V-Belt Drives

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type and characteristics of the driven machine. A shock load of a crusher requires more reserve horsepower capacity in the drive than a smoother operating unit like a pump or compressor. When in doubt it is better to overbelt than to underbelt a drive.

Overload Capacity. Characteristics of prime mover and driven machine must be taken into account when determining the necessary overload capacity that a drive should have to give satisfactory service. From these considerations V-belt engineers provide service factors that indicate the overload capacity to add to the nominal driver horsepower in each case. Service factors recommended by the V-belt manufacturer give the horsepower capacity *required for the application in question.*

Center Distance. Center distance of a V-belt drive is important. The generally accepted rule is that the ideal center distance is between 1 and 1½ times the diameter of the larger sheave. Use of the shortest centers whenever possible insures use of the shorter pitch length belts. These are not only lower in first cost and for replacement but also in maintenance. A short-center distance, therefore, is important in selecting the most economical drive.

All these points must be considered carefully in engineering a drive. The most economical uses the proper section V-belts so a minimum number provide the total horsepower-transmitting capacity of the drive. Sheave diameters will be large enough to insure good belt life, yet not so large as to give excessive speed. If one sheave is larger than the other, the lesser arc of contact on the smaller sheave must be taken into account. Center distance will be as short as practicable. Last but not least, the service factor prescribed for the application must determine the number of belts necessary to transmit the total actual horsepower required.

Horsepower. Certain salient facts help in selecting belts and sheaves that go to make up the most economical drive. First is a belt-selection table that most manufacturers publish. This simply recommends the belt section for different speeds with various-sized motors. Based on nominal horsepower, it is a result of experience in figuring thousands of drives. While there may be exceptions its recommendations can practically always be followed. At least it provides a starting point in deter-