Fiber laser cutting comparison table

Note: Due to differences in various equipment configurations and cutting processes (machine tools, water cooling, environment, cutting gas nozzles, gas pressure, etc.) used by different customers, this data is for reference only;

Material	Thickness（mm)	Gas type	500W	1000W	1500W	2000W	3000W	4000W	6000W	8000W	10000W	15000W
			Speed(m/min)									
Stainless steel	1	N_2	10	13	25	28	35	40	60	62	63	68
	2	N_2	3	6	8	10	13	17-20	25-30	35	42	50
	3	N_2	0.7	3	4	5-6	8	11-12	13-18	24	33	35
	4	N_2		1.0-1.5	2	3	5	6.5-7.5	12	15	27	29
	5	N_2		0.5	1.1	2	3	4-5	8	10	18	22
	6	N_2			0.8	1	1.5	2-3	5-6.5	8	15	18
	8	N_2				0.6	1	1.5-2	3.5-4.5	5	10	12
	10	N_2					0.8	1.2	2.1	3.5	6.5	9
	12	N_2						0.8	1.1	2.5	4.5	7
	14	N_2							0.9	2	3	4.2
	16	N_2							0.6	1	2	2.8
	18	N_2							0.5	0.8	1.2	2.3
	20	N_2							0.3	0.6	1	2
	25	N_2								0.4	0.6	1.1
	30	N_2									0.2	0.7
	40	N_2										0.4
	50	N_2										0.2
Stainless steel	1	Air	8	10-13	25	28	35	40	55	58	60	65
	2	Air	2	4.5-5.5	6-7	11	13	17-20	25-30	35	37	40
	3	Air	0.6	2-2.4	4	5-6.5	8	10-11	12-15	25	26	32
	4	Air		1-1.5	2	3	5	6.5-7.5	7.5-9	16	25	28
	5	Air		0.5	1.1	2	3	4-5	6-7.5	10	16	20
	6	Air			0.8	1	1.5	2-3	5-6.5	8	12	16
	8	Air				0.5	1	1.5-2	3.5-4.5	5.5	9	11
	10	Air					0.8	1.2	2.1	3.5	6	9
	12	Air						0.8	1.1	2.5	4	6.5
	14	Air							0.9	1.8	2	4
	16	Air							0.6	1	1.8	3.1
	18	Air							0.5	0.8	1.5	2.3
	20	Air							0.3	0.7	1.2	2
	25	Air								0.5	0.8	1.3
	30	Air								0.3	0.4	0.9
	40	Air										0.5
	50	Air										0.3
carbon steel	3	O_2	2	3.3	3.5	3.8	4.2	4.5	3.6-4.8			
	4	O_2	1.5	2	2.5	3.1	3.5	3.6	3.3-3.8			
	5	O_2	1.2	1.6	2	2.2	3	3.2	3-3.6			
	6	O_2	0.9	1.4	1.8	2	2.5	2.8	2.7-3.2			
	8	O_2		1.1	1.3	1.4	2	2.3	2.2-2.5			

	10	O_2		0.9	1.1	1.2	1.4	1.8	2.1	2.2	2.3	2.6
	12	O_2		0.7	0.9	1	1.2	1.25	1.3	1.5	1.8	2.2
	14	O_2			0.6	0.7	0.9	1	1.1	1.4	1.6	2
	16	O_2			0.5	0.6	0.8	0.9	1	1.3	1.4	1.7
	18	O_2				0.5	0.7	0.8	0.9	1.2	1.3	1.55
	20	O_2				0.4	0.6	0.7	0.8	1.1	1.2	1.5
	22	O_2					0.5	0.55	0.6	0.65	1	1.4
	25	O_2						0.5	0.55-0.6	0.45	0.75	1.2
	30	O_2							0.2	0.25	035	0.8
	40	O_2								0.18	0.3	0.45
	50	O_2										0.3
	60	O_2										0.2
carbon steel	1	Air	7-8	9-12	25-28	27-30	35	43	40-45	42-45	40-60	60-80
	2	Air	4-5	6-8	8-9	10-11	13	20	30-35	30-35	35-40	45-48
	3	Air		2	6	8	11.5	15	18	20-25	30-35	35-38
	4	Air						15-16	17	15-18	18-22	26-29
	5	Air							9	10-12	12-16	20-23
	6	Air							6	8-12	10-13	17-19
	8	Air								5-5.5	6-8	10-12
	10	Air									4-5	7-8.5
	12	Air										5-6
	14	Air										4.5-5.5
	16	Air										3-3.5
aluminum	2	Air	1.5-2	4-4.5	6	7.5	11	20	25-30			
	3	Air		1-1.5	3	4	7	13	15			
	4	Air			0.8-1	1.5	4	6	10			
	5	Air				0.9	1.5	3	8			
	6	Air					1	2	5.5			
	8	Air					0.5	1	2.5			
	10	Air						0.8	1.3			
	12	Air							0.9			
Aluminum alloy	1	N_2	7-8	12-13	15	17-18	32	35-37	40	45	48	60
	2	N_2	1.5-2	4-4.5	6	7.5	11	15	25-30	32	35	50
	3	N_2		1-1.5	3	4	7	8-9	15	17	25	40
	4	N_2			0.8-1	2	4	6	10	15	20	35
	5	N_2				1	1.5	3	8	10	15	26
	6	N_2					0.7	2	5.5	7	11	16
	8	N_2						1	2.5	4	7	10
	10	N_2						0.8	1.3	2.5	4	5.5
	12	N_2							0.9	2	2.6	4.5
	14	N_2								1.2	1.5	3.4
	16	N_2								1	1.4	2.1
	18	N_2								0.8	1.2	1.8
	20	N_2								0.6	1	1.4
	25	N_2								0.5	0.6	0.9
	30	N_2								0.3	0.4	0.7

	40	N_2									0.2	0.35
	50	N_2										0.2
brass	1	Air	5	10	12	15	30	30-35	65-70			
	2	Air	1	3	5	6	10	13	20-25			
	3	Air		0.5	2	3	5	7	10			
	4	Air			0.8-1	1.5	3	5	6			
	5	Air				0.5	1.5	2	3			
	6	Air					0.8	1.5	2			
	8	Air						0.8	1.2			
	10	Air							0.5			
brass	1	N_2	5	10	15	18	26	28	30	43	45	50
	2	N_2	1	3	5	6	12	15	20-25	27	35	40
	3	N_2		0.5	2	3	5	8	10	18	22	32
	4	N_2			1	1.3	3	5	7	11	18	28
	5	N_2				0.8	2	3	5.5	8	15	20
	6	N_2				0.4	1.3	2.5	4	6.5	10	14
	8	N_2					0.6	1	1.5	3	7	8
	10	N_2						0.6	0.7	1.5	4.5	5.5
	12	N_2							0.5	1	2.2	3.2
	14	N_2								0.8	1.1	2.7
	16	N_2								0.6	1	1.5
	18	N_2										1.1
	20	N_2										0.6
Copper	1	O_2								30	32	40
	2	O_2								20	23	30
	3	O_2								14	16	28
	4	O_2								8	10	20
	5	O_2								5	7	15
	6	O_2								3	4	10
	8	O_2								1.5	2	6
	10	O_2								0.7	1	2

Note: The parameters in the table are proofing parameters, which are greatly affected by various factors in actual processing. They are only suitable for testing small batch production and are not recommended for mass production and processing.