

85MnCrV5* All

General Information

Steel grade A810 is our standard grinding ball steel steel with a hardness in quenched and tempered condition between 62 - 66 HRC.

Grinding balls manufactured by Ovako maintain the same wear resistance from start to finish

Chemical composition

Variant	Cast		C%	Si %	Mn %	P%	S%	Cr%	V%
A810 / 9888	CC	Min	0.79	0.15	0.65	-	-	0.15	0.050
		Max	0.88	0.35	0.95	0.030	0.030	0.30	0.110

Mechanical Properties

Variant	Condition ⓘ	Format	Dimension [mm]	Hardness
A810 / 9888	+QT	Round bar	20 < 39	63-66 HRC
		Round bar	40 < 70	62-66 HRC
	+AR	Round bar	20 < 70	290-340 HB

$Rp_{0.2}$ * R_{eh} , ** R_{el}

Transformation temperatures

	Temperature °C
MS	170
AC1	730
AC3	740

Heat treatment recommendations

Treatment	Condition ⓘ	Temperature cycle	Cooling/quenching
Hot forging	+AR	Soaking 900 - 1050°C	
Tempering	+QW	Tempering at 150 - 200°C	In air

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 CO₂ 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 ₂ e/kg	120	62	76

To get the full picture of our products environmental impact we have to look at all of our CO₂ 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 ₂ e kg /1000 kg steel)	Climate compensated Net emission = Scope 3 (CO ₂ e kg /1000 kg steel) Scope 1 - 2 = 0 (compensated)
A810	Round bar	+AR	362	176

As of 1 January 2022 we use carbon offset for all our scope 1- 2 emissions, so in practice the climate compensated data is the same as the full Scope 3 level.

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 ³)
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:

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

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