

ID	Disp-x of TBBM (mm)	Disp-x of FEM (mm)	ID	Disp-x of TBBM (mm)	Disp-x of FEM (mm)
1	0	0	22	3.03E-05	3.04E-05
2	9.16E-04	9.25E-04	23	2.88E-05	2.88E-05
3	3.28E-03	3.29E-03	24	2.71E-05	2.72E-05
4	6.58E-03	6.59E-03	25	2.55E-05	2.55E-05
5	1.04E-02	1.04E-02	26	2.38E-05	2.39E-05
6	1.42E-02	1.42E-02	27	2.22E-05	2.22E-05
7	1.79E-02	1.79E-02	28	2.06E-05	2.06E-05
8	2.10E-02	2.10E-02	29	1.90E-05	1.90E-05
9	2.33E-02	2.33E-02	30	1.74E-05	1.75E-05
10	2.48E-02	2.48E-02	31	1.59E-05	1.60E-05
11	2.53E-02	2.53E-02	32	1.44E-05	1.44E-05
12	2.48E-02	2.48E-02	33	1.29E-05	1.29E-05
13	2.33E-02	2.33E-02	34	1.13E-05	1.14E-05
14	2.10E-02	2.10E-02	35	9.69E-06	9.79E-06
15	1.79E-02	1.79E-02	36	8.04E-06	8.06E-06
16	1.43E-02	1.43E-02	37	6.38E-06	6.45E-06
17	1.04E-02	1.04E-02	38	4.72E-06	4.80E-06
18	6.61E-03	6.62E-03	39	3.10E-06	3.19E-06
19	3.31E-03	3.32E-03	40	1.52E-06	1.60E-06
20	9.48E-04	9.54E-04	41	0	7.60E-08
21	3.19E-05	9.25E-04			

Table 1-Comparison of TBBM and theoretical results (the x-displacement of composite straight beam).

ID	Disp-z of TBBM (mm)	Disp-z of FEM (mm)	ID	Disp-z of TBBM (mm)	Disp-z of FEM (mm)
1	0	0	22	-9.48E-04	-9.48E-04
2	-1.52E-06	-1.50E-06	23	-3.31E-03	-3.31E-03
3	-3.10E-06	-3.01E-06	24	-6.61E-03	-6.61E-03
4	-4.72E-06	-4.63E-06	25	-1.04E-02	-1.04E-02
5	-6.38E-06	-6.34E-06	26	-1.43E-02	-1.43E-02
6	-8.04E-06	-8.03E-06	27	-1.79E-02	-1.79E-02
7	-9.69E-06	-9.61E-06	28	-2.10E-02	-2.10E-02
8	-1.13E-05	-1.13E-05	29	-2.33E-02	-2.33E-02
9	-1.29E-05	-1.29E-05	30	-2.48E-02	-2.48E-02
10	-1.44E-05	-1.43E-05	31	-2.53E-02	-2.53E-02
11	-1.59E-05	-1.59E-05	32	-2.48E-02	-2.48E-02
12	-1.74E-05	-1.74E-05	33	-2.33E-02	-2.33E-02
13	-1.90E-05	-1.89E-05	34	-2.10E-02	-2.10E-02
14	-2.06E-05	-2.05E-05	35	-1.79E-02	-1.79E-02
15	-2.22E-05	-2.21E-05	36	-1.42E-02	-1.42E-02
16	-2.38E-05	-2.37E-05	37	-1.04E-02	-1.04E-02
17	-2.55E-05	-2.54E-05	38	-6.58E-03	-6.58E-03
18	-2.71E-05	-2.71E-05	39	-3.28E-03	-3.28E-03
19	-2.88E-05	-2.88E-05	40	-9.16E-04	-9.16E-04
20	-3.03E-05	-3.03E-05	41	0	0
21	-3.19E-05	-3.18E-05			

Table 2-Comparison of TBBM and theoretical results (the z-displacement of composite straight beam).

ID	Disp-x of TBBM (mm)	Disp-x of FEM (mm)	ID	Disp-x of TBBM (mm)	Disp-x of FEM (mm)
1	0	0	17	0.00208	0.00208
2	0.00092	0.00092	18	-0.00120	-0.00119
3	0.00325	0.00325	19	-0.00381	-0.00380
4	0.00642	0.00642	20	-0.00550	-0.00549
5	0.00995	0.00995	21	-0.00612	-0.00611
6	0.01339	0.01339	22	-0.00593	-0.00593
7	0.01640	0.01641	23	-0.00523	-0.00523
8	0.01872	0.01872	24	-0.00426	-0.00426
9	0.02014	0.02014	25	-0.00322	-0.00321
10	0.02058	0.02059	26	-0.00223	-0.00223
11	0.02001	0.02001	27	-0.00140	-0.00139
12	0.01847	0.01847	28	-0.00076	-0.00075
13	0.01607	0.01608	29	-0.00034	-0.00033
14	0.01300	0.01300	30	-0.00010	-0.00009
15	0.00947	0.00947	31	-0.00001	-0.00001
16	0.00573	0.00574	32	0	0

Table 3-Comparison of TBBM and theoretical results (the x-displacement of curved beam).

ID	Disp-z of TBBM (mm)	Disp-z of FEM (mm)	ID	Disp-z of TBBM (mm)	Disp-z of FEM (mm)
1	0	0	17	-0.01055	-0.01054
2	0.00002	0.00003	18	-0.01418	-0.01418
3	0.00019	0.00020	19	-0.01739	-0.01739
4	0.00060	0.00060	20	-0.01970	-0.01969
5	0.00122	0.00123	21	-0.02064	-0.02064
6	0.00202	0.00203	22	-0.02032	-0.02031
7	0.00288	0.00288	23	-0.01899	-0.01899
8	0.00367	0.00367	24	-0.01689	-0.01688
9	0.00423	0.00424	25	-0.01427	-0.01426
10	0.00443	0.00444	26	-0.01139	-0.01138
11	0.00413	0.00413	27	-0.00847	-0.00846
12	0.00321	0.00322	28	-0.00574	-0.00573
13	0.00163	0.00164	29	-0.00338	-0.00338
14	-0.00063	-0.00062	30	-0.00156	-0.00155
15	-0.00351	-0.00351	31	-0.00040	-0.00039
16	-0.00689	-0.00689	32	0	0

Table 4- Comparison of TBBM and theoretical results (the z-displacement of curved beam).