

Appendix

Table A1. Set of 120 experimental design solutions

	X_1	X_2	X_3	X_4	H_1	H_2	H_3	H_4	M
	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(mm)	(kg)
1	6.605	9.176	9.882	57.23	5.8	3.5	-12.8	-11.4	176.69
2	6.303	8.706	9.076	51.93	2.3	-1.2	-17.9	-18.3	165.80
3	9.832	10.756	8.958	51.81	24.4	30.6	6.6	8.3	225.25
4	9.092	8.101	9.008	51.18	20.2	22.1	2.8	2.4	193.55
5	7.311	9.378	8.723	49.66	11.8	14	-5.6	-5.6	182.26
6	7.983	11.731	9.899	49.16	15.5	26.8	2.4	1.1	211.71
7	8.924	8.067	8.353	53.95	18.6	26.8	1.4	2	191.30
8	6.874	10.521	9.866	49.41	7.9	12	-8.4	-8.4	188.19
9	9.529	8.672	9.647	52.56	23.2	24.3	6.9	7.7	205.06
10	6.639	9.479	9.294	46.76	5.9	2.6	-15.4	-14.8	174.73
11	6.84	9.748	8.555	54.33	8.6	12.5	-6.3	-6.5	181.23
12	6.101	10.151	9.109	55.71	4.8	4.3	-13.3	-12.5	177.22
13	7.849	9.445	10	55.08	13.4	18.3	1.4	2.7	193.14
14	9.193	9.983	9.983	52.56	21.9	28.1	7.8	9.2	212.72
15	8.084	10.79	9.782	53.07	15.6	25	3.4	3.3	206.31
16	8.286	9.714	8.084	56.97	14.2	23.2	-0.1	0.1	198.35
17	7.748	8.269	9.21	52.31	13.1	16.4	-0.7	-2.9	179.65
18	7.882	9.277	9.681	45.38	13.6	11.4	-6.2	-6.9	187.74
19	8.319	10.353	9.933	48.15	17.6	23.4	1.6	1.1	203.57
20	6	11.227	9.513	51.68	3.6	5.7	-13.5	-13.6	184.24
21	8.723	11.597	8.655	57.73	17.2	25.1	5.2	5.5	220.90
22	7.681	11.126	9.143	58.99	13.7	20.5	2.5	2.3	205.71
23	8.454	10.588	8.454	53.7	16.4	24.5	2.9	3	207.31
24	6.269	10.454	8.134	57.1	4.7	5.2	-11.9	-11.4	180.73
25	7.546	10.42	9.059	53.82	14.2	21.7	1.9	1.6	195.98
26	6.471	9.58	8.437	45.88	3.8	-0.1	-19.6	-16.3	172.25
27	9.462	11.025	9.832	56.34	23.8	32	10.2	12.3	226.18
28	6.37	11.059	8.756	59.12	8.3	9.3	-7.1	-6.9	188.87
29	8.118	9.109	8.639	54.08	15.7	22.7	1.7	1.2	191.07
30	8.588	9.412	9.378	54.71	18.6	24.9	5.7	6.4	200.62
31	8.824	11.966	8.487	48.28	20.3	29.8	5.7	7.6	221.65
32	7.513	9.546	9.546	51.05	13.5	17.2	-1.3	-1.6	187.73
33	7.815	11.664	8.992	46.51	15.8	23.5	-0.1	0.1	207.01
34	7.277	8.336	8.857	58.24	9.3	10.6	-9	-9.9	176.27
35	6.672	10.924	8.706	45.63	7.8	7.8	-12.5	-10	186.38
36	6.437	10.319	9.008	50.29	7.2	8	-10.8	-10.2	180.48
37	7.613	8.773	8.807	45	11.3	8.2	-11.1	-9.8	179.11
38	8.555	11.294	8.975	50.92	19.1	27.9	4.8	3.9	214.30
39	8.353	8.975	9.193	48.4	17.8	17.3	-0.9	-1.9	191.40

40	9.899	11.16	8.303	47.65	25.2	11.2	8.3	47.7	227.14
41	8.521	9.042	8.101	46.89	16.2	22.1	-3.2	0.3	192.06
42	9.126	8.538	8.739	45.76	20	18.5	-2.3	-0.1	195.36
43	8.622	8.235	9.042	56.6	18.1	22.8	2.5	2.5	191.16
44	7.782	10.286	9.176	47.39	16	18.7	-2.7	-3	195.38
45	9.059	9.882	9.328	45.13	22	20.2	-0.5	0.3	206.48
46	8.42	8.504	8.37	58.74	15.9	21.7	-2.4	-2	190.70
47	6.739	9.076	9.966	47.9	3.9	0.6	-15	-15.6	173.72
48	6.403	11.193	8.622	53.57	8.5	11	-6.1	-5.5	188.20
49	9.025	10.891	8.824	46.13	21.9	26.3	2.1	3.8	214.51
50	6.807	10.387	9.714	54.83	8.4	13.2	-5.6	-4.7	188.23
51	7.445	11.092	9.664	45.25	12	18.2	-5.2	-5.5	197.97
52	10	8.739	8.924	54.45	25.1	27.4	4.4	8.4	210.94
53	8.689	9.815	8.689	49.79	19.6	23.2	1.4	1.7	202.45
54	8.185	8.303	8.538	49.54	14.6	18.8	-2.7	-3	183.22
55	6.034	9.613	9.613	51.43	1.5	-2.1	-19	-18.1	170.88
56	6.336	8.37	8.84	47.14	-0.1	-7.1	-24.2	-23.5	161.24
57	8.017	9.008	9.58	59.24	15.5	18.6	0.7	2.4	192.44
58	9.731	11.798	9.126	48.53	26.3	37.4	10.6	11.6	231.95
59	8.958	10.252	8.521	60	18.2	23.5	1.6	3.8	212.78
60	7.58	10.622	8.471	57.98	12.6	19.4	0.4	0.3	198.69
61	8.655	10.655	8.118	48.78	17.8	24.9	0.9	3.7	208.11
62	7.714	11.462	8.252	46.01	14.1	19	-3.2	0.6	203.01
63	9.328	8.134	9.496	47.02	21.1	16.2	0.9	0.4	195.68
64	7.143	8.034	8.571	53.19	6.4	8.9	-10.8	-12.8	169.81
65	7.412	8.941	8.034	52.82	8.9	15.8	-6.9	7	179.84
66	7.647	11.765	8.874	54.58	14.4	23.4	4	2.9	208.69
67	9.395	11.63	8.42	52.94	20.9	30.5	6.7	8.3	227.14
68	9.361	9.311	9.849	47.77	23.1	21.9	4.1	4.1	206.85
69	8.017	9.681	8.941	58.49	15.2	21.4	1.7	2.7	196.84
70	7.008	11.361	9.798	58.87	10.3	15.4	-2.5	-3.3	200.72
71	8.756	9.345	8.067	52.06	17.4	27.1	1.5	3	199.14
72	6.975	11.697	9.916	53.45	9.1	18.8	-2.6	-4.3	201.17
73	6.202	8.807	8.336	50.8	-0.4	-3.2	-21.9	-21.5	164.01
74	7.345	11.395	9.345	50.67	13	21.9	-0.2	-1.6	201.12
75	7.378	9.916	8.017	48.66	10.3	14.5	-7.5	-4.7	186.37
76	6.168	10.218	8.286	50.55	3.5	2.2	-15.7	-13.8	175.51
77	9.496	8.908	8.773	59.37	22.8	25.3	1.3	5.7	207.93
78	6.538	11.529	8.185	48.91	7.7	9.1	-9	-5.8	190.44
79	7.244	10.723	8.05	53.32	10.5	16.3	-3.1	-1.9	193.27
80	9.261	11.429	9.697	51.3	23.3	35.3	10	9.4	225.00
81	7.916	10.084	8.504	45.5	15.1	16.4	-5.7	-3.2	193.76
82	9.866	10.958	8.908	57.48	23.4	29.6	6.9	10.2	229.41
83	7.21	8.202	9.445	47.52	7.3	3.4	-11.7	-13.5	171.11

84	7.076	8	9.563	57.35	7.7	5.7	-10.4	-11.8	171.81
85	8.79	10.824	9.227	55.34	18.3	27.2	6.1	6.3	215.12
86	8.252	8.471	9.815	50.17	15.6	16.8	1.9	-0.5	187.36
87	9.664	10.689	8.218	56.47	20.8	29.3	4.4	7.1	223.20
88	9.16	9.513	9.95	57.61	21.5	25.3	6.9	10.6	210.34
89	7.109	8.437	8.168	47.27	5.6	6.1	-16	-13.6	170.24
90	9.227	10.017	9.311	59.5	20.8	24.3	4.2	8.4	215.17
91	7.479	10.857	8.588	49.92	13.9	18.7	-1.7	-1.2	196.83
92	6.773	8.403	9.748	52.44	5	3	-11.7	-13	169.95
93	9.966	10.555	9.63	48.03	27.7	31.9	8.3	9.9	224.55
94	6.571	11.563	9.277	55.97	9	14.9	-3.4	-4.4	195.26
95	9.294	9.849	8.79	55.21	20.6	26.8	4.4	6.3	212.08
96	9.597	9.782	8.387	46.39	23.2	26.6	1.5	5.8	211.42
97	9.429	12	9.16	54.2	23	34.5	10.6	10.3	232.27
98	6.235	10.992	9.395	46.64	3.9	4.4	-15.8	-15.2	182.92
99	6.706	9.647	8.672	59.62	7.5	8	-10.7	-10.6	180.85
100	9.798	10.118	8.319	51.55	23	30.2	4.5	7.7	218.39
101	8.387	11.261	8	56.72	14	23.2	1.9	2.7	212.56
102	9.765	9.244	9.092	49.03	24.3	20.9	1.5	3.4	210.67
103	8.487	8.168	9.765	55.59	17.3	21.9	6.1	4.2	189.70
104	8.218	11.933	9.597	55.84	16.2	28.3	6.7	4.4	218.53
105	6.067	8.605	8.605	56.09	-1.9	-6.8	-24.6	-25.9	162.93
106	8.891	10.185	9.361	50.42	21.9	26.3	4.4	3.8	209.16
107	9.63	9.143	8.202	56.22	22.4	30.2	3.2	6.3	209.46
108	9.697	8.639	8.403	50.04	23.1	29.4	3.6	6.8	204.13
109	8.857	11.328	9.529	46.26	21.5	31.2	5.3	5.1	217.10
110	6.134	8.84	9.244	58.61	2.1	-5.9	-23.4	-22.4	167.72
111	9.563	8.571	9.479	58.11	23.9	24.5	3.9	8.4	206.55
112	6.941	11.832	8.269	56.85	11.9	16.3	0.3	1.2	200.67
113	7.176	9.21	9.261	55.46	11.3	15.6	-2.4	-1.9	182.14
114	9.933	9.95	9.462	54.96	24.7	30.1	8.2	12.1	221.50
115	7.95	11.866	8.235	52.18	15.1	22.6	2.9	4.3	211.36
116	7.042	8.874	8.151	57.86	6.3	10.1	-11.3	-12.6	176.73
117	6.504	11.899	8.891	49.29	8.6	12.8	-6.7	-6.6	194.27
118	6.908	10.017	9.429	59.75	10.1	12.3	-5.8	-4.7	187.78
119	8.992	11.496	9.412	59.87	20.6	25.2	6.5	7.9	225.32
120	8.151	10.487	9.731	58.36	15.3	21.4	3.5	5.1	206.58