CRANE WHEELS
AND ACCESSORIES

KARL GEORG

Product overview

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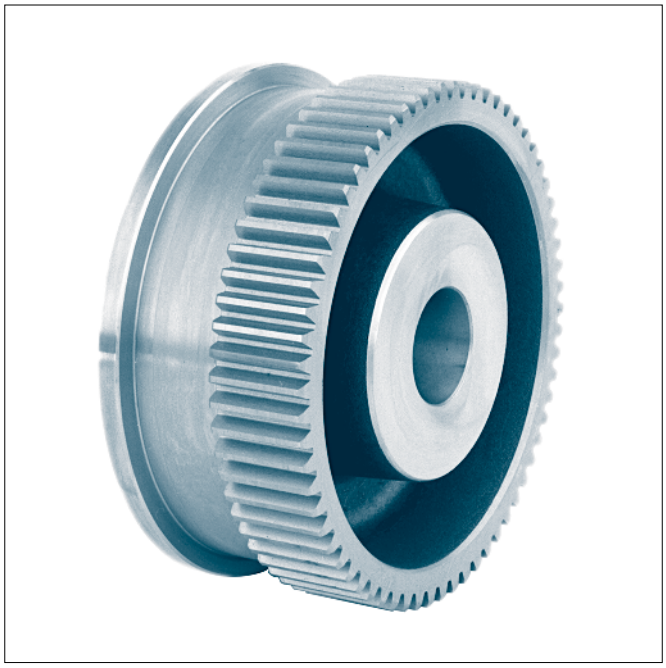
* DIN = German Institute for Standardization

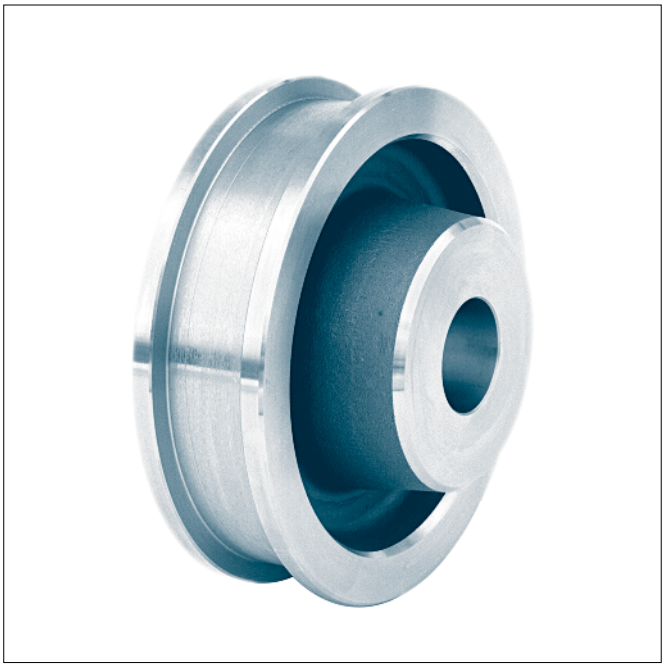
Crane wheels with smooth bore

or with feather keyway to DIN 6885-1

DIN 15 049 **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:

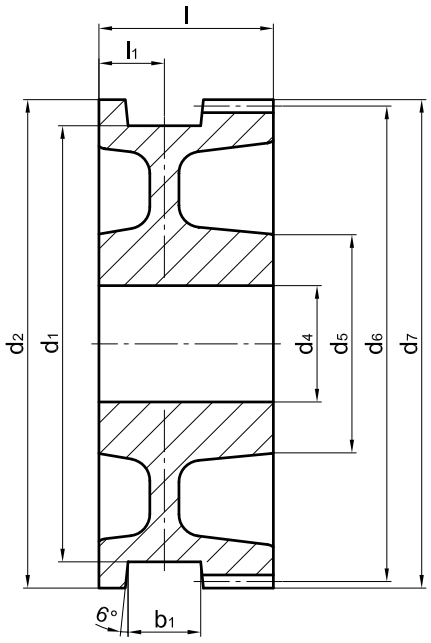
Wheel body-Ø 160-500	C45 drop forged
Wheel body-Ø 630	GE420 (GS-70) with ribs

Other material and dimensions on request.

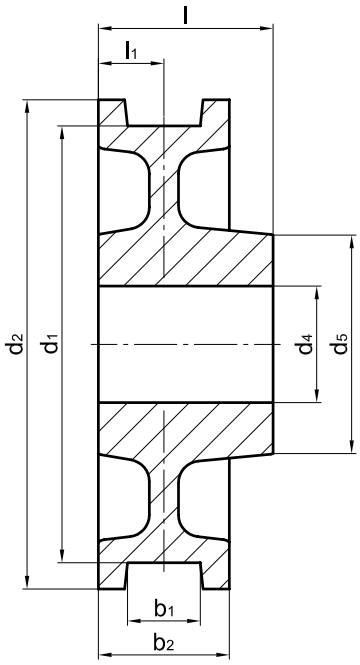
Crane wheels with smooth bore

or with feather keyway according to DIN 6885-1

DIN 15 049 **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
								module	number of teeth	d_6	d_7	Form A	Form B	[kg][3]
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 b_1 and bore diameter d_4 to be stated with order.

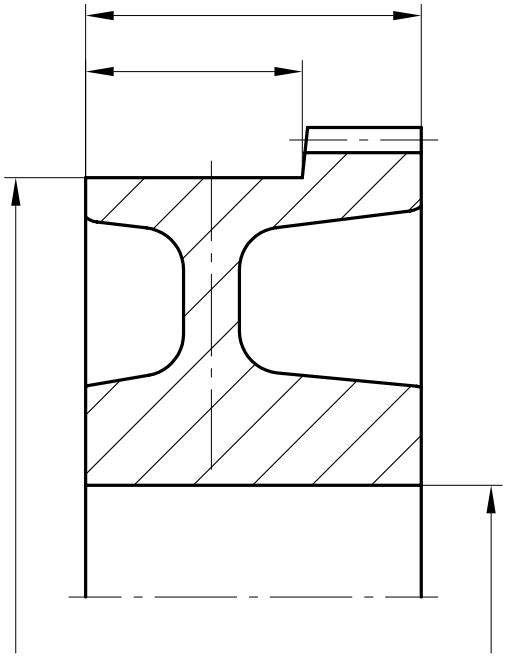
2) Module and number of teeth to be stated with order.
Tooth form according to DIN 867 without profile correction.
Pressure angle 20 degree.

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.

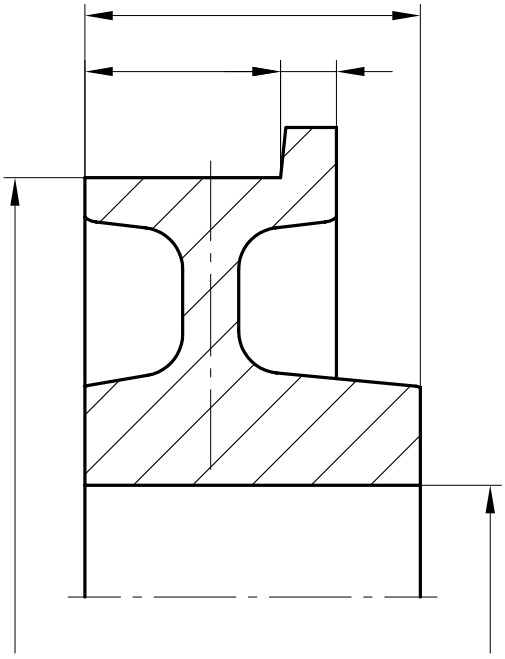
Wheels with smooth bore
or with feather keyway according to DIN 6885-1

DIN 15 049 **KG 010.1**

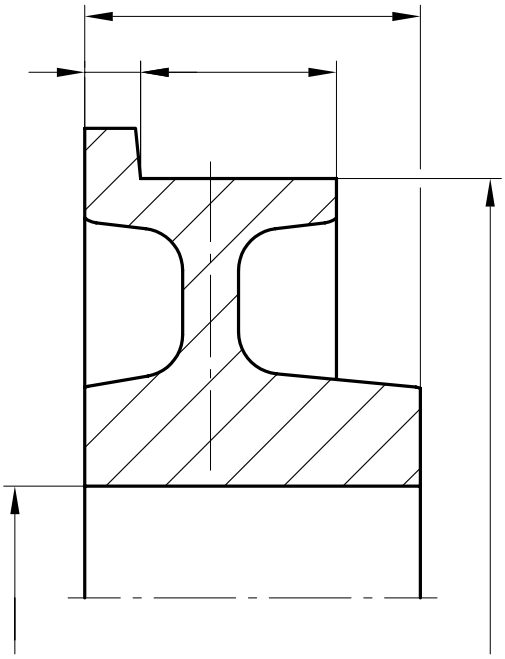
Examples of possible types of the running surface and of the crane wheels.
Desired type and dimensions to be stated with order.



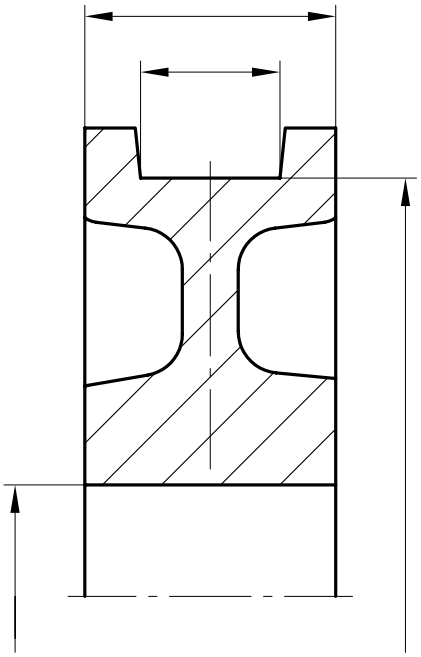
Type 1
Travel wheel form A
without wheel flanges, with gearing



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

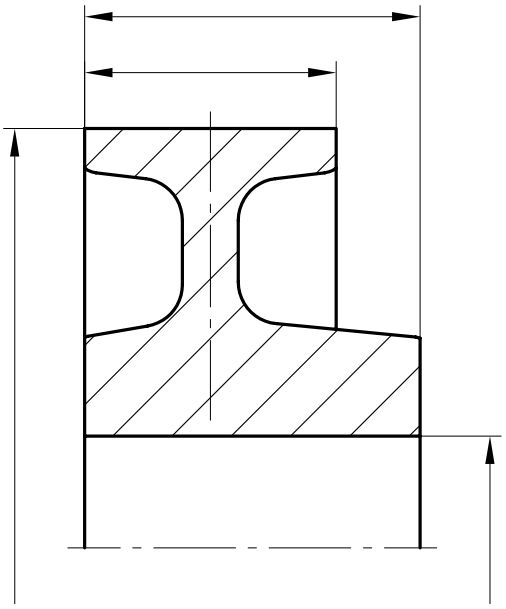


Type 3
Travel wheel form B
with single wheel flange on flush hub

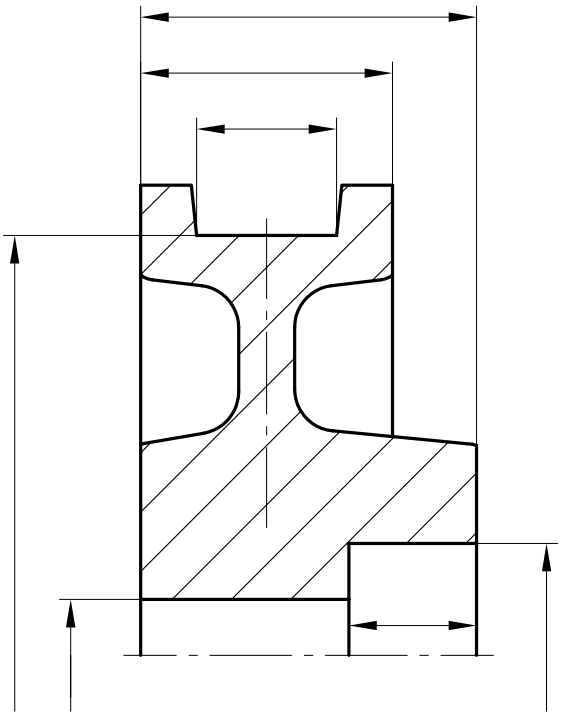


Type 4
Travel wheel form B
with shortened hub

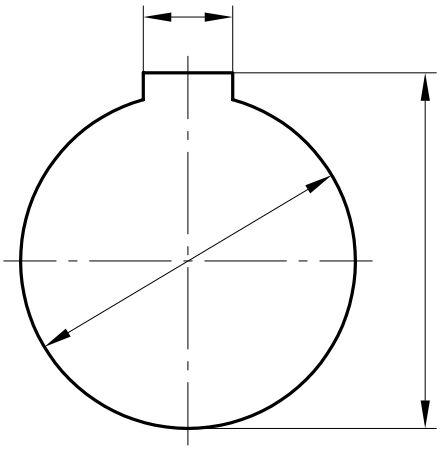
Examples of possible types of the running surface and of the crane wheels.
Desired type and dimensions to be stated with order.



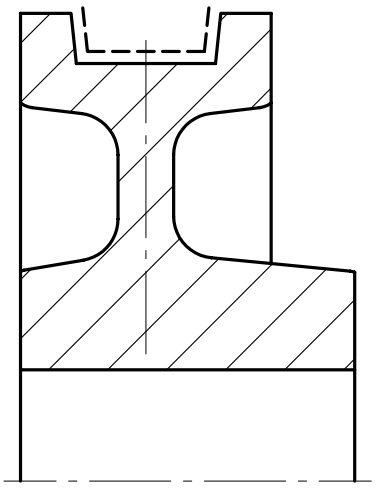
Type 5
Travel wheel form B
without wheel flanges



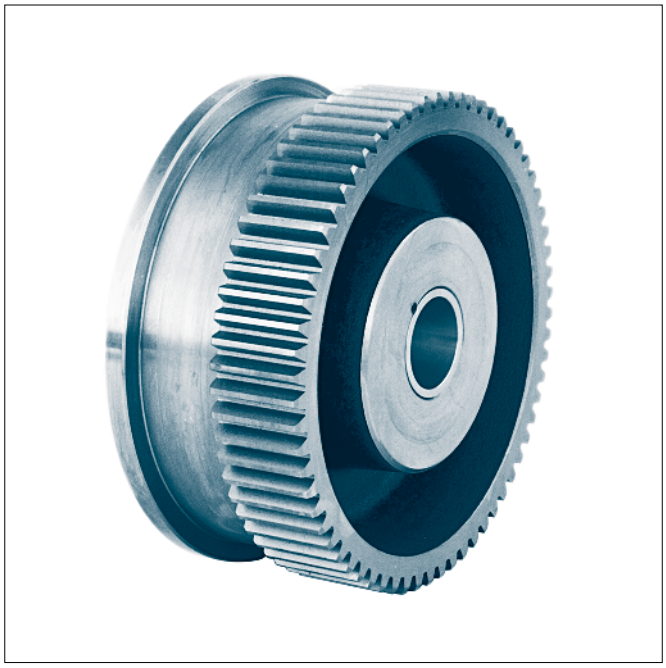
Type 6
Travel wheel form B
with bore for locking elements



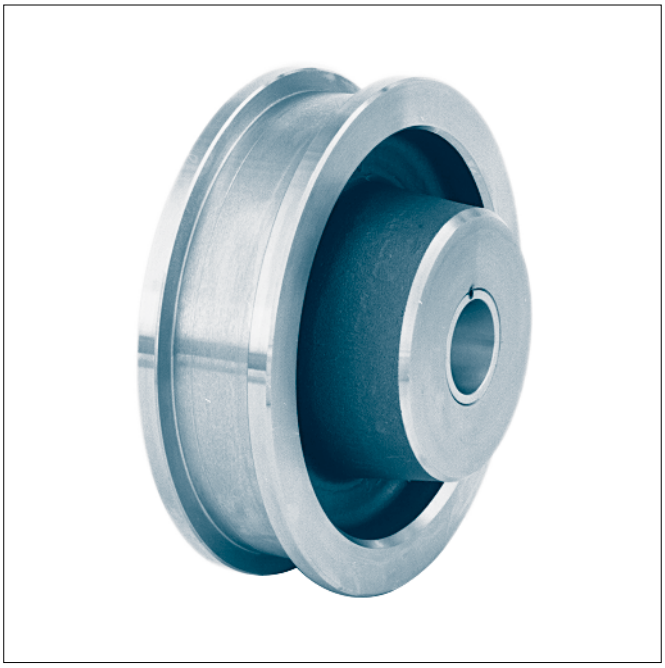
Bore with feather keyway according to DIN 6885-1



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-Ø d_1 = 300 mm, gauge b_1 = 50 mm, with slide bearing Ø 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.

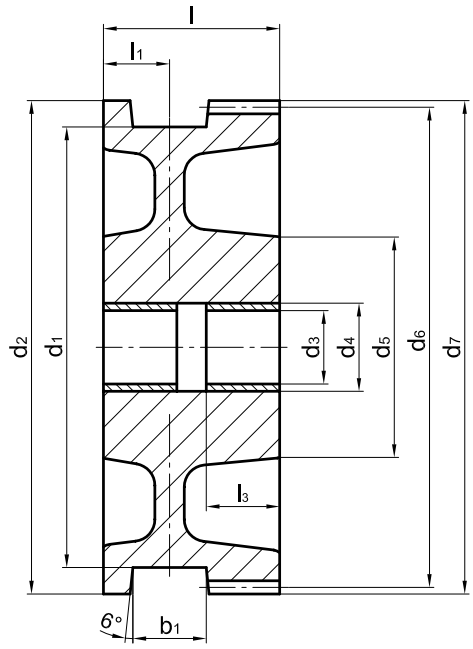
Material:

Wheel body-Ø 160-500	C45 drop forged
Wheel body-Ø 630	GE420 (GS-70) with ribs
Slide bearings	G-CuSn7ZnPb (Rg 7)

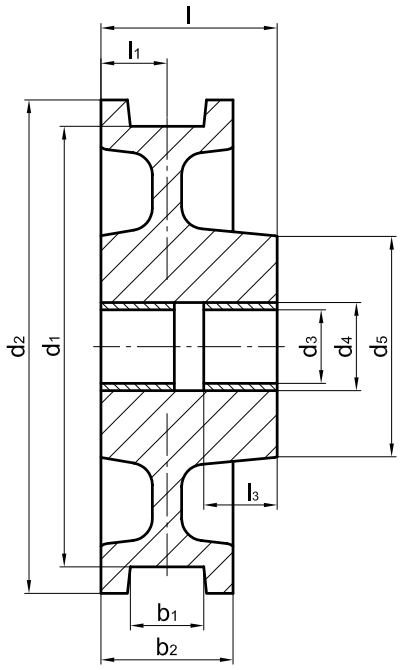
Other materials and dimensions on request.

Suitable wheel axles see KG 010.4.

Crane wheels with slide bearing DIN 15 049 KG 010.2



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
										module	number of teeth	d_6	d_7	Form A	Form B	
h11				E9	H7											[kg] [3]
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 b_1 and bore diameter d_4 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.

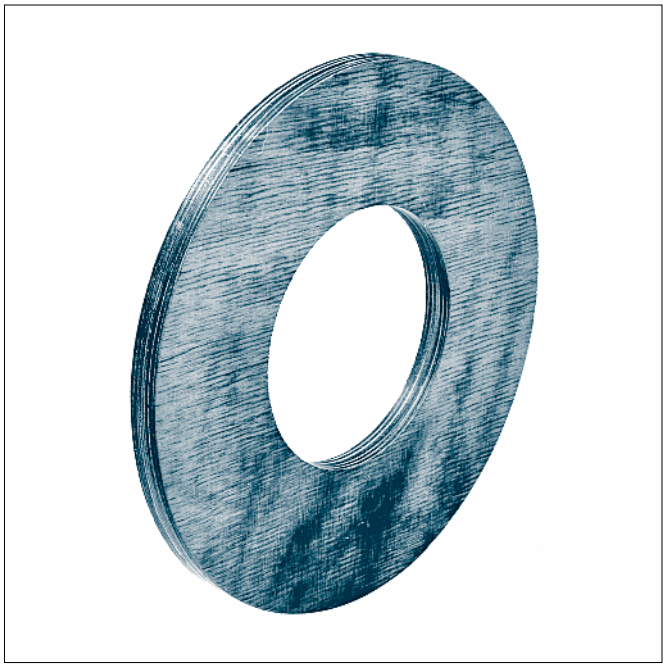
3) The wheel loads stated are obtained from the maximum permissible pressure between plain bearing and axle for v ≈ 40 m / min and an operating period up to 40%.

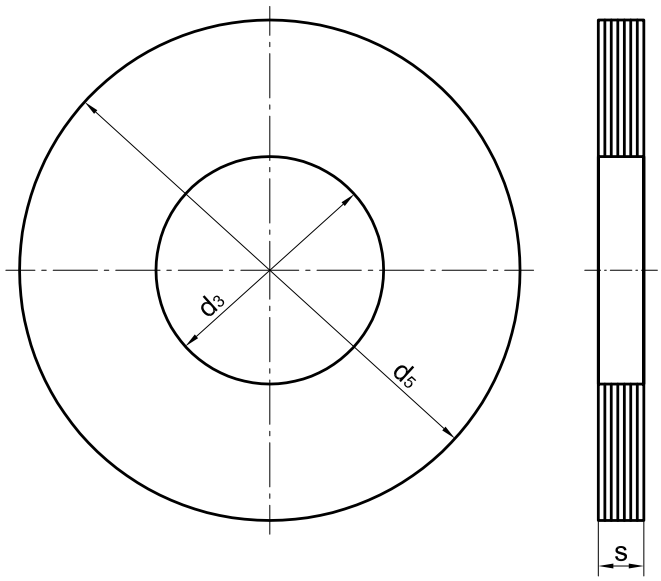
Wearing washers

similar to DIN 15 069

KG 010.3

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





Designation of a wearing washer for wheel-Ø d_1 = 300 mm, axle-Ø 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)

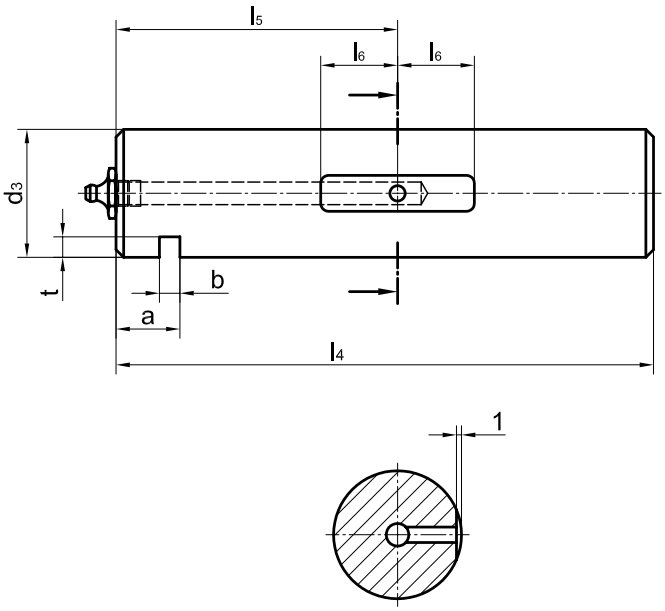
Other material and dimensions on request.

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

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 -Ø d_1 = 300 mm, axle-Ø d_3 = 50 mm, length 210 mm:

Axle 50 × 210 KG 010.4

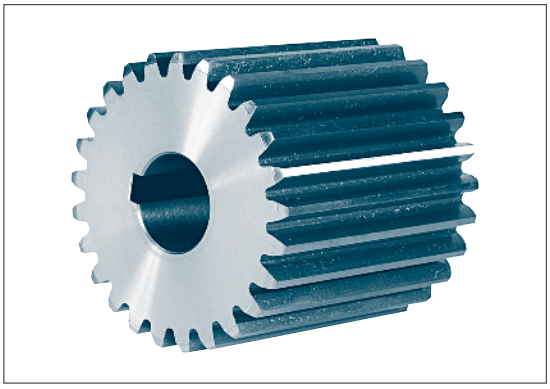
Supplied with spherical grease nipple AM 10 × 1 DIN 71412.

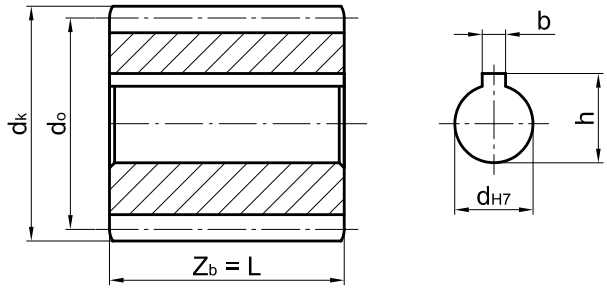
Material: 42CrMo4+QT or C45

Other material and dimensions on request.

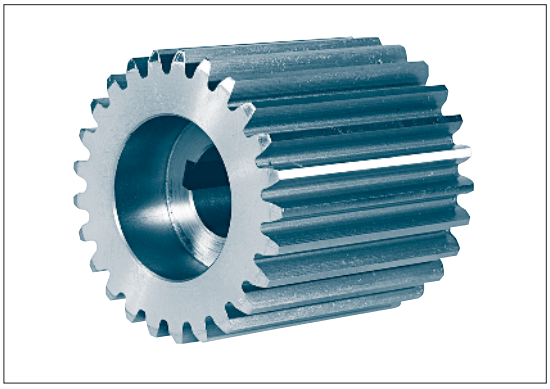
for wheel-Ø d_1	d_3 f7	l_4	l_5	l_6	a	b +0,5	t +0,5	unit weight ≈[kg]
160 200	40	190	100	30	25	8	7	1,8
250 300	50	210	110	30	25	8	8	3,1
315	55	265	135	40	25	8	9	4,8
400	60	265	135	40	25	8	9	5,7
500	70	285	150	50	25	10	10	8,5
630	80	335	170	50	25	10	10	13

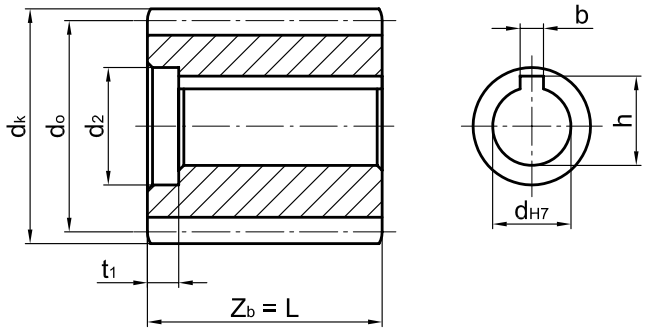
Form 1



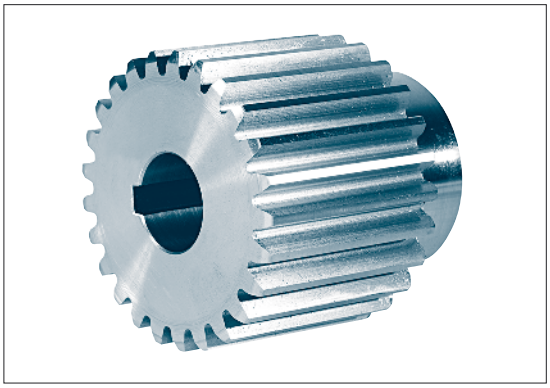


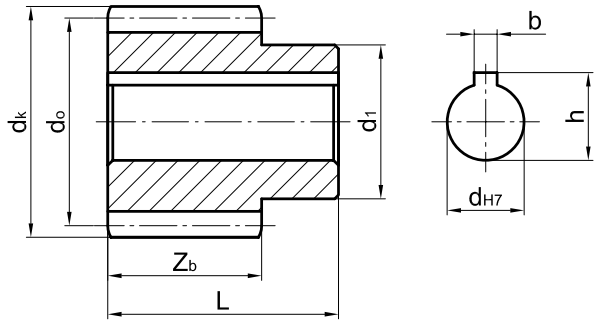
Form 2



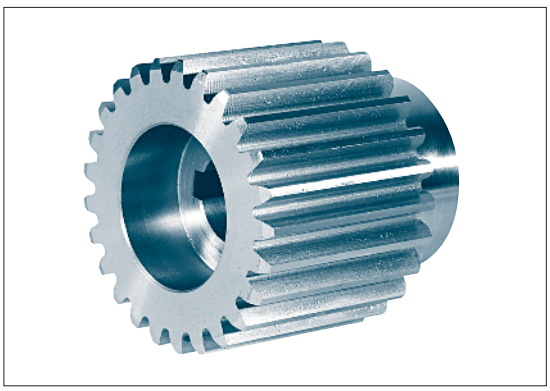


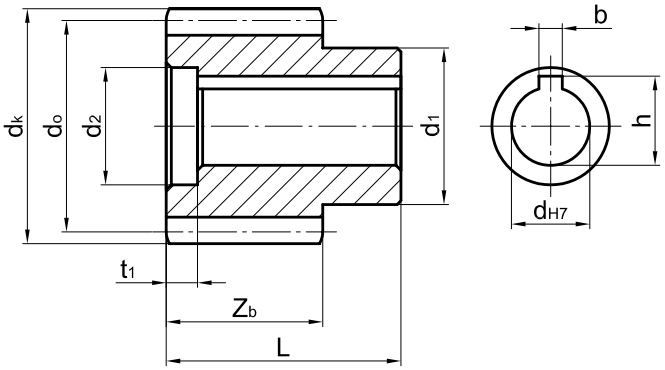
Form 3





Form 4





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

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

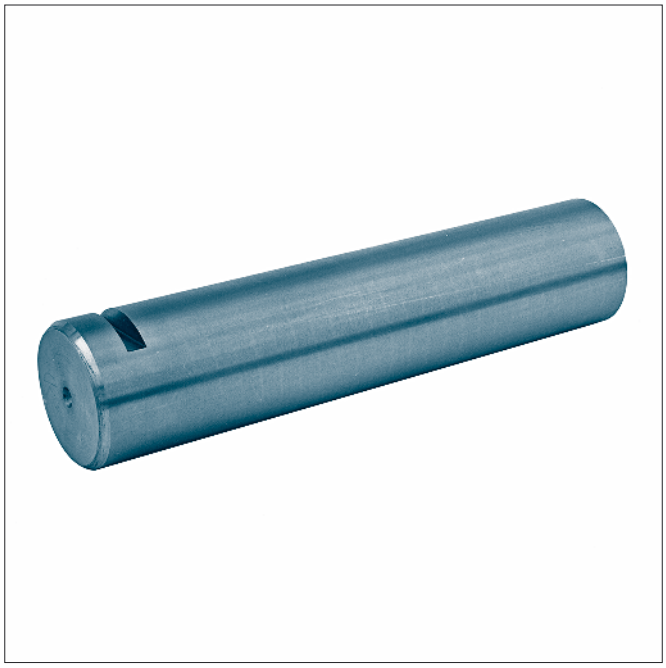
Module:	**2–15**
Minimum number of teeth:	**12**
d_{min} =	**16 H7**
Material:	C45 or 42CrMo4+QT

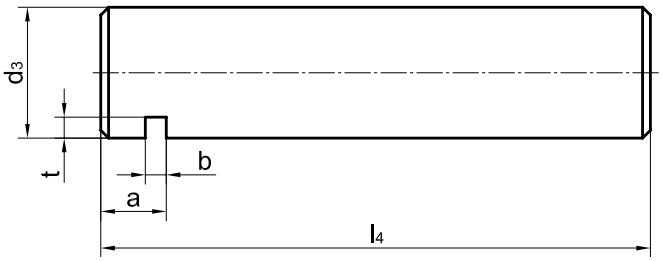
All dimensions and material to be stated with order.

Wheel axle without lubrication bore

fitting to travel wheels according to KG 014

KG 010.6





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

Axle 50 × 210 KG 010.6

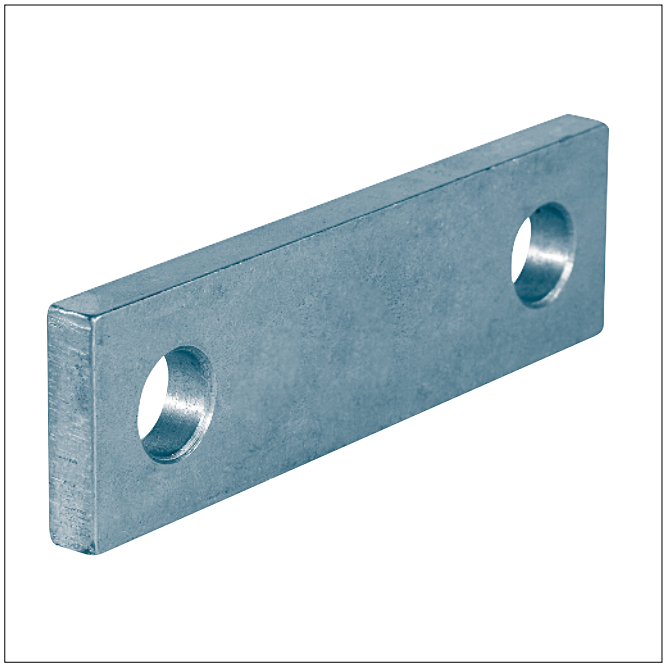
Material: 42CrMo4+QT or C45

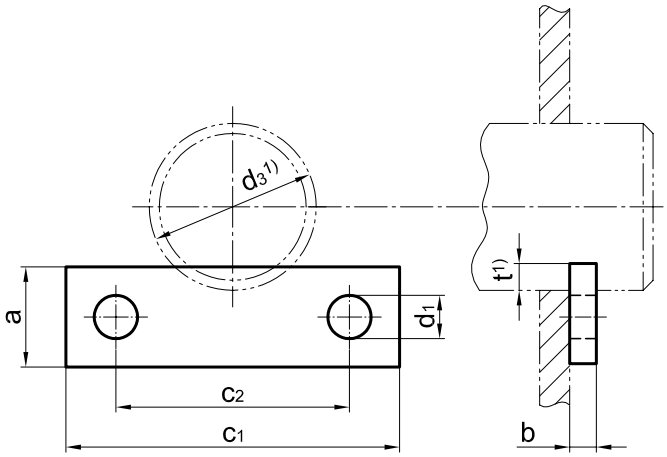
Other material and dimensions on request.

for wheel - Ø d_1	d_3 f7	l_4	a	b +0,5	t +0,5	unit weight ≈[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

Axle bracket

DIN 15 058





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 15 058

Material: S235JR (St 37)

Other material and dimensions on request.

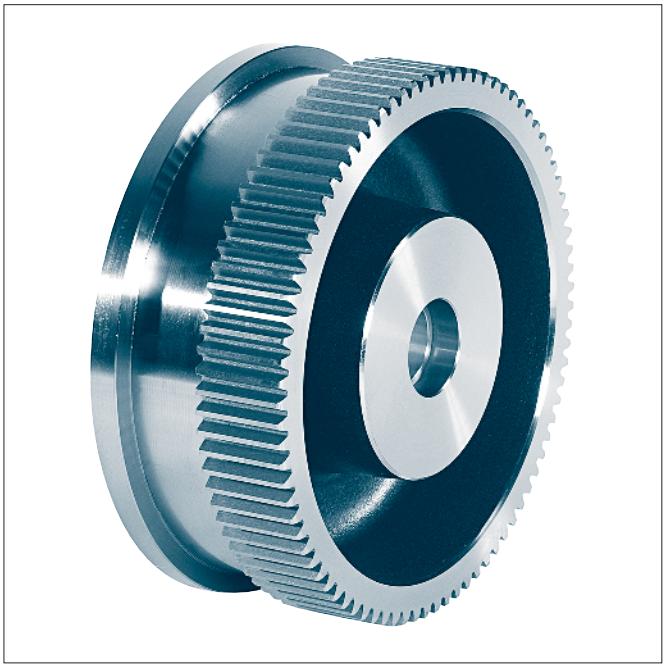
a	b	c_1	c_2	d_1
20	5	60	36	9
25	6	80	50	11
30	8	100	70	13
40	10	140	100	17
50	12	190	140	21
60	16	250	200	25

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

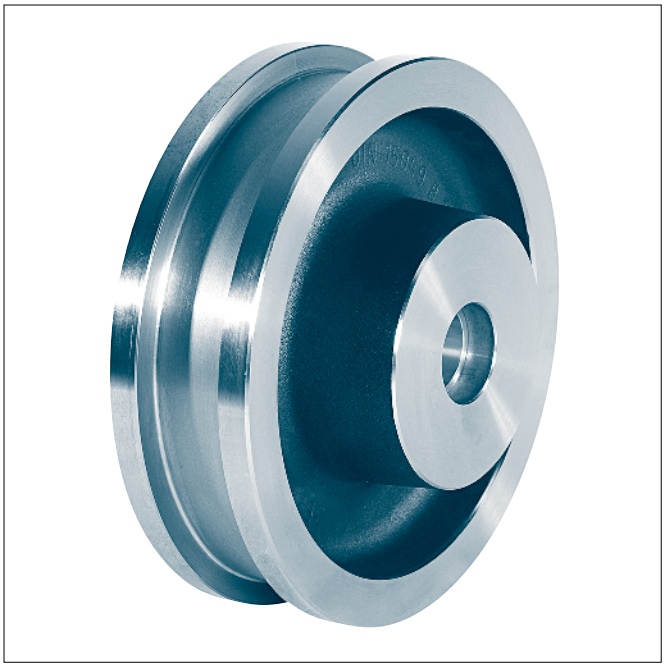
Crane wheels with slide bearing

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-Ø d_1 = 300 mm, gauge b_1 = 55 mm, with plain bearing Ø 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-Ø 300-500	C45 drop forged
Wheel body-Ø 630	GE420 (GS-70) with Ribs
Plain bearings	G-CuSn7ZnPb (Rg 7)

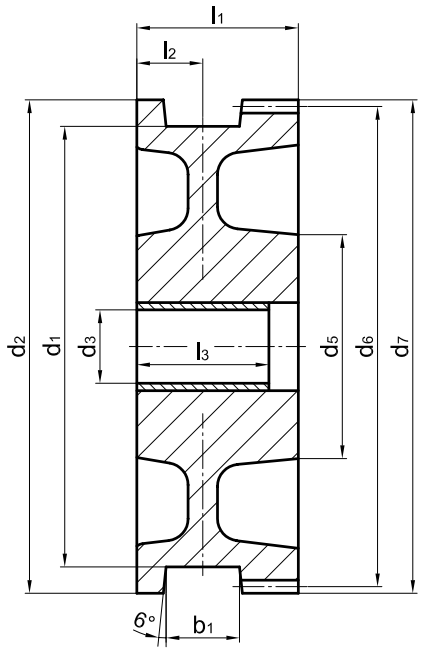
Other material and dimensions on request.

Suitable wheel axles see KG 010.4.

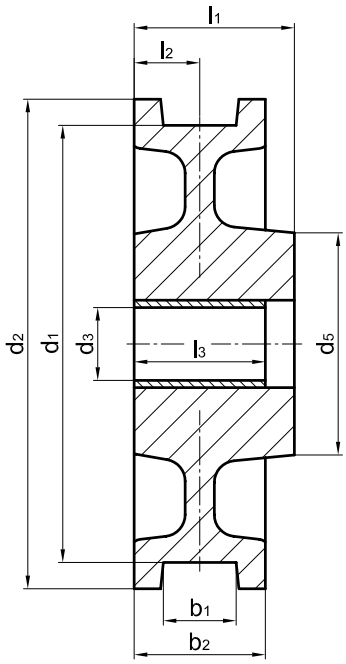
Crane wheels with slide bearing

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.	
h11				E9					modu-lel	no. of teeth	d_6	d_7	form A	form B	form A	form B
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 b_1 to be stated with order.

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

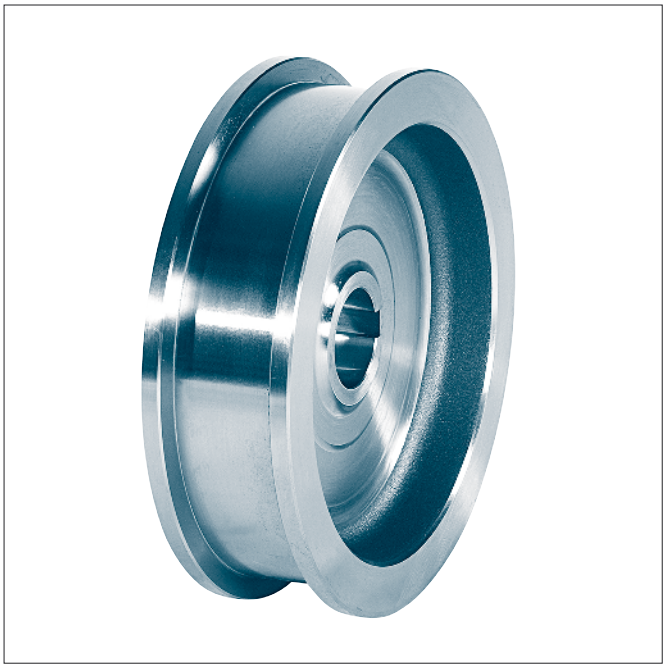
3) Module and number of teeth to be stated with order.
Tooth form according to DIN 867 without appending modification,
Pressure angle 20 degree.

Crane wheels for rotating shafts

KG 013

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

Form A with gear ring



Form B without gear ring

Designation of a travel wheel form A with gear ring, nominal-Ø d_1 = 200 mm, gauge b_1 = 55 mm, bore-Ø 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

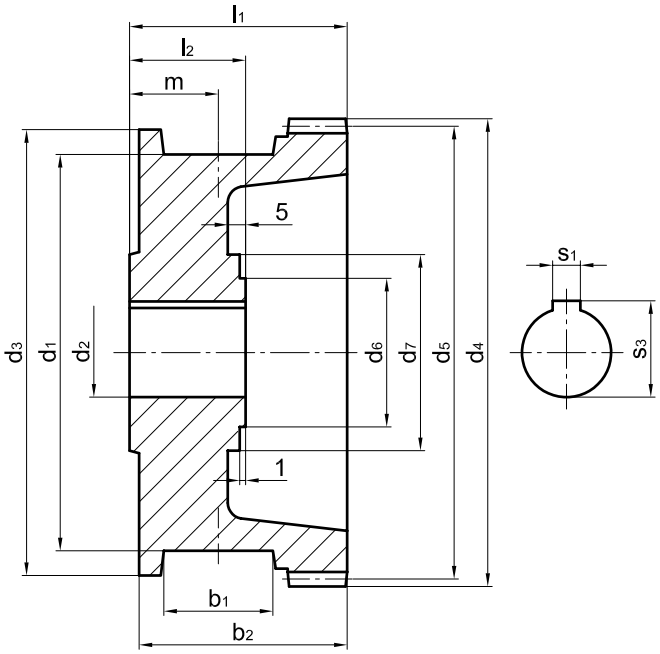
Material: C45

Other material and dimensions on request.

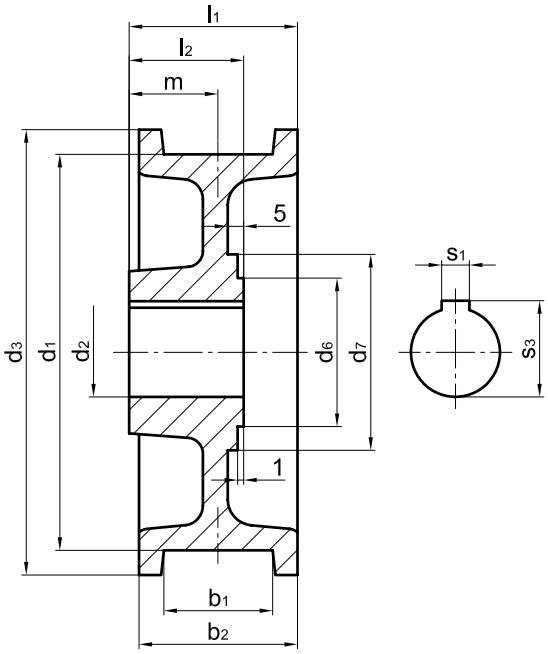
Crane wheels for rotating shafts

KG 013

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



Form A with gear ring

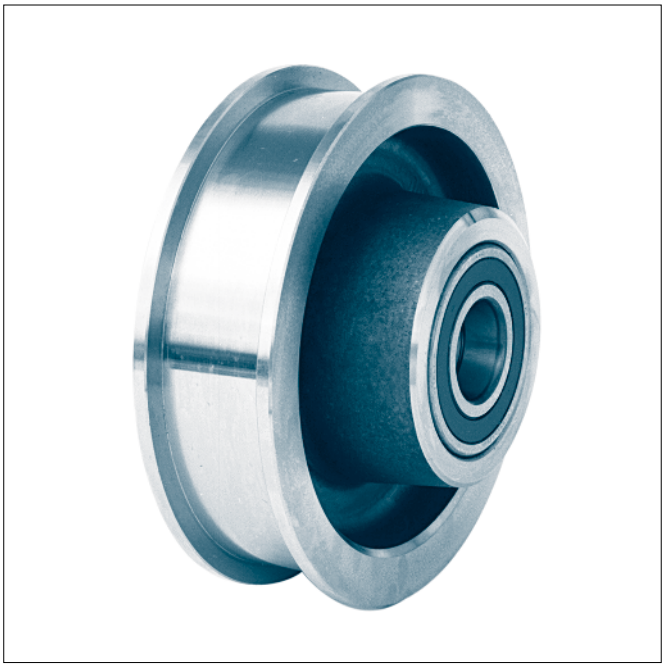


Form B without gear ring

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.	
h11		form A	form B	H7				form A	form B					module	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										4	71					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-Ø d_1 = 300 mm, gauge b_1 = 50 mm, complete with grooved ball bearings, module 3 and nuimber 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.

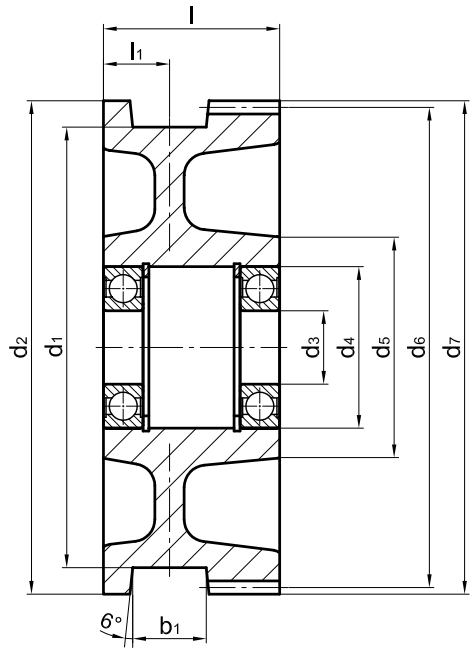
The rolling bearings are lubricated for life.

Material:
Wheel body-Ø 200-400 C45 drop forged

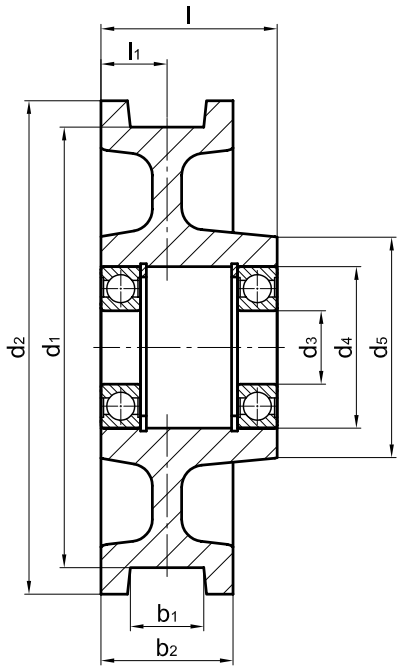
Other material and dimensions on request.

Suitable wheel axles see KG 010.6.

Crane wheels with grooved ball bearings similar DIN 15 049 KG 014



Form A with gear ring



Form B without gear ring

wheel-Ø d_1 h11	b_1 [1]	b_2	d_2	d_3	d_4 M7	d_5	l	l_1	bearing type	gear ring [2] (form A) module	no. of teeht	d_6	d_7	unit weight ≈[kg] form A	form B	wheel load [kg] [3]
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			
300	35-65	90	336	50	110	152	120	45	6310-2RS	3	110	330	336	40	34	4 800
										4	82	328				
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 b_1 to be stated with order.

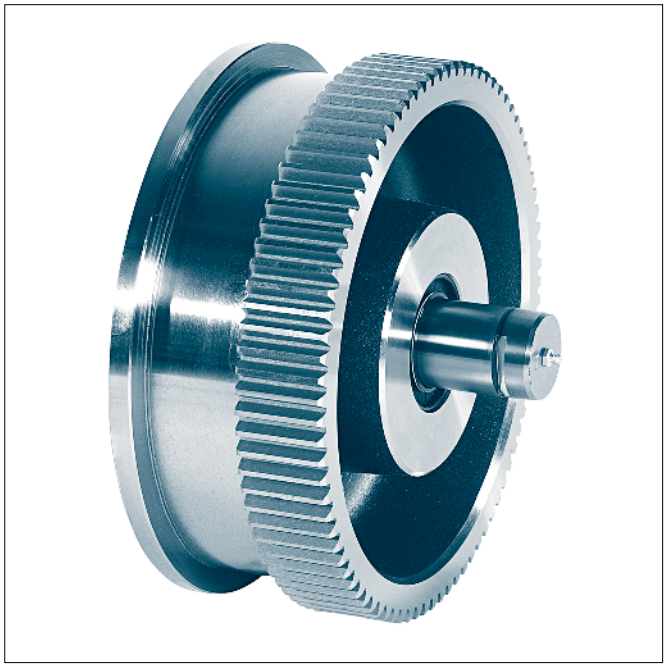
2) Module and number of teeth to be stated with order.
Tooth form according to DIN 867 without appending modification,
Pressure angle 20 degree.

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

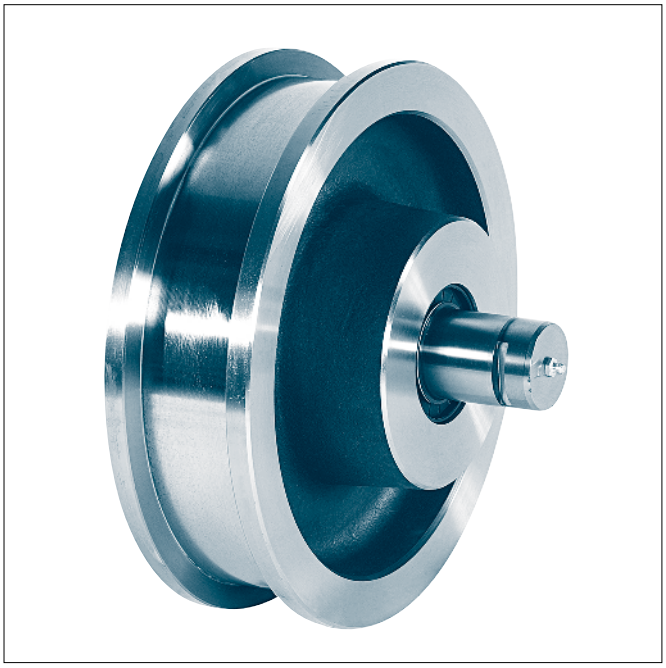
Crane wheels with precision cylindrical roller bearings

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-Ø d_1 = 300 mm, gauge b_1 = 50 mm, complete with cylindrical roller bearings, radial shaft seal rings and hardened axle with Ø 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-Ø 160-500	C45 drop forged
Wheel body-Ø 630	GE420 (GS-70) with ribs
Wheel axle	42CrMo4+QT
	Surfaces hardened to HRc 56-59

Other material and dimensions on request.

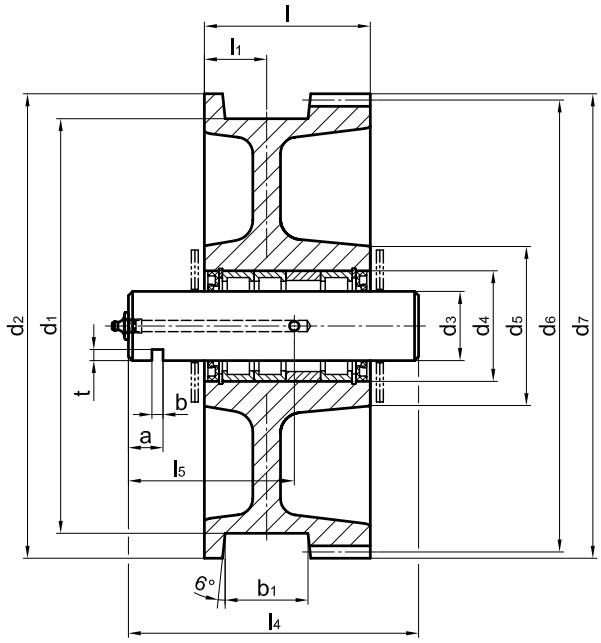
Dimensions of the appropriate wheel axle

for wheel-Ø d_1	d_3 f7	l_4	l_5	a	b +0,5	t +0,5	unit weight ≈[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

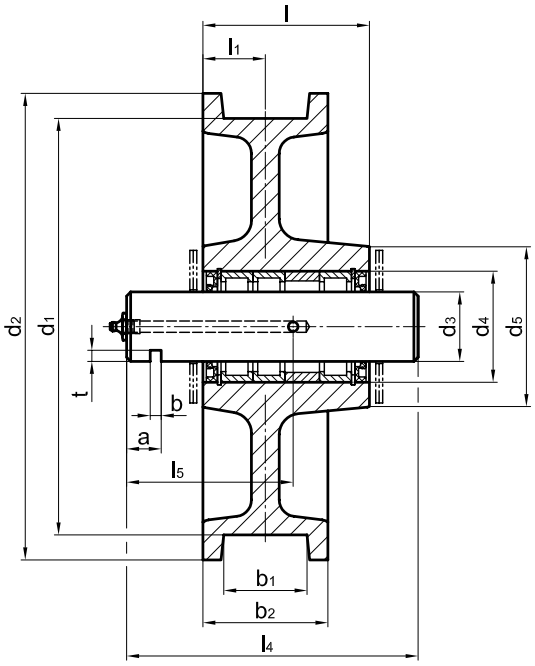
Crane wheels with precision cylindrical roller bearings

similar to DIN 15 049

KG 015



Form A with gear ring



Form B without gear ring

wheel-Ø d_1 h11	b_1 [1]	b_2	d_2	d_3	d_4 M7	d_5	l	l_1	number of bearings	gear ring [2] (Form A) Module	Number of teeth	d_6	d_7	unit weight ≈[kg] Form A	Form B	wheel load [kg][3]
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 b_1 to be stated with order.

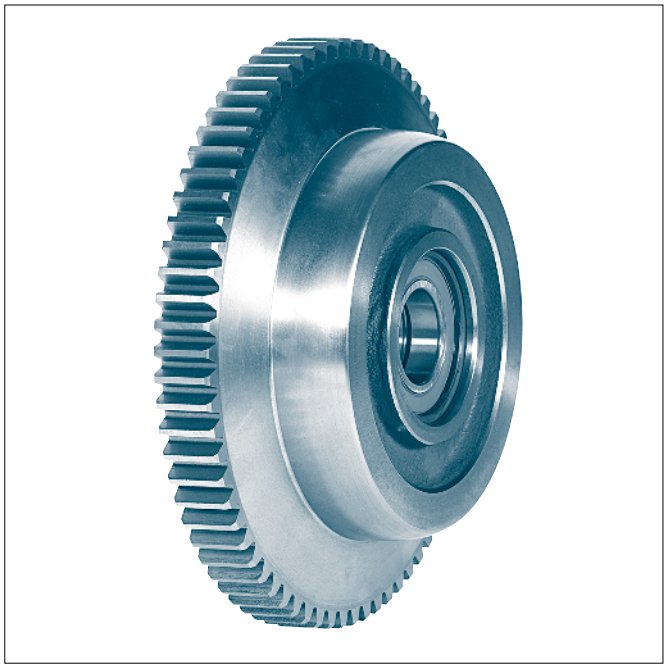
2) Module and number of teeth to be stated with order.
Tooth form according to DIN 867 without profile correction.
Pressure angle 20 degree.

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.

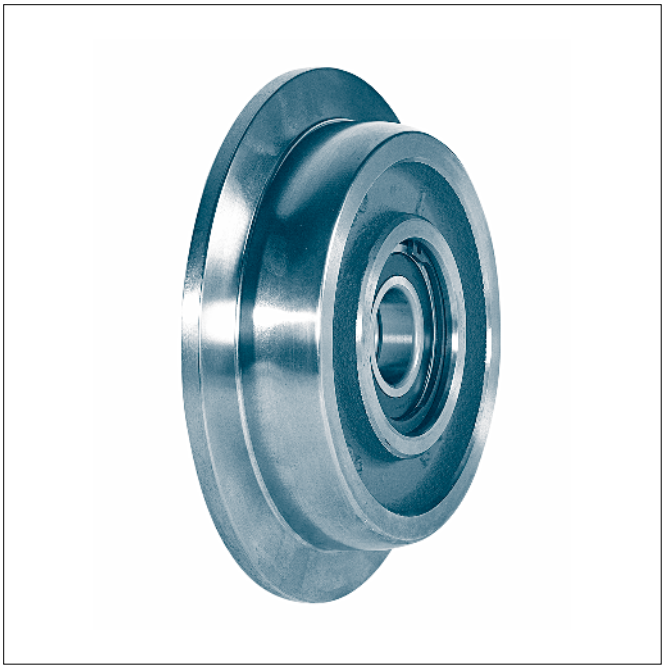
Crane wheels with single wheel flange

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-Ø 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.

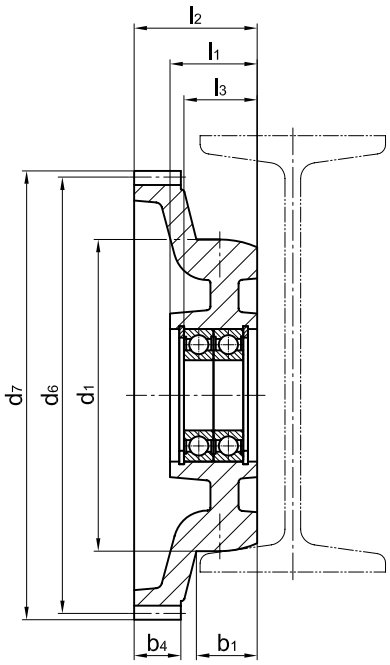
Material:
Wheel body EN-GJS-600-3 (GGG-60)

Other materials and dimensions on request.

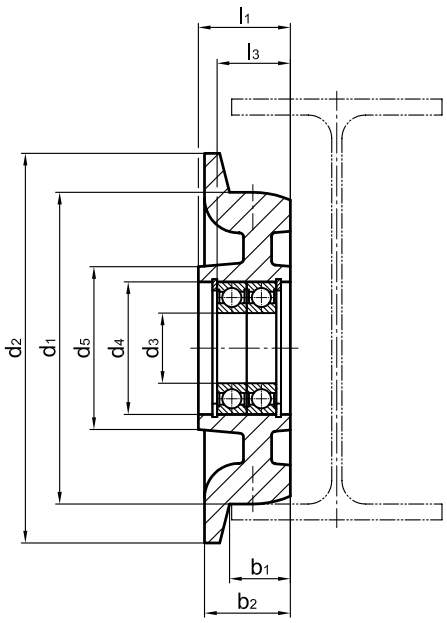
Crane wheels with single wheel flange

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 bearingsr	gear ring [1] (form A)				unit weight ≈[kg]		wheel load
												module	no. of teeth	d_6	d_7			
h11						M7										Form A	Form B	[kg][2]
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

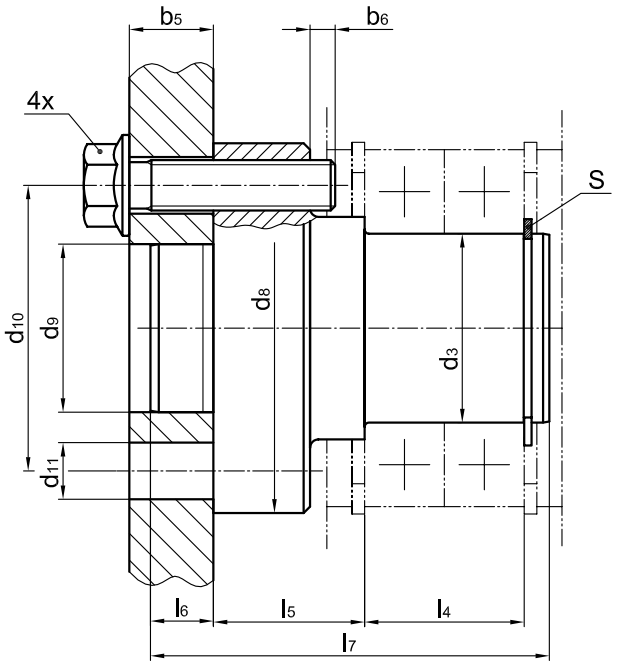
1) Module and number of teeth to be stated with order.
Tooth form according to DIN 867 without profile correction.
Pressure angle 20 degree.

2) The wheel loads stated are valid for v ≈ 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

KG 020.1



Designation of an axle for travel wheel-Ø 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.

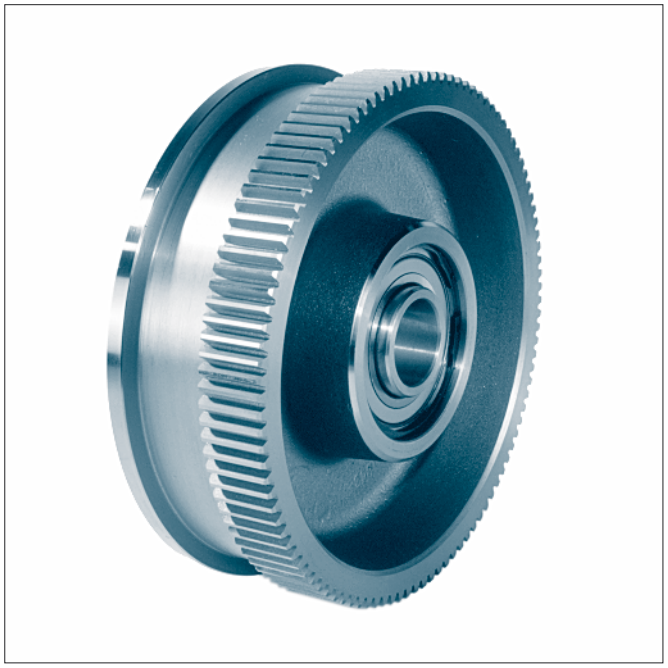
for wheel-Ø d_1	d_3	d_8	d_9 - 0,1	d_{10}	d_{11}	l_4	l_5	l_6	l_7	locking screws (included)	b_5 [1]	b_6 max.	S circlip DIN 471
130	30	67	25	48	4× Ø11	32	23	10	70	M10×30 10.9	12–16	5	30×1,5
160	35	77	35	58	4× Ø11	34	31,5	11	82	M10×35 10.9	12–20	6	35×1,5
200	45	88	40	68	4× Ø13,5	38	36	12	92	M12×40 10.9	12–25	7	45×1,75
300	65	127	50	98	4× Ø17,5	46	44,5	16	114	M16×50 10.9	16–30	11	65×2,5

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

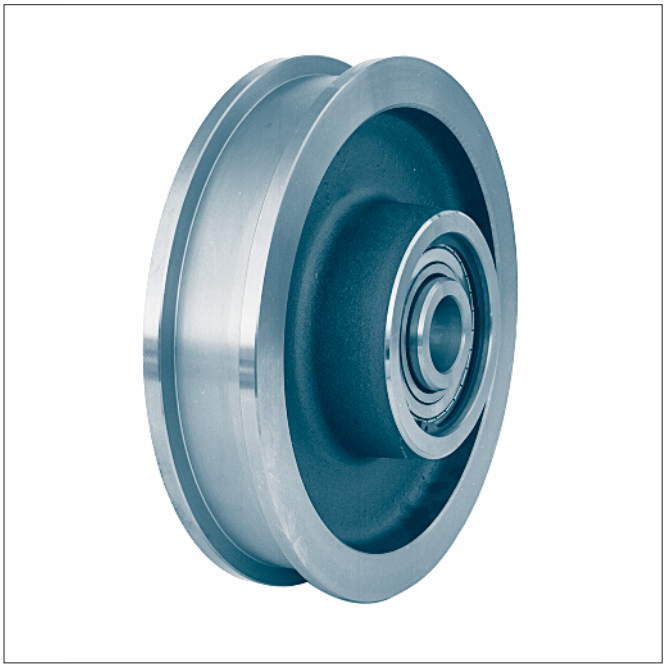
Crane wheels with anti-friction bearings and bush

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-Ø 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:

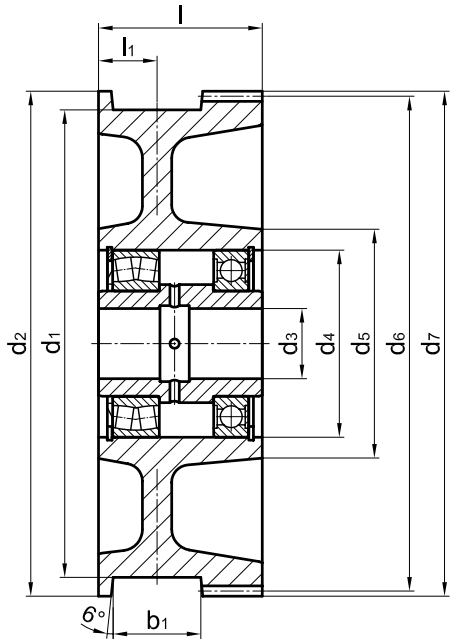
Wheel body-Ø 200-500	C45 drop forged
Wheel body-Ø 630	GE420 (GS-70) with ribs
Bush	S355JR (St 52)

Other materials and dimensions on request.

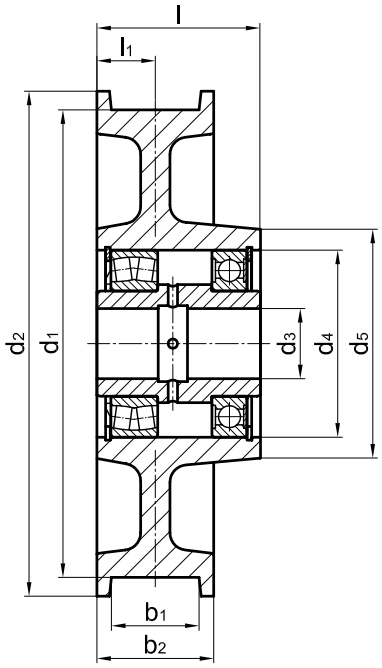
Suitable wheel axles see KG 010.4

Crane wheels with anti-friction bearings and bush

similar DIN 15 049 **KG 030**



Form A with gear ring



Form B without gear ring

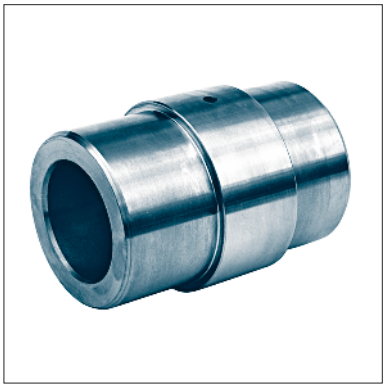
wheel-Ø d_1	b_1 [1]	b_2	d_2	d_3	d_4	d_5	l	l_1	bearing type	gear ring [2] (form A)				unit weight ≈[kg]		wheel load
										module	no. of teeht	d_6	d_7	Form A	Form B	
h11				E9	M7		-0,5									[kg] [3]
200	30-60	80	232	40	90	117	95	40	62 10Z 222 10	3	75	225	231	17,5	16	3 800
										4	56	224	232			
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

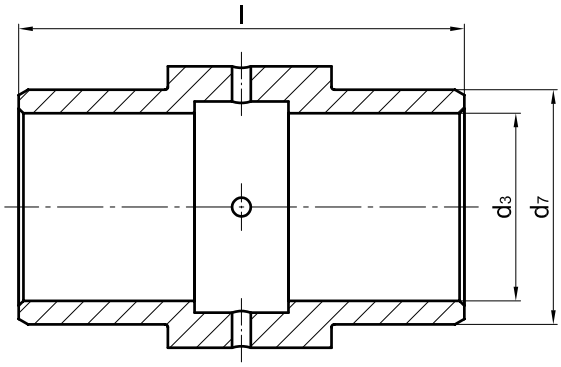
1) The dimension of the gauge recess b_1 to be stated with order.

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

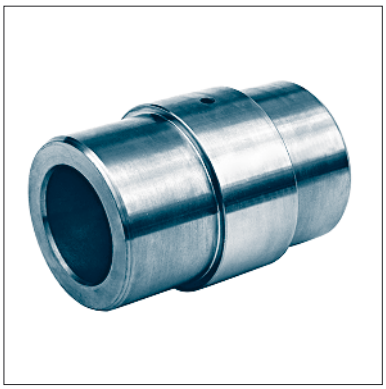
3) The wheel loads stated are valid for v ≈ 40 m/min with an endurance of approximately 10 000 hours and with maximum possible rail head width of the corresponding wheel.

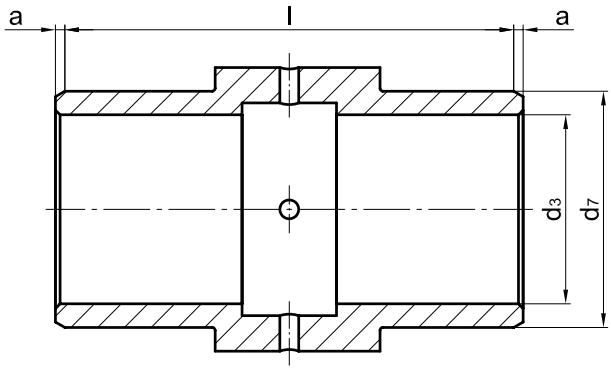
Design 1
length of the bush correlates with the width of the wheel



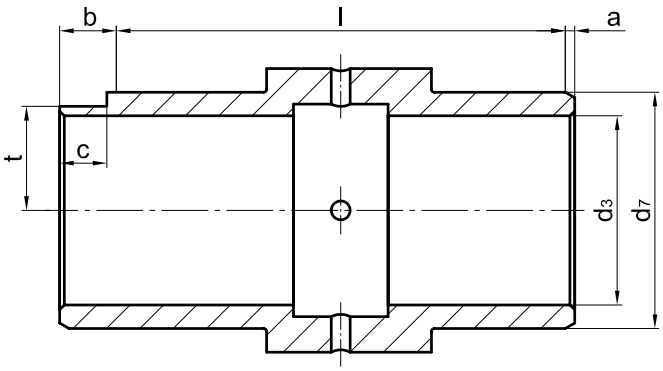


Design 2
bush both-sided over laying at gauge, against wheelbody





Design 3
bush both-sided overlaying against wheel body and with flattening against rotation (mounted on flush hub side resp. opposite gear ring)

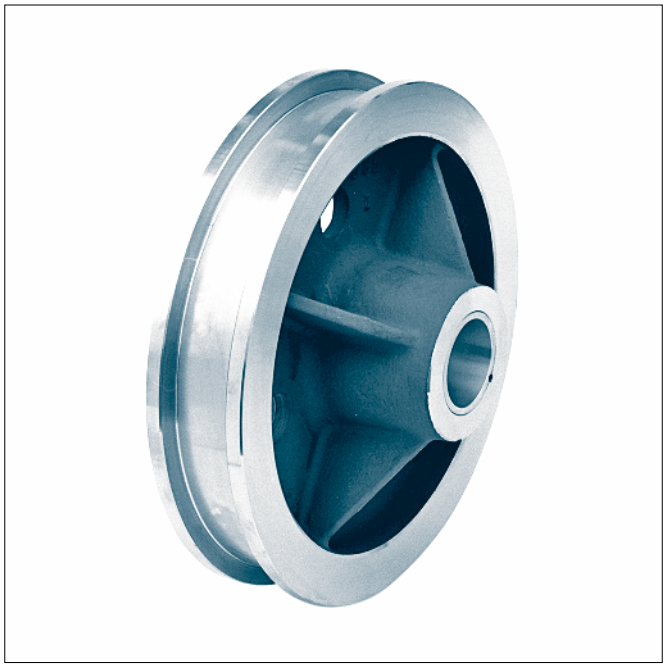


dimensions of the bushing

for Rad-Ø 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

Crane wheels with slide bearing without gear ring

DIN 15 074



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

Crane wheel B 630 × 100 DIN 15 074

Form S narrow crane wheel
Form B broad crane wheel

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

Material:

Wheel body-Ø 200–250	C45 machined from solid
Wheel body-Ø 315–1250	GE420 (GS-70) or G42CrMo4+QT (GS-42CrMo4 V)
Bearings	G-CuSn7ZnPb (Rg 7)

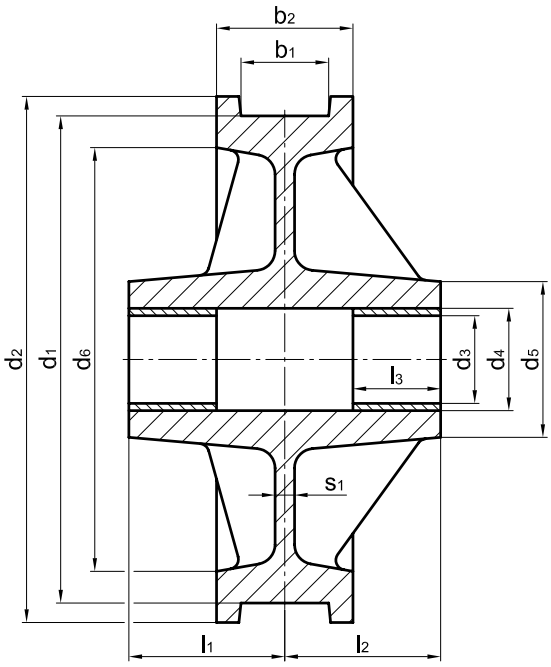
Other materiale and dimensions on request.

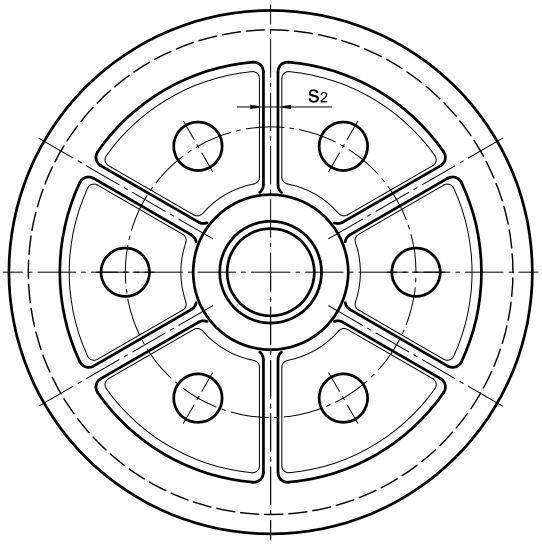
Crane wheels with gear ring see DIN 15075.

See DIN 15070 for basis of calculation for crane wheels.

Crane wheels with slide bearing without gear ring

DIN 15 074





Form	d_1	b_1 [1]	b_2	l_1 [2]			l_2	d_2	d_3	d_4	d_5	d_6	l_3	s_1	s_2	No. of ribs	unit weight
	h9			symetric	asymmetric				D10	H7							≈[kg]
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 lenth of l_3 = 180 mm to use.

Crane wheels with plain bearing with gear ring

DIN 15 075

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

Crane wheel BG 630 × 100 DIN 15 075

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 15 082 part 1.

Material:

Wheel body-Ø 200–250	C45 machined from solid
Wheel body-Ø 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 15 074.

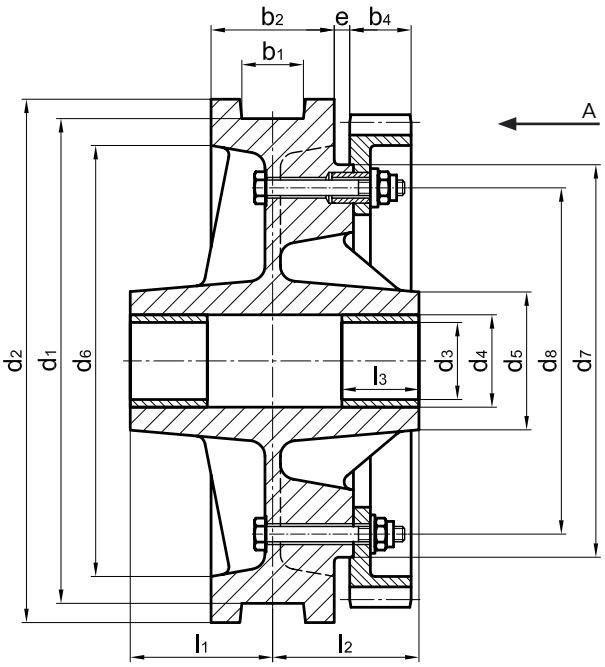
See DIN 15070 for basis of calculation for crane wheels.

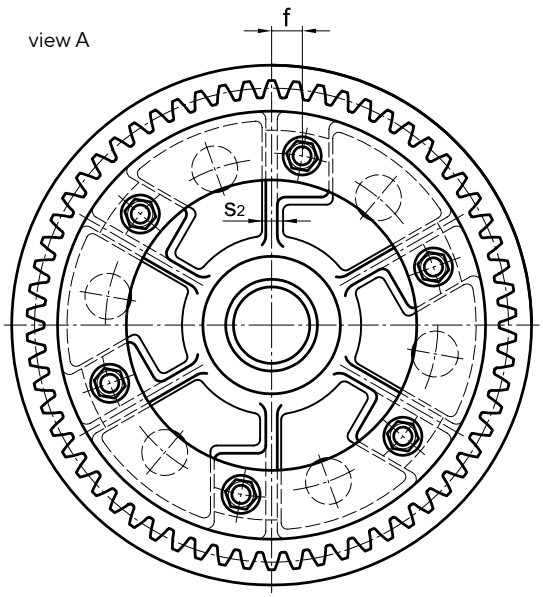
Remarks to the following table:

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 lenth of l_3 = 180 mm to use.

Crane wheels with plain bearing with gear ring

DIN 15 075





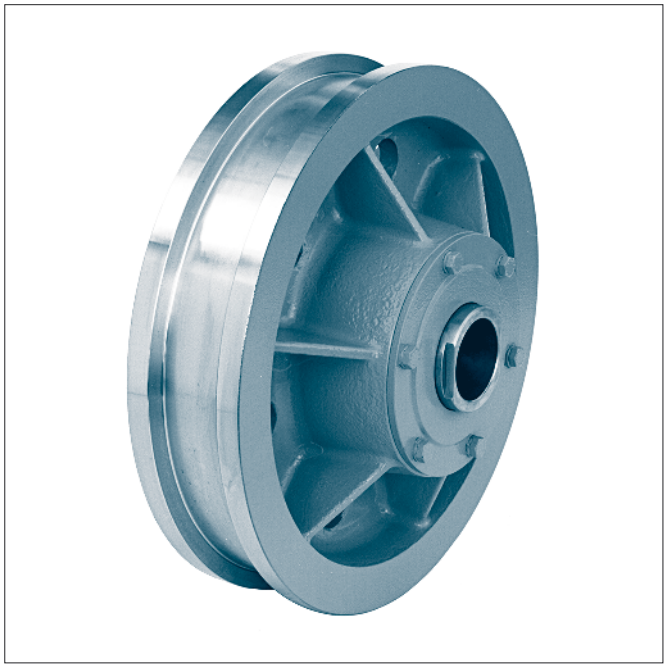
Form	d_1	b_1 [1]	b_2	l_1 [2]			l_2	d_2	d_3	d_4	d_5	d_6	d_7	d_8	gear ring (form A)			e	f	l_3	s_1	s_2	no. of ribs and cams	unit weight
				sym-me-tric	asymme-tric										Mo-dule	no of teeth	b_4							
	h9								D10	H7			h9											≈[kg]
SG	**200**	40–55	90	105	80	60	105	230	45	55	85	170	160	125	5	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			50				58
SG	**315**	45–55	90	125	95	65	125	350	60	75	120	270	260	200	6	52	60			63				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		70–90	140	155	120	90	155						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		70–90	140	160	125	90	160						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		80–110	160	185	140	100	185						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		95–160	210	220	170	125	220						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		95–160	210	230	175	125	230						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		95–160	210	240	180	125	240						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		95–160	210	240	180	125	240						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 15 078

self aligning roller bearings series 222



Designation of a travel wheel form B with nominal-Ø d_1 = 630 mm, gauge b_1 = 100 mm, including self aligning roller bearings 222 26, cover with labyrinth gland:

Crane wheel B 630 × 100 DIN 15 078

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 15 086).

Design of the covers see DIN 15 084.
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 15 074.

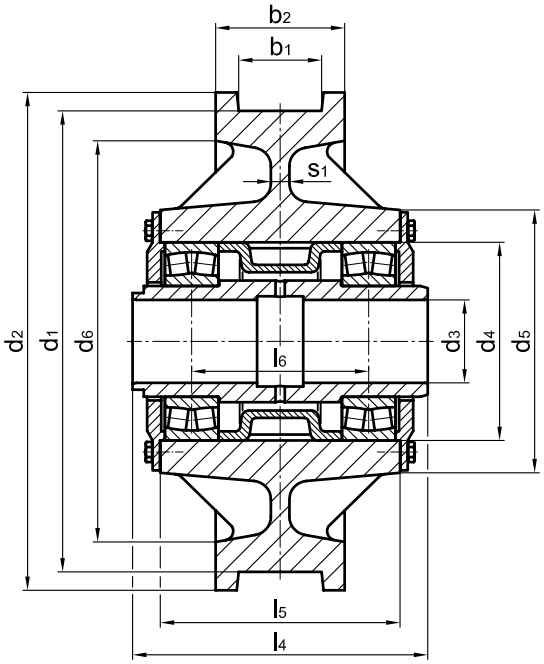
See DIN 15070 for basis of calculation for crane wheels.

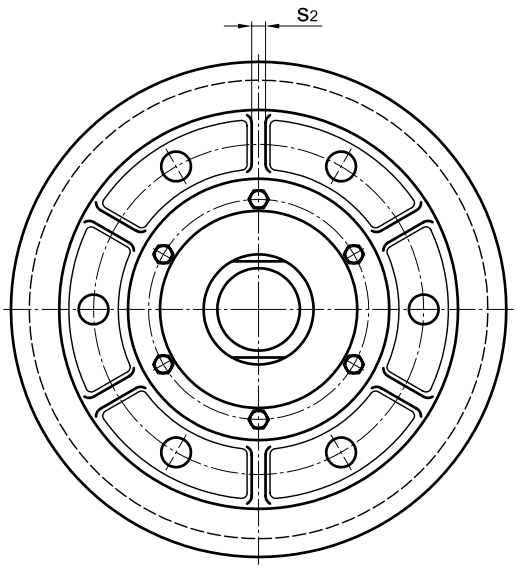
Calculation of bearing load of wheels for service life calculation of anti-friction bearing see DIN 15 071.

Crane wheels with self aligning roller bearings, without gear ring

DIN 15 078

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 b_1 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 alignig roller bearings, with gear ring

DIN 15 079

self aligning roller bearings series 222

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

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

Designation of a travel wheel form BG with nominal-Ø 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 15 079

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 15 086).

Design of the covers see DIN 15 084.
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 15 082 part 1 and part 2.

Appendant travel wheels without gear ring see DIN 15 078.

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 15 071.

Remarks to the following table:

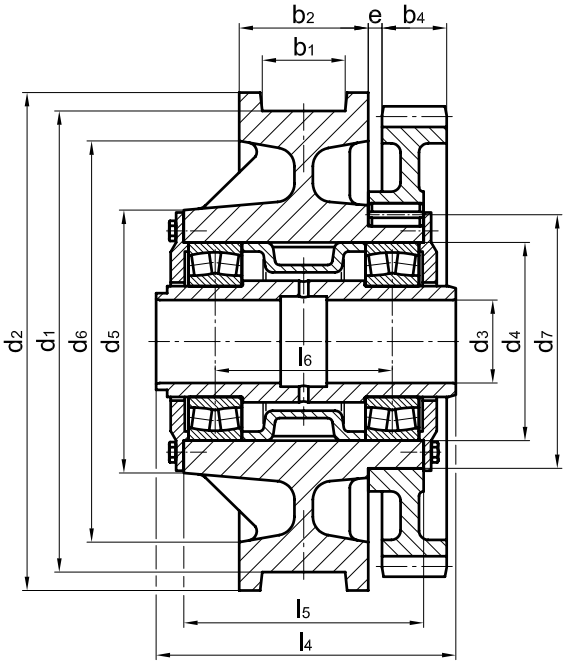
1The dimension of the gauge recess b_1 to be stated with order. For running surface profiles and correspondence of crane rails to running wheel diameter see DIN 15072.

2) exposition the dimensions see DIN 15 075

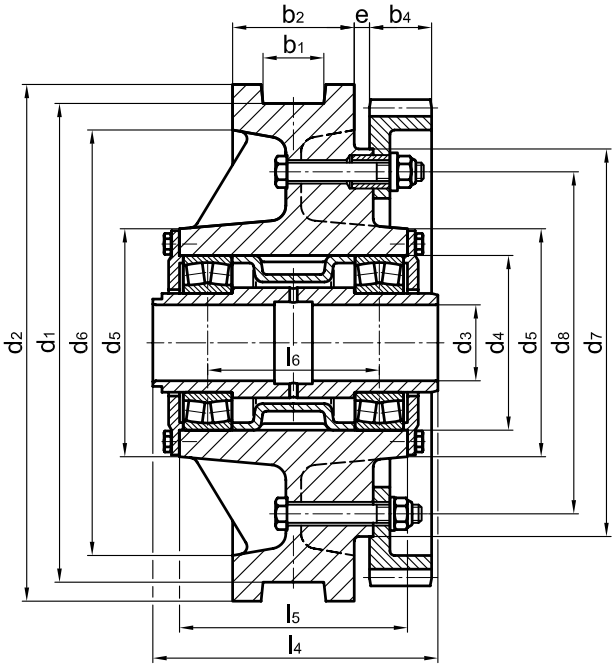
Crane wheels with self aligning roller bearings, with gear ring

DIN 15 079

self aligning roller bearings series 222



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



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

form	d_1 h9	b_1 [1]	b_2	d_2	d_3 D10	d_4 M7	d_5	d_6	d_7	d_7 tolerance zone	d_8	gear ring module	gear ring no. of teeth	b_4	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]
SG	315	45-55	90	350	60	160	220	270	210	r6	–	6	52	60	15	–	250	190	140	18	–	–	22218	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	–	–	22220	140
SG													50											152
BK		70-90	140										40				310	250	194					160
BG													50											172
SK	500	55-65	110	540	90	215	285	435	275	r6	–	10	42	70	15	35	290	230	162	20	15	4 without Nocken	22224	220
SG													49											232
BK		70-90	140										42				320	260	192					240
BG													49											252
SK	630	65-75	120	680	100	230	300	560	460	h9	400	10	54	80	20	40	330	260	186	20	15	6	22226	308
SG									510		450		62											323
BK		80-110	160						460		400		54				370	300	226					396
BG									510		450		62											411
SK	710	75-90	140	760	110	270	340	630	510	h9	450	12	50	90	20	40	370	300	217	25	18	6	22230	446
SG									580		520		58											471
BK		95-160	210						510		450		50				440	370	287					589
BG									580		520		58											614
SK	800	75-90	140	850	125	290	360	710	610	h9	550	12	58	100	20	40	390	320	230	25	18	6	22232	568
SG									660		600		66											588
BK		95-160	210						610		550		58				460	390	300					728
BG									660		600		66											748
SK	900	75-90	140	950	140	320	390	805	680	h9	620	14	56	110	20	40	410	340	244	25	18	6	22236	720
SG									750		690		63											750
BK		95-160	210						680		620		56				480	410	314					890
BG									750		690		63											920
SK	1000	75-90	140	1050	160	360	450	900	790	h9	710	14	64	110	20	50	410	330	222	30	20	6	22240	940
SG									840		760		70											965
BK		95-160	210						790		710		64				480	400	292					1130
BG									840		760		70											1155
BK	1120	95-160	220	1180	180	400	490	1010	880	h9	800	16	62	125	20	50	520	440	322	30	20	8	22244	1480
BG									950		870		68											1530
BK	1250	95-160	220	1310	200	440	530	1140	1000	h9	920	16	70	125	20	50	520	440	310	30	20	8	22248	1730
BG									1080		1000		76											1770

footnote see page 38

Gear rings, screwed on

for crane wheels with slide bearings acc. to DIN 15 075
for crane wheels with anti friction bearings acc. to DIN 15 079 with wheel-Ø $d_1 \geq 630$ mm

DIN 15 082
part 1

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

Gear ring G 500.1 DIN 15 082

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 1250	GE300 (GS-60) or G42CrMo4+QT

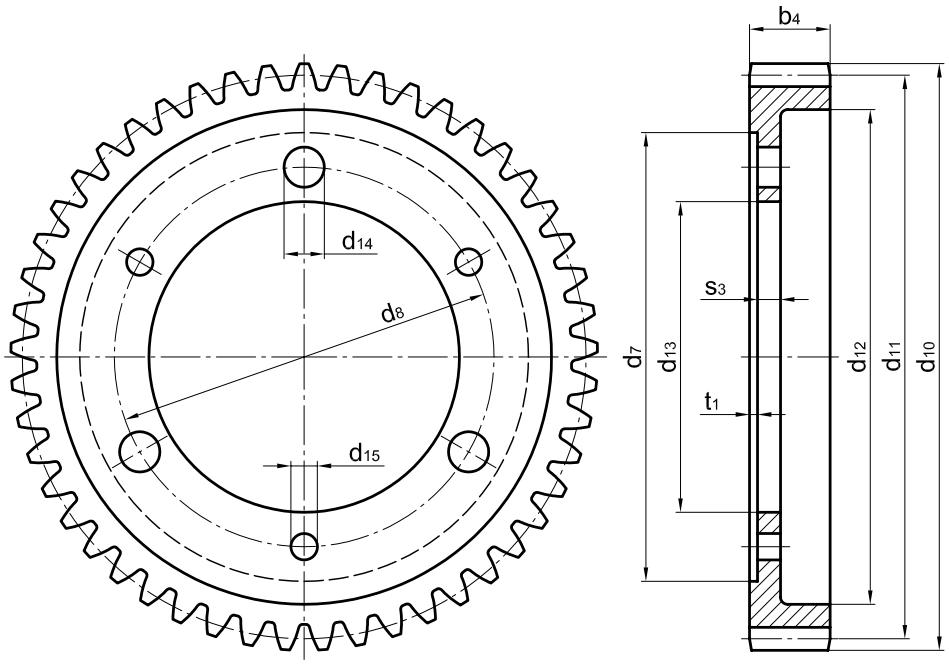
Other material and dimensions on request.

Gear rings for crane wheels with anti friction bearings and wheel-Ø ≤ 500 mm see DIN 15 082 Part 2.

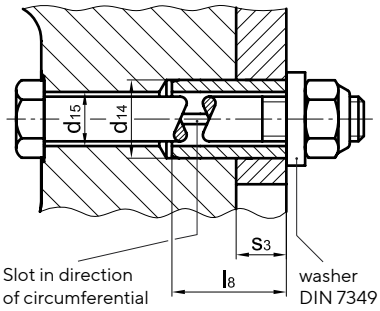
Gear rings, screwed on

for crane wheels with slide bearings acc. to DIN 15 075
for crane wheels with anti friction bearings acc. to DIN 15 079 with wheel-Ø $d_1 \geq 630$ mm

DIN 15 082
Part 1



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



for wheel-Ø	clamping sleeve		for
d_1	d_{14}	l_8	screw
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-Ø d_1	form	number of teeth [1]	module	b_4	d_7 H7	d_8	d_{10} h11	d_{11}	d_{12}	d_{13}	d_{14} H13	d_{15}	s_3	t_1	number of bores d_{14}/d_{15}	unit weight »[kg]
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 15 079 with wheel-Ø $d_1 \leq 500$ mm
self aligning roller bearings series 222

DIN 15 082
part 2

Form K small gear ring (Photo 1)

Form G large gear ring (Photo 2)

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

Gear ring G 500.2 DIN 15 082

Form K small gear ring
Form G large gear ring

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

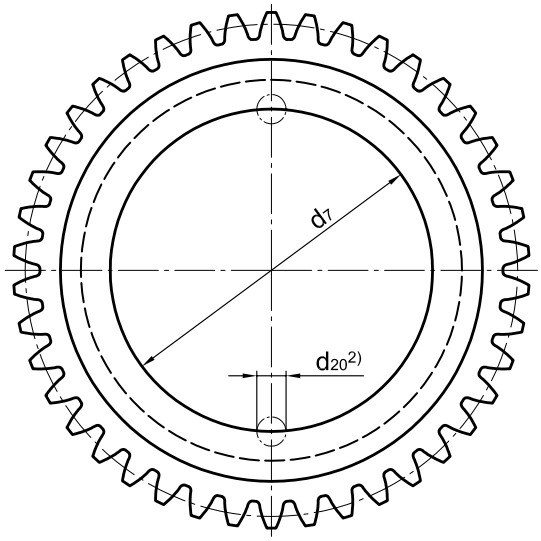
Other material and dimensions (e.g. wheels with self aligning roller bearings series 223) on request.

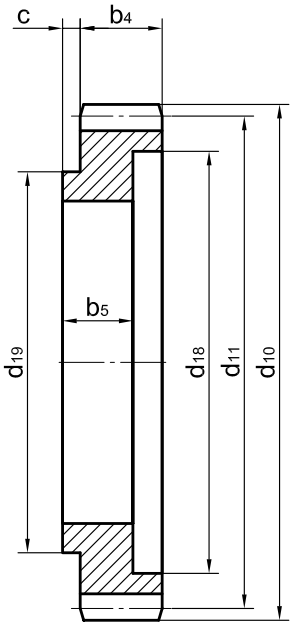
Gear rings for wheels with self aligning roller bearings of wheel-Ø ≥ 630 mm see DIN 15 082 part 1.

Gear rings, pressed on

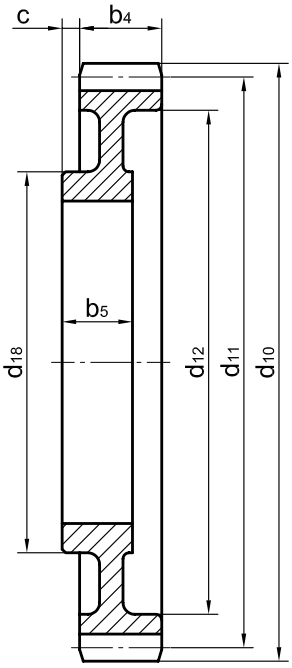
for crane wheels with anti friction bearings acc. to DIN 15 079 with wheel-Ø $d_1 \leq 500$ mm
Rolling bearings series 222

DIN 15 082
Teil 2





drawing 1



drawing 2

wheel-Ø d1	drawing	form	no. of teeth[1]	module	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

Bandages, machined
for crane wheels as per DIN

DIN 15 083

Bandage with flanges

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

Bandages B 630 × 100 DIN 15 083

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.

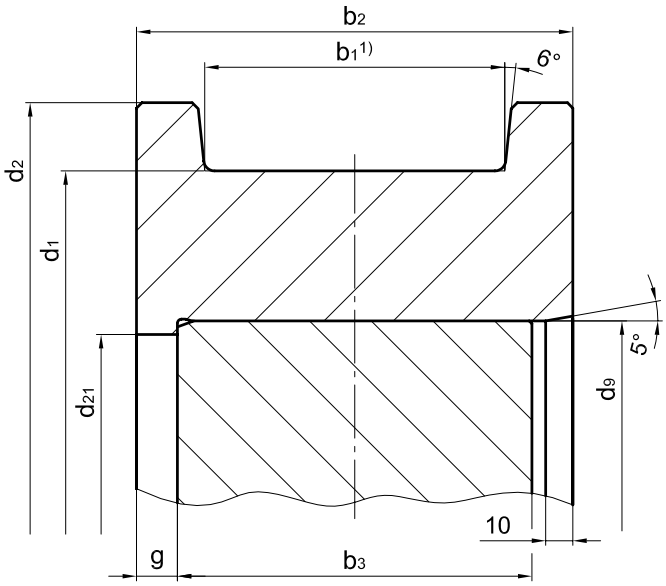
Material: C 60 or
42CrMo4+QT (42CrMo4 V) or
34CrNiMo6+QT (34CrNiMo6 V) or
50CrMo4+QT (50CrMo4 V)

Other material and dimensions on request.

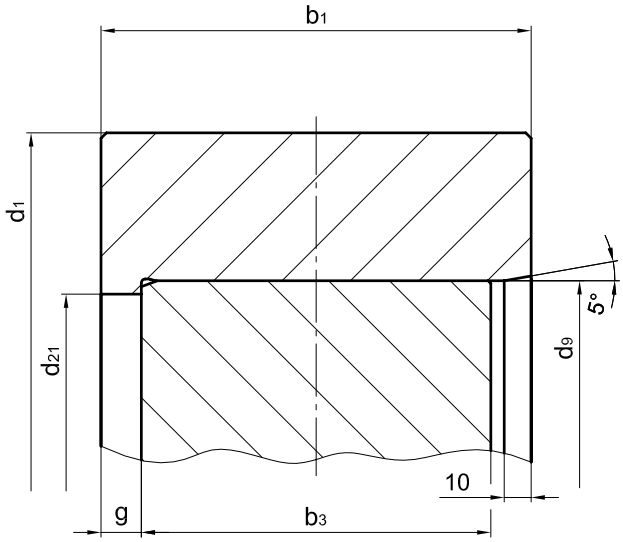
Bandages, machined

for crane wheels as per DIN

DIN 15 083



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]	
							tolerance					
	h9						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 b_1 to be stated with order. For running surface profiles and correspondence of crane rails to running wheel diameter see DIN 15072

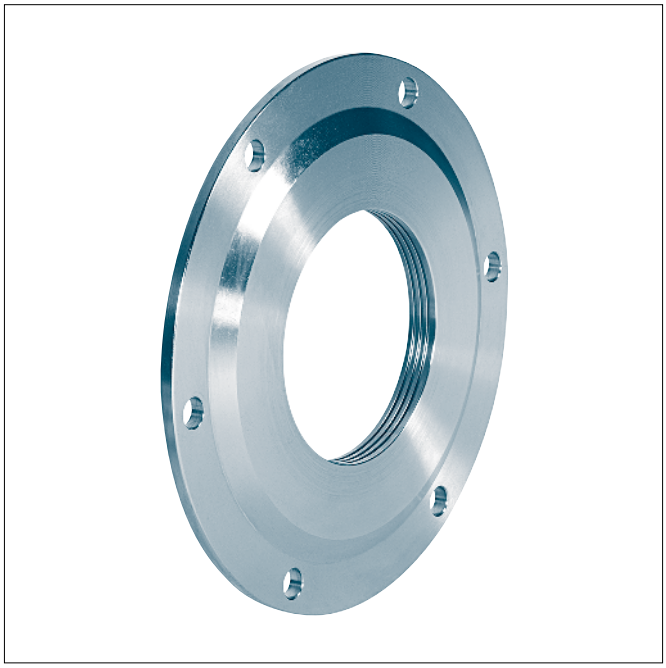
2) Heating temperature of the bandages 250 - 300 °C at 20 °C room temperature. The leading clearance in 40-50 % of the expansion at a heating of the bandage at 230-280 °C.

3) weight refers to max. b_1.

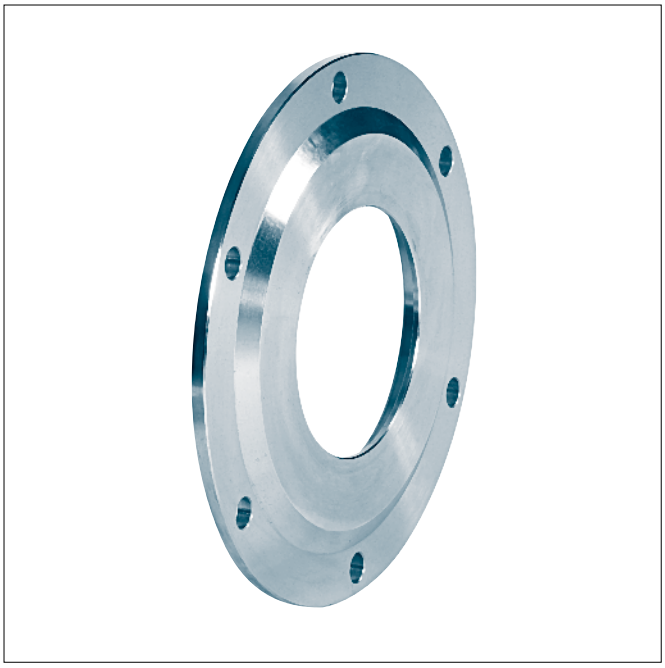
Covers

for wheels acc. to DIN 15 078 and 15 079
Rolling bearings series 222

DIN 15 084



Form A with labyrinth gland



Form B for radial shaft seal rings

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

Covers A 500 DIN 15 084

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.

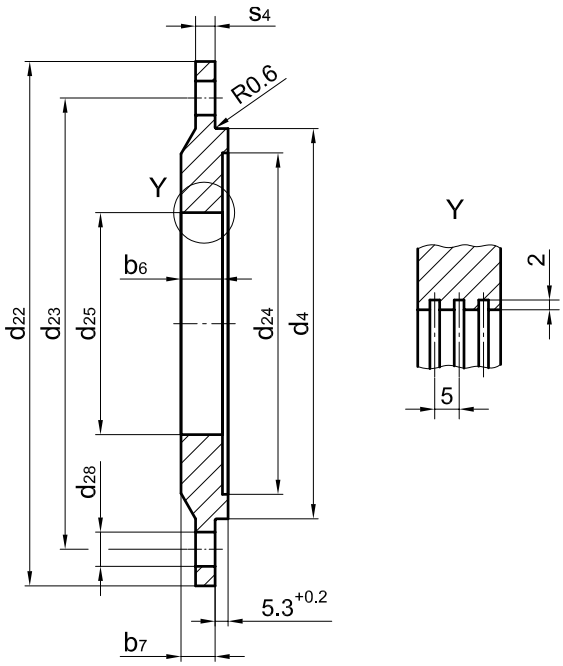
Material: S355J2G3 (St 52-3)

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

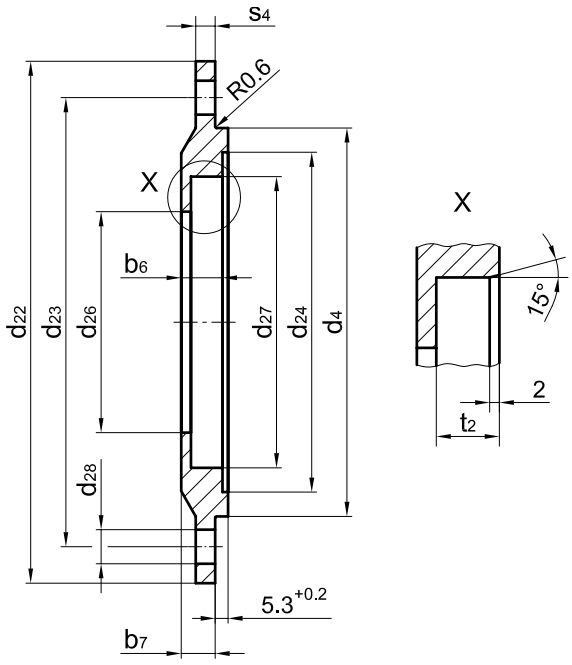
Covers

for wheels acc. to DIN 15 078 and 15 079
Rolling bearings series 222

DIN 15 084



Form A with labyrinth gland[1)]



Form B for radial shaft seal rings[2)]

for wheel-Ø 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

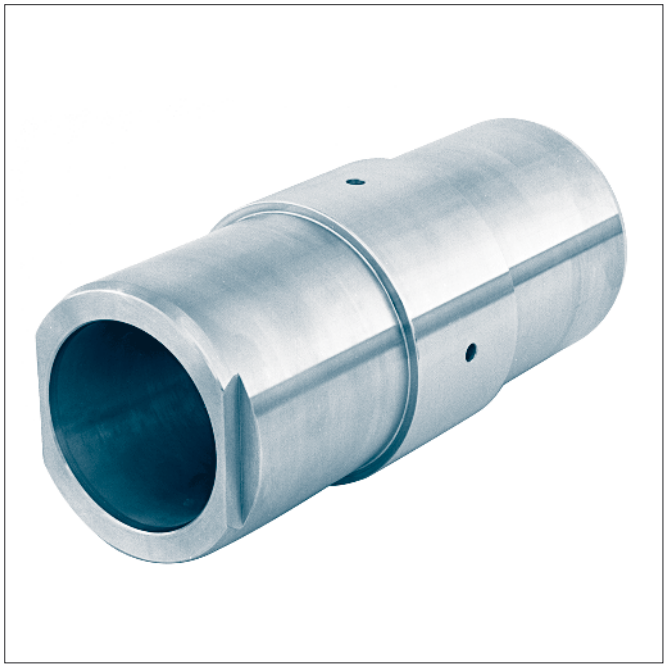
1) Without certain agreement, covers form A will be ínstalled.

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

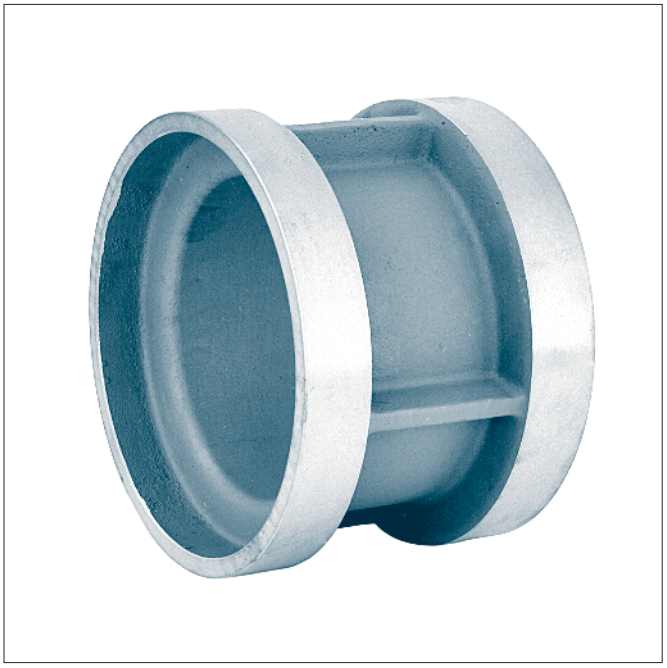
Internal bushing and spacers rings

for crane wheels acc. to DIN 15 078 and 15 079
Rolling bearings series 222

DIN 15 086



Internal bush



Spacer ring

Designation of a internal bush for wheel-Ø d_1 = 500 mm form B acc. to DIN 15 078 and 15 079:

Internal bush B 500 DIN 15 086

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.

Designation of a spacer ring for wheel-Ø d_1 = 630 mm form S acc. to DIN 15 078 and 15 079:

Spacer ring S 630 DIN 15 086

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

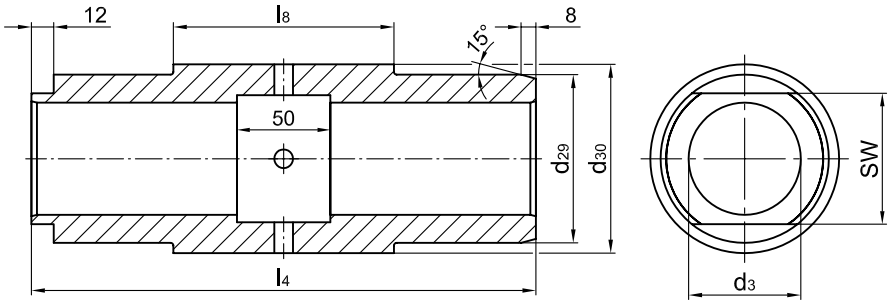
Other material and dimensions(e.g. for rolling bearings series 223) on request.

Internal bushing and spacer rings

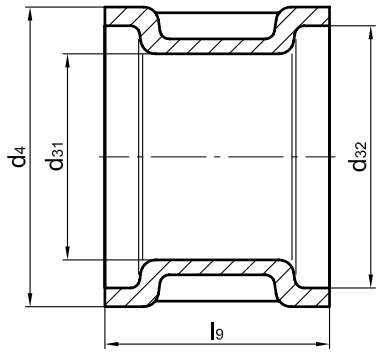
DIN 15 086

for crane wheels acc. to DIN 15 078 and 15 079
Rolling bearings series 222

Internal bush



Spacer ring

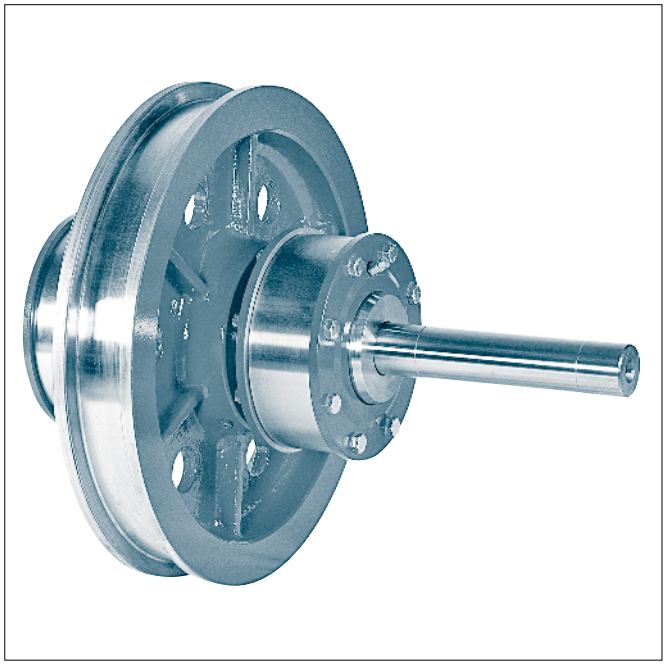


for crane wheel		Rolling bearings		d_3	d_4	d_{29}	d_{30}	d_{31}	d_{32}	l_4	l_8	l_9	width across flats
Form	d_1	type	width of bearing	D10	−0,2 −0,4	g6				−0,5		+0,2	S
S	**315**	22218	40	60	160	90	101	110	140	250	99,4	100	70
B										270	119,4	120	
S	**400**	22220	46	80	180	100	113	135	160	280	117,4	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 15 090



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 - Ø d_1 = 630 mm and width b_1 = 110 mm, self aligning roller bearings series 222:

Driven wheel set SHKE 630 × 110 - 222 DIN 15 090

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.

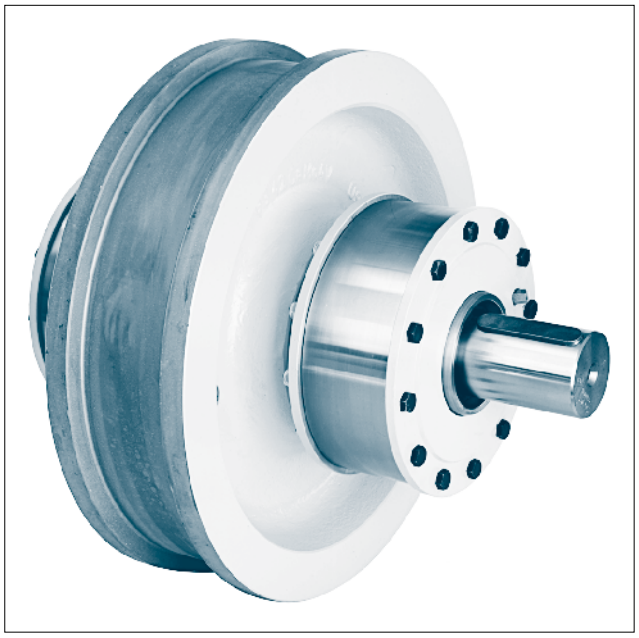
Form coding

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

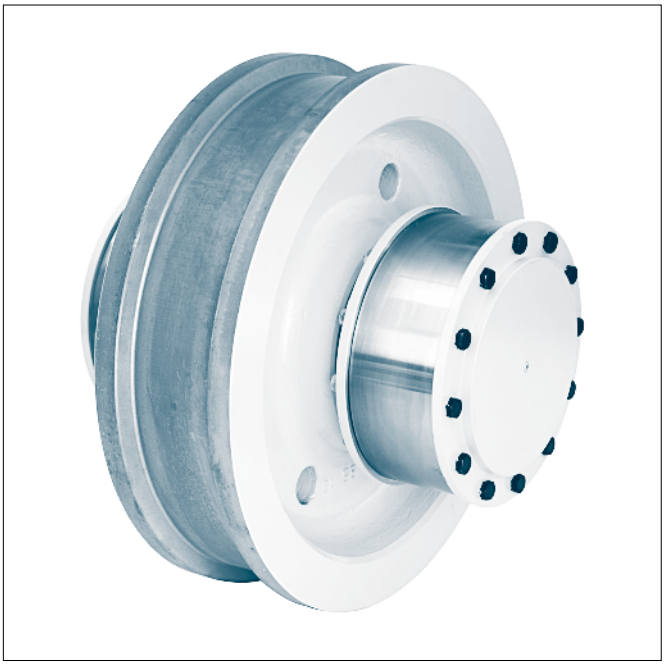
Driven- and Nondriven wheel sets with self aligning roller bearings

Rolling bearings series 222 and 223

DIN 15 090



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 - Ø d_1 = 630 mm and width b_1 = 160 mm, self aligning roller bearings series 222:

Nondriven wheel set BGMD 630 ×160 - 222 DIN 15 090

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

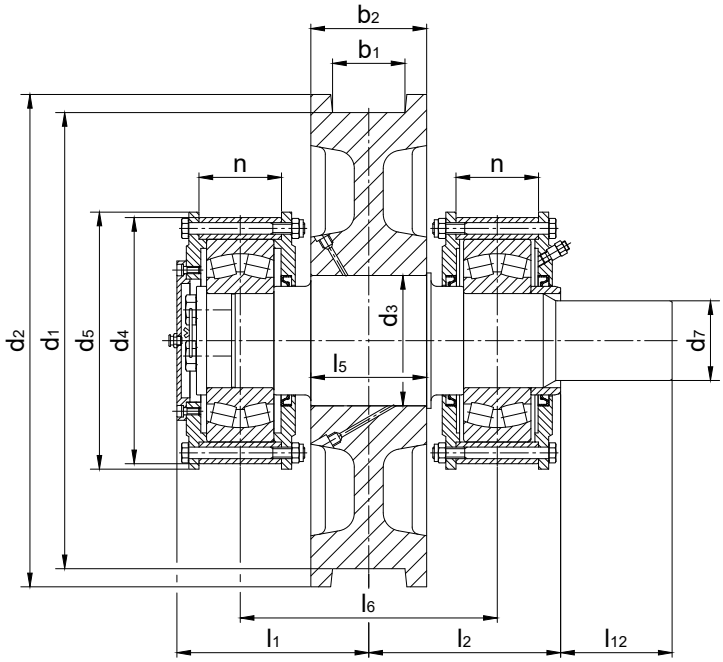
Other material and dimensions on request.

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

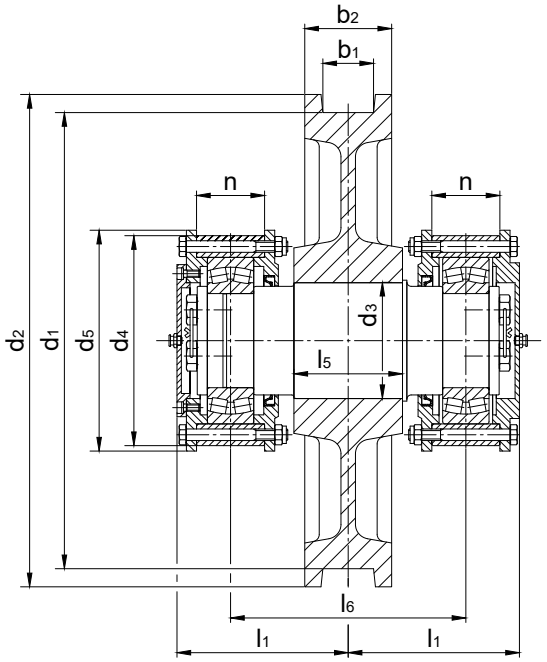
DIN 15 090

Rolling bearings series 222 and 223



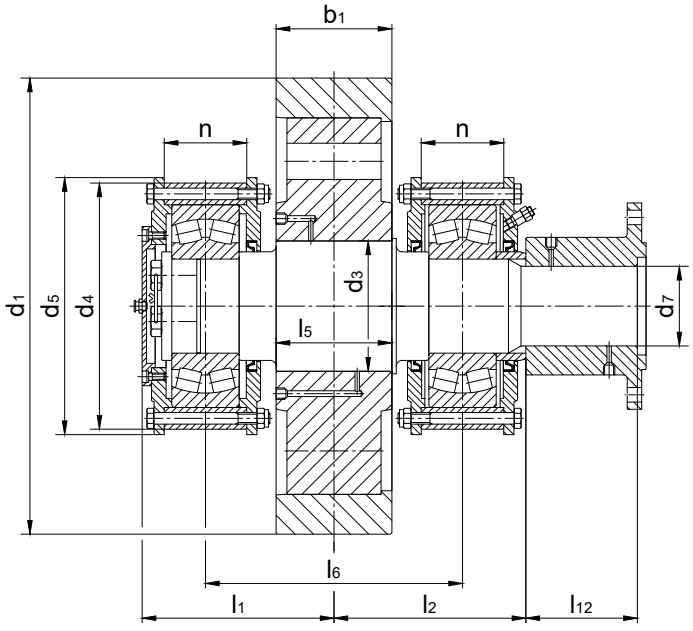
Driven wheel set Form BHKD

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



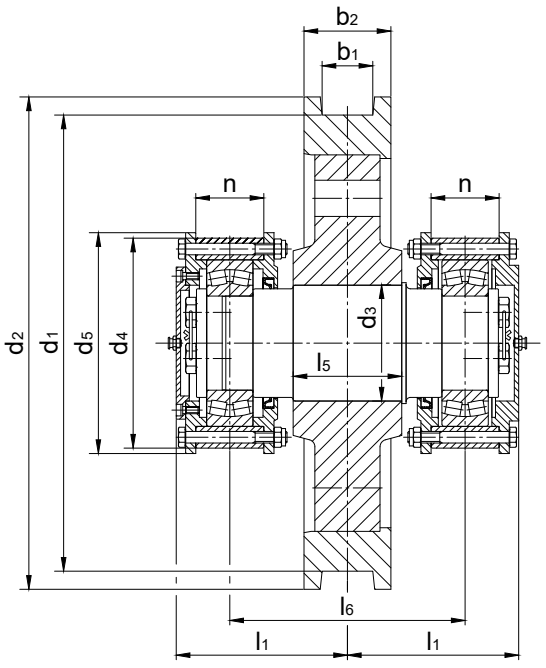
Nondriven wheel set Form SHKE

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

	dimension and form												bearings acc. to DIN 635-2	dimension (driven wheel sets)				
d_1 h9	Form[1]	b_1[2]	b_2	d_2	d_3	d_4 h7	d_5	d_9[3]	l_5	l_1 ≈	l_6	n +0,15 +0,05		l_2	d_7[4] series 1	l_{12} series 1	d_7[4] series 2[5]	l_{12} 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	280	72	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	290	82	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	245	335		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	278	395	104	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	289	405	114	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	315	430	134	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	332	450	146	222 44	355	160	202	180	252

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

	dimension and form												bearings acc. to DIN 635-2	dimension (driven wheel sets)				
d_1 h9	Form[1]	b_1[2]	b_2	d_2	d_3[3]	d_4 h7	d_5	d_9[4]	l_5	l_1 ≈	l_6	n +0,15 +0,05		l_2	d_7[4] series 1	l_{12} series 1	d_7[4] series 2[5]	l_{12} series 2[5]
315	S	45–55	90	350	110	220	230	–	110	183	245	72	22316	185	–	–	70	105
	B	55–65	110		120	240	250			191	255	82	22318	190	70	105	80	120
400	S	55–65	110	440	120	240	250	310	140	206	285	82	22318	205	70	105	80	120
	B	70–90	140		130	265	275			216	295	92	22320	215	80	120	90	132
500	S	55–65	110	540	130	265	275	400	140	216	295	92	22320	215	80	120	90	132
	B	70–90	140		140	300	315			242	325	104	22322	245			100	152
630	S	65–75	120	680	160	300	315	520	150	247	335	104	22322	250	–	–	100	152
	B	80–110	160		180	340	355		160	265	355	114	22326	265	100	152	110	
710	S	75–90	140	760	170	320	335	590	180	259	360	104	22324	260	100	152	110	152
	B	95–160	210		190	360	375		210	300	415	124	22328	300	110	152	130	172
800	S	75–90	140	850	180	340	355	670	180	275	375	114	22326	275	110	152	120	172
	B	95–160	210		200	380	395		210	308	425	132	22330	310	130	172	140	202
900	S	75–90	140	950	190	360	375	760	190	290	395	124	22328	290	–	–	130	172
	B	95–160	210		230	420	435		210	325	440	144	22334	325	140	202	160	202
1000	S	75–90	140	1050	200	380	395	850	190	298	405	132	22330	300	–	–	140	202
	B	95–160	210		250	480	500		210	355	470	166	22338	355	160	202	180	252

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

2) The dimension of the gauge recess b_1 to be stated with order.

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

4) Tolerance for d_7 acc. to DIN 15 091

5) Series 2 conform with the correlation of the articulated shafts acc. to DIN 15450

Driven- and Nondriven wheel sets with self aligning roller bearings

DIN 15 090

Rolling bearings series 222 and 223

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

d_1 h9	crane wheel form[1]	weight[2] in kg							
		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 h9	crane wheel form[1]	weight[2] in kg							
		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.

2) Die Gewichtsberechnung basiert on Reihe 2 der Wellenenden, without Anschlussflansch bzw. Kupplungsscheibe. Sie sind bezogen on b_1 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.

3) see Formverschlüsselung (S. 50)

Driven- and Nondriven wheel sets with self aligning roller bearings

DIN 15 090

Rolling bearings series 222 and 223

Bill of material

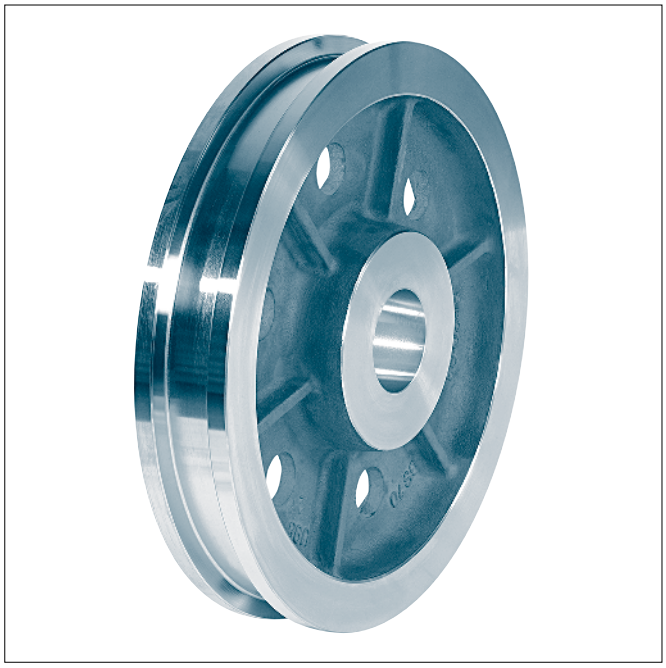
Lfd. Nr.	name	quantities for crane wheel-Ø d_1																										acc. to DIN resp. SEB[1]
		driven wheel set																nondriven wheel set										
		315		400		500		630		710		800		900		1000		315		400		500		630		710		800		900		1000	
		S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	S	B	
1	crane wheel	1																1														DIN 15 093
2	shaft	1																1														DIN 15 091
3	covers form A resp. B	1																1														DIN 15 092
4	covers form C	–																1														DIN 15 092
5	covers form D with short centering	1																1														DIN 15 092
6	covers form D with short centering	1																1														DIN 15 092
7	covers form E	1																–														DIN 15 092
8	covers form F	1																1														DIN 15 092
9	radial shaft seal rings A	3																2														DIN 3760
10	bearing support	2																2														DIN 15 094
11	self alignging roller bearings	2																2														DIN 635-2
12	bush	1																–														DIN 15 095
13	safety disc	1																2														DIN 15 095
14	hexagonal screw	3																6														DIN EN ISO 4017 (DIN 933)
15	safety wire	1																2														
16	hexagonal screw	16		16		16		16	24	16	24	24		24		24		16		16		16		16	24	16	24	24		24		24	DIN EN ISO 4014 (DIN 931)
17	hexagonal nut	16		16		16		16	24	16	24	24		24		24		16		16		16		16	24	16	24	24		24		24	DIN EN ISO 4032 (DIN 934)
18	safety	32		32		32		32	48	32	48	48		48		48		32		32		32		32	48	32	48	48		48		48	(DIN 93)
19	cylinder screw	4		4		4		4		4		4	6	4	6	6		4		4		4		4		4		4	6	4	6	6	DIN 6912
20	spring washer	4		4		4		4		4		4	6	4	6	6		4		4		4		4		4		4	6	4	6	6	DIN 7980
21	screw plug G ¼"	number of press oil-connections acc. to DIN 15 055 minus 1 (no screw plug for shaft on locating bearing)																														DIN 906
22	connection nipple	1																–														DIN 15 095
23	connection flange or shrink disc	1																–														DIN 15 452 SEB 601431

1) Stahl-Eisen-Betriebsblätter des Vereins Deutscher Eisenhüttenleute

Crane wheels

for driven- and nondriven wheel sets acc. to DIN 15 090

DIN 15 093



Form S narrow crane wheel

Form B broad crane wheel

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

Crane wheel B 630 × 100 × 180 H7 DIN 15 093

Form S narrow crane wheel
Form B broad crane wheel

All wheels on demand with oil pressure connection acc. to DIN 15 055.

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 15 070.

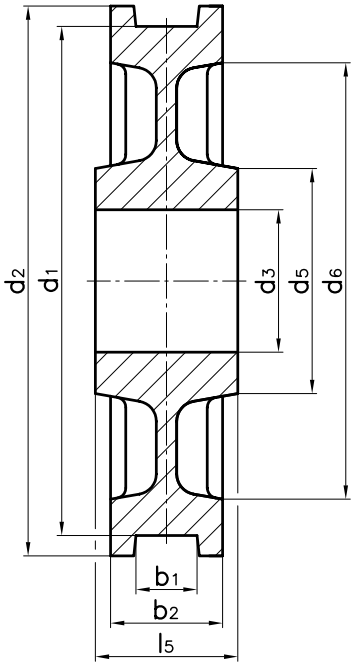
Our high resilient, forged crane wheels are available in the following alternatives:

42CrMo5-04 quenched and tempered to 850-1000 N/mm^2 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

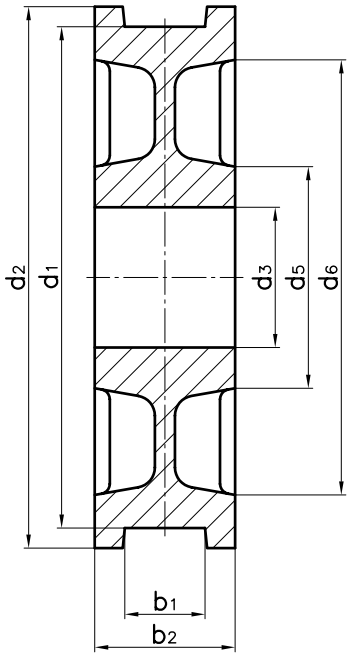
Crane wheels

for driven and non driven wheel sets acc. to DIN 15 090

DIN 15 093



Form S narrow crane wheel



Form B broad crane wheel

form	d_1 h9	b_1 [1]	b_2	d_2	d_3 [2] H7	d_5	d_6	l_5	no.of ribs	unit weight ≈[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

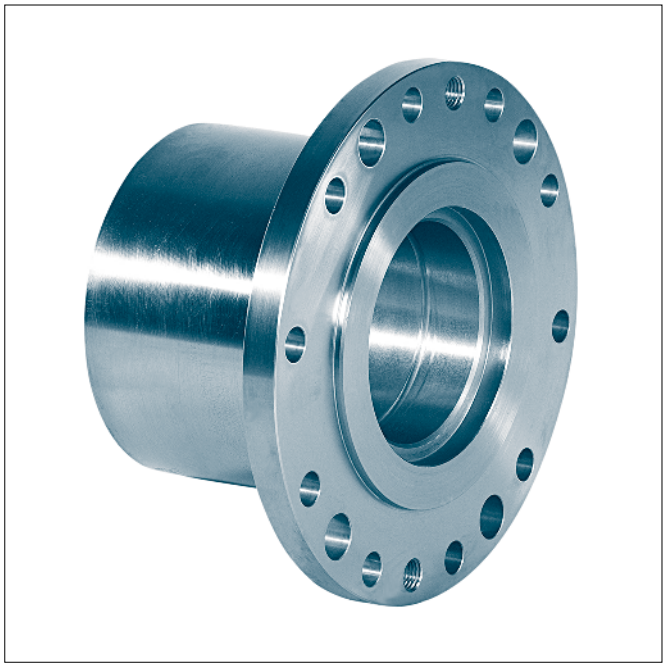
1) The dimension of the gauge recess b_1 to be stated with order. For running surface profiles and correspondence of crane rails to running wheel diameter see DIN 15072.

2) Bore dimensions - Ø d_3 to be stated with order.

Connection flanges for articulated shafts

for driven wheel sets acc. to DIN 15 090

DIN 15 452



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.

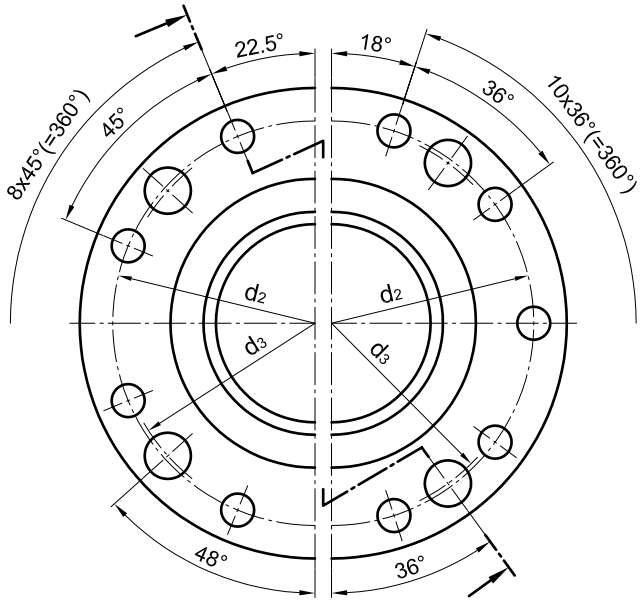
Material: C45 or
C60 or
42CrMo4+QT (42CrMo4 V)

Other material and dimensions on request.

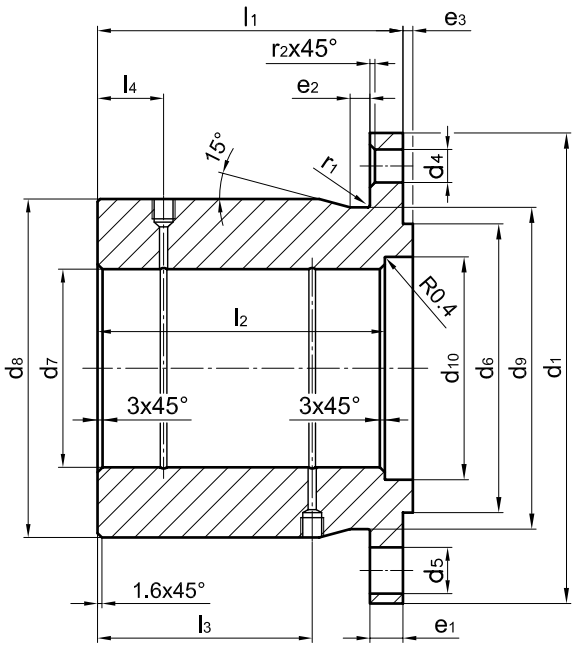
Connection flanges for articulated shafts

for driven wheel sets as per DIN 15090

DIN 15452



view left side
size of articulated shaft 150 – 315

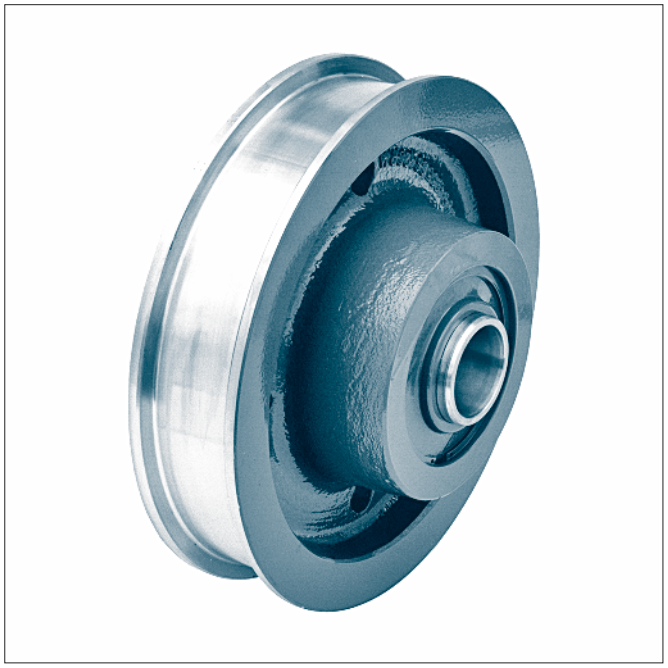


view right side
size of articulated shaft 350 – 435

size of aritculated shaft d_1	d_7 H7	d_2 ±0,1	d_3 ±0,1	d_4	d_4 tolerance	d_5 H12	d_6 h9	d_8	d_9	d_{10} +0,5 0	e_1	e_2	e_3	l_1	l_2	l_3	l_4	r_1	r_2	weight ≈[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																			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																			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																			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																			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

Crane wheels for axle without gear ring

TGL 34 964



Form B2 symmetrical hub
covers with radial shaft sealrings

Desgination of a wheel form B2 with nominal-Ø 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 34 964

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

The anti friction bearings are lubricated.

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

Material:

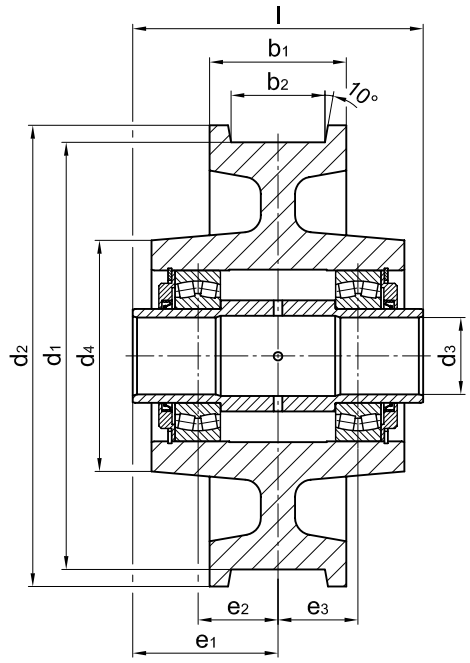
Wheel body-Ø 200–250	C45
Wheel body-Ø 320–1000	GE420 (GS-70) or G42CrMo4+QT (GS-42CrMo4 V)
Internal bush	S355 (St 52)

Other materials and dimensions as well as axles on request.

Crane wheels with gear ring see TGL 34 965.

Crane wheels for axle without gear ring

TGL 34 964



Form B2 symmetrical hub covers with radial shaft seal ring

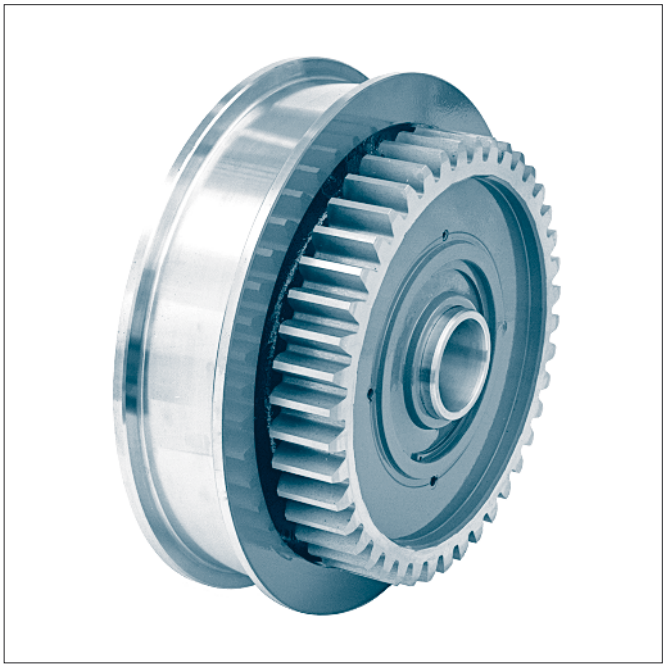
form	d_1 h9	b_2 [1]	b_1	d_2	d_3 D10	d_4	e_1	e_2	e_3	l −0,5	bearings	unit weight ≈[kg]
	200	40-75	105									
	250	40-80	110									
	320	40-80	110									
	400	40-90	125									
		90-100	140									
	500	40-90	125									
		100-120	160									
	630	60-90	140									
		100-120	180									
	710	60-90	140									
		100-130	180									
	800	80-110	160									
		120-130	200									
	1000	100-150	210									

Dimensions on request

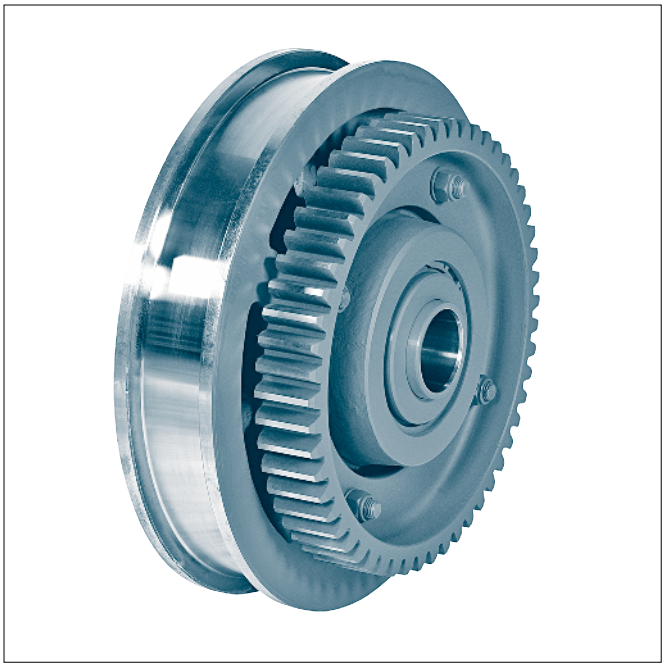
1) The dimensions of the gauge recess b_2 to be stated with order.

Crane wheels for axle with gear ring

TGL 34965



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



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

Designation of a crane wheel form B2 with nominal-Ø d_1 = 630 mm, gauge b_2 = 100 mm, incl. self aligning roller bearings 22224, covers with radial shaft seal ring, with large gearring (Zentrier-Ø 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 Ø $d_1 \geq 320$ mm internal bushing with lubrication bore and covers with radial shaft seal ring.

Material:

Wheel body-Ø 200–250	C45
Wheel body-Ø 320–1000	GE420 (GS-70) or G42CrMo4+QT (GS-42CrMo4 V)
Internal bush	S355 (St 52)
Gear ring	C45 or GE300 (GS-60)

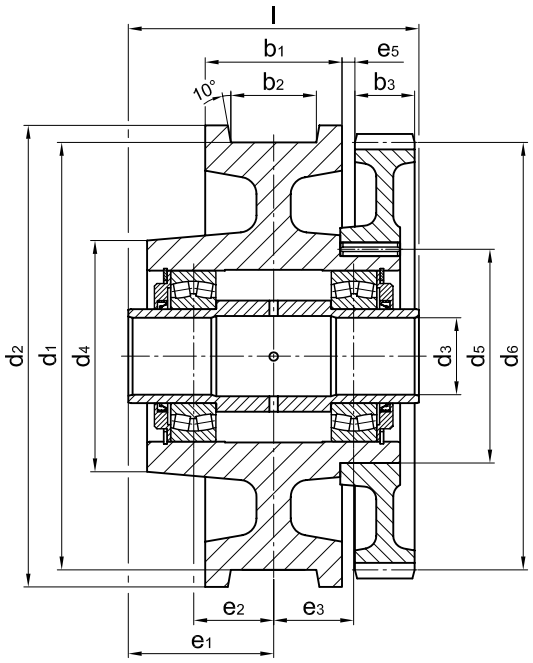
Other material and dimensions as well as axles on request.

Gear rings see TGL 34966

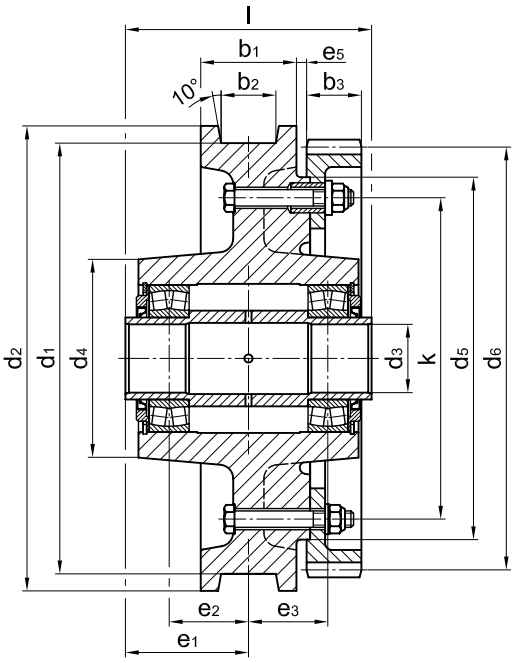
Crane wheels without gear ring see TGL 34964.

Crane wheels for axle with gear ring

TGL 34 965



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



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

form	d_1 h9	b_2[1]	b_1	d_2	d_3 D10	d_4	d_5 Tole-ranz-feld	gear ring[2] b_3	d_6	m	z	e_1	e_2	e_3	e_5	k	l –0,5	bea-rings	unit weight ≈[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 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.

Gear rings for crane wheels

with rolling bearings acc. to TGL 34 965

TGL 34 966

centering-Ø $d_1 \leq 250$ mm

centering-Ø $d_1 \geq 470$ mm

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

Gearringz 530 × 62 TGL 34 966

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

Material:

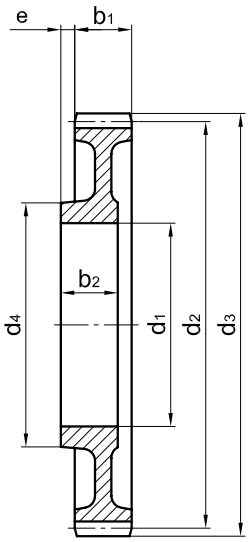
Gear ring 140 – 165	C45 or 42CrMo4+QT (42CrMo4 V)
Gear ring 180 – 800	GE300 (GS-60) or GE420 (GS-70) or G42CrMo4+QT (G42CrMo4 V)

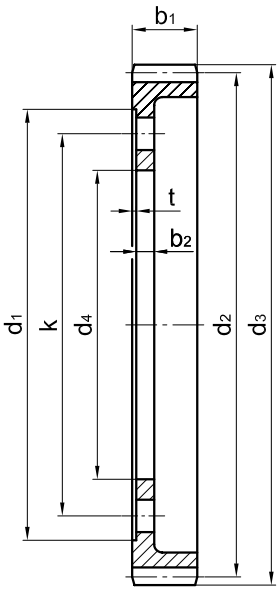
Other material and dimensions on request.

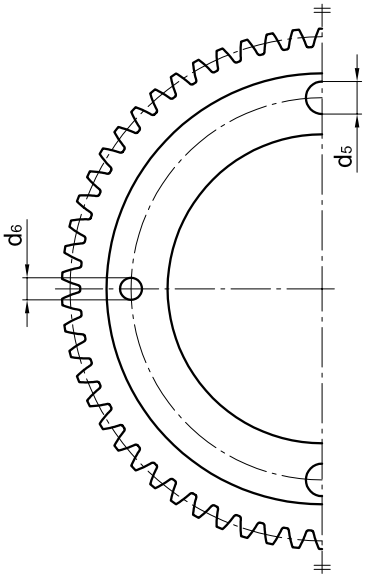
Gear rings for crane wheels

with rolling bearings acc. to TGL 34965

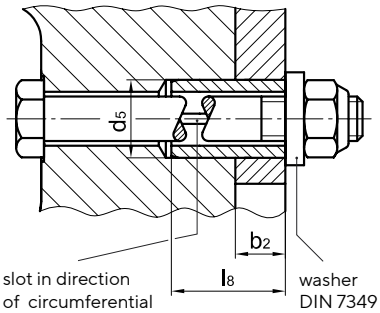
TGL 34966







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



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

Zentrier-Ø $d_1 \leq 250$ mm

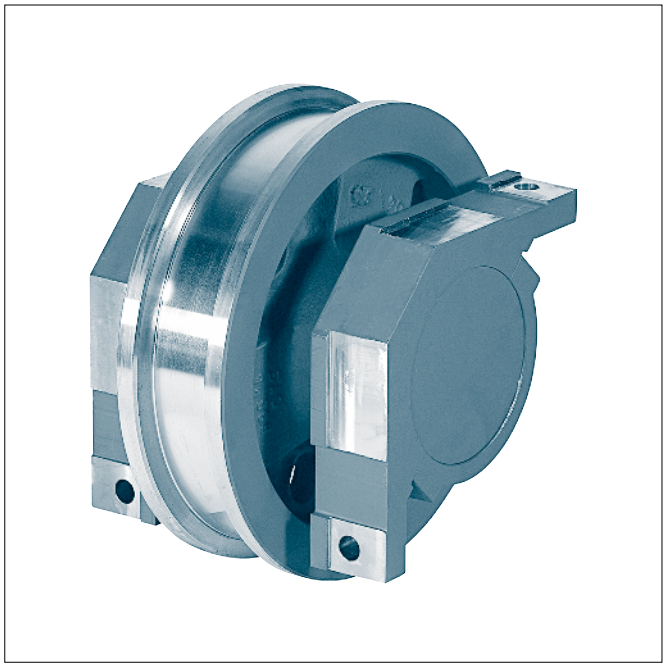
Zentrier-Ø $d_1 \geq 470$ mm

Zentrier-Ø d_1	tolerance zone	no. of teeth[1]	module	b_1	b_2	d_2	d_3 h11	d_4	d_5	d_6	no. of bores d_5 / d_6	e	k	t	unit weight ≈[kg]
140	G7	43	5												
165	G7	50	5												
180	H7	52	6												
225	H7	50	8												
250	H7	42 50	10												
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												

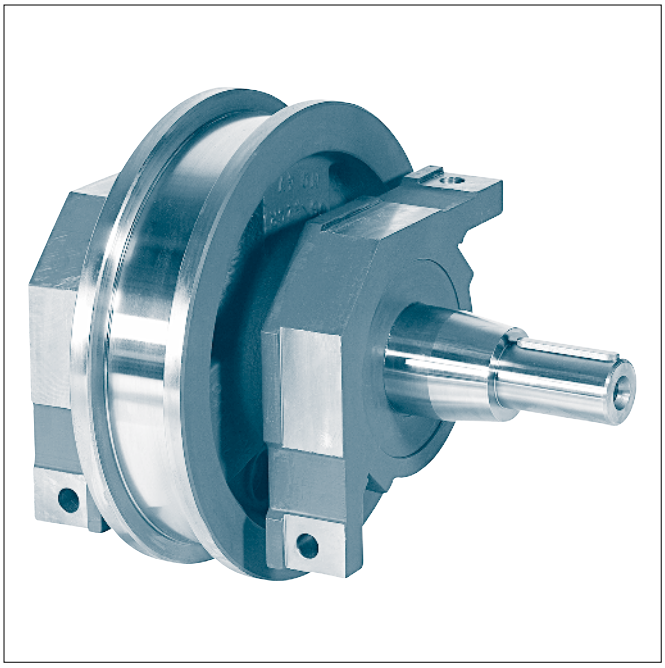
Dimensions on request

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

Wheel sets with corner support (driven and nondriven)



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-Ø d_1 = 400 mm, gauge b_2 = 80 mm, incl. self aligning roller bearings 222 20:

Crane wheel A1 – 400 × 80 TGL 34 968

Designation of a crane wheel form B3 (driven wheel set) without corner support, nominal-Ø d_1 = 400 mm, gauge b_2 = 100 mm, shaft-Ø d_5 = 70 mm, Wellenmaß e_6 = 635 mm, incl. self aligning roller bearings 222 20:

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

Form A	crane wheels with corner support
Form B	crane wheels withour 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

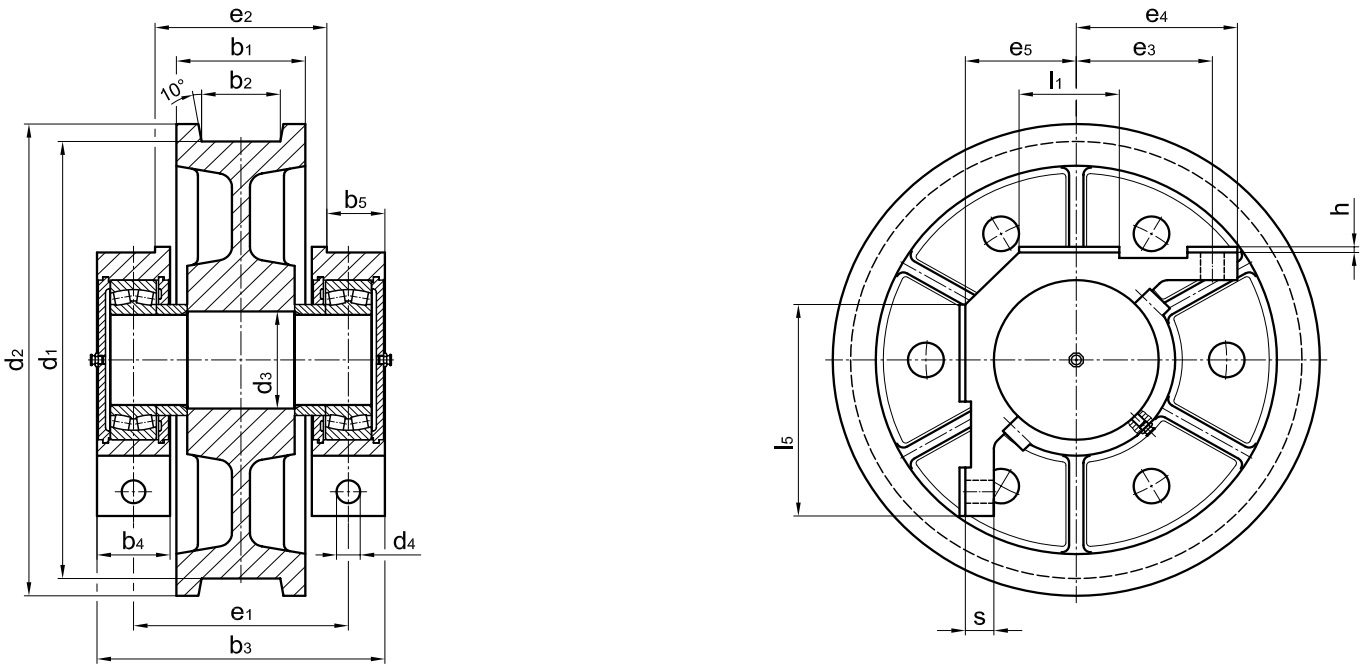
The anti friction bearings are lubricated.Re-lubrication by using the lubrication nipple in the corner support or in the outer covers.

Material:

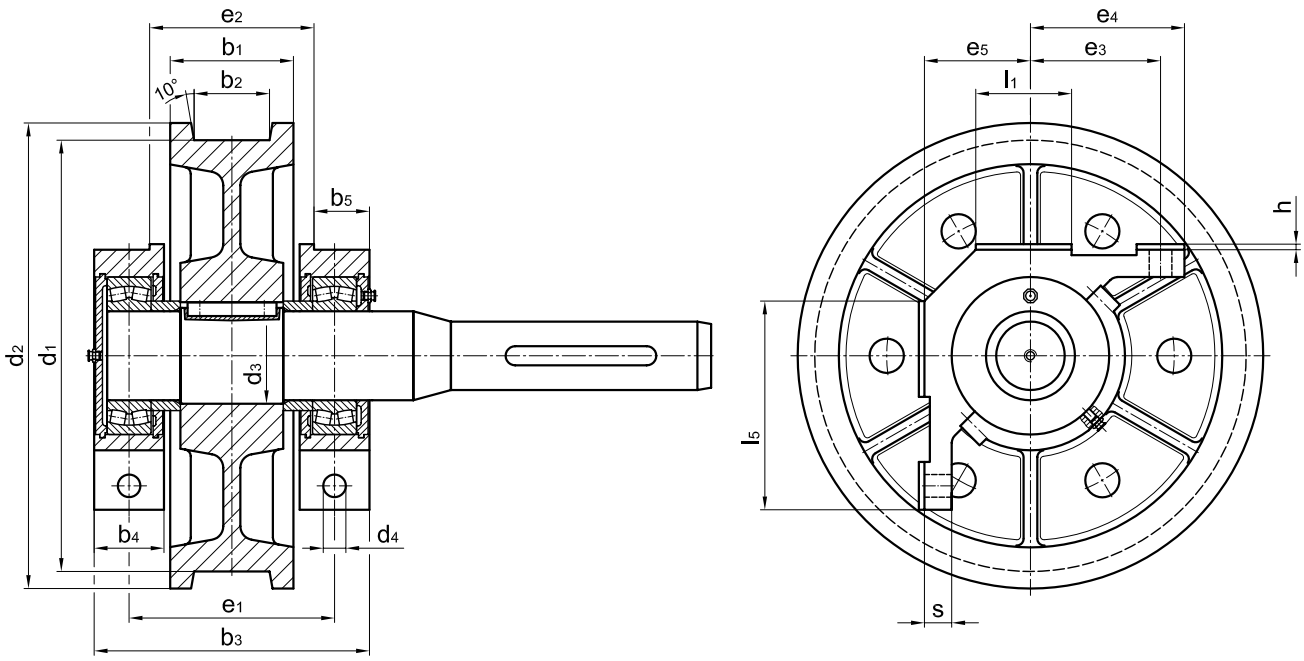
Wheel body	GE420 (GS-70) or G42CrMo4+QT (GS-42CrMo4 V)
drive shaft	42CrMo4QT idle
shaft	C45
corner support	S355J2 G3 (St 52-3)

Other material and dimensions on request.

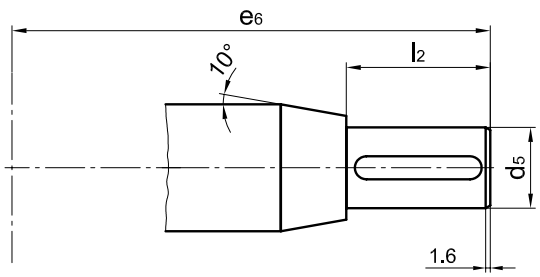
Type with shaft ends suitable for hollow shaft drive units of all manufacturers on request.



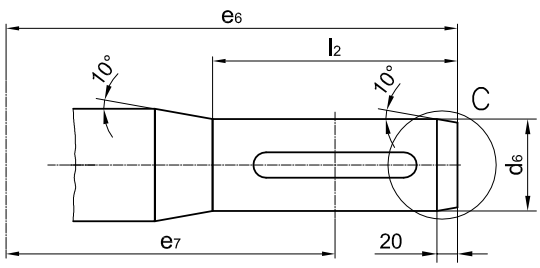
Form A1 crane wheel with shaft (nondriven wheel set)



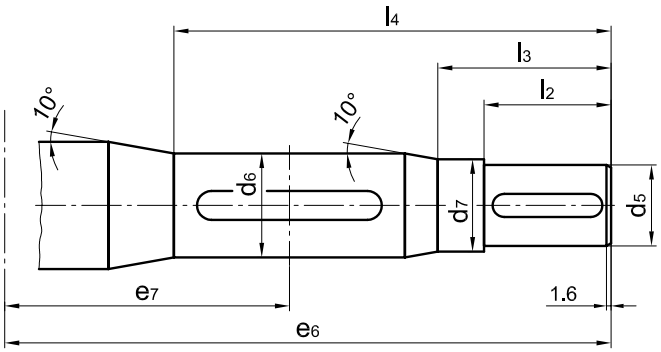
Form A3 crane wheel with drive shaft (driven wheel set)



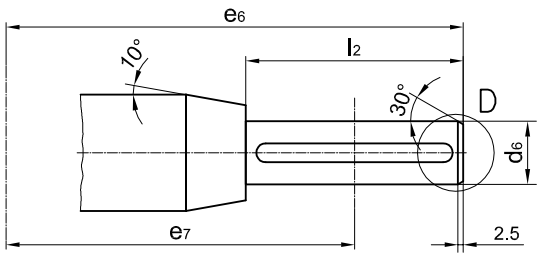
Form A2, B2 for coupling



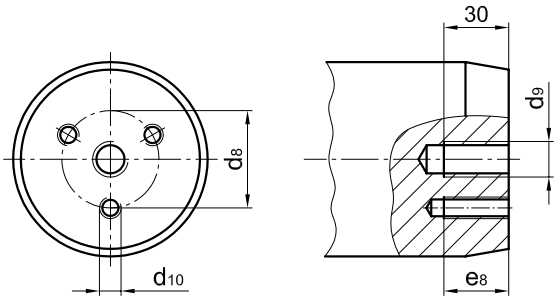
Form A3, B3 for hollow shaft gear unit



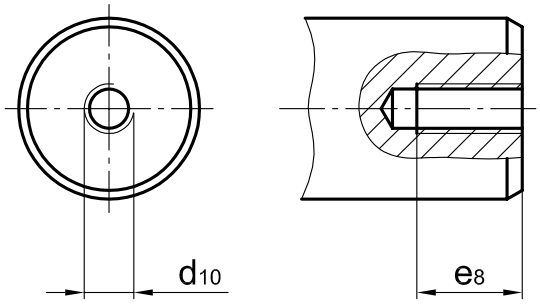
Form A4, B4 for coupling and hollow shaft gear unit



Form A5, B5 for hollow shaft gear unit



view C



view D

Wheel sets with corner support (driven and nondriven)

TGL 34 968

Dimensions

nominal-Ø d_1 h9	form	b_2	b_1	b_3	b_4	b_5	d_2	d_3 m6	d_4	e_1	e_2 tole-rance	e_3	e_4	e_5 −0,15	h	l_1	l_5	s	bea-rings
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

nominal-Ø 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	–	–	Dimensions on request									
		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											

Wheel sets with corner support (driven and nondriven)

TGL 34 968

dimensions of drive shaft ends (continuance)

nominal-Ø 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	–	–	**Dimensions on request**									
		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												

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)

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

Crane wheel body A 400 × 80 × 105 H7 TGL 34968

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

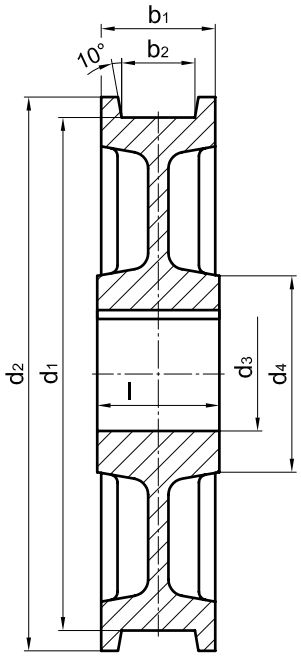
Material: GE420 (GS-70) or
G42CrMo4+QT (GS-42CrMo4 V)

Other material and dimensions on request.

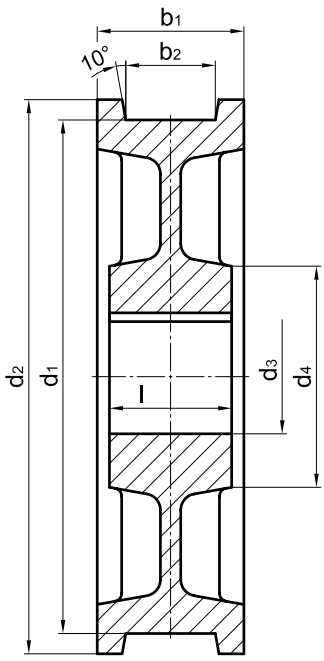
Crane wheels

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)

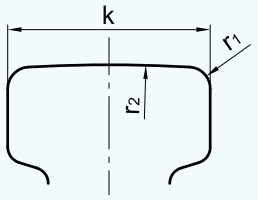
form	nominal-Ø d_1 h9	b_2 [1]	b_1	d_2	d_3 H7	d_4	l +0,2	unit weight ≈[kg]
A; B	**320**	40–70	100	**Dimensions on request**				
		80–90	130					
A; B	**400**	50–80	120					
		90–120	160					
A; B	**500**	50–80	120					
		90–120	160					
A; B	**630**	60–90	140					
		100–130	180					
A; B	**710**	60–80	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.

Basis of calculation for crane rail wheels

DIN 15 070
FEM 1.001

Table1. **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	 For cambered crane rails the ideal effective rail head width will be $k-2r_1$.
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:

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

From the above is obtained the crane wheel diameter

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

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

$p_{zul} = 5{,}6\ N/mm^2$
$c_2 = 1$
$c_3 = 1$

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:

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

Rail/crane wheel material matching

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

material minimum tensile strength [N/mm²]		p_{zul}	c_1
rail	wheel	[N/mm²]	
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×diameter can be considered selecting p_{zul}.

Basis of calculation for crane rail wheels

DIN 15 070
FEM 1.001

Table 3a. **speed coefficient c_2**

wheel-Ø 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≈ [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 63%	0,9
über 63%	0,8

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

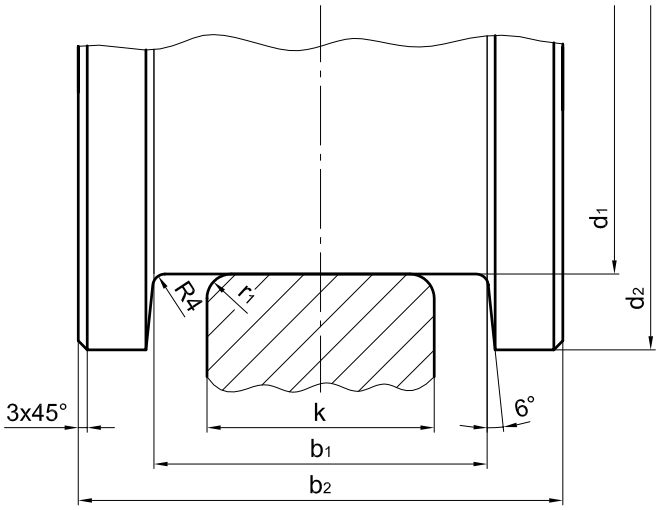
crane rails as per DIN	designation new	designation previous	r_1 mm	$k-2r_1$ mm
536 Teil 1	A 45	KS 22	4	37
	A 55	KS 32	5	45
	A 65	KS 43	6	53
	A 75	KS 56	8	59
	A 100	KS 75	10	80
	A 120	KS 101	10	100
536 Teil 2	F 100	–	5	90
	F 120	–	5	110

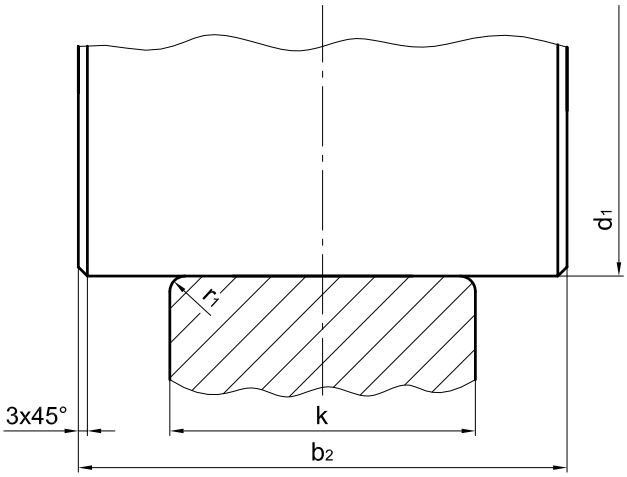
Tabelle 6. **characterisitc wheel force R_0**

wheel-Ø 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	41000	50000	–	–	–	–	–	–	–	–	–
250	52000	63000	–	–	–	–	–	–	–	–	–
315	65000	79000	–	–	79000	93000	–	–	–	–	–
400	83000	101000	–	–	101000	119000	132000	–	–	202000	–
500	104000	126000	–	–	126000	148000	165000	–	–	252000	–
630	–	159000	187000	–	–	187000	208000	282000	–	318000	388000
710	–	178000	211000	235000	–	–	235000	318000	398000	358000	437000
800	–	201000	237000	264000	–	–	264000	358000	448000	403000	493000
900	–	–	267000	297000	–	–	297000	403000	504000	454000	554000
1000	–	–	297000	330000	–	–	330000	448000	560000	504000	616000
1120	–	–	–	–	–	–	–	502000	627000	–	–
1250	–	–	–	–	–	–	–	560000	700000	–	–

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

DIN 15 072





Crane wheels with wheel flange

Crane wheels without wheel flange

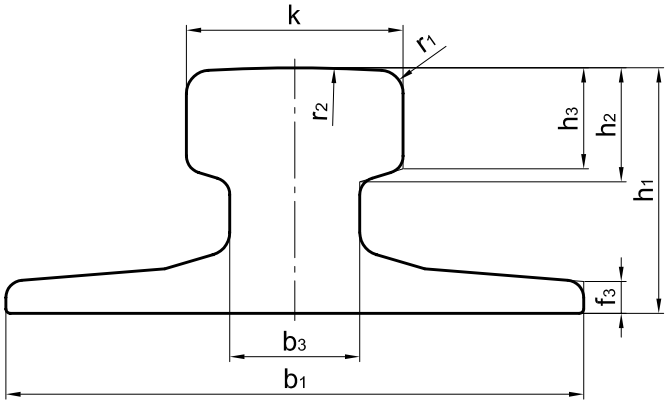
Crane wheel-Ø d_1	d_2	for crane wheels with narrow wheel flange for crane rail[1]						for crane wheels with broad wheel flange for crane rail[1]							for crane wheels without wheel flange for crane rail[2]		
		A 45	A 55	A 65	A 75	b_1	b_2	A 55	A 65	A 75	A 100	A 120	b_1	b_2	F 100	F 120	b_2
h9		k				max.		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
1000	1050	–	–	65	75	90	140	–	–	75	100	120	160	210	–	120	210
1120	1180	–	–	–	–	–	–	–	–	–	100	120	160	220	–	–	–
1250	1310	–	–	–	–	–	–	–	–	–	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.

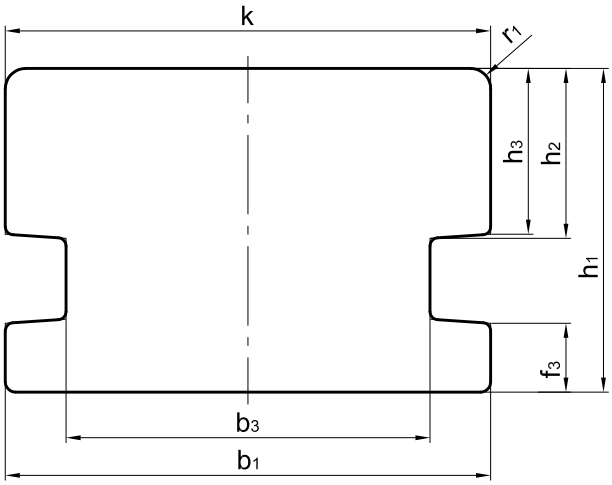
2) Crane rail acc. to DIN 536-2.

Champignon rail acc. to DIN 536

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



Crane rail Form A

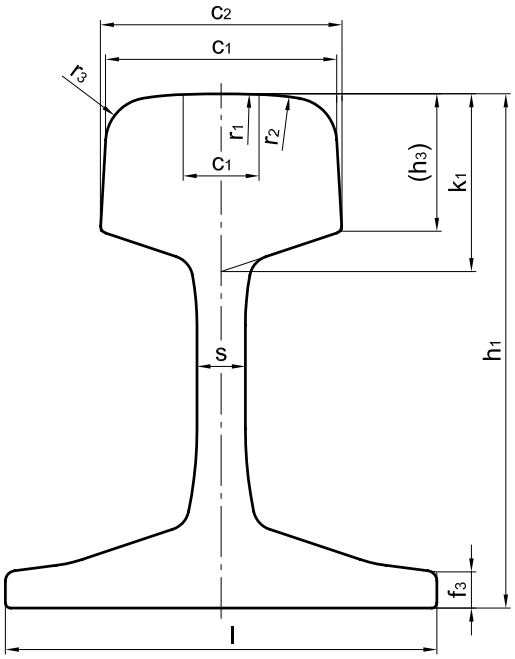


Crane rail Form F

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

Champignon rail acc. to DIN EN 13 674-1 (DIN 5901) and UIC

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



Champignon rail (Form S and UIC)

nominal size	c_1	c_2	c_3	l	s	h_1	k_1	(h_3)	f_3	r_1	r_2	r_3
S 30	60,3	1)	1)	108	12,3	108	31	24	7	305	1)	8
S 33	58	1)	1)	105	11	134	39	31,75	9,5	225	1)	14
S 41 R 10	67	1)	1)	125	12	138	43	31,83	9,5	400	1)	10
S 41 R 14	67	1)	1)	125	12	138	43	31,83	9,5	400	1)	14
S 49	67	70	19	125	14	149	51,5	39,80	10,5	300	80	13
S 54	67	70	16,703	125	16	154	55	43,30	12	300	80	13
UIC 50	70	72,2	20,025	125	15	152	49,4	36,30	10	300	80	13
UIC 54	70	72,2	20,024	140	16	159	49,4	36,30	11	300	80	13
UIC 60	72	74,3	20,456	150	16,5	172	51	37,50	11,5	300	80	13

1) Dimensions undetermined

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