Exposure Draft Guidance Note on Cost Accounting Standard
on
Capacity Determination CAS-2 (Revised 2015)

The Council of the Institute of Cost Accountants of India has issued the Cost Accounting Standard – 2 (CAS – 2)(Revised 2015) on Capacity Determination which lays down a set of principles and methods of classification, and determination of capacity of an entity for ascertainment of the cost of product or service and the presentation and disclosure in the cost statements. The Cost Accounting Standards have been set in **bold italic type** and reference number of the standard has been retained.

The Guidance Note deals with principles and methods as provided in the CAS-2 (Revised 2015) and practical aspects in connection with the determination of capacity for a product or service. In the preparation of cost statement and its attestation, capacity shall be determined with reference to CAS-2(Revised 2015).

The Ministry of Corporate Affairs have notified The Companies (Cost Records and Audit) Rules, 2014. As per rule 3, for the purposes of sub-section (1) of Section 148 of the Companies Act, 2013, the class of companies including foreign companies defined in clause (42) of Section 2 of the Companies Act, 2013 (18 of 2013), engaged in the production of the goods or providing services specified in the Table A and Table B to the above referred Rules have to maintain cost records in Form CRA-1 annexed to above rules having an overall turnover from all its products and services of rupees thirty five crore or more during the immediately preceding financial year.

Form CRA-1 annexed to the "Companies (Cost Records and Audit) Rules, 2014 specified the specified various items of costs which are to be included in the books of accounts.

As per proviso to Section 148 (3) of the Companies Act 2013, the auditor conducting the cost audit shall comply with the Cost Auditing Standards issued by the Institute of Cost Accountants of India with the approval of Central Government.

As per *Cost Auditing Standard 103 on Overall Objective of the Independent Cost Auditor and conduct of an audit in accordance with Cost Auditing Standards*, in an objective states that the cost auditor conducting cost audit shall comply with the Cost Accounting Standards (CAS) and Generally Accepted Cost Accounting Principles (GACAP) issued by the Institute of Cost Accountants of India.

Chapter 1 *	Introduction

Need for Capacity Determination:

The capacity details are required for internal management for planning, scheduling of production and subsequent follow up during implementation of the planned programme. It is also required for taking corrective action without delay to avoid any probable loss of production. Better utilisation of capacity means better utilization of resources of an entity for cost determination and cost reduction. In view of above the Council of the Institute of Cost Accountants of India (hereinafter referred "Institute") issued CAS-2 on Capacity Determination in 2002.

The CAS-2 on Capacity Determination in 2002 was revised by the Institute in 2012 and was applicable for manufacturing sector. The Companies Act, 2013 includes service sector also in the ambit of Section 148 for the purposes of maintenance of cost records and audit. Accordingly, the Central Government issued "The Companies (Cost Records & Audit) Rules, 2014" including Service Sector for the purposes of maintenance of cost records and audit. In view of the above provisions there was a need to revise CAS- 2 on Capacity Determination.

The CAS-2 has used various terms relating to capacity, such as installed capacity, actual capacity utilization, normal capacity, normal idle capacity etc.

Para 18 of Form CRA-1 of the Companies (Cost Records & Audit) Rules, 2014 deals with capacity determination. The methodology provided under this para is similar to the CAS-2 issued by the Institute of Cost Accountants of India.

Under Part B and Part C of the Annexure to the Cost Audit Report prescribed under Form CRA-3 of the above aforesaid Rules, quantitative information is to be furnished in respect of 'Manufactured Sector' and 'Service Sector' as follows:

Manufactured Sector (Part B):

1. Available Capacity:
    (a) Installed Capacity;
    (b) Capacity enhanced during the year, if any;
    (c) Capacity available through leasing arrangements, if any;
    (d) Capacity available through loan licence/third parties;
    (e) Total available capacity [(a) to (d)]

The above information is to be furnished for each product separately.

Service Sector (Part C):

1. Available Capacity:

(a) Installed Capacity;

(b) Capacity enhanced during the year, if any;

(c) Total available capacity [(a)+(b)]

The above information is to be furnished for each service separately.

4.1 ***Abnormal Idle Capacity: Abnormal idle capacity is the difference between normal capacity and actual capacity utilization where the actual capacity is lower than the normal capacity.***

4.2 ***Actual capacity utilization: Actual capacity utilization is measured in terms of volume of production achieved or service provided in a specified period.***

4.3 ***Cost Object: An activity, contract, cost Centre, customer, product, process, project, service or any other object for which costs are ascertained.***

4.4 ***Installed capacity: Installed capacity is the maximum capacity of producing goods or providing services, determined either based on technical specification of the facility or through a technical evaluation.***

4.5 ***Normal Capacity: Normal capacity is the volume of production or services achieved or achievable on an average over a period under normal circumstances taking into account the reduction in capacity resulting from planned maintenance.***

4.6 ***Normal Idle Capacity: Normal idle capacity is the difference between installed and normal capacity.***

5. Determination of Capacity:

5.1 Capacity shall be determined in terms of units of production or services or equivalent machine or man hours.

Capacity is generally implied the maximum that can be achieved by the best possible use of the available facilities and resources. Determination of capacity in terms of units of production or services provided or equivalent machine or man hours will depend upon the type of industry, manufacturing process, type of service industry and so on. These are:

i) Output quantity:

This will be applicable only in the case of single product non-seasonal plants. The standard variables to be reckoned with will be:

(a) A year will be deemed to be having estimated number of working days say 330 of three shifts each.

(b) A normal rate of efficiency of production will be arrived at and established for each product. The upper limit of the range of rate of efficiency will always be considered.
In other words, maximum production per shift/day achieved for a reasonable period will be taken as a base for calculation of installed capacity.

(c) If the production flow is through separate segments of the plant, with an intermediate output occurring at the end of each segment the lowest segmental capacity becomes the determinant of the overall plant capacity.

ii) Available machine or man hours:

This unit for measuring and expressing capacity will be applicable in most of the industries particularly where products /sizes/ profiles are manufactured from the same facilities. The relevant variables will be:

(a) A year of say 330 working days of 3 shifts, each will be norm (or industry norm, if available);

(b) A normal production time (turn-around time) will include set-up time, tool change-over time, production cycle time and time taken for equipment cleaning;

(c) Different products/sizes/profiles coming of the same plant will be converted into standard production hours using standard time required per unit of product;

(d) Where product is having various diameters, thickness, Horse Power (HP) rating, Kilo Watt (KW) rating and so on equivalent production shall

be calculated taking one product as a standard unit. The production of other products should be expressed in terms of this selected standard unit;

(e) In determining standard hour for each product manufactured or service provided a normal efficiency rate is to be used; (f) Segmental imbalances or excess capacities expressed in terms of available machine hours or man hours is to be indicated along with the declared capacity; and

(g) Capacity in respect of services provided will be based on available working hours and facilities.

iii) Joint products and by-product: capacity shall be measured in terms of outputs of standard mix, output being expressed separately for each product .

Capacity depends upon the fixed amount of resources or available facilities with which the management expects to run the business.

5.2 Installed capacity: Installed capacity is usually determined based on:

i) Technical specifications of facility.
ii) Technical evaluation.
iii) Capacities of individual or interrelated production or operation Centres.
iv) Operational constraints or capacity of critical machines or equipment.
v) Number of shifts or machine hours or man hours.

Generally installed capacity is based on the specifications of machine or equipment given by the suppliers. It is the rated capacity of a plant installed, that is, the maximum possible productive capability of the plant as rated by the manufacturers or erector of the plant. It refers to the output that can be achieved if production is carried out at a maximum speed without interruptions. It is the potential output that could be achieved with installed capacity if it is fully used.

If the capacities of different operations in the production process are not balanced, the "*bottleneck operation*" which has the minimum capacity among all the operations, determines the capacity of the complete production process. For Example: There are four operations – A,B,C and D. Capacities of A,B, and C is 15000 units each and capacity of D is 12000 units, then the capacity of the production process will be 12000 units.

In case technical specifications of facility are not available, the estimates by technical experts on capacity under ideal conditions shall be considered for determination of installed capacity.

The installed capacity is the production capacity of the machineries installed in the unit as on that day or period or the year under report. The installed capacity is to be

determined with reference to a single working shift or double or triple shift working as per technical specifications.

5.3 Reassessment of Installed Capacity:

Installed capacity shall be reassessed in case of any change due to addition, deletion, modification or for any other reason from the date of such change.

In case any modifications are made in some machinery or balancing equipment are added subsequently and this results in enhanced installed capacity, the installed capacity shall be reassessed. Similarly, if a machine is discarded or disposed off, the installed capacity shall be reassessed accordingly. Addition or deletion shall be effective from the date of such change.

In case the installed capacity is reassessed as per directions of the Government or Regulator, the installed capacity shall be in accordance with the said directives.

5.4 Normal Capacity:

Normal capacity is determined after suitable adjustments to the Installed Capacity.

Normal capacity is determined for the business as a whole. For determination, prime considerations are physical capacity and average sales expectancy. Average is calculated by taking expected sales over a reasonably long period (3-5 years) to level out seasonal and cyclical fluctuations. Normal capacity is also termed as average capacity.

The following adjustments from installed capacity shall be made to determine normal capacity:

(a) Time lost due to scheduled preventive or planned maintenance;
(b) Number of shifts or machine hours or man hours;
(c) Holidays, normal shut down days, normal idle time; and
(d) Normal time lost in batch change over;

Illustration of Normal Capacity:

(a) Technical estimate of a day's maximum production (or hourly production) should be made.

(b) Daily production should be multiplied by normal working days, that is, total days in year less:

(1) Weekly off;
(2) statutory holidays; and
(3) normal shut down period for repairs and maintenance.

Generally working days are taken at 300 days in a year.

In case of continuous plant, it may be calculated for 330 days x 24 hours (365 days minus normal shutdown period for necessary overhauling).

Illustrations of calculation of installed capacity, normal capacity, capacity utilization for engineering, spinning sugar, pharmaceutical industry are at Annexure 1 ,2 ,3, 4 and 5.

The installed capacity of a **spinning mill** is expressed in spindle on single shift basis. If it works on three shift basis, its installed capacity is to be calculated accordingly. The output of yarn depends upon the count of yarn produced. The output of yarn is to be converted to a standard count usually of 20s, 40s and expressed in grams per spindle per shift. Similarly for weaving installed capacity is expressed in terms of loom shift. The production per loom shift will depend on the type of loom, type of cloth that is grey cloth or processed cloth.

For example, the capacity of the diesel engine, the capacity of the product will vary as per Horse power/Number of cylinders and so on. One number of diesel engine with 4 cylinders may be equivalent to the production of 4 numbers of diesel engine with 1 cylinder.

In case of machineries at varying speeds (time factors) producing different thickness (gauges of products) installed capacity in terms of metric tonne (MT) may not be comparable with actual production in MT for arriving at capacity utilisation.

Where product is having various diameters, thickness, HP rating, KW rating and so on, equivalent production shall be calculated taking one product as a standard unit. The production of other products should be expressed in terms of this selected standard unit.

Capacity of a Hospital is determined based on the Number of Available Beds in the Hospital for In-Patients (IP) multiplied by 365 days. Capacity Utilisation is calculated on the basis of Number of Bed Days occupied. However, in case of different procedures / departments, Capacity is determined separately on the basis of available equipment & facilities.

In case of **aeronautic service industry**, where aircrafts of different capacities are landing and taking off depending upon the type of aircraft of different capacities, cargo handled of different bag sizes, and weight, it is to be based on certain technical considerations such as number of passengers or volume of cargo handled per annum and so on. **Capacity of an Airport** is determined based on the Capacity of Passengers that can be handled by the Airport during the peak hours. The Capacity of Airport will be determined based on the capacity to handle peak load passengers by the Terminal covering Seating, Car Parking and other facilities based on the guidelines of International Civil Aviation Federation.

Capacity of the Port is determined based on the available facilities for handling of different materials. Capacity is determined Material-wise as different Materials got different handling equipment / mechanisms. The Capacity of the Port is calculated by working out Material-wise covering Number of Berths, Barge Jetties, Anchorages and Handling Equipment. Generally, Capacity of a Port is declared in Tonnage for different Materials.

Capacity of an Education Institution is determined based on the Number of Seats available in each Section / Class / Course.

6.1 Cost Statements shall present Installed capacity, normal capacity and actual production of goods or services provided, in absolute terms.

Details of installed capacity, normal capacity and actual production of goods and services provided is to be indicated in absolute quantity. If installed capacity is enhanced or discarded during the period under report, the same is to be indicated. If the unit of measurement is other than actual production, such as per shift and so on, installed capacity, and normal capacity shall be indicated in terms of goods produced or services provided to have a meaningful comparison of actual production of goods or services provided in absolute terms.

6.2 Actual Capacity utilization shall be presented as a percentage of installed capacity.

Actual production of goods or services provided is to be considered and expressed as a percentage of installed capacity. Production due to leasing arrangement, off loading or sub-contracting should be adjusted for actual capacity utilisation.

***7.1 The cost statements shall disclose the following*:**

a. Basis for arriving at different types of capacity.

b. Changes in the installed capacity or normal capacity with reason thereof.

c. Capacity enhanced through outsourcing.

d. Capacity outsourced to others

e. Details of actual production of goods or services provided.

i) Self-Manufactured goods or services provided through in-house facility

ii) Goods Produced or services provided through outsourcing

f. Reasons for low capacity utilization.

g. Abnormal cost due to under-utilization of capacity.

Disclosure is to be made for the basis adopted for arriving at installed capacity and normal capacity. Details shall be furnished for shift working that is single shift or multiple shifts. In case there is change in the installed and normal capacity either due to increase or reduction in capacity during the period under report, the same shall be disclosed indicating the revised capacity. Details of capacity enhanced through leasing arrangements, or outsourced to others, if any, are to be indicated separately. In case there is low capacity utilization either due to lower demand or breakdown and so on, details are to be furnished with reasons.

If due to underutilization of capacity, there is abnormal cost, the same shall be disclosed with reason thereof. Abnormal idle capacity is the difference between normal capacity and actual capacity utilization where the actual capacity is lower than the normal capacity.

7.2 Disclosures shall be made only where material, significant and quantifiable.

A piece of information is material, if its non disclosure could influence the decision of a user. Materiality and significance of any information will not be same for different entities but would depend from situation to situation. If the information is material, significant and quantifiable, the same is to be disclosed.

7.3 Disclosures shall be made in the body of the Cost Statement or as a foot note or as a separate schedule.

Disclosure of information for capacity in the body of cost statement will depend on its nature and materiality. If information for capacity affects cost of production or operation materially and can be identified with a cost object, the same is to be disclosed in the cost statement or by way of a foot note.

Annexure -1

Illustration of capacity determination in Engineering Industry

Manufacturer's Specifications - capacity per hour	=	550 units
No. of shifts (each shift of 8 hours)	=	3 shifts
Holidays in a year:		
Sundays	=	52
Other holidays	=	13
Annual maintenance - days	=	30
Preventive weekly maintenance for the machine on Sunday.		
Normal idle capacity for batch change over, Lunch, personal needs etc.	=	1 hour per shift
Production based on sales expectancy in past 5 years	=	30.1, 26.9, 29.7, 24.4 and 30.2 lakhs units
Actual Production for the year	=	30.1 lakhs unit
CALCULATION OF CAPACITY		
Installed Capacity for the facility per annum	=	365 * 8 *3 * 500 = 43.8 lakhs units
Normal Capacity	=	= (365 – 52 –13 - 30) * (8 - 1) * 3 * 550 = 31.18 lakhs units
Normal capacity on sales Expectancy	=	(30.1 + 29.7 + 30.2) / 3 = 30.0 lakhs units
Actual capacity utilisation in terms of installed capacity	=	30.1/43.8 lakhs = 68.72 %
Normal Idle capacity	=	Installed capacity – Normal Capacity = 43.8 – 31.18 = 12.62 lakhs units

Annexure 2

Illustration of Capacity Utilization in Textile – Spinning Mill

Installed capacity of Spinning Mills	=	26208 spindles on single shift basis
Actual spindles available during the year (After adjustment for idle spindles)	=	25605 spindle on single shift basis
Total spindle shift worked on three shift basis	=	74613 spindle shifts
Average spindle shift worked on single shift basis	=	74613/3 = 24871
Actual capacity utilisation on single shift basis	=	24871/26208*100 = 94.90 %

Annexure 3

Illustration of Capacity Utilization in Seasonal Industry – Sugar Industry

Capacity expressed as	=	Cane crushed per Day (in Tonnes)
Installed capacity	=	3000 Tonnes cane per day
Total No .of season days worked	=	150 days
Total cane crushed during the season	=	284550 Tonnes
Average cane crushed per day	=	284550/150 =1897 tonnes per day
Capacity Utilisation	=	1897/3000 = 63.23%

Annexure 4

Illustration of Capacity utilisation in pharmaceutical company having a common reaction vessel

A pharmaceutical company has a reaction vessel which is common for three drugs – A,B and C. Capacity utilization is limited to this sophisticated reaction vessel through which all the three drugs pass through. It can be used for only 7200 hours in a year after taking into account maintenance and down time.

Capacity Utilization for each drug is on the basis of Installed capacity for each drug depending upon:

Total vessel time available / standard reaction time per batch * Batch size:

Capacity available for each drug is as under:

Drug	Total vessel time available hrs (for all)	Standard Reaction time per batch hrs	Batch size Kg	Qty can be Processed	
				Kgs	Tonne
A	7200	5	600	864000	864
B	7200	4	400	720000	720
C	7200	3	200	480000	480

Capacity utilization for each drug

Drug		Available capacity - Tonnes	Actual Production Tonnes	% Capacity Utilization	
A		864	240	27.78	
B		720	280	38.89	
C		480	160	33.33	

Total				100.00	
Overall capacity utilization in terms is 7200 hrs as under:			Drug A	Drug B	Drug C	Total hrs
Actual production in Tonnes			240	280	160	
Standard batch size in tonne			0.6	0.4	0.2	
Reaction time for each batch - hrs			5	4	3	
Total hours utilized (production/batch size*reaction time for each batch)			2000	2800	2400	7200

Annexure 5

Increase in capacity during the Year

Accounting year	=	1ST April 2014 to 31st March 2015
Installed capacity to assemble cars (During the year)	=	12000 Nos
Capacity increased during the year from 1st January to 31st March 2015 (for 3 months – last quarter)	=	4000 Nos
Actual Car Assembled during the year	=	12000 Nos.
Capacity Available during the year	=	12000 + (4000/4) (for one quarter) = 13000
Installed capacity utilization during the year	=	12000/13000 = 92.3 %