

51CrV4

Quenched and tempered steels

Material no.	1.8159
according to	DIN EN 10132-4
Tensile strength class	D

Usage

Quenched and tempered steels are used for components subjected to high stresses where the combination of high strength, wear resistance and toughness is particularly important. We supply high-grade steel as per EN 10083-2 as well as stainless steel according to EN 10083-1 and EN 10132-4, with also stand out for their high degree of purity. Typical applications are link plates, belt buckles, springs, steel caps for safety shoes, saw blades, knives and scissors. Quenching and tempering gives the materials their special properties. The user of these steel grades must make sure that his calculation, design and processing methods are appropriate for the material. Temperature control during quenching and tempering is essential to achieve the desired component properties, however, it must be matched to the respective application. This steel grade is supplied as input stock for cold rolling. As the melting and hot-rolling conditions have an effect on further treatment at the customer, the customer should always state the intended use when placing an order.

Chemical composition¹⁾

(in percent by weight)

	min.	max.
C	0.47%	0.55%
Si		0.40%
Mn	0.70%	1.10%
P		0.035%
S		0.035%
Cr	0.90%	1.20%
V	0.10%	0.25%

1) Heat analysis

Mechanical properties¹⁾

Nom. thick. e	Yield strength R _{p0,2}
<3 mm	≥ 550 MPa
≥3 mm	by agreement

Nom. thick. e	Tensile strength R _m
<3 mm	≤ 700 MPa
≥3 mm	by agreement

Nom. thick. e	Total elongation A ₈₀
<3 mm	≥ 13 %
≥3 mm	by agreement

The samples for the tensile test are taken at right angles to rolling direction unless the product width is opposed to this.

1) Mechanical properties apply to soft-annealed and cold-rolled condition.

Available dimensions

Hot-rolled coils unpickled, mill edge

Thickness in mm	Width in mm
2.00 – 2.99	900 – 1300
3.00 – 3.99	900 – 1450
4.00 – 6.00	900 – 1500

Hot-rolled slit strip

Thickness in mm	Width in mm
2.50 – 2.99	100 – 640
3.00 – 4.60	100 – 690
4.61 – 6.00	140 – 740

<100 mm on request

Condition of delivery, scope of testing and certificate

The provisions of EN 10083-2, chapters 5.1.3 and 6 shall apply for delivery and inspection. All quenched and tempered steels are delivered in a hot-rolled and untreated condition.

Note

We also supply steel grades C35–C80 as per DIN EN 10083-2 (heat-treated steel – non alloy stainless steel).