Innovative solution for metal transformation

MICRO ALLOYED BAINITIC STEEL

Setforge

SIMPLIFICATION

Substitute CrMo4 grades for quenching and tempering by steels with **simple control cooling after forging**.

RESISTANCE

Substitute pearlitic micro-alloyed steels when the stress level on the components is to high for this type of steel.

OPTIMISATION

Finished parts less expensive due to the supression of heat treatments.

Micro alloyed bainitic steels are a new alternative to conventional CrMo4 and pearlitic micro-alloyed steels. These steels are both **cost-effective and more resistant** considering the global manufacturing cost of a mechanical component. Furthermore, the absence of heat treatment ,with consequently lower energy consumption, make it a solution adapted to **new environmental requirements.**

Prerequisite

All mechanical parts except if used for high resilience applications.

Need to adjust machining parameters to obtain the best machinability.

Micro-alloyed bainitic steels can be used for a large spectrum of components: injection parts, transmission parts, chassis parts... for all sectors of activity.

Axle shafts for off-higway applications, injection parts, cam shaft

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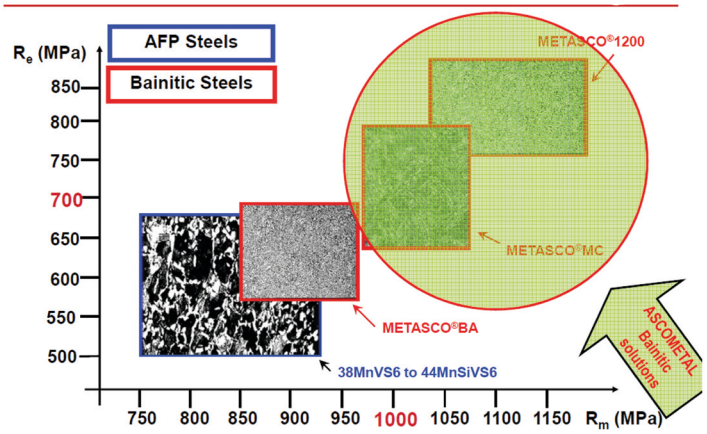
EXISTING SOLUTIONS ON THE MARKET

Setforge is working in close collaboration with **the most innovative steelmakers on the market to develop the solutions of tomorrow.** Our purchasing and engineering teams are at your disposal in order to assess the potential metalurgical and economic gains of these solutions for your business.

ASCOMETAL® Micro alloyed bainitic steels range **METASCO**

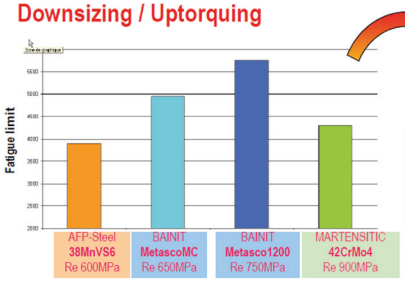
Extract from Ascometal documentation

Yield strength (YS / Re), Tensile strength (UTS / Rm)



Fatigue performance

Downsizing / Uptorquing



Steel	Torque	Weight
38MnVS6	Basis	Basis
42CrMo4	~ + 10%	~ - 2,5 %
METASCO® MC	~ + 20%	~ - 5 %
METASCO® 1200	~ + 40%	~ - 10%

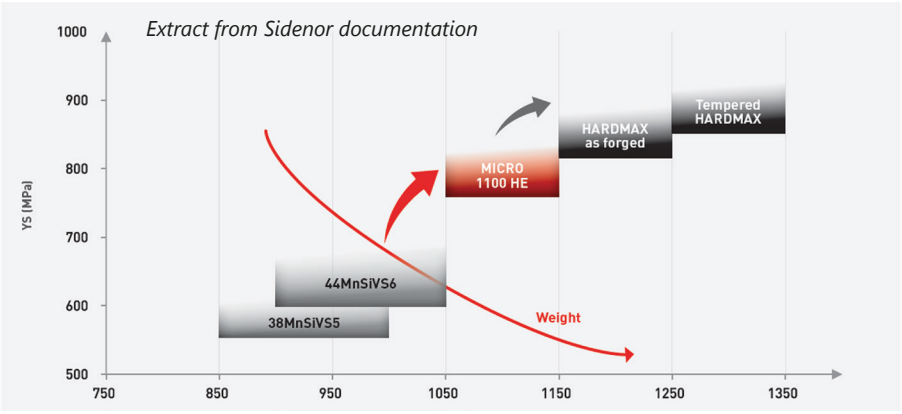
=> 2 possibilities

UPTORQUING about +20 % with Metasco MC
+40 % with Metasco 1200

DOWNSIZING about - 5 % with MetascoMC
- 10 % with Metasco 1200

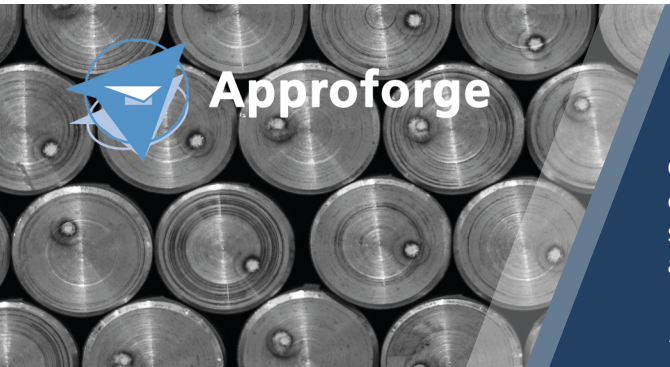
sidenor Micro alloyed bainitic steels range **HARDMAX**

Extract from Sidenor documentation



HARDMAX

- High tensile strength (~ 1250 MPa)
- Excellent fatigue performance
- Mainly Bainitic microstructure
- Applicable to hot forged parts:
  - Forged components with higher mechanical requirements than microalloying steels



FOCUS ON INNOVATION

APPROFORGE, purchasing specialist of raw materials for Setforge Group, one of the leading group in Europe in the production of forged components, has set-up a co-development team to provide innovative solutions to their customers in order to bring them a competitive advantage by reducing the overall cost of acquisition of their parts.

Ask for more : **innovation.approforge@setforge.net**