

VAN GORP'S STANDARD SHAFTING IS AISI 1045, WHICH REPRESENTS THE HIGHER CARBON RANGE IN THE OPEN HEARTH CARBON GROUP. ITS MECHANICAL PROPERTY ADVANTAGES OVER LOWER CARBON STEELS PROVE ESPECIALLY VALUABLE FOR TRANSMISSION SHAFTING. THE HIGHER CARBON CONTENT IN AISI 1045 RESULTS IN ONE OF THE STRONGEST STEELS IN THE CARBON RANGE, EXCLUDING ALLOY STEELS, AND MACHINES TO A SMOOTHER FINISH THAN AISI 1018.

SHAFT DEFLECTION SHOULD BE CLARIFIED BECAUSE MANY CUSTOMERS ASSUME THAT AN ALLOY STEEL WILL HAVE LESS DEFLECTION THAN A LOW OR MEDIUM CARBON STEEL. THIS ASSUMPTION IS NOT CORRECT. THE PRINCIPAL OF SHAFT DEFLECTION IS QUOTED FROM THE PUBLICATION OF DELAVAL STEAM TURBINE COMPANY IN TRENTON, NEW JERSEY, ENTITLED "USEFUL DATA FOR DETERMINING STRESSES, TORQUES, BENDING MOMENTS AND DEFLECTIONS IN STEEL SHAFTS", AS FOLLOWS:

"Where an untreated carbon steel shaft is not strong enough, considerable improvement can be obtained by heat treatment and much more by the use of heat treated alloy steels, but if greater stiffness or rigidity is required, no improvement results from heat treatment or the use of better materials as deflection is entirely unrelated to strength.

"Unless the length or span is reduced, the only way that the deflection can be reduced is by INCREASING the size of the shaft as the modulus of elasticity of all steel is practically the same.

"In many cases when a shaft is made large enough to secure the required rigidity, the stress may be low enough that low strength steel may be entirely satisfactory unless greater hardness is required for other reasons."

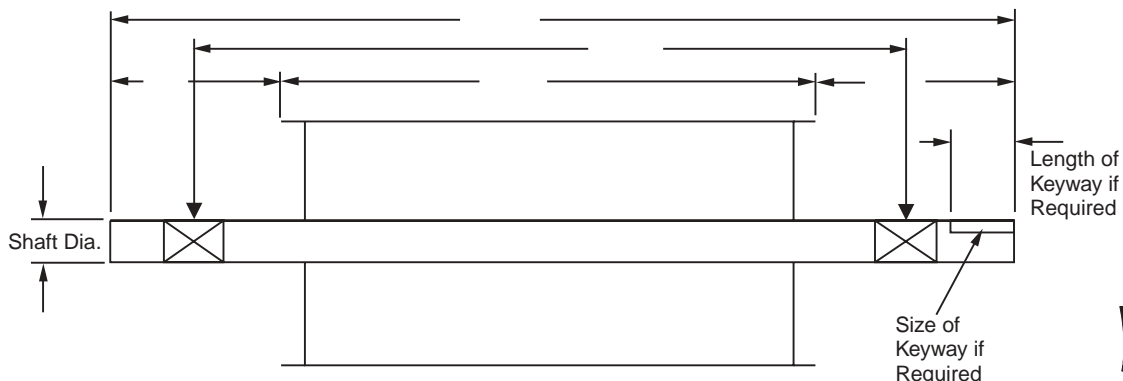
**PLEASE REMEMBER, EXCESSIVE SHAFT DEFLECTION IS THE MAJOR CAUSE OF CONVEYOR PULLEY FAILURES. IT IS WISE TO BE GENEROUS IN SELECTING THE PROPER SHAFT DIAMETER FOR YOUR PARTICULAR SHAFT AND PULLEY APPLICATION.**

When ordering shafting, specify the following:

1. Diameter and length
2. Number and size of keyways required
3. Length of shaft which extends beyond each end of the pulley

4. Diameter and length of journal, if required
5. Bearing Centers

If possible, furnish a simple sketch of the pulley and shaft, as this will help eliminate errors.



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