



DIODE LASER

Cheat Sheet



QUICK REFERENCE FOR CLEAN, CONSISTENT RESULTS

BEST USES

- ✓ Ornaments
 - ✓ Shelf Sitters
 - ✓ Name Signs
 - ✓ Simple Door Hangers
 - ✓ Interchangeables
-
- ✗ Heavy engraving projects
 - ✗ Intricate filigree
 - ✗ Production runs of thick material



STARTING CUT SETTINGS

These are starting points. Always test your material!

3MM BASSWOOD	OPERATION	POWER	SPEED (mm/sec)	PASSES
	CUT	100%	6 - 10	2 - 3
	SCORE	25%	50	1
	ENGRAVE	20 - 30%	80 - 150	1

1/8" MDF	OPERATION	POWER	SPEED (mm/sec)	PASSES
	CUT	100%	4 - 8	2 - 4
	SCORE	25%	50	1
	ENGRAVE	20 - 30%	80 - 150	1

1/8" BIRCH	OPERATION	POWER	SPEED (mm/sec)	PASSES
	CUT	100%	5 - 9	2 - 4
	SCORE	25%	50	1
	ENGRAVE	20 - 30%	80 - 150	1

Glue pockets in birch may require extra passes.

TROUBLESHOOTING

✗ WON'T CUT THROUGH

- Re-focus laser
- Clean lens
- Verify air assist
- Slow speed by 20%
- Add another pass
- Check material flatness



🔥 EXCESSIVE CHARRING

- Increase air assist
- Raise material off honeycomb
- Clean honeycomb bed
- Use masking tape
- Use faster speed with more passes



☁️ SMOKE STAINS

- Improve exhaust
- Use masking
- Raise material
- Clean lens
- Use better-quality material



PRODUCTION RULES

✓ USE THESE

- Large paintable shapes
- Thick connected lettering
- 1/8" materials
- Minimal engraving
- Low layer count

✗ AVOID THESE

- Tiny script fonts
- Thin swirls
- Heavy engraving
- Hundreds of small pieces
- 1/4" MDF production runs

PRE-CUT CHECKLIST

- Lens clean
- Air assist working
- Material flat
- Correct focus
- Material test complete
- Preview checked
- One sample cut completed



PRO TIP

A 10W diode is excellent for paint party projects if you *design for the machine.*

Large paintable shapes, thick lettering, and minimal engraving will produce better results, faster cuts, and happier customers.



STARTING POINTS ONLY.

Material density, focus, air assist, lens cleanliness, and machine wattage all affect results. Always run a material test before production.



20W DIODE LASER CHEAT SHEET



QUICK REFERENCE FOR CLEAN, CONSISTENT RESULTS



BEST FOR

- Ornaments
- Signs & Wall Art
- Home Decor
- Layered Projects
- Small Business Production



MATERIAL RANGE

- Cuts up to 1/4" MDF & plywood
- Engraves most woods, leather, acrylic & more



KEY TO SUCCESS

- Proper focus
- ✓ Clean lens
- ✓ Good air assist
- ✓ Test your material



REMEMBER

These are starting points. Every material & machine is different. Always test before production.

STARTING CUT SETTINGS

3MM BASSWOOD	OPERATION	POWER	SPEED (mm/sec)	PASSES	NOTES
	CUT	100%	10 - 18	1 - 2	Clean cut with air assist
	SCORE	30%	60	1	For fold lines or detail
	ENGRAVE	20 - 40%	150 - 250	1	Adjust for depth & darkness

1/8" MDF	OPERATION	POWER	SPEED (mm/sec)	PASSES	NOTES
	CUT	100%	8 - 14	1 - 2	Most 1/8" MDF cuts in 1-2 passes
	SCORE	30%	60	1	For easy folding & clean lines
	ENGRAVE	20 - 40%	150 - 250	1	Higher power for deeper engrave

1/4" PLYWOOD	OPERATION	POWER	SPEED (mm/sec)	PASSES	NOTES
	CUT	100%	6 - 10	2 - 3	May vary by brand & glue quality
	SCORE	30%	60	1	Helps for clean breaks
	ENGRAVE	20 - 40%	150 - 250	1	Test small area for best results

★ SPEEDS ARE GUIDELINES, ADJUST UP OR DOWN BASED ON YOUR MATERIAL & RESULTS.

TROUBLESHOOTING



WON'T CUT THROUGH

- Re-check focus
- Clean the lens
- Verify air assist is on
- Slow speed by 20%
- Add another pass
- Check material flatness



EXCESSIVE CHARRING

- Increase air assist
- Raise material off honeycomb
- Clean honeycomb bed
- Use masking tape
- Use faster speed with more passes



SMOKE STAINS / RESIDUE

- Improve exhaust/ventilation
- Use masking
- Raise material
- Clean lens
- Use higher quality material



PRODUCTION RULES



USE THESE

- 1/8" - 1/4" materials
- Layered projects
- Detailed cut files
- Deep engraving
- Small business runs
- Signs & home decor



AVOID THESE

- Extremely fine details
- Mass production of thick materials
- Low quality MDF
- No air assist
- Skipping test cuts

PRE-CUT CHECKLIST

- Lens clean
- Air assist working
- Material flat
- Correct focus
- Material test complete
- Preview checked
- One sample cut completed



PRO TIP



A 20W diode laser is the sweet spot for most crafters and small business owners.

Great speed, clean cuts, and ability to handle thicker materials!

Design for your machine and your results will shine.



STARTING POINTS ONLY.

Material density, focus, air assist, lens cleanliness, and machine wattage all affect results. Always run a material test before production.



40W DIODE LASER CHEAT SHEET



QUICK REFERENCE FOR CLEAN, CONSISTENT RESULTS



BEST FOR

Signs & Wall Art
Home Decor
Layered Projects
Small Business Production
Thicker Materials



MATERIAL RANGE

Cuts up to 3/8" MDF & 1/4" plywood
Engraves most woods, leather, acrylic, coated metals & more



KEY TO SUCCESS





- Proper focus
- ✓ Clean lens
- ✓ Strong air assist
- ✓ Test your material



REMEMBER

These are starting points.
Every material & machine is different.
Always test before production.
Adjust based on your results.

STARTING CUT SETTINGS

	OPERATION	POWER	SPEED (mm/sec)	PASSES	NOTES
3MM BASSWOOD 	CUT	100%	18 - 28	1	Clean cut with air assist
	SCORE	30%	80	1	For fold lines or detail
	ENGRAVE	20 - 40%	200 - 400	1	Adjust for depth & darkness
1/8" MDF 	CUT	100%	12 - 20	1	Most 1/8" MDF cuts in 1 pass
	SCORE	30%	80	1	For easy folding & clean lines
	ENGRAVE	20 - 40%	180 - 350	1	Higher power for deeper engrave
1/4" PLYWOOD 	CUT	100%	8 - 14	1 - 2	May vary by brand & glue quality
	SCORE	30%	80	1	Helps for clean breaks
	ENGRAVE	20 - 40%	180 - 350	1	Test small area for best results
1/4" MDF 	CUT	100%	10 - 16	1 - 2	Use 2 passes for perfect clean edge
	SCORE	30%	80	1	Helps for assembly
	ENGRAVE	20 - 40%	180 - 350	1	Slower speed for deeper contrast

★ SPEEDS ARE GUIDELINES. ADJUST UP OR DOWN BASED ON YOUR MATERIAL, FOCUS, & DESIRED RESULTS.



WON'T CUT THROUGH

- Re-check focus
- Clean the lens
- Verify air assist is strong
- Slow speed by 15-20%
- Add another pass
- Check material flatness



EXCESSIVE CHARRING

- Increase air assist
- Raise material off honeycomb
- Clean honeycomb bed
- Use masking tape
- Use faster speed with fewer passes



SMOKE STAINS / RESIDUE

- Improve exhaust/ventilation
- Use masking
- Raise material
- Clean lens
- Use higher quality material



PRODUCTION RULES



USE THESE

- ✓ 1/8" - 1/4" materials
- ✓ Layered signs
- ✓ Detailed cut files
- ✓ Deep engraving
- ✓ Batch production
- ✓ Home decor & gifts



AVOID THESE

- ✗ Extremely fine details
- ✗ Mass production of thick materials
- ✗ Low quality MDF
- ✗ No air assist
- ✗ Skipping test cuts

PRE-CUT CHECKLIST

- Lens clean
- Air assist working
- Material flat
- Correct focus
- Material test complete
- Preview checked
- One sample cut completed



PRO TIP

A 40W diode laser gives you the power to cut thicker materials and run faster with cleaner results.
Great speed, strong cuts, beautiful detail.
Dial in your settings, design with confidence, and let your creativity shine!



STARTING POINTS ONLY.

Material density, focus, air assist, lens cleanliness, and machine wattage all affect results. Always run a material test before production.