

AWG Wire Gauge Reference, 32 to 12 AWG

Ref WG-REF-01 | Cross-section conversion, and why ampacity is not in this chart | Last updated 15 September 2026

Cross-section only, on purpose

This sheet converts AWG to conductor cross-section in mm^2 across the range we terminate, 32 through 12 AWG. It deliberately carries no current column. Ampacity depends on the standard you work to, the insulation temperature rating, how many conductors are bundled together and the ambient temperature - a single number printed in a chart like this ends up copied onto drawings where it does not apply. Take ampacity from your governing standard.

AWG to cross-section

AWG	Cross-section (mm^2)	Solid conductor dia. (mm)	Where you see it
32	0.032	0.20	Fine signal leads, small sensor heads
30	0.051	0.25	Light signal, ribbon and discrete wire
28	0.081	0.32	Signal and low-power; a common harness default
26	0.129	0.40	General purpose signal and control
24	0.205	0.51	Small power, LED drivers, common in harnesses
22	0.324	0.64	Control power, solenoid and valve leads
20	0.518	0.81	DC power leads, barrel plug and automotive
18	0.823	1.02	Mains-range power cords and DC distribution
16	1.31	1.29	Heavier DC and single-phase supplies
14	2.08	1.63	Motor and drive feeds inside a cabinet
12	3.31	2.05	Highest we terminate; above this we would discuss a different build

Cross-section and solid diameter follow the AWG definition (ASTM B258). Stranded construction varies by strand count and by supplier, so the finished diameter of a stranded conductor is always larger than the solid figure above - and that finished diameter is what decides cable OD, and therefore whether an overmold seals on it.

Why finished OD matters more than the gauge

Two 18 AWG conductors from different suppliers can finish at noticeably different overall diameters depending on the strand count and the lay. That finished OD is what the overmold has to seal against and what the strain relief has to grip. When replacing a cordset, measure the old cable OD rather than trusting the gauge marking - a replacement half a millimetre off is the usual reason a sealed assembly weeps.

What to state on the drawing

State this	Why
Conductor size in AWG or in mm^2 , not both	Mixed units on one drawing is where mistakes start
Stranding, where it matters	Decides flex life and finished OD
Insulation material and temperature rating	Ampacity and solder behaviour follow from this
Jacket OD range	Overmold sealing and strain relief depend on it
Voltage and current the run actually carries	Lets the conductor be verified rather than assumed
Length and the voltage drop allowed	Long runs are usually limited by drop, not by ampacity

We terminate 32 through 12 AWG on four assembly lines in Longgang, Shenzhen, to IPC-WHMA-A-620 Class 3 under an ISO 9001 quality management system, with continuity and pinout verified on every unit before packing.

Turning this into a drawing line

Every row in this sheet is only useful once it is written down. The drawings we can quote fastest name the conductor size and the finished cable OD along with the mating part, the length and the quantity, and say where a value is mandatory rather than preferred. Where a number is not yet known, write the operating condition instead - the detergent, the depth, the cycle count, the chemical - and we will work back from it.

What we need from you	What you get back
A drawing, sketch or photo of the mating part	A quoted assembly, built to the drawing you send
Length, quantity and the standard you are tested to	Continuity and pinout verified on every unit
Operating conditions where a rating is unclear	A recommendation on material and construction, with the reasoning

Capability, stated plainly

Four assembly lines and around 40 assemblers at our Longgang plant in Shenzhen, roughly a million pieces a year, built to IPC-WHMA-A-620 Class 3 under an ISO 9001 quality management system. Conductors from 32 to 12 AWG. Over 100 sets of tooling made in-house, so an overmold does not have to wait on a toolmaker. Jacketed samples in three working days; series production from MOQ 500 pcs, shipping fourteen working days after sample approval. Send the drawing to hkwirecable.com and we will come back with a quote or a question - not a generic brochure.

Note. General reference only. Electrical ratings, temperature limits and chemical compatibility are not set by any code letter or marking - they come from the connector body, cable compound and overmold geometry named on your drawing. HKWIRE builds and inspects to what your drawing states.