

# A2 Tool Steel Datasheet

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Sheffield Gauge Plate is the UK's leading stockholder and supplier of A2 tool steel. Our facilities can produce A2 steel and deliver anywhere in the UK and worldwide, starting from just £12.50.

Discover our other tool steel grades that we supply: [O1](#), [D2](#), [P20](#), [H11](#), [420](#), [1.2990](#), [EN8](#), and [C45](#).



## A2 Tool Steel Properties

AISI A2 Tool Steel is an air-hardening, cold-work steel that belongs to the 'A' steel group. It features good wear resistance and is characterised by its versatility, durability and dimensional stability during heat treatments.

Air-hardened steels contain a higher chromium content than other steel grades, such as [O1](#), that provide safer hardening with less distortion. In summary, A2 perfectly balances machinability and toughness with good wear resistance.

### A2 Tool Steel Equivalent Grades

AISI A2, ASTM A681, DIN EN ISO 4957, BS 4659, JIS G4404.

## A2 Tool Steel Analysis

The chemical composition below comprises A2 tool steel.

	Carbon	Manganese	Chromium	Nickel	Molybdenum	Vanadium
<b>A2</b>	1.00%	1.00%	5.00%	0.30%	1.00%	0.15-0.50%

## A2 Tool Steel Applications

A2 is a popular steel, supplied and used worldwide due to its performance and machinability. The main applications include cold forging dies, hammers, shear blades, punch dies, stamping dies, coining dies and blanking tools.



In addition, A2 offers superb polishing and grinding capabilities. Therefore, it is popular for machine knives and cutting knives used for wood, paper and resin-bonded material.

View our [Tool Steel Application Chart](#).

## A2 Form of Supply

At Sheffield Gauge Plate, we have fantastic in-house manufacturing facilities. As a result, we can produce any size, shape or length requirement of A2.

A2 Tool Steel is supplied in the below forms:

- Flat Bar
- [Ground Flat Stock](#)
- Sheet
- Diameter

In addition to our standard **metric** and **imperial** sizes, we can supply bespoke, non-standard measurements in small and large quantities.

For more information on our sizes, stock availability and lead times, please contact the team at [0114 233 5291](tel:01142335291).



## Forging A2 Tool Steel

To begin, pre-heat slowly to 650°C – 700°C. Then, continue heating rapidly to 1050°C – 1100°C and avoid working below 900°C.

Cool the steel slowly after forging to avoid cracking.

## Annealing A2 Tool Steel

During the annealing process, using a controlled environment, such as a furnace, is crucial to prevent decarburisation and maintain the steel's strength.

Heat A2 tool steel slowly until it reaches 850°C – 870°C. It should hold this temperature for at least two hours before the furnace temperature is lowered to 730°C – 750°C. A2 should maintain this temperature for a further four to six hours before cooling slowly to 600°C in the furnace, followed by air cooling.



Please note: A2 is supplied in an annealed condition. Therefore, re-annealing is only necessary if you have re-hardened, re-machined or forged the steel.

## Stress-Relieving A2 Tool Steel

When working with A2 steel, it is vital to stress-relieve the material to minimise the risk of cracking or distortion during subsequent heat treatments.

Slowly heat A2 steel to 670°C – 700°C, soaking for at least two hours for every 25 mm section and cooling in a furnace.

As an extra step, you can machine-finish the steel to improve the aesthetic appearance or attain additional mechanical properties that enhance the steel's performance.

## Hardening A2 Tool Steel

To harden A2 steel, pre-heat slowly to 790°C – 820°C and soak thoroughly. Then, heat the material to 950°C – 980°C, ensuring the steel is evenly heated throughout to equalise.

Once it reaches this temperature, remove it from the furnace and air quench. It's recommended to temper the steel once it reduces to hand-warm temperature.

To learn more about hardening your steel, visit our [What is quenching](#) article.

## Tempering A2 Tool Steel

Tempering should be performed following the hardening process to increase ductility and reduce brittleness.

Heat uniformly to the required temperature, holding for one-hour minimum per every 25 mm section and air cool. A2 can be double-tempered, and it is recommended.

Repeat the process to double temper.

Temperature °C	150	200	250	300	350	400
Hardness HRC	62-61	61-60	60-59	59-58	58-57	58-57

All information and guidance on the supply of A2 tool steel or any other [tool steel](#) grade are not guaranteed. Your evaluation of the steel should be made using our illustrative advice.

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[Sheffield Gauge Plate](#) has been produced steel at our state-of-the-art facility for over 40+ years; therefore, we guarantee quality with all tool steel and gauge plate orders. Our expertise, knowledge and experience will deliver your order on time, at the correct size and weight.

Order by phone: [0114 233 5291](tel:01142335291)

Order by email: [sales@sgpltd.co.uk](mailto:sales@sgpltd.co.uk)

