KC0002-01	5



ESD Properties

Conductive < 10^5 Ω

Applications

Ball Bonding

Material

Stainless Steels
Tool Steels

Customization

Number of window openings
Designs of window profiles

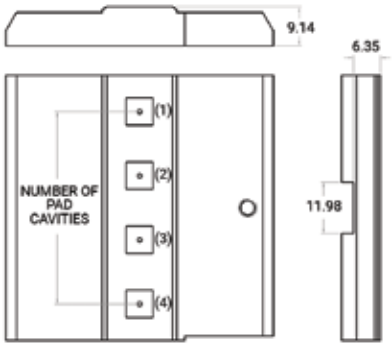
Heat Block Insert

Heater Block Insert is a Wirebond tool that is made up of a frame supporting face and a die pad supporting face and used as a leadframe support plate during the Wirebond process.

The Heater Block Insert features a mounting platform designed to accommodate a lead frame and a die that is attached to the lead frame. The heating element of the Heater Block Insert includes a centralized heating surface and peripheral heaters around the centralized heating surface. This allows the selective heating of the locations on the lead frame in preparation for wirebonding.

In order to ensure a smooth and productive Wirebond process, a Heater Plate that is designed specifically for your leadframe and package is important.

Oricus manufactures a wide range of Heater Block Inserts to fit a wide range of machines from OEMs such as K&S, ASM, Shinkawa and more.



Features

- Suitable for use in a wide range of Wirebonding machines
- Die pad cavities are machined to ensure exacting position tolerances relative to your leadframe or substrate
- Contact surfaces and datums of our Heat Block Insert are precision machined for superior flatness to ensure firm workholding of the leadframe or substrate
- Wide variety of die pad cavity designs like Flat, Angle, Upper Bias, Lower Bias and other customized designs to resolve issues like Non-Stick On Pad (NSOP), die crack and missing wires
- Materials for our Heat Block Inserts are selected with great care for their excellent heat transfer properties that delivers uniform heat distribution on the contact surfaces of the leadframe or substrate

Benefits

- Our Heat Block Inserts are designed and manufactured for a perfect fit to your specific application and equipment
- Plug-and-Play installation that reduces waste and minimizes set up time
- Precision controlled flatness on the pad cavity and top surface of the heater plate ensures a smooth and productive Wirebonding process
- Wealth of experience in the requirements for different types of packages
- In depth understanding of the benefits and limitations of various Wirebond equipment allows us to design the best tool for your particular application

Part Number	Number of Pad Cavities
WBH-SM-KA0001-01	4
WBH-SM-KA0002-01	5
WBH-SM-KB0001-01	4
WBH-SM-KB0002-01	6
WBH-SM-KC0001-01	5
WBH-SM-KC0002-01	5

ESD Properties

Conductive < 10^5 Ω

Applications

Ball Bonding

Material

Superalloys
Stainless Steels
Tool Steels

Die Pad Cavity Designs

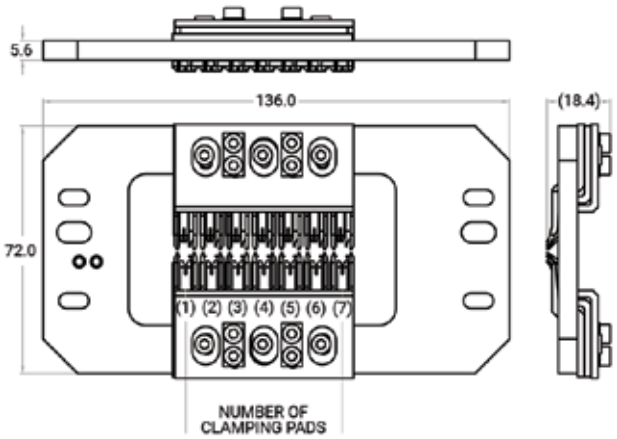
Flat
Angle
Upper Bias
Lower Bias

Finger Clamps and Bridges

Finger Clamps and Bridges are used in the Wedge Bonding process, which is also commonly known as Aluminium Bonding. Power devices, High Current devices and Chip-on-Board (COB) applications that have a high level of current passing through the die and lead fingers interconnect are candidates for Wedge Bonding.

Bridges are used to hold the Finger Clamps in place, while the Finger Clamps contact the leads of the leadframe for the Wedge Bonding process. The screw thread positions on the Bridges will be customized according to your leadframe and Finger Clamp design.

Oricus manufactures a wide range of Finger Clamps and Bridges to fit a wide range of machines from OEMs such as K&S, Palomar, F&K and more. Finger Clamps and Bridges are fully customizable to your leadframe design and application requirements.



Features

- Designed for your application to fit a wide range of different Wedge Bonding machines
- Each finger clamp is machined to exacting tolerances of positioning and flatness to minimize offset and clamping issues
- Materials used are carefully selected which provides the right level of hardness for holding the lead fingers and at the same time offering pliability and resilience to ensure the lead fingers do not crack when in use
- Finger Clamps and Bridges are designed to allow for micro adjustments to cater to variations in leadframe dimensions

Benefits

- Finger Clamps come in 2 or 3 layer stacks, depending on your leadframe and wire position
- Design offers uniform clamping forces to be applied throughout all the lead fingers to ensure stability and minimum float during bonding
- Application oriented design offers high yield, high productivity with minimum downtime
- Design team will study your package requirements and Wedge Bonder equipment to offer you a fuss-free tailormade solution

Part Number	Number of Clamping Pads
WLS-LE-0001-01	7
WLS-LE-0002-01	3
WLS-LE-0003-01	6
WLS-LE-0004-01	4

ESD Properties

Conductive < 10^5 Ω

Applications

Wedge Bonding

Material

Superalloy
Stainless Steels
Tool Steels

Customization

Number of clamping pads
Fingers layout and profile

Anvil Blocks

Wedge Bonding Anvil Blocks are used as a platform to support the leadframe pad and fingers when the finger clamp applies a downward force for the wedge bonding process.

Our Anvil Blocks can be designed according to the pad size, pitch and profile of your leadframe, or according to your other application requirements. Wedge Bonding Anvil Blocks are fully customizable to your leadframe design and requirements.

Oricus manufactures an extensive range of Wedge Bonding Anvil Blocks to fit a wide range of machines from OEMs such as K&S, Palomar, F&K and more.

Applications

Wedge Bonding

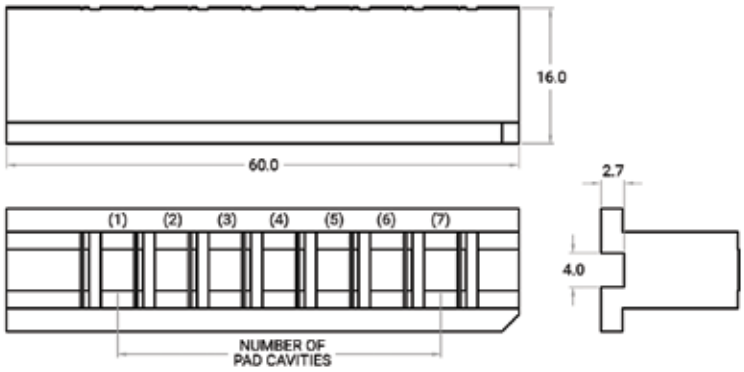
Material

Superalloy
Stainless Steels
Tool Steels

Customization

Number of pad cavities
Pad cavites profile

Part Number	Number of Pads Cavities
WLA-VD-0001-01	7
WLA-VD-0002-01	3
WLA-VD-0003-01	6
WLA-VD-0004-01	4



Features

- Suitable for use in a wide range of Wedge Bonding machines
- Available in various Carbide, Superalloys and Hardened Tool Steel grades that are suitable for Cleanroom environments
- Our Anvil Blocks are precision machined to exacting dimensional tolerances with tightly controlled surface finishes and flatness.

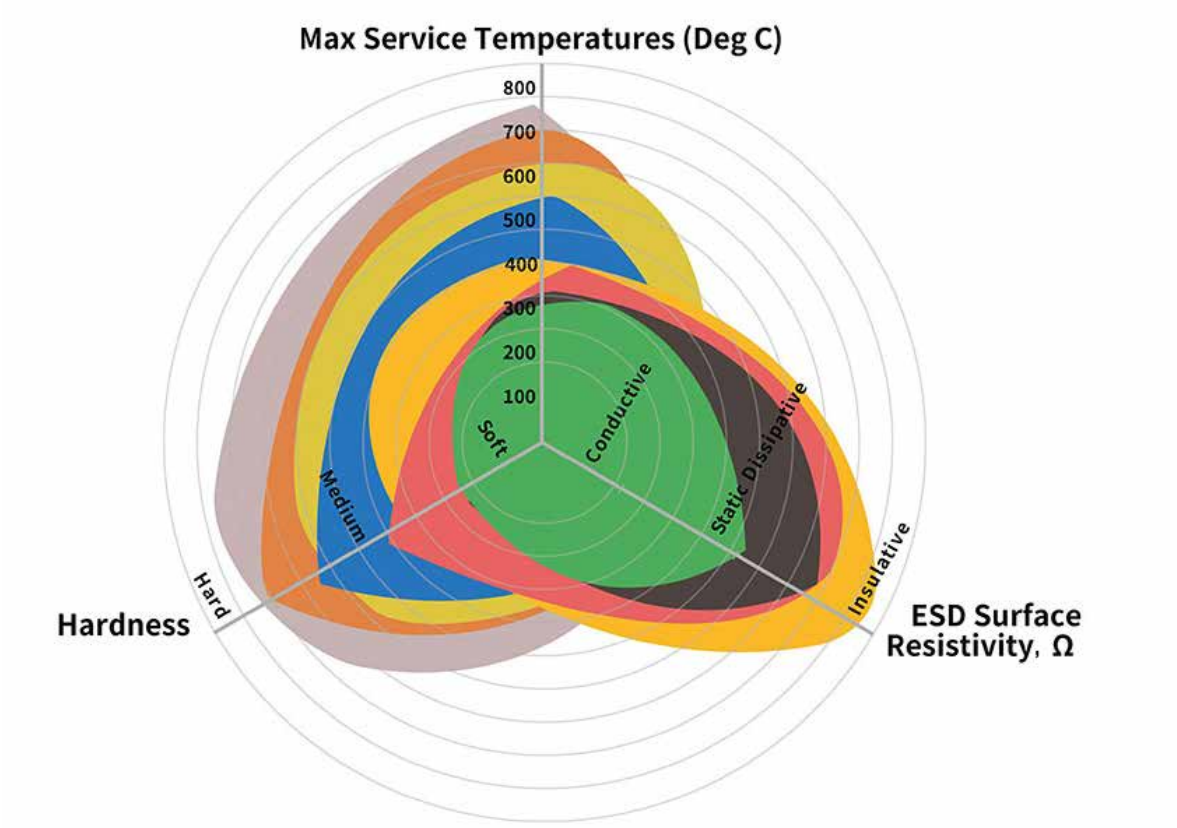
Benefits

- Anvil Blocks are designed specifically for your application, accounting for all machine features and specification
- Our proprietary Plug-and-Play design allows you to reduce set up time to a minimum
- Design methodology behind our Anvil Blocks is to maximize productivity and reduce waste for our customers

MATERIALS

Oricus's extensive line of engineered materials specially developed and selected to offer optimal tooling performance for your specific Semiconductor Backend process. Our in-house materials are closely developed in partnership with Original Equipment Manufacturers with input from our customers. For externally procured materials, each material goes through a rigorous Quality Assurance and Performance Assessment programme before making it into our material list.

Oricus' in depth understanding and experience of materials allows us to formulate tooling solutions that work for you. As part of our value proposition, we study the conditions of your application and suggest the most appropriate material that meets your needs.



Tungsten Carbide *WC Line*

Superalloy *SA Line*

Stainless Steel *SS Line*

Tool Steel *TS Line*

Non Ferrous Metals *NF Line*

Performance Engineering Plastics *SP Line*

Engineering Plastics *EP Line*

Rubber *R Line*

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WC LINE

Tungsten Carbide

High Wear & High Temp Resistance

Carbide, K15

Carbide, K30

Carbide, M30

Carbide K40

Carbide, MG30

SA LINE

Superalloy

All-Round Superior Performance

Haynes 25 (L605)

Inconel Alloy 625
Inconel Alloy 718
Incoloy Alloy 925

Nitronic 50
Nitronic 60

Titanium Grade 2

Stellite 6
Stellite 31

SS LINE

Stainless Steel

Balanced Properties

15-5 PH
17-4PH

SUS 430F
SUS 420
SUS 440C
SUS 316
SUS 301
SUS 304
SUS 303

TS LINE

Tool Steel

High Strength

CPM-10V
SKD 11
SKH 51
Mirrax 40
ASP 23
Stavax
XW 10
XW 42
Assab 718 - HH

HSS
DF2
DF3
Ramax HH
Rochling 2315

NF LINE

Non Ferrous Metals

Special Applications

Aluminium 7075
Aluminium 6061

Copper
Brass
Hovadur K350

SP LINE

Performance Engineering Plastics

Advantageous Performance & Value

Torlon 4432 (PAI)
Torlon 4301 (PAI)
Torlon 5030 (PAI)
Torlon 7130 (PAI)

Vespel SCP5050(P)
Vespel SP 21 (PD)
Vespel SP1 (PI)

ESD Semitron 520
ESD Semitron 420
ESD Semitron 410C
ESD Semitron 225

EP LINE

Engineering Plastics

Economical And Versatile

Acrylic/ Polycarbonate

TECAFORM SD

Delrin ESD
Delrin White
Delrin Black
POM

PEEK
PEEK HT
PEEK GF 30%
PEEK CF 30%

R LINE

Rubber

Geometric Flexibility
ESD Protection

NBR
NBR (Soft)
NBR (Hard)
NBR (Coated)

HPR
HPR (Soft)
HPR (Hard)

UPR

CR (ESD)
CR

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Contact Us

United States

40 Trolley Square, Wilmington, Delaware

us.sales@oricus-semicon.com

+1 302 725 3188

United Kingdom

15 Charleville Circus, Flat 3 London

eu.sales@oricus-semicon.com

+44 330 128 9181

Singapore

2, 488 Sims Avenue, Singapore, 387560

sg.sales@oricus-semicon.com

+65 68649617

Malaysia

8, Jalan Damanlela, Pusat Bandar Damansara Wilayah Persekutuan, Kuala Lumpur

my.sales@oricus-semicon.com

+60 154 600 0140

Philippines

I Light Industry and Science Park of the Philippines Cabuyao, Laguna

ph.sales@oricus-semicon.com

+63 2 8271 2168

China

Block D, Hangcheng Smart Security Science Park Shenzhen Guangdong

cn.sales@oricus-semicon.com

+86 400 842 7789

Hong Kong

#28-34, 88 Commercial Building Wing Lok St Sheung Wang

hk.sales@oricus-semicon.com

+852 3008 8283

Taiwan

7F, No.2-1, WhenHu Street Taipei, 11445

tw.sales@oricus-semicon.com

+886 2 7753 5371

Korea

27 Noksapyeong-daero 26ga-gil Seoul Seoul

kr.sales@oricus-semicon.com

+82 2 2023 6568

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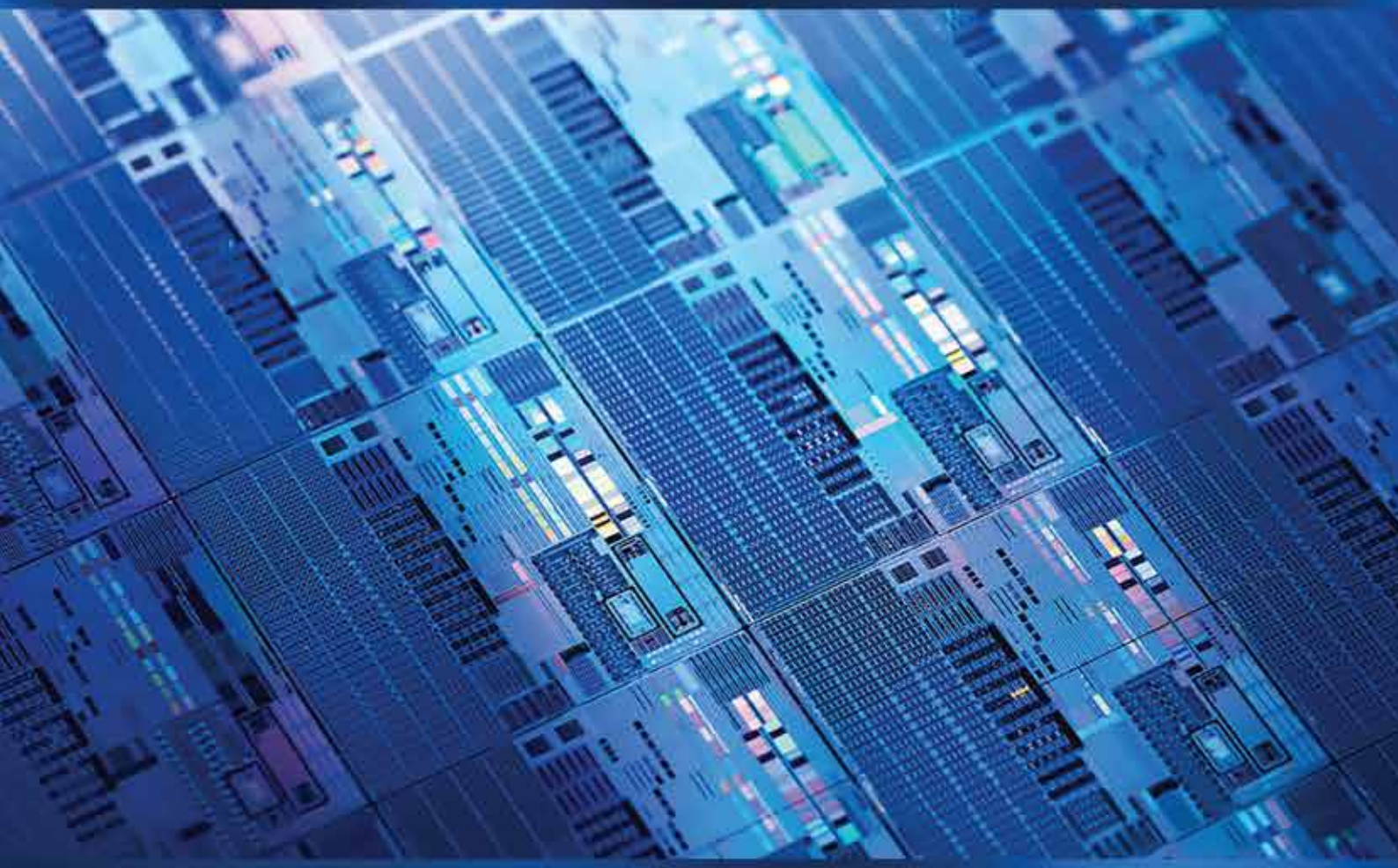

www.oricus-semicon.com
info@oricus-semicon.com