STAHLHÄRTEREI HAUPT
HÄRTE IST HAUPT-SACHE

OVERVIEW | STATUS OF 12/2017 | E

# GAS NITRIDING

| | |
|---|---|
| Gas nitriding | Dimensions:<br>ø max. 3000 mm x 4500 mm |
| Fully automated Process | |

## GAS NITRIDING

Gas nitriding is a standard heat treatment, in which from our side the hardness and distortion of the work pieces cannot be affected.

Usually, there are distortions of no more than to a thousandth degree. The surface hardness that can be achieved depends on the material used or its alloying elements respectively and the microstructure, residual stresses and possible constructive attributes.

In order to achieve a certain lack of distortion and the possible hardness values, it is recommended to prepare the material accordingly.

### THE FOLLOWING HEAT TREATMENT SEQUENCE HAS BEEN PROVEN AS BENEFICIAL:

1. Quenching and tempering of the raw semi finished work piece (if firmness required)
2. Intermediate treatment on approx. 1 mm machining allowance (if geometrically required)
3. Stress relief annealing
4. Further treatment to gas nitriding: Special reference is made to work pieces that contain enclosed hollow parts: Hollow parts must be completely dry, free of grease and clean inside.

To achieve the hardening depth, the work pieces are hardened according to our experience. However, a determination of the actually achieved hardening depth is only possible on a sample which consists of identical material and must be heat treated in exactly the same way. If you desire verification of the Nht, please supply respective sample material.

STAHLHÄRTEREI HAUPT
HÄRTE IST HAUPT-SACHE

OVERVIEW | STATUS OF 12/2017 | E

# GAS NITRIDING TABLE

| | |
|---|---|
| Gas nitriding | Dimensions:<br>ø max. 3000 mm x 4500 mm |
| Fully automated Process | |

| Material group | Designation | Material no. | Surface hardness HV3 | Nitration hardness depth (acc. to DIN 50190 part 3) |
|---|---|---|---|---|
| Construction steels | S355J2G3 | 1.057 | 530-700 | 0,2-0,8 mm |
| Tempering steels | CK 45 | 1.1191 | 300-400 | 0,2-0,7 mm |
| | 25 CrMo 4 | 1.7218 | 550-700 | 0,2-0,7 mm |
| | 35 CrMo 4 | 1.7220 | 550-700 | 0,1-0,6 mm |
| | 42 CrMo 4 | 1.7225 | 550-700 | 0,1-0,6 mm |
| | 50 CrMo 4 | 1.7228 | 550-700 | 0,1-0,5 mm |
| | 51 Cr V 4 | 1.8159 | 600-750 | 0,1-0,6 mm |
| | 34 CrNiMo 6 | 1.6582 | 600-800 | 0,1-0,6 mm |
| | 30 CrNiMo 8 | 1.6580 | 650-800 | 0,1-0,6 mm |
| | 32 CrMo 12 | 1.7361 | 700-900 | 0,1-0,8 mm |
| | 30 CrMo V9 | 1.7707 | 750-850 | 0,1-0,8 mm |
| | 14 CrMo V 6.9 | 1.7735 | 800-900 | 0,1-1,0 mm |
| Nitrided steels | 31 CrMo 12 | 1.8515 | 800-900 | 0,1-0,8 mm |
| | 31 CrMo V9 | 1.8519 | 750-850 | 0,1-0,8 mm |
| | 34 CrAl 6 | 1.8504 | 900-1100 | 0,1-0,8 mm |
| | 34 CrAlMo 5 | 1.8507 | 900-1100 | 0,1-0,8 mm |
| | 34 CrAlNi 7 | 1.8550 | 900-1100 | 0,1-0,8 mm |
| Case-hardened steels | 16 MnCr 5 | 1.7131 | 600-800 | 0,1-1,0 mm |
| | 20 MnCr 5 | 1.7141 | 600-800 | 0,1-1,0 mm |
| Cold-work steels | 100 Cr6 | 1.3505 | 450-600 | 0,1-0,6 mm |
| | X 210Cr12 | 1.2080 | 1000-1200 | 0,1-0,2 mm |
| | 40 CrMnMo 7 | 1.2311 | 650-800 | 0,1-0,5 mm |
| Hot-work steels | 55 NiCrMo V6 | 1.2713 | 550-700 | 0,1-0,5 mm |
| | 55 NiCrMo V7 | 1.2714 | 550-700 | 0,1-0,5 mm |
| | X 37CrMo V5-1 | 1.2343 | 900-1100 | 0,1-0,4 mm |
| | X 40 CrMo V5-1 | 1.2344 | 900-1100 | 0,1-0,4 mm |
| Nodular graphit cast iron | GGG 50 | | 500-700 | 0,1-0,4 mm |
| | GGG 60 | | 550-700 | 0,1-0,4 mm |