CEMENT INDUSTRY 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.

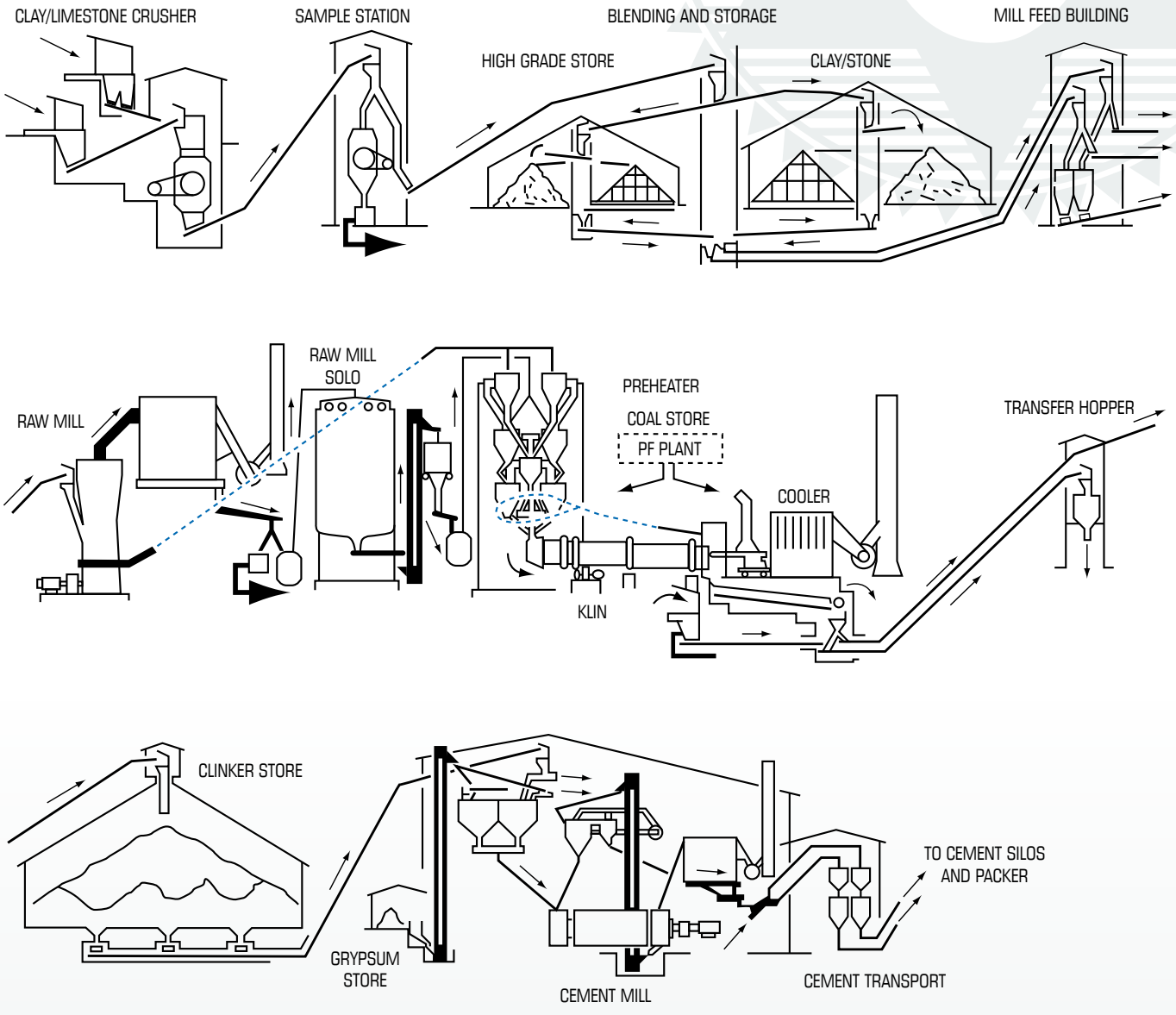
Although cast link chains remain an important part of the JOHN KING programme, the company has progressively expanded the product range to encompass chains of other constructions and manufacturing techniques including Welded steel chains, engineered steel chains, forged fork link chains and Engineering 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.

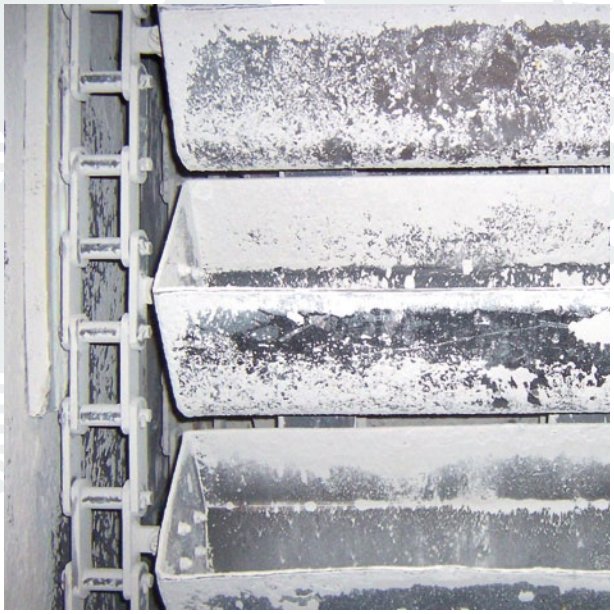
In recent years it has been JOHN KING's strategy to develop the Company into a global business. This has seen the establishment, in addition to the United Kingdom, of a chain production plant in the US. John King USA Inc from their plant in East Peoria (IL) are well equipped with the manufacturing equipment 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

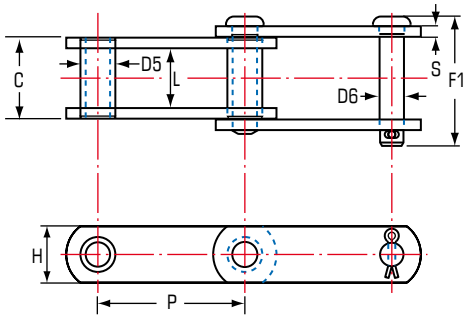
Typical Process Layout for Cement Production



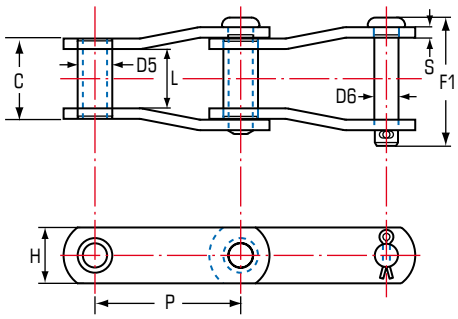


American Standard without Rollers

The smooth and stable flow of material through a process depends on the performance of the conveyor chain installed within the equipment. Bush class chains or steel knuckle chain are of the same construction as roller conveyor chain, but with the roller excluded. This series, with a reduced number of components, has proved to be particularly successful in high duty, high abrasion applications where lubrication is not possible. For many years KING steel bush chains have been proving performance in mill duty centrifugal discharge elevators within the more difficult applications encountered in the Cement Industry.



STYLE I



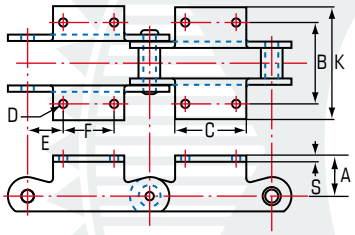
STYLE V

American Standard – Engineered Steel – without Rollers B29-12

Chain Number	Style	P	Breaking Load	Average Weight	Over-All Pin & Cotter	Sidebars			Bushings		Between Sidebars	Pins	
						Thickness	Height	HTC	Length	Outside Diameter		Diameter	HTC
					F1	S	H		C	D5	L	D6	
		inches	Lbs	lbs/ft	inches				inches				
JKB110	I	6.000	36,000	6.30	4.37	0.38	1.50	T	2.89	1.25	2.13	0.63	C
JKB844	V	6.000	52,000	10.40	5.31	0.50	2.00	T	3.50	1.19	2.50	0.75	C
JKB856	I	6.000	82,000	16.50	5.99	0.50	2.50	T	4.00	1.75	3.00	1.00	I
JKB956	I	6.000	97,000	16.60	5.99	0.50	3.00	T	4.00	1.75	2.95	1.00	I
JKB857	I	6.000	91,000	21.00	5.99	0.50	3.25	T	4.00	1.75	3.00	1.00	I
JKB958	I	6.000	97,000	21.00	6.07	0.56	3.25	T	4.13	2.00	3.00	1.13	I
JKB859	I	6.000	155,000	34.00	7.62	0.63	4.00	T	5.00	2.38	3.75	1.25	I
JKB6150	I	6.050	124,000	17.20	6.36	0.50	2.50	T	4.35	1.75	3.34	1.00	C
JKB864	I	6.050	155,000	33.00	7.62	0.63	4.00	T	5.00	2.38	3.75	1.25	I
JKB984	I	7.000	155,000	33.00	7.35	0.62	4.00	T	5.00	2.50	3.75	1.38	I

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

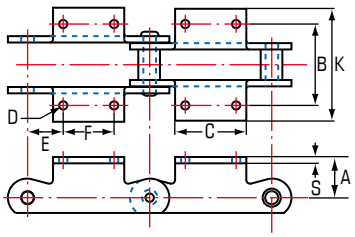
American Standard without Rollers with K24 attachment



Enginereed Steel attachment K24

Chain Number	B	E	D Bolt Hole Dia	F	K	A	C	S	Weight
	inches								lbs/ft
JKB856	7.25	1.75	0.69	2.50	9.38	1.88	6.91	0.50	27.50
JKB956	7.25	1.75	0.69	2.50	9.50	1.88	6.91	0.50	29.00

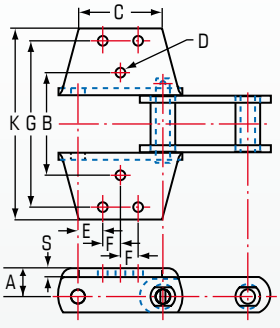
American Standard without Rollers with K25 attachment



Enginereed Steel attachment K25

Chain Number	B	E	D Bolt Hole Dia	F	K	A	C	S	Weight
	inches								lbs/ft
JKB110	5.31	2.13	0.41	1.75	6.44	1.13	3.50	0.38	8.60

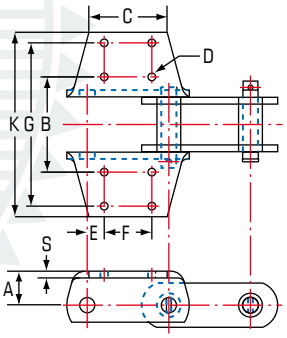
American Standard without Rollers with K35 attachment



Enginereed Steel attachment K35

Chain Number	B	E	D Bolt Hole Dia	F	K	A	G	C	S	Weight
	inches									lbs/ft
JKB856	7.25	1.75	0.69	1.25	13.56	1.88	11.75	5.84	0.50	26.90

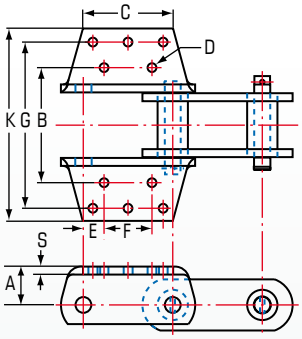
American Standard without Rollers with K44 attachment



Engineered Steel attachment K44

Chain Number	B	E	D Bolt Hole Dia	F	K	A	G	C	S	Weight
	inches									lbs/ft
JKB857	7.00	1.25	0.56	3.50	14.00	2.50	12.00	5.50	0.50	38.00
JKB859	9.00	1.63	0.69	2.75	15.00	3.00	13.00	5.92	0.63	39.00
JKB958	7.00	1.25	0.56	3.50	13.68	2.50	12.00	5.75	0.50	40.00

American Standard without Rollers with K443 attachment



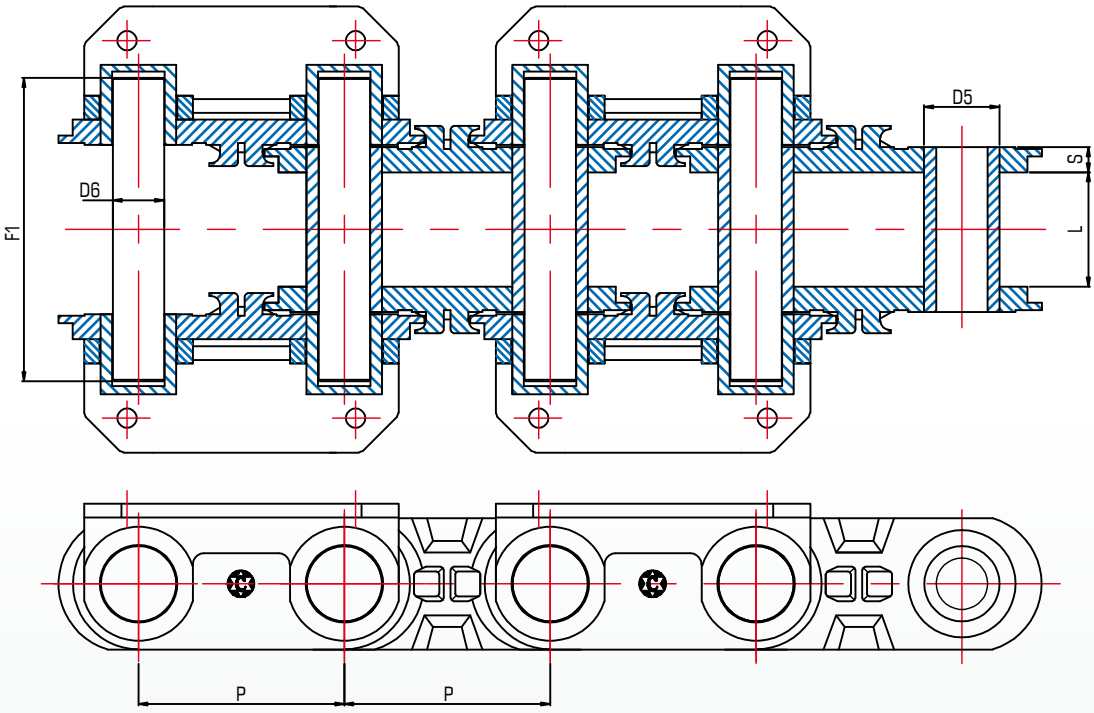
Engineered Steel attachment K443

Chain Number	B	E	D Bolt Hole Dia	F	K	A	G	C	S	Weight
	inches									lbs/ft
JKB984	9.00	1.62	0.69	3.75	15.00	3.00	13.00	7.00	0.63	55.00
JKB864	9.00	1.63	0.69	3.75	14.88	3.00	13.00	7.32	0.62	58.00

Central Chain for High Output Bucket Elevators

The New Generation central strand high duty elevator chain has proven performance in the most demanding elevator applications. The construction is simple and assembly or shortening of chain lengths can be achieved with comparative ease. The K style attachment links are mounted on the outer link pin retention sleeves and made common with the bucket fixings.

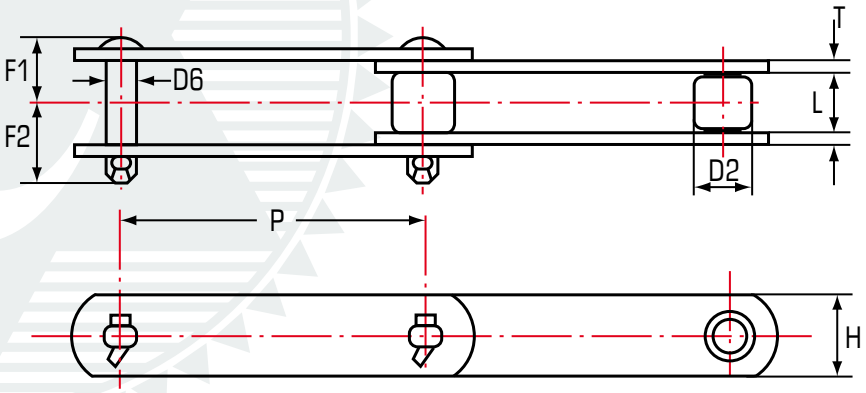
The secret of success is the employment of optimum materials and heat treatments and the incorporation of a free rotating pin which allows wear to take place on the full diameter. This reduces the wear rate, pitch extension and therefore extends service life.



Central Chain for High Output Bucket Elevators

Chain Number	Pitch	Overall Pin& Cotter	Bushings Outside Dia.	Between Sidebars	Sidebars Thickness	Average Ultimate Strength
	P	F1	D5	L	S	
	mm					Kg
JK 180 200	180	50	80	106	20	204,000
JK 180 150	180	40	66	100	22	153,000
JK 200 80	180	38	55	85	15	81,600

King Double Strand Bucket Elevator with Side Mounted Bucket

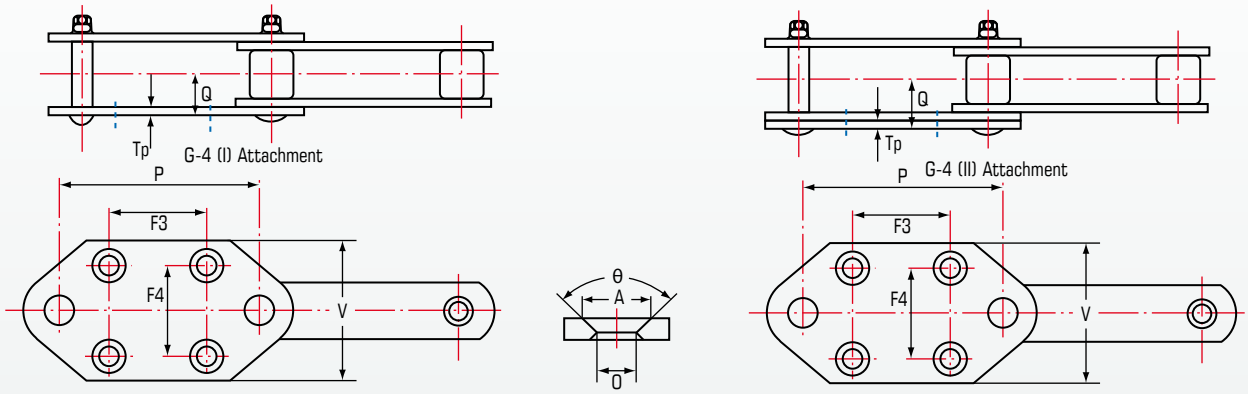


King Double Strand Bucket Elevator with Side Mounted Bucket

Chain Number	Pitch P	D2	D6	L	H	T	F1	F2	Ultimate Strength
	mm								kg
JKR26200	200	50.8	22.2	57.2	63.5	9.5	56	61	57,500
JKR26250	250	50.8	22.2	57.2	63.5	9.5	56	61	57,500
JKR26300	300	50.8	22.2	57.2	63.5	9.5	68.5	61	57,500
JKR36250	350	57.2	25.4	66.7	76.2	12.7	69	78	88,500
JKR36300	300	57.2	25.4	66.7	76.2	12.7	81	78	88,500
JKR36350	350	57.2	25.4	66.7	76.2	12.7	81	78	88,500
JKR60300	300	70	35.0	77	90	12.7	88	84	106,000
JKR60350	350	70	35.0	77	90	12.7	88	84	106,000
JKR60400	400	70	35.0	77	90	12.7	88	84	106,000
JKR90350	350	85	42.0	88	110	16	101.5	95.5	166,000
JKR90400	400	85	42.0	88	110	16	101.5	95.5	166,000
JKR120400	400	100	50.0	100	130	19	119.5	108	225,000

G Attachment

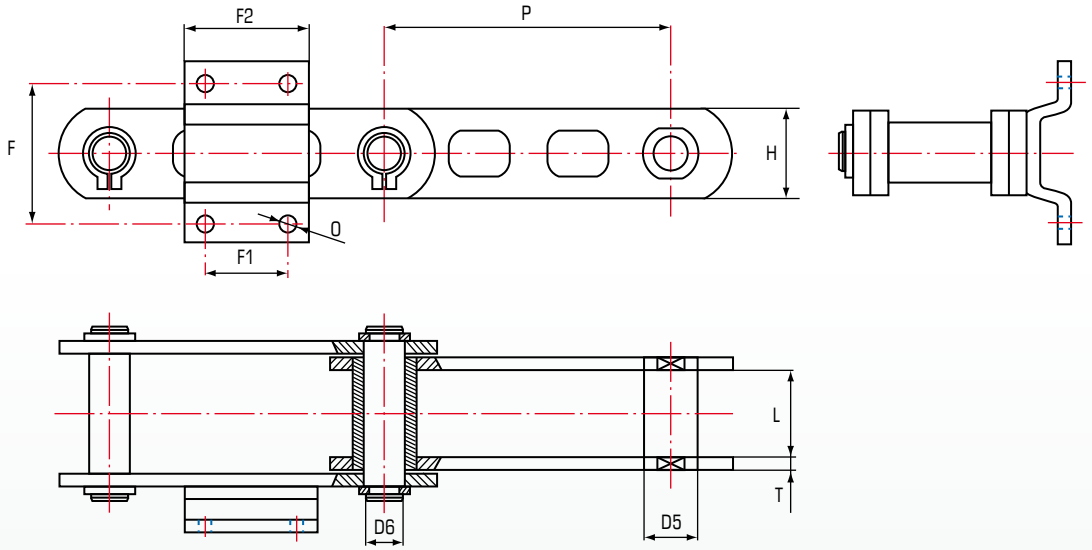
For Double Strand Elevators Kings propose their JKR series with fixed G attachments for side mounting on the buckets.



King Double Strand Bucket Elevetor with Side Mounted Bucket with G Attachment

Chain Number	Pitch P	V	F3	F4	Tp	Q	A	O	Bolt Diameter
	mm								
JKR26200-A	200	120	100	80	9.5	48	26	15	M12
JKR26200-B	200	120	100	80	9.5	48	26	15	M14
JKR26250-A	250	150	140	100	9.5	48	26	15	M12
JKR26250-B	250	150	140	100	9.5	48	32	19	M16
JKR26300-A	300	150	180	100	9.5	48	26	15	M12
JKR26300-B	300	200	170	140	12	60	38	24	M20
JKR36250-A	250	150	140	100	12.7	60	32	19	M16
JKR36250-B	250	150	140	100	12.7	60	32	19	M16
JKR36300-A	300	150	180	100	12.7	60	32	19	M16
JKR36300-B	300	200	170	140	12	72	38	24	M20
JKR60300-B	300	200	170	140	12	77	38	24	M20
JKR36350-B	350	240	200	170	12	72	40	28	M24
JKR60350-B	350	240	200	170	12	77	40	28	M24
JKR60400-B	400	280	230	200	16	81	50	35	M30
JKR90350-B	350	240	200	170	12	89.5	40	28	M24
JKR90400-B	400	280	230	200	16	93.5	50	35	M30
JKR120400-B	400	280	230	200	16	105.5	50	35	M30

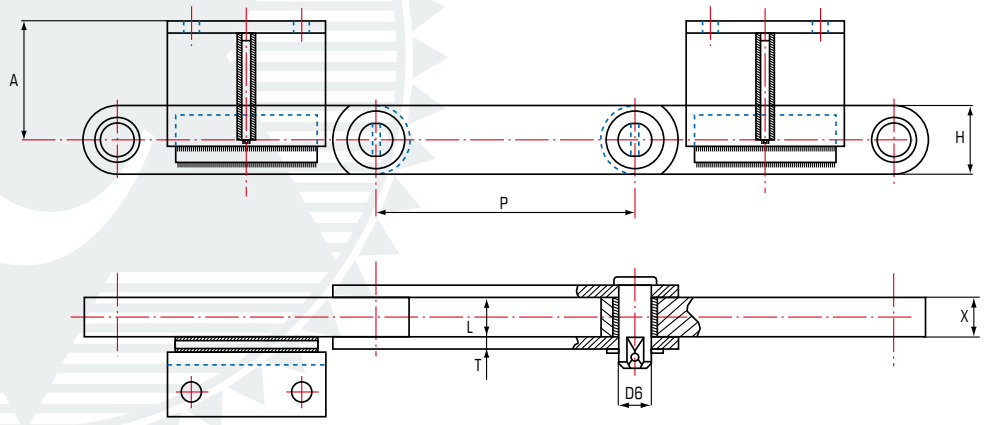
King Deep Bucket San Conveyor POL Series



King Deep Bucket San Conveyor POL Series

Chain Number	Pitch P	L	O	D5	D6	F	F1	F2	H	T	Flanged Roller	Axle Diameter
	mm											
POL200200	200	45	14	32	22	110	60	100	50	8	50	22-28
POL250320	250	65	18	45	32	150	80	120	70	10	60	32-40
POL250480	250	67	18	50	35	150	80	120	80	12	70	35-45

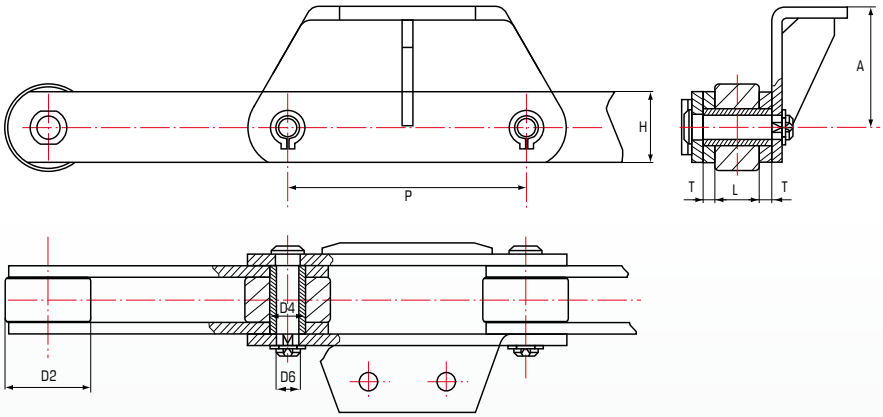
King Scraper Reclaimer SC Series



King Scraper Reclaimer SC Series

Chain Number	Pitch P	L	D6	A	H	X	T
	mm						
SC250620	250	41	36	125	70	40	12
SC315850	315	51	42	135	80	50	15

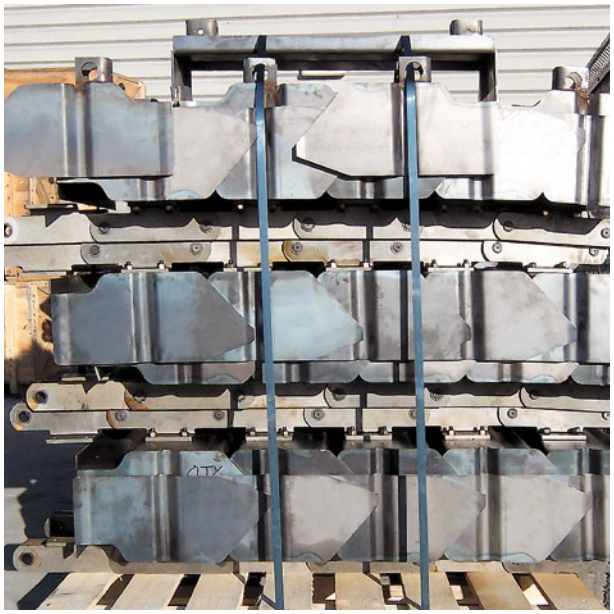
King Scraper Reclaimer PH Series



King Scraper Reclaimer PH Series

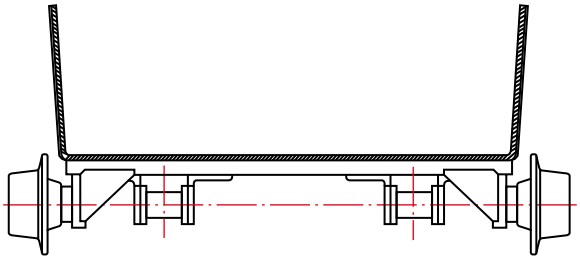
Chain Number	Pitch P	L	D6	D4	D2	H	T	A
	mm							
PH2501000	250	58	42	50	130	100	15	135
PH3151100	315	60	36	54	130	100	15	-
PH4001100	400	70	36	54	130	100	15	-

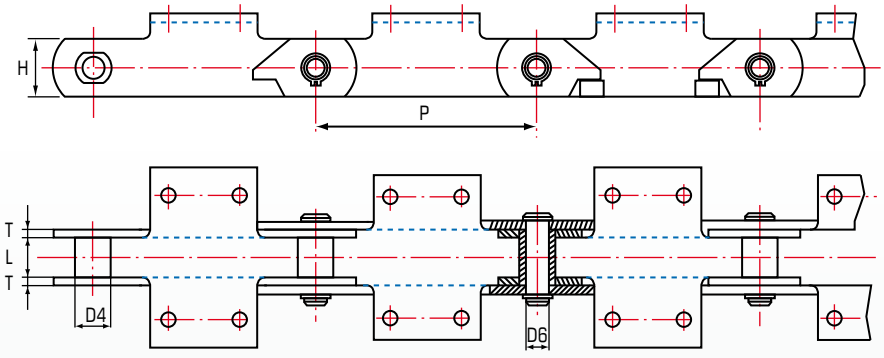
SC and PH elevator chains are typical standards employed in portal reclaimers. The purpose is to draw material from stockpiles in a controlled manner. The chains operate in double strand format made common with a plough. Typical materials conveyed include such as Limestone, Shale and Coal.



King Pan Conveyor AM Series

A typical means of transporting clinker is with a pan or bucket. The POL Series featured on page 9 shows a G style attachment for side mounted deep bucket location and the AM Series with K style for underside fixing to the pan. For the former it is typical to see guide rollers mounted on the chain pin or axle whilst for the latter the guide roller is generally a separate unit fixed to the pan. Clearly the chain is not directly exposed to the material which offers advantage. All types of chains within this category can be manufactured.



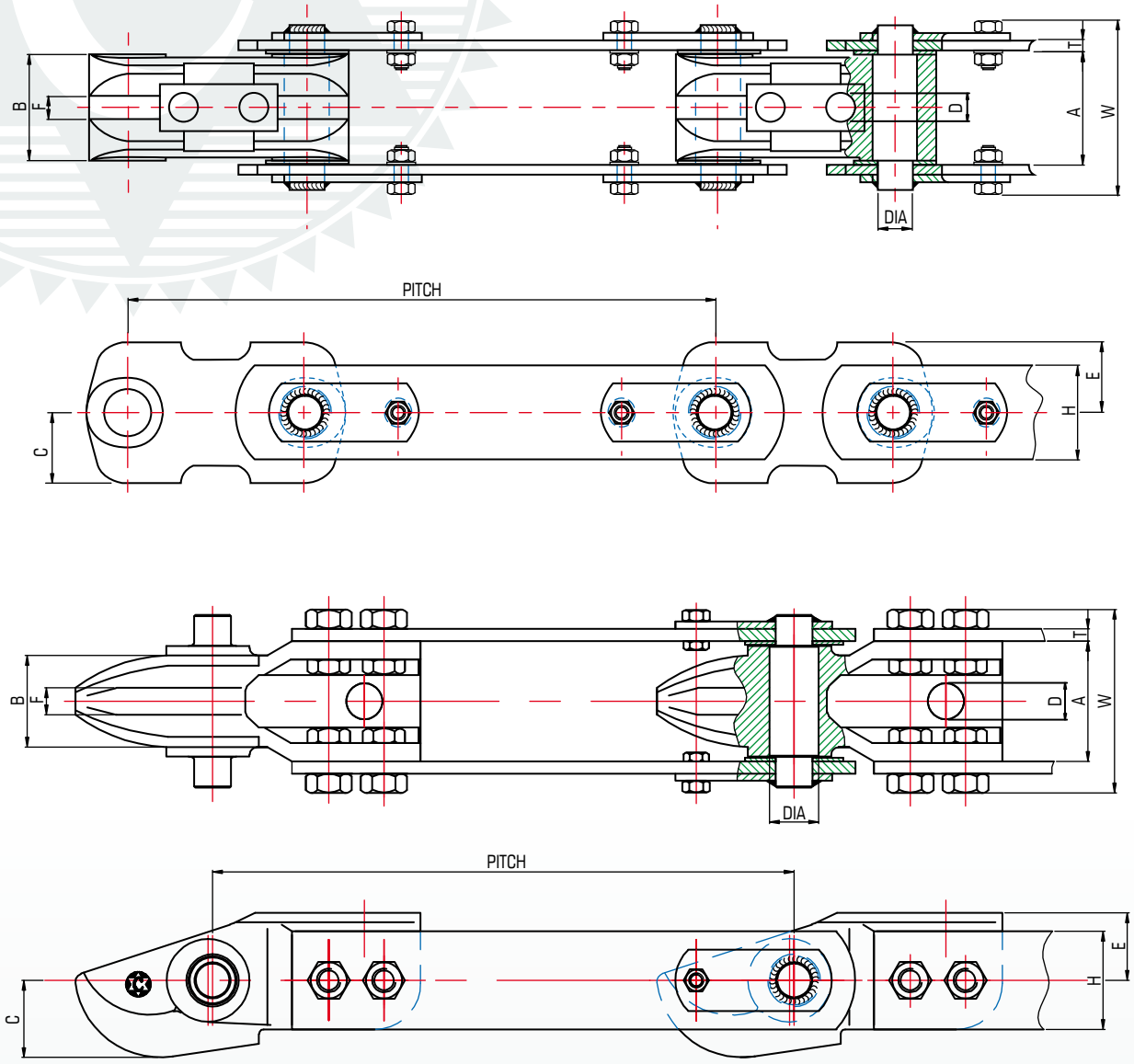


King Pan Conveyor AM Series

Chain Number	Pitch P	L	D4	D6	H	T
	mm					
AM200150	200	35	26	18	45	6
AM250250	250	40	32	20	60	8
AM250350	250	45	36	25	65	10
AM250400	250	45	40	26	70	10
AM250450	250	50	42	30	70	10
AM250500	250	60	44	30	80	10
AM250650	250	60	44	30	80	12
AM250850	250	60	54	36	100	12

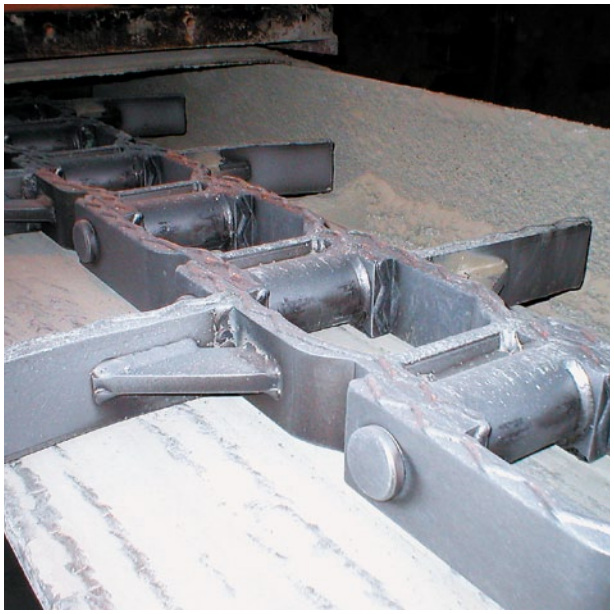
JKE Series Bucket Elevator Combination Chain

Kings long experience in the production of cast combination chains allows them to offer this unique and well proven standard that incorporates a cast manganese plain or duck bill block for bucket mounting.
Operating in twin strand format the groove in the block link engages with friction drives wheels.



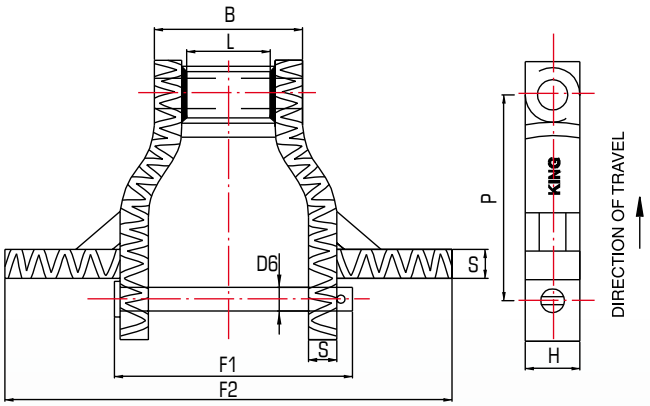
JKE Series Bucket Elevator Combination Chain

Chain Number	Dia	Pitch	W	T	H	A	B	C	D	E	F
	mm										
D5070	32	400	116	6	65	76	50	43	25	42	12
D5178	40	475	150	10	80	98	75	63	30	55	22
D4353	55	631	197	12	100	115	100	78	36	62	40
D5416	38	500	142	8	80	98	90	60	25	60	20
D5565	70	405	120	8	60	76	70	41	30	41	12



Crusader Heavy Duty Steel Drag Chains (WHX)

This welded steel option can be considered in place of cast S series drags and is ideal where conditions of high abrasion and heat prevail.
Fabricated construction with material options in flat and round section for each component allows the construction of CRUSADER to have greater consistency and integrity.
The crusader series employs optimum materials and heat treatment conditions to ensure good resistance to shock loading and extended service life. Square edged wing and link plate section creates increased conveying efficiency and transport of a deeper bed of material.
Hard face welding on all sliding and wear surfaces is standard. A typical weld surface of 60 HRC and with heavy weld bead gives CRUSADER excellent sliding wear resistance in cold and hot clinker applications.

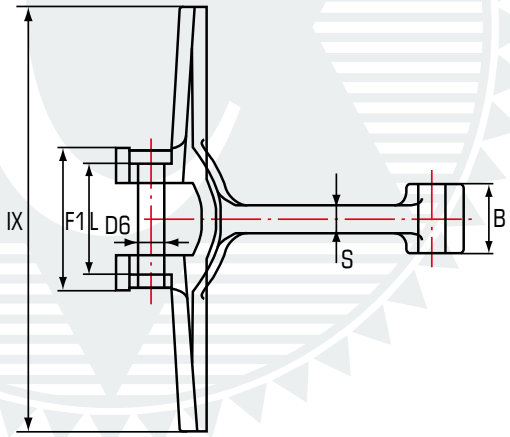


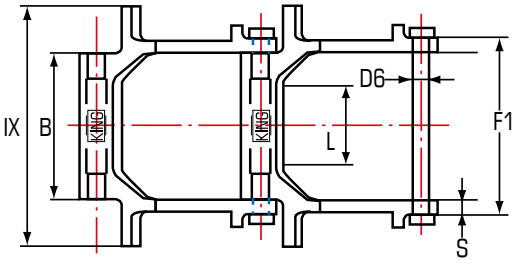
Crusader Heavy Duty Welded Steel Drag Chains

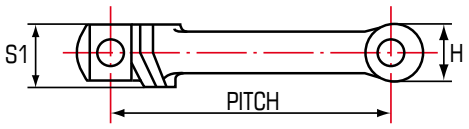
Chain Number	Pitch	Breaking Load	Average Weight	Over-All Pin & Cotter	Width Over-All	Between Sidebars	Sidebars		Rivets Diameter	Length of Bearing
							Thickness	Height		
	P			F1	F2*	L	S	H	D6	B
	inches	lbs	lbs/ft	inches						
WHX5157	6.05	175,000	25.31	6.94	8 to 14	2.75	0.63	2.50	1.13	4.63
WHX6067	9.00	225,000	30.43	8.19	10 to 26	3.63	0.75	2.50	1.25	5.50
WHX5121	9.00	275,000	40.47	9.75	10 to 30	3.63	1.13	2.50	1.25	6.31
WHX6121	9.00	275,000	40.47	9.75	10 to 30	3.63	1.13	2.50	1.25	6.31

* In increments of 2".
Note: Breaking loads based on standard specification. For elevated temperatures this specification may change and with it the breaking load. Please consult John King technical.
The types illustrated are typical but many other versions which are variations on those illustrated are available

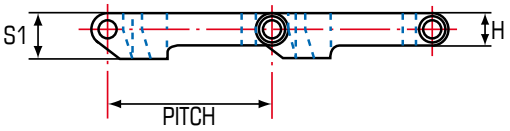
European Standard Cast Link Drag Chain (JKD)







JKT STYLE

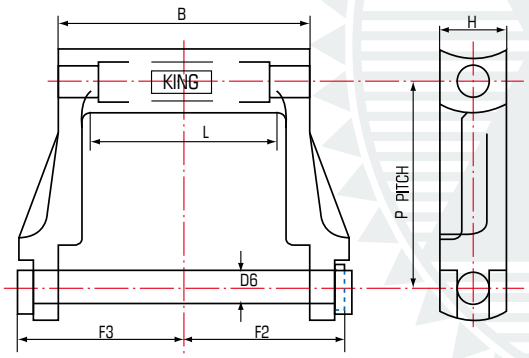


JKD STYLE

European Standard Cast Link Drag Chain (JKD)

Chain Number	Pitch	Width	Width over flight	Bearing Length	Sidebars		Overall Height	Pins dia.	Gearing width	Average weight	Ultimate Tensile Strength
					Thickness	Height					
	P	F1	IX	B	S	H	S1	D6	L		
	mm									kg/m	kN
JKT150/40/Tx125	150	86	125	40	15	40	50	18	64	13.2	250
JKT200/50/Tx200	200	100	200	49	20	40	44	18	76	13.3	250
JKT200/50/Tx300	200	100	300	49	20	40	44	18	76	18.3	250
JKT225/50/Tx250	225	122	250	50	25	60	60	25	87	35.8	550
JKD200/180/Tx250	200	222	250	180	15	40	55	19	96	21.7	250
JKD200/180/Tx300	203.2	222	302	180	17	40	52	20	127	24.5	275
	200	222	300	180	20	40	55	18	96	23.4	250
JKD200/180/Tx315	200	225	315	180	16	40	53	18	106	26.5	250
JKD200/180/Tx600	200	232	600	180	15	40	55	19	110	37.0	250
JKD200/220/Tx450	200	285	450	220	20	50	60	25	154	51.0	550
JKD200/220/Tx500	203.2	290	504	222	21	48	61	25.4	163	59.3	550
JKD200/285/Tx650	203.2	375	650	285	26	60	80	30	410	82.2	750
JKD200/200/Tx350	215	254	345	196	18	42	42	25	123	30.0	550
JKD230/220/Tx320	230	320	320	216	30	60	60	28	156	36.3	700
JKD230/320/Tx460	228.6	457	457	320	25.4	63.5	63.5	31.75	246	64.0	800
JKD230/340/Tx405	228	405	405	341	18	66	73	PINLESS	235	51.8	1250
JKD250/230/Tx450	250	312	450	228	22	90	90	36	152	78.0	1250
JKD270/380/Tx650	271	506	650	380	37	90	105	50	290	146.5	1500
JKD280/180/Tx300	280	215	300	180	15	40	55	20	110	20.0	250
JKD295/380/Tx600	295	463	600	377	40	90	90	36	290	135	1250
JKD350/380/Tx600	350	492	600	380	52.5	104	135	46	290	145	1500
JKD400/580/Tx800	400	690	800	578	45	104	135	46	415	190	1500
	400	690	800	580	33	90	104	45	468	145	1500

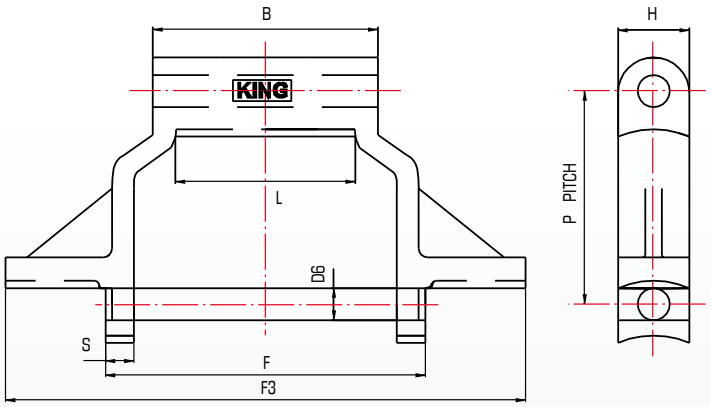
American Standard SD type Cast Link Drag Chain (SD)



American Standard SD type Cast Link Drag Chain (SD)

Chain Number	Pitch	End Pin to C/L	Head Pin to C/L	Bearing Length	Sidebars Height	Pins Diam.	Gearing Width	Minimum Ultimate Strength	Working Load	Average Weight
	P	F2	F3	B	H	D6	L			
	inches							lbs		
SD21	9.00	8.31	8.06	12.44	3.50	1.25	9.50	182.30	23.400	46.80
SD23	9.00	6.00	6.00	8.44	2.50	1.25	5.75	172.80	23.400	41.80
SD27	9.00	5.06	4.81	6.87	2.50	1.13	4.25	160.50	20.100	30.70
SD28	9.00	8.13	8.00	12.81	2.13	0.88	10.13	139.40	17.600	26
SD29	9.00	6.13	6.00	8.81	2.13	0.88	6.75	139.40	17.600	20.80

American Standard S type Cast Link Drag Chain (JKS)



American Standard S type Cast Link Drag Chain (JKS)

Chain Number	Pitch	Width	Overall Flight	Bearing Length	Sidebars Thickness	Sidebars Height	Pins Diam.	Gearing Width	Minimum Ultimate strength	Working Load	Av. Weight Per Foot
	P	F	F3	B	S	H	D6	L			
	inches								lbs		
JKS5157	6.06	6.81	8.14	4.63	0.63	2.50	1.13	2.25	144.60	18,200	25.31
JKS5121	9.00	9.75	10.30	6.31	1.13	2.50	1.25	3.63	218.45	27,600	40.47
JKS6121	9.00	9.75	10.31	6.31	1.13	2.50	1.25	3.63	218.45	27,600	40.47
JKS6067	9.00	8.50	10.26	5.56	1.13	2.50	1.25	3.63	178.80	24,320	29.43

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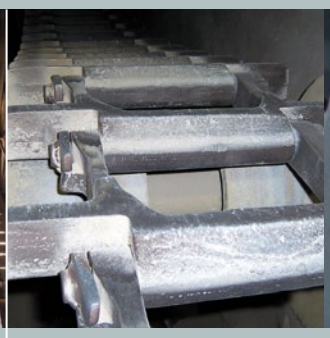
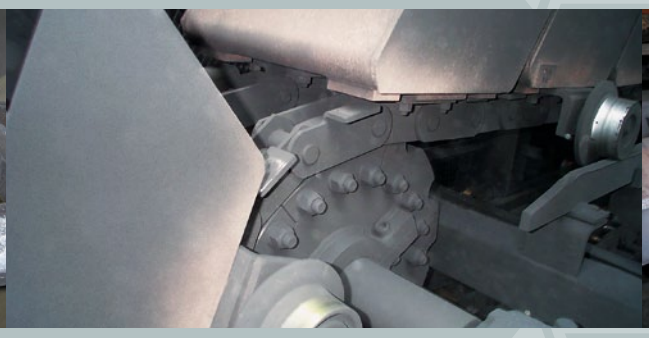


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