

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		UB305×16 5×40	UC254×25 4×89
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

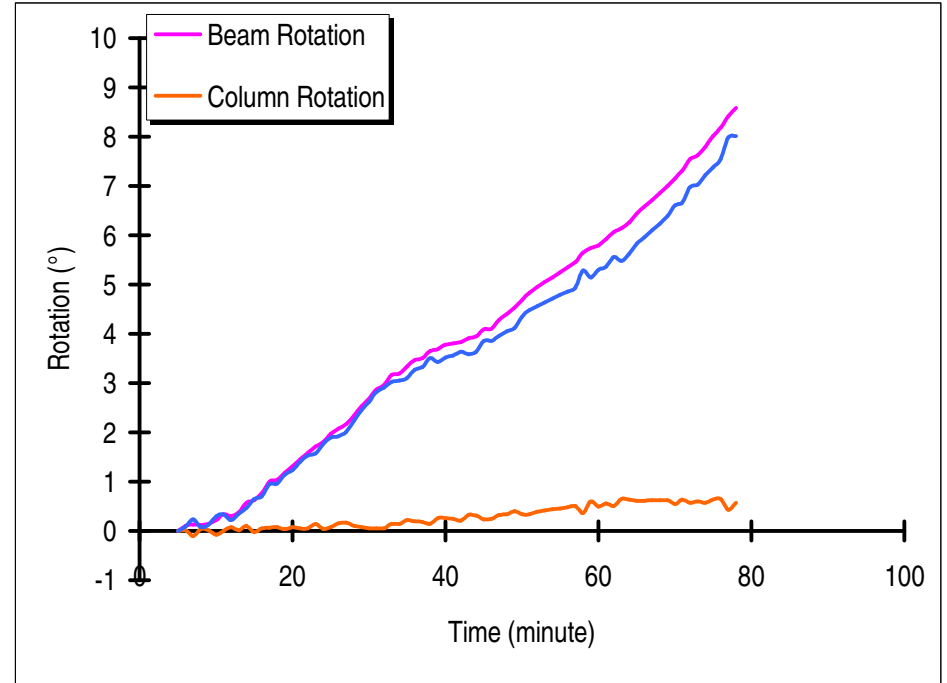
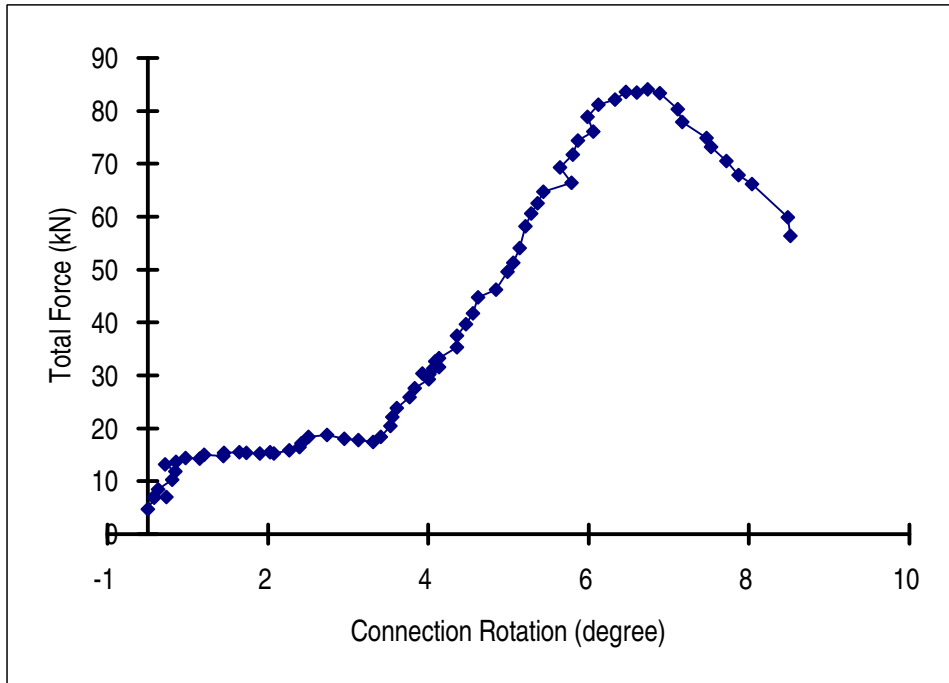
Time (minute)	Thermocouple Average(° C)	Jack Displacement (mm)	Load Angle α (°)	Beam Rotation (°)	Column Rotation (°)	Connection Rotation (°)	Force Rotation (°)	F3 from F1 (kN)	F3 from F2 (kN)	F3 Average (kN)	Tension (kN)	Shear (kN)	Moment (kN*m)
0													
1													
2													
3													
4	446.849	1.668	39.64				14.642	0.261	0.042	0.151	0.12	0.10	55.11
5	447.027	3.388	39.82	0.000	0.000	0.000	14.815	5.108	4.234	4.671	3.59	2.99	1707.09
6	447.142	4.989	39.79	0.099	0.014	0.085	14.792	7.752	5.955	6.853	5.27	4.39	2503.59
7	447.267	6.726	39.93	0.128	-0.107	0.234	14.927	8.094	5.973	7.033	5.39	4.51	2575.50
8	447.387	8.491	39.87	0.113	0.037	0.075	14.866	8.332	5.721	7.027	5.39	4.50	2570.35
9	447.479	9.933	39.85	0.147	0.014	0.133	14.854	9.423	7.527	8.475	6.51	5.43	3099.25
10	447.647	11.414	39.99	0.219	-0.084	0.303	14.991	11.130	9.507	10.318	7.91	6.63	3782.78
11	447.884	12.844	40.12	0.344	0.000	0.344	15.121	12.863	10.888	11.875	9.08	7.65	4363.63
12	448.018	14.372	40.22	0.294	0.074	0.220	15.222	13.809	12.513	13.161	10.05	8.50	4844.86
13	448.046	15.988	40.24	0.370	0.014	0.356	15.238	14.573	12.650	13.611	10.39	8.79	5012.06
14	448.143	17.519	40.17	0.567	0.098	0.470	15.172	15.196	13.557	14.377	10.99	9.27	5287.67
15	448.164	19.123	40.37	0.627	-0.023	0.650	15.372	15.348	13.151	14.250	10.86	9.23	5259.50
16	448.250	20.645	40.42	0.762	0.056	0.706	15.416	15.847	14.227	15.037	11.45	9.75	5554.35
17	448.377	22.305	40.52	1.006	0.060	0.946	15.524	15.948	13.599	14.774	11.23	9.60	5467.51
18	448.525	23.827	40.49	1.034	0.079	0.955	15.487	16.319	14.465	15.392	11.71	9.99	5692.65
19	448.711	25.399	40.54	1.185	0.037	1.148	15.538	16.325	14.564	15.445	11.74	10.04	5717.22
20	448.836	26.970	40.69	1.309	0.079	1.230	15.685	16.514	14.138	15.326	11.62	9.99	5687.93
21	448.856	28.623	40.70	1.453	0.056	1.397	15.703	16.375	14.023	15.199	11.52	9.91	5642.49
22	448.913	30.200	40.75	1.584	0.056	1.528	15.754	16.726	14.321	15.523	11.76	10.13	5768.19

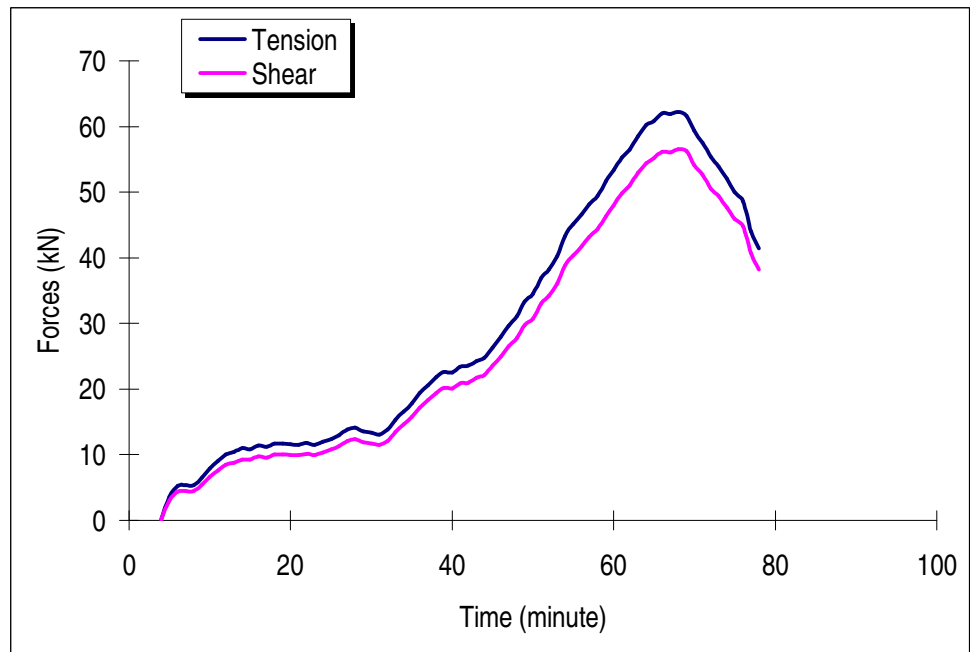
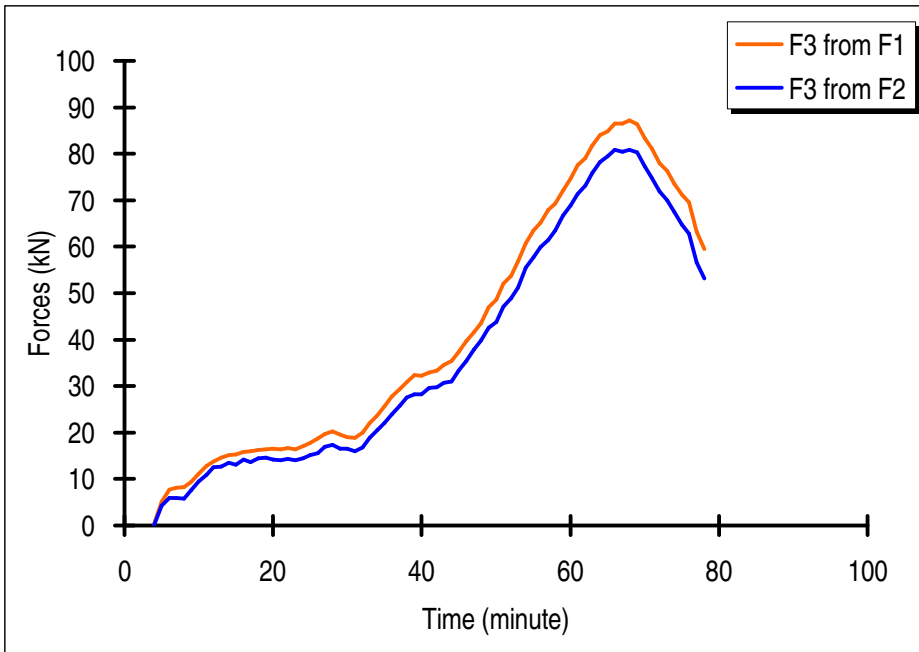
20 March 2007 Fin-plate Test Result

23	448.942	31.755	40.86	1.711	0.139	1.571	15.858	16.405	14.027	15.216	11.51	9.95	5664.12
24	449.164	33.309	40.81	1.801	0.037	1.764	15.806	17.133	14.512	15.822	11.98	10.34	5884.52
25	449.249	34.890	40.95	1.973	0.079	1.894	15.954	17.795	15.121	16.458	12.43	10.79	6136.73
26	449.385	36.445	41.06	2.075	0.158	1.917	16.059	18.785	15.580	17.182	12.96	11.29	6418.51
27	449.558	37.944	41.11	2.173	0.163	2.010	16.111	19.720	16.979	18.349	13.83	12.07	6860.55
28	449.637	39.498	41.13	2.342	0.102	2.240	16.128	20.249	17.316	18.782	14.15	12.35	7024.50
29	449.733	41.141	41.26	2.528	0.079	2.449	16.258	19.509	16.469	17.989	13.52	11.86	6742.71
30	449.778	42.673	41.16	2.685	0.056	2.630	16.162	19.058	16.507	17.783	13.39	11.70	6654.46
31	449.909	44.325	41.24	2.868	0.056	2.812	16.240	18.840	15.981	17.411	13.09	11.48	6523.99
32	450.055	45.950	41.29	2.960	0.056	2.904	16.293	19.985	16.766	18.375	13.81	12.13	6891.70
33	450.154	47.498	41.36	3.164	0.139	3.025	16.361	22.007	18.818	20.412	15.32	13.49	7664.68
34	450.262	48.853	41.47	3.193	0.139	3.054	16.468	23.710	20.517	22.114	16.57	14.64	8318.84
35	450.332	50.527	41.46	3.333	0.223	3.110	16.464	25.616	22.060	23.838	17.86	15.78	8966.70
36	450.416	51.923	41.56	3.467	0.200	3.267	16.560	27.845	24.001	25.923	19.40	17.20	9767.00
37	450.496	53.478	41.66	3.508	0.181	3.327	16.657	29.306	25.737	27.521	20.56	18.29	10386.25
38	450.674	54.897	41.68	3.648	0.139	3.508	16.675	30.877	27.576	29.226	21.83	19.43	11032.96
39	450.890	56.323	41.74	3.694	0.265	3.429	16.741	32.425	28.291	30.358	22.65	20.21	11473.13
40	451.108	57.485	41.70	3.777	0.260	3.517	16.699	32.196	28.190	30.193	22.54	20.08	11402.60
41	451.240	58.631	41.70	3.804	0.241	3.563	16.699	32.979	29.669	31.324	23.39	20.84	11829.71
42	451.344	59.827	41.72	3.838	0.204	3.633	16.717	33.312	29.816	31.564	23.56	21.00	11924.07
43	451.436	61.004	41.88	3.906	0.320	3.586	16.880	34.616	30.650	32.633	24.30	21.79	12361.88
44	451.516	62.238	41.84	3.943	0.307	3.636	16.838	35.410	31.028	33.219	24.75	22.16	12574.88
45	451.652	63.698	41.78	4.093	0.237	3.857	16.784	37.376	33.334	35.355	26.36	23.56	13371.20
46	451.730	65.099	41.74	4.102	0.241	3.860	16.736	39.660	35.383	37.522	28.00	24.98	14178.98
47	451.115	66.623	41.80	4.287	0.320	3.967	16.802	41.611	37.814	39.712	29.60	26.47	15023.61
48	451.038	68.160	41.78	4.400	0.344	4.056	16.778	43.560	39.801	41.680	31.08	27.77	15761.82
49	451.094	69.588	41.72	4.527	0.404	4.123	16.723	46.926	42.506	44.716	33.37	29.76	16894.18
50	451.121	71.023	41.72	4.691	0.344	4.347	16.723	48.572	43.812	46.192	34.48	30.74	17451.73
51	451.328	72.458	41.83	4.829	0.344	4.485	16.826	52.049	47.119	49.584	36.95	33.07	18765.62
52	451.357	74.044	41.81	4.946	0.385	4.560	16.814	53.786	48.872	51.329	38.26	34.22	19422.42

20 March 2007 Fin-plate Test Result

53	451.141	75.560	41.85	5.046	0.411	4.636	16.849	56.883	51.284	54.084	40.29	36.08	20476.81
54	451.216	77.027	41.87	5.147	0.436	4.711	16.875	60.796	55.503	58.150	43.30	38.82	22025.71
55	451.229	78.686	41.80	5.247	0.461	4.787	16.802	63.432	57.664	60.548	45.14	40.36	22906.11
56	451.125	80.242	41.85	5.348	0.486	4.862	16.849	65.192	59.865	62.529	46.58	41.72	23674.18
57	451.084	81.788	41.92	5.449	0.511	4.938	16.922	67.844	61.498	64.671	48.12	43.21	24515.30
58	450.918	83.360	41.90	5.653	0.367	5.286	16.904	69.293	63.493	66.393	49.41	44.34	25160.47
59	450.917	84.859	41.89	5.735	0.595	5.140	16.886	72.028	66.682	69.355	51.63	46.30	26274.69
60	450.899	86.485	41.96	5.797	0.493	5.304	16.964	74.599	68.832	71.716	53.33	47.95	27204.90
61	450.823	88.031	42.04	5.926	0.559	5.368	17.043	77.537	71.321	74.429	55.27	49.84	28271.36
62	450.792	89.596	42.08	6.065	0.511	5.554	17.080	79.009	73.183	76.096	56.48	51.00	28922.36
63	450.913	91.054	42.15	6.140	0.655	5.485	17.149	81.753	75.939	78.846	58.46	52.91	30002.39
64	451.039	92.522	42.08	6.255	0.631	5.624	17.080	84.016	78.221	81.119	60.21	54.36	30831.22
65	450.990	94.045	42.18	6.445	0.613	5.832	17.177	84.801	79.495	82.148	60.88	55.16	31273.40
66	450.849	95.712	42.18	6.583	0.616	5.967	17.181	86.481	80.790	83.636	61.98	56.16	31842.05
67	450.623	97.284	42.16	6.720	0.618	6.102	17.158	86.516	80.473	83.495	61.89	56.04	31776.06
68	450.733	98.776	42.26	6.858	0.621	6.237	17.264	87.194	80.859	84.026	62.18	56.51	32034.80
69	450.723	100.282	42.40	7.005	0.621	6.384	17.396	86.402	80.366	83.384	61.58	56.22	31859.02
70	450.741	101.899	42.38	7.161	0.552	6.609	17.380	83.400	77.236	80.318	59.33	54.14	30680.00
71	450.883	103.238	42.46	7.307	0.641	6.666	17.459	81.066	74.778	77.922	57.49	52.60	29803.46
72	450.907	104.953	42.38	7.545	0.573	6.972	17.384	78.027	71.836	74.931	55.35	50.51	28624.10
73	450.914	106.612	42.50	7.625	0.600	7.025	17.497	76.313	70.041	73.177	53.95	49.43	28006.09
74	450.946	107.974	42.48	7.792	0.573	7.219	17.481	73.550	67.558	70.554	52.03	47.65	26995.34
75	450.925	109.451	42.56	8.012	0.641	7.371	17.563	71.157	64.670	67.913	50.02	45.94	26019.98
76	450.943	111.022	42.62	8.187	0.648	7.539	17.620	69.497	62.833	66.165	48.69	44.80	25373.67
77	450.961	112.593	42.74	8.419	0.435	7.984	17.740	63.234	56.618	59.926	44.01	40.67	23026.37
78	450.993	114.156	42.64	8.589	0.573	8.016	17.642	59.497	53.233	56.365	41.46	38.18	21623.35





Photographs after Test

