

**ALPHABOT
MACHINERY
SDN. BHD.**

OVERVIEW OF KEY PROJECTS





PROJECT 1:

PANASONIC Robotic Welding System – Lift Arm Fabrication

This project involved the fabrication of lift arms used in terminal tractors for efficient handling and transportation of loaded and empty shipping containers.

We provided a complete industrial robotic welding automation solution, including:

- Jig design and fabrication
- System installation and integration
- Robot programming and commissioning
- Operator and robot training

The welding process was supported by advanced software and technologies such as:

- DTPS Offline Programming
- Touch Sensor Technology
- Thick Plate Welding Application
- Arc Sensor Software

Upon completion of fabrication, welding quality and structural integrity were verified through tensile testing to ensure compliance with industrial standards.

PROJECT 2:

NACHI Robot – Flow Rate & Noise Inspection Automation

This automation system was developed to perform flow rate and noise level inspections during both Research & Development (R&D) and Quality Control (QC) processes.

The system is designed to:

- Perform accurate flow rate and noise analysis
- Detect internal component defects
- Identify mechanical wear conditions
- Minimize manufacturing and assembly inconsistencies

By integrating robotic automation into the inspection process, the solution improves testing consistency, reliability, and production efficiency.



PROJECT 3:

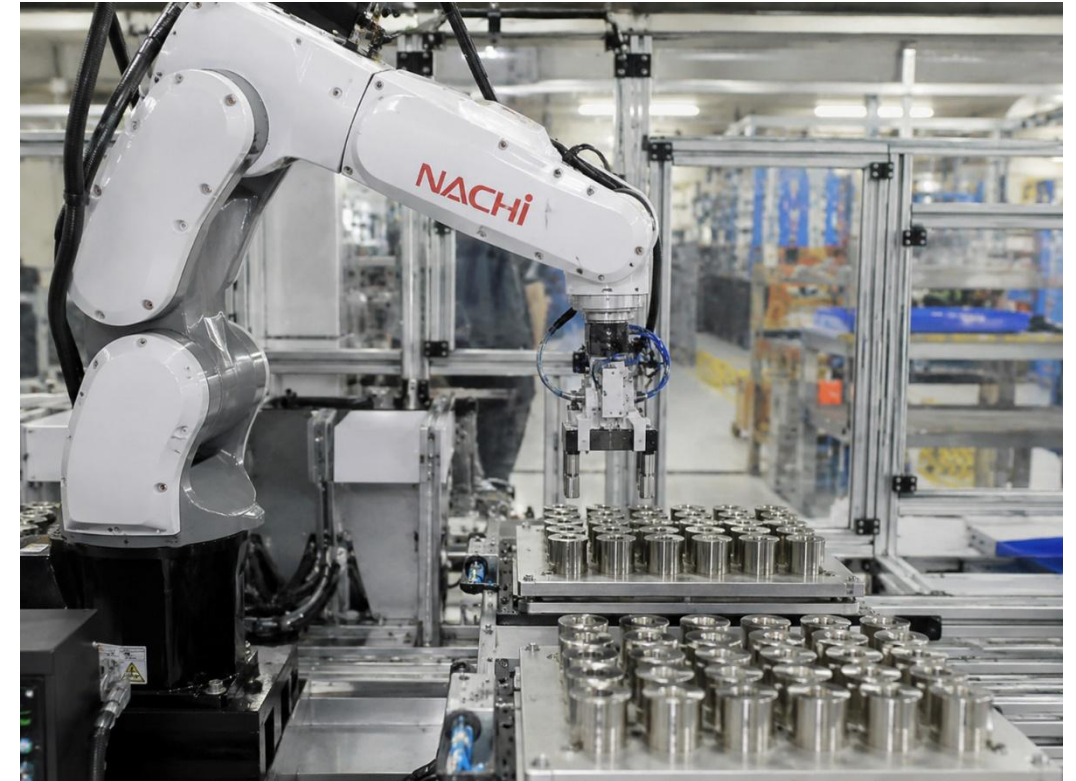
NACHI Robot – Crankshaft Pick & Place Automation

This project focused on automating the pick-and-place process for crankshaft handling using the NACHI MZ04 collaborative robot.

The crankshaft dimensions and motion requirements were fully optimized within the robot's working range, enabling:

- Smooth rotational and flipping movements
- Accurate insertion into confined assemblies
- Stable high-speed operation with maximum precision
- Collision-free handling during operation

The automation system significantly improved handling accuracy, productivity, and operational consistency.





PROJECT 4:

NACHI Robot – Crank Weight Handling Automation

This project consists of a fully automated 3-station process for crank weight handling and assembly integration.

The system includes:

- **Vision Inspection Station**
 - ✓ Detects product defects
 - ✓ Identifies specific product models
- **Heating Station**
 - ✓ Heats the crank component to the required temperature
- **Insertion Station**
 - ✓ Transfers and inserts the crank component into the compressor assembly

The integrated automation process enhances product quality, consistency, and production efficiency.

PROJECT 5:

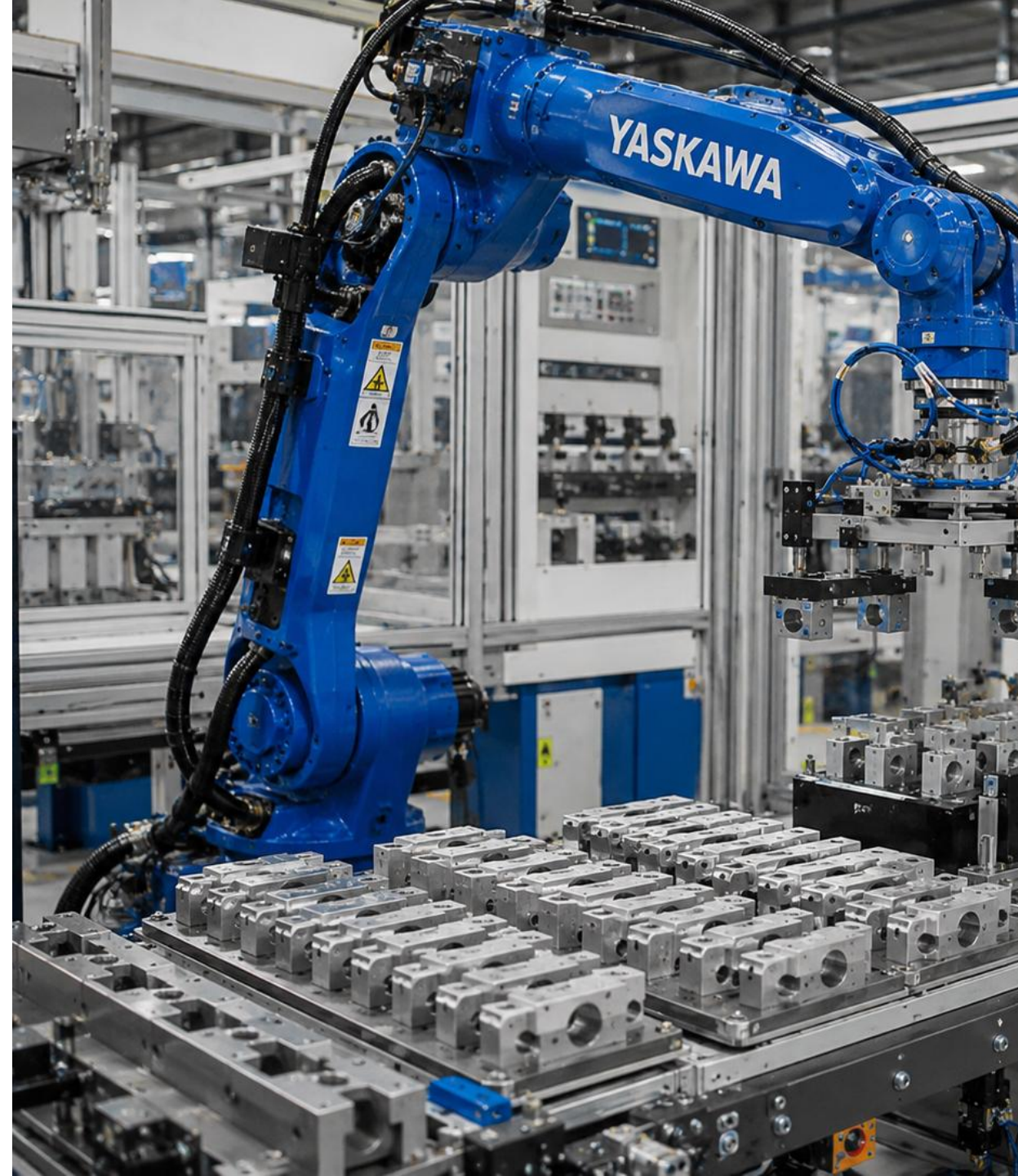
YASKAWA Robot – PNP Block Automation System

This project involved the automation of PNP block handling using a YASKAWA industrial robot integrated with a 4-input conveyor system.

Key system capabilities include:

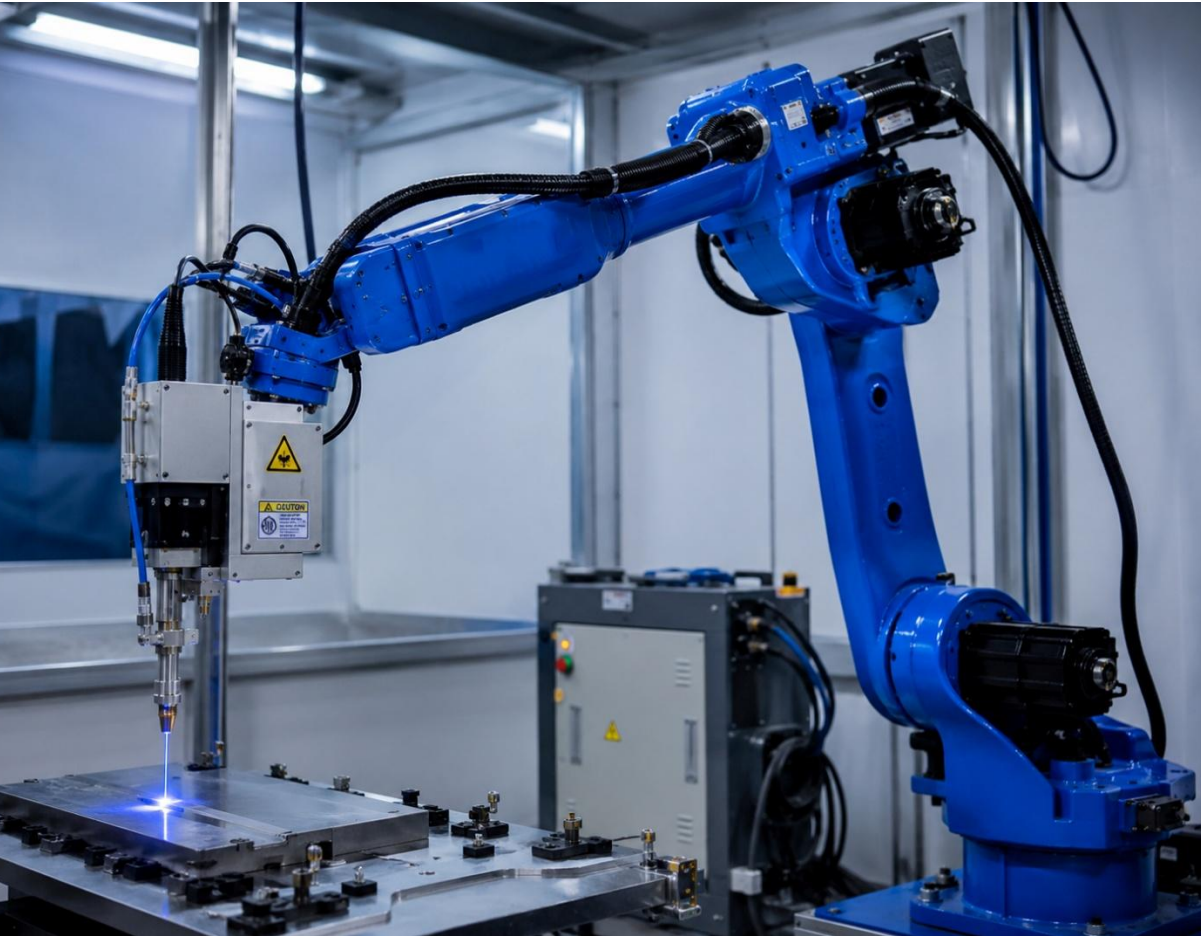
- **Automatic handling of two different product models**
- **Multi-conveyor integration for continuous material flow**
- **High-speed operation with precise positioning accuracy**
- **Stable and efficient product transfer process**

The automation solution improved overall production efficiency and minimized manual handling requirements.



PROJECT 6

CHINA Robot – Laser Welding Automation System



This project involved a robotic laser welding system integrated with a positioner for automated product rotation during welding operations.

Key features of the system include:

- High-precision laser welding process
- Automated positioner integration for optimized welding angles
- Suitable for stainless steel applications
- Capability to weld without filler material
- Improved welding consistency and surface finishing quality

The solution enhanced welding accuracy, productivity, and overall manufacturing quality.

PROJECT 7:

TM Cobot – AI Pick & Place Automation System

This project involved the installation, programming, and integration of a TM Collaborative Robot (Cobot) for AI-driven pick-and-place automation.

The system is capable of:

- **Handling products with different box sizes and weights**
- **Managing various placement positions and pallet configurations**
- **Utilizing AI-based recipe settings for automated job execution**
- **Collaborating seamlessly with conveyor systems for continuous operation**

The automation solution improved operational flexibility, reduced manual workload, and enhanced production efficiency.



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