



934E VIP® – Hot Working Tool Steel

Comparable Standards:

AISI	Werkstoff no.	EN
AISI H11	1.2343	X38CrMoV5-1

General information

934E VIP®, made in Sweden by Scana Steel Björneborg AB (BJB), is a premium quality Cr-Mo-V-alloyed steel which is supplied in annealed, EFS treated condition. Scana offers a wide dimensional range and even the largest dimensions show high purity, good homogeneity and extra fine annealed micro structure. 934E VIP® is the obvious choice when it comes to saving time, money and risks.

Chemical Composition (%):

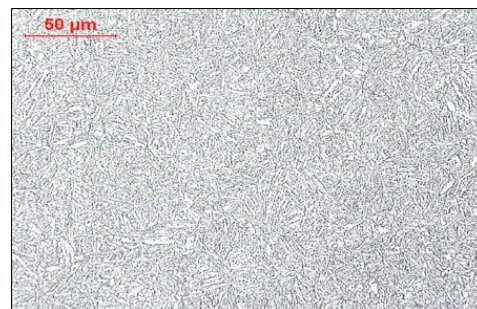
C	Si	Mn	P	S	Cr	Mo	V
0,38	0,80	0,40	≤ 0,020	≤ 0,003	5,00	1,30	0,40

Non metallic inclusion (cleanliness)

Specification according DIN 50 602 K1

K1 < 10

Microstructure EFS annealed condition:



Delivery condition: EAF, VAD, 3D-forged, EFS treated (extra fine micro structure)

Hardness / Strength: Annealed max 229 HB

Ultrasonic test standard: Acc. to EN 10228-3- E, e

Sizes: Width max 1200 mm; Thickness max 400 mm

Characteristics: Mold steel for hot working and casting tools and plastic mold cavities esp with high hardness (48 - 54 HRC) after vacuum hardening, high cleanliness and extra fine annealed structure, very good machinability- and surface properties, good polishability (A-2), high wear resistance and good toughness, for hot working tools with water cooling, very good coatable (Cr-plating, PVC, nitriding).

Application: Hot working tools as extrusion dies, components for die casting moulds, drop forging dies and dies for forging machines, mandrels and containers for (light) metal extrusion, moulds for car wheel casting, moulds for plastic injection when processing of plastics with glass fibre content, high polished and wear resistant plastic moulds.

Physical properties:

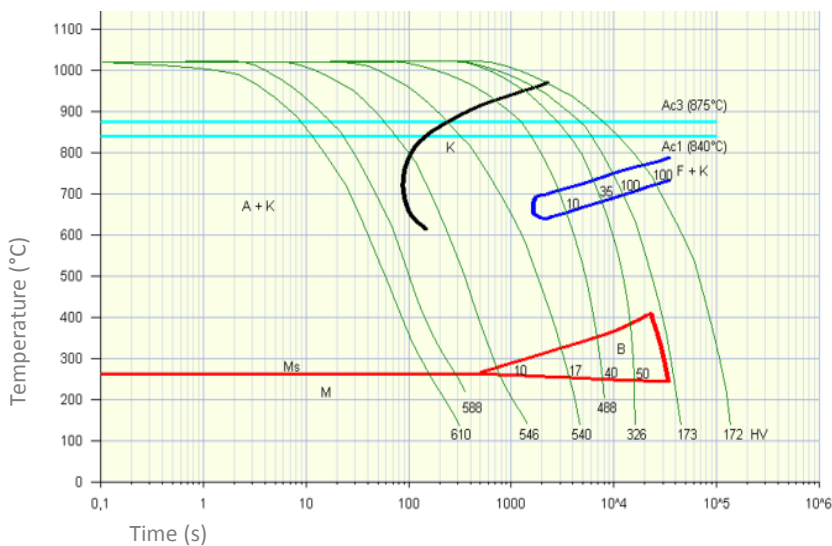
Temp °C	20	200	300	500
Modulus of Elasticity				
GPa	210	198	191	173
Coefficient of linear Expansion				
10 ⁻⁶ m/mK	11,0	11,9	12,4	13,0
Thermal Conductivity				
W/(mK)	25,0	25,6	26,8	28,7

Heat treatment

	Temp. (°C)	Cooling media
Annealing	780-820	air
Hardening	1000-1020	Vacuum (down to 150°C)
Tempering (min. 2x)	see tempering diagram	Slow down on air to 450°C
Stress relieving	530 – 550 (hardened cond.)	Slow down on air to 450°C
Pre-heating for welding	300	furnace

Note: 934E VIP® is delivered in EFS annealed structure. Additional vacuum hardening + double tempering in pre-machined condition (3-5 mm allowance) is necessary. Stress relieving after finish machining and during operation phase can improve life time of the tool.

CCT – diagram (Generated from Dr.Sommer Werstofftechnik HT database)



Tempering - diagram

