

This page is mainly introduced the C45 Datasheet, including chemical information, mechanical properties, physical properties, mechanical properties, heat treatment, and Micro structure, etc. It also contains the use of C45, such as it is commonly used in bars, sheet, plates, steel coils, steel pipes, forged and other materials application.

## Datasheet for Steel Grades Carbon Steel C45

| C45 Standard Number: |                 |              |
|----------------------|-----------------|--------------|
| ITEM                 | Standard Number | Descriptions |

| C45 Chemical composition (mass fraction) (wt.%) |    |    |         |    |    |    |         |    |       |
|---|----|----|---------|----|----|----|---------|----|-------|
| Chemical  |    |    | Min.(%) |    |    |    | Max.(%) |    |       |
| C   | Si | Mn | P       | S  | Cr | Ni | Mo      | V  | Ta    |
|   |    |    |         |    |    |    |         |    |       |
| W   | N  | Cu | Co      | Pb | B  | Nb | Al      | Ti | Other |
|   |    |    |         |    |    |    |         |    |       |

|           |      |           |       |       |    |    |
|-----------|------|-----------|-------|-------|----|----|
| C         | Si   | Mn        | P     | S     | Cr | Ni |
| 0.42-0.50 | 0.40 | 0.50-0.80 | 0.045 | 0.045 |    |    |
| Mo        | Al   | Cu        | Nb    | Ti    | V  | Ce |
|           |      |           |       |       |    |    |
| N         | Co   | Pb        | B     | Other |    |    |
|           |      |           |       |       |    |    |
|           |      |           |       |       |    |    |

|           |      |           |       |       |    |    |
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|           |      |           |       |       |    |    |
| N         | Co   | Pb        | B     | Other |    |    |
|           |      |           |       |       |    |    |
|           |      |           |       |       |    |    |

### C45 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      | -                        |

### C45 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      | -                        |

### C45 Heat Treatment Regime

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

| C45 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 Carbon Steel the specifications follows:**