KALTHERM - (W. Nr. 1.2714 / 56NiCrMoV7)

SAARLOHA

- KAL therm is nickel chromium molybdenum hot work steel.
- Exhibits high compact toughness and good resistance to softening at elevated temprature.
- High nickel content imparts the toughness as well as hardening in large section thickness.
- Good resistance to thermal shocks and fatigue cracking.

- Forging dies • Hot shear knives • Hot punching tools • Die holders • Cores and cavities
- Large – size moulds with high quality finish. • Plastic injection or compression mould
- Thermoplastics (PE, PS, PP) • LFT • Thermosetting plastics • ABS • Transparent melts
- Compression dies under high mechanical and thermal stresses

Physical Properties

Property	Metric
Thermal Conductivity (W/m K) @25° C	36
Coefficient Of Thermal Expantion (10^{-6}/ K)	
20-100° C	11.0
20-200° C	12.0
20-400° C	13.4
Specific Heat J/Kg° C	460

Non Metallic Inclusion (ASTM E45)

Route	A (Max)		B (Max)		C (Max)		D (Max)	
	T	H	T	H	T	H	T	H
VD route	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0

Equivalent Designations of KALTHERM

Country	USA	Germany	Japan	France	England
Standard	ASTM	DIN, W, Nr.	JIS	AFNOR	BS
Grades	L6	55NiCrMoV6	SKT4	55NCDV7	BH224-5

Chemical Composition (% Wt) - DIN ISO 4957 / 56NiCrMoV7

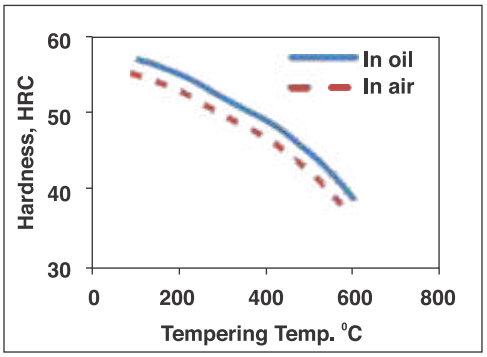
Element	C	Mn	Si	Cr	NI	V	Mo	P	S
Min	0.32	0.2	0.8	4.75	1.5	0.8	1.10	-	-
Max	0.45	0.6	1.25	5.5	1.8	1.2	1.75	0.03	0.03

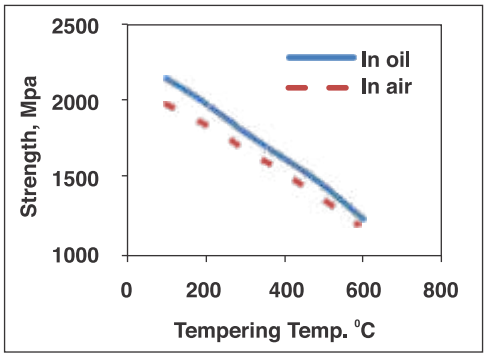
Preheating	Heat at a rate less than 160° C/h, to 650° C equalize, Raise the temperature 815 to 160° C
Annealing	Annealing temperature/ ° C 685-710; After annealing, degree of hardness
Stress relieving	Stress relieving should be carried out by heating to 645°C, holding for one hour at least, followed by air cooling.
Hardening	Oil – Harden from a temperature of 835-870°C followed by oil quenching. Quench hardness -58.5 HRC. Air – Harden from a temperature of 835-895°C followed by air quenching. Quench hardness -56.5 HRC
Tempering	Tempering can be carried out at various temperatures to achieve different properties.

Typical Mechanical Properties

Soft Anneal, °C	Cooling	Hardness HB
680 – 710	Furnace	Max. 250 HB

Tempering	°C	100	200	300	400	500	600
In oil	Hardness, HRC	57.5	55	52	49	45.5	39
In air	Hardness, HRC	55	53	50.5	47.5	43	37





Machinability

Machinability of 1.2714 is medium to high. Machining after hardening tempering should be avoided and limited to only finishing machining.

Forming

1.2714 has good ductility and may be formed by conventional means, machining and forging.

Forging

Hot forging temperature 1050 – 850 °C

Welding

This alloy is readily weldable by conventional methods

Supply Condition

- Sph. Annealed or Hardened and tempered condition or as per customer requirement

- **Bars :** 20 -750 mm Dia.
- **Blocks :** 2 m X 1 m X 12 m max (max. forging wt. 20 MT)