11SMn30, Green Cut All

General Information

Green Cut steel has been developed to replace leaded free-cutting steels, when the customer is looking for an environmentally friendly alternative. High sulfur content combined with M-treatment gives superior machinability both with carbide and HSS tools.

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

M-Steel®

The concept: Our M-Steel treatment can be applied to any steel grade. The basis for the concept is that non-metallic inclusions are modified and controlled with calcium treatment. These inclusions are modified in a way to maximize machinability and to improve transverse fatigue strength. In this way, a protective layer is formed on the cutting tool during machining that very significantly reduces the wear on the tool and increases the tool life. At every stage of the M-Steel production process the material is optimised to improve machinability, from raw material through melt, to casting, hot rolling and the final heat treatment. Individual delivery requirements can be met to supply your material in the best form for your machines in compliance with tight straightness and dimensional tolerances. M-Steel has a consistent machinability from cast to cast, meaning that machines can be run with fixed high cutting rates and predictable tool change intervals from one production run to another. Recent findings also show that the M-Steel effect is particularly pronounced in turning in very hard condition using Cubic Boron Nitride (CBN) inserts. Replacing traditional grinding of case- or induction-hardened surfaces with Hard Part Turning can mean very large cost savings, together with production lead time and quality improvements.

Similar designations

SS 1912, SS 1914

Chemical composition

Variant	Cast	Di	Weldability		C %	Si %	Mn %	P %	S %
Green Cut, 2715	CC	0.57	CEV 0.4_{max}	Min	0.05	0.05	1.00	-	0.220
			Pcm 0.22_{max}	Max	0.14	0.40	1.40	0.050	0.330

Mechanical Properties

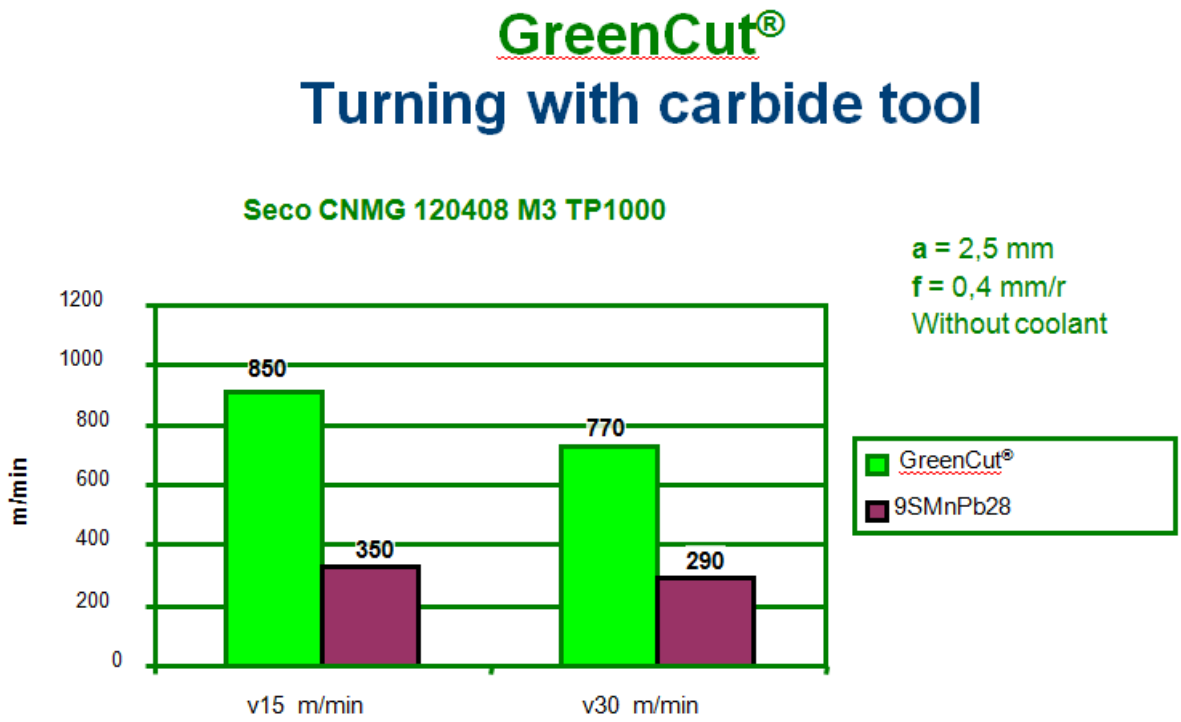
Variant	Condition	Format	Dimension [mm]	Yield strength min [MPa]	Tensile strength [MPa]	Elongation A_5 [%]	Hardness
Green Cut, 2715	+AR	Round bar	25 < 200	270*	360-540	22	120-160 HB
	+C	Round bar	20 < 40	375*	460-710	8	160-210 HB
		Round bar	40 < 55	305*	400-650	9	150-200 HB
	+SH	Round bar	23 < 125	270*	360-540	22	120-160 HB

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

Transformation temperatures

	Temperature °C
MS	436
AC1	715
AC3	843

Turning with carbide tool



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

Contact us

Would you like to know more about our offers? Don´t hesitate to contact us:

Via e-mail: info@ovako.com

Via telephone: +46 8 622 1300

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