21CrMoV5-7 All

General Information

21CrMoV5-7 is a steel for fasteners with specified elevated and/or low temperature properties. Imanite has been designed for nitriding, giving similar hardness distribution as case hardening. When using nitriding the distortion due to quenching after carburising can be avoided. Imanite is a M-steel version of 21CrMoV5-7 . M-treatment is very beneficial when the machining is done in Q&T condition and the hardness is about 300 HBW.

For additional Heat Treatment Data, please visit the Heat Treatment Guide.

Chemical composition

Variant	Cast		C %	Si %	Mn %	P %	S %	Cr %	Mo %	V %	Ca %
6130	CC	Min	0.17	0.15	0.40	-	-	1.20	0.55	0.250	-
		Max	0.25	0.40	0.80	0.030	0.030	1.50	0.80	0.350	-
Imanite (6132)	CC	Min	0.17	0.15	0.35	-	0.025	1.20	0.65	0.250	0.0020
		Max	0.25	0.35	0.85	0.030	0.040	1.50	0.80	0.350	-

Mechanical Properties

Variant	Condition	Format	Dimension [mm]	Yield strength min [MPa]	Tensile strength [MPa]	Elongation A_5 [%]	Reduction of area Z_{min} [%]	Hardness	Impact (ISO-V) $strength_{min}$
6130	+QT		25 < 160	550	700-850	16	60	205-250 HB	20 °C 63 J (long)
Imanite (6132)	+QT	Round bar	25 < 160	800	900-1100	14	60	280-345 HB	20 °C 35 J (long)

*$Rp_{0.2}$ * R_{eh}, ** R_{el}*

Transformation temperatures

	Temperature °C
MS	405
AC1	745
AC3	853

Other properties (typical values)

Youngs module (GPa)	Poisson´s ratio (-)	Shear module (GPa)	Density (kg/m3)
210	0.3	80	7800
Average CTE 20-300°C (µm/m°K)	**Specific heat capacity 50/100°C (J/kg°K)**	**Thermal conductivity Ambient temperature (W/m°K)**	**Electrical resistivityAmbient temperature (µΩm)**
12	460 - 480	40 - 45	0.20 - 0.25

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