

CRAFTSMAN CRIBSHEET

Identifying ISO Workpiece Material Groups

Watch **Dave & Davey** video



By David Wynn, Director of Technical Services, PMPA

When you look at a box of inserts, you see a colored coded set of letters and numbers for our feeds and speeds. What does all this mean? There was a time when I used a book to look up speeds and feeds for a specific material. If I were machining 12L14, there would be a chart for that. If I were machining 4140, there would be a chart for that. ISO material groups are based on the types of material in large groups.

starting at low carbon with “10” moving on from there. Below is a list of six main categories with their color coding. All manufacturers may use slightly different shades of color, but the general coloring will be the same. When selecting the right tooling for a job, it is important to understand how that selection impacts your end results. Understanding ISO material groups aligns your thinking with how manufacturers are presenting the information. In the next

P	Steel - Free Cutting Steels, Carbon Steels, Alloy Steel
M	Stainless Steels - Ferritic, Austenitic, Martensitic and Austenitic-Ferritic (Duplex)
K	Cast Iron - Gray Cast Iron, Ductile Iron, Malleable Cast Iron ...
N	Non-Ferrous Metals - Copper, Brass, Aluminum and Plastics
S	Super Alloys - Titanium, Nickle Alloys, Inconel, Monel, Hastelloy ...
H	Hard Materials - Tool Steels, Heat Treated Steels, Materials with RC 45+ ...

The letter “P” represents all steels. It encompasses free-machining steels, carbon steels and alloys. Sometimes martensitic stainless are included in the “P” group. The benefit of grouping is that the materials in the “P” group generally need similar coatings, chipbreakers and clearance angles. When dialing in final feeds and speeds it gets a little more complicated. In general companies use “01” as the designator for resulfurized and leaded steels. Then

couple of months, I will explore each of the six categories and try to find generalized ways to understand the subcategories. Since there is no standardized system for the subcategories, it will be a guide on how to interpret most manufacturers’ representation of the information. Look at box of inserts or the technical sheet for that box. You will start to recognize this system. With an understanding of the language, you can better grasp the why. **P**