

**Flange material:** ASTM A 350 LF2  
**According to standards Number** ASTM A 350M - 07  
**Flange type:** Weld neck flange, blind flange, slip on flange  
**Socket weld flange, threaded Flanges**

C&N is a professional manufacturer of steel forged flange, ASTM A350 LF2 Flange, A350 LF2 Welding Neck Flange, A350 LF2 Blind flange, Blind raise face flange, A350 LF2 Slip on Flange, ANSI B16.5 blind ring joint flange,

**Chemical composition**

| C%<br>max | Si%       | Mn%       | P%<br>max | S%<br>max | Cu%<br>max | Ni%<br>max | Cr%<br>max | Mo%<br>max | V%<br>max | Nb%<br>max |
|-----------|-----------|-----------|-----------|-----------|------------|------------|------------|------------|-----------|------------|
| 0,30      | 0,15-0,30 | 0,60-1,35 | 0,035     | 0,040     | 0,40       | 0,40       | 0,30       | 0,12       | 0,08      | 0,02       |

The sum of copper (Cu), chromium (Cr) and molybdenum (Mo) should not exceed 1,00%

The sum of chromium (Cr) and molybdenum (Mo) should not exceed 0,32%

Carbon Equivalent CE = C + Mn/6 + (Cr + Mo + V)/5 + (Ni + Cu)/ 15 max 0,47

**Temperature °C**

| Hot-forming        | Normalizing                  | Quenching                                   | Tempering           | Stress-relieving                         |
|--------------------|------------------------------|---|---------------------|--|
| 1150-850           | 880-930<br>air cooling       | 880-930<br>oil / polymer water              | 590<br>air cooling  | 50 under the temperature of<br>tempering |
| Soft annealing     | Normalizing<br>and tempering | Isothermal<br>annealing                     | Pre-heating welding | Stress-relieving<br>after welding (PWHT) |
| 700<br>air cooling | 900 air<br>600 air           | 860 furnace<br>cooling to<br>660 after, air | 200<br>AC1          | 590 furnace cooling<br>MS Mf             |

**Mechanical properties**

Forged values as reference Heat treatments must guarantee the reported values ASTM A 350M -07

| all dimension<br>mm | Testing at room temperature (longitudinal) |                 | A%<br>min. | C%-Z%<br>min. | Kv - 46 °C CL.1     | Kv - 18 °C CL.2 | HB<br>max |
|---------------------|--|-----------------|------------|---------------|---------------------|-----------------|-----------|
| T                   | R<br>N/mm2                                 | Rp 0.2<br>N/mm2 |            |               | J average / minimum |                 |           |
| T                   | 485-655                                    | 250             | 22         | 30            | 20 / 16             | 27 / 20         | 197       |

T= max heat-treated thickness Test specimen should correspond to the 1/4 T

**Mechanical properties (longitudinal testing)**

| Heat treatments        | Φ product<br>mm | R<br>N/mm2 | Rp 0.2<br>N/mm2 | A<br>% | C-Z<br>% | Kv -46 °C<br>J | Kv -18 °C<br>J | product    |
|------------------------|-----------------|------------|-----------------|--------|----------|----------------|----------------|------------|
| Quenching 880 °C water | 95              | 600        | 480             | 24.6   | 58       | 68-66-64       | 112- 114-110   | Hot-rolled |
| Tempering 640 °C air   |                 |            |                 |        |          |                |                |            |
| Normalizing 900 °C air | 210             | 580        | 400             | 32.6   | 64.4     | 22⊕  24-18     | 70⊕  74-70     | Hot-rolled |
| Natural                | 95              | 526        | 302             | 28.6   | 62       | 06/06/04       | 16/10/08       | Hot-rolled |

| EUROPE EN      | ITALY UNI   | CHINA GB | GERMANY DIN | FRANCE AFNOR | U.K. | B.S. | RUSSIA GOST | USA AISI/SAE |
|----------------|-------------|----------|-------------|--------------|------|------|-------------|--------------|
| S355J2G3 appr. | Fc510 appr. | 16Mn     | St52.3 N    | 50D          | 20G  |      |             |              |

A350 LF2 cl. 1-| cl. 2