

**Award for TPM Excellence, Category A**  
**Swan Industries (Thailand) Limited**  
**Manufacturing 4 : Food Cans (2 Pieces Cans)**

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## **1. Company Profile**

Swan Industries (Thailand) Limited is the one of the biggest & reliable cans manufacturers in Thailand which continuous improving & developing by our technology in order to meet with international standard requirements from worldwide. Nowadays, Swan's products cover whole range of metal cans such as Seafood Cans, Fruits & Vegetables Cans, Beverage Cans, Powdered Milk Cans, Aerosol Cans, and Others, also including Easy Open Ends (EOE) and Stay On Tab (SOT).

Head office located at Bang Phli Industrial Estate, Soi 2, No.171, Village No.17, Bangna-Trad Road, Bangsaothong, Bangsaothong District, Samut Prakan Province 10570, Thailand and has a total of 6 factories:

Manufacturing plant 1 : Coating and Printing on Metal Sheet

Manufacturing plant 2 : General cans and Dry Food Cans

Manufacturing plant 3 : Food Cans and Beverage Cans (3 Pieces Cans)

**Manufacturing plant 4 : Food Cans (2 Pieces Cans)**

Manufacturing plant 5 : Easy Open Ends (EOE) and Stay On Tab (SOT)

Manufacturing plant 6 : Food Cans (3 Pieces Cans)

For reliability manufacturing and support customer satisfaction and high market share, there is also a product research and development department to improve production performance, product quality, and lower production cost control. The research and development department is located in the same area. Moreover, we joint venture with Toyo Seikan (Thailand) Co., Ltd. established Next Can Innovation Company Co., Ltd., for cans manufacturing plant and also joined with Silgan Holding Co., Ltd., at Stamford in the U.S.A. of high barrier packaging plastic for the market sale in Thailand.

### **Sale and Production of Swan Industries (Thailand)**

Overall, packaging production in Thailand has a production percentage as shown in the Pie Chart, and steel packaging production is 12 %, with sales in 2023 totaling 80 billion Baht, the order of sales as followed. Swan Industries (Thailand) Co., Ltd. is ranked No. 2 in which we have a joint venture with Toyo Seikan (Thailand) Co., Ltd., a leading packaging manufacturer in Japan.

### **Manufacturing Plant 4.**

Manufacturing plant 4 has been started operate production in 1999. Early stage of manufacturing in 2008, plant 4 has to 7 production lines. In present, we are operating 13 production lines in cans manufacturing process. We are seeking an opportunity for increasing our capacity and signaling our commitment to grow with our customers' needs. We excited to launch our newest two-

piece cans line, planned to increase manufactured capacity by add more 3 production lines in first quarter of 2023.

Manufacturing plant 4 is a single-use container for packaging that be composed of two parts, cans body and lids (also known as ends). There were two kinds of cans lids such as flat and easy open ends. We produced two-piece cans by means of forming of cans by forming and joining methods.

Manufacturing plant 4 has 152 employees with details as follows; male 81 persons (53%) and female 71 persons (47%) with an average age of 33 years old. Most of their education level is High Vocational certificate as 41%. An average job experience as 7 years old.

## **2. Milestone on the Journey of Manufacturing Excellence**

To motivate factories to strive for excellence in output, the TPM system has been implemented.

### **Using TPM to increase performance.**

Manufacturing 4 has studied TPM principles and determined that they are good principles, so they have been implemented to work. Since implementing the TPM concept, the outcomes have improved to a degree, so there is a desire to improve and operate in a systematic way. With the current situation, external factors such as customer demand, rising cost, and business competition are more concentrated than ever. To increase a company's competitiveness, previously, there existed an ISO system that focused on high product quality but did not focus on machine maintenance since there were still quality issues caused by machines that were not maintained, and because the rise in production costs caused by waste, the management team and manufacturing 4 desired to implement TPM activities earnestly. The management team and manufacturing 4 invited TPM-knowledgeable teachers to serve as consultants. As a result, after the adviser has provided counsel, begin carrying out TPM activities with zeal and intensity in order to improve work efficiency, develop staff talents, and assure credible universality in response to client wants. Encourage clients to be certain that we are a company capable of producing world-class products and TPM system is doing well then, we achieved many international standards and awards therefore TPM Excellence Award and others are our goals of achievement.

### **TPM system performance and success expectations.**

Due to the rapidly changing market in the packaging manufacturing industry, the management team has a vision and policy to become a world-class metal packaging manufacturing organization. As a result of the above vision, the company must strive to enhance production efficiency continuously. Manufacturing 4 and other factories began learning to create TPM systems in 2012 with the establishment of a TPM system team and the assignment of roles and responsibilities to operate, including planning and goal setting for TPM. The TPM Kick-Off has been implemented twice in Manufacturing 4; the first time as a learning operation by the Thailand Productivity Institute, and the second time in 2018 by assembling a team and advisers to make the system more earnest.

### **Establishing a relation between scorecards and TPM actions.**

The operation focuses on establishing the TPM system as the organization's primary policy. The KMI (Key Management Indicator) has been implemented by Manufacturing 4. This is a policy set

by the management of all 7 key points (PQDCSME) to connect the actions carried out by each pillar of the TPM system which can be divided into PQDCSME aspects.

### 3. Benefits achievement

We determined the formation of plant operation with a firm focus on the TPM system as the main policy of the company's management. Manufacturing plant 4 has adopted the management indicators also known as Key Management Indicators (KMI) appointed by the SWAN's management committee. By connecting the relationship of production, administrative operations, and activities to each pillar in the TPM system, Be divided into aspects of PQDCSME as follows;

#### Tangible Result

KMI	KPI	Unit	Kick Off/ TPM Started 2018	Actual Status 2023
S	Number of work-related accidents requiring days off work	Cases/ year	1	0
	Number of work-related accidents not requiring days off work	Cases/ year	3	0
P	OEE (or Overall Plant Efficiency)	%	47.99	71.03
	MTBF	Hour/Time	578	2006
	MTTR	Min/Time	88	29
Q	Number of customer complaints (Critical)	Number/year	3	3
	In-line defect rate, scrap	PPM	2,037	2,594
C	Repair Cost	Million baht/year	2.0	0.175
D	Plan Attainment	%	64	100
M	Number of Employee Kaizen Suggestions sheet	Number/year	265	1,935
E	Zero Environment Complaint	Case/year	2	0

#### Intangible Result

The results of the TPM system's implementation revealed that the team worked more. Because it was coordinated between the pillars, which all have to be connected to information and have an idea discussion. As for people development, the TPM system makes it a more concrete education & training system. In the past, we had a Human resources department that was a teaching and performed training for all employees. The existing training focuses on common management courses that are not concentrated on improving machine maintenance and solving problems to reduce losses in production. So, an education and training system which is one's part of the TPM system can be an important tool for developing employees and solving these issues.

1. Employees understand the concept of problem solving by thinking about preventing the occurrence of problems.

2. Make employees aware of the loss in production processes.
3. Teamwork and everyone paying attention to minimizing losses.
4. Level up the ability of employees to plan for the replacement of retired workers or replacements for resigned employees

## 4. Key of our Manufacturing Excellent

The significant key to advancing towards manufacturing plant 4 is employee. Specifically, Employee's attitude is willing to learn more about new knowledge, have a passion to practice new skill and accept experiencing rapid, massive, change over in globalization. In the past, employees have a work-focused mindset that work on basic duty which is solely responsible for adjusting the machine in order to generate workpieces only, a lack of work intention to preserving the machine and equipment to be in good condition. Therefore, implementing the TPM system can influence employees' attitudes and make them feel like machine ownership, zero breakdown maintenance, working in a safe environment.

The Benefits of TPM implementation can contributed to shop floor's surroundings is cleaned, safe and the machine is ready to operate including build teamwork and cooperation together as follow TPM policies earnestly. Therefore, our significant key is employee attribute. Especially the attitude of accepting changes will lead to improvements in work efficiency and strive for excellence in the production of metal packaging at an international level.

### Future Plan

1. Increase overall OEE plant up to 76 % by 2024.
2. Implement no man operation project by IoT and Automation kaizen activities by 2024.
3. Reduce changeover loss (Die-set) to 60 minutes per time by 2026.

## 5.Contact

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## 2023 TPM Award -Achievement Sheet

Company	Swan Industries (Thailand) Limited.
Plant name	Manufacturing 4: Food Cans (2 Pieces Cans)
TPM Slogan/Objectives	TPM is work-Lift for Loss out
Year when TPM activity started	2018
Year of benchmarking	2018

Category	Index (Calculation Formula)	Unit	Kick off/TPM Started (or last time awarded)	Actual Status 2023
S	Number of work-related accidents requiring days off work	Cases/ year	1	0
S	Number of work-related accidents not requiring days off work	Cases/ year	3	0
P	Productivity for main products	Parts/Operator hours	1,239	1,583
P	OEE (or Overall Plant Efficiency)	%	47.99	71.03
P	Availability	%	53.85	76.58
P	Performance Rate	%	92.15	97.59
P	Quality Products Rate	%	84	93.71
P	Number of breakdowns	Breakdowns/ year	770	37
P	MTBF	Hour	578	2,006
P	MTTR	minute/Time	88	29
Q	Number of customer complaints (Critical)	Number/year	3	3
Q	In-line defect rate, scrap	PPM	2,037	2,594
Q	In-line defect rate, scrap and rework	PPM	5,500	4,496
C	Cost index	Cost/Unit (Baht) Cost/Kilogram	0.1006	0.1091
D	Production Lead time	Days	N/A	1.92
D	Delivery performance	%	99.04	100
S	Safety index	Accidents per 1,000,000 operator hours	1.81	0
M	Number of Employee Kaizen Suggestions sheet	Number/year	265	1,935