

**This page is mainly introduced the HS-31 Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of HS-31, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.**

## Datasheet for Steel Grades Specialsteel HS-31

### HS-31 Standard Number:

| ITEM | Standard Number  | Descriptions                           |
|------|------------------|--|
| 1    | SAE J 467 (1968) | Special Purpose Alloys ("Superalloys") |

### HS-31 Chemical composition (mass fraction) (wt.%)

| Chemical | Min.(%) |    |    |    |    | Max.(%)   |    |    |       |  |
|----------|---------|----|----|----|----|-----------|----|----|-------|--|
| C        |         |    |    |    |    | 0.50      |    |    |       |  |
| Si       |         |    |    |    |    | 0.75      |    |    |       |  |
| Mn       |         |    |    |    |    | 0.75      |    |    |       |  |
| Ni       |         |    |    |    |    | 10.50     |    |    |       |  |
| Cr       |         |    |    |    |    | 25.50     |    |    |       |  |
| Al       |         |    |    |    |    |           |    |    |       |  |
| Cu       |         |    |    |    |    |           |    |    |       |  |
| Ti       |         |    |    |    |    |           |    |    |       |  |
| Fe       |         |    |    |    |    | 2.00      |    |    |       |  |
| Mo       |         |    |    |    |    |           |    |    |       |  |
| Co       |         |    |    |    |    | remaining |    |    |       |  |
| W        |         |    |    |    |    | 7.50      |    |    |       |  |
| C        | Si      | Mn | P  | S  | Cr | Ni        | Mo | V  | Ta    |  |
| W        | N       | Cu | Co | Pb | B  | Nb        | Al | Ti | Other |  |
|          |         |    |    |    |    |           |    |    |       |  |

Special Purpose Alloys ("Superalloys")

### HS-31 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      | -                        |

### HS-31 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      | -                        |

### HS-31 Heat Treatment Regime

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

### HS-31 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, | Φ8-1200mm*L       | Forging, hot rolling and              | Black, Rough Turning,   |

|               |  |                            |                                   |   |
|---------------|--|----------------------------|-----------------------------------|---|
|               | Square Bar                               |                            | cold rolling, Cast                | 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:**