

# STEEL GRADE FOR FASTENERS APPLICATIONS

They are steels used for cold and hot deformation to produce screws, bolts, nuts or parts intended for subsequent mechanical machining.

The strict control of the manufacturing process allows us to obtain products that are free of non-metallic inclusions, whereas the controlled rolling guarantees a product with contained decarburisation and no surface defects.

The slow final cooling of the wire guarantees a product that perfectly fulfils the strict specifications of cold deformation. The key manufacturers of nuts and bolts in Europe and abroad appreciate the quality of ORI Martin special steels, and particularly acknowledge the excellent ductility and hardenability.



## Steel grade

| Steel grade     | Corresponding standard |           | Average chemical composition |      |      |      |      |      |      |       |   |
|-----------------|------------------------|-----------|------------------------------|------|------|------|------|------|------|-------|---|
|                 |                        | Werkstoff | ORI Martin                   | C    | Mn   | Si   | Cr   | Ni   | Mo   | B ppm | V |
| <b>C</b>        | C4C                    | 1.0303    | SC08X1                       | 0,04 | 0,30 | 0,03 | -    | -    | -    | -     | - |
|                 | C8C                    | 1.0213    | SC08X5                       | 0,08 | 0,30 | 0,03 | -    | -    | -    | -     | - |
|                 | C10C                   | 1.0214    | SC10X1                       | 0,10 | 0,40 | 0,05 | -    | -    | -    | -     | - |
|                 | C15C                   | 1.0234    | SC15S5                       | 0,15 | 0,50 | 0,10 | -    | -    | -    | -     | - |
|                 | C20C                   | 1.0411    | SC20S2                       | 0,20 | 0,60 | 0,10 | -    | -    | -    | -     | - |
| <b>B</b>        | 15B2                   | 1.5501    | S15B11                       | 0,13 | 0,55 | -    | -    | -    | -    | 30    | - |
|                 | 17B2                   | 1.5502    | S18B12                       | 0,17 | 0,70 | -    | -    | -    | -    | 20    | - |
|                 | 23B2                   | 1.5508    | S21B11                       | 0,21 | 0,80 | -    | 0,15 | -    | -    | 20    | - |
|                 | 28B2                   | 1.5510    | S25B12                       | 0,27 | 0,80 | -    | 0,25 | -    | -    | 20    | - |
|                 | 33B2                   | 1.5514    | S34B11                       | 0,32 | 0,80 | -    | 0,15 | -    | -    | 20    | - |
|                 | 35B2                   | 1.5511    | S35B11                       | 0,37 | 0,75 | -    | -    | -    | -    | 30    | - |
|                 | 45B2                   | 1.5513    | S45B11                       | 0,45 | 0,75 | -    | 0,15 | -    | -    | 30    | - |
| <b>Mn B</b>     | 23MnB4                 | 1.5535    | S21B13                       | 0,22 | 0,95 | -    | 0,30 | -    | -    | 20    | - |
|                 | 30MnB4                 | 1.5526    | S30B11                       | 0,30 | 0,80 | -    | 0,15 | -    | -    | 20    | - |
|                 | 36MnB4                 | 1.5537    | S35B16                       | 0,35 | 0,90 | -    | 0,15 | -    | -    | 20    | - |
| <b>Mo B</b>     | 30MoB1                 | 1.5408    | S30B15                       | 0,30 | 0,90 | -    | 0,20 | -    | 0,10 | 20    | - |
| <b>Cr Ni Mo</b> | 39NiCrMo3              | 1.6510    | S38H41                       | 0,38 | 0,70 | -    | 0,80 | 0,80 | 0,20 | -     | - |
|                 | 34NiCrMo6              | 1.6582    | S34H61                       | 0,34 | 0,70 | -    | 1,50 | 1,50 | 0,20 | -     | - |
| <b>Cr B</b>     | 25CrB3                 |           | S25BC1                       | 0,25 | 0,65 | -    | 0,70 | -    | -    | 40    | - |
|                 | 32CrB4                 | 1.7076    | S30BC                        | 0,32 | 0,80 | -    | 1,10 | -    | -    | 20    | - |

| Steel grade    | Corresponding standard |            |        | Average chemical composition |      |    |      |    |      |       |      |
|----------------|------------------------|------------|--------|------------------------------|------|----|------|----|------|-------|------|
|                | Werkstoff              | ORI Martin |        | C                            | Mn   | Si | Cr   | Ni | Mo   | B ppm | V    |
|                | 36CrB4                 | 1.7077     | S36BC  | 0,36                         | 0,80 | -  | 1,10 | -  | -    | 20    | -    |
| <b>Cr</b>      | 34Cr4                  | 1.7033     | S34C41 | 0,34                         | 0,70 | -  | 1,00 | -  | -    | -     | -    |
|                | 37Cr4                  | 1.7034     | S37C44 | 0,37                         | 0,70 | -  | 1,00 | -  | -    | -     | -    |
|                | 41Cr4                  | 1.7035     | S41C4  | 0,41                         | 0,70 | -  | 1,00 | -  | -    | -     | -    |
| <b>Mn Cr B</b> | 27MnCrB5-2             | 1.7182     | S27B51 | 0,27                         | 1,25 | -  | 0,45 | -  | -    | 20    | -    |
|                | 33MnCrB5-2             | 1.7185     | S31B51 | 0,33                         | 1,35 | -  | 0,45 | -  | -    | 20    | -    |
| <b>Cr Mo</b>   | 34CrMo4                | 1.7220     | S34L41 | 0,34                         | 0,70 | -  | 1,00 | -  | 0,20 | -     | -    |
|                | 42CrMo4                | 1.7225     | S42L41 | 0,42                         | 0,70 | -  | 1,00 | -  | 0,20 | -     | -    |
| <b>Cr Mo B</b> | 31CrMoB2-1             | 1.7272     | S30B18 | 0,30                         | 1,00 | -  | 0,50 | -  | 0,12 | 20    | -    |
|                | 32CrMoB4               |            | S32BL1 | 0,32                         | 0,80 | -  | 1,00 | -  | 0,12 | 20    | -    |
| <b>Cr Mo V</b> | 21CrMoV5-7             | 1.7709     | S21K51 | 0,21                         | 0,60 | -  | 1,35 | -  | 0,68 | -     | 0,28 |
|                | 40CrMoV4-6             | 1.7711     | B40K41 | 0,40                         | 0,60 | -  | 1,00 | -  | 0,60 | -     | 0,30 |