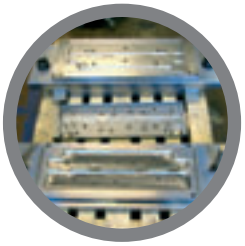
Usage

Machine components

Plastic Moulding

Press Forming



TOOLOX 44 is a new quenched and tempered steel designed to have high impact resistance and low residual stresses and therefore good dimensional stability. Despite a hardness of 45 HRC the new steel is easily machined. Toolox 44 is particularly suitable for manufacturing plastic moulds because it can be polished and etched with very good results. Fields of application: plastic moulds, rubber moulds, wear components and machine components, such as guide rails, bending tools etc, where stability materials are required.

Technical information (Typical values)

Chemical composition (typical values)	
C	0.31%
Si	0.60%
Mn	0.90%
P, max	100 ppm
S, max	40 ppm
Cr	1.35%
Ni	0.70%
Mo	0.80%
V	0.145%
CEV (IIW)	0.96
CET	0.57

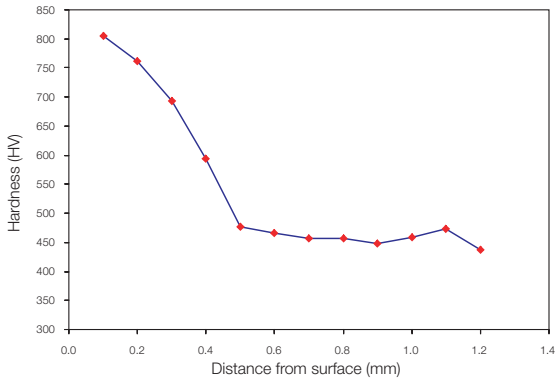
Mechanical properties (typical values)	**+20°C**	**+200°C**
Tensile strength, R_m [MPa]	1450	1380
Yield strength, $R_{p0,2}$ [MPa]	1300	1200
Elongation, A_5 [%]	13	10
Impact toughness, [J]	30	
Hardness, [HBW]	450	
Hardness, [HRC]	45	

Physical properties (type values)	
Thermal expansion coefficient	[10^{-6}/K]
at +20-400°C	13.5

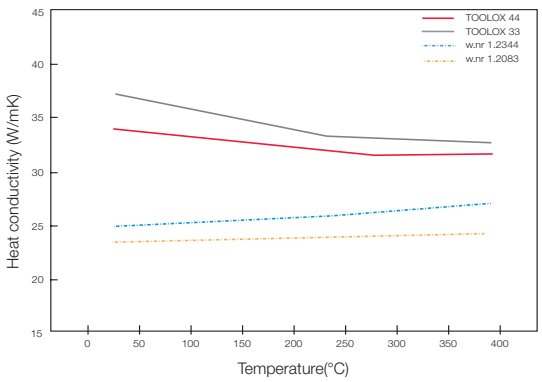
Inclusions (typical values)	
Inclusion size (equiv. diam)	6µm
Area fraction	0.015%
Aspect ratio	1.2

Compressive strength (typical values)	
Yield strength, $R_{c0,2}$	[MPa]
at + 20°C	1250
at +200°C	1140
at +300°C	1120
at +400°C	1040

Gas nitriding of Toolox 44, 60h, 510°C



Heat conductivity in tool steel



TOOLOX® 44
PREHARDENED TOOL STEEL