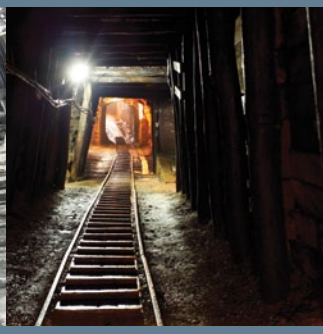
MINING CHAINS

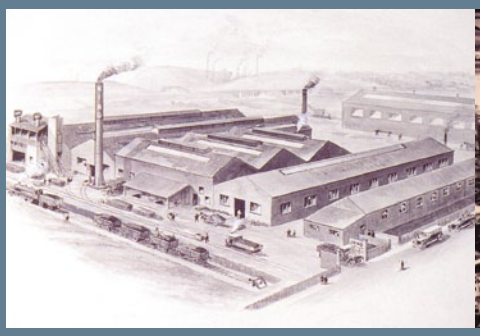


Linking you to ***EXCELLENCE*** *since 1926*

JOHN KING

JOHN KING & COMPANY



Climax Works 1930's

Chain Assembly 1960's

New Climax Works 2000's

Company History and Qualifications

The John King Company was established in Leeds, England in 1926. Early success was achieved in the manufacture of mechanical handling equipment for the rapid mechanisation of the coal industry. In these early days conveyor chain was generally of cast link construction. The Company therefore has unrivalled experience in the production of highest quality cast link chains in ductile irons and steel under the "Climax Quality Brand". JOHN KING are undoubtedly the world leaders in this range of conveying chains.

Although cast link chains remain an important part of the JOHN KING programme, the company has progressively expanded the product range to encompass chains of other constructions and manufacturing techniques including Welded steel chains, engineered steel chains, forged fork link chains and Engineering plastic chains. Today JOHN KING offer the widest range of conveyor chains of any manufacturer which makes them unique in being able to offer an infinite number of chain types in a variety of materials and constructions for a multiplicity of industry mechanical handling applications.

In recent years it has been JOHN KING's strategy to develop the Company into a global business. This has seen the establishment, in addition to the United Kingdom, of a chain production plant in the US. John King USA Inc from their plant in East Peoria (IL) are well equipped with the manufacturing equipment for component production and assembly processes for high quality chain production serving North and South America. To provide best service in export markets the companies has warehousing and distribution worldwide and maintain ambition plans to expand the network further in the future.

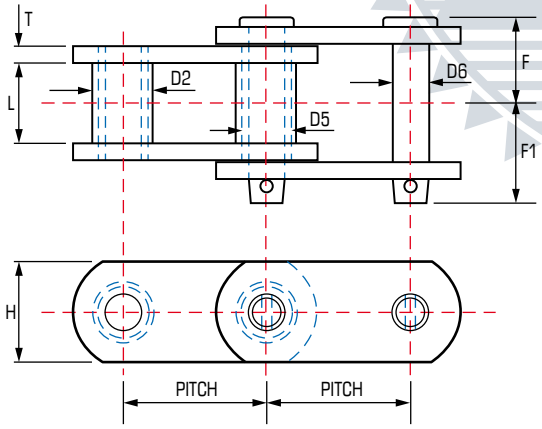
All products are manufactured within the dictates of the Company's quality management according to ISO 9000 establishing consistent and high quality products and ensuring performance reliability and extended service life.

CONTENTS

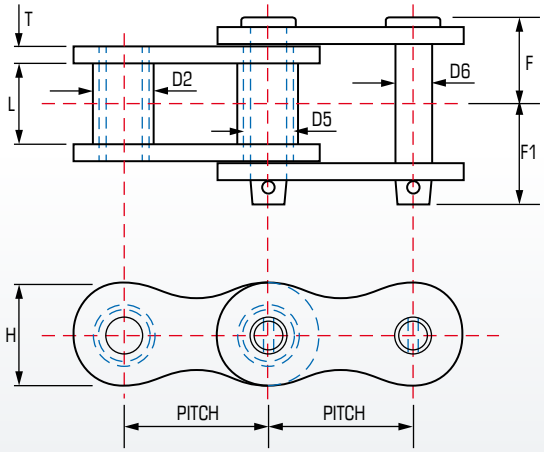
Tram Chain

Tram chains are based on standard transmission chain construction but used in feeder applications on continuous mining machinery. The chains are operated in twin strand format with flight bars making the two strands common. Typical pitches are 2.00 "(50.8 mm) and 2.50" (63.50 mm). Materials are enhanced to ensure higher strengths and wear resistance.

STYLE A



STYLE B



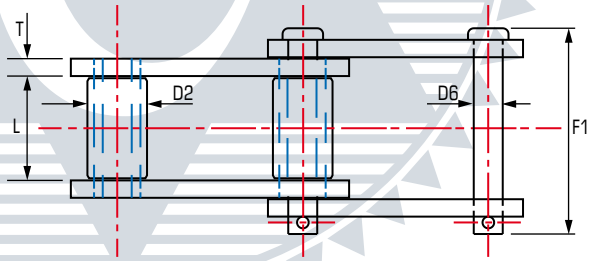
Tram Chains

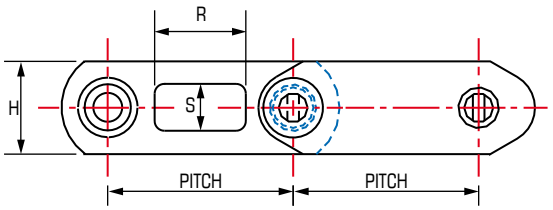
Chain Number	Pitch	Style	Chain Width			Inside Width	Pins		Bushings		Rollers		Sidedbars			Approx. Weight
			Overall	Head to CL	End to CL		Diam-eter	Material	Diam-eter	Material	Diam-eter	Material	Thick-ness	Height	MateriAl	
			F+F1	F	F1	L	D6		D5		D2		T	H		
	inches		inches													lbs/ft
JKM2	2.00	A	3.38	1.44	1.72	1.25	0.72	AHT	1.13	ACH	-	-	0.31	1.88	AHT	8.3
JKM645	2.50	B	3.72	1.69	2.00	1.50	0.88	AHT	1.13	ACH	1.56	AHT	0.38	2.13	AHT	13.5
JKM6414	2.50	B	4.13	1.91	2.00	1.50	0.88	AHT	1.13	ACH	1.56	AHT	0.44	2.13	AHT	14.5

Material AHT = alloy heat treated ACH = alloy case hardened.
JKM6414 sidebar thickness on roller links is .50" and pin link .44"
JKM2 is a bushing type chain and does not have rollers

Engineering Class Shuttle Car Chain – Style JKR

Shuttle cars are designed to efficiently remove cut material from the mine work face in such a manner as to enhance the performance of continuous mining equipment in order to maximise productivity. Two standards styles are illustrated but this is not exhaustive, many bespoke types are available as special production.



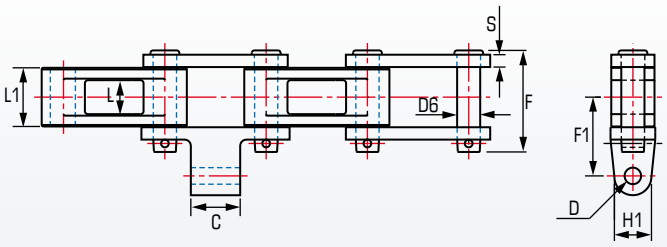


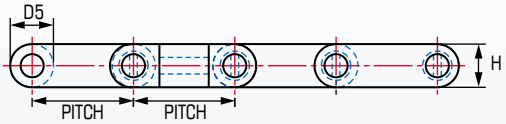
Engineering Class Shuttle Car Chain – Style JKR

Chain Number	Pitch	Spacing	Chain Width	Inside Width	Pins		Rollers		Sidebars			Attachments		Approx. Weight
			Overall		Diameter	HTC	Diameter	HTC	Thickness	Height	HTC			
			F1	L	D6		D2		T	H		R	S	
	inches		inches											lbs/ft
JKR2609/BM5X6	2.609	Ev. 6th	2.91	1.13	0.56	C	1.13	C	0.31	1.63	T	1.28	0.66	6.3
JKR2609/BM5X8	2.609	Ev. 8th	2.91	1.13	0.56	C	1.13	C	0.31	1.63	T	1.28	0.66	6.3
JKR3075/BM5X6	3.075	Ev. 6th	3.56	1.50	0.63	C	1.25	C	0.38	1.75	T	1.28	0.66	8.8

Heat Treatment code (HTC)
T – Hardened and Tempered
C – Case Hardened
I – Induction Hardened

Combination Class Shuttle Car Chain



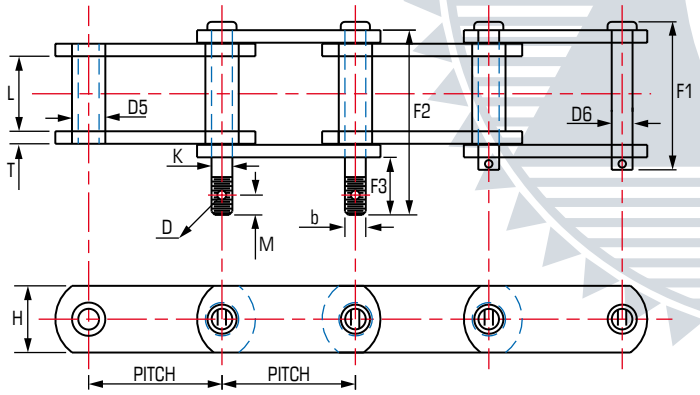


Combination Class Shuttle Car Chain

Chain Number	Pitch	Inner Width Max	L1	Bush Diameter Max	Plate Height Max	Plate Thickness Max	Pin Diameter Max	Pin Lenght Max	F1	H1	D	C	Average Ultimate Strength	Rated Working Load	Weight
		L		D5	H	S	D6	F							
	inches												lbs		lbs/ft
D4100	4.100	1.375	2.375	1.750	1.750	0.500	0.940	4.110	3.970	1.500	0.670	2.000	105,000	7,750	11.40

Feeder Breaker Chain – Style JKB

Feeder breakers are primary crushers with pick mounted roll crushers combining with a chain conveyor. They are designed to act as first phase crushers of mined mineral including coal, limestone, potash, gypsum and PET coke down to a suitable size for continuous transport. They can be either mobile or static machines and employ a variety of "running gear".

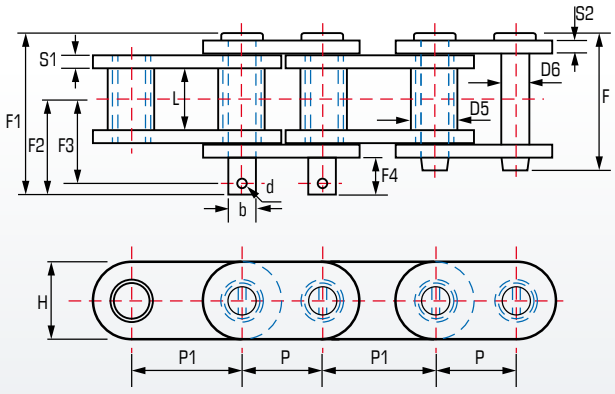


Feeder Breaker Chain – Style JKB

Chain Number	Pitch	Chain Width	Inside Width	Pins		Bushings		Sidebars			Attachments						Approx. Weight
		Overall		Diameter	HTC	Diameter	HTC	Thickness	Height	HTC							
		F1	L	D6		D5		T	H		F3	F2	K	b	M	D	
	inches																lbs/ft
JKB3075/D3X4	3.075	3.44	1.31	0.68	C	1.25	C	0.38	1.50	T	2.06	4.94	0.67	0.63	0.50	0.25	4.6

Heat Treatment code (HTC)
T – Hardened and Tempered
C – Case Hardened
I – Induction Hardened

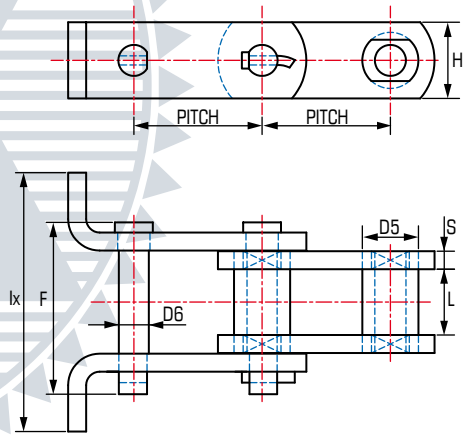
Engineering Class Feeder Breaker Chain



Engineering Class Feeder Breaker Chain

Chain Number	Pitch		Inner Width	Bush	Plate Height	Thickness		Pin		F1	F2	F3	b	d	F4	Average Ultimate Strength
				Diameter		Inner Plate	Outer Plate	Diameter	Length							
	P	P1	L	D5	H	S1	S2	D6	F							
	inches															lbs
D5561	3.000	4.000	1.875	1.500	2.500	0.562	0.500	0.995	4.906	5.781	3.500	3.094	0.928	0.360	1.469	168,000
D6569	3.500	-	2.250	1.740	2.750	0.562	0.500	1.113	5.344	6.310	3.841	3.484	1.092	0.358	1.591	160,000
D5671	6.000	-	3.625	2.590	4.500	0.750	0.750	1.750	8.625	9.520	5.620	4.765	1.740	12.700	2.140	420,000

Buffalo Feeder Breaker Chain

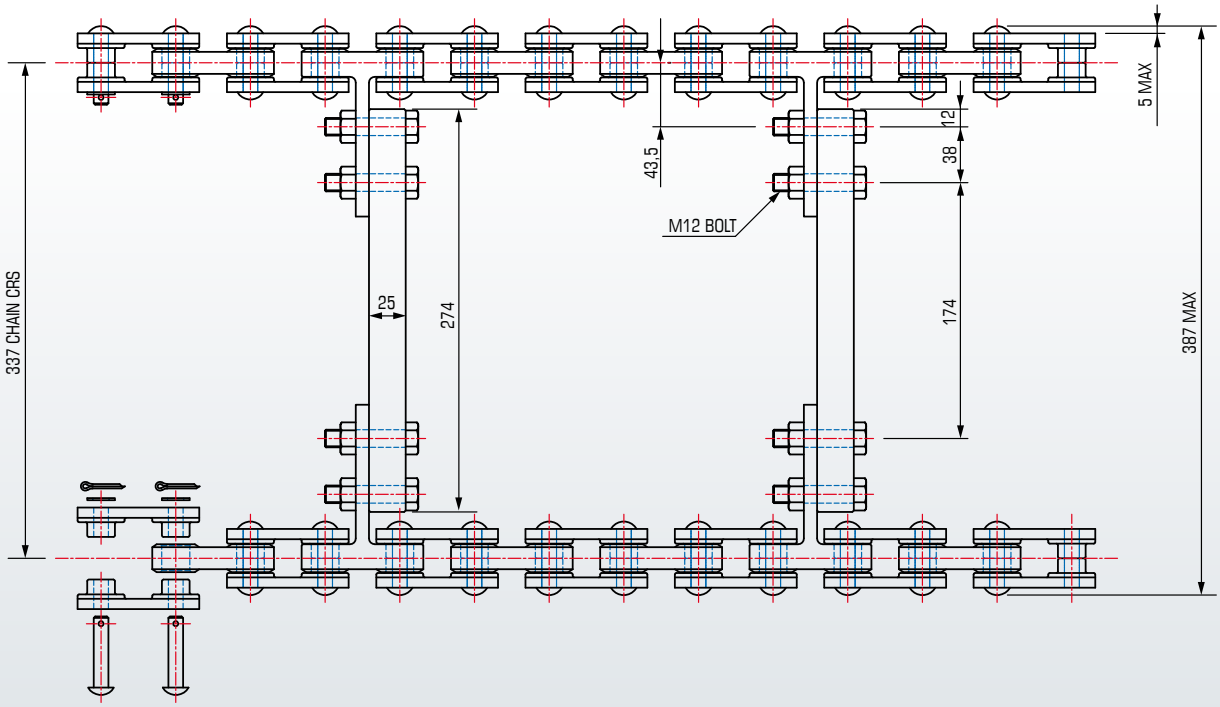


Buffalo Feeder Breaker Chain

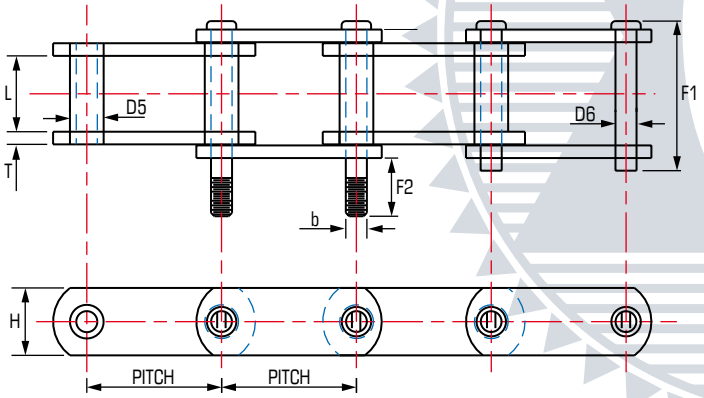
Chain Number	Pitch	Inner Width Max	Bush Diameter Max	Plate Height Max	Plate Thickness Max	Pin Diameter Max	Pin Lenght Max	Ix	Average Ultimate Strength	Rated Working Load	Weight
		L	D5	H	S	D6	F				
	inches								lbs		lbs/ft
D3905	4.00	0.938	1.750	2.375	0.560	0.940	5.375	8.000	144,500	16,000	11.18

Road Headers or Dintheaders Chains

Road headers or Dintheaders are a multipurpose mining machine used in such as Heading machines in the advance or retreat of a long wall face development, Dinting (floor grading) of roadways affected by strata disturbance and coal production in short wall operations or room and pillar operations.



Wash Box Chains Specifications

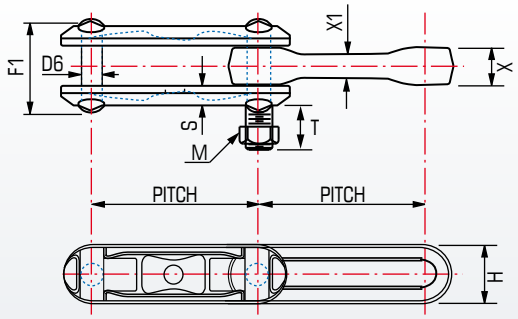


Wash Box Chains Specifications

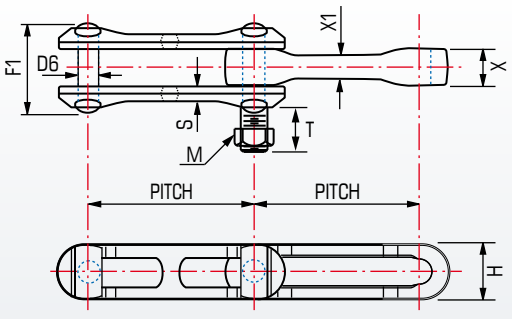
Chain Number	Pitch	Space	Chain Width	Inside Width	Pins		Bushings		Sidebars			Attachments		Approx. Weight
			Overall		Diameter	Material	Diameter	Material	Thickness	Height	Material	b	F2	
			F1	L	D6		D5		T	H				
	inches		inches											lbs/ft
JKM3075H/D3X4	3.075	Ev. 4th	4.00	1.31	0.75	ACHCP	1.25	CCH	0.38	1.75	CHT	0.75	1.25	10.2
JKM3075H/D3X6	3.075	Ev. 6th	4.00	1.31	0.75	ACHCP	1.25	CCH	0.38	1.75	CHT	0.75	1.25	9.8

Drop Forge Rivetless Chain with Extended Pins

X-STYLE



STANDARD

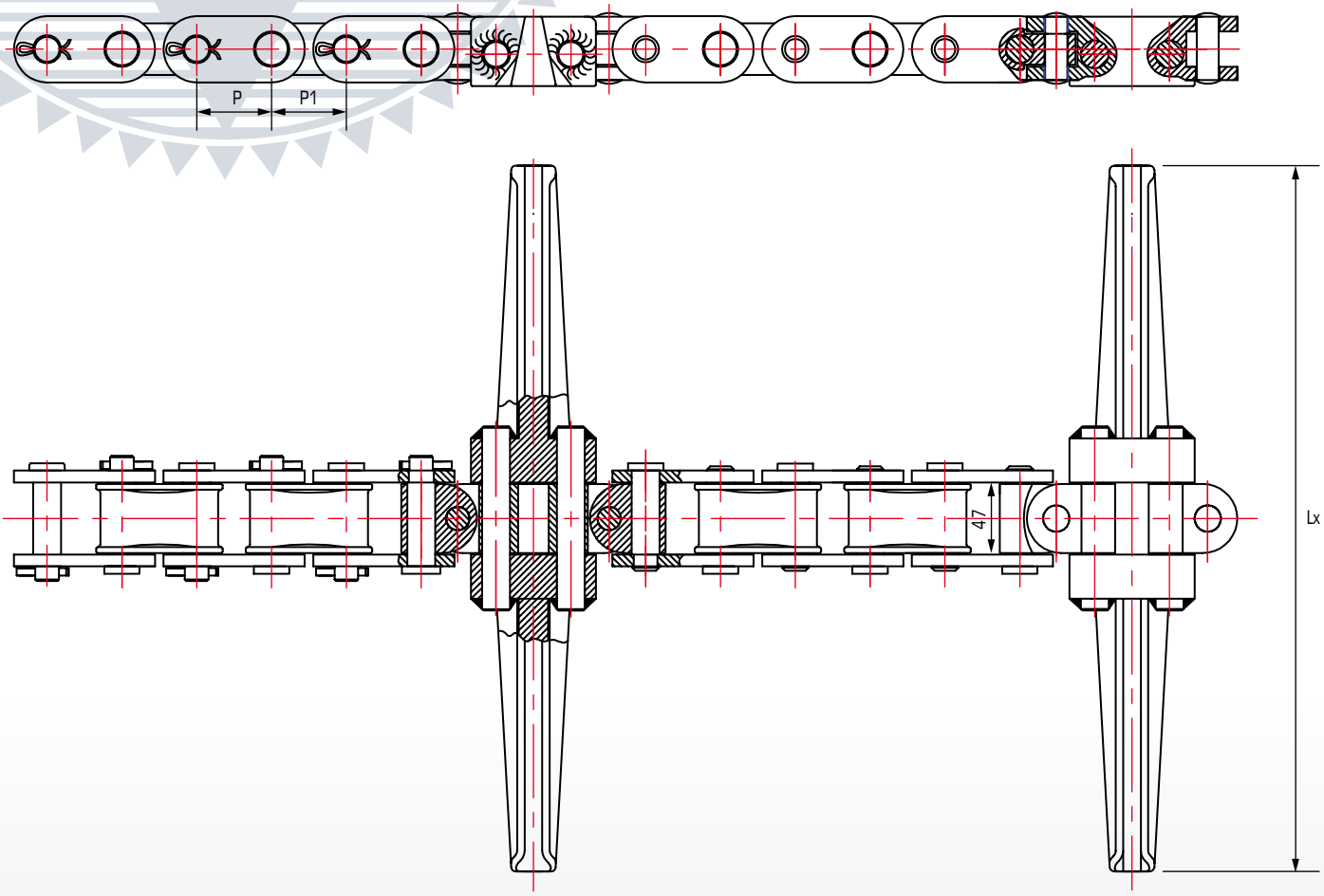


Drop Forge Rivetless Chain with Extended Pins

Chain Number	Pitch	Average Tensile Strength	X1	X	D6	H	S	F1	Attachments			Approx Weight
									Space	T	M	
	inches											lbs/ft
X-678	6.031	85,000	0.81	1.31	0.88	2.00	0.50	3.09	2 Ext. Pins Ev. 4th	1.50	0.75	6.9
698	6.031	130,000	1.00	1.56	1.13	2.52	0.63	3.75	2 Ext. Pins Ev. 4th	1.50	0.75	12.1

Cardan or Biplaner Chains

Cardan or Biplaner chains are multidirectional as a result of a universal joint at the flight position. They are principally employed in conveying mined minerals at high speeds in tunnelling machines or continuous mining equipment. The chain components are forged from optimum materials and heat treated to ensure maximum performance and reliability in operation.



Cardan or Biplaner Chains

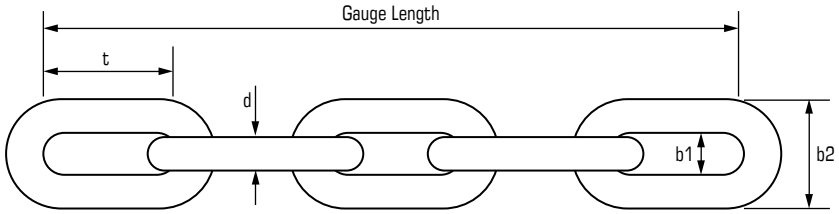
P + P1	P	P1	Lx
inches			
4.000	2.000	2.000	18.75
5.250	2.438	2.813	16.05
5.250	2.625	2.625	23.50
5.625	2.625	3.000	27.50

Round Link Steel Chains and accessories

Round link steel chains have become a proven standard in mining and have developed in the coal mining industry along with Long wall mining, a highly effective means of extraction, since the 1960s. Armoured face conveyors require a chain that will run over long distances and offer flexibility in operation. The main standard is covered by DIN 22252.

Round Link Steel Chains

Nominal size	Diameter		Pitch		Width		Gauge Length	
d x t	d	Tolerance	t	Tolerance	Inside b1 min	Outside b2 max	5 x t	Tolerance
14 x 50	14	±0.4	50	±0.5	17	48	250	±1.0
18 x 64	18	±0.5	64	±0.6	21	60	320	±1.0
19 x 64.5	19	±0.6	64.5	±0.6	22	63	322.5	±1.0
22 x 86	22	±0.7	86	±0.9	26	73	430	±1.0
26 x 92	26	±0.8	92	±0.9	30	85	460	±1.0
30 x 108	30	±0.9	108	±1.1	34	97	540	±1.2
34 x 126	34	±1.0	126	±1.3	38	109	630	±1.3



Elongation at test force 1.6% max.
Total elongation at fracture 14% min.
Fatigue test 70,000 cycles min.

Round Link Steel Chains

Nominal size	Reference number	Test force	Breaking force WF DIN	Operating force WF DIN	Breaking force WF DIN+	Operating force WF DIN+	Bend test deflection	Weight
d x t	TH	Min kN	Min kN	Max kN	Min kN	Max kN	mm	kg/m
14 x 50	1450TH	185	246	154	-	-	14	±1.0
18 x 64	1864TH	305	407	254	460	287	18	±1.0
19 x 64.5	1964TH	340	454	283	510	318	19	±1.0
22 x 86	2286TH	456	608	380	680	425	22	±1.0
26 x 92	2692TH	637	850	531	960	600	26	±1.0
30 x 108	30108TH	848	1130	707	1270	795	30	±1.2
34 x 126	34126TH	1090	1450	907	1640	1026	34	±1.3

Round Link Deep Case Hardened Chains

For use with abrasive material, or where excessive friction occurs case hardened chain may increase operational life considerably over that of standard chains.
Based on DIN 22252:2001 Round link steel chains. Additionally proof loaded and tested.

Round Link Steel Chains

Nominal size	Ref. Number	Pitch nominal	Width		Test force	Breaking force	Weight
			Inside min.	Outside max.			
d x t		mm			min. kN		kg/m
14 x 50 CH	14/50/CH	50	16.5	47	74	128	4.1
16 x 64 CH	18/64/CH	64	20	55	96	160	5.1
19 x 75 CH	19/75/CH	75	22	63	135	225	7.6
22 x 86 CH	22/86/CH	86	26	75	183	304	9.5
26 x 100 CH	26/100/CH	100	31	87	255	425	13.3
30 x 120 CH	30/120/CH	120	36	101	340	566	17.5
34 x 136 CH	34/136/CH	136	39	113	425	710	23.8

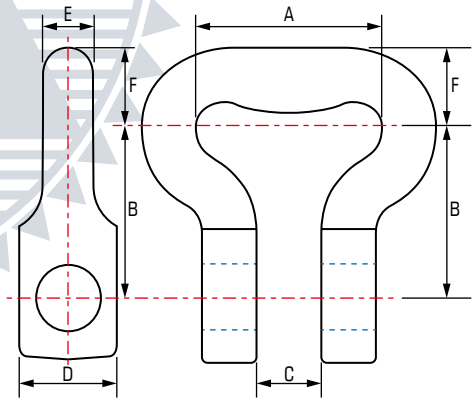
Proof Strength 240 N/mm² Breaking Force 400 N/mm² Surface Hardness 800HV 40
Carburizing Depth 0.09d Hardening Depth 0.05d Material: chrome-Nickel Alloy Steel All dimensions in mm

Twin Outboard Chain Systems

Shackle Type Connectors

There is also a range of nuts, bolts and flight bars to suit. Further details can be obtained on request.

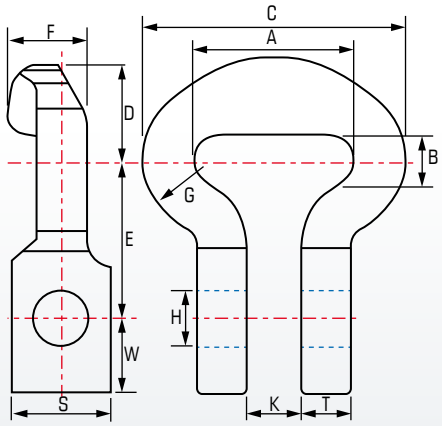
Padless Connector



Padless Connector

Chain Number	Ref. Number	A	B	C	D	E	F	Weight
		max						
		mm						kg
14 x 50	40/14	50	47.5	17	28	15	23	0.46
18 x 64	40/18	64	55	22	38	19	30	1
22 x 86	40/22	86	75	31	50	23	38	1.6
30 x 108	40/32	108	96	34	64	31	50	4

Connector with Wear Pad

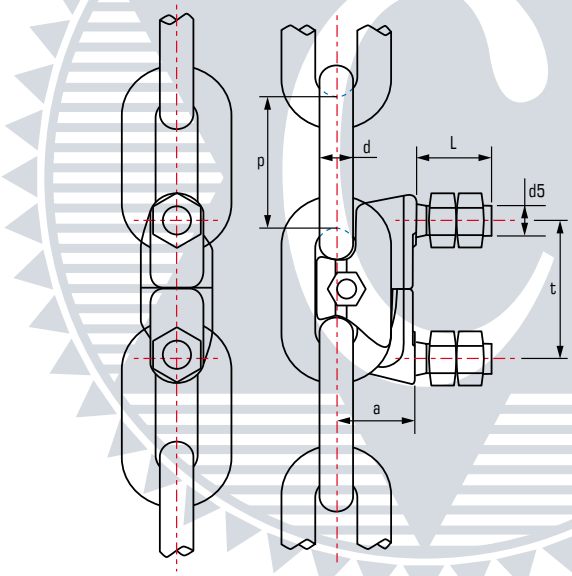


Connector with Wear Pad

To suit nominal chain size	Ref. Number	Test force	Elongation at Test force	Breaking force	Elongation at break	A	B	C	D	E	F	G	H	K	S	T	W	Weight
								MAX										
mm		min.-kN	% max	min.-kN	% min	mm												kg/m
14 x 50	40/14/WP	180	2	225	8	50	15	81	29	48	30	23	17	18	30	13	18	0.5
18 x 64	40/18/WP	325	2	405	8	64	20	108	44	55	40	31	21	19.5	43	19	40	1.38
19 x 64.5	40/19/WP	325	2	405	8	64.5	20	105	44	55	40	31	21	19.5	43	19	40	1.38
22 x 86	40/22/WP	440	2	550	8	86	24	134	58.5	75	46	37	25	24	52	22	44	2.58

BC Bucket Clamps

Special bucket attachments are available for the CH series chain to be used on vertical bucket elevators. They are designed to operate with friction drives and tooth sprocket wheels. The bracket allows continuous strands to be employed and operational reliability is increased as they are not an integral part of the haulage member simply an addition. Clamps can be reused when base chain is worn.

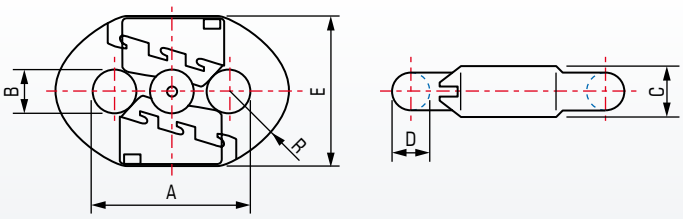


BC Bucket Clamps

Clamp Reference Number	Chain Ref. Number	t	p	d	a	L	d5	Weight
		mm						kg/pc
BC16	16 x 64 CH	63	64	16	37	40	M16	0.75
BC19	19 x 75 CH	80	75	19	47	50	M20	1.3
BC22	22 x 86 CH	91	86	22	52	55	M24	2.2
BC26	26 x 100 CH	105	100	26	57	58	M24	2.6
BC30	30 x 120 CH	126	120	30	71	65	M30	4.5
BC34	34 x 136 CH	147	136	34	81	75	M36	7.1

CC Series Chain Connector

A new generation chain connector is available with the CC series clamp. It is suitable for both horizontal and vertical application to be used in AFC, plough haulage and general conveying applications. Special material selection combined with close tolerance machining ensures the connector offers high strength greater than the minimum demands of DIN 22252/2.



CC Series Chain Connector

For nominal chain size	Reference Number	D	A	B	E	C	R	Test force TF	Breaking force BF	Operating force WF	Weight
		Max	Max	Max	Max	Max	nom				
mm		mm						kN			kg/pc
14 x 50	47/CC14	14±0.5	50±0.8	16	51	19	27	185	246	154	0.80
18 x 64	47/CC18	18±0.5	64±0.8	20	65	23	31	305	407	254	1.32
22 x 86	47/CC22	22±0.7	86±0.9	24	85	27	35	455	645	380	1.35
26 x 92	47/CC26	26±0.8	92±0.9	28	97	33	41	637	900	531	1.92
30 x 108	47/CC30	30±0.9	108±1.1	32	109	36	47	848	1200	707	2.98
34 x 126	47/CC34	34±1.0	126±1.3	36	121	41	52	1090	1540	907	4.15

JOHN KING

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