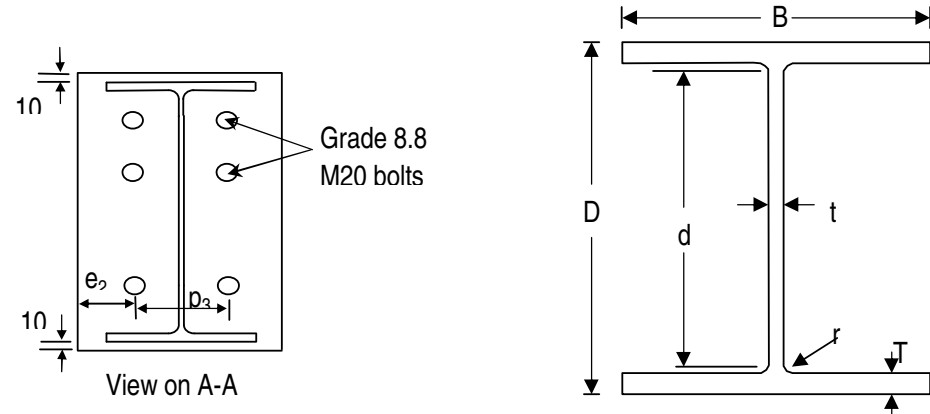


The specimen details



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

650°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 Average (kN)	Tension (kN)	Shear (kN)	Moment (kN*m)
0	650.484	2.370											
1	650.514	2.368											
2	650.655	2.370											
3	650.588	2.370	46.69	0.000	0.000	0.000	67.761	-22.77	-11.14	-16.95	-11.63	-12.34	-6920.86
4	650.765	3.802	46.67	-0.026	0.015	-0.041	67.785	-20.04	-9.16	-14.60	-10.02	-10.62	-5958.36
5	650.742	5.549	46.86	0.051	0.056	-0.005	67.590	-17.30	-6.86	-12.08	-8.26	-8.81	-4943.55
6	650.780	7.237	46.97	0.076	0.095	-0.019	67.485	-14.31	-4.17	-9.24	-6.31	-6.75	-3787.47
7	650.952	8.875	47.08	0.058	0.123	-0.065	67.369	-11.79	-2.21	-7.00	-4.76	-5.12	-2872.21
8	650.844	10.553	47.21	0.129	0.146	-0.017	67.243	-9.27	-0.04	-4.66	-3.16	-3.42	-1914.88
9	650.966	12.173	47.17	0.179	0.182	-0.004	67.278	-6.81	0.95	-2.93	-1.99	-2.15	-1206.09
10	650.977	13.757	47.12	0.198	0.192	0.006	67.334	-5.50	3.02	-1.24	-0.84	-0.91	-507.74
11	650.959	15.300	47.20	0.290	0.228	0.062	67.252	-4.40	3.53	-0.44	-0.30	-0.32	-179.46
12	651.223	16.969	47.18	0.355	0.265	0.090	67.274	-3.97	4.25	0.14	0.09	0.10	57.39
13	651.087	18.677	47.28	0.433	0.226	0.207	67.166	-3.99	4.39	0.20	0.14	0.15	82.13
14	651.158	20.330	47.37	0.537	0.248	0.289	67.079	-3.85	5.31	0.73	0.49	0.54	299.91
15	651.227	21.868	47.30	0.581	0.242	0.338	67.147	-4.12	4.69	0.29	0.19	0.21	117.94
16	651.165	23.328	47.47	0.640	0.269	0.371	66.977	-3.76	5.97	1.10	0.75	0.81	455.48
17	651.391	24.707	47.50	0.620	0.271	0.349	66.947	-3.13	6.44	1.65	1.12	1.22	682.92
18	651.338	26.003	47.57	0.636	0.282	0.354	66.880	-1.97	6.55	2.29	1.54	1.69	946.53
19	651.370	27.461	47.91	0.677	0.292	0.385	66.545	-0.87	7.51	3.32	2.23	2.46	1378.75
20	651.469	29.047	48.01	0.732	0.342	0.390	66.444	0.58	8.75	4.66	3.12	3.47	1939.78
21	651.451	30.640	48.09	0.749	0.385	0.364	66.361	1.77	9.42	5.60	3.74	4.17	2330.94
22	651.563	32.258	48.26	0.844	0.381	0.463	66.192	3.02	10.76	6.89	4.59	5.14	2874.28

## 19 October 2007 End-plate Test Result

23	651.540	33.908	48.27	0.836	0.384	0.451	66.178	4.47	12.12	8.29	5.52	6.19	3462.15
24	651.603	35.556	48.27	0.901	0.449	0.453	66.177	5.84	13.47	9.66	6.43	7.21	4030.70
25	651.710	37.200	48.24	0.927	0.457	0.469	66.211	6.97	15.06	11.02	7.34	8.22	4596.11
26	651.688	38.825	48.27	0.994	0.497	0.497	66.180	8.24	15.66	11.95	7.96	8.92	4988.99
27	651.859	40.498	48.30	1.068	0.543	0.525	66.149	9.67	17.11	13.39	8.91	10.00	5589.97
28	651.819	42.163	48.38	1.098	0.569	0.529	66.070	10.41	18.27	14.34	9.52	10.72	5993.09
29	651.810	43.806	48.41	1.144	0.597	0.547	66.044	11.61	19.28	15.44	10.25	11.55	6457.90
30	652.037	45.439	48.48	1.216	0.651	0.565	65.966	13.02	20.84	16.93	11.22	12.68	7087.97
31	652.021	47.040	48.57	1.266	0.658	0.608	65.876	14.80	21.94	18.37	12.16	13.78	7700.31
32	652.104	48.657	48.69	1.327	0.694	0.632	65.760	16.25	23.65	19.95	13.17	14.98	8373.58
33	652.199	50.067	48.70	1.360	0.702	0.658	65.748	17.41	23.79	20.60	13.60	15.48	8649.33
34	652.209	51.556	48.80	1.410	0.746	0.664	65.646	18.45	25.04	21.74	14.32	16.36	9140.77
35	652.420	52.958	48.86	1.440	0.714	0.726	65.595	19.15	25.61	22.38	14.73	16.86	9416.50
36	652.317	54.326	48.85	1.513	0.749	0.764	65.596	20.20	26.33	23.27	15.31	17.52	9788.07
37	652.387	55.799	48.89	1.508	0.746	0.762	65.563	21.05	26.78	23.91	15.72	18.02	10064.86
38	652.418	57.169	48.88	1.600	0.791	0.809	65.568	21.29	27.29	24.29	15.97	18.30	10221.88
39	652.369	58.643	48.98	1.673	0.811	0.862	65.474	22.82	29.07	25.95	17.03	19.57	10932.70
40	652.540	60.221	49.09	1.685	0.785	0.900	65.358	23.25	29.38	26.32	17.23	19.89	11105.76
41	652.510	61.455	49.14	1.732	0.793	0.939	65.306	22.73	28.51	25.62	16.76	19.38	10819.14
42	652.544	62.823	49.20	1.763	0.797	0.966	65.249	23.60	29.76	26.68	17.43	20.20	11275.58
43	652.611	64.346	49.17	1.859	0.813	1.046	65.277	24.97	30.71	27.84	18.20	21.07	11762.22
44	652.520	65.881	49.16	1.899	0.833	1.066	65.288	25.75	32.39	29.07	19.01	21.99	12278.28
45	652.606	67.429	49.17	1.978	0.859	1.119	65.280	26.49	33.42	29.96	19.59	22.67	12655.08
46	652.615	69.012	49.23	2.075	0.838	1.236	65.220	27.43	34.04	30.74	20.07	23.28	12994.54
47	652.728	70.543	49.21	2.183	0.838	1.344	65.236	28.15	34.89	31.52	20.59	23.87	13323.26
48	652.820	72.153	49.27	2.273	0.865	1.408	65.176	28.49	35.25	31.87	20.79	24.15	13482.52
49	652.694	73.818	49.29	2.366	0.863	1.503	65.157	28.86	35.68	32.27	21.04	24.46	13653.33
50	652.829	75.442	49.35	2.459	0.889	1.570	65.101	29.23	36.03	32.63	21.26	24.76	13817.75
51	652.809	77.117	49.38	2.548	0.870	1.678	65.071	29.56	36.44	33.00	21.48	25.05	13979.24
52	652.832	78.789	49.43	2.653	0.895	1.758	65.021	29.90	36.36	33.13	21.54	25.16	14041.97

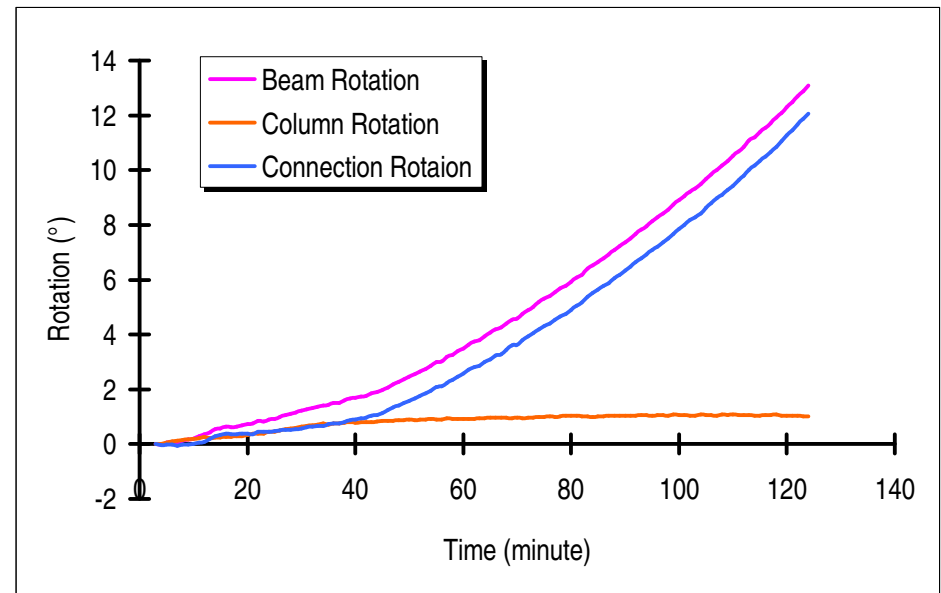
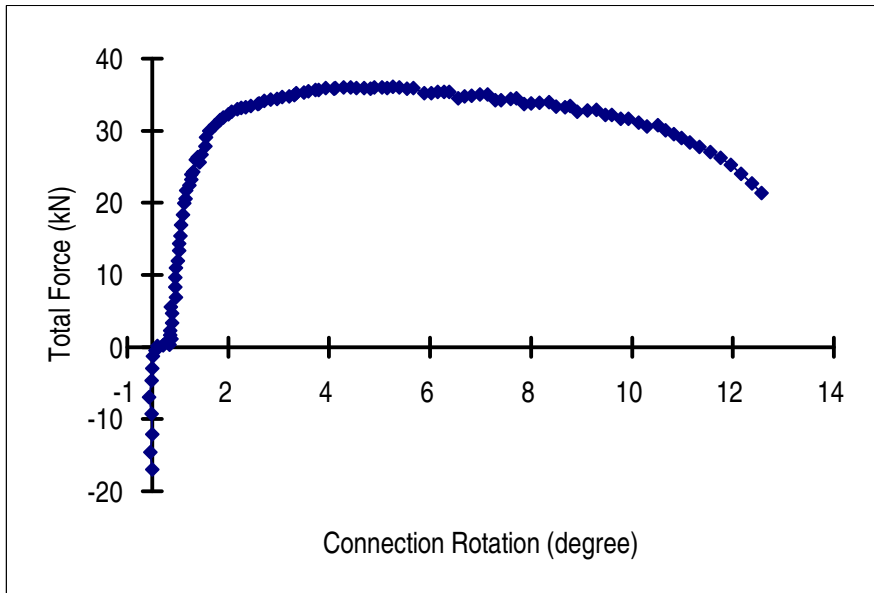
19 October 2007 End-plate Test Result

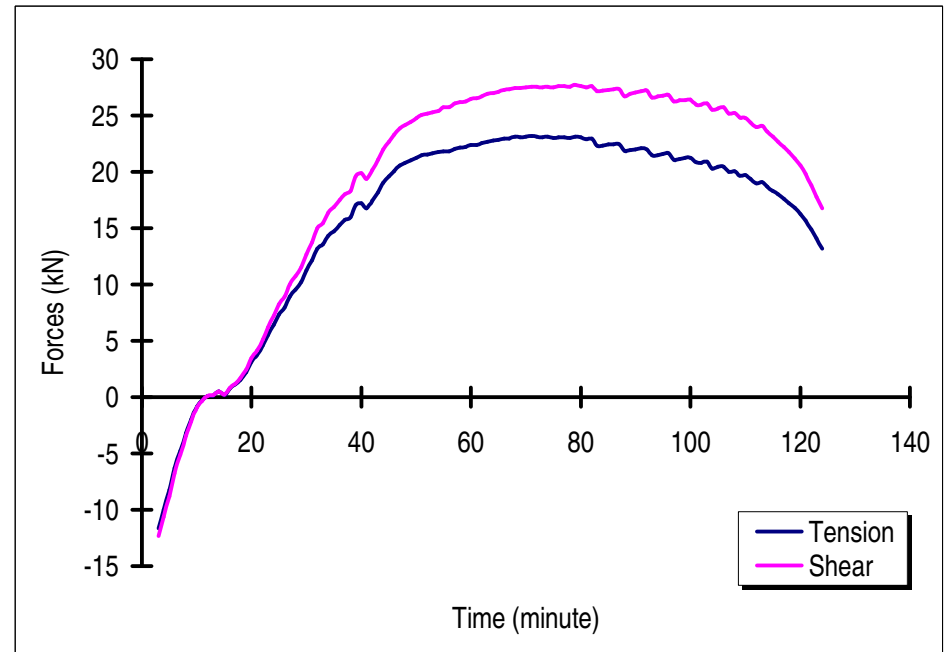
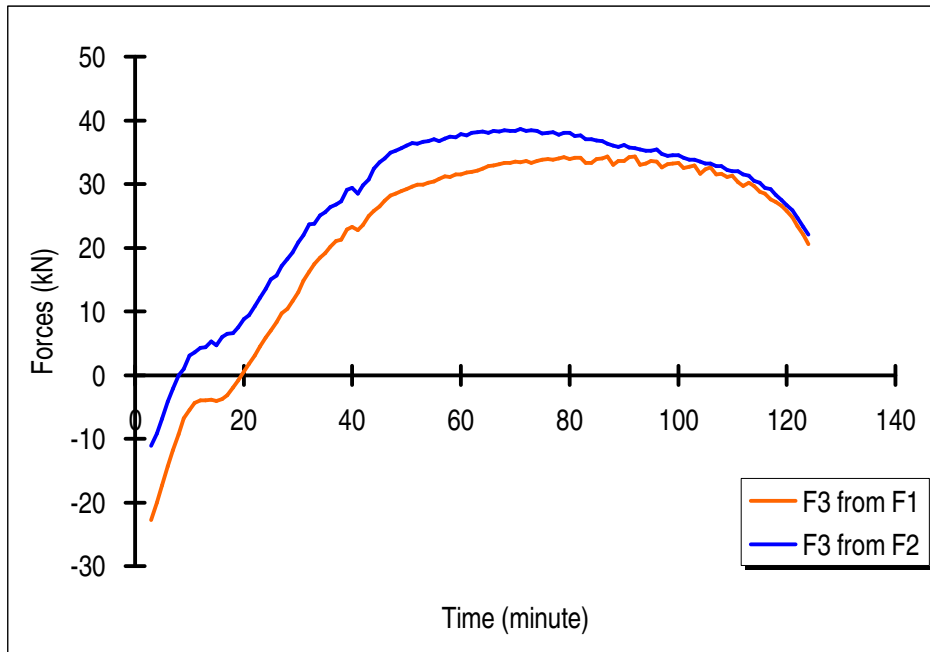
53	652.876	80.353	49.40	2.738	0.894	1.844	65.046	29.86	36.68	33.27	21.65	25.26	14099.24
54	652.805	81.994	49.40	2.862	0.912	1.950	65.048	30.22	36.69	33.46	21.77	25.40	14176.74
55	652.961	83.700	49.70	2.990	0.897	2.092	64.753	30.38	37.08	33.73	21.82	25.72	14348.20
56	652.924	85.367	49.74	3.021	0.904	2.117	64.710	30.76	36.73	33.74	21.81	25.75	14361.83
57	652.948	86.998	49.80	3.174	0.954	2.220	64.653	31.20	37.12	34.16	22.05	26.09	14550.07
58	653.066	88.665	49.75	3.263	0.923	2.340	64.701	31.15	37.44	34.30	22.16	26.18	14599.13
59	653.029	90.298	49.74	3.396	0.930	2.466	64.712	31.49	37.33	34.41	22.24	26.26	14644.95
60	653.158	91.956	49.79	3.498	0.925	2.573	64.656	31.46	37.87	34.66	22.38	26.47	14763.19
61	653.196	93.565	49.81	3.625	0.916	2.709	64.636	31.86	37.60	34.73	22.41	26.53	14794.75
62	653.120	95.135	49.83	3.741	0.928	2.813	64.625	31.88	38.08	34.98	22.57	26.73	14903.81
63	653.248	96.769	49.90	3.793	0.940	2.853	64.551	32.16	38.19	35.17	22.66	26.90	15000.97
64	653.176	98.371	49.85	3.941	0.941	3.000	64.601	32.39	38.24	35.31	22.77	26.99	15051.74
65	653.290	100.037	49.86	4.067	0.978	3.089	64.586	32.86	38.02	35.44	22.84	27.09	15107.70
66	653.309	101.558	49.93	4.180	0.956	3.224	64.520	32.92	38.32	35.62	22.93	27.26	15197.25
67	653.245	103.222	49.96	4.262	0.976	3.286	64.495	33.11	38.21	35.66	22.95	27.30	15221.83
68	653.431	104.914	49.93	4.394	0.956	3.438	64.523	33.32	38.45	35.88	23.10	27.46	15309.94
69	653.401	106.474	49.96	4.534	0.938	3.596	64.486	33.36	38.33	35.85	23.06	27.45	15301.18
70	653.470	108.204	49.99	4.579	0.957	3.622	64.465	33.50	38.36	35.93	23.10	27.52	15342.36
71	653.493	109.917	49.90	4.740	0.952	3.788	64.551	33.38	38.61	35.99	23.18	27.53	15350.37
72	653.442	111.592	50.00	4.883	0.955	3.928	64.451	33.61	38.33	35.97	23.12	27.55	15359.45
73	653.668	113.259	50.00	5.009	0.969	4.040	64.447	33.33	38.42	35.87	23.06	27.48	15320.29
74	653.587	114.821	50.02	5.184	0.995	4.188	64.433	33.63	38.29	35.96	23.11	27.55	15360.69
75	653.644	116.413	50.04	5.302	0.987	4.315	64.411	33.77	37.96	35.87	23.03	27.49	15324.05
76	653.712	118.047	50.08	5.401	1.008	4.393	64.373	33.93	38.02	35.98	23.09	27.59	15379.30
77	653.650	119.721	50.10	5.533	0.987	4.546	64.355	33.83	38.10	35.96	23.07	27.59	15376.78
78	653.847	121.283	50.14	5.676	1.023	4.653	64.312	34.06	37.79	35.92	23.02	27.57	15367.45
79	653.811	122.930	50.19	5.787	1.030	4.757	64.262	34.18	38.00	36.09	23.11	27.72	15448.64
80	653.777	124.517	50.15	5.921	1.031	4.890	64.297	33.95	38.03	35.99	23.06	27.63	15398.71
81	653.884	126.119	50.20	6.075	1.032	5.043	64.249	34.10	37.52	35.81	22.92	27.51	15332.15
82	653.816	127.705	50.24	6.187	1.012	5.175	64.207	34.16	37.62	35.89	22.95	27.59	15376.12

## 19 October 2007 End-plate Test Result

83	654.071	129.330	50.60	6.405	1.024	5.381	63.851	33.33	37.01	35.17	22.32	27.18	15133.87
84	653.998	131.061	50.58	6.523	1.001	5.522	63.873	33.36	37.04	35.20	22.35	27.19	15143.41
85	653.972	132.711	50.57	6.654	1.006	5.648	63.882	33.90	36.79	35.35	22.45	27.30	15204.01
86	654.092	134.345	50.61	6.793	1.021	5.772	63.842	34.05	36.71	35.38	22.45	27.34	15227.85
87	654.041	135.996	50.56	6.924	1.046	5.878	63.886	34.35	36.37	35.36	22.46	27.31	15209.29
88	654.135	137.662	50.73	7.095	1.042	6.053	63.718	33.00	36.05	34.53	21.85	26.73	14881.89
89	654.204	139.319	50.85	7.216	1.030	6.186	63.605	33.66	35.78	34.72	21.92	26.92	14987.10
90	654.082	140.975	50.85	7.374	1.045	6.328	63.596	33.65	36.09	34.87	22.01	27.04	15054.04
91	654.220	142.611	50.85	7.517	1.030	6.487	63.605	34.26	35.77	35.01	22.11	27.15	15113.80
92	654.211	144.238	51.12	7.667	1.026	6.641	63.335	34.34	35.63	34.99	21.96	27.23	15152.93
93	654.302	145.933	51.08	7.844	1.056	6.788	63.375	32.99	35.41	34.20	21.49	26.61	14806.95
94	654.280	147.592	51.20	7.961	1.050	6.911	63.247	33.26	35.25	34.26	21.46	26.70	14852.97
95	654.224	149.257	51.12	8.132	1.039	7.093	63.334	33.62	35.18	34.40	21.59	26.78	14899.51
96	654.409	150.915	51.12	8.274	1.063	7.211	63.335	33.54	35.38	34.46	21.63	26.82	14924.68
97	654.300	152.542	51.29	8.410	1.049	7.360	63.160	32.64	34.69	33.66	21.05	26.27	14611.32
98	654.412	154.238	51.23	8.554	1.046	7.508	63.221	33.12	34.45	33.78	21.16	26.34	14653.29
99	654.439	155.865	51.19	8.744	1.072	7.672	63.261	33.23	34.49	33.86	21.22	26.38	14678.61
100	654.378	157.507	51.20	8.907	1.049	7.858	63.253	33.32	34.54	33.93	21.26	26.44	14710.53
101	654.515	159.084	51.23	9.049	1.049	7.999	63.220	32.50	34.12	33.31	20.86	25.97	14447.63
102	654.483	160.741	51.32	9.208	1.028	8.180	63.132	32.73	33.85	33.29	20.81	25.99	14454.37
103	654.505	162.328	51.30	9.322	1.044	8.278	63.149	32.96	33.84	33.40	20.88	26.07	14498.63
104	654.579	163.987	51.49	9.493	1.079	8.414	62.956	31.65	33.56	32.61	20.30	25.52	14188.06
105	654.513	165.666	51.43	9.670	1.050	8.620	63.019	32.32	33.23	32.78	20.43	25.63	14251.13
106	654.737	167.308	51.46	9.845	1.053	8.792	62.986	32.58	33.17	32.87	20.48	25.71	14299.16
107	654.817	169.031	51.55	10.014	1.043	8.971	62.899	31.53	32.78	32.15	19.99	25.18	14001.28
108	654.782	170.785	51.52	10.177	1.073	9.103	62.935	31.62	32.78	32.20	20.04	25.21	14015.85
109	654.854	172.452	51.57	10.335	1.053	9.282	62.883	31.09	32.24	31.67	19.68	24.80	13791.11
110	654.812	174.139	51.49	10.518	1.089	9.429	62.965	31.34	32.02	31.68	19.73	24.79	13783.98
111	654.870	175.919	51.58	10.689	1.056	9.633	62.871	30.29	31.97	31.13	19.35	24.39	13561.08
112	654.845	177.593	51.61	10.855	1.054	9.801	62.844	29.70	31.48	30.59	19.00	23.97	13328.95

113	654.844	179.243	51.58	11.077	1.062	10.015	62.875	30.19	31.28	30.74	19.10	24.08	13387.35
114	654.962	180.981	51.64	11.203	1.041	10.162	62.811	29.71	30.46	30.09	18.67	23.59	13114.49
115	654.806	182.734	51.62	11.376	1.043	10.333	62.831	28.77	30.23	29.50	18.32	23.13	12856.58
116	654.926	184.439	51.54	11.547	1.060	10.487	62.915	28.50	29.43	28.97	18.02	22.68	12610.12
117	654.933	186.128	51.57	11.713	1.064	10.649	62.885	27.56	29.16	28.36	17.63	22.21	12350.21
118	654.894	187.730	51.70	11.912	1.073	10.839	62.751	27.19	28.33	27.76	17.21	21.79	12109.92
119	655.065	189.485	51.62	12.095	1.039	11.056	62.827	26.60	27.51	27.05	16.80	21.21	11790.18
120	654.991	191.240	51.69	12.298	1.039	11.259	62.761	25.79	26.68	26.24	16.27	20.59	11444.09
121	655.025	192.962	51.63	12.486	1.031	11.455	62.820	24.73	25.87	25.30	15.70	19.83	11026.73
122	655.018	194.650	51.63	12.684	1.027	11.657	62.822	23.32	24.67	24.00	14.90	18.81	10458.25
123	655.016	196.076	51.64	12.889	1.018	11.871	62.811	22.05	23.30	22.68	14.07	17.78	9885.88
124	655.025	196.163	51.81	13.083	1.012	12.071	62.638	20.57	22.08	21.32	13.18	16.76	9314.45







Photographs after Test

