

## Bohler-Uddeholm AISI A2 Cold Work Tool Steel

Category : Metal , Ferrous Metal , Alloy Steel , Tool Steel , Cold Work Steel

### Material Notes:

Description: AISI A2 is an air- or oil hardening chromiummolybdenum-vanadium alloyed tool steel characterized by AISI A2 is characterized by: Good machinability High stability after hardening High compressive strength Good hardenability Good wear resistance Applications: AISI A2 takes a place in the Uddeholm tool steel range between AISI O1 and AISI D2, offering an excellent combination of good wear resistance and toughness. It may be regarded, therefore, as a "universal" cold work steel. For cutting operations the good toughness of AISI A2 gives excellent resistance to chipping of the cutting edge. In many cases tools made from this steel have given better tooling economy than high-carbon, high-chromium steels of the D3/W.-Nr. 2080 type. AISI A2 has much better machining and grinding properties.

Order this product through the following link:

[http://www.lookpolymers.com/polymer\\_Bohler-Uddeholm-AISI-A2-Cold-Work-Tool-Steel.php](http://www.lookpolymers.com/polymer_Bohler-Uddeholm-AISI-A2-Cold-Work-Tool-Steel.php)

| Physical Properties | Metric              | English                  | Comments           |
|---------------------|---------------------|--------------------------|--------------------|
| Density             | 7.72 g/cc           | 0.279 lb/in <sup>3</sup> | hardened to 62 HRC |
|                     | 7.61 g/cc           | 0.275 lb/in <sup>3</sup> | hardened to 62 HRC |
|                     | @Temperature 399 °C | @Temperature 750 °F      |                    |
|                     | 7.67 g/cc           | 0.277 lb/in <sup>3</sup> | hardened to 62 HRC |
|                     | @Temperature 191 °C | @Temperature 375 °F      |                    |

| Mechanical Properties      | Metric              | English             | Comments                 |
|----------------------------|---------------------|---------------------|--------------------------|
| Hardness, Brinell          | 215                 | 215                 | Soft annealed            |
| Modulus of Elasticity      | 190 GPa             | 27500 ksi           | (hardened to 62 HRC)     |
|                            | 170 GPa             | 24600 ksi           | hardened to 62 HRC       |
|                            | @Temperature 399 °C | @Temperature 750 °F |                          |
|                            | 185 GPa             | 26900 ksi           | hardened to 62 HRC       |
|                            | @Temperature 191 °C | @Temperature 375 °F |                          |
| Compressive Yield Strength | 1350 MPa            | 196000 psi          | 0.2%, hardened to 50 HRC |
|                            | 1800 MPa            | 261000 psi          | 0.2%, hardened to 55 HRC |
|                            | 2150 MPa            | 312000 psi          | 0.2%, hardened to 60 HRC |
|                            | 2200 MPa            | 319000 psi          | 0.2%, hardened to 62 HRC |

| Thermal Properties | Metric       | English        | Comments |
|--------------------|--------------|----------------|----------|
|                    | 6.50 µm/m-°C | 3.61 µin/in-°F |          |

| CTE linear<br>Thermal Properties | Metric<br>@Temperature 20.0 -<br>200 °C | English<br>@Temperature 68.0 -<br>399 °F                  | hardened to 62 HRC<br>Comments |
|----------------------------------|---|---|--------------------------------|
| Specific Heat Capacity           | 0.460 J/g-°C<br>@Temperature 20.0 °C    | 0.110 BTU/lb-°F<br>@Temperature 68.0 °F                   | hardened to 62 HRC             |
| Thermal Conductivity             | 26.0 W/m-K<br>@Temperature 20.0 °C      | 180 BTU-in/hr-ft <sup>2</sup> -°F<br>@Temperature 68.0 °F | hardened to 62 HRC             |
|                                  | 27.0 W/m-K<br>@Temperature 191 °C       | 187 BTU-in/hr-ft <sup>2</sup> -°F<br>@Temperature 375 °F  | hardened to 62 HRC             |
|                                  | 28.5 W/m-K<br>@Temperature 399 °C       | 198 BTU-in/hr-ft <sup>2</sup> -°F<br>@Temperature 750 °F  | hardened to 62 HRC             |

| Component Elements Properties | Metric | English | Comments |
|-------------------------------|--------|---------|----------|
| Carbon, C                     | 1.0 %  | 1.0 %   |          |
| Chromium, Cr                  | 5.3 %  | 5.3 %   |          |
| Manganese, Mn                 | 0.60 % | 0.60 %  |          |
| Molybdenum, Mo                | 1.1 %  | 1.1 %   |          |
| Silicon, Si                   | 0.30 % | 0.30 %  |          |
| Vanadium, V                   | 0.20 % | 0.20 %  |          |

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