

# COLD WORK TOOL STEELS

## Application Segments

Cold Work

## Available Product Variants

Long Products

## Product Description

BÖHLER K341 is a shock resisting steel with high toughness and good wear resistance. Universally usable. Hardened and tempered to 145,03 - 159,53 ksi (1000 - 1100 MPa). Normally no further heat treatment is required.

## Process Melting

Airmelted

## Applications

> Cold Forming > Coining > Cold Forming / Coining

## Technical data

|                      |     |
|----------------------|-----|
| Material designation |     |
| ~1.2358              | SEL |
| ~60CrMoV18-5         | EN  |

## Chemical composition (wt. %)

| C    | Si   | Mn   | Cr   | Mo   | V    |
|------|------|------|------|------|------|
| 0.60 | 0.35 | 0.80 | 4.50 | 0.50 | 0.25 |

## Delivery condition

### Annealed

|               |          |
|---------------|----------|
| Hardness (HB) | max. 240 |
|---------------|----------|

### Hardened and Tempered

|               |            |
|---------------|------------|
| Hardness (HB) | 280 to 311 |
|---------------|------------|

## Heat treatment

### Annealing

|             |               |                                                                                                                                                   |
|-------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature | 820 to 860 °C | Slow controlled cooling in furnace at a rate of 10 to 20 °C/hr (18 to 36 °F/hr) down to approximately 600 °C (1112 °F)    Further cooling in air. |
|-------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------|

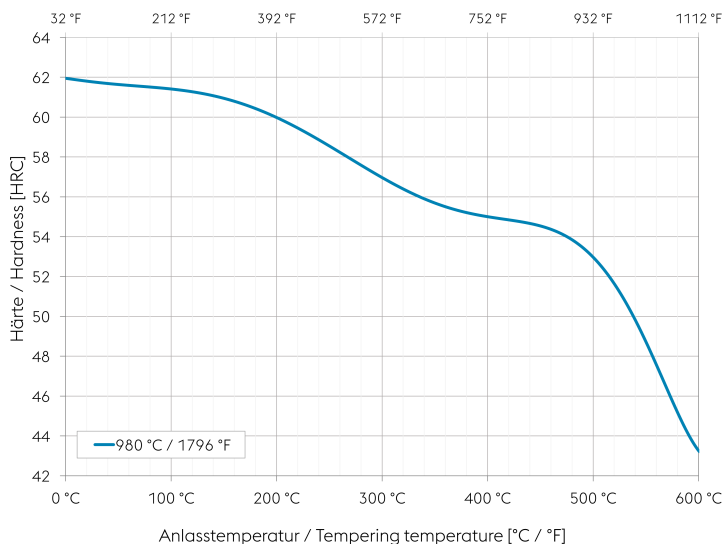
### Stress relieving

|             |               |                                                                                                                                                                                 |
|-------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature | 600 to 650 °C | After through heating, hold in neutral atmosphere for 1-2 hours.    Slow cooling in furnace    Intended to relieve stresses caused by extensive machining or in complex shapes. |
|-------------|---------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

### Hardening and Tempering

|             |               |                                                                                                                                                                                        |
|-------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Temperature | 950 to 980 °C | Quenching: Oil, air.    Holding time after temperature equalization: 15 to 30 minutes.    After hardening, tempering to the desired working hardness according to the tempering chart. |
|-------------|---------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

## Tempering chart



If other available product variants are listed in addition to long products, please note that these may differ in terms of melting process, technical data, delivery and surface condition as well as available product dimensions. For mandatory technical specifications, other requirements and dimensions, please contact our regional voestalpine BÖHLER sales companies. The data contained in this brochure is merely for general information and therefore shall not be binding on the company. We may be bound only through a contract explicitly stipulating such data as binding. Measurement data are laboratory values and can deviate from practical analyses. The manufacture of our products does not involve the use of substances detrimental to health or to the ozone layer.

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ONE STEP AHEAD.