

## 7CrMoBS5 All

### General Information

5450, also known as Imaform, is a high strength steel suitable for hot forging and direct hardening. It also can be hardened separately. Due to low carbon content the tempering is unnecessary. The structure in as hardened condition consist off lath martensite and/or bainite.

### Similar designations

1.7278, 5CrB5

### Chemical composition

Variant	Cast		C %	Si %	Mn %	P %	S %	Cr %	Ni %	Mo %	B %
5450	CC	Min	0.04	0.15	0.80	0.000	0.050	1.20	0.00	0.00	0.0030
		Max	0.09	0.35	1.00	0.025	0.080	1.50	0.20	0.15	0.0050

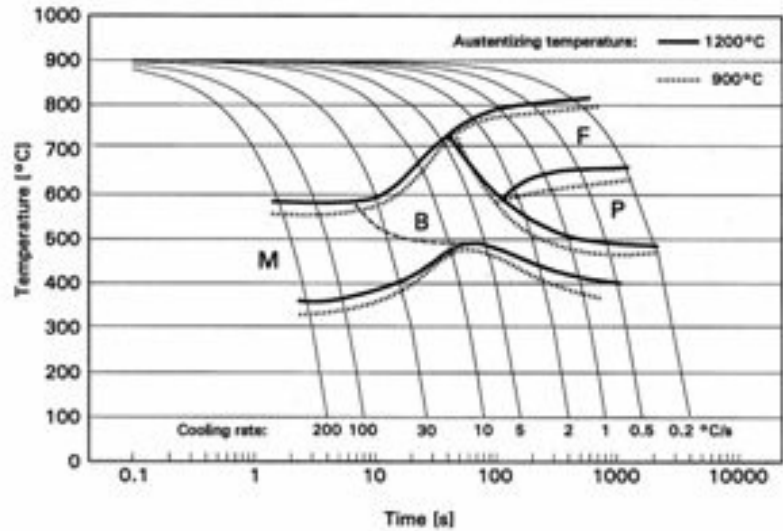
## Mechanical Properties

Variant	Condition	Format	Dimension [mm]	Yield strength min [MPa]	Tensile strength [MPa]	Elongation A <sub>5</sub> [%]	Reduction of area Z <sub>min</sub> [%]	Hardness	Impact (ISO-V) strength <sub>min</sub>
5450	+QT	Round bar	< 30	750	900-1200	10	40	280-350 HB	20 °C 30 J (long)
		Round bar	30 < 60	700	800-1100	12	40	250-330 HB	20 °C 40 J (long)

$RP_{0.2}$  \*  $R_{eh}$  \*\*  $R_{el}$

## Transformation temperatures

	Temperature °C
MS	465
AC1	743
AC3	833



## Heat treatment recommendations

Treatment	Condition	Temperature cycle	Cooling/quenching
Hardening	+QW	Soaking 900 - 940°C	Quenching in water, water temperature <40°C, core temperature after quenching must be below 200°C

## SUSTAINABILITY-ENVIRONMENTAL IMPACT DATA

At Ovako sustainability and reduction of our environmental impact is a major focus in everything we do.

Further information is found [here](#).

In many international comparisons the crude steel Scope 1-2 emission is a key parameter, ie. the CO<sub>2</sub> emission from the steel works itself.

As of 1 January 2022 we carbon offset all our scope 1 and 2 volume shown below.

Steel works	Hofors	Smedjebacken	Imatra
CO <sub>2</sub> e/kg	120	62	76

To get the full picture of our products environmental impact we have to look at all of our CO<sub>2</sub> emission sources.

Not only the steel work Scope 1-2 itself, but all operations downstream in our production, heating and heat treatment furnaces etc (full scope 1-2) as well as all the emission from input material, eg. alloys, scope 3.

Steel Grade	Format	Condition	Scope 1-3 (CO <sub>2</sub> e kg /1000 kg steel)	Climate compensated Net emission = Scope 3 (CO <sub>2</sub> e kg /1000 kg steel) Scope 1 - 2 = 0 (compensated)
Imaform 5450	Round bar	+AR	526	241
Imaform 5450	Round bar	+QT	778	290

All above data are to be seen as typical values for the specified format and condition. Detailed information about your specific product please contact your sales contact.

### Other properties (typical values)

Youngs module (GPa)	Poisson 's ratio (-)	Shear module (GPa)	Density (kg/m <sup>3</sup> )
210	0.3	80	7800
Average CTE 20-300°C (µm/m°K)	Specific heat capacity 50/100°C (J/kg °K)	Thermal conductivity Ambient temperature (W/m°K)	Electrical resistivity Ambient temperature (µΩm)
12	460 - 480	40 - 45	0.20 - 0.25

### Contact us

Would you like to know more about our offers? Don't hesitate to contact us:

Via e-mail: [info@ovako.com](mailto:info@ovako.com)

Via telephone: +46 8 622 1300

For more detailed information please visit <http://www.ovako.com/en/Contact-Ovako/>

### Disclaimer

*The information in this document is for illustrative purposes only. The data and examples are only general recommendations and not a warranty or a guarantee. The suitability of a product for a specific application can be confirmed only by Ovako once given the actual conditions. The purchaser of an Ovako product has the responsibility to ascertain and control the applicability of the products before using them. Continuous development may necessitate changes in technical data without notice. This document is only valid for Ovako material. Other material, covering the same international specifications, does not necessarily comply with the properties presented in this document.*