

Forged Steel Components Datasheet

export@tianhaogroup.com · +86 531 62328100 · <https://tianhaogroup.com>

Room 2538, No.1 Building, No.88 Huizhan West Road, Jinan High-tech Industrial Development Zone, Jinan, Shandong Province, China

Forged Steel Components

Shandong Tianhao Precise Engineering supplies custom engineered forged, cast, machined and fabricated components in carbon and low alloy steels, tool steels, medium alloy steels, aluminium, titanium, stainless steels and superalloys. Our CNC machining centre includes a 5-axis machine and can handle large components. One stop shopping covers forging or casting, heat treatment, machining and fabrication.

Why this category exists

Splitting a forging across a forge shop, a heat treatment shop and a machine shop costs weeks and leaves nobody accountable for the finished dimension. We carry the part through all of those steps.

Core strengths

- Metallurgical staff develop customised alloys where standard grades do not meet the requirement
- 5-axis CNC machining centre able to take big components
- Forging, heat treatment, machining and fabrication under one order
- Alloy range from 1045, 4140, 4340 and 42CrMo4 through to Alloy 718, Waspaloy and Ti 6-4
- Testing carried out as part of the value added service package

Products

Open Die Forgings — Rings discs blocks and shafts forged in carbon alloy tool and stainless steels

Alloy steels	4140, 4150, 4330, 4330V, 4340, 1045, 1080
Pressure grades	ASTM A350 Grade LF2, ASTM A350 Grade LF6
Stainless	304 and 316
Aluminium	6061, 7050, 7075
Machining	CNC machining centre with 5-axis machine for big components

Seamless Rolled Rings — Rolled rings for gears bearings flanges and tooling in alloy and stainless grades

Common gear grades	42CrMo4, 34CrNiMo6, 18CrNiMo7-6, 30CrNiMo8
Alloy steels	4140, 4150, 4330, 4330V, 4340, 1045, 1080
Pressure grades	ASTM A350 Grade LF2, ASTM A350 Grade LF6
Stainless	304 and 316

Forged Step Shafts — Stepped shafts gear shafts and spline gear shafts forged in alloy steel

Delivery conditions	forged, normalised, rough machined, quenched, tempered
Wind power grades	4140, 4340, S355NL, S420NL, 42CrMo4, 18CrNiMo7-6, 30CrNiMo8, 34CrNiMo6, A350-LF6, 1552
Alloy steels	4140, 4150, 4330, 4330V, 4340, 1045, 1080
Machining	5-axis CNC machining centre for big components

Machined Shafts and Rollers — Finish machined shafts and rollers delivered ready to fit

Machining	CNC machining centre including a 5-axis machine, able to manufacture big components
Pulp and paper scope	shafts, rollers, canter heads, hubs, segments, axles and adapters, conical and drum chipping heads, powerhead c
Delivery conditions	forged, normalised, rough machined, quenched, tempered
Value added services	machining, heat treatment, fabrication, testing

Kiln Tires and Kiln Rollers — Large kiln tires rollers trunnions and pinions for rotary equipment

Scope	large kiln tires, rollers, trunnions, gears, rolls, shafts and pinions
Alloy steels	4140, 4150, 4330, 4330V, 4340, 1045, 1080
Machining	CNC machining centre able to manufacture big components
Delivery conditions	forged, normalised, rough machined, quenched, tempered

Mill Rolls — Forged rolls and mill rolls machined to the pass profile you run

Delivery conditions	forged, normalised, rough machined, quenched, tempered
Alloy steels	4140, 4150, 4330, 4330V, 4340, 1045, 1080
Machining	5-axis CNC machining centre for big components
Scope	rolls and mill rolls for rotary and rolling equipment

Crane Wheels — Forged and machined crane wheels for handling equipment

Scope	forged and machined crane wheel
Alloy steels	4140, 4150, 4330, 4330V, 4340, 1045, 1080
Delivery conditions	forged, normalised, rough machined, quenched, tempered
Machining	CNC machining centre for finished wheels

Wind Power Gear Rings — Forged rings for wind turbine gears in case and through hardening grades

Gear grades	42CrMo4, 34CrNiMo6, 18CrNiMo7-6, 30CrNiMo8
Wind power materials	4140, 4340, S355NL, S420NL, 42CrMo4, 18CrNiMo7-6, 30CrNiMo8, 34CrNiMo6, A350-LF6, 1552
Hardening	case or through hardening
Machining	CNC machining centre including 5-axis

Wind Power Flanges — Tower flanges and transmission tower flanges forged for the life of the structure

Wind power materials	4140, 4340, S355NL, S420NL, 42CrMo4, 18CrNiMo7-6, 30CrNiMo8, 34CrNiMo6, A350-LF6, 1552
Applications	tower section joining, transmission poles and towers
Delivery conditions	forged, normalised, rough machined, quenched, tempered
Machining	CNC machining centre for big components

Wind Power Main Shafts — Forged main shafts couplings and bearing blanks for turbine drivetrains

Wind power materials	4140, 4340, S355NL, S420NL, 42CrMo4, 18CrNiMo7-6, 30CrNiMo8, 34CrNiMo6, A350-LF6, 1552
Scope	gears, flanges, main shafts, couplings, transmission tower flanges, bearings
Delivery conditions	forged, normalised, rough machined, quenched, tempered
Machining	5-axis CNC machining centre

Forged Flanges — Flanges rolled rings and discs for pumps valves wellheads and pressure equipment

Pressure grades	ASTM A350 Grade LF2, ASTM A350 Grade LF6
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Alloy steels	4140, 4150, 4330, 4330V, 4340, 1045, 1080
Stainless	304 and 316
Autoclave scope	forged machined head flange, shell flange, locking ring, closures
Heat exchanger scope	flanges, tube sheets and nozzles

Oil and Gas Forgings — Custom forgings for wellheads valves risers manifolds and fluid ends

Applications	BOPs, casing and special connectors, closures, drilling and production tools, risers, flex joints, fracking, jacking systems
Alloy steels	4140, 4150, 4330, 4330V, 4340, 1045, 1080
Pressure grades	ASTM A350 Grade LF2, ASTM A350 Grade LF6
Stainless	304 and 316

Gears and Pinions — Forged gear and pinion blanks in 42CrMo4 and case hardening alloys

Gear grades	42CrMo4, 34CrNiMo6, 18CrNiMo7-6, 30CrNiMo8
Alloy steels	4140, 4150, 4330, 4330V, 4340, 1045, 1080
Mining	all mining specific grades in carbon and alloy steels for extended service life
Delivery conditions	forged, normalised, rough machined, quenched, tempered

Mining and Construction Forgings — Forgings for wheel loaders excavators shovels mining trucks and graders

Alloy steels	4140, 4150, 4330, 4330V, 4340, 1045, 1080
Stainless	304 and 316
Aluminium	6061, 7050, 7075
Delivery conditions	forged, normalised, rough machined, quenched, tempered

Forged Blocks and Discs — Blocks discs blanks and forged hollows for tooling and equipment builders

Scope	open die forgings, forged discs blanks, forged hollows, forged rings, hubs and tooled forgings
Alloy steels	4140, 4150, 4330, 4330V, 4340, 1045, 1080
Stainless	304 and 316
Aluminium	6061, 7050, 7075

CNC Machined Forgings — Forgings and castings finish machined on a 5-axis CNC centre

Machining	CNC machining centre with 5-axis machine, able to manufacture big components
Value added services	machining, heat treatment, fabrication, testing
Semiconductor aluminium grades	6061, 5083, 3003, 6082 in annealed and aged hardened tempers
Aerospace materials	alloy steels, stainless steels, aluminium alloys, nickel alloys, cobalt alloys, titanium alloys

Castings — Cast components supplied machined and heat treated alongside our forgings

Scope	custom engineered forged or cast, machined and fabricated components
Value added services	machining, heat treatment, fabrication, testing
Machining	CNC machining centre including a 5-axis machine

Automotive Forged Parts — Crankshafts connecting rods knuckles ring gears hubs and steering arms

Scope	crankshaft, connecting rod, knuckle, ring gear, wheel hub, cylinders, blind hole cylinders, tie rod arm, pitman arm, steering knuckle
Alloy steels	4140, 4150, 4330, 4330V, 4340, 1045, 1080

Delivery conditions	forged, normalised, rough machined, quenched, tempered
Value added services	machining, heat treatment, fabrication, testing

Impellers and Rotating Components — Impellers casings heads and rotor components for compressors and turbines

Power generation materials	718, Waspaloy, 230, X, 617, 625, 901, 903, 909, HR-120, 105, CrMoV, NiCrMoV, X22CrMoV, 304, 310
Steam turbine scope	diaphragm rings, nozzle rings, diffuser rings and flanges
Gas turbine scope	inlet rings, shroud rings, retaining rings, seal rings, support rings, blade rings, outlet rings, casings and heat shields
Compressor scope	casings, heads and impellers

Aerospace Forgings — Superalloy and titanium forgings for rotorcraft jet engines and aerostructures

Materials	alloy steels, stainless steels, aluminium alloys, nickel alloys, cobalt alloys, titanium alloys
Superalloy grades	Alloy 718, Alloy 718 Plus, Alloy 242, Alloy C263, Alloy 783
Titanium grades	Ti 6-4, Ti 6-2-4-2
Applications	rotorcraft and jet engines, military and space, aerostructures

Semiconductor Aluminium Forgings — Aluminium forgings for processing equipment with dimensional stability requirements

Aluminium grades	6061, 5083, 3003, 6082
Tempers	annealed and aged hardened
Requirements addressed	electrical properties, anodisation quality, dimensional stability on final machining
Machining	CNC machining centre including a 5-axis machine