



INDUSTRIAL SPROCKETS

DETAILED ENGINEERING CATALOGUE 2026

British and ANSI series | Simplex duplex triplex
Chain interfaces | Tooth counts | Pitch diameters
Bores mounting materials and selection

DRIVING INDUSTRY FORWARD

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STT ENGINEERING SOLUTIONS

INDUSTRIAL SPROCKETS | DETAILED CATALOGUE 2026

INDUSTRIAL SPROCKET RANGE

STT sprocket families for industrial drives, conveying equipment and replacement work. This catalogue defines enquiry codes and reference geometry; manufactured units are released against approved drawings.

PRODUCT STYLES

STT code	Construction	Application
SP-PL	Plate wheel	Compact drives and bolt-on carriers
SP-H1	One-sided hub	Keyed industrial shafts
SP-H2	Two-sided hub	Symmetrical support arrangements
SP-TB	Taper-bush interface	Removable bush mounting
SP-SH	Split construction	Service access without shaft removal
SP-RT	Replaceable tooth rim	Large industrial sprockets
SP-ID	Idler	Bearing-supported chain guidance
SP-CV	Conveyor special	Matched conveyor chain geometry

RANGE DEFINITION

Simplex, duplex and triplex roller-chain arrangements; British-series 06B-48B and ANSI 40-240 reference sizes. Chain size, tooth count and mounting are selected together. These are quotation families, not a claim of stocked or certified units.

INDUSTRIAL FOCUS

Conveyors, bulk handling, mining plant, processing equipment, pumps, mixers and gearbox-driven machinery. Excavator track sprockets and final-drive segments are a separate geometry family and require an OEM drawing or measured sample.



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BRITISH SERIES CHAIN INTERFACE

Chain reference dimensions in mm. These identify the mating chain, not the finished sprocket tooth width or manufacturing tolerance.

REFERENCE DIMENSIONS

Chain family	Pitch p	Roller diameter d1	Inner width b1
06B	9.525	6.35	5.72
08B	12.700	8.51	7.75
10B	15.875	10.16	9.65
12B	19.050	12.07	11.68
16B	25.400	15.88	17.02
20B	31.750	19.05	19.56
24B	38.100	25.40	25.40
28B	44.450	27.94	30.99
32B	50.800	29.21	30.99
40B	63.500	39.37	38.10
48B	76.200	48.26	45.72

STRANDS AND COMPATIBILITY

Use -1 for simplex, -2 for duplex and -3 for triplex in STT enquiry codes. Multi-strand sprockets require the correct transverse pitch and tooth spacing from the selected chain specification. Equal chain pitch alone does not establish interchangeability between British and ANSI series.

REFERENCE SOURCE

Tsubaki BS/DIN GT4 Winner manufacturer dimension table, accessed 30 September 2026. Verify the selected chain maker and exact chain model before releasing tooling or a replacement.



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ANSI SERIES CHAIN INTERFACE

Chain reference dimensions in mm. These identify the mating chain, not the finished sprocket tooth width or manufacturing tolerance.

REFERENCE DIMENSIONS

Chain family	Pitch p	Roller diameter d1	Inner width b1
40	12.700	7.92	7.95
50	15.875	10.16	9.53
60	19.050	11.91	12.70
80	25.400	15.88	15.88
100	31.750	19.05	19.05
120	38.100	22.23	25.40
140	44.450	25.40	25.40
160	50.800	28.58	31.75
180	57.150	35.71	35.72
200	63.500	39.68	38.10
240	76.200	47.63	47.63

STRANDS AND COMPATIBILITY

Use -1 for simplex, -2 for duplex and -3 for triplex in STT enquiry codes. Multi-strand sprockets require the correct transverse pitch and tooth spacing from the selected chain specification. Equal chain pitch alone does not establish interchangeability between British and ANSI series.

REFERENCE SOURCE

Tsubaki ANSI G8 manufacturer dimension table, accessed 30 September 2026. Verify the selected chain maker and exact chain model before releasing tooling or a replacement.



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COMPACT AND MEDIUM PITCH DIAMETER TABLE

Calculated pitch diameter $D_p = p / \sin(180 \text{ degrees} / z)$, in mm. Values are rounded to 0.1 mm and apply to chains with the stated pitch.

BRITISH-SERIES REFERENCE GEOMETRY

Teeth z	06B	08B	10B	12B	16B	20B
12	36.8	49.1	61.3	73.6	98.1	122.7
15	45.8	61.1	76.4	91.6	122.2	152.7
17	51.8	69.1	86.4	103.7	138.2	172.8
19	57.9	77.2	96.4	115.7	154.3	192.9
21	63.9	85.2	106.5	127.8	170.4	213.0
24	73.0	97.3	121.6	145.9	194.6	243.2
30	91.1	121.5	151.9	182.2	243.0	303.7
36	109.3	145.7	182.1	218.6	291.4	364.3
48	145.6	194.2	242.7	291.3	388.4	485.5
60	182.0	242.7	303.3	364.0	485.3	606.7
72	218.4	291.2	363.9	436.7	582.3	727.9

USING THE TABLE

Pitch diameter is the circle through roller centers at engagement. It is not the outside diameter, root diameter or cutter specification. A different chain with the same pitch has the same geometric pitch diameter but may need a different tooth profile.

TOOTH-COUNT ENQUIRY RANGE

The tooth counts above are a planning matrix, not a suitability recommendation or stock list. Other counts are engineered on request. Small drivers, high speeds, reversing and shock duty require specific chain-manufacturer selection checks.



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LARGE INDUSTRIAL PITCH DIAMETER TABLE

Calculated pitch diameter $D_p = p / \sin(180 \text{ degrees} / z)$, in mm. Values are rounded to 0.1 mm and apply to chains with the stated pitch.

BRITISH-SERIES REFERENCE GEOMETRY

Teeth z	24B	28B	32B	40B	48B
12	147.2	171.7	196.3	245.3	294.4
15	183.3	213.8	244.3	305.4	366.5
17	207.3	241.9	276.5	345.6	414.7
19	231.5	270.1	308.6	385.8	463.0
21	255.6	298.2	340.8	426.1	511.3
24	291.9	340.5	389.2	486.5	583.8
30	364.5	425.2	486.0	607.5	729.0
36	437.1	510.0	582.9	728.6	874.3
48	582.5	679.6	776.7	970.9	1165.1
60	728.0	849.3	970.7	1213.3	1456.0
72	873.5	1019.0	1164.6	1455.8	1746.9

USING THE TABLE

Pitch diameter is the circle through roller centers at engagement. It is not the outside diameter, root diameter or cutter specification. A different chain with the same pitch has the same geometric pitch diameter but may need a different tooth profile.

TOOTH-COUNT ENQUIRY RANGE

The tooth counts above are a planning matrix, not a suitability recommendation or stock list. Other counts are engineered on request. Small drivers, high speeds, reversing and shock duty require specific chain-manufacturer selection checks.



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ANSI PITCH DIAMETER TABLE

Calculated geometry for common ANSI pitches. Chains 40-160 share the pitch values shown; their roller diameter and width still differ from British-series chains.

CALCULATED PITCH DIAMETER IN MM

Teeth	40	50	60	80	100	120	140	160
15	61.1	76.4	91.6	122.2	152.7	183.3	213.8	244.3
17	69.1	86.4	103.7	138.2	172.8	207.3	241.9	276.5
19	77.2	96.4	115.7	154.3	192.9	231.5	270.1	308.6
21	85.2	106.5	127.8	170.4	213.0	255.6	298.2	340.8
24	97.3	121.6	145.9	194.6	243.2	291.9	340.5	389.2
30	121.5	151.9	182.2	243.0	303.7	364.5	425.2	486.0
36	145.7	182.1	218.6	291.4	364.3	437.1	510.0	582.9
48	194.2	242.7	291.3	388.4	485.5	582.5	679.6	776.7
60	242.7	303.3	364.0	485.3	606.7	728.0	849.3	970.7

LARGER ANSI PITCHES

For ANSI 180, 200 and 240, use pitches 57.15, 63.50 and 76.20 mm respectively in the same formula. Pitch diameter does not define allowable power, speed or fatigue capacity.

DIMENSIONAL REVIEW

Check tooth clearance, multi-strand spacing, chain articulation, chain wrap, center distance and guard clearance. Match the sprocket to the selected chain specification.



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BORES HUBS AND MOUNTING

Mounting details are part of the drive design. Finished bore size and maximum allowable bore are confirmed against tooth-root, hub and shaft-interface strength.

MOUNTING OPTIONS

Option	Order information
Pilot / rough bore	Starting bore; customer finish-machining responsibility
Finished keyed bore	Diameter, fit, keyway standard, depth and length
Interference fit	Shaft tolerance, contact length and assembly method
Taper bush	Exact bush series, maker and shaft size
Splined bore	Spline specification, fit and inspection method
Bolt-on plate	PCD, hole count, holes/threads, register and clocking
Split hub	Split location, clamp bolts and shaft retention
Idler bearing	Bearing type, shaft support and lubrication

HUB DATA REQUIRED

Specify hub outside diameter, overall hub length, projection to each side, chain-line offset and distance to shoulders. A catalogue chain size does not define a universal bore range.

TAPER-BUSH CONTROL

Bushing dimensions and installation instructions are maker-specific. Do not assume two bush series are interchangeable. Use the approved bush drawing and specified screw torque.



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DRAWING AND INSPECTION DIMENSIONS

Each production drawing defines the sprocket geometry and the features used to inspect it. All dimensions are in mm unless stated otherwise.

DRAWING SCHEDULE

Symbol / feature	Definition
p / z	Chain pitch / tooth count
Dp	Calculated pitch diameter
Da / Df	Outside diameter / root diameter per tooth form
b / pt	Tooth width / transverse tooth-row spacing
d	Finished bore and fit
Dh / Lh	Hub outside diameter / total length
Offset	Chain row location relative to mounting face
Key / spline	Complete interface specification
Runout	Radial and axial limits relative to bore datum
Face finish	Surface finish on fits and mounting faces

TOOTH GEOMETRY

Use the specified chain sprocket tooth form, roller seating geometry and cutter data. The pitch diameter formula alone is insufficient to manufacture a sprocket. Tooth width must provide correct clearance to the chain inner plates.

INSPECTION RECORD

Check tooth count, chain fit, tooth spacing/profile, bore, keyway, runout, hub features, hardness where specified and traceability. For multi-strand units, inspect tooth-row spacing and alignment.



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MATERIALS AND HEAT TREATMENT

Material and hardening choices depend on wear, shock load, size, machining route and operating environment. STT releases the grade and hardness on the unit drawing.

DEVELOPMENT ROUTE

Material / process	Selection considerations
Medium-carbon steel	General industrial candidate; grade and condition specified
Alloy steel	Higher-duty candidate after strength and process review
Stainless steel	Corrosion service; wear and strength checked separately
Cast or fabricated body	Large wheels; rim, hub and joining design reviewed
Induction-hardened teeth	Localized wear resistance; depth and distortion controlled
Through hardening	Whole-part properties; bore and toughness effects reviewed
Carburized alloy steel	Case/core design and finished geometry require qualification

RELEASE REQUIREMENTS

Specify steel grade, supply condition, treatment route, hardness range, effective depth if applicable, toughness requirements, machining allowances and inspection. No universal hardness or case depth is stated for the whole range.

SURFACE PROTECTION

Paint, oxide or corrosion protection is specified separately. Keep precision bores and chain-contact surfaces compatible with the operating and lubrication requirements.



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DRIVE SELECTION AND OPERATING RPM

A sprocket has no single RPM or torque rating determined only by chain pitch. The selected chain, tooth count, lubrication, mounting and duty establish the drive envelope.

CALCULATION

Calculation	Relationship	Units
Speed ratio	$i = z2 / z1 = n1 / n2$	Ideal ratio
Output speed	$n2 = n1 \times z1 / z2$	rpm
Average chain speed	$v = p \times z1 \times n1 / 60000$	m/s; p in mm
Shaft torque	$T = 9550 \times P / n$	N.m; P in kW
Steady effective pull	$F = 1000 \times P / v$	N; P in kW
Pitch diameter	$Dp = p / \sin(\pi / z)$	mm

CALCULATION EXAMPLE

12B-1 chain, 19-tooth driver, 30-tooth driven sprocket, 300 rpm driver and 3 kW transmitted power: ratio 1.579, ideal output 190 rpm, average chain speed 1.810 m/s, driver torque 95.5 N.m and steady effective pull 1,658 N. This illustrates arithmetic, not a validated chain selection.

COMPLETE SELECTION

Apply the chain maker duty/service factors, power ratings and lubrication limits. Check startup and shock loads, wear, chain wrap, center distance, tension adjustment, shafts, keys and bearings. Effective pull is not total bearing load; both chain strands contribute.



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CONVEYOR SPLIT AND REPLACEMENT SPROCKETS

Conveyor and special chain sprockets require the actual chain geometry and application loads. A roller-drive sprocket is not automatically suitable for a conveyor or track chain.

SPECIAL FAMILY

Family	Engineering inputs
Conveyor chain	Pitch, roller/bush, links, attachments and chain drawing
Double-pitch chain	Exact chain series and roller style
Split sprocket	Joint, clamping, shaft retention and assembly access
Replaceable rim	Rim segments, carrier interface and fasteners
Weld-on hub	Hub interface, weld procedure and distortion control
Legacy replacement	Sample, chain, shafts, measured geometry and duty

REPLACEMENT SURVEY

Provide photographs of both faces, the bore and teeth; count teeth; record chain markings and strand count; measure hub, bore, keyway and offset. Include the chain or an unworn sample where possible.

WEAR ASSESSMENT

Review hooked teeth, uneven face wear, worn chain, misalignment and inadequate lubrication. Inspect the complete drive so a new sprocket is not installed into an unresolved wear condition.



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ORDERING CODES AND ENQUIRY SHEET

The STT code is an enquiry identifier. The approved drawing and application data govern manufacture.

CODE EXAMPLE

Field	Example	Meaning
Prefix	SP	Sprocket family
Construction	H1	One-sided hub
Chain	12B	British-series chain
Strands	1	Simplex
Teeth	Z19	19 teeth
Bore	D40	40 mm finished bore
Mounting	K	Keyed; exact details on drawing

COMPLETE EXAMPLE

SP-H1-12B-1-Z19-D40-K | material and treatment per released drawing | chain line, keyway, bore fit and hub geometry specified separately.

CUSTOMER ENQUIRY

Quantity; chain maker/model/size; strand count; driver and driven tooth counts; shaft RPM and motor power; driven machine; duty hours and starts; shock/reversing duty; shaft and key details; center distance; lubrication; environment; mounting drawing; inspection requirements and delivery date.

CONTACT

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TECHNICAL REFERENCES AND RELEASE BASIS

Reference chain dimensions support identification and preliminary planning. They do not certify an STT sprocket design or imply an affiliation with the reference manufacturers.

REFERENCE 1

Tsubaki Europe, BS/DIN GT4 Winner, single-strand chain dimensions.
<https://tsubaki.eu/products/chain/drive-chain/standard-roller-chain/bs-din-gt4-winner/>

REFERENCE 2

Tsubaki Europe, ANSI G8, single-strand chain dimensions.
<https://tsubaki.eu/products/chain/drive-chain/standard-roller-chain/ansi-g8/>

REFERENCE 3

Tsubaki Europe, Introduction to Tsubaki Roller Chain, interface compatibility.
<https://tsubaki.eu/support/general-info/introduction-tsubaki-roller-chain/>

CALCULATED GEOMETRY

Pitch diameter and drive calculations in this issue are independently calculated from the stated pitch, tooth count, speed and power. Values are rounded for catalogue use.

PRODUCTION RELEASE

Final tooth form, dimensions, fits, materials, heat treatment, maximum bore, torque and speed limits require a released STT drawing and application review. Stock status and manufacturing capability are confirmed per quotation.

ISSUE CONTROL

First detailed issue | 30 September 2026. Maintain the PDF as the customer issue and the Word document as the editable content master. Changes to reference tables require technical review.