Boron hardenable steel

30 MN B5

EN 10083 - 3 : 2006

Boron hardenable fine-grained steel, suitable for tempering which gives good hardness and strength needed for wear resistant applications

Applications

After hardening, 30 MN B5 can be used for any wear resistant applications with a particular success in agricultural machineries.

Mechanical properties

STEEL GRADE	Tensile Strength N/mm^2	Yield Point N/mm^2	Elongation $A\%$	Hardness HBW
30 MN B5 ***not thermically treated***	620	420	22	170
30 MN B5 ***oil quenched****	1330	950	9	410
30 MN B5 ***water quenched****	1670	1170	8	515

*= not tempered

Mechanical values to be considered as average indicative figures

Chemical composition - %

STEEL GRADE	C	Mn	Si	Cr	P *max*	S *max*	B	CEV
30 MN B5	0.25÷0.30	1.10÷1.30	0.10÷0.40	0.20÷0.50	0.020	0.010	0.0008÷0.005	0.54

with addition of **Al** and/or **Ti**

Available thicknesses

30 MN B5 6 mm - 40 mm

AQ acciai di qualità

Edition 03-2017

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Forming

30 MN B5 can be formed as a common steel in quality S355. Hot forming must be done between 880 - 1000 °C (it is better to reduce as much as possible the period of forming over 920 °C).

Heat treatment

30 MN B5 acquires high strength and hardness during heat treatment. The recommended heating temperature for hardening is 900° - 950° C and heating time 1 minute/mm of metal thickness. Quenching can be carried out with water, oil or synthetic medium.

The greatest hardness is achieved with water. Low temperature tempering, at 150 - 200° C for 1 or 2 hours does not reduce hardness but increases toughness and workability. Tempering at 400 - 450° C increases toughness considerably.

Welding

The welding of 30 MN B5 can be carried out using the normal methods. The low alloy and impurity contents of Boron steel make it resistant to hot cracking. When welding thick plates preheating at 150° C is recommended.

Flame cutting

The hardenability of 30 MN B5 causes a thin layer of hardened metal in case of flame cutting. Such problem could be reduced by using a lower cutting speed and preheating tempering at 600° C is the best method of softening the hardened layer.