THE NEON TRADE

Materials & Tools Cheat Sheet

Everything used across the 26 lessons, with the sizes the shops actually call out. Print it, take it to the supplier.

Sheet & board

What	Size used in the lessons	What it is for
Foamed PVC (Sintra)	3 mm and 5 mm	Letter returns and bodies. 3 mm bends easier; 5 mm gives a deeper letter but is harder round tight curves.
Acrylic	3 mm	Faces, and the whole body on a light box.
High-impact polystyrene (HIPS)	0.5–1 mm	Glossy faces over foam letters. Thin enough to cut on a vinyl cutter instead of a laser.
Sheet metal	18 gauge (1.2 mm)	Heavy channel letters that travel. Rusts — needs primer inside and out.
Polystyrene sheet	to internal size	Back panel on a light box.
Backlit banner	13 oz	Stretched face on a street-facing light box.
Black adhesive vinyl	—	Blocking light on the sides you do not want lit.

Laser bed size. The CO2 laser in the lessons takes sheets up to 90 × 120 cm (about 35 × 47 in). Worth knowing before you design a letter you cannot cut.

Lighting

What	Spec	Notes
LED neon flex	12 V	All the neon work runs on 12 V. It has polarity: backwards, it will not light.
LED strip 2835	120 LEDs per metre	Used inside channel letters. Very bright output.
LED strip 3528	3.5 × 2.8 mm	The number is the chip size. Count the LEDs in 10 cm to identify a strip: 6 in 10 cm is one type.
RGB strip	12 V, 4 wires	Marked +12, G, R, B. Cut only on the copper pads.
LED module (3-point)	12 V	For light boxes. Two or four per box depending on how even you want it.

Power

What	Spec	Notes
Plug-in adaptor	12 V, 1–2 A	Enough for a small sign. Measure the draw first — see the Wiring & Power Pack.
Bench supply	12 V, 20 A or 30 A	For bigger jobs. Terminals marked L, N and earth, plus three positives and three negatives.
Computer PSU (repurposed)	yellow +12 V / 25 A	Red +5 V / 30 A · orange +3.3 V / 12 A · blue −12 V / 0.8 A · purple +5 V / 2 A. Bridge the green wire to any black to switch it on.
Sealed battery	12 V, 4.5 Ah	Only if mains is impossible. The lessons do not recommend batteries: chemicals indoors.

Cable & fixings

What	Size	What it is for
Cable to the strips	22 gauge	Fine for feeding one full 5 m strip.
Feed cable	12–14 gauge	The heavy run from the supply. Pick a gauge rated above your total draw.
Twin flex + plug	1–3 m	Mains lead for a bench supply.
Galvanised wire	gauge 10 or 12	Standoff legs. It has to be galvanised — plain wire rusts.
Aluminium profile	3/4 inch	Corner trim on a light box, mitred at 45°.
Cable ties	every ~50 cm	Holding neon hose that has no adhesive backing.

Adhesives

What	Grade	What it is for
Cyanoacrylate	penetrating (thin, water-like)	Bonding PVC returns. It has to be the runny grade so it wicks into the joint — not the thick gel.
Cyanoacrylate activator	—	Speeds the first few centimetres so you can let go and keep working.
Methylene chloride	—	Welding acrylic to acrylic on a light box.
Spray adhesive	3M Super 77	Sticking HIPS faces onto foam

What	Grade	What it is for
		letters. Both faces, let it go tacky.
Contact adhesive	high-tack	Bonding banner to a light box frame. 20 minutes to dry.
Automotive filler	—	Taking up joints on sheet metal letters before paint.

Paint & finish

What	Spec	Notes
Universal primer	automotive	On sheet metal, inside and out. Skip the inside and it rusts from within.
Polyurethane paint	two-pack, with hardener	Hard, fast-drying, high gloss. Budget generously: the festival job took nearly 12 litres per colour against 8 planned.
Vinyl wrap	—	Over PVC. This is what gives it UV resistance — bare PVC yellows and dries out.

Tools

Tool	Spec	Used for
Angle grinder	1.2 mm cutting disc	Cutting sheet metal letters by hand.
Flap discs	60 and 80 grit	Dressing welds. One job went through about 10.
MIG welder	0.9 mm wire	Tack every 1.5–2 cm for a rigid letter.
Heat gun	—	Bending PVC curves. Heat more from the inside so you do not blister the vinyl.
Strip heater / bending jig	—	Sharp corners. One of the shops built his own from a curling iron.
Utility knife	—	Scoring and snapping. Little blade out, cut square.
Soldering iron	30 W, fine tip	Strips and modules. A 15 W also appears in the lessons.
Multimeter	10 A range	Measuring current draw. A 200 mA-only meter will burn out.
Vinyl cutter	max pressure	Scoring HIPS without going through.
CO2 laser	bed 90 × 120 cm	Acrylic and PVC. Optional — most jobs here are done without one.

Tool	Spec	Used for
Syringe needle	tip snapped flat	Fitted to the glue bottle so it runs a controlled bead instead of flooding.
Round- and flat-nose pliers	—	Forming standoff legs.
Square, rule, pencil	—	Marking before every bend.

You do not need the laser to start. Of the 26 lessons, only a few use one. The rest are done with a grinder, a heat gun, a utility knife and a vinyl cutter.