

905M39 Nitriding Steel

905M39 steel suppliers and stockholders, delivering to the whole of the UK. West Yorkshire Steel are stockholders and suppliers of round bar. As a chromium aluminium molybdenum steel 905M39 is usually supplied in the hardened and tempered 'R' or 'S' condition. 'R' condition has a tensile of 700-850 N/mm² and 'S' condition has a tensile of 775-925 N/mm². Properties of the steel combine high wear resistance together with toughness and ductility. It is defined by its suitability for nitriding from which 905M39 can give a hard wear resistant case up to 68HRC, better than achievable with the similar nitriding grade [722M24](#).

We welcome export enquiries for nitriding steel. Contact our sales office and consult our [shipping policy](#) for further details.

Alternative grades we supply

[605M36T](#) | [709M40T](#) | [708M40T](#) | [817M40T](#) | [826M40W](#) | [835M30](#) | [535A99](#) | [655M13](#) | [722M24](#)

Form of Supply

West Yorkshire Steel are 905M39 steel stockholders and suppliers of round bar. Diameters can be sawn to your required lengths. Centreless ground bar can be supplied, providing a high tensile nitriding steel precision ground to tight tolerances.

Contact our experienced sales team who will assist you with your 905M39 alloy steel enquiry.

- Diameter

Applications

Suitable for applications requiring excellent resistance to wear and abrasion. Typical applications include connecting rods, small extruders, valve stems and dies. 905M39 steel is widely used in the automotive, textile and general engineering industries. With its resistance to wear 905M39 is used in other applications such as brick press plates, clutch plates, gudgeon, track and shackle pins.

Analysis

| | | | |
|-----------|------------|-------------|------------|
| Carbon | 0.35-0.43% | Chromium | 1.40-1.80% |
| Manganese | 0.40-0.65% | Molybdenum | 0.15-0.25% |
| Silicon | 0.10-0.40% | Phosphorous | 0.025% max |
| Aluminium | 0.90-1.30% | Sulphur | 0.025% max |

Annealing

Heat the steel slowly to 650-700°C. Cool in air.

Hardening

905M39 is supplied ready heat treated. If further heat treatment is required annealed 905M39 should be heated slowly to 870-930°C and after adequate soaking at this temperature quench in oil/polymer or water. Temper as soon as tools reach room temperature.

Tempering

Heat the 905M39 carefully to a suitable temperature selected by reference to a tempering chart or table (usually between 580-700°C), soak at the temperature for two hours per 25mm of ruling section, then allow to cool in the air.

Typical Mechanical Properties*

| Condition | Tensile N/mm ² | Yield N/mm ² | Elongation % | Izod KCV J | Hardness Brinell |
|-----------|------------------------------|----------------------------|-----------------|---------------|---------------------|
| R | 700-850 | 525 | 17 | 50 | 201-255 |
| S | 775-925 | 585 | 15 | 50 | 223-277 |

(*subject to ruling section)

Heat Treatment

Heat treatment temperatures, including rate of heating, cooling and soaking times will vary due to factors such as the shape and size of each steel component. Other considerations during the heat treatment process include the type of furnace, quenching medium and work piece transfer facilities. Please consult your heat treatment provider for full guidance on heat treatment of 905M39 alloy steel.

Certification

905M39 nitriding steel is available with a cast and analysis certificate or a BS EN 10204 3.1 mill certificate, please request when placing any orders.

Quality Assured Supply

905M39 is supplied in accordance with our ISO 9001:2015 registration.