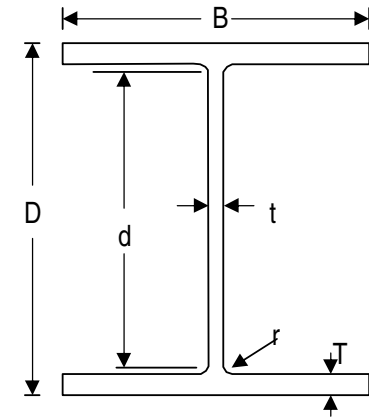
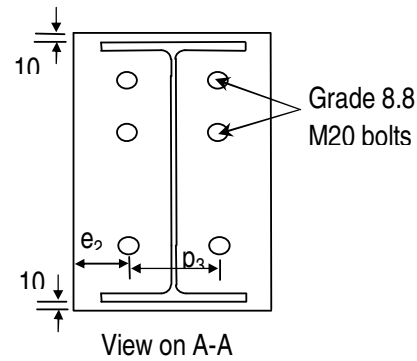


The specimen details



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

Steel Grade	S275	S355	
	UB305x16 5x40	UC254x25 4x89	
Dimension of Members			
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 α (°)	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													
1	442.991	1.198											
2	444.520	1.203											
3	444.860	1.207	46.31	0.000	0.000	0.000	67.443	-10.15	-2.98	-6.57	-4.54	-4.75	-2666.41
4	444.611	2.581	46.25	-0.015	0.034	-0.049	67.502	-7.27	-0.30	-3.78	-2.62	-2.73	-1534.97
5	444.404	4.131	46.32	0.024	0.081	-0.057	67.427	-4.79	1.63	-1.58	-1.09	-1.14	-641.61
6	444.809	5.808	46.47	0.090	0.127	-0.037	67.278	-3.93	2.22	-0.86	-0.59	-0.62	-348.85
7	445.677	7.550	46.56	0.121	0.158	-0.037	67.189	-3.31	3.59	0.14	0.09	0.10	56.25
8	446.610	9.361	46.61	0.164	0.236	-0.072	67.138	-2.13	3.81	0.84	0.58	0.61	341.72
9	447.086	11.084	46.49	0.177	0.233	-0.056	67.263	-1.68	4.36	1.34	0.92	0.97	545.00
10	447.054	12.743	46.69	0.207	0.260	-0.053	67.057	-1.58	4.34	1.38	0.95	1.01	563.94
11	446.992	14.356	46.93	0.209	0.275	-0.066	66.821	-1.21	4.83	1.81	1.23	1.32	740.79
12	447.029	15.917	47.08	0.223	0.314	-0.091	66.666	-0.99	5.33	2.17	1.48	1.59	890.35
13	447.342	17.253	47.23	0.237	0.323	-0.086	66.520	0.11	5.46	2.78	1.89	2.04	1144.22
14	447.870	18.608	47.22	0.278	0.351	-0.073	66.526	1.29	7.05	4.17	2.83	3.06	1716.33
15	448.251	20.243	47.31	0.256	0.368	-0.112	66.440	3.02	8.47	5.75	3.90	4.22	2366.72
16	448.461	21.798	47.36	0.361	0.430	-0.069	66.395	5.02	9.87	7.45	5.04	5.48	3068.61
17	448.416	23.340	47.43	0.384	0.473	-0.089	66.324	6.89	11.47	9.18	6.21	6.76	3785.93
18	448.530	24.793	47.44	0.447	0.492	-0.045	66.314	8.68	13.94	11.31	7.65	8.33	4665.60
19	448.569	26.259	47.63	0.489	0.571	-0.082	66.116	11.21	15.67	13.44	9.06	9.93	5561.20
20	448.713	27.758	47.60	0.534	0.583	-0.049	66.147	14.13	18.65	16.39	11.05	12.10	6776.93
21	448.990	29.144	47.63	0.595	0.625	-0.030	66.117	17.18	21.73	19.45	13.11	14.37	8048.60
22	449.240	30.520	47.68	0.598	0.639	-0.041	66.067	20.35	24.76	22.56	15.19	16.68	9339.85

23 October 2007 End-plate Test Result

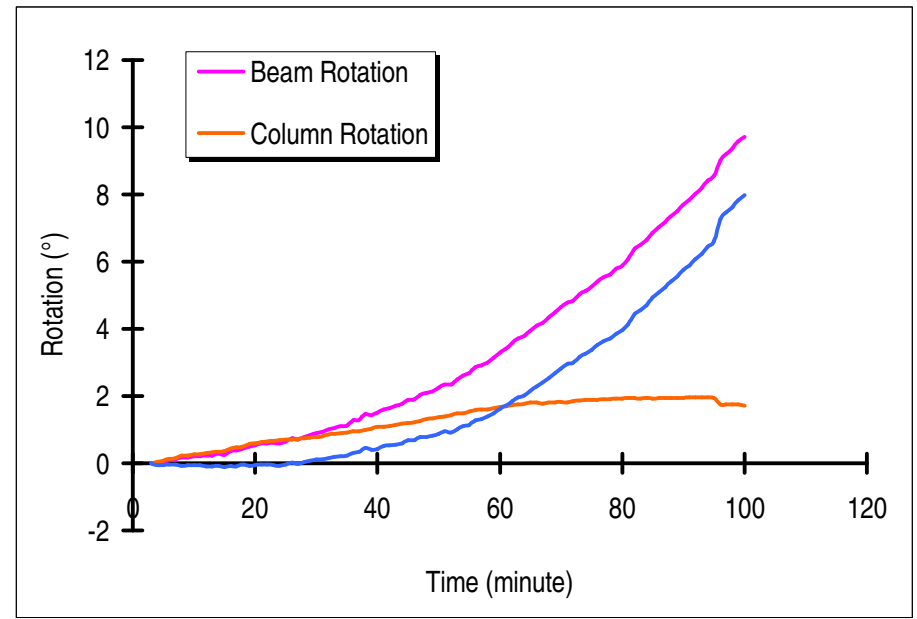
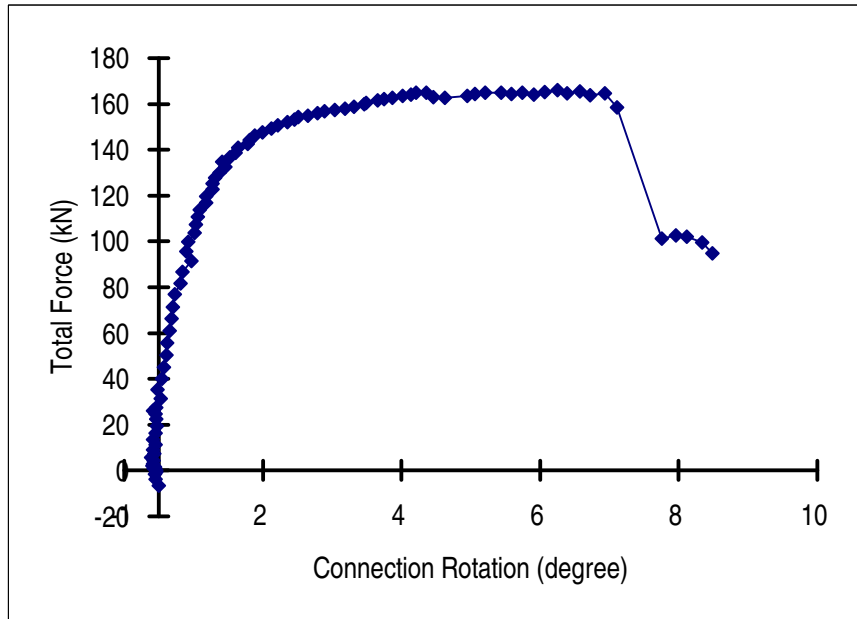
23	449.413	31.795	47.67	0.608	0.658	-0.050	66.076	22.64	26.76	24.70	16.63	18.26	10225.73
24	449.537	32.978	47.72	0.599	0.681	-0.082	66.033	24.63	27.82	26.22	17.64	19.40	10862.19
25	449.569	34.108	47.70	0.657	0.699	-0.042	66.047	26.10	28.91	27.50	18.51	20.34	11389.77
26	449.673	35.525	47.77	0.738	0.711	0.027	65.978	29.83	33.16	31.49	21.17	23.32	13054.90
27	449.760	36.983	47.83	0.705	0.721	-0.016	65.920	33.40	37.18	35.29	23.69	26.16	14641.55
28	450.010	38.441	47.89	0.789	0.743	0.046	65.861	38.32	41.66	39.99	26.82	29.67	16604.75
29	450.096	40.011	48.04	0.832	0.764	0.068	65.711	43.17	46.89	45.03	30.11	33.48	18733.60
30	450.217	41.491	48.05	0.900	0.789	0.111	65.696	48.51	52.22	50.36	33.66	37.46	20957.53
31	450.400	43.069	48.15	0.928	0.806	0.122	65.599	53.58	57.70	55.64	37.12	41.45	23184.60
32	450.422	44.631	48.16	1.005	0.853	0.152	65.586	58.73	63.25	60.99	40.68	45.44	25418.39
33	450.548	46.153	48.26	1.056	0.869	0.187	65.486	64.39	68.17	66.28	44.12	49.46	27661.29
34	450.610	47.691	48.39	1.096	0.890	0.206	65.363	69.62	73.27	71.44	47.44	53.41	29865.88
35	450.713	49.228	48.48	1.133	0.905	0.228	65.273	74.79	78.85	76.82	50.93	57.52	32153.97
36	450.810	50.813	48.44	1.267	0.954	0.313	65.306	79.88	83.62	81.75	54.23	61.17	34199.69
37	450.924	52.359	48.57	1.299	0.959	0.340	65.181	84.81	88.46	86.64	57.33	64.96	36307.68
38	451.110	53.913	48.60	1.463	0.998	0.465	65.146	89.32	93.42	91.37	60.42	68.54	38307.35
39	451.210	55.460	48.72	1.422	1.025	0.397	65.029	93.75	97.63	95.69	63.13	71.91	40182.96
40	451.167	57.004	48.72	1.500	1.078	0.422	65.032	98.04	101.59	99.82	65.86	75.01	41914.20
41	451.179	58.646	48.89	1.605	1.085	0.520	64.864	102.19	105.20	103.69	68.19	78.12	43640.85
42	451.221	60.167	48.92	1.640	1.106	0.534	64.833	105.63	109.21	107.42	70.59	80.97	45226.93
43	451.325	61.762	49.06	1.707	1.147	0.560	64.694	109.11	112.39	110.75	72.58	83.66	46716.70
44	451.383	63.363	49.13	1.777	1.189	0.588	64.617	112.56	115.31	113.93	74.55	86.16	48108.09
45	451.418	64.924	49.11	1.879	1.199	0.680	64.641	115.39	118.62	117.01	76.59	88.45	49389.11
46	451.538	66.512	49.29	1.906	1.223	0.683	64.461	118.65	120.96	119.80	78.14	90.81	50690.11
47	451.590	68.065	49.31	2.033	1.258	0.775	64.445	121.48	123.74	122.61	79.95	92.96	51888.68
48	451.644	69.602	49.31	2.090	1.316	0.774	64.437	124.09	126.20	125.14	81.59	94.90	52966.85
49	451.703	71.164	49.38	2.140	1.327	0.813	64.374	126.77	128.55	127.66	83.12	96.90	54077.14
50	451.739	72.652	49.48	2.250	1.376	0.874	64.266	129.21	131.05	130.13	84.54	98.93	55199.50
51	451.771	74.206	49.58	2.348	1.392	0.956	64.173	132.04	132.83	132.44	85.88	100.82	56248.20
52	451.809	75.816	49.70	2.339	1.423	0.916	64.049	134.33	135.03	134.68	87.11	102.72	57291.26

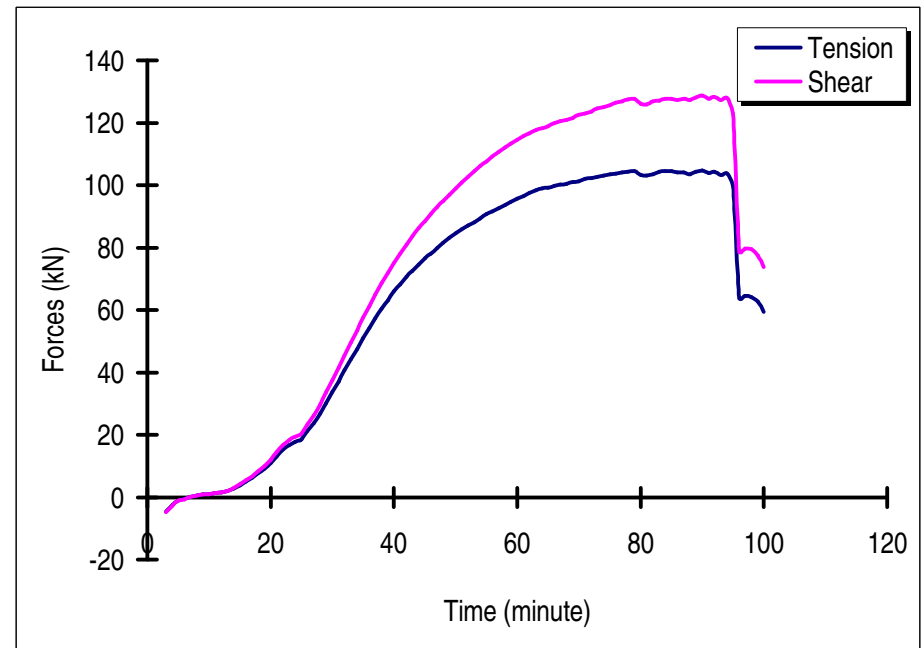
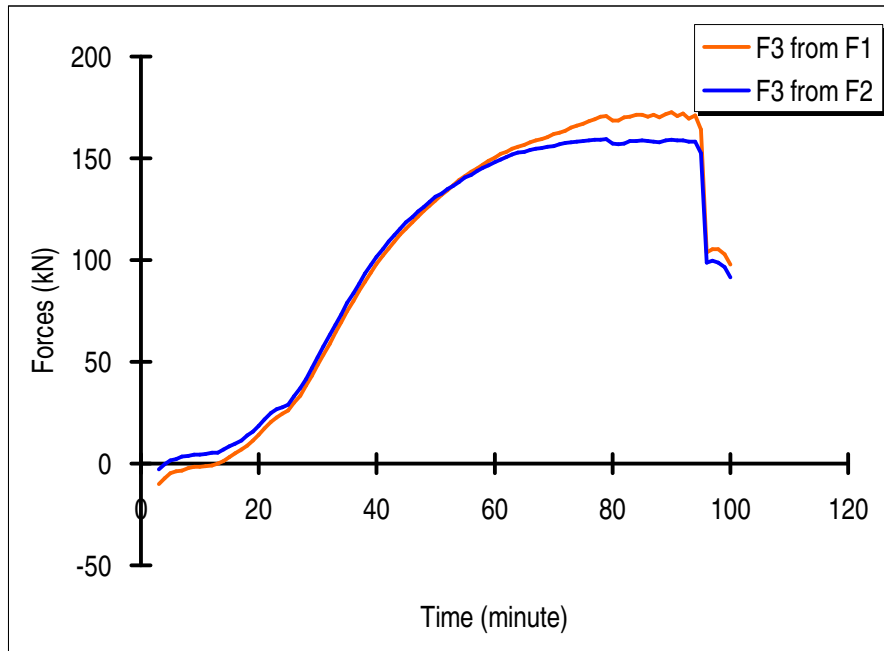
23 October 2007 End-plate Test Result

53	451.844	77.427	49.82	2.503	1.484	1.019	63.930	136.91	136.48	136.70	88.19	104.44	58239.60
54	451.931	79.037	49.93	2.605	1.495	1.110	63.817	139.17	138.24	138.71	89.28	106.15	59183.08
55	451.981	80.661	49.88	2.683	1.543	1.140	63.867	141.16	140.45	140.80	90.73	107.68	60038.48
56	452.066	82.191	50.02	2.850	1.572	1.278	63.732	143.30	141.91	142.60	91.63	109.27	60912.23
57	452.120	83.761	50.02	2.919	1.605	1.314	63.729	144.91	143.70	144.30	92.71	110.58	61639.22
58	452.156	85.395	50.08	2.983	1.601	1.382	63.673	147.01	145.13	146.07	93.74	112.02	62440.06
59	452.079	87.061	50.10	3.135	1.642	1.493	63.653	148.73	146.54	147.63	94.71	113.25	63124.51
60	452.101	88.639	50.13	3.303	1.675	1.628	63.619	150.27	148.22	149.25	95.67	114.55	63841.67
61	452.314	90.257	50.19	3.407	1.687	1.720	63.560	152.06	149.27	150.66	96.46	115.73	64495.99
62	452.394	91.868	50.10	3.579	1.724	1.855	63.650	153.20	150.78	151.99	97.49	116.60	64988.86
63	452.458	93.460	50.13	3.710	1.754	1.956	63.625	154.63	151.97	153.30	98.28	117.65	65571.40
64	452.400	95.062	50.10	3.790	1.777	2.013	63.651	155.58	152.88	154.23	98.93	118.32	65946.67
65	452.397	96.607	50.15	3.951	1.804	2.147	63.599	156.48	153.27	154.88	99.24	118.90	66266.64
66	452.432	98.177	50.26	4.093	1.802	2.291	63.493	158.00	153.95	155.98	99.72	119.93	66827.69
67	452.461	99.757	50.25	4.170	1.779	2.391	63.504	158.68	154.69	156.68	100.20	120.46	67120.06
68	452.512	101.359	50.30	4.345	1.807	2.538	63.452	159.56	154.96	157.26	100.46	121.00	67414.32
69	452.571	102.961	50.27	4.497	1.816	2.681	63.485	160.39	155.70	158.05	101.03	121.54	67721.05
70	452.589	104.504	50.44	4.643	1.827	2.816	63.315	161.80	156.01	158.91	101.22	122.50	68236.42
71	452.646	106.139	50.34	4.776	1.817	2.959	63.407	162.71	156.85	159.78	101.97	123.01	68531.22
72	452.639	107.724	50.37	4.844	1.853	2.991	63.378	163.56	157.40	160.48	102.35	123.60	68857.21
73	452.605	109.326	50.51	5.027	1.872	3.155	63.241	165.16	157.71	161.43	102.66	124.58	69386.36
74	452.657	110.990	50.48	5.128	1.877	3.251	63.267	166.04	158.27	162.15	103.18	125.09	69673.06
75	452.726	112.658	50.54	5.260	1.892	3.368	63.207	166.85	158.54	162.69	103.39	125.62	69958.79
76	452.865	114.300	50.64	5.408	1.887	3.521	63.115	168.31	158.67	163.49	103.70	126.40	70384.24
77	452.960	115.909	50.67	5.534	1.900	3.634	63.085	169.11	159.06	164.08	104.00	126.91	70664.34
78	452.976	117.423	50.71	5.613	1.900	3.713	63.044	170.32	159.25	164.79	104.36	127.53	71003.91
79	452.996	119.009	50.73	5.784	1.929	3.855	63.025	170.75	159.28	165.02	104.46	127.74	71120.56
80	452.967	120.667	50.69	5.882	1.920	3.962	63.056	168.69	157.32	163.01	103.26	126.13	70226.38
81	452.996	122.308	50.69	6.072	1.943	4.129	63.063	168.58	156.88	162.73	103.10	125.90	70100.53
82	453.006	123.838	50.80	6.386	1.939	4.447	62.949	170.10	157.17	163.63	103.42	126.81	70591.28

23 October 2007 End-plate Test Result

83	453.164	125.447	50.65	6.487	1.929	4.558	63.097	170.53	158.35	164.44	104.26	127.16	70807.34
84	453.265	126.986	50.72	6.648	1.938	4.710	63.033	171.47	158.37	164.92	104.42	127.65	71071.39
85	453.304	128.546	50.69	6.860	1.918	4.942	63.062	171.35	158.71	165.03	104.55	127.68	71092.69
86	453.359	130.108	50.74	7.029	1.940	5.089	63.014	170.50	158.41	164.45	104.08	127.33	70886.59
87	453.387	131.711	50.81	7.183	1.939	5.244	62.939	171.37	158.24	164.80	104.14	127.73	71104.30
88	453.427	133.415	50.86	7.347	1.935	5.412	62.889	170.18	157.86	164.02	103.53	127.22	70810.43
89	453.494	135.042	50.83	7.514	1.948	5.566	62.923	171.63	158.78	165.20	104.35	128.07	71291.09
90	453.502	136.651	50.85	7.695	1.942	5.753	62.897	172.71	159.12	165.91	104.74	128.67	71621.98
91	453.628	138.293	50.86	7.856	1.966	5.890	62.893	170.60	158.86	164.73	103.99	127.76	71113.49
92	453.639	139.927	50.90	8.028	1.956	6.072	62.854	171.89	158.90	165.39	104.32	128.34	71434.28
93	453.678	141.578	50.93	8.188	1.962	6.226	62.816	169.57	158.12	163.85	103.26	127.21	70801.06
94	453.753	143.194	50.93	8.394	1.959	6.435	62.820	171.17	158.12	164.64	103.77	127.82	71141.09
95	453.840	144.876	50.95	8.556	1.943	6.613	62.796	164.27	152.47	158.37	99.76	123.00	68451.14
96	453.945	147.288	51.05	9.009	1.756	7.253	62.697	103.79	98.75	101.27	63.66	78.76	43825.92
97	453.996	148.946	51.03	9.208	1.747	7.461	62.717	105.36	99.64	102.50	64.46	79.69	44345.82
98	453.968	150.604	51.09	9.368	1.751	7.617	62.658	105.41	98.86	102.13	64.15	79.48	44221.21
99	453.906	152.308	51.06	9.583	1.748	7.835	62.687	102.70	96.46	99.58	62.58	77.46	43099.74
100	453.930	153.999	51.13	9.706	1.720	7.986	62.624	97.83	91.61	94.72	59.45	73.74	41027.59





Photographs after Test

