Annex C. Various Characteristics of Modelled Shapes

Table C.1. Geometric characteristics of shapes

No.	Char.	Original shape	Approximated shapes			
			$L = 1$	δ, %	$L = 3$	δ, %
1.	V	16.755	16.725	0.1791	16.738	0.1015
	S	34.721	35.329	1.7511	34.969	0.7143
	E	0	7.1758	1.3394	1.7395	0.6595
	Ψ	0.9120	0.8952	1.8421	0.9049	0.7785
2.	V	4.188	4.1881	0.0167	4.1881	0.0167
	S	12.566	12.565	0.0080	12.565	0.0080
	Ψ	1.0000	0.9999	0.01	0.9999	0.01
3.	V	1.8617	1.8780	0.8755	1.8613	0.0215
	S	7.5177	7.6550	1.8264	7.5380	0.2700
	E	0	7.6270	4.1426	0.1442	0.5696
	Ψ	0.9735	0.9616	1.2224	0.9707	0.2876
4.	V	12.566	12.475	0.7242	12.556	0.0796
	S	27.893	28.142	0.8927	28.050	0.5629
	E	0	27.880	2.6401	1.2378	0.5563
	Ψ	0.9371	0.9243	1.3659	0.9313	0.6189
5.	V	2.3271	2.3372	0.4340	2.3266	0.0215
	S	8.6816	8.7706	1.0252	8.6980	0.1889
	E	0	3.4311	2.7771	0.2181	0.7002
	Ψ	0.9782	0.9711	0.7258	0.9762	0.2045
6.	V	25.133	24.448	2.7255	25.100	0.1313
	S	50.265	44.864	10.745	49.247	2.0253
	E	0	356.43	9.4397	3.4932	0.9345
	Ψ	0.8254	0.9078	9.9830	0.8418	1.9869
7.	V	6.2832	6.1257	2.5067	6.2713	0.1894
	S	18.850	17.363	7.8886	18.021	4.3979
	E	0	103.01	10.149	14.451	3.801
	Ψ	0.8736	0.9325	6.7422	0.9126	4.4643
8.	V	2.7925	2.7207	2.5712	2.7868	0.2041
	S	11.170	10.319	7.6186	10.769	3.5900
	E	0	79.121	13.342	9.9514	4.7319
	Ψ	0.8585	0.9133	6.3832	0.8893	3.5877
9.	V	8.3776	8.2123	1.9731	8.3605	0.2041
	S	28.099	23.765	15.424	26.268	6.5162
	E	0	86.574	4.6523	9.9127	1.5742
	Ψ	0.7099	0.8283	16.678	0.7584	6.8312

Table C.1 continued

No.	Char.	Original shape	Approximated shapes			
			$L = 1$	δ, %	$L = 3$	δ, %
10.	V	2.0944	2.1112	0.8021	2.0951	0.0334
	S	8.8858	8.7065	2.0178	8.7574	1.4450
	E	0	26.865	5.1831	1.0764	1.0375
	Ψ	0.8909	0.9141	2.6041	0.9042	1.4929
11.	V	0.9308	0.9549	2.5892	0.9322	0.1504
	S	5.0343	5.2512	4.3084	5.0478	2.6816
	E	0	33.956	8.7408	1.5470	1.8657
	Ψ	0.9158	0.8930	2.4896	0.9142	0.1747
12.	V	10.667	10.365	2.8312	10.607	0.5625
	S	35.777	29.780	16.762	33.205	7.1890
	E	0	89.739	4.7365	19.654	2.2166
	Ψ	0.6550	0.7720	17.863	0.7031	7.3435
13.	V	2.6667	2.6538	0.4837	2.6652	0.0562
	S	11.314	10.833	4.2514	11.182	1.1667
	E	0	4.688	2.1652	0.5525	0.7433
	Ψ	0.8220	0.8557	4.0998	0.8314	1.1436
14.	V	1.1852	1.1946	0.7931	1.1854	0.0169
	S	6.4099	6.4287	0.2933	6.4221	0.1903
	E	0	3.8335	2.9369	0.0486	0.3307
	Ψ	0.8449	0.8469	0.2367	0.8434	0.1775
15.	V	32.0	30.731	3.9656	31.876	0.3875
	S	64.0	55.051	13.983	60.681	5.1859
	E	0	637.08	12.620	36.434	3.0180
	Ψ	0.7616	0.8619	13.170	0.8012	5.1996
16.	V	8.0	7.4617	6.7288	7.9692	0.3850
	S	24.0	18.847	21.471	22.858	4.7583
	E	0	328.19	18.116	23.595	4.8577
	Ψ	0.8060	0.9798	21.563	0.8441	4.7270
17.	V	3.5556	3.3003	7.1802	3.5431	0.3516
	S	14.889	11.239	24.515	13.496	9.3559
	E	0	170.62	19.593	10.336	4.8224
	Ψ	0.7566	0.9538	26.064	0.8328	10.071
18.	V	24.0	25.215	5.0625	24.191	0.7958
	S	52.0	48.187	7.3327	49.906	4.0269
	E	0	603.32	12.281	118.10	5.4337
	Ψ	0.7738	0.8630	11.528	0.8105	4.7428
19.	V	12.000	12.694	5.7833	12.076	0.6333
	S	32.000	30.410	4.9688	30.550	4.5313
	E	0	306.99	8.7606	48.982	3.4994

End of Table C.1

No.	Char.	Original shape	Approximated shapes			
			$L=1$	δ, %	$L=3$	δ, %
	Ψ	0.7921	0.8654	9.2539	0.8332	5.1789
20.	V	8.0	8.5752	7.1900	8.1232	1.5400
	S	25.333	23.599	6.8448	24.703	2.4868
	E	0	347.31	27.954	60.083	11.627
	Ψ	0.7636	0.8585	12.428	0.7911	3.6014

Table C.2. Mechanical characteristics of shapes

No.	Char.	Original shape	Approximated shapes			
			$L=1$	δ, %	$L=3$	δ, %
1.	I_{xx}	16.755	16.782	0.1588	16.779	0.1450
	I_{yy}	16.755	16.937	1.0880	16.927	1.0280
	I_{zz}	26.808	26.972	0.6123	26.968	0.5959
2.	I_{xx}	1.6752	1.6799	0.2814	1.6799	0.2814
	I_{yy}	1.6752	1.6892	0.8370	1.6892	0.8370
	I_{zz}	1.6752	1.6848	0.5745	1.6848	0.5745
3.	I_{xx}	0.5378	0.5442	1.1965	0.5392	0.2641
	I_{yy}	0.5378	0.5467	1.6631	0.5411	0.6100
	I_{zz}	0.3310	0.3437	3.8460	0.3330	0.6102
4.	I_{xx}	8.1679	8.3593	2.3442	8.1675	0.0049
	I_{yy}	12.566	11.636	7.4027	12.508	0.4591
	I_{zz}	15.708	14.938	4.9017	15.592	0.7367
5.	I_{xx}	0.7886	0.7966	1.0078	0.7896	0.1217
	I_{yy}	0.6723	0.6781	0.8693	0.6755	0.4813
	I_{zz}	0.5301	0.5402	1.9073	0.5321	0.3757
6.	I_{xx}	33.511	35.410	5.6662	33.521	0.0287
	I_{yy}	33.511	35.632	6.3304	33.797	0.8530
	I_{zz}	50.266	55.839	11.087	50.510	0.4856
7.	I_{xx}	3.6652	3.7051	1.0885	3.7295	1.7543
	I_{yy}	3.6652	3.7153	1.3675	3.7469	2.2286
	I_{zz}	3.1416	3.4217	8.9168	3.2248	2.6475
8.	I_{xx}	1.2411	1.3177	6.1697	1.2874	3.7269
	I_{yy}	1.2411	1.3205	6.3980	1.2911	4.0283
	I_{zz}	0.6206	0.7632	22.983	0.6480	4.4189
9.	I_{xx}	5.8643	5.34057	8.9310	5.7720	1.5737
	I_{yy}	5.8643	5.4153	7.6574	5.8258	0.6571
	I_{zz}	10.053	8.8822	11.648	9.8984	1.5387
10.	I_{xx}	0.5236	0.5330	1.8050	0.5249	0.2435
	I_{yy}	0.5236	0.5389	2.9224	0.5284	0.9148

Table C.2 continued

No.	Char.	Original shape	Approximated shapes			
			$L = 1$	δ, %	$L = 3$	δ, %
	I_{zz}	0.6283	0.6290	0.1012	0.6313	0.4672
11.	I_{xx}	0.1551	0.1643	5.8830	0.1564	0.8128
	I_{yy}	0.1551	0.1658	6.8428	0.1571	1.2623
	I_{zz}	0.1241	0.1324	6.6828	0.1250	0.7298
12.	I_{xx}	9.6000	8.3589	12.928	9.2854	3.2768
	I_{yy}	9.6000	8.497	11.486	9.4811	1.2383
	I_{zz}	17.067	14.522	14.907	16.572	2.8992
13.	I_{xx}	0.8000	0.7854	1.8307	0.8010	0.1208
	I_{yy}	0.8000	0.7962	0.4739	0.8146	1.8294
	I_{zz}	1.0667	1.0412	2.3893	1.0779	1.0563
14.	I_{xx}	0.2239	0.2293	2.4223	0.2252	0.6009
	I_{yy}	0.2239	0.2320	3.6123	0.2280	1.8325
	I_{zz}	0.2107	0.2162	2.6043	0.2142	1.6390
15.	I_{xx}	53.333	51.447	3.5362	52.209	2.1082
	I_{yy}	53.333	51.914	2.6609	53.224	0.2041
	I_{zz}	85.333	86.188	1.0025	84.681	0.7640
16.	I_{xx}	5.3333	4.8287	9.4614	5.3485	0.2857
	I_{yy}	5.3333	4.8482	9.0949	5.4127	1.4881
	I_{zz}	5.3333	4.9710	6.7928	5.4012	1.2730
17.	I_{xx}	1.7121	1.5249	10.9340	1.7122	0.0054
	I_{yy}	1.7121	1.5298	10.6486	1.7250	0.7558
	I_{zz}	1.0536	0.9732	7.6324	1.0591	0.5218
18.	I_{xx}	26.000	27.429	5.4951	25.644	1.3699
	I_{yy}	40.000	39.769	0.5786	39.638	0.9060
	I_{zz}	50.000	49.458	1.0830	49.336	1.3282
19.	I_{xx}	13.000	12.758	1.8582	12.780	1.6951
	I_{yy}	8.0000	8.3718	4.6471	7.8718	1.6022
	I_{zz}	13.000	12.760	1.8492	12.757	1.8677
20.	I_{xx}	8.6667	8.5865	0,9255	8.4851	2.0953
	I_{yy}	3.8519	4.1837	8.6151	3.8018	1.3010
	I_{zz}	7.1852	7.0957	1.2463	7.0639	1.6885