



**Carbon and Carbon
Manganese steels**

Norma Tuyper BS 970 : 1991



Calidades
Aceros Calibrados

Carbon and Carbon Manganese steels

| Steel | Chemical Composition | | | | |
|--------|----------------------|---------------|---------------|--------------|--------------|
| | C % (m/m) | Si % (m/m) | Mn % (m/m) | P % (m/m) | S % (m/m) |
| 080A15 | 0,13 to 0,18 | 0,10 to 0,40 | 0,70 to 0,90 | 0,05 max | 0,05 max |

| Steel | Chemical Composition | | | | |
|--------|----------------------|---------------|---------------|--------------|--------------|
| | C % (m/m) | Si % (m/m) | Mn % (m/m) | P % (m/m) | S % (m/m) |
| 070M20 | 0,16 to 0,24 | 0,10 to 0,40 | 0,50 to 0,90 | 0,05 max | 0,05 max |

| Steel | Mechanical Properties | | | | | |
|--------|-------------------------|---|-------------------|---------------------|-------------------------------|-----------------------|
| | Condition | Size (diameter across flats or thickness) | R _m | R _e min. | A min on 5.65 √S ₀ | R _{p0.2} min |
| | | mm | N/mm ² | N/mm ² | % | N/mm ² |
| 070M20 | Hot rolled + cold drawn | ≥ 6 ≤ 13 | 560 min. | 440 | 10 | 420 |
| | | > 13 ≤ 16 | 530 min. | 420 | 12 | 390 |
| | | > 16 ≤ 40 | 490 min. | 370 | 12 | 340 |
| | | > 40 ≤ 63 | 480 min. | 355 | 13 | 290 |
| | | > 63 ≤ 76 | 450 min. | 325 | 14 | 280 |

| Steel | Chemical Composition | | | | |
|--------|----------------------|---------------|---------------|--------------|--------------|
| | C % (m/m) | Si % (m/m) | Mn % (m/m) | P % (m/m) | S % (m/m) |
| 080M40 | 0,36 to 0,44 | 0,10 to 0,40 | 0,60 to 1,00 | 0,05 max | 0,05 max |

| Steel | Mechanical Properties | | | | | |
|--------|-------------------------|---|-------------------|---------------------|-------------------------------|-----------------------|
| | Condition | Size (diameter across flats or thickness) | R _m | R _e min. | A min on 5.65 √S ₀ | R _{p0.2} min |
| | | mm | N/mm ² | N/mm ² | % | N/mm ² |
| 080M40 | Hot rolled + cold drawn | ≥ 6 ≤ 13 | 660 min. | 530 | 7 | 495 |
| | | > 13 ≤ 16 | 650 min. | 510 | 8 | 485 |
| | | > 16 ≤ 40 | 620 min. | 480 | 9 | 435 |
| | | > 40 ≤ 63 | 600 min. | 465 | 10 | 370 |
| | | > 63 ≤ 76 | 570 min. | 430 | 10 | 350 |

| Steel | Chemical Composition | | | | |
|--------|----------------------|---------------|---------------|--------------|--------------|
| | C % (m/m) | Si % (m/m) | Mn % (m/m) | P % (m/m) | S % (m/m) |
| 080A42 | 0,40 to 0,45 | 0,10 to 0,40 | 0,70 to 0,90 | 0,05 max | 0,05 max |

