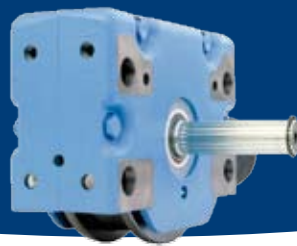


worldwide movement with wheels from
KARL GEORG



WE'LL KEEP YOU ON THE MOVE



Crane wheels

Product overview

Description	Karl Georg Standard	DIN* Standard	Nominal- \emptyset	Page
Crane wheels with smooth bore/feather keyway	KG 010.1	DIN 15049	160– 630	4
Crane wheels with slide bearing	KG 010.2	DIN 15049	160– 630	8
Wearing washers	KG 010.3	DIN 15069	40– 80	10
Wheelaxles with lubrication bore	KG 010.4		40– 80	11
Pinions	KG 010.5			12
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Wheels for rotating shafts for use in old Demag type of cranes	KG 013		200– 250	18
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Wheels with precision-cylindrical roller bearing	KG 015	DIN 15049	160– 630	22
Wheels with single wheel flange	KG 020	DIN EN 10024 DIN EN 10034	130– 300	24
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Correlation running surface profiles and crane rail/wheel- \emptyset		DIN 15072		77
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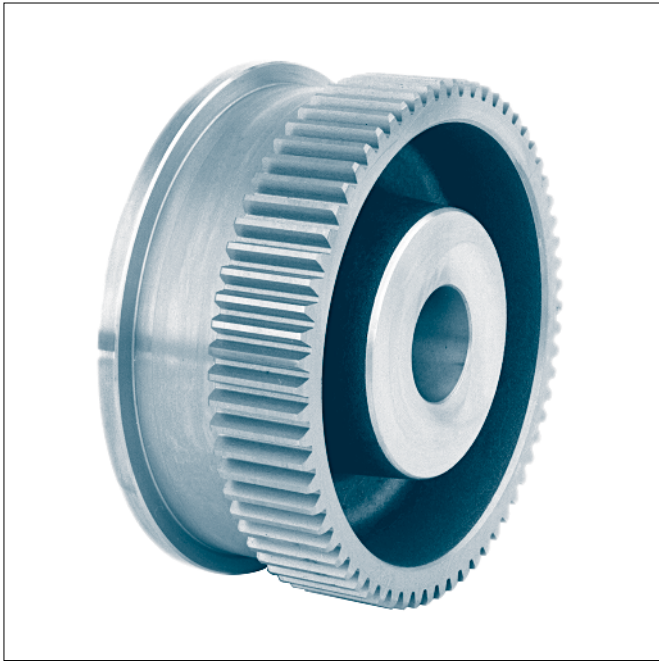
* DIN = German Institute for Standardization

Crane wheels with smooth bore

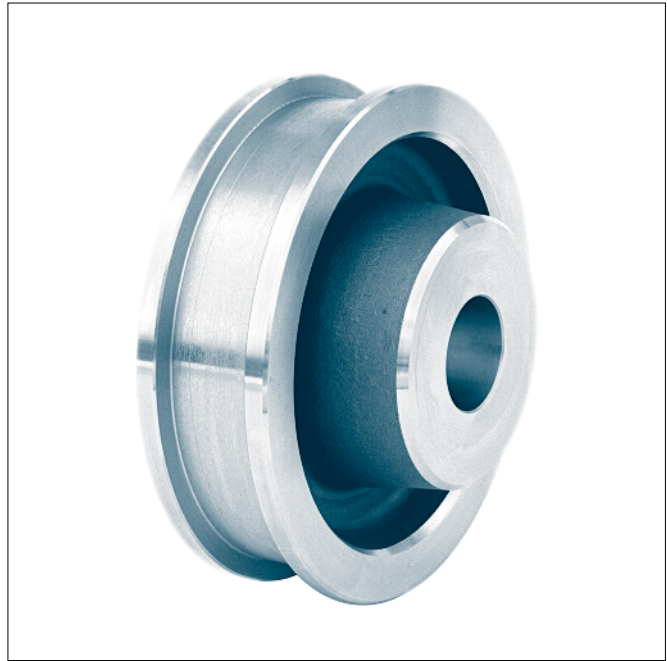
or with feather keyway to DIN 6885-1

DIN 15049

KG 010.1



form A with gear ring



form B without gear ring

Designation of a crane wheel form A with gear ring, nominal diameter $d_1 = 300$ mm, gauge $b_1 = 50$ mm, bore diameter $d_4 = 80$ mm H7, module 3 and number of teeth 110:

Crane wheel A 300 × 50 × 80 H7 – 3 × 110 KG 010.1

Form A with gear ring

Form B without gear ring

Material:

Wheel body- \varnothing 160–500 C45 drop forged

Wheel body- \varnothing 630 GE420 (GS-70) with ribs

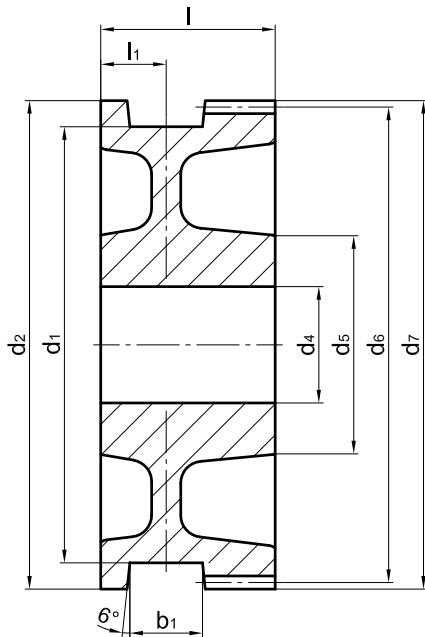
Other material and dimensions on request.

Crane wheels with smooth bore

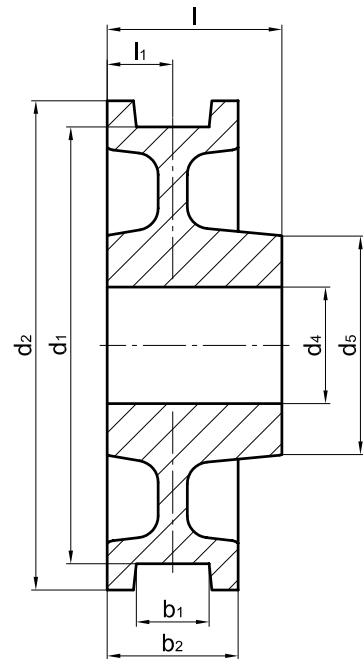
or with feather keyway according to DIN 6885-1

DIN 15049

KG 010.1



Form A with gear ring



Form B without gear ring

wheel-Ø d ₁	b ₁ ¹⁾	b ₂	d ₂	d ₄ ¹⁾	d ₅	l	l ₁	gear ring ²⁾ (Form A)				unit weight ≈[kg]		wheel load [kg] ³⁾
								mo- dule	number of teeth	d ₆	d ₇	Form A	Form B	
h11				H7										
160	30-60	80	186	30-65	85	95	40	2,5	72	180	185	10	8,5	3 300
								3	60		186			
200	30-60	80	232	30-90	117	95	40	3	75	225	231	17,5	16	4 300
								4	56	224	232			
250	30-60	80	274	40-110	142	120	40	3	88	264	270	30	25	5 600
								4	66		272			
300	35-65	90	336	40-120	152	120	45	3	110	330	336	43	37	7 250
								4	82	328				
315	40-75	100	348	50-130	167	140	50	4	85	340	348	54	48	9 000
400	40-75	100	432	50-160	197	140	50	4	106	424	432	86	71	11 900
500	50-85	110	540	60-180	230	170	55	6	88	528	540	156	125	17 000
630	55-95	120	680	80-130	180	200	60	8	83	664	680	235	181	22 100

1) The dimension of the gauge recess b₁ and bore diameter d₄ to be stated with order.

2) Module and number of teeth to be stated with order.

Tooth form according to DIN 867 without profile correction.

Pressure angle 20 degree.

3) The wheel loads stated are obtained from the maximum permissible pressure between wheel and rail with maximum possible rail head width of the corresponding wheel and v ≈ 40 m/min.

Wheels with smooth bore

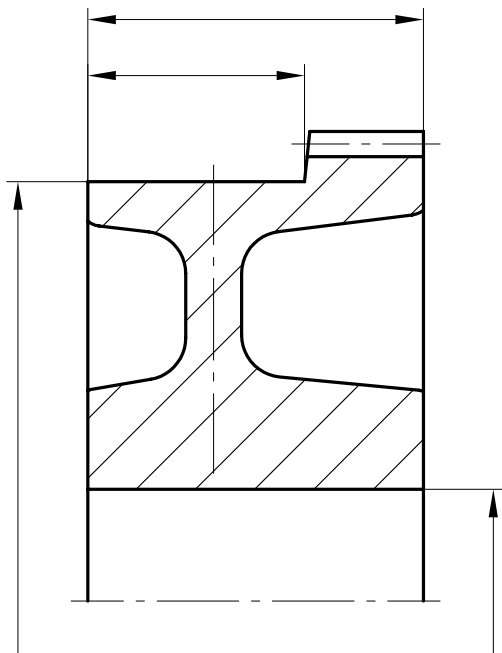
or with feather keyway according to DIN 6885-1

DIN 15049

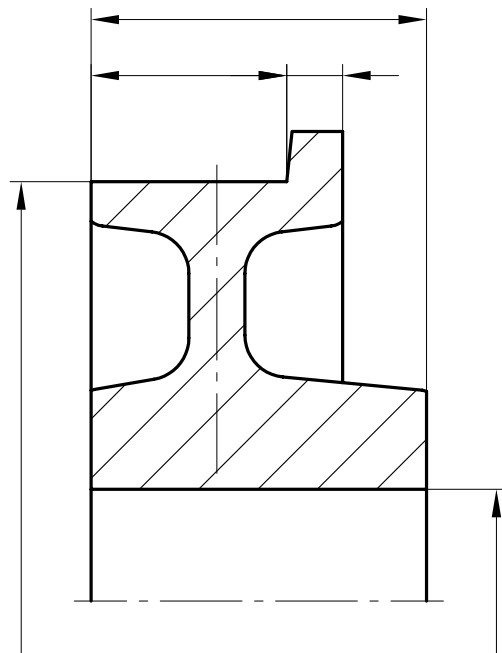
KG 010.1

Examples of possible types of the running surface and of the crane wheels.

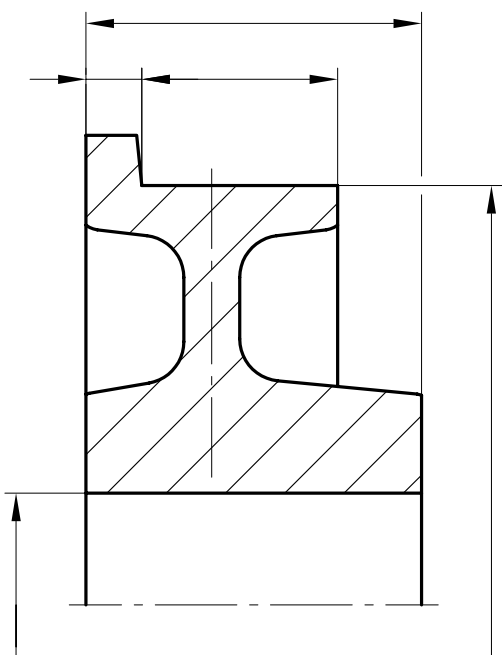
Desired type and dimensions to be stated with order.



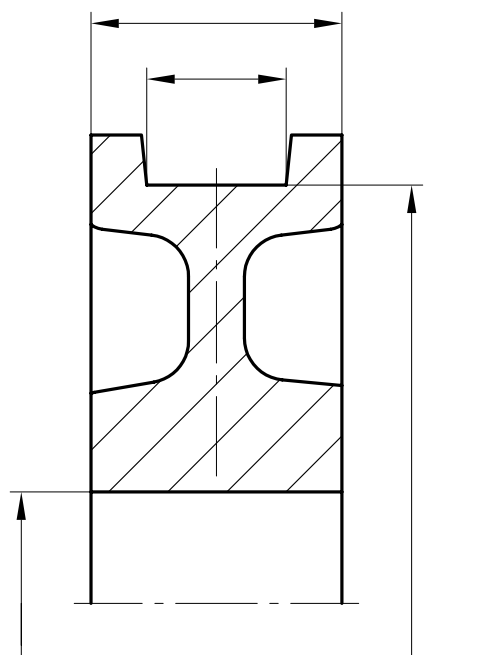
Type 1
Travel wheel form A
without wheel flanges, with gearing



Type 2
Travel wheel form B
with single wheel flange on overhanging hub



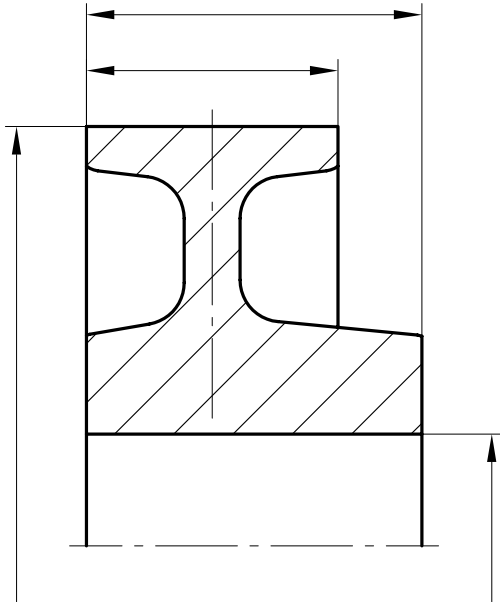
Type 3
Travel wheel form B
with single wheel flange on flush hub



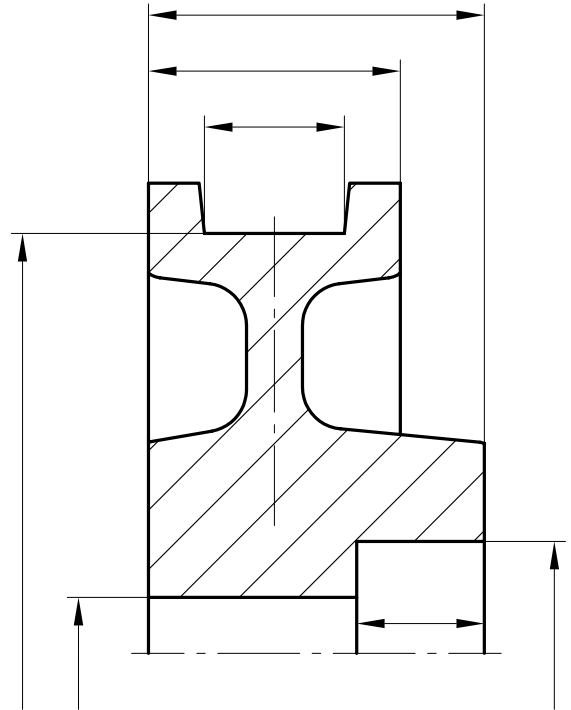
Type 4
Travel wheel form B
with shortened hub

Examples of possible types of the running surface and of the crane wheels.

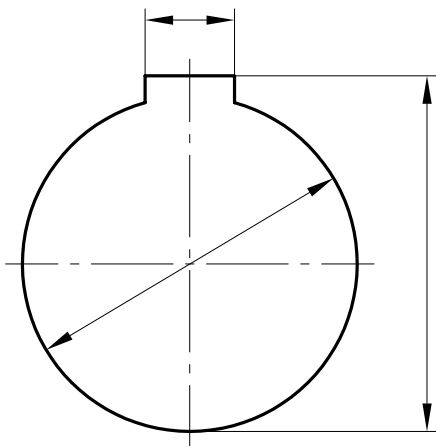
Desired type and dimensions to be stated with order.



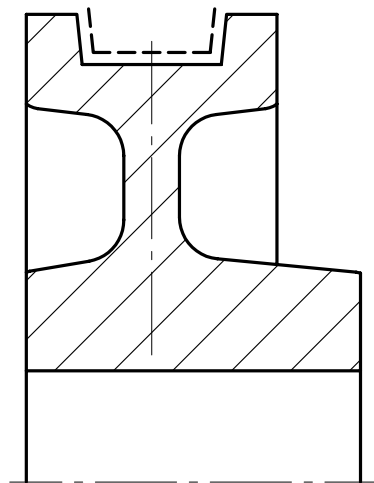
Type 5
Travel wheel form B
without wheel flanges



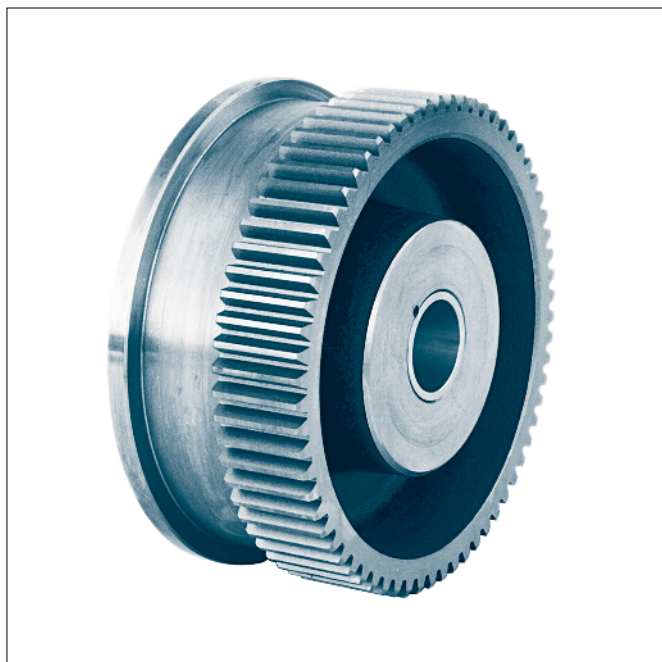
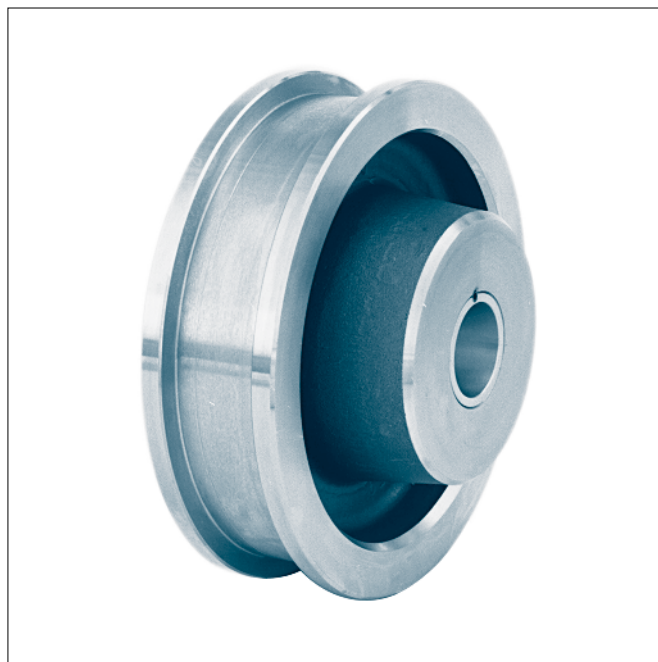
Type 6
Travel wheel form B
with bore for locking elements



Bore with feather keyway according to DIN 6885-1



Running surface and wheel flange surfaces
hardened free of slip (e.g. for material C45
HRC 38-46, hardening depth 3-4 mm)

**Form A** with gear ring**Form B** without gear ring

Designation of a travel wheel form A with gear ring, nominal- \varnothing $d_1 = 300$ mm, gauge $b_1 = 50$ mm, with slide bearing $\varnothing 60/50$ of G-CuSn7ZnPb, module 3 and number of teeth 110:

Crane wheel A 300 × 50 × 60/50 – 3 × 110 KG 010.2

Form A with gear ring

Form B without gear ring

Other types of the running surface see KG 010.1.

The slide bearings are secured with setcrews towards twisting and dislocation.

Material:

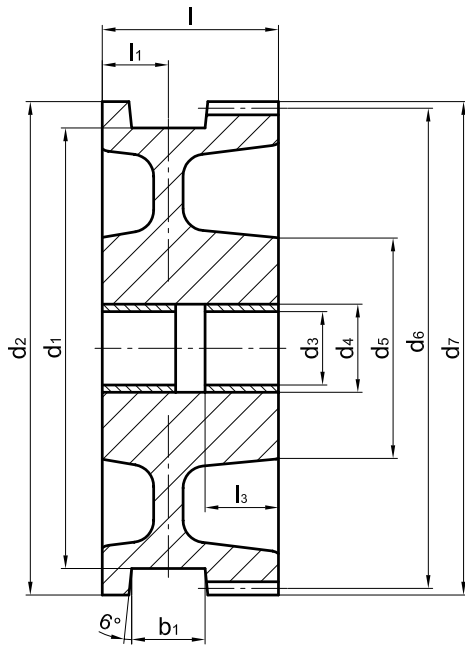
Wheel body- $\varnothing 160-500$ C45 drop forged

Wheel body- $\varnothing 630$ GE420 (GS-70) with ribs

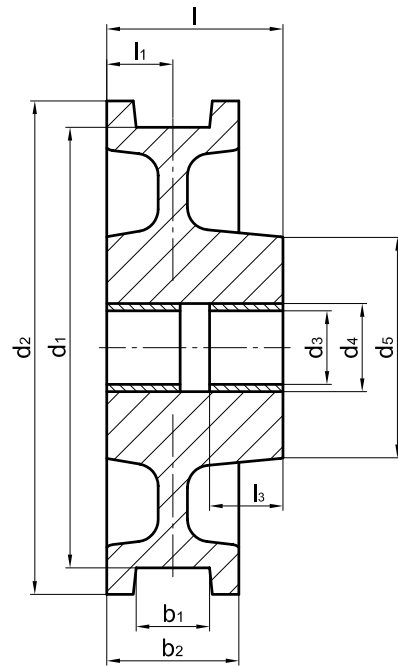
Slide bearings G-CuSn7ZnPb (Rg 7)

Other materials and dimensions on request.

Suitable wheel axles see KG 010.4.



Form A with gear ring



Form B without gear ring

wheel-Ø d ₁	b ₁ ¹⁾	b ₂	d ₂	d ₃	d ₄ ¹⁾	d ₅	l	l ₁	l ₃	gear ring ²⁾ (Form A)				unit weight ≈[kg]		wheel load [kg] ³⁾
										mo- dule	number of teeth	d ₆	d ₇	Form A	Form B	
h11				E9	H7											
160	30-60	80	186	40	50	85	95	40	33	2,5	72	180	185	10	8,5	2 000
										3	60		186			
200	30-60	80	232	40	50	117	95	40	33	3	75	225	231	17,5	16	2 300
										4	56	224	232			
250	30-60	80	274	50	60	142	120	40	50	3	88	264	270	30	25	3 800
										4	66		272			
300	35-65	90	336	50	60	152	120	45	50	3	110	330	336	43	37	4 500
										4	82	328				
315	40-75	100	348	55	65	167	140	50	56	4	85	340	348	54	48	5 400
400	40-75	100	432	60	72	197	140	50	63	4	106	424	432	86	71	6 700
500	50-85	110	540	70	82	230	170	55	70	6	88	528	540	156	125	9 500
630	55-95	120	680	80	95	180	200	60	80	8	83	664	680	235	181	12 800

1) The dimension of the gauge recess b₁ and bore diameter d₄ to be stated with order.

2) Module and number of teeth to be stated with order.
Tooth form according to DIN 867 without profile correction.
Pressure angle 20 degree.

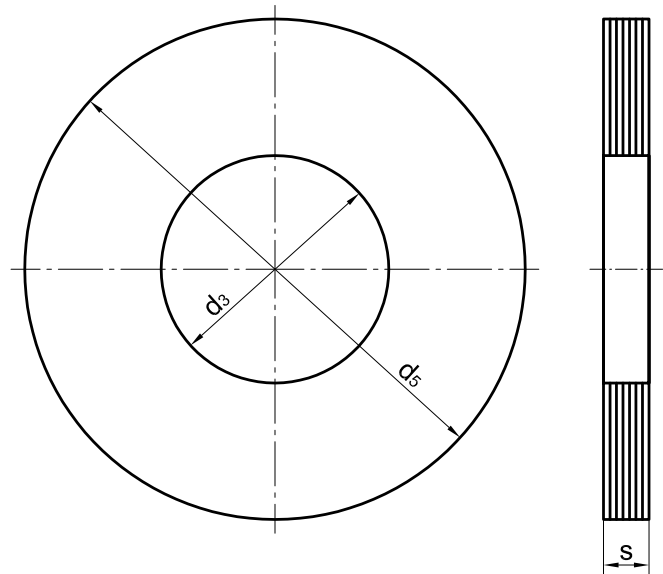
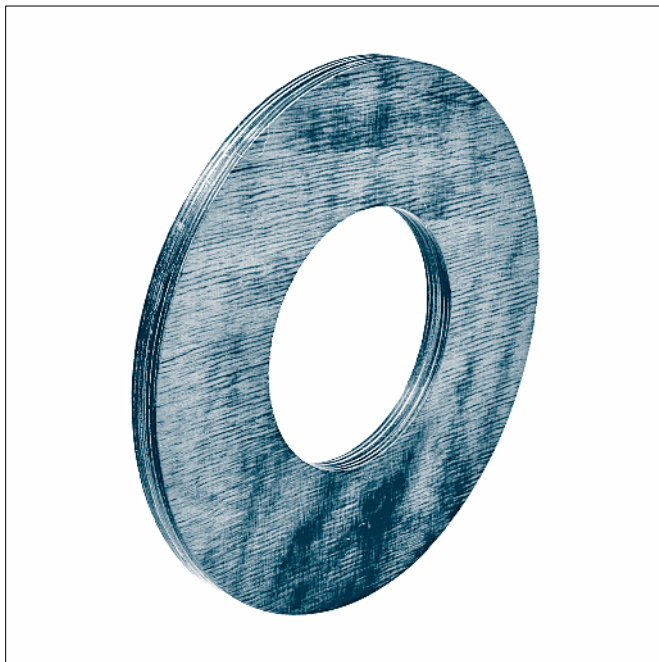
3) The wheel loads stated are obtained from the maximum permissible pressure between plain bearing and axle for v ≈ 40 m/min and an operating period up to 40%.

Wearing washers

fitting to travel wheels according to KG 010.2, KG 014 and KG 015

similar to DIN 15 069

KG 010.3



Designation of a wearing washer for wheel- \varnothing $d_1 = 300$ mm, axle- \varnothing $d_3 = 50$ mm, thickness of the washer $s = 10$ mm:

Wearing washer 50 × 10 KG 010.3

Material:

Laminated wood bound with synthetic resin (unsuitable for wet environment)

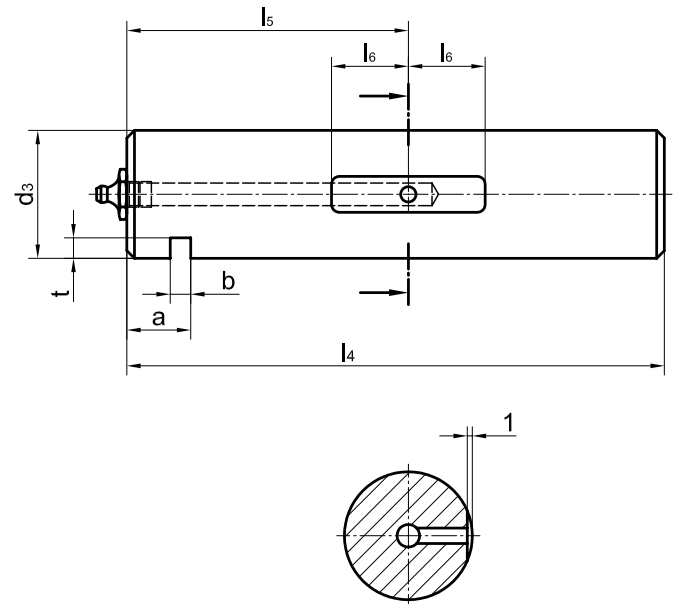
Other material and dimensions on request.

for wheel- \varnothing d_1	d_3	s	d_5
	+1,0 +0,5	+0,2 -0,2	
160 200	40	5 10	90
250 300	50	5 10	110
315	55	5 10	120
400	60	5 10	140
500	70	5 10	160
630	80	5 10	170

Wheel axles with lubrication bore

fitting to wheels according to KG 010.2 and KG 030

KG 010.4



Designation of an axle for travel wheel $\varnothing d_1 = 300$ mm, axle-
 $\varnothing d_3 = 50$ mm, length 210 mm:

Axle 50 × 210 KG 010.4

Supplied with spherical grease nipple
 AM 10 × 1 DIN 71 412.

Material: 42CrMo4+QT or C45

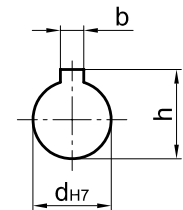
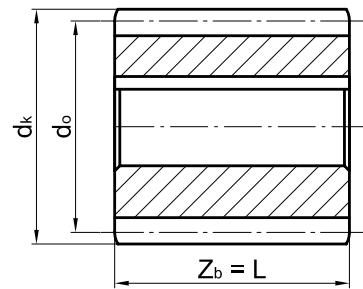
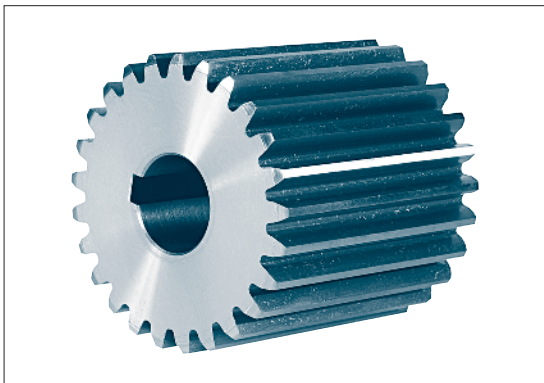
Other material and dimensions on request.

for wheel- \varnothing d_1	d_3	l_4	l_5	l_6	a	b	t	unit weight
	f7					+0,5	+0,5	≈[kg]
160 200	40	190	100	30	25	8	7	1,8
250 300	50	210	110	30	25	8	8	3,1
315	55	265	135	40	25	8	9	4,8
400	60	265	135	40	25	8	9	5,7
500	70	285	150	50	25	10	10	8,5
630	80	335	170	50	25	10	10	13

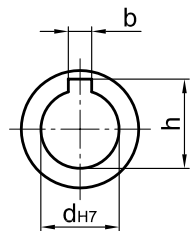
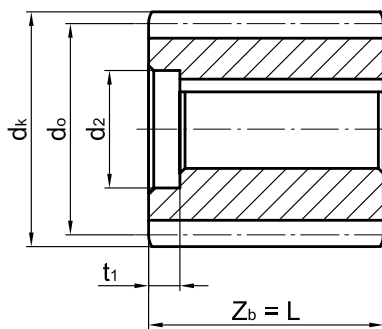
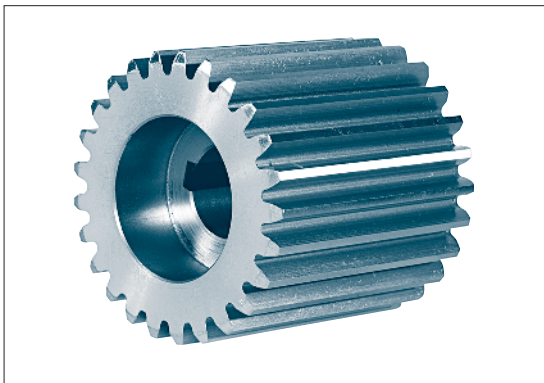
Pinions

KG 010.5

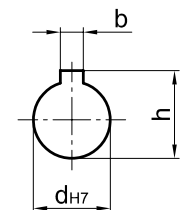
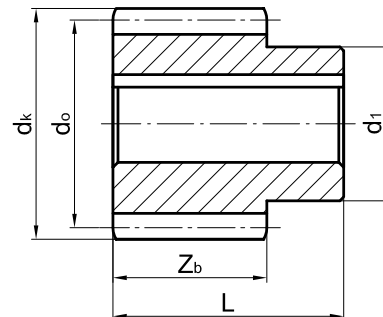
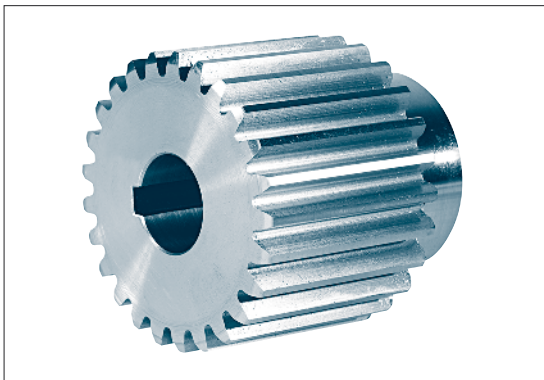
Form 1



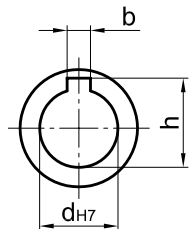
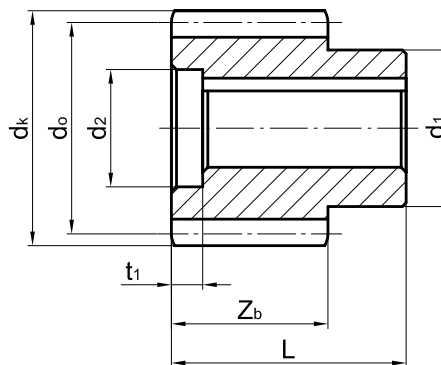
Form 2



Form 3



Form 4



Designation of a pinion form 1, module 3, number of teeth 18, length $L = 60$ mm, bore- $\varnothing d = 20$ H7 with feather keyway according to DIN 6885-1:

Module: 2–15
Minimum number of teeth: 12
 $d_{\min} =$ 16 H7
Material: C45 or 42CrMo4+QT

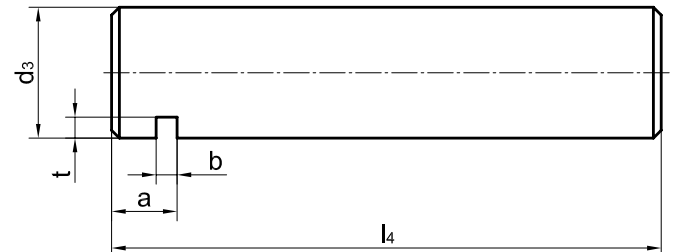
Pinions 3 × 18 × 60 × 20 H7 KG 10.5 form 1

All dimensions and material to be stated with order.

Wheel axle without lubrication bore

fitting to travel wheels according to KG 014

KG 010.6



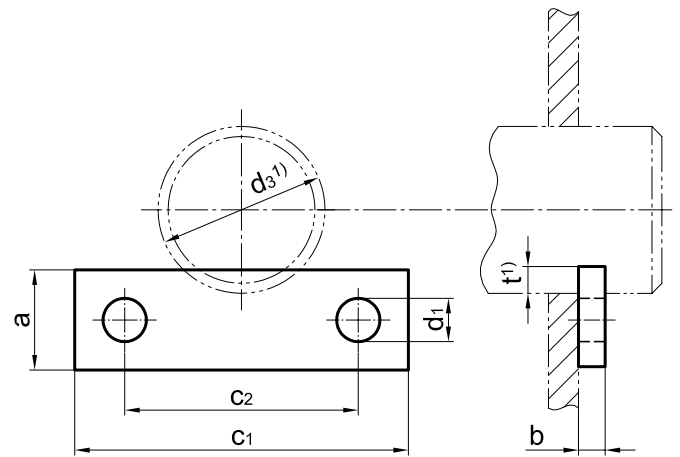
Designation of an axle for travel wheel- $\varnothing d_1 = 300$ mm, axle- $\varnothing d_3 = 50$ mm, length 210 mm:

Axle 50 × 210 KG 010.6

Material: 42CrMo4+QT or C45

Other material and dimensions on request.

for wheel- $\varnothing d_1$	d_3	l_4	a	b	t	unit weight
	f7			+0,5	+0,5	≈[kg]
200	40	190	25	8	7	1,8
250 300	50	210	25	8	8	3,1
315	55	265	25	8	9	4,8
400	60	265	25	8	9	5,7



The axle brackets have to be placed in way, that the fastening screws are not stressed by the pressure of the axle.

Designation of an axle bracket width $a = 30$ mm, thickness $b = 8$ mm:

Axle bracket 30 × 8 DIN 15058

Material: S235JR (St 37)

Other material and dimensions on request.

a	b	c_1	c_2	d_1
20	5	60	36	9
25	6	80	50	11
30	8	100	70	13
40	10	140	100	17
50	12	190	140	21
60	16	250	200	25

1) Dimensions see wheel axles KG 010.4, KG 010.6 and KG 015.

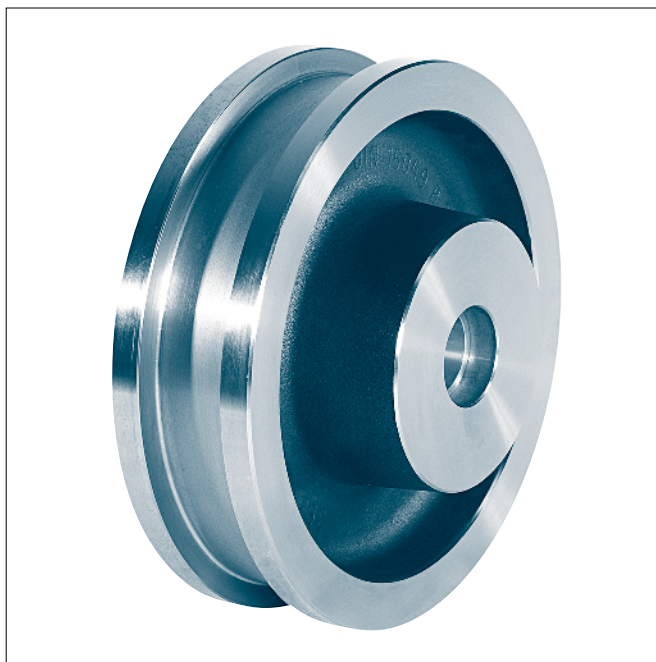
Crane wheels with slide bearing

suitable for older travelling devices Demag brand

KG 012



Form A with gear ring



Form B without gear ring

Designation of a travel wheel form A with gear ring, nominal- \varnothing $d_1 = 300$ mm, gauge $b_1 = 55$ mm, with plain bearing $\varnothing 60/50$ of Rg 7, module 3 and number of teeth 110:

Crane wheel A 300 × 55 × 60 – 3 × 110 KG 012

Form A with gear ring

Form B without gear ring

Other types of the running surface see KG 010.1.

The plain bearings are secured with setscrews towards twisting and dislocation.

Material:

Wheel body- $\varnothing 300-500$ C45 drop forged

Wheel body- $\varnothing 630$ GE420 (GS-70) with Ribs

Plain bearings G-CuSn7ZnPb (Rg 7)

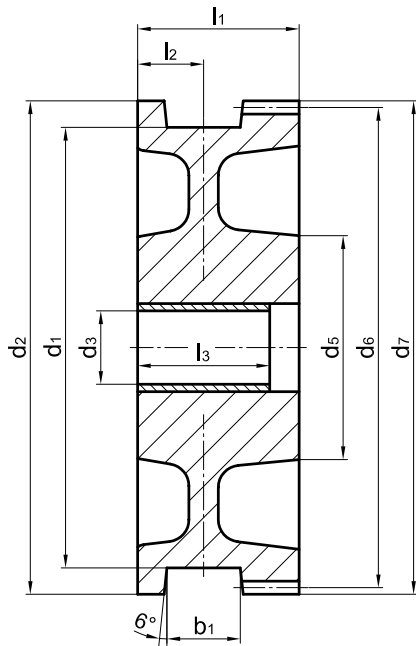
Other material and dimensions on request.

Suitable wheel axles see KG 010.4.

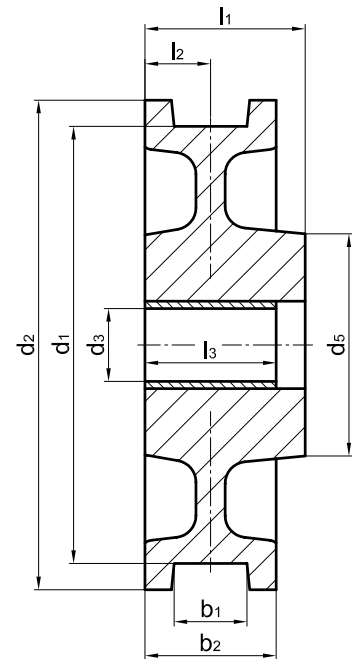
Crane wheels with slide bearing

suitable for older travelling devices Demag brand

KG 012



Form A with gear ring



Form B without gear ring

wheel- Ø d ₁	b ₁	b ₂	d ₂	d ₃	d ₅	l ₁	l ₂	l ₃	gear ring ²⁾ (form A)				unti weight ≈[kg]		Demag Spare no.	
									modu- lel	no. of teeth	d ₆	d ₇	form A	form B	form A	form B
h11				E9												
300	55	90	330	50	152	110 ²⁾	45	90	3	110	330	336	43	37	963 617 44	-
						90									-	963 619 44
320	55	98	348	50	167	138	49	100	4	85	340	348	55	49	963 333 44	963 338 44
400	55	98	432	60	197	138	49	100	4	106	424	432	86	71	963 433 44	963 438 44
	65														963 453 44	963 458 44
500	70	105	540	70	230	166	52,5	110	6	88	528	540	156	125	963 535 44	963 528 44
630	75/85 ¹⁾	120	680	80	180	200	60	120	8	83	664	680	235	181	-	-
									6	111	666	678				

1) The dimension of the gauge recess b₁ to be stated with order.

2) Overall width 110 mm, Hub length 90 mm.

3) Module and number of teeth to be stated with order.

Tooth form according to DIN 867 without appending modification,

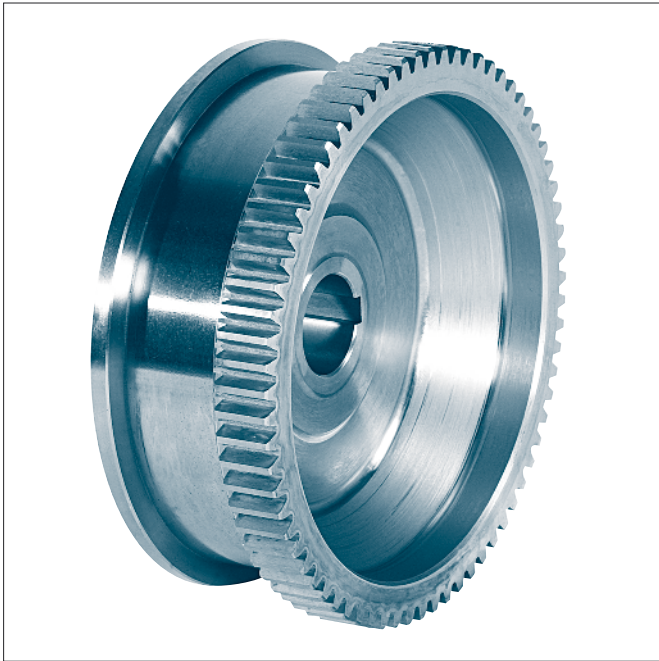
Pressure angle 20 degree.

Crane wheels for rotating shafts

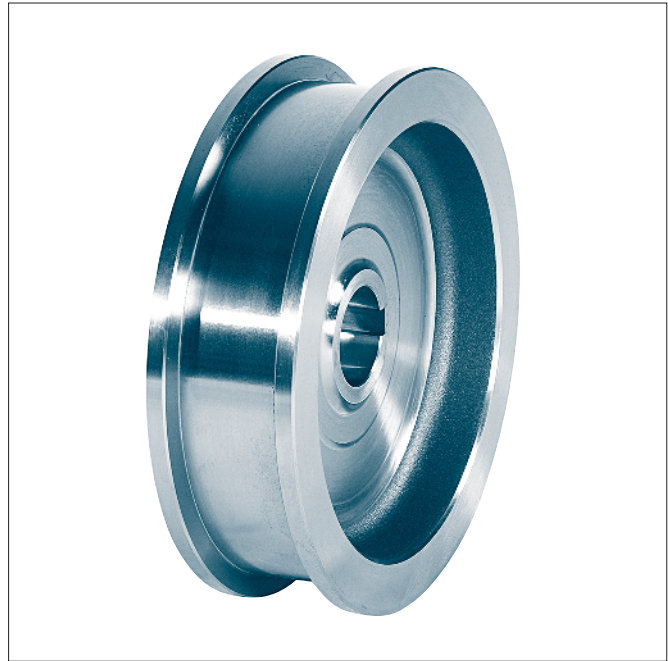
with feather keyway according to DIN 6885-1

suitable for older types of the trolley traveling winches Demag brand

KG 013



Form A with gear ring



Form B without gear ring

Designation of a travel wheel form A with gear ring, nominal- \varnothing $d_1 = 200$ mm, gauge $b_1 = 55$ mm, bore- \varnothing $d_2 = 45$ mm H7, module 4 and number of teeth 58:

Crane wheel A 200 × 55 × 45 H7 – 4 × 58 KG 013

Form A with gear ring

Form B without gear ring

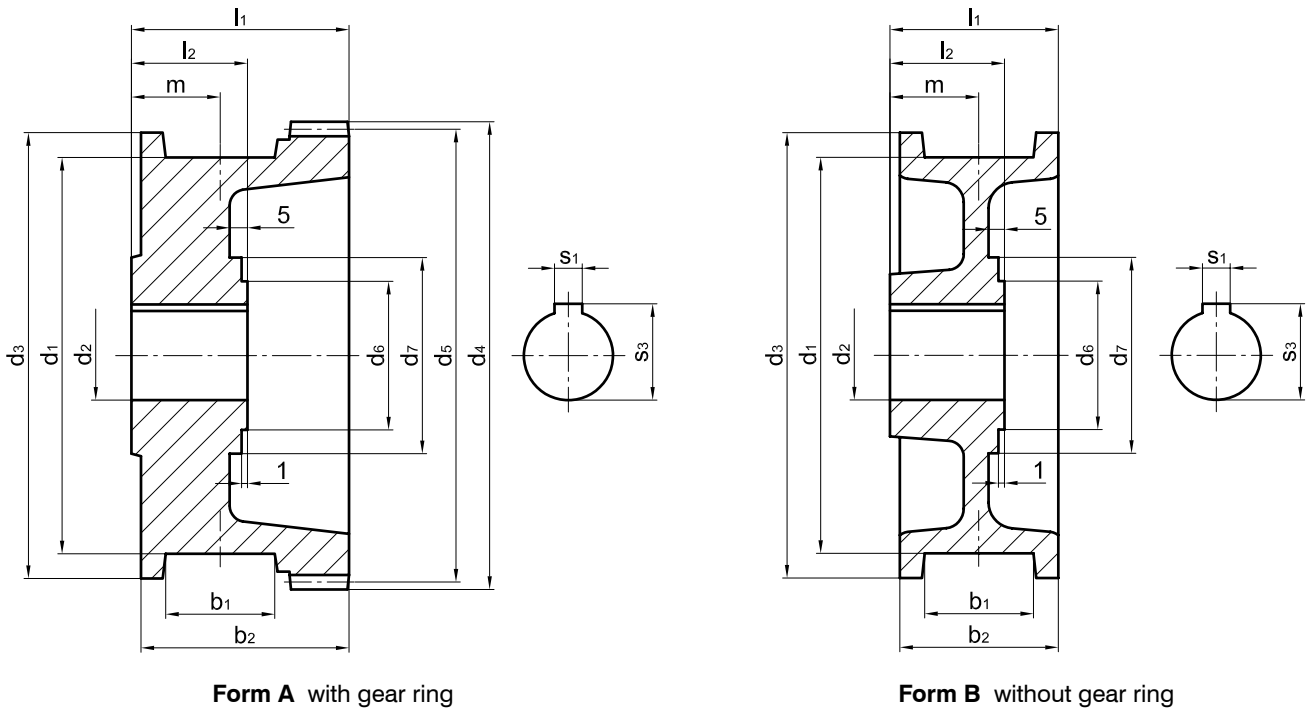
Material: C45

Other material and dimensions on request.

Crane wheels for rotating shafts

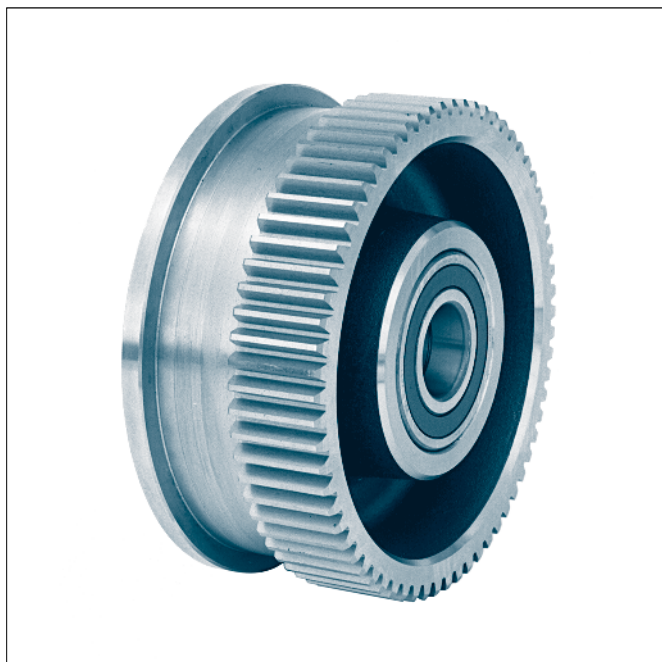
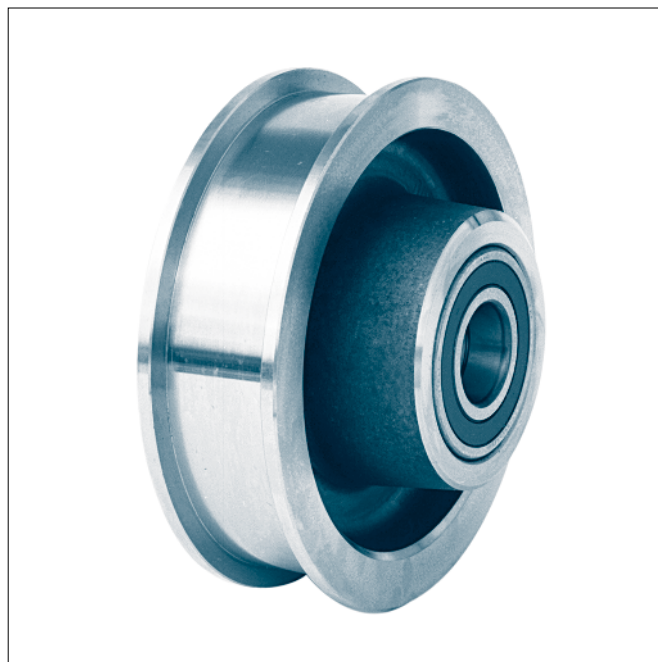
with feather keyway according to DIN 6885-1
suitable for older types of the trolley traveling winches Demag brand

KG 013



wheel- Ø d ₁	b ₁	b ₂		d ₂	d ₃	d ₆	d ₇	l ₁		l ₂	m	s ₁	s ₃	gear ring ¹⁾ (form A)		unit weight ≈[kg]		Demag spare no.										
		form A	form B					H7	form A					form B	mo- dule	no. of teeth	d ₄	d ₅	form A	form B	form A	form B						
200	55	105	80	45	Dimensions on request								4	58	Dimensions on request		598 456 44	598 458 44										
				60													598 344 44	598 346 44										
250	55	105	80	50									Dimensions on request								4	71	Dimensions on request		598 856 44	598 858 44		
				65																					598 876 44	598 878 44		

1) Gearing corrected, addendum modification coefficient $x = -0,5$.
Pressure angle 20 degree.

**Form A** with gear ring**Form B** without gear ring

Designation of a wheel form A with gear ring, nominal- \varnothing d_1 = 300 mm, gauge b_1 = 50 mm, complete with grooved ball bearings, module 3 and number of teeth 110:

Crane wheel A 300 × 50 – 3 × 110 KG 014

Form A with gear ring

Form B without gear ring

Other types of the running surface see KG 010.1.

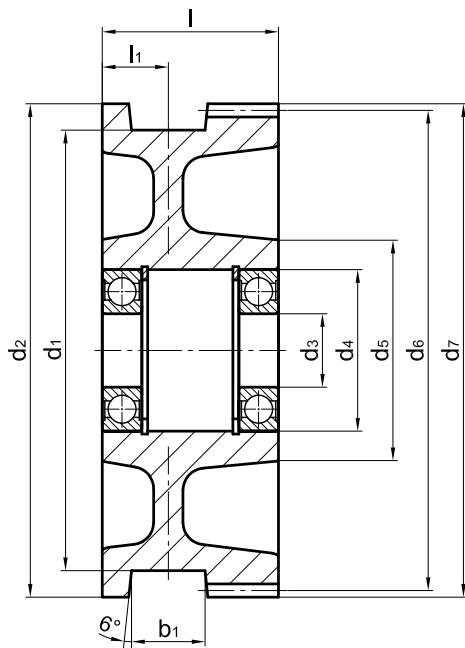
The rolling bearings are lubricated for life.

Material:

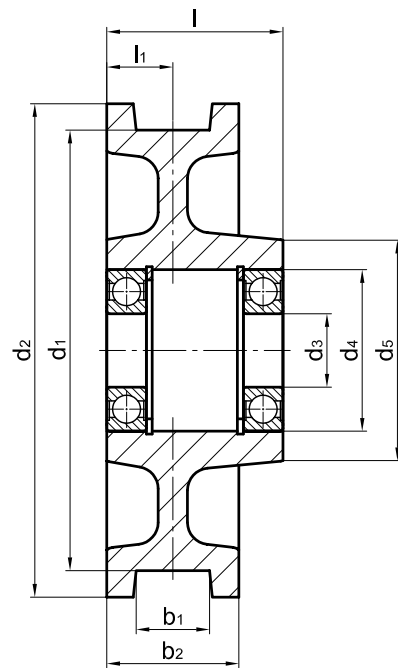
Wheel body- \varnothing 200–400 C45 drop forged

Other material and dimensions on request.

Suitable wheel axles see KG 010.6.



Form A with gear ring



Form B without gear ring

wheel- Ø d ₁	b ₁ ¹⁾	b ₂	d ₂	d ₃	d ₄	d ₅	l	l ₁	bearing type	gear ring ²⁾ (form A)				unit weight ≈ [kg]		wheel load [kg] ³⁾
										module	no. of teeth	d ₆	d ₇	form A	form B	
h11					M7											
200	30-60	80	232	40	90	117	95	40	6308-2RS	3	75	225	231	14,5	13	2 800
										4	56	224	232			
250	30-60	80	274	50	110	142	120	40	6310-2RS	3	88	264	270	27	22	4 600
										4	66	272	272			
300	35-65	90	336	50	110	152	120	45	6310-2RS	3	110	330	336	40	34	4 800
										4	82	328	336			
315	40-75	100	348	55	120	167	140	50	6311-2RS	4	85	340	348	50	44	5 800
400	40-75	100	432	60	130	197	140	50	6312-2RS	4	106	424	432	81	66	7 000

1) The dimension of the gauge recess b₁ to be stated with order.

2) Module and number of teeth to be stated with order.

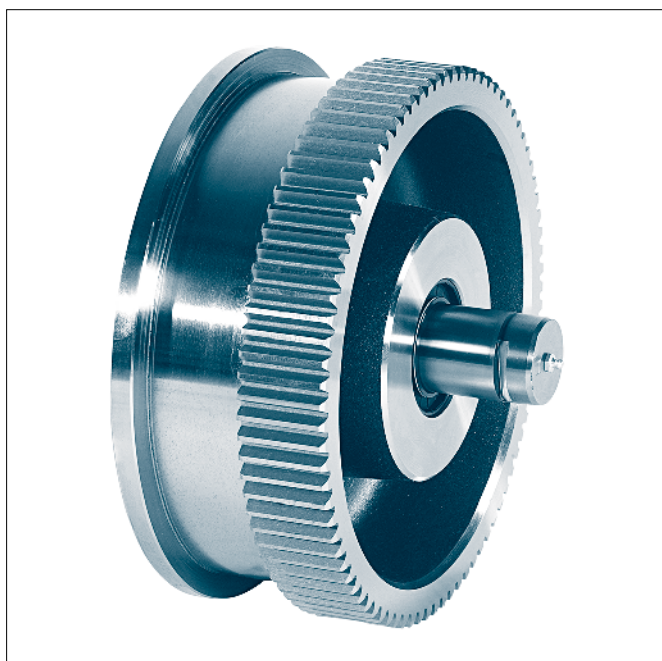
Tooth form according to DIN 867 without appending modification,
Pressure angle 20 degree.

3) The wheel loads stated are valid for v^a 40 m/min with an endurance of approximately 5000 hours and with maximum possible rail head width of the corresponding wheel.

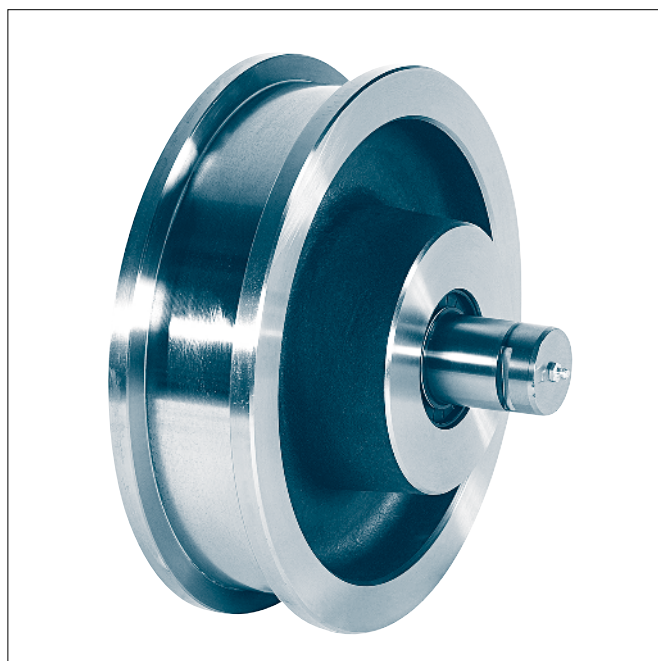
Crane wheels with precision cylindrical roller bearings

similar to DIN 15 049

KG 015



Form A with gear ring



Form B without gear ring

Description of a travel wheel form A with gear ring, nominal- \varnothing $d_1 = 300$ mm, gauge $b_1 = 50$ mm, complete with cylindrical roller bearings, radial shaft seal rings and hardened axle with $\varnothing d_3 = 50$ mm, module 3 and number of teeth 110:

Crane wheel A 300 × 50 – 3 × 110 KG 015

Form A with gear ring
Form B without gear ring

Other types of the running surfaces see KG 010.1.

The roller bearings are sealed with radial shaft seal rings on both sides and not greased

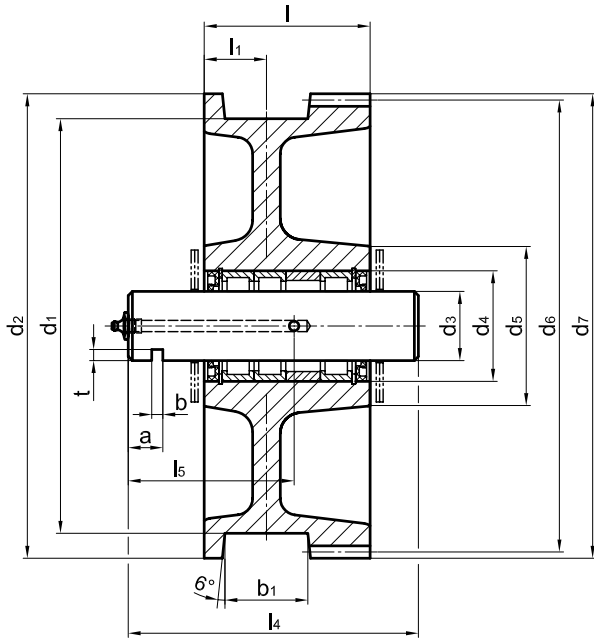
Material:

Wheel body- \varnothing 160–500 C45 drop forged
 Wheel body- \varnothing 630 GE420 (GS-70) with ribs
 Wheel axle 42CrMo4+QT
 Surfaces hardened to HRC 56–59

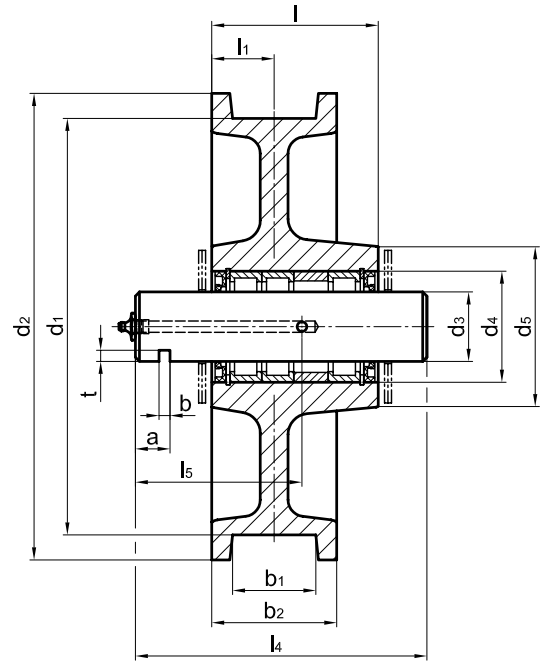
Other material and dimensions on request.

Dimensions of the appropriate wheel axle

for wheel- \varnothing d_1	d_3	l_4	l_5	a	b	t	unit weight
	f7				+0,5	+0,5	≈[kg]
160 200	40	190	110	25	8	7	1,8
250 300	50	210	120	25	8	8	3,1
315	55	265	140	25	8	9	4,8
400	60	265	140	25	8	9	5,7
500	70	285	150	25	10	10	8,5
630	80	335	160	25	10	10	13,0



Form A with gear ring



Form B without gear ring

wheel-Ø d ₁	b ₁ ¹⁾	b ₂	d ₂	d ₃	d ₄	d ₅	l	l ₁	number of bea- rings	gear ring ²⁾ (Form A)				unit weight ≈ [kg]		wheel load [kg] ³⁾
										Mo- dule	Number of teeth	d ₆	d ₇	Form A	Form B	
h11					M7											
160	30-60	80	186	40	62	85	95	40	2	2,5	72	180	185	11	9,5	2 600
										3	60		186			
200	30-60	80	232	40	62	117	95	40	3	3	75	225	231	18,5	17	4 000
										4	56	224	232			
250	30-60	80	274	50	80	142	120	40	3	3	88	264	270	31	26	5 600
										4	66		272			
300	35-65	90	336	50	80	152	120	45	3	3	110	330	336	44	38	6 750
										4	82	328				
315	40-75	100	348	55	85	167	140	50	3	4	85	340	348	56	50	7 100
400	40-75	100	432	60	90	197	140	50	4	4	106	424	432	88	73	9 700
500	50-85	110	540	70	110	230	170	55	4	6	88	528	540	160	129	17 000
630	55-95	120	680	80	120	180	200	60	4	8	83	664	680	240	186	21 000

1) The dimension of the gauge recess b₁ to be stated with order.

2) Module and number of teeth to be stated with order.

Tooth form according to DIN 867 without profile correction.

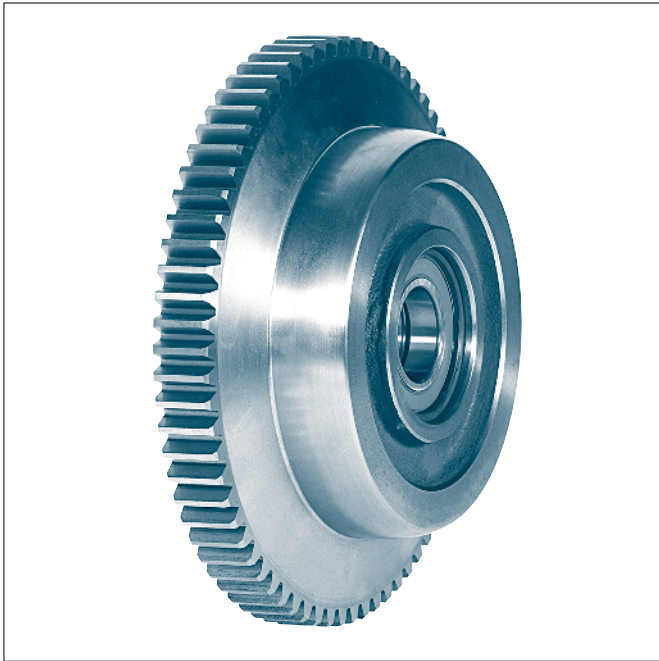
Pressure angle 20 degree.

3) The wheel loads stated are valid for v ≈ 40 m/min with an endurance of approximately 10 000 hours and with maximum possible rail head width of the corresponding wheel.

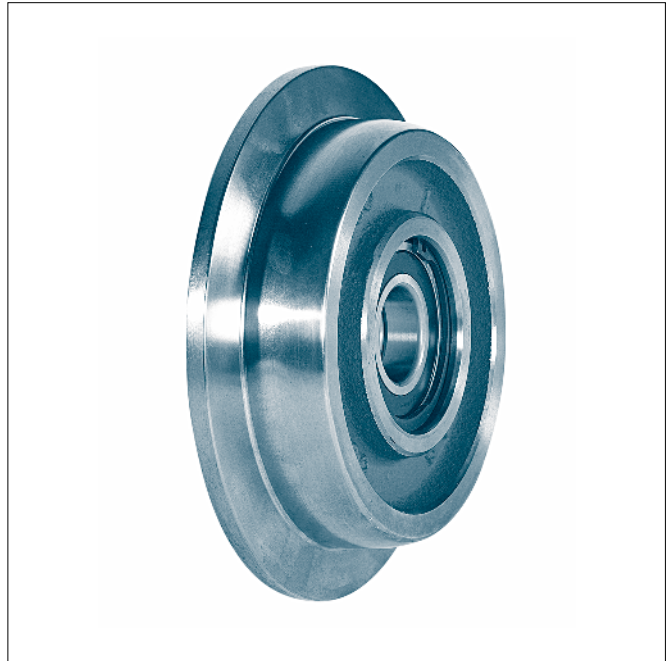
Crane wheels with single wheel flange

for I- and IPE girder (DIN 1025)

KG 020



Form A with gear ring



Form B without gear ring

Designation of a wheel with single wheel flange, form A with gear ring, nominal- $\varnothing d_1 = 300$ mm, complete with anti friction bearings:

Crane wheel A 300 KG 020

Form A with gear ring

Form B without gear ring

The running surface width b_1 is one half each cylindric/spheric.

The rolling bearings are lubricated for life.

Material:

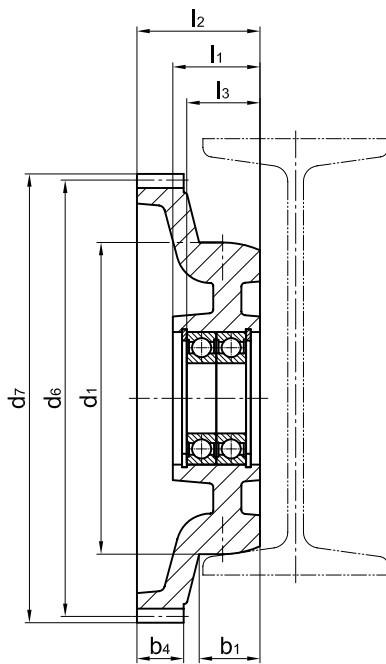
Wheel body EN-GJS-600-3 (GGG-60)

Other materials and dimensions on request.

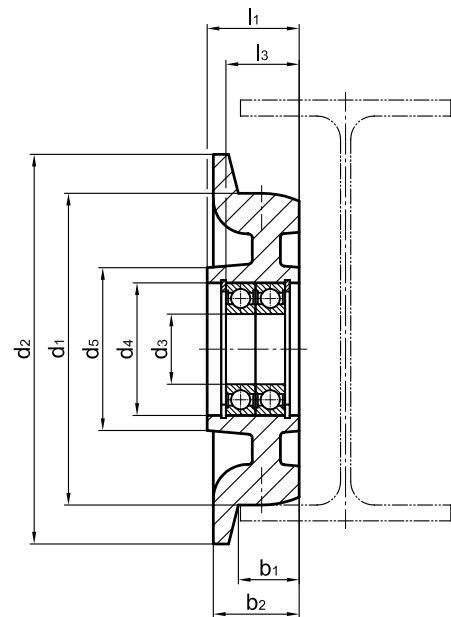
Crane wheels with single wheel flange

for I-girder from I-and IPE-series according to DIN 1025

KG 020



Form A with gear ring



Form B without gear ring

wheel- Ø d ₁	b ₁	b ₂	b ₄	d ₂	d ₃	d ₄	d ₅	l ₁	l ₂	l ₃	rolling bearings ^r	gear ring ¹⁾ (form A)				unit weight ≈[kg]		wheel load [kg] ²⁾
												mo- dule	no. of teeth	d ₆	d ₇	Form A	Form B	
h11						M7												
130	26	38	25	160	30	62	80	46	58	39	6206-2RS	3	52	156	162	3	2,5	1 900
160	31,5	44	30	200	35	72	90	49	69	41,5	6207-2RS	4	53	212	220	6	5	2 500
200	39	55	30	250	45	85	105	56	79	47	6209-2RS	4	70	280	288	13,5	9,5	3 300
300	56	73	30	340	65	120	150	73	100	59,5	6213-2RS	4	100	400	408	37	28	5 500

1) Module and number of teeth to be stated with order.

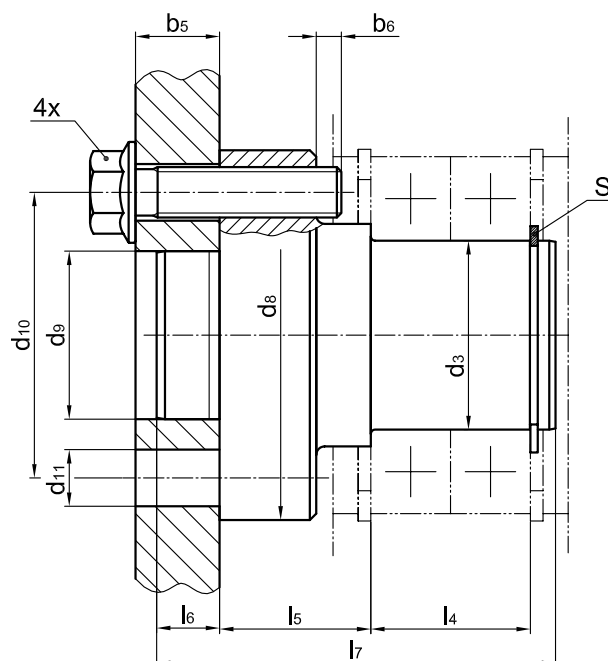
Tooth form according to DIN 867 without profile correction.

Pressure angle 20 degree.

2) The wheel loads stated are valid for $v \approx 10$ m/min with an endurance of approximately 3 600 hours.

Wheel axles

fitting to travel wheels according to KG 020
for an easy assembly into steel structures



Designation of an axle for travel wheel- $\varnothing d_1 = 200$ mm:

Axle 200 KG 020.1

The supply takes place supplied fully machined, including circlip and 4 locking screws.

Material: 42CrMo4+QT

Other materials, dimensions or wheel axle for welding on Request.

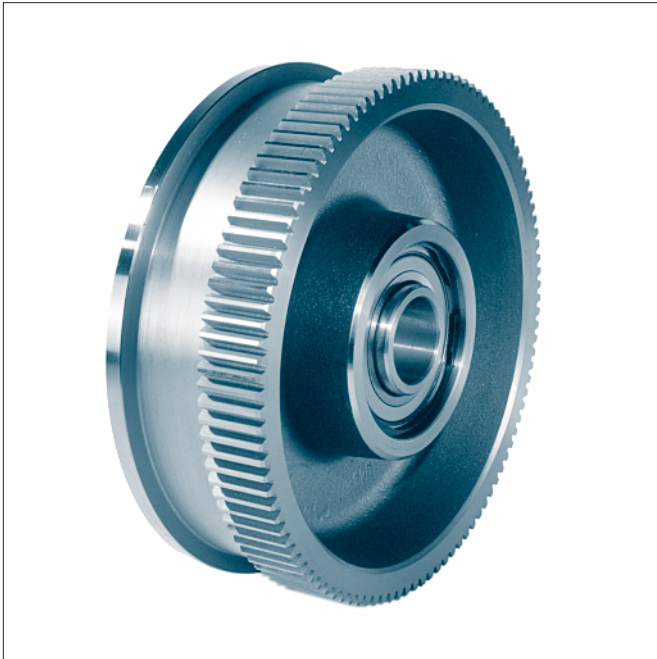
for wheel- $\varnothing d_1$	d_3	d_8	d_9 - 0,1	d_{10}	d_{11}	l_4	l_5	l_6	l_7	locking screws (included)	$b_5^{1)}$	b_6 max.	S circlip DIN 471
130	30	67	25	48	4x $\varnothing 11$	32	23	10	70	M10x30 10.9	12-16	5	30x1,5
160	35	77	35	58	4x $\varnothing 11$	34	31,5	11	82	M10x35 10.9	12-20	6	35x1,5
200	45	88	40	68	4x $\varnothing 13,5$	38	36	12	92	M12x40 10.9	12-25	7	45x1,75
300	65	127	50	98	4x $\varnothing 17,5$	46	44,5	16	114	M16x50 10.9	16-30	11	65x2,5

1) For different metal gauge b_5 other lengths of the screws are required.

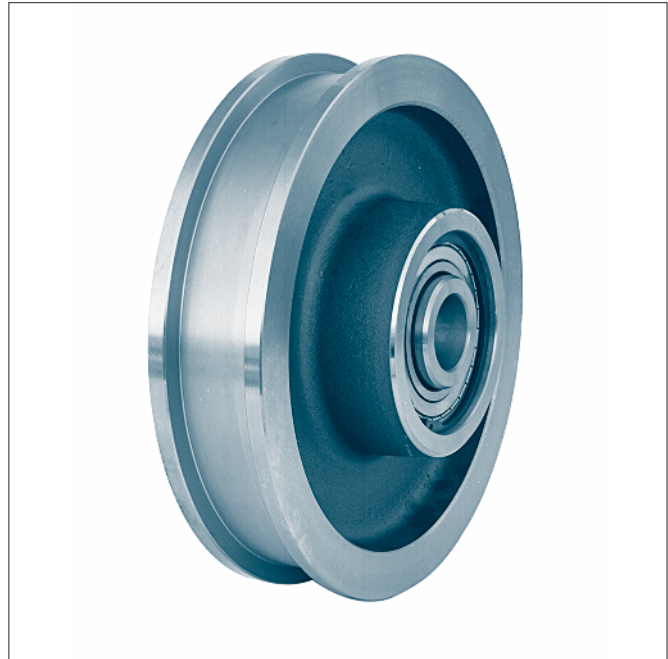
Crane wheels with anti-friction bearings and bush

similar DIN 15 049

KG 030



Form A with gear ring



Form B without gear ring

Designation of a travel wheel form A with gear ring, nominal- \varnothing $d_1 = 300$ mm, gauge $b_1 = 50$ mm, complete with grooved ball bearing, self aligning roller bearing and bush type 1, module 3 and number of teeth 110:

Crane wheel A 300 × 50 – 3 × 110 KG 030.1

Form A with gear ring

Form B without gear ring

Other types of the running surface see KG 010.1.

The self aligning roller bearings are covered by nilos sealing-rings. Grooved ball bearings have one-sided seal discs. The roller bearings are greased.

Material:

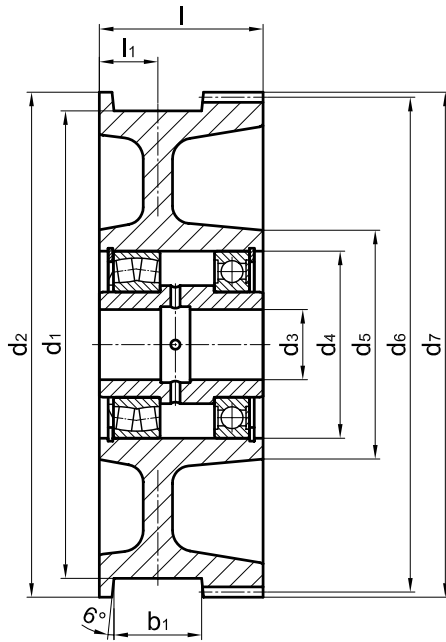
Wheel body- \varnothing 200–500 C45 drop forged

Wheel body- \varnothing 630 GE420 (GS-70) with ribs

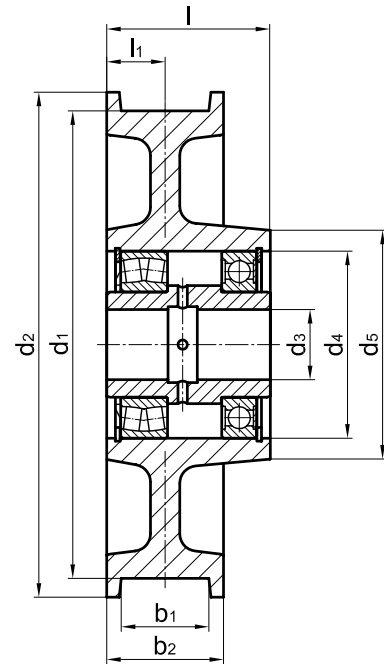
Bush S355JR (St 52)

Other materials and dimensions on request.

Suitable wheel axles see KG 010.4



Form A with gear ring



Form B without gear ring

wheel-Ø d ₁	b ₁ ¹⁾	b ₂	d ₂	d ₃	d ₄	d ₅	l	l ₁	bearing type	gear ring ²⁾ (form A)				unit weight ≈[kg]		wheel load [kg] ³⁾
										mo- dule	no. of teeth	d ₆	d ₇	Form A	Form B	
h11				E9	M7		-0,5									
200	30-60	80	232	40	90	117	95	40	62 10Z 222 10	3	75	225	231	17,5	16	3 800
										4	56	224	232			
250	30-60	80	274	50	110	142	120	40	62 12Z 222 12	3	88	264	270	30	25	5 600
										4	66		272			
300	35-65	90	336	50	120	152	120	45	62 13Z 222 13	3	110	330	336	43	37	7 300
										4	82	328				
315	40-75	100	348	55	130	167	140	50	62 15Z 222 15	4	85	340	348	54	48	8 500
400	40-75	100	432	60	160	197	140	50	62 18Z 222 18	4	106	424	432	81	73	11 900
500	50-85	110	540	70	180	230	170	55	62 20Z 222 20	6	88	528	540	150	112	17 500
630	55-95	120	680	80	200	250	200	60	62 22Z 222 22	8	83	664	680	260	190	22 100

1) The dimension of the gauge recess b₁ to be stated with order.

2) Module and number of teeth to be stated with order.

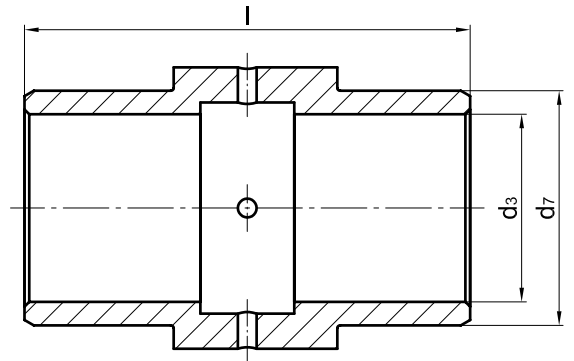
Tooth form according to DIN 867 without appending modification.

Pressure angle 20 degree.

3) The wheel loads stated are valid for v ≈ 40 m/min with an endurance of approximately 10 000 hours and with maximum possible rail head width of the corresponding wheel.

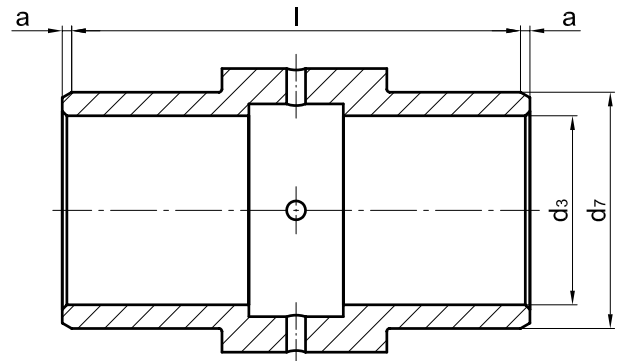
Design 1

length of the bush correlates with the width of the wheel



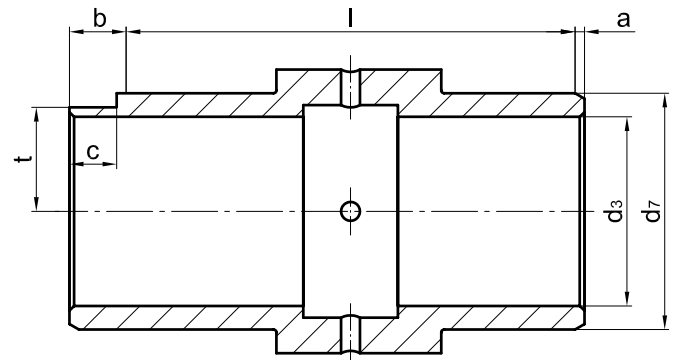
Design 2

bush both-sided over laying at gauge, against wheelbody



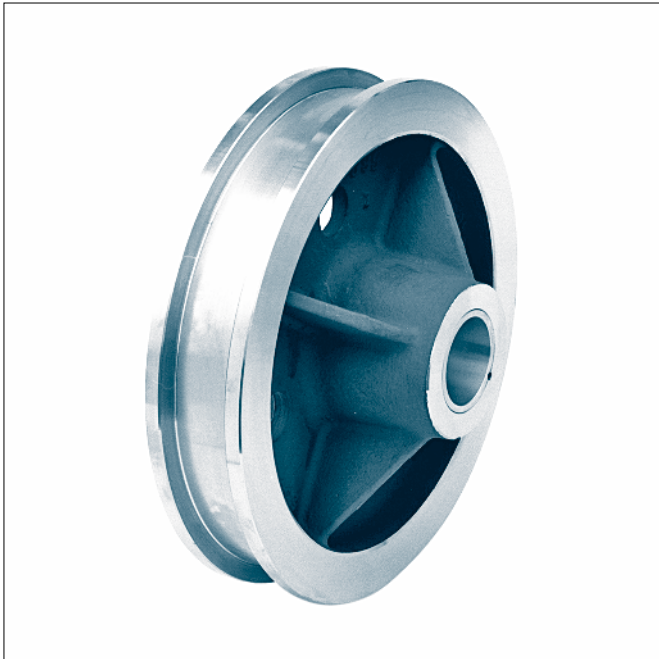
Design 3

bush both-sided over laying against wheel body and with flattening against rotation (mounted on flush hub side resp. opposite gear ring)



dimensions of the bushing

for Rad- \emptyset d_1	d_3	d_7	a	b	c	t	l
	E9	g6					-0,5
200	40	50	2	12	10	22	95
250	50	60	2	12	10	27,5	120
300	50	65	3	13	10	29	120
315	55	75	3	13	10	32,5	140
400	60	90	5	15	10	40	140
500	70	100	5	15	10	45	170
630	80	110	5	15	10	50	200



Designation of a crane wheel form B with nominal- \varnothing $d_1 = 630$ mm, gauge $b_1 = 100$ mm, hub symmetric ($l_1 = l_2 = 185$ mm):

Crane wheel B 630 × 100 DIN 15074

Form S narrow crane wheel

Form B broad crane wheel

The slide bearings are secured with setscrews towards twisting and dislocation.

Material:

Wheel body- \varnothing 200–250 C45 machined from solid

Wheel body- \varnothing 315–1250 GE420 (GS-70) or

G42CrMo4+QT (GS-42CrMo4 V)

Bearings

G-CuSn7ZnPb (Rg 7)

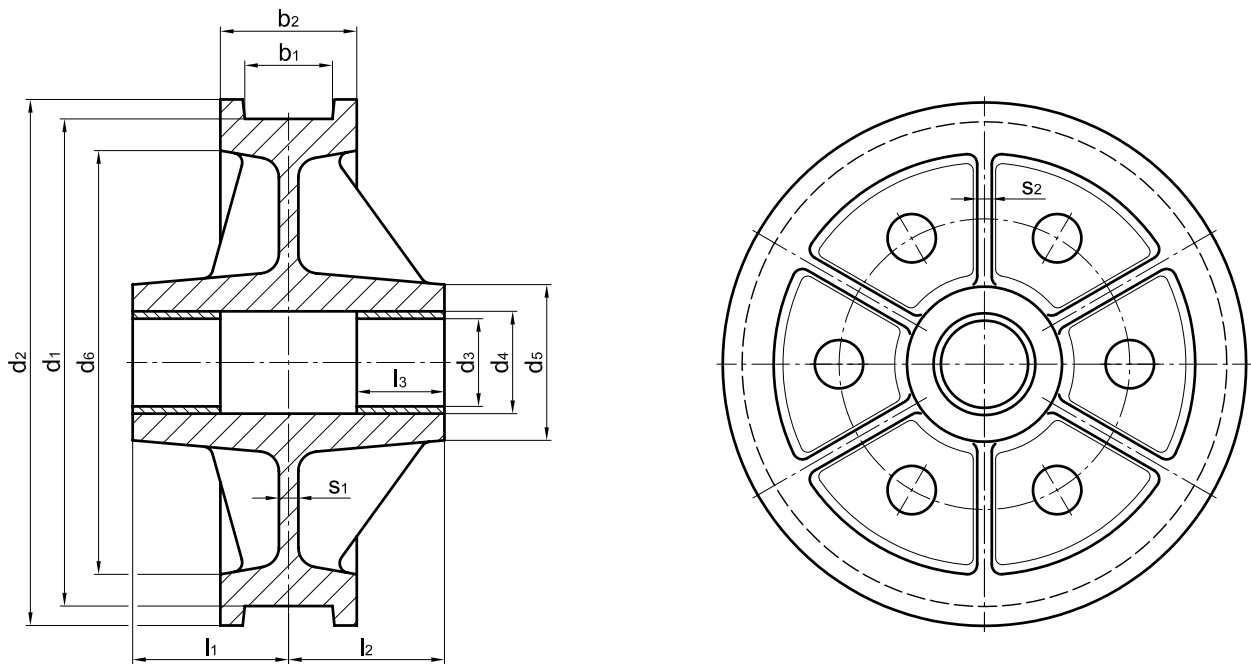
Other materials and dimensions on request.

Crane wheels with gear ring see DIN 15075.

See DIN 15070 for basis of calculation for crane wheels.

Crane wheels with slide bearing without gear ring

DIN 15074



Form	d ₁ h9	b ₁ ¹⁾	b ₂	l ₁ ²⁾		l ₂	d ₂	d ₃ D10	d ₄ H7	d ₅	d ₆	l ₃	s ₁	s ₂	No. of ribs	unit weight ≈[kg]	
				symetric	asymmetric												
S	200	40–55	90	105	80	60	105	230	45	55	85	170	45	18	–	–	30
S	250	40–55	90	115	85	60	115	280	50	60	100	210	50	18	–	–	48
S	315	45–55	90	125	95	65	125	350	60	75	120	270	63	18	–	–	60
B		60–65	110	135	105	75	135										68
S	400	55–65	110	140	105	75	140	440	80	95	140	345	80	20	–	–	90
B		70–90	140	155	120	90	155										105
S	500	55–65	110	145	110	75	145	540	90	105	160	435	90	20	15	4	130
B		70–90	140	160	125	90	160										150
S	630	65–75	120	165	120	80	165	680	100	120	180	560	100	20	15	6	210
B		80–110	160	185	140	100	185										250
S	710	75–90	140	185	135	90	185	760	110	130	200	630	110	25	18	6	280
B		95–160	210	220	170	125	220										390
S	800	75–90	140	195	140	90	195	850	125	145	220	710	125	25	18	6	350
B		95–160	210	230	175	125	230										470
S	900	75–90	140	205	145	90	205	950	140	160	240	805	150	25	18	6	400
B		95–160	210	240	180	125	240										540
S	1000	75–90	140	205	145	90	205	1050	160	180	270	900	150 ³⁾	30	20	6	525
B		95–160	210	240	180	125	240										680
B	1120	95–160	220	260	190	125	260	1180	180	200	300	1010	180	30	20	8	880
B	1250	95–160	220	260	190	125	260	1310	200	220	330	1140	200 ⁴⁾	30	20	8	1040

1) The dimension of the gauge recess b_1 to be stated with order. For running surface profiles and correspondence of crane rails to running wheel diameter see DIN 15072.

2) Asymmetric hubs (diameter l_1) as per agreement.

3) For $l_1 = 90$ mm is a slide bearing length of $l_3 = 120$ mm to use.

4) For $l_1 = 125$ mm is a slide bearing length of $l_3 = 180$ mm to use.



Designation of a travel wheel form BG with nominal- \varnothing $d_1 = 630$ mm, gauge $b_1 = 100$ mm, hub symmetric ($l_1 = l_2 = 185$ mm):

Crane wheel BG 630 × 100 DIN 15075

Form SK narrow crane wheel (S) with small gear ring (K)
Form SG narrow crane wheel (S) with large gear ring (G)
Form BK broad crane wheel (B) with small gear ring (K)
Form BG broad crane wheel (B) with large gear ring (G)

The plain bearings are secured with setscrews toward twisting and dislocation.

Gear rings see DIN 15082 part 1.

Material:

Wheel body- \varnothing 200–250 C45 machined from solid

Wheel body- \varnothing 315–1250 GE420 (GS-70) or

G42CrMo4+QT (GS-42CrMo4 V)

Bearing G-CuSn7ZnPb (Rg 7)

Gear ring GE300 (GS-60) or C45

Other material and dimensions on request.

Crane wheels without gear ring see DIN 15074.

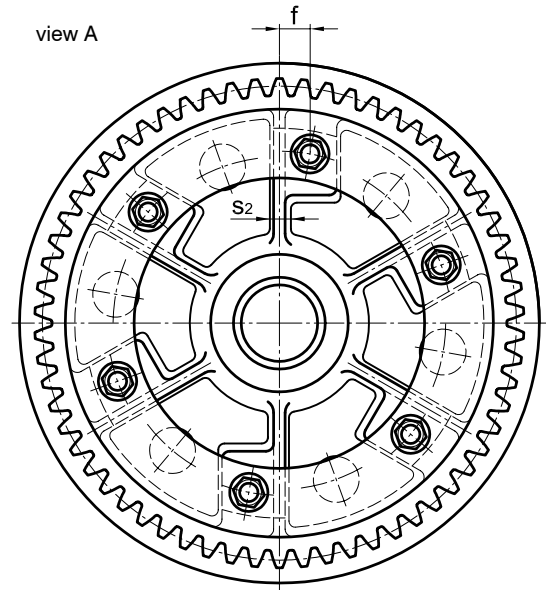
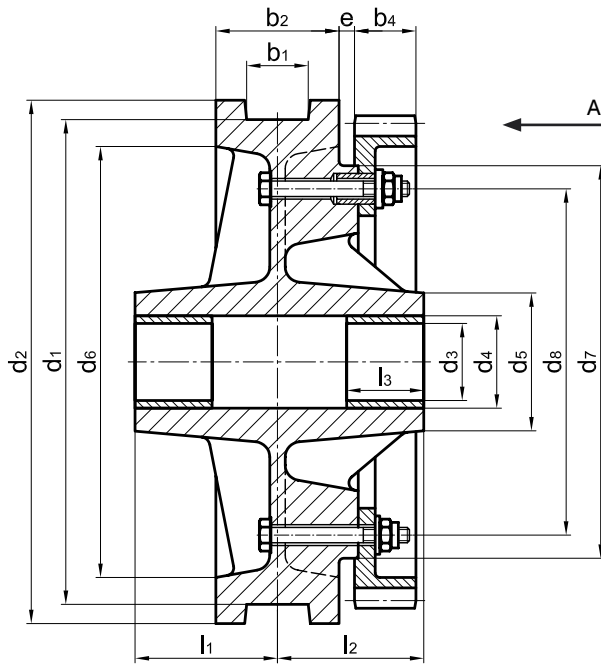
See DIN 15070 for basis of calculation for crane wheels.

Remarks to the following table:

- 1) The dimension of the gauge recess b_1 to be stated with order. For running surface profiles and correspondence of crane rails to running wheel diameter see DIN 15072.
- 2) Asymmetric hubs (diameter l_1) as per agreement.
- 3) For $l_1 = 90$ mm is a slide bearing length of $l_3 = 120$ mm to use.
- 4) For $l_1 = 125$ mm is a slide bearing length of $l_3 = 180$ mm to use.

Crane wheels with plain bearing with gear ring

DIN 15075



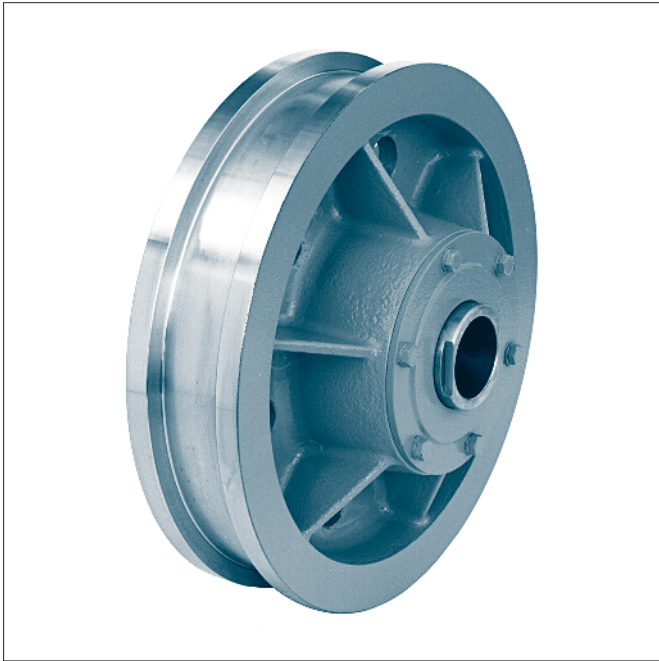
Form	d ₁ h9	b ₁ ¹⁾		l ₁ ²⁾		l ₂	d ₂	d ₃ D10	d ₄ H7	d ₅	d ₆	d ₇ h9	d ₈	gear ring (form A)			e	f	l ₃	s ₁	s ₂	no. of ribs and cams	unit weightt ≈[kg]	
		sym- me- tric	asym- metric	Mo- du- le	no of teeth									b ₄										
SG	200	40-55	90	105	80	60	105	230	45	55	85	170	160	125	5	40	40	15	-	45	18	-	without Ribs 4	35
SG	250	40-55	90	115	85	60	115	280	50	60	100	210	200	155	5	50	50	15	-	50	18	-	without Ribs 4	58
SG	315	45-55	90	125	95	65	125	350	60	75	120	270	260	200	6	52	60	15	-	63	18	-	without Ribs 4	76
BG		55-65	110	135	105	75	135																	87
SK	400	55-65	110	140	105	75	140	440	80	95	140	345	270	210	8	40	65	15	-	80	20	-	without Ribs 4	92
SG													300	240		50								102
BK		270	210	40	146																			
BG		300	240	50	156																			
SK	500	55-65	110	145	110	75	145	540	90	105	160	435	350	290	10	42	70	15	35	90	20	15	4	163
SG													390	330		49								173
BK		350	290	42	202																			
BG		390	330	49	212																			
SK	630	65-75	120	165	120	80	165	680	100	120	180	560	460	400	10	54	80	20	40	100	20	15	6	300
SG													510	450		62								315
BK		460	400	54	342																			
BG		510	450	62	357																			
SK	710	75-90	140	185	135	90	185	760	110	130	200	630	510	450	12	50	90	20	40	110	25	18	6	412
SG													580	520		58								437
BK		510	450	50	519																			
BG		580	520	58	544																			
SK	800	75-90	140	195	140	90	195	850	125	145	220	710	610	550	12	58	100	20	40	125	25	18	6	523
SG													660	600		66								543
BK		610	550	58	658																			
BG		660	600	66	678																			
SK	900	75-90	140	205	145	90	205	950	140	160	240	805	680	620	14	56	110	20	40	150	25	18	6	550
SG													750	690		63								580
BK		680	620	56	700																			
BG		750	690	63	730																			
SK	1000	75-90	140	205	145	90	205	1050	160	180	270	900	790	710	14	64	110	20	50	150 ³⁾	30	20	6	725
SG													840	760		70								750
BK		790	710	64	885																			
BG		840	760	70	910																			
BK	1120	95-160	220	260	190	125	260	1180	180	200	300	1010	880	800	16	62	125	20	50	180	30	20	8	1170
BG													950	870		68								1220
BK	1250	95-160	220	260	190	125	260	1310	200	220	330	1140	1000	920	16	70	125	20	50	200 ⁴⁾	30	20	8	1360
BG													1080	1000		76								1400

footnote see page 34

Crane wheels with self aligning roller bearings, without gear ring

DIN 15078

self aligning roller bearings series 222



Designation of a travel wheel form B with nominal- \varnothing $d_1 = 630$ mm, gauge $b_1 = 100$ mm, including self aligning roller bearings 22226, cover with labyrinth gland:

Crane wheel B 630 × 100 DIN 15078

Form S narrow crane wheel

Form B broad crane wheel

The bearings are lubricated.

The bushing are supplied with lubricating hole and flattening against rotation (design see DIN 15086).

Design of the covers see DIN 15084.

Without certain agreement covers form A will be mounted.

Material:

Wheel body	GE420 (GS-70) or G42CrMo4+QT (GS-42CrMo4 V)
Inner bush	S355 (St 52)
Spacer	S355 (St 52) or EN-GJS-400-15 (GGG-40)
Cover	S355J2G3 (St 52-3)

Other materials and dimensions (e.g. with self aligning roller bearings series 223) on request.

Crane wheels without gear ring see DIN 15074.

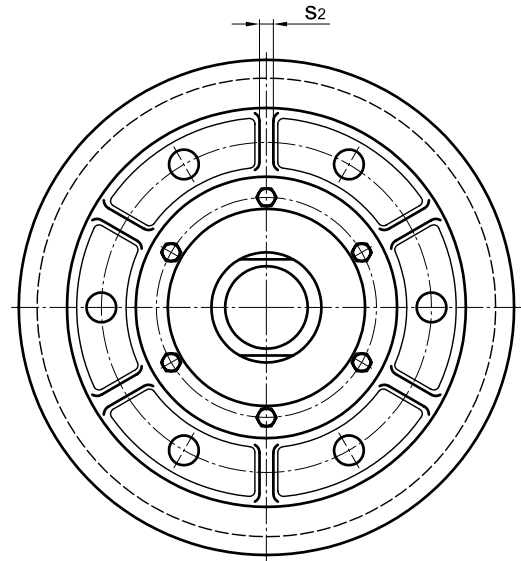
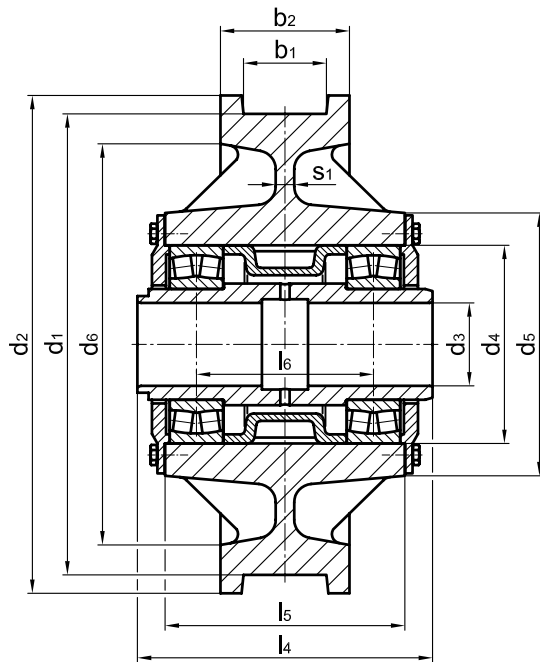
See DIN 15070 for basis of calculation for crane wheels.

Calculation of bearing load of wheels for service life calculation of anti-friction bearing see DIN 15071.

Crane wheels with self aligning roller bearings, without gear ring

DIN 15078

self aligning roller bearings series 222



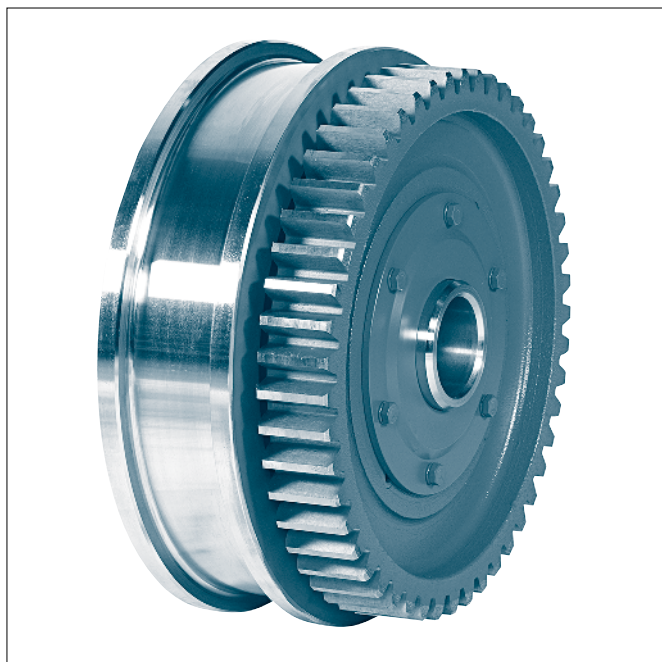
form	d ₁ h9	b ₁ ¹⁾	b ₂	d ₂	d ₃ D10	d ₄ M7	d ₅	d ₆	l ₄ -0,5	l ₅	l ₆	s ₁ min.	s ₂ min.	no. of ribs	bearing DIN 635-2	unit weight ≈[kg]
S	315	45-55	90	350	60	160	220	270	250	190	140	18	-	-	22218	80
B		55-65	110						270	210	160					90
S	400	55-65	110	440	80	180	240	345	280	220	164	20	-	-	22220	120
B		70-90	140						310	250	194					140
S	500	55-65	110	540	90	215	285	435	290	230	162	20	15	4	22224	180
B		70-90	140						320	260	192					200
S	630	65-75	120	680	100	230	300	560	330	260	186	20	15	6	22226	235
B		80-110	160						370	300	226					320
S	710	75-90	140	760	110	270	340	630	370	300	217	25	18	6	22230	370
B		95-160	210						440	370	287					470
S	800	75-90	140	850	125	290	360	710	390	320	230	25	18	6	22232	425
B		95-160	210						460	390	300					585
S	900	75-90	140	950	140	320	390	805	410	340	244	25	18	6	22236	570
B		95-160	210						480	410	314					730
S	1000	75-90	140	1050	160	360	450	900	410	330	222	30	20	6	22240	750
B		95-160	210						480	400	292					925
B	1120	95-160	220	1180	180	400	490	1010	520	440	322	30	20	8	22244	1190
B	1250	95-160	220	1310	200	440	530	1140	520	440	310	30	20	8	22248	1400

1) The dimension of the gauge recess b₁ to be stated with order. For running surface profiles and correspondence of crane rails to running wheel diameter see DIN 15072.

Crane wheels with self aligning roller bearings, with gear ring

DIN 15079

self aligning roller bearings series 222



Form BG broad crane wheel with large gear ring
(running surface- $\varnothing d_1 \leq 500$ mm)
gear ring pressed on



Form BG broad crane wheel with large gear ring
(running surface- $\varnothing d_1 \geq 630$ mm)
gear ring screwed on

Designation of a travel wheel form BG with nominal- $\varnothing d_1 = 630$ mm, gauge $b_1 = 100$ mm, including self aligning roller bearings 222 26, covers with labyrinth gland:

Crane wheel BG 630 × 100 DIN 15079

Form SK narrow crane wheel (S) with small gear ring (K)

Form SG narrow crane wheel (S) with large gear ring (G)

Form BK broad crane wheel (B) with small gear ring (K)

Form BG broad crane wheel (B) with large gear ring (G)

The bearings are lubricated.

The bushing are supplied with lubricating hole and flattening against rotation (design see DIN 15086).

Design of the covers see DIN 15084.

Without certain agreement covers form A will be mounted.

Material:

Wheel body GE420 (GS-70) or
G42CrMo4+QT (GS-42CrMo4 V)

Inner bush S355 (St 52)

Spacer S355 (St 52) or
EN-GJS-400-15 (GGG-40))

Cover S355J2G3 (St 52-3)

Gear ring GE300 (GS-60)

Other material and dimensions (e.g. with self aligning roller bearings series 223) on request.

Appendant gear rings see DIN 15082 part 1 and part 2.

Appendant travel wheels without gear ring see DIN 15078.

See DIN 15070 for basis of calculation for crane wheels.

Calculation of bearing load of wheels for service life calculation of anti-friction bearing see DIN 15071.

Remarks to the following table:

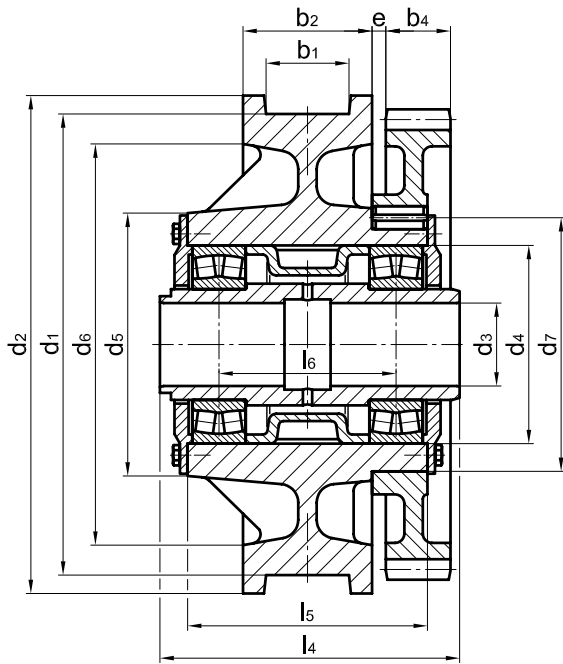
1) The dimension of the gauge recess b_1 to be stated with order. For running surface profiles and correspondence of crane rails to running wheel diameter see DIN 15072.

2) exposition the dimensions see DIN 15075

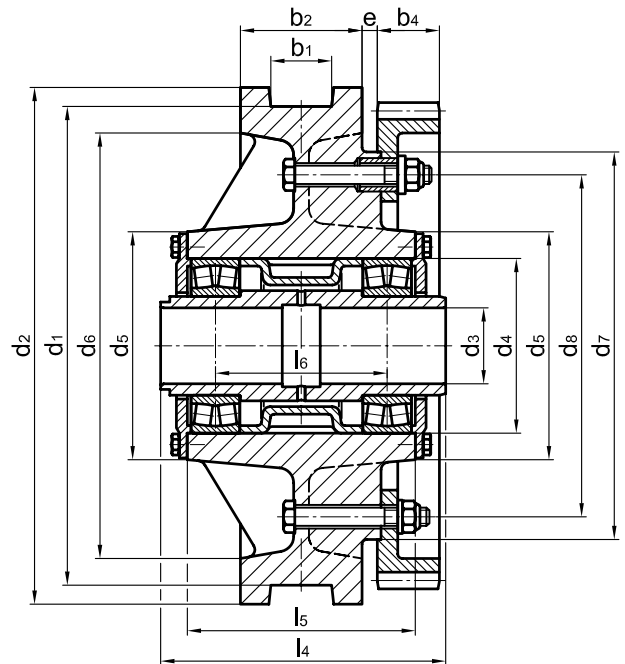
Crane wheels with self aligning roller bearings, with gear ring

DIN 15079

self aligning roller bearings series 222



Crane wheel with pressed on gear ring
(running surface- \varnothing $d_1 \leq 500$ mm)



Crane wheel with screwed on gear ring
(running surface- \varnothing $d_1 \geq 630$ mm)

form	d_1 h9	$b_1^{1)}$	b_2	d_2	d_3 D10	d_4 M7	d_5	d_6	d_7 tolerance zone	d_8	gear ring		e f ²⁾	l_4 -0,5	l_5	l_6	$s_1^{2)}$ min.	$s_2^{2)}$ min.	no. of ribs and cams	bearings DIN 635-2	unit weight ≈[kg]		
											modul	no. of teeth											
SG	315	45-55	90	350	60	160	220	270	210	r6	6	52	60	15	250	190	140	18	-	-	222 18	98	
BG		55-65	110												270	210	160					108	
SK	400	55-65	110	440	80	180	240	345	230	r6	8	40	65	15	280	220	164	20	-	-	222 20	140	
SG		50	152																				
BK		40	160																				
BG		50	172																				
SK	500	55-65	110	540	90	215	285	435	275	r6	10	42	70	15	290	230	162	20	15	4 without Nocken	222 24	220	
SG		49	232																				
BK		42	240																				
BG		49	252																				
SK	630	65-75	120	680	100	230	300	560	460	h9	400	54	80	20	40	330	260	186	20	15	6	222 26	308
SG		510	450						62		323												
BK		460	400						54		396												
BG		510	450						62		411												
SK	710	75-90	140	760	110	270	340	630	510	h9	450	50	90	20	40	370	300	217	25	18	6	222 30	446
SG		580	520						58		471												
BK		510	450						50		589												
BG		580	520						58		614												
SK	800	75-90	140	850	125	290	360	710	610	h9	550	58	100	20	40	390	320	230	25	18	6	222 32	568
SG		660	600						66		588												
BK		610	550						58		728												
BG		660	600						66		748												
SK	900	75-90	140	950	140	320	390	805	680	h9	620	56	110	20	40	410	340	244	25	18	6	222 36	720
SG		750	690						63		750												
BK		680	620						56		890												
BG		750	690						63		920												
SK	1000	75-90	140	1050	160	360	450	900	790	h9	710	64	110	20	50	410	330	222	30	20	6	222 40	940
SG		840	760						70		965												
BK		790	710						64		1130												
BG		840	760						70		1155												
BK	1120	95-160	220	1180	180	400	490	1010	880	h9	800	62	125	20	50	520	440	322	30	20	8	222 44	1480
BG									950		870												68
BK	1250	95-160	220	1310	200	440	530	1140	1000	h9	920	70	125	20	50	520	440	310	30	20	8	222 48	1730
BG									1080		1000												76

footnote see page 38

Gear rings, screwed on

for crane wheels with slide bearings acc. to DIN 15075

for crane wheels with anti friction bearings acc. to DIN 15079 with wheel- \varnothing $d_1 \geq 630$ mm

DIN 15082

part 1



Designation of a gear ring for wheel- \varnothing $d_1 = 500$ mm, large gear ring form G:

Gear ring G 500.1 DIN 15082

Form K small gear ring

Form G large gear ring

Without special agreement the gear rings are delivered without fastening bores. In normal case gear ring and wheel are drilled together during assembly.

material:

Gear ring G 200–G 250 C45 or
42CrMo4+QT

Gear ring G 315–G 1 250 GE300 (GS-60) or
G42CrMo4+QT

Other material and dimensions on request.

Gear rings for crane wheels with anti friction bearings and wheel- $\varnothing \leq 500$ mm see DIN 15082 Part 2.

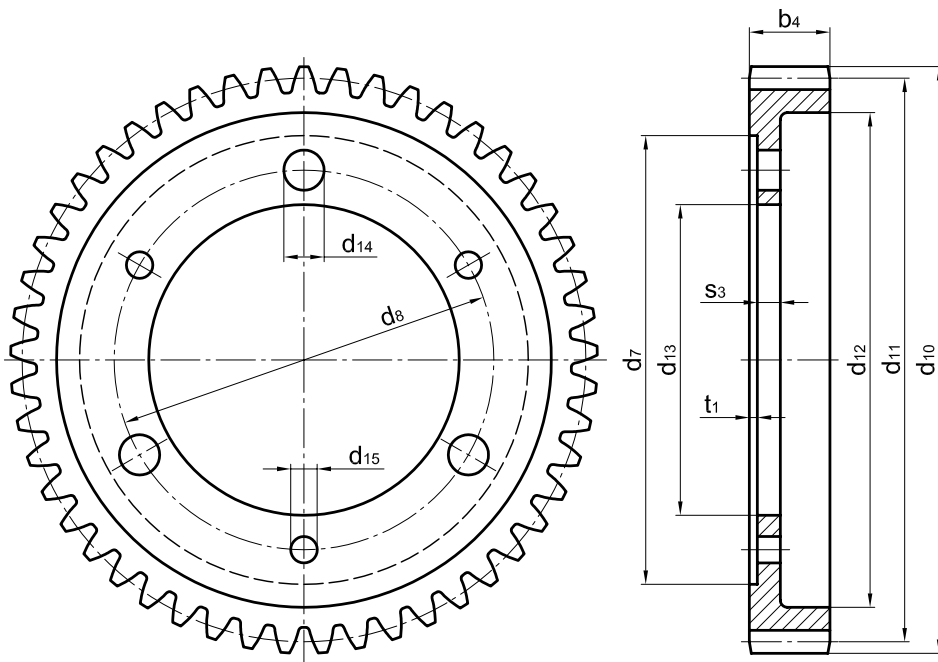
Gear rings, screwed on

for crane wheels with slide bearings acc. to DIN 15075

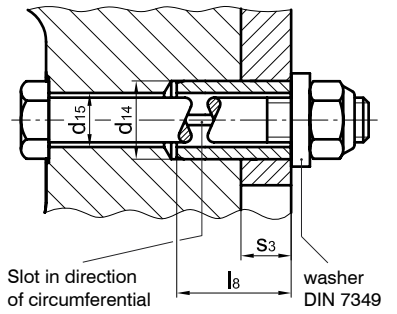
for crane wheels with anti friction bearings acc. to DIN 15079 with wheel- $\varnothing d_1 \geq 630$ mm

DIN 15082

Part 1



Shear joint with heavy duty clamping sleeve acc. to, DIN EN ISO 8752 (DIN 1481)



Slot in direction of circumferential force

for wheel- \varnothing d_1	clamping sleeve		for screw
	d_{14}	l_8	
200	21	26	M 12
250-315	28	36	M 16
400-500	35	45	M 20
630-900	40	50	M 24
1000-1250	50	55	M 30

for wheel- \varnothing d_1	form	number of teeth ¹⁾	module	b_4	d_7	d_8	d_{10}	d_{11}	d_{12}	d_{13}	d_{14}	d_{15}	s_3	t_1	number of bores d_{14}/d_{15}	unit weight »[kg]
					H7		h11				H13					
200	G	40	5	40	160	125	210	200	165	90	21	14	12	5	2 / 2	5
250	G	50	5	50	200	155	260	250	210	110	28	18	16	5	2 / 2	10
315	G	52	6	60	260	200	324	312	270	155	28	18	16	5	2 / 2	15
400	K	40	8	65	270	210	336	320	270	150	35	23	18	5	2 / 2	20
	G	50			300	240	416	400	350	180						30
500	K	42	10	70	350	290	440	420	360	230	35	23	20	5	2 / 2	30
	G	49			390	330	510	490	430	270						40
630	K	54	10	80	460	400	560	540	480	335	40	27	22	5	3 / 3	50
	G	62			510	450	640	620	560	380						65
710	K	50	12	90	510	450	624	600	525	380	40	27	22	5	3 / 3	65
	G	58			580	520	720	696	620	450						90
800	K	58	12	100	610	550	720	696	620	480	40	27	22	5	3 / 3	100
	G	66			660	600	816	792	720	530						120
900	K	56	14	110	680	620	812	784	700	550	40	27	22	5	3 / 3	115
	G	63			750	690	910	882	800	620						145
1000	K	64	14	110	790	710	924	896	810	620	50	33	25	5	3 / 3	150
	G	70			840	760	1008	980	895	670						175
1120	K	62	16	125	880	800	1024	992	895	710	50	33	25	10	4 / 4	200
	G	68			950	870	1120	1088	990	780						250
1250	K	70	16	125	1000	920	1152	1120	1020	830	50	33	25	10	4 / 4	230
	G	76			1080	1000	1248	1216	1120	910						270

1) Tooth form according to DIN 867 without profile correction, pressure angle 20 degree.

Gear rings, pressed on

for crane wheels with anti friction bearings acc. to DIN 15079 with wheel- \varnothing $d_1 \leq 500$ mm
self aligning roller bearings series 222

DIN 15082

part 2



Form K small gear ring (Photo 1)



Form G large gear ring (Photo 2)

Designation of a gear ring for wheel- \varnothing $d_1 = 500$ mm, large gear ring form G:

Gear ring G 500.2 DIN 15082

Form K small gear ring

Form G large gear ring

Material: GE300 (GS-60) or
G42CrMo4+QT

Other material and dimensions (e.g. wheels with self aligning roller bearings series 223) on request.

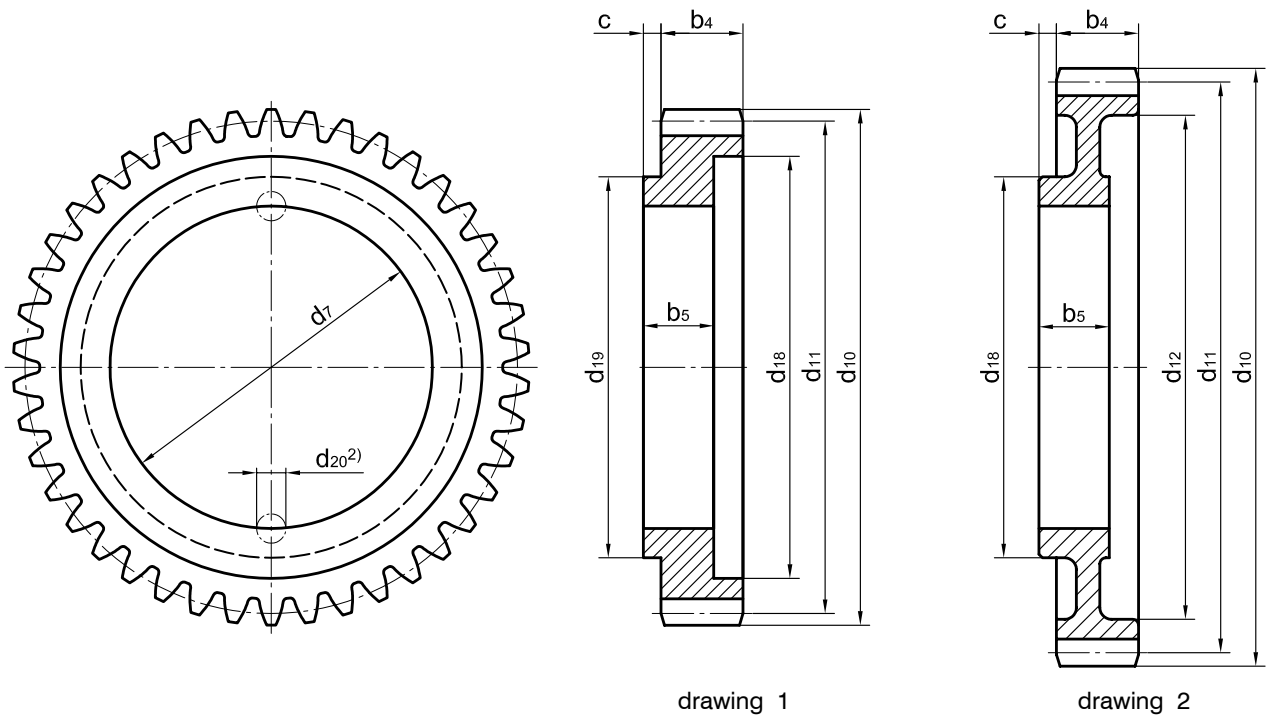
Gear rings for wheels with self-aligning roller bearings of wheel- \varnothing ≥ 630 mm see DIN 15082 part 1.

Gear rings, pressed on

for crane wheels with anti friction bearings acc. to DIN 15079 with wheel- \varnothing $d_1 \leq 500$ mm
Rolling bearings series 222

DIN 15082

Teil 2



drawing 1

drawing 2

wheel- \varnothing d_1	draw- ing	form	no. of teeth ¹⁾	mo- dule	b_4	b_5	c	d_7 H7	d_{10} h11	d_{11}	d_{12}	d_{18}	d_{19}	$d_{20}^{1)}$	for bearings DIN 635-2	unit weight ≈[kg]
315	1	G	52	6	60	45	10	210	324	312	–	270	240	16	22218	18
400	1	K	40	8	65	55	15	230	336	320	–	276	280	16	22220	20
	2	G	50						416	400	350	270	–			32
500	1	K	42	10	70	60	15	275	440	420	–	360	325	25	22224	40
	2	G	49						510	490	430	325	–			52

1) Tooth form according to DIN 867 without appending modification, pressure angle 20 Degree.

2) Shear joint with heavy duty clamping sleeve acc. to DIN EN ISO 8752 (DIN 1481), gear ring drilled together with crane wheel



Bandage with flanges

Designation of a bandage form B with nominal- \varnothing $d_1 = 630$ mm, gauge $b_1 = 100$ mm:

Bandages B 630 × 100 DIN 15083

Form S narrow bandages

Form B broad bandages

This standard refers to bandages with running surface profiles acc. to DIN 15072 for crane wheels with bandages acc. to DIN.

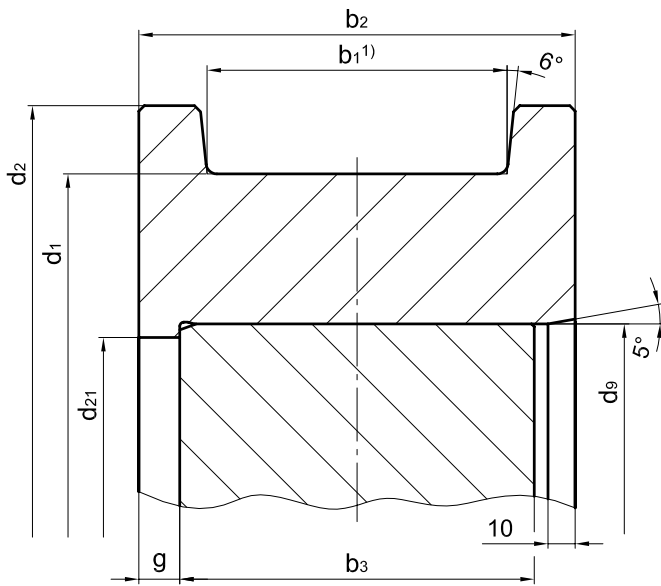
Material: C 60 or
42CrMo4+QT (42CrMo4 V) or
34CrNiMo6+QT (34CrNiMo6 V) or
50CrMo4+QT (50CrMo4 V)

Other material and dimensions on request.

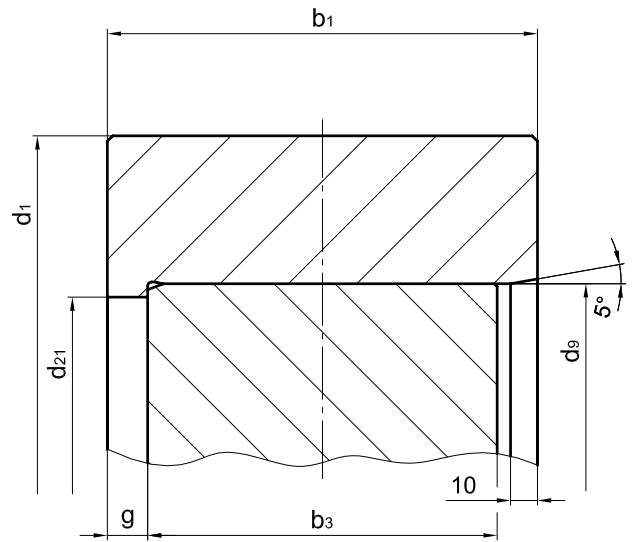
Bandages, machined

for crane wheels as per DIN

DIN 15083



Bandage with flange



Bandages without flange

form	d ₁	b ₁ ¹⁾	b ₂	b ₃	d ₂	d ₉ ²⁾		d ₂₁	g	unit weight ³⁾ ≈[kg]		
						bandage	wheel body			with flange	without flange	
S	400	55-65	110	80	440	310	+0,1 0	+0,6 +0,5	300	15	55	45
B		70-90	140	110							70	55
S	500	55-65	110	80	540	400	+0,1 0	+0,7 +0,6	390	15	75	60
B		70-90	140	110							95	80
S	630	65-75	120	90	680	520	+0,2 0	+1,0 +0,8	510	15	115	95
B		80-110	160	130							150	125
S	710	75-90	140	100	760	590	+0,2 0	+1,1 +0,9	580	20	160	135
B		95-160	210	170							230	205
S	800	75-90	140	100	850	670	+0,2 0	+1,2 +1,0	660	20	190	-
B		95-160	210	170							280	250
S	900	75-90	140	100	950	760	+0,2 0	+1,4 +1,2	750	20	230	-
B		95-160	210	170							345	300
S	1000	75-90	140	100	1050	850	+0,2 0	+1,5 +1,3	840	20	265	-
B		95-160	210	170							400	350
B	1120	95-160	220	180	1180	960	+0,2 0	+1,7 +1,5	950	20	500	-
B	1250	95-160	220	180	1310	1090	+0,2 0	+1,9 +1,7	1080	20	580	-

1) The dimension of the gauge recess b₁ to be stated with order. For running surface profiles and correspondence of crane rails to running wheel diameter see DIN 15072

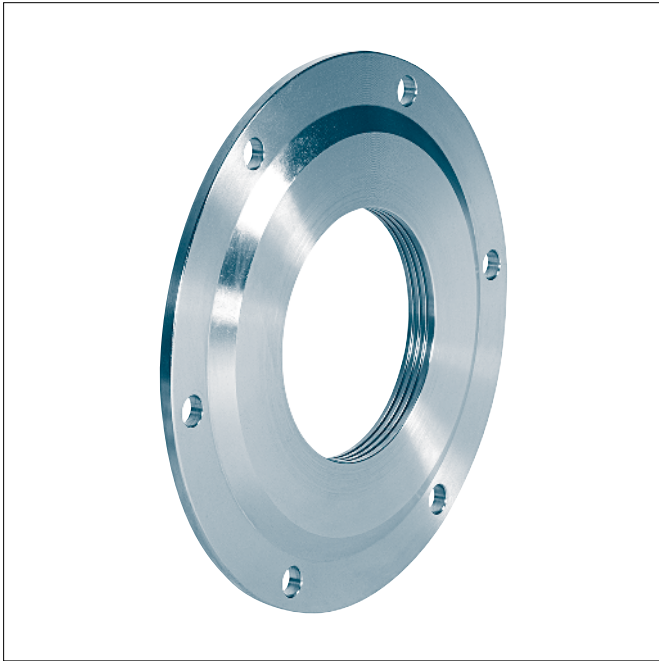
2) Heating temperature of the bandages 250 - 300 °C at 20 °C room temperature. The leading clearance in 40-50 % of the expansion at a heating of the bandage at 230-280 °C.

3) weight refers to max. b₁.

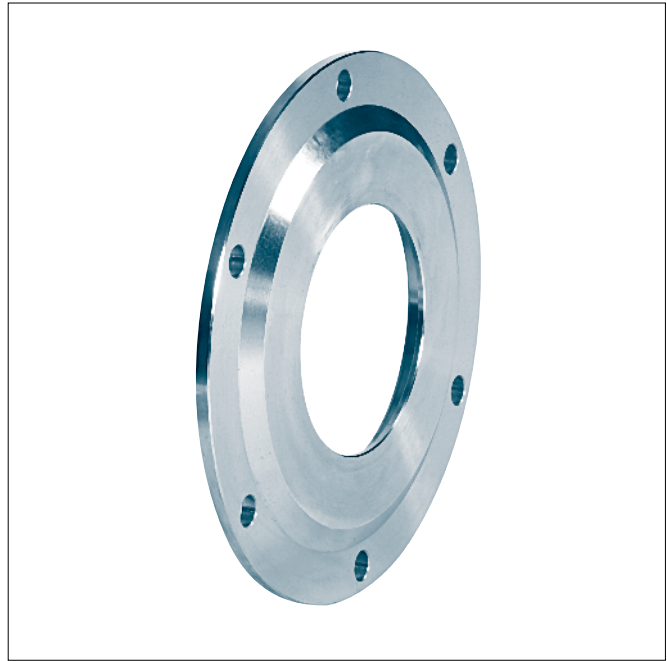
Covers

for wheels acc. to DIN 15078 and 15079
Rolling bearings series 222

DIN 15084



Form A with labyrinth gland



Form B for radial shaft seal rings

Description of a cover form A, for crane wheel- $\varnothing d_1 = 500$ mm:

Covers A 500 DIN 15084

Form A with labyrinth gland

Form B for radial shaft seal rings

This standard is applicable only for crane wheels acc. to DIN 15078 and DIN 15079 with anti friction bearings series 222.

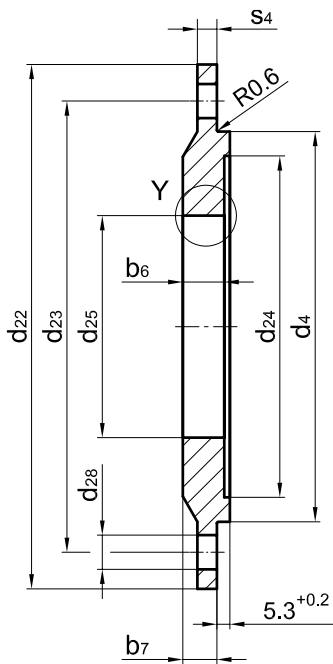
Material: S355J2G3 (St 52-3)

Other material and dimensions (e.g. for crane wheels with anti friction bearings series 223) on request.

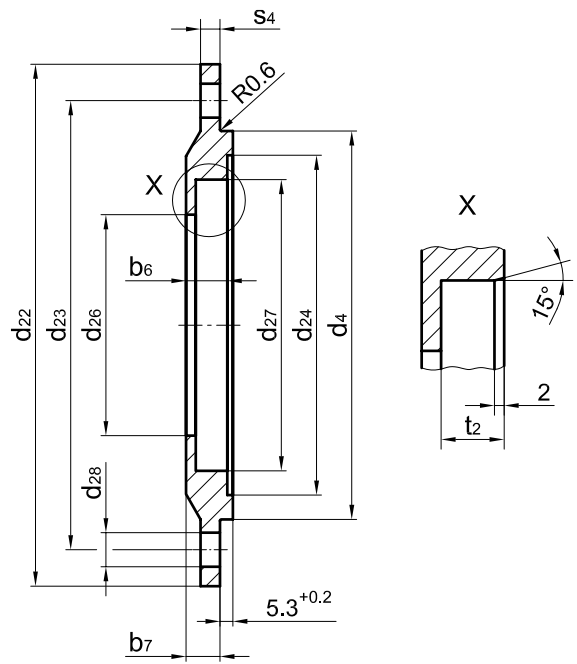
Covers

for wheels acc. to DIN 15078 and 15079
Rolling bearings series 222

DIN 15084



Form A with labyrinth gland¹⁾



Form B for radial shaft seal rings²⁾

for wheel- \varnothing d_1	d_4 f8	d_{22}	d_{23}	d_{24}	d_{25} +0,2	d_{26}	d_{27} H8	number of bores d_{28}	b_6	b_7	s_4	t_2	radial shaft seal rings acc. to DIN 3760	unit weight ≈[kg]
315	160	215	185	140	91	91	120	4 × 14	17	14	8	13	A 90 × 120 × 12	3,0
400	180	235	205	160	101	101	125	4 × 14	17	14	8	13	A 100 × 125 × 12	3,5
500	215	280	240	195	121	121	150	6 × 14	17	14	8	13	A 120 × 150 × 12	5,0
630	230	295	260	210	131	131	160	6 × 18	17	14	10	13	A 130 × 160 × 12	6,0
710	270	335	300	250	151	151	180	6 × 18	21	18	10	16	A 150 × 180 × 15	7,5
800	290	355	320	270	161	161	190	6 × 18	21	18	10	16	A 160 × 190 × 15	9,0
900	320	385	350	295	181	181	210	8 × 18	21	18	10	16	A 180 × 210 × 15	11,5
1000	360	425	390	330	201	201	230	8 × 18	21	18	10	16	A 200 × 230 × 15	15,0
1120	400	485	440	370	221	221	250	8 × 23	22	20	12	16	A 220 × 250 × 15	20,0
1250	440	525	480	410	241	241	270	8 × 23	22	20	12	16	A 240 × 270 × 15	22,0

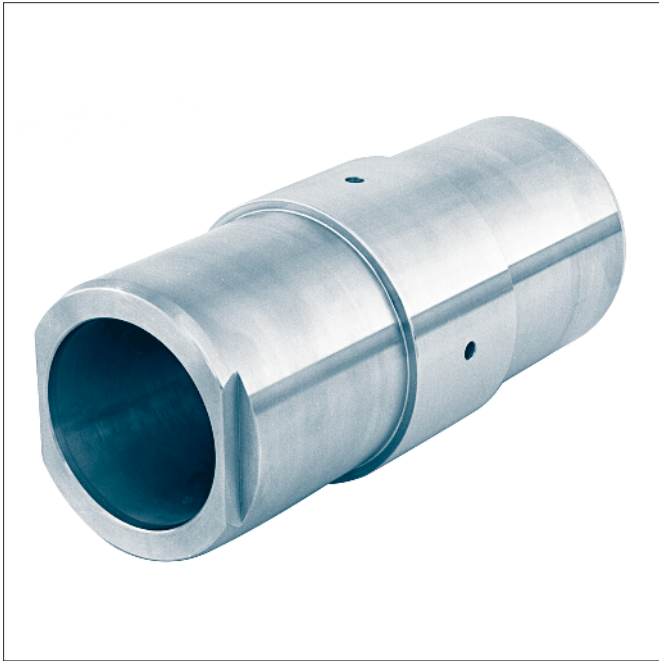
1) Without certain agreement, covers form A will be installed.

2) Sealing lip mounted in exterior position to allow discharge of grease.

Internal bushing and spacers rings

for crane wheels acc. to DIN 15078 and 15079
Rolling bearings series 222

DIN 15086



Internal bush

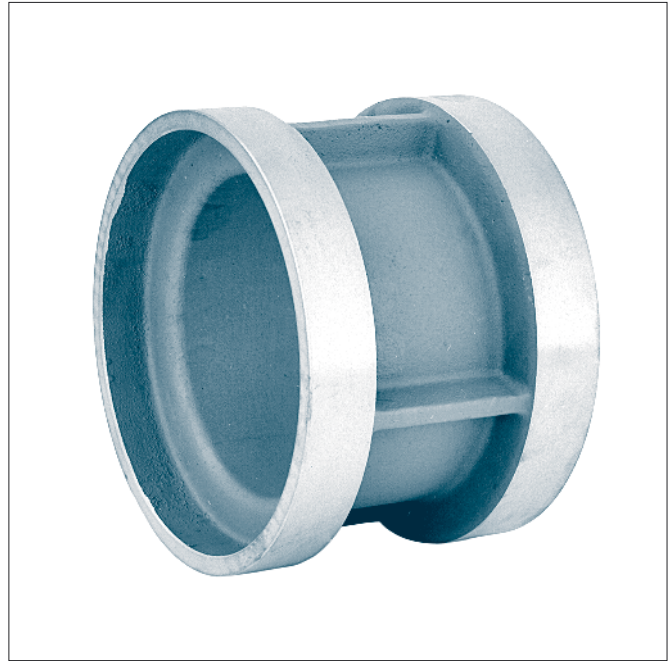
Designation of a internal bush for wheel- $\varnothing d_1 = 500$ mm form B acc. to DIN 15078 and 15079:

Internal bush B 500 DIN 15086

Flattening against rotation mounted on gear ring side.

Material: S355 (St 52)

Other material and dimensions(e.g. for rolling bearings series 223) on request.



Spacer ring

Designation of a spacer ring for wheel- $\varnothing d_1 = 630$ mm form S acc. to DIN 15078 and 15079:

Spacer ring S 630 DIN 15086

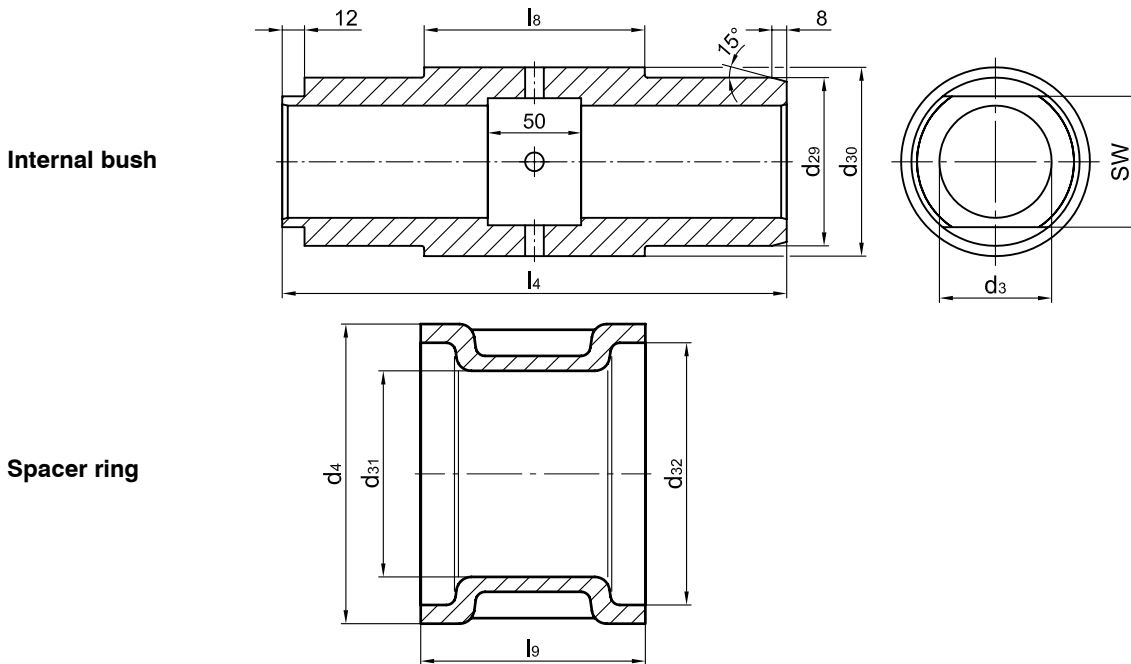
Material: S355 (St 52) or
EN-GJS-400-15 (GGG-40)

Other material and dimensions(e.g. for rolling bearings series 223) on request.

Internal bushing and spacer rings

for crane wheels acc. to DIN 15078 and 15079
Rolling bearings series 222

DIN 15086

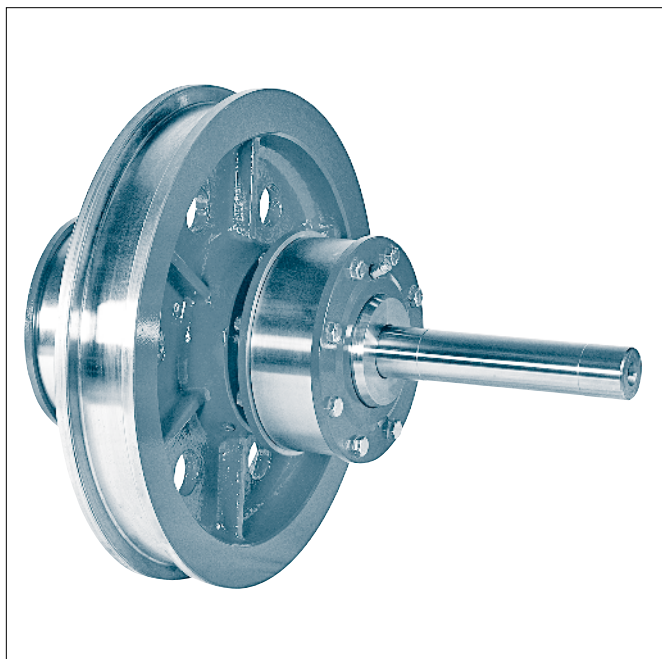


for crane wheel		Rolling bearings		d ₃	d ₄	d ₂₉	d ₃₀	d ₃₁	d ₃₂	l ₄	l ₈	l ₉	width across flats S
Form	d ₁	type	width of bearing	D10	-0,2 -0,4	g6				-0,5		+0,2	
S	315	22218	40	60	160	90	101	110	140	250	99,4	100	70
B										270	119,4	120	
S	400	22220	46	80	180	100	113	135	160	280	117,4	118	90
B										310	147,4	148	
S	500	22224	58	90	215	120	132	150	195	290	103,4	104	100
B										320	133,4	134	
S	630	22226	64	100	230	130	145	160	210	330	121,4	122	110
B										370	161,4	162	
S	710	22230	73	110	270	150	164	180	250	370	143,4	144	125
B										440	213,4	214	
S	800	22232	80	125	290	160	175	190	270	390	149,4	150	140
B										460	219,4	220	
S	900	22236	86	140	320	180	214	235	290	410	157,4	158	150
B										480	227,4	228	
S	1000	22240	98	160	360	200	219	275	330	410	123,4	124	175
B										480	193,4	194	
B	1120	22244	108	180	400	220	242	280	380	520	213,4	214	200
B	1250	22248	120	200	440	240	265	320	420	520	189,4	190	220

Driven- and Nondriven wheel sets with self aligning roller bearings

Rolling bearings series 222 and 223

DIN 15090



Driven wheel set Form SHKE

with casted crane wheel, drive shaft and suitable for gear unit with shrink disc.



Nondriven wheel set Form SHKE with casted crane wheel

Designation of a driven wheel set with narrow crane wheel (S), with wheel flanges (H), without bandage (K), without pressure oil feeding for the wheel (E), with crane wheel- $\varnothing d_1 = 630$ mm and width $b_1 = 110$ mm, self aligning roller bearings series 222:

Driven wheel set SHKE 630 × 110 - 222 DIN 15090

To be stated with order:

- material for crane wheel and shaft
- anti friction bearings series 222 or 223
- design of driveshaft end (driven wheelset)

we deliver driven wheel sets with drive shaft suitable for all drive solutions (with connection flange, with clutch disc, with feather keyway acc. to DIN 6885-1, with splines acc. to DIN 5480 or in extended version for hollow shaft drive units with shrink disc).

Material:

Wheel body GE420 (GS-70) or
G42CrMo4+QT (GS-42CrMo4 V)
Drive shaft, C45 N or
shaft C60 N or
 42CrMo4+QT

Other material and dimensions on request.

Driven wheel sets with shaft ends suitable for hollow shaft drive units of all manufacturers on request.

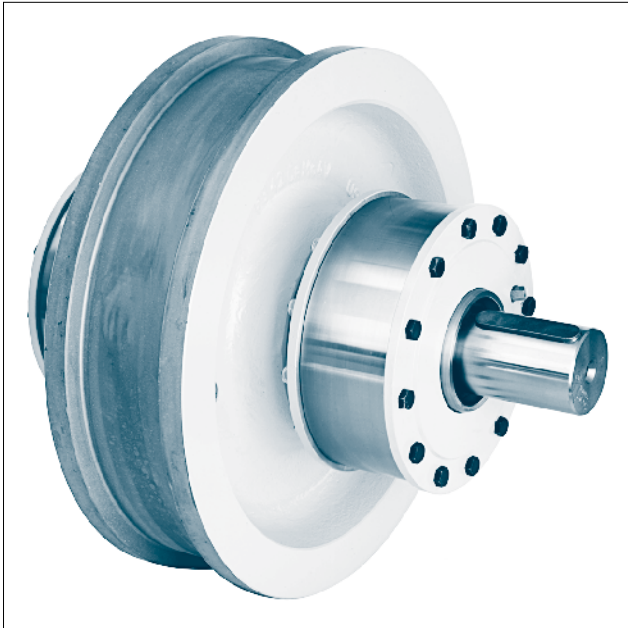
Form coding

coding letter	explanation
S	narrow crane wheel
B	broad crane wheel
H	crane wheel with wheel flanges
G	crane wheel without wheel flanges
M	crane wheel with Bandages
K	crane wheel without bandages
D	with pressure oil connection
E	without pressure oil connection

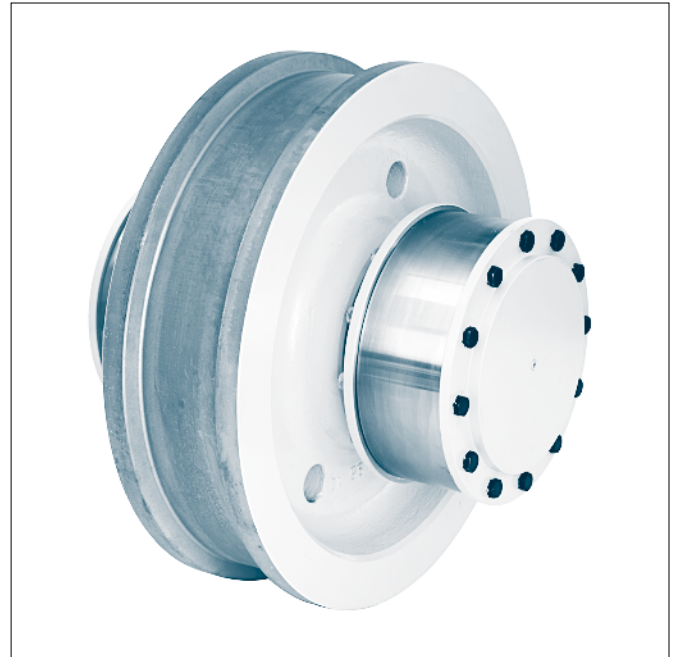
Driven- and Nondriven wheel sets with self aligning roller bearings

Rolling bearings series 222 and 223

DIN 15090



Driven wheel set Form BHKE
with drop forged crane wheel, drive shaft end suitable for
hollow shaft drive unit with shrink disc.



Driven wheel set Form BHKE
with drop forged crane wheel

Designation of a nondriven wheel set with broad crane wheel (B), without wheel flanges (G), with bandage (M), with pressure oil feeding for the wheel (D), with crane wheel- $\varnothing d_1 = 630$ mm and width $b_1 = 160$ mm, self aligning roller bearings series 222:

Nondriven wheel set BGMD 630 × 160 - 222 DIN 15090

To be stated with order:

- material for crane wheel and shaft
- anti friction bearings series 222 or 223
- design of driveshaft end (driven wheelset)

we deliver driven wheel sets with drive shaft suitable for all drive solutions (with connection flange, with clutch disc, with feather keyway acc. to DIN 6885-1, with splines acc. to DIN 5480 or in extended version for hollow shaft drive units with shrink disc).

Material:

Wheel body	GE420 (GS-70) or G42CrMo4+QT (GS-42CrMo4 V)
Drive shaft, shaft	C45 N or C60 N or 42CrMo4+QT

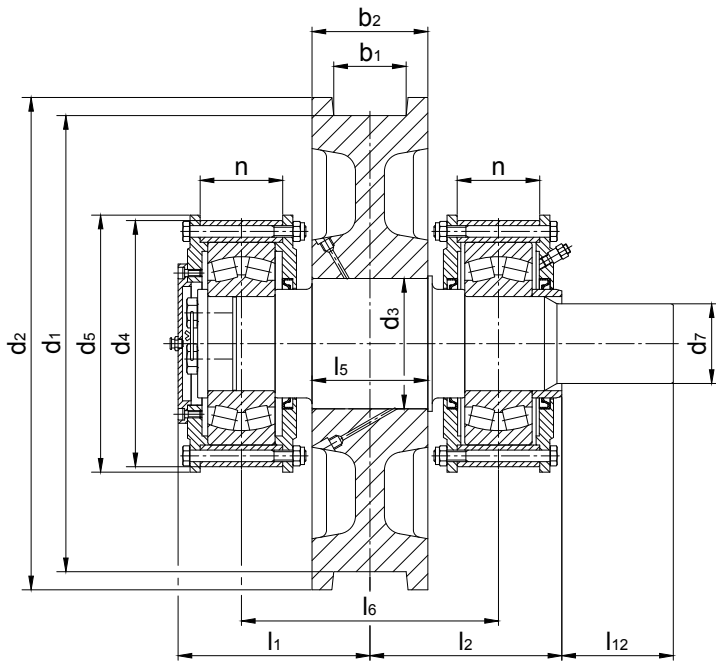
Other material and dimensions on request.

**Driven wheel sets with shaft ends suitable for hollow shaft
drive units of all manufacturers on request.**

Driven- and Nondriven wheel sets with self aligning roller bearings

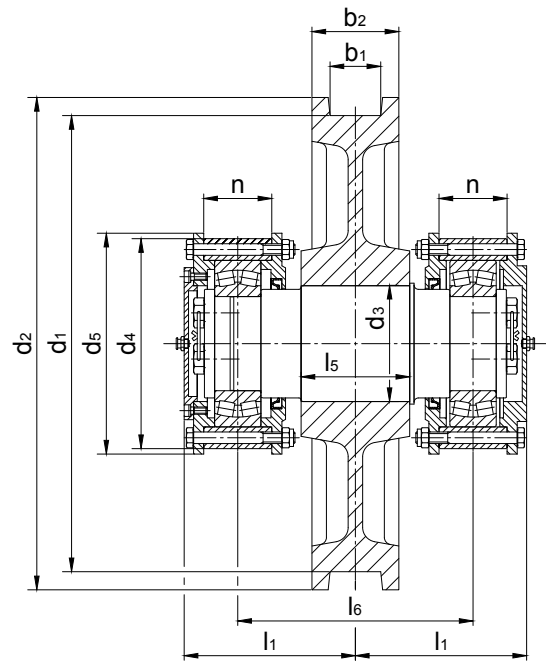
Rolling bearings series 222 and 223

DIN 15090



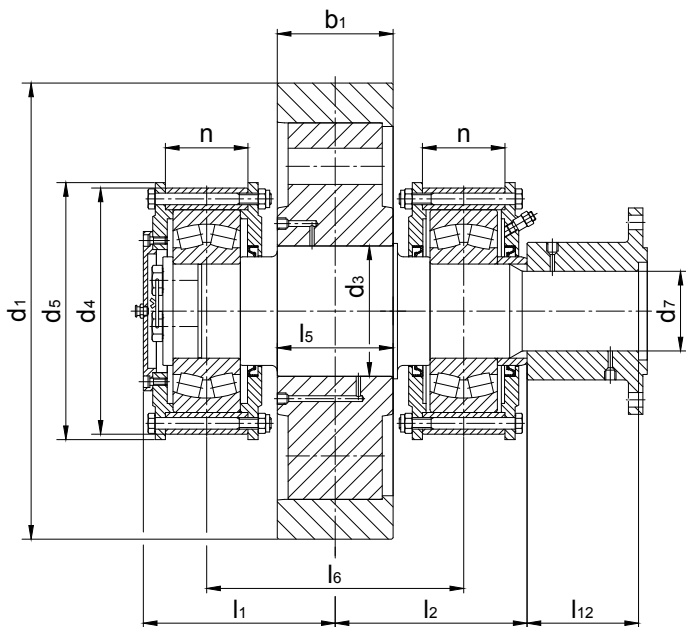
Driven wheel set Form BHKD

Driven wheel set with broad crane wheel, with wheel flanges, without bandage, with pressure oil feeding for the wheel, without connection flange, without shrink disc



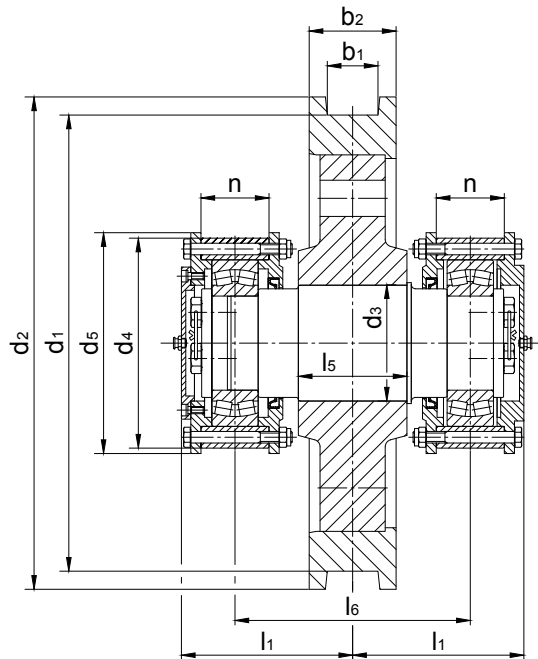
Nondriven wheel set Form SHKE

Nondriven wheel set with narrow crane wheel, with wheel flanges, without bandage, without pressure oil feeding for the wheel



Driven wheel set Form BGMD

Driven wheel set with broad crane wheel, without wheel flanges, with bandage, with pressure oil feeding to the wheel, with connection flange for articulated shaft



Nondriven wheel set Form SHME

Nondriven wheel set with narrow crane wheel, with wheel flanges, with bandage, without pressure oil feeding for the wheel

Driven- and Nondriven wheel sets with self aligning roller bearings

DIN 15 090

Rolling bearings series 222 and 223

Driven- and Nondriven wheel sets with anti friction bearings series 222

d ₁ h9	dimension and form										l ₁ ≈	l ₆	n +0,15 +0,05	bearings acc. to DIN 635-2	dimension (driven wheel sets)				
	Form ¹⁾	b ₁ ²⁾	b ₂	d ₂	d ₃	d ₄ h7	d ₅	d ₉ ³⁾	l ₅	l ₂					d ₇ ⁴⁾	l ₁₂	d ₇ ⁴⁾	l ₁₂	
														series 1		series 2 ⁵⁾			
315	S	45-55	90	350	110	210	220	-	110	171	235	62	222 18	185	-	-	70	105	
	B	55-65	110		120	230	240			173				222 20	190	70	105	80	120
400	S	55-65	110	440	120	230	240	310	140	188	265	62	222 20	205	70	105	80	120	
	B	70-90	140		130	250	260			202				222 22	215	80	120	90	132
500	S	55-65	110	540	130	250	260	400	140	202	280	72	222 22	215	80	120	90	132	
	B	70-90	140		140	265	275			210				222 24			225	100	152
630	S	65-75	120	680	160	290	305	520	150	237	325	94	222 26	250	-	-	100	152	
	B	80-110	160		180	330	345			160				222 30	265	100	152		110
710	S	75-90	140	760	170	310	325	590	180	249	350	94	222 28	260	100	152	110	152	
	B	95-160	210		190	350	365			210				222 32	300		110	130	172
800	S	75-90	140	850	180	330	345	670	180	255	355	94	222 30	275	110	152	120	172	
	B	95-160	210		200	370	385			210				222 34	310	130	172	140	202
900	S	75-90	140	950	190	350	365	760	190	268	375	104	222 32	290	-	-	130	172	
	B	95-160	210		230	420	435			210				222 40	335	140	202	160	202
1000	S	75-90	140	1050	200	370	385	850	190	279	385	114	222 34	300	-	-	140	202	
	B	95-160	210		250	480	500			210				222 44	355	160	202	180	252

Driven- and Nondriven wheel sets with anti friction bearings series 223

d ₁ h9	dimension and form										l ₁ ≈	l ₆	n +0,15 +0,05	bearings acc. to DIN 635-2	dimension (driven wheel sets)				
	Form ¹⁾	b ₁ ²⁾	b ₂	d ₂	d ₃ ³⁾	d ₄ h7	d ₅	d ₉ ⁴⁾	l ₅	l ₂					d ₇ ⁴⁾	l ₁₂	d ₇ ⁴⁾	l ₁₂	
														series 1		series 2 ⁵⁾			
315	S	45-55	90	350	110	220	230	-	110	183	245	72	223 16	185	-	-	70	105	
	B	55-65	110		120	240	250			191				223 18	190	70	105	80	120
400	S	55-65	110	440	120	240	250	310	140	206	285	82	223 18	205	70	105	80	120	
	B	70-90	140		130	265	275			216				223 20	215	80	120	90	132
500	S	55-65	110	540	130	265	275	400	140	216	295	92	223 20	215	80	120	90	132	
	B	70-90	140		140	300	315			242				223 22			245	100	152
630	S	65-75	120	680	160	300	315	520	150	247	335	104	223 22	250	-	-	100	152	
	B	80-110	160		180	340	355			160				223 26	265	100	152		110
710	S	75-90	140	760	170	320	335	590	180	259	360	104	223 24	260	100	152	110	152	
	B	95-160	210		190	360	375			210				223 28	300	110	152	130	172
800	S	75-90	140	850	180	340	355	670	180	275	375	114	223 26	275	110	152	120	172	
	B	95-160	210		200	380	395			210				223 30	310	130	172	140	202
900	S	75-90	140	950	190	360	375	760	190	290	395	124	223 28	290	-	-	130	172	
	B	95-160	210		230	420	435			210				223 34	325	140	202	160	202
1000	S	75-90	140	1050	200	380	395	850	190	298	405	132	223 30	300	-	-	140	202	
	B	95-160	210		250	480	500			210				223 38	355	160	202	180	252

1) S = narrow crane wheel B = broad crane wheel.

2) The dimension of the gauge recess b₁ to be stated with order.

3) Bandages and shrink-joint acc. to DIN 15 083.

4) Tolerance for d₇ acc. to DIN 15 091

5) Series 2 conform with the correlation of the articulated shafts acc. to
DIN 15 450

Driven- and Nondriven wheel sets with self aligning roller bearings

Rolling bearings series 222 and 223

DIN 15090

Weight of the wheel sets, driven and nondriven with self aligning roller bearings series 222

d ₁ h ₉	crane wheel	weight ²⁾ in kg							
	form ¹⁾	driven wheel set ³⁾				nondriven wheel set ³⁾			
		HK	HM	GK	GM	HK	HM	GK	GM
315	S	100	–	–	–	95	–	–	–
	B	123	–	–	–	117	–	–	–
400	S	153	172	–	–	147	166	–	–
	B	192	221	182	206	183	212	173	197
500	S	212	237	–	–	203	228	–	–
	B	263	303	251	288	253	293	241	278
630	S	356	398	–	–	344	386	–	–
	B	465	537	449	612	450	522	434	497
710	S	474	522	–	–	459	507	–	–
	B	683	791	661	766	658	766	636	741
800	S	579	633	–	–	559	613	–	–
	B	841	974	815	944	809	942	783	912
900	S	693	780	–	–	668	755	–	–
	B	1094	1265	1065	1220	1055	1223	1023	1181
1000	S	865	936	–	–	832	903	–	–
	B	1399	1602	1373	1552	1345	1542	1313	1492

Weight of the wheel sets, driven and nondriven with self aligning roller bearings series 223

d ₁ h ₉	crane wheel	weight ²⁾ in kg							
	form ¹⁾	driven wheel set ³⁾				nondriven wheel set ³⁾			
		HK	HM	GK	GM	HK	HM	GK	GM
315	S	107	–	–	–	105	–	–	–
	B	137	–	–	–	132	–	–	–
400	S	166	185	–	–	161	180	–	–
	B	214	243	174	228	207	236	197	221
500	S	234	259	–	–	227	252	–	–
	B	311	351	299	236	301	341	259	326
630	S	369	411	–	–	359	401	–	–
	B	490	562	474	537	479	551	463	526
710	S	490	538	–	–	478	526	–	–
	B	695	803	673	778	675	783	653	758
800	S	606	660	–	–	576	670	–	–
	B	866	949	840	969	838	971	812	941
900	S	705	792	–	–	685	772	–	–
	B	1128	1299	1099	1254	1091	1262	1062	1217
1000	S	889	960	–	–	861	932	–	–
	B	1454	1651	1422	1601	1403	1600	1371	1550

1) S = narrow crane wheel B = broad crane wheel.

3) see Formverschlüsselung (S. 50)

2) Die Gewichtsrechnung basiert on Reihe 2 der Wellenenden, without Anschlussflansch bzw. Kupplungsscheibe. Sie sind bezogen on b₁ max. and 50% bzw. 70% des Vollquerschnitts des Wheel bodys bei Crane wheelsn without bzw. with Bandages. Bei den Gewichtsangaben handelt es sich um Ungefährwerte; sie dienen nur der Orientierung and sind abhängig von der jeweiligen Type and dem angewandten Herstellverfahren der Crane wheels.

Driven- and Nondriven wheel sets with self aligning roller bearings

Rolling bearings series 222 and 223

DIN 15090

Bill of material

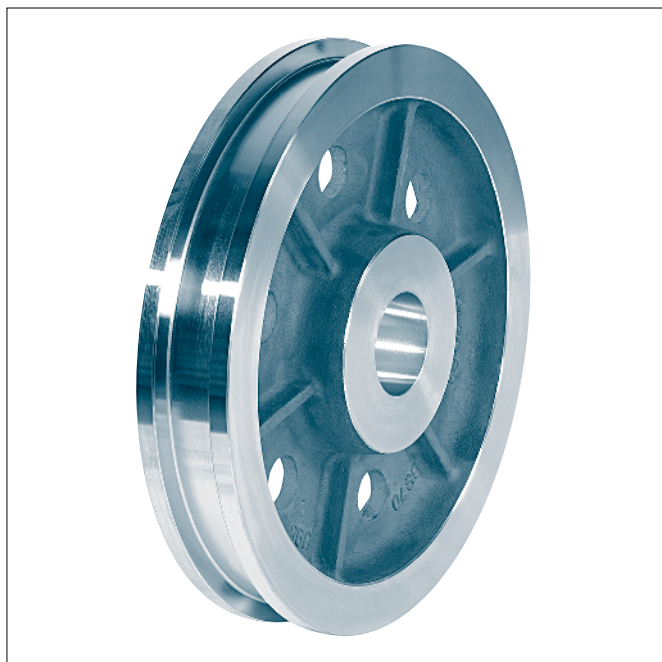
Lfd. Nr.	name	quantities for crane wheel- $\varnothing d_1$																acc. to DIN resp. SEB ¹⁾													
		driven wheel set								nondriven wheel set																					
		315		400		500		630		710		800		900		1000			315		400		500		630		710		800		900
S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B
1	crane wheel	1								1								DIN 15093													
2	shaft	1								1								DIN 15091													
3	covers form A resp. B	1								1								DIN 15092													
4	covers form C	-								1								DIN 15092													
5	covers form D with short centering	1								1								DIN 15092													
6	covers form D with short centering	1								1								DIN 15092													
7	covers form E	1								-								DIN 15092													
8	covers form F	1								1								DIN 15092													
9	radial shaft seal rings A	3								2								DIN 3760													
10	bearing support	2								2								DIN 15094													
11	self aligning roller bearings	2								2								DIN 635-2													
12	bush	1								-								DIN 15095													
13	safety disc	1								2								DIN 15095													
14	hexagonal screw	3								6								DIN EN ISO 4017 (DIN 933)													
15	safety wire	1								2																					
16	hexagonal screw	16	16	16	16	24	24	24	24	24	24	16	16	16	16	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	DIN EN ISO 4014 (DIN 931)
17	hexagonal nut	16	16	16	16	24	24	24	24	24	24	16	16	16	16	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	DIN EN ISO 4032 (DIN 934)
18	safety	32	32	32	32	48	48	48	48	48	32	32	32	32	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	48	(DIN 93)
19	cylinder screw	4	4	4	4	4	4	6	6	6	4	4	4	4	4	4	4	6	6	6	6	6	6	6	6	6	6	6	6	6	DIN 6912
20	spring washer	4	4	4	4	4	4	6	6	6	4	4	4	4	4	4	6	6	6	6	6	6	6	6	6	6	6	6	6	6	DIN 7980
21	screw plug G 1/4"	number of press oil-connections acc. to DIN 15055 minus 1 (no screw plug for shaft on locating bearing)																DIN 906													
22	connection nipple	1								-								DIN 15095													
23	connection flange or shrink disc	1								-								DIN 15452 SEB 601 431													

1) Stahl-Eisen-Betriebsblätter des Vereins Deutscher Eisenhüttenleute

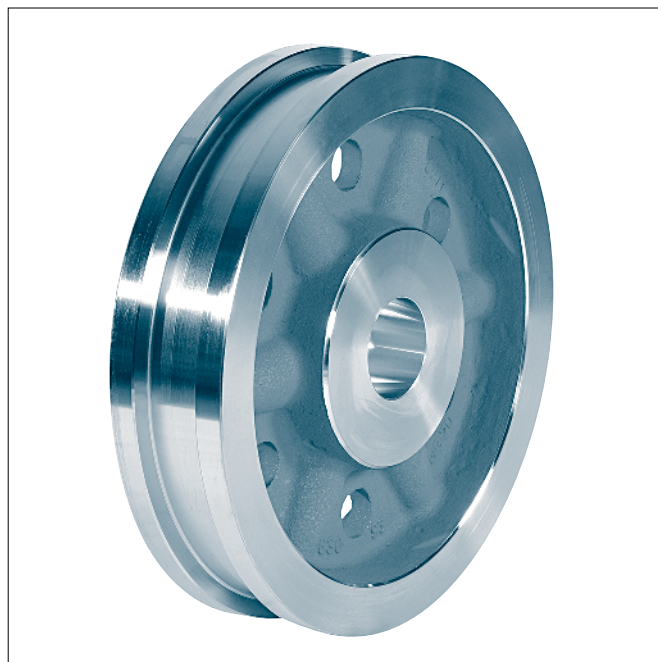
Crane wheels

for driven- and nondriven wheel sets acc. to DIN 15090

DIN 15093



Form S narrow crane wheel



Form B broad crane wheel

Designation of a wheel form B with nominal- \varnothing $d_1 = 630$ mm, gauge $b_1 = 100$ mm, bore- \varnothing $d_3 = 180$ mm H7:

Crane wheel B 630 × 100 × 180 H7 DIN 15093

Form S narrow crane wheel

Form B broad crane wheel

All wheels on demand with oil pressure connection acc. to DIN 15055.

Material: GE420 (GS-70) or
G42CrMo4+QT (GS-42CrMo4 V) or
42CrMo4+QT (42CrMo4 V) drop forged

Other material and dimensions on request.

All functional dimensions are binding. The design of the wheel depends on the manufacturer.

Basis for calculation for crane wheels see DIN 15070.

Our high resilient, forged crane wheels are available in the following alternatives:

42CrMo5-04 quenched and tempered to 850-1000 N/mm² or higher

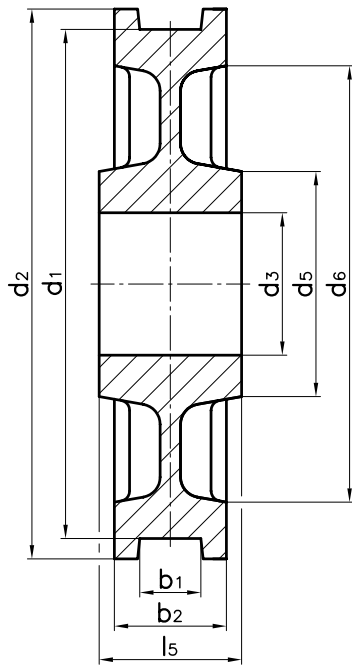
42CrMo5-04 quenched and tempered tread - and inner wheel flanges non-slip hardened to HRc 48-54, hardening depth min. 10 mm

42CrMo-04 quenched and tempered tread and inner wheel flanges deep hardened to 450-500 HB, hardening depth 18-20 mm

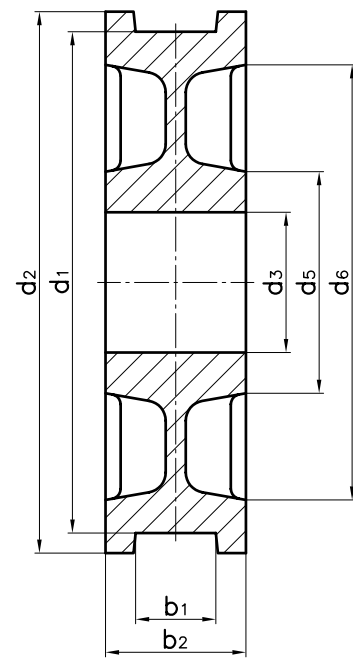
Crane wheels

for driven and non driven wheel sets acc. to DIN 15090

DIN 15093



Form S narrow crane wheel

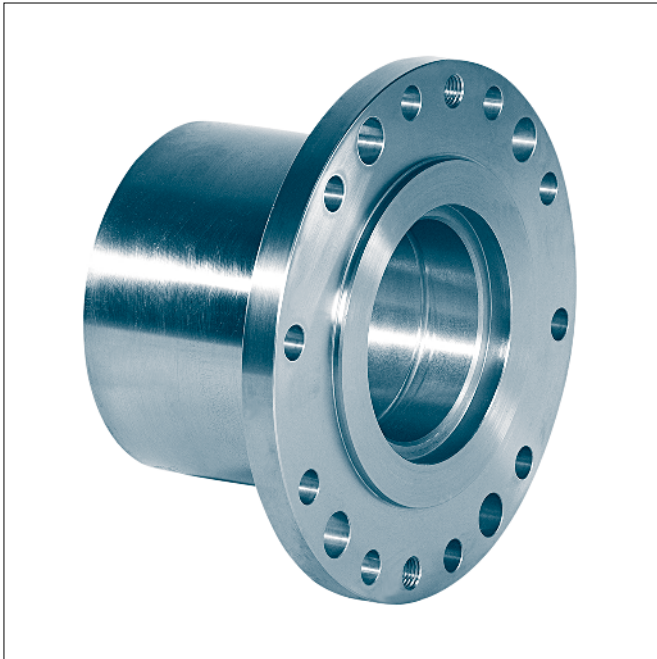


Form B broad crane wheel

form	d_1	b_1 ¹⁾	b_2	d_2	d_3 ²⁾	d_5	d_6	l_5	no.of ribs	unit weight
	h9				H7					≈[kg]
S	315	45-55	90	350	70-110	175	270	110	-	51
B		55-65	110		80-120	190				65
S	400	55-65	110	440	80-120	190	345	140	-	82
B		70-90	140		90-130	205				105
S	500	55-65	110	540	90-130	205	435	140	6	120
B		70-90	140		100-140	220				138
S	630	65-75	120	680	100-160	255	560	150	6	190
B		80-110	160		120-180	285		160		235
S	710	75-90	140	760	120-170	270	630	180	6	255
B		95-160	210		140-190	300		210		358
S	800	75-90	140	850	140-180	285	710	180	6	315
B		95-160	210		160-200	320		210		450
S	900	75-90	140	950	140-190	300	805	190	6	375
B		95-160	210		180-230	365		210		600
S	1000	75-90	140	1050	160-200	320	900	190	6	490
B		95-160	210		200-250	395		210		750

1) The dimension of the gauge recess b_1 to be stated with order. For running surface profiles and correspondence of crane rails to running wheel diameter see DIN 15072.

2) Bore dimensions- $\varnothing d_3$ to be stated with order.



Form B with bore d_5

Designation of a connection flange form B for articulated shaft size 285 with bore $d_7 = 120$ mm:

Anschlussflansch DIN 15 452 – B 285 × 120

Form A without bore d_5

Form B with bore d_5

The connection flanges as per this standard are to use for the connection of articulated shafts as per DIN 15 451 to the driven wheel sets as per DIN 15 090. The use is in cranes to apply the torque from the gear unit to the crane wheel.

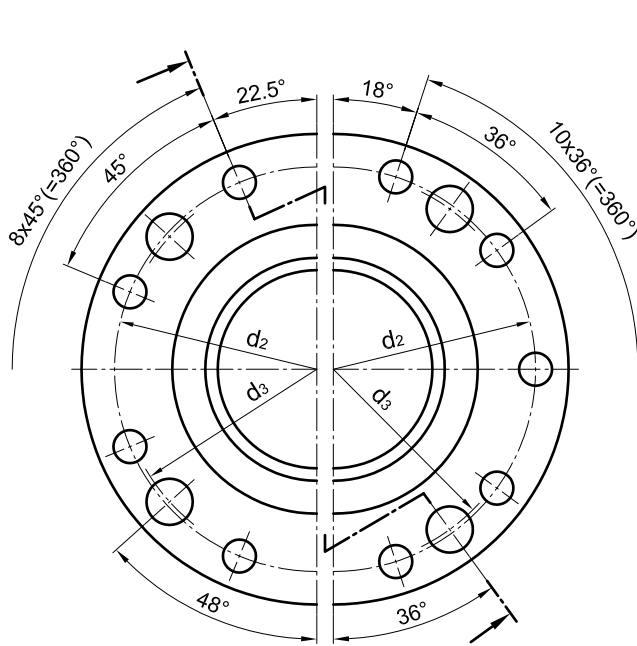
Material: C45 or
C60 or
42CrMo4+QT (42CrMo4 V)

Other material and dimensions on request.

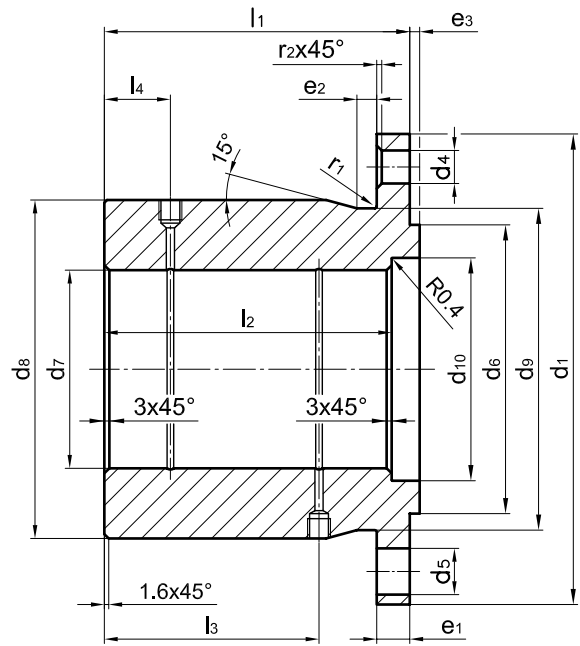
Connection flanges for articulated shafts

for driven wheel sets as per DIN 15090

DIN 15452

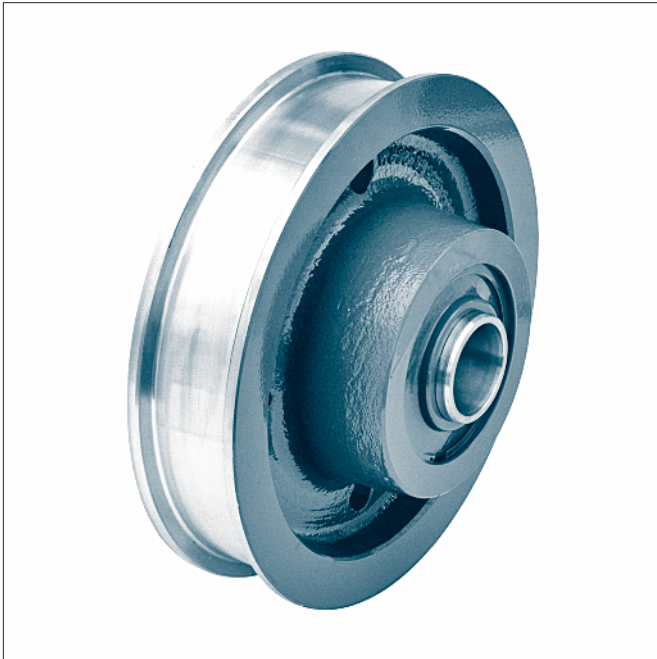


view left side
size of articulated shaft
150–315



view right side
size of articulated shaft
350–435

size of articulated shaft d_1	d_7	d_2	d_3	d_4	tolerance	d_5	d_6	d_8	d_9	d_{10}	e_1	e_2	e_3	l_1	l_2	l_3	l_4	r_1	r_2	weight						
	H7	$\pm 0,1$	$\pm 0,1$			H12	h9			$+0,5$ 0										\approx [kg]						
150	70	130	126	12	$+0,4$ $+0,1$	16	90	108	100	82	10	8	2	115	106	74	25	1	1	4,8						
180	80	155,5	152	14	$+0,4$ $+0,1$	20	110	130	122	97	12	8	2	130	121	85	30	1	1	8,6						
225	90	196	192	16	$+0,4$ $+0,1$	21	140	165	157	120	15	12	4	140	134	90	30	1,2	1	16,6						
	100													160	154	110	35			20						
250	100	218	214	18	$+0,4$ $+0,1$	25	140	175	173	128	18	12	5	160	154	115	35	1,2	1	23						
	110																			20						
285	100	245	240	20	$+0,5$ $+0,1$	28	175	190	190	135	20	-	6	160	154	115	35	1,6	1	34						
	110																			32						
	120							205	195	135	12	185	174	130	40	1,2	38									
	130							20	12	185	174	130	40	1,2	35											
315	110	280	270	22	$+0,5$ $+0,1$	30	175	210	210	155	22	-	6	185	174	130	40	4	1	39						
	120																			41						
	130							210	210	155	12	215	204	155	50	1,6	38									
	140							225	223	162	12	215	204	155	50	1,6	48									
350	130	310	300	22	$+0,5$ $+0,1$	32	220	210	210	155	25	-	7	185	174	130	40	6	1,6	44						
	140							260	249	185										16	215	204	145	50	1,6	72
	160							260	249	185										16	215	204	145	50	1,6	64
390	140	345	340	24	$+0,6$ $+0,1$	32	250	260	260	185	23	-	7	215	204	155	50	6	1,6	78						
	160							290	287	210										16	265	254	190	60	2,5	70
	180							290	287	210										16	265	254	190	60	2,5	94
435	180	385	378	27	$+0,6$ $+0,1$	35	280	310	310	225	32	-	9	265	254	190	60	6	1,6	125						



Form B2 symmetrical hub
covers with radial shaft sealings

Designation of a wheel form B2 with nominal- \varnothing $d_1 = 630$ mm, gauge $b_2 = 100$ mm, incl. self aligning roller bearing 22224, covers with radial shaft seal rings:

Crane wheel B2 – 630 × 100 TGL 34964

- Form A1** unsymmetrical hub,
covers with gap-sealing
- Form A2** unsymmetrical hub,
covers with radial shaft sealing
- Form B1** symmetrical hub,
covers with gap sealing
- Form B2** symmetrical hub,
covers with radial shaft sealing

The anti friction bearings are lubricated.

Without certain agreement crane wheels with $\varnothing d_1 \geq 320$ mm internal bushing with lubrication bore and covers with radial shaft seal ring.

Material:

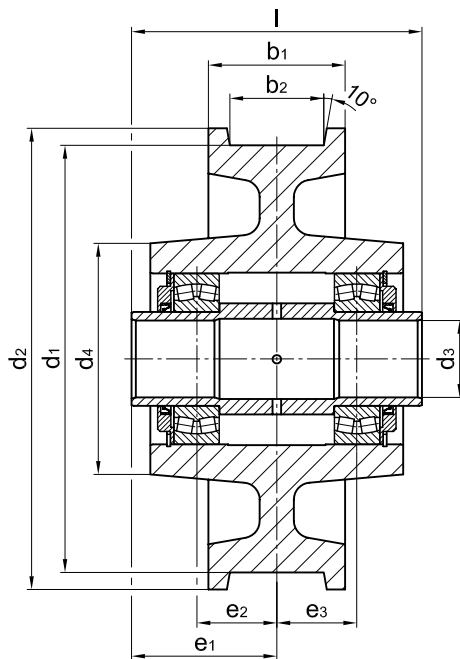
Wheel body- \varnothing 200–250 C45

Wheel body- \varnothing 320–1000 GE420 (GS-70) or
G42CrMo4+QT (GS-42CrMo4 V)

Internal bush S355 (St 52)

Other materials and dimensions as well as axles on request.

Crane wheels with gear ring see TGL 34965.

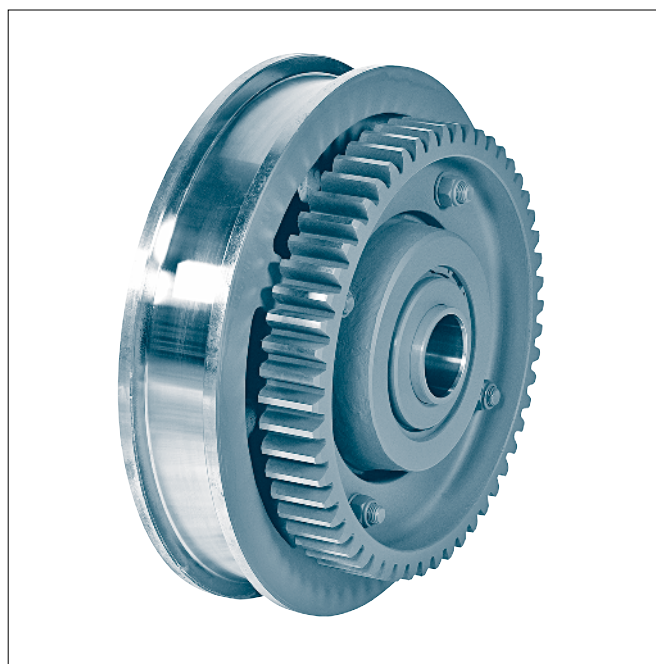
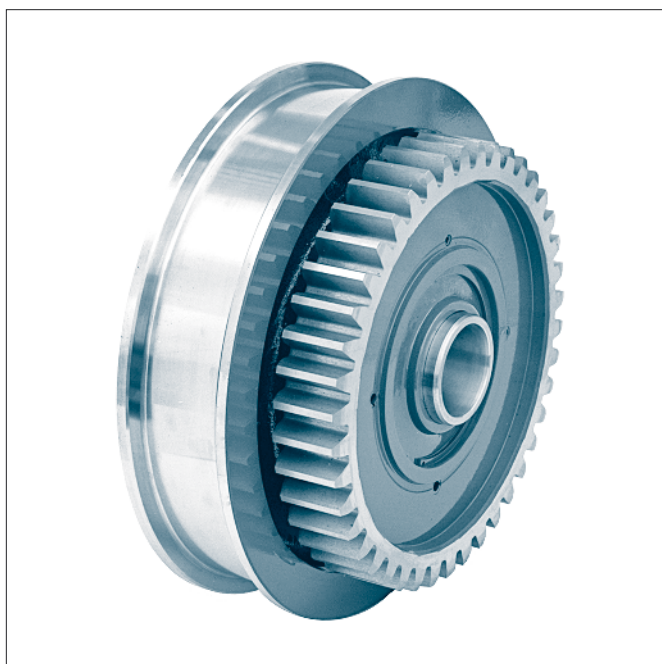


Form B2 symmetrical hub
covers with radial shaft seal ring

form	d ₁	b ₂ ¹⁾	b ₁	d ₂	d ₃	d ₄	e ₁	e ₂	e ₃	l	bearings	unit weight
	h9				D10					-0,5		≈[kg]
200		40-75	105									
250		40-80	110									
320		40-80	110									
400		40-90	125									
		90-100	140									
500		40-90	125									
		100-120	160									
630		60-90	140									
		100-120	180									
710		60-90	140									
		100-130	180									
800		80-110	160									
		120-130	200									
1000		100-150	210									

Dimensions on request

1) The dimensions of the gauge recess b₂ to be stated with order.



Form B2 symmetrical hub, covers with radial shaft seal ring,
nominal- \varnothing $d_1 \leq 500$ mm

Form B2 symmetrical hub, covers with radial shaft seal ring,
nominal- \varnothing $d_1 \geq 630$ mm

Designation of a crane wheel form B2 with nominal- \varnothing $d_1 = 630$ mm, gauge $b_2 = 100$ mm, incl. self aligning roller bearings 22224, covers with radial shaft seal ring, with large gearing (Zentrier- \varnothing $d_5 = 530$ and number of teeth 62):

Crane wheel B2 – 630 × 100 – 530 × 62 TGL 34965

- Form A1** unsymmetrical hub,
covers with gap sealing
- Form A2** unsymmetrical hub,
covers with radial shaft seal ring
- Form B1** symmetrical hub,
covers with gap sealing
- Form B2** symmetrical hub,
covers with radial shaft seal ring

The rolling bearings are lubricated.

Without certain agreement crane wheels with $\varnothing d_1 \geq 320$ mm internal bushing with lubrication bore and covers with radial shaft seal ring.

Material:

Wheel body- \varnothing 200–250 C45

Wheel body- \varnothing 320–1000 GE420 (GS-70) or
G42CrMo4+QT (GS-42CrMo4 V)

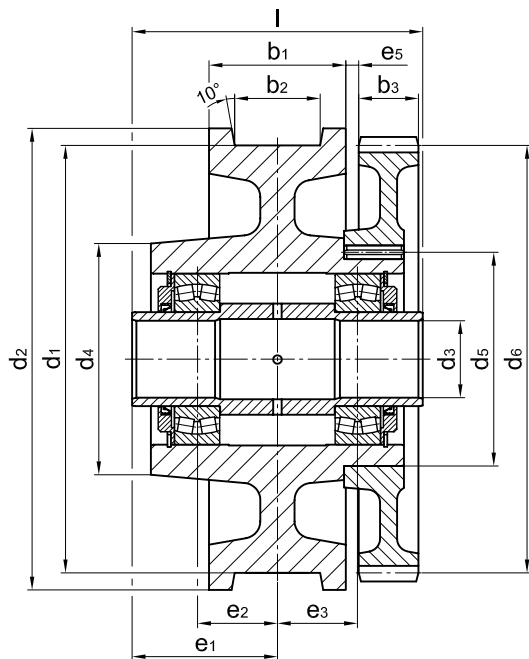
Internal bush S355 (St 52)

Gear ring C45 or GE300 (GS-60)

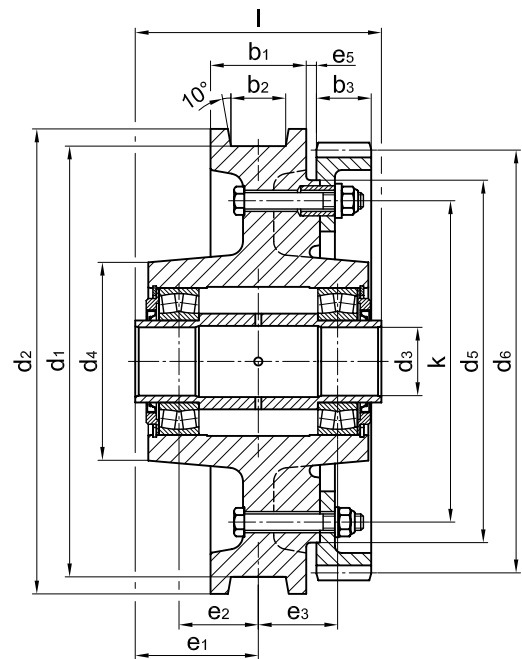
Other material and dimensions as well as axles on request.

Gear rings see TGL 34966

Crane wheels without gear ring see TGL 34964.



Form B2 symmetrical hub, covers with radial shaft seal ring,
nominal- \varnothing $d_1 \leq 500$ mm



Form B2 symmetrical hub, covers with radial shaft seal ring,
nominal- \varnothing $d_1 \geq 630$ mm

form	d_1	$b_2^{1)}$	b_1	d_2	d_3	d_4	d_5	gear ring ²⁾				e_1	e_2	e_3	e_5	k	l	bearings	unit weight ≈[kg]
								b_3	d_6	m	z								
	h9				D10		Toleranzfeld										-0,5		
200		40-75	105																
250		40-80	110																
320		40-80	110																
400		40-90	125																
		90-100	140																
500		40-90	125																
		100-120	160																
630		60-90	140																
		100-120	180																
710		60-90	140																
		100-130	180																
800		80-110	160																
		120-130	200																
1000		100-150	210																

Dimensions on request

1) The dimension of the gauge recess b_2 to be stated with order.

2) Tooth form acc. to DIN 867 without appending modification. Pressure angle 20 degree.



centering- $\varnothing d_1 \leq 250$ mm



centering- $\varnothing d_1 \geq 470$ mm

Designation of a gear ring with Zentrier- $\varnothing d_1 = 530$ mm, number of teeth 62:

Gearingz 530 x 62 TGL 34966

Without special agreement the gear rings are delivered without fastening bores. In normal case gear ring and wheel are drilled together during assembly.

Material:

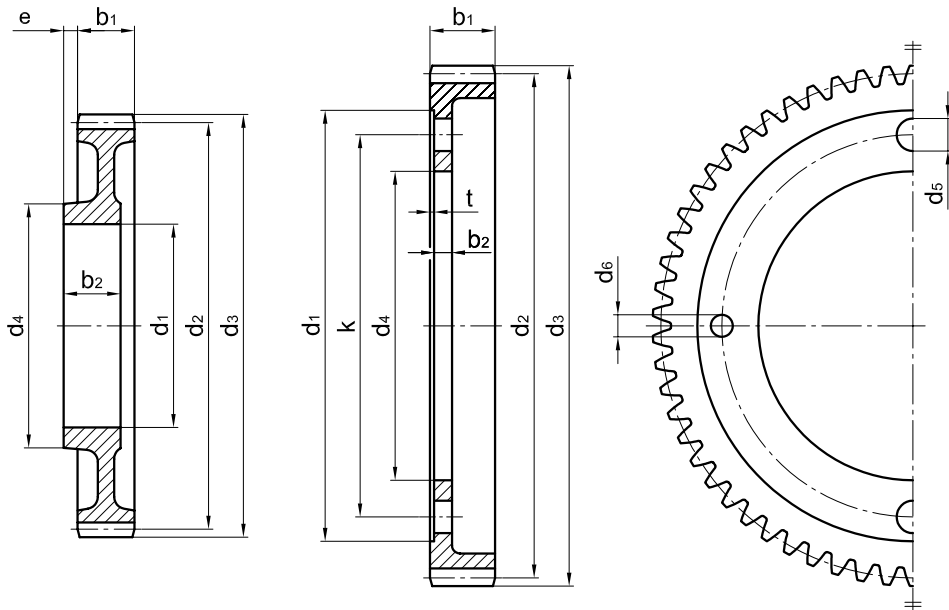
Gear ring 140–165	C45 or 42CrMo4+QT (42CrMo4 V)
Gear ring 180–800	GE300 (GS-60) or GE420 (GS-70) or G42CrMo4+QT (G42CrMo4 V)

Other material and dimensions on request.

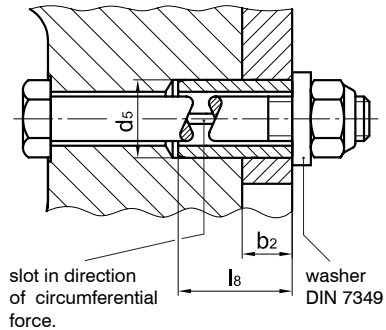
Gear rings for crane wheels

with rolling bearings acc. to TGL 34965

TGL 34966



shear joint with heavy duty clamping sleeve acc. to DIN EN ISO 8752 (DIN 1481)



for centering- \varnothing d_1	clamping sleeve		for screw
	d_5	l_8	
470-680	40	50	M 24
800	50	55	M 30

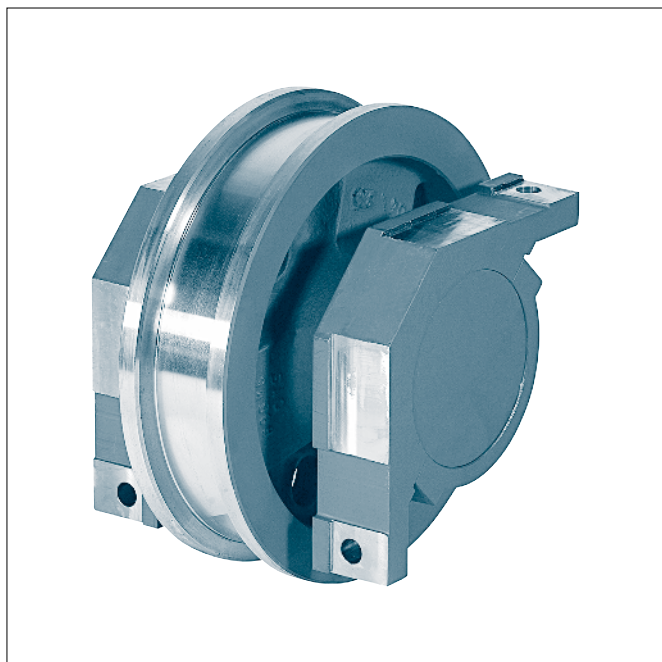
Zentrier- \varnothing $d_1 \leq 250$ mm

Zentrier- \varnothing $d_1 \geq 470$ mm

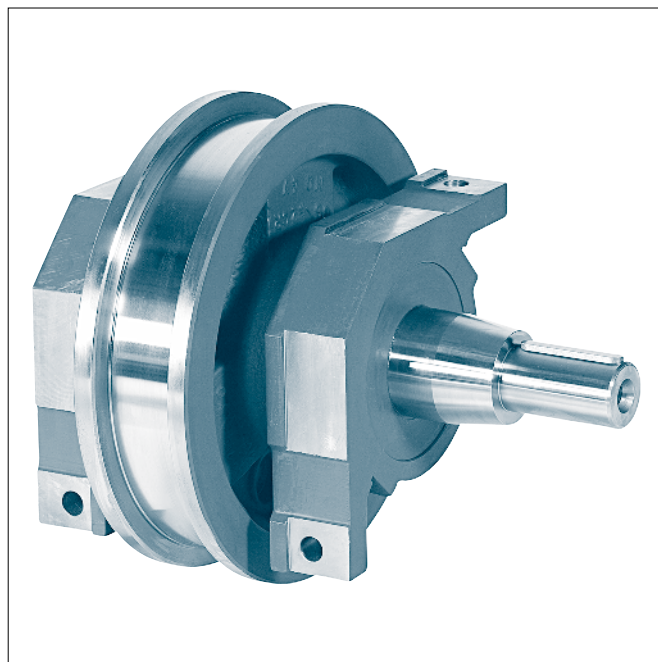
Zentrier- \varnothing d_1	tolerance zone	no. of teeth ¹⁾	module	b_1	b_2	d_2	d_3	d_4	d_5	d_6	no. of bores d_5 / d_6	e	k	t	unit weight \approx [kg]
140	G7	43	5												
165	G7	50	5												
180	H7	52	6												
225	H7	50	8												
250	H7	42	10												
		50													
470	H7	54	10												
510	H7	50	12												
530	H7	62	10												
600	H7	58	12												
610	H7	58	12												
680	H7	66	12												
800	H7	64	14												

Dimensions on request

1) Tooth form acc. to DIN 867 without profile correction, Pressure angle 20 degree



Form A1 Crane wheel with idle shaft
(nondriven wheel set)



Form A3 Crane wheel with drive shaft (driven wheel set)

Designation of a crane wheel form A1 (nondriven wheel set) with corner support, nominal- \varnothing $d_1 = 400$ mm, gauge $b_2 = 80$ mm, incl. self aligning roller bearings 22220:

Crane wheel A1 – 400 × 80 TGL 34 968

Type with shaft ends suitable for hollow shaft drive units of all manufacturers on request.

Designation of a crane wheel form B3 (driven wheel set) without corner support, nominal- \varnothing $d_1 = 400$ mm, gauge $b_2 = 100$ mm, shaft- \varnothing $d_5 = 70$ mm, Wellenmaß $e_6 = 635$ mm, incl. self aligning roller bearings 22220:

Crane wheel B3 – 400 × 100 – 70 × 635 TGL 34 968

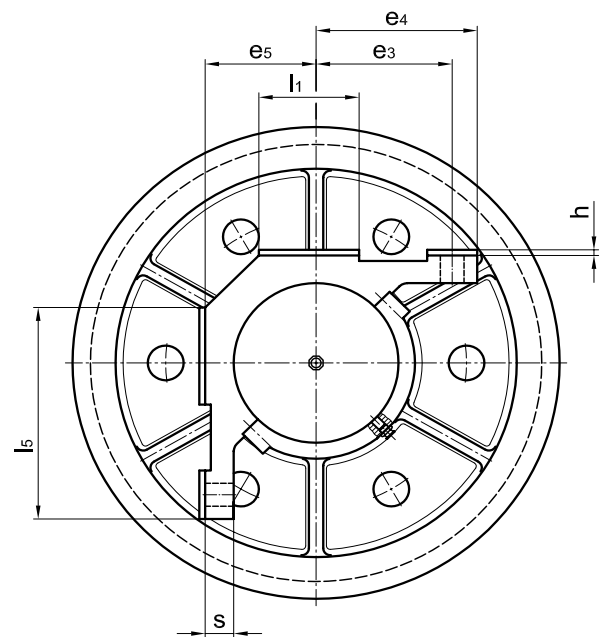
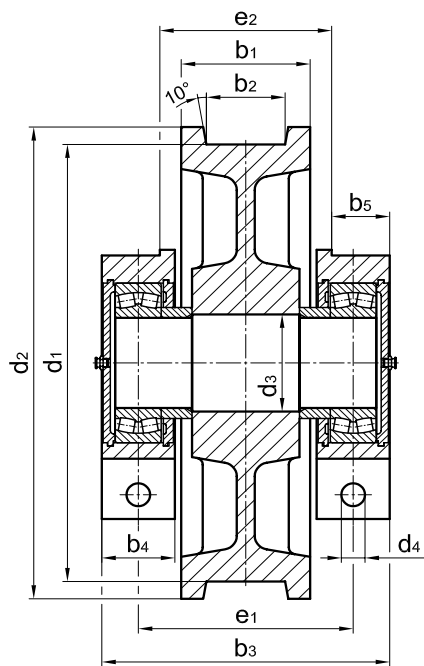
- Form A** crane wheels with corner support
Form B crane wheels without corner support and covers
Form A1, B1 nondriven wheel set with idle shaft
Form A2, B2 driven wheel set with drive shaft for coupling
Form A3, B3 driven wheel set with drive shaft for hollow shaft gear unit
Form A4, B4 driven wheel set with drive shaft for coupling and hollow shaft gear unit
Form A5, B5 driven wheel set with drive shaft for hollow shaft gear unit

The anti friction bearings are lubricated. Re-lubrication by using the lubrication nipple in the corner support or in the outer covers.

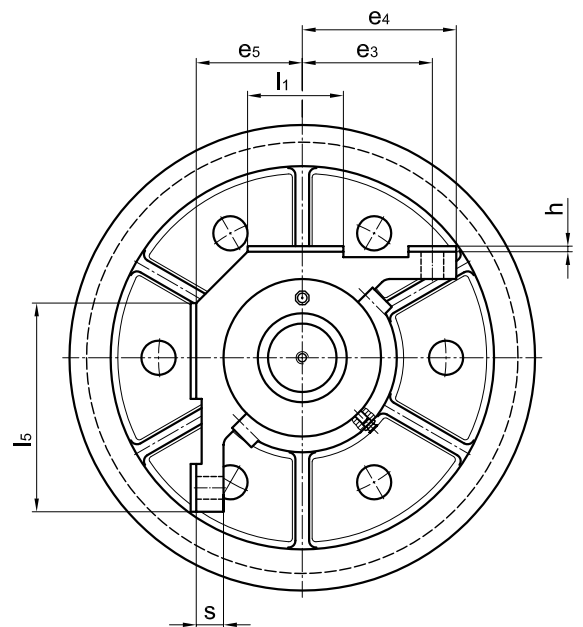
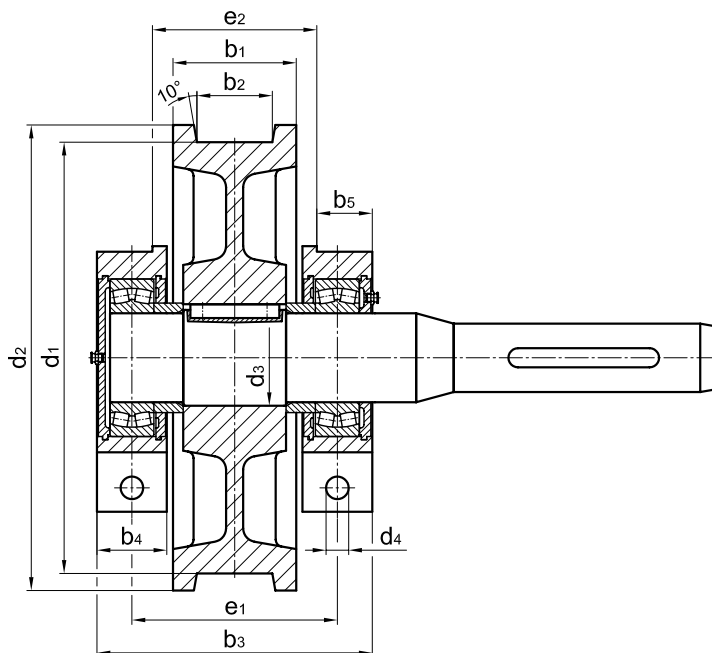
Material:

Wheel body	GE420 (GS-70) or G42CrMo4+QT (GS-42CrMo4 V)
drive shaft	42CrMo4QT
idle shaft	C45
corner support	S355J2 G3 (St 52-3)

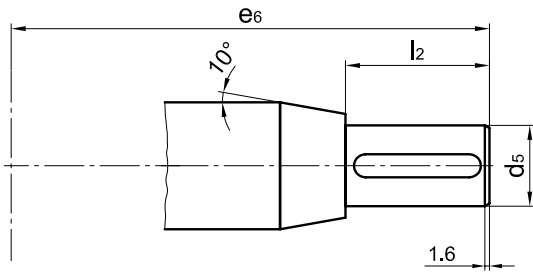
Other material and dimensions on request.



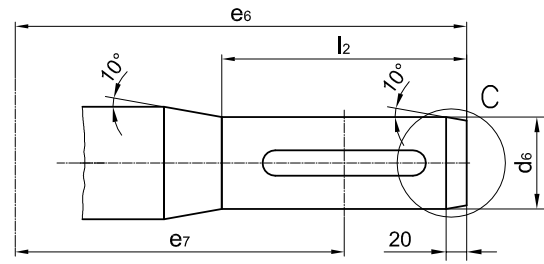
Form A1 crane wheel with shaft (nondriven wheel set)



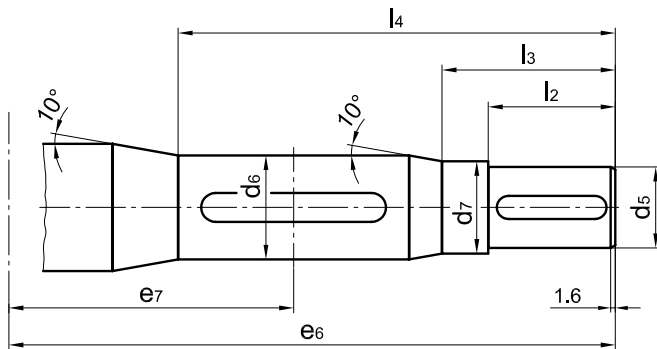
Form A3 crane wheel with drive shaft (driven wheel set)



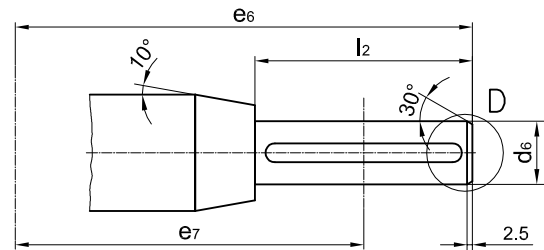
Form A2, B2 for coupling



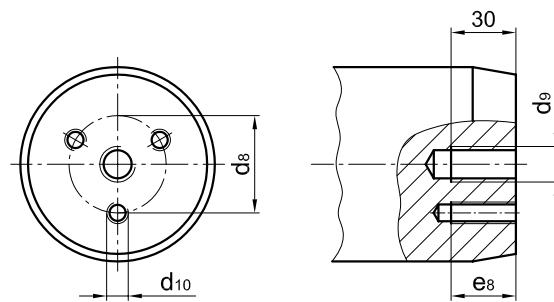
Form A3, B3 for hollow shaft gear unit



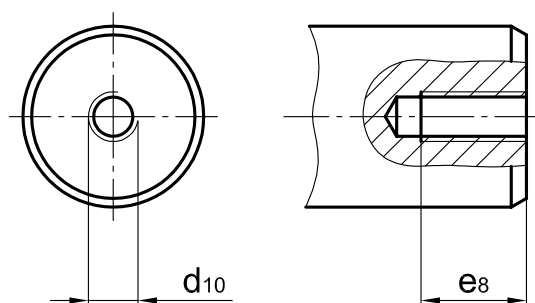
Form A4, B4 for coupling and hollow shaft gear unit



Form A5, B5 for hollow shaft gear unit



view C



view D

Wheel sets with corner support (driven and nondriven)

TGL 34 968

Dimensions

nomi- nal- \varnothing d ₁	form	b ₂	b ₁	b ₃	b ₄	b ₅	d ₂	d ₃	d ₄	e ₁	e ₂	e ₃	e ₄	e ₅	h	l ₁	l ₅	s	bea- rings	
h9								m6			toler- ance			-0,15						
320	all	40-70	100																	
		80-90	130																	
400	all	50-80	120																	
		90-120	160																	
500	all	50-80	120																	
		90-120	160																	
630	all	60-90	140																	
		100-130	180																	
710	all	60-80	140																	
		90-130	180																	
800	all	80-90	160																	
		100-130	200																	
900	all	90-110	190																	
		120-150	210																	

Dimensions on request

Wheel sets with corner support (driven and nondriven)

TGL 34 968

Dimensions of drive shaft ends

nomi- nal- \varnothing d_1	form	d_5 m6	d_6 g6	d_7 -0,1	d_8	d_9	d_{10}	e_6	e_7	e_8	l_2	l_3	l_4	key
320	A2, B2	45	-	-										
		60												
		70												
	A3, B3	-	55	-										
		-	70											
	A4, B4	60	70	65										
A5, B5	-	40	-											
	-	50												
	-	60												
400	A2, B2	50	-	-										
		60												
		70												
	A3, B3	-	55	-										
		-	70											
	A4, B4	60	70	65										
70		90	80											
A5, B5	-	40	-											
	-	50												
	-	60												
500	A2, B2	60	-	-										
		70												
		80												
	A3, B3	-	70	-										
		-	90											
	A4, B4	70	90	80										
80		100	90											
A5, B5	-	50	-											
	-	60												

Dimensions on request

dimensions of drive shaft ends (continuance)

nomi- nal- \varnothing d_1	Form	d_5 m6	d_6 g6	d_7 -0,1	d_8	d_9	d_{10}	e_6	e_7	e_8	l_2	l_3	l_4	key
630	A2, B2	60	-	-										
		70												
		80												
	A3, B3	-	70	-										
			90											
			100											
	A4, B4	70	90	80										
		80	100	90										
	A5, B5	-	50	-										
			60											
710	A2, B2	70	-	-										
		80												
		90												
	A3, B3	-	90	-										
			100											
800	A2, B2	110	-	-										
	A3, B3	-	90	-										
			100											
900	A2, B2	100	-	-										
		110												
		130												

Dimensions on request

Crane wheels

for driven and nondriven wheel sets acc. to TGL 34 968

TGL 34 968



Crane wheel body A 630 × 90
(narrow type)



Crane wheel body A 630 × 110
(broad type)

Designation of a wheel with nominal- $\varnothing d_1 = 400$ mm, gauge $b_2 = 80$ mm, bores- $\varnothing d_3 = 105$ H7, with feather keyway acc. to DIN 6885-1:

Crane wheel body A 400 × 80 × 105 H7 TGL 34 968

Form A with feather keyway acc. to DIN 6885-1
Form B without feather keyway

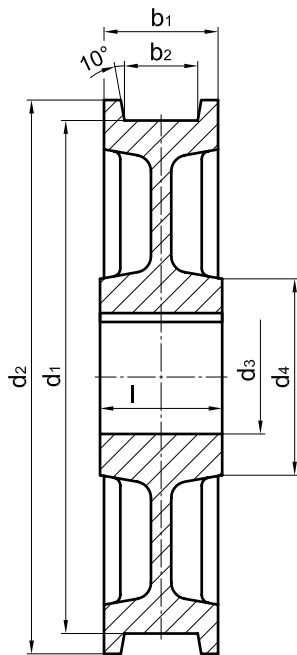
Material: GE420 (GS-70) or
G42CrMo4+QT (GS-42CrMo4 V)

Other material and dimensions on request.

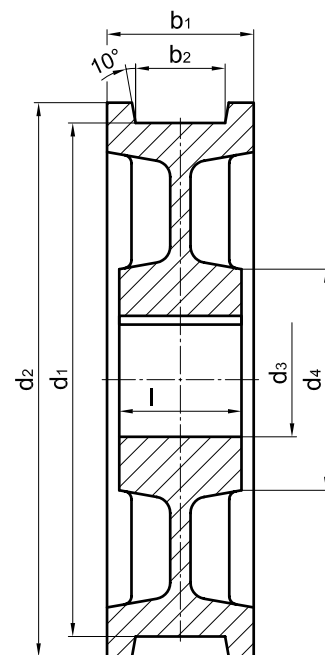
Crane wheels

for driven and nondriven wheel sets acc. to TGL 34968

TGL 34968



Crane wheel body A 630 × 90
(narrow type)

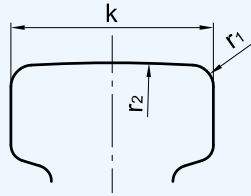


Crane wheel body A 630 × 110
(broad type)

form	nominal- \varnothing d_1 h9	b_2 ¹⁾	b_1	d_2	d_3 H7	d_4	l +0,2	unit weight ≈[kg]
A; B	320	40–70	100	Dimensions on request				
		80–90	130					
A; B	400	50–80	120					
		90–120	160					
A; B	500	50–80	120					
		90–120	160					
A; B	630	60–90	140					
		100–130	180					
A; B	710	60–80	140					
		90–130	180					
A; B	800	80–90	160					
		100–130	200					
A; B	900	90–110	190					
		120–150	210					

1) The dimension of the gauge recess b_2 to be stated with order.

Table 1. Symbol and unit

symbol	unit	description	explanation
c_1	–	material coefficient	Values in accordance with table 2
c_2	–	speed coefficient	Values in accordance with table 3a and 3b
c_3	–	operating time coefficient	Values in accordance with table 4
d_1	mm	Travelling wheel diameter	Running surface diameter
n	min^{-1}	Speed of crane wheel	Values in accordance with table 3b
p	N/mm^2	Pressure	$p = \frac{R}{c_2 \cdot c_3 \cdot d_1 (k - 2r_1)}$
p_{zul}	N/mm^2	Permissible pressure between crane wheel and rail	$p_{zul} = 5,6 c_1$
k	mm	Rail head width	 <p>For cambered crane rails the ideal effective rail head width will be $k - 2r_1$.</p>
r_1	mm	Radius of curvature of rail head	
r_2	mm	Radius of camber of rail head	
$k - 2r_1$	mm	Ideal effective rail head width	Values for crane rails in accordance with table 5
v	m/min	Speed of crane wheel	
R	N	Wheel force	For crane travelling wheels $R = \frac{R_{min} + 2R_{max}}{3}$ For trolley travelling wheels $R = R_{max}$
R_{max}	N	Maximum wheel force	R_{max} and R_{min} should be determined from the most frequent operating positions of the loaded trolley
R_{min}	N	Minimum wheel force	
R_0	N	Characteristic wheel force	Values in accordance with table 6

Calculation of crane rail wheels

The wheel force is calculated using the formula:

$$R \leq p_{zul} \cdot c_2 \cdot c_3 \cdot d_1 \cdot (k - 2r_1) \quad (1)$$

From the above is obtained the crane wheel diameter

$$d_1 \geq \frac{R}{p_{zul} \cdot c_2 \cdot c_3 \cdot (k - 2r_1)} \quad (2)$$

The characteristic wheel force R_0 is obtained from equation (1), where:

$$\begin{aligned} p_{zul} &= 5,6 \text{ N}/\text{mm}^2 \\ c_2 &= 1 \\ c_3 &= 1 \end{aligned}$$

are applied for $R_0 = 5,6 \cdot d_1 \cdot (k - 2r_1)$ (3)

When using the characteristic wheel force the permissible wheel force can be calculated in simplified fashion using the formula:

$$R \leq R_0 \cdot c_1 \cdot c_2 \cdot c_3 \quad (4)$$

Rail/crane wheel material matching

Table 2. Permissible pressure p_{zul} and material coefficient c_1

material minimum tensile strength [N/mm ²]		p_{zul}	c_1
rail	wheel	[N/mm ²]	
590	≤ 330	2,8	0,50
	410	3,6	0,63
	490	4,5	0,80
	590	5,6	1,00
≥ 690	≥ 740	7,0	1,25
	≥ 800	7,2	1,29
	≥ 900	7,8	1,39
≥ 700	≥ 1000	8,5	1,52

The hardening of the running surfaces with a depth of $0,01 \times$ diameter can be considered selecting p_{zul} .

Table 3a. speed coefficient c_2

wheel- \varnothing d_1	c_2															
	for v in m/min															
	10	12,5	16	20	25	31,5	40	50	63	80	100	125	160	200	250	
200	1,09	1,06	1,03	1	0,97	0,94	0,91	0,87	0,82	0,77	0,72	0,66	-	-	-	
250	1,11	1,09	1,06	1,03	1	0,97	0,94	0,91	0,87	0,82	0,77	0,72	0,66	-	-	
315	1,13	1,11	1,09	1,06	1,03	1	0,97	0,94	0,91	0,87	0,82	0,77	0,72	0,66	-	
400	1,14	1,13	1,11	1,09	1,06	1,03	1	0,97	0,94	0,91	0,87	0,82	0,77	0,72	0,66	
500	1,15	1,14	1,13	1,11	1,09	1,06	1,03	1	0,97	0,94	0,91	0,87	0,82	0,77	0,72	
630	1,17	1,15	1,14	1,13	1,11	1,09	1,06	1,03	1	0,97	0,94	0,91	0,87	0,82	0,77	
710	-	1,16	1,14	1,13	1,12	1,1	1,07	1,04	1,02	0,99	0,96	0,92	0,89	0,84	0,79	
800	-	1,16	1,15	1,14	1,13	1,11	1,09	1,06	1,03	1	0,97	0,94	0,91	0,87	0,82	
900	-	-	1,16	1,14	1,13	1,12	1,1	1,07	1,04	1,02	0,99	0,96	0,92	0,89	0,84	
1000	-	-	1,17	1,15	1,14	1,13	1,11	1,09	1,06	1,03	1	0,97	0,94	0,91	0,87	
1100	-	-	-	1,16	1,14	1,13	1,12	1,1	1,07	1,04	1,02	0,99	0,96	0,92	0,89	
1250	-	-	-	1,17	1,15	1,14	1,13	1,11	1,09	1,06	1,03	1	0,97	0,94	0,91	

Tabelle 3b.

wheel speed n from speed coefficient c_2	
c_2	$n \approx$ [min ⁻¹]
0,66	200
0,72	160
0,77	125
0,79	112
0,82	100
0,84	90
0,87	80
0,89	71
0,91	63
0,92	56
0,94	50
0,96	45
0,97	40
0,99	35,5
1	31,5
1,02	28
1,03	25
1,04	22,4
1,06	20
1,07	18
1,09	16
1,1	14
1,11	12,5
1,12	11,2
1,13	10
1,14	8
1,15	6,3
1,16	5,6
1,17	5

Table 4. operating time coefficient c_3

operating time of travelling gear (referred to 1 hour)	c_3
bis 16%	1,25
über 16 bis 25%	1,12
über 25 bis 40%	1
über 40 bis 63%	0,9
über 63%	0,8

Tabelle 5. ideal effective rail head width ($k-2r_1$)

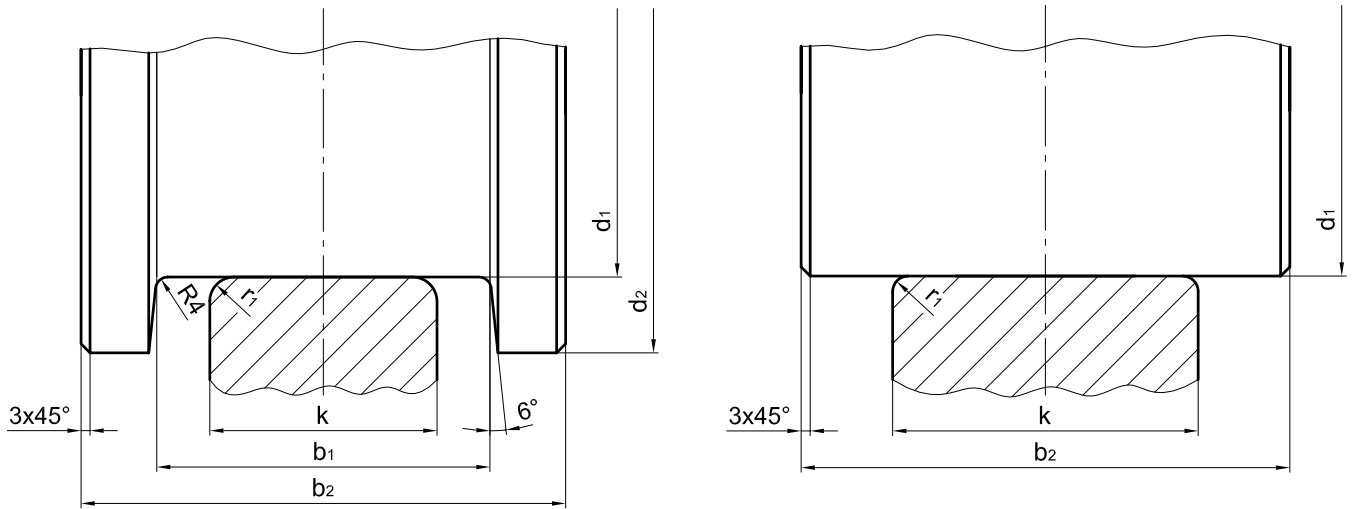
crane rails			r_1	$k-2r_1$
as per	designation			
DIN	new	previous	mm	mm
536 Teil 1	A 45	KS 22	4	37
	A 55	KS 32	5	45
	A 65	KS 43	6	53
	A 75	KS 56	8	59
	A 100	KS 75	10	80
	A 120	KS 101	10	100
536 Teil 2	F 100	-	5	90
	F 120	-	5	110

Tabelle 6. characterisitic wheel force R_0

wheel- \varnothing d_1	R_0 in N for narroc wheels				R_0 in N for broad wheels					R_0 in N for wheels without wheelflange	
	for crane rail				for crane rail					for crane rail	
	A 45	A 55	A 65	A 75	A 55	A 65	A 75	A 100	A 120	F 100	F 120
200	41 000	50 000	-	-	-	-	-	-	-	-	-
250	52 000	63 000	-	-	-	-	-	-	-	-	-
315	65 000	79 000	-	-	79 000	93 000	-	-	-	-	-
400	83 000	101 000	-	-	101 000	119 000	132 000	-	-	202 000	-
500	104 000	126 000	-	-	126 000	148 000	165 000	-	-	252 000	-
630	-	159 000	187 000	-	-	187 000	208 000	282 000	-	318 000	388 000
710	-	178 000	211 000	235 000	-	-	235 000	318 000	398 000	358 000	437 000
800	-	201 000	237 000	264 000	-	-	264 000	358 000	448 000	403 000	493 000
900	-	-	267 000	297 000	-	-	297 000	403 000	504 000	454 000	554 000
1000	-	-	297 000	330 000	-	-	330 000	448 000	560 000	504 000	616 000
1120	-	-	-	-	-	-	-	502 000	627 000	-	-
1250	-	-	-	-	-	-	-	560 000	700 000	-	-

Running surface profiles of crane wheels and correlation of crane rails to wheel-diameter

DIN 15072



Crane wheels with wheel flange

Crane wheels without wheel flange

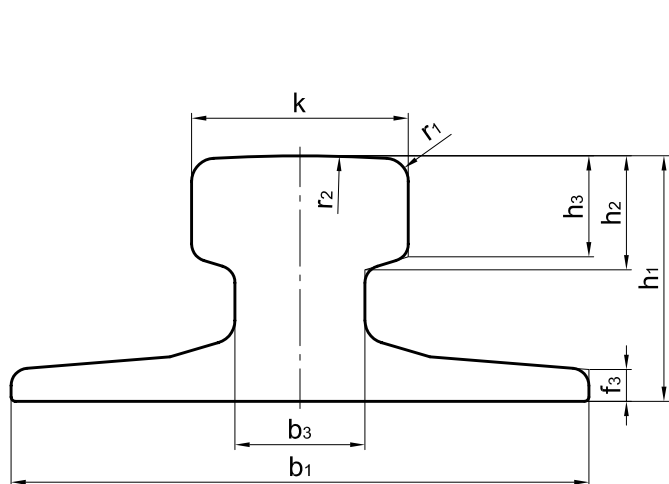
Crane wheel-Ø d_1	d_2	for crane wheels with narrow wheel flange						for crane wheels with broad wheel flange						for crane wheels without wheel flange			
		for crane rail ¹⁾				b_1	b_2	for crane rail ¹⁾					b_1	b_2	for crane rail ²⁾		b_2
		A 45	A 55	A 65	A 75			A 55	A 65	A 75	A 100	A 120			k		
h9	k				max.	k					max.	k					
200	230	45	-	-	-	55	90	-	-	-	-	-	-	-	-	-	-
250	280	45	-	-	-	55	90	-	-	-	-	-	-	-	-	-	-
315	350	45	-	-	-	55	90	55	-	-	-	-	65	110	-	-	-
400	440	45	55	-	-	65	110	55	65	75	-	-	90	140	100	-	140
500	540	45	55	-	-	65	110	55	65	75	-	-	90	140	100	-	140
630	680	-	55	65	-	75	120	-	65	75	100	-	110	160	100	120	160
710	760	-	-	65	75	90	140	-	-	75	100	120	160	210	100	120	210
800	850	-	-	65	75	90	140	-	-	75	100	120	160	210	100	120	210
900	950	-	-	65	75	90	140	-	-	75	100	120	160	210	-	120	210
1 000	1 050	-	-	65	75	90	140	-	-	75	100	120	160	210	-	120	210
1 120	1 180	-	-	-	-	-	-	-	-	-	100	120	160	220	-	-	-
1 250	1 310	-	-	-	-	-	-	-	-	-	100	120	160	220	-	-	-
r_1		4	5	6	8	-	-	5	6	8	10	10	-	-	5	5	-

1) Crane rail acc. to DIN 536-1.

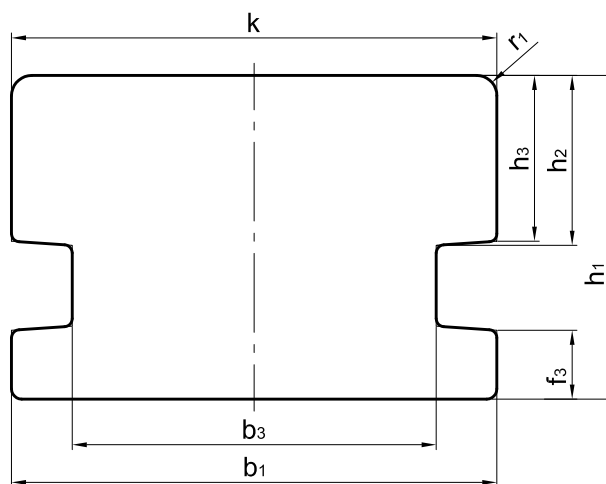
2) Crane rail acc. to DIN 536-2.

Champignon rail acc. to DIN 536

main dimensions for information, dimensions can vary depending on the producer



Crane rail Form A



Crane rail Form F

nominal size	k	b_1	b_3	h_1	h_2	h_3	f_3	r_1	r_2	ideal effective rail head width $k-2r_1$ (acc. to DIN 15070)
A 45	45	125	24	55	24	20	8	4	400	37
A 55	55	150	31	65	28,5	25	9	5	400	45
A 65	65	175	38	75	34	30	10	6	400	53
A 75	75	200	45	85	39,5	35	11	8	500	59
A 100	100	200	60	95	45,5	40	12	10	500	80
A 120	120	220	72	105	55,5	47,5	14	10	600	100
A 150	150	220	80	150	64,5	50	14	10	800	130
F 100	100	100	70	80	42	41	17	5	-	90
F 120	120	120	90	80	42	41	17	5	-	110



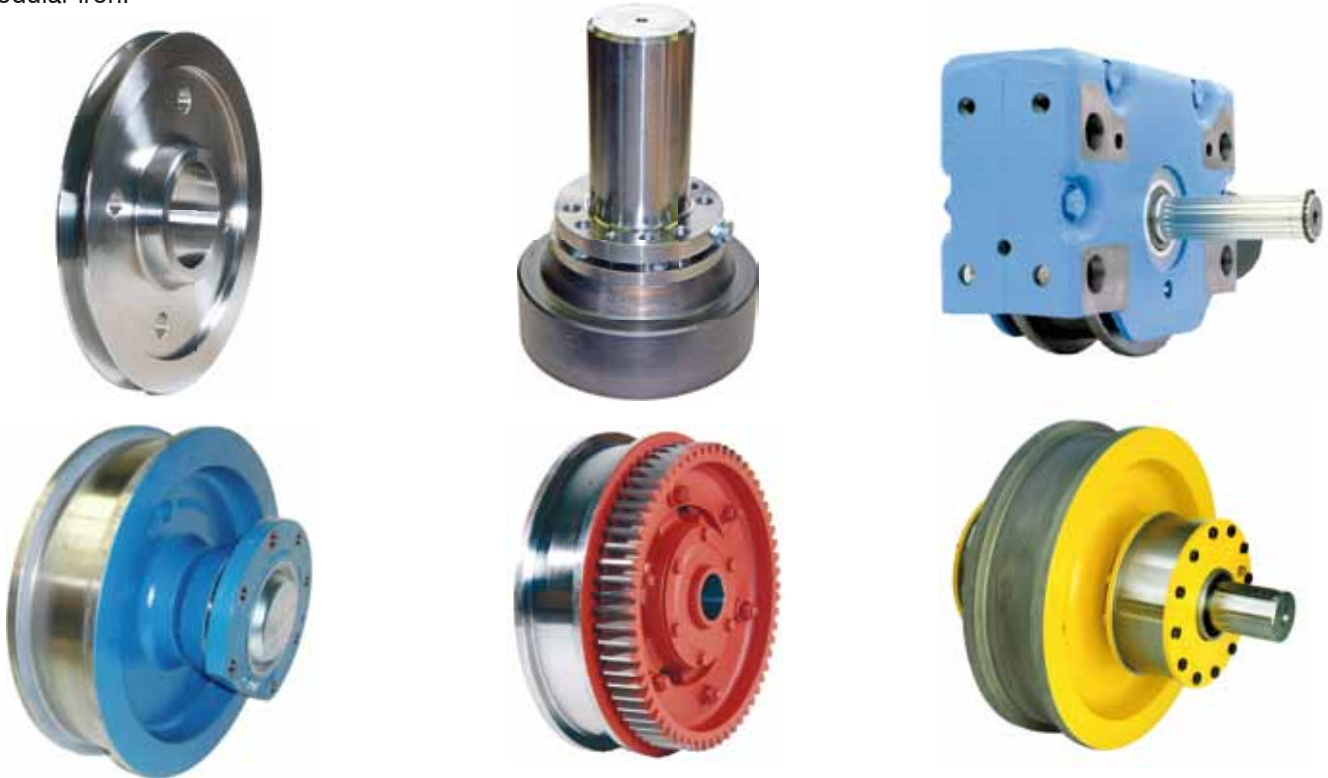
Our product line:

wheel blocks and wheel sets are produced for maintenance-free direct drive operation suitable for slip-on gear mechanisms from different manufacturers.

Crane travel wheels with slide and anti-friction bearing with and without gearing.

Drive and free-running wheel sets with shrunk shafts and with travel wheels made of highly wear-resistant materials with deep-hardened running surfaces.

Production according to DIN and works standard or according to customer drawings manufactured of forged steel, cast steel or nodular iron.



weltweite Logistik mit Laufrädern von Karl Georg



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