

TOTAL TECHNOLOGIES



One-Stop Metal Fabrication Specialist



TT ENGINEERING AND MANUFACTURING SDN BHD 198501001520 (133967-A)
No 1, Jalan 6/1, Lot 3472, Kawasan Seri Kembangan 43300 Selangor Malaysia
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Aluminium Extrusion
Metal Fabrication
Metal Finishing



ISO 9001 Certified ✓

PRIVATE & CONFIDENTIAL



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ORGANISATION OVERVIEW

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Who are WE?

TT Engineering & Manufacturing Sdn Bhd is a leading aluminium manufacturer providing one-stop extrusion and metal fabrication solution, with more than **three decades of experience** in the design and manufacture of aluminium profile and metal parts for semiconductor electronics, automotive and value added contract manufacturing for OEM customers.

YEAR AND PLACE OF INCORPORATION : 23RD January, 1985, Malaysia

BUSINESS ADDRESS : No 1, Jalan 6/1, Lot 3472, Kawasan Seri Kembangan 43300 Selangor Malaysia

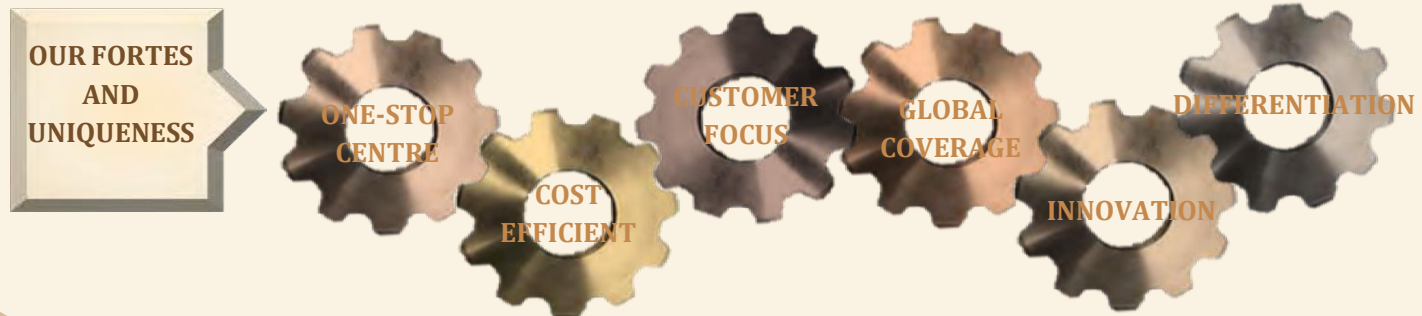
FACILITY BUILT-UP : upto 60,000 sqft / 6,363 sqm over land area of 2.43 acres / 9,860 sqm

RESOURCES HEADCOUNT : < 100 employees

MANUFACTURING SERVICES : Extrusion press, CNC machining centre, conventional machining, metal finishing

CORE BUSINESS : Aluminium Extrusion, metal fabrication, engineering works, metal finishing

KEY INDUSTRY SEGMENTS : Semiconductor; electronics, automotive, value add contract manufacturing for OEM



Company Background

1982 - 1989

- Local partnership formation
- Design and manufacture of extruded aluminium lead frame magazine for semiconductor
- Business evolution in the design and fabrication of aluminium and metal parts for semiconductor assembly FOL & EOL

1990 - 1999

- Accredited ISO 9002:1994 by Lloyd's(LRQA)
- Appreciation award from Sharp Roxy (M), AT&T Microelectronics (SG), National Semiconductor (M)
- Acquired 60,000 sqft land in Seri Kembangan
- Built own manufacturing plant
- Acquired extrusion press machine

2000 - 2015

- Embarked on ISO/TS 16949:2002, accredited by Lloyd's(LRQA)
- Implemented CAD/CAM automation system
- Collaborated with Ford and Volvo as 1st tier supplier
- Capacity expansion in CNC milling, laser cutting and laser engraving machines
- Certified for ISO 9001:2008 by Moody International
- Certified for ISO 9001:2008 by Intertek

2015 - 2022

- Expansion of CNC lines - setup Hurco CNC machines center
- Invested in vibratory (tumbling), sawing, hydraulics and power press machines
- Product diversification in semiconductor carriers, cassettes, wafer ring
- Export market expansion to more countries in Europe, Asia



Vision & Mission

OUR VISION

To be a leading engineering products manufacturer and distinctive solutions provider to our end customers

Leading -to be in the industry forefront
Distinctive -to differentiate our product and services against market competitors

OUR MISSION

We collaborate with our customers and suppliers to provide innovative solutions through teamwork and creative involvement

Collaborate - to partner with our customers and suppliers in delivering our solutions
Innovative - to be thinking out of the box

TOGETHER WE STAND



Quality Policy and Objective

OUR QUALITY POLICY

We strive to meet customers' expectation by providing quality engineering product and timely delivery through employee participation and continuous improvement culture.

OUR QUALITY OBJECTIVE

- ★ *Achieve good rating in customer satisfaction*
- ★ *Attain cost leadership*
- ★ *Grow and partner with suppliers*

Achieve good rating in customer satisfaction through on-time delivery, increased value-added services and competitive pricing.

Attain cost leadership in continual drive for cost reduction in manufactured goods and associated processes.

Grow and partner with suppliers towards improved delivery and non-conformities.

Customer Appreciation



AT&T Microelectronics Pte. Ltd.

Certificate of Appreciation

Presented To

TT Engineering & Manufacturing Sdn Bhd

Jeff Mowla
Jeff Mowla
Managing Director
Nov 17, 1994



AT&T Microelectronics Pte. Ltd.

Certificate of Appreciation

In Appreciation of your
Continued Support.
TT Engineering &
Manufacturing Sdn. Bhd.

Jeff Mowla
Jeff Mowla
Managing Director



MANUFACTURING CAPABILITIES

DESIGN CAPABILITIES

We provide custom design assistance and engineering consultancy to suit the varying needs of both niche and diversified markets. Customer requirements are studied meticulously by our technical experts to offer enhanced design alternatives despite giving cost effective solutions. Our competitive advantage lies here in terms of service and cost differentiations which simultaneously ease satisfied customers while exceeding their expectations.



ALUMINIUM EXTRUSION

We offer both upstream and downstream manufacturing capabilities with specialisation in tight tolerance, high precision and quality extrusions for a wide range of aluminium parts and components in the automotive, refrigeration, building & construction, electronics, furniture, event / showcase stand and many other engineering applications comprising both standard and custom designs.

We possess an 800 metric tonnes extrusion press machine capable of extruding these series of aluminium alloy : 6063, 6060, 6005, 6061 and 1050.



MANUFACTURING CAPABILITIES

METAL FABRICATION

We offer a broad range of value-add services through our comprehensive automated workshop and state-of-the-art technology all housed within a 6,400 sqm manufacturing plant.

- ★ CNC machining center
- ★ Automated milling, drilling, grinding, tapping, threading, lathe working, sawing, bending, shearing, forming, stamping and riveting, and laser technology for cutting, welding, marking / engraving and barcoding

SURFACE FINISHING

We possess the knowledge, well equipped skills and surface finishing equipment in metal finishing, capable of offering customised finishing tailored to your specific needs. Our anodising and electroless nickel plating lines are capable of producing standard finishing and coating thickness for anti-corrosion, wear resistance and chemical resistance properties. Aside to surface protection, we provide options for product identification and decorative purposes. We offer powder coating and spray paint as well. Our chemical coatings are environmental friendly, both REACH and RoSH compliance. Refer to our colour chart for the available finishes.



QUALITY CONTROL

We strive at continuous improvement in timely delivery of good quality and service to our customers. We practice tight in-house quality control with a pool of standard inspection and test equipment, and measuring tools such as go-no-go gauges, feeler gauge, height gauge, hardness tester, vision scanner, digital calipers, magnified luxo lamps, ESD meter to support the monitoring and control of product non-conformances. We possess a testing laboratory to back and assist our finishing activities. In terms of service differentiation, we offer customised testing, inspection jigs and gauges to our genuinely satisfied customers.



MANUFACTURING FACILITIES

Facilities	Equipment	Description
Extrusion	Extrusion Press	800 Metric Tonnes Extrusion Press, Ageing Furnaces, Billet Oven, Chained Conveyor
Production	Auto-saw	Automatic Sawing Machines Used On Extruded Profiles
	Router	Slotting And Opening
	Grinder	Surface Grinding And Cutting
	Sanding	Profile Sanding, Shaping
	Power Press	Stamping, Blanking, Ranging From 10 To 50 Tonnes Presses
	Polishing	Surface Polishing, Deburring
	Shearing	Sheet Metal Blanking
	Rivet Punching	Riveting
	Drilling	Bench Drilling, Multi-splndle Drill
	Cnc Tap & Drill	Drilling And Tapping
	Cnc Milling	Milling
	Cnc Auto-lathe	Boring, Turning, Chamfering, Threading, Grooving,drilling
	Cnc Laser Marking	Fiber Optic Laser Engraving
	Forming	Hydraulic Spool Forming, Sheet Forming
	Bending	Pipe Bender
	Welding	Aluminium Welding, Steel Welding
Drawing	Pipe Drawing, Tube Drawing	



MANUFACTURING FACILITIES

Facilities	Equipment	Description
Finishing	Anodising	Anodise, Enp, Chromate, Bright Finish
	Ultrasonic	Ultrasonic Cleaning
	Sand Blasting	Sand Blast Surface Finish
	Spray Booth	Paint Finish
	Oven	Curing Oven
Qa / Metrology	Leak Test	Automotive Air Conditioning Tube, Refrigeration Tube
	Profile Projector	Extrusion Profile Validation
	Height Gauge	Height Measurement
	Granite Surface Plate	Qc / Qa Working Base
	Digital Caliper	Dimension Check
	Feeler Gauge	Clearance Measurement Between Surfaces
	Go-no-go Gauge	Dimensioning Check Tool
Technical	Autocad Inventor Lt2015	Integration To Cad / Cam
Tool & Die	Wire Cut, Edm	Tool And Die Making



OUR PRODUCTS

SEMICONDUCTOR DIVISION

LEAD FRAME MAGAZINE

We offer customisation for lead frame carrier or slot magazine in varying chip packages, capacity levels and pitching.

SERVICES :

- Open toolings for standard lead frame packages
- Design customisation for specific operating conditions
- Engraving and barcoding services

APPLICATION : Lead frame handling media for semiconductor assembly FOL and EOL processes

- ★ Die Attach
- ★ Wire Bond
- ★ Molding
- ★ Plasma Clean
- ★ Plating
- ★ Marking
- ★ Trim & Form

FINISHING :

- ★ Anodise / Electrolytic – refer to finishing colour chart
- ★ Hard Anodise
- ★ ENP
- ★ Other finishing available upon request



OUR PRODUCTS

SEMICONDUCTOR DIVISION

BOAT MAGAZINE / STAINLESS STEEL BOAT CARRIER

We assist in designing boat magazines and stainless steel boat carrier for your required packages and operating requirements. Our services includes :

SERVICES :

- ★ Open tooling for standard package sizes
- ★ Design customisation for specific operating requirement
- ★ Engraving and barcoding services

APPLICATION : Boat handling media for semiconductor assembly FOL processes

- ★ Die Attach
- ★ Baking
- ★ Testing
- ★ Wire Bond
- ★ Trimming

FINISHING :

- ★ Anodise / Electrolytic
- ★ Hard Anodise
- ★ ENP
- ★ Other finishing available upon request, refer to colour chart



OUR PRODUCTS

SEMICONDUCTOR DIVISION

WAFER CASSETTE / FRAME CARRIER

Wafer cassettes or wafer frame carriers are available in different wafer ring sizes, levels and pitching.

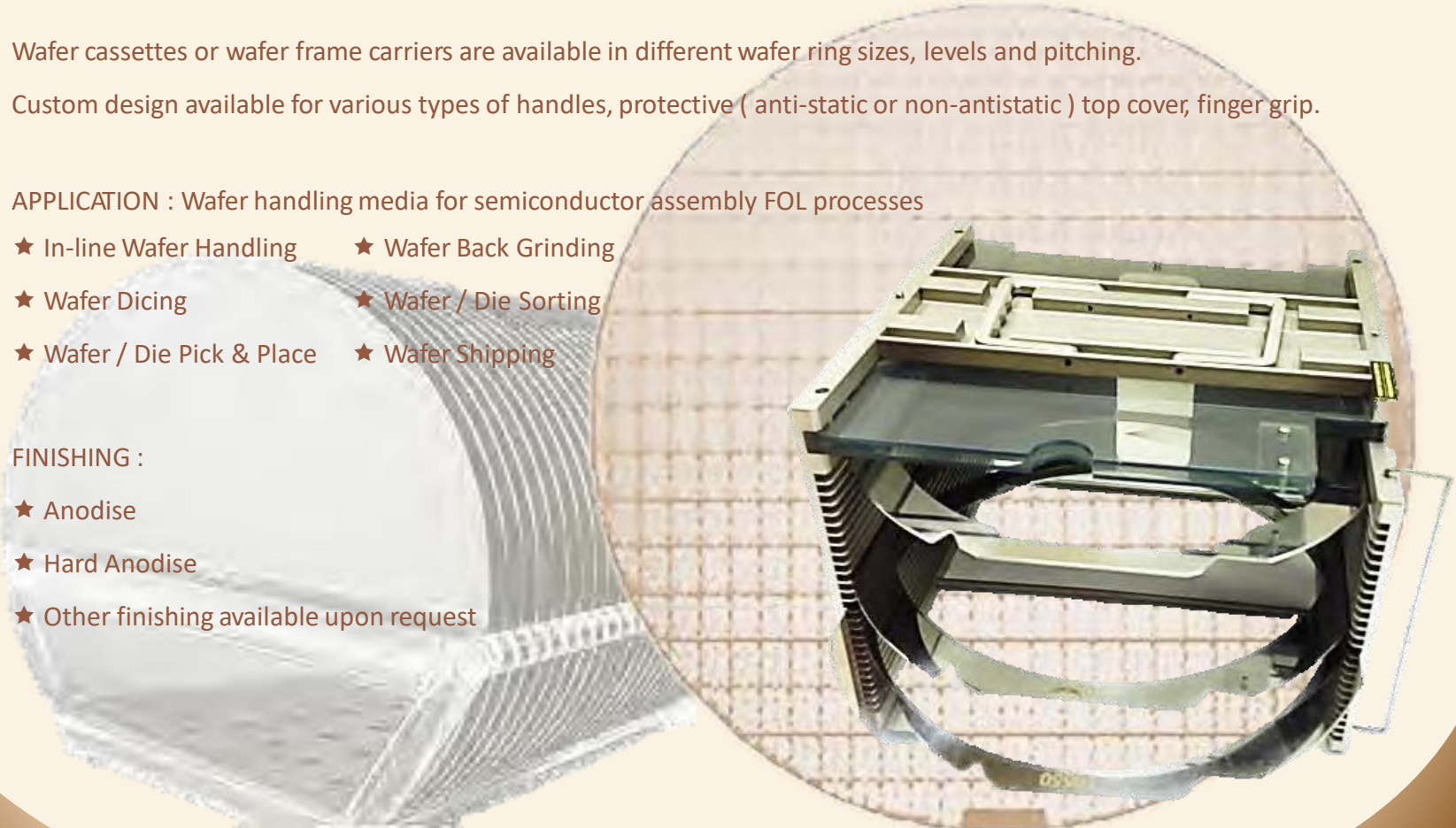
Custom design available for various types of handles, protective (anti-static or non-antistatic) top cover, finger grip.

APPLICATION : Wafer handling media for semiconductor assembly FOL processes

- ★ In-line Wafer Handling
- ★ Wafer Back Grinding
- ★ Wafer Dicing
- ★ Wafer / Die Sorting
- ★ Wafer / Die Pick & Place
- ★ Wafer Shipping

FINISHING :

- ★ Anodise
- ★ Hard Anodise
- ★ Other finishing available upon request



OUR PRODUCTS

SEMICONDUCTOR DIVISION

EOL CASSETTE (STACK MAGAZINE)

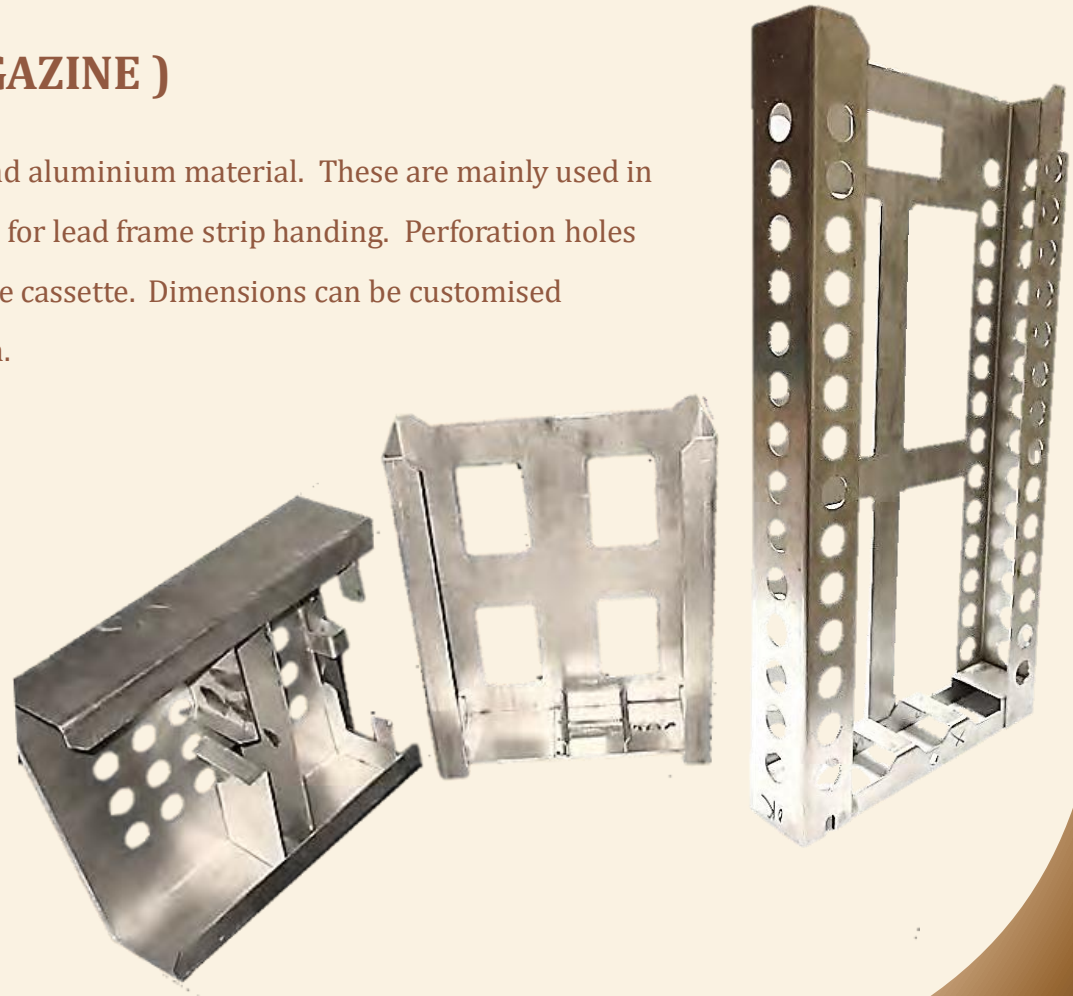
EOL cassette comes in both stainless steel and aluminium material. These are mainly used in the semiconductor assembly EOL operations for lead frame strip handing. Perforation holes can be added to compensate the weight of the cassette. Dimensions can be customised according to lead frame or strip specification.

APPLICATION :

- ★ Molding
- ★ Baking
- ★ Marking
- ★ Trim & Form
- ★ Plating

FINISHING :

- ★ Stainless steel
- ★ Natural Anodise

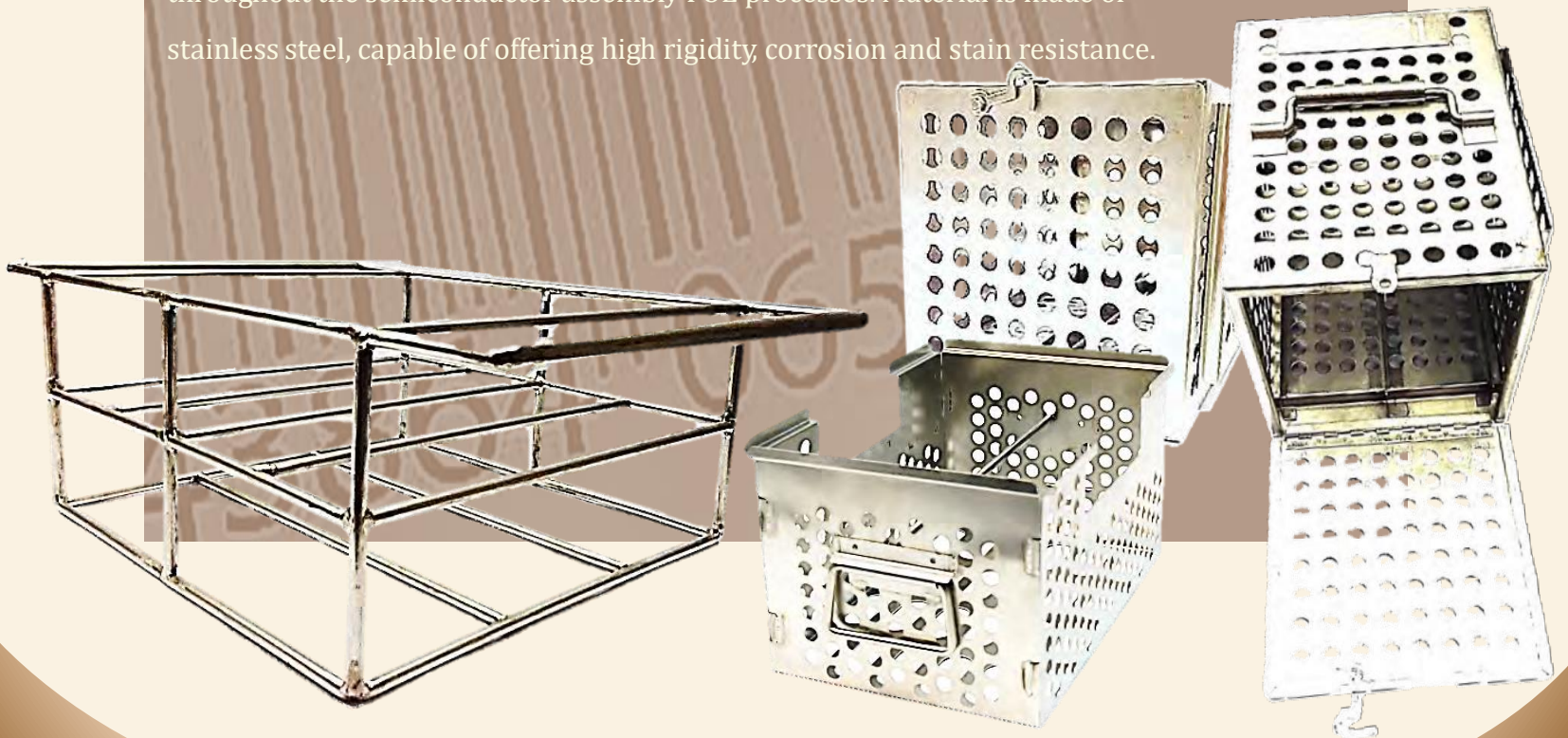


OUR PRODUCTS

SEMICONDUCTOR DIVISION

MAGAZINE CARRIER

Magazine carrier transports lead frame magazines from one station to another throughout the semiconductor assembly FOL processes. Material is made of stainless steel, capable of offering high rigidity, corrosion and stain resistance.



OUR PRODUCTS

SEMICONDUCTOR DIVISION

ALUMINIUM TUBE AND TRAY

Tube and tray are single piece extrusions, extruded and cut into length as per required IC chip package specifications. We offer a variety of end stopper designs ranging from rivet, silicone plug, teflon and embossed type.

TUBE APPLICATION : IC chip handling and tube transfer in these processes

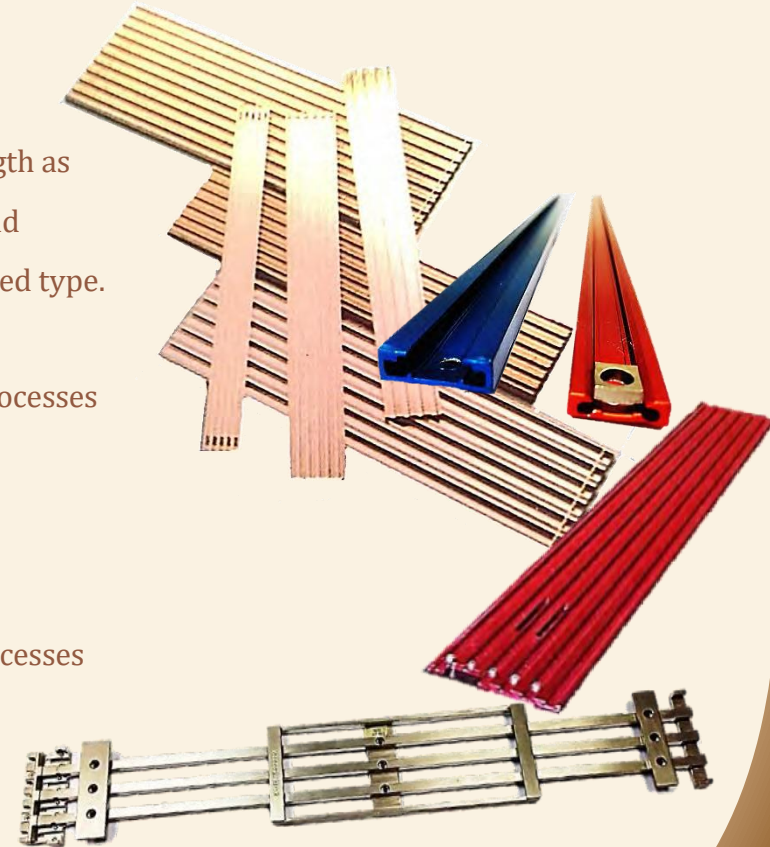
- ★ Bake
- ★ Marking
- ★ Burn-In
- ★ Trim & Form
- ★ Gravity Feed Handler Test

TRAY APPLICATION : IC chip handling and tray transfer in these processes

- ★ Bake
- ★ Burn-In
- ★ Gravity Feed Handler Test

FINISHING :

- ★ Anodise
- ★ ENP



IC Tube Holder



OUR PRODUCTS

SEMICONDUCTOR DIVISION

METAL REEL

Metal reel supports reel to reel lead frame strips transport, transfer and packaging in semiconductor assembly operations for reel-to-reel packages. Ribs can be added to enhance the rigidity of the reel. Dimensions can be customised according to lead frame strip specification to cater for varying chip packages.

FINISHING :

- ★ Hard Anodise



OUR PRODUCTS

SEMICONDUCTOR DIVISION

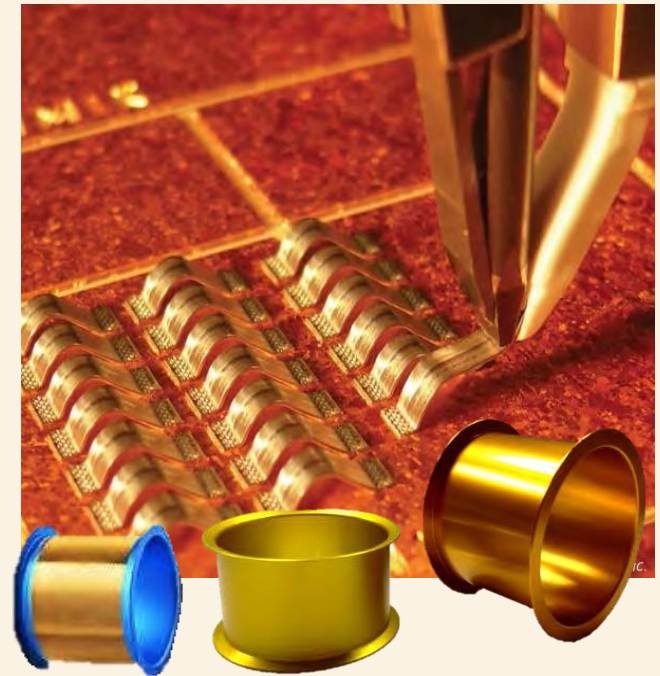
WIRE SPOOL

Spool is a single piece aluminium extrusion aided with precision machining according to customer specification.

APPLICATION : Wire bonding process for gold, silver and copper wires

FINISHING :

- ★ Anodise
- ★ ENP
- ★ Other finishing available upon request



OUR PRODUCTS

SEMICONDUCTOR DIVISION

ALUMINIUM MOULD BASE

Aluminium mould base is used in the LED frame production.

FINISHING :

- ★ Natural Anodise
- ★ Other finishing available upon request



ALUMINIUM END COVER

End covers are used together with lead frame magazine as a safety measure to prevent lead frame from sliding out of the magazine during application and / or handling processes.

End covers are designed to fit the magazine dimensions, designs can be tailored to your specific needs.



OUR PRODUCTS

VALUE ADD DIVISION

AUTOMOTIVE PROJECTS

★ Aluminium Side Step

Constructed from aluminium extrusion, natural anodised finish and assembled with end cap to enhance its appearance, mainly installed on four wheel drive vehicles.

★ Air-conditioning pipe / tube

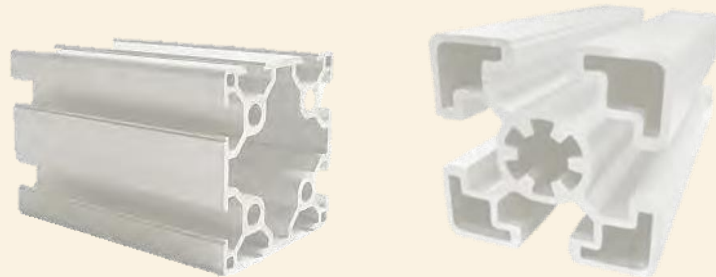
Aluminium extruded tubes drawn with precision to desired thickness while maintaining tube concentricity.



OUR PRODUCTS

VALUE ADD CONTRACT MANUFACTURING

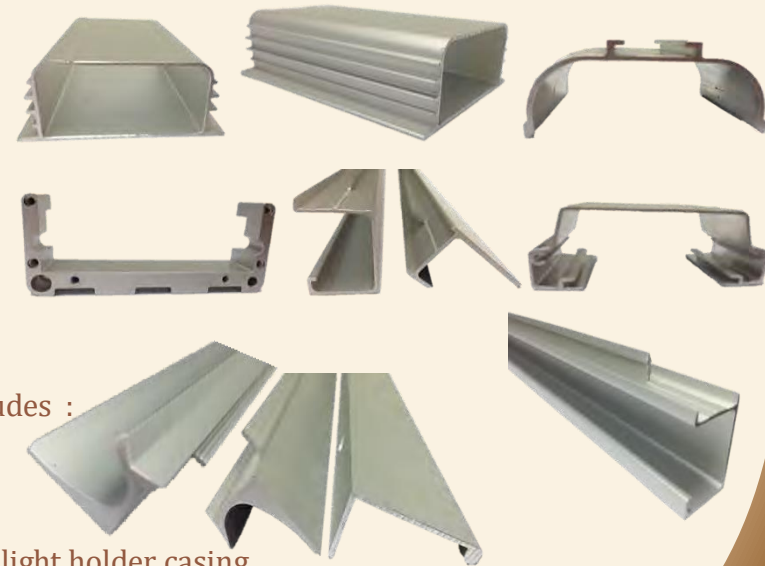
Our extrusion profile designs can be tailored to your customised needs. We are capable of delivering extruded products with high value add activities and design complexities. We continuously supply value added products such as road pavement marker, reflective light, computer electronics metal casing and furniture fittings for structural and decorative purposes.



Pavement Marker, Reflective Light



Furniture fittings, aluminium handles, frames etc

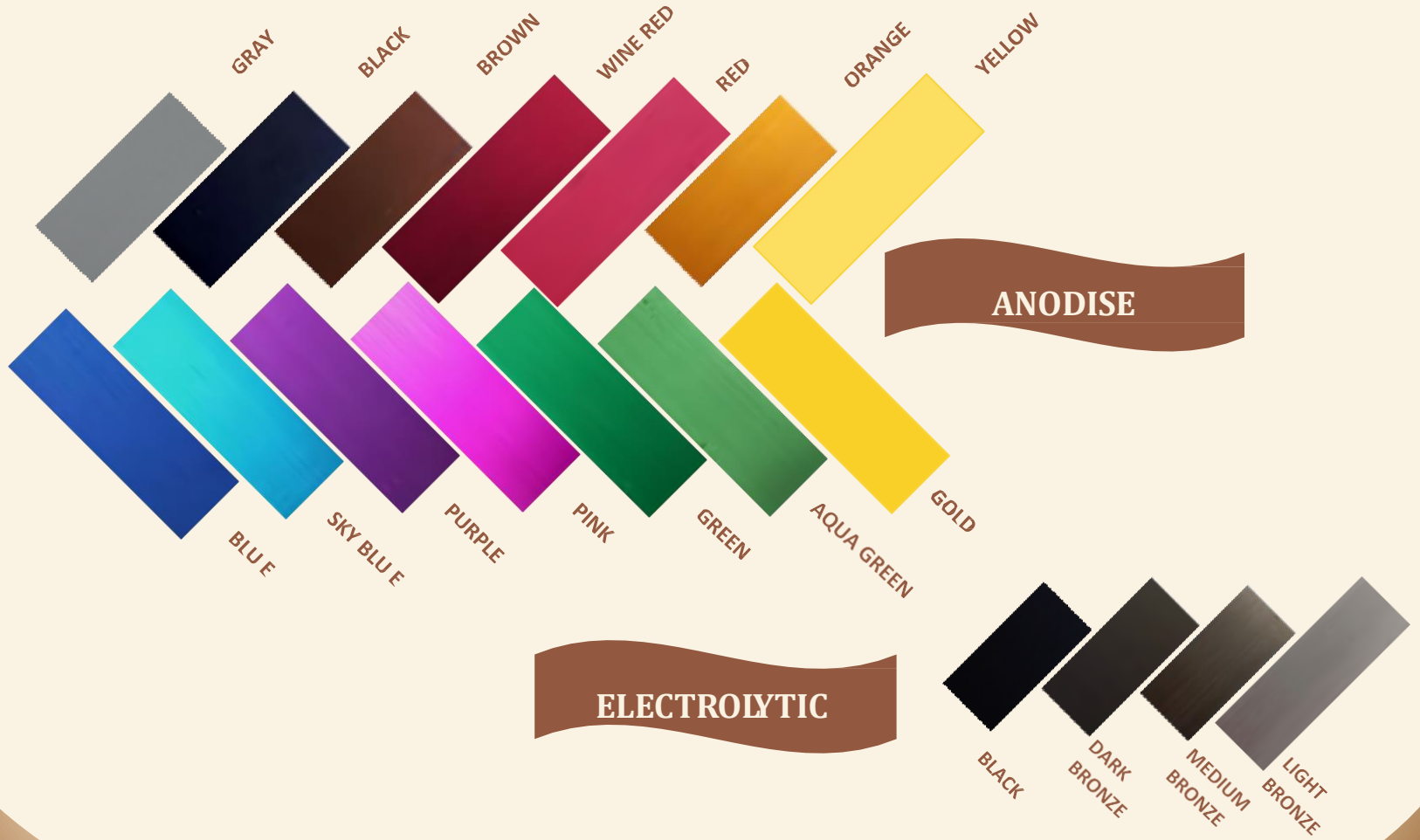


Our other strength and capabilities in value added manufacturing includes :

- ★ Aluminium jigs and fixtures for various types of equipment
- ★ Medical instrument and aircraft accessories
- ★ Aluminium **LED lighting parts and components** such as heat sink, light holder, casing
- ★ Aluminium solar panel, frame



COLOUR CHART

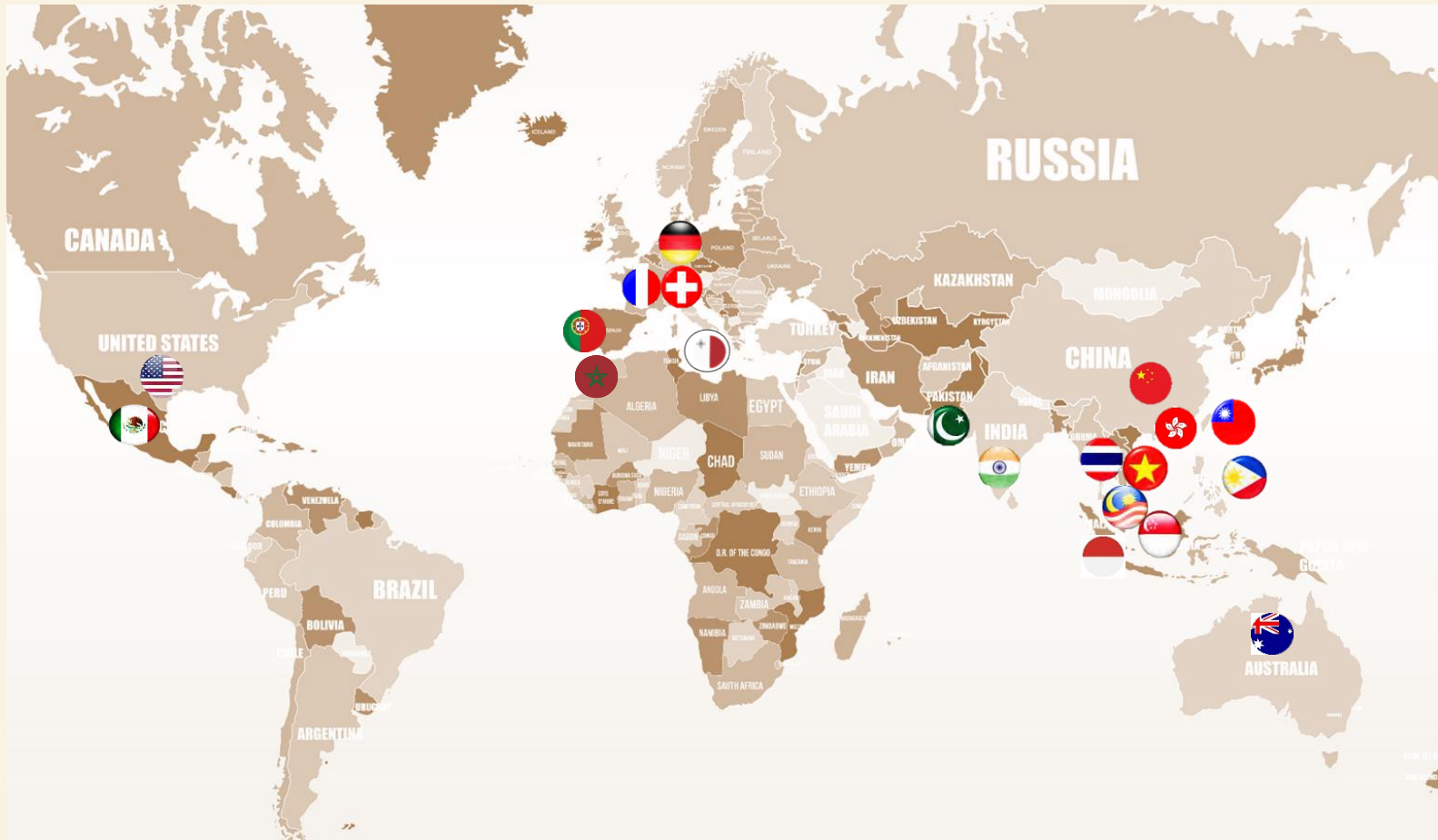


CONTACT US FOR FINISHING REQUIREMENT

- ★ ELECTROLYTIC
- ★ NICKEL PLATING
- ★ POWDER COAT (RAL CLASSIC)
- ★ NATURAL ANODISE
- ★ HARD ANODISE
- ★ CHEMICAL BRIGHTENING
- ★ CHROMATE



OUR VALUED CUSTOMERS



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