

**This page is mainly introduced the S.159 Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of S.159, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.**

## Datasheet for Steel Grades Specialsteel S.159

| S.159 Standard Number: |                 |   |
|------------------------|-----------------|---|
| ITEM                   | Standard Number | Descriptions  |
| 1                      | BS S 159        | Specification for 12% chromium-nickel-molybdenum-vanadium heat-resisting steel bars for the manufacture of fasteners (1100-1300 MPa: limiting ruling section 50 mm) |

| S.159 Chemical composition (mass fraction) (wt.%) |    |         |    |    |    |         |    |    |       |  |
|---|----|---------|----|----|----|---------|----|----|-------|--|
| Chemical  |    | Min.(%) |    |    |    | Max.(%) |    |    |       |  |
| C   |    | 0.08    |    |    |    | 0.13    |    |    |       |  |
| Si  |    |         |    |    |    | 0.35    |    |    |       |  |
| Mn  |    | 0.50    |    |    |    | 0.90    |    |    |       |  |
| P   |    |         |    |    |    | 0.030   |    |    |       |  |
| S   |    |         |    |    |    | 0.025   |    |    |       |  |
| Cr  |    | 11.00   |    |    |    | 12.50   |    |    |       |  |
| Ni  |    | 2.00    |    |    |    | 3.00    |    |    |       |  |
| Mo  |    | 1.50    |    |    |    | 2.00    |    |    |       |  |
| Nb/Ti   |    |         |    |    |    |         |    |    |       |  |
| V   |    | 0.25    |    |    |    | 0.40    |    |    |       |  |
| N   |    | 0.020   |    |    |    | 0.040   |    |    |       |  |
| C   | Si | Mn      | P  | S  | Cr | Ni      | Mo | V  | Ta    |  |
| W   | N  | Cu      | Co | Pb | B  | Nb      | Al | Ti | Other |  |
|   |    |         |    |    |    |         |    |    |       |  |

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### S.159 Physical Properties

| Tensile strength | 115-234 | $\sigma_b$ /MPa          |
|------------------|---------|--------------------------|
| Yield Strength   | 23      | $\sigma_{0.2} \geq$ /MPa |
| Elongation       | 65      | $\delta_5 \geq$ (%)      |
| $\psi$           | -       | $\psi \geq$ (%)          |
| Akv              | -       | $Akv \geq$ /J            |
| HBS              | 123-321 | -                        |
| HRC              | 30      | -                        |

### S.159 Mechanical Properties

| Tensile strength | 231-231 | $\sigma_b$ /MPa          |
|------------------|---------|--------------------------|
| Yield Strength   | 154     | $\sigma_{0.2} \geq$ /MPa |
| Elongation       | 56      | $\delta_5 \geq$ (%)      |
| $\psi$           | -       | $\psi \geq$ (%)          |
| Akv              | -       | $Akv \geq$ /J            |
| HBS              | 235-268 | -                        |
| HRC              | 30      | -                        |

### S.159 Heat Treatment Regime

| Annealing | Quenching | Tempering | Normalizing | Q & T |
|-----------|-----------|-----------|-------------|-------|
| √         | √         | √         | √           | √     |

| S.159 Range of products |  |                            |   |   |
|-------------------------|--|----------------------------|---|---|
| Product type            | Products                                 | Dimension                  | Processes                                   | Deliver Status  |
| Plates / Sheets         | Plates / Sheets                          | 0.08-200mm(T)*W*L          | Forging, hot rolling and cold rolling       | Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting |
| Steel Bar               | Round Bar, Flat Bar, Square Bar          | Φ8-1200mm*L                | Forging, hot rolling and cold rolling, Cast | Black, Rough Turning, Shot Blasting,                          |
| Coil / Strip            | Steel Coil /Steel Strip                  | 0.03-16.0x1200mm           | Cold-Rolled & Hot-Rolled                    | Annealed, Solution and Aging, Q+T, ACID-WASHED, Shot Blasting |
| Pipes / Tubes           | Seamless Pipes/Tubes, Welded Pipes/Tubes | OD:6-219mm x WT:0.5-20.0mm | Hot extrusion, Cold Drawn, Welded           | Annealed, Solution and Aging, Q+T, ACID-WASHED                |

**We can produce Specialsteel the specifications follows:**