INNZ
BEARINGS

INNZ Inner rings

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Ningbo INNZ Bearings Co., Ltd.

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Technical Characteristics

Separate inner rings are being used for completing bearings with inner rings and in cases where it is technically not feasible or not economically to design the shaft as bearing raceway.
Another typical application is where the axial displacement is larger than permissible to normal needle roller bearings. In such cases extra wide inner rings may be used.

Inner rings bearings are also frequently used as contact face for radial oil seals. This prevents wear on the shaft and thus improves both efficiency and service life of radial oil sealing systems without the need having the shaft hardened and ground. In case of repairing or overhauling the machine a simple exchange of the worn parts, i.e. inner rings and radial oil seals is sufficient. The shaft, however, may continue to be used.

Materials

INNZ standard inner rings with "normal section", i.e. s ≤25 mm (1") are made from through-hardening high chromium steel 100Cr6 (DIN material number 1.3505; SAE52100) according to DIN 17230/ISO 683-17. For heavier wall sections 100CrMn6 is being used.
Larger inner rings, rings operating at heavy interference fits or under severe shock loading are frequently made from case-hardening steels

For inner rings operating in corrosive environments or being exposed to aggressive cleaning agents, i.e. in food and beverage industry, various stainless-steel alloys are used.

Please consult our application engineering department (engineering@nbinnz.com) for advice.

Heat Treatment

The heat treatment depends upon the maximum operating temperature that occurs. INNZ standard inner rings are stabilised up to +120°C (248°F), short temperature peaks up to +150°C (302°F) are permissible.
As is standard, it will not be marked on the rings.

Permanent operating temperatures exceeding +120 °C (248°F) cause metallurgical processes within the steel's grain structure that may cause undesired changes of dimensional or geometrical accuracy and loss of hardness

INNZ produce specially stabilised bearings on request; please consult our application engineering department (engineering@nbinnz.com) for advice.

Non-standard heat treatments are being indicated by suffixes, see table 1

Thermal Stabilisation		
up to max.	Class	Factor ft*)
120°C (248°F)	SN	1,00
150°C (302°F)	S0	1,00
200°C (392°F)	S1	0,90
250°C (482°F)	S2	0,75
300°C (572°F)	S3	0,60

Table 1

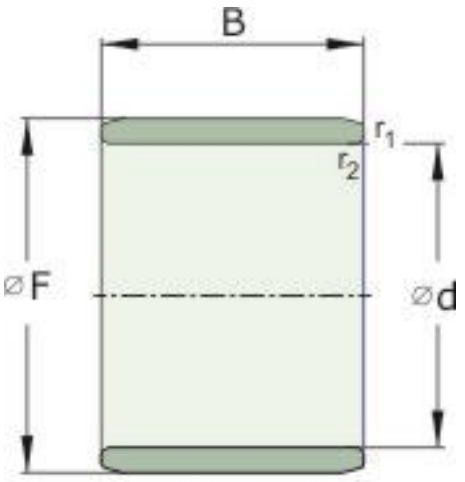
***)** f_t = **temperature reduction factor for bearing life calculation**

Design variants

INNZ produces inner rings in several different design variants. Inner rings feature super finished or fine ground raceways, depending on the individual design variant.

Inner rings IR

IR – type inner rings have super finished raceways. Chamfers on both faces allow for an easy inserting into the bearings and prevent sealing lips of bearing seals or radial oil seals from being damaged during assembly.

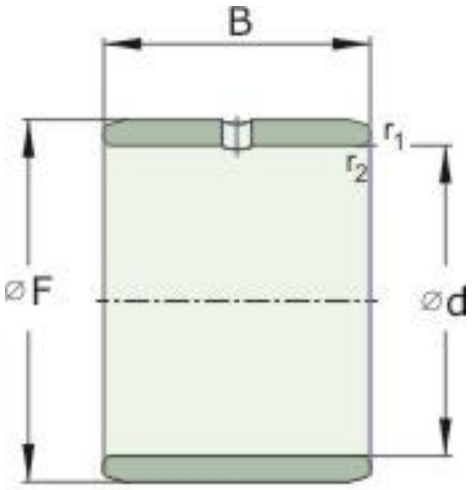


IR

Fig. 1

IR - type inner rings with lubrication hole

IR type inner rings are also being produced with a lubricating hole to customers order, suffix IS1

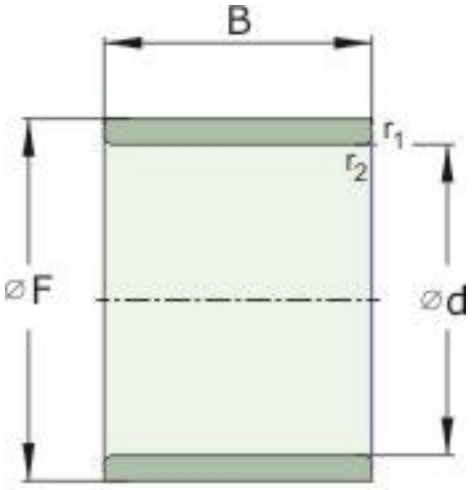


IR-IS1

Fig. 2

IRZ type inner rings

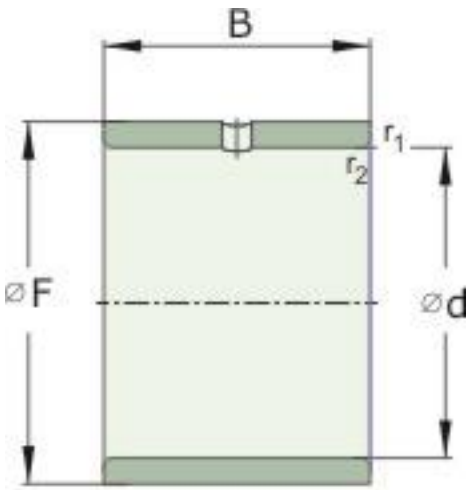
IRZ type inner rings are similar to IR design rings but lack the chamfers on the faces. IRZ – type inner rings therefore allow for larger axial displacement compared to regular IR – type inner rings. IRZ - type inner rings are being produced to customer orders.



IRZ

Fig. 3

IRZ - type inner rings are also available with a lubricating hole, suffix IS1

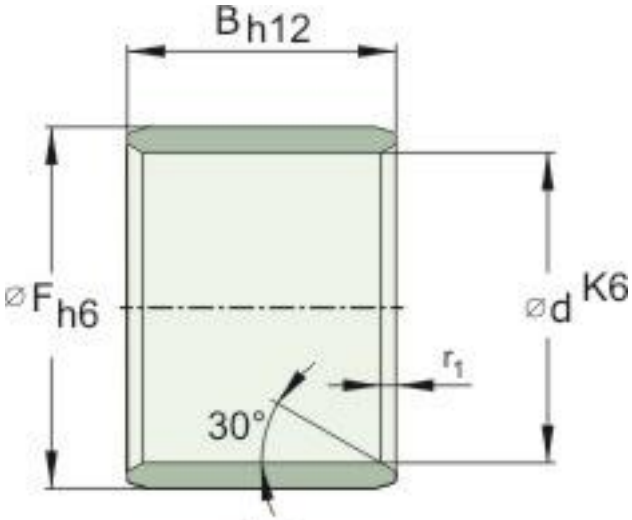


IRZ-IS1

Fig. 4

LR type inner rings

LR type inner rings are a simplified cost saving version for applications where larger tolerances are permissible.
These rings feature wider tolerances compared to IR type inner rings, fine ground raceways, turned only faces and beveled chamfers.



LR

Fig. 5

Inner rings with pre- ground raceways (VGS)

Inner rings with pre-ground only raceways can be supplied to customers order, suffix. VGS.
This allows the raceways to be ground in assembled condition; by that absolute minimum concentricity can be achieved. The machining allowance is depending on the raceway diameter ØF, see table 2

Raceway diameter F [mm]		Machining allowance Z [mm]	racewayØ, preground $ØF_{VGS}$
>	≤		
--	50	0,10	$F_{VGS} = F + z$ (ISO tolerance field h7)
50	80	0,15	
80	180	0,20	
180	250	0,25	
250	315	0,30	
315	400	0,35	
400	500	0,40	

Table 2

Tolerances

IR type inner rings are standard produced with tolerance class PN according to DIN 620.

LR type inner rings have a bore diameter tolerance Ød according to ISO tolerance field K6, the raceway diameter ØF is according to tolerance field h6, the width tolerance is h12. For all inner rings, the tolerances for the raceway diameters ØF are given in the product tables.

INNZ produces inner rings to other tolerances on customers order; please consult our application engineering department (engineering@nbinnz.com)

Clearance

The standard raceway diameter has been defined in such a way that normal clearance (group CN) is achieved when needle roller bearings with machined rings are being used. When using inner rings with drawn cup needle roller bearings, clearance groups C2 to C3 may result, see table 3

We recommend consulting our application engineering department (engineering@nbinnz.com) for further assistance and advice.

Internal Clearance groups; ***Needle roller bearings*** **[μm]**

Bore iameter [mm]	Ød	>	--	24	30	40	50	65	80	100	120	140	160	180	200	225	250	280	315
		≤	24	30	40	50	65	80	100	120	140	160	180	200	225	250	280	315	355
Clearance group	C2	min	0	0	5	5	10	10	15	15	15	20	25	35	45	45	55	55	65
		max	25	25	30	35	40	45	50	55	60	70	75	90	105	110	125	130	145
Clearance group	CN	min	**20**	**20**	**25**	**30**	**40**	**40**	**50**	**50**	**60**	**70**	**75**	**90**	**105**	**110**	**125**	**130**	**145**
		max	**45**	**45**	**50**	**60**	**70**	**75**	**85**	**90**	**105**	**120**	**125**	**145**	**165**	**175**	**195**	**205**	**225**
Clearance group	C3	min	35	35	45	50	60	65	75	85	100	115	120	140	160	170	190	200	225
		max	60	60	70	80	90	100	110	125	145	165	170	195	220	235	260	275	305
Clearance group	C4	min	50	50	60	70	80	90	105	125	145	165	170	195	220	235	260	275	305
		max	75	75	85	100	110	125	140	165	190	215	220	250	280	300	330	350	385

Table 3

Design of adjacent machine parts

Inner rings need to be positively fixed to their shaft fits. For selecting the fits, the regular recommendations for needle roller bearing fits apply.
The adjacent shaft shoulders must be designed in such a way that a sufficient support to the inner ring faces is provided.
The inner ring chamfers must not contact the radii of the shaft shoulders. Therefore, using a radius following the recommendations provided by DIN 5418 or, alternatively, an undercut according to DIN509 is recommended.

Abutment and fillet dimensions [mm]

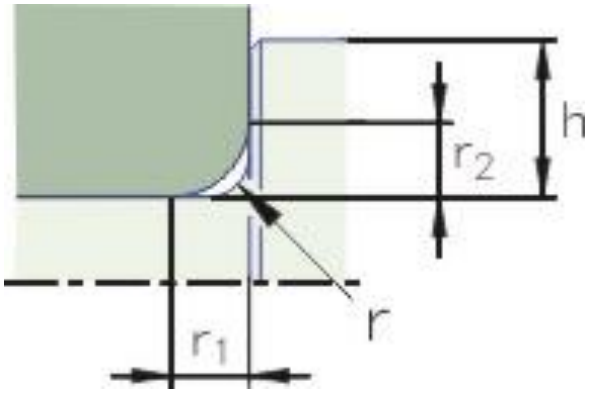


Fig. 6

r_1, r_{2min}	r_{max}	h_{min} >
0,15	0,15	0,6
0,3	0,3	1
0,6	0,6	2
1	1	2,5
1,1	1	3,25
1,5	1,5	4
2	2	5
2,1	2,1	5,5
3	2,5	6

Table 4

Inner rings, Pre- and Suffixes (examples)

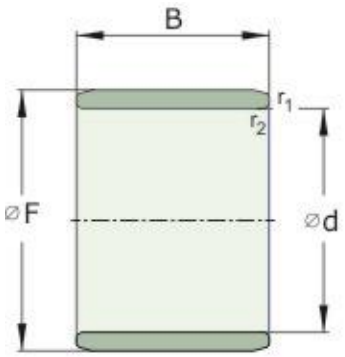
Prefix	Suffix	Description
	C2	Clearance smaller than normal
	C3	Clearance bigger than normal
	C4	Clearance bigger than C4
	EGS	Inner ring with twist free ground race way
	HA3	Inner ring made from case carburizing steel
	IS1	Inner ring with one lubricating hole
	VGS	Inner ring with pre ground raceway
	AV10	Inner ring with black oxide coating
	AV12	Inner ring with zinc-iron anti - corrosion coating
S		Stainless steel inner ring
	S0	Thermal stabilisation up to 150°C (302°F)
	S1	Thermal stabilisation up to 200°C (392°F)
	S2	Thermal stabilisation up to 250°C (482°F)
	S3	Thermal stabilisation up to 300°C (572°F)

Table 5

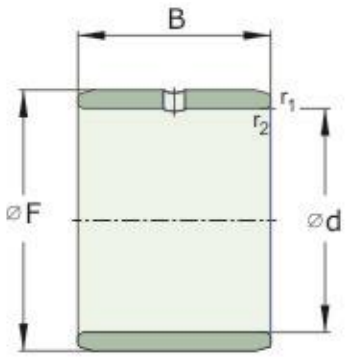
Special designs and customized products

INNZ produces special inner rings and rings to customers drawings on customers order; i.e inner rings with non-standard bore diameters and in imperial (inch) dimensions.
INNZ also produces inner rings for rolling mills with restrained tolerances and for different clearance groups.

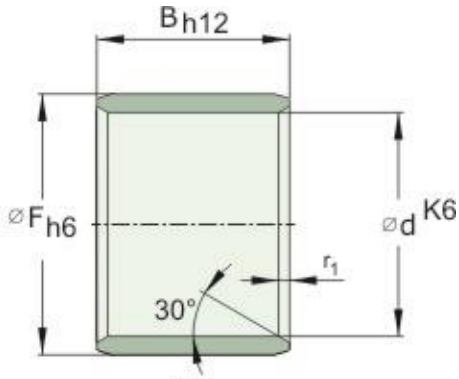
Please consult our sales or application engineering department (engineering@nbinnz.com)



IR

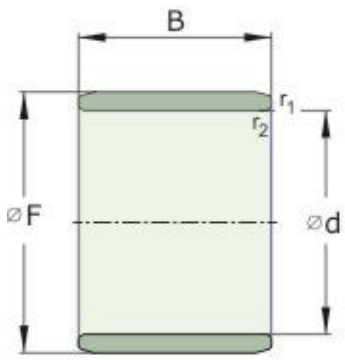


IR-IS1



LR

Designation	Boundary dimensions [mm]				Raceway tolerance F [µm]		Weight [kg]
	d	F	B	r_1, r_2 min	max	min	
IR5X8X12	**5**	8	12	0,3	-7	-23	0,003
IR5X8X16		8	16	0,3	-7	-23	0,004
IR6X9X12	**6**	9	12	0,3	-7	-23	0,003
IR6X9X16		9	16	0,3	-7	-23	0,004
IR6X10X10		10	10	0,3	-7	-23	0,004
IR6X10X10-IS1		10	10	0,3	-7	-23	0,004
IR6X10X12		10	12	0,3	-7	-23	0,005
IR7X10X10,5	**7**	10	10,5	0,3	-7	-23	0,003
LR7X10X10,5		10	10,5	0,3	0	-9	0,003
IR7X10X12		10	12	0,3	-7	-23	0,004
IR7X10X16		10	16	0,3	-7	-23	0,005
IR8X12X10	**8**	12	10	0,3	-4	-18	0,005
LR8X12X10,5		12	10,5	0,3	0	-11-	0,005
IR8X12X10-IS1		12	10	0,3	-4	-18	0,005
IR8X12X10,5		12	10,5	0,3	-4	-18	0,005
IR8X12X12		12	12	0,3	-4	-18	0,006
IR8X12X12,5		12	12,5	0,3	-4	-18	0,006
LR8X12X12,5		12	12,5	0,3	0	-11	0,005
IR9X12X12	**9**	12	12	0,3	-4	-18	0,005
IR9X12X16		12	16	0,3	-4	-18	0,006
IR10X13X12,5	**10**	13	12,5	0,3	-4	-18	0,005
LR10X13X12,5		13	12,5	0,3	0	-11	0,005
IR10X14X12		14	12	0,3	-4	-18	0,007
IR10X14X12-IS1		14	12	0,3	-4	-18	0,007
IR10X14X13		14	13	0,3	-4	-18	0,007
IR10X14X14		14	14	0,3	-4	-18	0,008
IR10X14X16		14	14	0,3	-4	-18	0,008
IR10X14X20		14	20	0,3	-4	-18	0,012



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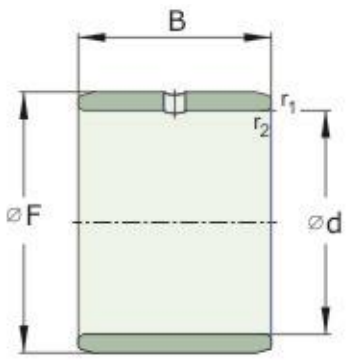
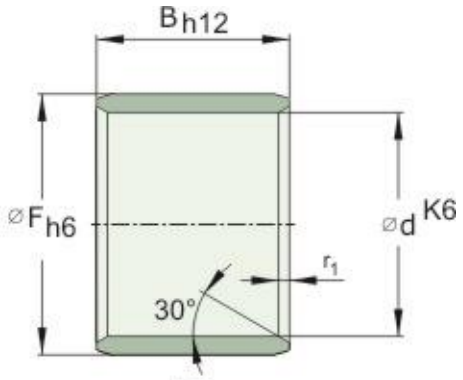
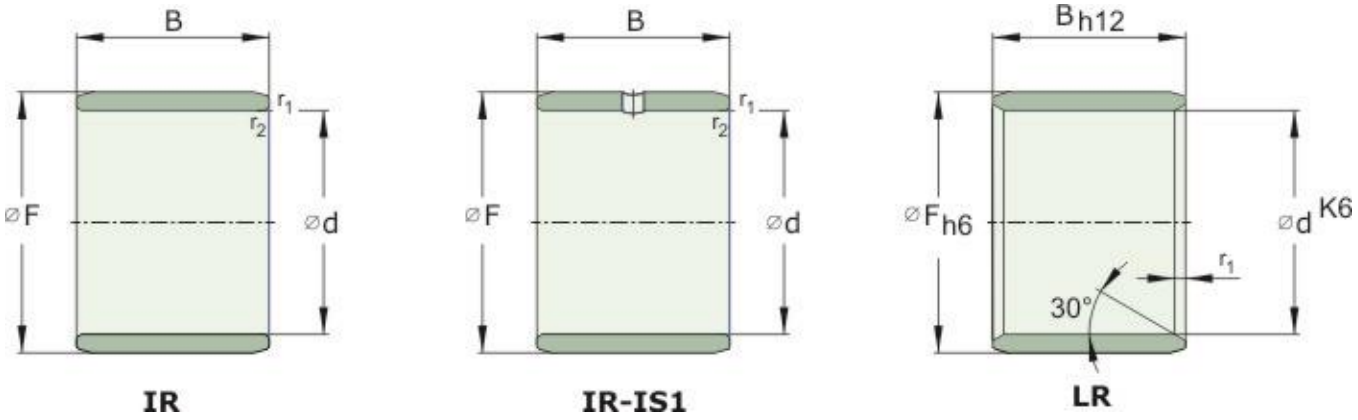


IR-IS1

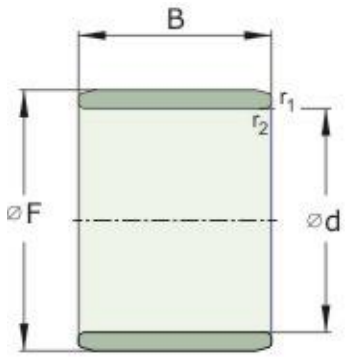


LR

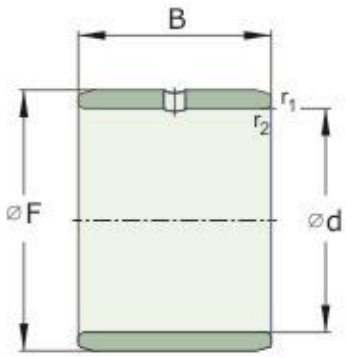
Designation	Boundary dimensions [mm]				Raceway tolerance F [µm]		Weight [kg]
	d	F	B	r_1, r_2 min	max	min	
IR12X15X12	**12**	15	12	0,3	-4	-18	0,006
IR12X15X12,5		15	12,5	0,3	-4	-18	0,006
LR12X15X12,5		15	12,5	0,3	0	-11	0,006
IR12X15X16		15	16	0,3	-4	-18	0,008
IR12X15X16,5		15	16,5	0,3	-4	-18	0,008
LR12X15X16,5		15	16,5	0,3	0	-11	0,008
IR12X15X22,5		15	22,5	0,3	-4	-18	0,011
LR12X15X22,5		15	22,5	0,3	0	-11	0,011
IR12X16X12		16	12	0,3	-4	-18	0,008
IR12X16X12-IS1		16	12	0,3	-4	-18	0,008
IR12X16X13		16	13	0,3	-4	-18	0,009
IR12X16X14		16	14	0,3	-4	-18	0,010
IR12X16X16		16	16	0,3	-4	-18	0,011
IR12X16X20		16	20	0,3	-4	-18	0,014
IR12X16X22		16	22	0,3	-4	-18	0,015
IR14X17X17	**14**	17	17	0,3	-4	-18	0,010
IR15X18X12,5	**15**	18	12,5	0,3	-4	-18	0,007
LR15X18X12,5		18	12,5	0,3	0	-11	0,007
IR15X18X16		18	16	0,3	-4	-18	0,010
IR15X18X16,5		18	16,5	0,3	-4	-18	0,010
LR15X18X16,5		18	16,5	0,3	0	-11	0,010
IR15X19X16		19	16	0,3	0	-12	0,013
IR15X19X20		19	20	0,3	0	-12	0,016
IR15X20X12		20	12	0,3	0	-12	0,012
IR15X20X12-IS1		20	12	0,3	0	-12	0,012
IR15X20X13		20	12	0,3	0	-12	0,012
IR15X20X14		20	14	0,3	0	-12	0,015
IR15X20X23		20	23	0,3	0	-12	0,024



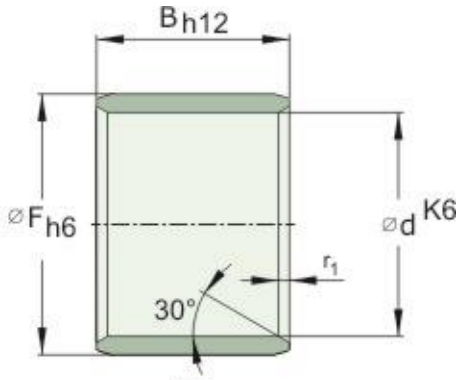
Designation	Boundary dimensions [mm]				Raceway tolerance F [μm]		Weight [kg]
	d	F	B	r_1, r_2 min	max	min	
IR17X20X16	**17**	20	16	0,3	0	-12	0,011
IR17X20X16,5		20	16,5	0,3	0	-12	0,011
LR17X20X16,5		20	16,5	0,3	0	-13	0,011
IR17X20X20		20	20	0,3	0	-12	0,014
IR17X20X20,5		20	20,5	0,3	0	-12	0,014
LR17X20X20,5		20	20,5	0,3	0	-13	0,014
IR17X20X30,5		20	30,5	0,3	0	-12	0,021
LR17X20X30,5		20	30,5	0,3	0	-13	0,021
IR17X21X16		21	16	0,3	0	-12	0,014
IR17X21X20		21	20	0,3	0	-12	0,018
IR17X22X13		22	13	0,3	0	-12	0,015
IR17X22X14		22	14	0,3	0	-12	0,016
IR17X22X16		22	16	0,3	0	-12	0,019
IR17X22X23		22	23	0,3	0	-12	0,027
IR17X24X20		24	20	0,6	0	-12	0,034
IR20X24X16	**20**	24	16	0,3	0	-12	0,017
IR20X24X20		24	20	0,3	0	-12	0,021
IR20X25X12,5		25	12,5	0,3	0	-12	0,016
LR20X25X12,5		25	12,5	0,3	0	-13	0,016
IR20X25X16		25	16	0,3	0	-12	0,021
IR20X25X16-IS1		25	16	0,3	0	-12	0,024
IR20X25X16,5		25	16,5	0,3	0	-12	0,022
LRX20X25X16,5		25	16,5	0,3	0	-13	0,022
IR20X25X17		25	17	0,3	0	-12	0,025
IR20X25X18		25	18	0,3	0	-12	0,024
IR20X25X20		25	20	0,3	0	-12	0,028
IR20X25X20,5		25	20,5	0,3	0	-12	0,028
LR20X25X20,5		25	20,5	0,3	0	-13	0,28



IR

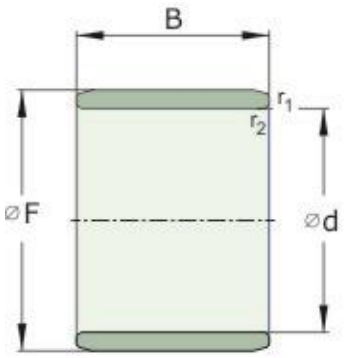


IR-IS1



LR

Designation	Boundary dimensions [mm]				Raceway tolerance F [µm]		Weight [kg]
	d	F	B	r_1, r_2 min	max	min	
IR20X25X26,5	**20**	25	26,5	0,3	0	-12	0,036
LR20X25X26,5		25	26,5	0,3	0	-13	0,038
IR20X25X30		25	30	0,3	0	-12	0,041
IR20X25X38,5		25	38,5	0,3	0	-12	0,053
LR20X25X38,5		25	38,5	0,3	0	-13	0,045
IR20X28X20		28	20	0,6	0	-12	0,045
IR22X26X16	**22**	26	16	0,3	0	-12	0,018
IR22X26X20		26	20	0,3	0	-12	0,023
IR22X28X17		28	17	0,3	0	-12	0,030
IR22X28X20		28	20	0,3	0	-12	0,035
IR22X28X20,5		28	20,5	0,3	0	-12	0,036
LR22X28X20,5		28	20,5	0,3	0	-13	0,036
IR22X28X30		28	30	0,3	0	-12	0,054
IR25X29X20	**25**	29	20	0,3	0	-12	0,026
IR25X29X30		29	30	0,3	0	-12	0,039
IR25X30X12,5		30	12,5	0,3	0	-12	0,020
LR25X30X12,5		30	12,5	0,3	0	-13	0,020
IR25X30X16		30	16	0,3	0	-12	0,026
IR25X30X16-IS1		30	16	0,3	0	-12	0,25
IR25X30X16,5		30	16,5	0,3	0	-12	0,027
LR25X30X16,5		30	16,5	0,3	0	-13	0,027
IR25X30X17		30	17	0,3	0	-12	0,028
IR25X30X18		30	17	0,3	0	-12	0,028
IR25X30X20		30	20	0,3	0	-12	0,033
IR25X30X20,5		30	20,5	0,3	0	-12	0,034
LR25X30X20,5		30	20,5	0,3	0	-13	0,034
IR25X30X26,5		30	26,5	0,3	0	-12	0,046
LR25X30X26,5		30	26,5	0,3	0	-13	0,046



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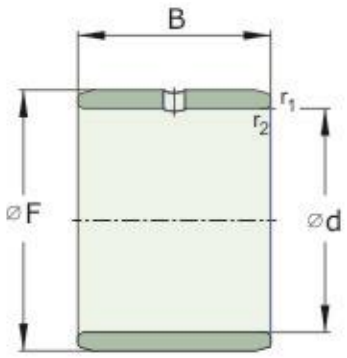

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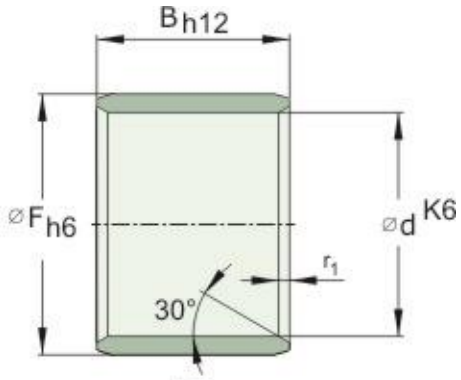
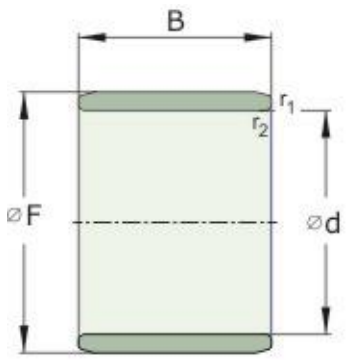


LR

Designation	Boundary dimensions [mm]				Raceway tolerance F [μm]		Weight [kg]
	d	F	B	r_1, r_2 min	max	min	
IR25X30X30	**25**	30	30	0,3	0	-12	0,053
IR25X30X32		30	32	0,3	0	-12	0,056
IR25X30X38,5		30	38,5	0,3	0	-12	0,064
LR25X30X38,5		30	38,5	0,3	0	-13	0,64
IR25X32X22		32	22	0,6	+5	-4	0,052
IR28X32X17	**28**	32	17	0,3	+5	-4	0,025
IR28X32X20		32	20	0,3	+5	-4	0,028
IR28X32X30		32	30	0,3	+5	-4	0,044
IR29X32X13	**29**	32	13	0,3	+5	-4	0,015
IR30X35X12,5	**30**	35	12,5	0,3	+5	-4	0,023
LR30X35X12,5		35	12,5	0,3	0	-16	0,023
IR30X35X13		35	13	0,3	+5	-4	0,025
IR30X35X16		35	16	0,3	+5	-4	0,031
IR30X35X16,5		35	16,5	0,3	+5	-4	0,031
LR30X35X16,5		35	16,5	0,3	0	-16	0,031
IR30X35X17		35	17	0,3	+5	-4	0,032
IR30X35X18		35	18	0,3	+5	-4	0,035
IR30X35X20		35	20	0,3	+5	-4	0,040
IR30X35X20,5		35	20,5	0,3	+5	-4	0,041
LR30X35X20,5		35	20,5	0,3	0	-16	0,040
IR30X35X26		35	26	0,3	+5	-4	0,050
IR30X35X30		35	30	0,3	+5	-4	0,059
IR30X37X18		37	18	0,6	+5	-4	0,050
IR30X37X22		37	22	0,6	+5	-4	0,061
IR30X38X20		38	20	0,6	+5	-4	0,065
IR30X38X20-IS1		38	20	0,6	+5	-4	0,077
IR32X37X20	**32**	37	20	0,3	0	-9	0,042
IR32X37X30		37	30	0,3	0	-9	0,063



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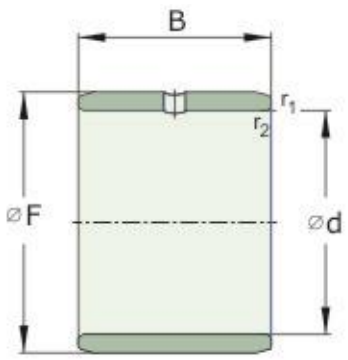

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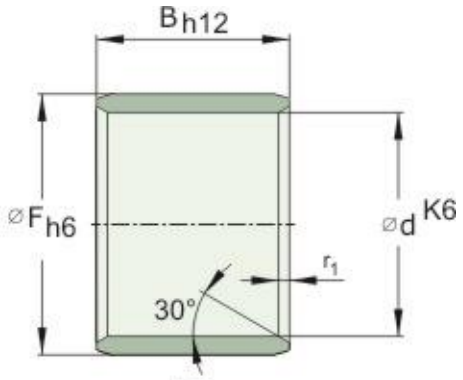
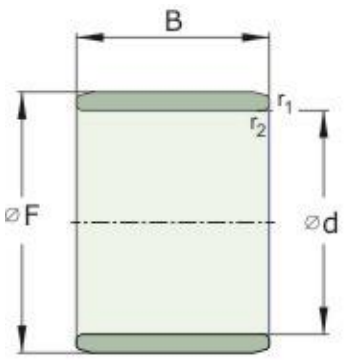


LR

Designation	Boundary dimensions [mm]				Raceway tolerance F [μm]		Weight [kg]
	d	F	B	r_1, r_2 min	max	min	
IR32X40X20	**32**	40	20	0,6	0	-9	0,068
IR32X40X36		40	36	0,6	0	-9	0,124
IR33X37X13	**33**	37	13	0,3	0	-9	0,022
IR35X40X12,5	**35**	40	12,5	0,3	0	-9	0,027
LR35X40X12,5		40	12,5	0,3	0	-16	0,027
IR35X40X16,5		40	16,5	0,3	0	-9	0,037
LR35X40X16,5		40	16,5	0,3	0	-16	0,037
IR35X40X17		40	17	0,3	0	-9	0,038
IR35X40X20		40	20	0,3	0	-9	0,044
IR35X40X20,5		40	20,5	0,3	0	-9	0,046
LR35X40X20,5		40	20,5	0,3	0	-16	0,046
IR35X40X30		40	30	0,3	0	-9	0,068
IR35X42X20		42	20	0,6	0	-9	0,064
IR35X42X20-IS1		42	20	0,6	0	-9	0,064
IR35X42X20,5		42	20,5	0,6	0	-9	0,066
IR35X42X21		42	21	0,6	0	-9	0,068
IR35X42X23		42	23	0,6	0	-9	0,074
IR35X42X36		42	36	0,6	0	-9	0,117
IR35X43X22		43	22	0,6	0	-9	0,082
IR38X43X20	**38**	43	20	0,3	0	-9	0,048
IR38X43X30		43	30	0,3	0	-9	0,074
IR40X45X16,5	**40**	45	16,5	0,3	0	-9	0,041
LR40X45X16,5		45	16,5	0,3	0	-16	0,041
IR40X45X17		45	17	0,3	0	-9	0,043
IR40X45X20		45	20	0,3	0	-9	0,051
IR40X45X20,5		45	20,5	0,3	0	-9	0,053
LR40X45X20,5		45	20,5	0,3	0	-16	0,052
IR40X45X30		45	30	0,3	0	-9	0,077



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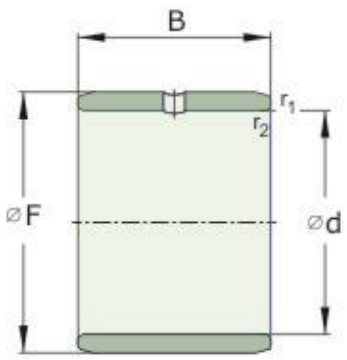

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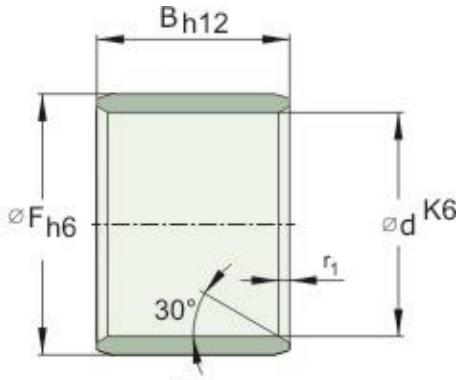
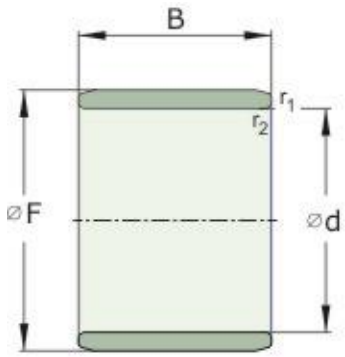


LR

Designation	Boundary dimensions [mm]				Raceway tolerance F [µm]		Weight [kg]
	d	F	B	r_1, r_2 min	max	min	
IR40X48X22	**40**	48	22	0,6	0	-9	0,092
IR40X48X23		48	23	0,6	0	-9	0,097
IR40X48X40		48	40	0,6	0	-9	0,170
IR40X50X20		50	20	1	0	-9	0,106
IR40X50X20-IS1		50	20	1	0	-9	0,106
IR40X50X22		50	22	1	0	-9	0,118
IR42X47X20	**42**	47	20	0,3	-5	-19	0,054
IR42X47X30		47	30	0,3	-5	-19	0,081
IR45X50X20,5	**45**	50	20,5	0,3	-5	-19	0,059
LR45X50X20,5		50	20,5	0,3	0	-16	0,059
IR45X50X25		50	25	0,6	-5	-19	0,071
IR45X50X25,5		50	25,5	0,3	-5	-19	0,075
LR45X50X25,5		50	25,5	0,3	0	-16	0,075
IR45X50X35		50	35	0,6	-5	-19	0,101
IR45X52X22		52	22	0,6	0	-11	0,089
IR45X52X23		52	23	0,6	0	-11	0,093
IR45X52X40		52	40	0,6	0	-11	0,164
IR45X55X20		55	20	1	0	-11	0,117
IR45X55X20-IS1		55	20	1	0	-11	0,117
IR45X55X22		55	22	1	0	-11	0,130
IR50X55X20	**50**	55	20	0,6	0	-11	0,063
IR50X55X20-IS1		55	20	0,6	0	-11	0,063
IR50X55X20,5		55	20,5	0,6	0	-11	0,064
LR50X55X20,5		55	20,5	0,6	0	-19	0,064
IR50X55X25		55	25	0,6	0	-11	0,078
IR50X55X35		55	35	0,6	0	-11	0,112
IR50X58X22		58	22	0,6	0	-11	0,115
IR50X58X23		58	23	0,6	0	-11	0,119



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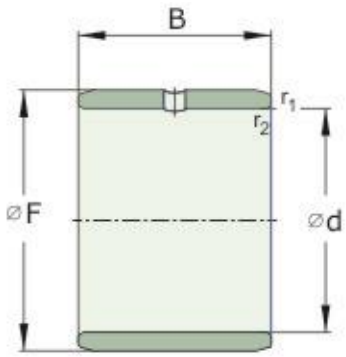

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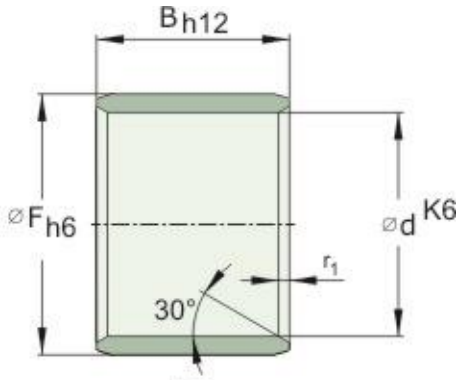

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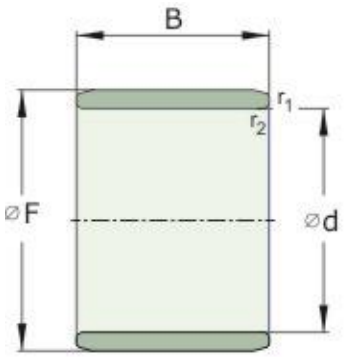
Designation	Boundary dimensions [mm]				Raceway tolerance F [μm]		Weight [kg]
	d	F	B	r_1, r_2 min	max	min	
IR50X58X40	**50**	58	40	0,6	0	-11	0,209
IR50X60X20		60	20	1	0	-11	0,129
IR50X60X25		60	25	1	0	-11	0,163
IR50X60X28		60	28	1,1	0	-11	0,183
IR55X60X25	**55**	60	25	0,6	-10	-21	0,086
IR55X60X35		60	35	0,6	-10	-21	0,121
IR55X63X25		63	25	1	-10	-21	0,141
IR55X63X45		63	45	1	-10	-21	0,256
IR55X65X28		65	28	1,1	-10	-21	0,198
IR60X68X25	**60**	68	25	1	-10	-21	0,152
IR60X68X35		68	35	0,6	-10	-21	0,213
IR60X68X45		68	45	1	-10	-21	0,275
IR60X70X25		70	25	1	-10	-21	0,195
IR60X70X28		70	28	1,1	-10	-21	0,216
IR65X72X25	**65**	72	25	1	-10	-21	0,142
IR65X72X45		72	45	1	-10	-21	0,259
IR65X73X25		73	25	1	-10	-21	0,164
IR65X73X35		73	35	1	-10	-21	0,232
IR65X75X28		75	28	1,1	-10	-21	0,230
IR70X80X25	**70**	80	25	1	-10	-21	0,224
IR70X80X30		80	30	1	-10	-21	0,267
IR70X80X35		80	35	1	-10	-21	0,313
IR70X80X54	**70**	80	54	1	-10	-21	0,487
IR70X80X56		80	56	1	-10	-21	0,506
IR75X85X25	**75**	85	25	1	-4	-17	0,238
IR75X85X30		85	30	1	-4	-17	0,287
IR75X85X35		85	35	1	-4	-17	0,336
IR75X85X35		85	35	1	-4	-17	0,336



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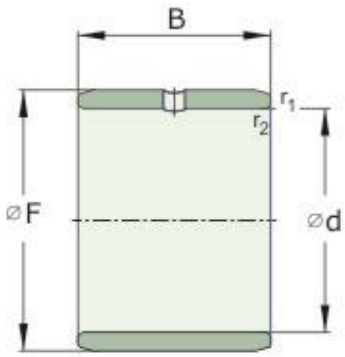

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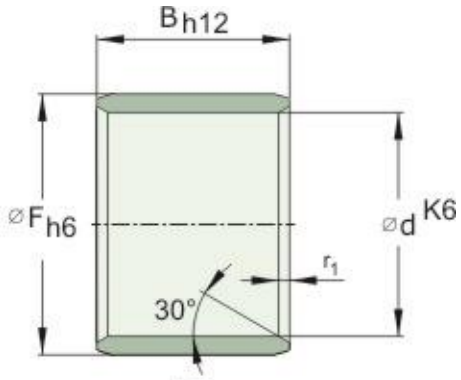

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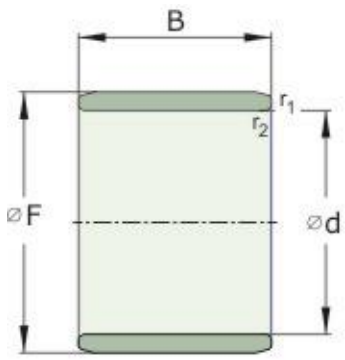
Designation	Boundary dimensions [mm]				Raceway tolerance F [µm]		Weight [kg]
	d	F	B	r_1, r_2 min	max	min	
IR80X90X30	**80**	90	30	1	-4	-17	0,304
IR80X90X35		90	35	1	-4	-17	0,355
IR80X90X54		90	54	1	-4	-17	0,550
IR85X95X26	**85**	95	26	1	-14	-27	0,280
IR85X95X36		95	36	1	-14	-27	0,390
IR85X100X35		100	35	1,1	-14	-27	0,580
IR85X100X63		100	63	1,1	-14	-27	1,05
IR90X100X26	**90**	100	26	1	-14	-27	0,294
IR90X100X30		100	30	1	-14	-27	0,340
IR90X100X36		100	36	1	-14	-27	0,406
IR90X105X35		105	35	1,1	-14	-27	0,610
IR90X105X63		105	63	1,1	-14	-27	1,11
IR95X105X26	**95**	105	26	1	-14	-27	0,313
IR95X105X36		105	36	1	-14	-27	0,430
IR95X110X35		110	35	1,1	-14	-27	0,643
IR95X110X63		110	63	1,1	-14	-27	1,17
IR100X110X30	**100**	110	30	1,1	-14	-27	0,370
IR100X110X40		110	40	1,1	-14	-27	0,505
IR100X115X40		115	40	1,1	-14	-27	0,775
IR110X120X30	**110**	120	30	1	-14	-32	0,409
IR110X125X40		125	40	1,1	-7	-22	0,840
IR120X130X30	**120**	130	30	1	-7	-22	0,442
IR120X135X45		135	45	1,1	-7	-22	1,00
IR130X145X35	**130**	145	35	1,1	-17	-37	0,855
IR130X150X50		150	50	1,5	-17	-37	1,69
IR140X155X35	**140**	155	35	1,1	-17	-37	0,92
IR140X160X50		160	50	1,5	-17	-37	1,80
IR150X165X40	**150**	165	40	1,1	-27	-52	1,12



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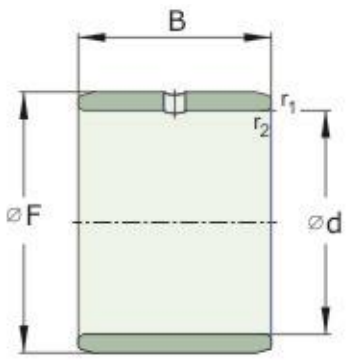

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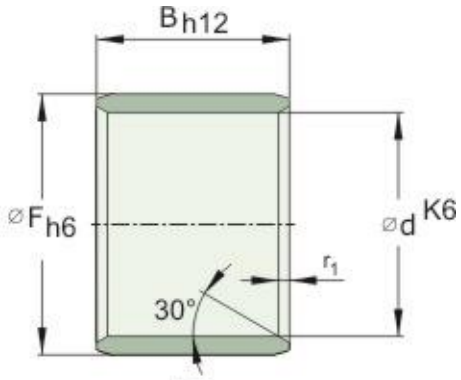

LR

Designation	Boundary dimensions [mm]				Raceway tolerance F [μm]		Weight [kg]
	d	F	B	r_1, r_2 min	max	min	
IR160X175X40	**160**	175	40	1,1	-27	-52	1,20
IR170X185X45	**170**	185	45	1,1	-25	-46	1,45
IR180X195X45	**180**	195	45	1,1	-25	-46	1,50
IR190X210X50	**190**	210	50	1,5	-40	-66	2,41
IR200X220X50	**200**	220	50	1,5	-40	-66	2,49
IR220X240X50	**220**	240	50	1,5	-55	-86	2,75
IR240X265X60	**240**	265	60	2	-55	-86	4,60
IR260X285X60	**260**	285	60	2	-69	-107	4,98
IR280X305X69	**280**	305	69	2	-69	-107	6,10
IR300X330X80	**300**	330	80	2,1	-69	-107	9,20
IR320X350X80	**320**	350	80	2,1	-83	-127	9,80
IR340X370X80	**340**	370	80	2,1	-83	-127	10,2
IR360X390X80	**360**	390	80	2,1	-128	-182	10,9
IR380X415X100	**380**	415	100	2,1	-122	-172	17,0

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