

The expense which is logically chargeable to a casting is that required for its manufacture when the plant is operated under average conditions, because the actual effort and use of the foundry's facilities required for making a casting are no less when the plant is operating at maximum capacity than when it is operating at a reduced rate. The total cost for the entire foundry per ton of castings produced is lower than the average cost during abnormal business conditions, and is higher than the average cost during subnormal business conditions. However, this does not mean that the cost of making an individual casting varies in the same manner as the actual total cost for the entire output, that is, it is not affected by general business conditions in the same manner as the latter. Therefore, the overhead or burden rates for use in obtaining costs of individual castings must be computed from a summary of costs representing average business conditions, meaning good, fair, and bad conditions, or, in other words, high, medium, and low rates of operation of the foundry. This summary of costs to be used might be an average of the costs for three years constituting a good year, a fair year, and a poor year, with respect to general business and foundry operations. It is very essential that this principle of using average costs covering average business conditions be used in practice, particularly for determining the costs upon which selling prices are based.

MONTHLY SUMMARY OF COST OF PRODUCTION

A summary of the cost of production should be prepared each month. This summary should be compiled and arranged in accordance with the standard classification of accounts on page 7, although it is not necessary that each account be listed in the summary. The accounts may be condensed in a manner similar to that illustrated on the sample Monthly Summary of Cost of Production of Good Castings shown on the pages following. Many foundries supplement the Monthly Summary of Cost of Production of Good Castings with additional records giving in greater detail the items of cost used for compiling the summary, or they expand the Monthly Summary of Cost of Production to have it include more items than are shown on the sample illustrated here. Additional columns may also be added to it to provide for the inclusion of data for comparison purposes such as the costs per ton for the previous month, standard costs, best performance, etc.

The Monthly Summary of Cost of Production of Good Castings given on the pages following is inserted merely to illustrate the application of the cost finding principles advocated. All the figures on it are assumed, and each foundry must use its own cost data by following the procedure illustrated by the use of the assumed data.

COST OF STEEL AND OVERHEAD RATES FOR INDIVIDUAL CASTINGS

(a) Cost of Steel

The cost of steel per net ton of good castings is not the same for every casting, but it varies with the yield of good castings in percentage of metal charged into the furnace. Therefore, it is necessary to determine the yield for the casting whose cost is to be determined. This is a very important point.

THE YIELD IS THE PERCENTAGE OF TOTAL METAL CHARGED INTO THE FURNACE THAT RESULTS IN GOOD CASTINGS. To obtain the yield for a specific casting, the following data must be known: shipping weight of the casting, the weight of the heads and gates used on the casting, and the number or weight of the defective castings including the heads and gates on them. The yield for the casting can then be calculated very quickly by using the following formula:

$$\text{Per cent. yield} = \frac{G \times [100 - (S + L + B)]}{G + D + H} \text{ in which}$$

G = shipping weight of castings in pounds. This is 3000 pounds for the sample casting whose cost calculation is illustrated on page 25.

S = metal losses in percentage of the total metal charged. This percentage is obtained from the average cost summary and it is item 39 on the sample copy given for illustrative purposes on page 19. S is 3.00% in this summary.