

This page is mainly introduced the 46CrS2 Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of 46CrS2, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

## Datasheet for Steel Grades Structure Steel 46CrS2

### 46CrS2 Standard Number:

| ITEM | Standard Number | Descriptions |
|------|-----------------|--------------|
|------|-----------------|--------------|

### 46CrS2 Chemical composition (mass fraction) (wt.%)

| Chemical  |     |           | Min.(%) |             |           |    | Max.(%) |    |       |
|-----------|-----|-----------|---------|-------------|-----------|----|---------|----|-------|
| C         | Si  | Mn        | P       | S           | Cr        | Ni | Mo      | V  | Ta    |
| 0.42-0.50 | 0.4 | 0.50-0.80 | 0.035   | 0.020-0.040 | 0.40-0.60 |    |         |    |       |
| W         | N   | Cu        | Co      | Pb          | B         | Nb | Al      | Ti | Other |
|           |     |           |         |             |           |    |         |    |       |

### 46CrS2

### 46CrS2 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      | -                        |

### 46CrS2 Mechanical Properties

|                  |         |                 |
|------------------|---------|-----------------|
| Tensile strength | 231-231 | $\sigma_b$ /MPa |
|                  |         |                 |

|                |         |                                  |
|----------------|---------|----------------------------------|
| Yield Strength | 154     | $\sigma_{0.2} \geq / \text{MPa}$ |
| Elongation     | 56      | $\delta 5 \geq (\%)$             |
| $\psi$         | -       | $\psi \geq (\%)$                 |
| Akv            | -       | $Akv \geq / \text{J}$            |
| HBS            | 235-268 | -                                |
| HRC            | 30      | -                                |

### 46CrS2 Heat Treatment Regime

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

### 46CrS2 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          | $\Phi 8$ -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 Structure Steel the specifications follows:**