

5 Great Tool Steels to Improve Your Profits.

Does it make a difference which cold work steel you specify? Crucible's unique selection of high vanadium CPM tool steels makes all the difference in the world:

- **CPM 1V** is an upgrade to H13 with higher hardness and better temper resistance for longer die life.

- **CPM 3V** is an excellent choice for heavy stamping and blanking operations requiring high toughness.

- **CPM 9V** is ideal for plastic injection screws and components due to its combination of high wear and high toughness.

- **CPM 10V** typically provides more than double the tool life of CPM M4 and four times that of D2 in abrasive wear conditions. Since its introduction, CPM 10V has become widely recognized as the standard for demanding wear applications.

- **CPM 15V** is an upgrade from CPM 10V providing even longer tool life. It offers an alternative tooling material for high wear applications where carbide is failing by fracture or where intricate tool design makes carbide difficult to fabricate.

Through our exclusive CPM (Crucible Particle Metallurgy) process, this "Killer V" family of five high vanadium tool steels offers superior combinations of toughness and wear resistance. The entire series covers a wide range of properties from the toughness of shock resisting tool steels to the wear resistance approaching that of carbide.

Discover Crucible's CPM difference for unbeatable savings in the long run. As tool life increases, downtime decreases and you'll end up buying fewer tools and enjoying greater profits.

Whatever your cold or warm work application, you'll wonder how you could ever have settled for anything less.

APPLICATIONS

- Punches and dies for blanking, piercing, forming, cold extrusion and cold heading
- Knives for slitting, shearing and trimming
- Granulator/pelletizer blades, nozzles, screws, screw tips and barrel liners for plastic injection molding equipment
- Powder compaction tooling
- Woodworking tools
- Warm forming tools
- Forming rolls
- Rolling mill rolls
- Bearings, bushings, cams and wear parts
- Forging dies

CHEMISTRY

	CPM 1V	CPM 3V	CPM 9V	CPM 10V	CPM 15V
Carbon	0.55%	0.80%	1.78%	2.45%	3.40%
Chromium	4.50%	7.50%	5.25%	5.25%	5.25%
Vanadium	1.00%	2.75%	9.00%	9.75%	14.5%
Molybdenum	2.75%	1.30%	1.30%	1.30%	1.30%
Tungsten	2.15%	-	-	-	-

Learn more about how these five steels can dramatically improve your tooling performance. For more information on Crucible's high vanadium CPM tool steels or assistance in matching them to your application, just contact your nearest Crucible Service Center or call 1-800-365-1185 or FAX: 1-315-487-4028,

www.crucibleservice.com

email: techservice@crucibleservice.com.

CPM 1V

- Better heat resistance and higher hardness than H13 or H19
- Excellent heat check resistance
- At HRC 56-58 has toughness equal to H13 at HRC 48-52

CPM 3V

- Wear resistance greater than A2 or D2
- Toughness approaching S7

CPM 9V

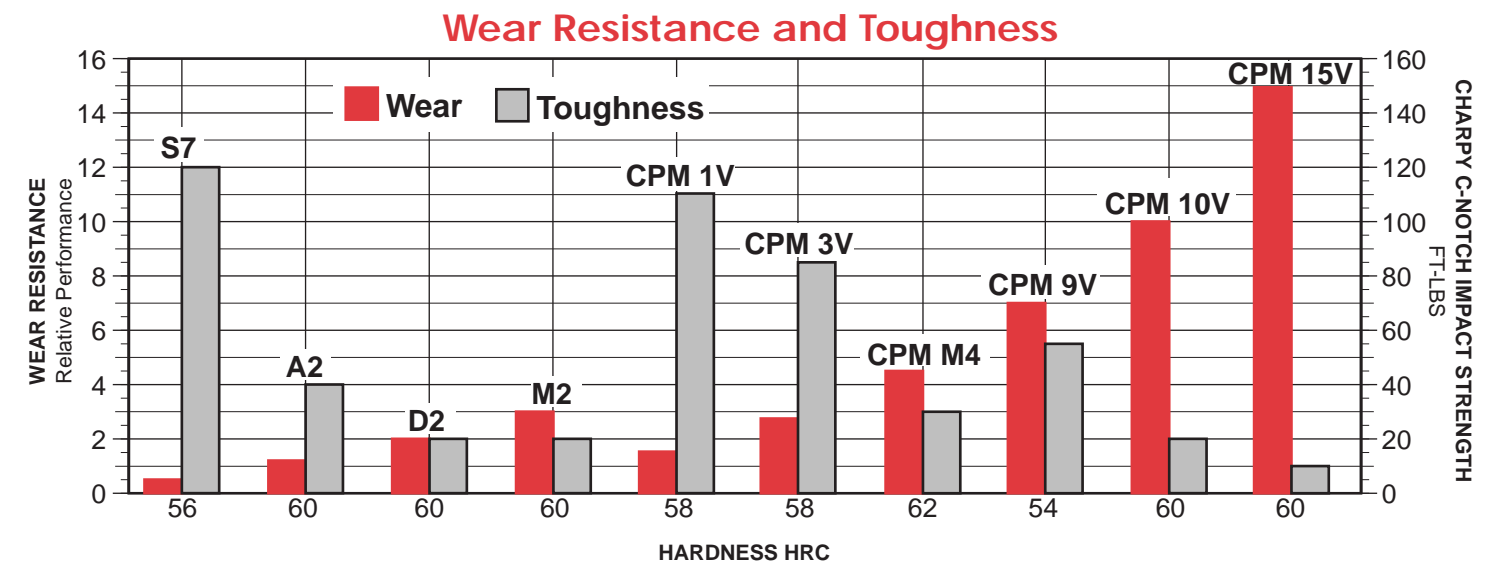
- Excellent wear and toughness at HRC 52-56
- Good heat check resistance for warm work conditions

CPM 10V

- Excellent choice for high wear applications
- Toughness equal to M2 and D2

CPM 15V

- Highest wear resistance of any tool steel
- Tougher than carbide and more economical



Crucible...The Tool Steel Pros®

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