

BOHLER UDDEHOLM AFRICA

NOVEMBER 2005

Volume 1, Issue 1

Introduction

Dear Customers

I believe in communication, also in the case of know how transfer. That is why I started the printed Newsletter in November 2003. This initial Newsletter was not only costly to produce, but also took some time to issue.

WELCOME TO MODERN TIMES!

From now on we will mail you on a regular basis all relevant information about:

Steel and Heat Treatment, Die Set Production and Machining Welding Consumables and Fronius Welding Machines.

The Internet allows us to give this information selectively to our clients who are/should be interested.

Information will be supplied

News

Bohler Uddeholm Africa is proud to have hosted **Mr Peter Muhr** in South Africa.

Peter Muhr arrived at the beginning of July 2005 where, together with Graham Knight (our resident Metallurgical Engineer) traveled to our

according to divisional segmentation such as for our Steel Division, Heat Treatment and Machining as well as our Welding Division.

Why do we do this?

The Bohler Uddeholm Group is world wide No. 1 in Tool Steels and High Speed Steels and in the top 4 in Welding Consumables.

Therefore, the Group has vast knowledge in areas such as the development of brand new high performance metals which will give you excellent production results and also the development of new welding electrodes and wires for joining various materials and repair and maintenance.

For further information you can also go to our international group websites on the back page

branches, visited customers and held seminars all across South Africa.



of the Newsletter.

Happy Reading

Helmut Ulrich
Managing Director

Bohler Uddeholm Africa now have the facilities to carry out **Plasma Nitriding** as of October 2005. This action is aimed at providing the best service to our customers by remaining South Africa's Leader in Heat Treatment.

Inside this Issue

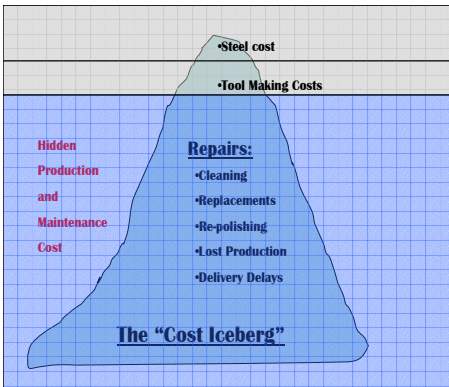
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Special points of interest:

- Peter Muhr's visit to South Africa
- Arrival of a new Vacuum Heat Treatment Furnace (June 2005)
- New capabilities for Plasma Nitriding (available in October 2005)

Steel Choice

The investment you make in the selection of a tool steel only represents a small fraction of the total tooling requirement costs. We are sure you will agree that an uninformed decision at this stage would prove very costly in the end. As you can see from the picture below entitled “Cost



Iceberg”, the vast majority of the costs which are associated during the manufacturing of a tool are in fact hidden costs which most decision makers would not even notice until it is too late.

At Bohler Uddeholm we have realized how costly downtime is to our valued customers and are therefore currently introducing steels which would indirectly decrease the number of downtimes experienced in your operation. This is achieved by increasing the life of the tool, when we supply you with the best material available which is able in combination with design to perform in its own class.

As we source our steel mainly from our

own steel plants in Austria, Sweden, Brazil and Germany our material is superior and our steel know how is world class.

No one in the world spends more time on Research and Development of high quality tool steels than the Bohler Uddeholm Group.

At Bohler Uddeholm we never run our competition down... We merely run AHEAD of them

Industrial Approach

Our main goals are to:

- Introduce a high quality specialized material
- Save our customers money in the long run by reducing downtime
- Become a one-stop solution provider

Trails are currently taking place in:

- Fine Blanking Industry:
Vanadis 4 (Powder Metallurgy)
K390 (Powder Metallurgy)
K890 (Powder Metallurgy)
- Forging Industry:
HOTVAR
W403 (VMR)

Heat Treatment

In April 2003 one Rubig vacuum hardening furnace and one STS tempering furnace were installed at our Pinetown Branch.

In October 2003 one Rubig vacuum hardening furnace and one STS tempering furnace were installed at the Isando Branch. In Isando we have six vacuum furnaces (4 hardening and 2 tempering furnaces). In June 2005 we replaced one of our older vacuum furnaces with one of the latest Rubig furnaces.

We also carry out neutral hardening in our salt bath line (Tool Steels, Case Hardening, Liquid Nitriding, Stress Relieving, and Annealing). Salt bath furnaces are available at our branches in Isando, Pinetown; Port Elizabeth and Cape Town.

The salt bath plant in Port Elizabeth was installed in August 2002. In August 2004 we increased the size of the neutral bath to accommodate some of our customers with bigger pieces (600 OD – 800 Deep).

As of August 2005 we also introduced a vacuum heat treatment (1 hardening and 1 tempering unit) at our Port Elizabeth Branch for quality heat treatment.

We are by far the biggest heat treatment company for tool steels and special steels in South Africa.

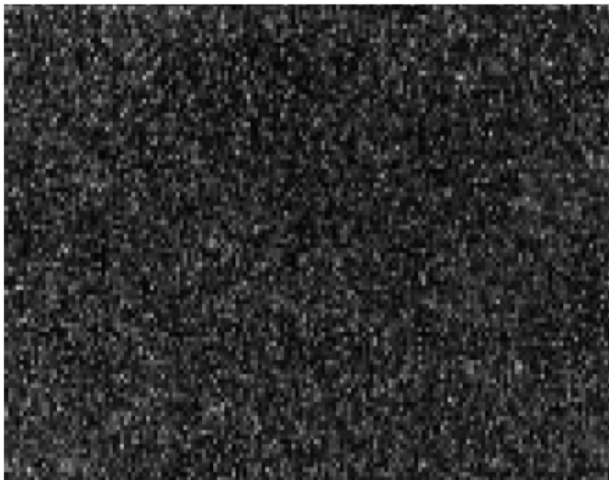
Powder Metallurgy

How will Powder Metallurgy benefit you?

- It result in outstanding grindability
- Low dimensional or even dimensional change during heat treatment
- High resilience against overheating or excessive time spent at temperature
- Easy EDM due to the distribution of the carbides in the structure

Advantages to the tool user:

- Longer tool life
- Decreased likelihood of spalling or fracture
- Less problematic issues associated with:
 - Distortion
 - Heat treatment
 - Design
 - Machining



BÖHLER K390 MICROCLEAN

- ✓ Uniform Carbide distribution
- ✓ Small carbide size
- ✓ Uniform composition
- ✓ Isotropic behavior

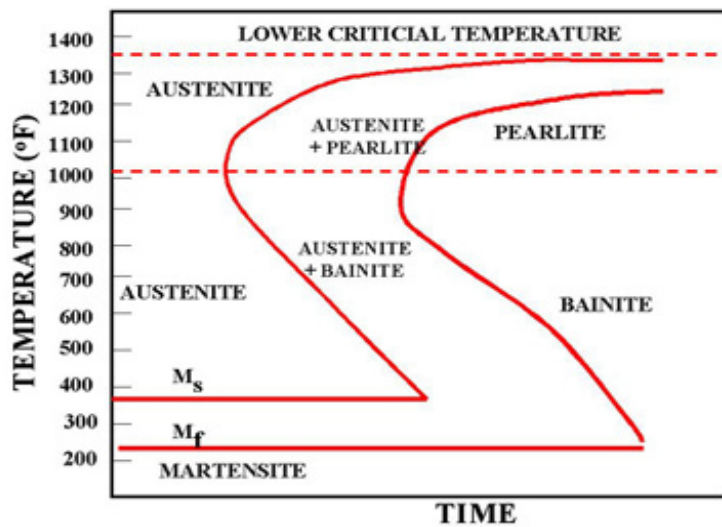
!!!We have what you are looking for!!!

- High Speed Steel
- Tool Steels
- Cold Work Tool Steels
- Hot Work Tool Steels
- Plastic Mould Steels
- Specialized Material
- Powder Metallurgical Tool Steels
- Stainless Cr – Steels
- Stainless Cr – Ni Steels
- Creep Resistant Steels
- Valve Steels
- Ni – Base
- Aircraft Material
- Surgical Implant
- Glass Moulding Steels

As we are by far the biggest stockist of tool steel in South Africa (1600 tons of continuous stock country wide) , we will utilize all of our resources to ensure you get the steel you need.

Metallurgical Information: Retained Austenite:

Retained Austenite, according to the relevant TTT diagram, forms at temperatures between the “Martensite start” (M_s) and “Martensite finish” (M_f) lines. If the temperature of the quenching medium is above that of the M_f line then Retained Austenite will occur. The Retained Austenite will have a negative effect on the physical properties of steel. The way to combat this issue is to sub-zero quench the material ensuring that the M_f line is in fact crossed and that the transformation from Austenite to Martensite is completed. The sub-zero quench is carried out before tempering cycles ensuring that no un-tempered Martensite is present in the final microstructure.



Note TTT diagrams vary in appearance depending on the Material specification and Chemical makeup.

For further information you can also go to our International Group Websites:

Bohler Uddeholm Head Office: www.bohler-uddeholm.com

Bohler Works Austria: www.bohler-edelstahl.at

Uddeholm Works Sweden: www.uddeholm.com

Welding:

Bohler Works Austria: www.bohler-welding.com

Thyssen Works Germany: www.thyssen-welding.com

UTP Works Germany: www.utp.de

Soudokay Works Belgium: www.soudokay.be

Fronius Works Austria: www.fronius.com