

Same Hob for Pinion and Gear

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QUESTION

I make all the double helical gears that go into a gearbox – four different gears in this unit. If the gear module for the bull gear and the intermediate gear are the same (these are the two individual gears that mate), and the gear module for the high-speed pinion and high-speed gears are the same (these are the other two individual gears that mate in the gear box as well), is it then possible to just use two hobs in this setup to make all four gears, since they mate together with each other? We are currently using a different gear hob for each gear.

Expert Response Provided by Bob Wasilewski, Arrow Gear

Different hobs are often used to manufacture mating gears. Just because the module is the same does not mean that the same hob can be used to make both parts and still meet blueprint requirements. The hob controls more than the module. Tooth depth, thickness and root fillet conditions often require very different cutting tools. These items are interrelated. The same hob used to cut a wheel with a large number of teeth will produce a radically different root condition on a pinion with a small number of teeth. (But) without specifics it really is not possible to say if the same hob can be used in your application (See also Fig. 1).

Robert Wasilewski is engineering services manager for Arrow Gear Company.

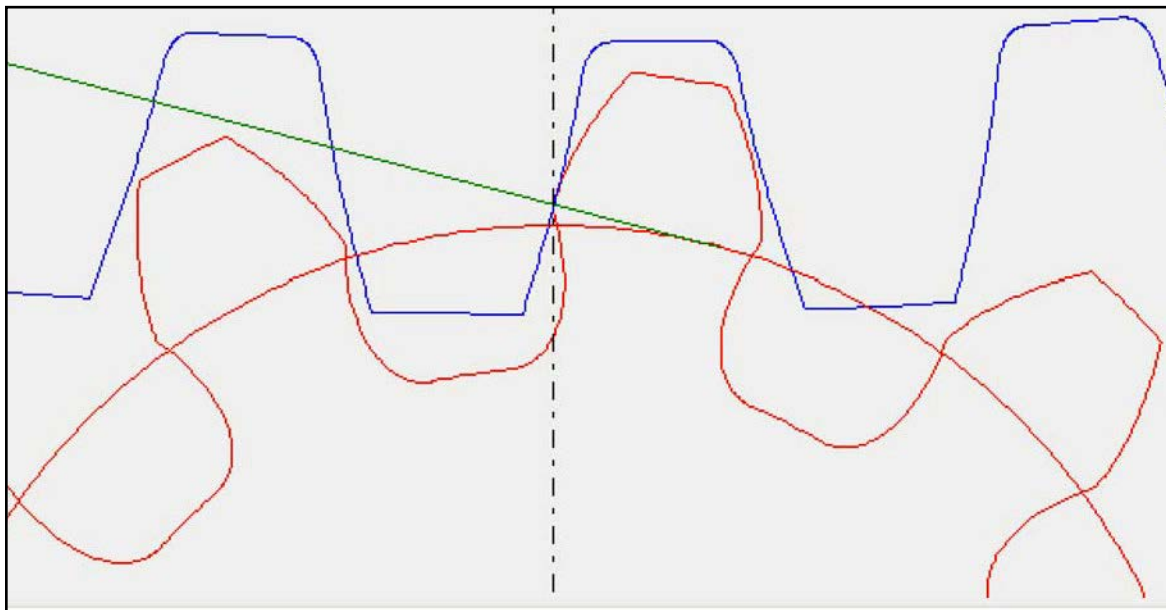


Figure 1 The same hob used to cut a wheel with a large number of teeth will produce a radically different root condition on a pinion with a small number of teeth, as shown in this illustration prepared using AGMA's *Gear Rating Suite 2.2* software.

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