IJCRT.ORG ISSN : 2320-2882

INTERNATIONAL JOURNAL OF CREATIVE RESEARCH THOUGHTS (IJCRT)

An International Open Access, Peer-reviewed, Refereed Journal

STUDY ON VALUATION OF PLANT AND MACHINERY

CASE STUDY OF VARIOUS POWER PRESS MACHINES

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Abstract: This research paper presents a detailed and comprehensive study on the valuation of plant and machinery, with a specific focus on power press machines used in the automobile manufacturing industry. The primary objective of this research is to gain a deeper understanding of the valuation process and accurately calculate the fair market value of these machines. The study involves conducting a thorough analysis of the machines' capacity, capabilities, and specifications, while also considering industry-specific factors and regulations that significantly impact their value.

The research paper concludes with a comprehensive and accurate determination of the fair market value of the power press machines, which serves as a valuable tool for financial and decision-making purposes within the automobile manufacturing industry. The findings from this research contribute to the existing knowledge on plant and machinery valuation, offering practical implications for asset management and financial planning. Ultimately, this research expands our understanding of the complex process of plant and machinery valuation and provides insights that can assist industry professionals in making informed decisions regarding these valuable assets.

Keywords **– Plant and Machinery valuation, Power press machine, Automobile, Financial planning.**

I.INTRODUCTION

Valuation is the process of estimating the value of tangible assets, and it is carried out by approved individuals or organizations to meet the requirements of interested parties. The concept of valuation has developed over time and has evolved from being considered an art or business occupation to a recognized profession.

Valuation encompasses three primary operations. First, it involves estimating the cost of producing or replacing physical property. This means calculating the expenses involved in constructing or replacing a particular asset. Factors such as the cost of materials, labour, and other relevant costs are taken into account to arrive at an estimation of the total cost.

Second, valuation includes forecasting the monetary earning power of certain classes of property. This aspect of valuation requires analysing various factors that contribute to the financial potential of the asset. Market trends, demand, competition, and other relevant factors are considered to assess the expected earning capacity of the asset. This helps in understanding the potential return on investment or revenue generation associated with the asset.

Third, valuation aims to determine the overall worth of the property or asset. This involves considering multiple factors such as the structure of the asset, its expected lifespan, maintenance requirements, and location. These characteristics are evaluated to assess the value of the asset in the current market or specific circumstances.

Valuation plays a crucial role in various financial activities within the economy. It is necessary for investment decisions, as it helps investors assess the value of potential assets or projects. Valuation is also important in buying and selling transactions, as it provides a basis for determining the fair market price of the asset. In addition, valuation is required for loan approvals and mortgages, as financial institutions need to assess the value of the collateral being offered.

To conduct valuations effectively, specialized knowledge and abilities are required, in addition to general qualifications. A competent valuer needs to have expertise in the specific type of assets being valued. For example, a real estate appraiser should have knowledge of property valuation methods, market trends, and relevant regulations in the real estate industry. Moreover, a valuer must be familiar with the laws, statutes, approvals, constraints, and restrictions that govern the rights of use and enjoyment of the assets being valued. This comprehensive understanding enables the valuer to provide accurate and reliable valuations.

In summary, valuation is the process of estimating the value of tangible assets, involving the estimation of production or replacement costs, forecasting the earning power of the asset, and determining its overall worth. It has become a recognized profession, requiring specialized knowledge and abilities, as well as an understanding of relevant laws and regulations. Valuation is essential for financial activities such as investments, buying and selling transactions, and loan approvals in the economy.

Valuation generally is multi-disciplinary subject which involves study of

- Economic aspects
- Market / Buyers & Sellers / Demand & supply
- Legal Aspects
- Identification & Confirmation of legal interest.
- Permissible highest & best use.
- Technical Aspects
- Aesthetic / Specifications / Maintenance / Age

Aspects of Valuation

- Exact Identification of what & whose interest to be valued.
- Overall rights of the assets
- Physical Parameters
- Exact identification of the property
- Aesthetics
- Quality and working condition
- Specifications, Age & Maintenance.

Thus the above factors matter and influenza the value and impact 65% on the final valuation to. There are different approach and methodologies adopted in the valuation techniques.

Valuation practice has to arrive at a conclusion on value. For this purpose, it is necessary to look at various data. Price cost & value are interchangeably used in common parlance. However, in valuation practice they carry different & specific meaning. In valuation practice, Plant & Machinery is not valued as a tangible assets but intangible rights derived in owning tangible assets are been valued.

II. Different approaches of valuation

There are three basic approaches to the valuation of Plant & Machinery:

- Cost approach
- Market approach.
- Income approach

Here is a summary of each approach:

1. **Cost Approach:** The cost approach relies on historical information and assumes that the acquisition cost or historical cost of an asset reflects its present market value. It takes into account factors such as physical depreciation, functional obsolescence, economic obsolescence, and other considerations. The cost approach is based on hard data that is easily verifiable. However, it may not always reflect the current market value if distinct positive or negative trends have been observed. This approach is useful when there are sufficient factual and observable inputs available.

Methods under the cost approach:

- Replacement Cost New (RCN) Method: Estimates the current cost to construct or acquire a new property with similar utility to the subject property. It considers the cost of materials, labor, manufacturer's profit, and other relevant expenses.
- Book Value Method: Relies on the valuer's past experience and data collection. It compares the net book value in the books of account of a company with the net current replacement cost or market value determined by the valuer, using a percentage increase in book value as an indicator of value.

2. **Market Approach**: The market approach determines the value of an asset based on quoted market prices of similar assets. It involves identifying comparable assets that have been sold in the market and using their prices as a basis to estimate the value of the asset being valued. The market approach is particularly suitable for standard products or assets with established markets. It provides a direct measure of depreciation aspects but can be challenging due to the lack of comparable sales data or the unavailability of relevant facts.

Method under the market approach:

- Direct Sales Comparison Method: Used when there is a direct match of an identical asset available. It involves comparing the subject asset to similar assets that have been sold, considering factors such as qualitative and quantitative characteristics, verifiability of data, and the nature of the sale transaction.

3. **Income Approach**: The income approach determines the value of an asset based on the net revenue or income it generates. It assesses the present or future earnings ability of the asset and takes into account factors such as residual life, residual value, and income potential. This approach is relevant for investment properties and considers the full effect of obsolescence that may not be adequately measured by the cost or market approaches.

Methods under the income approach:

- Capitalization of Earnings Method: Calculates the value of an asset based on the expected future earnings that a buyer anticipates receiving. It involves determining the real earning stream of the asset and the rate of return expected by the buyer.
- Discounted Future Earnings Method: Estimates the value of an asset by projecting the expected income stream over a number of future years, determining the present value of that income stream, and estimating the terminal value of the asset at the end of the designated period.

Using multiple valuation approaches or methods is recommended when there are insufficient factual or observable inputs for a single method to produce a reliable conclusion.

III. CASE STUDY

TABLE 1- BASIC DETAILS OF PROPERTY

Company Details	
Year	**2022-2023**
Company name	**Creative Tools**
Property Owner Name	Mr. Chetan Nikam
Property Address	MIDC, Satpur, Nashik, Maharashtra
If the asset is under joint Ownership/Co-ownership, share ofeach owner	Joint Ownership
Latitude, Longitude	19.88530° N, 73.97905° E
Reference Date	2022
Valuer	Self
Whether indigenous or imported	Indigenous
Date of Inspection	Dec 2022
Valuation for	Study Purpose
Purpose of Valuation	To Assess the Fair Market Value of automobile sheet metal parts manufacturer
Brief Description	This Industry is Located in the well-known area of Satpur MIDC.
Age of Company	17 years

VALUATION OF PLANT AND MACHINERY (CREATIVE TOOLS)

Creative Tools is a sheet metal forming industry having machines with Technical Specification detailed as under:

TABLE 2: VALUATION REPORT OF PROPERTY

Sr. No	**Machinery Name**	**QTY**	**Year of Mfg.**	**Useful Life**	**Used Life**	**Current replacement cost**	**Depreciation Cost**	**Fair Market Value**
1	Power Press Capacity 20 Tons Make Atlas	1	2006	30	17	2,70,000	1,37,700	1,32,300
2	Power Press Capacity 30 Tons Make Atlas	1	2007	30	16	3,50,000	1,68,000	1,82,000
3	Power Press Capacity 30 Tons Make Atlas	1	2009	30	14	4,50,000	1,89,000	2,61,000
4	Power Press Capacity 40 Tons Make Atlas	1	2009	30	14	4,50,000	1,89,000	2,61,000
5	Power Press Capacity 40 Tons Make Atlas	1	2015	30	8	5,50,000	1,32,000	4,18,000
6	Power Press Capacity 50 Tons Make ACME	1	2018	30	5	6,50,000	97,500	5,52,500
7	Power Press Capacity 75 Tons Make Atlas	1	2015	30	8	7,00,000	1,68,000	5,32,000
					Total	**34,20,000**	**10,81,200**	**23,38,800**

IV. PRESENT CONSIDERATION FOR THE VALUATION

In the present project work, the valuation is being conducted using the cost approach. This is a commonly used method since specialized assets like plant and machinery often lack sufficient market evidence for valuation purposes. The following steps are followed to arrive at the final value:

1. Ascertain Gross Current Replacement Cost (a): The first step is to determine the cost of replacing the asset with a similar one in the current market. This can be achieved by obtaining quotations or floating inquiries to suppliers. Technical specifications mentioned in the final purchase order or obtained from the maintenance/engineering department or manufacturer's literature are crucial in providing accurate information to the supplier.
2. Calculate depreciation and obsolescence (b): Depreciation and obsolescence factors are considered to adjust the replacement cost for the age, condition, and functionality of the asset. The straight-line method is commonly used to calculate physical depreciation, taking into account the estimated age, scrap value, and economic life of the machinery.
3. Depreciated Replacement Cost: The difference between the Gross Current Replacement Cost (a) and the depreciation and obsolescence (b) gives the Depreciated Replacement Cost, which represents the current value of the asset.

Extra considerations:

- Accuracy of historical cost: Historical cost, which serves as the base for calculating the replacement cost, may not always be accurate due to inflation or deflation effects. It is important to ensure that the historical cost is reliable to avoid incorrect estimation of the trended price.
- Price index application: Price index can be used to trend the historical cost accurately. However, special attention should be given in cases where historical cost is not available (e.g., second-hand machine purchases) or when a machine remains under capital work in progress for more than one year before being capitalized.
- Imported machines: Valuation of imported machines requires additional care due to factors such as differences in price indexes between the country of origin and the location of the machine, variations in custom duty rates, and currency exchange rates at the time of purchase and valuation.

By following these steps, the valuer can determine the Depreciated Replacement Cost (D.R.C.) or fair market value of the plant and machinery. The cost approach provides a methodical way to estimate the value of specialized assets, considering their replacement cost, depreciation, and obsolescence.

V. RESULT AND DISCUSSION:

This case study focuses on the determination of the fair market value of machines used in the manufacturing of automobile sheet metal parts. The valuation process employs the cost approach and utilizes the straight-line depreciation method. The machines, including their make, model, purchase year, replacement value, and expected life, are described in detail. By calculating depreciation and considering salvage value, the fair market values for each machine are established. An obsolescence factor of 7.5% is applied to account for technological advancements. Consequently, the final assessed value of the plant is determined to be 21,64,000 Rs (Twenty-One Lakhs Sixty-Four Thousand Rupees). The valuation takes into consideration factors such as replacement cost, condition, age, and obsolescence, ensuring an accurate evaluation of the machines' value.

VI. CONCLUSION:

- This project is carried out to understand the process of the plant and machinery valuation.
- This project gives the knowledge of calculating fair market value of the plant and machinery.
- This case study has assessed the machine's capacity, capabilities, and specifications to determine its value.
- Have been considered industry-specific factors and regulations impacting the value of power press machines.
- There is no negative value of assets.
- This project has determined the fair market value of the power press machine.
- We have compared market prices of similar power press machines to analyse technological advancements and obsolescence risks affecting its value.

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