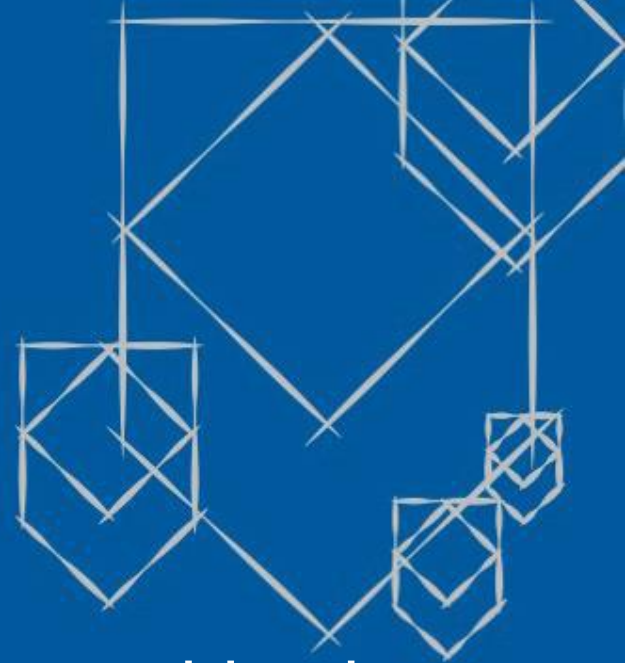


VF800AT

Cold work tool steel with excellent combination
of toughness and wear resistance for high
performance tools and dies



What is “VF800AT”?

- “V” of Villares
- “F” of *Frio*, **cold** in Portuguese.
- **800** refer to **8%** of **Cr** content in the steel chemical composition.
- “AT” of *Alta Tenacidade*, **high toughness** in Portuguese.

Chemical composition

Villares Metals Grades	Standard Reference		Chemical Composition							Brief Description / Application
	AISI ASTM SAE	DIN	C	Mn	Cr	Mo	V	W	Others	
VF800AT	8%Cr grade	-	0,85	0,40	8,50	2,10	0,50	-	Nb = 0,15	VF800AT belongs to the family of 8% Cr cold work tool steel. The alloy composition brings to VF800ATIM the capacity of attaining high toughness combined with good abrasive and adhesive wear resistance.
VD2	D2	~1.2379	1,50	0,40	12,00	0,78	0,80	-	-	VD2 is a high-carbon high-chromium cold work tool steel.
VC131	~D6	1.2436	2.10	0,30	11,50	-	0,20	0,70		VC131 is a high carbon and a high chromium cold work tool steel with an exceptional resistance to abrasion and maximum cutting stability.

Typical Application

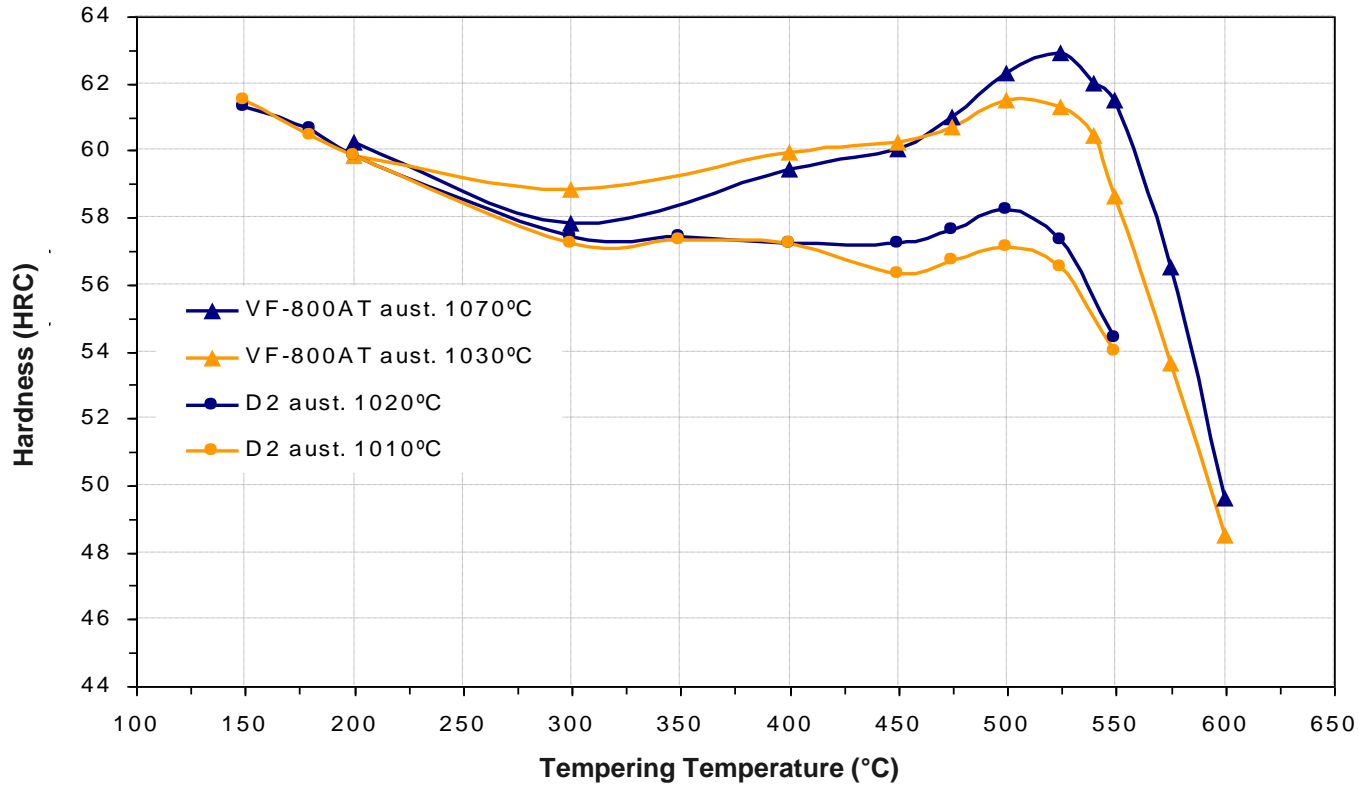
The applications of VF800AT steel are listed below:

- Thread roller rolls;
- Screw-thread chasers;
- Punching tools;
- Dies for cutting and spinning;
- Slitters.

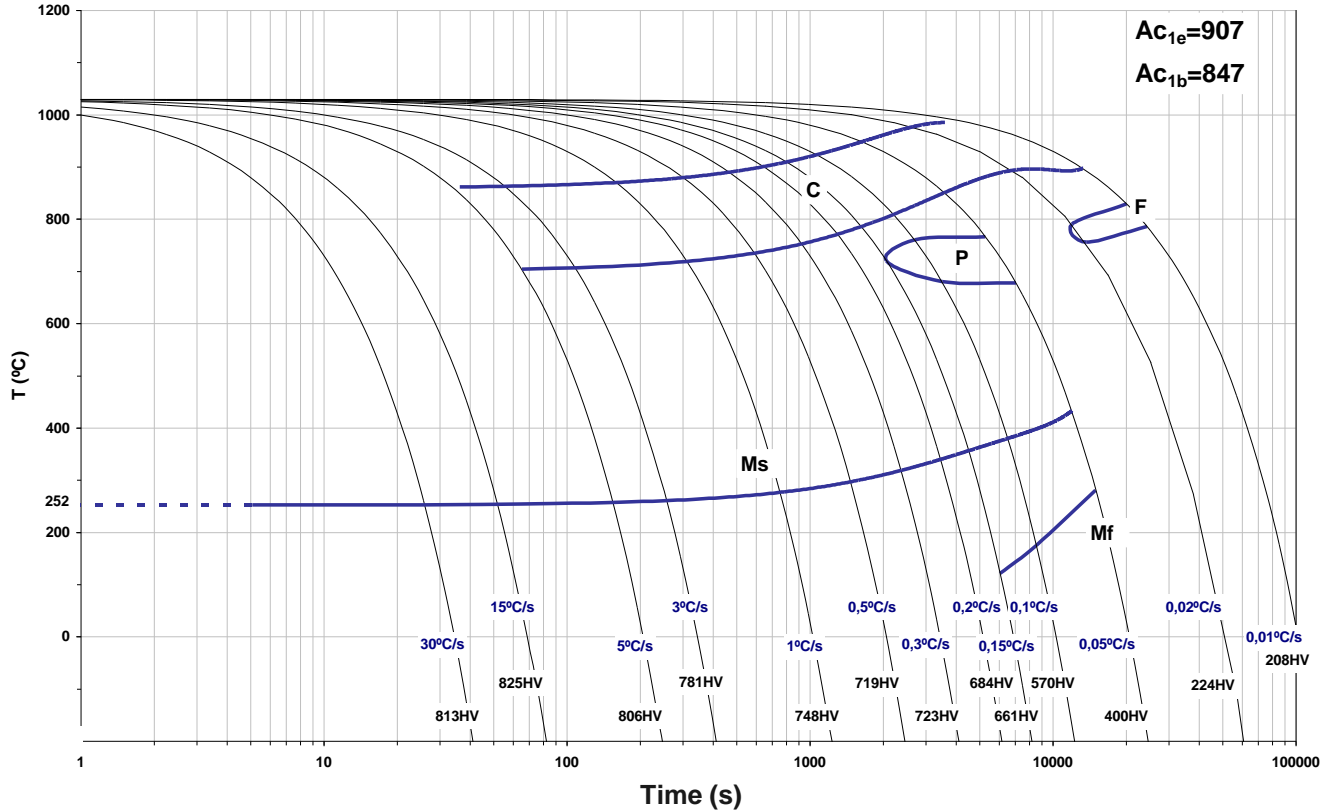


This grade is excellent for cold work applications which demand adhesive wear resistance and high toughness.

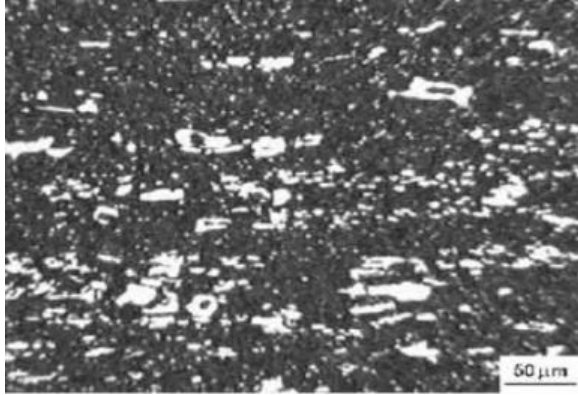
Tempering Curve



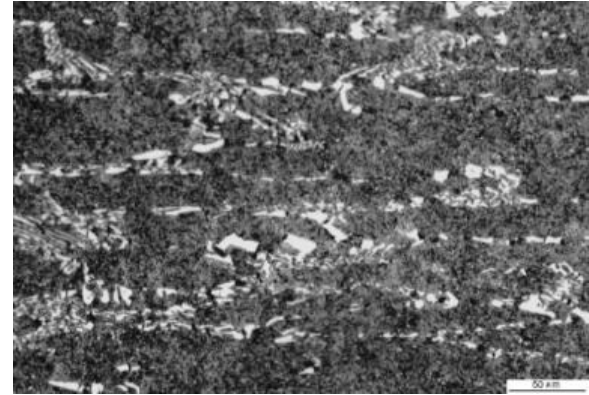
CCT Curve – VF800AT



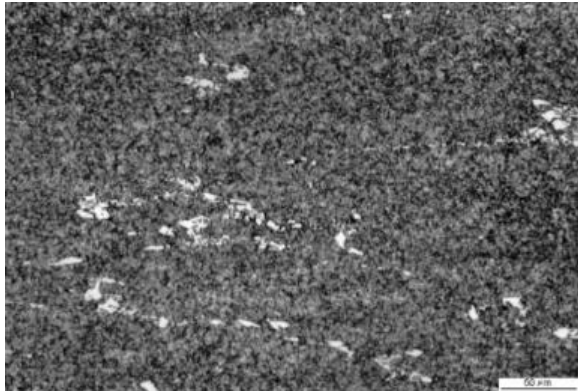
Microstructure comparision



AISI D6



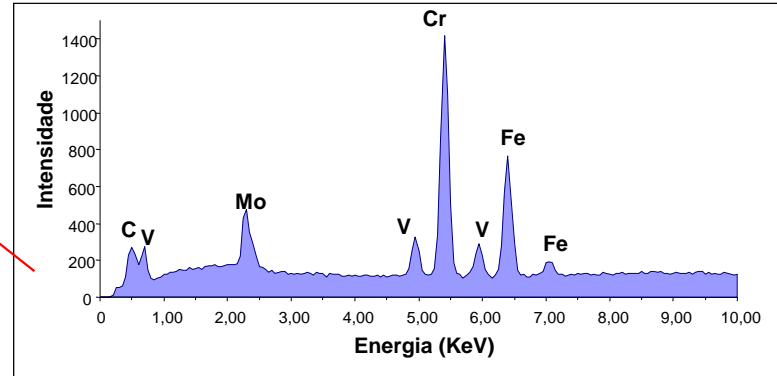
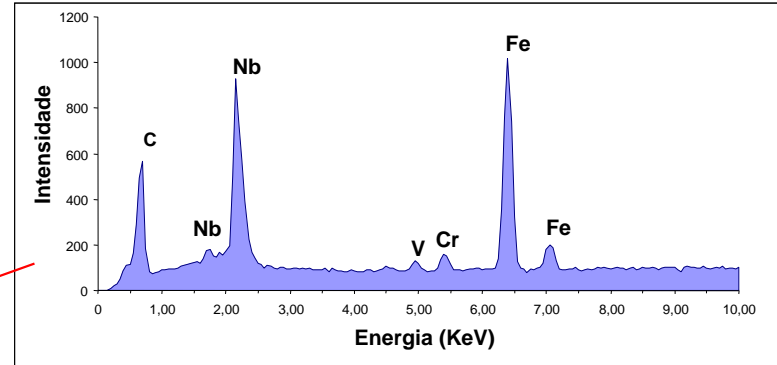
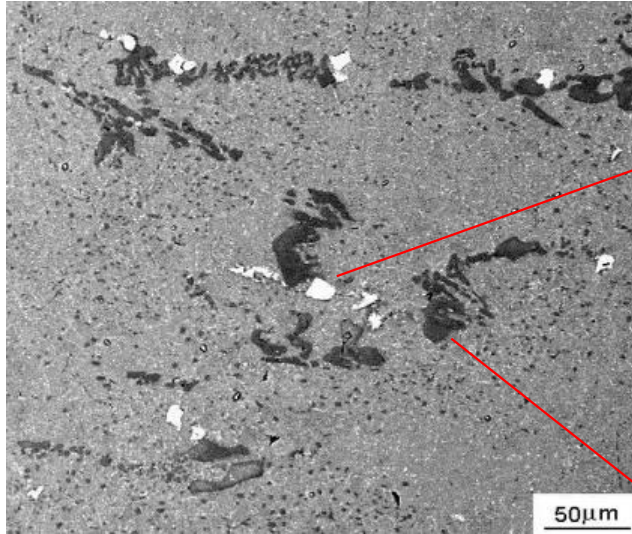
AISI D2



VF800 AT

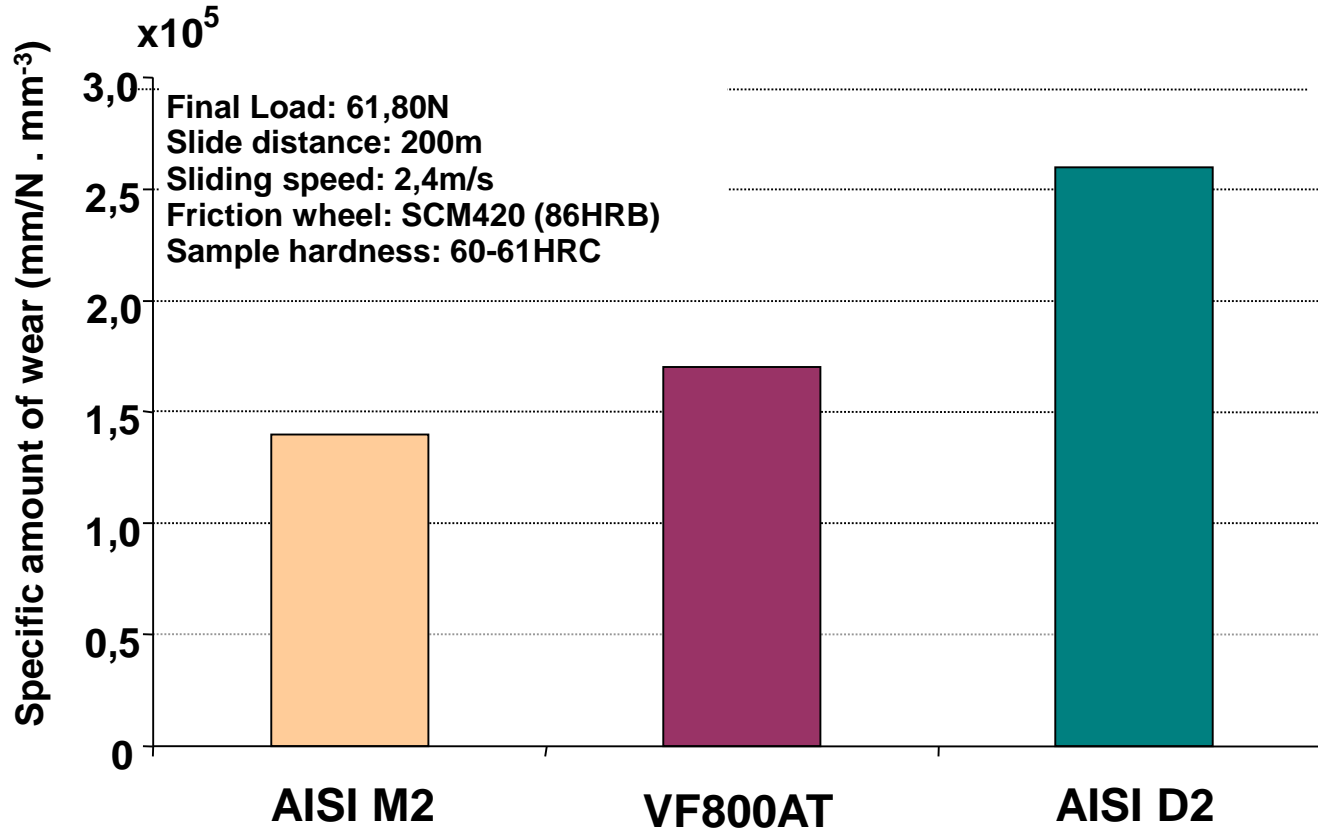
VF800AT has a very refined microstructure and primary carbides with better distribution than other traditional cold work tool steels

VF800AT – Primary carbides analysis



One of the main reasons of the good combination of high wear resistance and toughness is the mixture of Nb-carbides and Cr-carbides in the VF800AT microstructure.

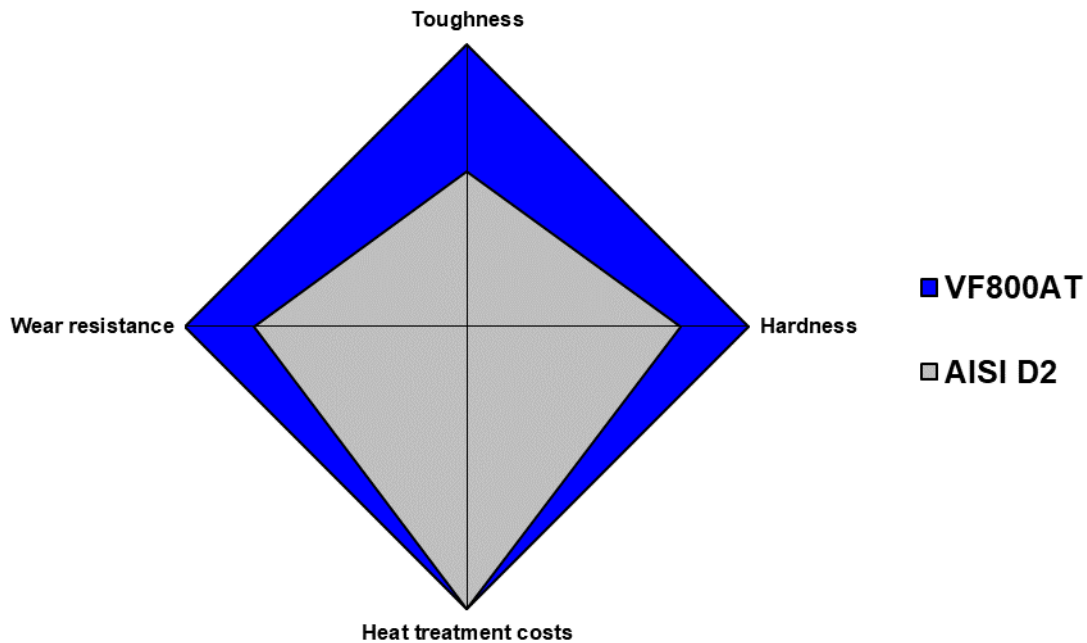
Wear Resistance



Main produced sizes

- Round bars: diameter ranging from ½” up up 24”
- Flat bars: Thickness of 4” and larger
- **All flat bars and rounds with diameter larger then 3” are produced through ESR route.**

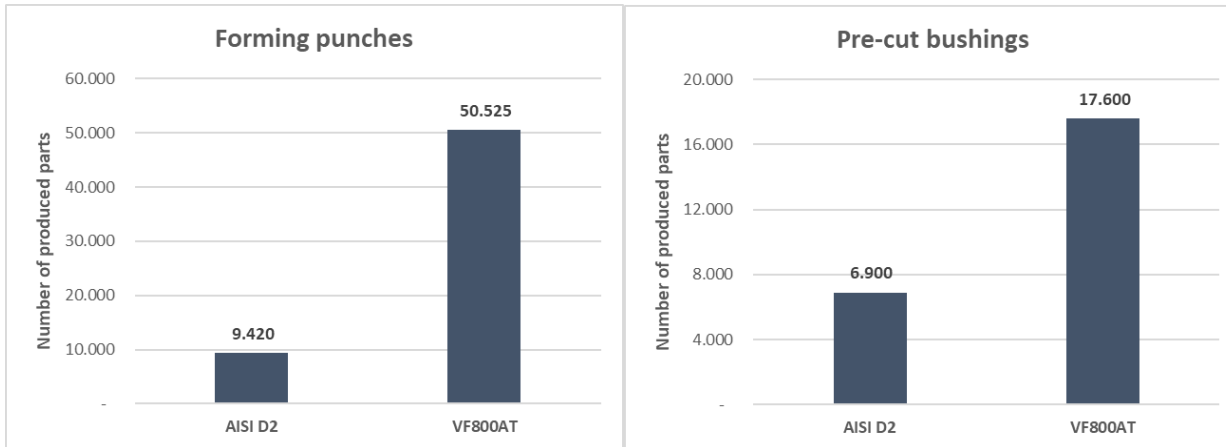
VF800AT x AISI D2



Case Study

Punches applied in the manufacture of automotive steel wheels. Tool life was controlled in number of produced parts.

Comparison between AISI D2 x VF800AT



The tools produced in VF800AT provided an improved performance exceeding the D2 by 5 times for applications in forming punches and 2.5 times for pre-cut bushings.

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