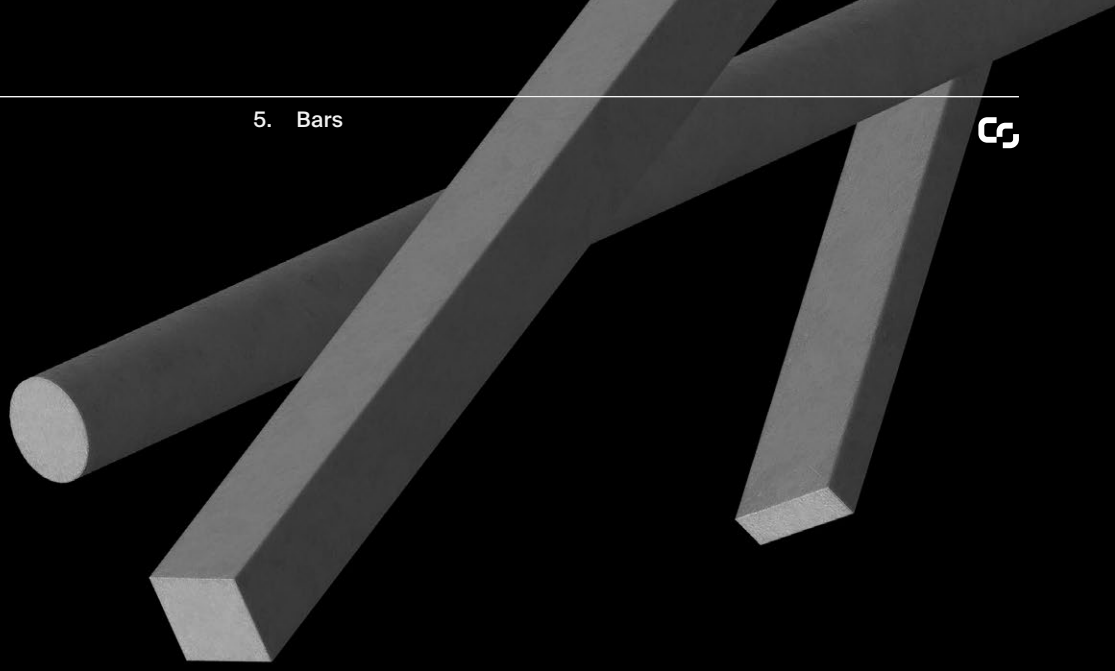


# 5. Bars

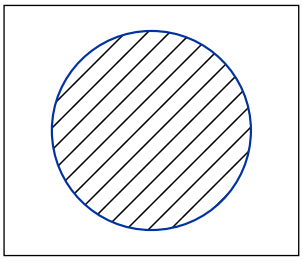
**Steel bars are long steel products commonly used in construction and manufacturing, having a round, square or rectangular cross section.**

# Bars
# Standard specifications

The standard specifications used for production of universal beams and columns in this region are listed in this table.

| Material | Yield strength N/mm² | | | Tensile strength N/mm² | Min. Elongation $L_0=5.65\sqrt{S_0}$ | Min. Charpy V-notch. | Dimensions & Tolerances |
|---|---|---|---|---|---|---|---|
| ***AS 3679.1*** | **≤11mm** | **>11 - <40mm** | **≥40mm** | | | | ***AS 3679.1*** |
| **Grade 300** | 320 | 300 | 280 | min. 440 | 22% | 27J @ 0°C | |
| **Grade 350** | 360 | 340 | 330 | min. 480 | 20% | 27J @ 0°C | |
| ***ASTM A36 (1996)*** | | min. 250 | | 400-550 | 20-21 % | - | ***ASTM A6*** |
| ***ASTM A572*** | | | | | | | |
| **Grade 42** | | min. 290 | | min. 415 | 20-24 % | - | |
| **Grade 50** | | min. 345 | | min. 450 | 18-21 % | - | |
| **Grade 60** | | min. 415 | | min. 520 | 16-18 % | - | |
| **Grade 65** | | min. 450 | | min. 550 | 15-17 % | - | |
| ***ASTM A992*** | | 345 - 450 | | min. 450 | 18-21 % | - | |
| ***EN 10025*** | **≤16mm** | **>16 - ≤40mm** | **>40 - ≤150mm** | **3-100mm** | | | ***EN 10058 - Flat EN10059 - Square EN10060 - Round*** |
| **S275JR** | 275 | 265 | 255 - 225 | 410-560 | 18-23 % | 27J @ 20°C | |
| **S355JR** | 355 | 345 | 335 - 295 | 470-630 | 17-22 % | 27J @ 20°C | |
| **S355J0** | 355 | 345 | 335 - 295 | 470-630 | 17-22 % | 27J @ 0°C | |
| **S355J2** | 355 | 345 | 335 - 295 | 470-630 | 17-22 % | 27J @ -20°C | |
| ***JIS 3101*** | **≤16mm** | **>16 - ≤40mm** | **>40 - ≤100mm** | **t<100mm** | | | ***JIS 3192*** |
| **SS400** | 245 | 235 | 215 | 400-510 | 17-23 % | - | |
| **SS490** | 285 | 275 | 255 | 490-610 | 15-21 % | - | |
| **SS540** | 400 | 390 | - | min. 540 | 13-17 % | - | |
| ***JIS 3106*** | **≤16mm** | **>16 - ≤40mm** | **>40mm** | **t<100mm** | | | |
| **SM400A** | 245 | 235 | 215 | 400-510 | 18-24 % | - | |
| **SM400B** | 245 | 235 | 215 | 400-510 | 18-24 % | 27J @ 0°C | |
| **SM400C** | 245 | 235 | 215 | 400-510 | 18-24 % | 47J @ 0°C | |
| **SM490A** | 325 | 315 | 295 | 490-610 | 17-23 % | - | |
| **SM490B** | 325 | 315 | 295 | 490-610 | 17-23 % | 27J @ 0°C | |
| **SM490C** | 325 | 315 | 295 | 490-610 | 17-23 % | 47J @ 0°C | |
| **SM490YA** | 365 | 355 | 335 | 490-610 | 15-21 % | - | |
| **SM490YB** | 365 | 355 | 335 | 490-610 | 15-21 % | 27J @ 0°C | |
| **SM520B** | 365 | 355 | 335 | 520-640 | 15-21% | 27J @ 0°C | |
| **SM520C** | 365 | 355 | 335 | 520-640 | 15-21 % | 47J @ 0°C | |

# 5.2
# Round Bars



| | |
|---|---|
| Dimensions | EN10058/ ASTM A6 |
| Specification | EN10025/ ASTM A36/ ASTM A572 |
| Size Range | 3mm x 25mm to 25mm x 200mm |

| Section Size | Unit Weight | Section Area |
|---|---|---|
| mm | M<br>kg/m | A<br>cm2 |
| 6 | 0.222 | 0.283 |
| 10 | 0.617 | 0.785 |
| 12 | 0.888 | 1.13 |
| 13 | 1.04 | 1.33 |
| 14 | 1.21 | 1.54 |
| 16 | 1.58 | 2.01 |
| 18 | 2.00 | 2.54 |
| 19 | 2.23 | 2.84 |
| 20 | 2.47 | 3.14 |
| 22 | 2.98 | 3.80 |
| 24 | 3.55 | 4.52 |
| 25 | 3.85 | 4.91 |
| 26 | 4.17 | 5.31 |
| 28 | 4.83 | 6.16 |
| 29 | 5.19 | 6.61 |
| 30 | 5.55 | 7.07 |
| 32 | 6.31 | 8.04 |
| 35 | 7.55 | 9.62 |
| 38 | 8.90 | 11.3 |
| 40 | 9.86 | 12.6 |
| 44 | 11.9 | 15.2 |
| 45 | 12.5 | 15.9 |
| 50 | 15.4 | 19.6 |
| 60 | 22.2 | 28.3 |
| 65 | 26.0 | 33.2 |
| 75 | 34.7 | 44.2 |
| 90 | 49.9 | 63.6 |
| 100 | 61.7 | 78.5 |
| 125 | 96.3 | 123 |
| 150 | 139 | 177 |
| 200 | 247 | 314 |