

ALUMINIUM IN ENGINEERING (*)

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The growing importance of aluminium in the Engineering Industry need hardly be emphasised. Although, till not so long ago, the metal was considered suitable only for utensils, the wide range of aluminium alloys that have been developed in recent years has led to its adoption in a variety of other applications. This paper reviews the many uses of aluminium in the Engineering Industry, with particular reference to what has been adopted already in India.

The transport industry is one of the leading users of aluminium. Adoption of aluminium alloys in aircraft production is, of course, well established. In the field of road transport, bodies of buses, vans, trucks, tippers, dumpers and tankers have all been constructed in aluminium, and their performance has been excellent. Aluminium has also been used with much success in the construction of railway rolling stock, for passenger coaches, diesel railcars, and a variety of wagons ranging from those meant for carrying coal, cinders and cattle to refrigerated vans transporting fish and fruit. In marine transport, increasing interest is being shown in the use of aluminium for construction of small boats, while the light metal is now being contemplated for the superstructures of large passenger vessels as well. Great scope also exists in the use of aluminium in shipping containers, which have recently been introduced in the country.

The automobile ancillaries industry uses aluminium for pistons, connecting rods, cylinder heads, crank-cases and many other cast components.

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Automotive trim in aluminium has become very popular, while adoption of aluminium in automobile radiators is also not far off. The airconditioning and refrigeration industries are other major users of aluminium. Another promising application is the growing use of aluminium antifriction bearings in machine tools, heavy-duty electric motors and internal combustion engines. Aluminium has found wide acceptance in electrical machinery, for windings of motors and transformers, for busbars and for non-current carrying applications like lamp caps. Its use extends to heavy construction equipment too, for instance, in launching girders and jib-type cranes, while the mining industry employs it to advantage for aerial ropeway buckets and coal tubs.

Further areas where the use of aluminium has been firmly established are the chemical, fertiliser, textile, bicycle, rubber, sugar, dairy and paint industries.

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