

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)	50
Spacing between centres of bolts in the direction of load transfer	p_1 (mm)	60
Spacing between rows of bolts	p_2 (mm)	103
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

550°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	546.452	0.583											
1	546.557	0.580											
2	546.615	0.571											
3	546.732	0.562	41.36	0.000	0.000	0.000	74.027	-9.06	-7.95	-8.50	-6.38	-5.62	-3192.48
4	546.751	1.816	41.40	0.021	0.019	0.002	73.967	-5.71	-5.61	-5.66	-4.25	-3.74	-2126.66
5	546.858	3.510	41.39	0.031	0.000	0.031	73.966	-4.87	-5.34	-5.10	-3.83	-3.37	-1916.89
6	546.923	5.186	41.12	0.052	0.023	0.028	74.214	-4.65	-3.68	-4.16	-3.14	-2.74	-1556.58
7	547.010	6.819	41.79	0.073	-0.023	0.096	73.516	-3.98	-3.19	-3.59	-2.67	-2.39	-1356.38
8	547.121	8.383	41.82	0.126	0.000	0.126	73.439	-3.92	-2.69	-3.30	-2.46	-2.20	-1250.25
9	547.185	9.864	41.85	0.168	-0.019	0.187	73.365	-3.64	-2.05	-2.84	-2.12	-1.90	-1076.60
10	547.155	11.326	41.80	0.284	0.000	0.284	73.301	-3.32	-3.29	-3.30	-2.46	-2.20	-1250.10
11	547.268	12.975	41.75	0.379	0.061	0.318	73.252	-3.15	-2.07	-2.61	-1.95	-1.74	-985.50
12	547.339	14.657	41.63	0.559	0.019	0.540	73.199	-3.77	-2.30	-3.04	-2.27	-2.02	-1145.62
13	547.428	16.097	41.58	0.655	-0.019	0.673	73.151	-3.38	-1.76	-2.57	-1.92	-1.71	-968.41
14	547.467	17.778	41.46	0.801	0.061	0.740	73.127	-3.56	-3.40	-3.48	-2.61	-2.31	-1310.16
15	547.535	19.377	41.41	0.897	0.019	0.879	73.073	-2.99	-1.66	-2.33	-1.75	-1.54	-874.64
16	547.644	20.725	41.35	1.013	0.000	1.013	73.019	-2.71	-1.33	-2.02	-1.52	-1.33	-758.02
17	547.614	22.087	41.23	1.162	-0.042	1.204	72.992	-2.42	-1.07	-1.74	-1.31	-1.15	-653.45
18	547.700	23.753	41.15	1.289	0.000	1.289	72.948	-3.04	-2.72	-2.88	-2.17	-1.90	-1078.32
19	547.780	25.365	41.05	1.405	-0.023	1.428	72.927	-2.90	-1.41	-2.16	-1.63	-1.42	-805.93
20	547.824	26.856	40.99	1.510	0.061	1.449	72.887	-2.80	-1.22	-2.01	-1.52	-1.32	-748.90
21	547.843	28.571	40.82	1.712	0.019	1.693	72.852	-2.17	-0.85	-1.51	-1.14	-0.99	-562.43
22	547.892	30.055	40.75	1.798	-0.005	1.803	72.832	-2.21	-0.84	-1.53	-1.16	-1.00	-567.63

23 May 2007 Web-cleat Test Result

23	547.912	31.602	40.67	1.925	0.019	1.906	72.792	-0.86	1.21	0.18	0.13	0.11	65.47
24	547.913	33.116	40.59	2.040	0.019	2.021	72.756	0.28	1.67	0.97	0.74	0.63	360.82
25	547.825	34.663	40.41	2.242	0.080	2.162	72.731	0.68	1.71	1.20	0.91	0.78	441.80
26	547.920	36.305	40.36	2.315	0.019	2.296	72.705	1.13	3.12	2.12	1.62	1.38	784.09
27	547.885	37.884	40.24	2.474	0.080	2.394	72.667	1.64	2.70	2.17	1.66	1.40	799.76
28	547.892	39.504	40.12	2.604	0.061	2.543	72.660	1.42	3.57	2.50	1.91	1.61	917.45
29	547.933	40.987	39.98	2.781	0.019	2.762	72.624	1.72	4.20	2.96	2.27	1.90	1085.98
30	547.950	42.661	39.86	2.908	0.061	2.847	72.616	1.24	3.12	2.18	1.67	1.40	798.01
31	547.988	44.232	39.63	3.164	0.103	3.060	72.593	2.46	4.25	3.35	2.58	2.14	1221.46
32	547.989	45.883	39.49	3.308	0.085	3.224	72.585	2.13	4.49	3.31	2.55	2.10	1201.53
33	547.976	47.470	39.39	3.417	0.122	3.295	72.573	2.76	5.15	3.96	3.06	2.51	1434.81
34	547.981	49.082	39.24	3.575	0.103	3.472	72.573	4.35	5.65	5.00	3.87	3.16	1808.62
35	547.963	50.605	39.06	3.754	0.103	3.651	72.567	4.62	7.30	5.96	4.63	3.75	2147.73
36	547.959	52.191	38.92	3.909	0.164	3.745	72.553	5.69	7.09	6.39	4.97	4.02	2298.13
37	548.015	53.761	38.83	4.000	0.103	3.896	72.550	5.99	8.24	7.11	5.54	4.46	2553.08
38	547.974	55.423	38.67	4.167	0.103	4.064	72.550	7.10	8.75	7.93	6.19	4.95	2836.81
39	547.917	56.975	38.53	4.298	0.164	4.134	72.555	8.44	10.03	9.24	7.22	5.75	3296.54
40	547.823	58.547	38.35	4.487	0.183	4.304	72.547	9.66	11.18	10.42	8.17	6.47	3707.89
41	547.825	60.182	38.17	4.651	0.146	4.505	72.560	10.22	11.82	11.02	8.67	6.81	3907.78
42	547.730	61.785	37.98	4.839	0.146	4.694	72.564	11.29	13.71	12.50	9.85	7.69	4416.45
43	547.675	63.188	37.88	4.945	0.183	4.762	72.559	13.89	15.82	14.85	11.72	9.12	5237.22
44	547.646	64.839	37.74	5.085	0.146	4.939	72.558	15.18	17.27	16.22	12.83	9.93	5704.23
45	547.515	66.274	37.66	5.173	0.188	4.986	72.549	15.65	17.47	16.56	13.11	10.12	5813.82
46	547.427	67.612	37.53	5.316	0.207	5.109	72.538	17.12	18.55	17.84	14.14	10.86	6245.91
47	547.387	69.127	37.36	5.456	0.207	5.250	72.566	19.39	20.99	20.19	16.05	12.25	7047.74
48	547.272	70.201	37.40	5.480	0.188	5.293	72.505	20.05	20.97	20.51	16.29	12.46	7164.17
49	547.273	71.482	37.30	5.548	0.230	5.317	72.532	20.16	21.46	20.81	16.55	12.61	7256.11
50	547.174	72.693	37.29	5.569	0.249	5.321	72.526	22.93	23.48	23.21	18.46	14.06	8089.05
51	547.269	73.654	37.26	5.591	0.310	5.281	72.534	21.97	23.37	22.67	18.04	13.73	7897.43
52	547.251	74.986	37.20	5.661	0.188	5.473	72.519	24.11	24.53	24.32	19.37	14.71	8463.19

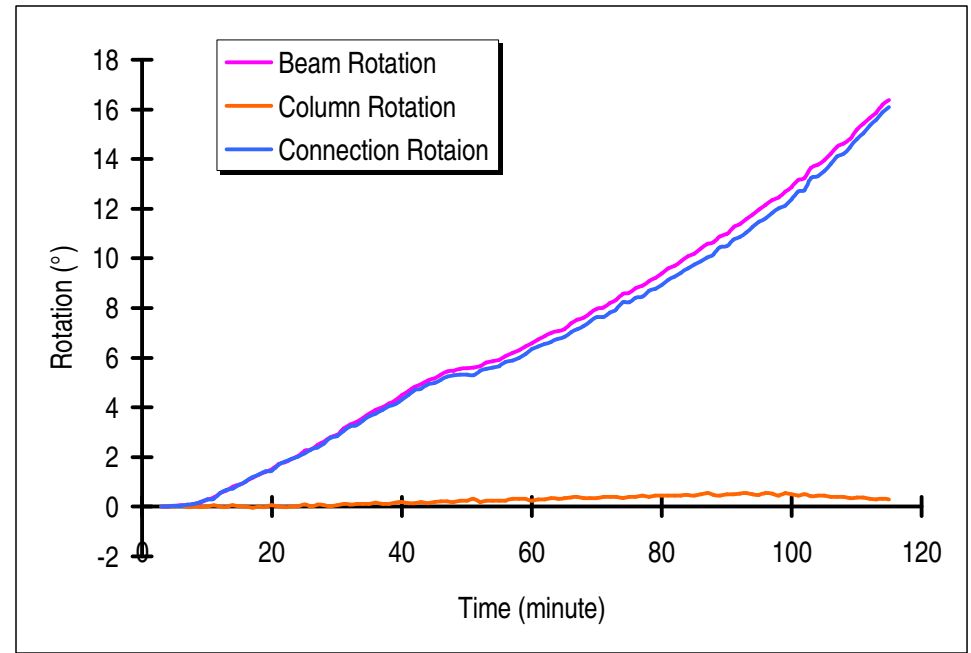
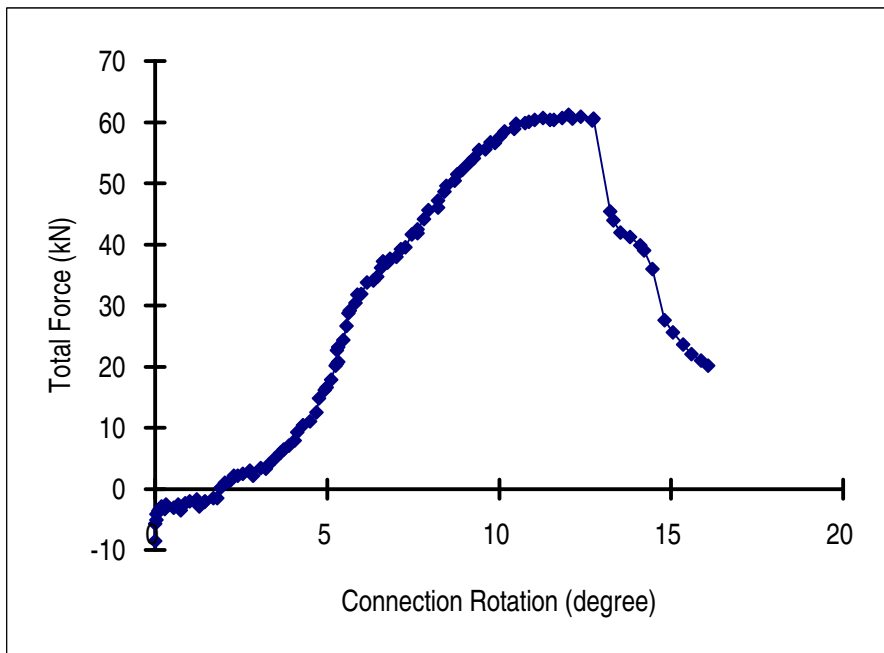
23 May 2007 Web-cleat Test Result

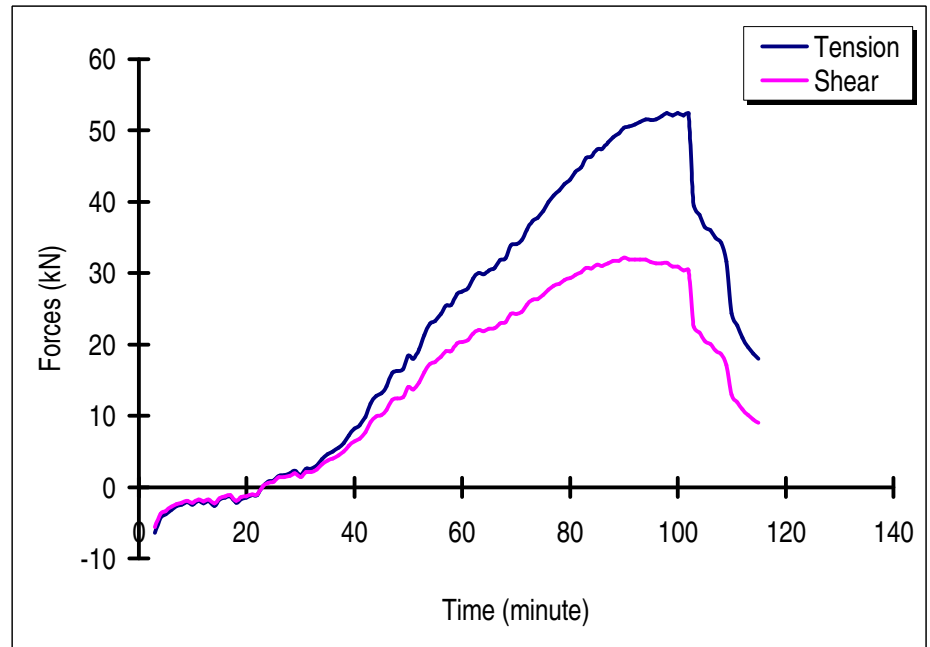
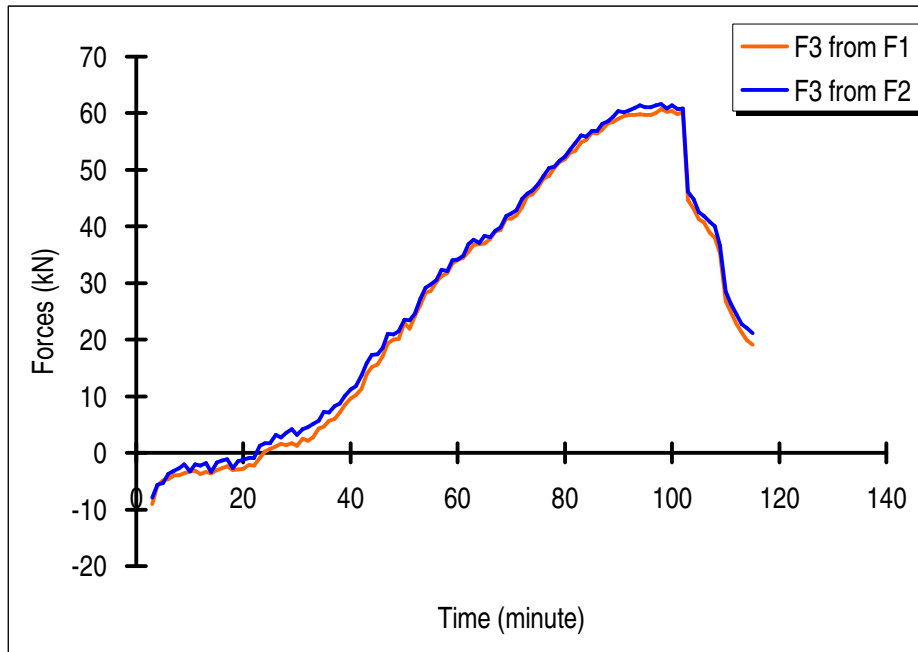
53	547.301	76.429	37.09	5.803	0.249	5.554	72.491	26.09	27.29	26.69	21.29	16.09	9265.97
54	547.285	77.976	37.03	5.863	0.249	5.614	72.487	28.31	29.20	28.76	22.96	17.32	9973.62
55	547.144	79.586	37.03	5.912	0.249	5.664	72.439	28.57	29.69	29.13	23.26	17.55	10103.63
56	547.063	81.245	36.91	6.071	0.249	5.822	72.404	30.22	30.52	30.37	24.28	18.24	10506.51
57	547.083	82.784	36.83	6.184	0.310	5.874	72.373	31.22	32.30	31.76	25.42	19.04	10970.22
58	547.047	84.227	36.77	6.295	0.310	5.986	72.319	31.76	32.11	31.94	25.58	19.12	11018.24
59	547.126	85.934	36.64	6.461	0.310	6.151	72.284	33.50	33.99	33.74	27.08	20.14	11611.44
60	547.057	87.481	36.56	6.580	0.230	6.350	72.242	34.01	34.20	34.10	27.39	20.32	11717.78
61	547.079	89.068	36.44	6.738	0.291	6.447	72.209	34.49	34.87	34.68	27.90	20.60	11884.69
62	547.067	90.598	36.35	6.857	0.291	6.565	72.178	35.54	36.91	36.22	29.18	21.47	12393.30
63	547.094	92.130	36.28	6.983	0.352	6.631	72.118	36.79	37.61	37.20	29.99	22.01	12709.35
64	547.082	93.653	36.21	7.066	0.310	6.756	72.103	36.89	37.10	37.00	29.85	21.86	12622.72
65	547.120	95.336	36.16	7.162	0.334	6.828	72.060	37.03	38.29	37.66	30.40	22.22	12834.98
66	547.185	96.875	35.93	7.388	0.376	7.012	72.065	37.77	38.15	37.96	30.74	22.27	12876.81
67	547.048	98.494	35.81	7.546	0.395	7.151	72.029	39.14	39.27	39.21	31.80	22.94	13267.77
68	547.112	99.857	35.78	7.619	0.352	7.267	71.986	39.30	39.82	39.56	32.09	23.13	13378.27
69	547.143	101.539	35.61	7.806	0.352	7.454	71.965	41.42	41.86	41.64	33.85	24.25	14034.54
70	547.140	103.045	35.46	7.964	0.334	7.631	71.959	41.36	42.33	41.85	34.09	24.28	14059.27
71	547.134	104.538	35.44	8.023	0.395	7.629	71.924	41.99	42.84	42.42	34.56	24.59	14243.34
72	546.981	106.165	35.25	8.218	0.395	7.823	71.916	43.48	44.88	44.18	36.08	25.50	14776.93
73	546.931	107.624	35.15	8.337	0.395	7.942	71.893	45.32	45.83	45.58	37.26	26.24	15214.30
74	547.011	109.089	34.90	8.563	0.334	8.229	71.916	45.71	46.32	46.01	37.74	26.33	15280.74
75	547.078	110.716	34.88	8.621	0.395	8.227	71.885	46.94	47.49	47.22	38.74	27.00	15671.55
76	547.025	112.319	34.71	8.795	0.395	8.401	71.878	48.44	48.84	48.64	39.98	27.70	16085.97
77	546.923	113.833	34.61	8.906	0.437	8.470	71.868	48.98	50.28	49.63	40.85	28.19	16379.20
78	546.940	115.355	34.43	9.095	0.395	8.700	71.855	50.30	50.57	50.43	41.60	28.52	16581.51
79	546.903	116.919	34.32	9.221	0.437	8.784	71.843	51.31	51.59	51.45	42.49	29.01	16873.32
80	547.018	118.555	34.16	9.394	0.455	8.938	71.830	51.92	52.42	52.17	43.17	29.29	17049.42
81	547.019	120.053	33.95	9.598	0.455	9.143	71.831	53.00	53.65	53.32	44.23	29.78	17350.29
82	546.986	121.671	33.86	9.693	0.437	9.256	71.833	53.36	54.71	54.04	44.87	30.11	17545.60

23 May 2007 Web-cleat Test Result

83	546.920	123.324	33.68	9.869	0.455	9.414	71.839	54.82	56.11	55.46	46.16	30.75	17936.77
84	546.982	124.966	33.49	10.077	0.479	9.598	71.818	55.35	55.84	55.59	46.36	30.67	17904.74
85	546.937	126.497	33.36	10.187	0.437	9.750	71.833	56.55	56.84	56.69	47.35	31.18	18207.70
86	546.964	128.262	33.18	10.386	0.498	9.888	71.817	56.42	56.88	56.65	47.41	31.00	18119.84
87	546.991	129.784	32.98	10.577	0.540	10.037	71.826	57.07	58.11	57.59	48.31	31.35	18339.67
88	546.939	131.347	32.92	10.645	0.479	10.165	71.819	58.28	58.60	58.44	49.06	31.76	18583.21
89	546.983	133.046	32.65	10.898	0.455	10.443	71.835	58.42	59.33	58.88	49.57	31.76	18608.45
90	546.985	134.657	32.55	10.996	0.498	10.498	71.842	59.04	60.44	59.74	50.36	32.14	18835.54
91	547.059	136.163	32.27	11.249	0.498	10.751	71.863	59.49	60.16	59.82	50.58	31.94	18744.02
92	547.062	137.694	32.14	11.386	0.516	10.870	71.859	59.67	60.46	60.06	50.86	31.95	18761.39
93	546.905	139.314	31.93	11.581	0.540	11.041	71.868	59.73	61.00	60.37	51.23	31.93	18766.67
94	546.995	140.885	31.73	11.771	0.498	11.273	71.881	59.85	61.42	60.63	51.57	31.89	18760.50
95	546.981	142.544	31.51	11.966	0.479	11.486	71.908	59.72	61.11	60.42	51.51	31.58	18596.01
96	546.914	144.155	31.32	12.138	0.540	11.598	71.925	59.68	61.02	60.35	51.55	31.37	18491.11
97	546.955	145.751	31.10	12.351	0.516	11.834	71.931	60.02	61.42	60.72	51.99	31.37	18508.10
98	546.918	147.272	30.96	12.464	0.437	12.027	71.957	60.76	61.66	61.21	52.49	31.49	18594.95
99	546.988	148.969	30.73	12.684	0.559	12.125	71.972	60.30	60.85	60.57	52.07	30.95	18297.19
100	546.956	150.565	30.52	12.879	0.498	12.381	71.981	60.36	61.39	60.88	52.44	30.92	18297.04
101	546.972	152.200	30.23	13.154	0.455	12.698	71.999	59.84	60.74	60.29	52.09	30.36	17991.44
102	547.072	153.762	30.10	13.244	0.498	12.747	72.036	60.29	60.85	60.57	52.40	30.38	18017.70
103	547.203	155.677	29.73	13.640	0.413	13.227	72.017	44.66	46.15	45.40	39.43	22.51	13378.94
104	547.161	157.249	29.55	13.775	0.455	13.320	72.056	43.09	44.81	43.95	38.24	21.68	12894.72
105	547.142	158.764	29.37	13.956	0.437	13.519	72.055	41.24	42.58	41.91	36.52	20.55	12238.04
106	547.159	160.247	29.08	14.199	0.395	13.805	72.109	40.69	41.80	41.24	36.04	20.04	11952.50
107	547.251	161.904	28.76	14.506	0.395	14.111	72.118	38.96	40.79	39.87	34.95	19.18	11461.43
108	547.255	163.476	28.61	14.613	0.395	14.219	72.161	37.97	40.01	38.99	34.23	18.67	11163.98
109	547.309	165.120	28.40	14.806	0.342	14.464	72.175	35.25	36.64	35.95	31.62	17.10	10236.33
110	547.451	166.978	28.00	15.193	0.384	14.809	72.188	26.78	28.45	27.62	24.38	12.97	7781.10
111	547.475	168.645	27.71	15.430	0.384	15.046	72.246	24.86	26.33	25.59	22.66	11.90	7153.94
112	547.498	170.297	27.44	15.666	0.323	15.343	72.282	22.79	24.45	23.62	20.96	10.88	6553.95

113	547.602	172.005	27.20	15.865	0.281	15.584	72.318	21.27	22.75	22.01	19.58	10.06	6068.59
114	547.670	173.855	26.81	16.197	0.323	15.874	72.377	19.89	22.10	21.00	18.74	9.47	5725.75
115	547.630	175.546	26.56	16.388	0.305	16.084	72.435	19.11	21.19	20.15	18.02	9.01	5456.85





Photographs after Test

