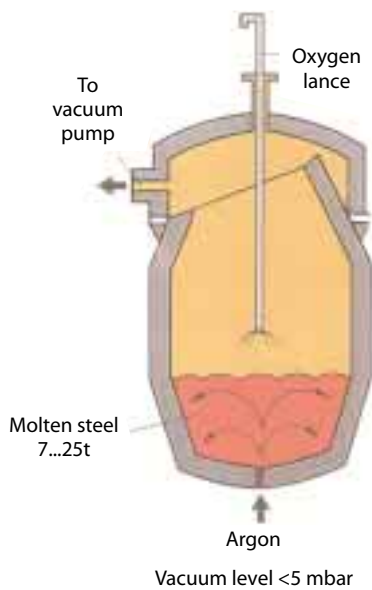


Vaculok[®] Steels

Vacuum Converter VODC



Vaculok[®] steels are produced with VODC (Vacuum Oxygen Decarburization Converter).

The most important properties of steel are strength, toughness, corrosion resistance and machinability. These are properties that depend on the cleanliness of the steel. Lokomo Steels' answer to this challenge is Vaculok[®] steel produced with the VODC (Vacuum Oxygen Decarburization Converter) steel refining process, which gives incomparable steel quality. A wide range of Vaculok[®] steels are available today, from carbon and low alloyed steels to stainless steels, super duplex and heat resistant steels.

Production of Vaculok[®] Steels

Vaculok[®] steels are melted in an electric arc or induction furnace and then refined by the VODC. The vacuum refining process is a combination of vacuum decarburization and vacuum degassing. Deep vacuum and argon stirring reduce the carbon content and remove impurities from the steel.

Vaculok[®] means improved weldability

The hydrogen, sulphur or carbon content is usually regarded as the main cause of welding problems, depending on the type of steel. The extremely low impurity levels of Vaculok[®] steels ensure excellent weldability and make it possible to omit some of the tedious pre-heating or post-welding heat treatment operations.

Typical applications

The demanding applications where Vaculok[®] is used include castings for wood processing machines, hydro turbines and ship propellers, industrial valves, coiler drums for hot rolling steel, and other special applications.

The outstanding properties of Vaculok[®] steels open up new opportunities in the design of cast components. It is possible to make lighter components and to reduce wall thicknesses.

In addition to standard specification vacuum refining, Lokomo Steels has also developed special Vaculok[®] steel grades for very demanding applications. These include DRUMLOK 1000 Vaculok[®] for hot rolling steel mills and ARCLOK 1000 Vaculok[®] for ice-breaker propellers.



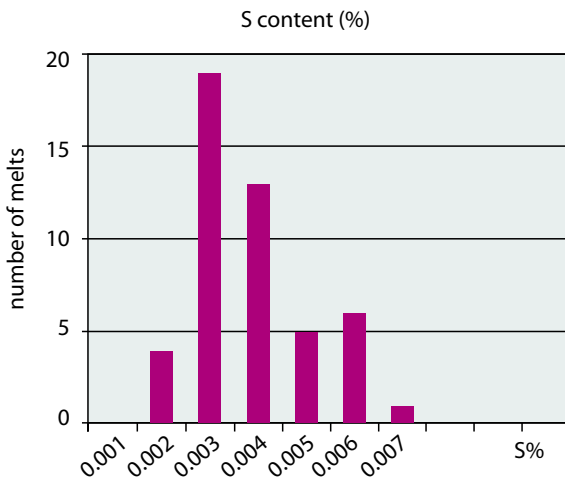
Vaculok[®] means clean steel, strength and toughness

The most outstanding feature of Vaculok[®] steel is cleanliness. It has fewer impurities and inclusions than conventional steel. The vacuum treatment reduces total inclusion content to a minimum.

The low impurity content

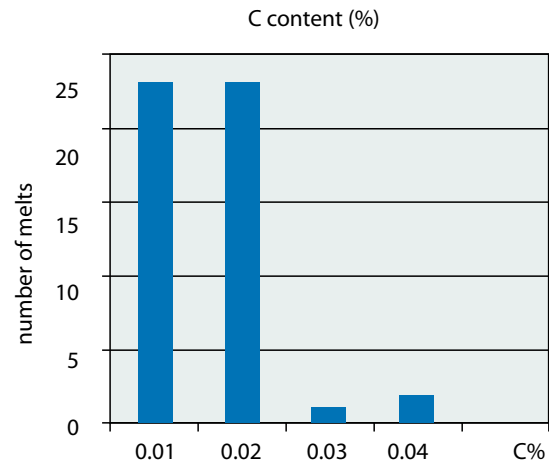
- improves toughness, fatigue strength and weldability
- increases resistance to hot and cold cracking
- improves casting properties and machinability
- reduces casting defects, such as gas porosity.

CA6NM Vaculok[®] Vacuum Desulphurized



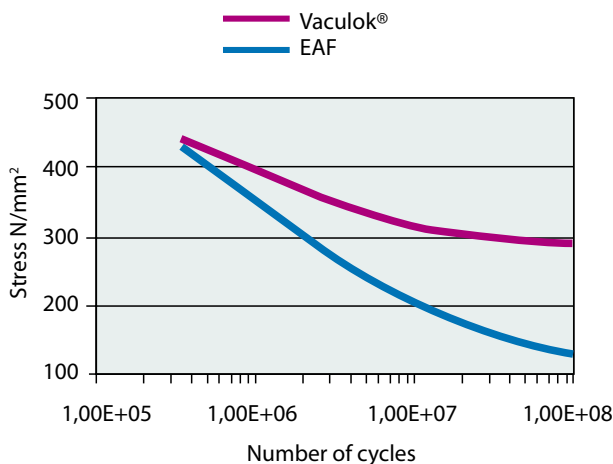
CA6NM Vaculok[®]: 0.004%
ASTM A 743 CA6NM : max 0.030%

CA6NM Vaculok[®] Vacuum Decarburized



CA6NM Vaculok[®]: 0.017%
ASTM A 743 CA6NM : max 0.06%

Fatigue strength of Vaculok[®] and standard steels Rotating bending fatigue test in seawater



Steel grade
Stainless 13-4-1
CA6NM

	C	S	N
Vaculok [®]	.02	.002	.017
EAF	.05	.012	.026

Applications



Lokomo Steels the company

Lokomo Steels Oy, founded in 1916 has been a pioneer in production of stainless steel castings. Finland's first electric arc furnace went into operation at Lokomo Steels in early 1920's. In 1982 Lokomo Steels began to manufacture vacuum steels using the world's first "Vacuum Oxygen Decarburization Converter" VODC. Lokomo Steels' vacuum steels are marketed under the Vaculok® -trademark.

For more information, please contact us at Lokomo Steels.