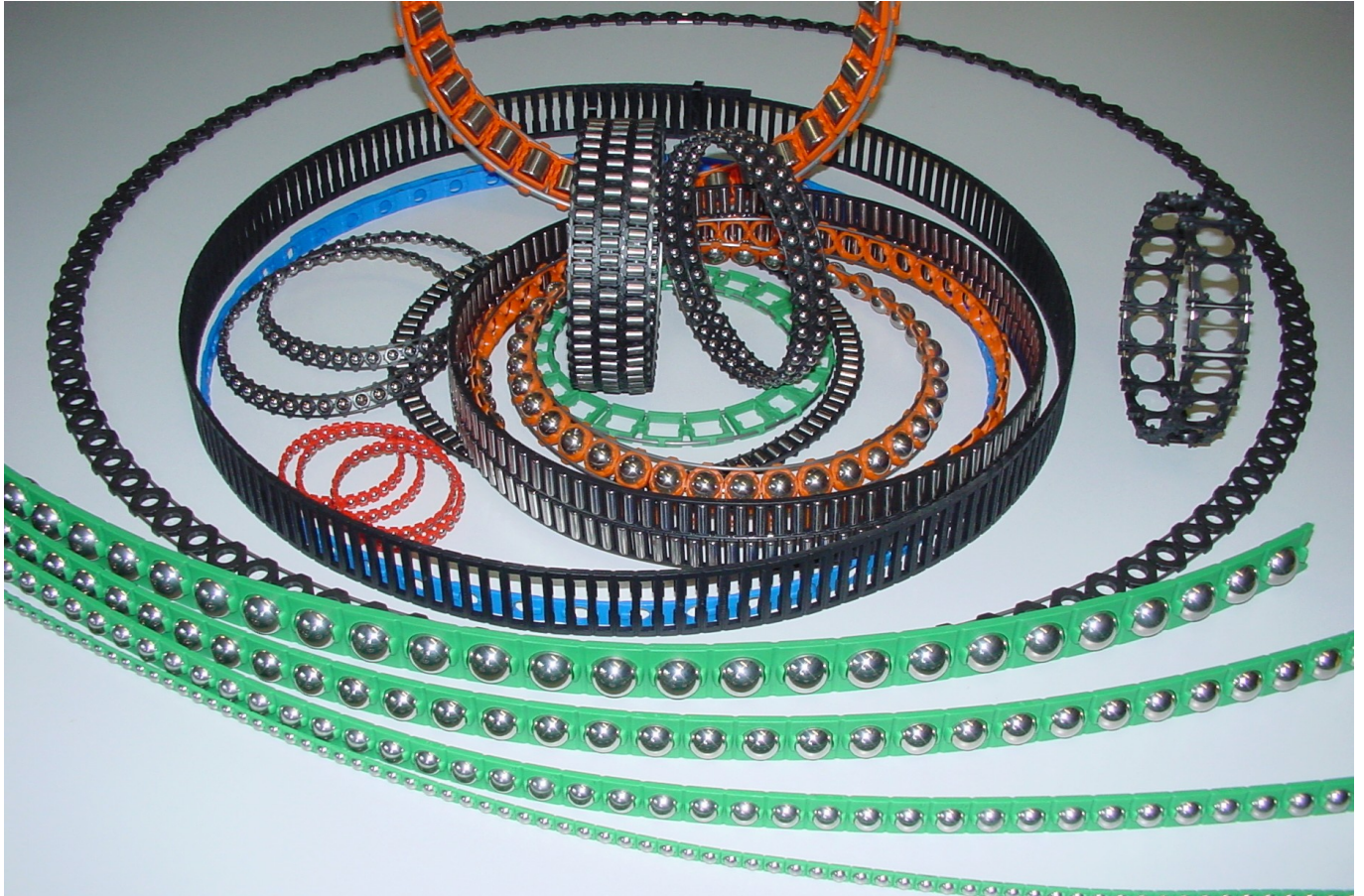


Ball bearing cages



Standard range

Ball bearing cages

Extruded polyamide (PA 12)

Melting temperature DSC max.		°C	dry	178
Crude density	DIN 53479	kg/dm ³	dry	1.01.
Water absorption 23° / 50%	DIN 53417	%	--	0.7
in water 23°C	DIN 53495	%	--	1.5
Linear shrinkage		%	--	0.8–2.0
Retention of shape ISO 75 0.46 N/mm ² (B)	DIN 53461	°C	after storage	150
1.82 N/mm ² (A)		°C	5 hours 150°	50
Vicat softening temp. 9.81 N (A)	DIN 53460	°C	dry	170
49.05 N (B)		°C	dry	135
Linear thermal coeff. of expansion	DIN 52328	K ⁻¹	dry	12 · 10 ⁻⁵
Max. temp. of use, continuous		°C	--	80
Short term		°C	--	140
Specific resistance	DIN 53482	Ω cm	dry conditioned	10 ¹³
Voltage strength	DIN 53481	kV/mm	dry conditioned	38
Creep current strength KC	DIN 53480	V	dry conditioned	> 600
Yield stress	DIN 53455	N/mm ² N/mm ²	dry conditioned	40
Extension at yield stress	DIN 53455	% %	dry conditioned	8
Tearing strength	DIN 53455	N/mm ² N/mm ²	dry conditioned	60
Extension at tearing	DIN 53455	% %	dry conditioned	275
Elastic modulus in tension	DIN 53457	N/mm ² N/mm ²	dry conditioned	1100
3,5% bending stress	DIN 53452	N/mm ² N/mm ²	dry conditioned	35
Shore hardness D	DIN 53505	--	dry conditioned	67
Impact toughness at -40°C	DIN 53453	kJ/m ² kJ/m ²	dry conditioned	--
Impact toughness	DIN 53453	kJ/m ² kJ/m ²	dry conditioned	--
Charpy notch toughness (Charpy)	DIN 53453	kJ/m ² kJ/m ²	dry conditioned	10
Charpy notch toughness (Charpy) at -40°C	DIN 53453	kJ/m ² kJ/m ²	dry conditioned	6

Ball bearing cages

Resistance to

Temperature

Ball and linear bearing manufacturers who use our plastic cage strips have determined the suitability of the material by internal investigations, according to the cage shape, and have included them in their catalogues.

For the material PA 12 for continuous operation, a temperature of 90° to 100°C and for short term use, a permitted temperature of 100 to 120°C has been found.

For glass fibre reinforced PA 12 (30% GF), this rises to 100° to 110°C for continuous operation and 120° to 130°C for short term use.

By short term use one means 300 – 500 hours for the material PA 12 and 500 – 1000 hours for the material PA 12GF.

The actual heat resistance of the material to the appearance of embrittlement is considerably higher.

The temperature limits of the standard ball bearing cages in continuous operation are –40°C and + 100°C, and for short term operation up to +120°.

Vacuum

On using our cages in a vacuum, one can say that in a vacuum, low molecular parts can evaporate. According to experts, the part of these compounds is very small and it has no effect on the mechanical properties of the cage material.

Argon (rare gas)

From various material tests, the material is 100% resistant to argon.

Halogen gases

Halogen gases can be based on bromine or chlorine.

As the halogen gases are very corrosive, the materials PA 12 and PA 12GF are unsuitable for use exposed to them.

Halogen gases cause dimensional changes and reduction in mechanical strength.

Ball bearing cages

Cage end play



Due to different expansions of plastic cage strips and the surrounding bearing rings made of steel or aluminium, the cage strips must be fitted with suitable end play. For cage shape surrounding ball bearings, we recommend the following at temperature differences of:

$\Delta t = 50^{\circ}\text{C}$ and $\Delta t = 30^{\circ}\text{C}$ the following end play of the cage strips:

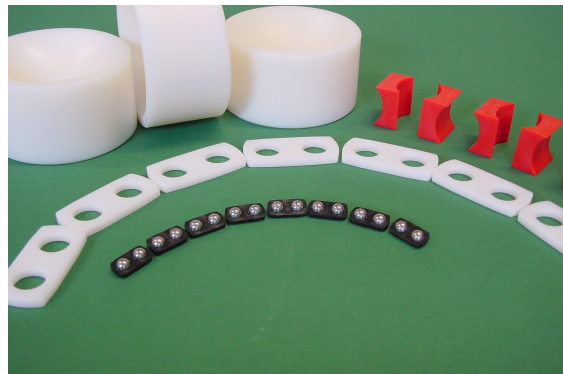
Running circle Ø DL [mm]	Steel bearing rings min. end play		Aluminium bearing rings min. end play	
	$\Delta t = 50^{\circ}\text{C}$	$\Delta t = 30^{\circ}\text{C}$	$\Delta t = 50^{\circ}\text{C}$	$\Delta t = 30^{\circ}\text{C}$
up to 200	3,5	2,1	3,1	1,9
up to 300	5,2	3,1	4,7	2,8
up to 400	6,9	4,1	6,2	3,7
up to 500	8,6	5,2	7,8	4,7
up to 600	10,4	6,2	9,3	5,6
up to 700	12,1	7,3	10,9	6,5
up to 800	13,8	8,3	12,4	7,5
up to 900	15,5	9,3	14,0	8,4
up to 1.000	17,3	10,4	15,5	9,3
up to 1.100	19,0	11,4	17,1	10,3
up to 1.200	20,7	12,4	18,6	11,2
up to 1.300	22,5	13,5	20,2	12,1
up to 1.400	24,2	14,5	21,8	13,1
up to 1.500	25,9	15,5	23,3	14,0
up to 1.600	27,6	16,6	24,9	14,9
up to 1.700	29,4	17,6	26,4	15,9
up to 1.800	31,1	18,6	28,0	16,8
up to 1.900	32,8	19,7	29,5	17,7
up to 2.000	34,5	20,7	31,1	18,7

Ball bearing cages

Special products

Distance pieces

A series of ball and cross roller distance pieces for different bearing shapes are contained in the standard range.



Ball bearing cages for standard series

Cages in different materials are contained in the standard range for different standard series, eg: ball cages for grooved ball bearings (6000 series) or axial roller bearings.

Special cage strips

Special cage strips for different shapes are produced together with the customers and are, of course, protected. These articles are not contained in the standard range.



Distance pieces, ball bearing cages for standard series and special cage strips on request.

Ball bearing cages

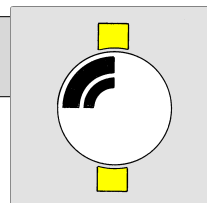
Possibilities of use

Examples

Four point ball bearing

Shape : with 2 bearing rings
Shape of cage : KK 101
KK 102 (2 bearing rings and filler)

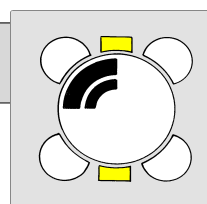
Shape : with 3 bearing rings
Shape of cage : KK 100, KK 101, KK 102, KK 107, KKVK, KKAK...R



Wire four point ball bearing

Shape : with 2 bearing rings
Shape of cage : KK 101

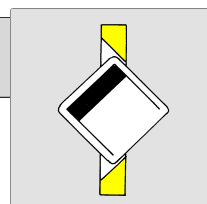
Shape : with 3 bearing rings
Shape of cage : KK 100, KK 101, KK 102, KK 107, KKVK, KKAK...R



Cross roller bearing

Shape : with 2 bearing rings and filler
Shape of cage : KK 202, KKXR

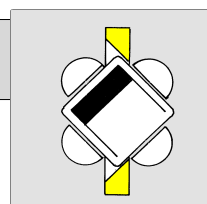
Shape : with 3 bearing rings
Shape of cage : KK 202, KKXR



Wire cross roller bearing

Shape : with 2 bearing rings and filler
Shape of cage : KK 202, KKXR

Shape : with 3 bearing rings
Shape of cage : KK 202, KKXR



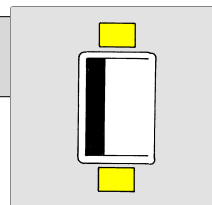
Ball bearing cages

Possibilities of use

Examples

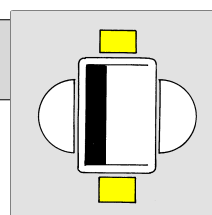
Radial roller bearing

Shape : with 2 bearing rings
Shape of cage : KK 202, KKRR, KKBF



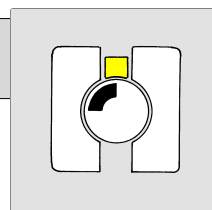
Wire radial roller bearing

Shape : with 2 bearing rings
Shape of cage : KK 202, KKRR, KKBF



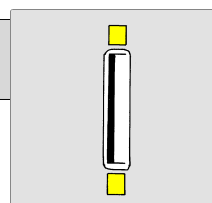
Thin ring bearing

Shape : with 2 bearing rings
Shape of cage : KK 101



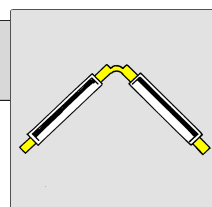
Needle roller bearing

Shape : with 2 bearing rings (radial bearing)
Shape of cage : KKRR, KKBF



Straight guide (linear guide)

All the above shapes can be produced as straight guides, where every cage strip can be used in metre lengths.



Ball cage KKLK

Series KKLK – cage strips filled with balls

General

Ball cages of series KKLK are ball cages of series KK 100 and KK 107 with ball guides and holders, which are supplied filled with balls. The ball cage strips are offered in metre lengths or cut ready for installation.

The standard balls for filled cage strips of series KKLK are made of the material 100Cr6 according to DIN 5401 / Grade 28 (class 3). Variants made of other materials, eg: corrosion-resistant steel X46Cr13 / 1.4034 or POM plastic and AL₂O₃ ceramic are also possible.

Possibilities of use

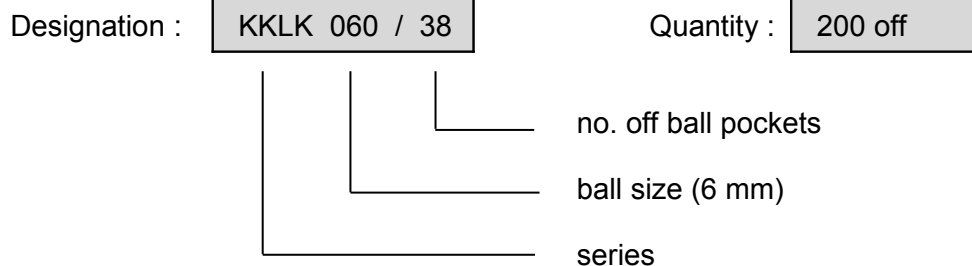
All rotating (and linear) movements based on ball track systems, eg:

- Four point ball bearings
- Grooved ball bearings
- Ball rotating joints
- Wire ball bearing elements or complete bearings
- Skew ball bearings (in certain conditions)
- Rotating joints

Minimum quantity	- none	
Material	- PA 12	
Colouring	- at the manufacturer`s choice	
Suffixes for balls (examples)	- corrosion-resistant steel	SS
	- plastic	POM
	- ceramic	ALO

Example of order / inquiry

Ball cage cut to length with 38 balls 6 mm diam. (note cage end play page 8)



Ball cage in metre lengths, filled with 6 mm diam. balls made of corrosion-resistant steel (SS)

Designation: Quantity :

Ball cage KKLK

Series KKLK cage strips filled with balls

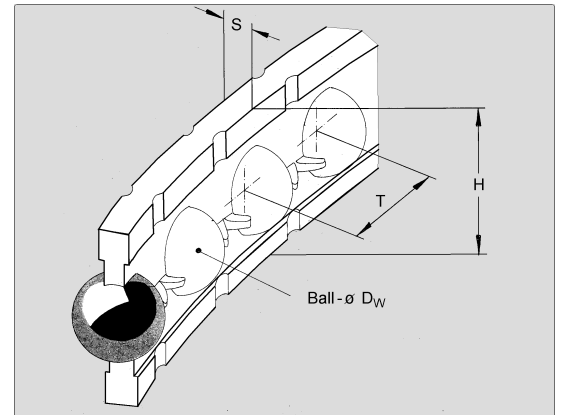
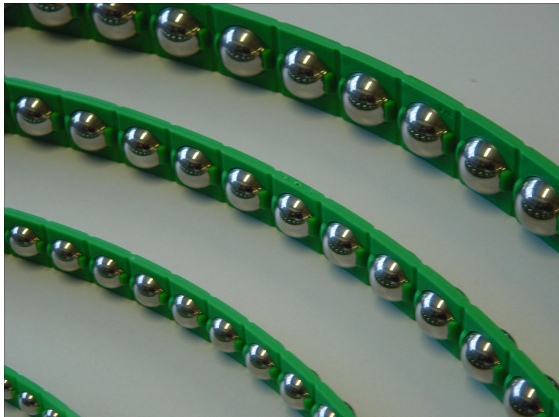


Table of dimensions [dimensions in mm]

type 1	Ball Ø		H	S	T	D 2)
	D _w	[inch]				
KKLK 021/...	2,000		5,0	0,75	3,0	2,1
KKLK 023/...	2,381	3/32	6,0	0,80	3,6	2,5
KKLK 031/...	3,000		7,0	1,00	4,2	3,2
KKLK S32/...	3,175	1/8	4,4	0,70	4,2	3,3
KKLK 032/...	3,175	1/8	7,0	1,00	4,2	3,2
KKLK 039/...	3,969	5/32	6,3	1,30	5,8	4,2
KKLK 040/...	4,000		6,3	1,30	5,8	4,2
KKLK 047/...	4,762	3/16	8,0	1,50	6,8	5,2
KKLK 050/...	5,000		8,0	1,50	6,8	5,2
KKLK 060/...	6,000		9,0	1,60	7,8	6,2
KKLK 063/...	6,350	1/4	9,0	1,60	7,8	6,5
KKLK 079/...	7,938	5/16	12,0	2,00	12,0	8,2
KKLK 080/...	8,000		12,0	2,00	12,0	8,2
KKLK 09C/...	9,000		11,6	2,00	11,5	9,2
KKLK 090/...	9,000		15,0	2,00	11,5	9,2
KKLK 095/...	9,525	3/8	12,6	2,50	12,0	9,7
KKLK 100/...	10,000		13,2	2,50	12,5	10,2
KKLK 110/...	11,000		13,7	2,50	14,0	11,2
KKLK 111/...	11,112	7/16	13,7	2,50	14,0	11,2
KKLK 12C/...	12,000		15,0	2,50	15,0	12,2
KKLK 127/...	12,700	1/2	22,0	3,50	16,0	13,0
KKLK 160/...	16,000		20,0	3,50	20,0	16,2

Ball cage KK 100

Series KK 100 with guide and holder

General

Ball cages of series KK 100 are made with ball guides and have ball holders on the ball pockets. The ball cages are supplied in metre lengths, without balls, on transport reels.

Possibilities of use

All rotating (and linear) movements based on ball track systems, eg:

- Four point ball bearings
- Grooved ball bearings
- Ball rotating joints
- Wire ball bearing elements or complete bearings
- Skew ball bearings (in certain conditions)
- Rotating joints

Minimum quantities

Supplied in quantities of < 100 m with minimum quantity added price
from 100 m without minimum quantity added price
(alternative, series KCLK without added price)

Material

PA 12

Colouring

At the manufacturer`s choice

Example of order / inquiry:

Designation : 0243 Quantity :



Ball cage KK 100

Series KK 100 with guide and holders

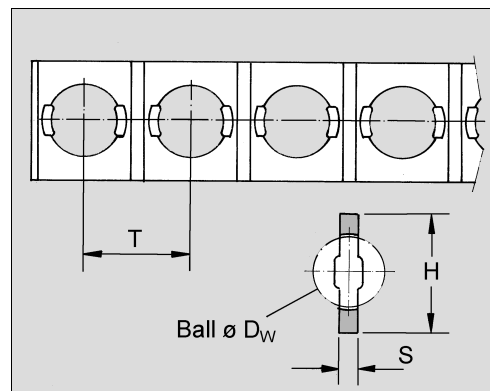
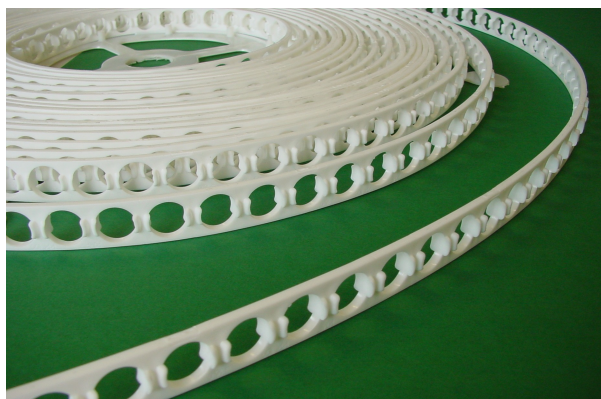


Table of dimensions [dimensions in mm]

type 1	Ball Ø D _w [inch]	H	S	T	D 2)
KK 100-2,000	2,000	5,0	0,75	3,0	2,1
KK 100-2,381	2,381	6,0	0,80	3,6	2,5
KK 100-3,175	3,000	7,0	1,00	4,2	3,2
KK 100-3,175	3,175	7,0	1,00	4,2	3,2
KK 100 F-08	7,938	12,0	2,00	12,0	8,2
KK 100 F-08	8,000	12,0	2,00	12,0	8,2
KK 100-08 S24	7,938	14,0	2,00	24,0	8,2
KK 100-08 S24	8,000	14,0	2,00	24,0	8,2
KK 100-09A	9,000	15,0	2,00	11,5	9,2
KK 100-09C	9,000	11,6	2,00	11,5	9,2
KK 100 D-9,525	9,525	12,6	2,50	12,0	9,7
KK 100 K-9,525	9,525	12,6	3,00	24,0	9,7
KK 100 D-10	10,000	13,2	2,50	12,5	10,2
KK 100-10,319	10,319	22,0	3,50	13,0	10,5
KK 100-11C	11,000	13,7	2,50	14,0	11,2
KK 100-11C	11,112	13,7	2,50	14,0	11,2
KK 100-12C	12,000	15,0	2,50	15,0	12,2
KK 100-12,7	12,500	22,0	3,50	16,0	13,0
KK 100-12,7	12,700	22,0	3,50	16,0	13,0
KK 100-13,494	13,494	22,0	3,50	17,0	14,0
KK 100-13,494	13,500	22,0	3,50	17,0	14,0
KK 100-16	15,875	20,0	3,50	20,0	16,2
KK 100-16	16,000	20,0	3,50	20,0	16,2
KK 100-17	17,000	28,0	4,00	21,0	17,5
KK 100-17	17,462	28,0	4,00	21,0	17,5
KK 100-20 C	20,000	24,2	3,50	25,0	20,2
KK 100-20,638	20,638	31,0	4,50	25,0	21,0
KK 100-22H30	22,000	30,0	6,00	27,5	23,2
KK 100-22H30	22,225	30,0	6,00	27,5	23,2
KK 100-22H30	23,000	30,0	6,00	27,5	23,2
KK 100-22H30	23,019	30,0	6,00	27,5	23,2

1) Other dimensions on request

2) D = Diameter of ball pocket

Ball cage KK 101

Series KK 101, opened as snap cage

General

Ball cages of series KK 101 are opened on one side and can therefore be snapped on to the corresponding ball series. The cage strips are provided with a ball cup in the ball pocket from ball diameter 9,525 upwards, but are not provided with a ball holder. The cage strip is preferably guided on the bearing edges, due to the limited ball guidance. The cage strips are supplied as metre lengths, without balls, on transport reels.

Possibilities of use

All rotating movements based on ball track systems, and which are mainly produced by „Conrad filling“, eg:

- Four point ball bearings
- Grooved ball bearings
- Ball rotating joints
- Wire ball bearing elements or complete bearings
- Rotating guides

Minimum quantities

Supplied in quantities of < 100 m with minimum quantity added price
from 100 m without minimum quantity added price

Material

PA 12

Colouring

At the manufacturer`s choice

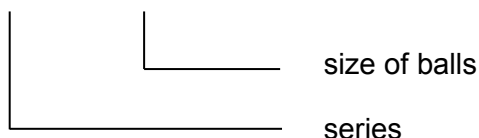
Example of order / inquiry:

Designation :

KK 101 – 12,7

Quantity :

500 metres



Ball cage KK 101

Series KK 101, opened as snap cage

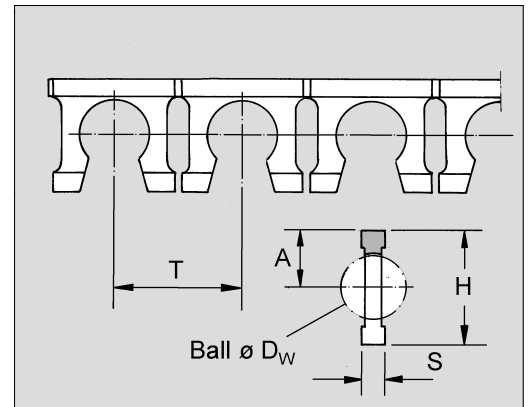
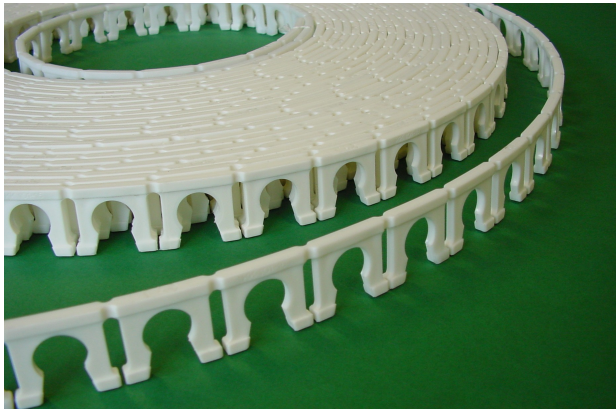


Table of dimensions [dimensions in mm]

type 1)	Ball Ø		H	A	S	T	D 2)
	D _w	[inch]					
KK 101-3,175	3,175	1/8	5,0	3,00	1,1	6,2	3,3
KK 101-3,962	3,962	5/32	6,2	3,10	1,4	7,9	4,1
KK 101-4,762	4,762	3/16	7,7	3,85	1,7	9,5	4,9
KK 101-05	5,000		7,5	3,70	1,5	10,0	5,2
KK 101-06	6,000		9,0	4,50	2,0	12,0	6,2
KK 101-6,350	6,350	1/4	10,5	5,25	2,2	12,7	6,5
KK 101-08	7,938	5/16	14,0	7,00	2,5	16,0	8,2
KK 101-08	8,000		14,0	7,00	2,5	16,0	8,2
KK 101-9,525	9,525	3/8	16,0	9,40	3,5	19,0	9,8
KK 101-10,319	10,319	13/32	22,0	11,00	3,5	20,0	10,5
KK 101-12,0	12,000		18,0	9,00	4,0	24,0	12,2
KK 101-12,7	12,700	1/2	22,0	11,00	4,5	25,0	13,0
KK 101-13,494	13,494	17/32	22,0	11,00	4,5	27,0	14,0
KK 101-13,494	13,500		22,0	11,00	4,5	27,0	14,0
KK 101-16,0	16,000		28,0	14,00	5,5	32,0	16,5
KK 101-20,0	20,000		29,0	14,50	8,0	38,5	20,2

1) Other dimensions on request

2) D = Diameter of ball pocket

Ball cage KK 102

Series KK 102, holed strip without ball holders

General

Ball cages of series KK 102 are so-called „holed strips“ without ball guide and ball holders. The cage strip is guided on the bearing edges.

Possibilities of use

All rotating movements which are based on ball track systems, and which mainly have filling holes by means of filling stoppers, eg:

- Four point ball bearings
- Grooved ball bearings
- Surface-hardened ball rotating joints
- Rotating guides

Minimum quantities

Supplied in quantities of < 100 m with minimum quantity extra price
from 100 m without minimum quantity extra price

Material

PA 12

Colouring

At the manufacturer`s choice

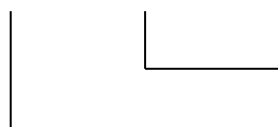
Example of order / inquiry

Designation :

KK 102 – 12

Quantity :

500 metres



size of ball

series

Ball cage KK 102

Series KK 102, holed strip without ball holders

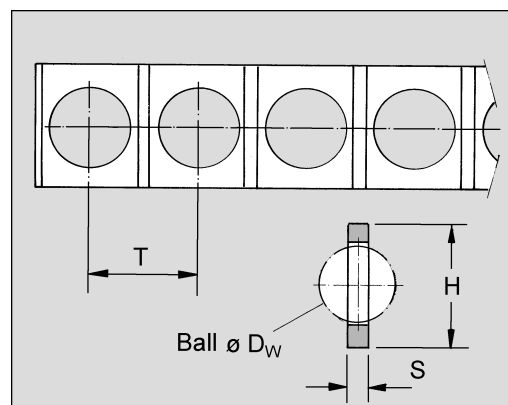
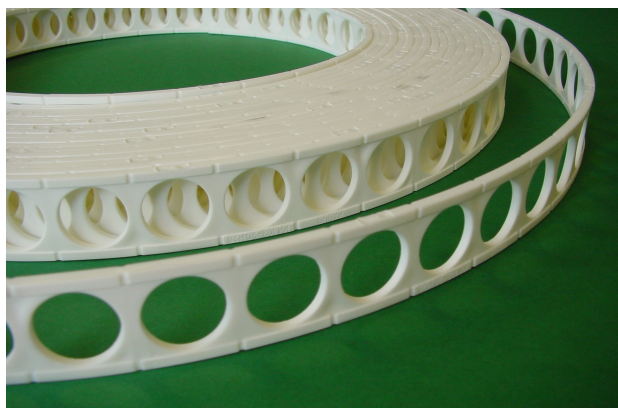


Table of dimensions [dimensions in mm]

KMF-type 1)	Ball Ø		H	S	T	D 2)
	D _w	[inch]				
KK 102-10,319	10,000		22,0	3,5	13,0	10,5
KK 102-10,319	10,319	13/32	22,0	3,5	13,0	10,5
KK 102-12	11,906	15/32	18,0	2,5	14,0	12,2
KK 102-12	12,000		18,0	2,5	14,0	12,2
KK 102-12,7	12,500		22,0	3,5	16,0	13,0
KK 102-12,7	12,700	1/2	22,0	3,5	16,0	13,0
KK 102-14	14,000		22,0	3,5	16,0	14,4
KK 102-14	14,288	9/16	22,0	3,5	16,0	14,4
KK 102-15H25	15,000		25,0	4,0	18,8	15,2
KK 102-15H25	15,081	19/32	25,0	4,0	18,8	15,2
KK 102-17	16,000		28,0	4,0	21,0	17,5
KK 102-17	16,669	21/32	28,0	4,0	21,0	17,5
KK 102-17	17,000		28,0	4,0	21,0	17,5
KK 102-18	18,000		28,0	4,0	22,5	18,5
KK 102-18	18,256	23/32	28,0	4,0	22,5	18,5
KK 102-20H28	19,050	3/4	28,0	4,0	25,0	20,5
KK 102-20H28	19,844	25/32	28,0	4,0	25,0	20,5
KK 102-20H28	20,000		28,0	4,0	25,0	20,5
KK 102-20D	20,000		30,0	3,0	25,5	21,3
KK 102-20D	20,638	13/16	30,0	3,0	25,5	21,3
KK 102-20D	21,000		30,0	3,0	25,5	21,3
KK 102-20DT	20,000		30,0	3,0	51,0	21,3
KK 102-20DT	20,638	13/16	30,0	3,0	51,0	21,3
KK 102-20DT	21,000		30,0	3,0	51,0	21,3
KK 102-22H30	22,000		30,0	3,0	27,5	22,5
KK 102-22H30	22,225	7/8	30,0	3,0	27,5	22,5
KK 102-25,4	25,000		37,5	5,0	30,6	26,0
KK 102-25,4	25,400	1	37,5	5,0	30,6	26,0
KK 102-30	30,000		42,0	6,0	36,0	30,5
KK 102-30	30,162	1 3/16	42,0	6,0	36,0	30,5
KK 102-35	34,925	1 3/8	45,0	8,0	45,0	37,0
KK 102-35	35,000		45,0	8,0	45,0	37,0
KK 102-35	36,000		45,0	8,0	45,0	37,0

1) Other dimensions on request

2) D = Diameter of ball pocket

Ball cage KK 107

Series KK 107, with guide and holders

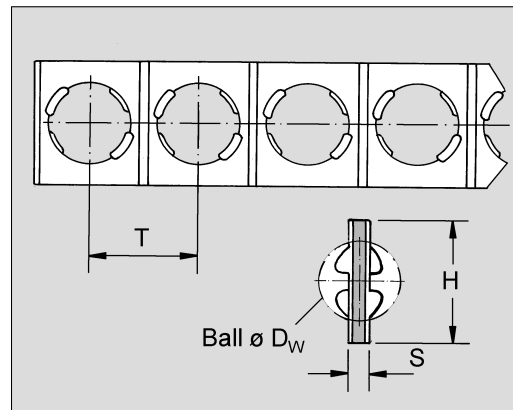
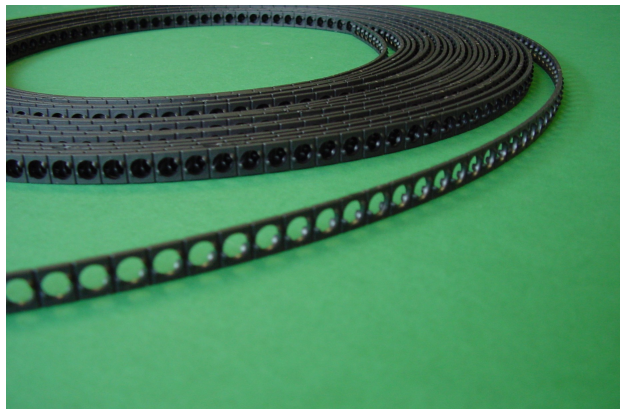


Table of dimensions [dimensions in mm]

KMF-type 1)	Ball \varnothing		H	S	T	D 2)
	D_w	[inch]				
KK 107-3,175	3,175	1/8	4,4	0,7	4,2	3,3
KK 107-4,0	3,969	5/32	6,3	1,3	5,8	4,2
KK 107-4,0	4,000		6,3	1,3	5,8	4,2
KK 107-5,0	4,762	3/16	8,0	1,5	6,8	5,2
KK 107-5,0	5,000		8,0	1,5	6,8	5,2
KK 107-6,0	6,000		9,0	1,6	7,8	6,2
KK 107-6,35	6,350	1/4	9,0	1,6	7,8	6,5

1) Other dimensions on request

2) D = Diameter of ball pocket

General

Ball cages of series KK 107 are mainly designed for small ball sizes with correspondingly small diameters.

The cage strips are guided and have skewed cross-arranged ball holders. This arrangement makes an optimum reduced ball part possible and causes sufficient holding with small running circle diameters.

The cage strips are supplied in metre lengths, without balls, on transport reels. For cage strips filled with balls, see series KCLK.

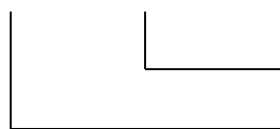
Example of order / inquiry

Designation :

KK 107 – 6,0

Quantity :

200 metres



size of balls

series

Ball cage KKVK 101

Series KKVK 101 – compound ball cage

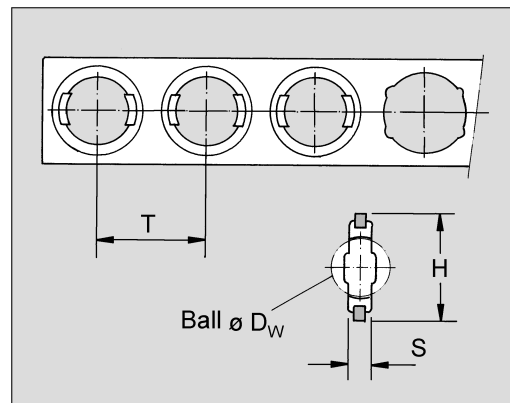


Table of dimensions [dimensions in mm]						
type 1)	Ball Ø		H	S	T	D 2)
	D _w	[inch]				
KKVK 101-6,35	6,35	1/4	12	2	11,67	6,5

1) Other dimensions on request

2) D = Diameter of ball pocket

General

Ball cages of series KKVK 101 are so-called guided compound cages.

They consist of a punched metal strip (support) and extruded plastic cups (ball pockets). The support is made of corrosion-resistant steel and the ball pocket of extruded TEFLON / PTFE.

These and other combinations of materials, eg. with ceramic balls make use in a high temperature range possible. Ball cages KKVK 101 can only be supplied in limited lengths.

Example of order / inquiry:

With reference to type KKVK, the order or inquiry should be as detailed as possible. For a tender to be made, apart from the running circle, the required combination of materials for the support, balls and plastic cups is required.

Ball cage KKAK

Series KKAK – axial ball cage strip

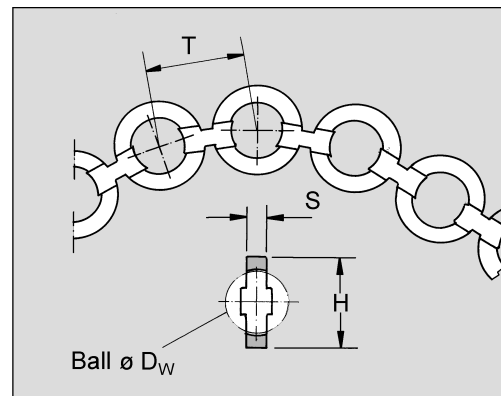


Table of dimensions [dimensions in mm]						
KMF-type 1)	Ball Ø D _w [inch]		H	S	T	D 2)
KKAK 104-06	6,00		9	2	10	6,1

1) Other dimensions on request

2) D = Diameter of ball pocket

General

Ball cages of series KKAK are guided axial ball cage strips specially designed for axial pressure bearings. The cage strips are supplied not filled, in metre lengths or cut, or ready to install filled with balls.

Example of order / inquiry:

Designation : Quantity :

Cage strip not filled

Designation : Quantity :

Cage strip ready to install
Equipped with 20 off 6 mm diameter balls

Ball cage KKAK... A

Series KKAK – axial ball cages

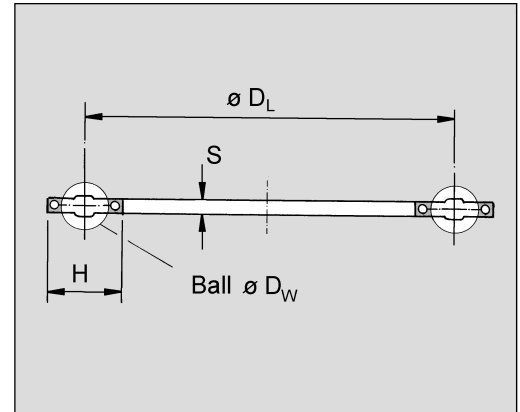


Table of dimensions [dimensions in mm]

type 1)	Ball \varnothing		H	S	T 2)	Running circle $\varnothing D_L$
	D_w	[inch]				
KKAK 6... A	6,000		13	3,0	9,0	> 100
KKAK 9,525... A	9,525	3/8	20	3,5	20,0	> 150
KKAK 11... A	11,000		19	4,0	14,5	> 200
KKAK 11,906... A	11,906	15/32	20	5,0	15,5	> 200
KKAK 12... A	12,000		20	5,0	15,5	> 200
KKAK 14... A	14,000		21	6,0	17,0	> 200

1) Other dimensions on request

2) Ball spacing (division)

General

Ball cages of series KKAK... A are guided axial ball cages specially designed for axial pressure bearings. The cages are so-called combination cages and consist of butt-welded precision steel rings (supports) and snap-on cage strips.

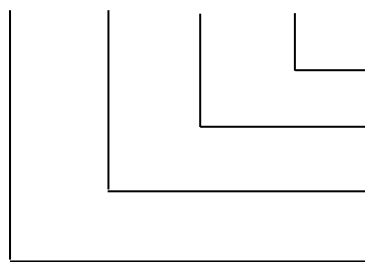
They are manufactured ready to install in the appropriate running circle diameter and may be filled with balls or offered and supplied without balls.

Due to the ideal shape, they can easily be made as segment cages, eg: for divided ball bearings or arcs with limited area.

Example of order:

Designation : KKAK 9,525 1160 A

Quantity : 200 off



axially arranged

running circle $\varnothing D_L$

size of balls

series

Ball cage KKAK... R

Series KKAK – radial ball cages

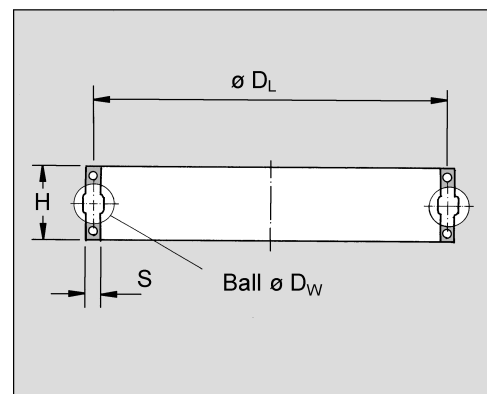


Table of dimensions [dimensions in mm]						
type 1)	Ball Ø D _w [inch]	H	S	T 2)	Running circle Ø D _L	
KKAK 6... R	6,000	13	3,0	9,0	> 50	
KKAK 9,525... R	9,525 3/8	20	3,5	20,0	> 200	
KKAK 11... R	11,000	19	4,0	14,5	> 100	
KKAK 11,906... R	11,906 15/32	20	5,0	15,5	> 100	
KKAK 12... R	12,000	20	5,0	15,5	> 100	
KKAK 14... R	14,000	21	6,0	17,0	> 100	

1) Other dimensions on request

2) Ball spacing (division)

General

Ball cages of series KKAK... R are guided ball cages specially designed for ball bearings and ball bearing elements.

The cages are so-called combination cages and consist of butt-welded precision steel rings (supports) and radial snap-on cage strips.

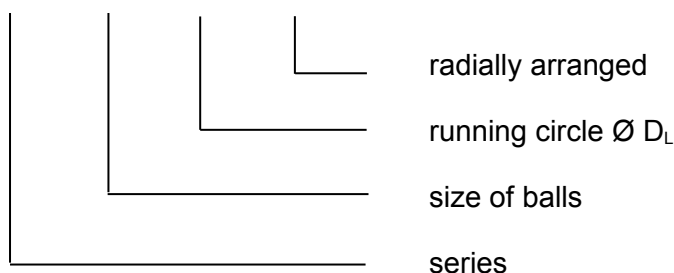
They are manufactured ready to fit on the appropriate running circle Ø D_L and can be filled with balls or offered and supplied without balls.

Due to the ideal shape, they can easily be made as segment cages, eg: for divided ball bearings or arcs with limited area.

Example of order:

Designation : KKAK 11 0200 R

Quantity : 50 off



Ball cage KKAK... S

Series KKAK – skew ball cages

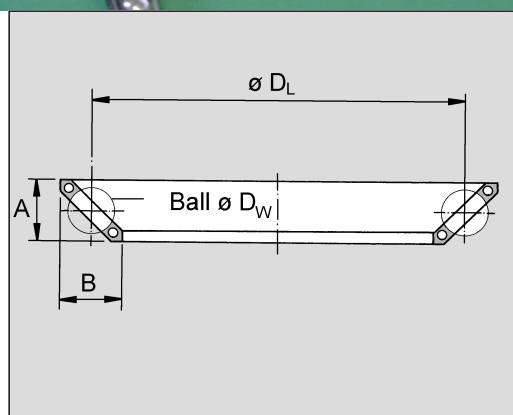


Table of dimensions [dimensions in mm]

type 1)	Ball \varnothing D_w [inch]	A	B	T 2)	Running circle $\varnothing D_L$
KKAK 11... S	11,000	14	14	14,5	> 150
KKAK 11,906... S	11,906	15	15	15,5	> 150
KKAK 12... S	12,000	15	15	15,5	> 150
KKAK 14... S	14,000	15	15	17,0	> 150

1) Other dimensions on request

2) Ball spacing (division)

General

Ball cages of series KKAK... S are guided ball cages specially designed for skew ball bearings and skew ball bearing elements, preferably with a pressure angle of 45°.

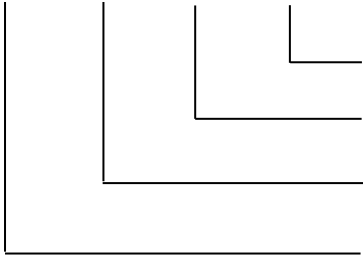
The cages are so-called combination cages and consist of butt-welded precision steel rings (supports) and the skewed snap-on cage strips, matching the pressure angle.

They are manufactured ready to install to the required running circle diameter and may be filled with balls or offered and supplied without balls.

Example of order:

Designation : KKAK 11 0200 S

Quantity : 50 off



skew arrangement

running circle $\varnothing D_L$

size of balls

series

Radial needle roller set KKRK (KKBF)

Series KKRK 200 – needle roller cage strip

General

Radial needle roller sets of series KKRK (KKBF) are single row held plastic cage strips for needle rollers.

The cage strips are offered and supplied in metre lengths without needle rollers with type designation KKRK 200 and with needle rollers with type designation KKBF... .

Minimum quantities

For type KKRK 200 from 100 m without minimum quantity extra price.

For quantities < 100 m with minimum quantity extra price.

Needle rollers of type KKBF (incl. needle rollers NRB / G2) no minimum quantity charge.

Examples of orders / inquiries:

Needle roller cage strip for own filling and cutting to length

Designation :

KKRK 200 – 03

Quantity :

500 metres



needle roller size

series (without needle rollers)

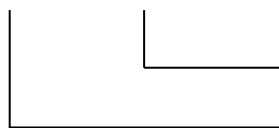
Needle roller set for cutting to length

Designation :

KKBF 3020

Quantity :

100 metres



cage size

series (incl. needle rollers)

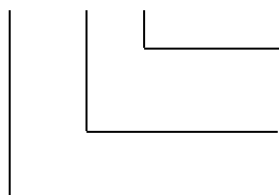
Needle roller set ready to install

Designation :

KKBF 3020 0650

Quantity :

50 off



ready to install for length
(note cage end play page 8)

cage size

series

Radial needle roller set KKRK (KKBF)

Series KKRK 200 – needle roller cage strip

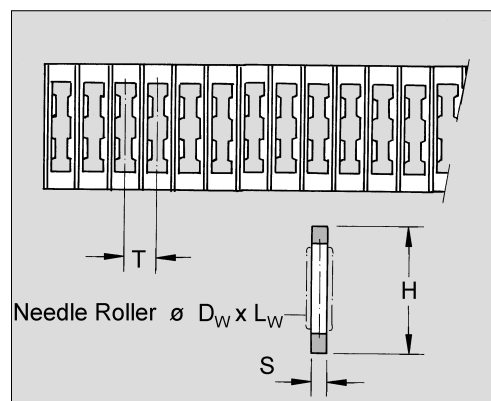
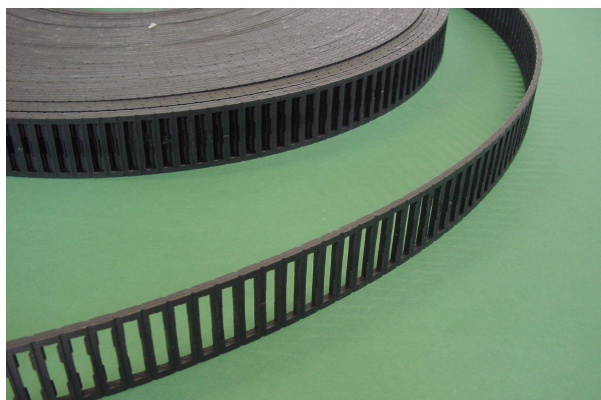


Table of dimensions [dimensions in mm]

type 1) without needle	type 2) with needle	Needle roller Ø D _W x L _W	H	S	T	No. of needle per metre
KKRK 200-01	KKBF 1510 3)	1,5 x 7,8	10	1,1	2,9	344
KKRK 200-025	KKBF 2518	2,5 x 13,8	18	2,0	4,8	208
KKRK 200-03	KKBF 3020	3,0 x 15,8	20	2,5	5,2	192
KKRK 200-04	KKBF 4030	4,0 x 23,8	30	3,0	7,0	142
KKRK 200-05 B	KKBF 5023	5,0 x 15,0	23	3,5	8,0	125
KKRK 200-05	KKBF 5035	5,0 x 27,8	35	3,5	9,0	111
KKRK 200-12	KKBF 12040	12,0 x 30,0	40	5,0	16,0	62

1) Other dimensions on request

2) The radial needle roller set KKBF 1510 was originally designed for sensitive balancing systems and has a reduced ball holder. It is therefore recommended that ready to install needle roller sets, not metre lengths, should be discussed with the manufacturer.

Radial roller cage KKRR

Series KKRR 207 – radial roller cage strip

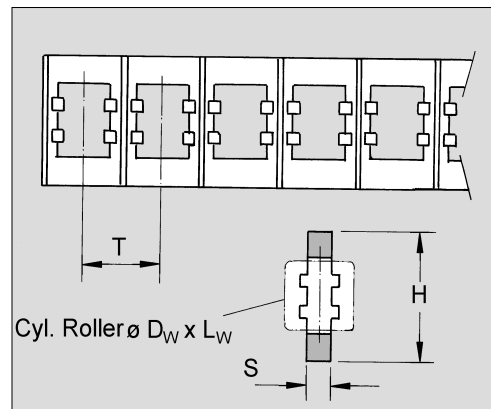
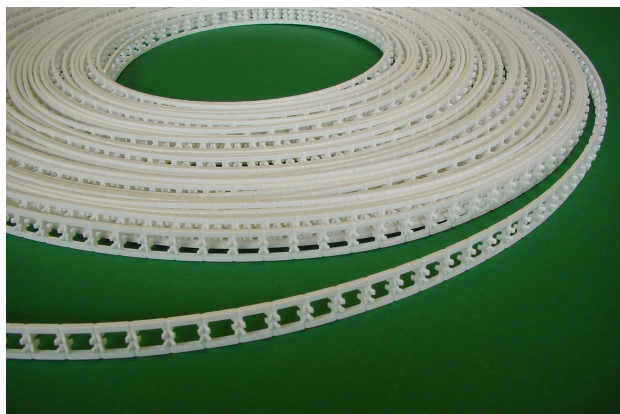


Table of dimensions [dimensions in mm]							
type 1) without rollers	type with rollers	Cylinder roller Ø D _w x L _w	H	S	T	L	No. of Cyl.-rollers per metre
KKRR 207-05	KKRR 0505	5 x 5,0	10	2,5	7,5	5,2	133
KKRR 207-10	KKRR 1010	10 x 10,0	16	2,5	13,0	10,2	76
KKRR 207-10	KKRR 1009	10 x 9,8	16	2,5	13,0	10,2	76
KKRR 207-16	KKRR 1616	16 x 16,0	18	4,0	22,0	16,2	45
KKRR 207-16	KKRR 1615	16 x 15,8	28	4,0	22,0	16,2	45

1) Other dimensions on request

General

Radial roller cages of series KKRR are single row guided plastic cage strips for cylindrical rollers. The cage strips are offered and supplied in metre lengths without cylindrical rollers as type KKRR 207 and the rollers are supplied as type KKRR...

Examples of order / inquiry:

Radial roller cage strip for own filling and cutting to

length Designation: Quantity:

Radial roller cage for own cutting to length

Designation: Quantity:

cage strip with rollers 10 x 10 series

Radial roller cage ready to install

Designation: Quantity:

ready to install cut to correct length (note cage end play, page 8)

Roller cage KK 202

Series KK 202 – radial roller / cross roller cage strip

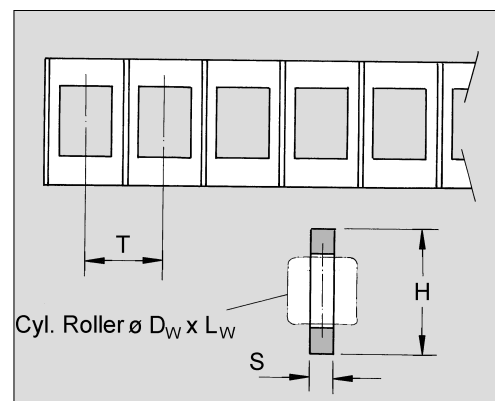
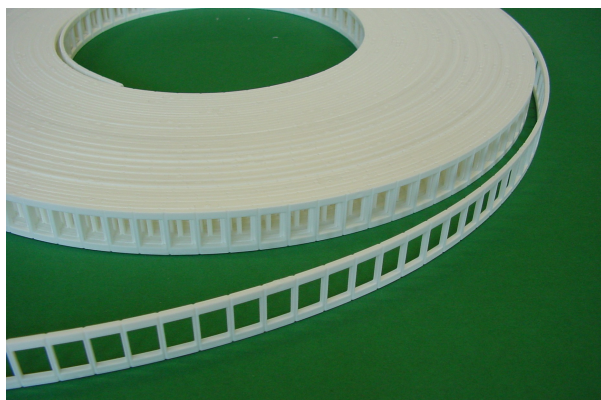


Table of dimensions [dimensions in mm]

type 1)	Cross roller $\varnothing D_W \times L_W$	H	S	T	L
KK 202-10 H 22	10 x 9,8	22	2,5	12,3	14,0
KK 202-10	10 x 7,9	20	3,9	12,3	12,3

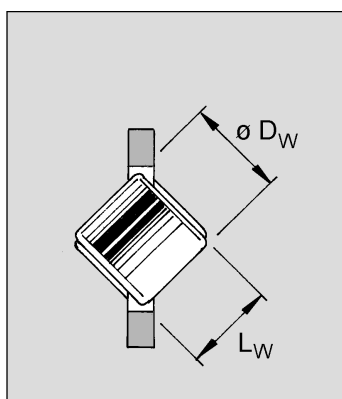
type 1)	Radial roller $\varnothing D_W \times L_W$	H	S	T	L
KK 202-10 H 22	10 x 13,5	22	2,5	12,3	14,0
KK 202-10	10 x 12,0	20	3,9	12,3	12,3

1) Other dimensions on request

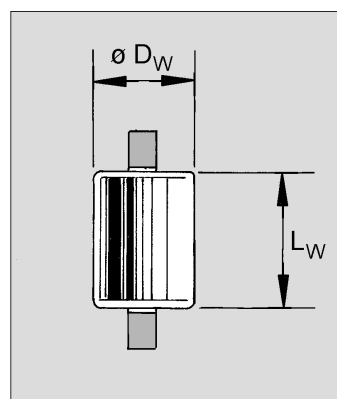
General

Roller cages of series KK 202 are so-called „hole strips“ without roller guides and roller holders. The cage strip is guided on the bearing edges.

It can be used for track systems with cross rollers and with radial rollers.



Cross roller



Radial roller

Example of order / inquiry

Designation :

Quantity :

Roller cage KKXR

Series KKXR – cross roller cage strip

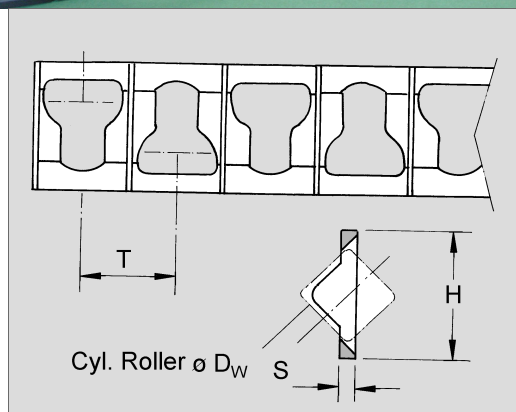
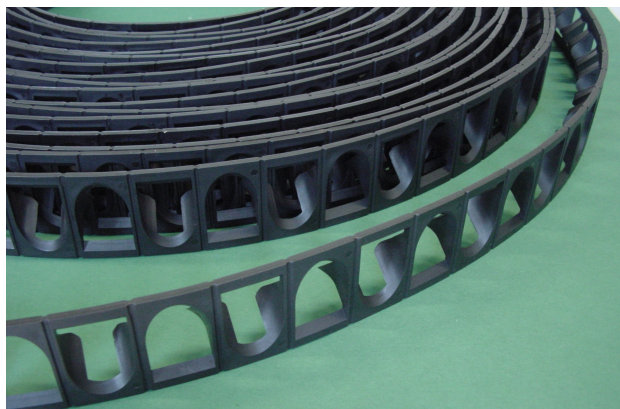


Table of dimensions [dimensions in mm]				
type 1)	Cross roller $\varnothing D_w$	H	S	T
KKXR 209-06	6	12	1,0	7,5
KKXR 209-10	10	22	2,0	12,5
KKXR 209-14	14	28	3,0	17,5
KKXR 209-16	16	32	3,0	20,0
KKXR 209-20	20	40	3,0	25,0
KKXR 209-25	25	47	3,5	32,0

1) Other dimensions on request

General

Roller cages of series KKXR are cage strips for track systems with cross rollers. One of the advantages of these separator strips would be that compared with distance pieces the time consuming endplay setting by using balance distance pieces is no longer required.

The roller pockets have a one-sided guide without roller holders. The cage strip is preferably filled via filling holes in the track system, but is suitable for bearings with split bearing rings, too.

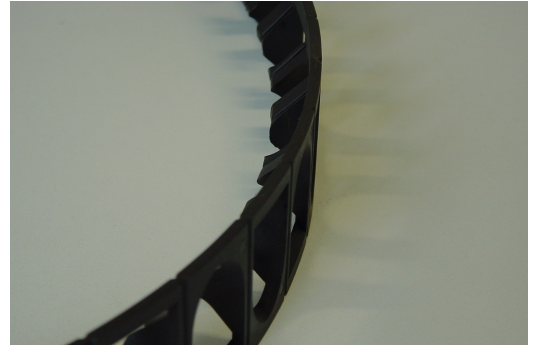
The guide is arranged for the bearing ring without filling stopper. Therefore two winding directions (winding direction A / B) are offered, which must be noted in the order.

Example of order / inquiry:

KKXR 209-14	-A-	100 metres
Designation	Winding direction	Quantity



Winding direction -A-



Winding direction -B-

Roller cage KVSR

Series KVSR – skew roller cage

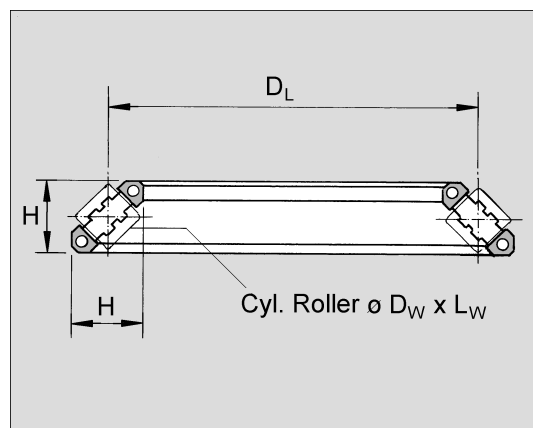
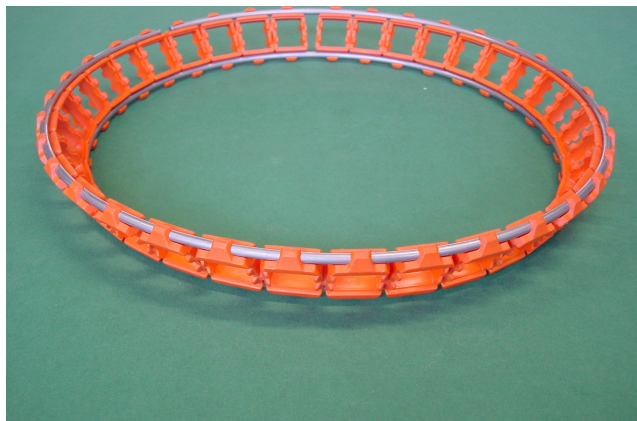


Table of dimensions [dimensions in mm]					
type 1)	Cylindrical rollers		H x H	Area of use Running circle $\varnothing D_L$	
	D_W	L_W		$\varnothing D_L$ min.	$\varnothing D_L$ max.
KVSR 18	18	18	27 x 27	250	~ 1800

1) Other dimensions on request

General

Skew roller cages of series KVSR are combination cages. Stable precision steel wire rings (so-called supports) are completed with a plastic roller cage strip into a skew roller cage with a preferred pressure angle of 45°.

By the combination principle, all pressure angles from 0° (axial roller set) to 90° (radial roller set) can be produced.

The supports are manufactured exactly to the diameter as a closed ring. The cylindrical rollers are held and guided in the roller pockets.

Example of order / inquiry:

State manufactured by the manufacturer ready to install on running circle diameter ($\varnothing D_L$).

KVSR-18

Designation

420 mm

Running circle $\varnothing D_L$

15 off

Quantity

Roller cage AXK

Series AXK – axial roller sets

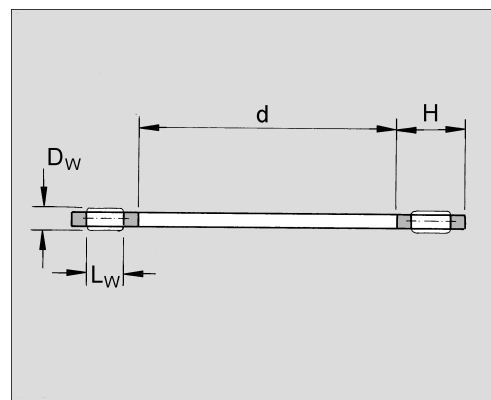
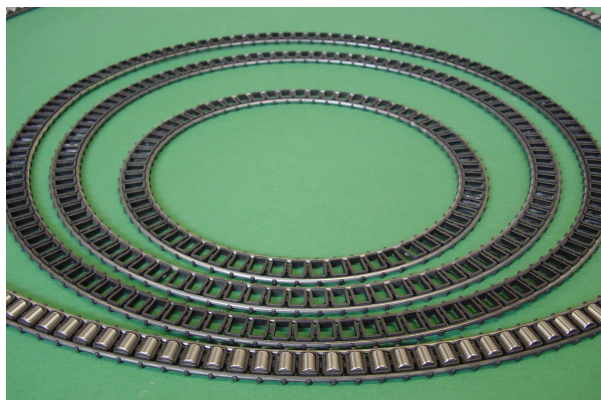


Table of dimensions [dimensions in mm]

type 1)	Cylindrical rollers		Area of use Shaft diameter		H	T 2)
	D _w	L _w	d min.	d max.		
AXK 4015	4	8	100	~ 1000	15	7,5
AXK 5015	5	8	100	~ 1000	15	8,0
AXK 5020	5	15	120	~ 1200	20	8,0
AXK 7025	7	14	350	~ 1200	25	11,0
AXK 18036	18	18	400	~ 1800	36	23,0

1) Other dimensions on request

2) Roller spacing (division)

General

Axial roller sets of series AXK are combination cages. Stable precision steel wire rings (so-called supports) are completed by a plastic roller cage strip into an axial roller set with a pressure angle of 0°. By the combination principle, other pressure angles, eg: 30° or 45° (skew roller cages) can be produced.

The supports are manufactured exactly to the diameter as a closed ring. The cylindrical rollers are held and guided in the roller pockets.

Example of order / inquiry:

AXK 5015

Designation

0220

Area of use
Shaft diameter (mm)

20 off

Quantity

Roller cage KKBF

Series KKBF – radial roller sets

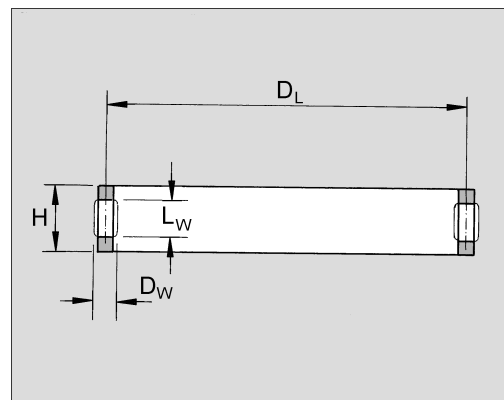
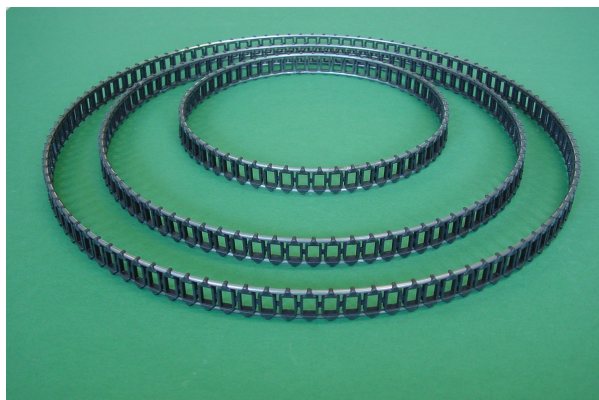


Table of dimensions [dimensions in mm]

type 1)	Cylindrical roller		Area of use Running circle diameter		H	T 2)
	D _w	L _w	D _L min.	D _L max.		
KKBF 4015	4	8	100	~ 1000	15	7,5
KKBF 5015	5	8	100	~ 1000	15	8,0
KKBF 5020	5	15	120	~ 1000	20	8,0
KKBF 7025	7	14	150	~ 1200	25	11,0
KKBF 18036	18	18	200	~ 1800	36	23,0

1) Other dimensions on request

2) Roller spacing (division)

General

Radial roller sets of series KKBF are combination cages. Stable precision steel wire rings (so-called supports) are completed by a plastic roller cage strip into a roller set with a pressure angle of 90°.

The supports are manufactured exactly to the running circle diameter (D_L) as a closed ring. The supports may be provided with an impact position, so that the radial roller set can also be mounted in a sunken running track. The types KKBF 4015, 5015 and 7025 are eminently suitable for producing multi-row radial roller sets.

Example of order / inquiry:

KKBF 5015

Designation

0400

Running circle Ø D_L (mm)

10 off

Quantity