

CL-440 Collimated Beam PARAMETER TABLES

MILD STEEL

N₂ Assist

	Thickness (inch)			0.036	0.048	0.060	0.075	0.105	0.120	0.135	0.188	0.250
	Thickness (gage)			20	18	16	14	12	11	10	3/16	1/4
	Parameters											
Pierce	Pierce mode			No	No	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
	Pierce time (sec)			n/a	n/a	0.02	0.03	0.05	0.08	0.10	0.20	0.30
	Laser power (Watt)			n/a	n/a	4000	4000	4000	4000	4000	4000	4000
	Beam size			n/a	n/a	180	175	170	170	170	170	170
	Frequency (Hz)			n/a	n/a	2000	2000	2000	2000	2000	2000	2000
	Duty cycle (%)			n/a	n/a	100	100	100	100	100	100	100
	Z hold distance (inch)			0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1
	Standoff ramp: From			n/a	n/a	0.150	0.150	0.150	0.150	0.150	0.150	0.150
	Standoff ramp: To			n/a	n/a	0.150	0.150	0.150	0.150	0.150	0.150	0.150
	Assist gas type			n/a	n/a	N2	N2	N2	N2	N2	N2	N2
Pierce Monitor	Assist gas press (psi)			n/a	n/a	30	30	30	30	30	30	30
	Beam on time			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Nozzle Reflection			n/a	n/a	Med	Med	Med	Med	Med	Med	Med
	Detect pierce thru			n/a	n/a	Off	Off	Off	Off	Off	On	On
Rapid Pierce	Pierce thru check time			n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.3	0.3
	Laser power (Watt)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Standoff (inch)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Pierce time (sec)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Cool time (sec)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Airblast off time (sec)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Airblast on time (sec)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Cutting	Assist gas press (psi)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Ramped Pierce			No	No	No	No	No	No	No	No	No
	Laser power (Watt)			4000	4000	4000	4000	4000	4000	4000	4000	4000
	Frequency (Hz)			2000	2000	2000	2000	2000	2000	2000	2000	2000
	Duty cycle (%)			100	100	100	100	100	100	100	100	100
	Feedrate (ipm)			440	405	325	290	230	190	160	100	68
	Pre-cut dwell (sec)			0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
	Kerf width (inch)			0.008	0.008	0.009	0.009	0.010	0.010	0.010	0.012	0.012
	Power burst time (sec)			0.05	0.05	0.10	0.10	0.10	0.10	0.10	0.10	0.10
	Beam size			180	180	180	180	180	180	180	180	180
	Dynamic pwr control			On	On	On	On	On	On	On	On	On
	Dynamic assist gas			Off	Off	Off	Off	Off	Off	Off	Off	Off
	Standoff (inch) [NC]			0.025	0.025	0.150	0.150	0.150	0.150	0.150	0.150	0.150
	Optional standoff (inch)			0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
	Assist gas type			N2	N2	N2	N2	N2	N2	N2	N2	N2
Loss of Cut Detect	Assist gas Pressure 1			100	120	70	70	70	70	70	70	70
	Optional Pressure 2			100	120	120	170	180	210	210	220	250
	Loss of Cut Detection			Off	Off	Off	On	On	On	On	On	On
	Nozzle Reflection			n/a	n/a	n/a	Med	Med	Med	Med	Med	High
DPC	Response Time			n/a	n/a	n/a	Fast	Fast	Fast	Fast	Slow	Slow
	DPC feedrate (ipm)			440	325	300	270	195	170	160	100	68
Focus / DAG	DPC min power (%)			25	20	20	20	20	20	20	30	50
	Pierce focus ramp			0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
	NF Pierce Focus: From			-0.030	-0.050	-0.060	-0.080	-0.080	-0.080	-0.085	-0.120	-0.150
	FF Pierce Focus: From			-0.020	-0.040	-0.050	-0.060	-0.060	-0.060	-0.060	-0.100	-0.120
	NF Cut focus			-0.030	-0.050	-0.060	-0.080	-0.080	-0.080	-0.085	-0.120	-0.150
	FF Cut focus			-0.020	-0.040	-0.050	-0.060	-0.060	-0.060	-0.060	-0.100	-0.120
	DAG; NF Press 1 (psi)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	DAG; FF Press 1 (psi)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	DAG; NF Press 2 (psi)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	DAG; FF Press 2 (psi)			n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Focusing lens (inch)			5	5	5	5	5	5	5	7.5	7.5
Nozzle tip nut	Nozzle tip			080 hc	080 hc	080 hc	080 hc	080 hc	080 hc	080 hc	100 cfn	100 cfn
	Nozzle tip nut			Std	Std	Std	Std	Std	Std	Std	Std	Std

MILD STEEL

Air Assist

	Thickness (inch)				0.036	0.048	0.060	0.075	0.105	
	Thickness (gage)				20	18	16	14	12	
	Parameters									
Pierce	Pierce mode				No	No	Fixed	Fixed	Fixed	
	Pierce time (sec)				n/a	n/a	0.01	0.01	0.05	
	Laser power (Watt)				n/a	n/a	4000	4000	4000	
	Beam size				n/a	n/a	170	170	170	
	Frequency (Hz)				n/a	n/a	2000	2000	2000	
	Duty cycle (%)				n/a	n/a	100	100	100	
	Z hold distance (inch)				0.1	0.1	0.1	0.1	0.1	
	Standoff ramp: From				n/a	n/a	0.100	0.100	0.100	
	Standoff ramp: To				n/a	n/a	0.100	0.100	0.100	
	Assist gas type				Air	Air	Air	Air	Air	
	Assist gas press (psi)				n/a	n/a	30	30	30	
Pierce Monitor	Beam on time				n/a	n/a	n/a	n/a	n/a	
	Nozzle Reflection				n/a	n/a	Med	Med	Med	
	Detect pierce thru				n/a	n/a	Off	Off	Off	
	Pierce thru check time				n/a	n/a	n/a	n/a	n/a	
Rapid Pierce	Laser power (Watt)				n/a	n/a	n/a	n/a	n/a	
	Standoff (inch)				n/a	n/a	n/a	n/a	n/a	
	Pierce time (sec)				n/a	n/a	n/a	n/a	n/a	
	Cool time (sec)				n/a	n/a	n/a	n/a	n/a	
	Airblast off time (sec)				n/a	n/a	n/a	n/a	n/a	
	Airblast on time (sec)				n/a	n/a	n/a	n/a	n/a	
	Assist gas press (psi)				n/a	n/a	n/a	n/a	n/a	
	Ramped Pierce				No	No	No	No	No	
Cutting	Laser power (Watt)				4000	4000	4000	4000	4000	
	Frequency (Hz)				2000	2000	2000	2000	2000	
	Duty cycle (%)				100	100	100	100	100	
	Feedrate (ipm)				800	675	500	360	200	
	Pre-cut dwell (sec)				0.00	0.00	0.00	0.00	0.00	
	Kerf width (inch)				0.008	0.008	0.008	0.009	0.009	
	Power burst time (sec)				0.05	0.05	0.05	0.10	0.10	
	Beam size				180	180	170	190	190	
	Dynamic pwr control				On	On	On	On	On	
	Dynamic assist gas				Off	Off	Off	Off	Off	
	Standoff (inch) [NC]				0.05	0.05	0.05	0.035	0.035	
	Optional standoff (inch)				0.05	0.05	0.05	0.035	0.035	
	Assist gas type				Air	Air	Air	Air	Air	
	Assist gas Pressure 1				80	80	65	65	65	
	Optional Pressure 2				80	80	65	65	65	
Loss of Cut Detect	Loss of Cut Detection				Off	Off	Off	On	On	
	Nozzle Reflection				n/a	n/a	n/a	Med	Med	
	Response Time				n/a	n/a	n/a	Fast	Fast	
DPC	DPC feedrate (ipm)				800	600	500	360	200	
	DPC min power (%)				10	10	10	10	10	
Focus / DAG	Pierce focus ramp				0.000	0.000	0.000	0.000	0.000	
	NF Pierce Focus: From				-0.020	-0.040	-0.050	-0.050	-0.060	
	FF Pierce Focus: From				-0.020	-0.030	-0.030	-0.030	-0.040	
	NF Cut focus				-0.020	-0.040	-0.050	-0.050	-0.060	
	FF Cut focus				-0.020	-0.030	-0.030	-0.030	-0.040	
	DAG; NF Press 1 (psi)				n/a	n/a	n/a	n/a	n/a	
	DAG; FF Press 1 (psi)				n/a	n/a	n/a	n/a	n/a	
	DAG; NF Press 2 (psi)				n/a	n/a	n/a	n/a	n/a	
	DAG; FF Press 2 (psi)				n/a	n/a	n/a	n/a	n/a	
	Focusing lens (inch)				5	5	5	5	5	
	Nozzle tip				080 hc	080 hc	080 hc	080 hc	080 hc	
	Nozzle tip nut				Std	Std	Std	Std	Std	

MILD STEEL

O₂ Assist

10" focal

5" Focal

	Thickness (inch)		0.105	0.120	0.135	0.188	0.250	0.375
	Thickness (gage)		12	11	10	3/16	1/4	3/8
	Parameters							
Pierce	Pierce mode		Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
	Pierce time (sec)		0.15	0.18	0.22	0.25	0.50	1.50
	Laser power (Watt)		4000	4000	4000	4000	4000	4000
	Beam size		175	180	210	210	170	170
	Frequency (Hz)		2000	2000	2000	2000	30	30
	Duty cycle (%)		100	100	100	100	15	15
	Z hold distance (inch)		0.1	0.1	0.1	0.1	0.1	0.1
	Standoff ramp: From		0.150	0.150	0.150	0.150	0.150	0.150
	Standoff ramp: To		0.150	0.150	0.150	0.150	0.150	0.150
	Assist gas type		O2	O2	O2	O2	O2	O2
	Assist gas press (psi)		8	8	8	8	5	5
Pierce Monitor	Beam on time		n/a	n/a	n/a	n/a	n/a	n/a
	Nozzle Reflection		n/a	n/a	n/a	n/a	Low	Low
	Detect pierce thru		Off	Off	Off	Off	On	On
	Pierce thru check time		n/a	n/a	n/a	n/a	0.2	0.3
Rapid Pierce	Laser power (Watt)		n/a	n/a	n/a	n/a	n/a	4000
	Standoff (inch)		n/a	n/a	n/a	n/a	n/a	0.200
	Pierce time (sec)		n/a	n/a	n/a	n/a	n/a	0.80
	Cool time (sec)		n/a	n/a	n/a	n/a	n/a	0.20
	Airblast off time (sec)		n/a	n/a	n/a	n/a	n/a	0.50
	Airblast on time (sec)		n/a	n/a	n/a	n/a	n/a	0.50
	Assist gas press (psi)		n/a	n/a	n/a	n/a	n/a	8
	Ramped Pierce		No	No	No	No	No	No
Cutting	Laser power (Watt)		4000	4000	4000	4000	4000	4000
	Frequency (Hz)		2000	2000	500	500	500	500
	Duty cycle (%)		90	90	100	100	100	100
	Feedrate (ipm)		180	160	150	130	115	85
	Pre-cut dwell (sec)		0.10	0.10	0.10	0.10	0.20	0.30
	Kerf width (inch)		0.010	0.014	0.018	0.019	0.021	0.023
	Power burst time (sec)		0.05	0.05	0.05	0.05	0.05	0.05
	Beam size		175	180	210	210	210	220
	Dynamic pwr control		On	On	On	On	Off	Off
	Dynamic assist gas		Off	Off	Off	Off	Off	Off
	Standoff (inch) [NC]		0.030	0.030	0.030	0.030	0.030	0.040
	Optional standoff (inch)		0.030	0.030	0.030	0.030	0.030	0.040
	Assist gas type		O2	O2	O2	O2	O2	O2
	Assist gas Pressure 1		8	8	7	7	7	7
	Optional Pressure 2		8	8	7	7	7	7
Loss of Cut Detect	Loss of Cut Detection		Off	Off	Off	Off	Off	Off
	Nozzle Reflection		n/a	n/a	n/a	n/a	n/a	n/a
	Response Time		n/a	n/a	n/a	n/a	n/a	n/a
DPC	DPC feedrate (ipm)		150	130	120	105	n/a	n/a
	DPC min power (%)		40	30	20	15	n/a	n/a
Focus / DAG	Pierce focus ramp		0.000	0.000	0.000	0.000	0.000	0.000
	NF Pierce Focus: From		0.090	0.070	0.130	0.060	-0.150	-0.150
	FF Pierce Focus: From		0.100	0.100	0.080	0.060	-0.150	-0.150
	NF Cut focus		0.090	0.070	0.130	0.060	0.080	0.080
	FF Cut focus		0.100	0.100	0.080	0.060	0.060	0.060
	DAG; NF Press 1 (psi)		n/a	n/a	n/a	n/a	n/a	n/a
	DAG; FF Press 1 (psi)		n/a	n/a	n/a	n/a	n/a	n/a
	DAG; NF Press 2 (psi)		n/a	n/a	n/a	n/a	n/a	n/a
	DAG; FF Press 2 (psi)		n/a	n/a	n/a	n/a	n/a	n/a
	Focusing lens (inch)		10	10	10	10	10	10
	Nozzle tip		060 dbl	060 dbl	060 dbl	060 dbl	060 dbl	060 dbl
	Nozzle tip nut		Std	Std	Std	Std	Std	Std

0.075	0.105	0.120	0.135
14	12	11	10
Fixed	Fixed	Fixed	Fixed
0.15	0.15	0.20	0.20
3000	3000	4000	4000
170	170	170	170
2000	2000	2000	2000
100	100	100	100
0.1	0.1	0.1	0.1
0.100	0.150	0.150	0.150
0.100	0.150	0.150	0.150
O2	O2	O2	O2
8	8	8	8
n/a	n/a	n/a	n/a
Low	Low	Low	Med
On	On	On	On
0.1	0.1	0.1	0.2
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a
No	No	No	No
1000	1000	1500	1500
5000	5000	5000	5000
100	100	100	100
200	160	145	135
0.00	0.05	0.10	0.10
0.009	0.010	0.018	0.018
0.05	0.05	0.05	0.05
170	170	170	170
On	On	On	On
Off	Off	Off	Off
0.050	0.050	0.050	0.050
0.050	0.050	0.050	0.050
O2	O2	O2	O2
60	20	40	40
60	20	40	40
Off	Off	Off	Off
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a
200	160	145	135
20	20	20	20
0.000	0.000	0.000	0.000
-0.020	-0.020	-0.020	0.020
-0.040	-0.040	-0.040	0.000
-0.020	-0.020	-0.020	0.020
-0.040	-0.040	-0.040	0.000
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a
n/a	n/a	n/a	n/a
5	5	5	5
060 str	060 str	060 str	060 str
Std	Std	Std	Std

MILD STEEL

O₂ Assist

	Thickness (inch)	0.500	0.625	0.750	1.000
	Thickness (gage)	1/2	5/8	3/4	1
Parameters					
Pierce	Pierce mode	Fixed	Adpt	Adpt	Adpt
	Pierce time (sec)	3.0	4.2/1.7	10/2.1	15/3.2
	Laser power (Watt)	4000	4000	4000	4000
	Beam size	170	170	170	170
	Frequency (Hz)	20	n/a	n/a	n/a
	Duty cycle (%)	20	n/a	n/a	n/a
	Z hold distance (inch)	0	0	0	0
	Standoff ramp: From	0.150	0.200	0.200	0.200
	Standoff ramp: To	0.150	0.150	0.150	0.150
	Assist gas type	O2	O2	O2	O2
Pierce Monitor	Assist gas press (psi)	5	8	8	8
	Beam on time	n/a	3mSec	4mSec	4mSec
	Nozzle Reflection	Low	Med	Med	Med
	Detect pierce thru	On	On	On	On
Rapid Pierce	Pierce thru check time	0.4	0.5	0.7	0.7
	Laser power (Watt)	4000	4000	4000	4000
	Standoff (inch)	0.200	0.250	0.250	0.250
	Pierce time (sec)	1.00	1.00	1.20	1.70
	Cool time (sec)	0.20	0.70	0.90	1.50
	Airblast off time (sec)	0.50	0.70	0.90	1.40
	Airblast on time (sec)	0.70	1.00	0.12	1.80
	Assist gas press (psi)	8	8	8	8
Cutting	Ramped Pierce	Yes	Yes	Yes	Yes
	Laser power (Watt)	4000	4000	4000	4000
	Frequency (Hz)	500	500	500	1000
	Duty cycle (%)	100	95	90	85
	Feedrate (ipm)	58	45	34	26
	Pre-cut dwell (sec)	0.30	0.30	0.50	0.70
	Kerf width (inch)	0.023	0.025	0.025	0.025
	Power burst time (sec)	0.05	0.05	0.10	0.10
	Beam size	220	220	240	250
	Dynamic pwr control	Off	Off	Off	Off
	Dynamic assist gas	Off	Off	Off	Off
	Standoff (inch) [NC]	0.040	0.040	0.040	0.040
	Optional standoff (inch)	0.040	0.040	0.040	0.040
	Assist gas type	O2	O2	O2	O2
	Assist gas Pressure 1	8	8	8	8
	Optional Pressure 2	8	8	8	8
	Loss of Cut Detection	Off	Off	Off	Off
Loss of Cut	Nozzle Reflection	n/a	n/a	n/a	n/a
	Response Time	n/a	n/a	n/a	n/a
DPC	DPC feedrate (ipm)	n/a	n/a	n/a	n/a
	DPC min power (%)	n/a	n/a	n/a	n/a
Focus / DAG	Pierce focus ramp	0.000	-0.200	-0.200	-0.200
	NF Pierce Focus: From	-0.150	-0.120	-0.150	-0.150
	FF Pierce Focus: From	-0.150	-0.120	-0.150	-0.150
	NF Cut focus	0.060	0.140	0.130	0.135
	FF Cut focus	0.040	0.120	0.150	0.120
	DAG; NF Press 1 (psi)	n/a	n/a	n/a	n/a
	DAG; FF Press 1 (psi)	n/a	n/a	n/a	n/a
	DAG; NF Press 2 (psi)	n/a	n/a	n/a	n/a
	DAG; FF Press 2 (psi)	n/a	n/a	n/a	n/a
	Focusing lens (inch)	10	10	10	10
	Nozzle tip	060 dbl	062 shr	062 shr	062 shr
	Nozzle tip nut	Std	Std	Std	Std

Ramped Pierce parameters					
Step	Time (sec.)	1/2	5/8	3/4	1
	Power (%)				
0	Power	80	80	100	100
1	Time	0.2	0.2	0.2	0.2
	Power	0	0	0	0
2	Time	0.5	0.5	0.5	0.7
	Power	0	0	0	0
3	Time	0.1	0.1	0.1	0.1
	Power	70	70	70	85
4	Time	0.2	0.2	0.2	0.2
	Power	70	70	70	85
5	Time	0.1	0.1	0.1	0.1
	Power	0	0	0	0
6	Time	0.5	0.5	0.5	0.6
	Power	0	0	0	0
7	Time	0.1	0.1	0.1	0.1
	Power	90	90	90	95
8	Time	0.3	0.3	0.3	0.4
	Power	90	90	90	95
9	Time	0.1	0.1	0.1	0.1
	Power	0	0	0	0
10	Time	0.2	0.2	0.2	0.3
	Power	0	0	0	0
11	Time	0.1	0.1	0.1	0.1
	Power	100	100	100	100
12	Time	0.4	0.4	0.4	0.5
	Power	100	100	100	100
13	Time	0.1	0.1	0.1	0.1
	Power	0	0	0	0
14	Time	0.3	0.3	0.3	0.4
	Power	0	0	0	0
15	Time	0.1	0.1	0.1	0.1
	Power	100	100	100	100
16	Time	0.7	0.7	0.7	0.1
	Power	100	100	100	100
17	Time	0.5	0.5	0.5	0.5
	Power	0	0	0	0
18	Time	0.1	0.1	0.1	0.3
	Power	100	100	100	0
19	Time	2	2	4.6	0.2
	Power	100	100	100	100
20	Time			—	3.0
	Power			—	100
Cool Time		0	0	0	0
Cool Power		0	0	0	0

Total time (sec.)				
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STAINLESS STEEL

N₂ Assist

	Thickness (inch)	0.030	0.036	0.048	0.060	0.075	0.105	0.120	0.135	
	Thickness (gage)	22	20	18	16	14	12	11	10	
	Parameters									
Pierce	Pierce mode	No	No	No	Fixed	Fixed	Fixed	Fixed	Fixed	
	Pierce time (sec)	0.00	0.00	0.00	0.02	0.04	0.10	0.15	0.20	
	Laser power (Watt)	n/a	n/a	n/a	4000	4000	4000	4000	4000	
	Beam size	n/a	n/a	n/a	170	180	180	170	170	
	Frequency (Hz)	n/a	n/a	n/a	2000	2000	2000	2000	2000	
	Duty cycle (%)	n/a	n/a	n/a	100	100	100	100	100	
	Z hold distance (inch)	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	
	Standoff ramp: From	n/a	n/a	n/a	0.150	0.150	0.150	0.150	0.150	
	Standoff ramp: To	n/a	n/a	n/a	0.150	0.150	0.150	0.150	0.150	
	Assist gas type	n/a	n/a	n/a	N2	N2	N2	N2	N2	
Pierce Monitor	Assist gas press (psi)	n/a	n/a	n/a	30	30	30	20	20	
	Beam on time	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	Nozzle Reflection	n/a	n/a	n/a	Med	Med	Med	Med	Med	
	Detect pierce thru	n/a	n/a	n/a	Off	Off	Off	Off	Off	
Rapid Pierce	Pierce thru check time	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	Laser power (Watt)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	Standoff (inch)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	Pierce time (sec)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	Cool time (sec)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	Airblast off time (sec)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	Airblast on time (sec)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	Assist gas press (psi)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	Ramped Pierce	No	No	No	No	No	No	No	No	
Cutting	Laser power (Watt)	4000	4000	4000	4000	4000	4000	4000	4000	
	Frequency (Hz)	2000	2000	2000	2000	2000	2000	2000	2000	
	Duty cycle (%)	100	100	100	100	100	100	100	100	
	Feedrate (ipm)	480	360	300	280	250	180	170	160	
	Pre-cut dwell (sec)	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
	Kerf width (inch)	0.009	0.010	0.010	0.009	0.009	0.009	0.009	0.010	
	Power burst time (sec)	0.05	0.05	0.05	0.05	0.05	0.05	0.00	0.00	
	Beam size	175	175	175	170	180	170	170	170	
	Dynamic pwr control	On	On	On	On	On	On	On	On	
	Dynamic assist gas	Off	Off	Off	Off	Off	Off	Off	Off	
	Standoff (inch) [NC]	0.025	0.025	0.025	0.150	0.150	0.150	0.150	0.150	
	Optional standoff (inch)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	
	Assist gas type	N2	N2	N2	N2	N2	N2	N2	N2	
	Assist gas Pressure 1	90	100	110	130	100	100	100	100	
	Optional Pressure 2	90	100	110	130	150	160	180	200	
Loss of Cut	Loss of Cut Detection	Off	Off	Off	Off	On	On	On	On	
	Nozzle Reflection	n/a	n/a	n/a	n/a	Low	Low	Low	Low	
	Response Time	n/a	n/a	n/a	n/a	Fast	Fast	Fast	Fast	
DPC	DPC feedrate (ipm)	400	300	275	250	200	160	150	140	
	DPC min power (%)	10	15	15	20	15	15	15	15	
Focus / DAG	Pierce focus ramp	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	
	NF Pierce Focus: From	-0.030	-0.030	-0.040	-0.040	-0.060	-0.090	-0.070	-0.070	
	FF Pierce Focus: From	-0.030	-0.030	-0.035	-0.030	-0.040	-0.040	-0.040	-0.040	
	NF Cut focus	-0.030	-0.030	-0.040	-0.040	-0.060	-0.090	-0.070	-0.070	
	FF Cut focus	-0.030	-0.030	-0.035	-0.030	-0.040	-0.040	-0.040	-0.040	
	DAG; NF Press 1 (psi)	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	DAG; FF Press 1 (psi)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	DAG; NF Press 2 (psi)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	DAG; FF Press 2 (psi)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	
	Focusing lens (inch)	5	5	5	5	5	5	5	5	
	Nozzle tip	080 hc	080 hc	080 hc	080 hc	080 hc	080 hc	080 hc	080 hc	
	Nozzle tip nut	Std	Std	Std	Std	Std	Std	Std	Std	

STAINLESS STEEL

N₂ / Air Assist

N ₂	Thickness (inch)	0.188	0.250	0.375	0.500	Air Assist	0.036	0.048	0.060	0.075	0.105	
	Thickness (gage)	3/16	1/4	3/8	1/2		20	18	16	14	12	
	Parameters											
Pierce	Pierce mode	Fixed	Fixed	Fixed	Fixed		No	No	No	Fixed	Fixed	
	Pierce time (sec)	0.25	0.30	0.50	3.00		0.00	0.00	0.00	0.05	0.05	
	Laser power (Watt)	4000	4000	4000	4000		n/a	n/a	n/a	4000	4000	
	Beam size	175	175	175	175		n/a	n/a	n/a	210	210	
	Frequency (Hz)	2000	2000	2000	500		n/a	n/a	n/a	2000	2000	
	Duty cycle (%)	100	100	100	40		n/a	n/a	n/a	100	100	
	Z hold distance (inch)	0.1	0.1	0.1	0.1		0.1	0.1	0.1	0.1	0.1	
	Standoff ramp: From	0.150	0.150	0.150	0.200		n/a	n/a	n/a	0.100	0.100	
	Standoff ramp: To	0.150	0.150	0.150	0.200		n/a	n/a	n/a	0.100	0.100	
	Assist gas type	N2	N2	N2	N2		n/a	n/a	n/a	Air	Air	
	Assist gas press (psi)	30	30	30	20		n/a	n/a	n/a	65	85	
Pierce Monitor	Beam on time	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	Nozzle Reflection	Med	Med	High	High		n/a	n/a	Med	Med	Med	
Rapid Pierce	Detect pierce thru	Off	On	On	On		n/a	n/a	Off	Off	Off	
	Pierce thru check time	n/a	0.1	0.2	0.5		n/a	n/a	n/a	n/a	n/a	
	Laser power (Watt)	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	Standoff (inch)	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	Pierce time (sec)	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	Cool time (sec)	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	Airblast off time (sec)	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	Airblast on time (sec)	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	Assist gas press (psi)	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
Ramped	Step 0 (Time / Power)	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	Step 1	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	Step 2	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	Step 3	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	Cooling	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
Cutting	Laser power (Watt)	4000	4000	4000	4000		4000	4000	4000	4000	4000	
	Frequency (Hz)	2000	2000	2000	2000		2000	2000	2000	2000	2000	
	Duty cycle (%)	100	100	100	100		100	100	100	100	100	
	Feedrate (ipm)	110	85	40	25		900	800	700	380	300	
	Pre-cut dwell (sec)	0.00	0.00	0.10	0.20		0.00	0.00	0.00	0.00	0.00	
	Kerf width (inch)	0.011	0.012	0.015	0.018		0.008	0.008	0.008	0.008	0.008	
	Power burst time (sec)	0.10	0.10	0.10	0.10		0.05	0.05	0.05	0.05	0.05	
	Beam size	175	175	175	175		190	190	200	210	210	
	Dynamic pwr control	On	On	Off	Off		On	On	On	On	On	
	Dynamic assist gas	Off	Off	Off	Off		Off	Off	Off	Off	Off	
	Standoff (inch) [NC]	0.150	0.150	0.150	0.200		0.035	0.035	0.035	0.035	0.035	
	Optional standoff (inch)	0.025	0.025	0.025	0.025		0.035	0.035	0.035	0.035	0.035	
	Assist gas type	N2	N2	N2	N2		Air	Air	Air	Air	Air	
	Assist gas Pressure 1	70	70	50	60		55	65	65	65	85	
	Optional Pressure 2	180	220	230	320		55	65	65	65	85	
Loss of Cut	Loss of Cut Detection	On	On	On	On		Off	Off	Off	On	On	
	Nozzle Reflection	High	High	High	High		n/a	n/a	n/a	Low	Low	
	Response Time	Fast	Slow	Slow	Slow		n/a	n/a	n/a	Fast	Fast	
DPC	DPC feedrate (ipm)	75	60	n/a	n/a		700	600	500	350	300	
	DPC min power (%)	55	55	n/a	n/a		20	20	20	10	5	
Focus / DAG	Pierce focus ramp	0.000	0.000	0.000	0.000		0.000	0.000	0.000	0.000	0.000	
	NF Pierce Focus: From	-0.170	-0.220	-0.080	-0.200		0.000	-0.020	-0.020	-0.010	-0.020	
	FF Pierce Focus: From	-0.140	-0.160	-0.200	-0.200		0.000	-0.020	-0.020	-0.010	-0.020	
	NF Cut focus	-0.170	-0.220	-0.080	-0.200		0.000	-0.020	-0.020	-0.010	-0.020	
	FF Cut focus	-0.140	-0.160	-0.200	-0.200		0.000	-0.020	-0.020	-0.010	-0.020	
	DAG; NF Press 1 (psi)	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	DAG; FF Press 1 (psi)	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	DAG; NF Press 2 (psi)	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	DAG; FF Press 2 (psi)	n/a	n/a	n/a	n/a		n/a	n/a	n/a	n/a	n/a	
	Focusing lens (inch)	7.5	7.5	10	10		5	5	5	5	5	
	Nozzle tip	100 cfn	100 cfn	125 sp	160 sp		060 hc	060 hc	060 hc	060 hc	060 hc	
	Nozzle tip nut	Std	Std	Std	Std		Std	Std	Std	Std	Std	

ALUMINUM

N₂ Assist

N ₂	Thickness (inch)	0.020	0.032	0.050	0.063	0.080	0.090	0.100	0.125	0.190	0.250	0.375	0.5
	Thickness (gage)								1/8	3/16	1/4	3/8	1/2
	Parameters												
Pierce	Pierce mode	No	No	No	No	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed	Fixed
	Pierce time (sec)	0.00	0.00	0.00	0.00	0.05	0.05	0.10	0.10	0.50	1.00	4.00	5.00
	Laser power (Watt)	n/a	n/a	n/a	n/a	4000	4000	4000	4000	4000	4000	4000	4000
	Beam size	n/a	n/a	n/a	n/a	165	165	165	165	165	165	170	170
	Frequency (Hz)	n/a	n/a	n/a	n/a	2000	2000	2000	2000	35	35	35	35
	Duty cycle (%)	n/a	n/a	n/a	n/a	100	100	100	100	70	80	80	80
	Z hold distance (inch)	0.0	0.0	0.0	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.2
	Standoff ramp: From	n/a	n/a	n/a	n/a	0.150	0.150	0.150	0.150	0.150	0.150	0.200	0.200
	Standoff ramp: To	n/a	n/a	n/a	n/a	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.200
	Assist gas type	n/a	n/a	n/a	n/a	N2	N2	N2	N2	N2	N2	O2	O2
	Assist gas press (psi)	n/a	n/a	n/a	n/a	30	30	30	30	30	30	20	20
Pierce Monitor	Beam on time	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Nozzle Reflection	n/a	n/a	n/a	n/a	Med	Med	Med	Med	Med	High	High	High
	Detect pierce thru	n/a	n/a	n/a	n/a	Off	Off	Off	Off	On	On	On	On
	Pierce thru check time	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	0.3	0.3	0.8	0.8
Rapid Pierce	Laser power (Watt)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Standoff (inch)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Pierce time (sec)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Cool time (sec)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Airblast off time (sec)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Airblast on time (sec)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Assist gas press (psi)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Ramped	Step 0 (Time / Power)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Step 1	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Step 2	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Step 3	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Step 4	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Step 5	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Step 6	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Cooling	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Loss of Cut Detection	Laser power (Watt)	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000	4000
	Frequency (Hz)	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000	2000
	Duty cycle (%)	100	100	100	100	100	100	100	100	100	100	100	100
	Feedrate (ipm)	900	700	500	450	340	270	230	160	105	70	40	24
	Pre-cut dwell (sec)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.30	0.30	0.50	0.50
	Kerf width (inch)	0.007	0.007	0.008	0.008	0.008	0.008	0.009	0.009	0.01	0.01	0.011	0.012
	Power burst time (sec)	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.1	0.1	0.1	0.1	0.1
	Beam size	180	175	175	175	165	165	165	165	165	165	180	180
	Dynamic pwr control	on	on	on	on	on	on	on	on	on	on	off	off
	Dynamic assist gas	off	off	off	off	off	off	off	off	off	off	off	off
	Standoff (inch) [NC]	0.025	0.025	0.025	0.025	0.150	0.150	0.150	0.150	0.150	0.150	0.150	0.200
	Optional standoff (inch)	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025	0.025
	Assist gas type	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2	N2
	Assist gas Pressure 1	50	70	70	85	30	30	50	50	30	50	30	30
	Optional Pressure 2	50	70	70	85	100	120	120	130	135	140	175	175
	Loss of Cut Detection	Off	Off	Off	On	On	On	On	On	On	On	On	On
	Nozzle Reflection	n/a	n/a	n/a	Med	Med	Med	Med	Med	Med	High	High	High
	Response Time	n/a	n/a	n/a	Fast	Fast	Fast	Fast	Fast	Fast	Fast	Fast	Fast
DPC	DPC feedrate (ipm)	700	500	450	400	340	250	230	140	85	50	n/a	n/a
	DPC min power (%)	30	30	30	30	30	30	30	50	75	50	n/a	n/a
Focus / DAG	Pierce focus ramp	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	-0.100	-0.250
	NF Pierce Focus: From	-0.045	-0.060	-0.060	-0.080	-0.070	-0.090	-0.110	-0.120	-0.150	-0.170	-0.250	-0.200
	FF Pierce Focus: From	-0.010	-0.030	-0.030	-0.050	-0.040	-0.050	-0.085	-0.070	-0.090	-0.150	-0.250	-0.200
	NF Cut focus	-0.045	-0.060	-0.060	-0.080	-0.070	-0.090	-0.110	-0.120	-0.150	-0.170	-0.200	-0.250
	FF Cut focus	-0.010	-0.030	-0.030	-0.050	-0.040	-0.050	-0.085	-0.070	-0.050	-0.150	-0.150	-0.180
	DAG; NF Press 1 (psi)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	DAG; FF Press 1 (psi)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	DAG; NF Press 2 (psi)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	DAG; FF Press 2 (psi)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Focusing lens (inch)	5	5	5	5	5	5	5	5	7.5	7.5	10	10
	Nozzle tip	060 hc	060 hc	060 hc	060 hc	080 hc	080 hc	080 hc	080 hc	100 LS	125 sp	125 sp	125 sp
	Nozzle tip nut	Std	Std	Std	Std	Std	Std	Std	Std	Std	Std	Std	Std

ALUMINUM

Air Assist

	Thickness (inch)			0.020	0.032	0.050	0.063	0.080	0.090					
	Thickness (gage)													
	Parameters													
Pierce	Pierce mode			No	No	Fixed	Fixed	Fixed	Fixed					
	Pierce time (sec)			0.00	0.00	0.01	0.02	0.03	0.05					
	Laser power (Watt)			n/a	n/a	2000	2000	2000	2000					
	Beam size			n/a	n/a	180	180	175	175					
	Frequency (Hz)			n/a	n/a	2000	2000	2000	2000					
	Duty cycle (%)			n/a	n/a	100	100	100	100					
	Z hold distance (inch)			0.0	0.0	0.1	0.1	0.1	0.1					
	Standoff ramp: From			n/a	n/a	0.080	0.080	0.080	0.080					
	Standoff ramp: To			n/a	n/a	0.080	0.080	0.080	0.080					
	Assist gas type			n/a	n/a	Air	Air	Air	Air					
Pierce Monitor	Assist gas press (psi)			n/a	n/a	30	30	30	30					
	Beam on time			n/a	n/a	n/a	n/a	n/a	n/a					
	Nozzle Reflection			n/a	n/a	n/a	n/a	n/a	n/a					
	Detect pierce thru			n/a	n/a	n/a	n/a	Off	Off					
Rapid Pierce	Pierce thru check time			n/a	n/a	n/a	n/a	n/a	n/a					
	Laser power (Watt)			n/a	n/a	n/a	n/a	n/a	n/a					
	Standoff (inch)			n/a	n/a	n/a	n/a	n/a	n/a					
	Pierce time (sec)			n/a	n/a	n/a	n/a	n/a	n/a					
	Cool time (sec)			n/a	n/a	n/a	n/a	n/a	n/a					
	Airblast off time (sec)			n/a	n/a	n/a	n/a	n/a	n/a					
	Airblast on time (sec)			n/a	n/a	n/a	n/a	n/a	n/a					
	Assist gas press (psi)			n/a	n/a	n/a	n/a	n/a	n/a					
Cutting	Ramped Pierce			No	No	No	No	No	No					
	Laser power (Watt)			4000	4000	4000	4000	4000	4000					
	Frequency (Hz)			2000	2000	2000	2000	2000	2000					
	Duty cycle (%)			100	100	100	100	100	100					
	Feedrate (ipm)			900	750	525	475	300	275					
	Pre-cut dwell (sec)			0.00	0.00	0.00	0.00	0.00	0.00					
	Kerf width (inch)			0.007	0.007	0.008	0.008	0.008	0.008					
	Power burst time (sec)			0.05	0.05	0.05	0.05	0.05	0.05					
	Beam size			180	180	180	180	175	175					
	Dynamic pwr control			on	on	on	on	on	on					
	Dynamic assist gas			off	off	off	off	off	off					
	Standoff (inch) [NC]			0.035	0.035	0.035	0.025	0.025	0.025					
	Optional standoff (inch)			0.035	0.035	0.035	0.025	0.025	0.025					
	Assist gas type			Air	Air	Air	Air	Air	Air					
	Assist gas Pressure 1			65	65	85	85	100	100					
Loss of Cut	Optional Pressure 2			65	65	85	85	100	100					
	Loss of Cut Detection			Off	Off	Off	On	On	On					
	Nozzle Reflection			n/a	n/a	n/a	Med	Med	Med					
DPC	Response Time			n/a	n/a	n/a	Fast	Fast	Fast					
	DPC feedrate (ipm)			800	700	480	400	275	250					
Focus / DAG	DPC min power (%)			10	15	20	20	20	20					
	Pierce focus ramp			0.000	0.000	0.000	0.000	0.000	0.000					
	NF Pierce Focus: From			-0.035	-0.040	-0.060	-0.060	-0.100	-0.100					
	FF Pierce Focus: From			-0.030	-0.030	-0.040	-0.040	-0.060	-0.070					
	NF Cut focus			-0.035	-0.040	-0.060	-0.060	-0.100	-0.100					
	FF Cut focus			-0.030	-0.030	-0.040	-0.040	-0.060	-0.070					
	DAG; NF Press 1 (psi)			n/a	n/a	n/a	n/a	n/a	n/a					
	DAG; FF Press 1 (psi)			n/a	n/a	n/a	n/a	n/a	n/a					
	DAG; NF Press 2 (psi)			n/a	n/a	n/a	n/a	n/a	n/a					
	DAG; FF Press 2 (psi)			n/a	n/a	n/a	n/a	n/a	n/a					
Nozzle tip	Focusing lens (inch)			5	5	5	5	5	5					
	Nozzle tip			060 hc	060 hc	060 hc	060 hc	060 hc	060 hc					
	Nozzle tip nut			Std	Std	Std	Std	Std	Std					