

Uddeholm Compax Supreme

Modified Mold Quality S7

| | Vacuum | Salt Bath** / Fluidized Bed | Atmosphere Furnace Muffle Furnace / Packed |
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| | ** Salt Bath heat treatment can be performed but is not recommended for details with blind holes or threaded holes that will not be reworked after heat treatment. | | |
| Preheating Temperature | 1. Bring up to 1200°F, equalize | 1. 800-900°F, equalize 2. 1100-1200°F, equalize Step 1 only for big blocks (cross sections above 6") | 1. Bring up to 1200°F, equalize |
| Hardening Temperature (Austenitizing) | 1690-1780°F (Normally 1725°F) Holding time after the tool or part has fully heated through at the hardening temperature: Minimum 30 minutes, maximum 1 hour. Alternatively hold 20 minutes for first 1" and then 15 minutes for each additional inch of wall thickness. | | |
| Quenching* | Alt. 1 Inert gas, positive pressure Alt. 2 Back-filled pressurized gas to 750-850°F, then equalize center and surface (Maximum holding time 30 minutes) Continue forced cooling to 150°F. | Alt. 1 Quench in salt 950-1050°F. Alt. 2 Quench in oil 150°F until the die is black. (Cross sections over 2-1/2 inches) Alt. 3 Forced air circulation. | Alt. 1 Oil 150°F until the die is black, then air cooling (Cross sections over 2-1/2 inches) Alt. 2 Forced circulation of air or inert gas. |
| | *Cooling rate must be adequate to avoid any transformation, with decreased properties as a result. However, also consider the risk of excessive distortion from very fast cooling. A minimum quench rate of 100-120°F/minute as measured at a depth of ~ 5/8" is recommended for optimal tool properties. | | |
| Tempering (minimum twice*) Temper immediately after quenching when the complete tool reaches 150°F | <u>Tempering Temperatures (°F)</u> 450°F 480°F 1020°F | <u>Hardening Temperatures and Hardness</u> 1725°F 56-58 HRC 54-56 HRC 50-52 HRC | |
| | Tempering Time: 1 hour per inch of wall thickness or hold at temperature for a minimum of 2 hours once the tool comes to temperature. | | |
| Stress Temper performed on hardened tools after EDM or after welding | Check hardness to confirm tool status. Temperature: Shall be 50°F below the lowest tempering temperature. Time: Soak 30 minutes per inch of maximum section with a minimum of 2 hours once tool comes to temperature. Cool in still air. | | |
| Dimensional Stability | Average size change as a result of hardening and tempering may not exceed 0.003 inch/inch/maximum dimension if the tool has been stress-relieved before finish machining. | | |

Characteristics

- Clean homogeneous structure – very good polishability
- Low sulfur content - better toughness
- Tight chemical composition - predictable heat treatment response

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. It is your responsibility to confirm you have the latest revision of this document (verify on our website) and that you forward to your Heat Treatment service provider. Failure to do so may result in inferior material properties. Revision Date: October 10, 2022