# Fixings and fasteners for *metalwork*

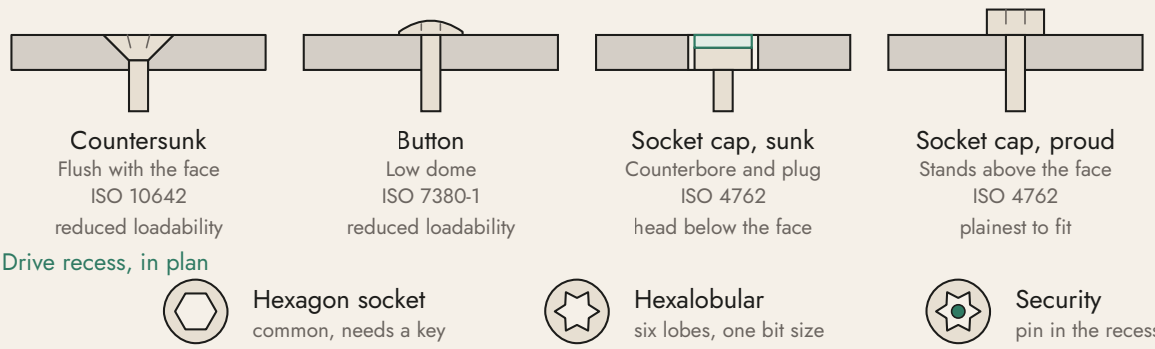
Name stainless fasteners by their ISO 3506 designation, match the fixing to the metal and the environment, isolate different metals, and expect stainless threads to seize or loosen.

Compliance guidance. Classes and designations are read from SCI and BSSA notes on earlier editions of BS EN ISO 3506; the current standard has not been read. Check the current edition, and take engineer's advice for any fixing that carries load, is suspended, forms part of a balustrade or sits in a pool hall. Guidance, not engineering advice.

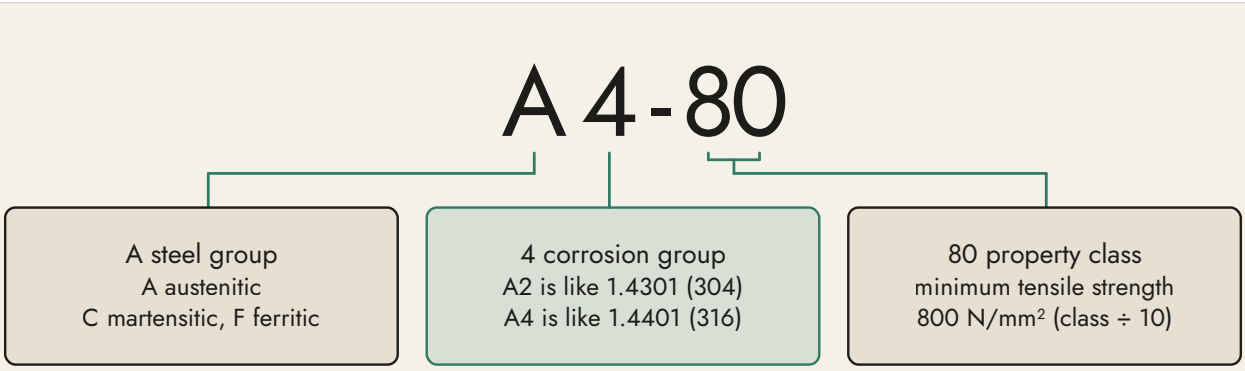
## AT A GLANCE

| Situation | Fixing to specify | Because |
|---|---|---|
| Dry heated interior, no condensation | Almost any metal pair works. A2 stainless is the safe default. | Without a wet film there is no galvanic corrosion (Euro Inox Vol. 10). |
| Visible fixing in stainless metalwork, damp interior or kitchen | A4 (316-type), at least the grade of the stainless it fixes. Stainless fasteners only on stainless panels. | Moist conditions: fastener at least equal in grade (Euro Inox Vol. 1); Vol. 10, Fig. 11. |
| Stainless fixing into aluminium or galvanised steel | Acceptable. Near the sea, keep the crevice drained or isolate. | Virtually no galvanic corrosion, even in corrosive conditions (Euro Inox). |
| Zinc-plated, galvanised or carbon steel fixing into stainless or copper alloy | Avoid wherever it can get damp. | Small anode on a large cathode: poor in Euro Inox Table 7. Galvanised screws rust and stain stainless. |
| Brass, bronze or copper work | Matching copper-alloy fixing, or stainless. Not zinc-plated. | Table 7 rates copper with stainless as good. Brass screws: see the notes below. |
| Coastal or salted-road exterior; pool hall; anything suspended or load-bearing | A4 is a floor for coastal. In a pool hall or under load an engineer names the alloy. | Machined threads add crevice risk (SCI P291). Stress corrosion cracking has failed pool-hall ceilings. |
| Stainless nut on a stainless bolt, tightened hard | Mix grades (A2 with A4) or use a dry-film lubricant. | Galling can seize the thread (BSSA SSAS 5.60, SCI P291). |
| Footrail, handle or stool base that is knocked or vibrates | A locking nut or a removable thread-lock. | Stainless nuts work loose more often than they seize (SCI P291). |

Starting points from Euro Inox, SCI and BSSA guidance, not a design check.




Four head shapes in section and three drive recesses in plan. Original schematic by Make Bespoke Studio, not to scale; the lobed drive is drawn schematically, not to the ISO 10664 profile.




How to read A4-80. After SCI Advisory Desk Note 342 (basis: the 2009 edition of BS EN ISO 3506); check against the current standard. Original drawing by Make Bespoke Studio.

## SPECIFICATION WORDING

### FIXINGS, GENERAL

All fixings in austenitic stainless steel to BS EN ISO 3506-1 and -2 (edition [to be confirmed]): bolts, screws and studs [A4-70], nuts [A4-70], washers [A4]. Grade not lower than the stainless steel fixed. Heads [hexagon socket countersunk, flush with the finished face] at [location]; [button head] at [location]. Drive [hexalobular], one size throughout, [__] bits supplied to the client. Fixings marked with grade and class, with the supplier's certificate. Visible fixings finished [natural / to match adjoining metal]. No substitution without approval.

### ISOLATING DIFFERENT METALS

No carbon steel, zinc-plated or galvanised fixings in contact with stainless steel or copper alloy. Where [stainless steel] is fixed to [aluminium / brass / steel] in a damp or exterior location, isolate with a [polyamide] sleeve, washers under head and nut, and a [gasket] between the parts. Sealant is not isolation. Isolation shown on the shop drawings.

### GALLING, LOCKING AND SECURITY

Stainless on stainless threads: nut and bolt in different grades [A2 / A4], rolled threads, [PTFE dry-film lubricant] applied, torque [set by the fastener supplier]. At [footrails, handles, stool bases] use [prevailing-torque nuts / removable-grade thread-locking adhesive, ref. __]. Security fixings [pin-in hexalobular] at [public-facing locations]; [2] bits in the handover tool kit; spares [__] of each size.

## TERMS USED

**Property class**
The strength grade of a fastener, the second part of a designation such as A4-80. For austenitic stainless fasteners in SCI's note, 50, 70 and 80 mean minimum tensile strengths of 500, 700 and 800 N/mm2.

**Galling**
Cold welding of two metal surfaces sliding under load, which can seize a stainless nut on its bolt.

**Hexalobular drive**
A six-lobed recess for a matching bit, covered by ISO 10664.

## STANDARDS AND SOURCES

- BS EN ISO 3506-1:2020 and ISO 3506-2:2020 (nuts): current; texts not read.
- SCI Advisory Desk Note 342 (basis: 2009 edition); SCI P291 (2001); BSSA SSAS 5.60 (2001)
- Euro Inox Vol. 1 (2005) and Vol. 10 (2009); PD 6484:1979 (not read)
- ISO 4762, ISO 7380-1:2022, ISO 10642, ISO 10664:2014: listings only.

Full guide: https://makebespoke.com/trade/technical/fixings-and-fasteners-for-metalwork. Make Bespoke Studio coordinates manufacture through its partner workshops. Figures are guidance only and your specification governs; some may be superseded, so contact the studio to verify.