

## OIL TEMPERED CHROMIUM-VANADIUM WIRE VALVE SPRING QUALITY

These materials are designed for springs that must withstand considerable shock and extreme heat. Valve spring quality chrome vanadium has been eddy current tested to assure the finest possible surface in keeping with automotive industry requirements. Meets ASTM A232.

Chemical Composition Per ASTM-A-231			Nominal Diameter	Tolerance (inch)
Carbon	.48 - .53%		.020 to .075 included	+ / - .0080
Manganese	.70 - .90%		Over .075 to .148 included	+ / - .0010
Phosphorus	.020 max		Over .148 to .375 included	+ / - .0015
Sulfur	.035 max		Over .375 to .500 included	+ / - .0020
Silicon	.15 - .35%			
Chromium	.80 – 1.10%			
Vanadium	.15% min			

## TENSILE STRENGTH TABLE (ASTM-A-232)

Diameter Inch	Tensile Min PSI	Tensile Max PSI	Diameter Inch	Tensile Min PSI	Tensile Max PSI
.020	300,000	325,000	.162	225,000	245,000
.032	290,000	315,000	.192	220,000	240,000
.041	280,000	305,000	.244	210,000	230,000
.054	270,000	295,000	.283	205,000	225,000
.062	265,000	290,000	.312	203,000	223,000
.080	255,000	275,000	.375	200,000	220,000
.105	245,000	265,000	.438	195,000	215,000
.135	235,000	255,000	.500	190,000	210,000

The above charts are intended to provide general background information. You should also review the appropriate material specification. Please contact Gibbs Interwire if you have any questions.

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