

Short name	X40Cr14
No.	1.2083 (ESR, VAR)
AISI	420

Typical chemical composition, %	C	0.40
	Mn	0.35
	Cr	13.00

PROPERTIES AND USES

High-chrome alloyed tool steel with good corrosion resistance, high cleanliness and excellent suitability for polishing. Due to these properties, the steel is suitable for the processing of chemically aggressive plastic materials, such as PVC.

Characteristics: Excellent suitability for polishing, good hardenability, good dimensional stability on hardening, corrosion resistant.

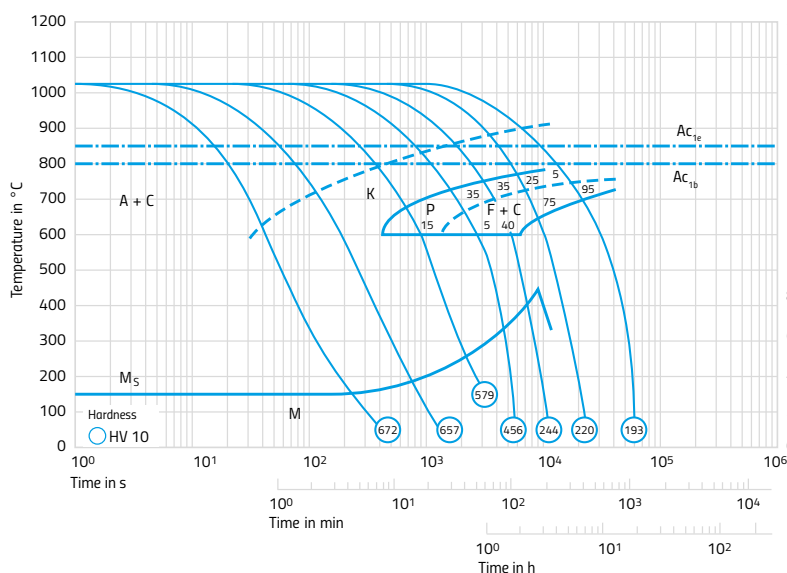
Resistant to corrosive attack by fresh water, water steam, a series of organic acids, solutions of nitrates, carbonates and similar agents. Highest corrosion resistance is obtained with mirror finish surface.

ESR- or VAR-grade Collex (HQ) guarantees an extremely clean and homogeneous microstructure leading to the best polishability and very uniform mechanical and physical properties.

HOT WORKING AND HEAT TREATMENT

Forging	1100–850 °C (2010–1560 °F)			
Soft annealing	780 °C (1435 °F) min. 2 hrs/slow furnace cooling			
Brinell Hardness in the annealed condition	Max. 241 HB			
Stress relieving	650 °C (1200 °F) min. 2 hrs/slow furnace cooling			
Hardening	980–1050 °C (1800–1920 °F) preferably under vac. or protect. atmosphere			
Quenching	Oil, N-cooling, air blast hot bath 450–550 °C (840–1020 °F)			
As-quenched hardness	~ 56 HRC for 25 mm dia. quenched from 1025 °C (1830 °F)			
Tempering	180–300 °C (360–570 °F) min. 2 x 2 hrs depending on service hardness required			
Hardness after tempering	180 °C (360 °F)	200 °C (390 °F)	250 °C (480 °F)	300 °C (570 °F)
	~ 56 HRC	~ 55 HRC	~ 54 HRC	~ 53 HRC

CONTINUOUS TTT CURVE



TEMPERING CURVE (APPROX. VALUES)

