



Technical data sheet – C45 (1.0503)

- Unalloyed quality steel

Applications: Components with medium stress in engine, apparatus and mechanical engineering

Chemical composition (acc. DIN EN ISO 683-1 (09/2018))

mass fraction in %				
C45	C [%]	Si [%]	Mn [%]	Cr [%]
	0,42 - 0,50	0,10 - 0,40	0,50 - 0,80	≤ 0,40
	P [%] max.	S [%] max.	Mo [%]	Cu [%]
	0,045	0,045	≤ 0,10	≤ 0,30
	Ni [%]			
	≤ 0,44			

Heat treatment

(acc. DIN EN ISO 683-1 (09/2018))

Normalizing
840 - 880 °C

Hardening			
820 - 860 °C	Wasser	≥ 30	minutes
820 - 860 °C	Öl	≥ 30	minutes

Tempering
550 - 660 °C ≥ 1 hour

ISO 9001: 2015 TÜV NORD certified.

Mechanical properties (acc. DIN EN ISO 683-1 (09/2018))

Flat products (QT):

Dimensions

<= 8 mm

8 - 20 mm

20 - 60 mm

Yield strength (Re)

>= 490 MPa

>= 430 MPa

>= 370 MPa

Dimensions

<= 8 mm

8 - 20 mm

20 - 60 mm

Tensile strength (Rm)

700 - 850 MPa

650 - 800 MPa

630 - 780 MPa

Dimensions

<= 16 mm

16 - 40 mm

40 - 100 mm

Elongation (A 5,65)

>= 14 %

>= 16 %

>= 17 %

Dimensions

<= 8 mm

8 - 20 mm

20 - 60 mm

Constriction (Z)

>= 35 %

>= 40 %

>= 45 %

Round products (QT):

Dimensions

<= 16 mm
16 - 40 mm
40 - 100 mm

Yield strength (Re)

>= 490 MPa
>= 430 MPa
>= 370 MPa

Dimensions

<= 16 mm
16 - 40 mm
40 - 100 mm

Tensile strength (Rm)

700 - 850 MPa
650 - 800 MPa
630 - 780 MPa

Dimensions

<= 16 mm
16 - 40 mm
40 - 100 mm

Elongation (A 5,65)

>= 14 %
>= 16 %
>= 17 %

Dimensions

<= 16 mm
16 - 40 mm
40 - 100 mm

Constriction (Z)

>= 35 %
>= 40 %
>= 45 %