# BS S124

Smiths Advanced Metals



## Free Machining

Free-machining martensitic stainless steel bar.

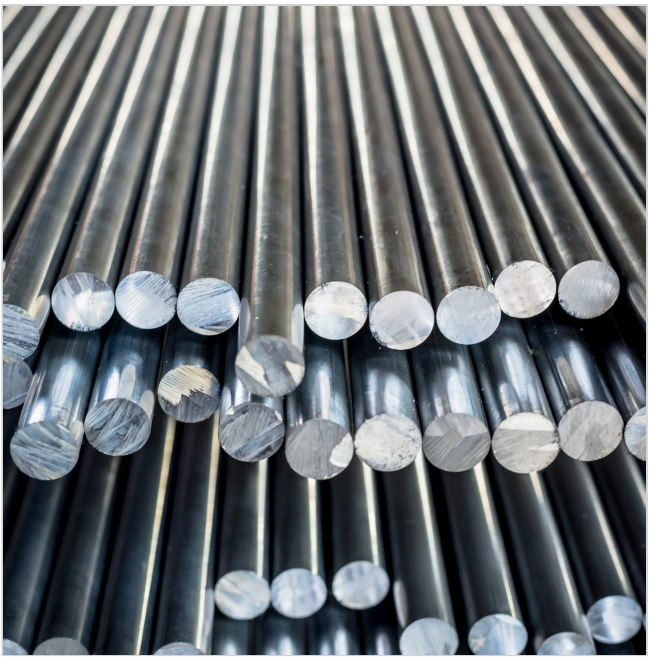
BS S124 is a free-machining martensitic stainless steel bar for aerospace use, based on Type 416 with 12–14% chromium.

A sulphur addition gives excellent machinability, so the alloy suits automatic lathes and high-volume turned parts. It can be hardened and tempered by heat treatment.

The sulphur reduces corrosion resistance, formability and weldability compared with non-free-machining grades.

On automatic lathes, the sulphur helps chips break cleanly, which shortens cycle times and reduces tool wear.

We stock BS S124 stainless steel as round bar in a broad range of sizes.



## Grades / Specifications

- BS S124
- 416S37 (similar)
- Type 416 (similar)

## Benefits

- Excellent machinability
- Suited to automatic lathes
- Can be heat treated

## * Chemical Composition (weight %)

| | C | Si | Mn | P | S | Cr | Mo | Ni | Zr |
|---|---|---|---|---|---|---|---|---|---|
| min. | 0.15 | | | | 0.15 | 12.0 | | | |
| max. | 0.25 | 1.00 | 1.50 | 0.045 | 0.40 | 14.0 | 0.60 | 1.00 | 0.60 |

* Mo + Zr 1.0 max

## Mechanical Properties (converted from imperial)

| Condition | Tensile Strength (MPa) | 0.2% Proof Stress (MPa) | Elongation (%) | Hardness | Impact (J) |
|---|---|---|---|---|---|
| As supplied | 695–849 | 448 min | 11 min | 201–255 HB / 210–270 HV | 27 min |

## Key Applications

- Aerospace components
- Fasteners
- Bearings
- Turbine blades
- Automotive parts

## Machinability or Corrosion Resistance?

Free-machining grades trade some corrosion resistance for faster machining. For harsher environments, a non-sulphurised grade such as BS S62 may suit better.

Type 416 grades are not recommended for vessels holding gases or liquids under high pressure.



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bsi ISO 9001 Quality Management Systems CERTIFIED
AS/EN 9100 Aviation Space and Defence CERTIFIED
EN 9120 Aviation Space and Defence CERTIFIED
UKAS TESTING 1930

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