CONTROL ANALYSIS IN EFFICIENCY OF SUPPLY IN EFFICIENCY COSTS BY ECONOMIC METHOD ORDER QUANTITY AT PT. BMC

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Abstract - This study aims to determine the method used to maintain the efficiency of supplies of auxiliary materials at PT. BMC, controlling supplies of supporting materials is carried out by the company at PT. BMC, and control of auxiliary materials at PT. BMC is already efficient by using the EOQ method.

This research strategy and method is descriptive research method. The population of this research is all transactions for purchasing of supporting materials and all costs related to the inventory of supporting materials at PT. Braja Mukti Cakra, while the research sample is the purchase of supporting materials and all costs related to the ownership of supplies of supporting materials (insert) in 2019.

Based on the results of the study showed that the implementation of controlling the Part Insert auxiliary material at PT. Braja Mukti Cakra has not optimally implemented the most economical inventory control system, where there are still intuition company policies and past experiences in an effort to increase the efficiency of its inventory. Part Insert auxiliary materials are procured 12 times a year, where each time the amount has been pre-determined and predicted. So that the company can adjust the quantity of production according to demand. Lead time for 3 working days with safety stock of 77 pcs, at a cost of Rp. 33,687.50 and Reorder Points of 128 pcs have created an inventory cost efficiency of Rp. 51,750 per year.

Keywords: Supporting Material Inventory Control, Cost Efficiency, Economic Order Quantity

Abstrak– Penelitian ini bertujuan untuk mengetahui metode yang digunakan untuk menjaga efisiensi persediaan bahan pembantu pada PT. BMC, pengendalian persediaan bahan pembantu dilaksanakan oleh perusahaan pada PT. BMC, dan pengendalian bahan pembantu di PT. BMC sudah efisiensi dengan menggunakan metode EOQ.

Strategi dan metode penelitian ini adalah metode penelitian deskriptif. Populasi penelitian adalah semua transaksi pembelian bahan pembantu dan semua biaya yang berhubungan dengan pemilikan persediaan bahan pembantu pada PT. Braja Mukti Cakra, sedangkan sampel penelitiannya adalah transaksi pembelian bahan pembantu dan semua biaya yang berhubungan dengan pemilikan persediaan bahan pembantu (*insert*) tahun 2019.

Berdasarkan hasil penelitian menunjukkan bahwa pelaksanaan pengendalian bahan pembantu *Part Insert* pada PT. Braja Mukti Cakra belum secara optimal menerapkan sistem pengendalian persediaan yang paling ekonomis, dimana masih terdapat kebijakan-kebijakan perusahaan yang bersifat intuisi dan pengalaman masa lalu dalam upaya meningkatkan efisiensi persediaannya. Pengadaan bahan pembantu *Part Insert* dilakukan sebanyak 12 kali dalam satu tahun, dimana setiap kali pemesanan jumlahnya sudah ditentukan dan diprediksi sebelumnya. Sehingga perusahan dapat mengatur kuantitas produksinya sesuai dengan permintaan. *Lead time* selama 3 hari kerja dengan

Safety stock sebesar 77 pcs, dengan biaya sebesar Rp. 33.687,50 dan Reorder Point sebesar 128 pcs telah menciptakan Efisiensi biaya persediaan sebesar Rp. 51.750 per Tahun

Kata kunci : Pengendalian Persediaan Bahan Pembantu, Efisiensi Biaya, Economic Order Quantity

I. PRELIMINARY

Inventory, as company property, has an important role in business operations. In a manufacturing company, inventory can consist of raw material inventory, auxiliary materials, work in process, finished goods, and spare parts inventory. Every company needs inventory because without inventory, the company is faced with a risk, it cannot fulfill the desires of its customers. In addition, the amount of inventory on hand also varies and the amount is adjusted to the conditions and the desired inventory management concept. The size of the inventory depends on the purchase schedule and production schedule. The greater the production capacity of a company, the more inventory needed. According to Kasmir (2016:

Inventory control is a very important function, because the physical inventory of many companies involves the largest investment in the current assets account, when companies invest too much in inventory it causes excessive storage costs and may have excess costs. Likewise, if the company does not have sufficient inventory, it can result in costs and material shortages.

Based on the background of the problems described above, the authors are interested in taking the title "Control Analysis of Supporting Materials Inventory in Efficient Cost Efficiency with the Economic Order Quantity Method at PT. BMC "

1.1. Formulation of the problem

Based on the above background, the authors limit the subject matter of this research around whether by controlling the inventory of auxiliary materials, inventory cost efficiency can be achieved, and whether the implementation of controlling auxiliary materials can be more efficient, compared to without controlling the inventory of auxiliary materials at PT. BMC. Based on this, the formulation of the problem in the study is as follows:

- 1. What is the method used to maintain the efficiency of supply materials at PT. BMC?
- 2. Is inventory control of supporting materials carried out by the company at PT. BMC?
- 3. Is the control of auxiliary materials at PT. BMC has efficiency using the EOQ method?

1.2. Research purposes

The objectives of this study are:

- 1. To find out the method used to maintain the efficiency of supplies of supporting materials at PT. BMC.
- 2. To determine the control of inventory of supporting materials carried out by the company at PT. BMC.
- 3. To know the control of auxiliary materials at PT. BMC is already efficient by using the EOQ method.

II. LITERATURE REVIEW

2.1. Control

Within the company, control or control is needed to be able to measure company performance. According to Usry (2015: 5) which is translated by Sirait, defining control or control is a company's systematic effort to achieve goals by comparing work performance with plans and making appropriate actions to correct important differences. According to

Heizer and Render (2015: 550)) all organizations certainly have a planning system and an inventory control system

2.2. Stock

Every company, especially industrial companies, need supplies for their industrial needs. According to Handoko (2013: 333) "Inventory (inventory) is a general term that shows everything or organizational resources that are stored in anticipation of meeting demand. Demand for resources may be internal or external. This includes the inventory of raw materials, goods in process, finished goods or final products, supporting or complementary materials and other components that are part of the company's product output. According to Heizer and Render (2015: 553), "Inventory is a balance between inventory investment and customer service. Inventory objectives will never achieve a low cost strategy without good inventory management".

2.3. Raw material inventory system

The conventional raw material supply system according to Heizer and Render (2015: 556) is a system of supplying raw materials and spare parts to be produced and transferred to the next operation regardless of the demand from the operation.

2.4. Control of raw material inventory

Inventory control is needed in a company, because it deals with meeting the needs for raw material supplies which will affect the course of the production process. Excess amount of inventory will result in inefficiency of place, time and funds. Meanwhile, a shortage of inventory will result in obstruction of the production process. Therefore it is necessary to control inventory in such a way as to cause efficiency in inventory costs and try to eliminate obstructions in the production process.

2.5. Research Conceptual Framework

Inventory management system is a way of how to manage the costs associated with inventory can be minimized by the optimal amount of inventory. Economic Order Quantity (EOQ) is the amount of inventory that must be ordered at any one time in order to reduce the annual cost of inventory. If a company makes a large purchase, the carrying cost will be high because of the large investment. If you buy in small quantities, orders will often occur so that the cost of ordering (ordering cost) is high. Therefore the number of orders at any one time must be determined by considering two factors: (1). Cost of ownership (supply) of materials and (2). Cost (ordering) materials.

To balance these factors, it is necessary to give thorough consideration to the emphasis on investing in minimum supplies and the benefits associated with achieving a more efficient and more effective manufacturing process.

From the information above, it can be seen that inventory is very important in meaning for a manufacturing company because it functions to connect successive operations in the manufacture of an item and deliver it to consumers. With the thoughts expressed in this study, it is necessary to provide basic supporting assumptions, namely:

- 1. The production process is carried out on an order basis, the number of economic orders will only be carried out when the inventory is at the minimum level.
- 2. The price of raw materials is constant.
- 3. The warehouse capacity is constant.
- 4. Prices, demand, request fees and ordering fees are stable.

Many companies tend to hold large inventories, this is because the company wants to get a discount on the purchase of materials and to avoid stock shortages. If the company wants to maintain sufficient inventory, so that production operations can run smoothly and efficiently, but the inventory held is not too large, it requires a good inventory management system. In this thesis, the focus is on controlling the inventory of supporting materials to the efficiency of inventory costs. Therefore, the application of the supply control system for supporting materials requires a commitment between the supplier and the company so that the delivery of the supporting materials can be carried out continuously with the quality and quantity desired by the company. However, the success of implementing this system really depends on the carefulness and sensitivity of the company management in analyzing and anticipating the situation and condition of the company and the environment around the company itself.

The costs associated with inventory need to be considered in the procurement of goods, because how much inventory will get funds from the company. How much is the amount of inventory used for the production process then compared with the estimated previous usage, can be analyzed to determine the right amount of safety stock. Lead time is closely related to repurchase, if the exact lead time is known, the company can buy at the right time so that the shortage of inventory (stockout) or excess inventory (overstock) can be minimized.

With the EOQ (Economic Order Quantity) method, companies can find out how many items to order. Storage costs can be minimized if the company can find out the right amount of goods to order from suppliers, so that no less and no more inventory is needed for the production process.

In EOQ (economic order quantity) there are two objectives that can be achieved, namely maximizing profits or minimizing costs, every company will want maximum profit in each of its production processes to cover the operational costs that have been incurred, but to achieve the desired profit the company often has difficulties. -the difficulties faced, such as the use of resources that are not optimal which causes profits that are not optimal, producing too much goods but not optimal sales of products, high production costs incurred but not optimal profits.

EOQ (Economic order quantity) is a problem solving model that can be used by any production company that wants to optimize the use of resources so that the goal of maximizing profits or minimizing costs can be achieved using quantitative methods.

III. RESEARCH METHOD

3.1. Research Strategy

In compiling this thesis, the research is descriptive. According to Umar (2016: 22) "The descriptive method aims to describe the nature of something that was taking place at the time the research was carried out and examine the causes of a particular symptom". Meanwhile, according to Umar (2016: 22) "The descriptive method aims to answer questions related to something when the research process is ongoing".

3.2. Population and Sample Research

The population is a group of individuals or certain objects that have one or more general characteristics that are the center of research. The population of this study are all purchase transactions of supporting materials and all costs associated with the ownership of supplies of supporting materials at PT. Braja Mukti Cakra (BMC).

Sampling in 2019 is by using a purposive sampling method, which is deliberately taking 2019 as a sample. In this study, the authors decided to take a research sample in 2019 on the grounds that during 2019 the price of raw materials was the latest data so that the results of the study were very likely to be taken into consideration in future company policy.

3.3. Data Analysis Methods

To analyze the inventory control of supporting materials so that the continuity of the production process is maintained, the authors use quantitative analysis methods, namely an analysis expressed in numbers, namely:

1. Economic Order Quantity calculation approach formula

From this approach, the amount of EOQ can be calculated by the formula:

$$EOQ = \sqrt{\frac{2 \text{ RS}}{PI}}$$

Where :

R = The number of supporting materials purchased in one period (unit)

S = Order fee for each order

- I = Perunit storage costs
- P = Purchase price of materials per unit

The EOQ model above can be applied if the following assumptions are met:

- 1. Constant product demand
- 2. The price per unit of product is constant
- 3. The annual storage cost per unit is constant
- 4. Ordering costs per order are constant
- 5. The time between orders placed and goods received is constant

n-1

6. There is no shortage of goods.

2. Safety Supplies

To prevent shortages of supplies of supporting materials, it is necessary to have an optimal safety stock. To determine it can be formulated as follows:

Standard Deviation = $\sqrt{\Sigma (X-x)}$

Where :

- X = Actual use
- x = Planned usage
- n = Lots of data
- Z = Normal Distribution (normal curve table)

3. Order Back

Meanwhile, to measure the reorder point of the use of materials ordered and the amount of minimum stock (Reorder point) are as follows:

ROP= SS + (lead time x average usage)Where :N D O N E SI AROP= Reorder pointSS= Safety stock

IV. RESULTS AND DISCUSSION

4.1. Description of Research Object

PT. The next BMC is called PT. BMC was originally named PT. Bekasi Machinery Company which was established by notarial deed Adlan Yulizar, SH, No. 34 dated 24 January 1986. on 17 March 1987 changed its name to PT. BMC which has been approved by the Minister of Justice of the Republic of Indonesia in Decree No. C22214.HT.0.01 1987 dated 17 March 1987.

PT. BMC is a subsidiary of PT. Bakrie Tosanjaya which is engaged in foundry and PT. Krama Yudha Tiga Berlian Motors which is Mitsubishi's sole agent in Indonesia. Share ownership composition is 50% PT. Bakrie Tosanjaya and 50% of PT. Krama Yudha Tiga Berlian Motors. PT. Bakrie Tosanjaya itself is one of the companies included in the Bakrie Brothers group, thus PT. BMC is included in the Bakrie Brothers business group.

4.2. Analysis and Discussion

4.2.1. Implementation of control of auxiliary materials at PT. BMC

Inventory control is an activity related to planning, planning and monitoring the determination of raw material requirements so that operating needs can be met on time and on the other hand, inventory investment can be minimized as much as possible.

Control of supplies of supporting materials at PT. BMC aims to achieve the most optimal level of efficiency and effectiveness in material supply in order to reduce investment in supplies of supporting materials which reach 45% of the company's total inventory. Of that percentage, as much as 20% of which is the supply of Insert Parts which is the main auxiliary material for cutting / grinding the iron skin from casting so that it is smooth which is very high usage.

The management requires all departments to work hard to reduce inventory costs from customer orders to goods to customers. This can be explained as follows:

- 1. After the marketing department receives a certain number of orders from the customer, the marketing department staff immediately informs the PPC (Product Planning Control) department.
- 2. The PPC (Product Planning Control) department immediately makes a production plan including the capacity of raw materials, labor, implementation time for the preparation of parts per month and so on.
- 3. The purchasing department creates a Purchase Order (PO) and plans to send materials to the vendor (supplier) based on the information from the PPC. Material delivery itself is carried out per day and in small lots. In other words, almost every day the vendor makes deliveries to the warehouse for supporting materials in the amount and time that the PT. BMC.
- 4. Based on the plan for sending the order part, the warehouse bag will record the order quantity in the Goods Stock Book (BSB) and immediately calculate the inventory balance. Every transaction of supporting materials, including those related to income (purchase of supporting materials) and those related to expenses (use of supporting materials), the part warehouse will record it in the Goods Stock Book. Furthermore, the raw materials will be distributed into each production line and can be directly used in the production process.

4.2.2. Policy on procurement of supporting materials

At PT. BMC in the procurement of raw materials establishes the following policies:

- 1. Before the supporting material is received, it must be checked (inspection) first by the Quality Control (QC) and the quantity is matched by the part warehouse in accordance with the Purchase Order (PO).
- 2. Efforts to ensure that the supporting materials received are sent to companies on time according to a predetermined daily delivery schedule.
- 3. Storage costs are set at 1.25% of the average inventory and safety supplies cover 90% of the supporting material needs wherever possible.
- 4. Any invoice relating to purchases, expenses must be signed by the competent authority.

4.2.3. The role of supporting material management at PT. BMC on inventory cost efficiency

High inventory allows the company to meet sudden demand. Even though the high supply will cause the company to need more and more working capital. If the company is able to predict accurately the need for materials, the company can provide inventory on time according to the required amount.

In maintaining the continuity of the production process so that there is no vacancy or shortage of material supplies, PT. BMC establishes a safety stock system for insert supplies of 20% per month. This is to avoid obstacles in the form of machine damage, delivery delays, and other obstacles that can stop the production of PT. BMC. Because of the importance of maintaining the continuity of stock, the company tries to conduct Controlling (Supervision) of all incoming parts, both quantity and quality. The form of supervision carried out by companies in keeping supplies of supporting materials available and to avoid material shortages is by means of daily physical supervision by authorized officials. Therefore, the purchase planning is made in such a way that the stock of materials is not short. In the plan to purchase the insert material (blade), the company establishes a purchase policy once a month, this is done so as not to make it difficult for the company in the production process and to make it easier to make adjustments to changes in customer demand.

In 2019 for the Part Insert (blade), the company plans to use 4200 pcs or an average of 350 pcs per month. Purchasing Part Insert raw materials can be seen in the following table:

MONTH	INSERT	PRICE UNIT	TOTAL
January	335	IDR 35,000	IDR 11,725,000
February	342	IDR 35,000	IDR 11,970,000
March	338	IDR 35,000	IDR 11,830,000
April	350	IDR 35,000	IDR 12,250,000
May	403	IDR 35,000	IDR 14,105,000
June	378	IDR 35,000	IDR 13,230,000
July	335	IDR 35,000	IDR 11,725,000
August	327-	IDR 35,000	IDR 11,445,000
September	321	IDR 35,000	IDR 11,235,000
October	-318	IDR 35,000	IDR 11,130,000
November	311	IDR 35,000	IDR 10,885,000
December	305	IDR 35,000	IDR 10,675,000
TOTAL	4063	TNDONEST	IDR 142,205,000

Table 4.1 Realization of Purchase of Insert Raw Materials (Blade) in 2019

Source: PT. BMC

Thus the total purchase of Inserts is 4063 pcs and the total expenditure is Rp. 142,205,000 or an average expenditure of Rp. 11,850417 per month. The plan for using materials in the production process can be carried out after the company purchases the materials. During 2019 PT. BMC purchased 4063 Pcs Insert Parts. Thus, the average purchase per month is 338.58 pcs or 339 pcs (rounded).

If you look at table 4.1 above, then for the months July to December 2019, the number of Part Insert purchases has decreased quite significantly, this shows that the level of demand for vehicles, especially cars, generally decreased in the second half of each year and had an impact on the production process at PT. BMC is also down. The decrease was caused by the increase in fuel prices which led to the increase in prices of basic commodities, thus causing a decrease in public interest in buying complementary goods, especially cars.

PT. BMC anticipates this decline by reducing the number of parts ordered each month, both local and imported parts. Likewise with the Part Insert (blade), which is one of the local component parts, has experienced a significant decline. This can be seen in the table of Insert Part Usage Actualization in 2019

The data on the use of Part Insert (knife blade) in 2019 are as follows:

	USAGE	PRICE	TOTAL	
MONTH	(Pcs)	(Rupiah / Unit)	(Rupiah)	
January	330	35000	11,550,000	
February	335	35000	11,725,000	
March	332	35000	11,620,000	
April	340	35000	11,900,000	
May	395	35000	13,825,000	
June	370	35000	12,950,000	
July	328	35000	11,480,000	
August	320	35000	11,200,000	
September	317	35000	11,095,000	
October	315	35000	11,025,000	
November	305	35000	10,675,000	
December	300	35000	10,500,000	
Total	3,957		139,545,000	

Table 4.2 Actualization of the Use of Part Insert (Blade) in 2019

Source: PT. BMC

Thus it can be seen that the total usage of Inserts was 3,957 pcs, with the total actual expenditure of Rp. 139,545,000 or Rp. 11,628,750 per month. However, if you look at table 1.1 there is a difference between the actual purchase and the actual use of inserts of 106 pcs or there are 9 inserts per month. At PT. BMC, ordering materials is done once a month. This means that the frequency of ordering materials in 1 year is carried out 12 times. While the time required from the ordered raw materials to the storage warehouse (leadtime) is 3 days and in 1 year the number of effective working days is 240 days. The Insert Part price is Rp. 35,000 / pcs

Procurement of supplies of Part Insert (knife blade) by PT. BMC requires the following cost-crocodiles:

1. Order Fees

Ordering costs are costs due to ordering goods until the goods arrive at the parts warehouse. The company determines an insert order fee (blade) of Rp. 25,000 for each order.

2. Storage Costs

Storage costs are required to store insert material. Because of the large storage costs from year to year, the company has set a storage cost of 1.25% of the average inventory.

Thus the total cost of procurement of the Insert Part (blade) which is the total cost of ordering and storage costs is:

- Ordering fee	: 12 x Rp. 25,000	= Rp. 300,000
- Storage costs	: Rp. 35,000 x 1.25% x 339	<u>= Rp. 148,312.5</u>
Total cost		= Rp. 448,312.5
	······································	1 + 1 + 1 + 1 = 0

The company determines that the safety stock for Part Inserts (knife blades) in 2019 is 75 pcs, while the safety stock issued by the company for Part Inserts is:

 $1.25\% \times 75 \text{ pcs} \times \text{Rp.} 35,000 = \text{Rp.} 32,812.5$

4.2.4. Analysis of material inventory control on inventory cost efficiency at PT. BMC

4.2.4.1. The most economical ordering analysis (EOQ)

From the data obtained, the most economical number of orders can be calculated by the formula:

$$EOQ = \sqrt{2 RS}$$

P

Where :

R = The number of basic ingredients used in one period is 3957 pcs

S = The order fee for each order is Rp. 25,000

I = The storage cost per unit expressed in a percentage, namely 1.25%

P = The purchase price of raw materials per unit is Rp. 35,000 Then:

EOQ =
$$\sqrt{\frac{2(3,957)(25,000)}{1.25\% \times 35,000}}$$

= $\sqrt{\frac{197,850,000}{437.5}}$
= 672 Pcs

While the most economical ordering frequencies are:

Ordering Frequency = 3957

= 6 times (rounded)

If the order is made 6 times a year, then one order is sufficient for one month's needs.

Thus the total cost which is the total amount of ordering costs and storage costs is:

- Ordering fee $= 6 \times Rp. 25,000$	= Rp. 150,000
- Storage costs = IDR $35,000 \times 1.25\% \times 672$	= <u>Rp. 294,000</u>
Total cost	= Rp. 444,000

4.2.4.2. Analysis of standard deviation in determining the amount of safety stock

Safety stock is needed to keep the production process smooth. This problem that occurs is the delay in delivery and determining the size of the safety stock. To determine the amount of safety stock can be calculated using the formula:

SD	$=\sqrt{\sum (Xx)^2}$	SHE
	n-1	
Where :		-
$\mathbf{X} =$	Real Use	
x =	Usage planned	NDONI
N =	Lots of data	

 Σ = The value you are looking for is in the normal curve

For more details, it is presented in the calculation of Standard Deviation with the table, as follows:

1	SIVIC 2019			
MONTH	USAGE	PLANING	X - x	(X - x) ²
	(X)	(x)		
January	330	335	-5	25
February	335	342	-7	49
March	332	338	-6	36
April	340	350	-10	100
May	395	403	-8	64
June	370	378	-8	64
July	328	335	-7	49

Table 4.3Calculation of Standard Deviation of Insert Raw Material of PT.BMC 2019

August	320	327	-7	49
September	317	321	-4	16
October	315	318	-3	9
November	305	311	-6	36
December	300	305	-5	25
TOTAL	3987	4063		522

Source: PT. BMC

SD =

Thus, the standard deviation for insert use can be calculated as follows:

$$\sqrt{\sum (Xx)^{2}}$$
N-1
$$=\sqrt{522}$$
11
$$= 47 \text{ pcs (rounded)}$$

Thus, if there is an excess stock of 9 pcs, then the stock is still within normal limits because the Standard Deviation (deviation) is 47 Pcs.

The company wants the safety stock to be determined to have a level of probability covering material requirements of 90% or in the normal curve table 1.64. So that the amount of Safety stock is

 $SS = 1.64 \times 47$ = 77 pcs (rounded) So the storage costs incurred for the Safety stock part are: 1.25% x 77 pcs x Rp. 35,000 = Rp. 33,687.5

4.2.4.3. Determination of the reorder point (ROP)

Reorder Point or the reorder point is the time when the reorder must be made so that the arrival or receipt of the ordered raw materials is exactly when the inventory is equal to 0 (zero) Based on the data obtained, then:

- *Safety stock* amounting to 77 pcs
- Lead time 3 days
- Average daily insertion

3987 pcs: 240 days = 17 pcs (rounded)

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Then the ROP is:
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ROP = Safety stock + Use during lead time

= 77 pcs + (3 days x 17 Pcs)

So the company must place an order for Inserts again when the number of stock inserts has reached 128 pcs, to keep the inventory optimal.

In addition to the number of EOQ, safety stock and reordering points are known, it can be calculated the maximum inventory and minimum stock at PT. BMC, namely:

1. Maximum Inventory

To calculate the maximum amount of inventory is the sum of the EOQ and safety stock where:

Maximum supply

$$= EOQ + safety stock$$
$$= 672 pcs + 77 pcs$$

= 749 pcs

By knowing this maximum supply, it is hoped that PT. BMC does not keep the number of Part Inserts greater than the maximum inventory so as not to spend too much on inventory management.

2. Minimum Inventory

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Minimum $_{749}$ entory or minimum quantity of inventory is the lowest (minimum) inventory limit that must exist, in order to anticipate part shortages. In this case the safety stock is 77 pcs.

From the data obtained, PT. BMC continues to take precautionary measures against customer requests which are outside the regular production schedule.

From the data above, the curve of the relationship between the most economical order quantity (EQQ), the reorder point (ROP) and the lead time can be drawn as follows:





So from the results of the above calculations, the most economical number of orders (EOQ) is obtained which is 672 pcs per month. Safety stock of 77 pcs. With a fee of Rp. 33,687.50 and Reorder point (ROP) of 128 pcs.

4.3. Interpretation of Research Results

1. Of the total need for Insert Part material in 2019 amounting to 3957 pcs and with a total purchase per year of 4063 pcs with an order fee of Rp. 25,000 for each order and the price per unit of Rp. 35,000 per pcs, 3 days waiting time and a percentage of storage costs of 1.25%, the cost efficiency of ordering and storage is Rp. 448,312.5 to Rp. 444,000. Then the efficiency of inventory management costs is Rp. 4,312.5 per month or Rp. 51,750 per year.

V. CONCLUSIONS AND SUGGESTIONS

5.1. Conclusion

After conducting research and discussion on the implementation of inventory control of the Insert Part raw material at PT. BMC, the authors draw conclusions and provide suggestions to the company in order to increase efficiency and effectiveness in carrying out its production activities by controlling the supply of raw materials better.

From the results of the analysis and discussion that has been carried out in previous chapters regarding the analysis of inventory control of insert part auxiliary materials in maintaining inventory efficiency, it can be concluded:

- 1. Implementation of control of Insert Part auxiliary materials at PT. BMC has not optimally implemented the most economical inventory control system, where there are still company policies that are intuition and past experience in an effort to increase the efficiency of its inventory.
- 2. Part Insert auxiliary materials are procured 12 times a year, where each time the amount has been pre-determined and predicted. So that the company can adjust the quantity of production according to demand.

3. *Lead time* for 3 working days with a safety stock of 77 pcs, at a cost of Rp. 33,687.50 and Reorder Points of 128 pcs have created an inventory cost efficiency of Rp. 51,750 per year

5.2. Suggestion

Based on the research and conclusions above, the authors provide several suggestions to PT. BMC in carrying out inventory control of Part Insert auxiliary materials so that efficiency can be more perfect, namely:

- 1. In controlling the supply of raw materials for Part Insert, companies are advised to implement an EOQ (Economic Order Quantity) system where all the company's efforts and efforts are directed to minimize stock in order to achieve maximum cost efficiency.
- 2. In an effort to anticipate an increase in the number of Insert Part production, companies are advised to expand the capacity (capacity) of part inventory in the warehouse so that the company can minimize material losses in the event of a Stop Line (Production stops due to part shortage).
- 3. The lead time should be reduced to 1 to 2 days, whereas reducing the waiting time to 2 days will reduce the ROP from 128 pcs to 111 pcs. Meanwhile, reducing the waiting time to 1 day will reduce the ROP to 94 pcs. This will increase the efficiency of parts inventory costs which are quite significant every year for PT. BMC.

5.3. Limitations and Further Research Development

- 1. The researcher realizes that this research is far from perfect and still has limitations, namely it is not easy to do include all cost components associated with managing inventory, for example security costs, out of stock costs, or opportunity costs. Exact figures for these costs are not easy to come by.
- 2. Researchers provide suggestions or input to further researchers using POM-QM for Windows software in implementing the EOQ method so that the analysis process is faster and more precise.

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