

Database of Steel and Alloy (Marochnik)

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Characteristics for grade KH12F1 (X12Φ1).

Grade :	KH12F1 (X12Φ1)
Substitute:	X6BΦ, X6B3ΦM
Classification :	Die tool steel
Equivalent grades:	Go here

Chemical composition in % for grade KH12F1 (X12Φ1)

C	Si	Mn	Ni	S	P	Cr	V	Cu
1.25 - 1.45	0.1 - 0.4	0.15 - 0.45	max 0.4	max 0.03	max 0.03	11 - 12.5	0.7 - 0.9	max 0.3

Temperature of critical points for grade KH12F1 (X12Φ1).

$A_{c1} = 810$, $A_{c3}(A_{cm}) = 860$, $A_{r3}(A_{rcm}) = 780$, $A_{r1} = 760$, $M_n = 225$

Brinell hardness for KH12F1 (X12Φ1) (annealing), GOST 5950-2000

HB 10⁻¹ = 255 MPa

Technological properties for grade KH12F1 (X12Φ1)

Weldability:	is not used.
Flakes :	not predisposed
Temper brittleness:	not predisposed

Physical properties for grade KH12F1 (X12Φ1)

T	E 10 ⁻⁵	α 10 ⁶	λ	ρ	C	R 10 ⁹
Grade	MPa	1/Grade	Watt/(m·Grade)	kg/m ³	J/(kg·Grade)	Ohm·m
20						640

Equivalent steels for grade KH12F1 (X12Φ1)

Warning! Indicated both exact and nearest equivalents.

USA	Germany	Japan	France	England	Italy	Spain	Sweden	Austria
-	DIN, WNr	JIS	AFNOR	BS	UNI	UNE	SS	ONORM
D5 T30402	X155CrVMo12-1	SKD11	X160CrMoV12	BD2	X155CrVMo12-1KU	X160CrMoV12	2310	BOHLERK110

Specification :

Physical properties :

- T** - Test temperature , [Grade]
E - Young modulus , [MPa]
 α - Coefficient of linear expansion (range 20° - T) , [1/Grade]
 λ - Thermal (heat) condition coefficient , [Watt/(m·Grade)]
 ρ - Density , [kg/m³]
C - Specific heat (range 20° - T) , [J/(kg·Grade)]
R - Electrical resistance , [Ohm·m]

Weldability :

- without limitations** - welding is done without heating and subsequent heat treating
limited weldability - welding is possible under heating up to 100-120 grade and subsequent heat treating
hard weldability - obtaining the quality welding needs the additional operations: heating up to 200-300 grade; the heat treating in annealing

Database of steels and alloys (Marochnik) contains information about chemical composition and properties more than 2500 steels and alloys (stainless steel, alloy steel, carbon steel, structural steel, tool steel, cast iron, aluminum alloy, titanium alloy, copper alloy, nickel alloy, magnesium alloy and others).
 Helpfull for specialists in grade technology, structural engineer, mechanical engineer, metallurgy and metal trader

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