

The specimen details

Diameter of bolt	d (mm)	20
Diameter of bolt hole	d <sub>0</sub> (mm)	22
End distance	e <sub>1</sub> (mm)	60
Edge distance	e <sub>2</sub> (mm)	55
Spacing between centres of bolts in the direction of load transfer	p <sub>1</sub> (mm)	70
	p <sub>2</sub> (mm)	133.4
Spacing between rows of bolts	p <sub>3</sub> (mm)	90
Thickness of end plate	t <sub>p</sub> (mm)	10
Horizontal distance of lever arm	B <sub>L</sub> (mm)	490
Vertical distance of lever arm	D <sub>L</sub> (mm)	51.7

Steel Grade		S275	S355
Dimension of Members		UB305x165 x40	UC254x25 4x89
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

650°C

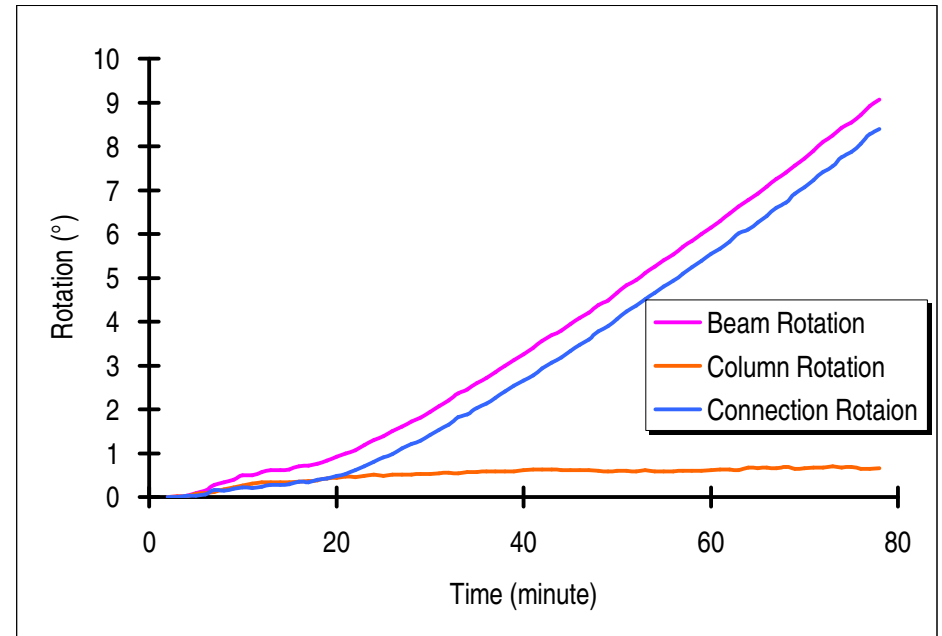
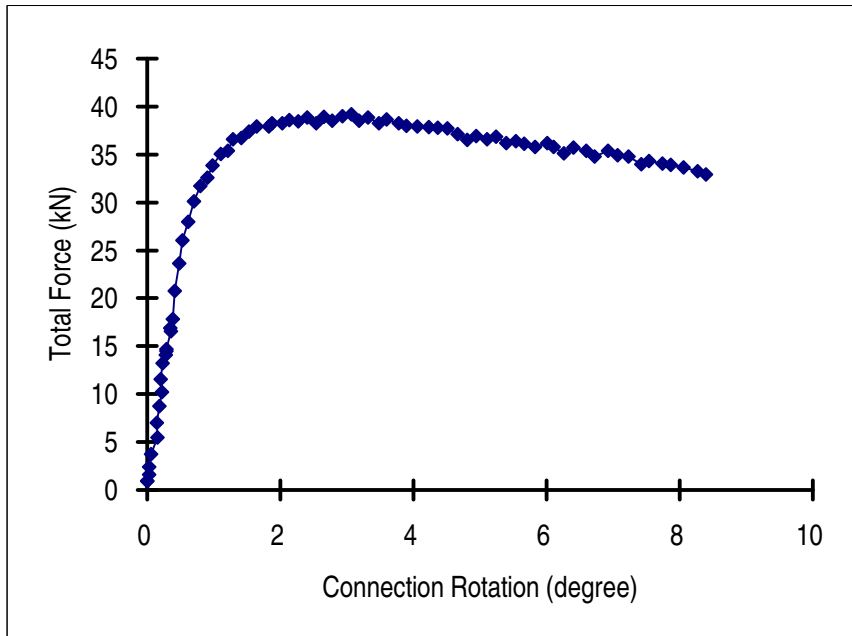
Time	Thermocouple	Jack Displacement	Load Angle	Beam Rotation	Column Rotation	Connection Rotation	Force Rotation	F3 from F1	F3 from F2	F3 Average	Tension	Shear	Moment
(minute)	Average(°C)	(mm)	$\alpha(^{\circ})$	( $^{\circ}$ )	( $^{\circ}$ )	( $^{\circ}$ )	( $^{\circ}$ )	(kN)	(kN)	(kN)	(kN)	(kN)	(kN*m)
0	643.184	9.631											
1	643.312	9.642											
2	643.408	9.641	55.35	0.000	0.000	0.000	58.486	0.71	1.18	0.95	0.54	0.78	430.42
3	643.558	11.113	55.59	0.012	0.009	0.003	58.240	0.65	1.21	0.93	0.53	0.77	426.05
4	643.602	12.556	55.77	0.034	0.008	0.026	58.038	1.24	2.02	1.63	0.92	1.35	745.58
5	643.812	13.757	55.72	0.091	0.066	0.025	58.032	2.13	2.71	2.42	1.36	2.00	1105.08
6	643.923	15.147	55.68	0.147	0.093	0.054	58.015	3.42	4.07	3.74	2.11	3.09	1708.61
7	643.990	16.566	55.56	0.277	0.123	0.154	58.004	5.12	5.89	5.50	3.11	4.54	2508.94
8	644.192	17.991	55.48	0.330	0.181	0.149	58.028	6.22	7.75	6.98	3.96	5.76	3181.09
9	644.273	19.425	55.38	0.397	0.214	0.183	58.060	8.32	9.16	8.74	4.96	7.19	3975.52
10	644.420	20.874	55.26	0.494	0.270	0.224	58.085	9.64	10.74	10.19	5.81	8.38	4631.39
11	644.493	22.283	55.22	0.502	0.304	0.198	58.119	10.65	12.45	11.55	6.59	9.49	5246.21
12	644.543	23.748	55.18	0.563	0.331	0.232	58.098	12.59	13.82	13.21	7.54	10.84	5994.52
13	644.759	25.077	55.15	0.618	0.335	0.283	58.072	13.71	14.42	14.07	8.04	11.54	6383.10
14	644.845	26.311	55.14	0.618	0.334	0.284	58.076	14.10	14.86	14.48	8.28	11.88	6571.52
15	644.973	27.488	55.12	0.632	0.343	0.289	58.088	14.33	15.01	14.67	8.39	12.03	6654.25
16	645.080	28.817	55.07	0.704	0.352	0.352	58.062	15.84	17.31	16.57	9.49	13.59	7515.06
17	645.092	30.059	55.03	0.714	0.372	0.342	58.095	16.43	17.28	16.86	9.66	13.81	7640.77
18	645.224	31.219	54.96	0.763	0.374	0.389	58.117	17.05	18.58	17.82	10.23	14.59	8068.35
19	645.310	32.782	54.87	0.839	0.421	0.418	58.130	20.57	21.01	20.79	11.96	17.00	9405.93
20	645.470	34.366	54.76	0.921	0.439	0.482	58.155	23.05	24.16	23.60	13.62	19.28	10666.77
21	645.638	35.950	54.71	0.991	0.460	0.531	58.136	25.46	26.61	26.03	15.04	21.25	11757.97
22	645.596	37.472	54.63	1.065	0.451	0.614	58.145	27.28	28.67	27.97	16.19	22.81	12622.69

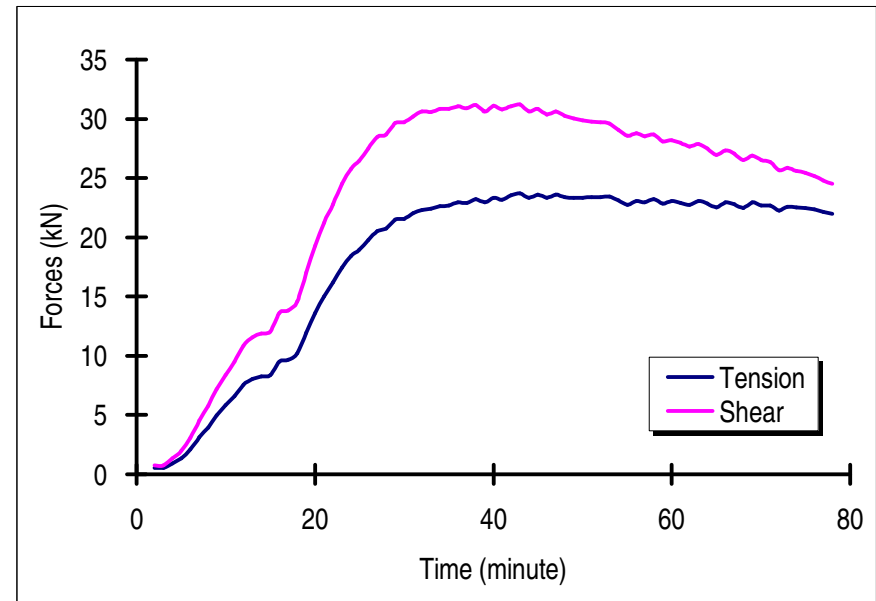
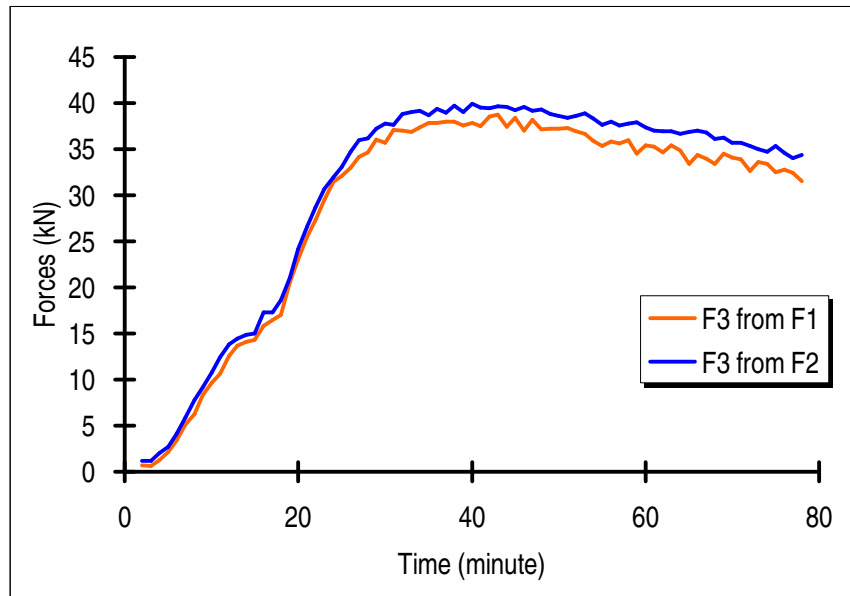
## 15 February 2008 End-plate Test Result

23	645.805	39.106	54.54	1.184	0.486	0.698	58.112	29.52	30.70	30.11	17.47	24.53	13574.48
24	645.897	40.717	54.42	1.306	0.510	0.796	58.115	31.46	31.91	31.69	18.44	25.77	14264.72
25	645.956	42.237	54.37	1.386	0.484	0.902	58.086	32.07	33.07	32.57	18.97	26.47	14653.93
26	646.170	43.863	54.30	1.498	0.513	0.985	58.043	33.02	34.74	33.88	19.77	27.51	15232.73
27	646.180	45.409	54.18	1.612	0.509	1.103	58.044	34.20	35.97	35.08	20.53	28.45	15753.22
28	646.313	46.914	54.12	1.716	0.508	1.208	58.000	34.64	36.17	35.41	20.75	28.69	15887.35
29	646.445	48.618	54.10	1.806	0.522	1.284	57.932	36.01	37.23	36.62	21.47	29.66	16428.37
30	646.500	50.156	54.01	1.941	0.525	1.416	57.884	35.68	37.75	36.72	21.57	29.71	16455.34
31	646.637	51.799	53.91	2.071	0.543	1.528	57.859	37.12	37.67	37.39	22.03	30.22	16738.83
32	646.630	53.439	53.91	2.198	0.549	1.649	57.732	37.00	38.82	37.91	22.33	30.64	16971.59
33	646.715	55.049	53.75	2.362	0.535	1.827	57.724	36.88	38.99	37.94	22.43	30.59	16952.19
34	646.857	56.690	53.75	2.451	0.572	1.879	57.639	37.34	39.20	38.27	22.63	30.86	17100.57
35	646.938	58.276	53.62	2.601	0.574	2.027	57.614	37.84	38.71	38.27	22.70	30.82	17078.47
36	647.037	59.821	53.53	2.717	0.580	2.137	57.587	37.85	39.39	38.62	22.95	31.06	17214.61
37	647.081	61.431	53.44	2.847	0.579	2.268	57.552	37.96	38.96	38.46	22.91	30.89	17125.12
38	647.115	62.898	53.30	2.991	0.586	2.405	57.549	37.95	39.75	38.85	23.22	31.15	17270.52
39	647.291	64.506	53.17	3.122	0.587	2.535	57.542	37.56	39.00	38.28	22.94	30.64	16993.10
40	647.270	66.188	53.10	3.261	0.610	2.651	57.481	37.85	39.95	38.90	23.36	31.10	17252.11
41	647.383	67.844	52.98	3.401	0.626	2.775	57.455	37.52	39.53	38.53	23.20	30.76	17064.53
42	647.391	69.494	52.87	3.557	0.621	2.936	57.410	38.54	39.44	38.99	23.53	31.08	17246.65
43	647.496	71.159	52.79	3.690	0.621	3.069	57.363	38.75	39.65	39.20	23.71	31.22	17321.94
44	647.600	72.688	52.69	3.798	0.615	3.183	57.354	37.46	39.57	38.51	23.35	30.63	17000.15
45	647.635	74.403	52.55	3.941	0.619	3.322	57.352	38.42	39.24	38.83	23.61	30.83	17111.81
46	647.723	76.043	52.46	4.086	0.610	3.476	57.295	37.02	39.55	38.29	23.33	30.36	16854.34
47	647.809	77.702	52.37	4.203	0.606	3.597	57.264	38.20	39.17	38.69	23.62	30.64	17013.50
48	647.885	79.296	52.24	4.384	0.604	3.780	57.211	37.14	39.31	38.23	23.41	30.22	16784.97
49	647.965	80.857	52.15	4.487	0.591	3.896	57.203	37.21	38.81	38.01	23.33	30.02	16673.27
50	647.928	82.521	52.01	4.656	0.601	4.055	57.173	37.21	38.60	37.90	23.33	29.87	16597.04
51	648.051	84.146	51.84	4.835	0.601	4.234	57.166	37.29	38.44	37.86	23.39	29.77	16543.80
52	648.139	85.741	51.80	4.955	0.589	4.366	57.085	36.93	38.63	37.78	23.36	29.69	16499.64

## 15 February 2008 End-plate Test Result

53	648.178	87.351	51.63	5.116	0.607	4.509	57.095	36.64	38.86	37.75	23.44	29.60	16454.10
54	648.304	88.953	51.55	5.251	0.588	4.663	57.037	35.92	38.35	37.13	23.09	29.08	16169.36
55	648.333	90.600	51.45	5.395	0.591	4.804	56.995	35.37	37.65	36.51	22.75	28.55	15878.08
56	648.445	92.211	51.31	5.529	0.589	4.940	57.001	35.85	37.98	36.92	23.08	28.81	16027.28
57	648.522	93.804	51.17	5.705	0.603	5.102	56.963	35.64	37.55	36.59	22.95	28.51	15860.69
58	648.534	95.463	51.01	5.840	0.600	5.240	56.988	35.98	37.79	36.88	23.21	28.67	15953.56
59	648.657	96.998	50.90	5.996	0.605	5.391	56.944	34.50	37.90	36.20	22.83	28.09	15635.74
60	648.634	98.608	50.72	6.152	0.609	5.543	56.971	35.44	37.37	36.40	23.05	28.18	15688.39
61	648.757	100.313	50.66	6.296	0.630	5.666	56.881	35.31	36.98	36.15	22.91	27.96	15567.62
62	648.857	102.045	50.58	6.460	0.635	5.825	56.798	34.64	36.95	35.79	22.73	27.65	15399.92
63	648.823	103.693	50.40	6.629	0.615	6.014	56.805	35.38	36.96	36.17	23.05	27.87	15527.27
64	648.875	105.285	50.29	6.770	0.667	6.103	56.779	34.84	36.70	35.77	22.85	27.52	15332.39
65	648.944	106.856	50.16	6.918	0.660	6.258	56.757	33.38	36.85	35.12	22.50	26.97	15028.49
66	649.080	108.480	50.01	7.075	0.670	6.405	56.755	34.35	37.04	35.70	22.94	27.35	15246.24
67	649.110	110.123	49.90	7.257	0.658	6.599	56.677	33.97	36.80	35.38	22.79	27.07	15091.66
68	649.047	111.707	49.71	7.402	0.680	6.722	56.724	33.43	36.13	34.78	22.49	26.53	14798.37
69	649.209	113.341	49.54	7.563	0.644	6.919	56.735	34.48	36.26	35.37	22.95	26.91	15015.62
70	649.183	114.926	49.42	7.726	0.654	7.072	56.697	34.07	35.72	34.90	22.70	26.50	14790.43
71	649.331	116.472	49.28	7.893	0.666	7.227	56.663	33.87	35.68	34.78	22.69	26.36	14714.17
72	649.370	117.993	49.08	8.095	0.673	7.422	56.661	32.61	35.34	33.98	22.25	25.67	14336.51
73	649.367	119.563	48.88	8.244	0.703	7.541	56.719	33.61	35.02	34.31	22.57	25.85	14439.30
74	649.437	121.291	48.68	8.422	0.677	7.745	56.732	33.41	34.75	34.08	22.50	25.60	14304.51
75	649.375	122.980	48.56	8.545	0.679	7.866	56.738	32.51	35.34	33.92	22.45	25.43	14213.85
76	649.426	124.679	48.43	8.711	0.649	8.062	56.697	32.80	34.56	33.68	22.35	25.19	14086.45
77	649.546	126.288	48.24	8.920	0.647	8.273	56.676	32.46	34.03	33.25	22.14	24.80	13870.52
78	649.512	127.913	48.09	9.061	0.662	8.399	56.683	31.50	34.37	32.93	22.00	24.51	13712.98





Photographs after Test

