

HEAT TREAT SUMMARY FOR BOHLER-UDDEHOLM KNIFE STEELS

The following is a summary of heat treat schedules for our knife steels. Detailed instructions are included in the DATA SHEETS for each grade.

All must be preheated or “ramped up” to the austenitizing temperature, with typical preheats of 1200-1300 °F and 1500-1600 °F with 15 minute soak times at temperature.

All must be quenched rapidly. A good plate quench with forced air assistance or minimum 4 bar vacuum quench are typical. A deep freeze of either -120 °F or -300 °F for a minimum of 2 hours is also suggested for most steels, with the exception for some tool steels with are high temperature tempered.

Two tempers at 2 hours for each temper, unless noted.

For the stainless steels low temperature tempers are suggested, for best corrosion resistance and ductility. The DATA SHEETS have alternative tempers if needed.

STAINLESS ALLOYS

BOHLER N680

1940 °F, 20 minute soak, Deep Freeze, 2 tempers at 350 °F, 56-58 HRC

BOHLER N690

1960 °F, 20 minute soak, Deep Freeze, 2 tempers at 365-390 °F, 59-61 HRC

UDDEHOLM ELMAX

2100 °F, 15-20 minute soak, Deep Freeze, 2 tempers at 390-480 °F, 60-62 HRC

1985-2010 °F, 30 minute soak, Deep Freeze, 2 tempers at 390-480 °F, 57-60 HRC

BOHLER M390 MICROCLEAR

2100 °F, 20-30 minute soak, Deep Freeze, 2 tempers at 390-480 °F, 60-62 HRC

UDDEHOLM VANAX

1975 °F, 30 minute soak, Deep Freeze, 2 tempers at 390 °F tempers, 58-59 HRC

TOOL STEEL HEAT TREATMENT

BOHLER K110, D2

1950 °F, 30 minute soak, Deep Freeze, 2 tempers at 400-500 °F, 60-61 HRC

BOHLER K294 (PM A11) MICROCLEAN

2150 °F, 30 minute soak, No Deep Freeze, 3 tempers at 980 °F 62-63 HRC

BOHLER K390 MICROCLEAN

2150 °F, 30 minute soak, No Deep Freeze, 3 tempers at 1020 °F 62-64 HRC

UDDEHOLM VANADIS 4 Extra

2010 °F, 30 minute soak, No Deep Freeze, 2 tempers at 1040 °F, 61-62 HRC

2100 °F, 15 minute soak, No Deep Freeze, 2 tempers at 1000 °F, 63-65 HRC