

I. THE MAJOR DESIGNS OF TRACTORS

(1) General

Tractors are run under quite different operating conditions; nevertheless, they are required to function always properly. In agriculture the soil characteristic, for example, is among the decisive factors. On marshy ground or sandy soil the wheels of the tractor may easily sink. Moreover, allowances must be made for growing plants when operating on areas under crop. The weight of the tractor must not hurt or destroy plants. When designing a tractor, the types of implements to be drawn or operated by the tractor must also be taken into consideration. Further, check must be made that the power output comes up to the work to be performed by the tractor.

In forestry and in the construction industry tractors are used for the reclamation of large areas and, equipped with dozer blades, for soil shifting operations. In these cases of heavy-duty operation, principal design features are a high engine output and a reliable ground adhesion or grip.

The various fields of application are taken into consideration when tractors are being designed. A number of basic tractor designs have been developed which have proved successful in practice.

(2) Wheeled Tractors

(a) *Standard Tractors*

The wheeled tractor is the most versatile of all types of tractors and thus is the most widely used machine. In road haulage the wheeled tractor is used as the towing vehicle of tractor-and-trailer units which are capable of transporting heavy loads.

In agriculture wheeled tractors are employed both in fields and for indoor farm work. Frequently it is used as driving unit, e.g. for thrashing machines.

According to their engine power, wheel tractors may be classified into the following groups:

Engine Power	Designation
from 10 to 20 h.p.	small tractors
from 20 to 30 h.p.	medium-heavy tractors
from 30 to 45 h.p.	heavy tractors
from 45 h.p. onwards	exceedingly heavy tractors