RADHIKA ALLOYS

1.3243 | M-35 | Z85WDKCV06-05-05-04-02 | SKH55

M35 contains cobalt for expanded hot hardness. The creation of M35 offers a decent mix of durability and hardness.
M35 has a good machinability. Appropriate for warmth treatment up to 66 HRc M35 high speed steel offers superb cutting performance.

They have high heat and abrasion resistant properties and are best used when making heavy cuts, at high speeds and feeds, or where high heat is a factor.

Chemical Composition

W.nr	EQUIVALENT			C	Si	Mn	S	P	Cr	W	Mo	V	Co
	JIS	DIN	AISI/ ASTM										
1.3243	SKH55	HS6-5-2-5	M35	0.87 - 0.95	<0.45	<0.40	<0.03	<0.03	3.80 - 4.50	5.90 - 6.70	4.70 - 5.20	1.70 - 2.10	4.50 - 5.00

Physical Properties

PROPERTIES		TEMPERATURE °C / °F		
		20 / 70	400 / 750	600 / 1110
DENSITY	Kg/m3, lbs/in3	8150.294	8050.29	7990.228
MODULUS OF ELASTICITY	kN/mm32, psi	65.2		65.2
COEFFICIENT OF THERMAL EXPANSION FROM 20°C / 70°F	per °C	-	11.6 x 10^-6	11.9 x 10^-6
	per °F	-	6.4 x 10^-6	6.6 x 10^-6
THERMAL CONDUCTIVITY	W/m °C	24	28	27
	Btu/sq. ft. h °F/in.	166	194	187
SPECIFIC HEAT	J/kg °C	420	510	600
	Btu/lb °F	0.1	0.12	0.14

Mechanical Properties

Mechanical properties	Metric	Imperial
Hardness, Rockwell C (oil quenched from 1232°C, 5 mins)	64.8	64.8
Hardness, Rockwell C (oil quenched from 1177°C, 5 mins)	65.2	65.2
Hardness, Rockwell C (oil quenched from 1204°C, 5 mins)	65.2	65.2
Modulus of elasticity	207 GPa	30000 ksi
Machinability (1% carbon steel)	45.0 - 50.0%	45.0 - 50.0%

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Thermal Properties

Thermal properties	Metric	Imperial
CTE, linear (@21 - 399°C / 69.8 - 750°F)	11.4 µm/m°C	6.33 µin/in°F
CTE, linear (@21 - 593°C /69.8 - 1100°F)	11.5 µm/m°C	6.39 µin/in°F
CTE, linear (@20.0 - 100°C/ 68.0 - 212°F)	10 µm/m°C	5.56 µin/in°F
CTE, linear (@20.0 - 500°C/68.0 - 932°F)	12.2 µm/m°C	6.78 µin/in°F
CTE, linear (@20.0 - 850°C/68.0 - 1560°F)	12.6 µm/m°C	7 µin/in°F

Heat treatment

TREATMENT	TEMPERATURE	COOLING	HARDNESS
Annealing	Heat to 770 – 860 °C	Furnace	max. 269
Stress-relief annealing °C	Heat to 630 – 650 °C	Furnace	-

1st pre-heating °C	2nd and 3rd pre-heating °C	Hardening1 °C	Quenching	Tempering °C	Quenching
up to approx. 400 in an air-circulating furnace	a) 850	1190 – 1230	a) Saltbath, 550 °C	at least twice 530 – 560	64 – 67
-	b) 850 and 1050	-	b) Oil	-	-
-	-	-	c) Air	-	-

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