

TOOLOX33

Pre-hardened steel

Grinded and rolled plates cut to size

Toolox33 is a pre-hardened, free machining steel with outstanding dimensional stability. This steel may be polished and etched with excellent results. The high impact toughness and wear resistance are exceptional. It is used in mechanical engineering and toolmaking.

FINISHES

Thickness	grinded \leq Ra1.6 (N7)
Tolerance	+2.0 /+0.1 mm
Parallelism	\leq 0.05 mm
Evenness	\leq 0.2 mm

GRINDED

Thickness	rolled
Toleranz	DIN/EN 10029 class C
Parallelität	DIN/EN 10029
Evenness	\leq 0.5 mm

ROLLED

Thickness	rolled
Toleranz	DIN/EN 10029 class C
Parallelität	DIN/EN 10029
Evenness	\leq 0.5 mm

BLANKS OF ALL SIZES

Length/width	Ra6.3-12.5 cut with a precision circular saw
HABA standard tolerance	nominal size +0.8/+0.3 mm
Customer-specific tolerance	within a tolerance field of 0.4 mm

We can also produce milled blanks on request as well as special thicknesses and tolerances.

TECHNICAL SPECIFICATIONS

Tensile strength	R_m	980 (N/mm ²)
Yield strength	$R_{p0.2}$	850 (N/mm ²)
Breaking strain	$(L_o = 5 d_o) A_5$	\geq 16 %
Impact energy	A_v (J)	typical values 100J/20°C guaranteed values 35J/20°C
Brinell hardness	HBW	310
	HRC	29

COAT

All coatings at temperatures below 590°C are possible. With the influence of heat > 590°C the Toolox properties may be get lost and can no longer be guaranteed.

CHEMICAL COMPOSITION

Carbon	C	0.22-0.24 %	Chromium	Cr	1.00-1.20 %
Silicium	Si	0.60-1.10 %	Molybdenum	Mo	0.30 %
Manganese	Mn	0.80 %	Nickel	Ni	\leq 1.00 %
Phosphor	P	\leq 0.010 %	Vanadium	V	0.10-0.11 %
Sulfur	S	\leq 0.002 %	Nitrogen	N	-
CET		0.40-0.44	CEIW		0.62 - 0.71

MATERIAL IN USE

Mechanical engineering
Toolmaking
Jig manufacturing
Mould construction

APPLICATIONS

Rack gears
Guide rails
Forming tools
Plastic / Rubber moulds
Machine components for high tensility demands

PROPERTIES

machinability very good
dimensional stability very good
toughness high
hardness high
ideal for nitriding and PVD

NITRIDING

Toolox33 is excellent for gas nitriding and PVD. The table below shows the achievable hardnesses and case depths for different nitriding times. Additional oxidising protects against corrosion.

