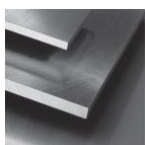


## Steel grade

Material No. / Werkstoff-Nr.	PREMIUM Toolox 33
Description	Toolox 33
BS	Toolox 33
AISI/SAE	Toolox 33
Search for alternatives in the ABRAMS STEEL GUIDE®	<a href="http://www.steel-guide.co.uk/alternatives/T33">www.steel-guide.co.uk/alternatives/T33</a>

## Specifications



€co-Präz<sup>®</sup> [€co]  
L: 500 mm

## Chemical composition BS Toolox 33 (reference value %)

C	Si	Mn	P	S	Cr	Mo	Ni	V
0.22 – 0.24	0.6 – 1.1	0.8 – 0.8	0 – 0.01	0 – 0.003	1.0 – 1.2	0.3 – 0.3	0 – 1.0	0.1 – 0.11

## Physical properties

Hardness (delivery condition)	max. 330 HB, tempered			
Tensile strength R <sub>m</sub> (as received condition)	approx. 1125 N/mm <sup>2</sup>			
Working hardness	max. 36 HRC			
Thermal expansion coefficient 10 <sup>-6</sup> m/(m • K)	20 - 200°C			
	13.1			
Thermal conductivity W/(m • K)	20°C	200°C	400°C	600°C
	35.0	35.0	30.0	23.0

## Technical properties

Quenched and tempered low-alloyed steel good machinability, high toughness and low residual stresses. Can easily be polished, grained, eroded, etched, sliced, welded, nitrided, and coated with PVD (Physical Vapour Deposition). Further heat treatment is not intended.

## Applications

Machine construction, machine parts, guide rails, base plates, assembling parts, press brake tools, plate forming tools, wear parts, plastic moulds, moulding frames, forming tools, rubber moulds, die casting moulds.

## ABRAMS PREMIUM STEEL

is a registered trademark of  
Abrams Engineering Services GmbH & Co. KG  
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Managing Director: Dipl.-Wi.-Ing. Dr. Juergen Abrams

Amtsgericht Osnabrueck / Germany, HRA 6865  
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General Partner: Abrams Engineering Verwaltungs GmbH  
Amtsgericht Osnabrueck / Germany, HRB 20019

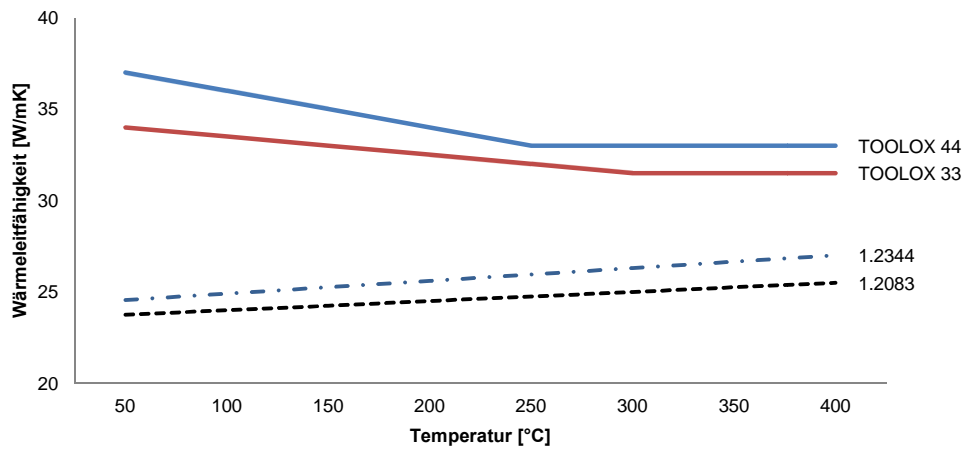
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**Thermal conductivity**



**Surface Treatment - hardness / Charpy impact energy**

