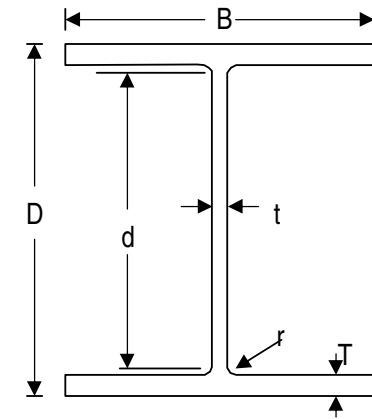
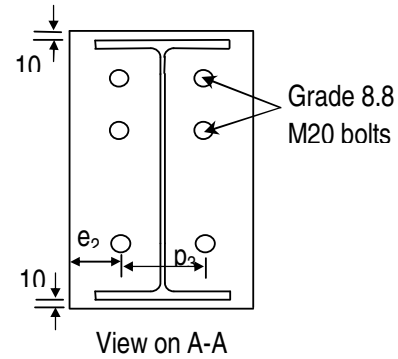


The specimen details



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
Dimension of Members		UB305x16 5x40	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

20°C

Time (minute)	Thermocouple Average(°C)	Jack Displacement (mm)	Load Angle $\alpha$ (°)	Beam Rotation (°)	Column Rotation (°)	Connection Rotation (°)	Force Rotation (°)	F3 from F1 (kN)	F3 from F2 (kN)	F3 from Reading (kN)	Tension (kN)	Shear (kN)	Moment (kN*m)
0	22.422	-0.010											
1	22.467	-0.009											
2	22.427	-0.002											
3	22.392	0.009	36.52	0.000	0.000	0.000	75.252	-0.51	-1.47	-1.18	-0.95	-0.70	-406.40
4	22.476	1.319	36.55	0.018	0.026	-0.008	75.209	0.23	-1.19	-0.07	-0.06	-0.04	-25.32
5	22.497	2.408	36.52	0.050	0.045	0.005	75.206	1.61	0.22	1.26	1.02	0.75	433.93
6	22.559	3.883	36.58	0.091	0.089	0.003	75.098	4.56	4.23	3.91	3.14	2.33	1343.64
7	22.502	5.435	36.65	0.138	0.129	0.009	74.983	8.10	8.25	7.37	5.91	4.40	2537.74
8	22.498	7.096	36.76	0.188	0.161	0.026	74.827	12.00	11.94	11.51	9.22	6.89	3971.33
9	22.536	8.695	36.73	0.231	0.193	0.038	74.811	16.43	16.32	15.71	12.59	9.39	5414.77
10	22.544	10.219	36.81	0.279	0.219	0.060	74.685	21.10	20.96	20.00	16.01	11.98	6906.34
11	22.551	11.698	36.89	0.319	0.245	0.074	74.567	25.58	25.24	24.49	19.58	14.70	8467.98
12	22.584	13.182	36.93	0.351	0.261	0.090	74.498	30.43	31.09	28.88	23.09	17.35	9994.15
13	22.601	14.578	37.03	0.396	0.293	0.103	74.352	34.79	34.32	33.21	26.51	20.00	11514.54
14	22.616	16.009	37.09	0.431	0.312	0.119	74.258	39.91	40.36	37.94	30.27	22.88	13172.29
15	22.540	17.393	37.10	0.465	0.326	0.140	74.204	45.29	45.56	43.37	34.59	26.16	15062.00
16	22.451	18.874	37.12	0.520	0.351	0.169	74.129	51.00	51.36	48.87	38.96	29.49	16978.08
17	22.463	20.402	37.17	0.570	0.380	0.190	74.030	57.07	58.69	54.52	43.44	32.94	18960.05
18	22.578	21.828	37.23	0.619	0.389	0.230	73.925	63.19	64.27	60.32	48.03	36.50	21001.58
19	22.560	23.292	37.25	0.665	0.423	0.242	73.861	69.13	69.99	66.50	52.93	40.25	23159.15
20	22.522	24.691	37.28	0.711	0.451	0.260	73.780	75.35	77.19	72.35	57.57	43.83	25215.85
21	22.562	26.053	37.29	0.769	0.467	0.302	73.719	81.18	82.94	78.27	62.27	47.42	27280.45
22	22.597	27.462	37.33	0.820	0.481	0.339	73.628	87.02	88.50	84.04	66.83	50.96	29314.48

09 January 2008 End-plate Test Result

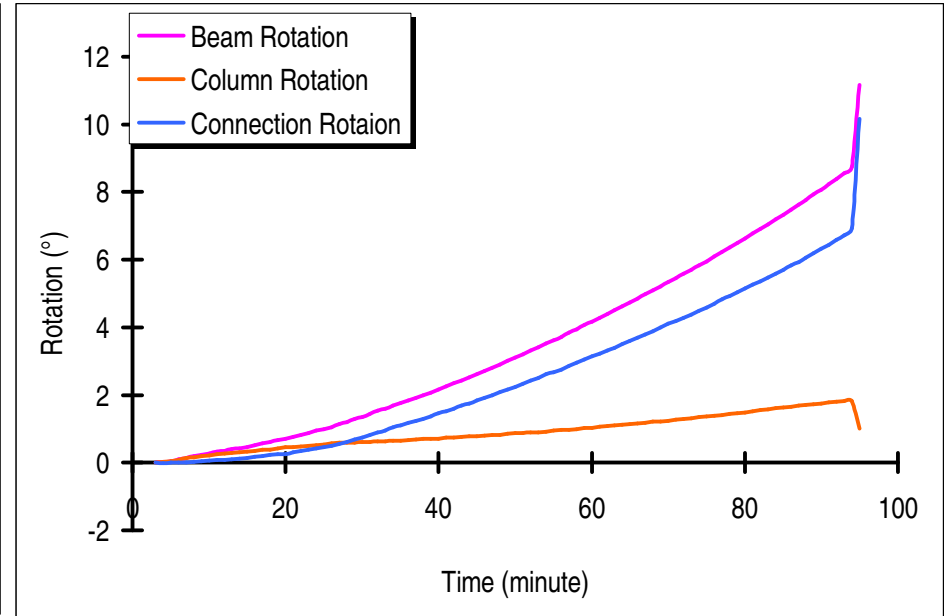
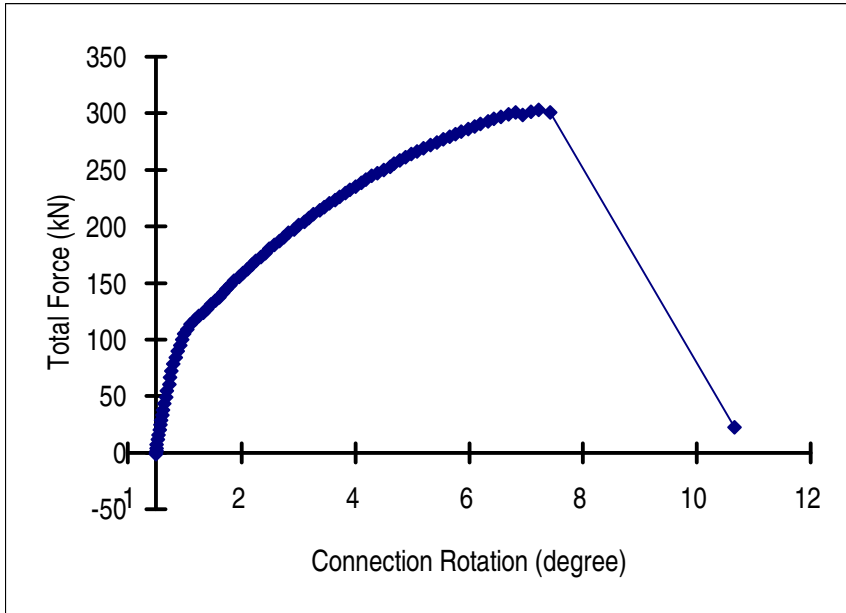
23	22.586	28.864	37.37	0.883	0.506	0.377	73.519	92.76	94.55	89.60	71.21	54.39	31282.32
24	22.565	30.258	37.44	0.948	0.525	0.423	73.387	98.17	99.70	94.79	75.27	57.63	33138.46
25	22.542	31.835	37.45	0.997	0.543	0.454	73.324	103.54	105.77	100.08	79.45	60.86	34996.85
26	22.525	33.364	37.47	1.054	0.566	0.488	73.246	108.35	110.88	104.87	83.23	63.80	36685.97
27	22.518	34.854	37.52	1.132	0.583	0.549	73.122	112.72	114.58	109.19	86.60	66.50	38228.70
28	22.509	36.447	37.62	1.202	0.595	0.607	72.951	116.87	118.49	113.28	89.72	69.15	39738.79
29	22.477	38.072	37.68	1.283	0.600	0.683	72.811	120.84	122.70	117.22	92.77	71.65	41170.31
30	22.527	39.635	37.70	1.355	0.609	0.746	72.720	124.46	126.44	120.68	95.49	73.80	42399.34
31	22.604	41.148	37.68	1.438	0.616	0.822	72.652	127.81	129.71	123.91	98.06	75.75	43522.13
32	22.554	42.766	37.64	1.530	0.633	0.897	72.600	131.13	133.41	127.33	100.82	77.77	44688.76
33	22.535	44.328	37.71	1.592	0.635	0.957	72.475	134.49	135.93	130.85	103.52	80.03	45978.99
34	22.493	45.906	37.68	1.689	0.650	1.039	72.402	138.07	140.21	134.17	106.18	82.02	47124.54
35	22.597	47.442	37.70	1.770	0.658	1.112	72.305	141.53	143.28	137.54	108.83	84.11	48325.25
36	22.651	49.012	37.71	1.847	0.670	1.177	72.218	144.93	146.00	141.04	111.58	86.27	49564.45
37	22.604	50.670	37.63	1.913	0.685	1.228	72.235	148.41	151.00	144.57	114.50	88.26	50719.89
38	22.647	52.175	37.60	1.999	0.701	1.298	72.172	151.90	153.95	148.16	117.38	90.41	51958.49
39	22.599	53.834	37.61	2.070	0.707	1.363	72.095	155.59	158.33	151.81	120.26	92.64	53242.38
40	22.675	55.306	37.68	2.170	0.714	1.456	71.928	159.37	161.25	155.23	122.86	94.88	54513.67
41	22.651	56.867	37.64	2.258	0.738	1.520	71.878	162.75	164.83	158.96	125.88	97.07	55783.93
42	22.714	58.405	37.57	2.346	0.747	1.599	71.854	166.07	168.16	162.35	128.67	99.00	56901.58
43	22.653	59.990	37.59	2.435	0.754	1.681	71.745	169.80	171.77	166.02	131.55	101.28	58210.67
44	22.695	61.519	37.59	2.520	0.774	1.746	71.664	173.42	175.59	169.44	134.27	103.36	59406.91
45	22.765	63.081	37.52	2.620	0.785	1.835	71.636	176.71	178.73	172.97	137.19	105.34	60558.10
46	22.780	64.636	37.53	2.707	0.794	1.913	71.536	180.35	182.07	176.51	139.98	107.53	61814.59
47	22.724	66.292	37.52	2.807	0.821	1.986	71.449	183.94	185.42	180.24	142.96	109.77	63102.11
48	22.796	67.766	37.43	2.903	0.822	2.081	71.445	187.33	189.07	183.56	145.77	111.56	64151.11
49	22.726	69.335	37.42	3.012	0.849	2.163	71.344	191.04	192.83	187.13	148.63	113.71	65391.32
50	22.793	70.809	37.38	3.112	0.868	2.244	71.287	194.21	195.45	190.65	151.51	115.73	66565.33
51	22.750	72.306	37.38	3.206	0.878	2.328	71.184	197.94	198.17	194.22	154.33	117.92	67823.01
52	22.782	73.778	37.28	3.317	0.889	2.428	71.179	201.20	201.78	197.49	157.15	119.62	68822.63

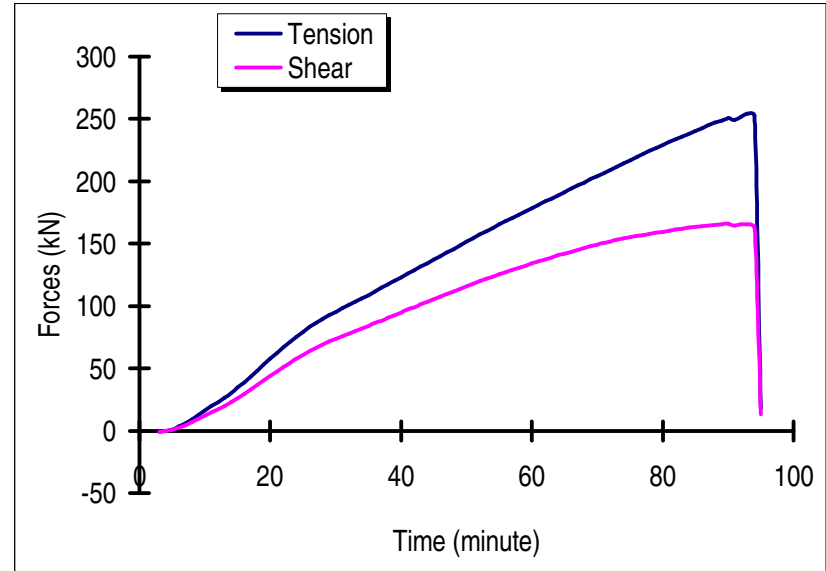
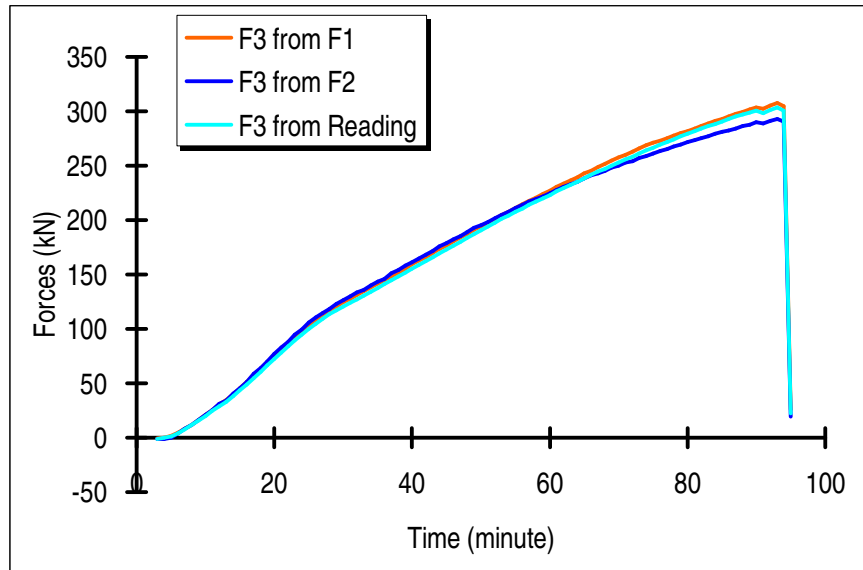
09 January 2008 End-plate Test Result

53	22.733	75.389	37.29	3.408	0.903	2.505	71.073	204.56	204.75	200.97	159.88	121.77	70054.66
54	22.743	76.925	37.20	3.525	0.918	2.607	71.046	207.80	207.76	204.29	162.71	123.52	71084.64
55	22.698	78.569	37.17	3.623	0.945	2.678	70.986	211.23	211.34	207.49	165.35	125.35	72145.60
56	22.709	80.123	37.14	3.718	0.962	2.756	70.912	214.53	214.23	210.66	167.92	127.20	73219.54
57	22.719	81.684	37.06	3.840	0.971	2.869	70.875	217.59	216.97	214.04	170.81	128.99	74267.96
58	22.698	83.245	37.05	3.940	0.989	2.951	70.785	220.72	219.32	217.15	173.31	130.83	75332.25
59	22.759	84.814	36.96	4.064	1.021	3.043	70.750	223.82	221.92	220.20	175.96	132.40	76258.71
60	22.757	86.401	36.93	4.172	1.031	3.141	70.669	227.07	224.67	223.23	178.44	134.14	77266.23
61	22.727	87.971	36.86	4.280	1.061	3.219	70.631	230.33	227.76	226.30	181.06	135.76	78220.19
62	22.671	89.596	36.77	4.404	1.080	3.324	70.596	233.30	230.31	229.60	183.91	137.45	79218.25
63	22.631	91.077	36.74	4.500	1.101	3.399	70.533	236.48	232.98	232.38	186.21	139.01	80126.00
64	22.697	92.607	36.71	4.616	1.117	3.499	70.444	239.66	235.16	235.33	188.65	140.69	81100.71
65	22.648	94.224	36.62	4.742	1.142	3.600	70.410	242.72	238.08	238.36	191.30	142.19	81992.42
66	22.602	95.747	36.43	4.853	1.167	3.686	70.491	245.29	241.01	241.51	194.31	143.42	82757.92
67	22.630	97.283	36.44	4.976	1.186	3.790	70.357	248.76	243.01	244.52	196.71	145.25	83809.22
68	22.707	98.780	36.35	5.095	1.207	3.888	70.331	251.69	245.36	247.23	199.13	146.53	84578.27
69	22.651	100.399	36.25	5.217	1.224	3.993	70.309	254.60	248.09	250.14	201.73	147.90	85400.23
70	22.737	101.888	36.18	5.340	1.234	4.106	70.253	257.58	249.85	252.96	204.18	149.33	86247.12
71	22.654	103.393	36.05	5.450	1.268	4.182	70.271	260.23	252.69	255.68	206.71	150.48	86948.63
72	22.666	104.988	35.98	5.579	1.295	4.284	70.218	262.92	254.26	258.50	209.19	151.86	87770.88
73	22.595	106.579	35.88	5.698	1.314	4.384	70.201	265.79	256.96	261.29	211.72	153.12	88532.97
74	22.665	108.054	35.78	5.830	1.343	4.487	70.161	268.57	258.94	263.89	214.08	154.31	89249.14
75	22.697	109.622	35.61	5.954	1.371	4.583	70.215	270.89	261.07	266.52	216.69	155.17	89807.75
76	22.633	111.296	35.44	6.095	1.395	4.700	70.240	273.13	263.37	269.35	219.44	156.18	90448.71
77	22.641	112.874	35.25	6.229	1.405	4.824	70.298	275.18	265.57	271.94	222.09	156.94	90955.46
78	22.634	114.485	35.13	6.361	1.434	4.927	70.287	277.60	267.93	274.31	224.35	157.83	91516.30
79	22.731	115.934	35.00	6.501	1.459	5.042	70.276	279.99	269.48	276.83	226.77	158.77	92104.12
80	22.741	117.470	34.80	6.634	1.482	5.152	70.339	281.99	271.96	279.21	229.27	159.35	92514.20
81	22.647	119.121	34.68	6.776	1.516	5.260	70.316	284.08	273.77	281.75	231.69	160.32	93117.48
82	22.654	120.690	34.58	6.911	1.548	5.363	70.287	286.45	275.50	284.08	233.90	161.21	93676.55

09 January 2008 End-plate Test Result

83	22.698	122.131	34.46	7.051	1.570	5.481	70.262	288.70	276.97	286.28	236.04	161.99	94169.94
84	22.747	123.652	34.35	7.201	1.606	5.595	70.222	291.11	279.15	288.40	238.10	162.73	94644.18
85	22.688	125.150	34.20	7.334	1.640	5.694	70.245	293.20	281.11	290.62	240.38	163.34	95053.92
86	22.719	126.591	34.08	7.484	1.657	5.827	70.212	295.47	282.55	292.88	242.58	164.11	95547.34
87	22.599	128.123	33.91	7.622	1.689	5.933	70.241	297.37	284.41	295.04	244.86	164.61	95903.85
88	22.469	129.699	33.78	7.769	1.710	6.059	70.224	299.67	286.38	297.06	246.91	165.17	96284.99
89	22.509	131.301	33.65	7.926	1.732	6.194	70.200	301.63	287.86	299.00	248.91	165.67	96631.92
90	22.492	132.934	33.51	8.068	1.748	6.320	70.198	303.75	289.84	300.60	250.64	165.95	96847.14
91	22.570	134.504	33.43	8.233	1.792	6.441	70.112	302.47	288.87	298.41	249.04	164.40	95975.58
92	22.557	136.082	33.28	8.393	1.809	6.584	70.106	305.54	290.97	301.26	251.87	165.29	96559.41
93	22.650	137.572	33.06	8.548	1.822	6.726	70.170	307.65	293.04	303.25	254.16	165.41	96721.25
94	22.631	139.189	32.86	8.745	1.824	6.921	70.172	304.71	290.60	300.67	252.57	163.13	95470.37
95	22.520	171.845	36.92	11.174	1.012	10.162	63.682	25.88	19.64	22.23	17.77	13.35	7692.97







Photographs after Test

