

|                                                                                                  |                                            |                     |                                                                                    |                               |                     |
|--------------------------------------------------------------------------------------------------|--------------------------------------------|---------------------|------------------------------------------------------------------------------------|-------------------------------|---------------------|
| Quality According to standards Number                                                            | 39NiCrMo3<br>EN 10083-3: 2006<br>1.6510    |                     |  |                               |                     |
| Equivalent                                                                                       | Italy UNI                                  | China GB            | Germany DIN                                                                        | UK                            | USA AISI/SAE        |
| Chemical composition                                                                             | 39NiCrMo3                                  |                     | 36CrNiMo4                                                                          |                               | 9840                |
| C% max<br>0.35-0.43                                                                              | Si%<br>0.4                                 | Mn%<br>0.50-0.80    | P% max<br>0.025                                                                    | S% max<br>0.035               | Cr% max<br>0.60-1.0 |
|                                                                                                  | Mo% max<br>0.15-0.25                       | Ni% max<br>0.70-1.0 | V% max<br>-                                                                        | Al%<br>-                      |                     |
| Temperature °C                                                                                   |                                            |                     |                                                                                    |                               |                     |
| Hot-forming                                                                                      | Quenching                                  | Tempering           | Stress Relieving                                                                   | Carbonitriding                |                     |
| 1100-900                                                                                         | 840-850                                    | 550-650             | 50°C under the temperature of tempering                                            | 870-880 gas tempering 150-200 |                     |
|                                                                                                  | oil or polymer or water                    | air                 |                                                                                    |                               |                     |
| Mechanical properties                                                                            |                                            |                     |                                                                                    |                               |                     |
| Hot Rolled (+QT) EN 10083-3: 2006                                                                |                                            |                     |                                                                                    |                               |                     |
| size d/t                                                                                         | Testing at room temperature (longitudinal) |                     |                                                                                    |                               |                     |
| mm                                                                                               | R (N/mm2 min)                              | Rp 0.2 N/mm2        | A% min                                                                             | C%                            | Kv HB               |
| 16/8                                                                                             | 980-1180                                   | 785                 | 11                                                                                 | 40                            | 295-354             |
| 16/8 to 40/20                                                                                    | 930-1130                                   | 735                 | 11                                                                                 | 40                            | 35 278-339          |
| 40/20 to 100/60                                                                                  | 880-1080                                   | 685                 | 12                                                                                 | 45                            | 40 263-327          |
| 100/6 to 160/100                                                                                 | 830-980                                    | 635                 | 12                                                                                 | 50                            | 40 249-295          |
| 160/100 to 250/160                                                                               | 740-880                                    | 540                 | 13                                                                                 | 50                            | 40 224-263          |
| Table of tempering values obtained at room temperature on rounds after quenching at 850°C in oil |                                            |                     |                                                                                    |                               |                     |
| HB                                                                                               | 577                                        | 560                 | 525                                                                                | 496                           | 468 442             |
| HRC                                                                                              | 56                                         | 55                  | 53                                                                                 | 51                            | 49 47               |
| R N/mm2                                                                                          | 2160                                       | 2070                | 1950                                                                               | 1820                          | 1700 1580           |
| Rp 0.2 N/mm2                                                                                     | 1440                                       | 1520                | 1540                                                                               | 1520                          | 1490 1440           |
| A%                                                                                               | 8                                          | 9.8                 | 10.4                                                                               | 10.6                          | 10.7 10.8           |
| C%                                                                                               | 30                                         | 42                  | 48                                                                                 | 52                            | 53 53               |
| Kv J                                                                                             | 28                                         | 31                  | 32                                                                                 | 28                            | 28 27               |
| Tempering at °C                                                                                  | 100                                        | 150                 | 200                                                                                | 250                           | 300 350             |