

This page is mainly introduced the S45C Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of S45C, 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 S45C

### S45C Standard Number:

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

### S45C Chemical composition (mass fraction) (wt.%)

| Chemical  |           |           | Min.(%) |       |      |    | Max.(%) |    |       |
|-----------|-----------|-----------|---------|-------|------|----|---------|----|-------|
| C         | Si        | Mn        | P       | S     | Cr   | Ni | Mo      | V  | Ta    |
| 0.42-0.48 | 0.15-0.35 | 0.60-0.90 | 0.030   | 0.035 | 0.20 |    |         |    |       |
| W         | N         | Cu        | Co      | Pb    | B    | Nb | Al      | Ti | Other |
|           | 0.20      | 0.30      |         |       |      |    |         |    |       |

### S45C

### S45C 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      | -                        |

### S45C Mechanical Properties

|                  |         |                          |
|------------------|---------|--------------------------|
| Tensile strength | 231-231 | $\sigma_b$ /MPa          |
| Yield Strength   | 154     | $\sigma_{0.2} \geq$ /MPa |
| Elongation       | 56      | $\delta_5 \geq$ (%)      |

|     |         |        |
|-----|---------|--------|
| ψ   | -       | ψ≥(%)  |
| Akv | -       | Akv≥/J |
| HBS | 235-268 | -      |
| HRC | 30      | -      |

### S45C Heat Treatment Regime

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

### S45C 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 Structure Steel the specifications follows:**