

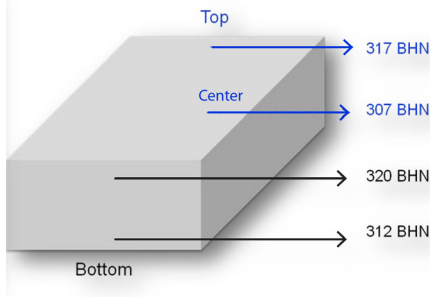
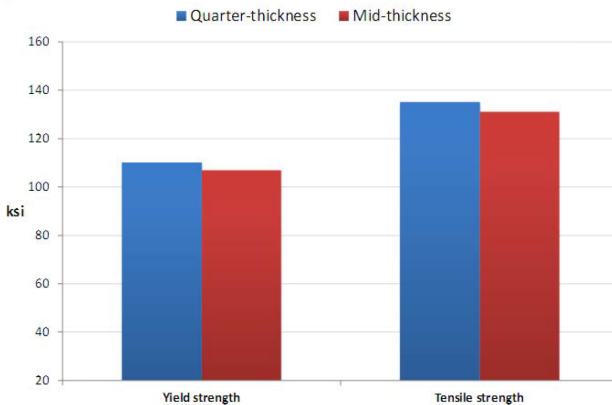
Mechanical Properties

HARDNESS		TYPICAL TENSILE PROPERTIES			
Typical (BHN)	Guarantee (BHN)	UTS MPa (KSI)	YS MPa (KSI)	Elongation (%)	Red. of Area (%)
295	280/321	950 (138)	750 (109)	15/16	55

Hardness & Tensile properties similar to P20

Hardness & Tensile Strength

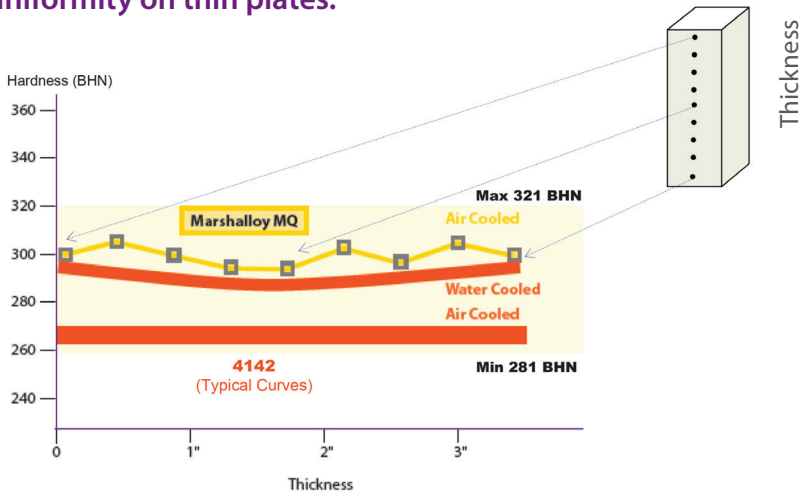
Mill data for a 8.50"-thick plate



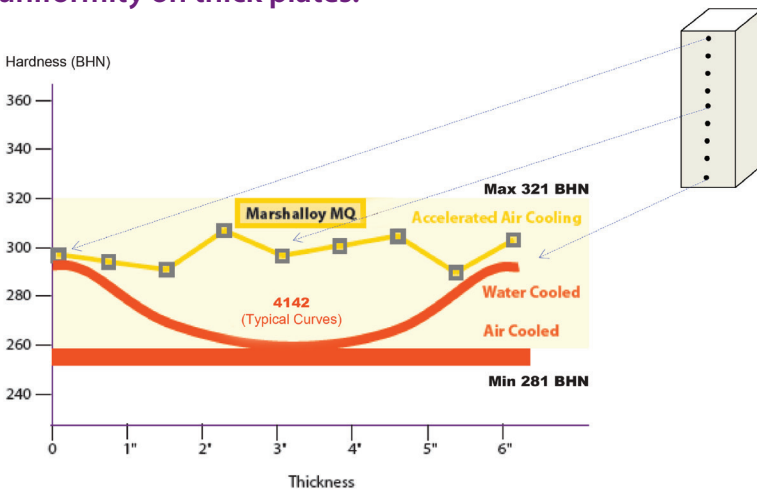
Every Marshalloy MQ[®] plate features high hardness consistency, resulting in uniform tensile properties.

Hardenability

Marshallloy MQ[®] offers excellent hardness uniformity on thin plates.



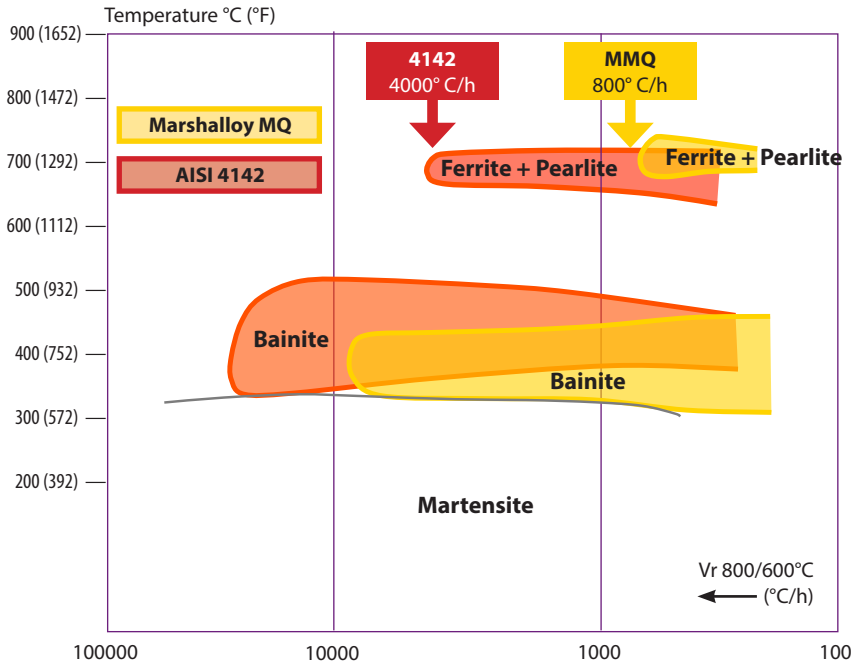
Marshallloy MQ[®] also offers excellent hardness uniformity on thick plates.



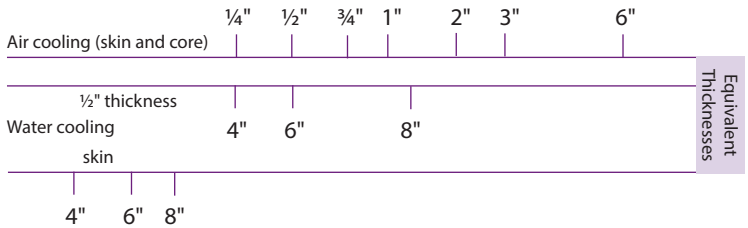
Marshallloy MQ[®]'s homogeneity on thick pieces is superior to that of P20 & 4142 steel.

Hardenability

CCT diagram 4142 versus Marshalloy MQ[®]



Equivalent Thicknesses



Hardening Process

Hardening

- ◆ Preheating and homogenization at 1250°F (680°C)
- ◆ Final heating to 1550/1600°F (840/870°C)
(Holding time 1H/inch)

Quenching

- ◆ Air / oil quenching down to 150°F (70°C)
(avoid oil quenching on pieces with complex shapes)

Tempering

- ◆ Temperature chosen according to required hardness level

MMQ — Tempering Curve

Hardness (HB)

