

Uddeholm Nimax TIG-Weld

WELDING OF MOULD STEEL

Uddeholm Nimax TIG-Weld is a TIG filler rod specially composed as to be compatible with the mould steel Uddeholm Nimax.

Uddeholm Nimax TIG-Weld gives a weld metal identical in composition to Uddeholm Nimax and is characterized by:

- very good melting properties
- high impact and fracture toughness
- good polishing and texturing properties

NIMAX TIG-WELD

Diameter		Length	
mm	inch	mm	inch
1.0	0.04	1000	40
1.6	0.06	1000	40

WELDING OF UDDEHOLM NIMAX

GENERAL

When welding Uddeholm Nimax there will not be increased hardness in the heat affected zone (HAZ). The hardness profile will be even. Therefore polishing and photo-etching can be made with good result without heat treatment after welding, providing a suitable filler material is used.

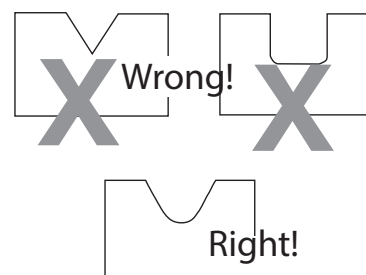
Welding method	Gas Tungsten Arc Welding GTAW/TIG
Filler metal	NIMAX TIG-WELD
Hardness as welded	~ 40 HRC

CLEANING OF TOOL

The surfaces in the vicinity of the intended repairs/adjustment areas should be cleaned to base metal prior to welding. Clean the tool carefully with degreasing agent or by grinding. Make sure that the cavity surfaces are protected during welding, especially if these are polished.

JOINT PREPARATION

For a satisfactory result, it is imperative that the region to be welded is carefully prepared. Cracks should be ground out so that the joint bottom is well rounded and such that the sides make an angle of at least 30° to the vertical. Any damage occurring during welding should be ground down to “sound steel” before re-welding.



PREHEATING TEMPERATURE

Preheating is not necessary but if it is desired a temperature at 150–200°C (300–390°F) is recommended.

The temperature in the vicinity of the weld should not exceed 300°C (570°F) (interpass temperature). When passed the risk of distortion increases.

This information is based on our present state of knowledge and is intended to provide general notes on our products and their uses. It should not therefore be construed as a warranty of specific properties of the products described or a warranty for fitness for a particular purpose.

Classified according to EU Directive 1999/45/EC For further information see our “Material Safety Data Sheets”.

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BUILDING UP THE WELD

The root runs should be done with low heat input (max. current 120 A).

The first two layers should always be welded with the same low heat input, while a greater heat input can be used for the remaining layers. At least two runs (even for small repairs) are recommended. Do not oscillate.

The transition region between the weld and the base material should be carefully inspected prior to stopping welding. Undercut should be repaired before further processing.

After welding, the final layer of weld metal should be ground away prior to any heat treatment.

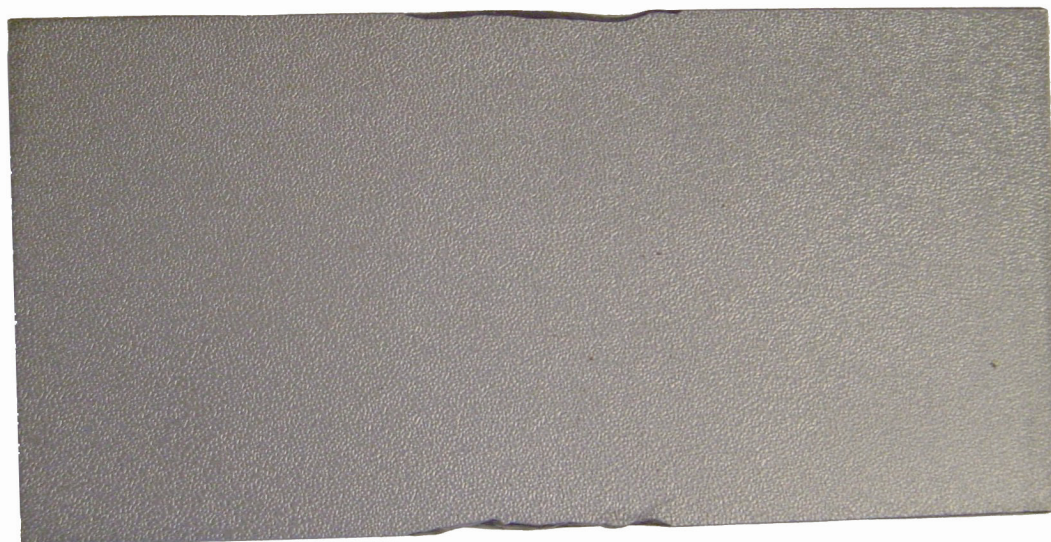
If the tool is to be polished or photo-etched TIG welding is to be preferred.

For more detailed information, see the Uddeholm brochure "Welding of Tool Steel".

POST TREATMENT

Post treatment is normally not required. However, in cases when high strain could be expected (for example deep groove preparations, large welded areas and fillet welds) a stress relieving at 450°C (840°F) for 2 hours is recommended.

Heat treatment above 500°C (930°F) should be avoided because it will reduce the hardness as well as the toughness of Uddeholm Nimax.



Uddeholm Nimax photo-etched after welding.

FURTHER INFORMATION

Please contact your local Uddeholm office for further information on the selection, heat treatment, application and availability of Uddeholm tool steel. For more information, please visit www.uddeholm.com