

|                       |             |
|-----------------------|-------------|
| Quality               | 709M40      |
| According to Standard | PD 970:2005 |
| Number                | -           |



| Comparable Standards | W.N.         | AISI         | DIN      |              |      |              |
|----------------------|--------------|--------------|----------|--------------|------|--------------|
|                      | -            | -            | 42CrMoS4 |              |      |              |
| Chemical Analysis    | C %          | Mn %         | Si %     | Cr %         | Ni % | Mo %         |
|                      | 0.36 to 0.44 | 0.70 to 1.00 | —        | 0.90 to 1.20 | —    | 0.25 to 0.35 |
|                      | P%           | S%           |          |              |      |              |
|                      | —            | —            |          |              |      |              |

### Hot Work and Heat Treatment Temperatures

| Preheat Treatment °C            | Austenitizing °C | Hardening °C | Tempering °C |
|---------------------------------|------------------|--------------|--------------|
| No Hardenability data specified |                  | 860 to 890   | 550 to 700   |
|                                 |                  |              |              |
|                                 |                  |              |              |

### Mechanical Properties at Room Temperature

| Condition                                                                                  | Ø<br>mm.                | Rp0,2 min.<br>N/mm2 | Rm<br>N/mm2  | A min. % | KV min. J | Max Hardness<br>HB |
|--------------------------------------------------------------------------------------------|-------------------------|---------------------|--------------|----------|-----------|--------------------|
| Hardened and tempered + turned or ground                                                   | R > 100 ≤ 250           | 480                 | 700 to 850   | 15       | 28        | 201 to 255         |
|                                                                                            | S > 150 ≤ 250           | 540                 | 775 to 925   | 13       | 22        | 223 to 277         |
|                                                                                            | S > 63 ≤ 150            | 570                 | 775 to 925   | 15       | 50        | 223 to 277         |
|                                                                                            | T > 29 ≤ 100            | 665                 | 850 to 1000  | 13       | 50        | 248 to 302         |
|                                                                                            | U > 6 ≤ 63              | 740                 | 925 to 1075  | 12       | 42        | 269 to 331         |
|                                                                                            | V > 6 ≤ 29 <sup>d</sup> | 835                 | 1000 to 1150 | 12       | 42        | 293 to 352         |
|                                                                                            | W > 6 ≤ 19 <sup>d</sup> | 925                 | 1075 to 1225 | 12       | 35        | 311 to 375         |
| Hardened and tempered + cold drawn or hardened tempered + cold drawn + ground              | R > 100 ≤ 250           | 510                 | 700 to 850   | 12       | 50        | 201 to 255         |
|                                                                                            | S > 63 ≤ 150            | 585                 | 775 to 925   | 11       | 50        | 223 to 277         |
|                                                                                            | T > 29 ≤ 100            | 680                 | 850 to 1000  | 9        | 50        | 248 to 302         |
|                                                                                            | U > 13 ≤ 63             | 755                 | 925 to 1075  | 9        | 42        | 269 to 331         |
|                                                                                            | V > 6 ≤ 29 <sup>d</sup> | 850                 | 1000 to 1150 | 9        | 42        | 293 to 352         |
|                                                                                            | W > 6 ≤ 19 <sup>d</sup> | 940                 | 1075 to 1225 | 8        | 35        | 311 to 375         |
| Softened + turned, ground or cold drawn or turned, ground or cold drawn + finally softened | -                       | -                   | -            | -        | -         | 255 max.           |