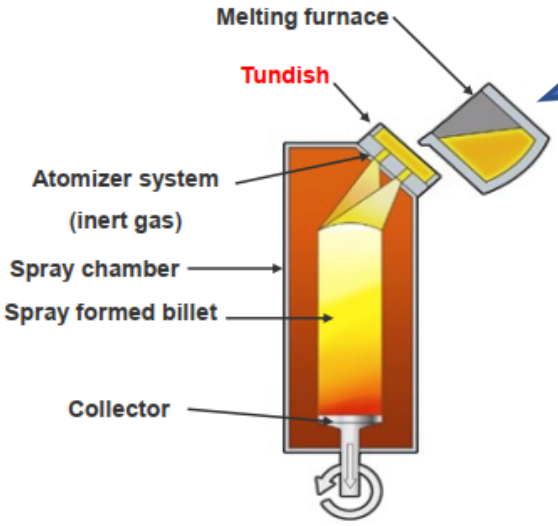
PSB27 - Spray Formed Tool Steel

Tool Steel production technology has evolved.

Conventional production → **HIP'd Particle Metallurgy** → **Spray Formed Particle Metallurgy**



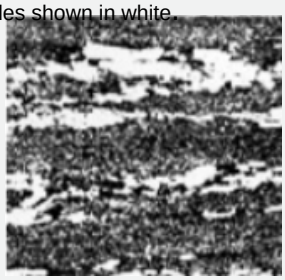
Carbides and Cost

•The two biggest differences in the steel making processes are the production costs and the resulting structures of the steels.
•The biggest difference in the resulting structures are the carbide size and shape as well as the much improved carbide distribution.
•The PM processes involve more production steps, which increases the cost.

Conventional

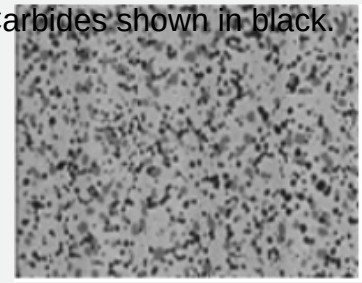
-Lowest cost for production.
-Carbides are large and blocky with poor distribution.

-Carbides shown in white.



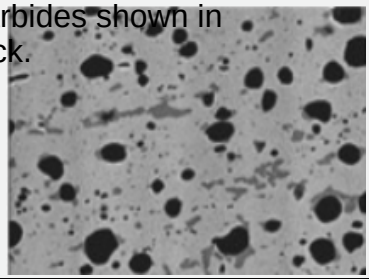
Particle Metallurgy - HIP
Hot Isostatic Pressing

-Highest cost for production.
-Carbides are very small and spherical with very good distribution.
- Carbides shown in black.



Particle Metallurgy
Spray Formed process

-Medium cost for production
-Carbides are small, spherical and evenly distributed.
-Carbides shown in black.



SB Specialty Metals LLC

*Your **First Choice** for Specialty Metals*

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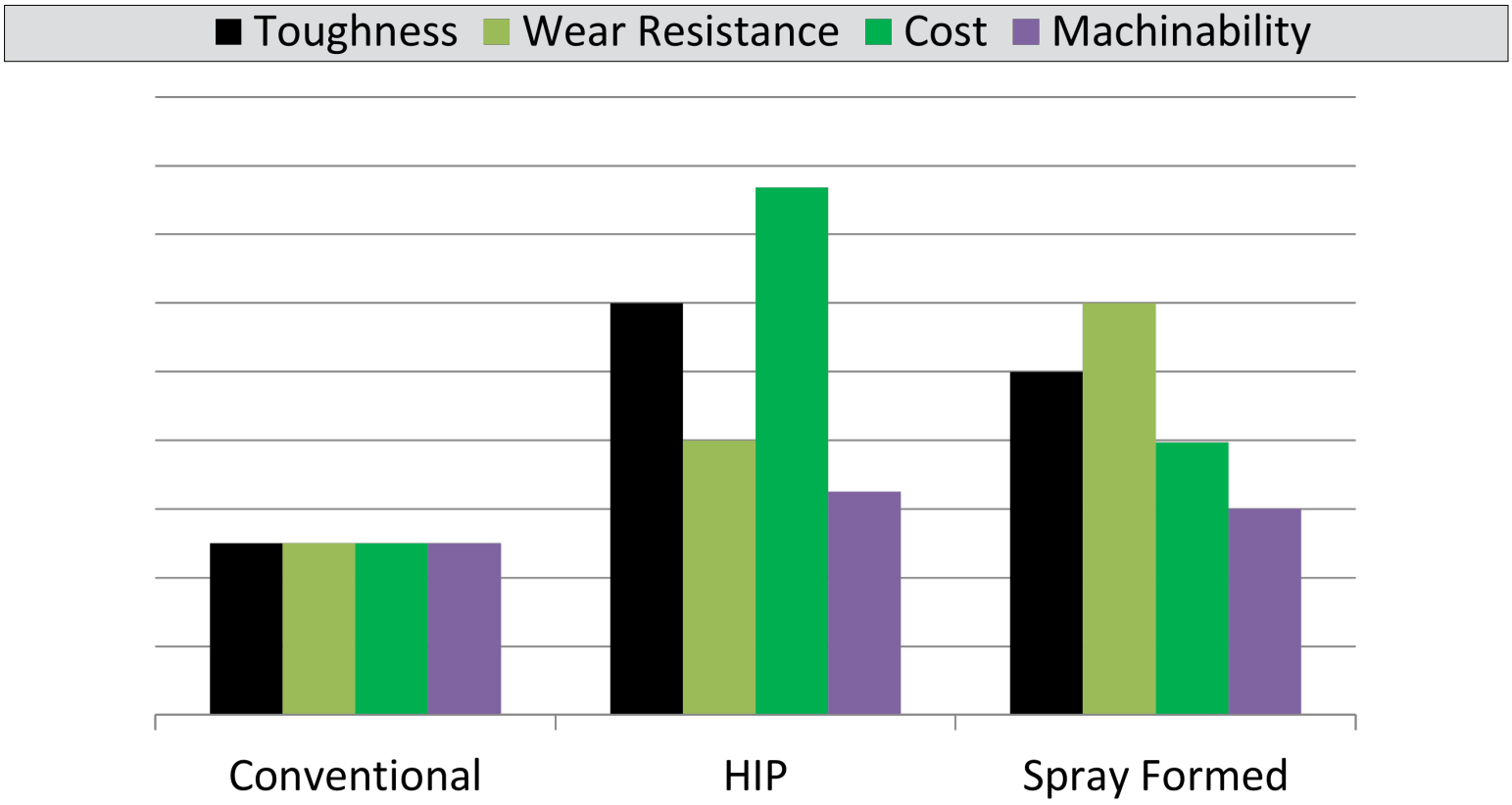
Total Tooling Cost .....Find your balance



Some applications that are good for changing to PSB27.

Application	Tool steel to replace	Reason to consider replacing
Non-Woven - Cutting dies	D2	3x better wear resistance..
Rotational Cutting dies	A2-ESR	3x better wear resistance with equal toughness.
Shredder Blades/Knives	D2	Improved wear resistance and toughness.
Rolling - Steel processing	D2	Improved wear resistance.
Threading Dies	D2	Higher hardness, 3X the tooling life.
	D2	
Tubing roll inserts	Carbide	Higher toughness
Cutlery	D2, 440C, CTSXHP, CTS 204P, PM 154	Improved toughness, similar or better edge retention.
Blanking, punching and Forming	D2 or PMM4	Total Tooling Cost

Flats:	0.082" thru 0.265" Thick	Hardness Range:	58-61 HRc
Rounds:	0.75" thru 12" Diameter	Heat Treat:	Similar to D2