# C300

## Technical Datasheet

## Maraging Steel

Service. Quality. Value.

## Typical Applications

- Missile casings
- Tooling
- Ordnance breach blocks
- High performance autosport components
- Bearings
- Transmission shafts

## Product Description

Type C300 cobalt containing grade of maraging steel, produced by vacuum arc re-melting, provides very high strength (nominally 300 ksi tensile) with an above average level of toughness. The alloy retains its strength up to 450°C and good notch impact is maintained down to minus 50°C and below. This material may be nitrided. C300 is usually supplied in the annealed condition where the microstructure consists of fine martensite. This structure is then maraged (precipitation hardened) to achieve final properties employing a relatively low temperature that results in the required combination of high strength and toughness. The alloy has a density of 8.02 g/cc.

## Machining & Welding

Maraging steels are usually machined in the annealed condition, however, they can be machined in the maraged condition. Components can be machined close to finished dimensions as the low temperature maraging treatment results in minimal distortion. In addition, the small contraction of approximately 0.05% due to maraging results in good dimensional stability.

C300 steel can be readily welded.

## Availability

Bar and forgings.

## Related Specifications

- UNS K93120
- AMS 6514
- Wr. N 1.6358

## Corrosion Resistance

The corrosion resistance of C300 maraging steel is similar to that of standard martensitic stainless steels.

## Chemical Composition (weight %)

| | C | Si | Mn | Ni | Co | Mo | Al | Ti | Fe | |
|---|---|---|---|---|---|---|---|---|---|---|
| Min | | | | 18.00 | 8.50 | 4.60 | 0.05 | 0.50 | Bal | |
| Max | 0.3 | 0.10 | 0.10 | 19.00 | 9.50 | 5.20 | 0.15 | 0.80 | | |

## Mechanical Properties (annealed and maraged condition)

| | |
|---|---|
| UTS, MPa | 2,035 |
| 0.2% PS, MPa | 2,000 |
| Elongation on 4D, % | 12 |
| Charpy notch impact, J | 17 |
| Young's modulus, GPa | 195 |

Hardness (HRC) in the annealed condition is 36 max. and for the maraged condition 52 min.

## Technical Assistance

Our knowledgeable staff backed up by our resident team of qualified metallurgists and engineers, will be pleased to assist further on any technical topic.


UK Service Centres:

| | | | |
|---|---|---|---|
| Smiths Belfast | 02895 908 897 | Smiths Leeds | 0113 307 5167 |
| Smiths Biggleswade | 01767 604 704 | Smiths Manchester | 0161 794 8650 |
| Smiths Birmingham | 0121 728 4940 | Smiths Norwich | 01603 789 878 |
| Smiths Bristol | 0117 971 2800 | Smiths Nottingham | 0115 925 4801 |
| Smiths Chelmsford | 01245 466 664 | Smiths Redruth | 01209 315 512 |
| Smiths Gateshead | 0191 469 5428 | Smiths Verwood | 01202 824 347 |
| Smiths Horsham | 01403 261 981 | Main Office | 0845 527 3331 |

Quality & Testing:

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