

The Effect of Thermal Shrink and Expansion on Plastic Gear Geometry

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American Gear Manufacturers Association



TECHNICAL PAPER

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ABSTRACT:

A significant characteristic of plastic gears when meshed with steel gears can be the differences in thermal expansion between the two materials. If a particular gear mesh is expected to operate satisfactorily over a wide thermal range, the variations in mesh geometry due to temperature must be taken into account. Quite often gears of differing expansions are put into a housing with yet another thermal expansion rate. All of these variable parameters can pose vexing problems to the plastics gear designer. This paper will present a straightforward way to consider the shrinkage of plastic gears both in molding and in operation.

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1500 King Street, Suite 201
Alexandria, Virginia, 22314

October, 1991

ISBN: 1-55589-611-1



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