CR7V-L

CHEMICAL PROPERTIES:

Brand	Mat.-No.	Short name	Reference analysis %					
			C	Si	Mn	Cr	Mo	V
CR7V-L	–	–	0.42	0.50	0.40	6.50	1.30	0.80

TYPE OF STEEL AND CHARACTERISTICS:

Special high chromium steel with molybdenum and vanadium. Suitable for cold and hot work. Good heat and excellent wear resistance. Good resistance to thermal shocks; high toughness.

APPLICATIONS:

a) Hot work:
Inserts and punches for forging dies; extrusion dies for steel forming; press tools for copper and copper alloys. Hot work shear blades and trimming tools.
b) Hot stamping:
The hot stamping process of sheet steel for automotive body parts places high demands on the high-temperature strength and wear resistance of the tool steel that is used. Thanks to a working hardness of up to 56 HRC, CR7V-L special hot-work tool steel is especially resistant to wear and that is even without any additional surface treatment like nitriding or PVD coating. For the highest demands on Hot stamping tools, we recommend using CR7V-L that is produced in the Electro-Slag-Remelting process (Esr). The improved toughness provides tool designers with additional opportunities
c) Cold work:
shear blades and punches for sheet thickness from 6 to 12 mm

HEAT TREATMENT :

Annealing: Temperature 820-840^{O}C

Holding Time: 4-6h;Slow furnace cooling

Hardness after annealing: max 240 HB

Stress relieving: Temperature appr.650^{O}C

Holding Time: 1-2h;Slow cooling

Hardening:

Temperature: 1030-1040^{O}C

Quenching: step quenching at appr. 540^{O}C,air,oil or polymer (when oil or polymer, interrupt at 250-300^{O}C) or vacuum hardening

Hardness obtainable: appr 57 HRC

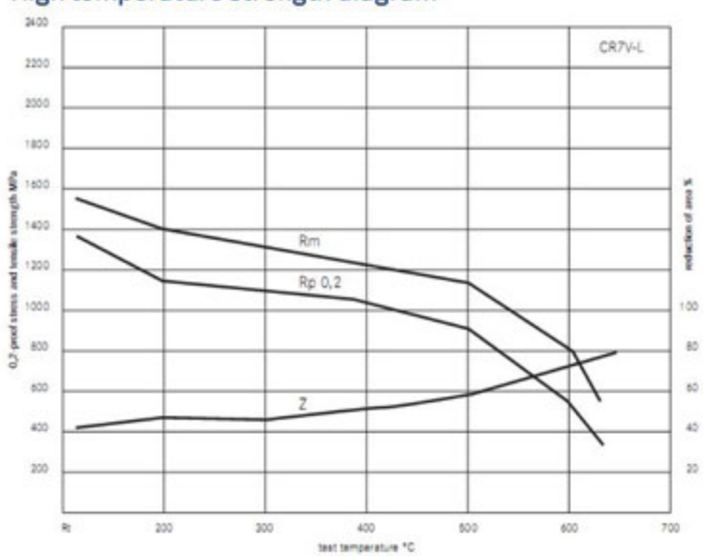
Tempering:

Temperature: 500-700^{O}C . To increase toughness, temper 2 or 3 times

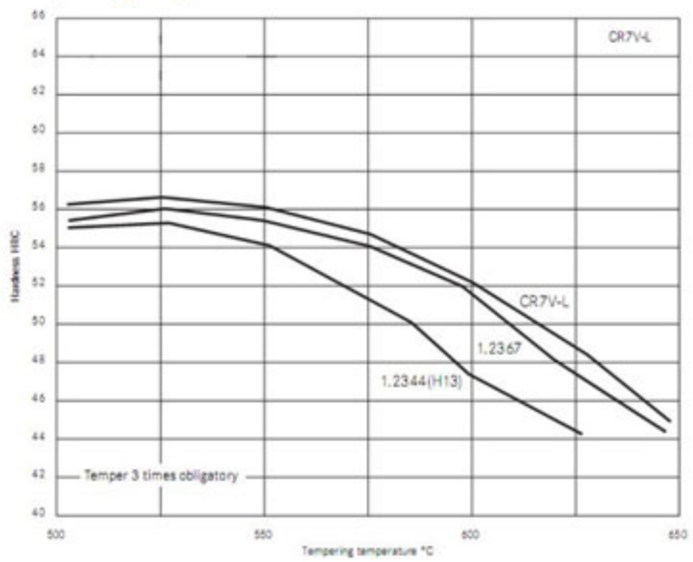
Nitriding : possible

Preheating before use: 150-350^{O}C – is recommended

High temperature strength diagram



Tempering diagram



TTT-Diagram