

14NiCr12-3 All

General Information

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

BS 655H13, BS 832M13, BS 832H13

Chemical composition

Variant	Cast	Di		C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %
4715 (M)	CC	2	Mn	0.10	0.10	0.35	0.000	0.020	0.70	3.00	0.10
			Max	0.16	0.40	0.60	0.030	0.040	1.00	3.75	0.15

Mechanical Properties

Variant	Condition	Format	Dimension [mm]	Hardness
4715 (M)	+AR	Round bar	25 < 160	< 280 HB
	+A	Round bar	25 < 160	< 255 HB

*Rp0.2 * Reh, ** Rel*

Transformation temperatures

	Temperature °C
MS	386
AC1	695
AC3	806

Hardenability

Other properties (typical values)

Youngs module (GPa)	Poisson's ratio (-)	Shear module (GPa)	Density (kg/m ³)
210	0.3	80	7800
Average CTE 20-300°C (µm/m°C)	Specific heat capacity 50/100°C (J/kg°C)	Thermal conductivity Ambient temperature (W/m°C)	Electrical resistivity Ambient temperature (µΩm)
12	460 - 480	40 - 45	0.20 - 0.25

Contact us

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