

**ORDER CALCULATION WITH MICROSOFT EXCEL  
ACCORDING TO THE PRODUCT TYPES  
AT PT. H.P. METALS INDONESIA**



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**2017**



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Demikian yang dapat di sampaikan atas perhatian Bapak / Ibu kami sampaikan terima kasih.

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## HALAMAN PENGESAHAN

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Pembimbing Lapangan

A blue circular stamp of PT. H.P. METALS INDONESIA is visible behind the signature. The stamp contains the text "PT. H.P. METALS INDONESIA" around the perimeter and "PERSEROAN TERBUKA" in the center.

Edward Septa Epradita

Dosen Pembimbing

A blue ink signature in a stylized, cursive script.

Tonny Yuniarto, S.T., M.Eng.

## PREFACE

Gratitude to God Almighty for the grace and opportunity that he had given to the author so the author's Internship/Industrial Practice activity for 30 days in PT. H.P. Metals Indonesia can be accomplished successfully and this Industrial Practice report can be completed.

The purpose of writing this Industrial Practice report is to fulfill the academic requirements in the curriculum of International Industrial Engineering Programme in Atma Jaya University of Yogyakarta.

Beforehand, the author intends to state a formal appreciation for several parties that had provided help in the completion of this Industrial Practice activity and the report itself:

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The author realizes that this Industrial Practice report is still far from perfect. The author hopes that this report will someday be useful for all of the readers.

Yogyakarta, 5<sup>th</sup> January 2018

Vincent Michael Lim



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## **CHAPTER 1**

### **INTRODUCTION**

This section discusses about background and purposes of internship, along with explanation of the place and time of internship.

#### **1.1. Background**

Industrial Engineering Program, Faculty of Industrial Technology, Atma Jaya University Yogyakarta (PSTI UAJY) requires all students to carry out internship in accordance with the Curriculum in PSTI UAJY. The UAJY PSTI sees internship as a vehicle or means for students to recognize the atmosphere in the industry as well as to grow, improve, and develop a professional work ethic as a candidate for Industrial Engineering graduate.

Internship can be said as a means of simulation of industrial engineering students profession. The paradigm that should be inculcated is that during the internship the students work in the company they choose. Work, in this case includes planning, design, repair, implementation and problem-solving activities. Therefore, in internship activities undertaken by students are:

- a. Recognize the company's scope.
- b. Following the work process in the company continuously.
- c. Perform and perform tasks assigned by superiors, supervisors or field counselors.
- d. Observe system behavior.
- e. Compile reports in written form.
- f. Carry out the internship exams.

Industrial Engineering is a branch of engineering that deals with the planning, design, improvement and installation of integrated systems comprising human, machinery, materials, information, energy, work methods and financial resources or briefly reviewing industrial systems. In particular, within the scope of Industrial Engineering it must be always realized that what is studied is the unity of the system elements consisting of Human, Machine, Material, Method, Money, Energy, Environment and Information. That is, in carrying out the activities under his responsibility, the Bachelor of Industrial Engineering should always view his activities within the framework of the system surrounding the activity.

Competencies held by students and Industrial Engineering graduates include:

1. System Design Work and Ergonomics.
2. Production Planning and Control.
3. Inventory / Inventory Management.
4. Quality Control System.
5. Material Handling System.
6. Logistics and Supply Chain Management.
7. Product Design and Development.
8. Occupational Safety and Health Techniques.
9. Design of Manufacturing Facility Layout.
10. Organizational Management.
11. Cost Analysis.
12. Industry Feasibility Analysis.
13. Process Design and CAD / CAM, and others.

### **1.2. Purpose**

Things to be achieved through the implementation of this internship are:

- a. Practice self-discipline.
- b. Train the ability to interact with subordinates, coworkers, and bosses within the company.
- c. Train the ability to adapt to the work environment.
- d. Directly observe the company's activities in producing and running a business.
- e. Complete the theory obtained in lectures with the actual state of existence in the factory.
- f. Add insight into production systems and business systems.

### **1.3. Place and Time of Internship**

The Industrial Practice or internship (also known as Kerja Praktek or shortened as KP) activity that became the basis of this report's compilation was conducted in PT. H.P. Metals Indonesia which is located in Ngoro Industri Persada Blok L-2, Ngoro, Mojokerto, East Java 61385 (there are several other blocks owned/rented by the company but the writer was placed to assist in Production Planning Inventory Control department office which was located on this particular L-2 block, and this matter will be further

explained in a more detailed way on the next sections). The Industrial Practice activity was done from 3 July 2017 until 10 August 2017, with a total of 30 days of attendance of work.



## **CHAPTER 2**

### **COMPANY OVERVIEW**

This section will discuss about the company's brief history, organizational structure, and management.

#### **2.1. Brief History of Company**

PT. H.P. Metals Indonesia first operated back in 1995, and the company itself originated from China. PT. H.P. Metals Indonesia is known as one of the leading manufacturers of aluminium extrusion products in Indonesia. They are best known as one of the top producers of Powder Coated aluminum extrusion products in Indonesia. To this day, the company's main areas for operation and control are located in Ngoro Industrial Park or NIP (also known as Ngoro Industri Persada), a huge complex specially filled with industrial buildings, factories, warehouses, and etc. NIP is located at the valley of Mount Penanggungan, Mojokerto Regency, East Java Province.

The company owns several blocks of area in the NIP which are:

1. The L-2 block

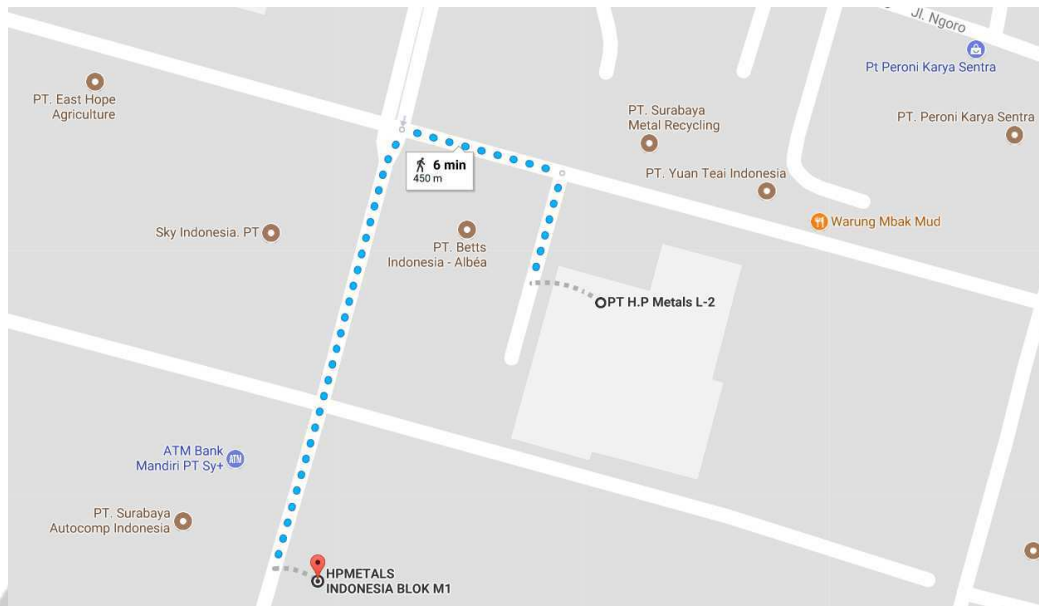
L-2 block of NIP consists PT. H.P. Metals Indonesia's product warehouse, Powder Coating processing area, and offices for several departments such as PPIC, Marketing and Human Resource. The writer was assigned to assist in the PPIC department.

2. The M-1 block

M-1 block of NIP consists of PT. H.P. Metals Indonesia's main factories for operation (production) where their products are manufactured. The M-1 block also houses the Quality Control department's office.

3. The K-1 and K-2 block

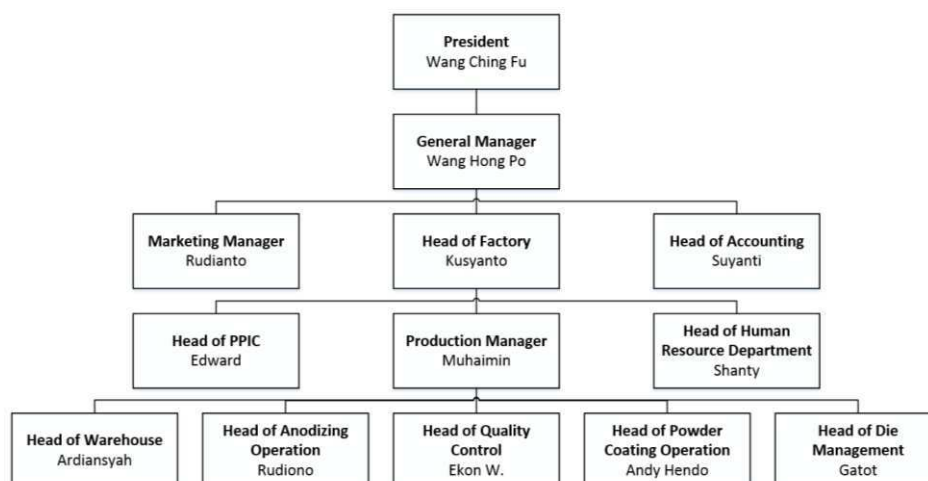
The K-1 and K-2 block are actually owned by PT. H.P. Metals Indonesia, but it is managed by different management parties. Both of the blocks house the factories that process and provide the factories of M-1 block with aluminium billets (raw materials) and also the manufacture of the extrusion dies that will be used for manufacture of aluminium extrusion products done in the M-1 block factory.



**Figure 2.1.** PT H.P. Metals L-2 block and M-1 block in Google Maps.

## 2.2. Organizational Structure of Company

Organizational structure plays a pivotal role in the company, mainly for job division/classification and the appointment of suitable leaders to supervise each of their corresponding department(s). Without proper division of departments under the management of responsible heads, the company's activities will run in an unorganized manner, thus, reducing efficiency and effectiveness.



**Figure 2.2.** Organizational Structure of PT. H.P. Metals Indonesia

The job descriptions of positions and departments in PT. H.P. Metals Indonesia is as follows:

a. President

The president's main authority is the company's leadership. One of his main job is observing the company's activities to make sure they run smoothly in fulfilling the company's purposes and objectives themselves. He also supervises the General Manager.

b. General Manager

General Manager's job is to assist President in the leadership position. General Manager has the responsibility on supervising each department's manager.

c. Marketing Department

Marketing department is responsible in responding to customers and their orders (which is the job of administrative marketing staffs). This way, they are the one who connects the company and the customers themselves. They also are responsible in promotional activities to raise public awareness of the company and their products. Marketing department is supervised by Marketing Manager.

d. Factory

Product manufacturing activities are conducted inside the factory, which is run by the factory management department and manufacturing workers. The Head of Factory is responsible for the activities done in factory. Head of Factory also supervise the Head of PPIC, Production Manager, and Head of Human Resource Department. Production Manager is responsible for the operational section which is manufacture.

e. Accounting Department

Accounting department's responsibility lies mainly in calculating company's expenses, income and profit (and also make financial reports about it). It is supervised by the Head of Accounting.

f. PPIC Department

Production Planning, Inventory and Control (PPIC) department is responsible in scheduling productions to fulfill customer's demand (in the right time and in the right amount) and also fulfill company's daily production targets. It is supervised by the Head of PPIC.

g. Production Manager

Production Manager is responsible in supervising operational production (manufacturing) activities. He has to make sure manufacture of products can be carried out properly every work session so customer's demands can be fulfilled in time. Thus, he also supervise Head of Warehouse, Head of Anodizing Operation, Head of Quality Control, Head of Powder Coating Operation, and Head of Die Management. Production department has sub-departments which are Mechanic (responsible for technical issues of tools and machines) and Die Servicing (responsible for die maintenance).

h. Human Resource Department (HRD)

The human resource department is responsible in hiring new workers by selecting from all of the applicants which one is more qualified. It is supervised by the Head of Human Resource Department.

i. Warehouse

Warehouse department is responsible in the storage of final products, and is also responsible for sending these products to the customers. It is supervised by Head of Warehouse.

j. Anodizing

After manufactured, the aluminium extrusion products that wants to be colorized in accordance to customer's demand will be processed through Anodizing operation or Powder Coating operation. Anodizing operation is supervised by Head of Anodizing Operation.

k. Quality Control Department

Quality Control (QC) department's main task is to make sure the manufactured products has no defective traits and is acceptable to customer's specifications. It is supervised by the Head of QC.

l. Powder Coating

Powder coating is one of the method of colorizing the aluminium extrusion products, other than Anodizing. The operation is supervised by Head of Powder Coating Operation.

m. Extrusion Die Management Department

The extrusion die management department mainly manages the extrusion dies used to make the products. Their responsibility include making CAD drawings for new shapes of extrusion dies that are needed to make special customer's needs. It is supervised by Head of Extrusion Die Management.

### **2.3. Company's Management**

PT. H.P. Metals' main principle is to plan thoroughly and work in a smart and hard way in order to meet customer's demand correctly so their satisfaction can be maximized. In doing so, they've set their vision and mission as stated in next sub-subchapter.

#### **2.3.1. Company's Vision and Mission Statement**

a. Vision:

- Becoming one of the most prominent, well known integrated aluminium companies in Indonesia.

b. Missions:

- Constantly improving capacity, quality, flexibility, reliability, pricing and customer service to be excellent.
- Reaching best level of flexibility to provide best solution to maximize customer's satisfactory level.

#### **2.3.2. Company's Value**

This far, the company has already achieved a portion of their vision by being well known as one the leading producers of power-coated aluminium extrusion products in Indonesia. In proving that they are determined to be one of the bests, they've also gained several certifications such as:

- ISO 9001:2008 from Bureau Veritas for compliance with the international quality management system standards in the manufacture of aluminium extrusion products.
- Certificate of Approval from Jotun as an official applicator of leading powder coating aluminium extrusion manufacturer.



**Figure 2.3.** ISO 9001:2008 certificate of PT. H.P. Metals Indonesia, currently showcased in their Quality Control department.



**Figure 2.4.** Certificate of Approval from Jotun.

### **2.3.3. Company's Employment**

In order to achieve their goals, PT. H.P. Metals has around 1000 employees working for them currently (total of M-1 and L-2 workers).

The working hours of the employees are as follows:

a. Office workers:

- Monday – Friday: 08.00 – 16.00, with resting hour between 12.00 – 13.00
- Saturday: 08.00 – 13.00

b. Production workers:

- First Shift: 09.00 – 13.00
- Second Shift: 14.00 – 16.00

### **2.3.4. Company's Marketing Strategy**

In order to raise public's knowledge of PT. H.P. Metals, the marketing department is responsible in promoting the company and their products to new customers. So, the entire marketing department have to search for new relations that will trust them on their products and services.

Usually, current loyal customers perform order by contacting the administrative staffs of the marketing department. New customers that want to perform order have to contact the front marketing staffs directly.

### **2.3.5. Company's Facilities**

In order to improve worker's motivation and comfort in working, PT. H.P. Metals provide them with several supporting facilities such as adequate parking lot, canteen, kitchen, clean restrooms, and fully air-conditioned work offices (equipped fully with all of the necessary equipments) and meeting rooms.

## **CHAPTER 3**

### **COMPANY'S SYSTEM OVERVIEW**

#### **3.1. Business Process of Company**

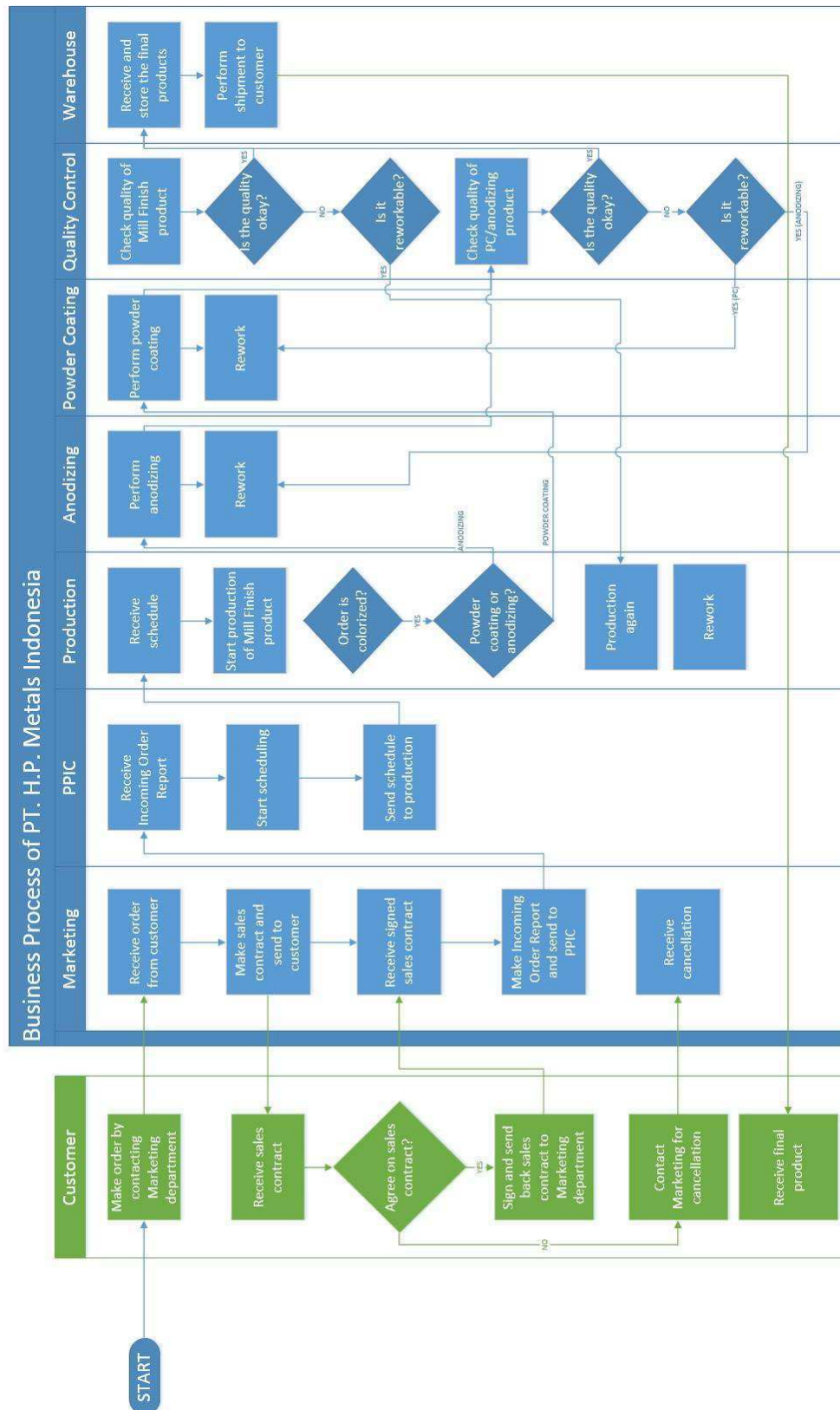
Business process is a flow of the main/core activity done by the company which starts from customer order and ends with customer receiving the product. This business process will be shown in the next page in the form of flowchart.

The business process is initiated when the marketing department of PT. H.P. Metals received customer's order (usually the administrative staff of the department receive them). Then, they will make a sales contract to be sent to the customer. If the sales contract comply with the customer's requirements, then the customer will sign it and send it back to the marketing staffs. If the sales contract does not meet with customer's requirements, the customer will contact the marketing department for cancellation.

After receiving the signed sales contract from the customer, the marketing department will then start creating an Incoming Order Report that details the customer's name, the specifications for their order, and the due date.

The PPIC department will then schedule the production according to the received Incoming Order Report. The schedule will be sent to the operational Production department.

Operational Production department will then start production to fulfill the customer's orders. QC staffs will perform inspection to the products. If the products pass inspection, they will be sent to the next department, colorizing, packing, or warehouse. If the customer's order is a colorized product, it will be brought to the Anodizing department or PC department (anodizing or PC is according to customer's request to) first before packed or sent to warehouse in L-2 block.



**Figure 3.1.** Business process flowchart of PT. H.P. Metals Indonesia.

### 3.2. Products Manufactured

PT. H.P. Metals Indonesia offers three types of aluminium extrusion products differentiated by their finishing processes. These three type of products are:

a. Mill Finish (MF)

Mill Finish products are naturally finished aluminium extrusion products that did not undergo colorization process (anodizing or powder coating) after manufacture. So, the color is still that of natural aluminium which is silverish-white.



**Figure 3.2.** MF product.

b. Anodizing

Anodized products are colorized electro-chemically through the anodizing process after manufacture. The colors available in anodizing is Brown (BR), Dark Brown (DB), Gold (GL), Black (HT).



**Figure 3.3.** Anodized product (gold color).

c. Powder Coating (PC)

PC products are colorized through the powder coating process after manufacture. In PT. H.P. Metals Indonesia, PC is available in much more variety of colors than anodize.



**Figures 3.4.** PC products with black(above) and white (below) color.

All products offered comes in different extrusion shapes (using different extrusion dies), and each shape is represented with different number sections in form of numerical and alphabetical code. Numerical number sections are for local products, while number sections starting with alphabetical codes are for exported products.

### **3.3. Production Process**

#### **3.3.1. Production of MF Products**

Production process is the technical method in creating (producing) something (product) in which raw materials are converted through the

process usually with the help of machines, man (operators), tool, and etc into a final product with added value.

Production process for MF and Anodized products in PT. H.P. Metals is done in their main plant area, the M-1 block of Ngoro Industri Persada complex, while the Powder Coated products are processed in the L-2 block. The production process is conducted in accordance to the schedule made by the PPIC department.

Raw materials (billets) are received from the K-1 and K-2 block. They are usually delivered by the K-1 and K-2 workers. They are placed using forklifts near all machines.



**Figure 3.5.** Raw materials (aluminium billets) placed near extrusion area.

The type of billets used by PT. H.P. Metals Indonesia are billets of aluminium alloy type 6063, 6005, 6005A, and 6061. The most popularly used type is 6063 (according to customer's request). The billets are first heated with oven in temperature of 440 – 460 °C. The purpose of this heating is to make the billets soft and malleable enough to be shaped with the die in the extrusion process. Ovens are placed near all machines.



**Figures 3.6.** Raw materials (the aluminium billets) inserted to the oven to be heated.

After heated, the billets will come out from the other end of the oven (to the extrusion machine area) where the operator will cut the billets into smaller pieces to be inserted to the extrusion machine and start the extrusion process. After getting out of oven, the temperature of the billet has to be maintained so it won't cool down and harden again. This is done by setting the extrusion machine's temperature to 500 °C, which will also make external temperature around the machine increase to help maintaining billet's temperature.



**Figure 3.7.** Oven (left) and extrusion machine (right). After heated, the billets will come out from the oven to be cut and then extruded by the operator.

Before extruding, the operators will have to place the die first in the machine's backer. The die was also heated first. The dies are managed by the Die Management department and maintained by the Die Servicing. Die Management department's tasks are drawing shapes of new dies for special customer order and ordering the dies from K-1 and K-2 blocks to be used in the production process.

The heated and cut billet piece will then be placed on the extrusion machine's container. Afterwards, the operator will take (using the grabber tool) a heated blank or also called "dummy block" made of steel that will act as an object to press the billet into the die to be shaped according to the shape of the die's hollow space. This blank is placed (injected) into the blank's stem in the machine, which is located just in front of the container.

When the extrusion machine is activated through the control system, the blank will then press the billet in the container into the die. The billet will then be forcefully inserted (flowed) into hollow (blank) space die, and its shape will change to that of the die's hollow space. The billet will then come out of

the other end of machine, now shaped according to hollow space of the die. Extrusion process is finished in this step.

The next step is the straightening process. The extruded billet will be straightened using a robotic stretcher machine.



**Figure 3.8.** An extruded billet being straightened using a robotic stretcher machine.

After the straightening process, the extruded billet will be measured cut into smaller pieces with size according to customer's order using a mechanised saw.



**Figure 3.9.** Mechanised saw used to cut extruded billets.

If the extruded billets are now straightened and cut to the size of customer's orders, it will be arranged and stacked into a neat pile, and ready to be transported using forklifts (or carried manually by production workers if it is only small amount) to the main oven to be heat-treated.



**Figure 3.10.** Pile of extruded billets inserted to main oven room to be heat-treated.

The main purpose of this heat treatment is to improve the mechanical and chemical properties of the products to optimal level/state. The specific form of heat treatment done is the Artificial Aging technique (also known as Precipitation Hardening). This Artificial Aging treatment helps increase tensile strength and yield stress of the products by heating them at 100 – 200 °C for 4 – 8 hours (according to the type of alloy of the billet and its temper level).

After heat-treated, the products will be checked by the QC staffs. If the products pass through the inspection, they will then be sorted, stacked and loaded to either be anodized, packed, or transported to the L-2 block to be stored, packed, or powder coated.

### **3.3.2. Production of Anodized Products**

Anodized products are products that are colorized through the anodizing process. Anodizing process involves the use of different types of chemical liquid and electricity charge. Anodizing has many benefits, such as improving the product's durability and resistance towards corrosion while still giving it the desired, decorative color by adding a chemical layer to the metallic product's surface. Before anodized, the extruded billets are loaded to the hanging conveyor by the workers manually. The conveyor is mechanically operated by a worker for the anodizing process (dipping the tied billets to the chemical pools).



**Figure 3.11.** Extruded billets tied and hanged on the hanging conveyor being dipped into pool of chemical substances for the anodizing process.

The extruded billets will be dipped sequentially into several pools of different chemical liquids. First, they will be dipped into a pool of sulfuric acid to clean the billets' surface. Then, the billets will be dipped into pool of water to clean the acid. Afterwards, the billets will be dipped into a form of soda to soften its surface before being dipped into nitric acid for further cleaning (especially cleaning the residues of soda).

The core of this anodizing process is when the billets are dipped into sulfuric acid again (after cleaned with nitric acid), but now with added electrical charges. This process aims to form a chemical layer to extruded billets' surface. This layer will improve billet's hardness, durability, and resistance towards corrosion process. Then, the billets will undergo another process called sealing to add another layer and "seal" the previous layer, making it stick to the surface of the billets.

Finally, the billets will be dipped into a pool of water which has been filtered into a specific pH level to clean all of the residues of chemical substances from the previous steps of this anodizing process. The billets will now be colored with specialized dyeing liquid.

Before unloaded and checked by the QC staffs, the anodized billets will be left in room temperature for short time to be dried and then wiped by the workers with cloth.

Then they will be checked first by the QC staffs and if the inspection successfully determine that the products are okay, they will be sorted, stacked and transported again to be packed (either in the M-1 block or the L-2 block) before stored.



**Figure 3.12.** Anodized products hanged to be dried after the anodizing process.

### **3.3.3. Production of Powder Coated Products**

The Powder Coating process in PT. H.P. Metals Indonesia is done at their plant in the L-2 block of Ngoro Industri Persada.

The Powder Coating process has to be initiated with a pre-treatment to prepare the product's surface before coated. This pre-treatment involves the usage of chemicals such as soda and nitric acid (like anodizing process) to degrease (cleaning oil, greases, and other pollutant from the surface) and clean the surface of the products.

Chrome (chromate) is then used to increase the adhesiveness of powder to the product's surface, and adds anti-corrosion properties to the product. The color of this chromate is goldish yellow, and pre-treated products will have this color shining brightly on their surface.

After pre-treated, the products will be loaded to the hanging conveyor by the workers manually, and the conveyor will bring them to the oven first to be heated moderately.



**Figure 3.13.** Pre-treated products with bright goldish yellow color on their surface.

The conveyor will then bring the hanged products towards the spray booth, a special chamber where the powder will be sprayed with spray guns. The spray guns are electrically charged with specific voltage level and has positive charge, to compensate with the negative charge on the product's surface. Because of this, there will be a magnetic pulling force between the powder and the product's surface.

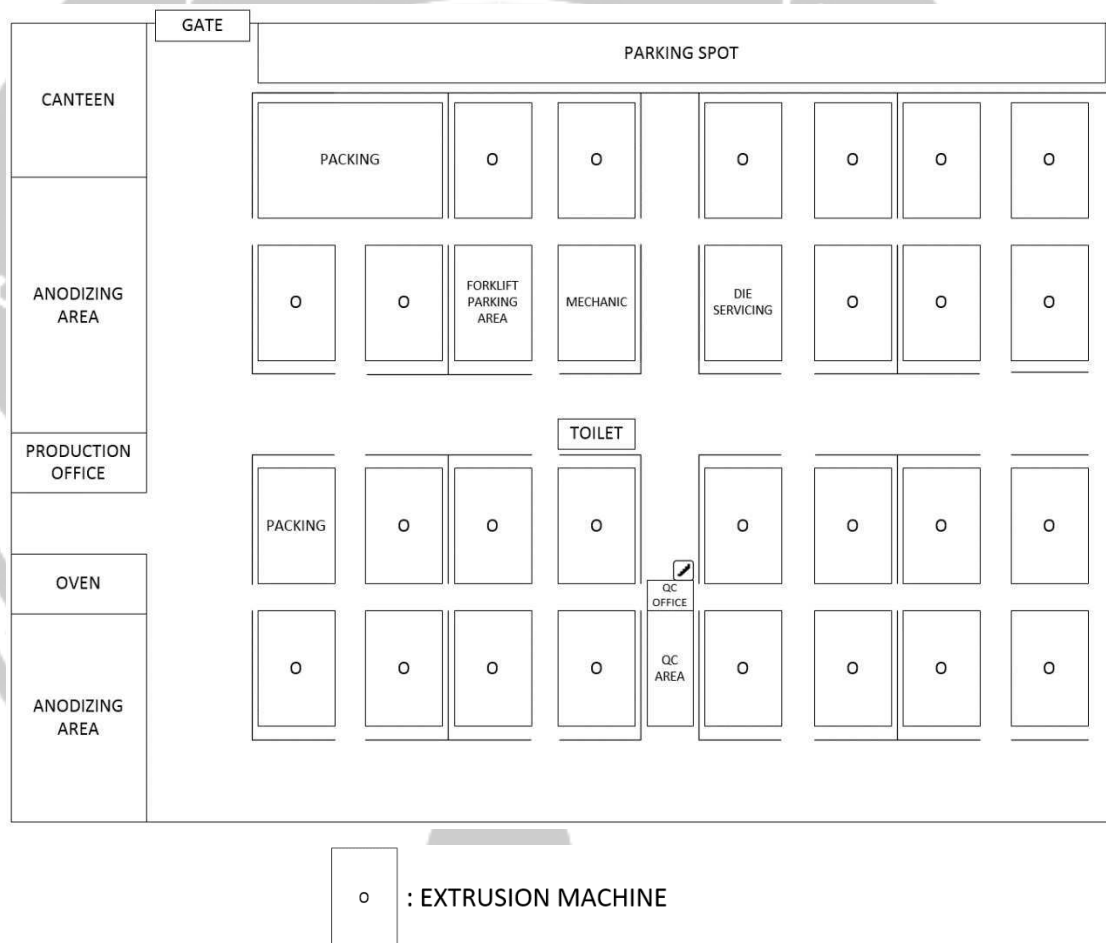


**Figure 3.14.** Hanged products being powder coated in the spray booth.

After coated, the products have to be heat-treated (cured) again in 180 – 200 °C for 10 – 15 minutes before being unloaded from the conveyor.

QC staffs will then check the products. If the inspection determine that the product is okay to be delivered, then it will be sorted, stacked, and then transported to the packing department and then L-2 block's warehouse to be stored before delivery. However, if the packing department in M-1 block is busy, they will be sent to L-2 block to be packed there before stored in the warehouse before delivered to the customers.

### 3.4. Production Facility



**Figure 3.15.** Production facility of PT. H.P. Metals Indonesia in the M-1 block of NIP.

## CHAPTER 4

### STUDENT'S JOB REVIEW

This section will discuss the details of the job and responsibilities given to the student by the company to be conducted there during the internship period.

#### 4.1. Scope of Responsibility

During this Industrial Practice activity, the writer was assigned to assist in the Production Planning Inventory and Control (PPIC) department. The writer was supervised by the Head of PPIC Department of PT. H.P. Metals Indonesia himself, Mr. Edward.

The PPIC Department's main task is the scheduling of production. They first receive order report from the Marketing department and have to manage the schedule of production so that customer orders are delivered in the right time, and of course, the right type and quantity.

No.	SC Acc. Date	Sales Contract no.	SC Time Period	Customer	Incoming Order				Total (Kg)
					BR	CA	MF	PC	
1	05/08/2017	03158PHPMI/S	3	DEVEN ADITYA		2,243.35			2,243.35
2	05/08/2017	03159PHPMI/S	3	DEVEN ADITYA	3,480.74	2,034.96			5,515.70
3	05/08/2017	03160PHPMI/S	3	DEVEN ADITYA	4,063.93				4,063.93
4	05/08/2017	03161PHPMI/S	3	DEVEN ADITYA				1,368.65	1,368.65
5	05/08/2017	03162PHPMI/S	3	DEVEN ADITYA				486.96	486.96
6	05/08/2017	03163PHPMI/S	3	DEVEN ADITYA				1,749.00	1,749.00
7	05/08/2017	03164PHPMI/S	3	DEVEN ADITYA				2,024.83	2,024.83
8	05/08/2017	03165PHPMI/S	3	DEVEN ADITYA	79.20	158.40			237.60
9	05/08/2017	03165PHPMI/S	3	DEVEN ADITYA	105.60	184.80			290.40
10	05/08/2017	03191PHPMI/H	3	HOWSANINDO			1,104.91		1,104.91
11	05/08/2017	03221PHPMI/S	3	INTERBRUCKE		14,976.59			14,976.59
12	05/08/2017	02139/HPMI/KU	3	KUSYANTO, BP			408.24		408.24
13	05/08/2017	03223PHPMI/M	3	MITRA			3,758.26		3,758.26
14	05/08/2017	03216PHPMI/DT	3	PT. HARVEST		732.00			732.00
Total RP					37,244.74	69,626.55	5,465.83	16,288.05	128,625.17
Total Date 05/08/2017					37,244.74	69,626.55	5,465.83	16,288.05	128,625.17
Grand Total					37,244.74	69,626.55	5,465.83	16,288.05	128,625.17

**Table 4.1.** Incoming Order Report from the Marketing department.

In creating the production schedule, several factors have to be considered. One of the most important factors is the due date of customer's order. As PT. H.P. Metals Indonesia uses the make-to-order production policy, PPIC Department plays a very important role in delivering products in time to the customer. If the orders are not manufactured and delivered in time because of faulty scheduling, then the PPIC department has to take responsibility. Other important factor that the PPIC has to consider in scheduling is daily production target for each product types, which are:

- MF: 20 tons

- Anodizing: 45 tons
- PC: 25 tons

Then, in other words, it is also the responsibility of the PPIC department that the production activity has to be scheduled in a way that it meets these daily targets.

The PPIC department is also responsible in determining which machines are used each month for the productions.

<b>Machine's Usage/Activity of PT. H.P. Metals</b>	
Date : 09/08/2017	
<b>Machine</b>	<b>Activity</b>
A	Off
C	Active
E	Active
F	Active
H	Active
I	Active
K	Active
L	Active
M	Active
N	Active
O	Off
P	Active
Q	Active
R	Active
S	Active
T	Active
5A	Active
5B	Off
5C	Active
5D	Active
7A	Active
7B	Off
8	Active

**Table 4.2.** List of machines active and off for August.

From the image above, machines A to T are machines for die with 3.5 inches diameter. Machines 5A to 5D are machines for die with 5 inches diameter. Machines 7A-7B are machines for die with 7 inches diameter. Machine 8 is machine for die with 8 inches diameter. The PPIC department assigned the monthly usage for all machines, whether it is activated (used) or turned off for the month.

The PPIC department currently consists of 5 workers including the department's head, Mr. Edward. The other staffs include Mr. Adi, Mr. Angga, Mr. Dikul, and Mr. Ferry.

There are 5 available computers in the PPIC office. The student was assigned to do his jobs of assistance from 08.00 to 15.00, seated at one of the computer to assist the PPIC department.



**Figure 4.1.** The office of PPIC department and its staffs: (from left) Mr. Ferry, Mr. Angga and Mr. Adi.

As there are only 5 computers available for 5 workers, the writer was able to be seated on one of the computers because Mr. Dikul or Mr. Angga usually comes to work at 15.00 when the writer finish the working day. So, Mr. Dikul or Mr. Angga were able to use the computer that the writer used previously. Mr. Dikul and Mr. Angga exchange their shift every week. For instance, during the writer's first week of internship, Mr Dikul start working at 10.30 while Mr. Angga start working at 15.00. Next week, Mr Dikul and Mr. Angga will change their working hours (Mr. Dikul will start working at 15.00 while Mr. Angga start at 10.30).

#### **4.2. Responsibilities and Authority in Job**

During this internship activity, the writer was given several responsibilities such as:

1. Going to the warehouse to check the availability of some urgent customer's orders.

2. Calculating daily totals of production of each product types (MF, Anodizing, and PC) for fulfilling orders of local and export customers and updating it in the office's whiteboard.
3. Calculating totals of production of BR, CA, GL, MF and PC from 3 July to 22 July 2017.
4. Checking stock's availability of some customer's orders through the stock monitoring software and list them.
5. Scanning production extrusion reports per machine of yesterday to be used by PPIC department.

For that, the writer was given access to some necessary documents, files, and program such as:

#### 1. Newest Production and Order Report

PT. HP METAL INDONESIA													
1-Aug-2017													
NO	BERAT	UKURAN	TOTAL	SISA	HASIL	FINISH	TOTAL	CUSTOMER	TGL	JENIS	KETERANGAN	NOTE	
SECT	STANDART	BRG JADI	PROD	PROD	PROD		KG		PROD	BILLET			
1826	0.044	6000	10000	1105	8895	CA	2.640.00	HERO AL BANJAR CONT	28Jul17	6063		GL.C	
1826	0.044	6000	7000	0	7000	CA	1.848.00	HERO AL BANJAR CONT	28Jul17	6063		GL.C	
19202	0.037	6000	28965	25740	2825	CA	6.341.43	ALFINDO GUNAWAN	14Jul17	6063		GL.D	
62221	0.170	6000	2900	803	2097	CA	2.958.00	MEGA NIAGA GD 8	11Jul17	6063		GL.C	

**Figure 4.2.** Newest Production and Order Report of 1 August 2017.

The Newest Production and Order Report is a report for the production details in fulfilling order done until yesterday (Report of 1 August 2017 includes the details for production done until 31 July 2017). It is usually compiled by Mr. Ferry of PPIC department using production extrusion reports per machine of yesterday. It is presented in form of a Microsoft Excel worksheet.

The Newest Production Report includes detailed information about the production activity (can be seen in the screenshot figure) such as:

- Date of report compilation.
- NO SECT column represents the Number Section (which acts like a numeral and alphabetical code represent the product).
- BERAT STANDART column represents the standard weight of product
- UKURAN BRG JADI column represents the size of one product manufactured (the length of extrusion).
- TOTAL PROD column represents the total amount of product that has to be manufactured (order amount).

- SISA PROD column represents the amount of product left that has to be manufactured to fulfill the corresponding order (order left).
- HASIL PROD column represents the amount of product manufactured during each production process listed.
- FINISH column represents the type of finishing for the product.
- TOTAL KG column represents the total weight of product that has to be manufactured (order amount). It is calculated from the formula:

**TOTAL KG**

$$= \frac{(\text{BERAT STANDART}) \times (\text{UKURAN BARANG JADI}) \times (\text{TOTAL PROD})}{1000}$$

- CUSTOMER column represents the customer who made the order. If there's EXP in front of the customer's name, then it is an export/international customer.
- JENIS BILLET column represents the type of aluminium billet (raw material) used for production.
- KETERANGAN column represents additional information regarding the customer's special requests.
- MESIN column represents which machine was or will be used for production.
- The colored columns on right side of the sheet represents information regarding *matras*, which a term used for the extrusion die used for the production (information included are availability, amount, and size).

## 2. Warehouse Stock Monitoring Software

The Warehouse Stock Monitoring Software is a database software constantly updated by the warehouse management department so other departments can keep track of the stock information regarding each product. The writer was given access to this software to find out the sufficiency (whether the stock is available or not) of some customer's order. This software contains information about product (represented by the number sections) such as length, type of finishing, hardness level (T), extrusion shape (2D CAD picture with dimensions), stock left in warehouse, and weight. There are three of this software to store the data for different number sections of products. Warehouse Stock Monitoring



In this softwares, we can simply type the number section with the keyboard and the program will automatically jump to the typed number section

### 3. Production Extrusion Report

The production extrusion report is a detailed report regarding production done in every machine, and is compiled by the production department. The writer usually scan this production extrusion report so it can be used by the PPIC department to schedule and report future productions.

### 4. Incoming Order Report

The incoming order report is a report from the marketing department given to the PPIC department regarding orders from customer. The writer was given access to this report to ask the warehouse department regarding the order's status of completion.

## 4.3. Methodology of Jobs Execution

This sub-chapter will discuss about the methodology on how the writer completed the given jobs. The methodologies for all of the jobs given will be dechipered on several sub-subchapter.

### 4.3.1. Calculating daily totals of production of each product types (BR, CA, DB, HT, GL, MF, and PC)

PT. HP METAL INDONESIA													
1-Aug-2017													
NO	BERAT	UKURAN	TOTAL	SISA	HASIL	FINISH	TOTAL	CUSTOMER	TGL	JENIS	KETERANGAN	MATRAS	JENIS MATRAS
SECT	STANDART	BRG JADI	PROD	PROD	PROD		KG		PROD	BILLET		ADA	ADA
1826	0.044	6000	10000	1106	8895	CA	2.640.00	HERO AL BANJAR CONT	28/08/17	6063		ADA	ADA
1826	0.044	6000	7000	0	7000	CA	1.848.00	HERO AL BANJAR CONT	28/08/17	6063		ADA	ADA
19202	0.037	6000	28565	25740	2825	CA	6.341.43	ALFINDO GUNAWAN	14/08/17	6063		ADA	ADA
62221	0.170	6000	2900	803	2097	CA	2.958.00	MEGA NAGA GD 6	11/08/17	6063		ADA	ADA

**Figure 4.5.** Newest Production and Order Report of 1 August 2017 used by writer to calculate the daily totals of production.

In calculating the daily totals of production, the main reference used by the writer was the Newest Production and Order Report worksheet mentioned before.

SUM									
=(P8*F8*C8/1000)									
	B	C	F	P	Y	Z	AA	AB	AD
1									
2									PT. HP METAL INDONESIA
3									
4									
5	1-Aug-2017								
6	NO	BERAT	UKURAN	TOTAL	SISA	HASIL	FINISH	TOTAL	CUSTOMER
7	SECT	STANDART	BRG JADI	PROD	PROD	PROD		KG	
8	1826	0.044	6000	10000	1105	8895	CA	=(P8*F8*C8/1000)	HERO AL BANJAR CONT
9	1826	0.044	6000	7000	0	7000	CA	1,848.00	HERO AL BANJAR CONT
10	19262	0.037	6000	28565	25740	2825	CA	6,341.43	ALFINDO GUNAWAN

1-Aug-2017									
	NO	BERAT	UKURAN	TOTAL	SISA	HASIL	FINISH	TOTAL	CUSTOMER
	SECT	STANDART	BRG JADI	PROD	PROD	PROD		KG	
	1826	0.044	6000	10000	1105	8895	CA	2,640.00	HERO AL BANJAR CONT
	1826	0.044	6000	7000	0	7000	CA	1,848.00	HERO AL BANJAR CONT
	19262	0.037	6000	28565	25740	2825	CA	6,341.43	ALFINDO GUNAWAN
	62221	0.170	6000	2900	803	2097	CA	2,958.00	MEGA NIAGA GD 8
	AAM-304	0.485	3137	9777	8210	1567	MF	14,875.17	EXP AA METALS
	10621	0.041	6000	3000	1552	1448	CA	738.00	ANTARA R SURYA AL PKNBARU

**Figures 4.6.** Original formula (above) and results (below) for calculating the TOTAL KG (order) which is BERAT STANDART multiplied by UKURAN BRG JADI multiplied by TOTAL PROD and divided by 1000.

Initially, the TOTAL KG is used to represent the total kilograms of order. The writer was assigned to calculate total production, which means that the total kilograms of every successful production has to be calculated. So, the formula has to be changed. Instead of multiplied with TOTAL PROD (the order amount), it has to be multiplied HASIL PROD (the production amount) to calculate the total production instead of order amount.

In order to do that, the formula will be changed to BERAT STANDART (column Z in the worksheet) multiplied by UKURAN BRG JADI multiplied by HASIL PROD and divided by 1000.

That way, we can get the total amount of finished production done for each production process. The formula is then copied to all other processes below.

SUM									
= (Z8 * F8 * C8 / 1000)									
	B	C	F	P	Y	Z	AA	AB	AD
1									
2									PT. HP METAL INDONESIA
3									
4									
5	1-Aug-2017								
6	NO	BERAT	UKURAN	TOTAL	SISA	HASIL	FINISH	TOTAL	CUSTOMER
7	SECT	STANDART	BRG JADI	PROD	PROD	PROD		KG	
8	1826	0.044	6000	10000	1105	8895	CA	= (Z8 * F8 * C8 / 1000)	HERO AL BANJAR CONT
9	1826	0.044	6000	7000	0	7000	CA	1,848.00	HERO AL BANJAR CONT
10	19262	0.037	6000	28565	25740	2825	CA	6,341.43	ALFINDO GUNAWAN

1-Aug-2017									
NO	BERAT	UKURAN	TOTAL	SISA	HASIL	FINISH	TOTAL	CUSTOMER	
SECT	STANDART	BRG JADI	PROD	PROD	PROD		KG		
1826	0.044	6000	10000	1105	8895	CA	2,348.28	HERO AL BANJAR CONT	
1826	0.044	6000	7000	0	7000	CA	1,848.00	HERO AL BANJAR CONT	
19262	0.037	6000	28565	25740	2825	CA	627.15	ALFINDO GUNAWAN	
62221	0.170	6000	2900	803	2097	CA	2,138.94	MEGA NIAGA GD 8	
AAM 304	0.485	3137	9777	8210	1567	ME	2,384.10	EXP AA METAL S	

**Figures 4.7.** New Formula (above) and the results (below) for calculating the Total Production which is BERAT STANDART multiplied by UKURAN BRG JADI multiplied by HASIL PROD and divided by 1000.

Afterwards, the calculation result, types of finishing process and the customer's name of all production processes will be copied to a worksheet the writer has designed to calculate total productions per finishing processes (BR, CA, DB, GL, HT, MF, and PC).

1-Aug-2017									
NO	BERAT	UKURAN	TOTAL	SISA	HASIL	FINISH	TOTAL	CUSTOMER	
SECT	STANDART	BRG JADI	PROD	PROD	PROD		KG		
1826	0.044	6000	10000	1105	8895	CA	2,348.28	HERO AL BANJAR CONT	
1826	0.044	6000	7000	0	7000	CA	1,848.00	HERO AL BANJAR CONT	

**Figure 4.8.** Copying the types of finishing process and the customer's name of all production processes (all of them until bottommost process) to another worksheet to be calculated per each finishing process.

FINISHING	AMOUNT	CUSTOMER	TOTAL PRODUCTION (TON)
BR	0.0		
CA	0.0		
DB	0.0		
GL	0.0		
HT	0.0		
MF	0.0		
PC	0.0		
total =	0.0		

FINISHING	AMOUNT	CUSTOMER	TOTAL PRODUCTION (TON)
BR	0.0		
CA	0.0		
DB	0.0		
GL	0.0		
HT	0.0		
MF	0.0		
PC	0.0		
total =	0.0		

**Figures 4.9.** SHEET TOTAL PRODUKSI 31 July 2017 designed by the writer to calculate total productions per finishing processes (BR, CA, DB, GL, HT, MF, and PC) for local and export customers.

The image above shows the screenshot of the worksheet made by the writer. There are two sheets, which is LOKAL sheet and EKSPOR sheet. They are made with the same columns and formulas, but according to their respective names, the LOKAL sheet is used to calculate production to fulfill the order of local customers and EKSPOR sheet is used to calculate production of international/export customers.

FINISHING column is filled with their finishing type of the production process. AMOUNT column is filled with the result from the new formula for calculating total production which was explained before. CUSTOMER column is filled with the name of customer in which the production is done to fulfill their needs (order).

SUM		=SUMIF(\$A:\$A; "BR*"; \$B:\$B )/1000	
1	FINISHING	AMOUNT	CUSTOMER
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			

**Figure 4.10.** Formula to calculate total production for BR finishing type.

The TOTAL PRODUCTION (TON) table consists of two columns which are FINISHING (for the type of finishing process of the production process) and AMOUNT (for the total amount/result of production process per the finishing process). The contents of AMOUNT column is calculated with the Excel formula:

=SUMIF([range]; [criteria]; [range of sum])/1000

example:

=SUMIF(\$A:\$A; "BR\*"; "\$B:\$B)/1000

The SUMIF formula is used to calculate the sum of something if one condition (criteria) is fulfilled. The "range" part of the formula is the range of cells where the criteria is evaluated to fulfill or not. So, it is the A column (the FINISHING column). It is written as "A:A" (means the whole column A), but we make it as "\$A:\$A" so it will not change when the formula is copied to other cells.

The "criteria" part of the formula is the criteria that determines if the cells are added to the sum or not. If the criteria in the range is met, it will be added to the sum. In this case, the criteria is the code for the finishing process (BR, CA, DB, HT, GL, MF, or PC). For example, if it is the BR finishing process, the criteria of the formula is written as "BR\*". There is a "\*" (an asterisk) so anything that starts with the letters "BR" will be considered as fulfilling the criteria. This is done because some of the finishing type can be written as, for example, "GL-02". "GL-02" is a subtype of GL finishing type and is still considered a GL finishing type. Therefore, we still want to add production

results “GL-02” to the amount of sum of GL finishing type for all of the processes.

The “range of sum” part of the formula is filled with the range of cells where the actual calculation for the sum is done (or not according to the criteria fulfillment). So, it is the B column (the AMOUNT column) where the production amount/result are filled with. It is written as “\$B:\$B” meaning the whole B column act as the range of sum.

Finally, it will be divided by 1000 because the result is still in kilograms, while we want it to be in tonnes.

=SUMIF(\$A\$A; “BR\*”, “\$B\$B)/1000

So, basically, the formula above sums up all of the value in the B column if the cell in A column starts with the word “BR”, and then divide it by 1000 to get the result in ton unit. The difference of this formula in other finishing types is only in the criteria. For instance, if we use the formula to calculate the sum of production of the CA finishing type, the formula will be like this:

=SUMIF(\$A\$A; “CA”; “\$B\$B)/1000

The criteria is changed from “BR\*” to “CA\*” (underlined) to calculate the sum of production of the CA finishing type instead of BR. This is done the same to all other finishing types.

The “total =” below the TOTAL PRODUCTION (TON) table is sum of all the productions for all finishing types. So, the formula is:

=SUM(G3:G6)

G3:G6 is the range of cells filled of the results of the all the SUMIF formula mentioned beforehand.

The screenshot shows an Excel spreadsheet with two tables. The first table, located in columns A and B, has headers 'FINISHING' and 'AMOUNT'. The second table, located in columns F and G, has headers 'TOTAL PRODUCTION (TON)' and 'AMOUNT'. The second table lists finishing types: BR, CA, DB, GL, HT, MF, and PC, each with a corresponding amount of 0.0. Below this table, there is a row labeled 'total =' with a formula '=SUM(G3:G9)' in the adjacent cell. The formula bar at the top shows '=SUM(G3:G9)'.

FINISHING	AMOUNT
BR	0.0
CA	0.0
DB	0.0
GL	0.0
HT	0.0
MF	0.0
PC	0.0
total =	=SUM(G3:G9)

**Figure 4.11.** Formula of “total =” to calculate total productions of all finishing types.

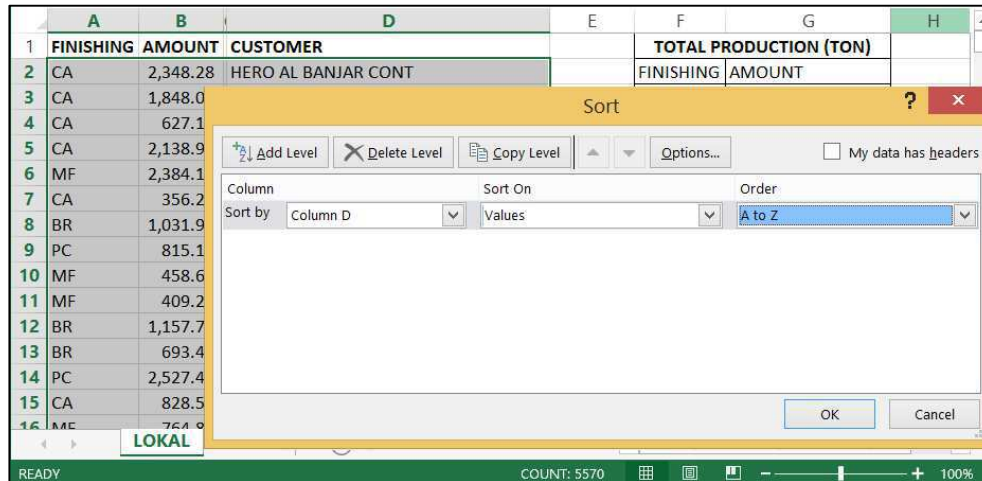
The calculation result of new formula, types of finishing process and the customer's name of all production processes copied before from the Newest Production and Order Report worksheet will be pasted (paste value) to the writer's worksheet as follows:

	A	B	D	E	F	G
1	<b>FINISHING</b>	<b>AMOUNT</b>	<b>CUSTOMER</b>		<b>TOTAL PRODUCTION (TON)</b>	
2	CA	2,348.28	HERO AL BANJAR CONT		FINISHING	AMOUNT
3	CA	1,848.00	HERO AL BANJAR CONT		BR	14.2
4	CA	627.15	ALFINDO GUNAWAN		CA	22.8
5	CA	2,138.94	MEGA NIAGA GD 8		DB	0.0
6	MF	2,384.10	EXP AA METALS		GL	3.9
7	CA	356.21	ANTARA R SURYA AL PKNBARU		HT	0.6
8	BR	1,031.94	ANTARA R SURYA AL PLMBG		MF	23.1
9	PC	815.19	EXP AA METALS FI10 2017		PC	15.9
10	MF	458.64	ANTARA R PRATAMA KARYA		total =	80.6
11	MF	409.25	ANTARA R BERKAT			
12	BR	1,157.70	MEGA NIAGA GD 8			
13	BR	693.40	HERO AL BANJAR CONT			
14	PC	2,527.49	DELTA SBY HARVEST			
15	CA	828.58	ANTARA R SURYA AL PKNBARU			
16	MF	764.82	PELITAMAJU PRO GCC			
17	MF	595.57	EXP FET 1 AGUSTUS			

**Figure 4.12.** Pasting the calculation result of new formula, types of finishing process and the customer's name of all production processes copied before from the Newest Production and Order Report worksheet will be pasted to the writer's worksheet.

Next step if moving the export customers to the EKSPOR sheet. Export customers are indicated with "EXP" word in front of their names. So, we should sort the CUSTOMER column. First, we highlight all contents and then select "Custom Sort" in the Sort & Filter option in the Home tab of the Microsoft Excel software.

In the Custom Sort menu, we choose Column D (the CUSTOMER column) as the column that we want to sort, and we select the order as "A to Z".



**Figure 4.13.** Sorting Customer's names (the CUSTOMER column).

Then, we click "OK" to get this result:

H12			
	A	B	D
1	FINISHING	AMOUNT	CUSTOMER
2	MF	212.52	ABADI JAYA FUR
3	MF	20.70	ABADI JAYA FUR
4	MF	-	ABADI JAYA FUR
5	MF	-	ABADI JAYA FUR
6	MF	-	ABADI JAYA FUR
7	CA	-	ADHIKARISMA PUTRA
8	CA	-	ADHIKARISMA PUTRA
9	CASB	-	ALFARAYA 2500
10	CASB	-	ALFARAYA 2501
11	CASB	-	ALFARAYA 2502
12	CASB	34.33	ALFARAYA 2503
13	CASB	-	ALFARAYA 2503
14	CASB	-	ALFARAYA 2504
15	CASB	-	ALFARAYA 2505
16	CASB	-	ALFARAYA 2507
17	CA	912.90	ALFINDO

**Figure 4.14.** CUSTOMER column sorted by their names (from A to Z).

The contents are now sorted according to their customer names from A to Z). Afterwards, we scroll down to find all of the contents with "EXP" in front of the customer's names and cut all of them to the EXPORT sheet.

	A	B	D
529	PC	-	DWI KREASI PRO
530	CA	-	DWIKA METALINDO (A)
531	BR	-	DWIKA METALINDO (A)
532	MF	2,384.10	EXP AA METALS
533	MF	377.36	EXP AA METALS
534	PC	300.79	EXP AA METALS
535	PC	-	EXP AA METALS
536	CA-10μ	-	EXP AA METALS
537	CA-10μ	-	EXP AA METALS
538	MF	-	EXP AA METALS
539	PC	-	EXP AA METALS
540	PC	-	EXP AA METALS
541	PC	-	EXP AA METALS
542	PC	-	EXP AA METALS
543	PC	-	EXP AA METALS
544	PC	-	EXP AA METALS
545	PC	-	EXP AA METALS

**Figure 4.15.** Cut all of the content of export customers.

The contents are now sorted according to their customer names from A to Z). Afterwards, we scroll down to find all of the contents with “EXP” in front of the customer’s names and cut all of them to the EXPORT sheet (cut and paste value).

SHEET TOTAL PRODUKSI (31-07).xlsx - Microsoft Excel						
FILE HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW ADD-INS						
Clipboard Font Alignment Number Styles Cells						
G17						
	A	B	D	E	F	G
1	FINISHING	AMOUNT	CUSTOMER			TOTAL PRODUCTION (TON)
2	MF	2,384.10	EXP AA METALS			FINISHING
3	MF	377.36	EXP AA METALS			AMOUNT
4	PC	300.79	EXP AA METALS			BR
5	PC	-	EXP AA METALS			CA
6	CA-10μ	-	EXP AA METALS			DB
7	CA-10μ	-	EXP AA METALS			GL
8	MF	-	EXP AA METALS			HT
9	PC	-	EXP AA METALS			MF
10	PC	-	EXP AA METALS			PC
11	PC	-	EXP AA METALS			total =
						0.0
						0.1
						0.0
						0.0
						0.0
						6.4
						4.4
						11.0

**Figure 4.16.** Cut and paste value all of the content of export customers to from LOKAL sheet to EKSPOR sheet.

#### 4.3.2. Calculating totals of production of BR, CA, GL, MF and PC from 3 – 22 July 2017

Next, the writer was also assigned by Mr. Edward to calculate total production of BR, CA, GL, MF and PC finishing types from 3 – 22 July 2017 for the purpose of report regarding historical data. The writer copied the total productions of each day from the SHEET TOTAL PRODUKSI the writer made, calculated and saved for everyday from 3 – 22 July 2017 (this sheet

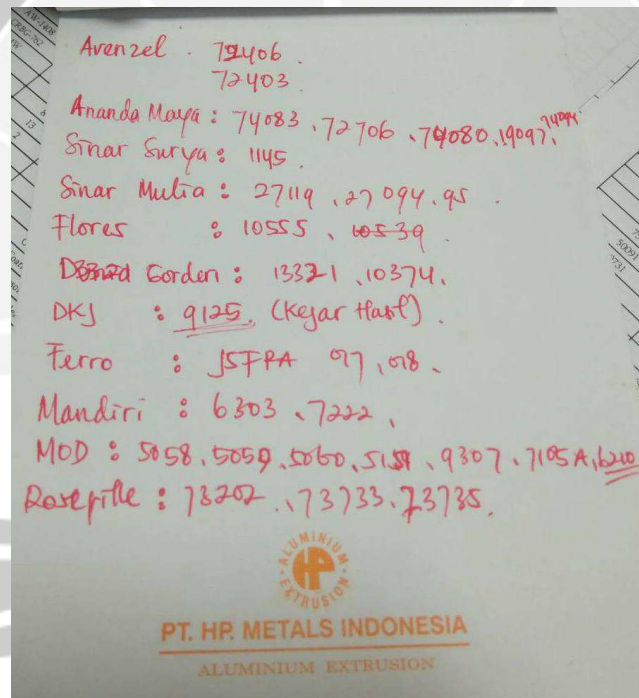
is discussed previously on the preceding section) to a new Excel worksheet and sum them all up.

The result will be shown on the next subchapter.

#### 4.3.3. Checking stock's availability of some customer's orders through the stock monitoring software and list them

The writer was also assigned to check the availability of some customers' orders by Mr. Edward. The writer was first given a listed report which consists of a list of the customer's order and their specifications.

However, unfortunately, this report is not available to be included into this report for security reasons. Sometimes, Mr. Edward also give only a list of customer's names and their orders to be checked.



**Figure 4.17.** List of some customer's order written by Mr. Edward that wanted to be checked.

The writer checks the stock in the Warehouse Stock Monitoring software shown in the previous section, and then make a list on a new worksheet of the customer's name, their orders, and the current stock shown in the software.

The result will be shown in the next subchapter.

#### 4.4. Work Results

##### 4.4.1. Calculating daily totals of production of each product types (BR, CA, DB, HT, GL, MF, and PC)

Finally, we get the results of total productions for each finishing types and the sum for all finishing types.

FINISHING	AMOUNT	CUSTOMER	TOTAL PRODUCTION (TON)	
FINISHING	AMOUNT			
BR				14.2
CA				22.6
DB				0.0
GL				3.9
HT				0.6
MF				16.7
PC				11.5
total =				69.6

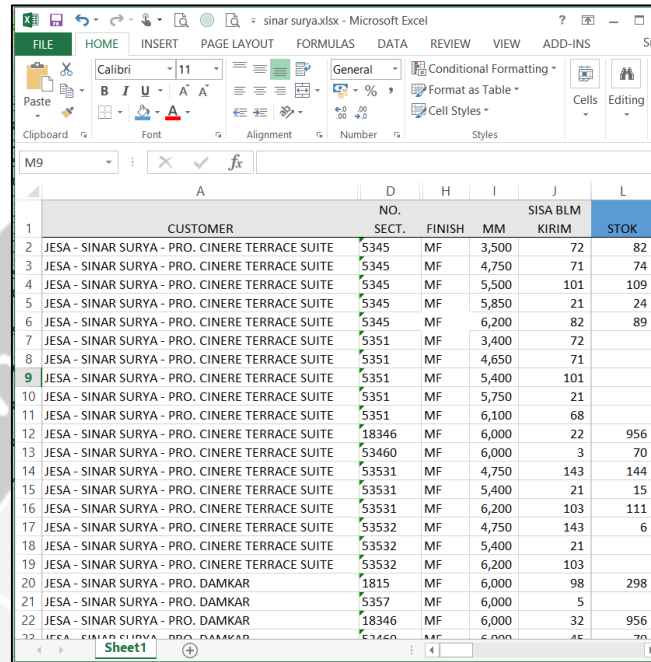
**Figure 4.18.** Results of calculation of total production results for local and for productions until 31 July 2017 calculated from Newest Production and Order Report made on 1 August 2017 (encircled).

FINISHING	AMOUNT	CUSTOMER	TOTAL PRODUCTION (TON)	
FINISHING	AMOUNT			
BR				0.0
CA				0.1
DB				0.0
GL				0.0
HT				0.0
MF				6.4
PC				4.4
total =				11.0

**Figures 4.19.** Results of calculation of total production results for export customers for productions until 31 July 2017 calculated from Newest Production and Order Report made on 1 August 2017 (encircled).

These results are then updated by the writer in the PPIC office's whiteboard.

#### 4.4.2. Calculating totals of production of BR, CA, GL, MF and PC from 3 – 22 July 2017

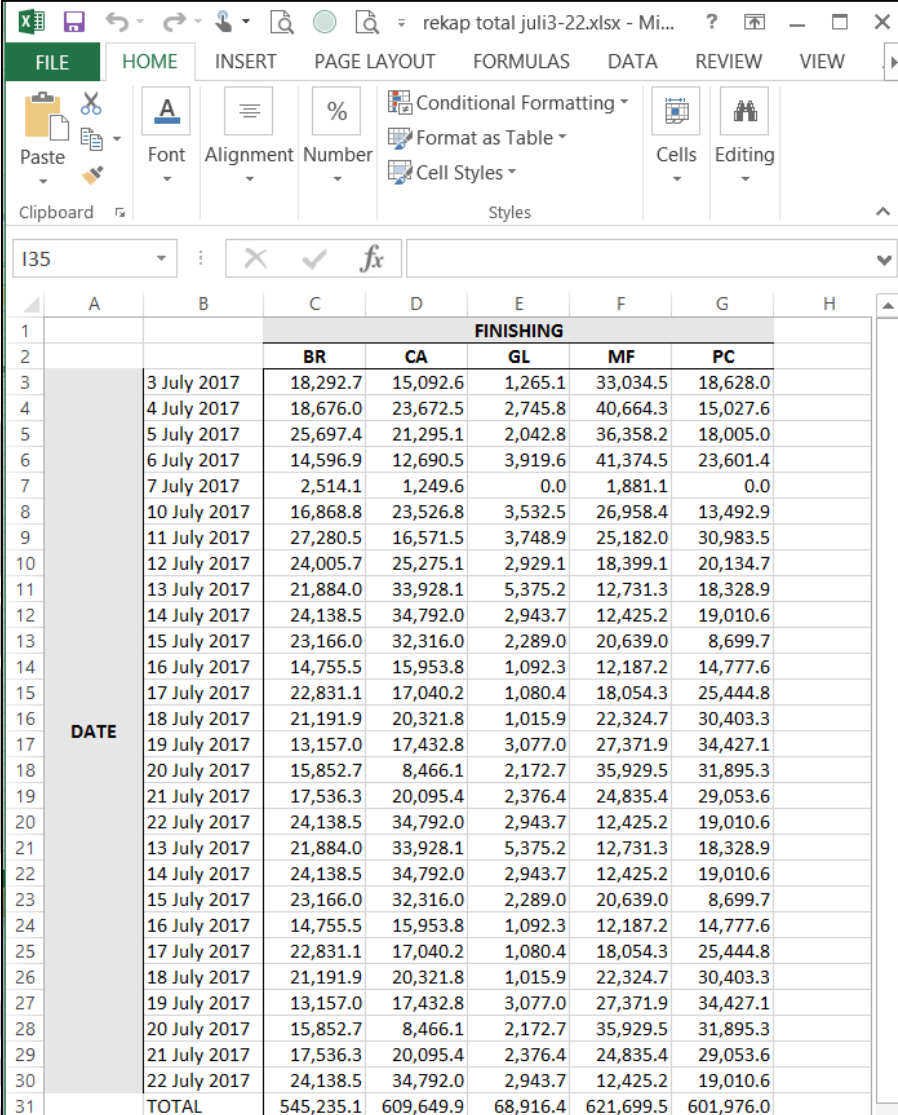


	A	D	H	I	J	L
	CUSTOMER	NO. SECT.	FINISH	MM	SISA BLM KIRIM	STOK
1	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	5345	MF	3,500	72	82
2	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	5345	MF	4,750	71	74
3	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	5345	MF	5,500	101	109
4	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	5345	MF	5,850	21	24
5	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	5345	MF	6,200	82	89
6	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	5351	MF	3,400	72	
7	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	5351	MF	4,650	71	
8	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	5351	MF	5,400	101	
9	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	5351	MF	5,750	21	
10	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	5351	MF	6,100	68	
11	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	18346	MF	6,000	22	956
12	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	53460	MF	6,000	3	70
13	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	53531	MF	4,750	143	144
14	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	53531	MF	5,400	21	15
15	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	53531	MF	6,200	103	111
16	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	53532	MF	4,750	143	6
17	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	53532	MF	5,400	21	
18	JESA - SINAR SURYA - PRO. CINERE TERRACE SUITE	53532	MF	6,200	103	
19	JESA - SINAR SURYA - PRO. DAMKAR	1815	MF	6,000	98	298
20	JESA - SINAR SURYA - PRO. DAMKAR	5357	MF	6,000	5	
21	JESA - SINAR SURYA - PRO. DAMKAR	18346	MF	6,000	32	956
22	JESA - SINAR SURYA - PRO. DAMKAR	53460	MF	6,000	45	70

**Figure 4.20.** Results of calculation of total production results for local and export customers for productions from 3 – 22 July 2017.

The rightmost column (STOK) is the current amount of the product's stock checked from the Warehouse Stock Monitoring software.

#### 4.4.3. Checking stock's availability of some customer's orders through the stock monitoring software and list them



		FINISHING					
		BR	CA	GL	MF	PC	
3	3 July 2017	18,292.7	15,092.6	1,265.1	33,034.5	18,628.0	
4	4 July 2017	18,676.0	23,672.5	2,745.8	40,664.3	15,027.6	
5	5 July 2017	25,697.4	21,295.1	2,042.8	36,358.2	18,005.0	
6	6 July 2017	14,596.9	12,690.5	3,919.6	41,374.5	23,601.4	
7	7 July 2017	2,514.1	1,249.6	0.0	1,881.1	0.0	
8	10 July 2017	16,868.8	23,526.8	3,532.5	26,958.4	13,492.9	
9	11 July 2017	27,280.5	16,571.5	3,748.9	25,182.0	30,983.5	
10	12 July 2017	24,005.7	25,275.1	2,929.1	18,399.1	20,134.7	
11	13 July 2017	21,884.0	33,928.1	5,375.2	12,731.3	18,328.9	
12	14 July 2017	24,138.5	34,792.0	2,943.7	12,425.2	19,010.6	
13	15 July 2017	23,166.0	32,316.0	2,289.0	20,639.0	8,699.7	
14	16 July 2017	14,755.5	15,953.8	1,092.3	12,187.2	14,777.6	
15	17 July 2017	22,831.1	17,040.2	1,080.4	18,054.3	25,444.8	
16	18 July 2017	21,191.9	20,321.8	1,015.9	22,324.7	30,403.3	
17	19 July 2017	13,157.0	17,432.8	3,077.0	27,371.9	34,427.1	
18	20 July 2017	15,852.7	8,466.1	2,172.7	35,929.5	31,895.3	
19	21 July 2017	17,536.3	20,095.4	2,376.4	24,835.4	29,053.6	
20	22 July 2017	24,138.5	34,792.0	2,943.7	12,425.2	19,010.6	
21	13 July 2017	21,884.0	33,928.1	5,375.2	12,731.3	18,328.9	
22	14 July 2017	24,138.5	34,792.0	2,943.7	12,425.2	19,010.6	
23	15 July 2017	23,166.0	32,316.0	2,289.0	20,639.0	8,699.7	
24	16 July 2017	14,755.5	15,953.8	1,092.3	12,187.2	14,777.6	
25	17 July 2017	22,831.1	17,040.2	1,080.4	18,054.3	25,444.8	
26	18 July 2017	21,191.9	20,321.8	1,015.9	22,324.7	30,403.3	
27	19 July 2017	13,157.0	17,432.8	3,077.0	27,371.9	34,427.1	
28	20 July 2017	15,852.7	8,466.1	2,172.7	35,929.5	31,895.3	
29	21 July 2017	17,536.3	20,095.4	2,376.4	24,835.4	29,053.6	
30	22 July 2017	24,138.5	34,792.0	2,943.7	12,425.2	19,010.6	
31	TOTAL	545,235.1	609,649.9	68,916.4	621,699.5	601,976.0	

**Figures 4.21.** Worksheet totals of production of BR, CA, GL, MF and PC from 3 – 22 July 2017.

The units are in kilograms requested by Mr. Edward. The bottom row is TOTAL, calculated from the sum of all cells above using SUM formula in Excel.

## **CHAPTER 5**

### **CONCLUSIONS**

1. The worksheet to calculate total productions per type of finishing process designed by the writer can shorten time to calculate rather than manual sorting and summing done previously by the PPIC staffs.
2. This total productions data are used as historical data to keep track of production's smoothness and stability, and is also used to find out whether timely production goals are met.



## REFERENCE



## APPENDIX



## APPENDIX

