Data sheet special bolts — hammer head, thread-forming, weld studs, shear-off, precision screws

This category groups bolts and screws with their own fitting principle. This sheet gives the key data per type needed for selection and fitting: slot size and standard of hammer head bolts, core holes for DIN 7500 thread-forming screws, preparation and sheet thickness for ISO 13918 PT weld studs, the shear torque of DIN 9155 shear-off screws and the role of the DIN 404/464/921/923 screws in stainless A1.

Hammer head bolts for channels

standard (channel)	channel width	slot width	thread	application
DIN 9197 (20/12)	20 mm	12 mm	M6 – M8	C-channels 20/12, light pipe brackets
DIN 9097 (28/15)	28 mm	15 mm	M8 – M12	mounting channels 28/15, 28/30, solar profiles
DIN 9099 + veerkogel	28 mm	15 mm	M8 – M10	stays in position when fitting overhead
DIN 9099 + EPDM	28 mm	15 mm	M8 – M10	vibration damping, no contact noise

Thread-forming screws DIN 7500 — core hole

size	core hole steel	core hole aluminium
M3	2.8 mm	2.75 mm
M4	3.7 mm	3.65 mm
M5	4.65 mm	4.55 mm
M6	5.6 mm	5.5 mm
M8	7.5 mm	7.35 mm
M10	9.4 mm	9.2 mm

Weld studs ISO 13918 PT

- Type PT: pointed tip for capacitor discharge (CD) welding, on bare steel or stainless from about 0.5 mm sheet; clean galvanised or coated sheet bare first.
- Welding time a few milliseconds; the back of the sheet stays free of marks.
- Check: bend test on a test piece (30° without fracture) before the series.
- Fit the part with a DIN 934 nut and washer in the same material; do not overtighten, the weld is the weakest link.

Shear-off screws DIN 9155

- Button head with hex socket that shears off at 18–25 Nm; no grip point remains.
- Use a DIN 934 nut or a tapped hole at the back; the shear torque is also the tightening torque.
- Removal only by drilling out: choose it only for permanent fixings (number plates, signage, grilles).

Precision screws DIN 404 / 464 / 921 / 923 (stainless A1) and U-bolts

- DIN 404 capstan screw: cheese head with crossed holes and saw slot; adjusting screw for instruments, lockable with wire.
- DIN 464 knurled thumb screw (high form with collar): hand-tight, for covers and shims; DIN 653 is the low form.
- DIN 921 large pan head screw: large head (about 2.5 × d) for thin or soft material.
- DIN 923 pan head screw with straight collar: the stated length is the collar length; the part turns on the collar (axle bearings, hinges).
- Stainless A1 (AISI 303) is free-cutting steel: machines well, slightly less corrosion resistant than A2 → indoors or under cover.
- U-bolts: inside width just round the pipe, tighten nuts evenly, DIN 985 lock nuts under vibration; not lifting equipment.