

Quality S235J0

According to Standard EN 10025 - 2 : 2004

Number 1.0114



| Comparable Standards | German DIN | France AFNOR | Spain UNE | China GB | U.K. B.S. | Russia GOST     | USA AISI - SAE | Japan JIS |
|----------------------|------------|--------------|-----------|----------|-----------|-----------------|----------------|-----------|
|                      | St37-3U    | E24 - 3      | AE235C    |          |           | St3Fsp . Ct3tnc | A 1011         | SS 400    |

| Chemical Analysis | C% max      | Si% max | Mn% max     | P% max        | S% max        | N% max        | Cu% max     |
|-------------------|-------------|---------|-------------|---------------|---------------|---------------|-------------|
|                   | 0.17 - 0.19 |         | 1.40 - 1.50 | 0.030 - 0.040 | 0.030 - 0.040 | 0.012 - 0.014 | 0.40 - 0.45 |

**Hot Work and Heat Treatment Temperatures**

**Temperature °C**

| Hot - Forming | Supply State +U | Soft Annealing +A | Isothermal Annealing +I | Normalising & Tempering | Quenching & Tempering QT | Stress-relieving +SR                   |
|---------------|-----------------|-------------------|-------------------------|-------------------------|--------------------------|--|
| 1200 - 850    | natural state   | 700 air           |                         | 920 air                 | 920 water                | 50° under the temperature of tempering |
|               | (HB 240~)       | (HB 120~)         |                         | 540 - 650 air           | 540 - 665 air            |  |

**Mechanical Properties at Room Temperature**

**Minimum Yield Strength R<sup>eH</sup>  
Mpa  
Nominal Thickness mm**

| ≤ 16 | > 16 | > 40 | > 63 | > 80  | > 100 | > 150 | > 200 |
|------|------|------|------|-------|-------|-------|-------|
|      | ≤ 40 | ≤ 63 | ≤ 80 | ≤ 100 | ≤ 150 | ≤ 200 | ≤ 250 |
| 360  | 355  | 345  | 335  | 325   | 305   | 295   | 285   |

**Tensile Strength R  
Mpa  
Nominal Thickness mm**

| < 3        | > 3        | > 100      | > 150      |
|------------|------------|------------|------------|
|            | ≤ 100      | ≤ 150      | ≤ 250      |
| 690 to 900 | 670 to 830 | 650 to 830 | 640 to 830 |

**Minimum percentage elongation after fracture %**

|   | L = 80 mm. Normal thickness mm |       |       |       | L = 5.65 √S <sub>0</sub> . Nominal thickness mm |      |      |       |       |       |
|---|--------------------------------|-------|-------|-------|---|------|------|-------|-------|-------|
|   | ≤ 1                            | > 1   | > 1.5 | > 2   | > 2.5   | > 3  | > 40 | > 63  | > 100 | > 150 |
|   |                                | ≤ 1.5 | ≤ 2   | ≤ 2.5 | < 3   | ≤ 40 | ≤ 63 | ≤ 100 | ≤ 150 | ≤ 250 |
| l | 17                             | 18    | 19    | 20    | 21  | 26   | 25   | 24    | 22    | 21    |
| t | 15                             | 16    | 17    | 18    | 19  | 24   | 23   | 22    | 22    | 21    |