Standard steel *sections* for furniture frames

How steel sections are named, what a metre weighs, and what to write on the schedule for a table base or bench frame.

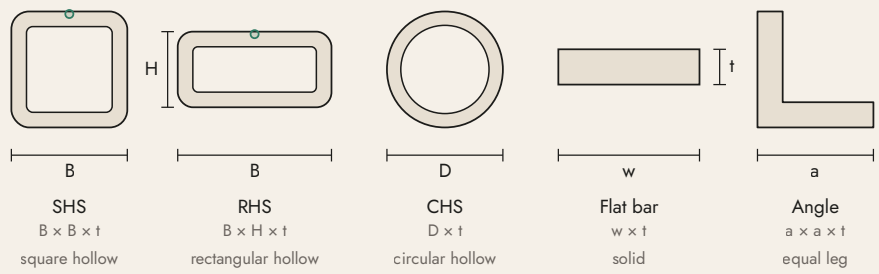
Compliance guidance. This sheet is descriptive. It gives no span, load or deflection figure and is not structural design. A frame that carries a heavy top, people or fixings to a wall must be sized by the partner workshop and, where loaded or safety-critical, checked by a structural engineer. Masses are computed from nominal dimensions on a sharp-corner basis and are for planning and shipping only.

AT A GLANCE

Section	How it is written	Typical use in furniture	Behaviour worth knowing
SHS (square hollow section)	Square; size B × B and wall t	Legs, posts, frames, table bases	Same stiffness in both directions; the weld seam sits on one face
RHS (rectangular hollow section)	B × H and wall t	Rails, bench frames, shelf supports	Stiffer on the deep face: orient it to the load
CHS (circular hollow section)	Outside diameter D and wall t	Legs, rails, bar footrails, handrail-like tubes	No sharp corner to catch; needs a saddle cut at a joint
Flat bar	Width w and thickness t	Brackets, edge trims, skirting-like plinth bands, shelf supports	Stiff on edge, flexible flat: the same bar behaves very differently turned 90 degrees
Angle (L)	Leg a × a and thickness t	Edge protection, stiffening behind a panel, shelf brackets	Two flat legs make a ready-made fixing flange
Solid round or square bar	Diameter or side	Slim legs, rails, stretchers	Solid is heavier; sizes and finish are a partner call

Practice summary, not a standard. Which sizes a partner workshop holds changes; ask before drawing one.

End views. Dot marks the weld seam. Schematic, not to scale.



The five common sections in end view. Original drawing by Make Bespoke Studio, schematic and not to scale.

MASS PER METRE (COMPUTED, SHARP CORNERS, 7.85 KG/DM3)

SHS 20×20×2	1.13 kg/m	SHS 25×25×2	1.44 kg/m	SHS 30×30×2	1.76 kg/m
SHS 40×40×3	3.49 kg/m	SHS 50×50×3	4.43 kg/m	SHS 60×60×3	5.37 kg/m
SHS 80×80×4	9.55 kg/m	SHS 100×100×5	14.92 kg/m	RHS 40×20×2	1.76 kg/m
RHS 50×30×3	3.49 kg/m	RHS 60×40×3	4.43 kg/m	CHS 33.7×2.6	1.99 kg/m
CHS 42.4×2.6	2.55 kg/m	CHS 48.3×3.2	3.56 kg/m		

NOT STRUCTURAL DESIGN

This sheet is descriptive. Section sizes for a loaded piece are the partner workshop's proposal and, where safety-critical, an engineer's sign-off.

SPECIFICATION WORDING

FRAME SECTIONS

Frame of [ref] in [cold-formed welded steel hollow section to BS EN 10219, grade [S235JR / confirm with partner]]: legs [SHS 40 × 40 × 3], rails [RHS 50 × 30 × 3, deep face vertical], stretchers [flat bar 40 × 5]. Sizes are those on the approved shop drawing; the workshop confirms the sections it holds before ordering and submits mill certificates on request.

JOINTS AND CORNERS

Corners of [ref] to be [mitred and welded, ground flush and blended to match the finish / butt-welded with the weld left visible as a detail / radiused by bending]. Weld finish to be approved on a sample, against the dated sample [date].

LOADED PIECES

[Ref] carries [a stone top of [ ] kg / seating for [ ] persons / a wall-fixed shelf of [ ] kg]. The partner workshop proposes the section and fixing and submits an engineer's calculation or sign-off [name, date] before manufacture. Sections shown on this schedule are indicative until that sign-off is received.

MASS AND DELIVERY

Total frame mass [ ] kg, computed from the approved sections. The workshop confirms the mass in writing for handling and floor-loading checks.

TERMS USED

SHS, RHS, CHS
Square, rectangular and circular hollow sections, written outside size first and wall thickness last.

Wall thickness (t)
The thickness of the steel wall of a hollow section, which sets its mass and much of its stiffness.

Cold-formed
Hollow sections made by rolling strip steel into shape at room temperature and welding the seam; the subject of BS EN 10219.

Hot-finished
Hollow sections formed at temperature; the subject of BS EN 10210.

Mass per metre
The weight of one metre of a section, used to estimate the weight of a frame.

STANDARDS AND SOURCES

- BS EN 10219-2:2019: BSI Knowledge, read 7 Nov 2026: published 31 May 2019, Current; supersedes the 2006 edition (withdrawn). Not read.
- BS EN 10210-2: 2006 edition withdrawn 16 May 2019; 2019 edition current per BSI-linked listings. Not read.

Full guide: https://makebespoke.com/trade/technical/standard-steel-sections-for-furniture-frames. 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.