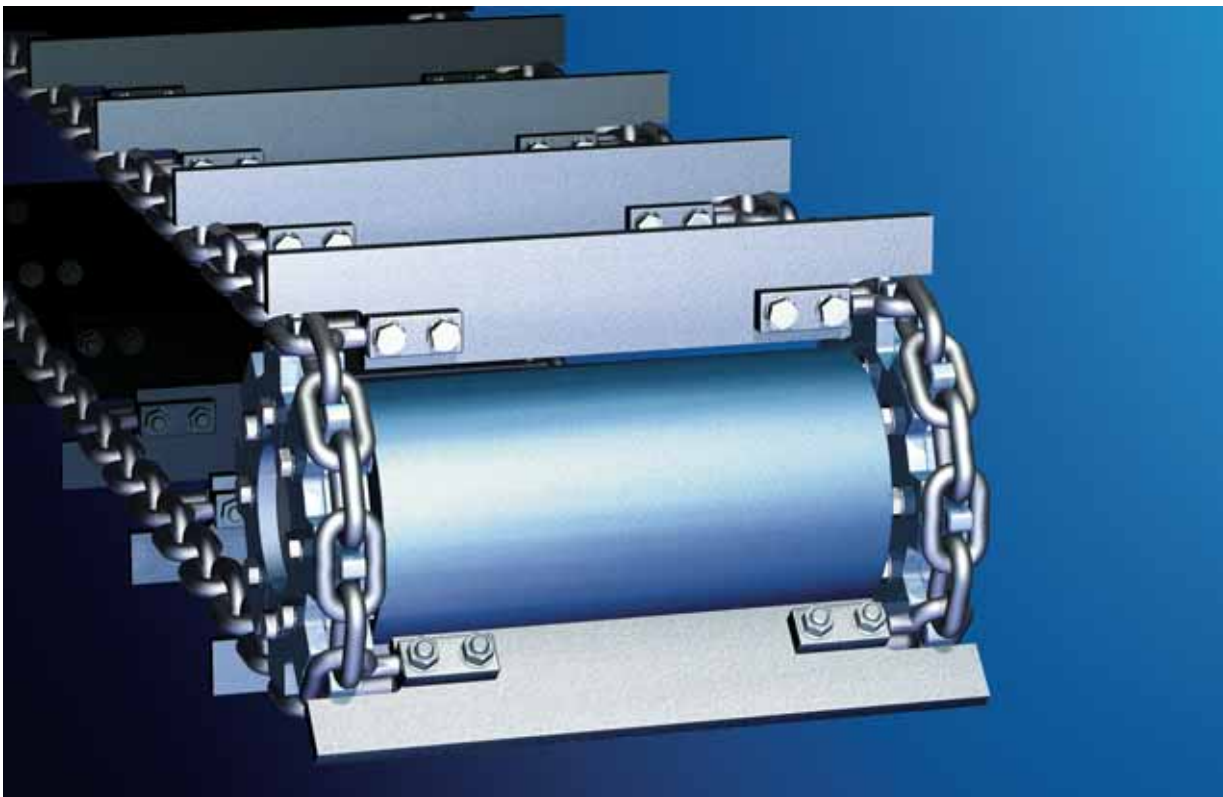
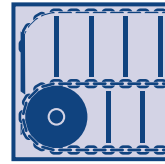


Components for Chain Conveyors



HEKO Ketten GmbH



HEKO®

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1.0 Overview

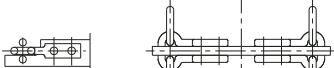
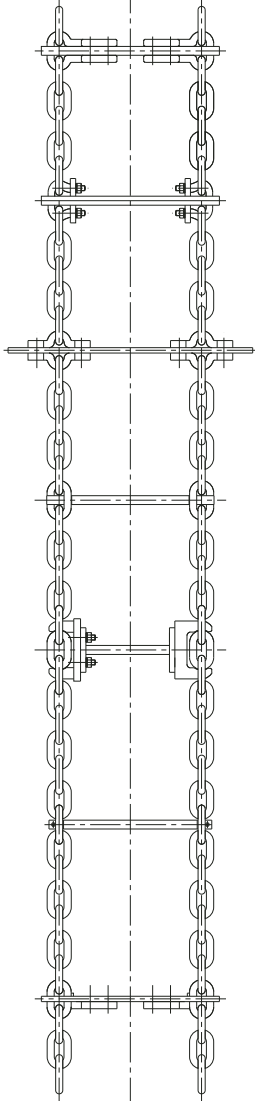



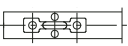









Scraper attachment options			
Description	Type		Chapter
Special scraper attachment type SP			 3.2
Shackles type TS/type DIN 5699			 3.3
Split scraper attachment type BG 22			 3.4
Lift-in scraper bars type EFS			 3.5
Plug-in scraper attachment type SMG and SMO			 3.6
Push-in scraper bars with safety pin type EFL			 3.9 Fig. 23
Scraper attachment with welded flange type AFS			 3.9 Fig. 24

Figure 1:
Scraper attachment options

HEKO chains are utilised in the following chain conveyors: Scraper conveyors, trough conveyors, forged link chain conveyors, disc conveyors and chain link mesh conveyors.

HEKO- components for chain conveyors are successfully employed worldwide to solve conveyor problems. All HEKO products are perfectly matched for quality and compatibility. We constantly develop,

in collaboration with clients, new solutions to keep up with increasing demands for cost effectiveness and improved safety. The principle industries served by HEKO include cement, lime, sugar, power, chemical, water treatment and farming. Typical applications for HEKO products include: Bunker discharge conveyors, drag conveyors, wet deashers, cleaning scrapers, waste disposal, wood chip conveyors, etc. HEKO are able to provide worldwide support during design, optimisation, erection and maintenance of

conveyors. Manufacture of the wear resistant components is carried out under strict quality control, EN ISO 9001:2000, in HEKO's Wickede works.



2.0 HEKO Round link chains

HEKO chains distinguish themselves through:

- **high quality heat treatment tailored to particular applications**
- **high fatigue strength**
- **close length tolerance of chain pairs**

Modern welding machines are employed for the manufacture of HEKO chains.

Chains are manufactured from a wide range of materials including manganese steels, chrome-nickel steels and fine grain chrome-nickel-molybdenum alloy steels.

Our own, modern, computer-controlled heat treatment processes produce tempered or case hardened chains.

2.1 Heat treatment



Figure 2: Partial view of the HEKO hardening shop



Figure 3: Cross section through the length of a case hardened chain link

HEKO case hardening means:

- **High breaking load resulting from a tough, fine grain core**
- **High wear resistance resulting from a surface hardness in excess of 800 HV**

Case hardening results in a hard, wear resistant chain shell. HEKO offers 6 hardening depths as standard. In addition HEKO offers various hardening depths to suit individual requirements. A surface hardness of at least 800 HV is supplied as standard.

HEKO tempered means:

- **very high breaking loads**

For applications where a high breaking load is taking precedence over hardness, tempered round link chains manufactured from manganese steel, or CrNi or CrNiMo alloy steel are recommended.

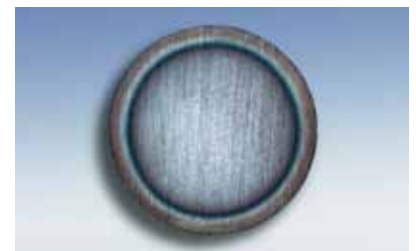


Figure 4: Cross section through the wire diameter of a case hardened chain link

2.2 Technical data for round link chain

Table 1: Technical data for HEKO qualities

	tempered qualities manganese steel		case hardened qualities manganese steel			case hardened qualities CrNi/ CrNiMo steel		
	HEKO 31	HEKO 32	HEKO 280E	HEKO 21	HEKO 210E	HEKO 400E	HEKO 5	HEKO 350E
proof stress N/mm ²	250	300	140	125	105	240	150	210
breaking stress N/mm ²	500 ₁₎	600 ₁₎	280 ₁₎	250 ₁₎	210 ₁₎	400 ₁₎	370 ₆₎	350 ₁₎
contact surface hardness min. joint HV 30	300	330	800	800	800	800	800	800
case hardening depth ...d +/-0,01 d after etching	-	-	0,07	0,10	0,14 ₂₎	0,09	0,10	0,14 ₂₎
case hardening depth ...d min. Eht 550 ₅₎	-	-	0,04	0,06 ₃₎	0,09 ₄₎	0,05	0,06 ₃₎	0,09 ₄₎
product characteristic								
very low abrasion	●	●						
low abrasion			●			●		
medium abrasion				●		●	●	
strong abrasiveness					●			●
dynamic load								
light	●				●			●
medium		●		●			●	
heavy			●			●	●	

1) tolerance 10%

3) ≥ 30 mm $\varnothing = 0,05$ d

5) Eht = case hardening depth

2) 30 mm $\varnothing = 0,12$ d, 36-42 mm $\varnothing = 0,11$ d

4) 30 mm $\varnothing = 0,08$ d, 36-42 mm $\varnothing = 0,07$ d

6) ≥ 30 mm $\varnothing =$ tolerance 20%

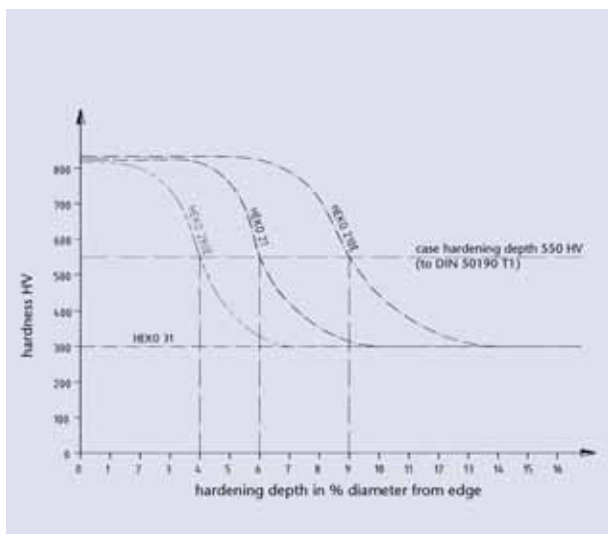


Figure 5:
Hardness curves for HEKO chains of
Mn-steel

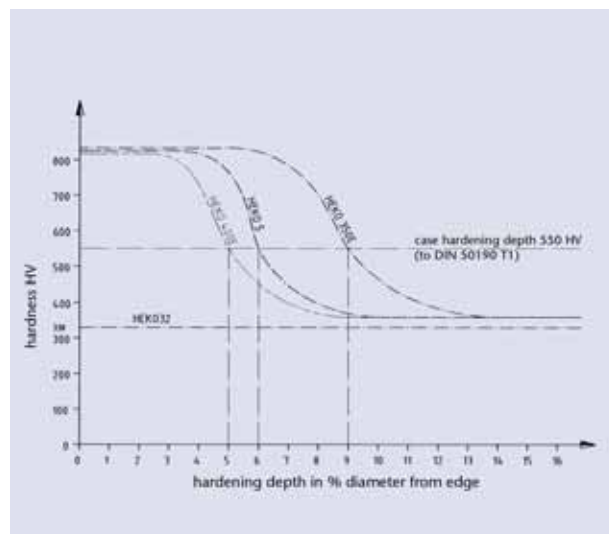


Figure 6:
Hardness curves for HEKO chains of
CrNi and CrNiMo alloy steels

2.3 Dimensions and technical data for round link chains

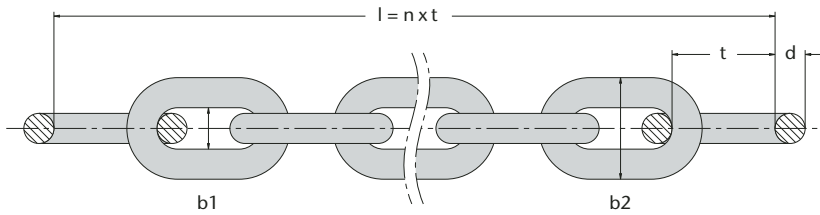


Figure 7:
Dimensions for round link chains

Table 2: Dimensions and qualities

Dimensions/ mm	DIN chain	b1 inside width min. (mm)	b2 outside width max. (mm)	weight kg/m	tempered HEKO qualities		case hardened HEKO qualities					
					31 MBK kN ₁	32 MBK kN ₁	280 E MBK kN ₁	21 MBK kN ₁	210 E MBK kN ₁	400 E MBK kN ₁	5 MBK kN ₁	350 E MBK kN ₁
6 x 18,5	766	7,2	20,4	0,8	28	34	15	14	12	22	20	19
8 x 22,5	WN	9,2	25,6	1,4	50	60	28	25	21	40	37	35
8 x 24,0	766	9,6	27,2	1,4	50	60	28	25	21	40	37	35
8 x 25,4	WN	10,0	26,0	1,4	50	60	28	25	21	40	37	35
9 x 27,0	766	10,8	30,6	1,8	63	76	35	32	26	51	47	44
9 x 31,0	WN	12,0	30,2	1,5	63	76	35	32	26	51	47	44
10 x 28,0	766	12,0	36,0	2,3	78	94	44	39	33	63	58	55
10 x 35,0	764	14,0	36,0	2,0	78	94	44	39	33	63	58	55
10 x 50,0	762	14,0	36,0	1,8	78	94	44	39	33	63	58	55
11 x 31,0	766	13,2	40,0	2,7	95	114	53	47	40	76	70	66
13 x 36,0	766	15,6	47,0	3,9	132	159	74	66	56	106	98	93
13 x 45,0	764	18,0	47,0	3,5	132	159	74	66	56	106	98	93
13 x 65,0	762	18,2	46,8	3,1	132	159	74	66	56	106	98	93
14 x 41,0	766	16,8	50,0	4,4	154	185	86	77	65	123	114	108
14 x 50,0	WN	16,3	47,0	4,1	154	185	86	77	65	123	114	108
14 x 64,0	WN	16,3	47,0	3,7	154	185	86	77	65	123	114	108
14 x 100,0	WN	16,0	47,0	3,0	154	185	86	77	65	123	114	108
16 x 45,0	766	19,2	58,0	5,8	201	241	112	100	84	160	148	140
16 x 56,0	764	22,0	58,0	5,2	201	241	112	100	84	160	148	140
16 x 64,0	WN	20,0	55,0	5,1	201	241	112	100	84	160	148	140
16 x 80,0	762	22,4	57,6	4,7	201	241	112	100	84	160	148	140
18 x 50,0	766	21,6	65,0	7,4	254	305	142	127	107	203	188	178
18 x 63,0	764	24,0	65,0	6,5	254	305	142	127	107	204	188	178
18 x 64,0	WN	21,0	60,0	6,6	254	305	142	127	107	204	188	178
19 x 75,0	WN	22,0	63,0	7,6	283	340	158	141	119	227	210	198
20 x 56,0	766	24,0	72,0	9,0	314	376	175	157	132	251	232	220
20 x 70,0	764	27,0	72,0	8,2	314	376	175	157	132	251	232	220
20 x 100,0	762	28,0	72,0	7,4	314	376	175	157	132	251	232	220
22 x 86,0	WN	26,0	74,0	9,8	380	456	212	190	160	304	281	266
23 x 64,0	766	27,6	83,0	12,0	415	498	232	207	174	332	307	290
23 x 80,0	764	31,0	83,0	11,0	415	498	232	207	174	332	307	290
26 x 73,0	766	31,2	94,0	15,0	530	637	298	265	223	425	392	371
26 x 91,0	764	35,0	94,0	14,0	530	637	298	265	223	425	392	371
26 x 100,0	WN	31,0	87,0	13,5	530	637	298	265	223	425	392	371
28 x 78,0	766	33,6	101,0	18,0	615	739	344	308	258	492	455	431
28 x 98,0	764	36,0	101,0	16,5	615	739	344	308	258	492	455	431
30 x 84,0	766	36,0	108,0	20,0	706	848	395	353	296	565	523	494
30 x 105,0	764	39,0	108,0	19,0	706	848	395	353	296	565	523	494
30 x 120,0	WN	36,0	102,0	17,8	706	848	395	353	296	565	523	494
33 x 92,0	766	43,0	119,0	25,0	855	1026	478	427	359	684	633	598
33 x 115,0	764	43,0	119,0	22,5	855	1026	478	427	359	684	633	598
34 x 136,0	WN	39,0	113,0	23,8	907	1089	508	453	381	726	672	635
36 x 101,0	766	43,2	130,0	29,0	1017	1221	570	508	428	814	753	712
36 x 126,0	764	47,0	130,0	26,5	1017	1221	570	508	428	814	753	712
38 x 144,0	WN	44,0	127,0	30,0	1134	1360	635	567	476	907	839	794
39 x 109,0	766	51,0	140,0	34,0	1194	1433	669	597	502	956	884	836
39 x 136,0	764	51,0	140,0	31,0	1194	1433	669	597	502	956	884	836
42 x 118,0	766	50,0	151,0	40,0	1385	1662	776	692	582	1108	1025	970
42 x 147,0	764	55,0	151,0	36,0	1385	1662	776	692	582	1108	1025	970

MBK = min. breaking load, WN = works standard, Other dimensions and qualities on request, including stainless steel and other alloy steels
1) tolerance: table 1

3.0 Scraper bar attachments

HEKO scraper bar attachments

- **The right solution for every application**
- **Several options to suit individual requirements**
- **Tempered and case hardened**
- **Finish self-colour, galvanised or other surface finishes**

HEKO offers a wide spectrum of cost effective and safe scraper bar attachments. HEKO's attachments are suitable for single or multi-strand conveyors.

Heat treatment of the attachments is tailored to suit individual requirements. We recommend the use of tempered HEKO qualities for high strength requirements, and case hardened HEKO qualities for wear resistant requirements. The conveyor

chains can be supplied as individual components are pre-assembled to form an endless chain.

Generally there are two categories of attachments, those which connect the chain links and those which are inserted into the chain strands.

We will be pleased to assist you in selecting the optimum attachment for your application.

3.1 Technical data for attachments

Table 3: Technical data for HEKO qualities

	tempered qualities heat-treatable steel CrNi-/CrMo-steel		hardened contact area qualities heat-treatable steel CrMo-steel		case hardened qualities CrNi-steel CrMo-steel	
	HEKO 31	HEKO 32	HEKO 4/1	HEKO 4/2	HEKO 5	HEKO 6
proof stress N/mm ²	250	300	125	240	150	240
breaking stress N/mm ²	500	600	280	400	370 ₄₎	450
contact surface hardness min. joint HV 1	300	330	600	600	750	600
hardening depth d- min. after etching	-	-	0,1 ₁₎	0,1 ₁₎	0,1 ₁₎	0,14 ₁₎
hardening depth d min. Eht ₂₎ Rht ₃₎ 550 HV 1	-	-	0,06	0,06	0,06	0,09

1) tolerance ...d 0,01 d

3) Rht = effective hardening depth

2) Eht = case hardening depth

4) tolerance - 10% ≥ t=105 = -20%

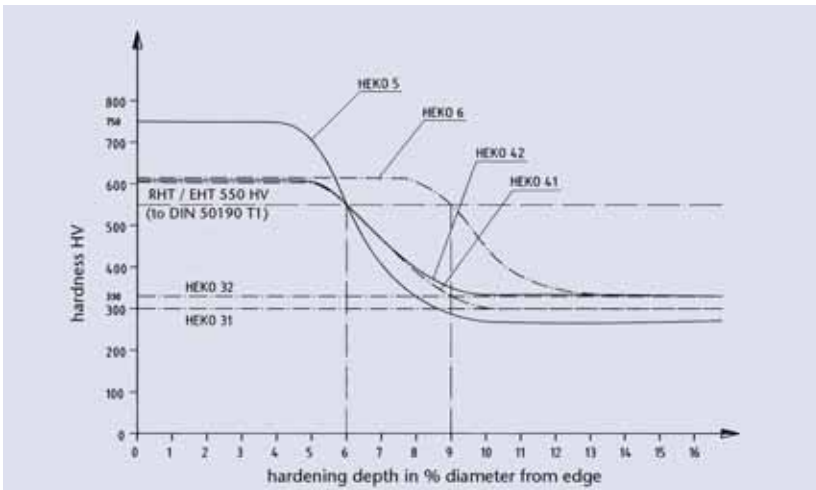


Figure 8:
Hardness curves for attachments



Figure 9:
Automatic hardness tester (Protocolling of hardness values and hardness curve)

3.2 Special scraper attachment type SP

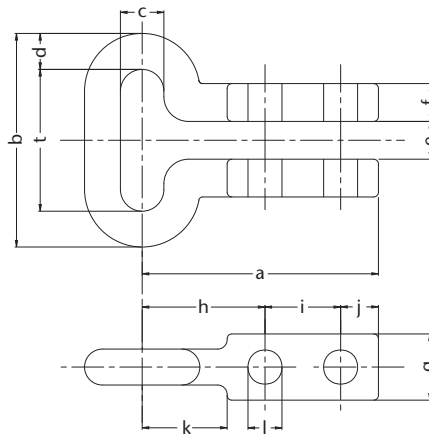


Figure 10: HEKO Special scraper attachment type SP

HEKO special scraper attachments type SP are supplied to suit chain to DIN or other standards.

- suitable for horizontal and inclined conveyors
- conveying in upper or lower trough
- simple and economic scraper attachment

HEKO special scraper attachments are suitable for use with single- and twin-strand conveyors. They can be fitted to conveyors with wheels having projecting teeth, pocket teeth or toothless wheels.

Scraper centres can be varied by means of the number of chain links fitted. Supply can be either loose or pre-assembled with the attachments and scraper bars.

We recommend the use of high tensile bolts for attaching the scraper, grade 8.8 minimum. Chains which have lengthened as a result of wear

can be shortened by unbolting one scraper and removal of one (set) chain length and attachment. Individual chain links can be removed by cold cutting of the link. Both tempered and case hardened attachments are part of HEKO's standard manufacturing programme. The quality of the attachments is matched with the chain quality. All necessary fittings as well as suitable scraper bars, standard or bespoke, can be furnished by HEKO.

Table 4: HEKO special scraper bar attachments for chains to DIN or works standard

to suit chain, nominal diameter x pitch, d x t/mm	chain DIN	HEKO drawing number	dimensions/mm											bolts/nuts	weight kg/each	HEKO qualities ^{*)} , MBK (kN)				
																tempered	hardened contact areas			
			a	b	c	e	f	g	h	i	j	k	l			HEKO 31	HEKO 32	HEKO 41	HEKO 5	HEKO 42
10 x 35	764	1765	82	55	14	12	10	22	40	30	12	30	8,5	M 8 x 45	0,25	78	94	44	58	63
13 x 45	764	1765	100	71	18	15	12	28	50	35	15	34	12,5	M 12 x 55	0,50	132	159	74	98	106
14 x 50	WN	21641	104	78	17	16	13	33	58	30	16	36	13	M 12 x 60	0,60	154	185	77	114	123
16 x 56	764	1765	130	88	18	20	16	32	70	40	20	50	17	M 16 x 75	0,90	201	241	112	148	160
16 x 64	WN	4282	130	96	20	20	16	32	70	40	20	50	13	M 12 x 70	1,00	201	241	100	148	160
18 x 63	764	1765	125	99	24	19	20	35	65	40	20	45	17	M 16 x 80	1,15	254	305	127	188	203
18 x 64	WN	1081 B	125	100	24	19	20	35	65	40	20	45	17	M 16 x 80	1,15	254	305	127	188	203
19 x 75	WN	3169 A	125	113	23	20	20	35	65	40	20	45	17	M 16 x 80	1,20	283	340	141	210	227
20 x 56	766	1765	145	96	25	22	20	30	85	40	20	65	17	M 16 x 90	1,25	314	376	157	232	251
20 x 70	764	1765	145	110	27	22	20	35	85	40	20	65	17	M 16 x 90	1,30	314	376	157	232	251
20 x 80	WN	3167 A	124	120	23	22	20	40	68	35	21	54	18	M 16 x 90	1,50	314	376	157	232	251
22 x 86	WN	3983	140	132	26	25	20	50	80	40	20	62	18	M 16 x 90	1,90	380	456	190	281	304
23 x 80	764	1765	164	126	31	24	20	42	89	50	25	63	21	M 20 x 90	2,00	415	498	232	307	332
23 x 100	WN	2151	137	146	30	24	20	48	78	40	19	60	18	M 16 x 90	2,15	415	498	207	307	332
26 x 91	764	1765	170	143	35	31	22	45	95	50	25	65	21	M 20 x 100	2,90	530	637	297	392	424

^{*)} stated values refer to use of bolts and nuts grade 8.8, WN = works standard, MBK = min. breaking load, tolerance: table 1

3.3 Chain shackle type TS and DIN 5699

HEKO shackles are fastened to the scraper bar by two nuts and a securing element. Shackle and scraper bar form a stable, simple form of connection. A wide range of sizes and qualities is available to suit most applications.

We recommend our shackle type TS for higher demands as the lip on the distance plate provides support on the wheel rim.

In addition the TS-shackle permits a much higher breaking load compared to the DIN-shackle.

TS-shackles can be used with wheels having projecting teeth and pocket teeth. Plain wheels can be used as return idlers.

HEKO shackle type TS

- Supplied also pre-assembled with the chain to endless chain strands
- Highest services achieved through the reliability of the secured TS-distance plate

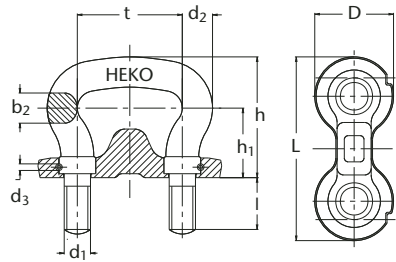


Figure 11: HEKO shackle type TS



Table 5: Dimensions and qualities of HEKO shackle type TS

pitch t/mm	to suit chain, nominal diameter x pitch/DIN	weight kg/each complete	dimensions/mm									HEKO qualities	
			b ₂	d ₂	d ₃	d ₁	h	h ₁	D	L	I	tempered HEKO 32 MBK (kN)	hardened contact areas HEKO 6 MBK (kN)
45	13 x 45 / 764	0,53	14	14	5	M 12	64,5	40,5	37	75	26	159	119
56	16 x 56 / 764	0,70	16	16	5	M 14	68	40	45	95	28	241	180
63	18 x 63 / 764	1,00	18	18	5	M 16	74	43	50	110	34	305	228
70	20 x 70 / 764	1,45	20	20	5	M 20	83	48	55	120	37	376	280
80	23 x 80 / 764	1,85	23	23	5	M 20	92	53	60	130	37	498	360
91	26 x 91 / 764	2,70	26	26	6	M 24	104	60	70	155	42	636	477
105	30 x 105 / 764	3,90	30	30	6	M 24	118	68	80	165	42	847	635
126	36 x 126 / 764	6,10	35	35	8	M 30	139	81	85	200	66	1220	915
136	39 x 136 / 764	7,60	39	38	8	M 36	152	88	90	220	79	1432	1074
147	42 x 147 / 764	9,00	40	40	8	M 36	162	93	95	230	79	1661	1188

tolerance: table 1, MBK = min. breaking load

HEKO shackle to DIN 5699

- Simple to fit
- Dimensions to suit chain to DIN 764

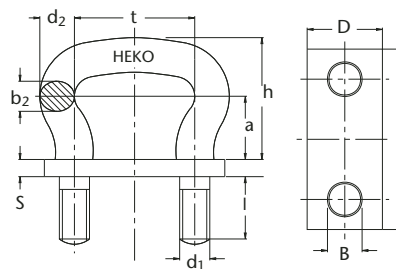


Figure 12: Scraper connected by shackle to DIN 5699

Table 6: Dimensions and qualities of HEKO shackles to DIN 5699

pitch t/mm	to suit chain, nominal diameter x pitch/DIN	weight kg/each complete	chain shackle dimensions/mm						distance plate dimensions in mm				HEKO-qualities tempered		hardened contact areas	
			b ₂	d ₂	d ₁	h	a	l	L	D	S	B	HEKO 31 MBK (kN)	HEKO 32 MBK (kN)	HEKO 41 MBK (kN)	HEKO 5 MBK (kN)
35	10 x 35 / 764	0,21	10	12	M 10	43	23	13	65	30	12	10,5	78	94	54	68
45	13 x 45 / 764	0,34	13	15	M 12	53	28	18	75	30	12	13	132	159	88	110
56	16 x 56 / 764	0,59	16	18	M 14	64	34	23	95	40	12	15	201	241	129	162
63	18 x 63 / 764	0,85	18	21	M 16	71	37	25	110	40	15	17	254	305	170	213
70	20 x 70 / 764	1,25	20	23	M 20	80	42	30	120	50	15	21	314	376	207	259
80	23 x 80 / 764	1,50	23	26	M 20	89	47	30	130	50	15	21	415	498	269	337
91	26 x 91 / 764	2,36	26	29	M 24	99	52	35	150	60	20	25	530	637	339	424
105	30 x 105 / 764	3,06	30	34	M 24	114	60	35	165	60	20	25	706	848	458	574
126	36 x 126 / 764	5,40	36	40	M 30	134	71	45	200	70	20	31	1017	1221	646	810
136	39 x 136 / 764	7,81	39	44	M 36	146	76	50	220	80	25	37	1194	1433	771	950
147	42 x 147 / 764	8,83	42	47	M 36	157	81	50	230	80	25	37	1385	1662	887	1110

Other shackles to DIN 745 or out of DIN available, tolerance: table 1, MBK = min. breaking load

3.4 Split scraper attachment type BG 22

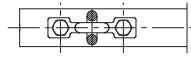


Figure 13: Arrangement for pocket toothed chain wheels

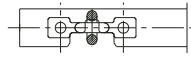


Figure 14: Arrangement for wheels with projecting teeth or toothless wheels

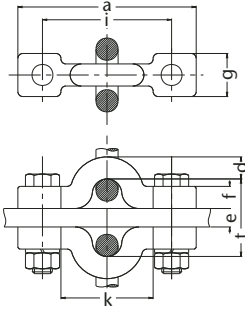


Figure 15: Split scraper bar attachments

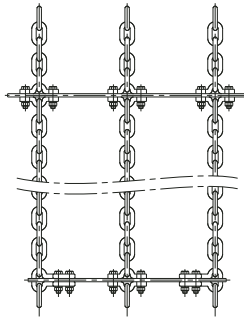


Figure 16: Split scraper bar attachment for triple strand chain

HEKO attachments are drop forged, tempered and chain contact surfaces are case hardened to minimise wear. They are employed for single and multi-strand applications for securing the scraper bar in the middle and thus provide additional strength and security. These attachments can run over pocket toothed wheels with single or twin strand conveyors and with special scraper bar designs also over wheels with projecting teeth. The two attachment halves each have two holes and a pair will be connected with the scraper bar by two bolts and nuts grade 8.8. or 12.9.

Table 7: HEKO split scraper attachments type BG 22

to suit chain, nominal diameter x pitch, d x t/mm	DIN chain	weight kg/each	bolts/nuts	dimensions/mm						case hardened HEKO qualities	
				a	e	f	g	i	k	HEKO 41 MBK kN	HEKO 42 MBK kN
10 x 35	764	0,30	M 10 x 45	95	12	10	22	70	45	29	47
10 x 50	762	0,35	M 10 x 60	95	27	10	22	70	45	29	47
13 x 45	764	0,40	M 12 x 55	120	12	13	28	85	60	50	80
13 x 65	762	0,45	M 12 x 75	120	32	13	28	85	60	50	80
16 x 56	764	0,70	M 16 x 65	140	12	16	32	100	70	75	120
16 x 64	WN	0,80	M 16 x 75	140	20	16	32	100	70	75	120
18 x 63	764	0,80	M 16 x 70	145	15	18	35	105	75	95	153
18 x 64	764	0,90	M 16 x 75	145	16	18	35	105	75	95	153
20 x 70	764	1,00	M 16 x 75	150	15	20	35	110	80	118	188
20 x 100	762	1,10	M 16 x 110	150	45	20	35	110	80	118	188
23 x 80	764	1,60	M 20 x 90	175	20	23	40	130	85	155	249

Other dimensions and qualities on request, WN = works standard, tolerance: table 1, MBK = min. breaking load

3.5 Lift-in scraper bars type EFS

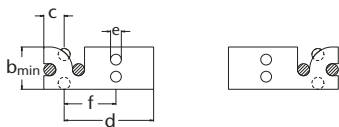


Figure 17: Lift-in scraper bars type EFS

- Their use is limited to wheels with pocket teeth
- Suitable scraper bars can be supplied
- Single piece or for bolted attachment

Table 8: Lift-in HEKO scraper bars type EFS

to suit chain, nominal diameter x pitch, d x t/mm	DIN chain	dimensions/mm					
		a	b _{min}	c	e	f	d
14 x 50	WN	20	50	25	13	50	70
16 x 64	WN	30	55	28	17	70	90
19 x 75	WN	35	65	32	17	75	95
22 x 86	WN	40	75	37	21	85	105
26 x 91	764	35	95	47	21	90	110
30 x 105	764	40	110	55	21	95	120

Other dimensions and qualities on request, WN = works standard

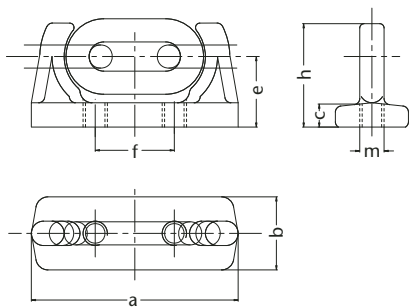
3.6 Plug-in scraper bar attachments type SMG and SMO

HEKO plug-in attachment

- Fast connection to endless chain strands
- Different scraper bar centres possible
- Reversible conveying possible
- High service life even under extreme conditions
- Fitted to loose chain

The attachments are manufactured from manganese-chrome-alloy steel and are case hardened.

The connectors can easily be welded to mild steel and low alloy steel. The following are suitable welding alloys: MAG: DIN 8559/SG3, E: DIN 1913 E 5154 B10 or equal.

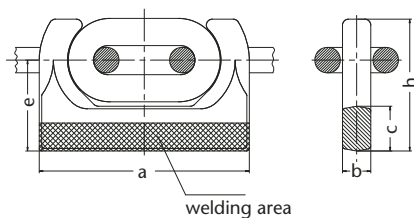


HEKO plug-in attachments SMG are drop forged in one-piece with the base plate.

The attachments are manufactured from manganese-chrome-alloy steel and are completely case hardened. Connection of the attachment with the scraper is by use of bolts grade 8.8.



Figure 18:
HEKO plug-in attachment SMG



HEKO plug-in attachments SMO are drop forged and are used without base plate. They are suitable for welding directly to the scraper bar. The attachments are manufactured from manganese-chrome-alloy steel and are completely case hardened.



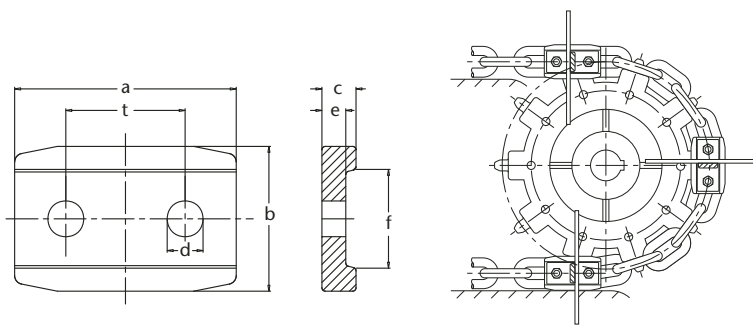
Figure 19:
Plug-in attachment SMO

Table 9:
HEKO Plug-in attachment type SMG, forged with base plate
HEKO Plug-in attachment type SMO, forged without base plate

Plug-in attachment type	to suit chain, nominal Diameter x Pitch, d x t/mm	weight kg/each	dimensions/mm							
			a	b	c	e	f	m	h	
SMG	14 x 50	0,7	112	40	12	38	45	(M 12)	57	
SMO		0,5	110	16	25	50			73	
SMG	16 x 64	1,2	145	50	15	48	52	(M 16)	76	
SMO		0,8	135	19	30	59			83	
SMG	19 x 75	2,0	170	60	20	58	65	(M 20)	85	
SMO		1,2	156	21	36	69			100	
SMG	22 x 86	3,0	195	70	20	68	71	(M 20)	100	
SMO		2,0	182	25	40	80			115	
SMG	26 x 100	4,5	230	80	20	72	85	(M 20)	110	
SMO		3,3	214	30	45	92			135	
SMG	30 x 120	6,7	270	90	25	85	98	(M 24)	130	
SMO		5,3	252	35	55	110			160	
SMG	34 x 136	10,0	310	100	30	98	110	(M 27)	150	
SMO		7,2	282	38	60	122			177	

Other dimensions and qualities on request. Dimensions () apply only for attachments with threads

3.7 Sliding block type GL



- Suitable for horizontal and inclined conveyors
- Provide support for the scraper bar
- Guide for chain and scraper bar

Figure 20:
HEKO sliding block type GL

HEKO slide blocks prevent the chain wearing in unwanted areas, resulting in increased service for the chain. The sliding blocks are available in different material qualities such as chrome molybdenum steel or cast iron.

Table 10: HEKO Sliding Blocks

to suit chain shackle, pitch t/mm	sliding block Pitch t/mm	dimensions/mm						weight kg/each
		a	b	c	d	e	f	
70	70	130	85	20	21	14	55	1,5
80	80	140	95	25	21	19	55	2,1
91	91	160	100	25	25	17	65	2,3
105	105	180	110	40	25	17	73	3,2
126	126	210	120	45	32	20	83	4,9

Other dimensions and qualities on request

3.8 Attachment type BGQ

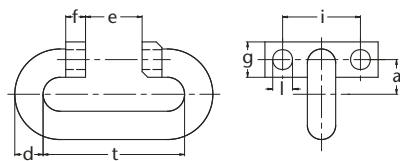


Figure 21:
HEKO attachment type BGQ

HEKO attachments BGQ are fitted to single and multi-strand conveyors. They are suitable for pocket toothed and projected teeth wheels. Attachments type BGQ are available as fabricated as well as drop forged units. The chain contact surfaces are case hardened. The angled flanges



include two holes each for fitting to the scraper bar. The attachments BGQ are available in different material qualities and are also available to different dimensions.

Table 11: HEKO attachment BGQ

to suit chain, nominal diameter x pitch, d x t/mm	DIN chain	weight kg/each	bolts/nuts	dimensions/mm						hardened contact area qualities	
				a	e	f	g	i	l	HEKO 21 MBK (kN)	HEKO 42 MBK (kN)
13 x 65	762	0,3	M 12 x 60	26	25	10	18	30	12,5	66	77
16 x 80	762	0,5	M 16 x 70	31	30	10	20	40	14,5	100	120
20 x 100	762	0,85	M 16 x 80	30,5	40	14	25	50	14,5	157	142
23 x 120	WN	1,3	M 20 x 90	34,5	50	15	30	54	17	207	240

Other dimensions and qualities on request, WN = works standard, MBK = min. breaking load, tolerance: table 1

3.9 Scraper attachments for endless chain

Arrangements of replaceable, bolted and welded attachments for endless chain.

In addition to using chain ends and special attachments for conveyors, endless chain can also be used. Such an arrangement has the advantage of allowing different scraper bar centres

to be used. In addition the transport unit can be tailored to individual applications.

Below are some examples of attachments for use with endless chain strands. Other, bespoke attachments can be provided to suit the users' application.

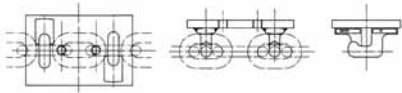


Figure 22: Individually welded attachments for use with wheels with projecting teeth, forged and case hardened.

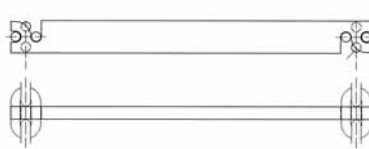


Figure 23: Lift-in scraper bars for use with pocket toothed wheels

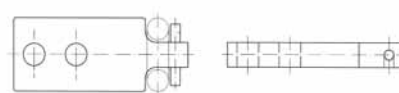


Figure 24: Plug-in attachments type EFL with security pin

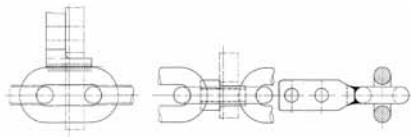


Figure 25: Welded attachments type AFS for pocket and projected toothed wheels for bolting scraper and use in single and twin strand conveyors

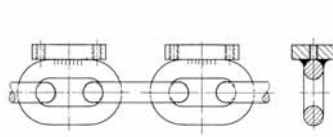


Figure 26: Welded attachment for use in abattoir

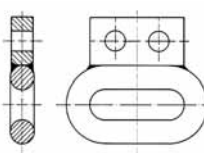


Figure 27: Welded attachment for different transport units

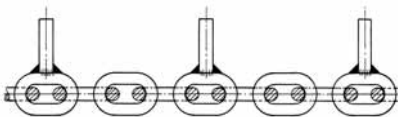


Figure 28: Transport unit for loose products, i.e. household waste.

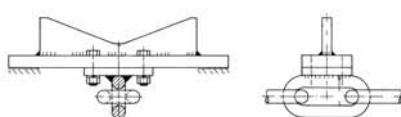


Figure 29: Transport unit for forestry products

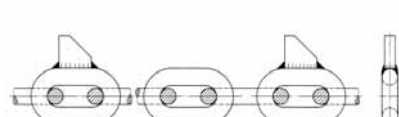


Figure 30: Lower trough transport medium for wagons

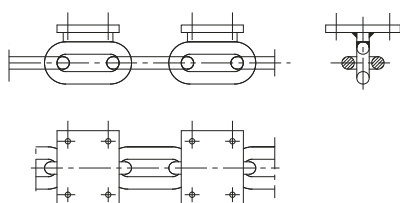


Figure 31: Plate conveyor used as open assembly conveyor for tools, etc.

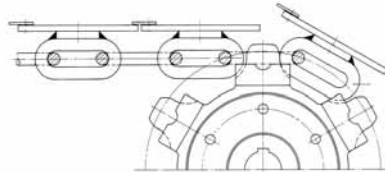


Figure 32: Plate belt conveyor

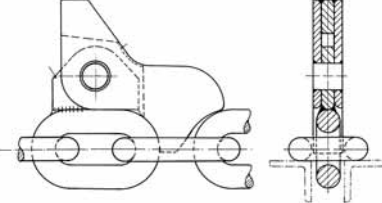


Figure 33: Reversible transport catch.

4.0 Chain locks

4.1 Chain lock type A

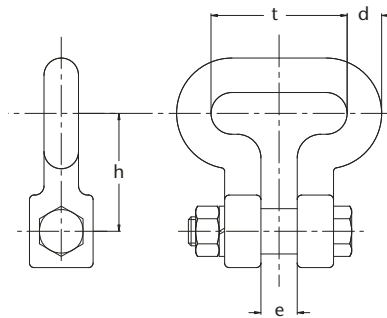


Figure 34: Chain lock type A

Chain locks type A are drop forged, tempered and inductively hardened in the contact areas to improve wear resistance. They are supplied complete with hexagon bolts to DIN 931, grade 8.8. These chain locks are suitable for use with wheels with pocket teeth and projecting teeth.

Normally these chain locks are installed horizontally, but special designs also allow vertical installation. Their material quality is matched with that of the chain.

Table 12: Sizes and qualities of HEKO chain locks type A

to suit chain, nominal diameter x pitch d x t/mm	DIN chain	dimensions/mm		weight kg/each	hexagon bolt DIN 931 8.8	HEKO qualities, MBK (kN) ₁				
		e	h			tempered qualities HEKO 31 MBK (kN)	HEKO 32 MBK (kN)	hardened contact area qualities HEKO 41 HEKO 5 HEKO 42 MBK (kN)		
10 x 35	764	12	40	0,25	M 10	78	94	44	58	63
13 x 45	764	15	50	0,45	M 12	132	159	74	98	106
14 x 50	WN	16	58	0,50	M 12	154	185	77	114	123
16 x 56	764	20	70	0,85	M 16	201	241	112	148	160
16 x 64	WN	20	70	0,95	M 16	201	241	100	148	160
18 x 63	764	19	65	1,10	M 16	254	305	127	188	203
18 x 64	WN	19	65	1,10	M 16	254	305	127	188	202
19 x 75	WN	20	65	1,20	M 16	283	340	141	210	227
20 x 56	766	22	85	1,20	M 20	314	376	157	232	251
20 x 70	764	22	85	1,30	M 20	314	376	157	232	251
20 x 80	WN	22	68	1,40	M 20	314	376	157	232	251
22 x 86	WN	25	80	1,80	M 20	380	456	190	281	304
23 x 80	764	24	89	1,80	M 20	415	498	207	307	332
23 x 100	WN	24	78	1,90	M 20	415	498	207	307	332
26 x 91	764	31	95	2,50	M 20	530	637	297	392	424

Other dimensions and qualities on request, WN = works standard, tolerance -10%, HEKO 32/HEKO 400E -20%, MBK = min. breaking load

4.2 Chain lock type F

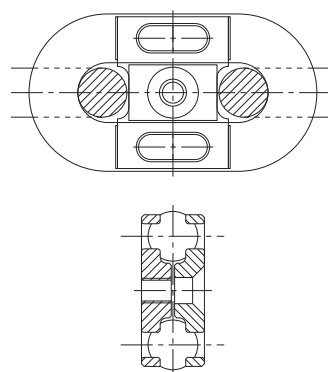


Figure 35: Chain lock type F

HEKO chain locks type F are used for connecting longer chain strands. These chain locks have the same physical properties to that of the corresponding chain. Assembly of the five components is simple as the chain only needs to be slackened slightly. These chain locks should only be installed vertically. Dimensions are to suit the corresponding chain.

4.3 Chain locks type B and type D

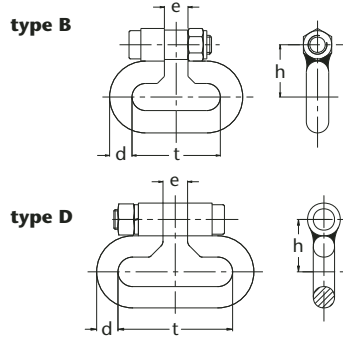


Figure 36: Chain locks type B with welded nut and type D with loose nut.

HEKO chain locks type B and D are fabricated by welding. These chain locks are supplied complete with head cup screws to DIN 6912, grade 8.8. These chain locks are suitable for use with wheels with pocket teeth and projecting teeth. Normally these chain locks are installed horizontally, but special designs also allow vertical installation. Their material quality is matched to that of the chain.

Table 13: Sizes and qualities of HEKO chain locks type B und type D

to suit chain, nominal diameter x pitch d x t/mm	DIN chain	dimensions/mm		weight kg/each	head cup screw DIN 6912 8.8	HEKO qualities, MBK (kN) ₁							
		e	h			tempered qualities				hardened contact area qualities			
						HEKO 31	HEKO 32	HEKO 280 E	HEKO 21	HEKO 210 E	HEKO 400 E	HEKO 5	HEKO 350 E
10 x 35	764	12	24	0,10	M 12	78	94	44	39	33	63	58	55
13 x 45	764	15	30	0,20	M 12	132	159	74	66	56	106	98	93
14 x 50	WN	16	34	0,24	M 12	154	185	86	77	65	123	114	108
16 x 56	764	18	37	0,35	M 14	201	241	112	100	84	160	148	140
16 x 64	WN	18	37	0,35	M 14	201	241	112	100	84	160	148	140
18 x 63	764	20	41	0,50	M 16	254	305	142	127	107	204	188	178
20 x 70	764	22	45	0,75	M 16	314	376	175	157	132	251	232	220
23 x 80	764	25	52	1,10	M 20	415	498	232	207	174	332	307	290
26 x 91	764	28	59	1,60	M 20	530	637	298	265	223	425	392	371
30 x 105	764	33	69	2,60	M 24	706	848	395	353	296	565	523	494
36 x 126	764	39	84	4,45	M 30	1017	1221	570	508	428	814	753	712

Other dimensions and qualities on request, 1) tolerance -10%, HEKO 32/HEKO 400E -20%, MBK = min. breaking load

4.4 Chain lock type E

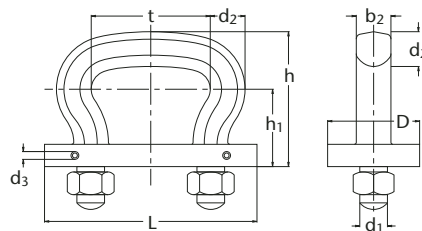


Figure 37: HEKO chain lock type E

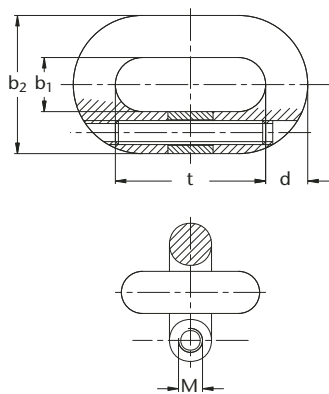
A HEKO chain lock for heavy duty applications. Easy to fit and with double security by means of the use of nuts and split pins. Suitable for use with pocket toothed and projecting toothed wheels, as well as in vertical and horizontal position.

Table 14: Sizes and qualities of HEKO chain locks type E

pitch t/mm	to suit chain, nominal diameter x pitch/DIN	weight kg/each	dimensions/mm								HEKO qualities, MBK (kN) ₁	
			b ₂	d ₂	d ₃	d ₁	h	h ₁	D	L	tempered HEKO 32 MBK (kN)	hardened HEKO 6 MBK (kN)
45	13 x 45 / 764	0,53	14	14	5	M 12	64,5	40,5	37	75	159	119
56	16 x 56 / 764	0,70	16	16	5	M 14	68	40	40	95	241	180
63	18 x 63 / 764	1,00	18	18	5	M 16	74	43	50	110	305	228
70	20 x 70 / 764	1,45	20	20	5	M 20	83	48	50	120	376	282
80	23 x 80 / 764	1,85	23	23	5	M 20	92	53	50	130	498	373
91	26 x 91 / 764	2,70	26	26	6	M 24	104	60	60	155	636	477
105	30 x 105 / 764	3,90	30	30	6	M 24	118	68	60	165	847	635
126	36 x 126 / 764	6,10	35	35	8	M 30	139	81	70	200	1220	915
136	39 x 136 / 764	7,60	38	38	8	M 36	152	88	80	220	1432	1074
147	42 x 147 / 764	9,00	42	40	8	M 36	162	93	80	230	1661	1188

tolerance -10%, HEKO 32 -20%, MBK = min. breaking load

4.5 Chain lock type C



HEKO chain locks type C are suitable for use horizontally and vertically with wheels with pocket teeth and projecting teeth. The grub screw (with internal hexagon) is supported by a spacer sleeve. These chain locks are supplied both in tempered and hardened finish. Dimensions are completely compatible with the corresponding chain. These chain locks should be installed vertically only to minimise bending and premature fatigue failure.

Figure 38: Chain lock type C

Table 15: Sizes and qualities of HEKO chain locks type C

to suit chain, nominal diameter x pitch d x t/mm	DIN chain	dimensions in mm		weight kg/each	grub screw (with internal hexagon) M	HEKO qualities, MBK (kN) ₁							
		inside width b ₁	outside width b ₂			tempered qualities				case hardened qualities			
						HEKO 31	HEKO 32	HEKO 280 E	HEKO 21	HEKO 210 E	HEKO 400 E	HEKO 5	HEKO 350 E
8 x 24	766	9,6	27,2	0,05	M 5 x 25	37	45	21	18	15	30	27	26
8 x 25,4	WN	10	26	0,05	M 5 x 30	37	45	21	18	15	30	27	26
9 x 27	766	10,8	30,6	0,06	M 5 x 30	47	57	26	24	19	38	35	33
10 x 35	764	14	36	0,07	M 6 x 35	58	70	33	29	24	47	43	41
10 x 50	762	14	36	0,09	M 6 x 50	58	70	33	29	24	47	43	41
11 x 31	766	13,2	40	0,09	M 6 x 35	71	85	39	35	30	57	52	49
13 x 45	764	18	47	0,16	M 8 x 40	99	119	55	49	42	79	73	69
14 x 50	WN	16,3	47	0,21	M 8 x 50	115	138	64	57	48	92	85	81
16 x 56	764	22	58	0,30	M 10 x 55	150	180	84	75	63	120	111	105
16 x 64	WN	20	55	0,34	M 10 x 60	150	180	84	75	63	120	111	105
16 x 80	762	22,4	57,6	0,38	M 10 x 80	150	180	84	75	63	120	111	105
18 x 63	764	24	65	0,41	M 10 x 60	190	228	106	95	80	153	141	133

Other dimensions and qualities on request, 1) Toleranz -20%, WN = works standard, tolerance -10%, HEKO 32 -20%, MBK = min. breaking load

4.6 Chain lock type KHV/RS

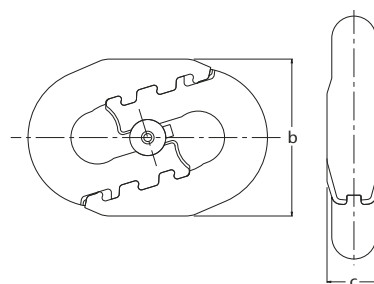


Figure 39: Chain lock type KHV

Chain locks type KHV are used for connecting longer chain strands. These chain locks have the same physical properties to that of the corresponding chain. Assembly of the five components is simple as the chain only needs to be slackened slightly. These chain locks should only be installed vertically. Dimensions are to suit the corresponding chain.

Table 16: Chain lock type KHV

to suit chain, nominal diameter x pitch d x t/mm	dimensions/mm		weight kg/each	type
	height b	width c		
16 x 64	56	18,5	0,5	RS
19 x 75	66,5	23	0,8	RS
22 x 86	77	26	1,9	KHV
26 x 100	89	29	2,4	KHV
30 x 120	107	36	3,2	KHV
34 x 136	117	40	4,2	KHV
38 x 144	133	45	5,2	KHV

5.0 Chain wheels

5.1 Chain wheel with projecting teeth, steel, replaceable toothed rim, type VIA and VIA-C

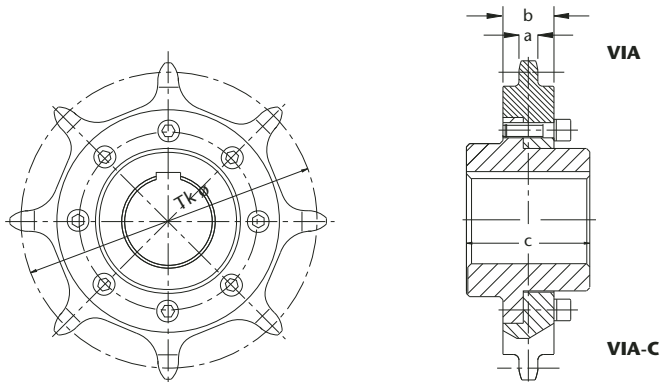


Figure 40:
HEKO chain wheel with projecting teeth, replaceable steel rim, type VIA or VIA-C with chamfered teeth and drop-outs

HEKO chain wheels, with projecting teeth and replaceable rims

- Wheels for chains to DIN and other standards
- Hubs from mild steel with CrMo steel rim

HEKO chain wheels type VIA provide two primary advantages: they achieve a high service life; they are simple and easy to fit and thus reduce the cost of replacement. The wheels with projecting teeth and replaceable rims are recommended for chain pitches $\geq 3.5 \times d$. The chain contact surfaces are hardened to minimise wear. As the teeth push through the link, a self-cleaning effect results which also prevents a build-up between chain and wheel. Teeth are also supplied chamfered, on request, for applications with sticky materials. Replaceable segments have the advantage that they can be exchanged without removing the hub which results in reduced downtime.

HEKO chain wheels type VIA are suitable for special attachments, horizontal shackles to DIN, TS-shackle and push-in scraper bars. Wheel dimensions can also be tailored to suit existing installations.

Assembly instruction

Information regarding markings and assembly of the chain wheels are provided on page 33.

Table 17: Sizes of HEKO chain wheels, projecting teeth, steel, replaceable rim, type VIA/VIA-C

pitch circle diameter mm, TkØ	to suit chain, nominal diameter x pitch, d x t/mm	DIN	number of teeth	dimensions/mm			weight kg/each
				a	b	c	
179	10 x 35	764	8	11,5	34	60	4
202	10 x 35	764	9	11,5	34	60	7
224	10 x 35	764	10	11,5	34	60	8
231	13 x 45	764	8	15	45	100	10
259	13 x 45	764	9	15	45	100	16
288	13 x 45	764	10	15	45	100	18
256	14 x 50	WN/22252	8	15	45	100	16
288	14 x 50	WN/22252	9	15	45	100	16
320	14 x 50	WN/22252	10	15	45	100	22
287	16 x 56	764	8	18	50	100	18
323	16 x 56	764	9	18	50	100	25
247	16 x 64	WN	6	18	50	100	14
328	16 x 64	WN	8	18	50	100	28
369	16 x 64	WN	9	18	50	100	32
409	16 x 64	WN	10	18	50	100	38
243	18 x 63	764	6	20	55	120	10
283	18 x 63	764	7	20	55	120	17
323	18 x 63	764	8	20	55	120	22
363	18 x 63	764	9	20	55	120	31
384	19 x 75	WN/22252	8	20	60	140	28
479	19 x 75	WN/22252	10	20	60	140	41
574	19 x 75	WN/22252	12	20	60	140	56
315	20 x 70	764	7	23	60	140	27
359	20 x 70	764	8	23	60	140	38
403	20 x 70	764	9	23	60	140	50
332	22 x 86	WN/22252	6	23	69	140	35
386	22 x 86	WN/22252	7	23	69	140	45
441	22 x 86	WN/22252	8	23	69	140	55
550	22 x 86	WN/22252	10	23	69	140	80

Other dimensions and qualities on request, WN = works standard

5.2 Chain wheels with projecting teeth, one-piece, steel, type VIE

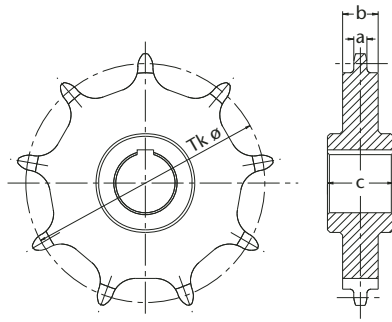


Figure 41:
HEKO chain wheel type VIE-A
projecting teeth, one-piece, with
machined contact surfaces, made from
CrMo alloy steel

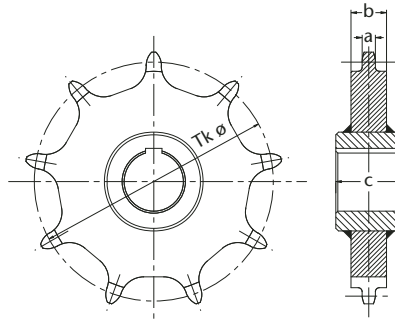


Figure 42:
HEKO chain wheel type VIE-B
projecting teeth, one-piece, welded
with machined contact surfaces, hub
made from carbone steel and toothed
rim from CrMo alloy steel.

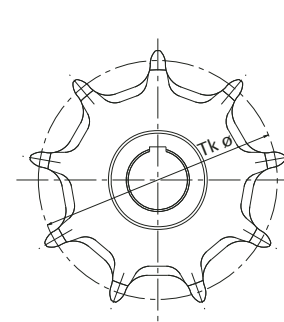
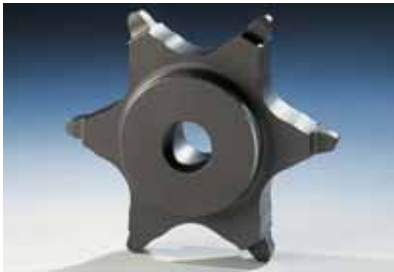


Figure 43:
HEKO chain wheel type VIE-C with
chamfered teeth and drop-outs, one-
piece or welded (alternative to VIE-A
and VIE-B)



For smaller chains, wheels are manufactured as one-piece. Wheels with projecting teeth are suitable for chain pitches $\geq 3.5 \times d$ and there are three types. Type VIE-A is a one-piece machined wheel for smaller chains, with max. hub length of 60 mm, manufactured from a blank of special alloy steel.

A welded wheel design, type VIE-B, is supplied for larger chains. The welded wheels with machined chain contact surfaces are manufactured with hubs made from steel.

HEKO chain wheel type VIE-C and type VIE-D is supplied for handling very sticky materials and has chamfered pockets to allow the material to drop out. Wheels for existing installations are tailored to suit.

Assembly instruction

Information regarding markings and assembly of the chain wheels are provided on page 33

Table 18: Sizes of HEKO chain wheels, projecting teeth, one-piece, type VIE-A/VIE-B/VIE-C/VIE-D

pitch circle diameter mm, Tk ø	to suit chain, nominal diameter x pitch, d x t/mm	DIN	number of teeth	dimensions/mm			weight kg/each
				a	b	c	
164	4 x 32	763	8	5	18	40	2
205	4 x 32	763	10	5	18	40	2,2
245	4 x 32	763	12	5	18	40	2,4
179	5 x 35	763	8	7	20	40	2
224	5 x 35	763	10	7	20	40	2,4
268	5 x 35	763	12	7	20	50	2,6
162	6 x 42	763	6	9	23	50	2,2
215	6 x 42	763	8	9	23	50	3
268	6 x 42	763	10	9	23	50	3,5
139	8 x 31	WN	7	8	26	50	4
159	8 x 31	WN	8	8	26	50	5
198	8 x 31	WN	10	8	26	50	6
395	8 x 31	WN	20	8	26	50	9
135	10 x 35	764	6	12	34	60	4
157	10 x 35	764	7	12	34	60	4
179	10 x 35	764	8	12	34	60	5
202	10 x 35	764	9	12	34	60	8
224	10 x 35	764	10	12	34	60	9
290	10 x 35	764	13	12	34	60	14
202	13 x 45	764	7	15	44	100	9
231	13 x 45	764	8	15	44	100	10
259	13 x 45	764	9	15	44	100	15
288	13 x 45	764	10	15	44	100	18
193	14 x 50	WN/22252	6	15	44	100	8
256	14 x 50	WN/22252	8	15	44	100	14
288	14 x 50	WN/22252	9	15	44	100	19
320	14 x 50	WN/22252	10	15	44	100	22
216	16 x 56	764	6	18	50	100	13
287	16 x 56	764	8	18	50	100	17
323	16 x 56	764	9	18	50	100	24
247	16 x 64	WN	6	18	50	100	15
328	16 x 64	WN	8	18	50	100	20
369	16 x 64	WN	9	18	50	100	24
409	16 x 64	WN	10	18	50	100	28
243	18 x 63	764	6	20	55	120	15
283	18 x 63	764	7	20	55	120	17
323	18 x 63	764	8	20	55	120	22
363	18 x 63	764	9	20	55	120	27
384	19 x 75	WN/22252	8	20	60	140	27
479	19 x 75	WN/22252	10	20	60	140	40
574	19 x 75	WN/22252	12	20	60	140	55
315	20 x 70	764	7	23	64	140	25
359	20 x 70	764	8	23	64	140	36
403	20 x 70	764	9	23	64	140	47
332	22 x 86	WN/22252	6	23	69	140	35
386	22 x 86	WN/22252	7	23	69	140	45
441	22 x 86	WN/22252	8	23	69	140	55
550	22 x 86	WN/22252	10	23	69	140	80

Other dimensions and qualities on request, WN = works standard

5.3 Chain wheels with projecting teeth, steel, replaceable toothed rim, type GIA

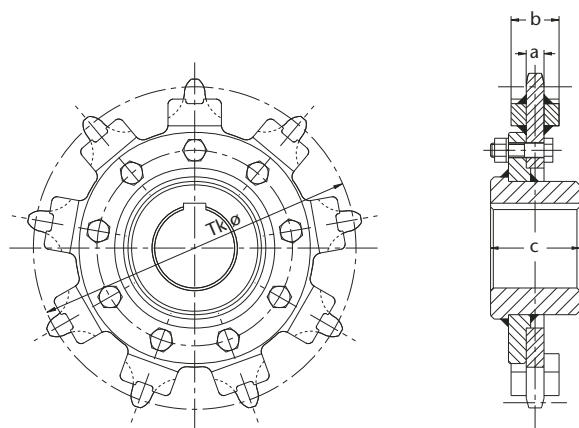


Figure 44:
HEKO chain wheel type GIA, projecting teeth, replaceable toothed rim with welded chain support

- Suitable as drive wheels for medium duty applications
- Excellent service life due to hardened contact surfaces

Table 19: Sizes of HEKO chain wheels, projecting teeth, replaceable toothed rim, type GIA

pitch circle diameter mm, Tkø	to suit chain, nominal diameter x pitch, d x t/mm	DIN	number of teeth	dimensions/mm			weight kg/each
				a	b	c	
231	13 x 45	764	8	15	45	100	10
259	13 x 45	764	9	15	45	100	12
288	13 x 45	764	10	15	45	100	14
256	14 x 50	WN/22252	8	15	45	100	14
288	14 x 50	WN/22252	9	15	45	100	15
320	14 x 50	WN/22252	10	15	45	100	19
216	16 x 56	764	6	18	54	100	15
252	16 x 56	764	7	18	54	100	16
287	16 x 56	764	8	18	54	100	18
323	16 x 56	764	9	18	54	100	22
247	16 x 64	WN	6	18	54	100	17
328	16 x 64	WN	8	18	54	100	19
369	16 x 64	WN	9	18	54	100	29
409	16 x 64	WN	10	18	54	100	32
243	18 x 63	764	6	20	60	120	18
283	18 x 63	764	7	20	60	120	20
323	18 x 63	764	8	20	60	120	25
363	18 x 63	764	9	20	60	120	29
290	19 x 75	WN/22252	6	20	60	140	19
384	19 x 75	WN/22252	8	20	60	140	32
479	19 x 75	WN/22252	10	20	60	140	52
574	19 x 75	WN/22252	12	20	60	140	77
315	20 x 70	764	7	23	63	140	22
359	20 x 70	764	8	23	63	140	29
403	20 x 70	764	9	23	63	140	36
332	22 x 86	WN/22252	6	25	71	140	29
386	22 x 86	WN/22252	7	25	71	140	41
441	22 x 86	WN/22252	8	25	71	140	52
550	22 x 86	WN/22252	10	25	71	140	55
410	23 x 80	764	8	27	73	160	51
461	23 x 80	764	9	27	73	160	72
466	26 x 91	764	8	30	80	180	75
524	26 x 91	764	9	30	80	180	80
582	26 x 91	764	10	30	80	180	90
513	26 x 100	WN	8	30	80	180	120
576	26 x 100	WN	9	30	80	180	135

Other dimensions and qualities on request, WN = works standard

HEKO manufactures chain wheels with projecting teeth, type GIA for chains above 13mm and use with special attachments and horizontal shackles to DIN or TS shackles. The projecting teeth clean the chain links effectively which prevents a build of material between chain and wheel. Long service lives are achieved through hardening of the teeth. Replacement time is minimised as the hub can remain in place thus reducing maintenance cost as are the cost of new toothed rims.

HEKO also supplies special wheels type GIA with chamfered drop-out pockets for use with cohesive products. Wheels for existing installation are provided with dimensions to suit clients' requirements.

Assembly instruction

Information regarding markings and assembly of the chain wheels are provided on page 33

5.4 Chain wheels with projecting teeth, steel, one-piece, type GIE



- Suitable as drive wheels for medium duty applications
- Excellent service life due to hardened contact surfaces

HEKO supply one-piece wheels type GIE with projecting teeth for chain with a pitch $\geq 3.5d$ and 13 mm wire diameter. The welded and hardened chain support offer the same advantage as other projecting teeth wheels, such as self-cleaning and minimisation of material build-up between wheel and chain. HEKO chain wheels type GIE with their welded chain supports offer a technically sound and cost effective solution which can be used in conjunction with special attachments, horizontal TS-shackles and DIN-shackles, as well as plug-in scraper bars.

Dimensions for existing installations are tailored to suit the application.

Assembly Instructions

For assembly instructions for the chain wheels see page 33

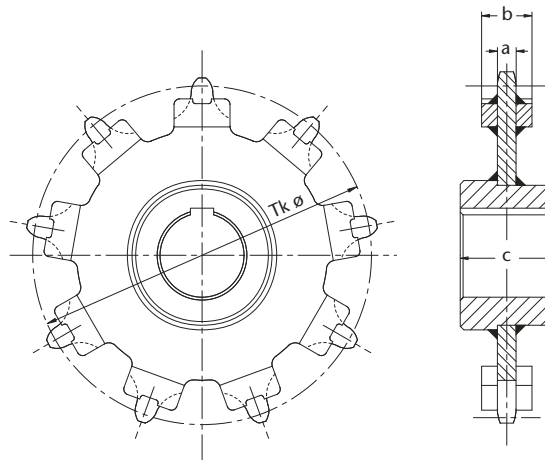


Figure 45:
HEKO chain wheel type GIE, projecting teeth, one-piece with welded chain supports.

Table 20: Sizes of HEKO chain wheels, projecting teeth, type GIE

pitch circle diameter mm, $T_k \varnothing$	to suit chain, nominal diameter x pitch, d x t/mm	DIN	number of teeth	dimensions/mm			weight kg/each
				a	b	c	
231	13 x 45	764	8	15	45	100	10
259	13 x 45	764	9	15	45	100	11
288	13 x 45	764	10	15	45	100	13
256	14 x 50	WN/22252	8	15	45	100	13
288	14 x 50	WN/22252	9	15	45	100	14
320	14 x 50	WN/22252	10	15	45	100	18
216	16 x 56	764	6	18	54	100	15
252	16 x 56	764	7	18	54	100	16
287	16 x 56	764	8	18	54	100	18
323	16 x 56	764	9	18	54	100	22
247	16 x 64	WN	6	18	54	100	17
328	16 x 64	WN	8	18	54	100	19
369	16 x 64	WN	9	18	54	100	28
409	16 x 64	WN	10	18	54	100	31
243	18 x 63	764	6	20	60	120	15
283	18 x 63	764	7	20	60	120	17
323	18 x 63	764	8	20	60	120	18
363	18 x 63	764	9	20	60	120	22
290	19 x 75	WN/22252	6	20	60	140	15
384	19 x 75	WN/22252	8	20	60	140	30
479	19 x 75	WN/22252	10	20	60	140	50
574	19 x 75	WN/22252	12	20	60	140	75
315	20 x 70	764	7	23	63	140	20
359	20 x 70	764	8	23	63	140	27
403	20 x 70	764	9	23	63	140	33
332	22 x 86	WN/22252	6	25	71	140	27
386	22 x 86	WN/22252	7	25	71	140	39
441	22 x 86	WN/22252	8	25	71	140	48
550	22 x 86	WN/22252	10	25	71	140	53
410	23 x 80	764	8	27	73	160	50
461	23 x 80	764	9	27	73	160	68
466	26 x 91	764	8	30	80	180	74
524	26 x 91	764	9	30	80	180	78
582	26 x 91	764	10	30	80	180	88
513	26 x 100	WN	8	30	80	180	118
576	26 x 100	WN	9	30	80	180	130

Other dimensions and qualities on request, WN = works standard

5.5 Chain wheels with projecting teeth, replaceable toothed rim, type GIA-3

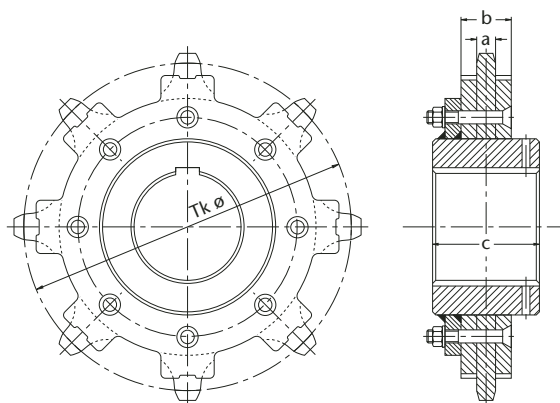


Figure 46:
HEKO heavy duty chain wheel type GIA-3, projecting teeth, replaceable toothed rim, for highest demands

- Suitable as drive wheels for heavy duty applications
- Excellent service life due to hardened contact surfaces

Table 21: Sizes of HEKO chain wheels, projecting teeth, steel, replaceable toothed rim, type GIA-3

pitch circle diameter mm, Tkø	to suit chain, nominal diameter	DIN	number of teeth	dimensions/mm			weight kg/each
				a	b	c	
216	16 x 56	764	6	18	54	100	20
252	16 x 56	764	7	18	54	100	21
287	16 x 56	764	8	18	54	100	24
323	16 x 56	764	9	18	54	100	29
247	16 x 64	WN	6	18	54	100	22
328	16 x 64	WN	8	18	54	100	25
369	16 x 64	WN	9	18	54	100	38
409	16 x 64	WN	10	18	54	100	42
243	18 x 63	764	6	20	60	120	24
283	18 x 63	764	7	20	60	120	26
323	18 x 63	764	8	20	60	120	33
363	18 x 63	764	9	20	60	120	38
328	18 x 64	WN/22252	8	20	60	120	26
409	18 x 64	WN/22252	10	20	60	120	40
490	18 x 64	WN/22252	12	20	60	120	42
290	19 x 75	WN/22252	6	20	60	140	25
384	19 x 75	WN/22252	8	20	60	140	42
479	19 x 75	WN/22252	10	20	60	140	68
574	19 x 75	WN/22252	12	20	60	140	100
315	20 x 70	764	7	23	63	140	29
359	20 x 70	764	8	23	63	140	38
403	20 x 70	764	9	23	63	140	47
332	22 x 86	WN/22252	6	25	71	140	38
386	22 x 86	WN/22252	7	25	71	140	54
441	22 x 86	WN/22252	8	25	71	140	68
550	22 x 86	WN/22252	10	25	71	140	72
410	23 x 80	764	8	27	77	160	41
461	23 x 80	764	9	27	77	160	94
466	26 x 91	764	8	30	80	180	98
524	26 x 91	764	9	30	80	180	154
513	26 x 100	WN	8	30	80	180	105
576	26 x 100	WN	9	30	80	180	120
538	30 x 105	764	8	35	95	200	166
605	30 x 105	764	9	35	95	200	180
615	30 x 120	WN	8	35	95	200	195
697	34 x 136	WN	8	35	105	200	210
566	36 x 126	764	7	40	110	220	190
847	42 x 147	764	9	50	120	220	320

Other dimensions and qualities on request, WN = works standard

Wheels with projecting teeth have many advantages. In particular the self-cleaning phenomena and minimisation of build-up between wheel and chain. The projecting teeth and chain supports are hardened to provide a good service life.

Replacement time is minimised as the hub can remain in place thus reducing maintenance cost. The cost for replacement parts are also lower. HEKO also supplies special wheels type GIA with chamfered drop-out pockets for use with cohesive products. Wheels for existing installation are provided with dimensions to suit clients requirements.

Special designs: Wheels with chamfered pockets to prevent build-up when handling cohesive products.

Assembly Instructions

For assembly instructions for the chain wheels see page 33

5.6 Chain wheels with pocket teeth, steel, replaceable rims, type GTA



- Suitable as drive wheels
- Excellent service life due to hardened contact surfaces

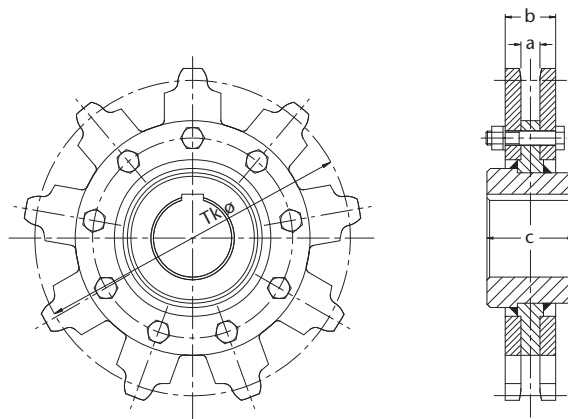


Figure 47:
HEKO chain wheel type GTA, pocket teeth, replaceable rims, welded

HEKO's pocket teeth chain wheels have an excellent service life. The toothed rims are manufactured from special alloy steel.

Chain contact surfaces are machined and sides are chamfered to ensure a good contact with the chain and a good lead into the wheel. Chain contact surfaces are hardened to ensure a good service life.

Pocket toothed chain wheels type GTA are supplied for use with special attachments, vertical shackle to DIN or TS-shackle and lift-in scraper bars. Replaceable rims have the advantage that the hub can be left in place during refurbishment, which also saves time and cost. Purchasing cost for replacements are also reduced compared to completely new wheels. Dimensions for existing installations are tailored to suit the application.

Assembly Instructions

For assembly instructions for the chain wheels see page 33.

Table 22: Sizes of HEKO chain wheels, pocket teeth, replaceable rims, type GTA

pitch circle diameter mm, T ϕ	to suit chain nominal diameter x pitch, d x t/mm	DIN	number of teeth	dimensions/mm			weight kg/each
				a	b	c	
135	10 x 35	764	6	14	38	80	4
157	10 x 35	764	7	14	38	80	7
179	10 x 35	764	8	14	38	80	8
202	10 x 35	764	9	14	38	80	9
231	13 x 45	764	8	18	48	100	10
259	13 x 45	764	9	18	48	100	13
288	13 x 45	764	10	18	48	100	19
256	14 x 50	WN/22252	8	18	48	100	15
288	14 x 50	WN/22252	9	18	48	100	22
320	14 x 50	WN/22252	10	18	48	100	24
216	16 x 56	764	6	21	57	100	13
252	16 x 56	764	7	21	57	100	17
287	16 x 56	764	8	21	57	100	21
323	16 x 56	764	9	21	57	100	32
358	16 x 56	764	10	21	57	100	38
247	16 x 64	WN	6	21	57	100	23
328	16 x 64	WN	8	21	57	100	31
369	16 x 64	WN	9	21	57	100	33
409	16 x 64	WN	10	21	57	100	39
243	18 x 63	764	6	23	63	120	17
283	18 x 63	764	7	23	63	120	27
323	18 x 63	764	8	23	63	120	30
363	18 x 63	764	9	23	63	120	38
403	18 x 63	764	10	23	63	120	45
290	19 x 75	WN/22252	6	23	63	140	25
384	19 x 75	WN/22252	8	23	63	140	40
479	19 x 75	WN/22252	10	23	63	140	47
574	19 x 75	WN/22252	12	23	63	140	55
315	20 x 70	764	7	25	65	140	28
359	20 x 70	764	8	25	65	140	38
403	20 x 70	764	9	25	65	140	47
332	22 x 86	WN/22252	6	27	73	140	43
386	22 x 86	WN/22252	7	27	73	140	45
441	22 x 86	WN/22252	8	27	73	140	55
550	22 x 86	WN/22252	10	27	73	140	65
410	23 x 80	764	8	28	78	140	60
461	23 x 80	764	9	28	78	140	67
466	26 x 91	764	8	32	82	160	85
524	26 x 91	764	9	32	82	160	105
671	30 x 105	764	10	36	96	200	220
726	36 x 126	764	9	42	112	220	242

Other dimensions and qualities on request, WN = works standard

5.7 Chain wheels with pocket teeth, steel, one-piece, type GTE

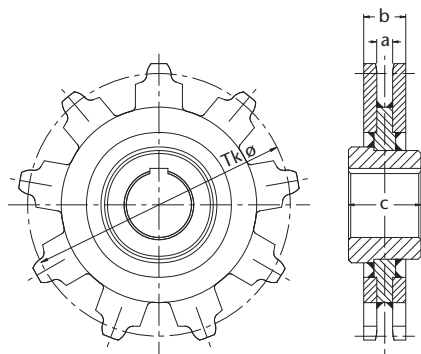


Figure 48:
HEKO chain wheel type GTE,
pocket teeth, one-piece, welded steel
fabrication



Table 23: Sizes of HEKO chain wheels, pocket teeth, one-piece, type GTE

pitch circle diameter mm, Tkø	to suit chain nominal diameter x pitch, d x t/mm	DIN	number of teeth	dimensions/mm			weight kg/each
				a	b	c	
135	10 x 35	764	6	14	38	80	4
157	10 x 35	764	7	14	38	80	6
179	10 x 35	764	8	14	38	80	6
202	10 x 35	764	9	14	38	80	8
174	13 x 45	764	6	18	48	100	6
202	13 x 45	764	7	18	48	100	8
231	13 x 45	764	8	18	48	100	10
259	13 x 45	764	9	18	48	100	12
288	13 x 45	764	10	18	48	100	17
162	14 x 50	WN/22252	5	18	48	100	5
193	14 x 50	WN/22252	6	18	48	100	7
256	14 x 50	WN/22252	8	18	48	100	14
288	14 x 50	WN/22252	9	18	48	100	20
320	14 x 50	WN/22252	10	18	48	100	21
181	16 x 56	764	5	21	57	100	8
216	16 x 56	764	6	21	57	100	11
252	16 x 56	764	7	21	57	100	15
287	16 x 56	764	8	21	57	100	19
323	16 x 56	764	9	21	57	100	31
358	16 x 56	764	10	21	57	100	37
247	16 x 64	WN	6	21	57	100	22
328	16 x 64	WN	8	21	57	100	30
369	16 x 64	WN	9	21	57	100	32
409	16 x 64	WN	10	21	57	100	38
243	18 x 63	764	6	23	63	120	15
283	18 x 63	764	7	23	63	120	25
323	18 x 63	764	8	23	63	120	30
363	18 x 63	764	9	23	63	120	35
403	18 x 63	764	10	23	63	120	43
290	19 x 75	WN/22252	6	23	63	140	30
384	19 x 75	WN/22252	8	23	63	140	40
479	19 x 75	WN/22252	10	23	63	140	45
574	19 x 75	WN/22252	12	23	63	140	52
315	20 x 70	764	7	25	65	140	27
359	20 x 70	764	8	25	65	140	37
403	20 x 70	764	9	25	65	140	45
332	22 x 86	WN/22252	6	27	73	140	45
386	22 x 86	WN/22252	7	27	73	140	50
441	22 x 86	WN/22252	8	27	73	140	55
550	22 x 86	WN/22252	10	27	73	140	62
259	23 x 80	764	5	28	78	140	40
360	23 x 80	764	7	28	78	140	45
410	23 x 80	764	8	28	78	140	55
461	23 x 80	764	9	28	78	140	65
374	26 x 73	766	8	32	82	160	65
409	26 x 91	764	7	32	82	160	75
524	26 x 91	764	9	32	82	160	90
272	30 x 84	766	5	36	96	200	55
377	30 x 84	766	7	36	96	200	70
431	30 x 84	766	8	36	96	200	80
671	30 x 105	764	10	36	96	200	180
454	36 x 101	766	7	42	112	200	185

Other dimensions and qualities on request, WN = works standard

HEKO manufacture one-piece chains wheels with pocket teeth type GTE. This design offers an excellent service life, smooth operation and a good lead-in for the chain. Inner teeth are machined (with a chamfer).

The toothed rims, which are welded to the hub, are manufactured from alloy steel. Chain contact surfaces are hardened to improve wear resistance.

HEKO one-piece chain wheels with pocket teeth are suitable for use with special attachments and vertical shackles to DIN or TS-shackles.

Dimensions for existing installations are tailored to suit the application.

Assembly Instructions

For assembly instructions for the chain wheels see page 33.

5.8 Chain wheels with pocket teeth, cast steel, one-piece, type GSE

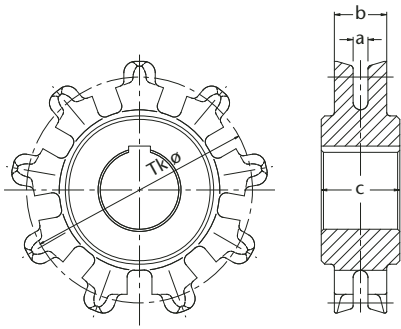


Figure 49:
HEKO chain wheel type GSE, one-piece, pocket teeth, cast steel



Table 24: Sizes of HEKO chain wheels, pocket teeth, one-piece, type GSE

pitch circle diameter mm, Tk \varnothing	to suit chain, nominal diameter x pitch, d x t/mm	DIN	HEKO drawing number	number of teeth	dimensions/mm			weight kg/each
					a	b	c	
179	10 x 35	764	KR 2443	8	12,5	53	60	8
259	13 x 45	764	KR 4073	9	17	65	90	22
345	13 x 45	764	KR 2350	12	17	63	100	30
243	18 x 63	764	KR 1806	6	22	80	100	24
283	18 x 63	764	KR 1826	7	22	68	90	27
323	18 x 63	764	KR 2028	8	22	80	100	36
363	18 x 63	764	KR 2290	9	22	78	100	41

Other dimensions and qualities on request

HEKO chain wheels manufactured of cast steel offer an inexpensive solution as drive and idling wheels for scraper conveyors.

Chain contact surfaces are case hardened to increase the service life. We recommend the use of HEKO chain wheels manufactured from alloy steel for heavy duty applications.

5.9 Support idlers and snub wheels type VUE, GUE, GGE

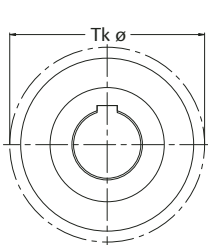


Figure 50:
HEKO support idling wheel type VUE, machined from steel

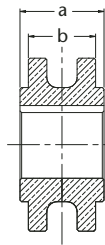


Figure 51:
HEKO support idling wheel type GUE, welded steel design

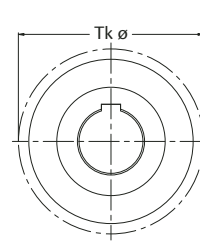
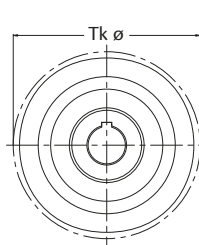


Figure 52:
HEKO support idling wheel type GGE, in cast iron

Table 25: Sizes of HEKO support idling wheels in cast iron or steel, welded or machined, type VUE, GUE and GGE

pitch circle diameter mm, Tk \varnothing	to suit chain nominal diameter d/mm	dimensions/mm		weight kg/each
		a	b	
120	10	60	40	4
146	13	70	48	6
162	16	80	50	7
240	18	90	53	14
260	20	100	60	26
309	23	100	80	41
352	26	110	90	52
340	30	120	105	55
408	36	140	125	80

Other dimensions and qualities on request

HEKO support idling wheels and snub wheels are alternative solutions to guide rails for horizontal and inclined conveyors. Use of wheels reduces friction and thus power requirements. The following types are available:

- HEKO type VUE or GUE in steel, fabricated by welding or machined from a blank. Wheels with hub length above 65 mm are supplied welded.
- HEKO type GGE in cast iron.

Assembly Instructions

For assembly instructions for the chain wheels see page 33.

5.10 Chain wheels, toothless, steel, type GUA and type GUE

Table 26: Sizes of HEKO chain wheels, toothless, steel, type GUA and type GUE

pitch circle diameter mm, Tkø	to suit chain nominal diameter x pitch, d x t/mm	DIN	dimensions in mm			weight kg/each
			a	b	c	
144	10 x 28	766	14	38	60	4
161	10 x 28	766	14	38	60	4
179	10 x 28	766	14	38	60	5
215	10 x 28	766	14	38	60	6
135	10 x 35	764	14	38	60	4
157	10 x 35	764	14	38	60	4
179	10 x 35	764	14	38	60	5
202	10 x 35	764	14	38	60	6
224	10 x 35	764	14	38	60	9
268	10 x 35	764	14	38	60	13
185	13 x 36	766	18	48	80	5
207	13 x 36	766	18	48	80	7
230	13 x 36	766	18	48	80	9
231	13 x 45	764	18	48	100	10
259	13 x 45	764	18	48	100	12
288	13 x 45	764	18	48	100	14
256	14 x 50	WN/22252	19	49	100	13
288	14 x 50	WN/22252	19	49	100	18
320	14 x 50	WN/22252	19	49	100	22
174	16 x 45	766	21	57	100	6
202	16 x 45	766	21	57	100	8
231	16 x 45	766	21	57	100	9
259	16 x 45	766	21	57	100	10
288	16 x 45	766	21	57	100	13
216	16 x 56	764	21	57	100	7
252	16 x 56	764	21	57	100	10
287	16 x 56	764	21	57	100	13
323	16 x 56	764	21	57	100	17
358	16 x 56	764	21	57	100	26
247	16 x 64	WN/22252	21	57	100	10
328	16 x 64	WN/22252	21	57	100	17
369	16 x 64	WN/22252	21	57	100	24
409	16 x 64	WN/22252	21	57	100	28
256	18 x 50	766	23	63	120	13
288	18 x 50	766	23	63	120	16
320	18 x 50	766	23	63	120	18
243	18 x 63	764	23	63	120	11
283	18 x 63	764	23	63	120	14
323	18 x 63	764	23	63	120	17
363	18 x 63	764	23	63	120	22
403	18 x 63	764	23	63	120	25
290	19 x 75	WN/22252	24	64	140	15
384	19 x 75	WN/22252	24	64	140	27
479	19 x 75	WN/22252	24	64	140	36
574	19 x 75	WN/22252	24	64	140	45
252	20 x 56	766	25	65	140	12
287	20 x 56	766	25	65	140	18
322	20 x 56	766	25	65	140	23
315	20 x 70	764	25	65	140	20
359	20 x 70	764	25	65	140	30
403	20 x 70	764	25	65	140	32
332	22 x 86	WN/22252	27	73	140	45
386	22 x 86	WN/22252	27	73	140	51
441	22 x 86	WN/22252	27	73	140	54
550	22 x 86	WN/22252	27	73	140	80
328	23 x 64	766	28	74	140	25
369	23 x 64	766	28	74	140	28
410	23 x 80	764	28	74	140	55
461	23 x 80	764	28	74	140	65
374	26 x 73	766	32	82	160	30
420	26 x 73	766	32	82	160	45
466	26 x 91	764	32	82	160	55
524	26 x 91	764	32	82	160	70
431	30 x 84	766	36	96	200	68
671	30 x 105	764	36	96	200	150
454	36 x 101	766	42	112	200	110
726	36 x 126	764	42	112	220	190
680	42 x 118	766	50	130	220	185
847	42 x 147	764	50	130	220	260

Other dimensions and qualities on request, WN = works standard

HEKO Chain wheels, toothless in steel

- wide chain supports surfaces
- for diverting the chain

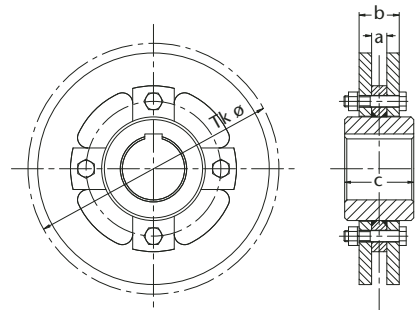


Figure 53:
HEKO chain wheel, toothless, steel, type GUA, replaceable rims.

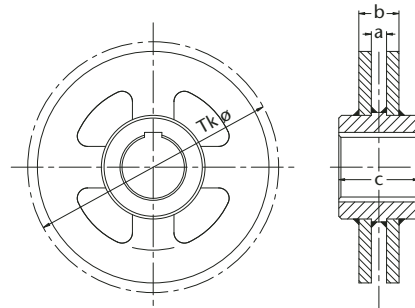


Figure 54:
HEKO chain wheel, toothless, steel, type GUE, one-piece

Assembly Instructions

For assembly instructions for the chain wheels see page 33.

5.11 HEKO chain wheel summary

Chain wheels with replaceable rims simplify and reduce cost for refurbishment. Removal of the shaft and hub are unnecessary, thus reducing stoppage time. Hub and rims can be manufactured from special steels, i.e. alloy steel, HARDOX, etc., on client's request. Optimum meshing between chain

and teeth will only be possible if both are matched in our workshop. When replacing chain it is important that the teeth do not show signs of excess wear. We recommend that both are changed together. Chain to wheel details may differ from those illustrated in our catalogue. Tolerances of chain wheels are to DIN

7168. Chain wheels are supplied finish bored or pilot bored with standard or bespoke hub diameter or length. HEKO also provides idling wheels, toothed or toothless, with dry bearings to allow self-compensating if uneven expansion between chain strands occurs.

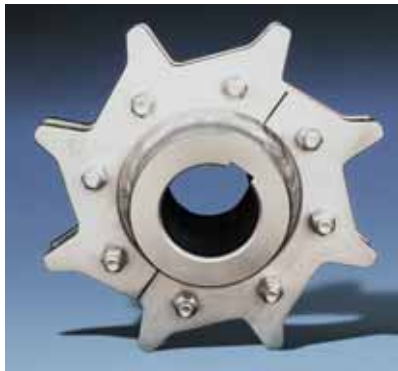
Table 27: HEKO chain wheels overview

Wheel type	VIA	VIE-A	VIE-B	VIE-C	GIA
Description page	17	18	18	18	19
Wheel machined from a blank	●	●	●	●	
welded wheel					●
projecting teeth	●	●	●	●	●
pocket teeth					
toothless					
one-piece		●	●	●	
replaceable toothed rims	●				●
replaceable toothless rims					
replaceable rims with fracture line for separation (to 600 mm PCD) or segments (from 400 mm PCD)	●				●
chamfered drop-out pockets for cohesive materials (self-cleaning)	○	○	○	●	○
chamfered rims/self-cleaning					
large drop out pockets to push-out material					
suitable for horizontal shackle to type DIN or TS	●	●	●	●	●
suitable for vertical shackle to type DIN or TS					
suitable for horizontal special scraper attachments type SP/BGQ	●	●	●	●	●
suitable for plug-in attachments type SMG/SMO	●	●	●	●	●
suitable for split attachments type BG 22	●	●	●	●	●
suitable for vertical chain locks type A/B/D/E/F	●	●	●	●	●
suitable for horizontal chain locks type A/B/D	●	●	●	●	●
suitable for vertical/horizontal chain locks type C/N	●	●	●	●	●
suitable for plug-in attachments type EFL	●	●	●	●	●
suitable for chain diameters between	4-22mm	4-10mm	4-22mm	4-22mm	13-26mm
suitable for chains to DIN 764	●	●	●	●	●
suitable for chains to DIN 766					
suitable for chains to DIN 22252	●	●	●	●	●
suitable for special chains	●	●	●	●	●
stainless steels or to client's special requirements	○	○	○	○	○
steel hub	●		●	●	●
wheels completely from special alloy steel	○	●	○	○	○
wheels completely from GG/GGG					
wheels completely from GS with case hardened teeth					
recommended as drive wheel	●	●	●	●	●
recommended as idling wheel	●	●	●	●	●
recommended as snub wheel					
key to DIN	●	●	●	●	●
key to other standards	●	●	●	●	●
loose wheel	●	●	●	●	●
with grub screw on centre keyway	○	○	○	○	○
corrosion resistant coating	●	●	●	●	●

● standard, ○ option

GIE	GIA-3	GTA	GTE	GSE	VUE	GUE	GGE	GUA	GUE
20	21	22	23	24	24	24	24	25	25
●	●	●	●	-	●	●	-	●	●
●	●			-			-		
●		●	●	●					
●					●	●	●	●	●
●			●	●	●	●	●		●
	●	●							
	●	●						●	
○	○								
								○	○
●	●				●	●	●	●	●
		●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●
●	●				●	●	●	●	●
●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●
13-26mm	16-42mm	10-36mm	10-36mm	10-18mm	10-36mm	10-36mm	10-36mm	10-42mm	10-42mm
●	●	●	●	●	●	●	●	●	●
		●	●		●	●	●	●	●
●	●	●	●		●	●	●	●	●
●	●	●	●		●	●	●	●	●
○	○	○	○		○	○		○	○
●	●	●	●		●	●		●	●
○	○	○	○		○	○		○	○
							●		
				●					
●	●	●	●	●				●	●
●	●	●	●	●				●	●
					●	●	●	●	●
●	●	●	●	●	●	●	●	●	●
●	●	●	●	●	●	●	●	●	●
○	○	○	○	○	○	○	○	○	○
●	●	●	●	○	○	○	○	●	●

6.0 Forged link chains and wheels



Apart from round link chains, HEKO also supply forged link chains for single and two strand conveyors, as well as compatible chain wheels. Chain wheels are supplied as one-piece units or with replaceable rims.

6.1 Forged link chains

HEKO drop-forged chain links

Drop-forged chain links for the transport of many products.

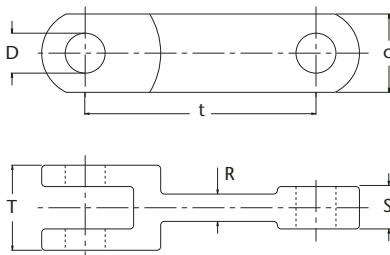


Figure 55:
HEKO forged link chain, single strand

Table 28: Sizes of HEKO forged link chains, single strand

chain type	t x c	T	S	f cm ²	R	D	MBK(kN)
66102	101,6 x 36	24	9	1,26	6	14	130
66102/R	101,6 x 36	30	13	1,82	9	14	200
69216	142 x 40	46	20	4,40	13	22	250
69218	142 x 50	42	19	4,63	13	25	340
69222	142 x 50	54	25	6,25	16	25	380
69226	142 x 50	62	28	7,00	15	25	500
69290	142 x 47	24	9	1,80	7	20	190
70010	150 x 36	36	15	2,70	10	18	210
70012	150 x 36	42	17	3,06	12	18	220
70014	150 x 47	42	16	4,00	12	25	300
70090	150 x 47	24	9	1,80	7	20	170
71018	160 x 45	46	23	5,06	15	22	320
71025	160 x 53	50	23	5,75	14	25	435
101522	160 x 45	47	23	4,95	15	22	270
77025	200 x 50	60	25	6,25	18	25	540
77028	200 x 60	66	29	8,70	20	30	650
73640	216 x 72	64	26	9,10	20	35	700
74040	220 x 72	64	26	9,10	20	35	700
74050	220 x 75	58	28	8,96	25	32	600
74060	220 x 75	71	31	10,85	21	35	750
75040	250 x 75	70	32	10,88	18	34	700
76035	260 x 75	65	32	10,24	20	32	680
76040	260 x 75	70	32	10,24	20	32	700

Other dimensions and qualities on request, $f\text{cm}^2 = D \times S$ (link surface area)
MBK = min. breaking load

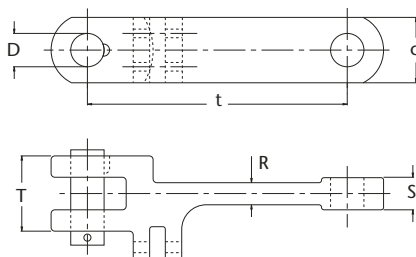


Figure 56:
HEKO forged link chain, two strand

Table 29: Sizes of HEKO forged link chains, two strand

chain type	t x c	T	S	f cm ²	R	D	MBK(kN)
80218	142 x 50	42	19	4,75	13	25	340
80226	142 x 50	62	28	7,00	15	25	500
81025	160 x 50	60	25	6,25	18	25	540
101596	175 x 60	70	30	9,00	22	30	580
82040	175 x 60	72	30	9,00	23	30	600
83025	200 x 50	60	25	6,25	18	25	540
83040	200 x 60	70	30	9,00	20	30	580
84025	250 x 50	60	25	6,25	18	25	540
84040	250 x 60	70	30	9,00	20	30	580
84060	250 x 70	100	45	15,75	36	35	900

Other dimensions and qualities on request, $f\text{cm}^2 = D \times S$ (link surface area),
MBK = min. breakingload

6.2 Wheels for forged link chains type RLA, RLA-R and RLE

HEKO chain wheels for forged link chains

- welded design
- hardened teeth

HEKO supplies many different designs of wheels for forged link chains. HEKO recommends the use of drive wheels with replaceable rims, manufactured from alloy steel with contact surfaces hardened and carbon steel hub. Wheels can also be supplied in high alloy steels. We recommend

toothless wheels for single strand conveyors. Toothed wheels are recommended for two strand conveyors for the asymmetric design of the chain links. Compatibility of chain link and wheel ensures the highest service life.

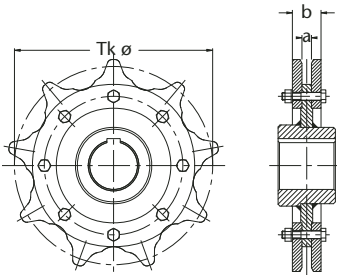


Figure 57:
HEKO chain wheel type RLA-R with symmetric teeth, reversible operation

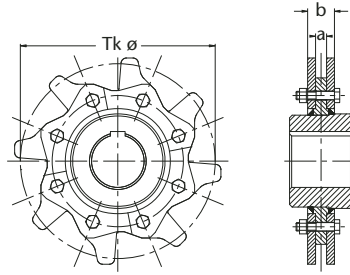


Figure 58:
HEKO chain wheel type RLA for forged link chains model 69226

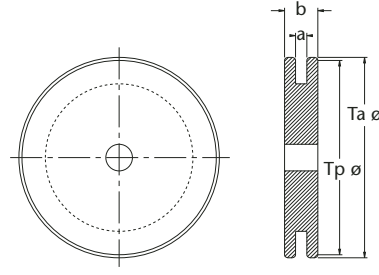


Figure 59:
HEKO chain wheel type RLE, toothless for flat link chains

Table 30:
HEKO chain wheels with teeth for forged link chains

compatible chain, type t x c/mm	number of teeth	pitch circle diameter Tkø	outside diameter Ta	a	b
66102	101,6 x 36	6	203,20	216	11 35
	101,6 x 36	8	265,50	275	35
	101,6 x 36	10	328,80	340	35
	101,6 x 36	12	392,60	405	12 35
66102/R	101,6 x 36	6	203,20	216	38
	101,6 x 36	8	265,50	275	38
	101,6 x 36	10	328,80	340	38
	101,6 x 36	12	392,60	405	14 38
69290	142 x 47	6	284,00	304	36
	142 x 47	8	371,06	390	36
	142 x 47	10	459,52	470	36
	142 x 47	12	548,70	570	12 36
69218	142 x 50	6	284,00	304	48
	142 x 50	8	371,06	390	48
	142 x 50	10	459,52	470	48
	142 x 50	12	548,70	570	18 48
69222	142 x 50	6	284,00	304	56
	142 x 50	8	371,06	390	56
	142 x 50	10	459,52	470	56
	142 x 50	12	548,70	570	20 56
69226	142 x 50	6	284,00	304	60
	142 x 50	8	371,06	390	60
	142 x 50	10	459,52	470	60
	142 x 50	12	548,70	570	20 60
70090	150 x 47	6	300,00	314	36
	150 x 47	8	391,65	406	36
	150 x 47	10	485,55	500	12 36
70014	150 x 47	6	300,00	314	47
	150 x 47	8	391,65	406	47
	150 x 47	10	485,55	500	17 47
71025	160 x 53	8	418,09	445	56
	160 x 53	10	517,77	545	20 56
77025	200 x 50	8	522,40	565	64
	200 x 50	10	647,40	690	24 64
75040	250 x 75	8	653,27	690	24 74
76040	260 x 75	8	679,40	710	26 76

Other dimensions and qualities on request

Table 31:
HEKO chain wheels, toothless for forged link chains

compatible chain, type	pitch circle diameter Tkø	outside diameter Ta	a	b
66102	140	160	11	35
	209	229		35
	275	295		35
	356	376	12	35
66102/R	140	160		38
	209	229		38
	275	295		38
	356	376	14	38
69290	206	234		36
	292	320		36
	387	415		36
	504	535	12	36
69218	206	234		48
	292	320		48
	387	415		48
	504	535	18	48
69222	206	234		56
	292	320		56
	387	415		56
	504	535	20	56
69226	206	234		60
	292	320		60
	387	415		60
	504	535	20	60
70090	224	244		36
	326	346		36
	419	440	12	36
70014	224	244		47
	326	346		47
	419	440	17	47
71025	338	365		56
	442	480	20	56
77025	447	490		64
	572	615	24	64
75040	532	580	24	74
76040	560	610	26	76

Other dimensions and qualities on request

7.0 HEKO components for wet de-ashers

Wet de-ashers are employed for the transport of granular slag, ash from mineral coal or lignite, smelter ash or incinerator ash. Molten ash which leaves the combustion zone drops into a water bath where it is cooled and then transported from the bath by scraper conveyor into downstream processes such as crushers or ash bunkers. HEKO specialise in selecting the suitable chain qualities and dimensions for such applications.



Figure 60: Wet de-asher



7.1 HEKO Chain system with scraper attachment type TS

- Supplied also preassembled with the chain to endless chain strands
- Suitable for chains according to DIN 764
- Easy installation of scraper bars
- Easy shortening of chain

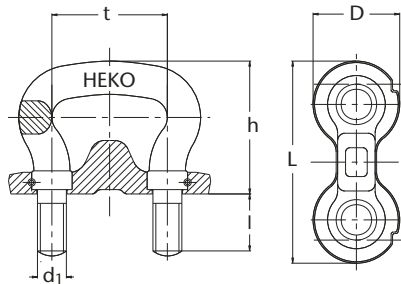
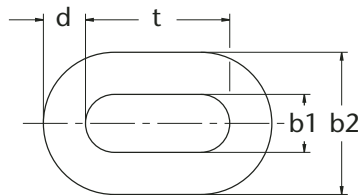


Figure 61: HEKO shackle type TS



HEKO shackles are fastened to the scraper bar by two nuts and a securing element. Shackle and scraper bar form a stable, simple form of connection.

We recommend our shackle type TS for higher demands as the lip on the distance plate provides support on the wheel rim.

In addition the TS-shackle permits a much higher breaking load compared to the DIN-shackle. TS-shackles can be used with wheels having projecting teeth and pocket teeth. Plain wheels can be used as return idlers.

Table 32: Dimensions and technical datas for chain and HEKO attachments type TS

HEKO chains							HEKO shackle type TS									
dimensions in mm		b1	b2	standard case hardened			dimensions in mm					HEKO qualities				
nominal	inside	outside	HEKO qualities	400 E	5	350 E							hardened	contact area		
dia. x Pitch	weight	width	width	MBK	MBK	MBK	d ₁	h	l	D	L	kg/each	weight	HEKO 6		
d x t (mm)	kg/m	min.	max.	kN	kN	kN								MBK (kN)		
20 x 70	8,2	27,0	72,0	251	232	220	M 20	83	37	55	120	1,45	280			
23 x 80	11,0	31,0	83,0	332	307	290	M 20	92	37	60	130	1,85	360			
26 x 91	14,0	35,0	94,0	425	392	371	M 24	104	42	70	155	2,70	477			
30 x 105	19,0	39,0	108,0	565	523	494	M 24	118	42	80	165	3,90	635			
36 x 126	26,5	47,0	130,0	814	753	712	M 30	139	66	85	200	6,10	915			
42 x 147	36,0	55,0	151,0	1108	1025	970	M 36	162	79	95	230	9,00	1188			

MBK = min. breaking load, Other dimensions and qualities on request.

HEKO also furnishes compatible attachments, drive, idling and snub wheels, frequently with bearings for submerged applications. The use of pre-assemblies enables parts to be integrated into the machine immediately after delivery, thus reducing assembly time.

Complete assemblies can be more easily exchanged thus reducing downtime during maintenance. Assembly parts can be refurbished after the machine has been placed back into operation so that the assembly can be re-used at a later date.



Figure 62: HEKO chains, scraper attachments in lower trough of SCC



7.2 HEKO Chain System with plug-in scraper attachment type SMO

- Fast connection to endless chain strands with chain locks.
- Reversible conveying possible

HEKO plug-in attachments SMO are drop forged and are used without base plate. They are suitable for welding directly to the scraper bar. The attachments are manufactured from manganese-chrome-alloy steel and are completely case hardened.

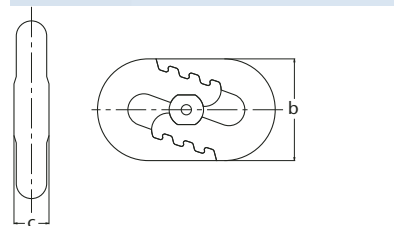


Figure 64: Chain lock type KHV

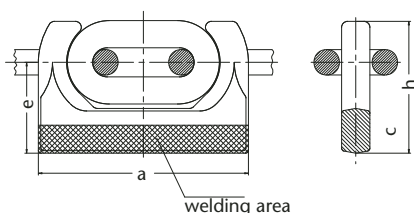


Figure 63: HEKO plug-in attachment SMO

Chain locks type KHV are used for connecting longer chain strands. These chain locks have the same physical properties to that of the corresponding chain. Assembly of the five components is simple as the chain only needs to be slackened slightly. These chain locks should only be installed vertically. Dimensions are to suit the corresponding chain.

Table 33: Dimensions and technical data for HEKO chain plug-in attachments and chain locks type KHV

HEKO chains				standard case hardened			HEKO plug-in attachments SMO			chain locks type KHV/RS			
dimensions in mm	b1	b2	HEKO qualities	dimensions in mm			weight						
nominal dia. x pitch d x t (mm)	inside weight kg/m	outside width (mm)	width min. (mm)	400 E max. kN ₁	5 MBK kN ₁	350 E MBK kN ₁	MBK a	e	h	kg/each	b	c	type
16x 64	5,2	20,0	55,0	160	148	140	135	59	83	0,8	56	18,5	RS
19x 75	7,6	22,0	63,0	227	210	198	156	69	100	1,2	66,5	23	RS
22x 86	9,8	26,0	74,0	304	281	266	182	80	115	2,0	77	26	KHV
26x 100	13,5	31,0	87,0	425	392	371	214	92	135	3,3	89	29	KHV
30x 120	17,8	36,0	102,0	565	523	494	252	110	160	5,3	107	36	KHV
34x 136	23,8	39,0	113,0	726	672	635	282	122	177	7,2	117	40	KHV
38x 144	30,0	44,0	127,0	907	839	794	309	137	199	9,5	133	45	KHV

MBK = min. breaking load, Other dimensions and qualities on request.

7.3 HEKO Support wheels and snub wheels type VUE

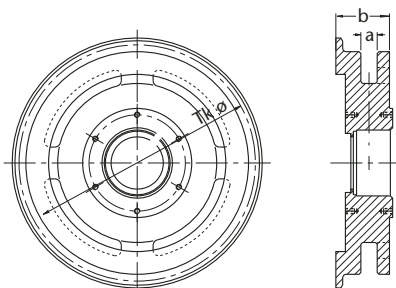


Figure 67:
HEKO support idling wheel type VUE,
machined from steel

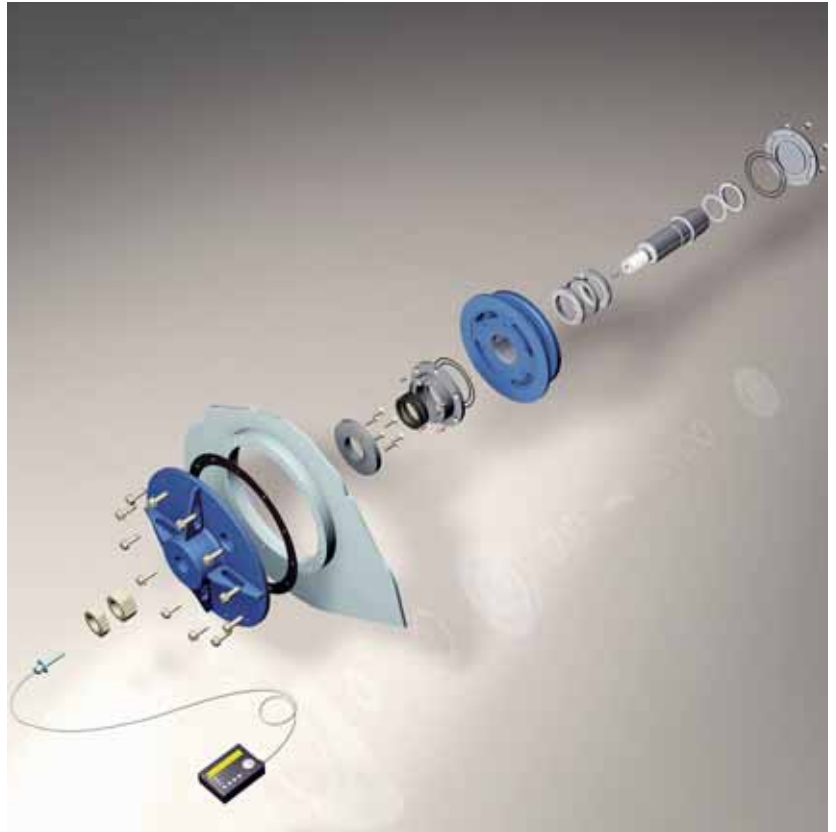


Figure 65: drive unit, tensioning unit
division for SCC, using HEKO compo-
nents

Figure 66: above illustrates components
for a HEKO submerged wheel assembly

- Used in submerged chain conveyors
- With sealing arrangements
- Flanged to the outside of the SCC
- Optional electronic operation indicator
- For all chain dimensions

**Table 34: Standard sizes of HEKO support wheels made of steel,
welded or machined, type VUE**

pitch circle diameter mm, Tkø	to suit chain nominal diameter d/mm	dimensions/mm		weight kg/each whitout flange
		a	b	
400	19	24	83	100
400	22	27	92	112
400	26	32	107	112
566	30	36	113	150
560	34	42	127	185
566	36	42	136	195
650	42	50	155	240
511	30	36	113	130

Other dimensions and qualities on request

8.0 Technical information – Erection – Maintenance – Wear

8.1 Assembly instructions for chains

Assembly:

2-strand conveyor chains are always supplied as matched pairs. Chains for multi-strand conveyors, 3-4 strands, are supplied in matched bundles. Bundles are tied together with coloured wire, colour dependent on chain quality, as follows:

HEKO 280E – white

HEKO21 – yellow

HEKO210E black

HEKO 400E green

HEKO 5 red

HEKO 350E blue

It is important that the coloured wires are not removed until immediately before assembly of the chain with the attachments. Chain strands are then assembled in parallel which minimises the total length difference between the assembled chain strands. Chains should be assembled with the welds of the vertical links pointing towards the shaft centre of the chain wheel. Bolted scraper connections should be checked and re-tightened after the conveyor has been operated for several days on load and run in. Equal scraper bar length is essential for proper chain transport and

smooth operation. The shafts of the drive and idling wheels must be properly aligned and the wheel centres must also be in line. Chain tension should be minimised. Excess noise and/or vibration indicate excessive chain tension.

Chain shortening:

Should it be necessary to shorten the chain, then either a complete set of chain links is to be removed from both sides or with endless chain an equal number of links are removed from both chain strands. Heating of the adjacent chain link is to be avoided and cold cutting by using a cutting disc is preferred. Welding to the chain link, attachment and scraper bar is to be avoided. Please contact us in case of queries.

Maintenance/Wear

Measurement:

All conveyor parts which may be subject to wear (wheels, chains, attachment, scraper bars) should be checked regularly for wear or damage.

Chain contact surfaces are subject to normal wear, the extent of which is

governed by chain quality, number of link movements, contact load and material handled. Wear in the contact areas reduces the chain thickness and thus has a direct relationship to service life.

Lubrication, for example with oil, increases wear as it will form a grinding paste. Air and water washes or scrapers, which remove the material from the chains, drive and idling wheels reduce wear. Chains and attachments should be checked for damage following a conveyor overload. Chain replacement should always be combined with the replacement of all toothed wheels, or toothed rims, to ensure proper meshing of the chain. (For wear calculations see page 34)

Operational Information:

We recommend the installation of overload protection, e.g. shear pin, or overload coupling, as part of the drive unit to prevent overload of the chain during blockages in the conveyor. Material should be fed evenly over the whole width of the conveyor to avoid one sided loading and wear.

8.2 Assembly instructions for chain wheels

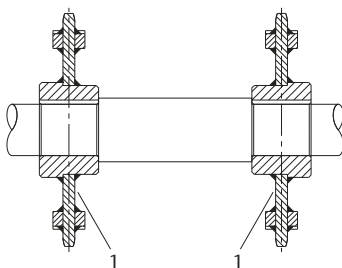


Figure 68: Assembly instruction 1

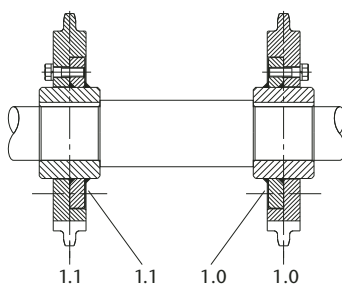


Figure 69: Assembly instruction 2

Assembly instruction 1 for chain wheels one-piece

Unless otherwise instructed in client's order, keyways will be cut in a pair of wheels central to a tooth. Chain wheels belonging together will be given the same number so that mistakes are avoided even with large numbers of wheels. Each pair of wheels will be marked with the same number sequence.

Assembly instruction 2 for chain wheels with replaceable toothed rims

Unless otherwise instructed in client's order, keyways will be cut in a pair of wheels central to a tooth. Chain wheels belonging together will be given the same number so that mistakes are avoided even with large numbers of wheels. Each pair of wheels will be marked with the same number sequence.

Each part of wheels with replaceable segments will be marked with an additional number, starting on the inside.

8.3 Wear calculations

Measuring wear

1. The true material thickness can be measured on the straight bar opposite the weld (see illustration 70a), assuming that the same

shows no signs of wear itself. Two measurements, 90° offset, should be made.

2. The thickness across two connection links are measured using callipers

(see illustration 70b) and the values recorded as shown in Table 2.

Measurements should be taken at opposite ends on the left and right chain strand.

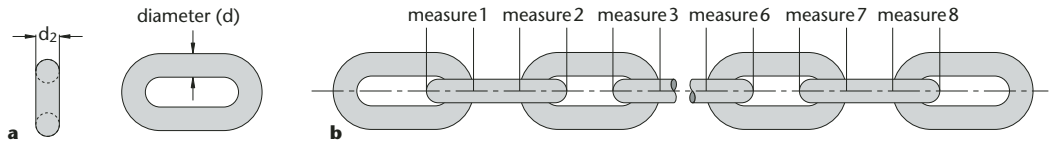


Figure 70: Wear calculations

Example of measuring wear

Chain 30 mm diameter, quality HEKO 21
(0,1 x d hardening depth)

Table 1: Measuring the actual chain wire diameter (fig. 70 a)

	left chain link	right chain link
measurement d	30,10	30,20
measurement d ₂	30,20	30,00
average	30,15	30,10

Example of wear calculation

1. Actual chain diameter

formula:	resultant chain diameter (Table 1)	.	4% (bending loss)	=
left strand	30,15	.	4%	= 28,94
right strand	30,10	.	4%	= 28,90

3. Wear of hardening range in mm

	left strand	right strand
results calculation 1 x 2	57,88	57,80
.		
lowest measure, Table 2	57,10	57,10
wear (mm)	0,78	0,70

Wear calculation

Table 1: Actual chain diameter (fig. 71 a)

	left chain link	right chain link
measurement d		
measurement d ₂		
average		

Formula 3

(2 x d [average])	.	4%	.	lowest measure Table 2	=	wear of hardening range	(mm)
(2 x)	.	4%	=	(mm)
wear (mm)			/	(2 x EHT [mm]) x 100	=	wear	(%)
..... (mm)			/	(2 x[mm]) x 100	=	(%)

Table 2: Measurements of the thickness of the connecting links (fig. 70 b)

	left chain link	right chain link
measure 1	57,2	57,3
measure 2	57,1	57,4
measure 3	57,3	57,3
measure 4	57,4	57,1
measure 5	57,2	57,2
measure 6...	57,4	57,3

2. Case hardening depth

formula:	EHT	x	d (nominal chain diameter /mm)	=
left strand	0,1	x	30,0 mm	= 3,0 mm
right strand	0,1	x	30,0 mm	= 3,0 mm

4. Wear of hardening range in %

formula:	wear (mm)	/	(2x hardening depth /mm)	x 100	=
left strand	0,78	/	(2x3,0 mm)	x 100	= 13,00 %
right strand	0,70	/	(2x3,0 mm)	x 100	= 11,66 %

Table 2: Measurements of the thickness of the connecting links (fig. 71 b)

	left chain link	right chain link
measure 1		
measure 2		
measure 3...		

9.0 Questionnaire – Technical data for chain conveyors



Company

address

contact ref. no.

tel fax e-mail

1. Type of conveyor

- inclined slope (degrees)
 horizontal single strand two-strand multistrand
 conveying in upper trough conveying in lower trough

2. Material to be conveyed

type of material

- dry wet cohesive corrosive
 very abrasive moisture (%) temperature °C

bulk density (t/m³) particle size to (mm)

3. **Scraper centres** (mm) chain centres (mm) trough width (mm)

4. **Shaft centres** (mm)

5. **Handling rate** (t/h) (m³/h)

6. **P. C. D. drive wheels** (mm) number of teeth

- pocket teeth projecting teeth

P. C. D. return wheels (mm) number of teeth

- pocket teeth projecting teeth toothless

7. **Chain speed** (m/sec)

8. **Power absorbed – drive shaft** (kW)

9. **Torque – drive shaft** (Nm)

10. **Annual operating hours** (h.)

11. Chains used to date

- round link chains flat link chains forged link chains roller chains

12. Chain dimensions

diameter (mm) pitch (mm) number of links (each) quality

13. Attachments

shackle to DIN/ISO pitch (mm) special attachment pitch (mm)

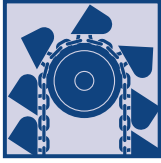
14. Other types of attachments

type/manufacturer

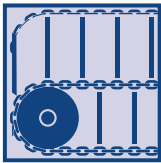
15. **New plant** existing plant modification

16. For special requirements please attach specification/sketch

HEKO products and services



- Elements for bucket elevators



- Components for chain conveyors



- Chains and accessories for rotary kilns



- Calculations, advice and servicing of conveyors



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