The selection of materials for roller chains from the perspective of manufacturing processs

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Abstrak

The selection of materials for an engineering component is not only requested by its design function and shape, but also
the sequence through which it is manufactured. The manufacturing operation of roller chains involves drawing and
trimming processes aimed at producing semi-finished chain drives component with a well-standardized dimension. In
addition to final combination of properties required by design constraints, the ability of materials to be formed into a
desired shape and geometry without failure is also critical. The objective of materials selection should therefore involve
additional attributes that are not typically accommodated by the standard procedure of materials selection. The present
paper deals with the selection of materials for roller chains from the perspective of manufacturing process. Ears and
un-uniform wall thickness have been identified as a key problem in the mass production of component. Provided all
process parameters were established, the anisotropy factor of materials is critical. Simulative test can be reasonably
used to obtain material performance indices that can be added up to the standard procedure of material selection. Of
three commercially available steel grades evaluated with regard to the criteria defined, one grade is more suitable for the
present objective.