DIN - Material - No. 1.3355

Code S 18-0-1

Comparable standards AISI: T1, EU: HS18-0-1

Chemical composition (Typical analysis %)

C	Cr	V	W
0.75	4.10	1.10	18.00

Steel properties

Tungsten high - speed tool steel. Very high resistance to wear and to softening. Good toughness and cutting capability. Deep hardening response.

Physical properties

Thermal conductivity W/(m.K) 20°C: 19

Density g/cm³ 20°C: 8.7

Coefficient of linear thermal expansion

10^{-6} °C^{-1}	20-100	20-200	20-300	20-400	20-500	20-600	20-700	20-800°C
	9.8	11.1	11.4	11.7	11.8	12.0	12.3	12.3

Applications

Turning, planing and slotting tools, taps, spiral drills, threading dies, profile cutting tools, broaching tools, reamers.

Stress Relieving

Holding at approx 650°C for one hour.

Heat treatment

Soft annealing °C	Cooling	Hardness HB
820 - 880	furnace	230 - 300

Heat up °C	Preheating 1. step °C	Preheating 2. step °C	Hardening from °C	in	Temparing °C	As tempered hardness HRC
450 - 600	850	1050	1250 - 1290	oil, air, thermal bath 550°C	3 x 1h 550 - 570	64 - 66

Tempering	°C	200	300	400	500	525	550	575	600	650	700
	HRC	64	62	62	64	65	65.5	64.5	63	56	47

Transformation Temperatures
Ac_1 = 824 C, Ac_3 = 858 C

Tempering Diagram