

# Heat Sink RFQ Checklist

P&A International — extruded, bonded-fin, die-cast & heat-pipe heatsinks · [www.pa-international.com.au](http://www.pa-international.com.au)

Share as much of this as you can and we will return a proposed thermal design and indicative pricing, typically within 48 hours. A drawing, reference part or competitor sample is just as welcome as a full specification.

## 1. Thermal requirement

- Power to dissipate (W) and heat-source size/location (die or component footprint, mm)
- Maximum allowable component/case temperature and ambient temperature range
- Target thermal resistance ( $^{\circ}\text{C}/\text{W}$ ) if already calculated
- Cooling mode: natural convection, forced air (airflow in CFM), or liquid

## 2. Construction & envelope

- Preferred type if known: extruded, skived, bonded-fin, folded-fin, die-cast, forged, or heat-pipe assembly
- Mechanical envelope: max height, footprint, fin direction, mounting method and keep-outs
- Base flatness / interface requirement (TIM, gap pad, direct contact)
- Any embedded heat pipes or vapor chamber for high heat-flux spreading

## 3. Finishing & integration

- Surface finish: black anodise, clear anodise, chromate, painting, masking
- Machining: tapped holes, counterbores, flatness/parallelism tolerances
- Assembly: fans, clips, brackets, TIM pre-applied, kitting

## 4. Project & commercial

- Application and environment (LED luminaire, telecom, drive, power supply, consumer device...)
- Annual volume or call-off pattern, and target unit cost
- Sample quantity needed — free off-tool samples are provided before mass production
- Compliance / test needs: RoHS, REACH, thermal validation

Email this checklist with your drawing to [support@pa-international.com.au](mailto:support@pa-international.com.au) or use the quote form on the page. One dedicated engineer reviews every enquiry.

# Heat Sink Selection — Quick Reference

Which manufacturing process for which design

## Process by fin density & cost

Process	Best for	Watch out for
Extrusion	Low-to-mid cost, long straight fins, large volumes	Fin aspect ratio limited (~16:1); width capped by die/press
Skived	Very high fin density from a single billet, good base contact	Higher cost; fin fragility at extreme density
Bonded fin	Tall, dense fins and large footprints beyond extrusion limits	Thermal interface at the bond; cost
Die-cast	Complex 3D shapes, integrated features, high volume	Lower thermal conductivity alloy than 6063; tooling cost
Forged	Round / pin-fin LED coolers, dense pins	Tooling cost; geometry constraints

## Design factors

Decision	Rule of thumb
Natural vs forced	Natural convection needs more fin area and vertical fin orientation; forced air allows denser fins — state your airflow.
Fin orientation	Fins must run along the airflow / vertically for buoyancy; tell us the mounting orientation.
Spreading	Large footprint + small hot source → add heat pipes or a vapor chamber to move heat across the fin field.
Interface	Base flatness and the thermal interface material often matter as much as the fin design — specify both.
Weight	Extrusion and skived in 6063 give the best W/g; die-cast adds features at a conductivity trade-off.

How we work: P&A International is an engineering-led contract manufacturer. One dedicated engineer designs your part, free off-tool samples with quality-assessment reports are provided before mass production, and volume is produced through our vetted partner-factory network — every supplier is ISO 9000 certified or better.