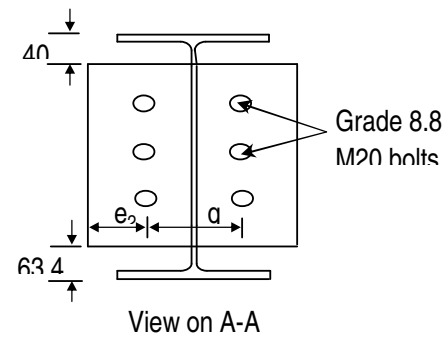
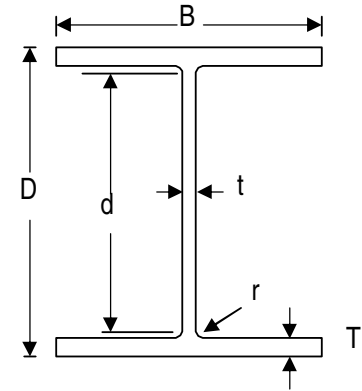


The specimen details



View on A-A



| | | |
|------------------------|------------|------|
| Diameter of bolt | d (mm) | 20 |
| Diameter of bolt hole | d_0 (mm) | 22 |
| End distance | e_1 (mm) | 40 |
| Edge distance | e_2 (mm) | 30 |
| Pitch distance | p_1 (mm) | 60 |
| | p_2 (mm) | N/A |
| Gauge distance | g (mm) | 90 |
| Thickness of end plate | t_p (mm) | 10 |
| arm | B_L (mm) | 490 |
| arm | D_L (mm) | 51.7 |

| Steel Grade | | S275 | S355 |
|-----------------------|----------|------------------|------------------|
| Dimension of Members | | UB305x16 5x40 | UC254x2 54x89 |
| Depth of Section | D (mm) | 303.4 | 260.3 |
| Width of Section | B (mm) | 165 | 256.3 |
| Thickness of Web | t (mm) | 6 | 10.3 |
| Thickness of Flange | T (mm) | 10.2 | 17.3 |
| Root Radius | r (mm) | 8.9 | 12.7 |
| Depth between Fillets | d (mm) | 265.2 | 200.3 |

Nominal Temperature

450°C

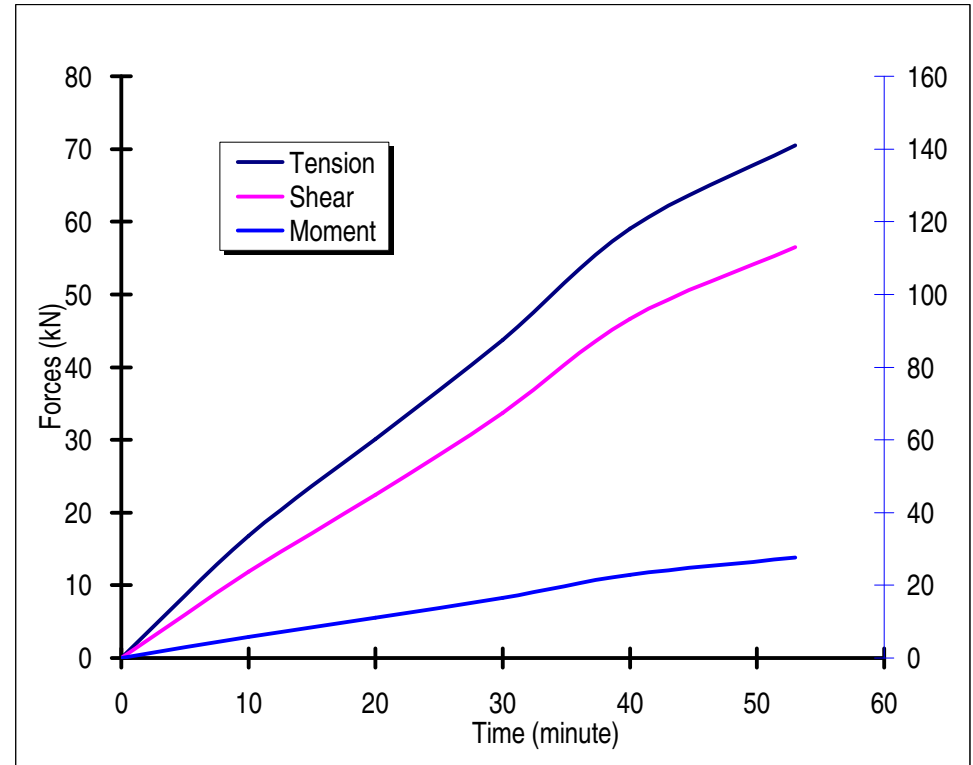
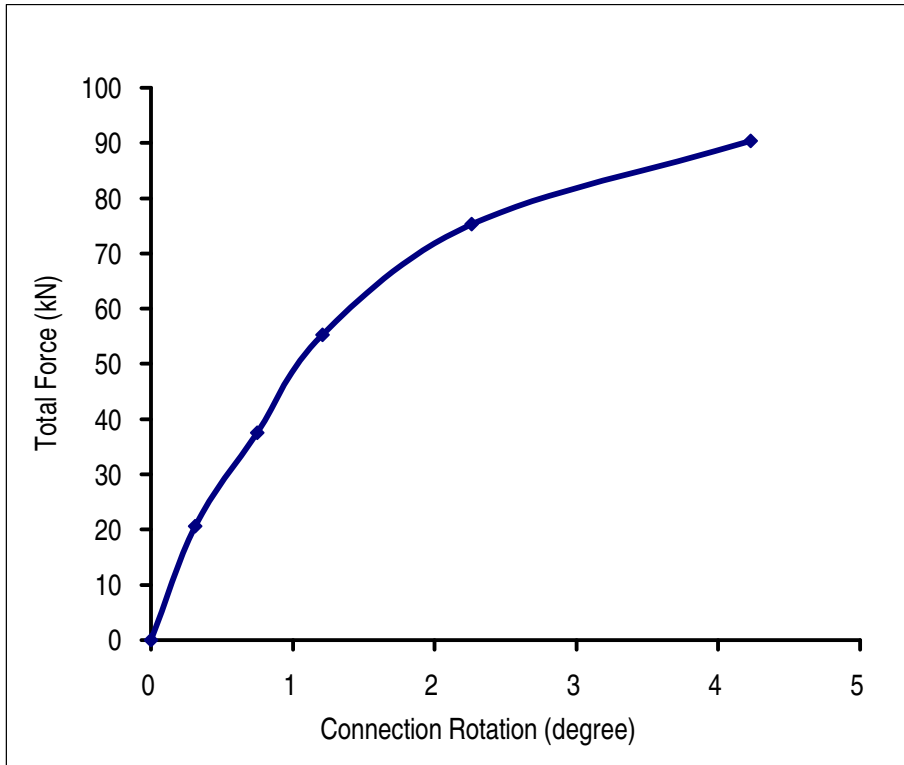
| Time (minute) | Thermocouple Average(°C) | Jack Displacement (mm) | Load Angle (°) | Beam Rotation (°) | Column Rotation (°) | Connection Rotation (°) | Force Rotation (°) | F3 from F1 (kN) | F3 from F2 (kN) | F3 Average (kN) | Tension (kN) | Shear (kN) | Moment (kN*m) |
|------------------|-----------------------------|------------------------------|----------------------|-------------------------|---------------------------|-------------------------------|--------------------------|-----------------------|-----------------------|-----------------------|-----------------|---------------|------------------|
| 0 | 450 | 0.057 | 35.00 | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1 | 450 | 0.055 | 34.95 | N/A | N/A | | -0.05 | 1.42 | 3.37 | 4.78 | 3.92 | 2.74 | 1.34 |
| 2 | 450 | 0.012 | 35.00 | N/A | N/A | | 0.00 | 1.43 | 3.42 | 4.85 | 3.97 | 2.78 | 1.36 |
| 3 | 450 | 0.025 | 34.93 | N/A | N/A | | -0.07 | 1.44 | 3.50 | 4.94 | 4.05 | 2.83 | 1.39 |
| 4 | 450 | 0.023 | 34.91 | N/A | N/A | | -0.09 | 1.58 | 3.53 | 5.11 | 4.19 | 2.92 | 1.43 |
| 5 | 450 | 0.021 | 34.99 | N/A | N/A | | -0.01 | 1.78 | 3.55 | 5.33 | 4.37 | 3.06 | 1.50 |
| 6 | 450 | 0.019 | 35.01 | N/A | N/A | | 0.01 | 1.78 | 3.66 | 5.44 | 4.46 | 3.12 | 1.53 |
| 7 | 450 | 1.382 | 34.99 | N/A | N/A | | -0.01 | 2.28 | 6.94 | 9.22 | 7.55 | 5.29 | 2.59 |
| 8 | 450 | 2.908 | 35.17 | N/A | N/A | | 0.17 | 2.45 | 10.17 | 12.62 | 10.31 | 7.27 | 3.56 |
| 9 | 450 | 4.360 | 35.22 | N/A | N/A | | 0.22 | 3.29 | 14.16 | 17.45 | 14.26 | 10.07 | 4.93 |
| 10 | 450 | 5.857 | 35.29 | N/A | N/A | 0.31 | 0.29 | 3.47 | 17.16 | 20.63 | 16.84 | 11.92 | 5.84 |
| 11 | 450 | 7.316 | 35.43 | N/A | N/A | | 0.43 | 4.27 | 20.53 | 24.80 | 20.21 | 14.38 | 7.04 |
| 12 | 450 | 8.859 | 35.63 | N/A | N/A | | 0.63 | 4.61 | 22.37 | 26.98 | 21.93 | 15.72 | 7.70 |
| 13 | 450 | 10.490 | 35.59 | N/A | N/A | | 0.59 | 4.86 | 23.38 | 28.24 | 22.96 | 16.43 | 8.05 |
| 14 | 450 | 12.138 | 35.58 | N/A | N/A | | 0.58 | 4.51 | 23.55 | 28.06 | 22.82 | 16.33 | 8.00 |
| 15 | 450 | 13.804 | 36.00 | N/A | N/A | | 1.00 | 4.77 | 24.08 | 28.86 | 23.34 | 16.96 | 8.31 |
| 16 | 450 | 15.012 | 36.16 | N/A | N/A | | 1.16 | 4.98 | 24.94 | 29.92 | 24.15 | 17.65 | 8.65 |
| 17 | 450 | 16.634 | 36.35 | N/A | N/A | | 1.35 | 5.65 | 26.85 | 32.50 | 26.18 | 19.26 | 9.44 |
| 18 | 450 | 18.088 | 36.53 | N/A | N/A | | 1.53 | 5.99 | 27.98 | 33.96 | 27.29 | 20.22 | 9.91 |
| 19 | 450 | 19.599 | 36.55 | N/A | N/A | | 1.55 | 6.59 | 28.96 | 35.55 | 28.56 | 21.17 | 10.37 |
| 20 | 450 | 21.100 | 36.79 | N/A | N/A | 0.75 | 1.79 | 7.04 | 30.50 | 37.54 | 30.06 | 22.48 | 11.01 |
| 21 | 450 | 22.567 | 36.88 | N/A | N/A | | 1.88 | 7.17 | 32.05 | 39.22 | 31.37 | 23.54 | 11.53 |

11 May 2008 Flexible End-plate Test Result

| | | | | | | | | | | | | | |
|----|-----|--------|-------|-----|-----|------|------|-------|-------|-------|-------|-------|-------|
| 22 | 450 | 24.025 | 37.11 | N/A | N/A | | 2.11 | 7.99 | 34.44 | 42.43 | 33.84 | 25.60 | 12.55 |
| 23 | 450 | 25.380 | 37.13 | N/A | N/A | | 2.13 | 8.83 | 37.01 | 45.85 | 36.55 | 27.67 | 13.56 |
| 24 | 450 | 26.766 | 37.32 | N/A | N/A | | 2.32 | 9.23 | 38.70 | 47.93 | 38.12 | 29.06 | 14.24 |
| 25 | 450 | 28.226 | 37.39 | N/A | N/A | | 2.39 | 10.22 | 40.87 | 51.10 | 40.60 | 31.03 | 15.20 |
| 26 | 450 | 29.548 | 37.52 | N/A | N/A | | 2.52 | 10.89 | 42.69 | 53.58 | 42.49 | 32.63 | 15.99 |
| 27 | 450 | 30.638 | 37.47 | N/A | N/A | | 2.47 | 10.64 | 43.39 | 54.03 | 42.88 | 32.87 | 16.10 |
| 28 | 450 | 31.754 | 37.59 | N/A | N/A | | 2.59 | 10.97 | 44.06 | 55.02 | 43.60 | 33.57 | 16.45 |
| 29 | 450 | 32.963 | 37.66 | N/A | N/A | | 2.66 | 11.23 | 45.30 | 56.53 | 44.76 | 34.54 | 16.92 |
| 30 | 450 | 33.989 | 37.64 | N/A | N/A | 1.21 | 2.64 | 10.77 | 44.48 | 55.25 | 43.75 | 33.74 | 16.53 |
| 31 | 450 | 35.184 | 37.66 | N/A | N/A | | 2.66 | 11.49 | 46.30 | 57.79 | 45.75 | 35.30 | 17.30 |
| 32 | 450 | 36.483 | 37.82 | N/A | N/A | | 2.82 | 12.02 | 47.79 | 59.81 | 47.25 | 36.67 | 17.97 |
| 33 | 450 | 37.886 | 37.81 | N/A | N/A | | 2.81 | 12.62 | 49.67 | 62.29 | 49.21 | 38.19 | 18.71 |
| 34 | 450 | 39.441 | 37.93 | N/A | N/A | | 2.93 | 13.44 | 51.52 | 64.95 | 51.23 | 39.92 | 19.56 |
| 35 | 450 | 40.875 | 38.06 | N/A | N/A | | 3.06 | 13.87 | 53.16 | 67.03 | 52.78 | 41.32 | 20.25 |
| 36 | 450 | 42.447 | 38.10 | N/A | N/A | | 3.10 | 14.54 | 54.70 | 69.24 | 54.49 | 42.73 | 20.94 |
| 37 | 450 | 43.922 | 38.06 | N/A | N/A | | 3.06 | 15.09 | 56.07 | 71.16 | 56.03 | 43.87 | 21.50 |
| 38 | 450 | 45.445 | 38.28 | N/A | N/A | | 3.28 | 15.65 | 57.00 | 72.65 | 57.03 | 45.01 | 22.06 |
| 39 | 450 | 46.912 | 38.36 | N/A | N/A | | 3.36 | 15.99 | 58.32 | 74.31 | 58.27 | 46.12 | 22.60 |
| 40 | 450 | 48.314 | 38.32 | N/A | N/A | 2.26 | 3.32 | 16.19 | 59.10 | 75.29 | 59.07 | 46.68 | 22.88 |
| 41 | 450 | 50.055 | 38.34 | N/A | N/A | | 3.34 | 16.52 | 60.26 | 76.78 | 60.22 | 47.63 | 23.34 |
| 42 | 450 | 51.593 | 38.41 | N/A | N/A | | 3.41 | 17.15 | 61.46 | 78.61 | 61.59 | 48.84 | 23.93 |
| 43 | 450 | 53.060 | 38.45 | N/A | N/A | | 3.45 | 17.35 | 62.03 | 79.38 | 62.17 | 49.35 | 24.18 |
| 44 | 450 | 54.519 | 38.54 | N/A | N/A | | 3.54 | 17.96 | 63.15 | 81.11 | 63.45 | 50.54 | 24.76 |
| 45 | 450 | 56.235 | 38.55 | N/A | N/A | | 3.55 | 18.65 | 64.25 | 82.90 | 64.83 | 51.66 | 25.32 |
| 46 | 450 | 57.782 | 38.57 | N/A | N/A | | 3.57 | 19.06 | 64.93 | 83.99 | 65.67 | 52.36 | 25.65 |
| 47 | 450 | 59.289 | 38.66 | N/A | N/A | | 3.66 | 19.36 | 65.47 | 84.84 | 66.25 | 53.00 | 25.97 |
| 48 | 450 | 60.981 | 38.64 | N/A | N/A | | 3.64 | 19.44 | 66.30 | 85.74 | 66.97 | 53.54 | 26.24 |
| 49 | 450 | 62.455 | 38.63 | N/A | N/A | | 3.63 | 19.76 | 67.27 | 87.03 | 67.99 | 54.33 | 26.62 |
| 50 | 450 | 63.985 | 38.72 | N/A | N/A | | 3.72 | 20.50 | 68.32 | 88.82 | 69.29 | 55.56 | 27.22 |

11 May 2008 Flexible End-plate Test Result

| | | | | | | | | | | | | | |
|----|-----|--------|-------|-----|-----|------|------|-------|-------|-------|-------|-------|-------|
| 51 | 450 | 65.444 | 38.69 | N/A | N/A | | 3.69 | 20.47 | 68.57 | 89.03 | 69.50 | 55.65 | 27.27 |
| 52 | 450 | 67.017 | 38.77 | N/A | N/A | | 3.77 | 20.98 | 68.74 | 89.73 | 69.96 | 56.19 | 27.53 |
| 53 | 450 | 68.515 | 38.71 | N/A | N/A | 4.23 | 3.71 | 21.07 | 69.29 | 90.36 | 70.51 | 56.51 | 27.69 |
| 54 | 450 | 70.078 | 38.85 | N/A | N/A | | 3.85 | 17.90 | 58.57 | 76.47 | 59.56 | 47.97 | 23.50 |
| 55 | 450 | 71.642 | 38.76 | N/A | N/A | | 3.76 | 17.41 | 56.55 | 73.95 | 57.67 | 46.30 | 22.69 |
| 56 | 450 | 73.268 | 38.99 | N/A | N/A | | 3.99 | 16.85 | 54.84 | 71.70 | 55.73 | 45.11 | 22.10 |
| 57 | 450 | 74.929 | 38.93 | N/A | N/A | | 3.93 | 15.75 | 51.28 | 67.03 | 52.14 | 42.12 | 20.64 |
| 58 | 450 | 76.667 | 39.01 | N/A | N/A | | 4.01 | 15.52 | 50.04 | 65.56 | 50.94 | 41.27 | 20.22 |
| 59 | 450 | 78.237 | 39.20 | N/A | N/A | | 4.20 | 15.26 | 48.93 | 64.20 | 49.75 | 40.58 | 19.88 |
| 60 | 450 | 79.826 | 39.08 | N/A | N/A | | 4.08 | 15.08 | 48.85 | 63.93 | 49.63 | 40.31 | 19.75 |
| 61 | 450 | 81.492 | 39.14 | N/A | N/A | | 4.14 | 15.15 | 48.26 | 63.40 | 49.18 | 40.02 | 19.61 |
| 62 | 450 | 82.975 | 39.28 | N/A | N/A | | 4.28 | 15.30 | 48.46 | 63.76 | 49.35 | 40.37 | 19.78 |
| 63 | 450 | 84.571 | 39.29 | N/A | N/A | | 4.29 | 15.04 | 47.68 | 62.73 | 48.54 | 39.72 | 19.47 |
| 64 | 450 | 86.174 | 39.25 | N/A | N/A | | 4.25 | 15.28 | 48.59 | 63.87 | 49.46 | 40.41 | 19.80 |
| 65 | 450 | 87.744 | 39.21 | N/A | N/A | | 4.21 | 15.19 | 48.36 | 63.54 | 49.24 | 40.17 | 19.68 |
| 66 | 450 | 89.276 | 39.42 | N/A | N/A | | 4.42 | 15.34 | 48.26 | 63.60 | 49.13 | 40.39 | 19.79 |
| 67 | 450 | 90.790 | 39.42 | N/A | N/A | | 4.42 | 15.80 | 48.95 | 64.75 | 50.02 | 41.12 | 20.15 |



Photographs after Test

