

## Essential Work Tools of a Machine-Tool Designer

[Machine Design](#)

[David Cochrane](#)

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*“Man is a tool-using Animal....Nowhere do you find him without tools; without tools he is nothing, with tools he is all.”*

— Thomas Carlyle, 1795-1881

As a design manager, I am acutely aware of how important it is to have the right tools at hand to help complete a project. After all, it is my job to design some of the most powerful and accurate portable machine tools for use in plant maintenance and production processes around the world.

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While my role doesn't require me to personally use the tools I design on a day-to-day basis, I must ensure that what I produce meets the requirements of life on-site. To help me design machines that stand the test of time, I have my own set of tools that I use each and every day.

### **Most important tools: Sketchpad, calculator, and pencil**

While the powerful and sophisticated CAD software is the bread and butter tool for our trade, good machine designers shouldn't rely on software alone. I could not be without the humble sketchpad, calculator, and pencil. Almost all of our initial designs are hand-drawn before they make it to the 3D CAD system.

The best ideas often come from playing around with a sketchpad and simply trying many different options to overcome a particular challenge. I wouldn't leave home without them.



### **Most valuable software: SolidWorks 3D CAD software**

Powerful computer software sits at the heart of any designer's toolkit. Where a graphic designer uses Adobe Photoshop, I use [SolidWorks 3D CAD Software](#).

In my opinion, the team at SolidWorks really grasps what machine designers need and have packaged it into user-friendly interface. The additional features such as the cost estimate and quoting tools help us deliver projects on budget, while files we export can easily be turned in to stunning 3D animations such as this:

**Must-haves for my workspace: Comfy seats and coffee**

My job as a machine designer is very much a desk-based role, so comfort is absolutely key. That's why I think all machine designers need comfortable chairs...and coffee...lots of coffee.

**Most useful mobile apps: Sandvik, Iscar, and Scientific Calculator**

Mobile applications for design engineers abound but, unfortunately, many apps I've used just haven't done it for me. That said, there are three apps that I do use regularly.

1. The [RealCalc Scientific Calculator](#) is useful for any machine designer. It provides everything you would expect from a scientific calculator and it's free. The Android app works on mobile and tablet devices and can calculate fractions, percentages, degrees, and niche sums such as RPN operations.
2. The [Sandvik Coromant Calculator](#) is a simple-to-use machining calculator that provides machinists with information to optimize turning, milling, and drilling applications. After more than 50,000 installs with an average app rating of 4.1 out of 5, it is easy to see why the calculator, which can be used to measure cutting speeds, diameters, and feed per tooth, is so popular.
3. [Iscar IbaQus](#) provides five applications for metal-cutting operations and links to Tech Talk podcasts. These applications include a Machining Calculator that can figure an operation's power consumption, metal removal rate, and cutting time.

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