

SKF Transmission chain



Standards and compliance

SKF Chains are manufactured in state of the art facilities with tight quality controls. All products conform to ISO standards and other industrial standards like ANSI, BS, DIN and JIS. SKF Oil Field Chains are American Petroleum Institute (API) approved and each box carries the API monogram. SKF Automotive chains meets the ISO/TS16949 Quality Assurance System technical specification. This specification aligns American (QS-9000), German (VDA6.1), French (EAQF) and the Italian (AVSQ) automotive quality system standards within the global automotive industry.

All SKF Chains, with the exception of stainless steel, can accommodate temperatures from -20 to 150 °C. Stainless steel chains have a temperature range of -20 to 400 °C. For temperatures exceeding above mentioned values, alternative lubricants should be used. Note: For temperatures above 200 °C and below -20 °C, breaking load values are reduced. Apart from stainless steel chains also other anti-corrosion treatments and special coatings are readily available upon request.



Raw material

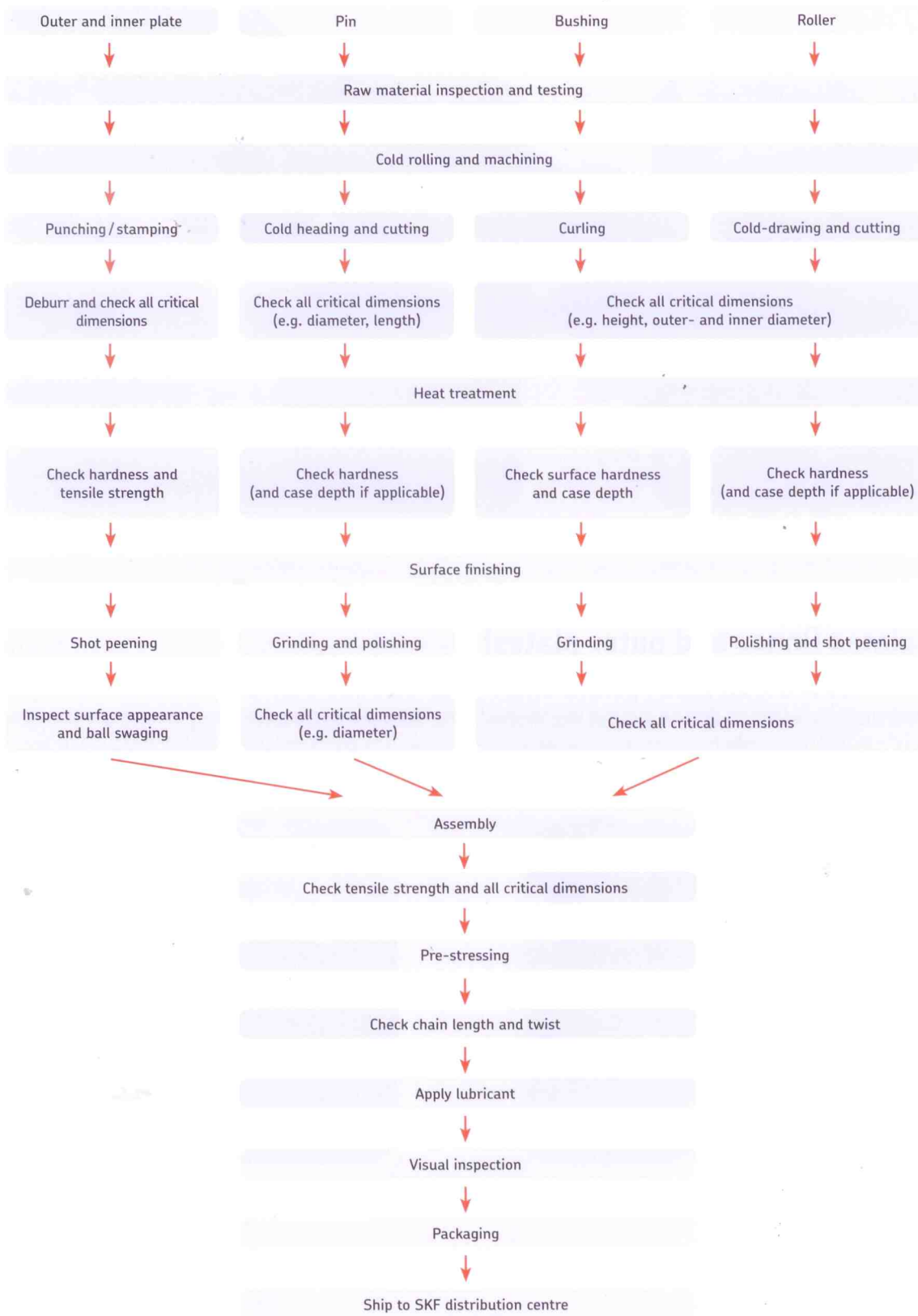
The raw materials used to manufacture each component of the chain must meet very stringent specifications. As a result, there are very tight controls over all incoming materials. These controls range from carefully selecting the steel mills to regular material audits. Every shipment of raw material must include a laboratory report certifying the material composition of the steel. In addition, samples are thoroughly tested to confirm that the steel meets all specifications.

After stringent inspections, the steel undergoes the pre-production process, which starts with annealing. Annealing softens and relieves any stresses in the steel. From there, the material goes through a multi-stage rolling process to provide a consistent plate thickness. Other pre-production steps depend on the type of material and how the material will be used.



Continuous rolling machine to achieve uniform thickness of plate material

The manufacturing process



Chain parts



Link plates (Inner and outer plates)

The shape of inner and outer plates on SKF Chains have been adopted to a wider waist link plate design. This provides an increase in fatigue strength. By subjecting the raw material to a series of cold rolling processes and stringent thickness controls, the plates achieve uniform thicknesses which are critical to a smooth running chain. The plates endurance and strength is fully optimized via thru-hardening, shot peening and an aperture ball-burnishing process.



Shot peening improves fatigue strength and crack resistance



Furnaces for heat treatment process

Pins

Pins are made from alloy steel that has been case hardened in rotary furnaces. These furnaces provide an even heat for a consistent and uniform case depth, which helps to resist damage from shock loads and provide maximum wear resistance.



Rotary furnaces used in the heat treatment process provide a uniform heat for a more consistent and uniform result



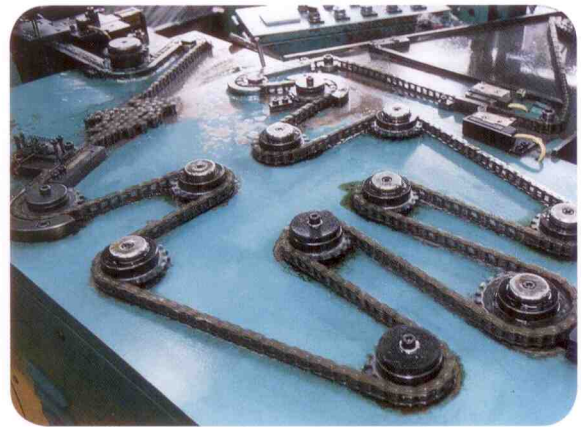
Pins are precision ground to enhance wear resistance and increase chain service life

Bushings

Cold rolling provides a uniform wall thickness which is extremely important in achieving a precise and consistent pitch. Precision curling units offer a uniform bushing roundness, inside and out, for an optimum bushing-link plate fit. The case hardening process provides the bushing with a wear-resistant case and a tough, impact resistant core. After heat treatment, the bushings are precision ground to improve service life.



Conveyor furnace line used for roller and bushing heat treatment, e.g. carbon-nitriding



Automated assembly process rejects parts that do not meet, fit or tolerance specifications

Rollers

SKF Chains use solid rollers that are cold-drawn from bar stock to improve fatigue strength and resist the damaging effects of shock loads. All rollers go through a hardening process to improve wear resistance and increase service life. To reduce cracking, the rollers undergo shot peening which significantly improves fatigue strength.



Parts manufacturing lines



Microhardness testing equipment, where batch tests are done, to ensure hardness is within specification

Assembly process

The automated assembly process rejects parts that do not meet, fit or tolerance specifications, giving SKF Chains a precisely spaced pitch and a near perfect fit. Every part and process is subject to tight quality controls with frequent checks to conform to tolerances and standards.

The assembled chains are then pre-stressed. This running-in of the chain not only avoids elongation, but it also improves the chain's fatigue resistance.

The final lubrication process provides SKF Chains the lubricant they need for initial start-up. The lubricant also protects the chain against corrosion to significantly prolong shelf life.



Pre-lubrication product line



Pre-stressing after final assembly

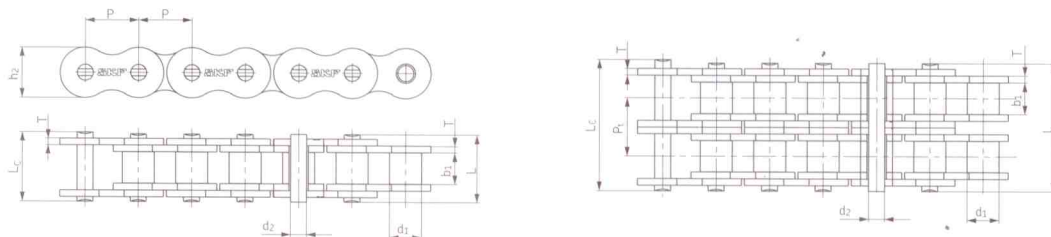
American standard chains

American standard chains are covered by ISO 606, ANSI B29.1 and DIN 8188 standards.

The pitch sizes covered by this standard are 1/4 to 3 inch. American standard chains have a smaller pin diameter than the European standard equivalent. Wear resistance is therefore reduced when compared with the European standard chains. One exception is the 5/8 inch pitch, as in this case the pin and bushing diameters are larger than the European equivalent.

American standard chains are normally referred to under the ANSI standard numbering system, for example a 1/2 inch pitch duplex (double strand) chain would be ANSI 40-2.

The ANSI numbering system works as follows: The first number is the pitch size in 1/8 inch, i.e. $4/8 = 1/2$ inch pitch. The second number refers to the chain being a roller chain, i.e. 0 = roller chain. A number 5 replacing the 0 would indicate a bushing chain and number 1 indicates a narrower series. The suffix, as with European standard chain, refers to the number of strands in the chain, that is in this case 2 = duplex (double strand) chain.



ANSI Chain number	BS/ISO Chain number	Dimensions										Ultimate tensile strength	Average tensile strength	Weight per meter	Designation
		Pitch	Roller diameter	Width between inner plates	Pin diameter	Pin length	Pin length cottered	Inner plate height	Plate thickness	Transverse pitch	Q min				
-	-	P	d ₁ max	b ₁ max	d ₂ max	L max	L _C max	L _C max	h ₂ max	T max	P _t	Q min	Q ₀	q	-
-	-	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	kN	kN	kg/m	-
15-1*	03C*	4,7625	2,48	2,38	1,62	6,10	6,90	-	4,30	0,60	-	1,8	2,0	0,08	PHC 15-1...
25-1*	04C-1*	6,350	3,30	3,18	2,31	7,90	8,40	-	6,00	0,80	-	3,5	4,6	0,15	PHC 25-1...
35-1*	06C-1*	9,525	5,08	4,77	3,58	12,40	13,17	-	9,00	1,30	-	7,9	10,8	0,33	PHC 35-1...
41-1	085-1	12,700	7,77	6,25	3,58	13,75	15,00	-	9,91	1,30	-	6,7	12,6	0,41	PHC 41-1...
40-1	08A-1	12,700	7,95	7,85	3,96	16,60	17,80	-	12,00	1,50	-	14,1	17,5	0,62	PHC 40-1...
50-1	10A-1	15,875	10,16	9,40	5,08	20,70	22,20	23,30	15,09	2,03	-	22,2	29,4	1,02	PHC 50-1...
60-1	12A-1	19,050	11,91	12,57	5,94	25,90	27,70	28,30	18,00	2,42	-	31,8	41,5	1,50	PHC 60-1...
80-1	16A-1	25,400	15,88	15,75	7,92	32,70	35,00	36,50	24,00	3,25	-	56,7	69,4	2,60	PHC 80-1...
100-1	20A-1	31,750	19,05	18,90	9,53	40,40	44,70	44,70	30,00	4,00	-	88,5	109,2	3,91	PHC 100-1...
120-1	24A-1	38,100	22,23	25,22	11,10	50,30	54,30	54,30	35,70	4,80	-	127,0	156,3	5,62	PHC 120-1...
140-1	28A-1	44,450	25,40	25,22	12,70	54,40	59,00	59,00	41,00	5,60	-	172,4	212,0	7,50	PHC 140-1...
160-1	32A-1	50,800	28,58	31,55	14,27	64,80	69,60	69,60	47,80	6,40	-	226,8	278,9	10,10	PHC 160-1...
180-1	36A-1	57,150	35,71	35,48	17,46	72,80	78,60	78,60	53,60	7,20	-	280,2	341,8	13,45	PHC 180-1...
200-1	40A-1	63,500	39,68	37,85	19,85	80,30	87,20	87,20	60,00	8,00	-	353,8	431,6	16,15	PHC 200-1...
240-1	48A-1	76,200	47,63	47,35	23,81	95,50	103,00	103,00	72,39	9,50	-	510,3	622,5	23,20	PHC 240-1...
25-2*	04C-2*	6,350	3,30	3,18	2,31	14,5	15,0	-	6,00	0,80	6,40	7,0	8,6	0,28	PHC 25-2...
35-2*	06C-2*	9,525	5,08	4,77	3,58	22,5	23,3	-	9,00	1,30	10,13	15,8	19,7	0,63	PHC 35-2...
41-2	085-2	12,700	7,77	6,25	3,58	25,7	26,9	-	9,91	1,30	11,95	13,3	16,9	0,81	PHC 41-2...
40-2	08A-2	12,700	7,95	7,85	3,96	31,0	32,2	-	12,00	1,50	14,38	28,2	35,9	1,12	PHC 40-2...
50-2	10A-2	15,875	10,16	9,40	5,08	38,9	40,4	41,2	15,09	2,03	18,11	44,4	58,1	2,00	PHC 50-2...
60-2	12A-2	19,050	11,91	12,57	5,94	48,8	50,5	51,1	18,00	2,42	22,78	63,6	82,1	2,92	PHC 60-2...
80-2	16A-2	25,400	15,88	15,75	7,92	62,7	64,3	65,8	24,00	3,25	29,29	113,4	141,8	5,15	PHC 80-2...
100-2	20A-2	31,750	19,05	18,90	9,53	76,4	80,5	80,5	30,00	4,00	35,76	177,0	219,4	7,80	PHC 100-2...
120-2	24A-2	38,100	22,23	25,22	11,10	95,8	99,7	99,7	35,70	4,80	45,44	254,0	314,9	11,70	PHC 120-2...
140-2	28A-2	44,450	25,40	25,22	12,70	103,3	107,9	107,9	41,00	5,60	48,87	344,8	427,5	15,14	PHC 140-2...
160-2	32A-2	50,800	28,58	31,55	14,27	123,3	128,1	128,1	47,80	6,40	58,55	453,6	562,4	20,14	PHC 160-2...
180-2	36A-2	57,150	35,71	35,48	17,46	138,6	144,4	144,4	53,60	7,20	65,84	560,5	695,0	29,22	PHC 180-2...
200-2	40A-2	63,500	39,68	37,85	19,85	151,9	158,8	158,8	60,00	8,00	71,55	707,6	877,4	32,24	PHC 200-2...
240-2	48A-2	76,200	47,63	47,35	23,81	183,4	190,8	190,8	72,39	9,50	87,83	1020,6	1255,3	45,23	PHC 240-2...
25-3*	04C-3*	6,350	3,30	3,18	2,31	21,0	21,5	-	6,00	0,80	6,40	10,5	12,6	0,44	PHC 25-3...
35-3*	06C-3*	9,525	5,08	4,77	3,58	32,7	33,5	-	9,00	1,30	10,13	23,7	28,6	1,05	PHC 35-3...
40-3	08A-3	12,700	7,95	7,85	3,96	45,4	46,6	-	12,00	1,50	14,38	42,3	50,0	1,90	PHC 40-3...
50-3	10A-3	15,875	10,16	9,40	5,08	57,0	58,5	59,3	15,09	2,03	18,11	66,6	77,8	3,09	PHC 50-3...
60-3	12A-3	19,050	11,91	12,57	5,94	71,5	73,3	73,9	18,00	2,42	22,78	95,4	111,1	4,54	PHC 60-3...
80-3	16A-3	25,400	15,88	15,75	7,92	91,7	93,6	95,1	24,00	3,25	29,29	170,1	198,4	7,89	PHC 80-3...
100-3	20A-3	31,750	19,05	18,90	9,53	112,2	116,3	116,3	30,00	4,00	35,76	265,5	309,6	11,77	PHC 100-3...
120-3	24A-3	38,100	22,23	25,22	11,10	141,4	145,2	145,2	35,70	4,80	45,44	381,0	437,2	17,53	PHC 120-3...
140-3	28A-3	44,450	25,40	25,22	12,70	152,2	156,8	156,8	41,00	5,60	48,87	517,2	593,3	22,20	PHC 140-3...
160-3	32A-3	50,800	28,58	31,55	14,27	181,8	186,6	186,6	47,80	6,40	58,55	680,4	780,6	30,02	PHC 160-3...
180-3	36A-3	57,150	35,71	35,48	17,46	204,4	210,2	210,2	53,60	7,20	65,84	840,7	983,6	38,22	PHC 180-3...
200-3	40A-3	63,500	39,68	37,85	19,85	223,5	230,4	230,4	60,00	8,00	71,55	1061,4	1217,8	49,03	PHC 200-3...
240-3	48A-3	76,200	47,63	47,35	23,81	271,3	278,6	278,6	72,39	9,50	87,83	1530,9	1756,5	71,60	PHC 240-3...

* Bushing chain: d₁ indicates external diameter of bushing.

Standard lengths are 10 ft. and 5 m. To complete designation, add chain length. For example, a 10 ft. box of 140-1 is PHC 140-1X10FT.

For links, add "C/L" for "connecting" and "O/L" for "offset" to the designation.

For cottered, add a "C" after the number of strands. For example, 140-1 with a cottered pin is designated PHC 140-1C.