

**PROJECT REPORT (17MBAPR407)**  
**ON**  
**“A STUDY ON INVENTORY MANAGEMENT IN AUTOKAST LTD”**  
**BY**  
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*Submitted to*

**VISVESVARAYA TECHNOLOGICAL UNIVERSITY, BELAGAVI**



*In partial fulfillment of the requirements for the award of the degree of*  
**MASTER OF BUSINESS ADMINISTRATION**  
*Under the guidance of*

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**March 2019**



**ആട്ടോകാസ്റ്റ് ലിമിറ്റഡ്**  
 ഒരു കേരള സർക്കാരിൽ സ്ഥാപനം  
**Autokast Ltd**  
 A Government of Kerala Undertaking



CIN-U27310KL19845GC003975

AKL/PER/17A

15/03/2019

**CERTIFICATE**

This is to certify that Mr.Sanu Krishna H(1AY17MBA48), MBA student of Acharya Institute of Technology, Bangalore has successfully completed Project Work on **"INVENTORY MANAGEMENT"** in our company during the period from 03/01/2019 to 16/02/2019 as part of his curriculum.

He was found to be sincere in his studies.

For AUTOKAST LTD,

~~DY.MANAGER(HRD&A).~~



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# ACHARYA INSTITUTE OF TECHNOLOGY

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Date: 04/04/2019

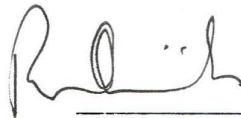
## CERTIFICATE

This is to certify that **Mr. Sanu Krishna H** bearing USN **1AY17MBA48** is a bonafide student of Master of Business Administration course of the Institute 2017-19 batch, affiliated to Visvesvaraya Technological University, Belagavi. Project report on “**A Study on Inventory Management in Autokast Ltd, Kerala**” is prepared by him under the guidance of **Prof. Ayub Ahamed K S** in partial fulfillment of the requirements for the award of the degree of Master of Business Administration, Visvesvaraya Technological University, Belagavi, Karnataka.

  
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## DECLARATION

I, SANU KRISHNA H, hereby declare that the Project report entitled study on “INVENTORY MANAGEMENT” with reference to “AUTOKAST LTD Cherthala” prepared by me under the guidance of AYUB AHAMED KS sir, faculty of M.B.A Department, (ACHARYA INSTITUTE) and external assistance by Jithsh,HR Manager Autokast.I also declare that this Project work is towards the partial fulfillment of the university Regulations for the award of degree of Master of Business Administration by Visvesvaraya Technological University, Belagavi. I have undergone a summer project for a period of 6 weeks. I further declare that this Project is based on the original study undertaken by me and has not been submitted for the award of any degree/diploma from any other University / Institution.

**Place: Bangalore**  
**Date:**



**Signature of the student**

## ACKNOWLEDGEMENT

I wish to express my sincere thanks to our respected Principal, **Dr. Prakash M R**, beloved Dean-Academics, **Dr. Devarajaiah R M**, and deep sense of gratitude to **Dr. M M Bagali**, HOD, Acharya Institute of Technology, Bengaluru for their kind support and encouragement in completion of the Project report.

I would like to thank **Prof. Ayub ahamed ks**, Asst. Professor, Department of MBA, Acharya Institute of Technology, Bengaluru and external guide **Mr. Jithesh**, HR Manager, Autokast Ltd, Kerala, who gave me golden opportunity to do this wonderful Project in the esteemed organization, which helped me to learn various concepts.

Finally, I express my sincere thanks to my Parents, Friends and all the Staff of MBA department of AIT for their valuable suggestions in completing this Project Report.

Place: Bangalore

SANU KRISHNA

Date:

1AY17MBA48

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## **EXECUTIVE SUMMARY**

Inventory plays very important part of current assets which is used by almost all of the companies in India. The company uses various types of inventories like raw material, work in progress, finished goods, and transportation. Most of the companies will invest more on the inventory when they compare to other inputs. The proper maintenance of assets enables the firm to earn profit and maintain proper liquidity and reserves.

The study about inventory management helps to understand the methods followed for maintaining the inventories at Autokast Ltd, the study was conducted for the period of 6 weeks, to analyze inventory turnover ratios, activity ratios and inventory to capital employed which will helps to evaluate or find out the efficiency and problems related to the inventory management. The motive of the study is to understand the techniques and efficiency that the company uses to manage inventories.

After checking the financial statement of 5 years, we can draw a conclusion whether the overall Performance of the company is increasing or decreasing. The study shows that there performance is changing and they have to implement some methods for maintaining the inventories.

Sometimes the inventory goes above the maximum level and sometimes goes below the minimum level, the situation in which the inventory goes below the minimum level is called danger level, so it is very important to control inventory in every company.

## **CHAPTER-1**

### **INTRODUCTION**

## 1.1 INTRODUCTION

This project was undertaken for a period of 6 weeks in AUTOKAST LTD Cherthala Kerala. This project tells the importance of "Inventory management".

Inventory management plays a major role in every company, inventory management enables the company to minimize the wastage of the stock and ensure the better utilization of all resources. By reducing the wastage company can easily achieve their goal.

Inventory control is important for every form of business, which focused on products or services. Inventory control tracks almost all side of actions. A proper adjustment must collide to keep up proper stock with the base money related effect to the client. Stock control is actions that uphold stock keeping things at anticipated points.

"Stock", a physical load of goods, which kept for smooth and proficient working of forthcoming issues of association at base rate of assets obstructed in inventories. The major cause for carrying inventory is, it tangibly difficult and economically unrealistic for each item to reach accurately where it wanted, precisely when it is needed.

Inventory management enables the company to control inventory and also the work hour of the employees too; inventory management helps the workers to do work on their full capacity by minimizing the wastage and fuller utilization of resources.

## 1. 2 INDUSTRY PROFILE

Founding industry is the basic Engineering industry ,the product of which is almost used by all people virtually each and every industry process need casting of one type or the other .All forms of transport do require to a major extend of the foundry industry production.

Founding or casting is the oldest manufacturing methods, which age back to around 4000 B.C. The manufacturing & practice of casting can be drawn both in ancient as well as in medieval history. Earliest of copper were cast in open (stone) mould about 5000 year ago. Prior throwing was most likely made out of gold, silver, copper, bronze and so forth. One existing life estimated picture made of cast bronze from predates around 2500 B.C. decorated bronze castings could be seen in the European church and domestic life by the end of the medieval period. The primary foundry focus appeared in the times of Shan administration in China, Greek and Roman history uncover the utilization of beautified decorations and metal chimes.

In India there are more than 5000 foundries are there with an installed capacity of 7.5m tons per year. Almost all foundry industry in India comes under the category of small scale industries. Half a million peoples are employed in this foundry industry. Foundry industry in India is different from other countries foundry industry because of the geographical clustering.

The first foundry center was started in the days of Shan Dynasty in China, many numbers of foundries using iron as the structural material came in to functioning after the industrial revolution.

The mid- 20<sup>th</sup> century saw noticeable growths in founding. New systems derived into existence, the moulding phenomenon understood well, many young men took initiative and got trained this field and eventually many engineering colleges started teaching metal casting as a subject.

Principles of founding have been shaping metals since the olden day of civilization. A wide variety of different sizes and different shapes of simple and intricate nature can be made in different metals, mainly each foundry cluster is famous for catering to some specific end -use markets, eg: the Coimbatore cluster is mainly famous for pump-set casting. Kolhapur and belgam clusters for their automotive casting and diesel engine for Rajkot.

Cement inside the form, and after that the shape is evacuated to remove the metal throwing. Throwing can utilized to make parts of many shapes that would be troublesome or uneconomic to make by different techniques, (for example, fashioning, gathering segments or cutting from strong

material).The casting is used to produce an average of about 40 per cent(by weight) of stock for machine parts, Cast parts are used in metal working lathes, internal burning motors, compressors, pumps, electric engines, steam and pressure driven turbines, moving plants, horticulture machines, engine vehicles, tractors, trains and railroad autos.

The use of casting is widespread because they may be produced with a shape that approaches that of the finished articles more closely than the shape of blanks produced by other methods, such as forging. Load of fluctuating many-sided quality might be created by throwing without vast machining recompenses, which lessens the utilization of metal and the consumptions for machining and eventually brings down the cost of the articles. Throwing might be utilized to create articles of for all intents and purposes any weight, going from a couple of grams to many tons, with dividers a small amount of a millimeter to a few meters thick. The most imperative composites utilized as a part of the creation of throwing are grey,malleable,alloy solid metal (up to 75 for every penny of all castings by weight), carbon and combination steel (more than 20 for each penny), and nonferrous compounds (copper, aluminium, zinc and magnesium amalgams). The region is utilization of cast parts is always widening.

Foundry production is varied and is divided as follows:

According to the method of filling the mould

- Ordinary
- Centrifugal
- Pressure-due casting

According to the method of production of the mould

- Single-use mould casting
- Casting with multiple-use
- Ceramic or sand-and-clay mould.

Production of blanks and billets by casting uses single-use sand moulds and self-hardening shell moulds. Single-use moulds are made by means of a pattern assembly and a mould box. The example gathering comprises of the throwing design itself, which is intended for creating

in the form the state of the pit wanted in the throwing and a centre box for the generation of throwing centres, which are intended for moulding the inside or complex outside parts of castings. The examples are mounted on design plates, on which form boxes loaded with the embellishment blend are put. The finished drag is removed the example plate and pivoted by 180 degree, and the centre is introduced in the shape pit. At that point the cope and drag are mated and affixed together, and the form is loaded with liquid combination. In the wake of solidifying and cooling, the throwing is thumped out of the shape get together, together with the gating. The throwing is then cleaned to create the completed stock

Production of casting in single-use sand moulds is the most widespread method in the industry. In sand throwing the empty form is made of fortified sand utilizing a wooden example, which is in the state of the segment to be made .Hollow areas can be presented using sand centers set into the shape depression. The example is expelled and liquid metal is filled the cavity

Speculation throwing, in which a wax duplicate of the segment is utilized to create an earthenware form, has been in presence for a great many years, yet is as yet used to deliver expansive quantities of top notch castings for aviation and restorative applications.

The choice of which process is to be used is based on some factors, the metal alloy to be cast, the cost of the parts and properties and surface finish strength.

Foundry industry helping the following sectors;

1. Automobiles
2. Railways and airports
3. Power sector areas
4. Agricultural machines
5. Earth moving machinery
6. Pumps, Compressors, Pipes valves and Pipe fittings
7. Electrical
8. Textile industry
9. Cement companies
10. Agro Machinery

India ranked 6th country in the whole world for producing an estimated value of 6million MT of different grades of casting .The different types of casting which are produced are ferrous , non-ferrous Aluminum alloy, graded cast iron ,ductile iron ,steel etc for application in automobiles ,railway, pumps Compressors and valves, diesel engines, cement, electrical or textile

machinery, among others. The grey iron playing an important role in casting and contribute 70% of total casting. There are almost 4500 units involved in casting, out of which 80% comes under small-scale units and 10% each for the medium and large scale units.

The industry is organized in clusters in different areas like Agra, Belgaum, Chennai, Pune, Ludhiana, Coimbatore, Kolhapur and Rajkot .Each clusters has their own special products or they are different from others because of their ability to make different products.

### 1.3 COMPANY PROFILE

Autokast is the leading foundry, which can cast a wide range of production in grey iron. It is fully owned subsidiary of Steel industries of Kerala Ltd (SILK) with capital investment of Rs. 3000 million and 320 dedicated workforce. It supplies essential components for engineering and manufacturing operations such as automobiles, agriculture, electric iron and steel production of casting substantial progress have been made in the past but it facing problems like shortage, poor quality and price of input material like pig iron, steel scrap etc. Autokast was established in the year 1984 as a subsidiary of steel industries Kerala ltd, (SILK), a government of Kerala undertaking for the manufacture of grey iron and spheroidal graphite iron castings. Autokast is fully owned by Government of Kerala with capital investment of 300 dedicated workforces. The foundry started commercial production in 1986 and since they could again the confidence of leading manufactures in the automotive, Ash handling, Heavy engineering, machine tool, material handling, pump, tractor, and value and wind mill sectors.

Autokast Ltd has the ability to produce materials weighting from 20kg to 8000kg single piece. The current annual production capacity in Autokast Ltd is 6000 Metric Tons. Autokast produces the grey iron for the domestic and international markets. In fact Autokast is able to produce Quality castings in all grades of grey iron. An expansion proposal to include steel castings is one the avail. Range of alloys manufactured at present includes FG 300, SG-400/12, SG-500/7, GGG 40.3 grade, Grey Iron with 2% Nickel.

Considering export potential of fully finished, ready to use engineering par, auto-components etc. and foundries have been setting up apart from world class casting production facilities, modern CNC machining facilities as well. To meet the quality demand in the international market, ultra-modern manufacturing setup with high pressure moulding line, modern cold-box core shop, robotized fettling etc. have started finding place in new generation foundries being upgraded or being newly setup. Elaborate quality management system and application of information. Technology for not only manufacturing management but also metal solidification and mould flow simulation has started finding their application amongst new generation setup. The national steel approach 2005 is expanding the aggregate steel c2019-20) from 38 million tons (in 2004-05). This should require an aggravated yearly development of around 7.3%. The overall creation was 66.8 million tons in 2010. The aggravated yearly development has been over 9% from 2005-2010, which is superior to the normal development. Be that as it may, the greater parts of these are a effect of the Brownfield extension ventures of the current steel organizations. In any case, we require new green field ventures to proceed with a similar development rate. Be that as it may, this is certain to take longer than the estimated time if the



present rate of land securing and the administration's languor proceeds. The administration guaranteeing speedier help (in the terms of authorizations, arrive and so on.)

The State Bank of India under undertaking Uptech plan of Govt. of India had taken up foundry bunch of Belgaum in 1997. Under the task point by point examines were done for innovation up degree. Courses on innovation angles were sorted out and preparing on shop floor was accommodated the faculty working in foundries. The foundry creates a wide assortment of castings, for example, sewer vent covers, pipe and pipe fittings,

Autokast Ltd was started with the aim of manufacturing different types of ferrous castings unit under SILK on May 21<sup>st</sup> 1984. It was incorporated as a separate subsidiary on Steel Industries of Kerala Ltd (SILK) and renamed as Autokast Ltd. This is located in S.N Puram near Cherthala in Kerala in a modern industrial casting unit as ISO 9002: 2008 Company. The unit has good capacity of 6000 MT and covers the area of 24000sq.mts. The plant includes two different production lines, one is the conventional moulding line and other one is high pressure moulding line.

Autokast produces and sells different grades of Grey Iron and SG Iron Castings in all grades of Grey Iron and SG irons. Company is planning to expand steel casting. Autokast specialty is that casting in grey iron and SG iron with precise dimensional control.. Casting enterprises, that has led leading name in key industries-automobiles, power and cement plants, windmill, machine tools and earth moving turn to Autokast. Autokast is accredited with ISO 9001: 2008 from M/s Kema, Netherlands since 2000. The foundry started commercial production in 1986 and since then they could gain the

Reaction of the nation to 110 million to confidence of leading manufacture in automotive, Ash handling Pump, Tractor, Valve and Windmill sectors. The work is located at Cherthala, towards 40kms south of the Fort Kochi in Kerala state. They are well connected to rail and road transportation. Autokast Ltd is completely fitted out to produce all types of Ferrous Castings weigh up from 20kg-8000kg solo piece.

The current yearly production is 6000 Metric tons. Autokast is well equipped with most modern sophisticated machinery to ensure quality castings at par with customer expectation. They produce single piece casting weighing from 25kg to 5000kg in grey iron, ductile iron and carbon steel or alloy steel, melting, and continuous sand mixing with sand reclamation system and shot blasting during 2011 to meet the latest market needs.

Government of Kerala is the owner of Autokast Ltd. The main activities of the company are Besides these silk has four divisions with service functions like construction, Assembly and installation of diesel generating sets, trading of iron and steel items, a power of engineering division and a project engineering and export division. Power engineering divisions of silk established in 1989 is engaged in Design, company profile engineering, manufacture, erection and commissioning of small/mini/micro Hyde generating plans on turkey basis. The division undertakes power generation on a “water to wire” basis. In other words the division takes the full responsibility of small/mini/micro Hyde project on a “concept to commissioning” basis. Hyde projects ranging from 10KW to 3000KW have already been commissioned and some more are in the various stages of implementation.

Foundry organizations always keep on improving their performance in maintaining the confidence of the esteemed customers so as to rely us in meeting all their future projects including import substitutes. The quality control departments has fully fledged facilities including Spectrometer, Ultrasonic tests, Magnaflux dye penetrant, UTM, Metallographic Microscope, Hardness tester, Impact testing machine

### **1.3.1 PROMOTERS**

Autokast Ltd is fully owned by the state government. It is a public sector undertaking which manufacture steel and structural fabrications, steel forgings, cast iron, ship breaking, SG iron, Small Ocean going vessels and barges.

Directors:

- Radhakrishnan Sivadasan Nair
- Syamala Sulochana
- Gopakumar Prabhakaran Nair
- Pradeep Kumar
- Sukumaran,Rajappan Nair
- Vijaya Kumar
- Raghavan Pillai

### **1.3.2 VISION MISSION AND QUALITY POLICY**

#### **VISION**

- To raise the company as a leader of casting industries in India
- The company should be recognized and respected as a manufacturer of the world class product serving customers by supplying quality castings at the right time.

## **MISSION**

- Production in large volume and cost of effectiveness in all segments.
- Produce technologically superior products.
- Achievement of customer delight through benchmarking global practice.
- Consistent production through harmonious industrial relations.
- Strengthen supply chain management.

## **QUALITY POLICY**

Quality policy of the AUTOKAST LTD is to produce provide as per the international/national standards and make them usable to the needy customers. AUTOKAST LTD endeavor to improve the quality of its products and services on a continuous way through proper development effort. A better standard management has been employed. This scheme is revised again and again to improve its efficiency, updated to face altering wants.

### 1.3.3 PRODUCT PROFILE



**ASH VESSEL**



**BRAKE DISC**



**CAST IRON – GEAR**

**BOX**



**CLAW BEAM**



**DISCHARGE HEAD**



**EXTENDER**



**MAIN BRG HSG**



**SPHERE**



**VALVE BODY**



**VALVE DISC VANE**



**YAW TOP**

### 1.3.4 AREAS OF OPERATIONS

Autokast Ltd is a government company. Situated in Kerala, Alappuzha district, They don't have any other branches ,the activities of Autokast Ltd other than casting are construction , trading of steel and iron items, assembly and installation of diesel generating sets, a power of engineering division, and a project engineering and export division. Power engineering division of SILK (steel industries of Kerala ltd) established in 1989 is engaged in design, company profile engineering ,manufacture, erection and commissioning of small,mini,micro Hyde generating plan on Turkey basis .

### 1.3.5 INFRASTRUCTURE FACILITIES

**TABLE NO.1.1**

Registered Office and work	S.N Puram, Cherthala, Alappuzha Dist., Kerala
Year of Establishment	1982
Total area covered	242810 sq. mts
Products	Grey Iron and Ductile Iron Castings
Production Facilities	High pressure moulding (Air impulse technology)
Moulding process	Green Sand process, Carbon dioxide process and silicate process

Core making	Carbon dioxide, NO bake, Pep set and Cold box amine process)
Furnace	6 MT electric induction, 2 no. – 5MT and 3 MT
Testing facilities	Spectrometer, Ultrasonic magnetic particle test, dyes penetrant
Present Production	350 MT per month
Spare capacity	150 MT sq. mts

#### 1.4 COMPETITORS

The major competitors of Autokast Ltd are:

- LMW foundry, Coimbatore

LMW was founded in 1962 in order to pro the latest spinning technology to Indian textile mills. LMW later changed into CNC machine tools and now a brand leader in manufacturing the customized products.

- Simplex castings, Bhili

Started in the year 1970 as a small grey iron foundry later it was converted into Pvt limited company under the Indian companies act registered office is located at Mumbai

- Southern Alloy Foundries, Chennai

Established in the year 1959 and is situated at Chennai Tamilnadu located at a very convenient location for transportation and access from Chennai city

## **1.5 SWOT ANALYSIS**

### **STRENGTHS**

- Have sophisticated machinery, facilities and equipment.
- Availability of good quality silica sand
- Nearness to seaport infrastructure
- Versatility in production process – ability to produce a wide range of product
- There is no problem of power failure. Autokast has got 24 hours power supply
- Good reputation for quality
- Good quality casing
- Well established customer base, customer loyalty and satisfaction
- Qualified and well trained employees

### **WEAKNESS**

- Long development time for new product
- High fixed overhead
- Situated away from major customer
- Low managerial capacity
- Heavy burden of past liabilities
- Absents of cost control mechanism

### **OPPORTUNITIES**

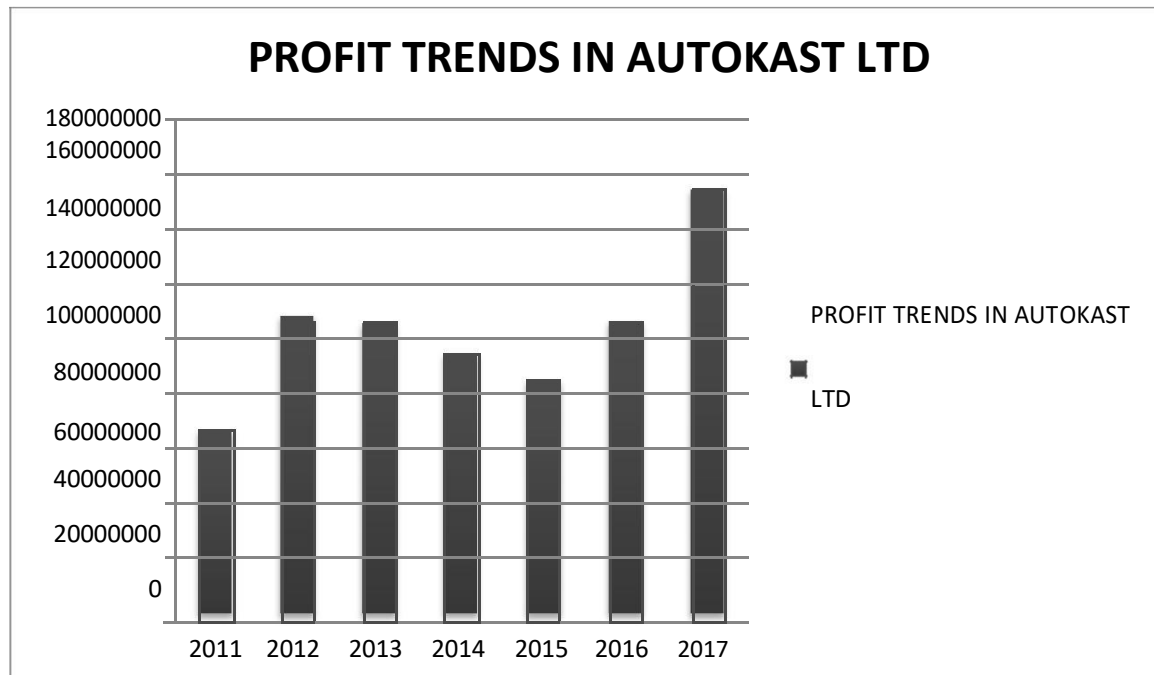
- The new joint venture with railway will open a wide opportunity for future growth of the company
- There is high potential for export to Europe and USA due to better quality products
- Reduction in input cost is possible

### **THREATS**

- General recession in the market
- Survival of the company depends on Government policy regarding revival.
- Major investment required to project healthy financial position
- Global competition
- More bargaining power of customer and suppliers
- Political intervention in the company proceeding

## 1.6 FUTURE GROWTH AND PROSPECTUS

GRAPH NO.1.1



The company has witnessed a steady growth in its earnings accumulation, besides certain minor downward fluctuations during some years. The company had adequate amount of cash reserves kept for meeting contingencies, and also had the net worth comparatively in good numbers. 2017 has proved to be the year with more profit for the company, followed by 2016 and 2012. The company had earned a net profit of Rs. 15, 43, 98,057/- during the year 2017. The company had showcased a varying trend in its profits earned during the 7 years taken for the study. By analyzing this profit trend, the future growth prospects of the company can be positively assured as there is no chance of a severe dip in the profits. The company has earned comparatively steady profits, apart from few minor variations. Company can look forward to raise funds for new projects as well as further modifications and innovations.



## 1.7 FINANCIAL STATEMENT

**TABLE 1.2**

Comparative balance sheet of the year 2016- 2017

<b>PARTICULARS</b>	<b>2016</b>	<b>2017</b>	<b>INCREASE/DECREASE</b>	<b>% OF CHANGE</b>
Source of fund				
Share capital	64707.2	64707.2	0	0
Reserve and surplus	7937	7579	-3.58	-4.51
Loans and advances				
Secured loans	65218.06	43857.87	-21360.19	-32.75
Unsecured loans	31631.81	21803.1	-9828.19	-31.07
Total	161636.5	130443.96	-31192.44	-19.33
App. Of Fund				
1.Fixed assets				
Net block	34848.08	27754.15	-7098.93	-20.35
Capital work in progress	881.47	2702.8	1421.33	16.14
2.investments	13840.06	1823	-12017.06	-86.82
3. current assets & loans				
a. current assets				
Inventories	61374.75	75961.81	11587.06	18.87
Sundry debtors	11229.91	1125.39	-10104.52	-39.97
Cash and bank	5525.69	7017.1	1491.41	26.99
Other current assets	37356.69	55419.54	17563.03	46.39
b. loans & advances	18156.42	18436.35	279.93	1.54
Total current assets	134143.2	157960.19	23816.91	17.75
Less: current liabilities	72614.4	80439	7824.6	10.77

Net current assets	61528.88	77521.19	15992.31	25.99
Miscellaneous items	0	19063.01	19063.01	0
Profit & loss a/c	50538.03	1979.81	-48558.22	-96.08
Total	161636.5	130443.96	-31192.54	-19.29

## COMPARATIVE BALANCE SHEET OF THE YEAR 2014 – 2015

TABLE NO. 1.3

PARTICULARS	2014	2015	INCREASE/D ECREASE	% OF CHANGE
Source of fund				
Reserve and surplus	83	79.37	-3.63	-4.37
Loans and advances				
Secured loans	85492.57	65218.06	-20274.51	-23.71
Unsecured loans	22393.15	31631.89	9234.74	14.25
Total	172676.03	161636.5	-11039.53	-6.39
App. Of Fund				
1.Fixed assets				
Net block	36349.83	34848.08	-1501.75	-1.13
Capital work in progress	1641.86	881.47	-760.39	-46.34
2.investments	28130.15	13840.06	-14290.09	-5.08
3. current assets & loans				
a. current assets				
Inventories	57584.37	61374.75	3790.38	6.58
Sundry debtors	56978.94	11229.41	-39749.03	-77.97
Cash and bank	2818.28	5525.69	2707.41	96.06
Other current assets	1138.18	7856.51	36718.33	32.26
b. loans & advances	15574.87	18156.42	2581.55	16.57
Total current assets	128094.64	134143.28	6048.69	4.72
Less: current liabilities	67145.81	72614.4	5468.59	8.14

Net current asset	60948.83	61528.88	580.05	0.95
Miscellaneous items	0	0	0	0
Profit & loss a/c	45605.36	56538.03	4932.67	10.81
Total	172676.03	161636.5	-11039.53	-6.9

## **CHAPTER 2**

### **CONCEPTUAL BACKGROUND AND LITERATURE REVIEW**

## **2.1 THEORETICAL BACKGROUNDS**

### **INVENTORY MANAGEMENT**

Inventory management is the arranging, control, sorting out and driving the products and materials required by the business. Inventory management is essential for the business; it helps the business to meet or achieve needs of the client by making it available to them. On the off chance that oversaw appropriately, it can help the association diminish its expenses, accomplish economies of scale and readies the association for to experience any unexpected uncertainty. Inventory management manages satisfactory supply of a thing to take care of the normal demand design subject to planning contemplations. The adequacy of the material administration capacities and generation capacities depends to substantial degree on stock administration capacities and generation capacities depend to stock administration. Stock turnover is record of business execution the stock is kept up by association to maintain a strategic distance from the stock-out of a thing. A stock out is undesirable for makes since it stops the generation procedure. The interest in constitutes the most noteworthy piece of current resources/ working capital in cost of the endeavor. Hence it is very vital to have proper control and valuation of inventories. Main aim behind the stock administration is to provide the accessibility of material in proper amounts as and when necessary and further more to reduce the interest on inventories. Inventory management is basically about determining the size and arrangement of stocks in hand. Inventory management is required at every level inside an office or within numerous locations or within different area of supply. When request has been set, there is by and large a brief timeframe accessible to a firm to set up an inventory administration arrange before the providers are conveyed. Stock administration helps a firm to choose ahead of time where these providers ought to be put away. Is a firm is getting providers of little estimated products, it may not be a lot of issue to store them, but rather is there should be an occurrence of vast merchandise, one must be watchful so that the warehousing space is ideally used.

## **OBJECTIVES OF INVENTORY MANAGEMENT**

Stock administration's primary goals are operational and budgetary. The operational goal implies that the raw materials and spares must be available in sufficient number in order to make sure that the work is not affected by the shortage of inventory. The financial objective means that the company should maintain minimum working capital in the company and do not make idle inventory investments. The goals are as follows:

- To guarantee proper supply of materials extras and completed merchandise with the goal that generation ought not to endure whenever and the clients ought to likewise be met.
- To stay away from over stocking and under stocking of materials.
- To keep up interest in stocks at the peak level as essential for the sales and operations.
- To calculate item price with the goal which contribute in generation and general expense.
- To wipe out duplication in requesting renewing stocks.
- To limit misfortunes through decay, pilferage wastage.
- Ensuring unending stock control with the aim that stocks appeared in record books are there in the warehouse.
- To guarantee right quality materials at sensible cost, good quality guidelines will reduce the wastage.
- To encourage outfitting of information for short information long haul arranging and control of stock.

## **MOTIVES FOR HOLDING INVENTORY**

Each firm, enormous or little, exchanging or fabricating, needs to keep up some insignificant level of inventories. There are distinctive thought processes in looking after inventories. These thought processes are pretty much the same as the intentions in holding money. The thought processes in holding inventories are:

Transaction thought process:

Each firm needs to keep up some level of stock to meet the everyday prerequisites of offer, creation process, client request and so forth.

Production thought process:

A firm should keep some stock for unanticipated conditions moreover. For instance, there might be a strike in the manufacturing plant and the generation procedure may stop.

Speculative thought process:

The firm may keep some stock with a specific end goal to profit by circumstances.

## **BENEFITS OF INVENTORIES**

### **Continuous production:**

Every single manufacturing industry must have adequate stock of raw material for the daily and continues production. If there is any scarcity of material at the time of production process, the production will be interrupted. Goods can't be delivered in time. This may result in customer dissatisfaction. If sufficient stock is maintained, production can be carried on even if there is shortage of inventories in the market.

### **Efficient purchase:**

The purchase of materials in the bulk will help to get discounts and relaxation in credit periods. A firm will also be able to purchase goods in advance of production to allow time for raw materials to reach the destination in time .this will help a firm to put its materials to reach the destination in time. This will help a firm to put its material into production whenever the process begins.

### **Independent sales:**

In most of the cases items cannot be manufactured after getting the order. Therefore, every business maintains a minimum level of goods which can be completely used for sale inorder to provide goods as per the order to the customers at right time. Thus the stock related to the gap between demand and supply of goods is avoided.

Meeting the demand of customers in time creates goodwill and customer loyalty.

## **REASONS TO HOLD INVENTORY**

**Time:** - The time lag between the order and receive, from the suppliers occur at every stage, so it is necessary to maintain a minimum balance of inventory which does not affect the workflow of the organization.

**Uncertainty:** - The firm has to maintain inventory because if any sudden increase or decrease in the demand, transfer of goods.

**Economies of scale:** - It refers to taking advantage that emerge with raise in output of a product. The cost involved in transportation is high therefore purchasing in bulk helps to decrease the cost of transportation, thereby reduces cost of the inventory.

## TYPES OF INVENTORY

- Raw materials
- Work in progress
- Consumables
- Finished goods
- Packing materials
- spares

## INVENTORY COST

**Holding Cost:** - The cost involved in maintaining the inventory in the workplace. Warehousing cost, managing cost, assurance, damages.

**Ordering Cost:** - The cost involved in purchasing the raw material, this cost depends on the volume of purchase. The cost like typing, transportation, receiving etc.

**Storage Cost:** - This cost occurs due to loss of sale, customer's demand and business need.

## TOOLS AND TECHNIQUES OF INVENTORY MANAGEMENT

The important techniques and tools of inventory management are as follows.

### DETERMINATION OF STOCK LEVELS

Stock level alludes to the diverse levels of stock which are required for a productive and compelling control of materials and to stay away from over and under-stocking of materials. The motivation behind materials control is to keep up the supply of crude materials as low as could reasonably be expected and in the meantime they might be accessible as and when required. To evade over and under-stocking, the vendor must fix the stock level, which is otherwise called a request and supply strategy for stock control. In a logical arrangement of stock control the accompanying levels of material are settled.

- Minimum stock level
- Maximum stock level
- Reordering stock level
- Average stock level
- Danger level



### 1. Minimum stock level

It is otherwise called buffer stock, least breaking point or least stock; it shows the base level of stock that ought to dependably be kept up in stock so that there no danger of stoppage of generation. As it were it is the base nature of a thing of material must be kept in the store at anything. Materials ought not to be permitted to fall underneath this level. On the off chance that the stock goes underneath this level, generation might be held up for need of materials. It infers that the supply of the material requested for buy ought to land when least level is come to buy use.

$$\text{Minimum Stock Level} = \text{Reorder level (Normal consumption * Normal recorder period)}$$

### 2. Maximum stock level

It denotes the maximum quantity of any stock that can be stored in a warehouse. If the stock goes beyond the maximum level then it will lead to over stocking and it has the following disadvantages.

- Unnecessary blocking up of working capital.
- More space is needed
- Obsolescence loses.
- Depreciation in value.

$$\text{Maximum stock level} = \text{Reorder level} + \text{Reorder quantity} - (\text{minimum consumption} \times \text{minimum recorder period})$$

### 3. Reorder stock level

This is the level that comes between the maximum and minimum levels. It is the point at which the stock keeper should initiates purchase requisition for fresh supply. When an item of material reaches at a particular level, the store keeper should proceed for purchase of that item of material. Recorder level will be slightly above the minimum level.

The difference between the order level and minimum level; will be usually the consumption of material during the recorder period. The factors to be considered for fixing the reorder level are time, consumption rate, minimum level and economic ordering quantity.

$$\text{Recorder level} = \text{Maximum consumption} \times \text{Maximum reorder period}$$

OR

$$\text{Minimum level} + \text{Consumption during the reorder period}$$

#### 4. Average stock level

This stock level shows the average amount of stocks to be kept in the store, and it will be the average of minimum and maximum stock level.

$$\text{Average stock level} = \text{Minimum level} + \frac{1}{2} \text{ recorder quantity}$$

#### 5. Danger level

Reaches below minimum level, i.e., danger point, the stock keeper must make special arrangements to maintain the materials in the warehouse, so that non-availability of materials may not affect production.

$$\text{Danger level} = \text{Average consumption} \times \text{Emergency supply time}$$

## 2. ECONOMIC ORDER QUANTITY

The EOQ enables the firm to determine the optimum level of inventory economic order quantity can be defined as the capacity which is most economical to order a time. In other words, it is the ordering quantity which minimizes the overall price of stock. The total value of stock companies ordering cost and carrying cost.

Ordering cost are those which are relating to acquisition of materials. These include the cost of placing a purchase order. Example are transportation cost, salaries of staff engaged in placing order, salaries of staff engaged in receiving and inspection cost of stationery, telephone, etc.

Carrying costs refer to cost of holding or carrying the stock in storage (i.e., storage cost). These include rent and insurance of store, clerical costs, interest on capital locked up in store, store staff salaries and wastage of materials etc.

If the order quantity is larger, the ordering cost will be low; because orders placed are few but the carrying or storage cost will be high. If the ordering quantity is less, the ordering cost will be high this is because more number of order has to be placed. But carrying will be less.

$$\text{EOQ} = \sqrt{\frac{2 \times \text{Demand} \times \text{Recorder cost}}{\text{Carrying cost}}}$$

Where:

Demand = Annual consumption of material

Reorder level = Cost placing order; Carrying = Annual Carrying cost of one unit

### 3. ABC analysis

In order to find various items of stock, ABC analysis uses different classification procedures, which also assist in inventory control. Based on the unit price or value the different items are categorized into three:

- Category A may include more costly items-very tight control, complete and accurate accounting, and frequent review.
- Category B may consist of less costly items – less tightly controlled, correct accounting, regular review.
- Category C may consist of the least costly items- simplest possible controls, normal accounting, large inventories, periodic review and reorder.

The main objectives of ABC analysis is selective control of inventory ABC analysis helps firms to control inventory by providing proper guidelines that leads to control of inventory.

The following procedure is used for dividing the inventories into A, B, C categories.

- Calculate the rupee value for each items of inventory and their annual consumption.
- All inventory items are arranged in descending order according to their value of finished item.
- All items are listed according to their annual rupee value.
- Then the annual usage of each items as a percentage of total inventory in terms of annual usage in rupees is determined
- The A category belong to the top 10% of all items which have the highest rupee value percentage.
- The next 20% of all items with the next highest rupee value percentage are selected and group as B items
- The next 70% of all the items with the lowest rupee value percentage are C items.

## INVENTORY TURNOVER RATIO

Inventory turnover ratio is the actual cost of material used during a given period to the average stock during the period. It indicates the speed with which the raw material has been consumed in production it gives the number of times in a year stock is used up and replenished. Inventory ratio is also called stock velocity.

$$\text{Inventory Turnover Ratio} = \text{Net sales} / \text{Average Inventory}$$

## 4. INVENTORY CONVERSION PERIOD

This is also useful to calculate the time to clear stocks. This calculation is significant because it assist owner to know how rapidly he regularly wants to acquire fresh inventory. It is very significant because it is a portion of the cash conversion cycle. The cash conversion cycle is the time that takes place between cash paying for the inventory and when you paid for the inventory.

$$\text{Inventory holding period} = \frac{365}{\text{Inventory turnover ratio}}$$

## 5. RAW MATERIAL TURNOVER RATIO

Raw material inventory turnover delivers a dimension between the quantities of raw materials turned over versus the average quantity of raw materials kept in the inventory. It calculates a company's ability to produce products from raw materials or ability to convert raw materials to finished products.

$$\text{Raw material Turnover ratio} = \frac{\text{Annual consumption}}{\text{Average raw materials inventory}}$$

## 6. RAW MATERIAL HOLDING PERIOD

It means how many days taken to convert the raw material into finished goods by the production units. Raw material holding period is calculated for findings the days of raw material holdings. The reciprocal of raw materials turnover gives average raw material holding period in percentage term. The number of days in a year is divided by raw materials turn over, we obtain days of raw material holding period.

$$\text{Raw material holding period} = \frac{365}{\text{Raw material Turnover ratio}}$$

## 7. WORK IN PROGRESS TURNOVER RATIO

Work in progress turnover ratio is the rate at which WIP is converting into the finished goods which are ready for sale. If WIP turnover ratio is higher, then the company is efficient enough to covert raw materials in to finished goods.

$$\text{Work In Progress Turnover ratio} = \frac{\text{Cost of Goods Sold}}{\text{Average Work In Progress}}$$

## 8. FINISHED GOODS TURNOVER RATIO

The rate at which the finished goods are transformed in to for sales is called as finished goods turnover ratio. A company with a high finished goods turnover ratio shows the company is well-organized.

$$\text{Finished Goods Turnover ratio} = \frac{\text{Sales}}{\text{Average Work In Progress}}$$

## 9. FINISHED GOODS HOLDING PERIOD

Finished goods conversion period state that how much time the finished goods resides in warehouse before converted into sales. i.e., time period between production and sales. Lesser the finished goods conversion period, greater the company's ability to recover the cost incurred in the

production and lesser the finished goods conversion period also saves warehousing cost, thus increase the profit. And lesser the finished goods conversion period, indicate period, indicates greater demand of product and interrupted supply in the mark

Finished goods holding period =

365

Finished goods turnover ratio

## 2.2 LITERATURE REVIEW

**Ahmad Kamilah & Shafie Mohamed Zabri (2016)** the inventory management acts as a factor in identifying how company controls its inventory flow. In micro enterprises they maintain inventory both systematically and unsystematically. The main activity of micro enterprise is to buy and store the inventory, the knowledge and skill of the manager plays a major role in proper control of the inventory.

**Schmelzer. P (1976)** the banking sector maintain various inventories to satisfy their customer. The various costs involved in maintaining the inventories are: cost involved in maintaining, and the cost involved in allocation of such inventories to different departments. The bank usually will not inquire about the inventory turnover. The most accurate way to measure inventory in bank is to find the ratios of inventory to assets so that it is easy to identify the trends involved in supply costs. The inventory manager in bank has to analyze the profit same like they do in the industry.

**Besta. P, Janovska. K & Lampa. M (2012)** the crises of the economy have impact on the industries, therefore they are forced to save in all areas. The industry has to make a proper purchase planning and utilize the inventory so that they earn profit. They have to maintain inventory in such a way that they are not over-stocked or under-stocked.

**Capkun, Vedran & Lawrence (2009)** the study was to find the relationship between the total inventory and its separate components, and its impact on the financial performance. The interrelation between the components of the inventory and the financial performance slightly vary based on the type of inventory used in their manufacturing process.

**Shin & Seungiae (2015)** the study which was conducted in the manufacturing organisation reveals the relationship between the financial profitability and inventory management. In many manufacturing firms if they concentrate on the inventory management there is a decline in the financial standard of the organization. The small organisation takes advantage from the inventory when compared to the medium and large firms.

**Worthington & Paula. R (1998)** the study states that business cycle does not reveals the behaviour of the inventory. The rapid changes in the inventory management have reduced in the manufacturing firm. The changes in the inventory investments vary according to the sectors.

**Kontus & Eleonora (2014)** the primary study was conducted to analyze how the organization balance its inventory and secondly, to know the dependency between inventory and profitability. The inventory should be managed taking into consideration both the profitability and the carrying cost involved in maintaining such inventory. The inventory level in the organization has to be changed so as to improve the profit.

**Biggart & Timothy. B (2002)** just in time has changed the concept of the inventory management. This study focuses on the impact of Just in Time on inventory to sales ratio. It reveals that inventory to sales ratio reduce after implementing JIT; but there is no change in work in progress to finished goods and sales ratio.

**Sha & Ping BA (2014)** the study reveals that demand forecasting acts as a basis for inventory management. A proper maintenance of inventory helps the firm to withstand the competitiveness of the firm. The firm has to first understand the demand for the product and analyse the inventory required for the meeting the demand and it is easy for the firm to reduce the cost involved in the inventory.

**Denton. D & Keith (1994)** the syntax agribusiness reduced their inventory by assigning the responsibility to the purchasing department to evaluate the vendors and eliminate. The proper flow of the inventory from the suppliers helps the firms to reduce the cost of inventory. The proper planning by the top management helped to reduce the inventory cost.

**Reynolds & Dennis (1999)** the study was conducted in a food industry which has diverse menus which frequently changes. Therefore the author suggest that the inventory has to be periodically analyzed to know the inventory turnover through which the operator can maximize the inventory investment and they can measure the process of inventory management so that they identify the problems and overcoming such problems and improving the practices of the inventory management.

**Lambert & Douglas. M (1982)** the study define the degree to which the firm can use inventory carrying cost and calculating the carrying cost with the data available. These carrying costs of the inventory play a major role in decision making. The management they



feels that the major position of the financing is for inventory. Therefore the distribution managers have to decide on the inventory carrying cost.

**Aijuan Zou (2012)** this study reveals that the proper inventory management helps in the improvement of the economy and helps in the growth of the project by minimizing the stock in the normal situation. The management has to look into the order cycle, lead time, and minimum stocks during the project construction.

**Millstein, Mitchell A & Haitao (2014)** the earlier method of managing inventory is by classifying the items into various classes. This approach is called as ABC analysis, where they are classified based on the importance to the organization. Due to the drawbacks of the ABC analysis the author has introduced the optimization model in this the inventory is grouped based on the quality. This model can be implemented in the real work environment.

**Bennett & Solon. A (1985)** this study was conducted in the rural electric cooperation to improve their inventory management. This includes all the activity related to the inventory such as purchasing, storing, distributing the products. If the material is under-stocked it indicates that the firms inventory planning is poor. The modern technology has helped the manager in maintaining the inventory level through computerized method which helps in monitoring the functions of the inventory.

**Van Bodegraven, Arthur & John (1987)** this study tells us about the inventory maintained in the warehouse. There are various problems involved in maintaining the inventory in the warehouse like shortage, leakage, damage etc. this problems may be due to the improper inventory management or lack of proper classification of inventory based on the feature of the items. This problems can be solved by assigning responsibility to the personnel, set the target, identify the surplus inventory, and taking proper decision on inventory by senior management.

**Goonatilake & Lalith (1990)** in developed countries the policies are adopted by taking inventory into consideration. The proper planning of the inventory helps the organization to grow. The industries have to adopt proper techniques for the inventory control. The industries in the developed countries have to focus on the efficiency of the inventory management rather than its cost.

**Roekchamnong, Pongsa & Anant (2014)** this study was conducted to know the relationship between the uncertainty in price and inventory management, sales ratio to inventory. The uncertainties in the price of the petroleum products have impact on the inventory management.

**Anonymous (1992)** the data of inventory is necessary for the firm to analyze its profit and it helps to understand the working of the business. The inventory includes the items required by the firm to produce a finished product eg: finished goods, raw materials and semi finished goods. The modern technology helps the firm to keep a track on the inventory which is moving in and out of the organization

**Dubelaar & Chris (2001)** the proper maintenance of the inventory helps the retail industry. The survey says that the sales are double the inventory. The author tells that there is a relationship between the inventory and sales.

**CHAPTER 3**  
**RESEARCH METHODOLOGY**

## **1 STATEMENT OF THE PROBLEM**

The study is an attempt to understand the problem in the foundry industry to manage the different kinds of inventories. The main problem of the company is insufficient availability of materials also affected the inventory management. If they are not using the effective inventory techniques it will also lead to over stocking and under stocking .In availability of materials is the main problem faced by the Autokast Ltd SN puram Cherthala.

### **3.2 NEED FOR THE STUDY**

- Need for the study of inventory management is because inventory is the intermediate between production and sales
- Control of inventory is the most critical angle in the manufacturing firm.
- Inventory controls majority of current asset and working capital.
- Providing raw materials at the correct time of production is a big task for the company, so inventory management is necessary.

### **3.3 OBJECTIVES OF THE STUDY**

- To recognize the existing inventory management cost in Autokast Ltd for the reference period of five years.
- To study the effectiveness of existing inventory management techniques in Autokast Ltd.
- To evaluate the profitability of the company

### **3.4 SCOPE OF THE STUDY**

The scope of study restricted just to Inventory Management at Autokast Ltd. & identified with data in regards to inventories. It covers the distinctive proportions relating to Inventory and it is related to the turnover proportions which incorporates information gathered from different sources like yearly reports, balance sheet and so on. This review incorporates the stock control procedure utilizing the statically apparatuses of Economic Order Quantity (EOQ) for chose items like; ratio analysis. This is an endeavor to comprehend the execution of the organization utilizing the stock information.

### **3.5 RESEARCH METHODOLOGY**

Research methodology, a method to discover the outcome of specified problem on a particular matter or problem that also mentioned as investigation problem it is the simple method of carrying

out an operation that suggests exact deliverable at the finale of each stage it is way to solve problem systematically.

Descriptive research is adopted here. For the purpose of preparing this report, mainly already collected data that is secondary sources, annual reports, websites etc

### **3.6 RESEARCH DESIGN**

The research design of the study is analytical in nature. In analytical research the accessible information are examined and critical assessments are prepared to find solution to the problem. From analytical research critical details are found by a person to add new ideas to the material management.

### **SAMPLING DESIGN**

This study is being Analytical study of inventory management at Autokast Ltd and technique to control inventory are followed. It is an analytical research on the Techniques at Autokast Ltd.

### **PRIMARY DATA**

The researcher has collected the data from officers of financial department and account section of AUTOKAST LTD, direct personal interview method was adopted to collect information from the company

### **SECONDARY DATA**

The study was basically confined to secondary data from the annual report of the bank ,books of accounts ,statistics given by the officials magazines and websites etc.

The secondary data was collected from the annual report of the bank from the year 2013-2017

### **3.7 LIMITATIONS OF THE STUDY**

- Detailed study was not possible because of confidentiality.
- There is no comparison with other companies
- Study was restricted only to the selected constituents in the stores department.
- Study was only related to the inventory management
- Lack of accuracy because of possibility of window-dressing in published documents

### **3.8 CHAPTER SCHEME**

Chapter 1 Includes Introduction, Industry Profile, Company Profile, Competitors Information, SWOT Analysis, Future Growth and Prospectus and Financial statement.

Chapter 2 Includes Conceptual Background of the study and Literature Review with Research Gap.

Chapter 3 Includes Statement of the problem, Need for the study, Objectives, Scope of the study, Research Methodology, Limitation and Chapter Scheme.

Chapter 4 Includes Data analysis and interpretation.

Chapter 5 Includes Summary of findings, conclusion and Suggestions.

## **CHAPTER-4**

### **DATA ANALYSIS AND INTERPRETATION**

## ABC ANALYSIS

In order to find various items of stock, ABC analysis uses different classification procedures, which also assist in inventory control. Based on the unit price or value the different items are categorized into three:

Category A may include more costly items-very tight control, complete and accurate accounting, and frequent review.

Category B may consist of less costly items – less tightly controlled, correct accounting, regular review.

Category C may consist of the least costly items- simplest possible controls, normal accounting, large inventories, periodic review and reorder.

### ABC ANALYSIS OF AUTOKAST LTD FOR THE PERIOD (2013-2017)

**TABLE 4.1**  
**A CLASS (HIGH VALUE)**

SL NO	ITEMS
1	PIG IRON KFG/FG GRADE
2	MS SCRAP, PIG IRON SG GRADE
3	FERRO SILICON
4	MS SCARO INDEGENEOUS
5	CI SCRAP
6	M/920 CYLINDER SEAL KIT
7	SHUTTER SEAL
8	FALTING PACKAGE
9	RIE SEAL TEFLON
10	PARKING FOR TILTING CYLINDER
11	SYNDNA EASHER
12	PACKING FOR PENEUM CYLINDER
13	COREFIX 8
14	BOLDER
15	GRADE ELECTRODE CONTACT
16	ELC PACKING



17	TP CHANGER
18	COPPER CABLE
19	COOLING WAREHOUSE
20	REDICAL SPHERICAL BESRING
21	1400 BODY 56111/01
22	1400 DISC 56111/02
23	FULL FORMER 6 MT
24	VALVE BODY
25	VALVE COVER
26	HOUSE FOR ELECTRONIC HOLDER

**B CLASS (MODERATE VALVE)**

SL NO	ITEMS
1	CI SCRAP
2	MS SCRAP INDEGENEOUS
3	CUP WHEEL
4	FERRO MANGANESE
5	FERO CROME
6	ELECTRO CLASP
7	SYNDANA INSULATION MF4 1878 PI
8	KAKATI 3000 BODY
9	PWL HUB
10	ADAPTOR
11	CRANK CASE
12	PREMIER DISC
13	FIXED CONTACT FOR ARC F/C
14	PETROLEUM COKE
15	INOCULANT POWDER
16	BORIC ACID POWDER
17	ZIRCON SAND

### C CLASS (LOW VALUE)

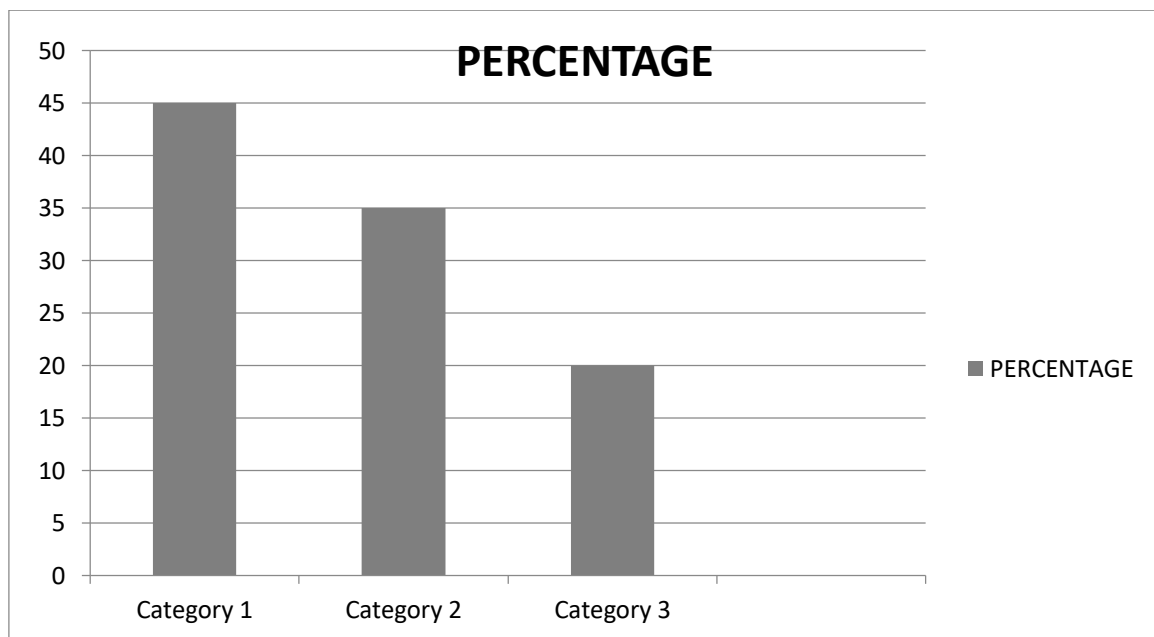
SL NO	ITEMS
1	SODIUM SILICATE
2	FURNACE OIL
3	CARBON DIOXIDE GAS
4	MICA SHEET
5	CERAMIC FILTERS
6	SILICA RAMMING MASS
7	FIRE CLAY POWDER
8	SHEEL CHARCOAL
9	TGL HUB
10	SPLIT BRICK

### ABC Analysis of Autokast in the period 2013 – 2017

Categorize	Total no. of Items	Percentage
Category A	25	45
Category B	19	35
Category C	11	20
Overall	55	100

Chart showing ABC analysis of Autokast Ltd in the period 2013 – 2017

**CHART 4.1**



## **INTERPRETATION**

This graph displays the classification of different constituents as ‘A’, ‘B’, ‘C’ by means of ABC analysis technique based on unit cost. From the arrangement “A” classes, whose unit cost exceeds by Rs. 100 and constitutes 45% total constituents. “B” classes, whose unit cost is limited by 50-100 constitute 35% total constituents and “C” classes, whose unit cost is limited by Rs. 50, constitute 20% total components. This states that the firm keeps its inventories on the basis of its value using regulatory practices.

## **2. INVENTORIES TURNOVER RATIO**

The present chapter is an effort to measure effectiveness of Inventory Management of Autokast Ltd, for measuring the effectiveness of Inventory Management using following analysis.

$$\text{Inventory turnover Ratio} = \frac{\text{Cost of goods sold}}{\text{Avg. Inventory}}$$

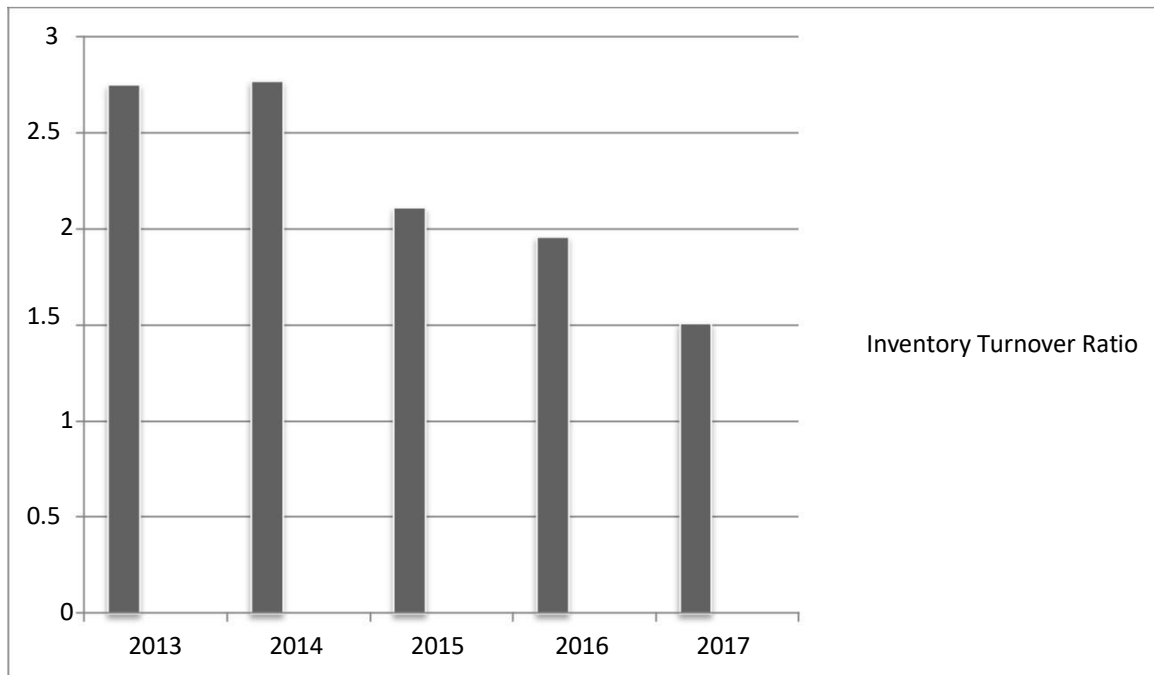
**TABLE 4.2**

**INVENTORIES TURNOVER RATIO**

YEAR	ACTUAL COST OF GOODS SOLD (IN LAKHS)	AVG. INVENTORY	INVENTORY TURNOVER RATIO
2013	1867.02	678.62	2.75
2014	2305.52	832.89	2.77
2015	1997.81	944.87	2.11
2016	205.35	1047.81	1.96
2017	1684.91	1114.68	1.51

Chart showing Inventory Turnover Ratio of Autokast Ltd in the period of 2013-17

**CHART 4.2**



**INTERPRETATION**

Analysis of above chart displays inventory turnover ratio for the past years.

The ratio displays decreasing tendency from 2.75-1.51 in the year 2013-2017, except in 2014 there was slight increase and having the value of 2.77 as the inventory turnover ratio. This illustrates that inventories were difficult to transform into sales i.e. company has to sell the stock at Rs. 1.51 which having investment of one rupee each based on the ratio of 2017.

### 3. INVENTORY CONVERSION PERIOD

It is useful to calculate the time taken to clear stock. It can be calculated by using both number of days in a year with inventory turnover ratio, the ratio shows average buying and selling the goods.

$$\text{Inventory Conversion Period} = \frac{\text{Number of Days in a year}}{\text{Inventory turnover ratio}}$$

- 365 days in a year

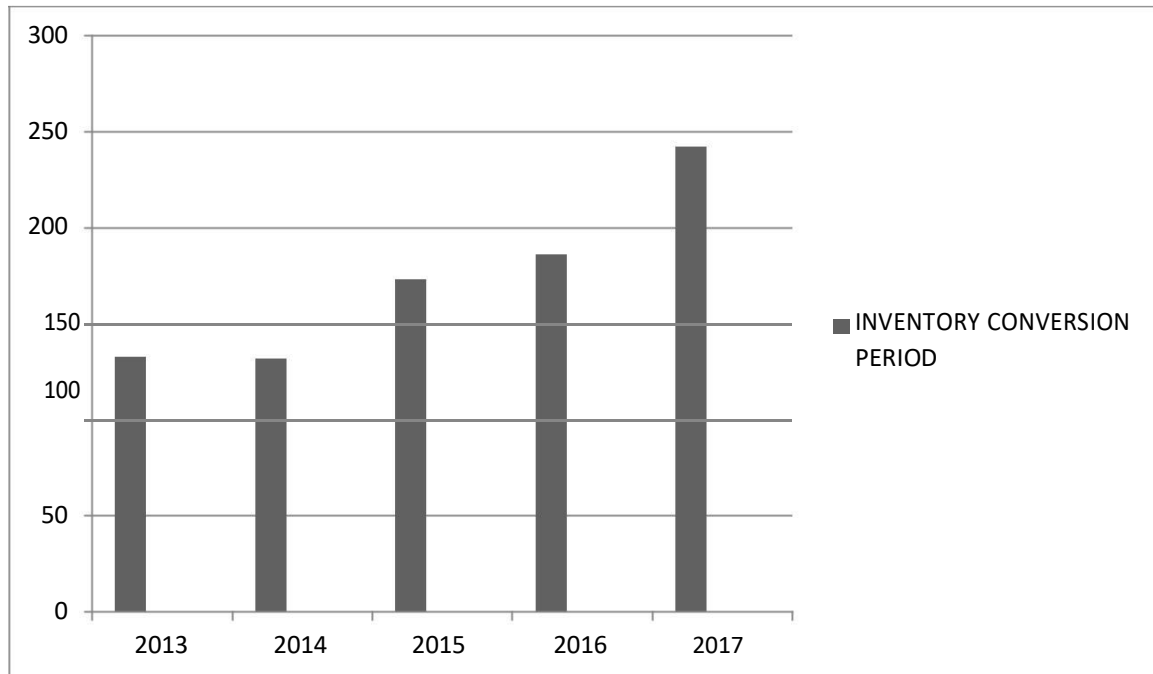
**TABLE 4.3**

Table showing Inventory Conversion period of Autokast Ltd. in the period of 2013 – 2017

YEAR	INVENTORY TURNOVER RATIO	INVENTORY CONVERSION PERIOD
2013	2.75	133 DAYS
2014	2.77	132 DAYS
2015	2.11	173 DAYS
2016	1.96	186 DAYS
2017	1.52	242 DAYS

Chart showing Inventory conversion period of Autokast Ltd. in the period of 2013 – 2017

**CHART 4.3**



### **INTERPRETATION**

The analysis of the above chart shows that there has been an uneven trend in holding ratio. From the analysis we can see that the conversion period is increasing year after year and it shows the carrying cost is increasing. By the analysis the company is now having a difficult to sell their product.

As the chart shows in the year 2013 to 2014 they maintain a good policy and it proves the effectiveness of a good inventory management system of the company. After that the conversion period is increased in a large margin, in 2017 it is having highest value of 242 days. It is not favourable to the company and it will lead the company into loss.

#### 4. ECONOMIC ORDER QUANTITY

Economic order quantity which helps to reduce total of order cost and carrying cost. It is a inventory management technique used by all companies. It can be calculated by:

$$EOQ = \sqrt{\frac{2 \times \text{Demand} \times \text{Reorder cost}}{\text{Carrying cost}}}$$

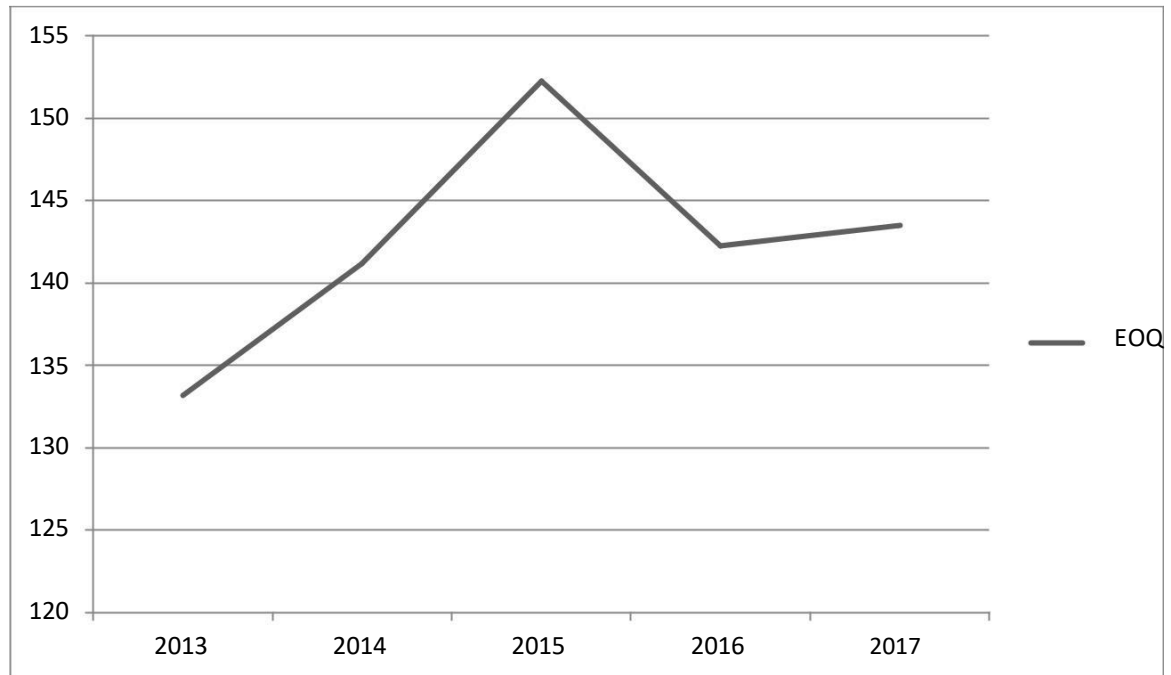
**TABLE 4.4**

Table showing Economic Order Quantity of Autokast Ltd for the period 2013 – 2017

YEAR	YEARLY USAGE OF MATERIALS	CHARGE OF PLACING ORDER	YEARLY CARRYING COST	EOQ
2013	6300	69	49	133.20
2014	7100	73	52	141.18
2015	8200	76.19	54	152.24
2016	7800	81.06	62.50	142.24
2017	7985	84	65.50	143.53

Chart showing Economic order quantity of Autokast Ltd. for the period 2013 – 2017

**CHART 4.4**



## **INTERPRETATION**

In 2013 -2014 the company's economic order quantity is 133.20 units. In 2014 – 2015 which is increased in 141.18 units. In 2014 – 2015 the EOQ is increased but in 2015 – 2016 and 2016 – 2017 the EOQ decreased by 142.24 and 143.3 respectively. The EOQ shows a fluctuating Inventory Management System.

## **STOCK LEVELS**

### **5.1 MINIMUM STOCK LEVEL**

Minimum stock level means the minimum quantity of materials to be kept in a warehouse. This is also known as buffer stock or can be called as safety stock level.

Minimum Stock Level = Reorder level – (Normal Consumption \* Reorder period)



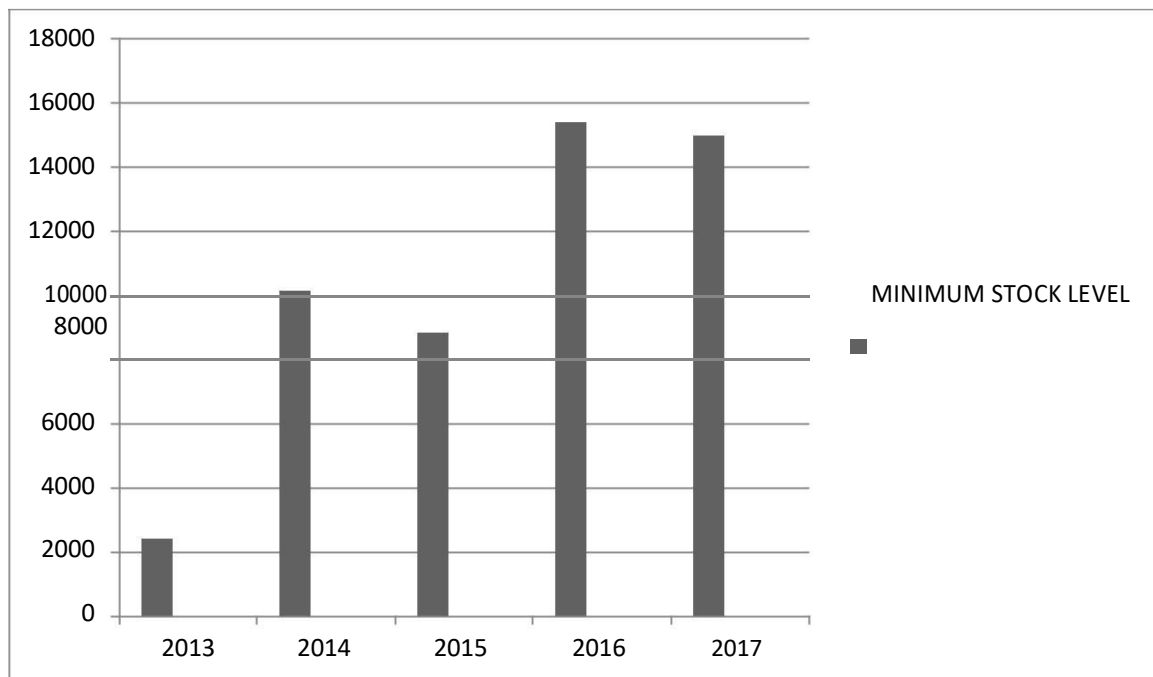
**TABLE 4.5**

Table showing minimum stock level of Autokast in the period 2013 – 2017

YEAR	REORDER LEVEL	NORMAL USAGE	NORMAL REORDER PERIOD	MINIMUM STOCK LEVEL
2013	3852	96.30	15	2407.5
2014	16480	412	15	10132
2015	14147	354	15	8837
2016	24621	615.5	15	15388.5
2017	23964	599	15	14979

Chart showing Minimum stock level of Autokast Ltd for the period 2013 – 2017

**CHART NO. 4.5**



### **INTERPRETATION**

The minimum stock level of Autokast Ltd in 2013 is 2407.5; it is increased by 10132 in 2013 - 2014. In 2015 – 2016, 2016 – 2017 the minimum stock level of Autokast Ltd is 15388.5 and 14979 respectively. The company's minimum stock level shows a fluctuating trend. The high minimum stock level will affect the business operation.

### **5.2 REORDER STOCK LEVEL**

The level lies between the maximum and minimum levels. It is the Position were the store keeper should initiates purchase of fresh supply. Reorder level will be slightly above the least possible level.

Reorder level = (Maximum consumption) X (Maximum reorder period)

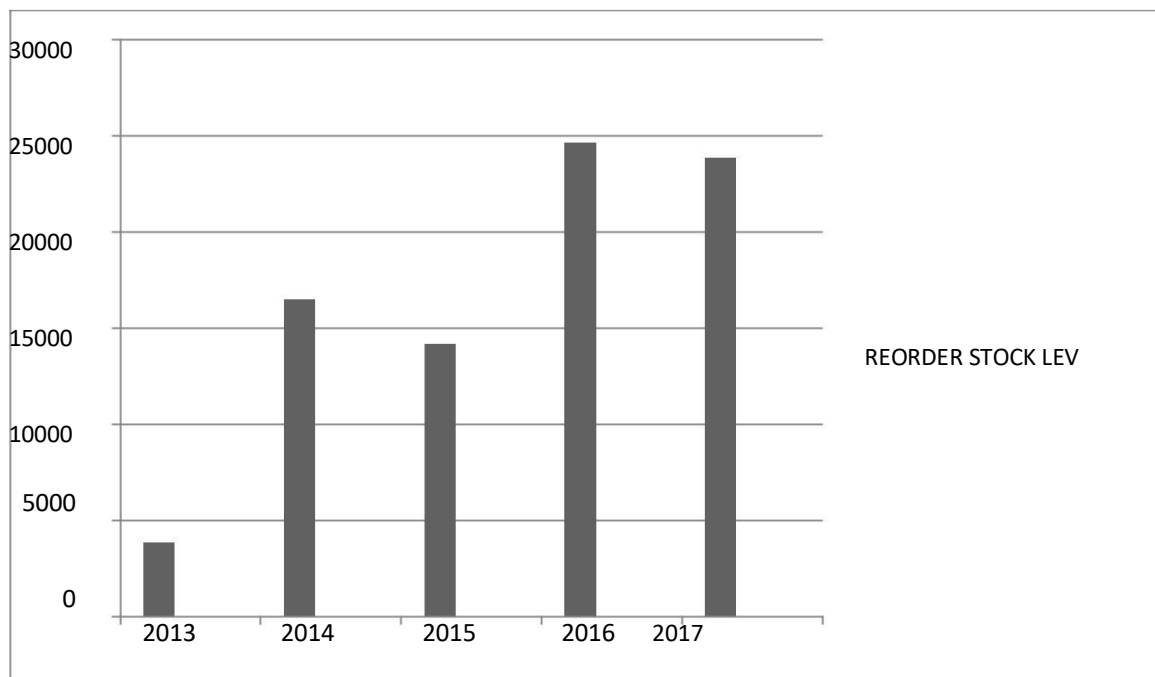
Table showing stock level of Autokast Ltd for the period of 2013 – 2017

**TABLE 4.6**

YEAR	MAXIMUM CONSUMPTION	MAXIMUM REORDER PERIOD	REORDER LEVEL
2013	96.30	40	3852
2014	412	40	16480
2015	354	40	14160
2016	615.50	40	24620
2017	596	40	23840

Chart showing reorder stock level of Autokast Ltd for the period of 2013 – 2017

**CHART 4.6**



## INTERPRETATION

In 2013 the company's reorder level is 3852 and in 2013 – 2014 the reorder level is 16480. In 2014-2015 reorder level decreased by 14160. In 2015 – 2016 and 2016 – 2017 the company's reorder level is increased by 24620 and 23840 respectively. The order level is increased year after year.

### 5.3 MAXIMUM STOCK LEVEL

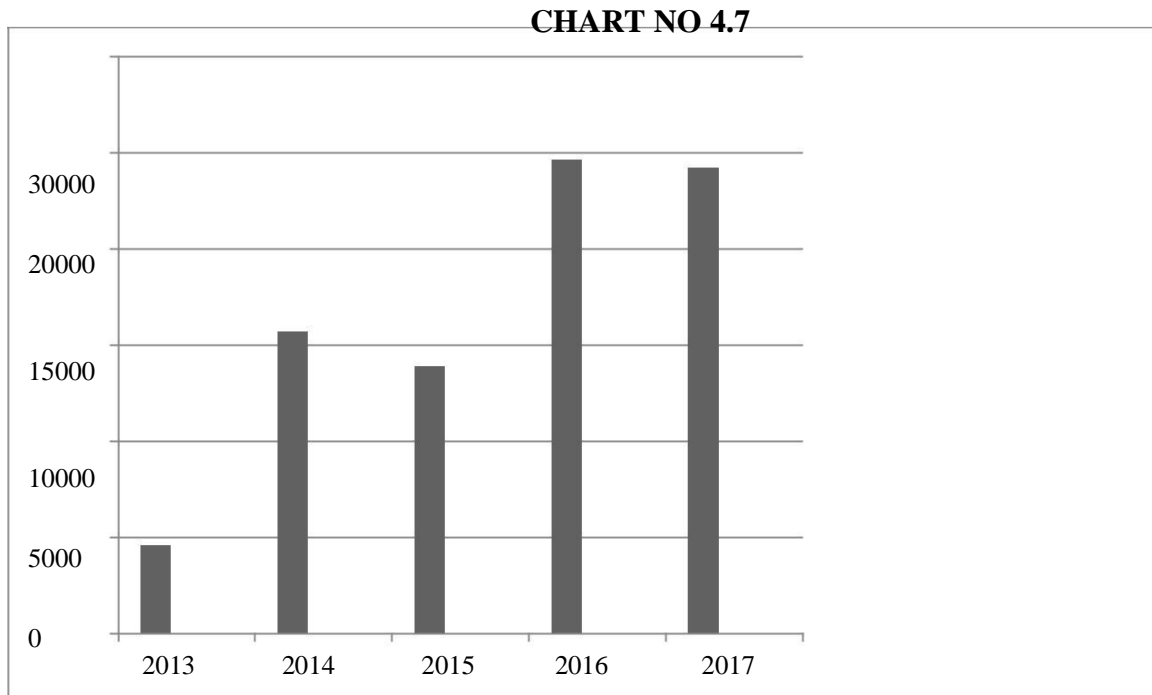
It signifies the maximum quantity of an item of material that can be held in stock at any time. Stock should be at maximum level so that the quantities of materials would not go beyond the level over stocking won't happen.

Table showing Maximum stock level of Autokast Ltd for the period of 2013 – 2017

**TABLE 4.7**

YEAR	REORDER LEVEL	REORDER QUANTITY.	MINIMUM USAGE	MINIMUM REORDER PERIOD	MAXIMUM STOCK LEVEL
2013	3852	1700	96.30	10	4589
2014	16480	3335	412	10	15695
2015	14160	3257	354	10	13877
2016	24620	6155	615.50	10	24620
2017	23840	6320	596	10	24200

Chart showing maximum stock level of Autokast Ltd for the period 2013 – 2017



### **INTERPRETATION**

The maximum stock level of Autokast Ltd in 2015-2016 is 24620. The company stock level is always increasing every year. It will leads to overstocking of inventory

### **5.4 AVERAGE STOCK LEVEL**

The stock level which indicates the average amount of material that can be stored the warehouse. It is considered as the average of maximum and minimum stock levels

$$\text{Average stock level} = \frac{\text{maximum level} + \text{minimum level}}{2}$$

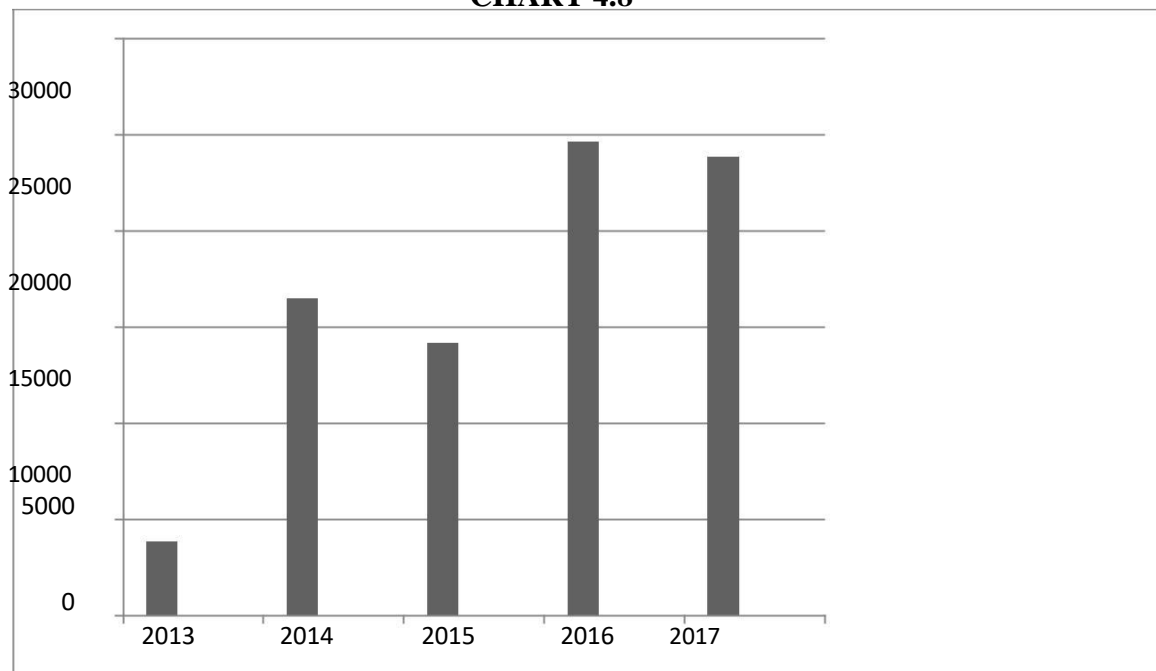
Table showing average stock level of Autokast Ltd for the period of 2013-2017

**TABLE 4.8**

YEAR	MINIMUM STOCK LEVEL	MAXIMUM STOCK LEVEL	AVERAGE STOCK LEVEL
2013	2407.5	4589	3498.25
2014	10132	15695	12913.5
2015	8837	13877	11357
2016	15388.5	24620	20004.25
2017	14979	24200	19589.5

Chart showing average stock level of Autokast Ltd for the period of 2013 – 2017

**CHART 4.8**



## INTERPRETATION

In 2013-2014 the company's average stock level is 12913.5. In 2012-2013 average stock level decreased to 11357. In 2015-2016 and 2016-2017 the companies average stock level increased by 20004.25 and 19589.5.

### 5.5 DANGER LEVEL

This is below the minimum quantity of materials. At this level usual production of materials are stopped, but under special instructions, when materials goes below minimum level, there is danger point .

Danger level =average consumption\* emergency

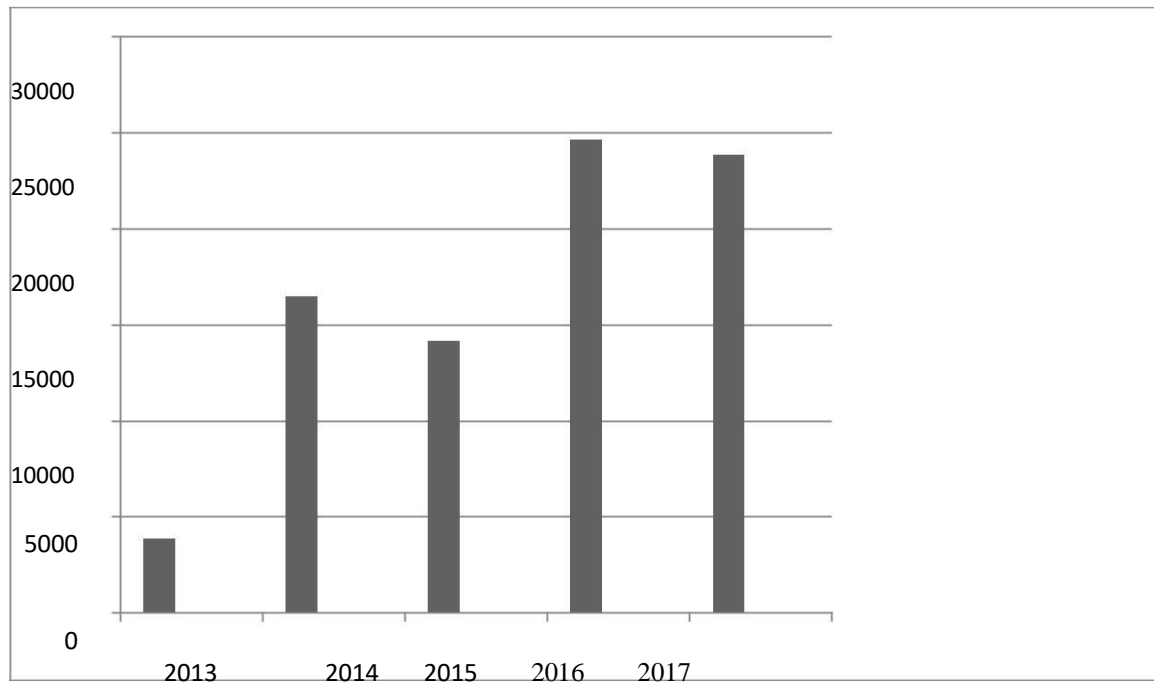
Table showing danger stock level of Autokast ltd for the period of 2013 – 2017

**TABLE 4.9**

YEAR	AVERAGE CONSUMPTION	EMERGENCY SUPPLY TIME	DANGER LEVEL
2013	96.30	40	3852
2014	412	40	16480
2015	354	40	14160
2016	615.50	40	24620
2017	596	40	23840

Chart showing danger stock level of Autokast ltd for the period of 2013 – 2017

**CHART 4.9**



**INTERPRETATION**

In 2013-2014 the company’s danger stock level is 16480. In 2014-15 danger level increased by 14160. In 2015-2014 and 2014-2015 company’s danger level is increased by 24620 and 23840 respectively.



**CHAPTER 5**  
**FINDINGS, SUGGESTIONS AND CONCLUSION**

## **FINDINGS**

- “A” classes have unit cost which is more than Rs. 100 and constitute 45% of overall constituents. “B” classes have unit cost is between Rs. 50- 100 constitute 35% of overall constituents and “C” classes are those whose unit value is less than Rs.50 constitute 20% of overall constituents. This value shows good for the company which helps in maintaining inventories based on its worth by means of governing systems.
- Inventory turnover ratio is going down year after year and which shows the companies face some difficulties in the utilization of inventories is generating sales.
- The inventory conversion period is increasing year after year and it shows that the carrying cost is also increasing. It shows the ineffective system of inventory management and also their difficulty in sales generation.
- The EOQ shows a fluctuating trend, it indicates that Autokast have a less efficient inventory management system.
- The company’s minimum stock level shows a fluctuating trend. This high minimum stock level will affect business operation.
- The maximum stock level of Autokast shows increasing trend in year after year. Increasing trend of stock level will leads to overstocking of inventory.
- The average stock level shows fluctuating trend.
- The danger level of Autokast Ltd is increased in every year.

## **SUGGESTIONS**

- Autokast Ltd is incurring losses for the past so many years, so the company has to adopt new strategies for reducing the non-operating expense and the overall cost of production.
- Autokast Ltd needs to identify new distribution channels for ensuring that their products reach into the hands of potential customers.
- The companies have to implement classy methods to accomplish in well manner.
- Companies have to keep an eye on just in time techniques so they can easily avoid waiting for receipts of materials.
- Company should try to increase the inventory turnover, which leads to maximum prosperity of business.
- Companies have to take procedures for conservation of suitable stones and saves so as to avoid regular break down of machinery.
- Company is obligatory to uphold safety stock for its constituents in order to evade stock-out situations and helps constant production flow.

## **CONCLUSION**

Autokast is a modern industrial casting unit undertaken by the Kerala Govt. with 1800:9002 certifications. Autokast Ltd manufactures all types of ferrous casting. Now a day's marketing place is changing rapidly; completion is increasing day by day. Autokast's policy is to market quality products and to meet the customer satisfaction and to attain quality leadership. Thus it is very necessary to take adequate care of inventories.

A company who keeps a well maintaining inventory management will assuredly ready to lend a hand in problem solving that company faces and will cover way for decreasing the large number of investments or obstructing of currency in inventory.

Supply & demand subtle stability, and inventory management ensure undisturbance of its balance. Better qualified team and high featured software assist to make revenue and increase customer satisfaction.

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DEPARTMENT OF MBA

PROJECT(17MBAPR407) -WEEKLY REPORT

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COMPANY NAME: AUTOKAST LTD

WEEK	WORK UNDERTAKEN	EXTERNAL GUIDE SIGNATURE	INTERNAL GUIDE SIGNATURE
3 <sup>rd</sup> Jan 2019 – 9 <sup>th</sup> Jan 2019	Industry Profile and Company Profile		
10 <sup>th</sup> Jan 2019 – 17 <sup>th</sup> Jan 2019	Preparation of Research instrument for data collection		
18 <sup>th</sup> Jan 2019 – 25 <sup>th</sup> Jan 2019	Data collection		
26 <sup>th</sup> Jan 2019 – 2 <sup>nd</sup> Feb 2019	Analysis and finalization of report		
3 <sup>rd</sup> Feb 2019 – 9 <sup>th</sup> Feb 2019	Findings and Suggestions		
10 <sup>th</sup> Feb 2019 – 16 <sup>th</sup> Feb 2019	Conclusion and Final Report		



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