

# PLANT AND MACHINERY

Industrial technologies for innovative businesses



# Industrialising the nation

Fostering national competitiveness through leadership in plant and machinery technologies and solutions.

Malaysia's Machinery and Equipment (M&E) industry has been identified as a major factor in the country's transformation towards becoming a high-income nation. The development of the M&E industry will hinge upon the quality and capabilities of home-grown components and machines. Local manufacturers require engineering support to give their plant and machinery technologies a competitive edge on the world stage. When Malaysian-made machinery inspires confidence globally, the country's reliance on expensive imports will decline and its industrial sectors will become much more competitive.

Mechanisation, automation, modern production technologies and innovative designs will be crucial factors in spearheading Malaysian industries as they move up the value chain. A wide range of engineering disciplines will be needed to upgrade our plants and machinery while ensuring that Malaysian companies achieve the highest international standards for safety, reliability and quality.



Pilot plants simulate the operating conditions of a full commercial plant.

## END-TO-END SOLUTIONS ACROSS THE VALUE CHAIN

### IDEATION & CONCEPTUALISATION

Business consultants evaluate the commercial potential of an idea to determine its viability given current market opportunities.

### PRODUCT DEVELOPMENT

Product designers and researchers collaborate to build a working prototype of the product along with a pilot plant that makes it.

### TRIALS & PRE-COMMERCIALISATION

Consultants help organise trials for the product and help ensure that its production is in line with GMP or GLP guidelines where necessary.

## TOWARDS HOMEGROWN INNOVATIVE SOLUTIONS

SIRIM offers end-to-end design and engineering solutions for the entire lifecycle of your product, whether it is manufactured, harvested or processed.

We can assist businesses in any industry with our expertise and experience in product design and modelling, digitising and reverse engineering, rapid prototyping and tooling, metalworking and foundry work, machine design, plant design, industrial automation, embedded system design and RFID technology applications. Our experts support you with research and development, technical services, and SIRIM's expertise in standards and quality:

- Contract research
- Commercialisation and commercial partnerships
- Technology licensing
- Technical and consultancy services
- Training and technology transfer
- Collaborative research and development work



Cast and mould technologies can be used to produce a variety of products.

### SCALE-UP & COMMERCIALISATION

Designers and engineers develop a full-scale pilot plant for the new product that complies with necessary regulations.

### STANDARDS & QUALITY SERVICES

Consultants help ensure the product meets local and global product standards to increase its quality appeal and marketability abroad.

### TESTING & CERTIFICATION

The product is routinely tested and certified by an independent third-party to ensure it complies with applicable industry standards and regulations.

# Your competitive edge

SIRIM has a wide range of engineering, design and testing capabilities to help enterprises in key areas. Our industrial technologies and solutions for plants, machinery, automation, intelligent systems and RFID can be applied to various industries including agriculture, construction, manufacturing and line assembly.

## DESIGN & MODELLING

SIRIM's industrial designers and engineers use state-of-the-art facilities for designing and modelling products.

- Product design
- Computer-aided design (CAD)
- Computer-aided manufacturing (CAM)
- Engineering analysis
- Rapid prototyping and tooling
- Digitising and reverse engineering
- Engineering analysis and computer-aided engineering (CAE)



Rapid prototyping technologies can accelerate product development.

## MACHINE DESIGN

Our experts can design machineries for both large and small industrial applications.

- Heavy and light machinery
- Industrial automation systems
- Robotics applications
- Precision manufacturing systems
- Specialised and custom machine design
- Indigenising and cost-reduction of imported machines
- Assembly systems



Industrial automation systems can enhance competitiveness.

## PLANT ENGINEERING

We can design plants that meet regulatory requirements as well as best practices and quality systems.

- Process simulation and scale-up
- Quality and process safety
- Good Manufacturing Practices (GMP)
- Halal compliance
- Process optimisation



SIRIM can design plants that meet regulatory requirements.



SIRIM's foundry technology services help companies make better steel products.

## SYSTEM DESIGN

We can design automation systems that improve operational efficiency using current technologies and techniques.

- Radio Frequency Identification (RFID) applications
- Electronics and intelligent systems (embedded solutions)
- Firmware and middleware
- Electronic prototyping



RFID and other embedded solutions have many commercial applications.

## TOOLING & COMPONENT DEVELOPMENT

We can engineer new tools and components for making new products.

- Foundry technology services
- Mould and die making
- Tooling design and fabrication
- Machining and component development
- Mould and die design and making
- Laser cutting
- Machining of large components (double column machining)
- Specialised components for the oil and gas industry



SIRIM's foundry and tooling experts can design complex components.

# Benefit from our expertise

SIRIM has successfully developed solutions for many key commercial sectors. These solutions draw upon engineering capabilities and knowledge across all our areas of expertise. SIRIM is ready to work with private enterprises as well as funding agencies on research projects that are crucial to the needs of tomorrow.

## GMP AND HALAL MANUFACTURING SYSTEMS

- Training and consultation
- Developing a halal/ GMP/HACCCP system
- Product development
- Testing of product and packaging
- Packaging and branding



## OIL PALM INDUSTRY MECHANISATION

- Mesocarp slicer
- Grabber-and-cutter for harvesting oil palm bunches
- Integrated oil palm harvester
- Seed production and integrated tracking system



## SEAWEED INDUSTRY INNOVATIONS

- Seahook, seacut and sealock systems
- Solar thermal drying systems for marine products





SIRIM's computer numerically controlled (CNC) systems combine multiple tools into a single machine.

## THE SIRIM ADVANTAGE

- **End-to-end solutions:** With over 40 years of experience as the national research and technology development body, we offer customers comprehensive capabilities in R&D, design and engineering, and standards, all under one roof. Our solutions cover the entire product life cycle from ideation to commercialisation.
- **Multi-disciplinary synergy:** Our industrial R&D activities span a full range of technologies and solutions with commercial potential in energy and environmental technologies, plant and machinery expertise and medical technology. Our experts integrate different engineering fields to develop innovative solutions for our customers.
- **Customer-driven:** SIRIM's solutions are tailored to the needs of modern enterprises. We combine technological innovation with business-oriented disciplines to deliver products and services that are relevant to the marketplace. We stay up-to-date with emerging trends and opportunities and are committed to delivering quality services to our clients.
- **Standards expertise:** We are the national standards development agency and we also serve as the WTO/TBT enquiry point in Malaysia. Our extensive expertise in standards, certification and regulatory compliance help ensure that your products meet the international standards and requirements of global markets.



## Driving innovation through technology and quality

Incorporated in November 1995 as a wholly-owned Government company under the Minister of Finance Incorporated, SIRIM Berhad is a recognised industrial research and technology development institution.

With a vision to become a premier total solutions provider, we make businesses compete better through quality and technology innovations. Our technology focus areas are aligned with national strategic initiatives in energy and environmental technologies, plants and machinery expertise and medical technologies.



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