



MATCHING V-BELT SHEAVES

There are instances where a user wishes to put two individual sheaves on common shafts to accommodate a wide drive rather than wait for made-to-order sheaves. While this has been done successfully, there are potential problems. These involve the difference between sheave outside diameter (O.D.) tolerances versus the groove to groove tolerance between and within a sheave.

Typically sheave grooves are either gang cut (using a multiple cutting tool head from about 2-6 grooves) or cut one groove at a time such as with a CNC machine. The latter most likely on low volume parts. During this operation the manufacturer must adhere to the sheave O.D. tolerances as published by RMA, and to the minimum diameter over balls (or rods) dimensions, also published by The Rubber Manufacturers Association.

Given this process, it is more likely for the groove to groove tolerances to be held within a sheave as opposed to between two sheaves manufactured at different times under a different machine set-up.

Any significant groove to groove variation between sheaves can result in differential driving between belts operating in these different grooves. In extreme instances a reduction in belt service life might be expected. There is also the possibility that in this dual mounting arrangement one of the sheaves may be cocked on the shaft further affecting belt performance.

While our basic recommendation should always be against using dual sheaves on a shaft, it remains the users choice. In these instances it is important that the sheaves be matched, both in O.D. and groove dimensions, i.e. the diameter over balls dimension. Being a little generous in the drive design can also help by reducing the loads transmitted by each belt.