

## MACHINE HOUR RATE

(1)**MEANING:** - Machine hour rate (MHR) is the cost of running a machine for one hour. Under this method machines hours are used as the basis for production overhead absorption rate. The rate is calculated as follows:

$$\text{MHR} = \frac{\text{Production Overheads}}{\text{Machines Hours}}$$

(2) **Suitability:** - This method is suitable where major portion of production is performed by machinery.

(3) **Advantages:-**

- (i) It takes into account time factor.
- (ii) It is suitable when major portion of production is performed by machines.
- (iii) It facilitates the ascertainment of accurate and reliable costs.
- (iv) The under-absorption of overheads would indicate the idle capacity of machines.

(4) **Disadvantages:-**

- (i) It is not suitable where major part of production done by manual labour.
- (ii) It requires the detailed record of machines for each or operation.
- (iii) It is difficult to understand and calculate.
- (iv) It is quite difficult to estimated machine hours in advance.

(5) **Example:-** Factory overheads ₹ 12,000, machine Hours Rate 1,000. A Job No. 101 requires 100 machines hours.

$$\text{MHR} = \frac{\text{Production Overheads}}{\text{Machine Hours}} = \frac{12,000}{1,000} = ₹ 12$$

**OH absorbed by Job No. 101: 100 x 12 = ₹ 1,200**

(6) **Computation:** - Computation of Machines Hour Rate involves the following steps –

- (i) Treat each machine as a separate cost center.
- (ii) Apportion Standing (Fixed) charges as shown below:

No.	Standing Charges	Basis Of Apportionment
1	Rent & Rates	Floor Area Occupied
2	Heating And Lighting	No. Of Lights Points Or Floor Area Occupied
3	Supervision	Time Devoted By The Supervision
4	Insurance	Insured Value Of Each Machine
5	Lubricating Oil & Consumable Stores	Machine Hours
6	Cleaning Materials	No. Of Machines
7	Miscellaneous Expenses	Equitable Basis Based On Facts

**Note:-** Standing /Fixed Charges Vary With Time ; Not With Use Of Machines .

**(iii) Calculate machine hours of each machine for a particular period (year quarter, months or week) as follows:-**

- A. No .Of Working Days (365 –Holidays)
- B. No .Of Working Hours Available per Day
- C. Total No. Of Working Hours (A x B)
- D. Less: Hours Required For Maintenance
- E. Productive Machine Hours (If Set up Time Is Given / Assumed to Be Productive)
- F. Less: Unproductive Set up Time (If Given / Assumed to Be Unproductive)
- G. Machine Hours (E-F)

**(iv) Standing Charges per Machine Hour =  $\frac{\text{Total standing charges}}{\text{Machine Hours}}$**

**(v) Calculate running charges for each machine; some charges may be apportioned as shown below:**

No.	Running Charges	Basis of Apportionment
1	Depreciation	Value / Useful life (in hours)
2	Repairs and	Machine hours
3	Power	Meter reading /HP /machine hours
4	Miscellaneous Expenses	Equitable basis based on facts

Note: - Running charges vary with use of machine; more use mean more running charges.

**(vi) Calculate hourly rate for Running expenses per machine as follows:-**

**Running charges per Machine Hour =  $\frac{\text{Total Running Charges}}{\text{Machine Hours}}$**

**(vi) Calculate Machine Hour Rate as Follows:-**

**Fixed / Standing Charges per hour + Running charges per hour = Machine Hour Rate.**

**[Tutorial Note:** - The final machine hour rate is used in Absorption Costing. The distinction between Standing (Fixed) Charges and Running (Variable) Charges is important is Marginal Costing (Which you will be studying in the next semester.)

**(7) Format :-** The following format can be used for computing the Machine Hour Rate :-

	Total ₹	Per Hour ₹
<b>A. Standing Charges :</b>		
(a) Rent & Rates	XX	
(b) Heating & lighting.	XX	
(c) Supervision	XX	
(d) Insurance	XX	
(e) Lubricating oil & Consumable stores	XX	
(f) Sundry supplies /Cleaning materials	XX	
(g) Departments & General overheads	XX	
Total Fixed /Standing Charges	XX	
Fixed /Standing Charges per hour	XX	XX
<b>B. Running Charges :</b>		
(a) Depreciation		
(b) Repairs & Maintenance	XX	
(c) Power	XX	
(d) Machine operator*	XX	
(e) Other running expenses	XX	XX
<b>C. Machine Hour Rate</b>		XX

**Illustration:-**

The following particulars relates to new machine:	₹	
Purchase price	4,00,000	
Installation Expenses	1,00,000	
Rent per quarter	3,750	
General Lighting for the total area	30,000	per month
Forman's salary	3,000	per month
Insurance Premium for the machine	5,000	per month
Departmental Overheads for the machine	4,000	per month
Consumable Stores		
Power -2units per hour at 50 paisa per unit.		

The estimated life of the machine is 10years and scrap value at the end of 10<sup>th</sup> years is ₹ 1,00,000/- .

The machine is exempted to run 20,000 hours in its life time. The machine occupies 25% of total area .The foreman devoted 1/6<sup>th</sup> of his time for the machine.