

Ci CPM®
has a new
home



**Latrobe Specialty
Steel Distribution**

Ci Crucible
Industries



Crucible Industries' CPM® has a New Home ... at Latrobe Specialty Steel Distribution

Crucible Industries of Syracuse, New York, and Latrobe Specialty Steel Distribution have joined forces to supply North America's requirements for Crucible's legendary CPM® high-performance powder metallurgy tool steels. Crucible's 40 years of CPM manufacturing expertise and product development has combined with Latrobe Distribution's extensive value added services, regional warehouse locations, and a nationwide network of Independent Distributor-Partners to make CPM® powder steels more available than ever.

Crucible's renowned "Killer V's" cold work steels: CPM® 1V®, 3V®, Rex® M4, 9V®, 10V®, 15V® and S90V®; and the CPM® Rex® lineup of the most advanced high speed steels including CPM® Rex® M4, Rex® T15, Rex 20®, Rex 45®, Rex 76® and Rex 86® have all found a new home. Latrobe Specialty Steel Distribution is your one stop shop for the complete line of CPM® bar, plate, sheet, hollow bar, machined parts, and forgings.

At Latrobe Specialty Steel Distribution, our only business is adding value to yours!

CPM Solutions for Cold Work Applications

The "Killer V's"

CPM® 1V®

- Good combination of compressive yield strength and **very high toughness** for heavy duty cold work operations, or to extend life where S7 is the only tool steel that works.
- Typical application hardness for cold work 56-58, 58-60 HRC.
- CPM 1V may also be considered for warm or hot work applications for improved wear resistance over H13 where heat checking is not the primary mode of tool failure.

CPM® 3V®

- CPM 3V is the most versatile cold work tool steel, **ANYWHERE!**
- Wear resistance and toughness better than D2 and A2, respectively!
- Recommended alternative to D2, M2, A2, or higher alloyed PM products to solve edge chipping or breakage problems and still provide excellent wear resistance.
- Typical application hardness 58-60 HRC for optimum combination of wear resistance and toughness.



CPM® REX® M4

- 4% vanadium high speed steel with 65-67 HRC attainable hardness capability.
- Wear resistance and toughness better than D2 or M2.
- Excellent high performance substrate for PVD or CVD coatings.
- Typical application hardness for cold work 60-62 or 62-64 HRC.

CPM® 9V®

- 9% vanadium with a 55-57 HRC maximum attainable hardness **and high toughness**.
- Tougher alternative to CPM 10V for P/M compaction tooling and plastics processing components. Typical application hardness 52-54 or 54-56 HRC.
- May also be considered for warm or hot work applications for abrasion resistance.



CPM® 10V®

- **The original 10% vanadium** cold work tool steel with 62-64 HRC attainable hardness.
- Wear resistance up to 4 to 8 times, better than D2 or M2 with comparable toughness.
- Typical application hardness 60-62 HRC for optimum combination of properties.
- Excellent for edge retention on HSLA steels.

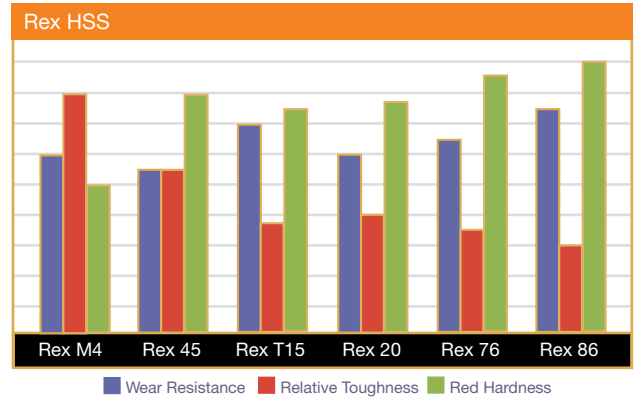
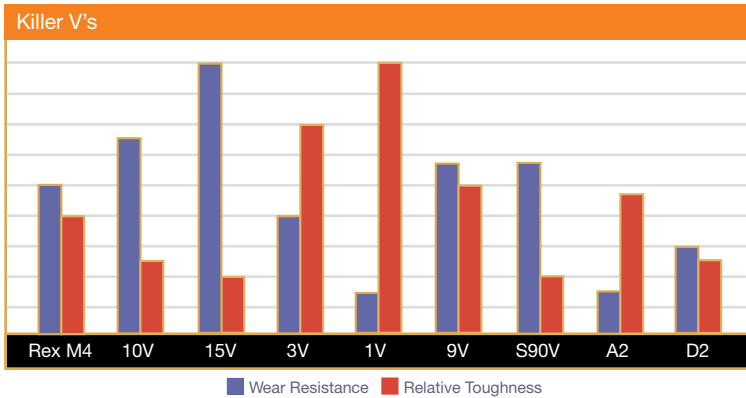
CPM® 15V®

- **15% vanadium** modification of CPM 10V with 62-64 HRC attainable hardness.
- The **highest** level of wear resistance of **ANY** tool steel.
- Tougher alternative to tungsten carbides, typical application hardness 60-62 or 62-64 HRC.



CPM® S90V®

- Long wearing stainless steel with 9% vanadium for extremely hard vanadium carbides.
- Provides better abrasion resistance than D2 or 440C, corrosion resistance similar to 440C stainless.



CPM Steels for High Performance Cutting Tools

CPM Rex High Speed Steels

CPM® REX® M4

- CPM Rex M4 High Carbon provides an outstanding combination of toughness, optimum heat treat response, and excellent wear resistance from its 4% vanadium content.
- CPM Rex M4's attainable hardness of 65-67 HRC is highly suitable for cutting tool applications such as gear hobs, broaches, milling cutters. Under hardened to 60-62 HRC, CPM Rex M4 is an exceptionally wear resistant cold work steel for dies, punches, and fineblanking.

CPM® REX 45®

- CPM Rex 45 adds 8% cobalt to its M3 type II chemistry to provide excellent hot hardness, good wear resistance and toughness. It excels in applications cutting difficult to machine materials as end mills, gear hobs, shaper cutters, taps, and reamers.

CPM® REX 20®

- CPM Rex 20 is a cobalt-free super high speed steel. Its high carbon, tungsten, and exceptionally high molybdenum content provides high red hardness, superb abrasion resistance, and excellent toughness. Capable of 68 HRC, CPM Rex 20 should be considered for applications in end mills, bearings, milling cutters, and similar difficult applications.

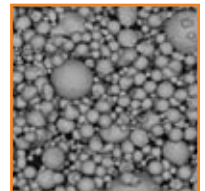
CPM® REX T15

- CPM Rex T15 is a super high speed steel with 5% cobalt and 5% vanadium to provide for tools with very good red hardness and outstanding wear resistance. With an attainable hardness of 67 HRC, CPM Rex T15 is ideal for difficult to machine materials. It excels in applications as aerospace broaches, end mills, taps, and milling cutters.



CPM® REX 76®

- CPM Rex 76 is a super high speed steel with high carbon and vanadium for wear resistance, very high cobalt and tungsten content for superior red hardness and a 68-70 HRC attainable hardness capability. CPM Rex 76 should be considered for special purpose cutting tools such as form tools, end mills, gear hobs, broaches, and other cutting tools where exceptional red hardness is required.



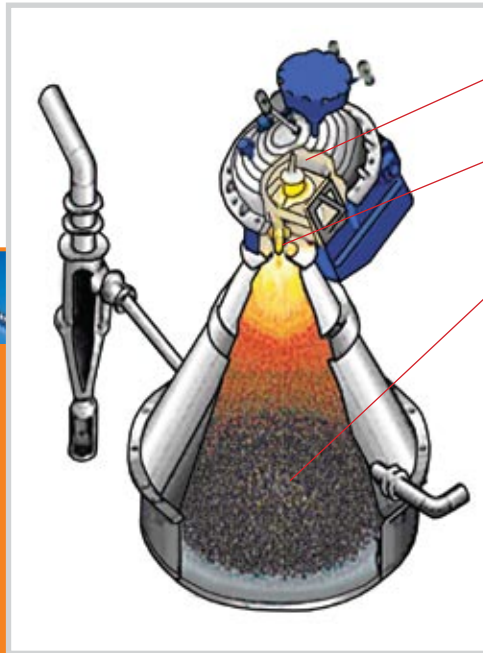
CPM® REX 86®

- CPM Rex 86 is the newest of Crucible's super high speed steels. Increased vanadium and carbon provide for higher levels of hard carbides for enhanced wear resistance. Very high cobalt and tungsten affords CPM Rex 86 exceptional red hardness. This combination of properties provides for tools to machine the most difficult materials in gear hobs, milling cutters, and other applications requiring the highest levels of heat and abrasion resistance.

The CPM® Process

Atomization

- The CPM process starts atop the Atomization tower with a homogeneous molten bath.
- Nozzle with high pressure gas bursts the liquid metal into a spray of tiny spherical droplets.
- Droplets solidify and collect as powder particles in the bottom of the Atomization tower.
- The powder is relatively spherical in shape and uniform in composition.
- The carbides which precipitate during solidification are extremely fine due to the rapid cooling and the small size of the powder particles. The fine carbide size of CPM steel endures throughout mill processing and remains fine in the finished bar.



North American Sales Locations

For additional information, contact one of the following locations:

Marlborough, MA

800-444-4447
508-485-6200
Fax 508-481-6581

Vienna, OH

800-321-6446
330-609-5137
Fax 330-609-2055

Blenheim, Ontario

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