

# Safety Guaranteed

## Exploring Engineering & Manufacturing Marvels Via Web-Browsing

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Regular readers of Gear Talk, our bi-weekly gear blog courtesy of Charles Schultz, know that he is extremely passionate about building an educational library and keeping detailed records in order to best transfer a company's gear knowledge from one generation to the next.

While we adhere to this in the pages of *Gear Technology*, it's worth noting that technical journals, magazines and 1,800 page bevel gear textbooks are not the only way to learn a little something about this great industry of ours.

Technology today allows a person in Michigan (already freezing in November) to take a tour of a forging plant half-way across the globe. It allows that same person to put on a VR headset and see what is happening in a German cutting tool factory in real-time.

Books and magazines are great (and necessary to document manufacturing and engineering technology as it evolves), but don't forget that little Chrome, Safari, Edge, Firefox or Internet Explorer shortcut on your computer. The Internet has a world of good — sometimes bad — information available to those with a simple curiosity about how and why things work. Some examples:



### Extreme Forging

Forging is a definite showstopper in manufacturing. If you can set up a tour of a forging factory, the Addendum team strongly suggests making it happen. However, a forging factory is very loud, very hot and the walls and floors tend to vigorously shake. An easier more comfortable solution to see how things work at a forging plant is to visit the following link:

[www.youtube.com/watch?v=daZXEM-j\\_YA](http://www.youtube.com/watch?v=daZXEM-j_YA)

### Big Gears

Is there anything more fascinating than a gigantic gear wheel? How is it built? How is it cut? How do they move that thing across state lines and put it to work? YouTube has a treasure trove of big gear videos including one where FLSmidth produces gear units and drive solutions for the cement and minerals industries ([www.youtube.com/watch?v=SH1znWhb-a4](http://www.youtube.com/watch?v=SH1znWhb-a4)) and one where HMC in Indiana gives insight into the manufacture of a girth gear ([www.youtube.com/watch?v=OILZgEQHutw](http://www.youtube.com/watch?v=OILZgEQHutw))

### Wind Turbine Gearbox Inspection

My bucket list includes climbing up a wind turbine one day to watch professionals inspect the gearbox. This is probably not going to happen due to OSHA regulations. The next best thing is watching it play out over YouTube with some catchy music in the background. No fear of heights, no papers to sign, just some good ole fashioned gearbox inspection footage and a sick drumbeat! [www.youtube.com/watch?v=z4vKzrGPnE8](http://www.youtube.com/watch?v=z4vKzrGPnE8)

### Testing the Factory of the Future at Purdue

Professor Karthik Ramani of Purdue University is joining forces with manufacturers to build virtual factories using augmented reality — so they can test new labor-saving technologies in the virtual world, before installing them in the real world.

Is an autonomous robot going to make a factory more productive? With augmented reality, they can physically simulate how workers will interact with a robot, or any other new technology. They can virtually experiment with rearranging their shop floor to maximize productivity. And if new technologies are successful, they can use augmented reality to train new workers — in essence, they can become pre-skilled to work efficiently, before they ever set foot on the factory floor. This is just one example of technology driving innovation

in manufacturing.

There is plenty of information online to satisfy the most curious person. There are countless books, magazines, websites, and videos dedicated to teaching us how to manufacture a spur gear in our basement, what the inside of a girth gear looks like or how to 3D-print a gear and put it to good use inside an aircraft.

It's equally as important to get out into the real world and see as much of this firsthand as you can, but never forget the power of a good web search. Thanks to the Internet, you've got a potential classroom in front of you every morning you sit down at your desk with a cup of coffee. ⚙️