



Table A.1: Parameterlist - short circuit

No.	Sample no	f [Hz]	B [mT]	v_{wire} [m/min]	U [V]	v_{travel} [cm/min]	Stick-out [mm]
1	D7	0	0	4.6	24.1	30	25
2	D8	2	2	4.6	24.1	30	25
3	D9	2	6	4.6	24.1	30	25
4	D57	5	2	4.6	24.1	30	25
5	D58	5	6	4.6	24.1	30	25
6	D55	25	2	4.6	24.1	30	25
7	D56	25	6	4.6	24.1	30	25
8	D10	45	2	4.6	24.1	30	25
9	D12	45	6	4.6	24.1	30	25
10	D15	0	0	5.7	24.8	30	25
11	D16	2	2	5.7	24.8	30	25
12	D17	2	6	5.7	24.8	30	25
13	D47	5	2	5.7	24.8	30	25
14	D51	5	6	5.7	24.8	30	25
15	D53	25	2	5.7	24.8	30	25
16	D54	25	6	5.7	24.8	30	25
17	D18	45	2	5.7	24.8	30	25
18	D19	45	6	5.7	24.8	30	25

Table A.2: Parameterlist - spray mode, additional argon shielding gas

No.	Sample no	f [Hz]	B [mT]	v_{wire} [m/min]	U [V]	v_{travel} [cm/min]	Stick-out [mm]
19	D31	0	0	9.9	36.4	36	25
20	D32	2	2	9.9	36.4	36	25
21	D33	2	4	9.9	36.4	36	25
22	D34	45	2	9.9	36.4	36	25
23	D35	45	4	9.9	36.4	36	25



Table A.3: Parameterlist - pulsed mode, with additional shielding gas (80 %-Ar, 20 %-CO₂)

No.	Sample no.	f [Hz]	B [mT]	v_{wire} [m/min]	U [V]	v_{travel} [cm/min]	Stick out [mm]	angle [°]	I_{peak} [A]	I_{base} [A]	f [Hz]	puls width [ms]
24	E12	0	0	7.2	25	30	18	0	400	80	240	2.9
25	E11	2	2	7.2	25	30	18	0	400	80	240	2.9
26	E13	2	4	7.2	25	30	18	0	400	80	240	2.9
27	E14	2	6	7.2	25	30	18	0	400	80	240	2.9
28	E23	5	2	7.2	25	30	18	0	400	80	240	2.9
29	E28	5	4	7.2	25	30	18	0	400	80	240	2.9
30	E24	5	6	7.2	25	30	18	0	400	80	240	2.9
31	E25	25	2	7.2	25	30	18	0	400	80	240	2.9
32	E27	25	4	7.2	25	30	18	0	400	80	240	2.9
33	E26	25	6	7.2	25	30	18	0	400	80	240	2.9
34	E15	45	2	7.2	25	30	18	0	400	80	240	2.9
35	E20	45	4	7.2	25	30	18	0	400	80	240	2.9
36	E16	45	6	7.2	25	30	18	0	400	80	240	2.9

Table A.4: Parameterlist - pulsed mode, without additional shielding gas

No.	Sample no.	f [Hz]	B [mT]	v_{wire} [m/min]	U [V]	v_{travel} [cm/min]	Stick out [mm]	angle [°]	I_{peak} [A]	I_{base} [A]	f [Hz]	puls width [ms]
37	E33	0	0	7.2	24.1	30	18	0	400	80	240	2.9
38	E37	2	2	7.2	24.1	30	18	0	400	80	240	2.9
39	E42	2	4	7.2	24.1	30	18	0	400	80	240	2.9
40	E36	2	6	7.2	24.1	30	18	0	400	80	240	2.9
41	E35	5	2	7.2	24.1	30	18	0	400	80	240	2.9
42	E44	5	4	7.2	24.1	30	18	0	400	80	240	2.9
43	E34	5	6	7.2	24.1	30	18	0	400	80	240	2.9
44	E38	25	2	7.2	24.1	30	18	0	400	80	240	2.9
45	E45	25	4	7.2	24.1	30	18	0	400	80	240	2.9
46	E39	25	6	7.2	24.1	30	18	0	400	80	240	2.9
47	E40	45	2	7.2	24.1	30	18	0	400	80	240	2.9
48	E46	45	4	7.2	24.1	30	18	0	400	80	240	2.9
49	E41	45	6	7.2	24.1	30	18	0	400	80	240	2.9