Cable Lugs and Wire-End Ferrules — Sizing, Crimp vs Shear-Bolt, and the Colour-Code Trap

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Reading lug references as conductor-size-slash-stud-hole, when a crimped copper tube lug beats a range-taking shear-bolt connector, why wire-end ferrule colours cannot be trusted across brands (two rival colour systems), twin ferrules, strip lengths and the crimp-tool matching rules.

A lug reference is two numbers

Copper tube lugs are specified conductor cross-section / stud hole: an Elpress KRFN70-8 takes a 70 mm² conductor onto an M8 stud; the KRFN150-10 is 150 mm² onto M10. The KRFN narrow-palm profile exists because switchgear terminal spacing often will not accept two standard palms side by side — same tube, slimmer flag. Crimping rules are the maker's, not folklore: hex die matched to the lug series and size, crimp count per barrel as printed, first crimp nearest the palm.

When nobody brought the crimp tool

Mechanical (shear-bolt) connectors take a range of conductor sizes and need only a socket wrench — the bolts shear off at the designed torque, which is the installation's quality control. The stocked Ensto LV range steps wide: 6–50 mm² on an M12 stud up to 150–300 mm² on M16, all 1 kV class. They are the field-repair and mixed-conductor answer; crimped tube lugs remain the compact, lowest-resistance choice for planned panel work. Over 2,100 lug line items are stocked across Ensto, Elpress and others, sector- and aluminium-conductor types included.

Ferrules: trust the print, never the colour

A wire-end (bootlace) ferrule turns fine-stranded wire into a solid pin for spring and push-in clamps — the companion rule to the terminal-block guide.

The colour trap: two incompatible colour conventions circulate (the DIN 46228-4 and the French system) — blue is 2.5 mm² in one and 0.75 mm² in the other. Mixed-brand stock on one van guarantees a mismatch eventually, so size by the mm² embossed on the collar, full stop.

Twin ferrules land two conductors legally in one clamp — stocked from 2 × 6 mm² up to 2 × 16 mm² — the clean way to loop supply between adjacent terminal points.

Strip length = collar length plus about a millimetre: strands must reach the barrel end without insulation entering the crimp zone.

Crimp profile: square and trapezoid profiles both satisfy the clamp makers; what fails inspections is the plier-flattened ferrule with no profile at all.

Around 480 ferrule line items (singles, twins, insulated collars) sit alongside the lug stock — send the wiring schedule's cross-sections and stud sizes, or photograph the switchgear terminals, and the complete termination bill of materials is quoted within 24 hours.

Frequently asked questions
How do I know what size cable lug I need?Two numbers: the conductor's cross-section in mm² (from the cable, not guessed) and the stud or bolt hole diameter at the termination — a 95 mm² cable onto an M10 stud is simply a 95/10 lug.Are shear-bolt connectors as good as crimped lugs?Electrically they are rated for the job and self-verify torque by shearing; crimped tube lugs win on compactness, lowest resistance and vibration pedigree. Planned builds crimp; repairs and mixed ranges shear.Can I put two wires in one ferrule?Only in a twin ferrule made for it — two conductors of the stated size crimp together into one pin. Doubling wires into a single-wire ferrule under-crimps both.Why do ferrule colours differ between brands for the same mm²?Two rival colour standards exist and brands follow either — the same blue collar can mean 0.75 or 2.5 mm² depending on origin. The embossed size on the collar is the only safe reference.Do ferrules need a special crimping tool?A ferrule crimper with square or trapezoid profile sized to the range — not pliers and not a lug hex tool. Self-adjusting four-mandrel crimpers cover 0.14–10 mm² and remove the die-selection error.

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