**Table 9.10** Basic single shear loads for one 4.6 grade steel bolt or dowel in a two-member timber-to-timber joint: C16/18/22 timber (Table 64, BS 5268 : Part 2)

| Load duration | Minimum member thickness (mm) | C16/18/22 | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Basic single shear load, (kN) | | | | | | | | | |
| | | Direction of loading | | | | | | | | | |
| | | Parallel to the grain Bolt or dowel diameter, (mm) | | | | | Perpendicular to the grain Bolt or dowel diameter, (mm) | | | | |
| | | M8 | M12 | M16 | M20 | M24 | M8 | M12 | M16 | M20 | M24 |
| Long-term | 16 | 0.32 | 0.46 | 0.58 | 0.70 | 0.79 | 0.29 | 0.40 | 0.49 | 0.56 | 0.61 |
| | 22 | 0.44 | 0.63 | 0.80 | 0.96 | 1.09 | 0.40 | 0.55 | 0.67 | 0.77 | 0.84 |
| | 35 | 0.70 | 1.00 | 1.28 | 1.52 | 1.73 | 0.63 | 0.87 | 1.06 | 1.22 | 1.34 |
| | 44 | 0.88 | 1.26 | 1.61 | 1.91 | 2.18 | 0.79 | 1.09 | 1.34 | 1.54 | 1.69 |
| | 47 | 0.94 | 1.35 | 1.72 | 2.04 | 2.33 | 0.85 | 1.17 | 1.43 | 1.64 | 1.80 |
| | 60 | 1.20 | 1.72 | 2.19 | 2.61 | 2.97 | 1.08 | 1.49 | 1.83 | 2.09 | 2.30 |
| | 72 | 1.44 | 2.07 | 2.63 | 3.13 | 3.57 | 1.30 | 1.79 | 2.19 | 2.51 | 2.76 |
| | 97 | 1.47 | 2.78 | 3.54 | 4.22 | 4.81 | 1.39 | 2.41 | 2.95 | 3.39 | 3.72 |
| | 147 | 1.47 | 3.23 | 5.37 | 6.39 | 7.29 | 1.39 | 3.00 | 4.47 | 5.13 | 5.64 |
| Medium-term | 16 | 0.41 | 0.59 | 0.75 | 0.89 | 1.02 | 0.37 | 0.51 | 0.63 | 0.72 | 0.79 |
| | 22 | 0.57 | 0.81 | 1.03 | 1.23 | 1.40 | 0.51 | 0.70 | 0.86 | 0.99 | 1.09 |
| | 35 | 0.90 | 1.29 | 1.64 | 1.96 | 2.23 | 0.81 | 1.12 | 1.37 | 1.57 | 1.73 |
| | 44 | 1.13 | 1.62 | 2.07 | 2.46 | 2.80 | 1.02 | 1.41 | 1.72 | 1.97 | 2.17 |
| | 47 | 1.21 | 1.73 | 2.21 | 2.63 | 2.99 | 1.09 | 1.50 | 1.84 | 2.11 | 2.32 |
| | 60 | 1.54 | 2.21 | 2.82 | 3.35 | 3.82 | 1.39 | 1.92 | 2.35 | 2.69 | 2.96 |
| | 72 | 1.63 | 2.66 | 3.38 | 4.02 | 4.59 | 1.55 | 2.30 | 2.82 | 3.23 | 3.55 |
| | 97 | 1.63 | 3.58 | 4.55 | 5.42 | 6.18 | 1.55 | 3.10 | 3.79 | 4.35 | 4.79 |
| | 147 | 1.63 | 3.59 | 6.24 | 8.22 | 9.37 | 1.55 | 3.34 | 5.69 | 6.60 | 7.26 |
| Short-term and very short-term | 16 | 0.46 | 0.66 | 0.55 | 1.01 | 1.15 | 0.42 | 0.57 | 0.70 | 0.81 | 0.89 |
| | 22 | 0.64 | 0.91 | 1.16 | 1.38 | 1.58 | 0.57 | 0.79 | 0.97 | 1.11 | 1.22 |
| | 35 | 1.01 | 1.45 | 1.85 | 2.20 | 2.51 | 0.91 | 1.26 | 1.54 | 1.77 | 1.94 |
| | 44 | 1.27 | 1.83 | 2.32 | 2.77 | 3.15 | 1.15 | 1.58 | 1.94 | 2.22 | 2.44 |
| | 47 | 1.36 | 1.95 | 2.48 | 2.96 | 3.37 | 1.23 | 1.69 | 2.07 | 2.37 | 2.61 |
| | 60 | 1.73 | 2.49 | 3.17 | 3.77 | 4.30 | 1.56 | 2.16 | 2.64 | 3.03 | 3.33 |
| | 72 | 1.73 | 2.99 | 3.80 | 4.53 | 5.16 | 1.64 | 2.59 | 3.17 | 3.64 | 4.00 |
| | 97 | 1.73 | 3.81 | 5.12 | 6.10 | 6.95 | 1.64 | 3.49 | 4.27 | 4.90 | 5.39 |
| | 147 | 1.73 | 3.81 | 6.62 | 9.24 | 10.54 | 1.64 | 3.54 | 6.04 | 7.42 | 8.16 |

where:
$F_{//}$ = basic load parallel to the grain, obtained from Tables 63–74
$F_{\perp}$ = basic load perpendicular to the grain, obtained from Tables 63–74.

If a load $F$ acts at an angle $\beta$ to the axis of the bolt the component of the load perpendicular to the axis of the bolt, ($F \sin \beta$), should not be greater