

## Material Data Sheet Guide Rails C 45 1.0503

### Flat Track Guide Material with:

- Good Hardening Properties
- Excellent Ground Finish

Selected for use for High Quality Linear Guides and Slide ways.

### // Chemical Analysis %

Material	C	Si	Mn	P	S
C 45	0,42	max.	0,50	max.	max.
	0,50	0,40	0,80	0,045	0,045

Specification to EN 10083

### // Mechanical Properties, untreated

Material	Dimension (mm)	Re (N/mm <sup>2</sup> )	Rm (N/mm <sup>2</sup> )	A (%)
C 45	All	> = 300	> = 500	14

**Density:** 7,85 kg / dm<sup>3</sup>

**Tolerance:** IT 9 Plough ground  
IT 7 Precision ground

**Surface finish:** Hardened  
Commercial Standard, Grinding  
Ra < = 0,8 µm  
Super Finished Grinding  
Ra < = 0,4 µm

Non hardened  
Commercial Standard, Grinding  
Ra < = 1,6 µm  
Super Finished Grinding  
Ra < = 0,8 µm

**Straightness:** Standard < = 0,5 mm/m

**Parallelism:** Plough ground 0,05 mm/length  
Precision ground 0,02 mm/length

**Twist:** < = 1°/m  
Better is possible depending on section.

**Induction hardened:** Surface Hardened 56 - 64 HRC

Material	Dimension	Depth of Hardness Rht DIN EN 10328
C 45	All	Rht 500 HV1 1 mm + 1,5 mm

Rht is deeper at edges for geometrical reasons.  
Measured at the flat bar face centre.

### // Dimensions

C 45 material is purchased black for each individual order from approved suppliers.

### Square Bar Steel / FLAT

Width (mm)	Thickness (mm)	* Production Length (mm)
min. 20	min. 4	min. 1.200
max. 140	max. 50	max. 8.150

\* When ordering stock, as opposed to fixed length Guide Rails, please be aware that up to 10% of the delivery may be out of tolerance. Stock Guide Rails do not have their ends cut which means that up to 150 mm of each end may not be fully hardened and may not be within geometrical tolerance.

### Specials:

Other hardness depths and tolerances are available. Please contact us for detailed information, dimensions and minimum order quantities.

Guides to 4000 mm length  
can be dense chrome plated with  
ZOLLERN Duro 3 Hard-Chrome-Plating.

**ZOLLERN GmbH & Co. KG**  
Mechanical engineering  
elements

Sandweg 60  
88326 Aulendorf  
Germany  
T +49 7525 948-0  
F +49 7525 948-100  
zmb@zollern.com  
www.zollern.com

