

Conveyor Chains for the Bulk Handling Industry

Bushed Conveyor Chains and Forged Link Chains





1917



1960



HEKO®
Today

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The Company

HEKO is one of the world's leading producers of chains and other wear resistant parts for the bulk handling industry. Innovation and high quality standards have been quintessential to our family business for over 90 years. Two locations in the state of North Rhine Westphalia, Germany with a production area of approx. 40.000 m², provide for the manufacture of a large variety of chains, chain wheels, chain accessories and unit assembly for conveyors.

HEKO manufacture:

- Highly wear resistant round link chains
- Bushed conveyor chains
- Forged link conveyor chains
- Heat resistant kiln chains
- Accessories for all chains

HEKO are the market leaders for heat resistant kiln chains as well as being one of the leading manufacturers of hardened round link chains. The extensive know-how in hardening techniques and up-to-date heat treatment technology is also offered as a separate service.

We supply the world wide bulk solids handling industry in all areas of operation. HEKO not only supplies the cement and lime industry but also has an extensive market share in waste incineration, coal fired power stations, wood and other types of bio-fuel power stations, ore and mineral preparation, fertilizer manufacture, gypsum manufacture and concrete plants.

HEKO runs a sales office in China and has agents in over 40 countries. The efficiency of HEKO's chains is confirmed daily in over 80 countries around the world.

HEKO – Partner for Conveying Technology





High tech heat treatment

Case Hardening

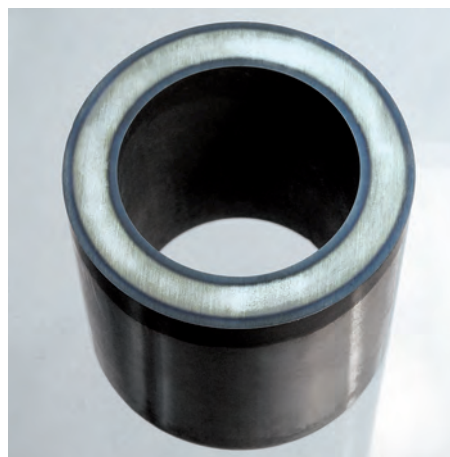
Hardening technique is the key technology in the manufacture of high quality conveyor chains, and this has been given high priority by HEKO for decades. The latest step in development has been the introduction of vacuum technology. In this technology the products are carburised in vacuum chambers and quenched in a helium atmosphere. High wear resistance and hardening depth are achieved, still maintaining a tough core.

HEKO's employment of this modern process enables the production of case hardened products using currently the world's leading technology. This process results in the production of highly wear resistant parts, e.g. bolts, bushes, rollers. Chains, shackles, etc. therefore, even under the toughest conditions, achieve an excellent service life.

Advantages:

- Very high surface hardening, min. 800HV or 64HRC
- High breaking load resulting from the fine grained, tough core
- High fatigue strength
- Excellent dimensional accuracy
- Clean surfaces

Case Hardened Bush



Magnetic Crack Testing of Forged Link





Tooth Inductive Hardened



Tempering Forged Links



Quench and Temper of Forged Links

Induction Hardening

Similar to case hardening, induction hardening also produces a hard, wear resistant surface layer. A controlled, limited area is heated by induction and subsequently cooled, followed by tempering to increase toughness of the surface hardened part. This process enables hardening only to those surfaces which are subjected to abrasive wear. The remaining part retains its toughness. This process is employed for bolts, rollers, block link chains, chain wheels, etc..

Advantages:

- Accurate partial wear protection
- High surface hardness up to 650HV/58HRC
- Very high hardening depth up to 6 mm
- High toughness of core structure
- High process accuracy
- Excellent reproducibility of hardening values
- Optimal bespoke wear protection

Quenched and Tempered

HEKO products are quenched and tempered depending on

requirements. Through this process the product receives a fine grade structure with high strength evenly throughout the whole cross section. High breaking loads of the respective product results. This process is applied to: links, forged links, bolts, rollers, chains, etc.

Advantages:

- High tensile strength
- Even, tough structure
- High fatigue strength
- Highest breaking loads



CNC Work Centre



Machining of Toothed Wheel Rims

Machining

HEKO have for many years manufactured chains and chain wheels to different dimensions and arrangements. The many variations virtually make every chain or chain wheel unique. HEKO's flexible manufacturing facilities enable easy adoption of customer's requirements for a particular order.

This includes not only the production of links by laser, stamping or machining, but also flame cutting toothed and middle discs for chain wheels. CNC machining centres and automated lathes also serve the manufacture of bolts, bushes, rollers, toothed discs, hubs and shafts. Welding of parts and assembly of the complete chain system forms of course an integral part of our services.



Automatic Hardness Tester
to Vickers



Structural Investigation and Evaluation



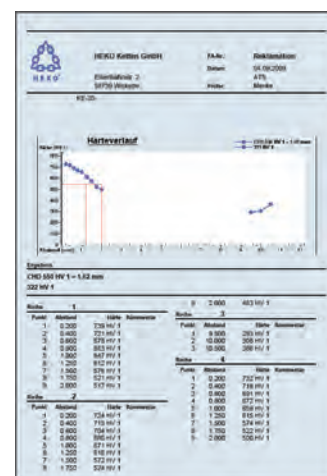
Material Analysis by Mass Spectrometer



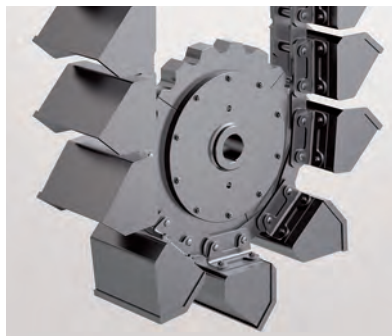
Sample- and Material Test – A Special HEKO Service

Our laboratory not only assures our high quality demands, but also provides control over production and of the finished products, as well as investigation and testing of samples. This enables HEKO, even when insufficient details have been previously provided by clients, to analyse and obtain the correct material quality and hardness of existing samples provided by the client and thus provides a full specification of the existing part.

This ensures that the quality of the existing part is 100 % replicated. Should the client require improvements, e. g. extended service life or greater strength, the factual test results can then be used by HEKO as the basis for recommending an improved specification. This all serves HEKO's aim of offering bespoke solutions based on sound evidence and facts in which clients can have full confidence.



Hardening curve



Central Chain Bucket Elevator with Buckets



Drive Wheel, toothless, with Replaceable
Segments Rims



Idling Wheel, toothed,
with Replaceable Toothed
Rim Segments



Chains and Chain Wheels for Central Chain and Twin Strand Bucket Elevators

HEKO's chains for central chain and twin strand bucket elevators, with or without separate bucket attachments are manufactured within wide range dimensions and assemblies.

Bucket elevator chains are subjected to high dynamic loads and HEKO's emphasis is to achieve high fatigue resistance whilst maintaining excellent wear resistance and thus optimum

service life. Therefore bolts and bushes are given a deep case hardening depth. Link plates are manufactured of high tensile alloy steels with a fine grained structure. Considerable attention is given to surface quality of bores, accurate tolerance and assembly.

Such bucket elevator chains can therefore be classified as high

precision special chains which can resist tough operating conditions with fluctuating load conditions throughout their service life.

This is of course completed by a range of toothed and toothless chain wheels with replaceable segmented rims.



Central Elevator Chain with Separate Bucket Attachments



Central Elevator Chain with Integral Bucket Attachments



Twin Strand Elevator Chain with Special Bucket Attachments

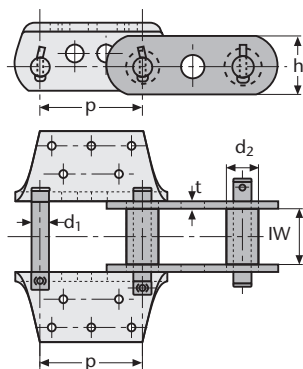


Central Elevator Chain with Angle Bucket Attachments

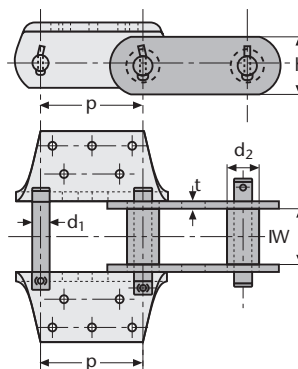


Central Chain Bucket Elevator

Primary Chain Dimensions



Arrangement A

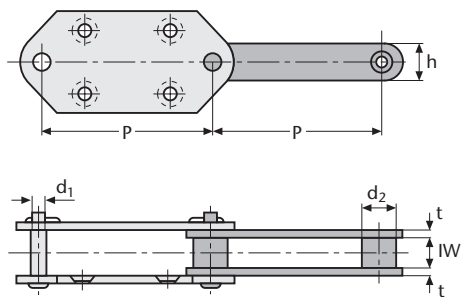


Arrangement B

Type	Arrgt.	Pitch		Inside Width		Link Height		Link Thickness		Bolt Ø		Bush Ø	
		P		IW		h		t		d ₁		d ₂	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
HK 856	B	152,4	6	76,2	3	63,5	2,5	12	0,5	25,4	1	44,5	1,75
HK 956	A	152,4	6	76,2	3	76	3	12	0,5	25,4	1	44,5	1,75
HK 857	B	152,4	6	76,2	3	84	3,25	12	0,5	25,4	1	44,5	1,75
HK 958	A	152,4	6	76,2	3	84	3,25	14	0,56	28,6	1,13	50,8	2
HK 859	B	152,4	6	95	3,75	102	4	16	0,62	31,8	1,25	60,5	2,38
HK 864	B	177,8	7	95	3,75	102	4	16	0,62	31,8	1,25	60,5	2,38
HK 984	A	177,8	7	95	3,75	102	4	16	0,62	34,9	1,375	63,5	2,5

Twin Strand Bucket Elevator Chains

Primary Chain Dimensions

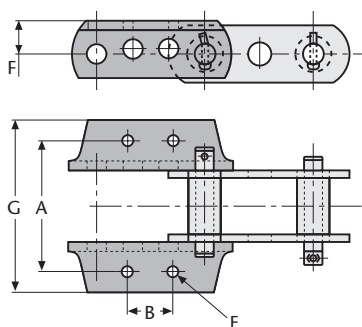


Type	Pitch	Inside Width	Bolt Ø	Bush Ø	Link Height	Link Thickness
	p	IW	d ₁	d ₂	h	t
	mm	mm	mm	mm	mm	mm
HK 10150	150	30	14,5	29	38	6
HK 12006	152,4	37	16	35	45	8
HK 12200	200	37	16	35	45	8
HK 17200	200	51	19	40	50	10
HK 17250	250	51	19	40	50	10
HK 26200	200	57	24	50,8	65	10
HK 26250	250	57	24	50,8	65	10
HK 36250	250	67	28	57	76	12

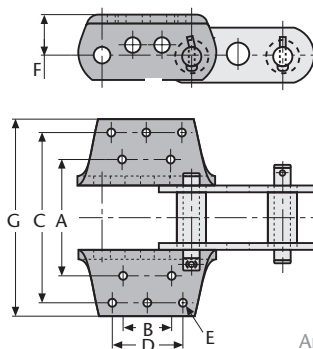


Central Chain Bucket Elevator

Connecting Dimensions



Arrangement K24

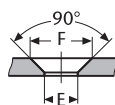
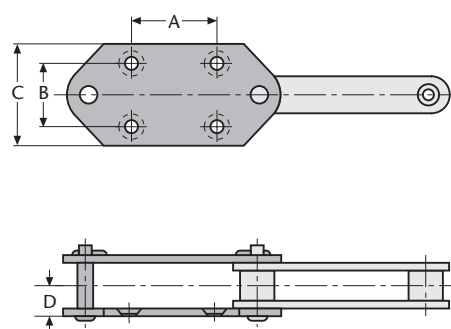


Arrangement K44/K443

Type	Arrgt.	A		B		C		D		E		F		G	
		mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.
HK 856	K 24	184	7,25	63,5	2,5	–	–	–	–	17,5	0,69	48	1,88	238	9,38
HK 956	K 24	184	7,25	63,5	2,5	–	–	–	–	17,5	0,69	48	1,88	241	9,5
HK 857	K 44	178	7	89	3,5	305	12	89	3,5	14	0,56	63,5	2,5	356	14
HK 958	K 44	178	7	89	3,5	305	12	89	3,5	14	0,56	63,5	2,5	347	13,68
HK 859	K 44	229	9	70	2,75	330	13	114	4,5	17,5	0,69	76	3	381	15
HK 864	K 443	229	9	95	3,75	330	13	140	5,5	17,5	0,69	76	3	381	15
HK 984	K 443	229	9	95	3,75	330	13	140	5,5	17,5	0,69	76	3	378	14,88

Twin Strand Bucket Elevator Chains

Connecting Dimensions



Type	A	B	C	D	E	F	Bolt
	mm	mm	mm	mm	mm	mm	
HK 10150	75	70	110	28,5	15	26	M12
HK 12006	75	70	110	35,5	15	26	M12
HK 12200	100	80	120	35,5	15	26	M14
HK 17200	100	80	120	45,5	15	26	M14
HK 17250	140	100	150	45,5	19	32	M16
HK 26200	100	80	120	48	15	26	M14
HK 26250	140	100	150	48	19	32	M16
HK 36250	140	100	150	60	19	32	M16



Bushed Chain with Angle and Support Brackets



Bushed Chain Collared Roller and Welded Connection Brackets



Bushed Chain with Collared Roller with Connection Holes in Inner and Outer Link



Bushed Chain with Collared Roller and Welded Connecting and Support Brackets



Drive Wheel with Replaceable Toothed Rims



Drive Wheel with Replaceable Toothed Rims with Enlarged Tooth Gap Clearance



Bushed Chains, Chain Wheels, Rollers, Apron Segments and Deep Buckets



Twin Strand Bushed Conveyor Chain, fitted with Deep Bucket, Bucket Attachment and Roller

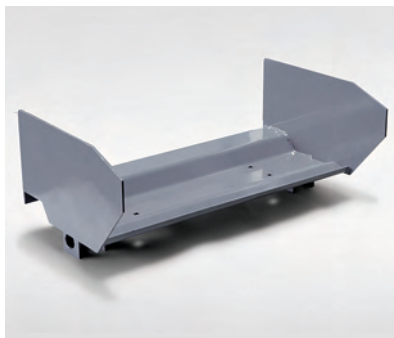


Plate Segment for Apron Conveyor with Welded Sides



Attachment Flat with Roller



Roller

HEKO furnish bushed chains to DIN 8165 and DIN 8175 as well as bespoke bushed chains. Mainly twin strand chains are employed for these applications. HEKO offers their full technical support including site visit to find and implement solutions to customer's conveying problems. HEKO's large range of components

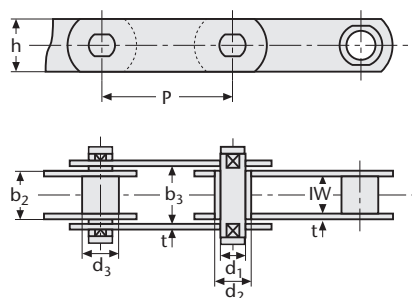
enables them to offer solutions specific to customer's application. Chains generally have 160, 200, 250 and 315 mm pitch with bush and bolt sizes either to DIN or to suit customer's requirements. Chains can be supplied with or without stiffening. A variety of roller types are available, with lubrication,

sealed for life, etc.. Compatible chain wheel, with or without replaceable toothed rims or with wear reducing pitch, are part of HEKO's manufacturing pallet, as are rollers, attachment flats, apron segments and deep buckets.

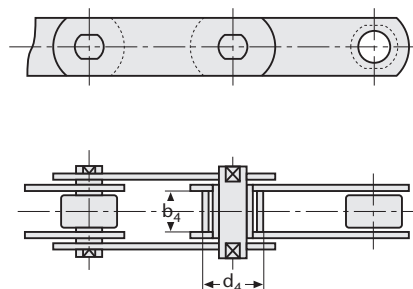


Bushed Conveyor Chains (normal duty) to DIN 8165

Without Roller



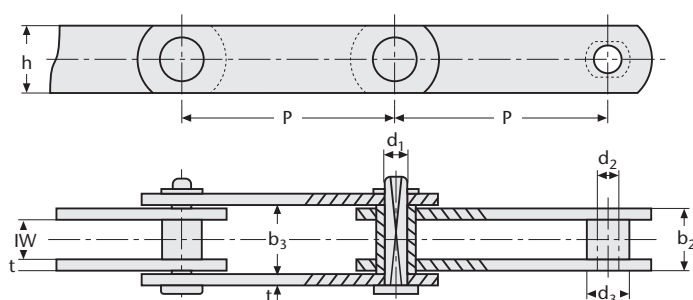
With Guard Rollers
Type A to DIN 8166



DIN 8165

Type	Pitch p							IW	b ₂	b ₃	b ₄	b ₅	b ₆	c	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	d ₇	f	h	t	Breaking Load
								mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	min. KN
FV 112	100	125	160	200	250	-	-	30	42,5	43	29	28	36	2,5	16	16,1	22	32	55	72	87	5	40	6	112
FV 140	100	125	160	200	250	315	-	35	47,5	48	34	32	40	3	18	18,1	26	36	60	80	95	6	45	6	140
FV 180	-	125	160	200	250	315	400	45	61,5	62,5	44	42	50	3	20	20,2	30	42	70	100	120	10	50	8	180
FV 250	-	125	160	200	250	315	400	55	72	73	54	50	57	3,5	26	26,2	36	50	80	125	145	11,5	60	8	250
FV 315	-	-	160	200	250	315	400	65	86	87	64	60	66,5	3,5	30	30,2	42	60	90	140	170	14,5	70	10	315
FV 400	-	-	160	200	250	315	400	70	96	97	68	64	75,5	3,5	32	32,2	44	60	100	150	185	16,5	70	12	400
FV 500	-	-	160	200	250	315	400	80	106	107	78	72	80,5	3,5	36	36,2	50	70	110	160	195	17,5	80	12	500
FV 630	-	-	-	200	250	315	400	90	116	117	88	80	86,5	4,5	42	42,2	56	80	120	170	210	17,5	100	12	630

Bushed Conveyor Chains (heavy duty) to DIN 8175



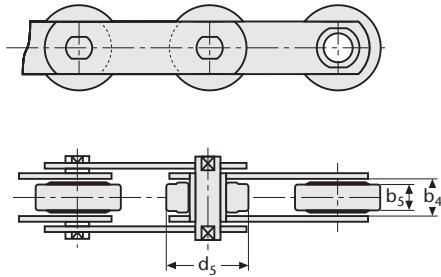
DIN 8175

Type	P	IW	b ₂	b ₃	d ₁	d ₂	d ₃	h	t	Breaking Load
	mm	mm	mm	mm	mm	mm	mm	mm	mm	min. KN
F 200	160	30	46,5	47	20	20,3	32	50	8	200
F 315	160	45	63,5	64	26	26,3	40	65	9	315
F 400	160	45	65,5	66	26	26,3	40	70	10	400
F500	160	60	80,5	81	26	26,3	40	80	10	500
F800	160	60	84,5	85	30	30,3	44	90	12	800



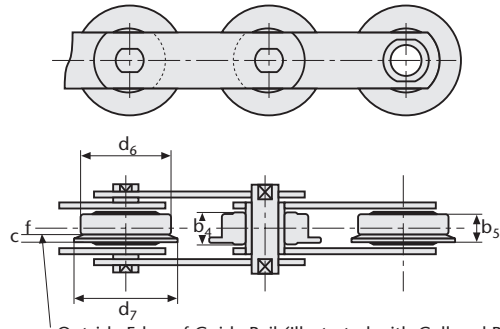
Bushed Conveyor Chains (normal duty) to DIN 8167

With Plain Rollers Type B
and C to DIN 8166



(Illustrated with Rollers Type B)

With Collared Rollers Form D
and E to DIN 8166

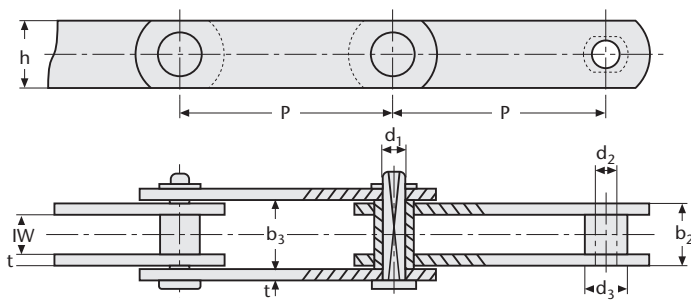


Outside Edge of Guide Rail (Illustrated with Collared Rollers Type D)

DIN 8167

Type									Pitch p									b ₁	b ₂	b ₃	b ₄	b ₅	b ₆	c	d ₁	d ₂	d ₃	d ₄	d ₅	d ₆	d ₇	f	h	t	Breaking Load
									mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	min. KN
M 112	80	100	125	160	200	250	315	315	32	45	45,5	31	29	50,5	2,5	15	15,1	21	30	60	70	18	5	40	6										112
M 160	100	125	160	200	250	315	400	400	37	52	52,5	36	34	58,5	3	18	18,1	25	36	70	85	21	5,5	50	7										160
M 224	125	160	200	250	315	400	500	500	43	60	60,6	42	40	67	3	21	21,2	30	42	85	100	25	7	60	8										224
M 315	160	200	250	315	400	500	630	630	48	70	70,7	47	45	77	3	25	25,2	36	50	100	120	30	7,5	70	10										315
M 450	200	250	315	400	500	630	800	800	56	82	82,2	55	51	92,5	3,5	30	30,2	42	60	120	140	35	8	80	12										450
M 630	250	315	400	500	630	800	1000	1000	66	96	97	65	61	107	3,5	36	36,2	50	70	140	170	42	11	100	14										630
M 900	250	315	400	500	630	800	1000	1000	78	112	113	76	70	127	3,5	44	44,2	60	85	170	210	50	13,5	120	16										900

Bushed Conveyor Chains (heavy duty) similar to DIN 8175

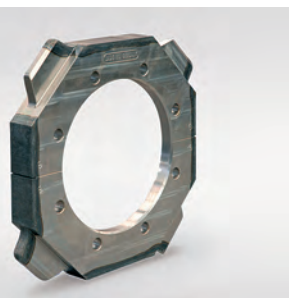


Similar to DIN 8175

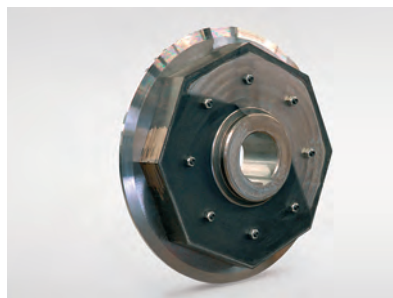
Type	P	IW	b ₂	b ₃	d ₁	d ₂	d ₃	h	t	Breaking Load
	mm	mm	mm	mm	mm	mm	mm	mm	mm	min. KN
F 200	250	30	46,5	47	20	20,3	32	50	8	200
F 315	250	45	63,5	64	26	26,3	40	65	9	315
F 400	250	45	65,5	66	26	26,3	40	70	10	400
F500	250	60	80,5	81	26	26,3	40	80	10	500
F800	250	60	84,5	85	30	30,3	44	90	12	800



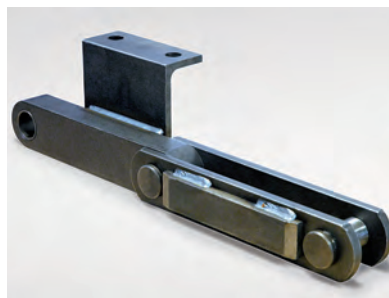
Block Chain, Bushed Chains and Chain Wheels for Stockpile Reclaimers



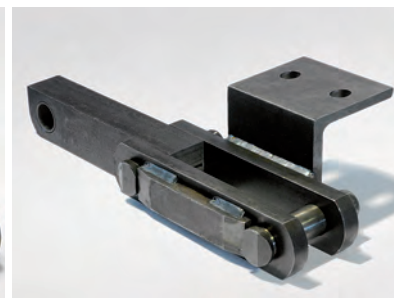
Toothed Segment for Drive Wheel, Split, Replaceable



Toothless Idling Wheel with Side Disc



Twin Strand Block Chain with Attachment Bracket and Wear Strip welded to the Block Link

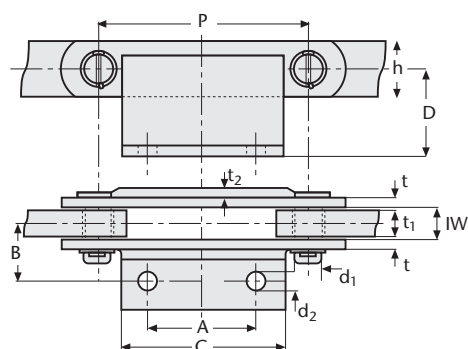


Twin Strand Block Chain with Attachment Bracket and Wear Strip welded to the Outside Link

Stock pile reclaimers are generally fitted either with twin stranded bushed or block chain; occasionally forged fork link chains are fitted.

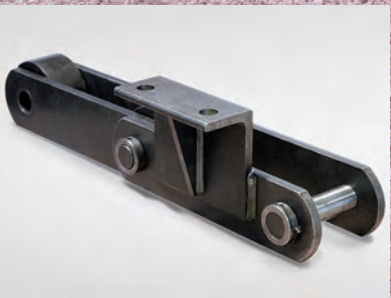
These chains are not only subjected to tension but also to side loads due to the linear and circular motion of the reclaimer. It is therefore necessary

to protect the sides of the chain links against wear. Chains with 200, 250 and 400 mm pitch are most frequently fitted. These chains often



Twin Stranded Block Chain

Type	Pitch	Inside Width	Primary Chain Dimensions				Connecting Dimensions						
			Bolt Ø	Link Height	Link Thickness	Link Thickness	Link Thickness	A	B	C	D	angle	d ₂
	p	IW	d ₁	h	t	t ₁	t ₂	mm	mm	mm	mm	DIN 1029	mm
BLK250x32-70x10/30	250	32	35	70	10	30	10	90	65	150	110	130 x 65 x 10	21
BLK315x32-70x10/30	315	32	35	70	10	30	10	130	65	190	110	130 x 65 x 10	21
BLK250x42-70x10/40	250	42	35	70	10	40	10	130	75	190	110	130 x 65 x 10	21
BLK315x42-70x10/40	315	42	35	70	10	40	10	130	75	190	110	130 x 65 x 10	21
BLK250x42-80x12/40	250	42	42	80	12	40	12	130	75	190	130	150 x 75 x 12	25
BLK315x42-80x12/40	315	42	42	80	12	40	12	130	75	190	130	150 x 75 x 12	25
BLK250x52-80x15/50	250	52	42	80	15	50	15	130	80	190	130	150 x 75 x 12	25
BLK315x52-80x15/50	315	52	42	80	15	50	15	130	80	190	130	150 x 75 x 12	25



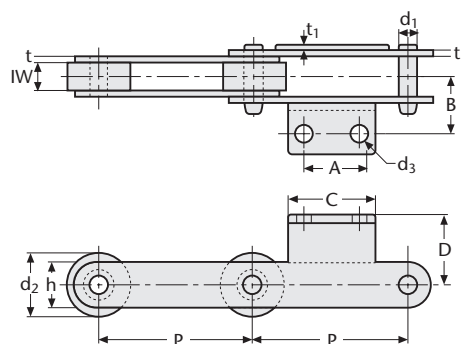
Twin Stranded Bushed Chain with Plain Roller and Welded Attachment Bracket

Chain Wheel with Replaceable Toothed Segments

incorporate plain rollers in the inside or outside chain strand. Such rollers are fitted either with bushed or roller bearings. Angle attachments for

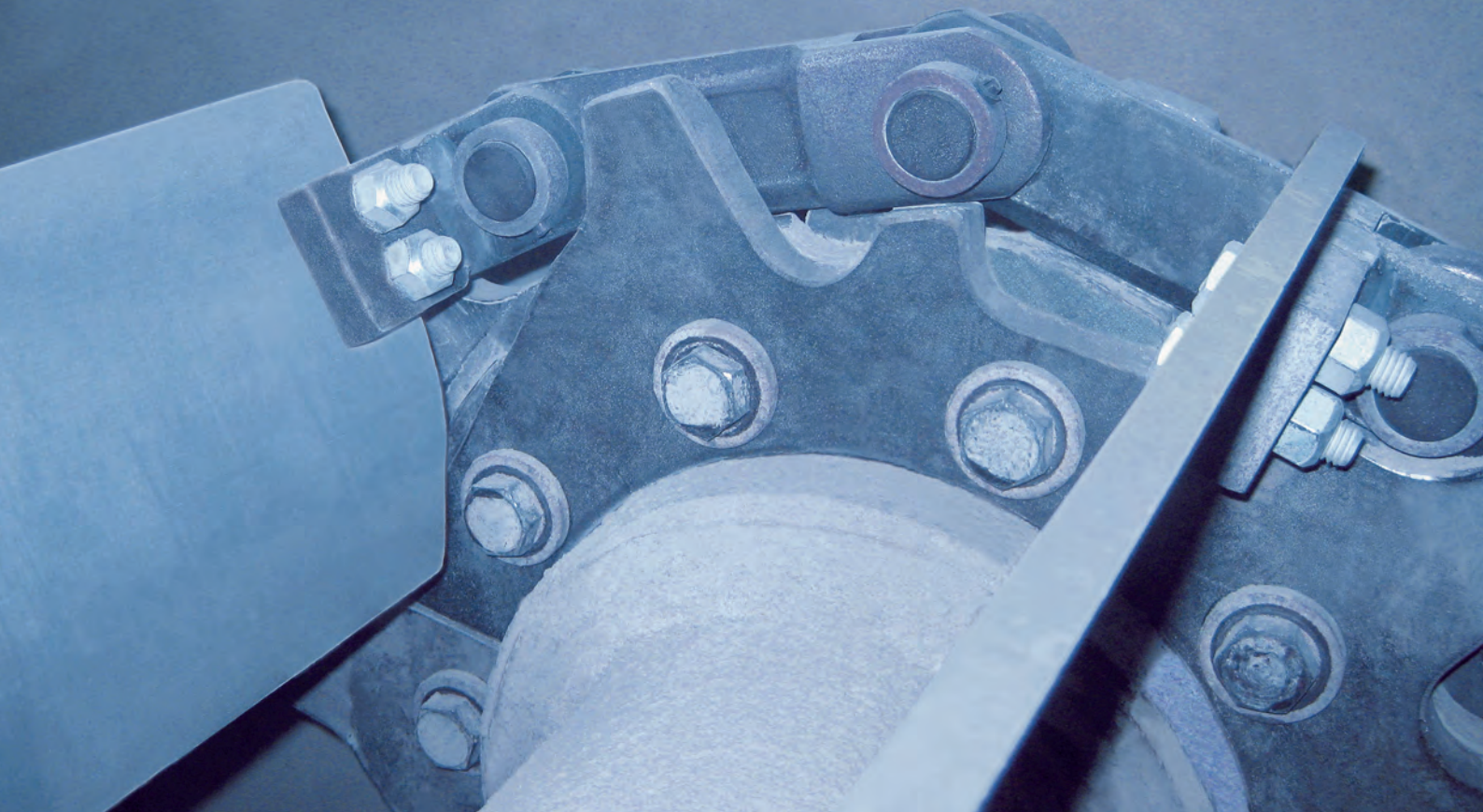
connecting the scrapers are either welded to the links or form an angled part of the links. The external links are protected against side load by wear

strips. HEKO not only supplies the chain but also matching chain wheels to suit client's requirements.



Bushed Conveyor Chain

Type	Primary Chain Dimensions							Connecting Dimensions				
	Pitch	Inside Width	Bolt Ø	Link Height	Link Thickness	Link Thickness	Link Thickness	A	B	C	D	d3
	p	IW	d ₁	d ₂	h	t	t ₁	A	B	C	D	d3
	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm
BFK250 x 50-70 x 10	250	50	25	100	70	10	10	90	90	140	110	22
BFK250 x 62-80 x 12	250	62	32	120	80	12	12	110	95	165	130	22
BFK250 x 65-100 x 15	250	65	36	140	100	15	15	130	100	190	140	26
BFK315 x 36-70 x 12	315	36	25	100	70	12	12	130	95	190	130	22
BFK315 x 50-80 x 12	315	50	36	120	80	12	12	130	100	190	160	26



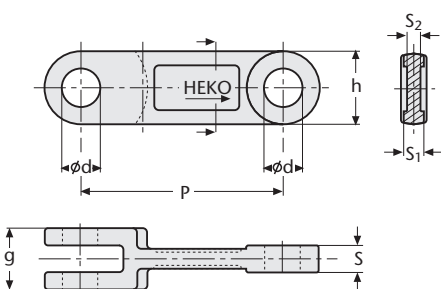
Single Strand Forged Link Chain with Welded Scraper



Chain Wheel with Replaceable Toothed Segments



Twin Stranded Forged Link Chain assembled with Scraper for Inclined Conveyor



Stated breaking loads are for Forged Link Chain of material 20 Mn Cr5, case hardened. Further materials

such as quenched and tempered steel or stainless and heat-resistant steel are also supplied.

Single Strand Forged Link Chains

Size	Pitch	Link height	Eye Thickness	Fork width	Bore	Stem Thickness	Stem Thickness	Chain Breaking Load
p x h x s	p	h	s	g	Ø d	S ₁	S ₂	mim. KN
mm x mm x mm	mm	mm	mm	mm	mm	mm	mm	min.
101,6 x 36 x 12	101,6	36	12	30	14	8	6	130
142 x 50 x 19	142	50	19	42	25	13	9	270
142 x 50 x 25	142	50	25	54	25	16	12	350
142 x 50 x 29	142	50	29	62	25	16	12	440
160 x 50 x 25	160	50	25	54	25	16	12	350
175 x 60 x 30	175	60	30	72/62	30	20	14	440
200 x 60 x 30	200	60	30	70	30	20	14	500
250 x 70 x 30	250	70	30	70	35	20	14	650
260 x 75 x 30	360	75	30	70	32	20	14	650

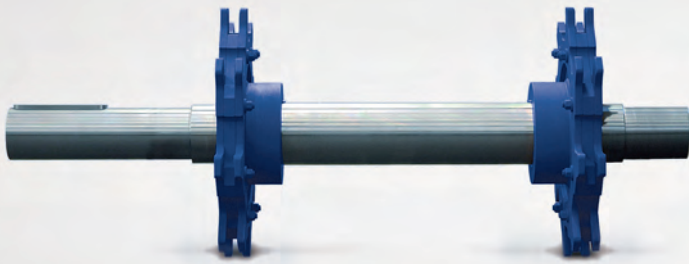


Forged Link Chains, Scrapers and Chain Wheels for Single Strand and Twin Stranded Conveyors

HEKO's forged link chains are installed as single strand or twin stranded conveyors. Forged link chains are subjected to tough operating conditions. As they are in direct contact with the product to be transported they must and often withstand the abrasive or corrosive nature of the product. Heat treatable steels or case hardening steels are therefore

selected to protect against wear. Corrosion can be reduced or even be eliminated by use of corrosion and acid resistant steel in the manufacture of bolts, bushes and connecting elements. Single strand and twin stranded forged link chains are mainly supplied with pitches ranging from 102 to 260 mm. Bolts, scrapers and fittings are selected to suit the specific application.

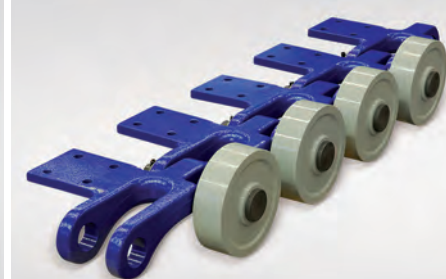
These chains are not strictly standardised and assemblies are therefore tailored to individual applications, which of course also applies to the chain wheels with or without replaceable rims. Occasionally split wheels are also employed to ease fitting to the shaft.



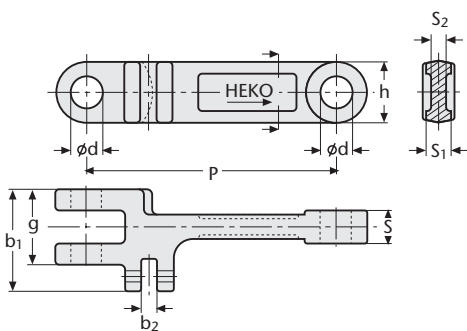
Chain Wheels for Twin Stranded Forged Link chain, fitted to Shaft



Toothless Split Idling Chain Wheels



Special Forged Link Chain Arrangement for Apron Conveyor



Stated breaking loads are for Forged Link Chain of material 20 Mn Cr5, case hardened. Further materials

like quenched and tempered steel or stainless and heat-resistant steel are also supplied.

Twin Stranded Forged Link Chain

Size	Pitch	Link Height	Eye Thickness	Fork Width	Bore	Stem Thickness	Stem Thickness	Overall Width	Scraper Gap	Chain Breaking Load
$p \times h \times s$	p	h	S	g	$\varnothing d$	S_1	S_2	b_1	b_2	min. KN
mm x mm x mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	min.
142 x 50 x 19	142	50	19	42	25	13	9	70	13	270
142 x 50 x 29	142	50	29	62	25	16	12	82	13	440
175 x 60 x 30	175	60	30	72/62	30	20	14	98	16	440
200 x 50 x 25	200	50	25	60	25	20	14	82	13	350
200 x 60 x 30	200	60	30	70	30	20	14	100	16	500
250 x 60 x 30	250	60	30	70	30	20	14	100	16	500

Other sizes on request



HEKO is represented in over 40 countries around the world



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