

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)	50
Spacing between centres of bolts in the direction of load transfer	p_1 (mm)	60
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	547.837	1.032											
1	547.887	1.028											
2	547.890	1.031											
3	547.883	1.033	40.85	0.000	0.000	0.000	16.301	-4.160	-5.063	-4.612	-3.49	-3.02	-1716.39
4	548.034	2.419	41.25	0.000	0.126	-0.126	16.271	-1.865	-2.819	-2.342	-1.76	-1.54	-877.85
5	548.130	3.931	41.41	0.061	0.060	0.001	16.339	-0.768	-1.432	-1.100	-0.82	-0.73	-413.22
6	548.283	5.500	41.31	0.145	0.144	0.001	16.324	-0.560	-1.349	-0.954	-0.72	-0.63	-357.99
7	548.350	6.989	41.19	0.123	0.126	-0.003	16.296	-0.453	-1.403	-0.928	-0.70	-0.61	-347.59
8	548.424	8.460	41.74	0.145	0.102	0.043	16.843	-0.242	-1.292	-0.767	-0.57	-0.51	-289.74
9	548.510	9.921	41.80	0.164	0.126	0.039	16.902	0.262	-0.489	-0.113	-0.08	-0.08	-42.93
10	548.526	11.523	41.78	0.290	0.144	0.146	16.967	0.876	0.436	0.656	0.49	0.44	248.12
11	548.669	13.140	41.85	0.351	0.163	0.188	17.082	1.235	0.368	0.802	0.60	0.53	303.51
12	548.735	14.598	41.86	0.496	0.163	0.333	17.302	1.240	0.425	0.832	0.62	0.56	315.17
13	548.801	16.250	41.55	0.702	0.205	0.498	17.168	1.208	0.105	0.657	0.49	0.44	247.35
14	548.874	17.779	41.45	0.763	0.186	0.577	17.148	1.276	0.481	0.879	0.66	0.58	330.48
15	548.896	19.299	41.37	0.928	0.163	0.765	17.241	1.316	0.228	0.772	0.58	0.51	289.84
16	548.952	20.754	41.32	1.073	0.205	0.868	17.318	1.210	0.101	0.656	0.49	0.43	246.04
17	548.988	22.244	41.29	1.176	0.205	0.971	17.378	1.102	0.284	0.693	0.52	0.46	259.97
18	549.060	23.767	41.06	1.279	0.205	1.074	17.358	1.578	0.644	1.111	0.84	0.73	415.12
19	549.181	25.204	41.13	1.424	0.223	1.201	17.515	2.131	1.288	1.710	1.29	1.12	639.39
20	549.165	26.699	40.92	1.527	0.205	1.322	17.475	2.207	1.870	2.039	1.54	1.34	759.80
21	549.284	28.228	40.83	1.648	0.247	1.402	17.594	2.873	1.968	2.421	1.83	1.58	900.71
22	549.298	29.814	40.77	1.836	0.186	1.650	17.536	2.803	1.960	2.381	1.80	1.56	885.16

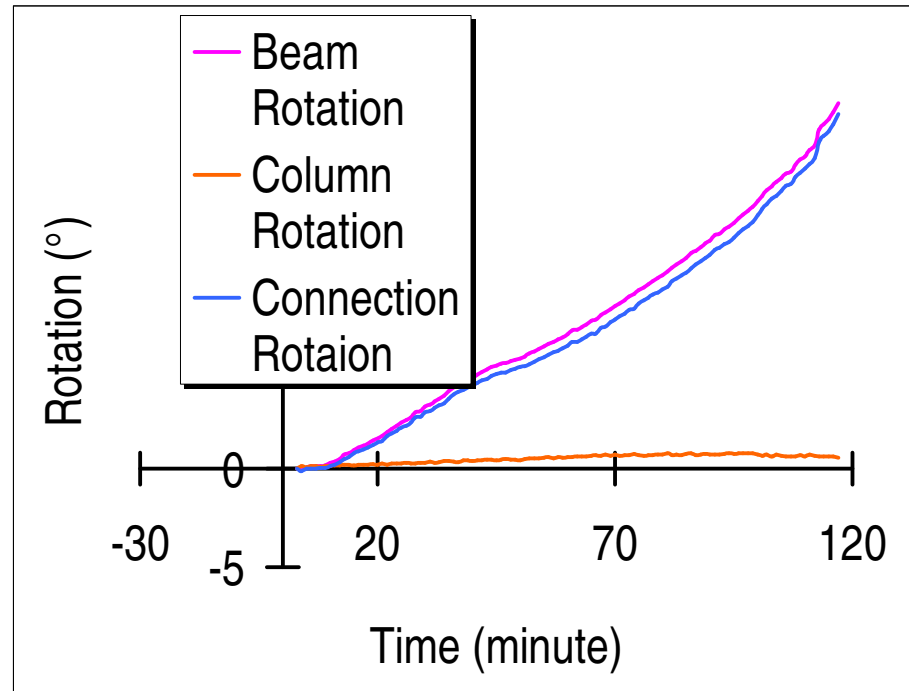
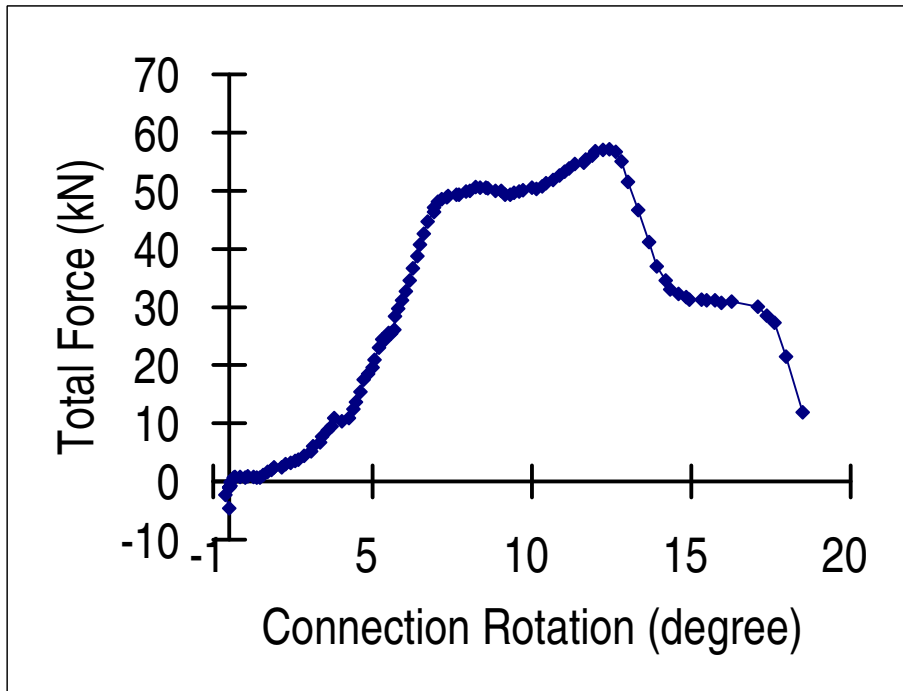
23	549.349	31.333	40.59	2.023	0.247	1.777	17.495	3.131	2.910	3.020	2.29	1.97	1119.06
24	549.415	32.887	40.45	2.187	0.265	1.922	17.603	3.578	2.934	3.256	2.48	2.11	1203.49
25	549.460	34.402	40.30	2.332	0.265	2.067	17.536	3.834	3.206	3.520	2.68	2.28	1297.44
26	549.564	35.925	40.13	2.453	0.289	2.164	17.624	3.918	3.673	3.795	2.90	2.45	1394.85
27	549.636	37.544	39.95	2.598	0.247	2.352	17.495	4.764	4.045	4.405	3.38	2.83	1613.70
28	549.708	39.003	39.85	2.846	0.265	2.581	17.603	5.428	4.880	5.154	3.96	3.30	1884.68
29	549.714	40.655	39.83	2.932	0.307	2.625	17.709	6.366	5.693	6.029	4.63	3.86	2203.90
30	549.715	42.057	39.07	3.137	0.289	2.849	17.662	6.840	6.651	6.746	5.24	4.25	2432.12
31	549.766	43.628	39.38	3.257	0.349	2.908	17.647	7.800	7.617	7.708	5.96	4.89	2794.86
32	549.874	45.214	39.27	3.403	0.307	3.096	17.668	9.024	8.533	8.778	6.80	5.56	3176.66
33	549.886	46.649	38.99	3.548	0.325	3.223	17.594	9.602	9.411	9.507	7.39	5.98	3422.26
34	549.975	48.140	38.92	3.694	0.391	3.303	17.580	11.016	10.732	10.874	8.46	6.83	3909.63
35	550.010	49.717	38.79	3.925	0.391	3.534	17.665	10.823	9.982	10.403	8.11	6.52	3731.22
36	550.016	51.330	38.64	4.130	0.367	3.763	17.729	11.063	10.792	10.927	8.53	6.82	3908.62
37	550.056	52.813	38.36	4.233	0.325	3.908	17.539	12.520	12.346	12.433	9.75	7.72	4424.05
38	550.034	54.416	38.08	4.395	0.409	3.986	17.468	13.995	13.379	13.687	10.77	8.44	4844.01
39	550.034	55.826	38.05	4.524	0.409	4.115	17.559	15.883	15.043	15.463	12.18	9.53	5469.25
40	550.015	57.309	37.97	4.610	0.385	4.225	17.515	17.618	17.357	17.488	13.79	10.76	6176.20
41	550.040	58.784	37.84	4.772	0.409	4.363	17.559	19.040	18.061	18.551	14.65	11.38	6534.77
42	550.013	60.259	37.55	4.902	0.409	4.493	17.451	20.251	19.038	19.645	15.57	11.97	6881.85
43	550.126	61.605	37.54	5.020	0.469	4.551	17.563	21.593	20.244	20.919	16.59	12.75	7326.67
44	550.135	63.047	37.47	5.166	0.469	4.697	17.586	23.804	22.122	22.963	18.22	13.97	8032.38
45	550.152	64.530	37.21	5.225	0.433	4.792	17.566	25.439	23.534	24.486	19.50	14.81	8521.26
46	550.155	65.900	37.12	5.328	0.451	4.876	17.539	25.508	23.096	24.302	19.38	14.67	8443.08
47	550.196	66.965	37.19	5.355	0.475	4.880	17.519	25.903	23.670	24.787	19.75	14.98	8623.15
48	550.173	68.304	36.86	5.457	0.457	5.001	17.394	26.638	24.419	25.529	20.43	15.31	8822.73
49	550.238	69.403	37.00	5.529	0.451	5.078	17.542	26.533	24.422	25.477	20.35	15.33	8830.72
50	550.280	70.597	36.75	5.588	0.409	5.179	17.374	27.050	25.192	26.121	20.93	15.63	9007.67
51	550.310	71.976	36.80	5.690	0.493	5.197	17.519	29.766	26.998	28.382	22.73	17.00	9798.11
52	550.297	73.385	36.66	5.836	0.535	5.301	17.499	31.048	28.437	29.743	23.86	17.76	10238.81

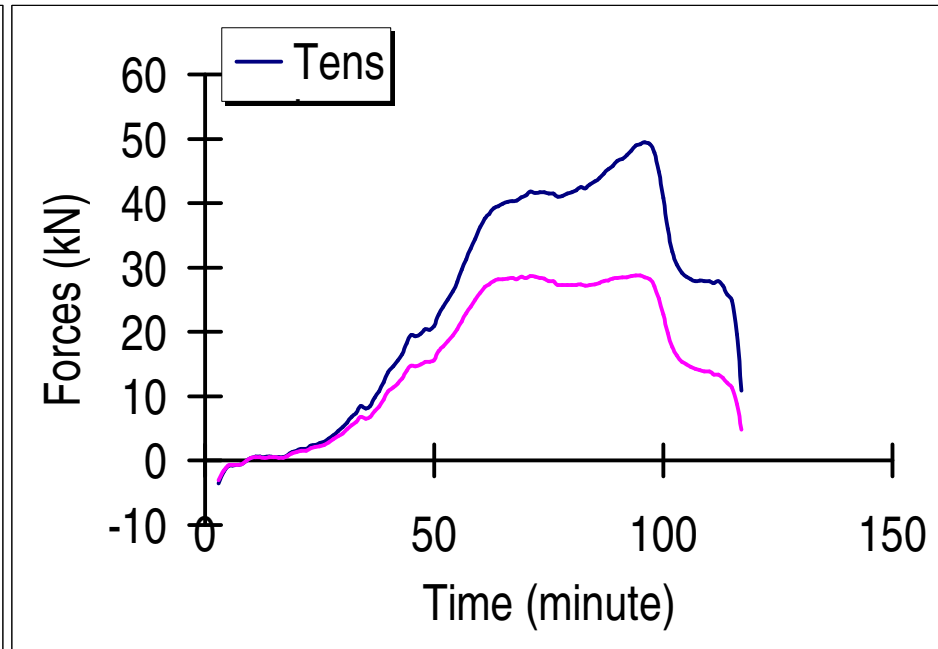
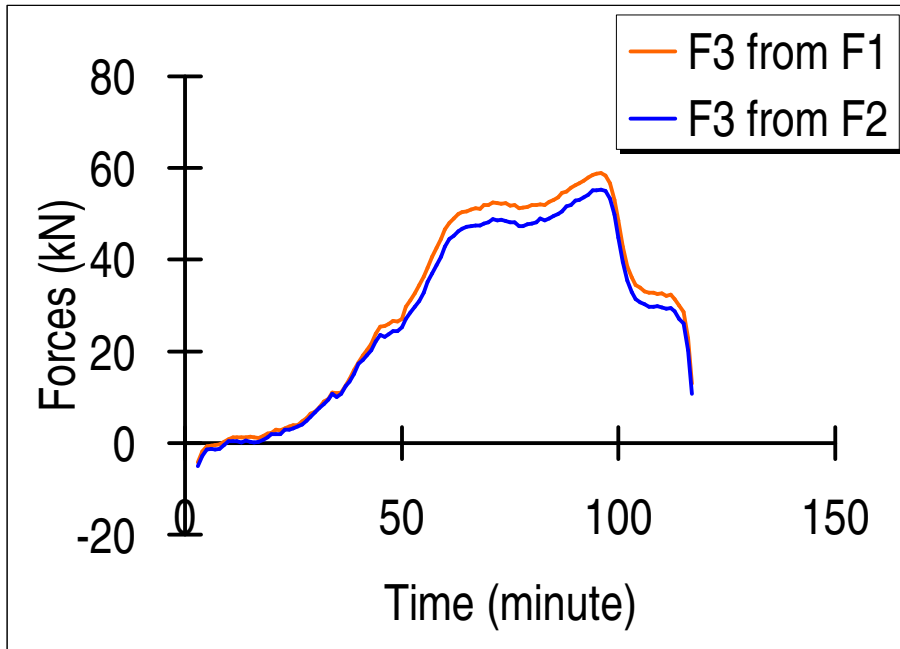
53	550.295	74.924	36.54	5.954	0.535	5.418	17.559	32.604	29.674	31.139	25.02	18.54	10693.91
54	550.341	76.350	36.41	6.084	0.535	5.549	17.519	34.418	31.007	32.712	26.33	19.42	11204.78
55	550.269	77.690	36.32	6.215	0.559	5.656	17.522	36.262	32.793	34.527	27.82	20.45	11805.65
56	550.345	79.196	36.10	6.347	0.577	5.770	17.542	38.236	35.164	36.700	29.65	21.62	12492.38
57	550.443	80.702	36.23	6.419	0.511	5.908	17.647	40.641	36.948	38.795	31.29	22.93	13241.60
58	550.465	82.370	35.98	6.565	0.577	5.988	17.606	42.584	38.811	40.698	32.93	23.91	13820.19
59	550.505	83.820	35.95	6.668	0.559	6.108	17.668	44.522	40.609	42.565	34.46	24.99	14445.58
60	550.525	85.310	35.75	6.813	0.577	6.236	17.644	46.554	42.917	44.736	36.31	26.13	15118.57
61	550.528	86.882	35.67	7.003	0.577	6.426	17.778	48.032	44.588	46.310	37.62	27.00	15625.61
62	550.521	88.492	35.56	7.047	0.619	6.427	17.670	48.946	45.291	47.118	38.33	27.40	15863.14
63	550.613	90.056	35.36	7.163	0.619	6.544	17.685	50.027	46.227	48.127	39.25	27.85	16136.75
64	550.669	91.699	35.52	7.295	0.619	6.675	17.839	50.367	46.787	48.577	39.54	28.22	16339.83
65	550.709	93.237	35.20	7.499	0.661	6.837	17.732	50.554	47.128	48.841	39.91	28.15	16320.15
66	550.693	94.720	35.19	7.558	0.698	6.861	17.839	50.987	47.300	49.144	40.16	28.32	16417.11
67	550.743	96.379	35.08	7.776	0.638	7.139	17.883	51.188	47.443	49.315	40.36	28.34	16436.21
68	550.741	97.893	34.84	7.922	0.704	7.219	17.881	51.151	47.389	49.270	40.44	28.14	16337.88
69	550.839	99.424	34.95	8.068	0.638	7.431	17.990	51.867	47.936	49.901	40.90	28.58	16585.36
70	550.824	100.939	34.59	8.258	0.704	7.555	17.883	51.860	48.190	50.025	41.18	28.40	16502.11
71	550.951	102.558	34.49	8.373	0.638	7.736	17.905	52.451	48.874	50.663	41.75	28.69	16678.04
72	550.897	104.128	34.50	8.550	0.680	7.870	18.031	52.400	48.567	50.484	41.60	28.60	16621.67
73	550.916	105.660	34.25	8.740	0.680	8.060	17.967	52.246	48.743	50.494	41.74	28.42	16537.03
74	550.989	107.086	34.19	8.855	0.740	8.115	18.117	52.299	48.488	50.393	41.68	28.32	16482.29
75	550.985	108.737	33.92	9.045	0.680	8.365	18.031	51.841	48.182	50.012	41.50	27.91	16261.97
76	551.088	110.156	33.85	9.178	0.638	8.540	18.074	51.912	48.133	50.023	41.54	27.86	16238.96
77	551.102	111.655	33.62	9.336	0.680	8.656	18.033	51.165	47.354	49.259	41.02	27.28	15911.99
78	551.143	113.273	33.54	9.501	0.680	8.821	18.095	51.345	47.355	49.350	41.13	27.27	15912.93
79	551.170	114.731	33.30	9.659	0.722	8.937	18.009	51.546	47.792	49.669	41.51	27.27	15928.87
80	551.117	116.302	33.21	9.817	0.722	9.095	18.158	51.866	47.891	49.878	41.73	27.32	15965.58
81	551.113	117.745	33.06	9.995	0.782	9.213	18.096	51.958	48.178	50.068	41.96	27.31	15970.98
82	551.134	119.236	32.75	10.185	0.680	9.505	17.949	52.136	48.956	50.546	42.51	27.34	16011.77

Fin Plate test 22 March 2007

83	550.988	120.679	32.76	10.363	0.722	9.642	18.074	51.946	48.608	50.277	42.28	27.21	15929.95
84	550.573	122.257	32.46	10.509	0.698	9.811	18.073	52.630	48.953	50.792	42.86	27.26	15982.14
85	549.990	123.892	32.29	10.678	0.740	9.938	18.117	53.083	49.549	51.316	43.38	27.42	16086.33
86	549.551	125.391	32.12	10.934	0.764	10.171	18.011	53.647	50.039	51.843	43.91	27.56	16185.28
87	549.359	127.042	32.04	11.035	0.680	10.356	18.138	54.618	50.553	52.586	44.58	27.89	16386.35
88	549.388	128.468	31.75	11.237	0.722	10.515	17.988	54.920	51.591	53.255	45.29	28.02	16483.58
89	549.447	129.992	31.67	11.416	0.746	10.670	18.054	55.706	51.959	53.832	45.81	28.27	16632.79
90	549.379	131.730	31.40	11.572	0.722	10.851	18.011	56.218	52.900	54.559	46.57	28.42	16748.54
91	549.243	133.415	31.26	11.841	0.722	11.120	18.011	56.628	52.983	54.805	46.85	28.44	16767.34
92	549.062	134.992	30.96	11.908	0.722	11.186	17.969	57.185	53.604	55.394	47.50	28.50	16828.71
93	548.960	136.426	30.72	12.132	0.740	11.392	18.009	57.904	54.223	56.064	48.19	28.64	16933.48
94	548.936	138.014	30.48	12.277	0.782	11.496	17.883	58.493	55.147	56.820	48.97	28.82	17061.54
95	548.901	139.592	30.34	12.468	0.746	11.722	17.926	58.821	55.202	57.012	49.20	28.80	17058.90
96	548.988	141.141	29.97	12.703	0.764	11.939	17.737	58.942	55.240	57.091	49.46	28.52	16923.99
97	548.974	142.631	29.78	12.893	0.764	12.129	17.737	58.337	54.968	56.653	49.17	28.14	16715.47
98	548.946	144.338	29.53	13.073	0.764	12.309	17.717	56.724	53.364	55.044	47.89	27.13	16139.90
99	548.927	145.820	29.25	13.273	0.764	12.509	17.717	53.108	49.851	51.479	44.92	25.15	14987.18
100	548.939	147.383	29.10	13.563	0.722	12.841	17.862	48.592	44.777	46.684	40.79	22.70	13537.50
101	548.943	149.195	28.76	13.834	0.661	13.172	17.717	42.828	39.489	41.158	36.08	19.81	11832.54
102	548.874	150.806	28.48	14.114	0.704	13.411	17.633	38.487	35.475	36.981	32.51	17.63	10551.25
103	548.951	152.433	28.19	14.304	0.601	13.703	17.627	36.178	33.002	34.590	30.49	16.34	9794.33
104	548.894	154.043	27.81	14.548	0.704	13.845	17.546	34.496	31.448	32.972	29.16	15.38	9241.60
105	548.861	155.629	27.69	14.730	0.638	14.092	17.522	33.846	30.702	32.274	28.58	15.00	9017.27
106	548.821	157.128	27.37	14.965	0.619	14.345	17.502	33.125	30.286	31.706	28.16	14.58	8781.90
107	548.743	158.732	27.06	15.068	0.619	14.449	17.458	32.859	29.761	31.310	27.88	14.24	8598.47
108	548.837	160.399	26.75	15.435	0.619	14.816	17.378	32.854	29.745	31.299	27.95	14.09	8520.24
109	548.928	161.921	26.34	15.670	0.680	14.990	17.241	32.537	29.798	31.168	27.93	13.83	8388.26
110	548.978	163.553	26.35	15.860	0.619	15.240	17.358	32.685	29.612	31.148	27.91	13.83	8384.74
111	548.941	164.965	25.90	16.171	0.728	15.443	17.078	32.082	29.290	30.686	27.60	13.40	8153.43
112	548.935	166.601	25.66	16.399	0.643	15.756	17.034	32.441	29.430	30.935	27.88	13.40	8164.15

113	548.862	168.203	25.32	17.203	0.619	16.583	17.014	31.384	28.714	30.049	27.16	12.85	7851.22
114	548.880	169.662	25.15	17.477	0.601	16.876	17.034	29.943	27.103	28.523	25.82	12.12	7414.26
115	548.892	171.097	24.56	17.712	0.601	17.111	16.744	28.553	26.139	27.346	24.87	11.37	6982.73
116	548.981	173.005	24.16	18.090	0.619	17.471	16.744	22.847	20.195	21.521	19.64	8.81	5428.37
117	548.991	174.920	23.90	18.548	0.559	17.989	16.763	13.016	10.761	11.889	10.87	4.82	2974.77





Photographs after Test

