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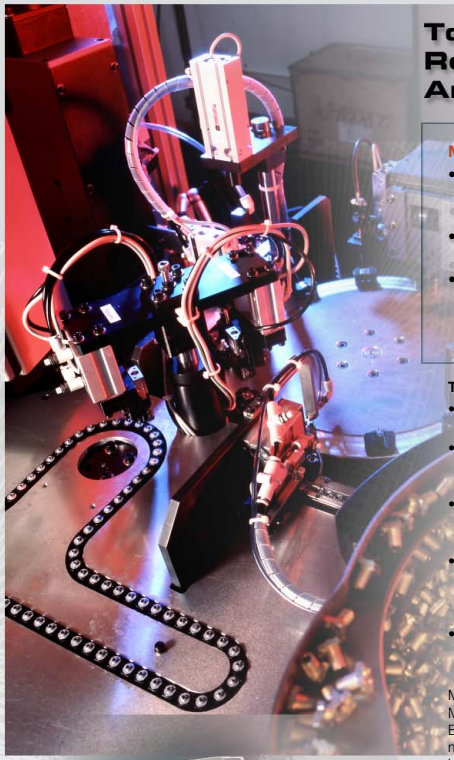
MALAYSIA'S Machinery and Equipment Industry



Towards Regional Manufacturing And Distribution Hub

Malaysia aims to be:-

- the regional production hub for high technology and specialised machinery and equipment (M & E)
- the main distribution centre in the region for all types of machinery and equipment
- the centre for maintenance related services, refurbishment and reconditioning of high technology and specialised machinery and equipment

To facilitate this Malaysia provides:-

- skilled manpower for research and development and engineering design activities
- a mature engineering supporting industry for the outsourcing of parts and components and engineering services
- attractive incentives for the manufacture and assembly of high technology and specialised machinery and equipment
- a strategic gateway to the ASEAN market which has a combined population of 542 million people and GDP of more than US$ 750 billion and a total trade of US$ 734 billion for the year 2002
- an excellent infrastructure for conducting business with ease and also air, sea and telecommunications connectivity

Multinational manufacturers such as Sidel, NEC Machinery, AIDA, Emerson, MHE Dematic, Bromma, Toshiba and Carrier International and many more have already established their operation here for the manufacture of machinery and equipment and parts/components for distribution to the region.

Malaysia is ranked among the top 20 world exporters, ahead of many other countries in the region with a 1.8% market share of global exports.

ASEAN, EU, USA, Japan and China are among Malaysia's major trading partners.

Promoting M & E Growth

The government has introduced special incentives to encourage investments in the M & E sectors. 100% tax exemption on corporate income tax for 10 years or Investment Tax Allowance of 100% on qualifying capital expenditure incurred within a period of 5 years are granted to companies proposing to manufacture any of the following M & E:

- Machine tools
- Plastic injection machinery
- Plastic extrusion machinery
- Packaging machinery
- Material handling equipment
- Robotics and factory automation equipment
- Specialised/process machinery or equipment for specific industries

Malaysia aims to nurture the M & E industry to be a resilient, broad-based, cost efficient and competitive sector while focussing on R & D, engineering design, state-of-the-art technology and market development.

Although the M & E manufacturing industry has grown significantly over the last three decades to support the growth of other industries in Malaysia, there is still a large potential for import substitution as shown by import figures for M & E.

Imports

Sub-Sectors / Year	1999	2000	2001	2002	2003	Major Sources
	US$ (Million)					
Power Generating M & E	1,251	1,443	1,793	1,871	1,472	USA, Japan, China, Singapore, Thailand
M & E for Specific Industries	1,934	3,379	2,290	1,992	2,106	Japan, Taiwan, USA, Germany, Singapore
Metalworking M & E	594	851	726	652	614	Japan, Taiwan, USA, Germany, Singapore
General Industrial M & E, Components & Parts	2,530	2,610	2,688	2,461	2,400	Japan, Taiwan, USA, Germany, Singapore
TOTAL	6,309	8,283	7,497	6,976	6,592	

Exports for M & E have also grown steadily over the years and reached US$3.3 billion in 2003.

Exports

Sub-Sectors / Year	1999	2000	2001	2002	2003	Major Destinations
	US$ (Million)					
Power Generating M & E	744	777	740	830	711	Singapore, Japan, USA, Thailand, Germany
M & E for Specific Industries	524	672	708	685	856	Singapore, Taiwan, USA, Japan, Thailand
Metalworking M & E	115	121	111	149	189	Singapore, Thailand, Hong Kong, Japan, USA
General Industrial M & E, Components & Parts	1,143	1,279	1,306	1,255	1,503	Singapore, Australia, Hong Kong, Japan, USA
TOTAL	2,526	2,849	2,865	2,919	3,259	

Malaysia's M & E Sectors

Malaysia's M & E manufacturing offers opportunities in four major sectors:

- specialised / process machinery and equipment for specific industries
- metalworking machinery
- power generating machinery and equipment
- general industrial machinery and equipment, components and parts

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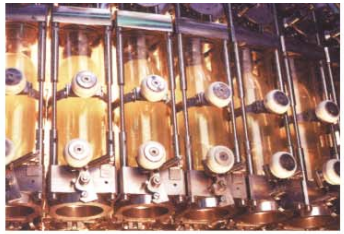


SPECIALISED/PROCESS
M & E FOR SPECIFIC INDUSTRIES

Machinery and equipment in this category are specifically designed for use in a particular industry or process. Industries targeted include food and beverage, woodworking, pulp and paper, agriculture, automotive, medical, biotechnology, oil and gas processing, petrochemicals, pharmaceuticals, printing, semiconductor, construction etc.

The increasing mechanisation of the agriculture sector has spawned investment opportunities in the manufacturing of M & E to meet the needs of the sector. Agricultural machinery & equipment manufactured/assembled by the local companies include rotavators, rotaslashers, fertilizer spreaders, tractors, mulchers, related attachments, poultry rearing equipment and egg cleaning, grading and packing machines.

In the food and beverages sector, the focus is on automated food processing and packaging M & E, which include bottling machinery, wrapping and shrink wrapping machines, sorting and grading machines, filling and sealing machines, etc.

In the electrical & electronics sector, Malaysia is a production base for the world's top electronics companies such as Intel, Motorola, Agilent, Hitachi, Infineon, Texas Instruments, National Semiconductor, Silterra and 1st Silicon. M & E manufacturers have the advantage of producing machines at competitive prices and benefit from the close proximity to clients for back-up service and after sales service. The local companies are capable of producing various types of M & E with international quality standards for semiconductor manufacturers.

The plastic industry is considered a well-established industry in Malaysia. There are currently only three local companies manufacturing plastic extrusion machines. Imports meet the rest of the market demand for plastic moulding machines and plastic extrusion machines.

Notable foreign companies with operation in Malaysia include:-

- Nabel, Japan - egg cleaning, grading and packing machines
- Sidel, France - bottling machinery
- GSI, USA - poultry rearing equipment
- NEC Machinery, Japan – semiconductor machinery
- Ismeca, Switzerland – semiconductor machinery

Specialised M & E for Specific Industry
Import in 2003 :US$2.1 billion
Export in 2003 : US$845 million

Types of M & E	2003 (US$ million)	
	Import	Export
Agriculture	68.1	20.0
Food & Beverage	125.6	62.1
Electrical & Electronics	514.2	137.1
Plastic Extrusion	18.5	0.7

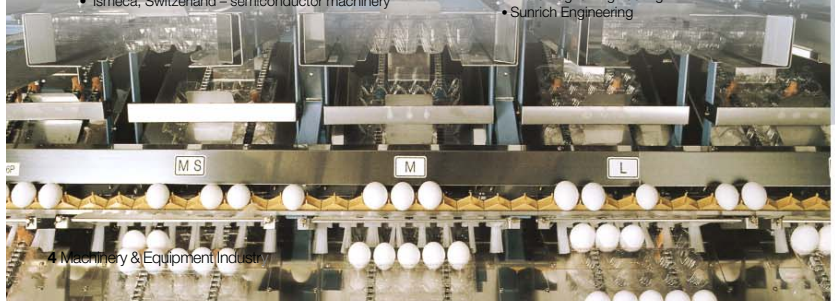
Major Companies in Production:-

i. **Agricultural M & E**
- Nabel Asia
- Emdek Engineering
- GSI Asia
- Howard Alatpertanian
- Tractors Manufacturing & Assembly
- Agricultural & Industrial Machinery
- Guthrie Industry Malaysia

ii. **Food & Beverage M & E**
- Sidel
- Fluidmech Engineering
- Sama Plastic
- Serac Asia
- Master Hi-Tech

iii. **Electrical & Electronics M & E**
- Eng Teknologi
- Pentamaster
- LKT Automation
- Polytool Automation
- Norelco Centreline
- NEC Machinery
- Tateyama
- Ismeca

iv. **Plastic Extrusion Machine**
- Micromagna Engineering
- Sunrich Engineering



METALWORKING
MACHINERY

The metalworking machinery sub-sector presents vast opportunities in the manufacture of M & E such as laser cutting machines, machining centres, electro-discharge machines (EDM), milling machines, drilling machines, lathes, shearing machines, bending rolls, stamping machines, press brakes, forging machines and presses.

Several companies are currently undertaking the manufacturing of metalworking machinery for the automotive, electrical & electronics as well as other engineering supporting sectors.

AIDA, a leading Japanese company is engaged in the manufacture of high precision single/double crank mechanical presses.

Li Chin (a Taiwanese-Malaysian joint venture) is a major exporter of hydraulic and power presses mainly to Taiwan, Thailand, Singapore and China.

Sunfluid Engineering manufactures hydraulic sheet metalworking machines for the local market and for export to ASEAN countries, Saudi Arabia and China.

Another Malaysian company, Technology Park Malaysia Corporation, has recently initiated a CNC machine tools manufacturing project with technology from Yamazaki Mazak Corporation of Japan to manufacture CNC machining centres.

With well-developed mould & die, machining and metal stamping industries, there is great potential for the manufacture of metalworking machinery and with the emphasis on high technology, NC and CNC machines are in high demand.

Metalworking Machinery
Import in 2003: US$ 614 million
Export in 2003: US$ 189 million

Major Companies in Production
- Technology Park Malaysia Corporation
- AIDA Manufacturing
- Li Chin (S.E.A.)
- Li Chin G.M.P.
- Sunfluid Engineering
- Hydra-Link Engineering

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POWER GENERATING M & E

The power generating M & E sector mainly comprises boilers, condensers, electric generating sets, turbines and engines.

Malaysia is currently the largest manufacturer of boilers in the South East Asia region. Most of the boilers manufactured cater for the local demand, estimated at 150 units per annum, from various industries ranging from oil & gas, oleochemicals, petrochemicals, palm oil, rubber and wood to textile, hospitals and food and beverage.

Local producers have the capabilities to manufacture internationally acclaimed products and supply industrial boilers such as utility boilers, water tube boilers, fire tube boilers, package boilers and combination boilers. These boilers are exported to neighbouring countries such as Indonesia, Philippines, Thailand and Cambodia. Most of the major companies in this sector are Malaysian-owned.

Apart from boilers, seven companies are producing generating sets for power plants, refinery, exploration platforms, petrochemical plants and commercial buildings. The generators are also exported to countries such as Singapore, Cambodia and South Korea.

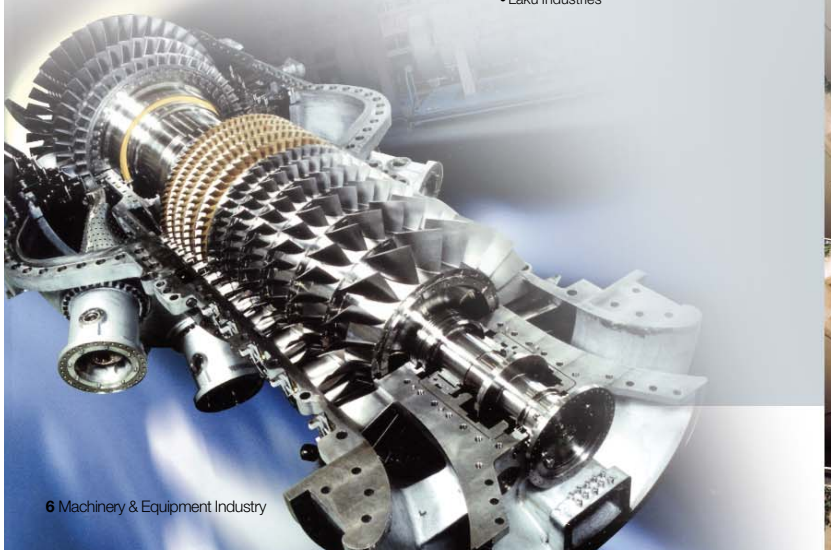
Power Generating M & E
Import in 2003: US$ 1.5 billion
Export in 2003: US$ 711 million

Types of M & E	2003 (US$ million)	
	Import	Export
Boilers	33.0	23.4
Generators	55.4	14.4

Major Companies in Production

i. **Boilers**
- Mechmar Boilers
- Vickers Hoskins
- Advance Boilers
- Transtherm Engineering
- Amalgamated Metal Builders
- Enco Systems
- Petra Resources
- Pentagon Engineering

ii. **Generators**
- Tractors Malaysia
- UMW Industrial Power
- Hong Seng Generator
- MTU Services
- Laku Industries



GENERAL INDUSTRIAL M & E, COMPONENTS AND PARTS

The general industrial M & E, components and parts sub-sector covers a broad category of products such as air-conditioning plants, cold room equipment, elevators, cranes, conveyor systems, pumps, compressors, welding machines, fans & blowers, heat exchangers, pressure vessels, filtering equipment, valves, bearings, gears, actuators, etc.

M & E manufacturers undertake R&D, engineering design, fabrication, assembly and testing while outsourcing for components and parts. This has helped spur the growth and development of the local engineering supporting industries, which are relatively strong in the field of metal fabrication and machining services. They also provide fundamental or intermediate technologies such as die-casting, pressing/stamping, heat treatment, plating and metal surface treatment/finishing.

Foreign companies that have established operation in Malaysia include:

- Toshiba of Japan, which is a partner in a Japanese-Malaysian joint venture company, MS Elevators, engaged in the manufacture of elevators & escalators
- Carrier International of USA – industrial air conditioning and refrigeration equipment
- Bromma of Sweden – telescopic spreaders
- MHE Dematic of Germany – electric overhead cranes

General Industrial M & E, Components and Parts
Import in 2003: US$2.4 billion
Export in 2003: US$1.5 billion

Types of M & E	2003 (US$ million)	
	Import	Export
Elevators	24.6	1.6
Air-Conditioning Equipment	10.7	146.1
Pressure Vessels	32.4	58.8
Cooling Towers	3.4	3.0
Cranes	15.2	25.4

Major Companies in Production

i. **Elevators**
- MS Elevators
- Northern Elevator
- Eita Pacific

ii. **Air-Conditioning Plants**
- Dunham-Bush
- OYL Appliances
- TM Air Conditioning
- Carrier International
- Citec International

iii. **Pressure Vessels**
- KNM Process Systems
- Amalgamated Metal Corp.
- MSE-ATB
- Tepat Teknik
- Kvaerner Process System
- MKE Engineering
- Wong Heng Engineering

iv. **Cooling Towers**
- BAC Cooling Technology
- Topgroup
- Linear Cooling Industries
- Panwater Engineering

v. **Cranes**
- Favelle Favco
- Impsa Malaysia
- MHE Dematic
- Bromma
- Jost Cranes
- Kone Products & Engineering

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Leveraging on
Engineering Supporting Industries

Malaysia has established a good network of engineering supporting industries capable of meeting the needs of the M & E industry in supplying parts and components and provision of engineering services. The engineering supporting industries encompass mould & die, machining, metal stamping, metal casting, surface treatment / finishing, heat treatment and fabrication.

Machining

- The local machining industry is able to meet most of the country's machining needs and provide total machining solutions to the manufacturing sector.
- Companies in the industry have attained high levels of technological capabilities and utilise state-of-the-art CNC machine tools for most of their operations. Some of the highly integrated machining solution providers can work to tolerances as low as 1 – 5 microns.
- A number of companies have diversified into the design and manufacture of automation systems and equipment, particularly for semiconductor, electrical & electronics industries.
- About 150 companies are in operation undertaking specialised precision services and general supporting machining services.
- Major companies include UPECA Engineering, Eng Hardware Engineering, Ohta Precision, Synturn and Paradigm Precision.

Metal Casting

- The foundry industry in Malaysia over the last 50 years has attained a significant level of technological expertise in serving the traditional industries of tin, rubber and palm oil.
- About 70 companies are currently in operation making castings for engineering spare parts, quality machinery spare parts, pumps and pumps parts, palm oil mill machinery parts, automotive components, elevator parts and other machinery parts.
- Leading companies with comparatively modern facilities such as Yoonsteel, MMC Metal, Swanmet Engineering, Metalock Casting, Hicom Engineering and Lestari Casting produce castings of good quality and low dimensional tolerances in compliance to International Standards for both local and export markets.

Heat Treatment

- The heat treatment service industry in Malaysia has about 20 companies in operation, which include leading companies such as Tohken, Umetoku, Yong Shen, Upsilon, Suppac Steel Associated Metal Treatment and Belton Oriental.
- Heat treatment services offered include continuous mesh-belt heat treatment, vacuum hardening, carburizing, carbonitriding, nitriding, nitro-carburizing, annealing, normalising and tempering for a diverse range of metal products.
- Heat treatment services for high carbon steel and alloy steel materials such as moulds and dies, critical parts for bearings and automotive components are the latest additions to the list of products already serviced which include bolts, nuts, shafts, gears, pins and springs.

Mould and Die

- This industry is recognised as a leading engineering supporting industry.
- Malaysian's mould and die industry has the capability to manufacture most types of moulds, dies and tooling to complement the needs of the manufacturing sector.
- About 300 companies are in operation and some of the leading companies include LKT Precision, Topla Engineering, Megatool Precision, FICO Asia and Sum Hing Engineering.
- The Government has initiated the setting up of the Mould and Die Design Centre to provide additional boost to the development of the local mould & die industry. The Centre will provide R&D, design, consultancy, training and facilities rental services to the local mould & die industry and the manufacturing sector in general.

Metal Stamping

- The metal stamping industry in Malaysia is an established industry supplying stamped parts to a wide range of industries such as electrical & electronics, automotive, machinery and equipment, precision measuring and testing equipment.
- The industry has acquired the capacity and technical capabilities to serve the various market needs of multinational corporations such as Matsushita, Sony, Hitachi, Toshiba, Dell, Yamaha, Thomson, Philips and Hewlett Packard.
- There are about 300 companies in operation throughout Malaysia with such leading companies as AE Technology, CS Metal Industries, Wong Engineering, Atlan, Cybron and Kein Hing.

Surface Treatment / Finishing

- The industry has the capability and capacity to cater for most of the requirements of the manufacturing industry which include a variety of plating operations such as batch and continuous precision electroplating, electroless plating, cathodic electrodeposit, phosphating, passivation, anodising, chromating, sinter plating and physical vapour deposition.
- About 35 companies are in operation which include leading companies such as AKN Technology, Dipsol Chemical, Ueda Plating, Metek Kitamura and Metal Polishing Industries.
- These companies are currently servicing the needs of notable multinationals such as NEC, Matsushita, Toshiba, Hitachi, Rohm, Infineon, Agilent, Fairchild and Osram in the electrical and electronics and automotive industries.

Fabrication

- The Malaysian metal fabrication industry has evolved from supporting traditional resource-based and agro-based industries to the higher value-added and technologically more sophisticated sectors such as manufacturing, civil and building construction and onshore and offshore oil and gas.
- Metal fabrication is a fairly well established industry in Malaysia with over 2000 companies in operation fabricating products from simple household items to steel structure for skyscrapers and offshore oil drilling platforms.
- Leading local fabricators have successfully completed many structural metal fabrication projects overseas. Malaysian companies who are serving this sector include Malaysia Shipyard and Engineering, Shin Eversendai Engineering, Nam Fatt Fabricators and KNM Process Systems.

Examples of **Leading M & E Companies** in Malaysia

Sidel, the only manufacturer of PET blow moulding machines in South East Asia, is a key company in Malaysia's M & E sector. In 1996, this world leading machine manufacturer chose to establish its first operation outside of France in Malaysia. Today Sidel's machines from the Malaysian plant are exported to United States, Europe, India and South East Asia countries.

LKT Automation is a manufacturer of M & E such as test handlers, pick & place machines, material handling systems and laser marking handlers. The company has been producing 70% of its machines for the export market mainly to MNCs in the USA and their operational bases in ASEAN. Its supporting arm – LKT Precision Engineering, complements LKT Automation, which provides a wide variety of precision machining services, tool & die design and fabrication.

AIDA, a leading Japanese company, is currently engaged in the manufacture of high precision single/double crank mechanical presses from 80 – 300 tonnes. The company is planning to further strengthen its presence in Malaysia and also in the rest of the Asia Pacific community. AIDA exports 80% of its products to Thailand, Vietnam, Indonesia, Singapore, China, United States, Mexico and Brazil.

MS Elevators, a joint venture company between Malaysians and Toshiba Elevators & Building System Corporation of Japan, has been operating its own research, engineering and development centre in Malaysia since 1996 and sources 80% of its parts and components, including basic design and software locally. Fifty percent of its products are exported to the ASEAN market and the Middle East, namely UAE and Egypt.

KNM Process Systems is a fabricator and manufacturer of process equipment for oil & gas, petrochemical and power industries and provides engineering, procurement and construction services for process units and plants since 1990. KNM designs and manufactures specialised process equipment of high-tech, large diameter, high pressure, super heavy above 1000 tonnes per unit and super long (over 100m) per unit for the oil, gas and petrochemical industry. KNM is today a world-class process equipment manufacturer and an international turnkey storage facilities provider.

Favelle Favco and Kroll Cranes, two world renowned crane manufacturers are now wholly-owned subsidiaries of Favelle Favco Cranes Holding Sdn. Bhd., a Malaysian owned crane manufacturer. Favelle Favco designs and manufactures a full range of cranes for various industries, from construction to the oil & gas, ports and shipyards. The company has taken the initiative to devote substantial resources and investment to gain both local and international acceptance for its range of products. Today, Favelle Favco's Malaysian-made cranes are exported to United States, Australia, New Zealand, China, Korea, Indonesia, Europe, Middle East and Africa.

Conducive Environment for Investment

Malaysia's market-oriented economy forms an encouraging backdrop for M & E companies. The pro-business policy of the Government, attractive incentives, good infrastructure, an educated and trained workforce and laws that govern ethical business practices are among the many reasons Malaysia stands tall as a leading investment centre in this region.

"Malaysia's industry-friendly incentives and stable economic policies allow companies tapping into the global market to remain competitive with countries like Korea, Taiwan, Japan and the EU."

Fluidmech Engineering Sdn. Bhd.

"An export driven economy blessed with a ready pool of skilled labour provides a safe haven for companies operating in the country."

Transtherm Engineers Sdn. Bhd.

"The company has immense confidence in Malaysia as the hub of ASEAN trading. We intend to establish a design centre in Malaysia and to transfer our superior knowledge of high technology production into the country,"

AIDA Manufacturing (M) Sdn. Bhd.

"Malaysia has all the resources needed to support our operations."

LKT Automation Sdn. Bhd.

"Malaysia is a good centre for the manufacturing of elevators and escalators because of good supporting industries."

MS Elevators Sdn. Bhd.

"Malaysia has an advantage due to the country's political stability and quality workmanship."

KNM Process Systems Sdn. Bhd.