



## Innovative Tool Sales

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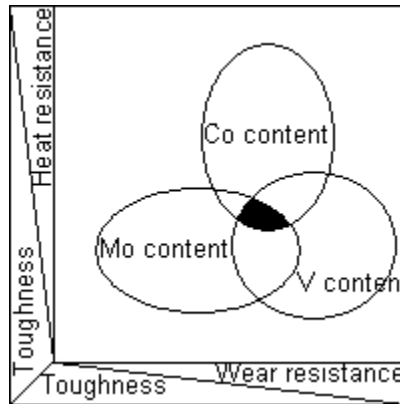
### Technical Support Page

# SELECTION OF HIGH-SPEED STEELS (HSS)

High speed steels contain various elements such as: molybdenum, cobalt, vanadium and carbon.

The ideal combinations for strength, toughness and wear resistance are achieved by heat treatment to meet the requirements of:

- Red hardness
- Wear resistance
- Strength and toughness



#### Properties of High-Speed Steels:

- **M7** - Standard HSS - has good toughness, standard wear resistance and red hardness. For machining non ferrous materials.
- **M42** - Premium HSS containing 8% cobalt - heat treated to high hardness levels, good rigidity and wear resistance. Ideal for machining higher strength materials and work hardening alloys.
- **REX 76** - Particle metallurgy HSS (PM) - containing a high percentage of alloying elements.
  - Very fine and uniform carbide size.
  - High toughness prevents tool from chipping.
  - High and uniform hardness.
  - Excellent grind ability.

	Cr	W	Mo	V	Co
<b>Hardness</b>	↗	↗	↗	↗	↗
<b>Impact resistance</b>	→	→	↗	→	↘
<b>Heat resistance</b>	↘	↗	↗	↗	↗
<b>Wear resistance</b>	↗	↗	↗	↗	↗

End mills manufactured from REX 76 PM, are far more expensive. Recommended to be used on nickel and cobalt based alloy steels and very difficult to process machine materials.