GROWTH OF THE LD PROCESS

A brief survey of world-wide LD facilities illustrates the dramatic growth of this steelmaking process.

by Joseph K. Stone

A survey made this year indicates that the rate of growth of the LD process throughout the world will continue to increase for the next several years. On a world-wide basis the current annual capacity is 32 million US tons with additional plants under construction that will increase this figure by 42 million tons by 1965 or 1966. The figures for the United States show that the present 17 furnaces have an operating capacity of 7.5 million tons with an additional 10 furnaces having 8.9 million tons committed for completion before the end of 1964.

There are now 37 companies throughout the world operating a total of 90 furnaces. In January of 1960, a tabulation indicated that 17 companies were operating 41 furnaces. The increase in the number of furnaces and companies is phenomenal but does not tell the whole story of the growth. The 41 furnaces listed as operating in 1960 made heats ranging from 29 tons to 100 tons and averaged 59 tons per heat. The size of the operating furnaces now in use ranges up to 200 tons and averages 72 tons per heat.

Expansion plans throughout the world indicate the continuation of this trend toward the use of large furnaces. The survey indicates that future furnaces will have an average heat size of 104 tons which is a 44 pct increase in size over those now in operation.

Within the United States, average heat size has increased from 80 tons in 1960 to 100 tons in 1962, and indications are that it will be 140 tons by 1965. Although domestic companies appear to be the most eager to make large heats, they hold no monopoly on large furnaces, either those actually operating or those under construction.

Ten plants are now equipped for the use of one of the lime powder processes, either the LD-AC or OLP. To date, the plants using these systems are principally in Europe where blast furnaces produce

hot metal containing nearly 2 pct phosphorus. The use of powdered lime introduced through the lance with the oxygen has been shown to facilitate making low-phosphorus steels from these high-phosphorus irons.

The data now available for past production and capacity in the United States permits making an estimate of the trend of future capacity and production in the United States with some degree of certainty through the year 1965. The table which follows gives the past growth and our projection of capacity and production for the years 1962 through 1965.

LD Capacity and Production in the United States

Year	Installed Annual Capacity (Million US Tons) (As of Jan. 1st of Year Shown)	Production (Million US Tons)
1955	0.54	0.31
1956	0.54	0.51
1957	0.54	0.61
1958	1.35	1.32
1959	3.58	1.86
1960	4.16	3.35
1961	4.65	3.97
1962	7.5	6.0*
1963	9.8*	8.6*
1964	12.7*	11.6*
1965	20.0*	15.0*

* Estimated figures.

The figures are interesting in that they show that LD production in the United States overtook bessemer production in 1959 and indicate they will exceed electric furnace production in 1963 or 1964. It is also interesting to speculate when LD tonnage will equal that of the open hearth. The variables in LD trend, as well as those influencing the open-hearth trend are too great to permit an accurate prediction. However, indications, based upon the trend, are that LD production will equal open-hearth production sometime in the 1970's.

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