

Special Steel Profiles Datasheet

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Special Steel Profiles

Tianhao produces hot rolled, cold drawn and cold rolled special profiles used in automotive, machine tools, construction, linear guide rails, agricultural and many other applications. Profiles can be made from carbon steel, free cutting steel, alloy steel, stainless steel, nickel alloys, high temperature alloys, titanium alloy, brass and copper alloys, with additional heat treatment if required.

Why this category exists

Standard bar stock forces you to machine away material you have already paid for. A custom cross section arrives close to net shape, so the machining step shrinks or disappears.

Core strengths

- Cross sections from 1 mm² up to 7000 mm² depending on process
- Cold drawn size tolerance below 0.05 mm and straightness below 0.1 mm/m
- Additional straightening on automatic presses when straightness or twisting is critical
- Steel grade advice from our engineers when the drawing leaves it open
- Samples produced and released for your inspection and testing before volume runs

Products

Hot Rolled Special Profiles — Near net shape sections rolled from your drawing in cross sections up to 7000 mm²

Surface	Ra < 40 um, defects 0.3 mm max
Size tolerances	up to 0.5 mm
Straightness	standard <= 1.0 mm/m, on request <= 0.3 mm/m
Twisting	standard <= 1 deg/m, on request <= 0.5 deg/m
Cross section	10 mm ² up to 7000 mm ²
Length	up to 12 m or cut to fixed length

Cold Drawn Special Profiles — Drawn sections held below 0.05 mm on size with a Ra under 2.5 um surface

Surface roughness	Ra < 2.5 um
Decarburization	< 0.1 mm
Straightness	< 0.1 mm/m
Twisting	< 0.25 deg/m
Size tolerances	< 0.05 mm
Cross section	1 mm ² up to 3800 mm ²
Length	up to 6 m or cut to fixed length
Flat profile tolerance	h9

Hot Extrusion Special Profiles — Extruded steel sections for shapes that cannot be rolled or drawn

Cross section	to customer drawing
Steel grades	carbon, free cutting, alloy, stainless, nickel alloys, high temperature alloys, titanium alloy, brass and copper alloys
Secondary operations	cold drawing, heat treatment, straightening
Sampling	samples produced and inspected before volume production

Custom Tailored Special Profiles — One cross section developed with our engineers from drawing to volume production

Drawing formats	CAD and SolidWorks drawings accepted
Forming routes	hot rolling, cold drawing, cold rolling, hot extrusion
Sampling	samples produced first, volume production after buyer approval
Straightening	automatic presses for straightness and twisting

Linear Guide Rail Profiles — Rail and carriage sections in induction hardening and case hardening steels

Typical grades	carbon steels, induction hardening alloy steels, case hardening steels, 100Cr6, Cf53
Cold drawn size tolerance	< 0.05 mm
Cold drawn straightness	< 0.1 mm/m
Cross section	to customer drawing

Filter Press Stainless Profiles — SUS304 profile sets drawn for filter press plates and frames

Typical grade	SUS304
Standards	ASTM, JIS and EN, 200 to 400 series
Cold drawn size tolerance	< 0.05 mm
Cross section	to customer drawing
Sampling	free sample for inspection and testing

Splined Shaft Profiles — Splined sections in quenched and carbon steels for agricultural power transmissions

Typical materials	quenched steels and carbon steels
Cross section	to customer drawing
Cold drawn size tolerance	< 0.05 mm
Cold drawn straightness	< 0.1 mm/m
Length	up to 6 m or cut to fixed length

T-Nut Profiles for Machine Tables — Cold drawn T sections for CNC machine tables and telescopic steel curtains

Surface roughness	Ra < 2.5 um
Size tolerances	< 0.05 mm
Straightness	< 0.1 mm/m
Twisting	< 0.25 deg/m
Cross section	1 mm ² up to 3800 mm ²
Length	up to 6 m or cut to fixed length

Telescopic Slideway Profiles — U shaped sections for cursors and slideways with or without ball bearing housings

Typical materials	carbon steels and CrMo alloys
Condition	as supplied, or tempered and adjusted by the customer
Cross section	to customer drawing
Cold drawn size tolerance	< 0.05 mm

Tool Steel Profiles — Hexagon octagon and flat sections for chisels punches keys scrapers and files

Diameter range	1 mm to 50 mm
Coil delivery	profiles up to 6 mm in diameter
Condition	hot rolled or cold drawn with stress relieving
Grades	C45, 51CrV4, 59CrV4, 102Cr6 and stainless grades
Cold drawn size tolerance	< 0.05 mm

Seal Ring Profiles for Pipe Fittings — Square edged martensitic stainless sections for seal ring inserts

Material	martensitic stainless steel
Key feature	square edges on the section
Standards	ASTM, JIS and EN, 200 to 400 series
Cold drawn size tolerance	< 0.05 mm

Pump Shaft Stainless Profiles — Austenitic and martensitic stainless sections for submersible pump shafts

Materials	austenitic and martensitic stainless steel
Standards	ASTM, JIS and EN, 200 to 400 series
Cold drawn size tolerance	< 0.05 mm
Cold drawn straightness	< 0.1 mm/m
Surface roughness	Ra < 2.5 μ m

Steel Clutches for Pipe Piles — Interlock sections welded to tubular piles for combined wall systems

Cross section	to the mating interlock drawing
Straightness	standard $\leq$ 1.0 mm/m, on request $\leq$ 0.3 mm/m
Length	up to 12 m or cut to fixed length
Cross section range	10 mm ² up to 7000 mm ²

Agricultural Beater Bar Profiles — Hot rolled beater bars ploughshare sections and h9 flats for farm machinery

Flat profile tolerance	h9
Hot rolled straightness	standard $\leq$ 1.0 mm/m, on request $\leq$ 0.3 mm/m
Cross section	10 mm ² up to 7000 mm ²
Length	up to 12 m or fixed lengths with holes