

# ZON™

BEARINGS FOR YOUR FUTURE



Zöllige Miniaturrillenkugellager  
Miniature Inch Series





BEARINGS FOR YOUR FUTURE

**Zen Ball Bearings are manufactured to the highest quality for standard and non-standard applications. Our technical department can modify any non-standard bearings to your specific requirements, regardless of quantity.**

Apart from our extensive miniature ball bearing range of more than 1000 different types, ranging from 1-10 mm bore (Including inch dimensions), our range also includes Thin section, Three part thrust, Popular metric and any kind of non standard bearing. We are able to design bearings according to your requirements using new materials like ceramic or special steels for applications in Industry, Medicine, Chemistry and Food Processing.

Our technical department can modify any non-standard bearings to your specific requirements, even for small quantities.

For any items not listed in our catalogue, please contact our experienced sales team.



Zen Ball Bearings Shanghai has been awarded the German ISO TUV Rheinland certification for inspection of ZEN products.

This certification is the highest standard a business in our industry can achieve. It is internationally recognised as a guarantee of quality, customer focus and continual improvement.



### Zöllige Miniaturrillenkugellager Miniature Inch Series



Ölschmierung  
Oil lubrication



Fettschmierung  
Grease lubrication



Wetterbeständig  
Outdoor durability



Geeignet für hohe drehzahlen  
Suitable for high speed applications



Gummidichtscheiben verfügbar  
Rubber seal option available



Metalldeckscheiben verfügbar  
Metal shield option available

# Referenztable / Reference Table

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## Material

S = Rostfreier Stahl / [Stainless Steel](#)  
 Kein Präfix / [No Prefix](#) = Chromstahl / [Chrome Steel](#)

## Referenz / [Bearing type](#)

MF = Metrisch mit Flansch / [Metric with Flange](#)  
 MR = Metrisch / [Metric](#)  
 R = Zöllig / [Inch](#)  
 FR = Zöllig mit Flansch / [Inch with Flange](#)  
 F = Metrisch mit Flansch / [Metric with Flange](#)  
 Kein Präfix / [No Prefix](#) = Metrisch / [Metric](#)

## Typenbezeichnung / [Bearing Part Number](#)

### Dichtscheiben / [Shields](#)

2Z = Metaldichtscheiben / [Metal Shields](#)  
 2RS = Gummidichtscheiben / [Rubber Seals](#)  
 2TS = PTFE Dichtscheiben / [PTFE Seals](#)  
 2TZ = Metall / PTFE Dichtungsscheiben / [Metal / PTFE Shields](#)

Kein Suffix / [No Suffix](#) = Offen / [Open](#)

S	FR	144	-2Z	... Abm./Dimen. ...
	FR	85		”
		635	-2RS	”
S		682X		”

# Spezifikationen / Specifications

## Allgemeine Merkmale / General Details

Material	Komponenten Components		Merkmale Details	Anwendungsbereiche Application
	Ringe Rings	Kugeln Balls		
Kugellagerchromstahl Ball Bearing Chrome Steel 100 Cr6 (Nr. 1.3505)	✓	✓	Gute Verschleißfestigkeit Hard wearing Schlag- und Korrosionsbeständigkeit Good shock and corrosive resistance	Standard Standard
Rostfreier Stahl Stainless Steel AISI 440 C (Nr. 1.4125) †	✓	✓	Sehr gute Korrosionsbeständigkeit Very good corrosive resistance	Nahrungsmittel, Pharma, Schiffsbau und andere korrosive Umgebungen Food industry, pharmaceutical industry, ship building and other corrosive surroundings
AISI 420 (Nr. 1.4021)	✓	✓	Sehr gute Korrosionsbeständigkeit Very good corrosive resistance	Nahrungsmittel, Pharma, Schiffsbau und andere korrosive Umgebungen Food industry, pharmaceutical industry, ship building and other corrosive surroundings
AISI304	✓	✓	Sehr gute Korrosionsbeständigkeit Very good corrosive resistance	Korrosive Medien Corrosive surroundings
AISI316	✓	✓	Ausgezeichnete Korrosionsbeständigkeit Excellent corrosive resistance	Korrosive Medien Corrosive surroundings
AISI316L	✓	✓	Ausgezeichnete Korrosionsbeständigkeit Excellent corrosive resistance	Korrosive Medien Corrosive surroundings
Si3N4	✓	✓	Hohe thermische Isolation, Exzellente Korrosionsbeständigkeit High temperature insulation Excellent corrosive resistance	Chemische-, Elektro- und Nahrungsmittelindustrie, Marine, Medizintechnik Chemistry, Electronic, Food, Marine & Medical
ZrO2	✓	✓	Hohe thermische Isolation, Exzellente Korrosionsbeständigkeit High temperature insulation Excellent corrosive resistance	Chemische-, Elektro- und Nahrungsmittelindustrie, Marine, Medizintechnik Chemistry, Electronic, Food, Marine & Medical
ZrO2	✓	✓	Hohe thermische Isolation, Exzellente Korrosionsbeständigkeit High temperature insulation Excellent corrosive resistance	Chemische-, Elektro- und Nahrungsmittelindustrie, Marine, Medizintechnik Chemistry, Electronic, Food, Marine & Medical

†Die statische und dynamische Belastung von AISI 440 C-Lagern liegt bei ca. 75-80% von 100 Cr6-Lagern.

†The static and dynamic load rating of AISI 440 C - ball bearings is approximately 75-80% of the 100 Cr6 - ball bearings.

## Technische Merkmale / Technical Details

Material	Härte Hardness	Max. Temp. Max. Temp.	C	Si	Mn	P	S	Cr	Mo	
100 Cr6 (Nr. 1.3505)	60-64HRC	max. 150°C	0.5~1.10	0.15~0.35	≤0.5	≤0.025	≤0.025	1.3~1.6	≤0.08	
AISI440 C (Nr. 1.4125)	≥58HRC	Max. 230°C	0.95~1.2	≤1.1	≤1.0	≤0.04	≤0.03	16.0~18.0	≤0.75	
AISI420 (Nr. 1.4021)	≤55HRC	Max. 230°C	0.16~0.25	≤1.0	≤1.5	≤0.04	≤0.03	12.0~14.0		
AISI304	15~20HRC	900	≤0.07	≤1.00	≤2.00	≤0.035	≤0.030	18.0~208.0		8.0~10.0
AISI316	15~20HRC	900	≤0.08	≤1.00	≤2.00	≤0.035	≤0.030	16.0~19.0	1.80-2.50	10.0~14.0
AISI 316L	15~20HRC	450	≤0.03	≤1.00	≤2.00	≤0.035	≤0.030	16.0~18.0	2.00-3.00	12.0~15.0
Si3N4	75~80HRC	1050	Component:		88% Si3N4 / 4% Al2O3 / 4% Y2O3 / 4% Other					
ZrO2	70HRC	750	Component:		95% ZrO2 / 5% Y2O3					
Al2O3	80HRC	1750	Component:		99.5% Al2O3 / 0.5% Others					

Tolerance of inner ring (ISO)

Unit  $\mu\text{m}$

d(mm)		$\Delta\text{dmp}$					$\Delta\text{ds}$		Vdp										Vdmp				d(mm)	
		P0		P6	P5	P4	Diameter series		Diameter series		Diameter series			Diameter series			Diameter series		P0	P6	P5	P4		
		0,2,3		7,8,9	0	2,3	7,8,9	0	2,3	7,8,9	0	2,3	7,8,9	0,2,3	7,8,9	0,2,3	7,8,9	0,2,3	Max.	Max.	Max.	Max.		
Over	incl.	Upper	Lower	Lower	Lower	Lower	Upper	Lower	Max.			Max.			Max.			Max.		Max.	Max.	Max.	Max.	
0.6(1)	2.5	0	-8	-7	-5	-4	0	-4	10	8	6	9	7	5	9	5	4	4	3	6	5	3	2	
2.5	10	0	-8	-7	-5	-4	0	-4	10	8	6	9	7	5	9	5	4	4	3	6	5	3	2	
10	18	0	-8	-7	-5	-4	0	-4	10	8	6	9	7	5	9	5	4	4	3	6	5	3	2	
18	30	0	-10	-8	-6	-5	0	-5	13	10	8	10	8	6	6	5	5	4	8	6	3	2.5		
30	50	0	-12	-10	-8	-6	0	-6	15	12	9	13	10	8	8	6	6	5	9	8	4	3		

Note 1: The upper value of the bore diameter in this table is not applicable when the distance from the bearing ring face is less than 1.2 times the chamferdimension.  
 Note 2: According to the revision of ANSI/ABMA Std,20-1996, the classes ABEC1-ABEC3-ABEC5-ABEC7 are equivalent to SS0-CLASS6-CLASS5-CLASS4.

Tolerance of outer ring (ISO)

Unit  $\mu\text{m}$

D(mm)		$\Delta\text{Dmp}$					$\Delta\text{Ds}$		VDp										VDmp				D(mm)	
		P0		P6	P5	P4	Open		Seal Shield		Open			Open		P0	P6	P5	P4					
		Diameter series		Diameter series		Diameter series			Diameter series		Diameter series		Diameter series		Max.	Max.	Max.	Max.	Max.	Max.	Max.			
Over	incl.	Upper	Lower	Lower	Lower	Lower	Upper	Lower	Max.			Max.			Max.			Max.		Max.	Max.	Max.	Max.	
2.5(1)	6	0	-8	-7	-5	-4	0	-4	10	8	6	10	9	7	5	9	5	4	4	3	6	5	3	2
6	18	0	-8	-7	-5	-4	0	-4	10	8	6	10	9	7	5	9	5	4	4	3	6	5	3	2
18	30	0	-9	-8	-6	-5	0	-5	12	9	7	12	10	8	6	10	6	5	5	4	7	6	3	2.5
30	50	0	-11	-9	-7	-6	0	-6	14	11	8	16	11	9	7	13	7	5	6	5	8	7	4	3
50	80	0	-13	-11	-9	-7	0	-7	16	13	10	20	14	11	8	16	9	7	7	5	10	8	5	3.5

Note(1) : Size 2.5mm is included in this classification.  
 Note(2) : The outer ring width variations for CLASS0 and CLASS6 are the same as for the inner ring of the same bearing size.

Radial internal clearance of standard radial ball bearings

Unit  $\mu\text{m}$

"NOMINAL BORE DIAMETER d(mm)		CLEARANCE									
		C2		CN(C0)		C3		C4		C5	
OVER	INCL.	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
10(ONLY)		0	7	2	13	8	23	14	29	20	37
10	18	0	9	3	18	11	25	18	33	25	45
18	24	0	10	5	20	13	28	20	36	28	48
24	30	1	11	5	20	13	28	23	41	30	53
30	40	1	11	6	20	15	33	28	46	40	64
40	50	1	11	6	23	18	36	30	51	45	73

d(mm)		$\Delta\text{Bs}(\Delta\text{Cs})^{(2)}$					VBs(VCs) <sup>(2)</sup>				Kia				Sd		Sia		d(mm)	
											Single bearing		Inner/outer ring		Inner ring		P0	P6		
		P0		P5		P0	P6	P5	P4	P0	P6	P5	P4	P5	P4					
		P6		P4		P0	P6	P5	P4	P0	P6	P5	P4	P5	P4					
Upper	Lower	Lower		Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Over	Incl.	
0	-40	-40		12	12	5	2.5	10	5	4	2.5	7	3	7	3	7	3	0.6(1)	2.5	
0	-120	-40		15	15	5	2.5	10	6	4	2.5	7	3	7	3	7	3	2.5	10	
0	-120	-80		20	20	5	2.5	10	7	4	2.5	7	3	7	3	7	3	10	18	
0	-120	-120		20	20	5	2.5	13	8	4	3	8	4	8	4	8	4	18	30	
0	-120	-120		20	20	5	3	15	10	5	4	8	4	8	4	8	4	30	50	

Note(1) : 0.6mm is included in this classification.  
 Note(2) : The inner ring width variation is the same for the outer ring of the same bearing size, CLASS5 and CLASS4 referring to outer ring only.

D(mm)		Kca				SD		Sea		VCs <sup>(2)</sup>		D(mm)		$\Delta\text{Dis}$				$\Delta\text{Cis}$			
		P0	P6	P5	P4	P5	P4	P5	P4	P5	P4			Flanged type							
		P0	P6	P5	P4	P5	P4	P5	P4	P5	P4	P0	P6	P5	P4	P0	P6	P5	P4		
		Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Over	Incl.	Upper	Lower	Upper	Lower	Upper	Lower	
15	8	5	3	8	4	8	5	5	2.5	2.5(1)	6	+125	-50	0	-25	0	-50	0	-50		
15	8	5	3	8	4	8	5	5	2.5	6	18	+125	-50	0	-25	0	-50	0	-50		
15	9	6	4	8	4	8	5	5	2.5	18	30	+125	-50	0	-25	0	-50	0	-50		
20	10	7	5	8	4	8	5	5	2.5	30	50	+125	-50	0	-25	0	-50	0	-50		
25	13	8	5	8	4	10	5	6	3	50	80	+125	-50	0	-25	0	-50	0	-50		

Note 1 : The lower value of the outside diameter in this table is not applicable when the distance from the bearing ring face is less than 1.2 times the chamfer dimension.  
 Note 2 : According to the revision of AFBMA Std20-1978, the classes ABEC1 ABEC3 ABEC5 ABEC7 are equivalent to CLASS0 • CLASS6 • CLASS5 • CLASS4

- d : Nominal bore diameter
- $\Delta\text{dmp}$  : Single plane mean bore diameter deviation
- $\Delta\text{ds}$  : Deviation of a single bore diameter
- Vdp : Bore diameter variation in a single radial plane
- Vdmp : Mean bore diameter variation
- $\Delta\text{Bs}(\Delta\text{Cs})$  : Deviation of a single inner and outer ring width from the nominal dimension
- VBs (VCs) : Variation of a inner and outer ring width
- Kia : Radial runout of assembled bearing inner ring
- Sd : Face runout with bore
- Sia : Assembled bearing inner ring face runout with raceway
- D : Nominal outside diameter
- $\Delta\text{Dmp}$  : Single plane mean outside diameter deviation
- $\Delta\text{Ds}$  : Deviation of a single outside diameter
- VDp : Outside diameter variation in a single radial plane
- Vdmp : Mean outside diameter variation
- Kea : Radial runout of assembled bearing outer ring
- SD : Variation of a outside surface generatrix inclination with face
- Sea : Assembled bearing outer ring face runout with raceway
- $\Delta\text{Cs}$  : Variation of the outer ring width
- $\Delta\text{Dis}$  : Flange outside diameter deviation
- Cis : Flange width deviation

Wichtig / Important

**\* Max. Drehzahlen:**  
 Die im Katalog angegebenen Werte sind ungefähre Werte. Abhängig von der Toleranzklasse, Werkstoff, Einbautoleranzen, Befettung, Käfigtype, Umgebungstemperatur, etc., können unterschiedliche Werte realisiert werden. Die maximalen Drehzahlen für RS- und TS-gedichtete Lager sind deutlich geringer. Bitte erfragen Sie die Werte in besonderen Fällen.








**\* Limiting Speeds :**  
 The values shown in the catalogue are approximated values. Depending on the tolerance class, material, mounting tolerances, lubrication, cage, surrounding temperature, etc., different values can be obtained. The limiting speeds for RS- and TS-shielded bearings are significantly lower. Please contact Engineering for special cases.

**\* Tragzahlen:**  
 Die Tragzahlen und Drehzahlen beziehen sich auf 100Cr6 (Chromstahl), falls nicht anders spezifiziert. Die Werte für rostfreien Stahl sind ungefähr 20% niedriger.

**\* Load Ratings:**  
 Load ratings and Limiting Speeds are calculated based on material 100Cr6 (Chrome Steel), if not stated different. The rates are approximately 20% lower for stainless steel.

# Dichtungen / Seals & Shields

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	Design Design	Spezifikation Specification	Temp Temp	Vorteile/Nachteile Advantage/Disadvantage
	- Keine Dichtung No seals	Offen Open	-	Kein Reibungswiderstand No friction Einfache Nachschmierung Easy to re-lube Starke Verschmutzung No protection against contamination
	2Z Metalldeckscheiben Metal shields	Nichtschleifende Dichtung Non contact seals	Min. temp -35°C  Max. temp 250°C	Kein Reibungswiderstand No friction Gute Abdichtung gegen Schmutz Good protection against contamination
	2RS Gummidichtscheiben Rubber seals	Schleifende Dichtung aus Kunststoff Contact seals made of synthetic rubber	Min. temp -20°C  Max. temp 110°C	Erhöhter Reibungswiderstand Higher friction Ausgezeichnete Abdichtung gegen Schmutz Very good protection against contamination
	2TS PTFE Dichtscheiben PTFE seals	Schleifende Dichtung aus PTFE Contact seals made of Teflon	Min. temp -40°C  Max. temp 250°C	Geringer Reibungswiderstand Low friction Ausgezeichnete Abdichtung gegen Schmutz Very good protection against contamination Gute chemische Eigenschaften Good chemical characteristics
	2TZ Metalldeckscheiben mit PTFE Dichtscheiben PTFE seals with metal shields	Schleifende Dichtung aus PTFE Contact seals made of Teflon	Min. temp -40°C  Max. temp 250°C	Geringer Reibungswiderstand Low friction Ausgezeichnete Abdichtung gegen Schmutz Very good protection against contamination Gute chemische Eigenschaften Good chemical characteristics
	2VS Viton Dichtungen Viton seals	Schleifende Dichtungen aus Viton Seals made of Viton	Min. temp -30°C  Max. temp 230°C	Erhöhter Reibungswiderstand Higher friction Temperaturbeständig Chemisch High temperature Gute chemische Eigenschaften Good chemical characteristics Ausgezeichnete Abdichtung gegen Schmutz Very good protection against contamination
	2DU Gummidichtscheiben Rubber seal	Nicht schleifende Dichtung aus Gummi Non contact seal made of synthetic rubber	Min. temp -20°C  Max. temp 110°C	Kein Reibungswiderstand No friction Ausgezeichnete Abdichtung gegen Schmutz Very good protection against contamination









## Wichtig / Important

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## Käfige / Cages

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	Referenz Reference	Käfigtype Cage type	Anmerkung Remarks
	FC	Vollkugelig / ohne Käfig Full Complement / No Cage	Geringe Drehzahlen, hohe Belastungswerte Low revolution high load rating
	W	Kronenkäfig Crown Cage	Geringes Gewicht, geringe Reibung Light weight, smooth, low friction
	J	Lappenkäfig Ribbon Cage	Standardkäfig, hohe Lebensdauer Standard cage, good durability
	T9H	Kronenkäfig aus glasfaserverstärktem Kunststoff Glass Fibre Reinforced Cage	Geringes Gewicht, hohe Lebensdauer, hohe Drehzahlen Light weight, strong, high speed
		Massivkäfig aus Kunststoff Phenolic Cage	Geringes Gewicht, hohe Lebensdauer, hohe Drehzahlen Light weight, strong, high speed
	M	Messingkäfig Brass Cage	Geringe Reibung, hohe Lebensdauer, Low friction, good durability
	PEEK	PEEK	Für hohe Temperaturen Hohe Lebensdauer Korrosionsbeständig Isolierend High temperature Good durability Corrosion resistant Insulated
	PTFE	PTFE	Für hohe Temperaturen Hohe Lebensdauer Korrosionsbeständig Isolierend High temperature Good durability Corrosion resistant Insulated

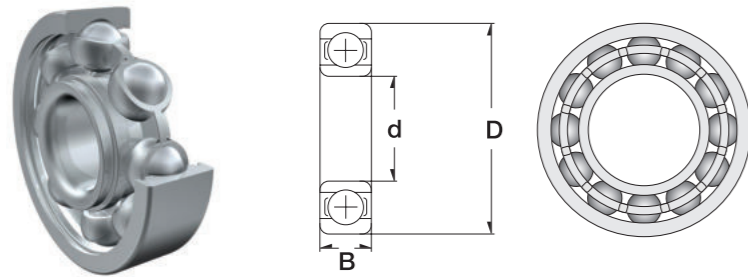
## Schmierung / Lubrication

Schmiermittel Lubricant	Anmerkung Remarks	Vorteile/Anwendung Advantages/Applications
 Kein Schmiermittel No lubricant	Nur bei Edelstahllagern oder mit Verwendung von Korrosionsschutz Only with stainless steel bearings or with the use of corrosion preventive fluid	Wenn Schmierung vom Kunden gestellt wird When the lubrication is provided by the customer
 Fett Grease	Standardfüllung 30-40% Standard filling 30-40%	Lebenslange Schmierung möglich Life-time lubrication is possible Guter Korrosionsschutz Good protection against corrosion Differenzierte Anwendungsmöglichkeiten je nach Fett According to the application a variety of greases can be used
 Öl Oil	-	Geringer Reibungswiderstand Low friction Hohe Drehzahlen High revolution

Hersteller Mfg	Name Brand	Verdicker Thickener	Grundöl Base oil	Tropfpunkt Drop Point °C	Viskosität Consistency	Tempera- rurbereich Operating temperature range °C	Anwendung Application
Exxon	Beacon 325	Lithium	Diester	193	290	-60~+120	low temp
	Andok B	Nathium	Mineral	260	280	-40~+120	general purpose
	Andok C	Nathium	Mineral	»260	205	-20~+120	general purpose
	Andok 260	Nathium	Mineral	200	250	-30~+150	general purpose
Kyodo Yushi	Multemp PS2	Lithium	Diester	189	280	-50~+110	low temp
	Multemp SRL	Lithium	Ester	191	245	-40~+150	low temp
	Multemp SRH	Lithium	Ester	250	201	-40~+150	low temp
	Multemp SB-M	Diurea	Synthetic oil	220	260	-40~+200	high speed/temp
	ET-K	Diurea	Synthetic oil/ester"	260	300	-40~+200	high temp/ speed alternator
Kluber	Asonic GLY32	Lithium	Synthetic	190	265-295	-50~+140	low temp
	Asonic GHY72	Polyhamstoff	Ester Mineral	250	250-280	-40~+180	high temp/low noise
	Isoflex Super LDS18	Lithium	Diester	190	280	-60~+130	low temp
	Isoflex LDS18 Special A	Lithium	Diester	190	280	-60~+130	low temp
	Isoflex Topas NB52"	Barium	Synthetic hydrocarbon	204	280	-60~+170	low/high temp
	Barrierta L55/2	PTFE	Fluorinated		280	-35~+260	low/high temp
	Barrierta TK44N2	Na-Komplex	Silicone			-60~+230	low/high temp
	Isoflex NCA15	Special Ca	Ester Mineral	180	265-295	-40~+130	high speed
Asonic HQ72-102"	Urea	Ester	240	250-280	-40~+180	low/high temp & low noise	
Dow Corning	Molykote 33M	Lithium	Silicone	210	260	-70~+180	low/high temp
	Molykote 44M	Lithium	Silicone	204	260	-40~+200	high temp
	Molykote 55M	Lithium	Silicone			-55~+165	low temp
	Molykete BR2 plus	Lithium	Silicone		280	-30~+150	high speed
	Molykete FS1292	PTFE	Phlorosilicon	»232	310	-40~+200	hight speed
	Molykete FS3451	PTFE	Phlorosilicon	»260	285	-40~+230	chemical solvent resistant
Shell	Alvania No.2	Lithium	Mineral	182	272	-25~+120	general purpose
	Alvania No.3	Lithium	Mineral	183	233	-20~+135	general purpose
	Alvania RA	Lithium	Mineral	183	252	-25~+120	general purpose
	Alvania EP2	Lithium	Mineral	185	276	-10~+100	general purpose
	Dolium R		Mineral	238	281	-20~+140	general purpose
	Aero Shell NO.5	Microgel	Mineral	»260	282	-10~+130	general purpose
	Aero Shell NO.7	Microgel	Mineral	»260	288	-70~+150	low temp
	Aero Shell RLQ2	Lithium	Mineral	195	266	-50~+150	low noise/high speed"
Mobil Oil	Mobilux2	Lithium	Mineral	190	280	-20~+120	general purpose
	Mobil 22	Lithium	Diester Mineral	192	274	-50~+140	low temp
	Mobil 28	Bentonite	syntheic hydrocarbon	»260	280	-60~+180	low/high temp
	Mobiltemp SHC22	Glue-earth	Synthetic oil	250	265-295	-50~+180	high speed/temp
	Mobiitemp SHC100	Glue-earth	Synthetic oil	250	265-295	-40~+200	high speed/temp
Du Pont	Krytox240AC	PTFE	Fluorinated		282	-35~+280	high speed/temp
Caltex	Chevron SRI-2	Urea	Mineral		293	-30~+175	high temp
Hangu	Hangu#2	-	Mineral	-	-	-20~+120	general purpose
Great Wall	Great Wall BLE	Urea	Mineral	260	280	-30~+200	low noise/high temp"
Yiping	YP7201	Synthetic	Mineral	272	272	-20~+120	low noise/anti-rust



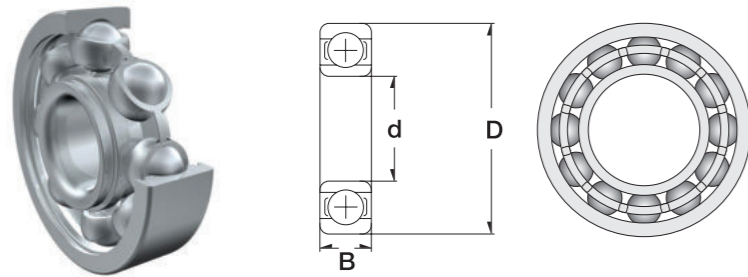
Zöllige Miniaturrillenkugellager / Miniature Inch Series



	Dimension (mm)			Dimension (inch)			Dimension (inch)		
	d	D	B	d	D	B	d	D	B
standard	1.984	6.350	2.380	0.0781	0.2500	0.0937	5/64	1/4	3/32
flanged	1.984	6.350	2.380	0.0781	0.2500	0.0937	5/64	1/4	3/32
standard	1.984	6.350	3.571	0.0781	0.2500	0.1406	5/64	1/4	9/64
flanged	1.984	6.350	3.571	0.0781	0.2500	0.1406	5/64	1/4	9/64
standard	2.380	4.763	1.588	0.0937	0.1875	0.0625	3/32	3/16	1/16
flanged	2.380	4.763	1.588	0.0937	0.1875	0.0625	3/32	3/16	1/16
standard	2.380	4.763	2.380	0.0937	0.1875	0.0937	3/32	3/16	3/32
flanged	2.380	4.763	2.380	0.0937	0.1875	0.0937	3/32	3/16	3/32
standard	2.380	7.938	2.779	0.0937	0.3125	0.1094	3/32	5/16	7/64
flanged	2.380	7.938	2.779	0.0937	0.3125	0.1094	3/32	5/16	7/64
standard	2.380	7.938	3.571	0.0937	0.3125	0.1406	3/32	5/16	9/64
flanged	2.380	7.938	3.571	0.0937	0.3125	0.1406	3/32	5/16	9/64
standard	3.175	6.350	2.380	0.1250	0.2500	0.0937	1/8	1/4	3/32
flanged	3.175	6.350	2.380	0.1250	0.2500	0.0937	1/8	1/4	3/32
standard	3.175	6.350	2.779	0.1250	0.2500	0.1094	1/8	1/4	7/64
flanged	3.175	6.350	2.779	0.1250	0.2500	0.1094	1/8	1/4	7/64
standard	3.175	7.938	2.779	0.1250	0.3125	0.1094	1/8	5/16	7/64
flanged	3.175	7.938	2.779	0.1250	0.3125	0.1094	1/8	5/16	7/64
standard	3.175	7.938	3.571	0.1250	0.3125	0.1406	1/8	5/16	9/64
flanged	3.175	7.938	3.571	0.1250	0.3125	0.1406	1/8	5/16	9/64
standard	3.175	9.525	2.779	0.1250	0.3750	0.1094	1/8	3/8	7/64
flanged	3.175	9.525	2.779	0.1250	0.3750	0.1094	1/8	3/8	7/64
standard	3.175	9.525	3.571	0.1250	0.3750	0.1406	1/8	3/8	9/64
flanged	3.175	9.525	3.571	0.1250	0.3750	0.1406	1/8	3/8	9/64
standard	3.175	9.525	3.967	0.1250	0.3750	0.1562	1/8	3/8	5/32
flanged	3.175	9.525	3.967	0.1250	0.3750	0.1562	1/8	3/8	5/32
standard	3.175	12.700	4.366	0.1250	0.5000	0.1719	1/8	1/2	11/64
flanged	3.175	12.700	4.366	0.1250	0.5000	0.1719	1/8	1/2	11/64
standard	3.967	7.938	2.779	0.1562	0.3125	0.1094	5/32	5/16	7/64
flanged	3.967	7.938	2.779	0.1562	0.3125	0.1094	5/32	5/16	7/64
standard	3.967	7.938	3.175	0.1562	0.3125	0.1250	5/32	5/16	1/8
flanged	3.967	7.938	3.175	0.1562	0.3125	0.1250	5/32	5/16	1/8
standard	4.763	7.938	2.779	0.1875	0.3125	0.1094	3/16	5/16	7/64
flanged	4.763	7.938	2.779	0.1875	0.3125	0.1094	3/16	5/16	7/64
standard	4.763	7.938	3.175	0.1875	0.3125	0.1250	3/16	5/16	1/8
flanged	4.763	7.938	3.175	0.1875	0.3125	0.1250	3/16	5/16	1/8
standard	4.763	9.525	3.175	0.1875	0.3750	0.1250	3/16	3/8	1/8
flanged	4.763	9.525	3.175	0.1875	0.3750	0.1250	3/16	3/8	1/8

Designation/Type						* Load Rating (only 100 Cr6)		* Limiting Speed x1000rpm (open & 2Z)		Weight (g) approx.
open		2Z		2RS/2TS		C, dyn. N	C, stat. N	Grease	Oil	
Chrome Steel	Stainless	Chrome Steel	Stainless	Chrome Steel	Stainless					
R 1-4	SR 1-4	-	-	-	-	284	96	67.0	80.0	< 1 g
FR 1-4	SFR 1-4	-	-	-	-	284	96	67.0	80.0	< 1 g
-	-	R 1-4-2Z	SR 1-4-2Z	-	-	284	96	67.0	80.0	< 1 g
-	-	FR 1-4-2Z	SFR 1-4-2Z	-	-	284	96	67.0	80.0	< 1 g
R 133	SR 133	-	-	-	-	144	53	80.0	95.0	< 1 g
FR 133	SFR 133	-	-	-	-	144	53	80.0	95.0	< 1 g
-	-	R 133-2Z	SR 133-2Z	-	-	144	53	80.0	95.0	< 1 g
-	-	FR 133-2Z	SFR 133-2Z	-	-	144	53	80.0	95.0	< 1 g
R 1-5	SR 1-5	-	-	-	-	552	176	60.0	71.0	< 1 g
FR 1-5	SFR 1-5	-	-	-	-	552	176	60.0	71.0	< 1 g
-	-	R 1-5-2Z	SR 1-5-2Z	-	-	552	176	60.0	71.0	< 1 g
-	-	FR 1-5-2Z	SFR 1-5-2Z	-	-	552	176	60.0	71.0	< 1 g
R 144	SR 144	-	-	-	-	284	96	67.0	80.0	< 1 g
FR 144	SFR 144	-	-	-	-	284	96	67.0	80.0	< 1 g
-	-	R 144-2Z	SR 144-2Z	-	-	284	96	67.0	80.0	< 1 g
-	-	FR 144-2Z	SFR 144-2Z	-	-	284	96	67.0	80.0	< 1 g
R 2-5	SR 2-5	-	-	-	-	558	180	60.0	67.0	< 1 g
FR 2-5	SFR 2-5	-	-	-	-	558	180	60.0	67.0	< 1 g
-	-	R 2-5-2Z	SR 2-5-2Z	-	-	558	180	60.0	67.0	< 1 g
-	-	FR 2-5-2Z	SFR 2-5-2Z	-	-	558	180	60.0	67.0	< 1 g
R 2-6	SR 2-6	-	-	-	-	640	227	53.0	63.0	< 2 g
FR 2-6	SFR 2-6	-	-	-	-	640	227	53.0	63.0	< 2 g
-	-	R 2-6-2Z	SR 2-6-2Z	-	-	640	227	53.0	63.0	< 2 g
-	-	FR 2-6-2Z	SFR 2-6-2Z	-	-	640	227	53.0	63.0	< 2 g
R 2	SR 2	R 2-2Z	SR 2-2Z	R 2-2RS	SR 2-2RS	631	219	56.0	67.0	< 2 g
FR 2	SFR 2	FR 2-2Z	SFR 2-2Z	FR 2-2RS	SFR 2-2RS	631	219	56.0	67.0	< 2 g
R 2A	SR 2A	R 2A-2Z	SR 2A-2Z	R 2A-2RS	SR 2A -2RS	640	227	53.0	63.0	< 3 g
FR 2A	SFR 2A	FR 2A-2Z	SFR 2A-2Z	FR 2A-2RS	SFR 2A -2RS	640	227	53.0	63.0	< 3 g
R 155	SR 155	-	-	-	-	359	150	53.0	63.0	< 1 g
FR 155	SFR 155	-	-	-	-	359	150	53.0	63.0	< 1 g
-	-	R 155-2Z	SR 155-2Z	-	-	359	150	53.0	63.0	< 1 g
-	-	FR 155-2Z	SFR 155-2Z	-	-	359	150	53.0	63.0	< 1 g
R 156	SR 156	-	-	-	-	359	150	53.0	63.0	< 1 g
FR 156	SFR 156	-	-	-	-	359	150	53.0	63.0	< 1 g
-	-	R 156-2Z	SR 156-2Z	R 156-2TS	SR 156-2TS	359	150	53.0	63.0	< 1 g
-	-	FR 156-2Z	SFR 156-2Z	FR 156-2TS	SFR 156-2TS	359	150	53.0	63.0	< 1 g
R 166	SR 166	R 166-2Z	SR 166-2Z	R 166-2TS	SR 166-2TS	709	272	50.0	60.0	< 1 g
FR 166	SFR 166	FR 166-2Z	SFR 166-2Z	FR 166-2TS	SFR 166-2TS	709	272	50.0	60.0	< 1 g

Zöllige Miniaturrillenkugellager / Miniature Inch Series



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	Dimension (mm)			Dimension (inch)			Dimension (inch)		
	d	D	B	d	D	B	d	D	B
standard	4.763	12.700	3.967	0.1875	0.5000	0.1562	3/16	1/2	5/32
or flanged	4.763	12.700	3.967	0.1875	0.5000	0.1562	3/16	1/2	5/32
standard	4.763	12.700	4.978	0.1875	0.5000	0.1960	3/16	1/2	-
flanged	4.763	12.700	4.978	0.1875	0.5000	0.1960	3/16	1/2	-
standard	4.763	15.875	4.978	0.1875	0.6250	0.1960	3/16	5/8	-
flanged	4.763	15.875	4.978	0.1875	0.6250	0.1960	3/16	5/8	-
standard	6.350	9.525	3.175	0.2500	0.3750	0.1250	1/4	3/8	1/8
flanged	6.350	9.525	3.175	0.2500	0.3750	0.1250	1/4	3/8	1/8
standard	6.350	12.700	3.175	0.2500	0.5000	0.1250	1/4	1/2	1/8
flanged	6.350	12.700	3.175	0.2500	0.5000	0.1250	1/4	1/2	1/8
standard	6.350	12.700	4.763	0.2500	0.5000	0.1875	1/4	1/2	3/16
flanged	6.350	12.700	4.763	0.2500	0.5000	0.1875	1/4	1/2	3/16
standard	6.350	15.875	4.978	0.2500	0.6250	0.1960	1/4	5/8	-
flanged	6.350	15.875	4.978	0.2500	0.6250	0.1960	1/4	5/8	-
standard	6.350	15.875	8.733	0.2500	0.6250	0.3438	1/4	5/8	11/32
standard	6.350	19.050	5.558	0.2500	0.7500	0.2188	1/4	3/4	7/32
standard	6.350	19.050	7.142	0.2500	0.7500	0.2812	1/4	3/4	9/32
standard	7.938	12.700	3.967	0.3125	0.5000	0.1562	5/16	1/2	5/32
flanged	7.938	12.700	3.967	0.3125	0.5000	0.1562	5/16	1/2	5/32
standard	9.525	22.225	5.558	0.3750	0.8750	0.2188	3/8	7/8	7/32
flanged	9.525	22.225	5.558	0.3750	0.8750	0.2188	3/8	7/8	7/32
standard	9.525	22.225	7.142	0.3750	0.8750	0.2812	3/8	7/8	9/32
flanged	9.525	22.225	7.142	0.3750	0.8750	0.2812	3/8	7/8	9/32
standard	9.525	22.225	9.525	0.3750	0.8750	0.3750	3/8	7/8	3/8



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Designation/Type						* Load Rating (only 100 Cr6)		* Limiting Speed x1000rpm (open & 2Z)		Weight (g) approx.
open		2Z		2RS/2TS		C, dyn. N	C, stat. N	Grease	Oil	
Chrome Steel	Stainless	Chrome Steel	Stainless	Chrome Steel	Stainless					
R 3	SR 3	R 3-2ZW.15	-	-	-	1301	488	43.0	53.0	< 3 g
FR 3	SFR 3	-	-	-	-	1301	488	43.0	53.0	< 3 g
-	-	R 3-2Z	SR 3-2Z	R 3-2RS	SR 3-2RS	1301	488	43.0	53.0	< 3 g
-	-	FR 3-2Z	SFR 3-2Z	FR 3-2RS	SFR 3-2RS	1301	488	43.0	53.0	< 5 g
R 3A	SR 3A	R 3A-2Z	SR 3A-2Z	-	-	1480	621	38.0	45.0	< 5 g
FR 3A	SFR 3A	FR 3A-2Z	SFR 3A-2Z	-	-	1480	621	38.0	45.0	< 5 g
R 168	SR 168	R 168-2Z	SR 168-2Z	R 168-2TS	SR 168-2TS	373	172	48.0	56.0	< 1 g
FR 168	SFR 168	FR 168-2Z	SFR 168-2Z	FR 168-2TS	SFR 168-2TS	373	172	48.0	56.0	< 1 g
R 188	SR 188	-	-	-	-	1082	442	40.0	50.0	< 3 g
FR 188	SFR 188	-	-	-	-	1082	442	40.0	50.0	< 3 g
-	-	R 188-2Z	SR 188-2Z	-	-	1082	442	40.0	50.0	< 3 g
-	-	FR 188-2Z	SFR 188-2Z	-	-	1082	442	40.0	50.0	< 3 g
R 4	SR 4	R 4-2Z	SR 4-2Z	R 4-2RS	SR 4-2RS	1480	621	38.0	45.0	< 5 g
FR 4	SFR 4	FR 4-2Z	SFR 4-2Z	FR 4-2RS	SFR 4-2RS	1480	621	38.0	45.0	< 5 g
-	-	WR 4-2Z	WSR 4-2Z	-	-	-	-	-	-	< 8 g
R 4A	SR 4A	-	-	-	-	2336	896	36.0	43.0	< 10 g
-	-	R 4A-2Z	SR 4A-2Z	R 4A-2RS	SR 4A-2RS	2336	896	36.0	43.0	< 10 g
-	-	R 1810-2Z	SR 1810-2Z	-	-	542	276	40.0	48.0	< 2 g
-	-	FR 1810-2Z	SFR 1810-2Z	-	-	542	276	40.0	48.0	< 2 g
R 6	SR 6	-	-	-	-	3332	1422	32.0	38.0	12 g
FR 6	SFR 6	-	-	-	-	3332	1422	32.0	38.0	12 g
-	-	R 6-2Z	SR 6-2Z	R 6-2RS	SR 6-2RS	3332	1422	32.0	38.0	12 g
-	-	FR 6-2Z	SFR 6-2Z	FR 6-2RS	SFR 6-2S	3332	1422	32.0	38.0	12 g
-	-	WR 6-2Z	WSR 6-2Z	-	-	-	-	-	-	20 g

# Umschlüsselung anderer Hersteller / Conversion Tables

## Offene Ausführung (metrisch) / Open Type (metric series)

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mm	inch	ZEN	ADR	FAG	GRW	RMB	BARDEN	MPB	NMB	NTN	SKF
1	0.0394	681	AX1		681	UL103			L-310		681
		MR31							L-310W51		
		691			691				R-410		691
1.2	0.0472	MR41X						R-412	BC1,2-4		
1.5	0.0591	681X	AX1.5		68/1.5	UL154			R-415	68/1.5	
		691X	619/1.5	MR69/1.5	69/1.5	R1550	19M1-5Y1	EL1.5C	R-515	69/1.5	
2	0.0787	601X						R-615	60/1.5		
		682	BX2	MR682	682	UL205		UL20C	L-520		682
		MR52							L-520W02	BC2.5	
		692	AX2	MR619/2	692	R2060	19M2Y1	EL2C	R-620		692
		MR62							R-620W52	BC2-6	
2.5	0.0984	MR72							R-720Y52	BC2-7	
		602							R-720		602
		682X	AX2.5		68/2.5	UL256	18M2-5		L-625	68/2.5	
		692X	X2.5		69/2.5		19M2-5Y1		R-725	69/2.5	
		MR82X							R-825Y52	BC2.5-8	
3	0.1181	602X	60/2.5	MR60/2.5	60/2.5	R2580			R-825Y52	60/2.5	
		MR63	617/3						L-630		673
		683	AX3	MR618/3	683	UL307		UL30C	L-730		683
		MR83	X3		693/003				R-830Y52	BC3-8	
		693	619/3		693				R-830Y52		693
4	0.1575	MR93							R-930Y52	BC3-9	
		603							R-930		603
		623	623	MR623	623	R3100	2M3Y1	EL-3R	R-1030		623
		633									633
		MR74	617/4						L-740		674
		MR84							L-840	BC4-8	
		684	AX4	MR618/4	684	UL409		UL40C	L-940		684
5	0.1969	MR104	X4						L-1040	BC4-10	
		694	AY4		694				R-1140		694
		604	604		604				R-1240		604
		624	624	MR624	624	R4130	2M4	EL4R	R-1340		624
		634	634	MR634	634	R4160	34		R-1640		634
		MR85	617/5						L-850		675
		MR95							L-950	BC5-9	
6	0.2362	MR105							L-1050	BC5-10	
		685	X5	MR618/5	685	UL511	UL50C	UL50C	L-1150		685
		695	AY5		695				R-1350		695
		605			605				R-1450		605
		625	625	MR625	625	R5160	34-5	EL5R	R-1650		625
		635	635	MR635	635	R5190	35		R-1950		635
		MR106	617/6						L-1060		676
7	0.2756	MR126	X6						L-1280	BC6-12	
		686	AX6	MR618/6	686	UL613		UL60C	L-1380		686
		696	AY6		696				R-1580		696
		606							R-1760		606
		626	626	MR628	626	R6190	38	EL6R	R1960		626
8	0.315	MR117	617/7						L-1170		677
		MR137							L-1370	BC7-13	
		687	AX7	618/7	687	UL714		UL70C	L-1470		687
		697	AY7		697						697
		607	607	MR607	607			EL7R	R-1970		607
9	0.3543	627	627	MR627	627	R7220	37		R-2270		627
		MR128	617/8						L-1280		678
		MR148							L-1480	BCB-14	
		688	X8	MR618/8	688	UL816			L-1680		688
		698	AY8		698		19M8		R-1980		698
9	0.3543	608	608	MR608	608	R8220	38	EL8R	R-2280		608
		628									628
		689	X9		689	UL917			L-1790		689
		699	AY9		699		19M9		L-2090		699
		609	609	609	609	609					609
629	629	MR629	629		39				629		

Niro  
Stainless Steel

S

S

W

S

X

S

S

DD

W

S

Geschlossene Ausführung (metrisch) / Shielded Type (metric series)

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mm	inch	ZEN	ADR	FAG	GRW	RMB	BARDEN	MPB	NMB	NTN
1.5	0.0591	681XZZ	AX1.5ZZ		68/1.5ZZ	ULZ154		UL15CHH	L-4152Z	W68/1.5ZZA
		691XZZ	X1.5ZZ		69/1.5ZZ				R515ZZ	W69/1.5ZZA
		601XZZS							R-615ZZ	W60/1.5ZZA
2	0.0787	682ZZS	BX2ZZ		682-2Z	ULZ205	38M2SS	UL20CHH	L-520ZZ	W682ZZA
		MR52ZZ							L-520ZZW52	WBC2-5ZZA
		692ZZ	AX2ZZ						R-620ZZ	W692ZZA
		MR62ZZ							R-620ZZY52	
		MR72ZZ							R-720ZZY03	WBC2-7ZZA
2.5	0.0984	602ZZS							R-720ZZ	W602ZZA
		682XZZS	AX2.5ZZ		68/2.5ZZ	ULZ256	38M2-5SS		L-625ZZ	W68/2.5ZZA
		692XZZ			69/2.5ZZ				R-725ZZ	W69/2.5ZZA
3	0.1181	602XZZS							R-825ZZ	W60/2.5ZZA
		MR63ZZ							L-630ZZ	WA673ZZA
		683ZZ	AX3ZZ		683-2Z	UL7307	38M3SS	UL30CHH	L-730ZZ	W683ZZA
		693ZZ			693-2Z				R-830ZZ	W693ZZA
		MR93ZZ							R-930ZZY04	WBC3-9ZZA
4	0.1575	623ZZ	623ZZ	623ZZ	623-2Z	RF310	2M3SSY1	EL3RHH	R-1030ZZ	623ZZ
		633ZZ								633ZZ
		MR74ZZ							L-740X2ZZ	WA674ZZA
		MR84ZZ							L-840ZZ	WBC4-8ZZA
		684ZZ	638/4ZZ		684-2Z	ULZ409	38M455	UL40CHH	L-940ZZ	W684ZZA
		MR104ZZ	X4ZZ						L-1040ZZ	WBC4-10ZZA
		694ZZ	AY4ZZ		694-2Z				R-1140ZZ	694ZZ
604ZZ	604ZZ		604-2Z				R-1240ZZ	604ZZ		
5	0.1969	624ZZ	624ZZ	624ZZ	624-2Z	RF413	2M4SS	EL4RHH	R-1340ZZ	624ZZ
		634ZZ	634ZZ	MR634ZZ	634-2Z	RV416	34SS	34RHH	R-1640ZZ	634ZZ
		MR85ZZ							L-850ZZ	WA675ZZA
		MR95ZZA							L-950X2ZZ	WBC5-9ZZA
		MR105ZZ							L-1050ZZ	WBC5-10ZZA
		685ZZ	638/5ZZ		685-2Z	ULZ511		UL50CHH	L-1150ZZ	W685ZZ
		695ZZ	AY5ZZ		695-2Z				R-1350ZZ	895ZZ
605ZZ			605-2Z				R-1450ZZ	605ZZ		
6	0.2362	625ZZ	625ZZ	625ZZ	625-2Z	RV516	34.5SS	EL5RHH	R-1650ZZ	625ZZ
		635ZZ	635ZZ	MR635ZZ	635-2Z	RV519	35SS		R-1950ZZ	635ZZ
		MR106ZZS							L-1060ZZ	WA676ZZA
		MR126ZZ	X6ZZ						L-1260ZZ	WBC6-12ZZA
		686ZZ	628/6ZZ		686-2Z	ULZ613		UL60CHH	L-1360ZZ	W686ZZ
7	0.2756	696ZZ	ZY6ZZ		696-2Z				R-1560ZZ	696ZZ
		606ZZ							R-1760ZZ	606ZZ
		626ZZ	626ZZ	MR626ZZ	626-2Z	RV619	36SS	EL6RHH	R-1960ZZ	626ZZ
		MR117ZZS							L-1170ZZ	WA677ZZA
		MR137ZZS							L-1370ZZ	WBC7-13ZZA
8	0.315	687ZZ	AX7ZZ		687-2Z	ULZ714		UL70CH	L-1470ZZ	W687ZZ
		697ZZ	AY7ZZ		697-2Z					697ZZ
		607ZZ	607ZZ	607ZZ	607-2Z			EL7RHH	R-1970ZZ	607ZZ
		627ZZ	627ZZ	MR627ZZ	627-2Z	RV722	37SS		R-2270ZZ	627ZZ
		MR128ZZS	637/8ZZ						L-1280ZZ	W678ZZA
9	0.3543	MR148ZZA							L-1480ZZ	WBC8-14ZZA
		688ZZ	X8ZZ			ULZ816			L-1680ZZ	W688ZZ
		698ZZ	AY8ZZ		698-2Z		19M8SS		R-1980ZZ	698ZZ
		608ZZ	608ZZ	MR608ZZ	608-2Z	RV822	38SS	EL8RHH	R-2280ZZ	608ZZ
		628ZZ								628ZZ
9	0.3543	689ZZ	X9ZZ			ULZ917			L-1790ZZ	W689ZZ
		699ZZ	AY9ZZ		699-2Z		19M9SS		L-2090ZZ	699ZZ
		609ZZ	609ZZ	609ZZ						609ZZ
		629ZZ	629ZZ	MR629ZZ	629-2Z		39SS			629ZZ

Niro  
Stainless Steel

S S W S X S S DD W

## Offene Ausführung (zöllig) / Open Type (inch type)

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mm	inch	ZEN	ADR	FAG	GRW	RMB	BARDEN	MPB	NMB	NTN
1.016	0.04	R09	RO9	RO308	1016	UL1304		2C	R1-2	R01
1.191	0.0469	RO	X3/64	R0310	1191	UL1505	RO	21/2C	R1-21/2	RO
1.397	0.055	R1	R1	R0412	1397	R1706	R1	3C	R1-3	R1
1.984	0.0781	R1-4	X5/64	R0516	BR5/64	R2508	R1-4	4C	R1-4	R1-4
2.38	0.0937	R133	AX3/32	RO612	2380	UL3008	R133	3332C	R1-3332	R133
		R1-5	X3/32	R620	BR3/32	R3010	R1-5	5C	R1-5	R1-5
3.175	0.125	R144	AX1/8	R0816	3175	UL4008	R144	418C	R1-418	R144
		R2-5	X1/8	R820	BR1/8A	R4010	R2-5	518C	R1-518	R2-5
		R2-6		R824	BR1/8A/6		R2-6	618C	R1-618	R2-6
		R2	R2	R2	BR1/6B	R4012	R2	R2C	R-2	R2
		R2A	R2A	R2A	BR1/8B/083		R2A	R2AC		RA2
3.967	0.1562	R155	X5/32	R1020	3967	UL5010	R155	5532C	RI-5532	R155
4.762	0.1875	R156	AX3/16	R1220	4763A	UL6010	R156	5632C	RI-5632	R156
		R166	X3/16	R1224	4763B	UL6012	R166	6316C	RI-6632	R166
		R3	Y3/16	R3	BR3/16	R6016	R3	R3C	R-3	R3
6.35	0.25	R168	X1/4	R1624	6350A	UL8012	R168	614C	RI-614	R168
		R188	R188	R1632	6350B	UL8016	R188	814C	RI-814	R188
		R4	Y1/4	R4	BR1/4A	R8020	R4	R4C	R-4	R4
		R4A	R4A	R4A	BR1/4A		R4A	R4AR	RI-1214	
7.938	0.3125	R1810		R2032	7938		R1810	8516C	RI-8516	
9.525	0.375	R6	Y3/8	R620	BR3/8		R6	R6R	RI-1438	
Niro										
Stainless Steel		S	S	W	S	X	S	S	DD	W

## Geschlossene Ausführung (zöllig) / Shielded Type (inch type)

mm	inch	ZEN	ADR	FAG	GRW	RMB	BARDEN	MPB	NMB	NTN
1.191	0.0469	ROZZS	X3/64ZZ	R0310.2Z	1191-2Z	ULZ1505	21/2CHH	RI-21/2ZZ	RAOZZA	
1.397	0.055	R1ZZ	R1ZZ	RO412.2Z	1397-2Z	RF1706	R1S	3CHH	RI-3ZZ	RA1ZZ1
1.984	0.0781	R1-4ZZS	X5-64ZZ	R0516.2Z	BR5/64-2Z	RF2508	R1-4SS	4CHH	R1-4ZZ	RA1-4ZZ1
2.38	0.0937	R133ZZS	AX3/32ZZ	RO612.2Z	2380-2Z	ULZ3006	R133SS	3332CHH	R1-3332ZZ	RA133ZZA
3.175	0.125	R144ZZ	AX1/8ZZ	RO816.2Z	3175-2Z	ULZ4008	R144SS	418CHH	R1-418ZZ	RA144ZZA
		R2-5ZZ	X1/8ZZ	R820.2Z	BR1/8A-2Z	RF4010	R2-5SS	518CHH	R1-518ZZ	RA2-5ZZA
		R2-6ZZS		R824.2Z	BR1/8A/6-2Z		R2-6SS	618CHH	R1-618ZZ	RA2-6ZZA
		R2ZZ	R2ZZ	R2.2Z	BR1/8B-2Z	RF4012	R2SS	R2CHH	R-2ZZ	R2ZZA
		R2AZZ	R2AZZ	R2A.2Z	BR1/8B/083-2Z		R2ASS	R2ACHH	RA2ZZA	
3.967	0.1562	R155ZZS	X5/32ZZ	R1020.2Z	3967-2Z	ULZ5010	R155SS	5532CHH	R1-5532ZZ	RA155ZZA
4.762	0.1875	R156ZZS	AX3/16ZZ	R1220.2Z	4763A-2Z	ULZ6010	R156SS	5632CHH	R1-5632ZZ	RA156ZZA
		R166ZZ	X3/16ZZ	R1224.2Z	4763B-2Z	ULZ6012	R166SS	6316CHH	R1-6632ZZ	R166ZZA
		R3ZZ	Y3/16ZZ	R3.2Z	BR3/16-2Z	RF6016	R3SS	R3CHH	R-3ZZ	RA3ZZ
6.35	0.25	R168ZZS	X1/4ZZ	R1624.2Z	6350A-2Z	ULZ8012	R168SS	614CHH	R1-614ZZ	R168ZZA
		R188ZZ	R188ZZ	R1632.2Z	6350B-2Z	ULZ8016	R188SS	814CHH	R1-814ZZ	RA188ZZA
		R4ZZ	Y1/4ZZ	R4.2Z	BR1/4A-2Z	RF8020	R4SS	R4CHH	R-4ZZ	R4ZZ
		R4AZZ	R4AZZ	R4A.2Z	BR1/4.2Z		R4ASS	R4ARHH	R1-1214ZZ	R4AZZ
7.938	0.3125	R1810ZZS		R2032.2Z	7938-2Z		R1810SS	8516CHH	R1-8516ZZ	
9.525	0.375	R6ZZ	Y3/8ZZ	R6.2Z	BR3/6-2Z		R6SS	R6RHH	R1-1438ZZ	R6ZZ
Niro										
Stainless Steel		S	S	W	S	X	S	S	DD	W

## Geschlossene Flanschlager (zöllig) / Flanged Shielded Type (inch series)

inch	ZEN	ADR	FAG	GRW	RMB	BARDEN	MPB	NMB	NTN
0.0469	FR0ZZS	FX3/64ZZ	RF0310.2Z	F1191-2Z	ULKZ1505	FR0SS	21/2FCFH	RIF-21/2ZZ	FLRA0ZZA
0.055	FR1ZZ	FR1ZZ	RF0412.2Z	F1397-2Z	RKF-1706	FR1SS	3FCFH	RIF-3ZZ	FLRA1ZZA
0.0781	FR1-4ZZS	FX5/64ZZ	RF0516.2Z	R6/64-2Z	RKF2508	FR1-4SS	4FCFH	RIF-4ZZ	FLRA1-4ZZA
0.0937	FR133ZZS	FAX3/32ZZ	RF0612.2Z	F2380-2Z	ULKZ3006	FR133SS	3332FCFH	RIF-3332ZZ	FLRA133ZZA
	FR1-5ZZS	FX3/32ZZ	RF620.2Z	F3/32-2Z	RKF3010	FR1-5SS	5FCFH	RIF-5ZZ	FLRA1-5ZZA
0.125	FR144ZZ	FAX1/8ZZ	RF0816.2Z	F3175-2Z	ULKZ4008	FR144SS	418FCFH	RIF-418ZZ	FLRA144ZZA
	FR2-5ZZ	FX1/8ZZ	RF820.2Z	F1/8A-2Z	RKF4010	FR2-5SS	518FCFH	RIF-518ZZ	FLRA2-5ZZA
	FR2-6ZZS		RF824.2Z	F1/8A/6-2Z		FR2-6SS	618FCFH	RIF-618ZZ	FLRA2-6ZZA
	FR2ZZ	FR2ZZ	RF2.2Z	F1/8B-2Z	RKF4012	FR2SS	R2FCFH	RIF-2ZZ	FLR2ZZA
0.1562	RF155ZZS	FX5/32ZZ	RF1020.2Z	F3967-2Z	ULKZ5010	FR155SS	5532FCFH	RIF-5532ZZ	FLRA155ZZA
0.1875	FR156ZZS	FAX3/16ZZ	RF1220.2Z	F4763A-2Z	ULKZ6010	FR156SS	5632FCFH	RIF-5632ZZ	FLRA156ZZA
	FR166ZZ	FX3/16ZZ	RF1224.2Z	F4763B-2Z	ULKZ6012	FR166SS	6316FCFH	RIF-6632Z	FLRA166ZZA
	FR3ZZ	FY3/16ZZ	RF3.2Z	F3/16-2Z	RKF6016	FR3SS	R3FCFH	RIF-3ZZ	FLRA3ZZ
0.25	FR168ZZS	FX1/4ZZ	RF1624.2Z	F6350A-2Z	ULKZ8012	FR168SS	614CHH	RIF-614ZZ	FLRA166ZZA
	FR188ZZ	FR188ZZ	RF1632.2Z	F6350B-2Z	ULKZ8016	FR188SS	814FCFH	RIF-814ZZ	FLRA188ZZA
	FR4ZZ	FY1/4ZZ	RF4.2Z	F1/4A-2Z	RKF8020	FR4SS	R4FCFH	RF-4ZZ	FLR4ZZ
0.3125	FR1810ZZS		RF2032.2Z	F7938-2Z		FR1810SS	8516FCFH	RIF-8516ZZ	
0.375	FR6ZZ	FY3/8ZZ	RF6.2Z			FR6SS	R6FRHH	RIF-1438ZZ	FLR6ZZ

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## Geschlossene Flanschlager (metrisch) / Flanged Shielded Type (metric series)

mm	inch	ZEN	ADR	GRW	RMB	BARDEN	MPB	NMB	NTN
1.5	0.591	F691XZZ	FX1.5ZZ	F69/1.5-2Z				RF-515ZZ	FLW69/1.5ZZA
		F601XZZS						RF-615ZZ	FLW60/1.5ZZA
2	0.0787	F682ZZ	FBX2ZZ	F682-2Z	ULKZ205	F682SS	UL20FCFH	LF-520ZZ	FLW682ZZA
		F692ZZ	FAX2ZZ			F692SS		RF-620ZZ	FLW692ZZA
		MF72ZZ						RF-720ZZY03	FLW8C2-7ZZA
		F602ZZS						RF-720ZZ	FLW602ZZA
2.5	0.0984	F682XZZS	FAX2.5ZZ	F68/2.5-2Z	ULKZ256	F68/2.5SS		LF-625ZZ	FLW68/2.5ZZA
		F692XZZ	FX2.5ZZ	F69/2.5-2Z		F69/2.5SS		RF-725ZZ	FLW69/2.5ZZA
		F602XZZS						RF-825ZZ	FLW60/2.5ZZA
3	0.1181	MF63ZZS						FL630ZZ	FLWA67ZZA
		F683ZZ	FAX3ZZ	F683-2Z	ULKZ307	F683SS	UL30FCFH	LF-730ZZ	FLW683ZZA
		F693ZZ	FX3ZZ	F693-2Z	RKF308			RF-830ZZ	FLW693ZZA
		MF93ZZ						RF-930ZZY04	FLWBC3-9ZZA
		F623ZZ	F623ZZ	F623-2Z	RKF310	F623SS		RF-1030ZZ	FL623ZZA
4	0.1575	MF74ZZ						LF-740ZZ	FLWA674ZZA
		MF84ZZ						LF-840ZZ	FLWBC4-8ZZA
		F684ZZ	F683/4ZZ	F684-2Z	ULKZ409	F684SS	UL40FCFH	LF-940ZZ	FLW684ZZA
		MF104ZZ						LF-1040ZZ	FLAWBC4-10ZZA
		F694ZZ		F694-2Z		F694SS		RF-1140ZZ	FL694ZZA
		F604ZZ						RF-1240ZZ	FL604ZZ
		F624ZZ	F624ZZ	F624-2Z		F624SS		RF-1340ZZF	L624ZZ
		F634ZZ		F634-2Z		F634SS		RF-1640ZZ	FL634ZZ
5	0.1969	MF85ZZ						LF-850ZZ	FLWA675ZZA
		MF95ZZ						LF-950ZZ	FLWBC5-9ZZA
		MF105ZZ						LF-1050ZZ	FLAWBC5-10ZZA
		F685ZZ	F638/5ZZ	F685-2Z	ULKZ511	F685SS	UL50FCFH	RF-1150ZZ	FLW685ZZA
		F695ZZ		F695-2Z		F695SS		LF-1350ZZ	FL695ZZ
		F605ZZ		F605-2Z				RF-1450ZZ	FL605ZZ
		F625ZZ		F625-2Z		F625SS		RF-1850ZZ	FL625ZZ
		F635ZZ		F635-2Z		F635SS		RF1950ZZ	FL635ZZ
6	0.2362	MF106ZZ						RF-1650ZZ	FLWA676ZZA
		MF126ZZ						UF-1260ZZ	FLAWBC6-12ZZA
		F686ZZ	F628/6ZZ	F686-2Z	ULKZ613	F686SS	UL60FCFH	LF-1360ZZ	FLW686ZZA
		F696ZZ		F696-2Z		F696SS		RF-1560ZZ	FL696ZZ
		F606ZZ						RF-1760ZZ	FL606ZZ
		F626ZZ		F626-2Z		F626SS			FL626ZZ
7	0.2756	MF117ZZS						LF-1170ZZ	FLWA677ZZA
		MF137ZZS						LF-1370ZZ	FLAWBC7-13ZZA
		F687ZZ	FAX7ZZ	F687-2Z	ULKZ714	F687SS	UL70FCFH	LF-1470ZZ	FLW687ZZA
		F697ZZ		F697-2Z		F697SS			FL697ZZ
		F607ZZ	F607ZZ	F607-2Z		F607SS			FL607ZZ
		F627ZZ		F627-2Z		F627SS			FL627ZZ
8	0.315	MF128ZZ						RF-2270ZZ	
		MF148ZZ						LF-1280ZZ	FLAW678ZZA
		F688ZZ				F688SS		UF-1480ZZ	FLWBC8-14ZZA
		F698ZZ		F698-2Z		F698SS		UF-1680ZZ	FLW688ZZ
		F608-ZZ	F608ZZ	F608-2Z		F608SS			FL698ZZ
9		F689ZZ				F689SS		RF-2280ZZ	FL608ZZ
		F699ZZ						FL-1790ZZ	FLW689ZZ

Niro  
Stainless Steel

S

S

S

X

S

S

DD

W

## Zoll-mm Umrechnungstabelle / Inch to mm Conversion

18

Fraction	Inch	mm	Fraction	Inch	mm	Fraction	Inch	mm
1/64	0.0156	0.3969		0.2883	7.3228	11/16	0.6875	17.4625
	0.0250	0.6350	19/64	0.2969	7.5406	45/64	0.7031	17.8594
1/32	0.0312	0.7937	5/16	0.3125	7.9375		0.7087	18.0000
	0.0394	1.0000		0.3150	8.0000	23/32	0.7187	18.2562
	0.0400	1.0160	21/64	0.3281	8.3344	47/64	0.7344	18.6532
3/64	0.0469	1.1906	11/32	0.3437	8.7312		0.7435	18.8849
	0.0472	1.2000		0.3543	9.0000		0.7480	19.0000
	0.0550	1.3970	23/64	0.3594	9.1281	3/4	0.7500	19.0500
	0.0591	1.5000	3/8	0.3750	9.5250	49/64	0.7656	19.4469
1/16	0.0625	1.5875	25/64	0.3906	9.2919		0.7717	19.6012
	0.0709	1.8000		0.3937	10.0000	25/32	0.7812	19.8433
5/64	0.0781	1.9844	13/32	0.4062	10.3187		0.7874	20.0000
	0.0787	2.0000		0.4100	10.4140	51/64	0.7969	20.2402
	0.0906	2.3012	27/64	0.4219	10.7156	13/16	0.8125	20.6375
3/32	0.0937	2.3812		0.4250	10.7950		0.8268	21.0000
	0.0984	2.5000		0.4331	11.0000	53/64	0.8281	21.0344
	0.1000	2.5400	7/16	0.4375	11.1125	27/32	0.8437	21.4312
	0.1024	2.6000	29/64	0.4531	11.5094	55/64	0.8594	21.8281
7/64	0.1094	2.7781		0.4600	11.6840		0.8661	22.0000
	0.1100	2.7940	15/32	0.4687	11.9062	7/8	0.8750	22.2250
	0.1102	2.8000		0.4724	12.0000	57/64	0.8906	22.6219
	0.1181	3.0000	31/64	0.4844	12.3031		0.9055	23.0000
1/8	0.1250	3.1750	1/2	0.5000	12.7000	29/32	0.9062	23.0187
	0.1256	3.1902		0.5118	13.0000	59/64	0.9219	23.4156
	0.1378	3.5000	33/64	0.5156	13.0968	15/16	0.9375	23.8125
9/64	0.1406	3.5719	17/32	0.5312	13.4937		0.9449	24.0000
5/32	0.1562	3.9687	35/64	0.5469	13.8906	61/64	0.9531	24.2094
	0.1575	4.0000		0.5512	14.0000	31/32	0.9687	24.6062
11/64	0.1719	4.3656	9/16	0.5625	14.2875		0.9843	25.0000
3/16	0.1875	4.7625	37/64	0.5781	14.6844	63/64	0.9844	25.0031
	0.1892	4.8057		0.5906	15.0000		1.0000	25.4000
	0.1969	5.0000	19/32	0.5937	15.0812		1.0236	26.0000
13/64	0.2031	5.1594	39/64	0.6094	15.4781		1.0415	26.4541
	0.2165	5.4991	5/8	0.6250	15.8750		1.0480	26.6192
7/32	0.2187	5.5562		0.6299	16.0000	1-1/16	1.0625	26.9875
15/64	0.2344	5.9531	41/64	0.6406	16.2719		1.0630	27.0000
	0.2362	6.0000		0.6500	16.5100		1.1025	28.0000
1/4	0.2500	6.3500	21/32	0.6562	16.6687	1-1/8	1.1250	28.5750
17/64	0.2656	6.7469		0.6620	16.8148		1.1417	29.0000
	0.2756	7.0000		0.6693	17.0000		1.1812	30.0000
9/32	0.2812	7.1437	43/64	0.6719	17.0656	1-3/16	1.1875	30.1625
						1-1/4	1.2500	31.7500
						1-1/2	1.5000	38.1000

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Geeignet für hohe drehzahlen  
Suitable for high speed applications



Wetterbeständig  
Outdoor durability



Gummidichtscheiben verfügbar  
Rubber seal option available



Metalldeckscheiben verfügbar  
Metal shield option available

# Referenztabelle / Reference Table

3

## Material

S = Rostfreier Stahl / [Stainless Steel](#)  
 Kein Präfix / [No Prefix](#) = Chromstahl / [Chrome Steel](#)

## Referenz / [Bearing type](#)

MF = Metrisch mit Flansch / [Metric with Flange](#)  
 MR = Metrisch / [Metric](#)  
 R = Zöllig / [Inch](#)  
 FR = Zöllig mit Flansch / [Inch with Flange](#)  
 F = Metrisch mit Flansch / [Metric with Flange](#)  
 Kein Präfix / [No Prefix](#) = Metrisch / [Metric](#)

## Typenbezeichnung / [Bearing Part Number](#)

### Dichtscheiben / [Shields](#)

2Z = Metaldichtscheiben / [Metal Shields](#)  
 2RS = Gummidichtscheiben / [Rubber Seals](#)  
 2TS = PTFE Dichtscheiben / [PTFE Seals](#)  
 2TZ = Metall / PTFE Dichtungsscheiben / [Metal / PTFE Shields](#)

Kein Suffix / [No Suffix](#) = Offen / [Open](#)

S	FR	144	-2Z	. . . Abm./Dimen. . . .
	FR	85		”
		635	-2RS	”
S		682X		”

# Spezifikationen / Specifications

## Allgemeine Merkmale / General Details

Material	Komponenten Components		Merkmale Details	Anwendungsbereiche Application
	Ringe Rings	Kugeln Balls		
Kugellagerchromstahl Ball Bearing Chrome Steel 100 Cr6 (Nr. 1.3505)	✓	✓	Gute Verschleißfestigkeit Hard wearing Schlag- und Korrosionsbeständigkeit Good shock and corrosive resistance	Standard Standard
Rostfreier Stahl Stainless Steel AISI 440 C (Nr. 1.4125) †	✓	✓	Sehr gute Korrosionsbeständigkeit Very good corrosive resistance	Nahrungsmittel, Pharma, Schiffsbau und andere korrosive Umgebungen Food industry, pharmaceutical industry, ship building and other corrosive surroundings
AISI 420 (Nr. 1.4021)	✓	✓	Sehr gute Korrosionsbeständigkeit Very good corrosive resistance	Nahrungsmittel, Pharma, Schiffsbau und andere korrosive Umgebungen Food industry, pharmaceutical industry, ship building and other corrosive surroundings
AISI304	✓	✓	Sehr gute Korrosionsbeständigkeit Very good corrosive resistance	Korrosive Medien Corrosive surroundings
AISI316	✓	✓	Ausgezeichnete Korrosionsbeständigkeit Excellent corrosive resistance	Korrosive Medien Corrosive surroundings
AISI316L	✓	✓	Ausgezeichnete Korrosionsbeständigkeit Excellent corrosive resistance	Korrosive Medien Corrosive surroundings
Si3N4	✓	✓	Hohe thermische Isolation, Exzellente Korrosionsbeständigkeit High temperature insulation Excellent corrosive resistance	Chemische-, Elektro- und Nahrungsmittelindustrie, Marine, Medizintechnik Chemistry, Electronic, Food, Marine & Medical
ZrO2	✓	✓	Hohe thermische Isolation, Exzellente Korrosionsbeständigkeit High temperature insulation Excellent corrosive resistance	Chemische-, Elektro- und Nahrungsmittelindustrie, Marine, Medizintechnik Chemistry, Electronic, Food, Marine & Medical
ZrO2	✓	✓	Hohe thermische Isolation, Exzellente Korrosionsbeständigkeit High temperature insulation Excellent corrosive resistance	Chemische-, Elektro- und Nahrungsmittelindustrie, Marine, Medizintechnik Chemistry, Electronic, Food, Marine & Medical

†Die statische und dynamische Belastung von AISI 440 C-Lagern liegt bei ca. 75-80% von 100 Cr6-Lagern.

†The static and dynamic load rating of AISI 440 C - ball bearings is approximately 75-80% of the 100 Cr6 - ball bearings.

## Technische Merkmale / Technical Details

Material	Härte Hardness	Max. Temp. Max. Temp.	C	Si	Mn	P	S	Cr	Mo	
100 Cr6 (Nr. 1.3505)	60-64HRC	max. 150°C	0.5~1.10	0.15~0.35	≤0.5	≤0.025	≤0.025	1.3~1.6	≤0.08	
AISI440 C (Nr. 1.4125)	≥58HRC	Max. 230°C	0.95~1.2	≤1.1	≤1.0	≤0.04	≤0.03	16.0~18.0	≤0.75	
AISI420 (Nr. 1.4021)	≤55HRC	Max. 230°C	0.16~0.25	≤1.0	≤1.5	≤0.04	≤0.03	12.0~14.0		
AISI304	15~20HRC	900	≤0.07	≤1.00	≤2.00	≤0.035	≤0.030	18.0~208.0		8.0~10.0
AISI316	15~20HRC	900	≤0.08	≤1.00	≤2.00	≤0.035	≤0.030	16.0~19.0	1.80-2.50	10.0~14.0
AISI 316L	15~20HRC	450	≤0.03	≤1.00	≤2.00	≤0.035	≤0.030	16.0~18.0	2.00-3.00	12.0~15.0
Si3N4	75~80HRC	1050	Component:		88% Si3N4 / 4% Al2O3 / 4% Y2O3 / 4% Other					
ZrO2	70HRC	750	Component:		95% ZrO2 / 5% Y2O3					
Al2O3	80HRC	1750	Component:		99.5% Al2O3 / 0.5% Others					

Tolerance of inner ring (ISO)

Unit μm

d(mm)		Δdmp				Δds		Vdp								Vdmp						
		P0		P6	P5	P4	P4		P0		P6		P5		P4		P0	P6	P5	P4		
							Diameter series		Diameter series		Diameter series		Diameter series		Diameter series							
		Over	incl.	Upper	Lower	Lower	Lower	Lower	Upper	Lower	Max.		Max.		Max.		Max.		Max.	Max.	Max.	Max.
0.6(1)	2.5	0	-8	-7	-5	-4	0	-4	10	8	6	9	7	5	5	4	4	3	6	5	3	2
2.5	10	0	-8	-7	-5	-4	0	-4	10	8	6	9	7	5	5	4	4	3	6	5	3	2
10	18	0	-8	-7	-5	-4	0	-4	10	8	6	9	7	5	5	4	4	3	6	5	3	2
18	30	0	-10	-8	-6	-5	0	-5	13	10	8	10	8	6	6	5	5	4	8	6	3	2.5
30	50	0	-12	-10	-8	-6	0	-6	15	12	9	13	10	8	8	6	6	5	9	8	4	3

Note 1: The upper value of the bore diameter in this table is not applicable when the distance from the bearing ring face is less than 1.2 times the chamferdimension.  
 Note 2: According to the revision of ANSI/ABMA Std,20-1996, the classes ABEC1-ABEC3-ABEC5-ABEC7 are equivalent to SS0-CLASS6-CLASS5-CLASS4.

Tolerance of outer ring (ISO)

Unit μm

D(mm)		ΔDmp				ΔDs				VDp								VDmp						
		P0		P6	P5	P4	P0		P6		P5		P4		P0	P6	P5	P4						
							Open	Seal Shield	Open	Seal Shield	Open		Open											
		Upper	Lower	Lower	Lower	Lower	Upper	Lower	Max.		Max.		Max.		Max.		Max.	Max.	Max.	Max.				
2.5(1)	6	0	-8	-7	-5	-4	0	-4	10	8	6	10	9	7	5	9	5	4	4	3	6	5	3	2
6	18	0	-8	-7	-5	-4	0	-4	10	8	6	10	9	7	5	9	5	4	4	3	6	5	3	2
18	30	0	-9	-8	-6	-5	0	-5	12	9	7	12	10	8	6	10	6	5	5	4	7	6	3	2.5
30	50	0	-11	-9	-7	-6	0	-6	14	11	8	16	11	9	7	13	7	5	6	5	8	7	4	3
50	80	0	-13	-11	-9	-7	0	-7	16	13	10	20	14	11	8	16	9	7	7	5	10	8	5	3.5

Note(1) : Size 2.5mm is included in this classification.  
 Note(2) : The outer ring width variations for CLASS0 and CLASS6 are the same as for the inner ring of the same bearing size.

Radial internal clearance of standard radial ball bearings

Unit μm

"NOMINAL BORE DIAMETER d(mm)		CLEARANCE									
		C2		CN(C0)		C3		C4		C5	
OVER	INCL.	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
10(ONLY)		0	7	2	13	8	23	14	29	20	37
10	18	0	9	3	18	11	25	18	33	25	45
18	24	0	10	5	20	13	28	20	36	28	48
24	30	1	11	5	20	13	28	23	41	30	53
30	40	1	11	6	20	15	33	28	46	40	64
40	50	1	11	6	23	18	36	30	51	45	73

d(mm)		ΔBs(ΔCs) <sup>(2)</sup>				VBs(VCs) <sup>(2)</sup>				Kia				Sd		Sia		
		Single bearing		Inner/outer ring		Inner ring		P0	P6	P5	P4	P0	P6	P5	P4	P5	P4	
				P0	P6	P5	P4											
		Upper	Lower	Lower	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Over
0	-40	-40	12	12	5	2.5	10	5	4	2.5	7	3	7	3	7	3	0.6(1)	2.5
0	-120	-40	15	15	5	2.5	10	6	4	2.5	7	3	7	3	7	3	2.5	10
0	-120	-80	20	20	5	2.5	10	7	4	2.5	7	3	7	3	7	3	10	18
0	-120	-120	20	20	5	2.5	13	8	4	3	8	4	8	4	8	4	18	30
0	-120	-120	20	20	5	3	15	10	5	4	8	4	8	4	8	4	30	50

Note(1) : 0.6mm is included in this classification.  
 Note(2) : The inner ring width variation is the same for the outer ring of the same bearing size, CLASS5 and CLASS4 referring to outer ring only.

D(mm)		Kca				SD		Sea		VCs <sup>(2)</sup>		ΔDis		ΔCis						
		P0		P6	P5	P4	P5	P4	P5	P4	P5	P4	Flanged type							
													P0	P6	P5	P4	P0	P6	P5	P4
		Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Max.	Over	Incl.	Upper	Lower	Upper	Lower	Upper	Lower
15	8	5	3	8	4	8	5	5	2.5	2.5(1)	6	+125	-50	0	-25	0	-50	0	-50	
15	8	5	3	8	4	8	5	5	2.5	6	18	+125	-50	0	-25	0	-50	0	-50	
15	9	6	4	8	4	8	5	5	2.5	18	30	+125	-50	0	-25	0	-50	0	-50	
20	10	7	5	8	4	8	5	5	2.5	30	50	+125	-50	0	-25	0	-50	0	-50	
25	13	8	5	8	4	10	5	6	3	50	80	+125	-50	0	-25	0	-50	0	-50	

Note 1 : The lower value of the outside diameter in this table is not applicable when the distance from the bearing ring face is less than 1.2 times the chamfer dimension.  
 Note 2 : According to the revision of AFBMA Std20-1978, the classes ABEC1 ABEC3 ABEC5 ABEC7 are equivalent to CLASS0 • CLASS6 • CLASS5 • CLASS4

- d : Nominal bore diameter
- Δdmp : Single plane mean bore diameter deviation
- Δds : Deviation of a single bore diameter
- Vdp : Bore diameter variation in a single radial plane
- Vdmp : Mean bore diameter variation
- ΔBs (ΔCs) : Deviation of a single inner and outer ring width from the nominal dimension
- VBs (VCs) : Variation of a inner and outer ring width
- Kia : Radial runout of assembled bearing inner ring
- Sd : Face runout with bore
- Sia : Assembled bearing inner ring face runout with raceway
- D : Nominal outside diameter
- ΔDmp : Single plane mean outside diameter deviation
- ΔDs : Deviation of a single outside diameter
- VDp : Outside diameter variation in a single radial plane
- VDmp : Mean outside diameter variation
- Kea : Radial runout of assembled bearing outer ring
- SD : Variation of a outside surface generatrix inclination with face
- Sea : Assembled bearing outer ring face runout with raceway
- VCs : Variation of the outer ring width
- ΔDis : Flange outside diameter deviation
- Cis : Flange width deviation

Wichtig / Important

**\* Max. Drehzahlen:**  
 Die im Katalog angegebenen Werte sind ungefähre Werte. Abhängig von der Toleranzklasse, Werkstoff, Einbautoleranzen, Befettung, Käfigtype, Umgebungstemperatur, etc., können unterschiedliche Werte realisiert werden. Die maximalen Drehzahlen für RS- und TS-gedichtete Lager sind deutlich geringer. Bitte erfragen Sie die Werte in besonderen Fällen.








**\* Limiting Speeds :**  
 The values shown in the catalogue are approximated values. Depending on the tolerance class, material, mounting tolerances, lubrication, cage, surrounding temperature, etc., different values can be obtained. The limiting speeds for RS- and TS-shielded bearings are significantly lower. Please contact Engineering for special cases.

**\* Tragzahlen:**  
 Die Tragzahlen und Drehzahlen beziehen sich auf 100Cr6 (Chromstahl), falls nicht anders spezifiziert. Die Werte für rostfreien Stahl sind ungefähr 20% niedriger.

**\* Load Ratings:**  
 Load ratings and Limiting Speeds are calculated based on material 100Cr6 (Chrome Steel), if not stated different. The rates are approximately 20% lower for stainless steel.

# Dichtungen / Seals & Shields

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	Design Design	Spezifikation Specification	Temp Temp	Vorteile/Nachteile Advantage/Disadvantage
	- Keine Dichtung No seals	Offen Open	-	Kein Reibungswiderstand No friction Einfache Nachschmierung Easy to re-lube Starke Verschmutzung No protection against contamination
	2Z Metalldeckscheiben Metal shields	Nichtschleifende Dichtung Non contact seals	Min. temp -35°C  Max. temp 250°C	Kein Reibungswiderstand No friction Gute Abdichtung gegen Schmutz Good protection against contamination
	2RS Gummidichtscheiben Rubber seals	Schleifende Dichtung aus Kunststoff Contact seals made of synthetic rubber	Min. temp -20°C  Max. temp 110°C	Erhöhter Reibungswiderstand Higher friction Ausgezeichnete Abdichtung gegen Schmutz Very good protection against contamination
	2TS PTFE Dichtscheiben PTFE seals	Schleifende Dichtung aus PTFE Contact seals made of Teflon	Min. temp -40°C  Max. temp 250°C	Geringer Reibungswiderstand Low friction Ausgezeichnete Abdichtung gegen Schmutz Very good protection against contamination Gute chemische Eigenschaften Good chemical characteristics
	2TZ Metalldeckscheiben mit PTFE Dichtscheiben PTFE seals with metal shields	Schleifende Dichtung aus PTFE Contact seals made of Teflon	Min. temp -40°C  Max. temp 250°C	Geringer Reibungswiderstand Low friction Ausgezeichnete Abdichtung gegen Schmutz Very good protection against contamination Gute chemische Eigenschaften Good chemical characteristics
	2VS Viton Dichtungen Viton seals	Schleifende Dichtungen aus Viton Seals made of Viton	Min. temp -30°C  Max. temp 230°C	Erhöhter Reibungswiderstand Higher friction Temperaturbeständig Chemisch High temperature Gute chemische Eigenschaften Good chemical characteristics Ausgezeichnete Abdichtung gegen Schmutz Very good protection against contamination
	2DU Gummidichtscheiben Rubber seal	Nicht schleifende Dichtung aus Gummi Non contact seal made of synthetic rubber	Min. temp -20°C  Max. temp 110°C	Kein Reibungswiderstand No friction Ausgezeichnete Abdichtung gegen Schmutz Very good protection against contamination









## Wichtig / Important

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## Käfige / Cages

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	Referenz Reference	Käfigtype Cage type	Anmerkung Remarks
	FC	Vollkugelig / ohne Käfig Full Complement / No Cage	Geringe Drehzahlen, hohe Belastungswerte Low revolution high load rating
	W	Kronenkäfig Crown Cage	Geringes Gewicht, geringe Reibung Light weight, smooth, low friction
	J	Lappenkäfig Ribbon Cage	Standardkäfig, hohe Lebensdauer Standard cage, good durability
	T9H	Kronenkäfig aus glasfaserverstärktem Kunststoff Glass Fibre Reinforced Cage	Geringes Gewicht, hohe Lebensdauer, hohe Drehzahlen Light weight, strong, high speed
		Massivkäfig aus Kunststoff Phenolic Cage	Geringes Gewicht, hohe Lebensdauer, hohe Drehzahlen Light weight, strong, high speed
	M	Messingkäfig Brass Cage	Geringe Reibung, hohe Lebensdauer, Low friction, good durability
	PEEK	PEEK	Für hohe Temperaturen Hohe Lebensdauer Korrosionsbeständig Isolierend High temperature Good durability Corrosion resistant Insulated
	PTFE	PTFE	Für hohe Temperaturen Hohe Lebensdauer Korrosionsbeständig Isolierend High temperature Good durability Corrosion resistant Insulated

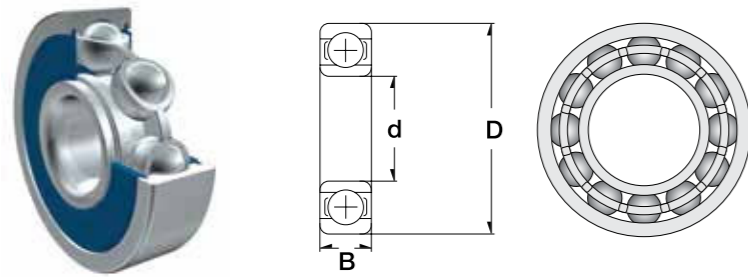
## Schmierung / Lubrication

Schmiermittel Lubricant	Anmerkung Remarks	Vorteile/Anwendung Advantages/Applications
 Kein Schmiermittel No lubricant	Nur bei Edelstahlagern oder mit Verwendung von Korrosionsschutz Only with stainless steel bearings or with the use of corrosion preventive fluid	Wenn Schmierung vom Kunden gestellt wird When the lubrication is provided by the customer
 Fett Grease	Standardfüllung 30-40% Standard filling 30-40%	Lebenslange Schmierung möglich Life-time lubrication is possible Guter Korrosionsschutz Good protection against corrosion Differenzierte Anwendungsmöglichkeiten je nach Fett According to the application a variety of greases can be used
 Öl Oil	-	Geringer Reibungswiderstand Low friction Hohe Drehzahlen High revolution

Hersteller Mfg	Name Brand	Verdicker Thickener	Grundöl Base oil	Tropfpunkt Drop Point °C	Viskosität Consistency	Tempera- rurbereich Operating temperature range °C	Anwendung Application
Exxon	Beacon 325	Lithium	Diester	193	290	-60~+120	low temp
	Andok B	Nathium	Mineral	260	280	-40~+120	general purpose
	Andok C	Nathium	Mineral	»260	205	-20~+120	general purpose
	Andok 260	Nathium	Mineral	200	250	-30~+150	general purpose
Kyodo Yushi	Multemp PS2	Lithium	Diester	189	280	-50~+110	low temp
	Multemp SRL	Lithium	Ester	191	245	-40~+150	low temp
	Multemp SRH	Lithium	Ester	250	201	-40~+150	low temp
	Multemp SB-M	Diurea	Synthetic oil	220	260	-40~+200	high speed/temp
	ET-K	Diurea	Synthetic oil/ester"	260	300	-40~+200	high temp/ speed alternator
Kluber	Asonic GLY32	Lithium	Synthetic	190	265-295	-50~+140	low temp
	Asonic GHY72	Polyhamstoff	Ester Mineral	250	250-280	-40~+180	high temp/low noise
	Isoflex Super LDS18	Lithium	Diester	190	280	-60~+130	low temp
	Isoflex LDS18 Special A	Lithium	Diester	190	280	-60~+130	low temp
	Isoflex Topas NB52"	Barium	Synthetic hydrocarbon	204	280	-60~+170	low/high temp
	Barrierta L55/2	PTFE	Fluorinated		280	-35~+260	low/high temp
	Barrierta TK44N2	Na-Komplex	Silicone			-60~+230	low/high temp
	Isoflex NCA15	Special Ca	Ester Mineral	180	265-295	-40~+130	high speed
Asonic HQ72-102"	Urea	Ester	240	250-280	-40~+180	low/high temp & low noise	
Dow Corning	Molykote 33M	Lithium	Silicone	210	260	-70~+180	low/high temp
	Molykote 44M	Lithium	Silicone	204	260	-40~+200	high temp
	Molykote 55M	Lithium	Silicone			-55~+165	low temp
	Molykete BR2 plus	Lithium	Silicone		280	-30~+150	high speed
	Molykete FS1292	PTFE	Phlorosilicon	»232	310	-40~+200	hight speed
	Molykete FS3451	PTFE	Phlorosilicon	»260	285	-40~+230	chemical solvent resistant
Shell	Alvania No.2	Lithium	Mineral	182	272	-25~+120	general purpose
	Alvania No.3	Lithium	Mineral	183	233	-20~+135	general purpose
	Alvania RA	Lithium	Mineral	183	252	-25~+120	general purpose
	Alvania EP2	Lithium	Mineral	185	276	-10~+100	general purpose
	Dolium R		Mineral	238	281	-20~+140	general purpose
	Aero Shell NO.5	Microgel	Mineral	»260	282	-10~+130	general purpose
	Aero Shell NO.7	Microgel	Mineral	»260	288	-70~+150	low temp
	Aero Shell RLQ2	Lithium	Mineral	195	266	-50~+150	low noise/high speed"
Mobil Oil	Mobilux2	Lithium	Mineral	190	280	-20~+120	general purpose
	Mobil 22	Lithium	Diester Mineral	192	274	-50~+140	low temp
	Mobil 28	Bentonite	syntheic hydrocarbon	»260	280	-60~+180	low/high temp
	Mobiltemp SHC22	Glue-earth	Synthetic oil	250	265-295	-50~+180	high speed/temp
	Mobiitemp SHC100	Glue-earth	Synthetic oil	250	265-295	-40~+200	high speed/temp
Du Pont	Krytox240AC	PTFE	Fluorinated		282	-35~+280	high speed/temp
Caltex	Chevron SRI-2	Urea	Mineral		293	-30~+175	high temp
Hangu	Hangu#2	-	Mineral	-	-	-20~+120	general purpose
Great Wall	Great Wall BLE	Urea	Mineral	260	280	-30~+200	low noise/high temp"
Yiping	YP7201	Synthetic	Mineral	272	272	-20~+120	low noise/anti-rust



Metrische Miniaturrillenkugellager / Miniature Metric Series



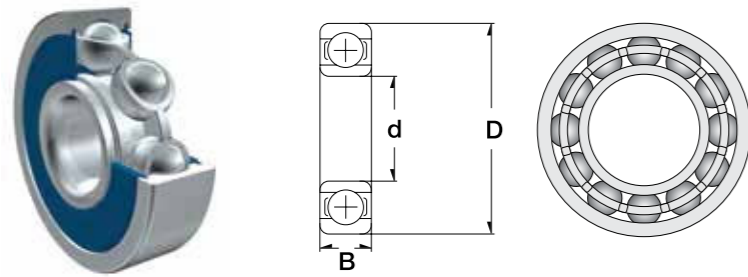
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standard or flanged	Dimension (mm)			Designation/Type					
	d	D	B	open		2Z		2RS/2TS	
				Chrome Steel	Stainless	Chrome Steel	Stainless	Chrome Steel	Stainless
standard	1.0	3.0	1.0	681	S681	-	-	-	-
flanged	1.0	3.0	1.0	F 681	SF 681	-	-	-	-
standard	1.0	3.0	1.5	MR 31	SMR 31	-	-	-	-
standard	1.0	4.0	1.6	691	S691	-	-	-	-
flanged	1.0	4.0	1.6	F 691	SF 691	-	-	-	-
standard	1.2	4.0	2.5	-	-	MR 41X-2Z	SMR 41X-2Z	-	-
standard	1.5	4.0	1.2	681X	S681X	-	-	-	-
flanged	1.5	4.0	1.2	F 681X	SF 681X	-	-	-	-
standard	1.5	4.0	2.0	-	-	681X-2Z	S681X-2Z	-	-
flanged	1.5	4.0	2.0	-	-	F 681X-2Z	SF 681X-2Z	-	-
standard	1.5	5.0	1.7	X 1.5	SX 1.5	-	-	-	-
standard	1.5	5.0	2.0	691X	S691X	-	-	-	-
flanged	1.5	5.0	2.0	F 691X	SF 691X	-	-	-	-
standard	1.5	5.0	2.6	-	-	691X-2Z	S691X-2Z	-	-
flanged	1.5	5.0	2.6	-	-	F 691X-2Z	SF 691X-2Z	-	-
standard	1.5	6.0	2.5	601X	S601X	-	-	-	-
flanged	1.5	6.0	2.5	F 601X	SF 601X	-	-	-	-
standard	1.5	6.0	3.0	-	-	601X-2Z	S601X-2Z	-	-
flanged	1.5	6.0	3.0	-	-	F 601X-2Z	SF 601X-2Z	-	-
standard	2.0	4.0	1.2	672	S672	-	-	-	-
standard	2.0	5.0	1.5	682	S682	-	-	-	-
flanged	2.0	5.0	1.5	F 682	SF 682	-	-	-	-
standard	2.0	5.0	2.0	MR 52	SMR 52	-	-	-	-
standard	2.0	5.0	2.3	-	-	682-2Z	S682-2Z	-	-
flanged	2.0	5.0	2.3	-	-	F 682-2Z	SF 682-2Z	-	-
standard	2.0	5.0	2.5	-	-	MR 52-2Z	SMR 52-2Z	-	-
flanged	2.0	5.0	2.5	-	-	MF 52-2Z	SMF 52-2Z	-	-
standard	2.0	6.0	2.3	692	S692	692-2ZW2.3	S692-2ZW2.3	-	-
flanged	2.0	6.0	2.3	F 692	SF 692	F 692-2ZW2.3	SF 692-2ZW2.3	-	-
standard	2.0	6.0	2.5	MR 62	SMR 62	MR 62-2Z	SMR 62-2Z	-	-
flanged	2.0	6.0	2.5	MF 62	SMF 62	MF 62-2Z	SMF 62-2Z	-	-

* Load Rating (only 100 Cr6)		* Limiting Speed x1000rpm (open & 2Z)		Standard cage type Others on request	Weight (g) approx.
C, dyn. N	C, stat. N	Grease	Oil		
96	26	130.0	150.0	W	< 1 g
96	26	130.0	150.0	W	< 1 g
96	26	130.0	150.0	W	< 1 g
141	37	100.0	120.0	W	< 1 g
141	37	100.0	120.0	W	< 1 g
112	33	110.0	130.0	W	< 1 g
112	33	100.0	120.0	W	< 1 g
112	33	100.0	120.0	W	< 1 g
112	33	100.0	120.0	W	< 1 g
112	33	100.0	120.0	W	< 1 g
169	50	85.0	100.0	W	< 1 g
169	50	85.0	100.0	W	< 1 g
169	50	85.0	100.0	W	< 1 g
169	50	85.0	100.0	W	< 1 g
330	99	75.0	90.0	W	< 1 g
330	99	75.0	90.0	W	< 1 g
330	99	75.0	90.0	W	< 1 g
330	99	75.0	90.0	W	< 1 g
124	40	91.0	104.0	W	< 1 g
169	50	85.0	100.0	W,J	< 1 g
169	50	85.0	100.0	W,J	< 1 g
169	50	85.0	100.0	W,J	< 1 g
169	50	85.0	100.0	W,J	< 1 g
169	50	85.0	100.0	W	< 1 g
169	50	85.0	100.0	W	< 1 g
330	99	75.0	90.0	W	< 1 g
330	99	75.0	90.0	W	< 1 g
330	99	75.0	90.0	W	< 1 g
330	99	75.0	90.0	W	< 1 g

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Metrische Miniaturrillenkugellager / Miniature Metric Series



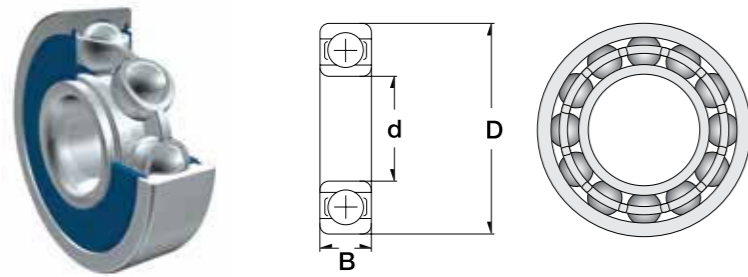
12

standard or flanged	Dimension (mm)			Designation/Type					
	d	D	B	open		2Z		2RS/2TS	
				Chrome Steel	Stainless	Chrome Steel	Stainless	Chrome Steel	Stainless
standard	2.0	6.0	3.0	-	-	692-2Z	S692-2Z	-	-
flanged	2.0	6.0	3.0	-	-	F 692-2Z	SF 692-2Z	-	-
standard	2.0	7.0	2.8	602	S602	-	-	-	-
standard	2.0	7.0	2.8	MR 72	SMR 72	-	-	-	-
standard	2.0	7.0	3.5	-	-	602-2Z	S602-2Z	-	-
flanged	2.0	7.0	3.5	-	-	F 602-2Z	SF 602-2Z	-	-
standard	2.0	7.0	3.0	-	-	MR 72-2Z	SMR 72-2Z	-	-
flanged	2.0	7.0	3.0	-	-	MF 72-2Z	SMF 72-2Z	-	-
standard	2.5	6.0	1.8	682X	S682X	-	-	-	-
flanged	2.5	6.0	1.8	F 682X	SF 682X	-	-	-	-
standard	2.5	6.0	2.6	-	-	682X-2Z	S682X-2Z	-	-
flanged	2.5	6.0	2.6	-	-	F 682X-2Z	SF 682X-2Z	-	-
standard	2.5	7.0	2.5	692X	S692X	-	-	-	-
flanged	2.5	7.0	2.5	F 692X	SF 692X	-	-	-	-
standard	2.5	7.0	3.0	-	-	X 2.5-2Z	SX 2.5-2Z	-	-
standard	2.5	7.0	3.5	-	-	692X-2Z	S692X-2Z	-	-
flanged	2.5	7.0	3.5	-	-	F 692X-2Z	SF 692X-2Z	-	-
standard	2.5	8.0	2.5	MR 82X	SMR 82X	-	-	-	-
standard	2.5	8.0	2.8	602X	S602X	-	-	-	-
flanged	2.5	8.0	2.8	F 602X	SF 602X	-	-	-	-
standard	2.5	8.0	4.0	-	-	602X-2Z	S602X-2Z	-	-
flanged	2.5	8.0	4.0	-	-	F 602X-2Z	SF 602X-2Z	-	-
standard	3.0	6.0	2.0	MR 63	SMR 63	-	-	-	-
flanged	3.0	6.0	2.0	MF 63	SMF 63	-	-	-	-
standard	3.0	6.0	2.5	-	-	MR 63-2Z	SMR 63-2Z	-	-
flanged	3.0	6.0	2.5	-	-	MF 63-2Z	SMF 63-2Z	-	-
standard	3.0	7.0	2.0	683	S683	-	-	-	-
flanged	3.0	7.0	2.0	F 683	SF 683	-	-	-	-
standard	3.0	7.0	3.0	-	-	683-2Z	S683-2Z	683-2TS	S683-2TS
flanged	3.0	7.0	3.0	-	-	F 683-2Z	SF 683-2Z	-	-
standard	3.0	8.0	2.5	MR 83	SMR 83	-	-	-	-
flanged	3.0	8.0	2.5	MF 83	SMF 83	-	-	-	-

* Load Rating (only 100 Cr6)		* Limiting Speed x1000rpm (open & 2Z)		Standard cage type Others on request	Weight (g) approx.
C, dyn. N	C, stat. N	Grease	Oil		
330	99	75.0	90.0	W	< 1 g
330	99	75.0	90.0	W	< 1 g
386	129	60.0	71.0	W	< 1 g
386	129	63.0	75.0	W	< 1 g
386	129	60.0	71.0	W	< 1 g
386	129	60.0	71.0	W	< 1 g
386	129	63.0	75.0	W	< 1 g
386	129	63.0	75.0	W	< 1 g
209	74	71.0	80.0	W	< 1 g
209	74	71.0	80.0	W	< 1 g
209	74	71.0	80.0	W	< 1 g
209	74	71.0	80.0	W	< 1 g
386	129	63.0	75.0	W	< 1 g
386	129	63.0	75.0	W	< 1 g
386	129	63.0	75.0	W	< 1 g
558	180	60.0	67.0	W	< 1 g
552	177	60.0	71.0	W	< 1 g
552	177	60.0	71.0	W	< 1 g
552	177	60.0	71.0	W	< 1 g
552	177	60.0	71.0	W	< 1 g
209	74	71.0	80.0	W	< 1 g
209	74	71.0	80.0	W	< 1 g
209	74	71.0	80.0	W	< 1 g
209	74	71.0	80.0	W	< 1 g
311	112	63.0	75.0	W,J	< 1 g
311	112	63.0	75.0	W,J	< 1 g
311	112	63.0	75.0	W,J	< 1 g
311	112	63.0	75.0	W,J	< 1 g
395	141	60.0	67.0	W	< 1 g
395	141	60.0	67.0	W	< 1 g

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Metrische Miniaturrillenkugellager / Miniature Metric Series



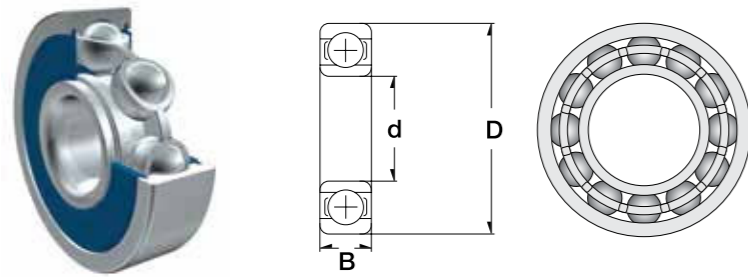
14

standard or flanged	Dimension (mm)			Designation/Type					
	d	D	B	open		2Z		2RS/2TS	
				Chrome Steel	Stainless	Chrome Steel	Stainless	Chrome Steel	Stainless
standard	3.0	8.0	3.0	693	S693	-	-	-	-
flanged	3.0	8.0	3.0	F 693	SF 693	-	-	-	-
standard	3.0	8.0	3.0	-	-	MR 83-2Z	SMR 83-2Z	-	-
flanged	3.0	8.0	3.0	-	-	MF 83-2Z	SMF 83-2Z	-	-
standard	3.0	8.0	4.0	-	-	693-2Z	S693-2Z	-	-
flanged	3.0	8.0	4.0	-	-	F 693-2Z	SF 693-2Z	-	-
standard	3.0	9.0	2.5	MR 93	SMR 93	-	-	-	-
flanged	3.0	9.0	2.5	MF 93	SMF 93	-	-	-	-
standard	3.0	9.0	3.0	603	S603	-	-	-	-
flanged	3.0	9.0	3.0	F 603	SF 603	-	-	-	-
standard	3.0	9.0	4.0	-	-	MR 93-2Z	SMR 93-2Z	-	-
flanged	3.0	9.0	4.0	-	-	MF 93-2Z	SMF 93-2Z	-	-
standard	3.0	9.0	5.0	-	-	603-2Z	S603-2Z	-	-
flanged	3.0	9.0	5.0	-	-	F 603-2Z	SF 603-2Z	-	-
standard	3.0	10.0	4.0	623	S623	623-2Z	S623-2Z	623-2RS	S623-2RS
flanged	3.0	10.0	4.0	F 623	SF 623	F 623-2Z	SF 623-2Z	F 623-2RS	SF 623-2RS
standard	3.0	13.0	5.0	-	-	633-2Z	S633-2Z	-	-
standard	3.5	9.0	4.0	-	-	MR 93X-2Z	SMR 93X-2Z	-	-
standard	4.0	7.0	2.0	MR 74	SMR 74	-	-	-	-
flanged	4.0	7.0	2.0	MF 74	SMF 74	-	-	-	-
standard	4.0	7.0	2.5	-	-	MR 74-2Z	SMR 74-2Z	-	-
flanged	4.0	7.0	2.5	-	-	MF 74-2Z	SMF 74-2Z	-	-
standard	4.0	8.0	2.0	MR 84	SMR 84	-	-	-	-
flanged	4.0	8.0	2.0	MF 84	SMF 84	-	-	-	-
standard	4.0	8.0	3.0	-	-	MR 84-2Z	SMR 84-2Z	MR 84-2RS	SMR 84-2RS
flanged	4.0	8.0	3.0	-	-	MF 84-2Z	SMF 84-2Z	MF 84-2RS	SMF 84-2RS
standard	4.0	9.0	2.5	684	S684	-	-	-	-
flanged	4.0	9.0	2.5	F 684	SF 684	-	-	-	-
standard	4.0	9.0	4.0	-	-	684-2Z	S684-2Z	684-2RS	S684-2RS
flanged	4.0	9.0	4.0	-	-	F 684-2Z	SF 684-2Z	F 684-2RS	SF 684-2RS
standard	4.0	10.0	3.0	MR 104	SMR 104	-	-	-	-
flanged	4.0	10.0	3.0	MF 104	SMF 104	-	-	-	-

* Load Rating (only 100 Cr6)		* Limiting Speed x1000rpm (open & 2Z)		Standard cage type Others on request	Weight (g) approx.
C, dyn. N	C, stat. N	Grease	Oil		
558	180	60.0	67.0	W	< 1 g
558	180	60.0	67.0	W	< 1 g
395	141	60.0	67.0	W	< 1 g
395	141	60.0	67.0	W	< 1 g
558	180	60.0	67.0	W	< 1 g
558	180	60.0	67.0	W	< 1 g
571	189	56.0	67.0	W	< 1 g
571	189	56.0	67.0	W	< 1 g
571	189	56.0	67.0	W	< 2 g
571	189	56.0	67.0	W	< 2 g
571	189	56.0	67.0	W	< 2 g
571	189	56.0	67.0	W	< 2 g
631	219	50.0	60.0	W,J	< 2 g
631	219	50.0	60.0	W,J	< 2 g
1301	488	40.0	48.0	J	< 4 g
571	189	56.0	67.0	W	< 3 g
255	108	60.0	67.0	W	< 1 g
255	108	60.0	67.0	W	< 1 g
255	108	60.0	67.0	W	< 1 g
255	108	60.0	67.0	W	< 1 g
395	141	56.0	67.0	W	< 1 g
395	141	56.0	67.0	W	< 1 g
395	141	56.0	67.0	W	< 2 g
395	141	56.0	67.0	W	< 2 g
641	227	53.0	63.0	W,J	< 2 g
641	227	53.0	63.0	W,J	< 2 g
641	227	53.0	63.0	W,J	< 2 g
641	227	53.0	63.0	W,J	< 2 g
711	272	48.0	56.0	W,J	< 2 g
711	272	48.0	56.0	W,J	< 2 g

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Metrische Miniaturrillenkugellager / Miniature Metric Series



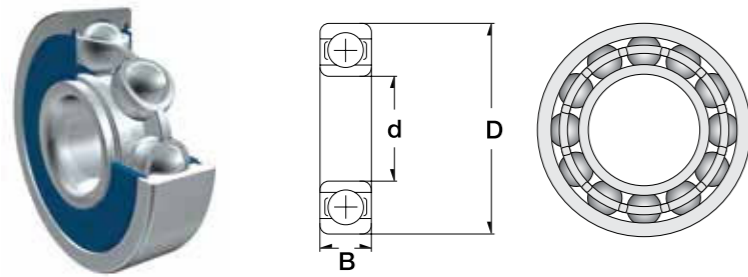
16

standard or flanged	Dimension (mm)			Designation/Type					
	d	D	B	open		2Z		2RS/2TS	
				Chrome Steel	Stainless	Chrome Steel	Stainless	Chrome Steel	Stainless
standard	4.0	10.0	4.0	-	-	MR 104-2Z	SMR 104-2Z	MR 104-2TS	SMR 104-2TS
flanged	4.0	10.0	4.0	-	-	MF 104-2Z	SMF 104-2Z	MF 104-2TS	SMF 104-2TS
standard	4.0	11.0	4.0	694	S694	694-2Z	S694-2Z	694-2RS	S694-2RS
flanged	4.0	11.0	4.0	F 694	SF 694	F 694-2Z	SF 694-2Z	F 694-2RS	SF 694-2RS
standard	4.0	12.0	4.0	604	S604	604-2Z	S604-2Z	604-2RS	S604-2RS
flanged	4.0	12.0	4.0	F 604	SF 604	F 604-2Z	SF 604-2Z	F 604-2RS	SF 604-2RS
standard	4.0	13.0	5.0	624	S624	624-2Z	S624-2Z	624-2RS	S624-2RS
flanged	4.0	13.0	5.0	F 624	SF 624	F 624-2Z	SF 624-2Z	F 624-2RS	SF 624-2RS
standard	4.0	16.0	5.0	634	S634	634-2Z	S634-2Z	634-2RS	S634-2RS
flanged	4.0	16.0	5.0	F 634	SF 634	F 634-2Z	SF 634-2Z	F 634-2RS	SF 634-2RS
standard	5.0	8.0	2.0	MR 85	SMR 85	-	-	-	-
flanged	5.0	8.0	2.0	MF 85	SMF 85	-	-	-	-
standard	5.0	8.0	2.5	-	-	MR 85-2Z	SMR 85-2Z	-	-
flanged	5.0	8.0	2.5	-	-	MF 85-2Z	SMF 85-2Z	-	-
standard	5.0	9.0	2.5	MR 95	SMR 95	-	-	-	-
flanged	5.0	9.0	2.5	MF 95	SMF 95	-	-	-	-
standard	5.0	9.0	3.0	-	-	MR 95-2Z	SMR 95-2Z	MR 95-2TS	SMR 95-2TS
flanged	5.0	9.0	3.0	-	-	MF 95-2Z	SMF 95-2Z	MF 95-2TS	SMF 95-2TS
standard	5.0	10.0	3.0	MR 105	SMR 105	-	-	-	-
flanged	5.0	10.0	3.0	MF 105	SMF 105	-	-	-	-
standard	5.0	10.0	4.0	-	-	MR 105-2Z	SMR 105-2Z	MR 105-2RS	SMR 105-2RS
flanged	5.0	10.0	4.0	-	-	MF 105-2Z	SMF 105-2Z	MF 105-2RS	SMF 105-2RS
standard	5.0	11.0	3.0	S685	S685	-	-	-	-
flanged	5.0	11.0	3.0	F 685	SF 685	-	-	-	-
standard	5.0	11.0	4.0	-	-	MR 115-2Z	SMR 115-2Z	MR 115-2RS	SMR 115-2RS
flanged	5.0	11.0	4.0	-	-	MF 115-2Z	SMF 115-2Z	MF 115-2RS	SMF 115-2RS
standard	5.0	11.0	5.0	-	-	685-2Z	S685-2Z	685-2RS	S685-2RS
flanged	5.0	11.0	5.0	-	-	F 685-2Z	SF 685-2Z	F 685-2RS	SF 685-2RS
standard	5.0	13.0	4.0	695	S695	695-2Z	S695-2Z	695-2RS	S695-2RS
flanged	5.0	13.0	4.0	F 695	SF 695	F695-2Z	SF695-2Z	F695-2RS	SF695-2RS
standard	5.0	13.0	5.0	695W5	S695W5	695-2ZW5	S695-2Z W5	695-2RSW5	S695-2RSW5
standard	5.0	14.0	5.0	605	S605	605-2Z	S605-2Z	605-2RS	S605-2RS
flanged	5.0	14.0	5.0	F 605	SF 605	F 605-2Z	SF 605-2Z	F 605-2RS	SF 605-2RS

* Load Rating (only 100 Cr6)		* Limiting Speed x1000rpm (open & 2Z)		Standard cage type Others on request	Weight (g) approx.
C, dyn. N	C, stat. N	Grease	Oil		
711	272	48.0	56.0	W,J	< 2 g
711	272	48.0	56.0	W,J	< 2 g
957	350	48.0	56.0	W,J	< 2 g
957	350	48.0	56.0	W,J	< 2 g
957	350	48.0	56.0	W,J	< 3 g
957	350	48.0	56.0	W,J	< 3 g
1301	488	40.0	48.0	W,J	< 4 g
1301	488	40.0	48.0	W,J	< 4 g
1340	523	36.0	43.0	W,J	< 6 g
1340	523	36.0	43.0	W,J	< 6 g
218	90	53.0	63.0	W	< 1 g
218	90	53.0	63.0	W	< 1 g
218	90	53.0	63.0	W	< 1 g
218	90	53.0	63.0	W	< 1 g
431	169	50.0	60.0	W	< 1 g
431	169	50.0	60.0	W	< 1 g
431	169	50.0	60.0	W	< 1 g
431	169	50.0	60.0	W	< 1 g
431	169	50.0	60.0	W,J	< 2 g
431	169	50.0	60.0	W,J	< 2 g
431	169	50.0	60.0	W,J	< 2 g
431	169	50.0	60.0	W,J	< 2 g
716	282	45.0	53.0	W	< 2 g
716	282	45.0	53.0	W	< 2 g
716	282	45.0	53.0	W,J	< 1 g
716	282	45.0	53.0	W,J	< 1 g
716	282	45.0	53.0	W	< 2 g
716	282	45.0	53.0	W	< 2 g
1077	432	43.0	50.0	W,J	< 3 g
1077	432	43.0	50.0	W,J	< 3 g
1077	432	43.0	50.0	W,J	< 3 g
1077	432	43.0	50.0	W,J	< 3 g
1329	507	40.0	50.0	W,J	< 5 g
1329	507	40.0	50.0	W,J	< 5 g

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Metrische Miniaturrillenkugellager / Miniature Metric Series



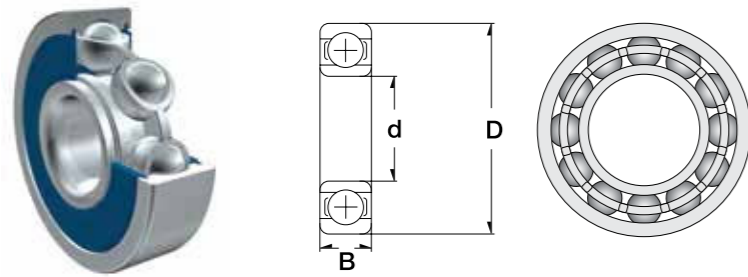
18

standard or flanged	Dimension (mm)			Designation/Type					
	d	D	B	open		2Z		2RS/2TS	
				Chrome Steel	Stainless	Chrome Steel	Stainless	Chrome Steel	Stainless
standard	5.0	14.0	7.0	Zweireihiges Radiallager	Double Row Bearing	30/5-2Z	-	30/5-2RS	-
standard	5.0	16.0	5.0	625	S625	625-2Z	S625-2Z	625-2RS	S625-2RS
flanged	5.0	16.0	5.0	F 625	SF 625	F 625-2Z	SF 625-2Z	F 625-2RS	SF 625-2RS
standard	5.0	19.0	6.0	635	S635	635-2Z	S635-2Z	635-2RS	S635-2RS
flanged	5.0	19.0	6.0	F 635	SF 635	F 635-2Z	SF 635-2Z	F 635-2RS	SF 635-2RS
standard	6.0	10.0	2.5	MR 106	SMR 106	-	-	-	-
flanged	6.0	10.0	2.5	MF 106	SMF 106	-	-	-	-
standard	6.0	10.0	3.0	-	-	MR 106-2Z	SMR 106-2Z	MR 106-2RS	SMR 106-2RS
flanged	6.0	10.0	3.0	-	-	MF 106-2Z	SMF 106-2Z	MF 106-2RS	SMF 106-2RS
standard	6.0	12.0	3.0	MR 126	SMR 126	-	-	-	-
flanged	6.0	12.0	3.0	MF 126	SMF 126	-	-	-	-
standard	6.0	12.0	4.0	-	-	MR 126-2Z	SMR 126-2Z	MR 126-2RS	SMR 126-2RS
flanged	6.0	12.0	4.0	-	-	MF 126-2Z	SMF 126-2Z	MF 126-2RS	SMF 126-2RS
standard	6.0	13.0	3.5	686	S686	-	-	-	-
flanged	6.0	13.0	3.5	F 686	SF 686	-	-	-	-
standard	6.0	13.0	4.5	-	-	686-2ZW4.5	S686-2ZW4.5	686-2TS4.5	S686-2TS4.5
standard	6.0	13.0	5.0	686W5	S686W5	686-2Z	S686-2Z	686-2RS	S686-2RS
flanged	6.0	13.0	5.0	-	-	F 686-2Z	SF 686-2Z	F 686-2RS	SF 686-2RS
standard	6.0	15.0	5.0	696W5	S696W5	696-2ZW5	S696-2ZW5	696-2RSW5	S696-2RSW5
flanged	6.0	15.0	5.0	F 696	SF 696	F 696-2Z	SF 696-2Z	F 696-2RS	SF 696-2RS
standard	6.0	16.0	5.0	696A	S696A	696A-2Z	S696A-2Z	696A-2RS	S696A-2RS
flanged	6.0	16.0	5.0	F 696A	SF 696A	F 696A-2Z	SF 696A-2Z	F 696A-RS	SF 696A-2RS
standard	6.0	17.0	6.0	606	S606	606-2Z	S606-2Z	606-2RS	S606-2RS
flanged	6.0	17.0	6.0	F 606	SF 606	F 606-2Z	SF 606-2Z	F 606-2RS	SF 606-2RS
standard	6.0	17.0	6.0	Zweireihiges Radiallager	Double Row Bearing	30/6-2Z	-	30/6-2RS	-
standard	6.0	19.0	6.0	626	S626	626-2Z	S626-2Z	626-2RS	S626-2RS
flanged	6.0	19.0	6.0	F 626	SF 626	F 626-2Z	SF 626-2Z	F 626-2RS	SF 626-2RS
standard	6.0	22.0	7.0	636	S636	636-2Z	S636-2Z	636-2RS	S636-2RS
standard	7.0	11.0	2.5	MR 117	SMR 117	-	-	-	-
flanged	7.0	11.0	2.5	MF 117	SMF 117	-	-	-	-
standard	7.0	11.0	3.0	-	-	MR 117-2Z	SMR 117-2Z	MR 117-2RS	SMR 117-2RS
flanged	7.0	11.0	3.0	-	-	MF 117-2Z	SMF 117-2Z	MF 117-2RS	SMF 117-2RS

* Load Rating (only 100 Cr6)		* Limiting Speed x1000rpm (open & 2Z)		Standard cage type Others on request	Weight (g) approx.
C, dyn. N	C, stat. N	Grease	Oil		
2020	930	30.0	38.0	J	< 8 g
1729	675	36.0	43.0	W,J	< 6 g
1729	675	36.0	43.0	W,J	< 6 g
2336	896	32.0	40.0	J	< 8 g
2336	896	32.0	40.0	J	< 10 g
496	218	45.0	53.0	W	< 1 g
496	218	45.0	53.0	W	< 1 g
496	218	45.0	53.0	W	< 1 g
496	218	45.0	53.0	W	< 1 g
716	295	43.0	50.0	W,J	< 2 g
716	295	43.0	50.0	W,J	< 2 g
716	295	43.0	50.0	W,J	< 2 g
716	295	43.0	50.0	W,J	< 2 g
1082	442	40.0	50.0	W,J	< 3 g
1082	442	40.0	50.0	W,J	< 4 g
1082	442	40.0	50.0	W,J	< 4 g
1082	442	40.0	50.0	W,J	< 4 g
1340	523	40.0	45.0	W,J	< 4 g
1340	523	40.0	45.0	W,J	< 4 g
1340	523	40.0	45.0	J	< 7 g
1340	523	40.0	45.0	J	< 7 g
2263	846	38.0	45.0	J	< 7 g
2263	846	38.0	45.0	J	< 8 g
3080	1450	30.0	39.0	J	< 10 g
2336	896	32.0	40.0	J	< 8 g
2336	896	32.0	40.0	J	< 10 g
3333	1423	30.0	36.0	J	< 5 g
455	202	43.0	50.0	W	< 1 g
455	202	43.0	50.0	W	< 1 g
455	202	43.0	50.0	W	< 1 g
455	202	43.0	50.0	W	< 1 g

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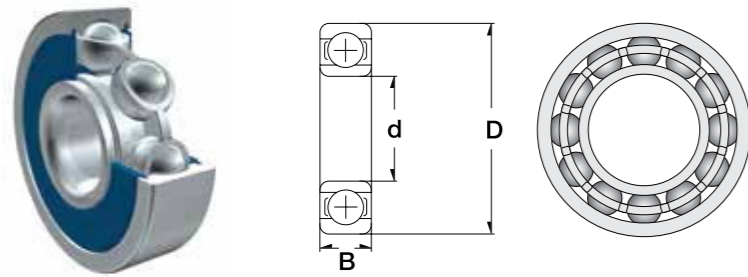
Metrische Miniaturrillenkugellager / Miniature Metric Series



standard or flanged	Dimension (mm)			Designation/Type					
	d	D	B	open		2Z		2RS/2TS	
				Chrome Steel	Stainless	Chrome Steel	Stainless	Chrome Steel	Stainless
standard	7.0	13.0	3.0	MR 137	SMR 137	-	-	-	-
flanged	7.0	13.0	3.0	MF 137	SMF 137	-	-	-	-
standard	7.0	13.0	4.0	-	-	MR 137-2Z	SMR 137-2Z	MR 137-2RS	SMR 137-2RS
flanged	7.0	13.0	4.0	-	-	MF 137-2Z	SMF 137-2Z	MF 137-2RS	SMF 137-2RS
standard	7.0	14.0	3.5	687	S687	-	-	-	-
flanged	7.0	14.0	3.5	F 687	SF 687	-	-	-	-
standard	7.0	14.0	5.0	-	-	687-2Z	S687-2Z	687-2RS	S687-2RS
flanged	7.0	14.0	5.0	-	-	F 687-2Z	SF 687-2Z	F 687-2RS	SF 687-2RS
standard	7.0	17.0	5.0	697	S697	697-2Z	S697-2Z	697-2RS	S697-2RS
flanged	7.0	17.0	5.0	F 697	SF 697	F 697-2Z	SF 697-2Z	F 697-2RS	SF 697-2RS
standard	7.0	19.0	6.0	607	S607	607-2Z	S607-2Z	607-2RS	S607-2RS
flanged	7.0	19.0	6.0	F 607	SF 607	F 607-2Z	SF 607-2Z	F 607-2RS	SF 607-2RS
standard	7.0	19.0	10.0	Zweireihiges Radiallager	Double Row Bearing	30/7-2Z	-	30/7-2RS	-
standard	7.0	22.0	7.0	627	S627	627-2Z	S627-2Z	627-2RS	S627-2RS
flanged	7.0	22.0	7.0	F 627	SF 627	F 627-2Z	SF 627-2Z	F 627-2RS	SF 627-2RS
standard	8.0	12.0	2.5	MR 128	SMR 128	-	-	-	-
flanged	8.0	12.0	2.5	MF 128	SMF 128	-	-	-	-
standard	8.0	12.0	3.5	-	-	MR 128-2Z	SMR 128-2Z	MR 128-2RS	SMR 128-2RS
flanged	8.0	12.0	3.5	-	-	MF 128-2Z	SMF 128-2Z	MF 128-2RS	SMF 128-2RS
standard	8.0	14.0	3.5	MR 148	SMR 148	-	-	-	-
flanged	8.0	14.0	3.5	MF 148	SMF 148	-	-	-	-
standard	8.0	14.0	4.0	-	-	MR 148-2Z	SMR 148-2Z	MR 148-2RS	SMR 148-2RS
flanged	8.0	14.0	4.0	-	-	MF 148-2Z	SMF 148-2Z	MF 148-2RS	SMF 148-2RS
standard	8.0	16.0	4.0	688	S688	688-2ZW4	S688-2ZW4	688-2RSW4	S688-2RSW4
flanged	8.0	16.0	4.0	F 688	SF 688	F 688-2ZW4	SF 688-2ZW4	F 688-2RSW4	SF 688-2RSW4
standard	8.0	16.0	5.0	688W5	S688W5	688-2Z	S688-2Z	688-2RS	S688-2RS
flanged	8.0	16.0	5.0	F 688W5	SF 688W5	F 688-2Z	SF 688-2Z	F 688-2RS	SF 688-2RS
standard	8.0	16.0	6.0	688W6	S688W6	688-2ZW6	S688-2ZW6	688-2RSW6	S688-2RSW6
flanged	8.0	16.0	6.0	F 688W6	SF 688W6	F 688-2ZW6	SF 688-2ZW6	F 688-2RSW6	SF 688-2RSW6
standard	8.0	19.0	6.0	698	S698	698-2Z	S698-2Z	698-2RS	S698-2RS
flanged	8.0	19.0	6.0	F 698	SF 698	F 698-2Z	SF 698-2Z	F 698-2RS	SF 698-2RS
standard	8.0	22.0	6.0	608W6	S608W6	608-2ZW6	S608-2ZW6	608-2RSW6	S608-2RSW6

* Load Rating (only 100 Cr6)		* Limiting Speed x1000rpm (open & 2Z)		Standard cage type Others on request	Weight (g) approx.
C, dyn. N	C, stat. N	Grease	Oil		
541	276	40.0	48.0	W	< 3 g
541	276	40.0	48.0	W	< 3 g
541	276	40.0	48.0	W	< 3 g
541	276	40.0	48.0	W	< 3 g
1173	513	40.0	50.0	W,J	< 4 g
1173	513	40.0	50.0	W,J	< 4 g
1173	513	40.0	50.0	W,J	< 4 g
1173	513	40.0	50.0	W,J	< 4 g
1605	719	36.0	43.0	J	< 6 g
1605	719	36.0	43.0	J	< 6 g
2336	896	36.0	43.0	J	< 8 g
2336	896	36.0	43.0	J	< 10 g
3650	2000	28.0	30.0	J	< 12 g
3287	1379	30.0	36.0	J	< 14 g
3287	1379	30.0	36.0	J	< 15 g
543	274	40.0	48.0	W	< 1 g
543	274	40.0	48.0	W	< 2 g
543	274	40.0	48.0	W	< 2 g
543	274	40.0	48.0	W	< 2 g
817	386	38.0	45.0	W	< 3 g
817	386	38.0	45.0	W	< 3 g
817	386	38.0	45.0	W	< 3 g
817	386	38.0	45.0	W	< 3 g
1252	592	36.0	43.0	W,J	< 4 g
1252	592	36.0	43.0	W,J	< 4 g
1252	592	36.0	43.0	W,J	< 4 g
1252	592	36.0	43.0	W,J	< 4 g
1252	592	36.0	43.0	W,J	< 5 g
1252	592	36.0	43.0	W,J	< 5 g
2237	917	36.0	43.0	J	< 8 g
2237	917	36.0	43.0	J	< 8 g
3293	1379	34.0	40.0	J	< 13 g

Metrische Miniaturrillenkugellager / Miniature Metric Series



standard or flanged	Dimension (mm)			Designation/Type					
	d	D	B	open		2Z		2RS/2TS	
				Chrome Steel	Stainless	Chrome Steel	Stainless	Chrome Steel	Stainless
standard	8.0	22.0	7.0	608	S608	608-2Z	S608-2Z	608-2RS	S608-2RS
flanged	8.0	22.0	7.0	F 608	SF 608	F 608-2Z	SF 608-2Z	F 608-2RS	SF 608-2RS
standard	8.0	22.0	11.0	-	-	630/8-2Z	-	630/8-2RS	-
standard	8.0	22.0	11.0	Zweiethiges Radiallager	Double Row Bearing	30/8-2Z	-	30/8-2RS	-
standard	8.0	24.0	7.0	608/24	S608/24	608/24-2Z	S608/24-2Z	608/24-2RS	S608/24-2RS
standard	8.0	24.0	8.0	628	S628	628-2Z	S628-2Z	628-2RS	S628-2RS
flanged	8.0	24.0	8.0	F 628	SF 628	F 628-2Z	SF 628-2Z	F 628-2RS	SF 628-2RS
standard	8.0	26.0	7.0	608/26	S608/26	608/26-2Z	S608/26-2Z	608/26-2RS	S608/26-2RS
standard	8.0	28.0	9.0	638	S638	638-2Z	S638-2Z	638-2RS	S638-2RS
standard	9.0	14.0	3.0	679	S679	-	-	-	-
standard	9.0	17.0	4.0	689	S689	-	-	-	-
flanged	9.0	17.0	4.0	F 689	SF 689	-	-	-	-
standard	9.0	17.0	5.0	-	-	689-2Z	S689-2Z	689-2RS	S689-2RS
flanged	9.0	17.0	5.0	-	-	F 689-2Z	SF 689-2Z	F 689-2RS	SF 689-2RS
standard	9.0	17.0	6.0	689W6	S689W6	689-2ZW6	S689-2ZW6	689-2RSW6	S689-2RSW6
standard	9.0	20.0	6.0	699	S699	699-2Z	S699-2Z	699-2RS	S699-2RS
flanged	9.0	20.0	6.0	F 699	SF 699	F 699-2Z	SF 699-2Z	F 699-2RS	SF 699-2RS
standard	9.0	24.0	7.0	609	S609	609-2Z	S609-2Z	609-2RS	S609-2RS
flanged	9.0	24.0	7.0	F 609	SF 609	F 609-2Z	SF 609-2Z	F 609-2RS	SF 609-2RS
standard	9.0	26.0	8.0	629	S629	629-2Z	S629-2Z	629-2RS	S629-2RS
flanged	9.0	26.0	8.0	F 629	SF 629	F 629-2Z	SF 629-2Z	F 629-2RS	SF 629-2RS

* Load Rating (only 100 Cr6)		* Limiting Speed x1000rpm (open & 2Z)		Standard cage type Others on request	Weight (g) approx.
C, dyn. N	C, stat. N	Grease	Oil		
3293	1379	34.0	40.0	J	< 14 g
3293	1379	34.0	40.0	J	< 15 g
3293	1379	34.0	40.0	J	< 19 g
5070	2580	30.0	36.0	J	< 20 g
3293	1379	34.0	40.0	J	< 25 g
3333	1423	28.0	34.0	J	< 18 g
3333	1423	28.0	34.0	J	< 20 g
3293	1379	34.0	40.0	J	< 28 g
4563	1983	28.0	34.0	J	< 31 g
919	468	36.0	42.0	W	< 3 g
1327	668	36.0	43.0	J	< 5 g
1327	668	36.0	43.0	J	< 5 g
1327	668	36.0	43.0	J	< 5 g
1327	668	36.0	43.0	J	< 5 g
2467	1081	34.0	40.0	J	< 8 g
2467	1081	34.0	40.0	J	< 10 g
3356	1444	32.0	38.0	J	< 16 g
3356	1444	32.0	38.0	J	< 18 g
4575	1983	28.0	34.0	J	< 22 g
4575	1983	28.0	34.0	J	< 24 g

# Umschlüsselung anderer Hersteller / Conversion Tables

## Offene Ausführung (metrisch) / Open Type (metric series)

24

mm	inch	ZEN	ADR	FAG	GRW	RMB	BARDEN	MPB	NMB	NTN	SKF
1	0.0394	681	AX1		681	UL103			L-310		681
		MR31							L-310W51		
		691			691				R-410		691
1.2	0.0472	MR41X						R-412	BC1,2-4		
1.5	0.0591	681X	AX1.5		68/1.5	UL154			R-415	68/1.5	
		691X	619/1.5	MR69/1.5	69/1.5	R1550	19M1-5Y1	EL1.5C	R-515	69/1.5	
2	0.0787	601X						R-615	60/1.5		
		682	BX2	MR682	682	UL205		UL20C	L-520		682
		MR52							L-520W02	BC2.5	
		692	AX2	MR619/2	692	R2060	19M2Y1	EL2C	R-620		692
		MR62							R-620W52	BC2-6	
2.5	0.0984	MR72							R-720Y52	BC2-7	
		602							R-720		602
		682X	AX2.5		68/2.5	UL256	18M2-5		L-625	68/2.5	
		692X	X2.5		69/2.5		19M2-5Y1		R-725	69/2.5	
		MR82X							R-825Y52	BC2.5-8	
3	0.1181	602X	60/2.5	MR60/2.5	60/2.5	R2580			R-825Y52	60/2.5	
		MR63	617/3						L-630		673
		683	AX3	MR618/3	683	UL307		UL30C	L-730		683
		MR83	X3		693/003				R-830Y52	BC3-8	
		693	619/3		693				R-830Y52		693
4	0.1575	MR93							R-930Y52	BC3-9	
		603							R-930		603
		623	623	MR623	623	R3100	2M3Y1	EL-3R	R-1030		623
		633									633
		MR74	617/4						L-740		674
		MR84							L-840	BC4-8	
		684	AX4	MR618/4	684	UL409		UL40C	L-940		684
5	0.1969	MR104	X4						L-1040	BC4-10	
		694	AY4		694				R-1140		694
		604	604		604				R-1240		604
		624	624	MR624	624	R4130	2M4	EL4R	R-1340		624
		634	634	MR634	634	R4160	34		R-1640		634
		MR85	617/5						L-850		675
		MR95							L-950	BC5-9	
6	0.2362	MR105							L-1050	BC5-10	
		685	X5	MR618/5	685	UL511	UL50C	UL50C	L-1150		685
		695	AY5		695				R-1350		695
		605			605				R-1450		605
		625	625	MR625	625	R5160	34-5	EL5R	R-1650		625
		635	635	MR635	635	R5190	35		R-1950		635
		MR106	617/6						L-1060		676
7	0.2756	MR126	X6						L-1280	BC6-12	
		686	AX6	MR618/6	686	UL613		UL60C	L-1380		686
		696	AY6		696				R-1580		696
		606							R-1760		606
		626	626	MR628	626	R6190	38	EL6R	R1960		626
8	0.315	MR117	617/7						L-1170		677
		MR137							L-1370	BC7-13	
		687	AX7	618/7	687	UL714		UL70C	L-1470		687
		697	AY7		697						697
		607	607	MR607	607			EL7R	R-1970		607
9	0.3543	627	627	MR627	627	R7220	37		R-2270		627
		MR128	617/8						L-1280		678
		MR148							L-1480	BCB-14	
		688	X8	MR618/8	688	UL816			L-1680		688
		698	AY8		698		19M8		R-1980		698
9	0.3543	608	608	MR608	608	R8220	38	EL8R	R-2280		608
		628									628
		689	X9		689	UL917			L-1790		689
		699	AY9		699		19M9		L-2090		699
		609	609	609	609	609					609
629	629	MR629	629		39				629		

Niro  
Stainless Steel

S

S

W

S

X

S

S

DD

W

S



Geschlossene Ausführung (metrisch) / Shielded Type (metric series)

25

mm	inch	ZEN	ADR	FAG	GRW	RMB	BARDEN	MPB	NMB	NTN
1.5	0.0591	681XZZ	AX1.5ZZ		68/1.5ZZ	ULZ154		UL15CHH	L-4152Z	W68/1.5ZZA
		691XZZ	X1.5ZZ		69/1.5ZZ			R515ZZ	W69/1.5ZZA	
		601XZZS						R-615ZZ	W60/1.5ZZA	
2	0.0787	682ZZS	BX2ZZ		682-2Z	ULZ205	38M2SS	UL20CHH	L-520ZZ	W682ZZA
		MR52ZZ						L-520ZZW52	WBC2-5ZZA	
		692ZZ	AX2ZZ					R-620ZZ	W692ZZA	
		MR62ZZ						R-620ZZY52		
		MR72ZZ						R-720ZZY03	WBC2-7ZZA	
2.5	0.0984	602ZZS						R-720ZZ	W602ZZA	
		682XZZS	AX2.5ZZ		68/2.5ZZ	ULZ256	38M2-5SS	L-625ZZ	W68/2.5ZZA	
		692XZZ			69/2.5ZZ			R-725ZZ	W69/2.5ZZA	
3	0.1181	602XZZS						R-825ZZ	W60/2.5ZZA	
		MR63ZZ						L-630ZZ	WA673ZZA	
		683ZZ	AX3ZZ		683-2Z	UL7307	38M3SS	UL30CHH	L-730ZZ	W683ZZA
		693ZZ			693-2Z			R-830ZZ	W693ZZA	
		MR93ZZ						R-930ZZY04	WBC3-9ZZA	
4	0.1575	623ZZ	623ZZ	623ZZ	623-2Z	RF310	2M3SSY1	EL3RHH	R-1030ZZ	623ZZ
		633ZZ								633ZZ
		MR74ZZ							L-740X2ZZ	WA674ZZA
		MR84ZZ							L-840ZZ	WBC4-8ZZA
		684ZZ	638/4ZZ		684-2Z	ULZ409	38M455	UL40CHH	L-940ZZ	W684ZZA
		MR104ZZ	X4ZZ						L-1040ZZ	WBC4-10ZZA
		694ZZ	AY4ZZ		694-2Z				R-1140ZZ	694ZZ
604ZZ	604ZZ		604-2Z				R-1240ZZ	604ZZ		
5	0.1969	624ZZ	624ZZ	624ZZ	624-2Z	RF413	2M4SS	EL4RHH	R-1340ZZ	624ZZ
		634ZZ	634ZZ	MR634ZZ	634-2Z	RV416	34SS	34RHH	R-1640ZZ	634ZZ
		MR85ZZ							L-850ZZ	WA675ZZA
		MR95ZZA							L-950X2ZZ	WBC5-9ZZA
		MR105ZZ							L-1050ZZ	WBC5-10ZZA
		685ZZ	638/5ZZ		685-2Z	ULZ511		UL50CHH	L-1150ZZ	W685ZZ
		695ZZ	AY5ZZ		695-2Z				R-1350ZZ	895ZZ
605ZZ			605-2Z				R-1450ZZ	605ZZ		
6	0.2362	625ZZ	625ZZ	625ZZ	625-2Z	RV516	34.5SS	EL5RHH	R-1650ZZ	625ZZ
		635ZZ	635ZZ	MR635ZZ	635-2Z	RV519	35SS		R-1950ZZ	635ZZ
		MR106ZZS							L-1060ZZ	WA676ZZA
		MR126ZZ	X6ZZ						L-1260ZZ	WBC6-12ZZA
		686ZZ	628/6ZZ		686-2Z	ULZ613		UL60CHH	L-1360ZZ	W686ZZ
		696ZZ	ZY6ZZ		696-2Z				R-1560ZZ	696ZZ
		606ZZ							R-1760ZZ	606ZZ
626ZZ	626ZZ	MR626ZZ	626-2Z	RV619	36SS	EL6RHH	R-1960ZZ	626ZZ		
7	0.2756	MR117ZZS							L-1170ZZ	WA677ZZA
		MR137ZZS							L-1370ZZ	WBC7-13ZZA
		687ZZ	AX7ZZ		687-2Z	ULZ714		UL70CH	L-1470ZZ	W687ZZ
		697ZZ	AY7ZZ		697-2Z					697ZZ
		607ZZ	607ZZ	607ZZ	607-2Z			EL7RHH	R-1970ZZ	607ZZ
8	0.315	627ZZ	627ZZ	MR627ZZ	627-2Z	RV722	37SS		R-2270ZZ	627ZZ
		MR128ZZS	637/8ZZ						L-1280ZZ	W678ZZA
		MR148ZZA							L-1480ZZ	WBC8-14ZZA
		688ZZ	X8ZZ			ULZ816			L-1680ZZ	W688ZZ
		698ZZ	AY8ZZ		698-2Z		19M8SS		R-1980ZZ	698ZZ
9	0.3543	608ZZ	608ZZ	MR608ZZ	608-2Z	RV822	38SS	EL8RHH	R-2280ZZ	608ZZ
		628ZZ								628ZZ
		689ZZ	X9ZZ			ULZ917			L-1790ZZ	W689ZZ
		699ZZ	AY9ZZ		699-2Z		19M9SS		L-2090ZZ	699ZZ
609ZZ	609ZZ	609ZZ	609ZZ						609ZZ	
629ZZ	629ZZ	MR629ZZ	629-2Z		39SS				629ZZ	

Niro  
Stainless Steel

S S W S X S S DD W

## Offene Ausführung (zöllig) / Open Type (inch type)

26

mm	inch	ZEN	ADR	FAG	GRW	RMB	BARDEN	MPB	NMB	NTN
1.016	0.04	R09	RO9	RO308	1016	UL1304		2C	R1-2	R01
1.191	0.0469	RO	X3/64	R0310	1191	UL1505	RO	21/2C	R1-21/2	RO
1.397	0.055	R1	R1	R0412	1397	R1706	R1	3C	R1-3	R1
1.984	0.0781	R1-4	X5/64	R0516	BR5/64	R2508	R1-4	4C	R1-4	R1-4
2.38	0.0937	R133	AX3/32	RO612	2380	UL3008	R133	3332C	R1-3332	R133
		R1-5	X3/32	R620	BR3/32	R3010	R1-5	5C	R1-5	R1-5
3.175	0.125	R144	AX1/8	R0816	3175	UL4008	R144	418C	R1-418	R144
		R2-5	X1/8	R820	BR1/8A	R4010	R2-5	518C	R1-518	R2-5
		R2-6		R824	BR1/8A/6		R2-6	618C	R1-618	R2-6
		R2	R2	R2	BR1/6B	R4012	R2	R2C	R-2	R2
		R2A	R2A	R2A	BR1/8B/083		R2A	R2AC		RA2
3.967	0.1562	R155	X5/32	R1020	3967	UL5010	R155	5532C	RI-5532	R155
4.762	0.1875	R156	AX3/16	R1220	4763A	UL6010	R156	5632C	RI-5632	R156
		R166	X3/16	R1224	4763B	UL6012	R166	6316C	RI-6632	R166
		R3	Y3/16	R3	BR3/16	R6016	R3	R3C	R-3	R3
6.35	0.25	R168	X1/4	R1624	6350A	UL8012	R168	614C	RI-614	R168
		R188	R188	R1632	6350B	UL8016	R188	814C	RI-814	R188
		R4	Y1/4	R4	BR1/4A	R8020	R4	R4C	R-4	R4
		R4A	R4A	R4A	BR1/4A		R4A	R4AR	RI-1214	
7.938	0.3125	R1810		R2032	7938		R1810	8516C	RI-8516	
9.525	0.375	R6	Y3/8	R620	BR3/8		R6	R6R	RI-1438	
Niro										
Stainless Steel										
		S	S	W	S	X	S	S	DD	W

## Geschlossene Ausführung (zöllig) / Shielded Type (inch type)

mm	inch	ZEN	ADR	FAG	GRW	RMB	BARDEN	MPB	NMB	NTN
1.191	0.0469	ROZZS	X3/64ZZ	R0310.2Z	1191-2Z	ULZ1505	21/2CHH	RI-21/2ZZ	RAOZZA	
1.397	0.055	R1ZZ	R1ZZ	RO412.2Z	1397-2Z	RF1706	R1S	3CHH	RI-3ZZ	RA1ZZ1
1.984	0.0781	R1-4ZZS	X5-64ZZ	R0516.2Z	BR5/64-2Z	RF2508	R1-4SS	4CHH	R1-4ZZ	RA1-4ZZ1
2.38	0.0937	R133ZZS	AX3/32ZZ	RO612.2Z	2380-2Z	ULZ3006	R133SS	3332CHH	R1-3332ZZ	RA133ZZA
3.175	0.125	R144ZZ	AX1/8ZZ	RO816.2Z	3175-2Z	ULZ4008	R144SS	418CHH	R1-418ZZ	RA144ZZA
		R2-5ZZ	X1/8ZZ	R820.2Z	BR1/8A-2Z	RF4010	R2-5SS	518CHH	R1-518ZZ	RA2-5ZZA
		R2-6ZZS		R824.2Z	BR1/8A/6-2Z		R2-6SS	618CHH	R1-618ZZ	RA2-6ZZA
		R2ZZ	R2ZZ	R2.2Z	BR1/8B-2Z	RF4012	R2SS	R2CHH	R-2ZZ	R2ZZA
		R2AZZ	R2AZZ	R2A.2Z	BR1/8B/083-2Z		R2ASS	R2ACHH	RA2ZZA	
3.967	0.1562	R155ZZS	X5/32ZZ	R1020.2Z	3967-2Z	ULZ5010	R155SS	5532CHH	R1-5532ZZ	RA155ZZA
4.762	0.1875	R156ZZS	AX3/16ZZ	R1220.2Z	4763A-2Z	ULZ6010	R156SS	5632CHH	R1-5632ZZ	RA156ZZA
		R166ZZ	X3/16ZZ	R1224.2Z	4763B-2Z	ULZ6012	R166SS	6316CHH	R1-6632ZZ	R166ZZA
		R3ZZ	Y3/16ZZ	R3.2Z	BR3/16-2Z	RF6016	R3SS	R3CHH	R-3ZZ	RA3ZZ
6.35	0.25	R168ZZS	X1/4ZZ	R1624.2Z	6350A-2Z	ULZ8012	R168SS	614CHH	R1-614ZZ	R168ZZA
		R188ZZ	R188ZZ	R1632.2Z	6350B-2Z	ULZ8016	R188SS	814CHH	R1-814ZZ	RA188ZZA
		R4ZZ	Y1/4ZZ	R4.2Z	BR1/4A-2Z	RF8020	R4SS	R4CHH	R-4ZZ	R4ZZ
		R4AZZ	R4AZZ	R4A.2Z	BR1/4.2Z		R4ASS	R4ARHH	R1-1214ZZ	R4AZZ
7.938	0.3125	R1810ZZS		R2032.2Z	7938-2Z		R1810SS	8516CHH	R1-8516ZZ	
9.525	0.375	R6ZZ	Y3/8ZZ	R6.2Z	BR3/6-2Z		R6SS	R6RHH	R1-1438ZZ	R6ZZ
Niro										
Stainless Steel										
		S	S	W	S	X	S	S	DD	W

## Geschlossene Flanschlager (zöllig) / Flanged Shielded Type (inch series)

inch	ZEN	ADR	FAG	GRW	RMB	BARDEN	MPB	NMB	NTN
0.0469	FR0ZZS	FX3/64ZZ	RF0310.2Z	F1191-2Z	ULKZ1505	FR0SS	21/2FCFH	RIF-21/2ZZ	FLRAOZZA
0.055	FR1ZZ	FR1ZZ	RF0412.2Z	F1397-2Z	RKF-1706	FR1SS	3FCFH	RIF-3ZZ	FLRA1ZZA
0.0781	FR1-4ZZS	FX5/64ZZ	RF0516.2Z	R6/64-2Z	RKF2508	FR1-4SS	4FCFH	RIF-4ZZ	FLRA1-4ZZA
0.0937	FR133ZZS	FAX3/32ZZ	RF0612.2Z	F2380-2Z	ULKZ3006	FR133SS	3332FCFH	RIF-3332ZZ	FLRA133ZZA
	FR1-5ZZS	FX3/32ZZ	RF620.2Z	F3/32-2Z	RKF3010	FR1-5SS	5FCFH	RIF-5ZZ	FLRA1-5ZZA
0.125	FR144ZZ	FAX1/8ZZ	RF0816.2Z	F3175-2Z	ULKZ4008	FR144SS	418FCFH	RIF-418ZZ	FLRA144ZZA
	FR2-5ZZ	FX1/8ZZ	RF820.2Z	F1/8A-2Z	RKF4010	FR2-5SS	518FCFH	RIF-518ZZ	FLRA2-5ZZA
	FR2-6ZZS		RF824.2Z	F1/8A/6-2Z		FR2-6SS	618FCFH	RIF-618ZZ	FLRA2-6ZZA
	FR2ZZ	FR2ZZ	RF2.2Z	F1/8B-2Z	RKF4012	FR2SS	R2FCFH	RIF-2ZZ	FLR2ZZA
0.1562	RF155ZZS	FX5/32ZZ	RF1020.2Z	F3967-2Z	ULKZ5010	FR155SS	5532FCFH	RIF-5532ZZ	FLRA155ZZA
0.1875	FR156ZZS	FAX3/16ZZ	RF1220.2Z	F4763A-2Z	ULKZ6010	FR156SS	5632FCFH	RIF-5632ZZ	FLRA156ZZA
	FR166ZZ	FX3/16ZZ	RF1224.2Z	F4763B-2Z	ULKZ6012	FR166SS	6316FCFH	RIF-6632Z	FLRA166ZZA
	FR3ZZ	FY3/16ZZ	RF3.2Z	F3/16-2Z	RKF6016	FR3SS	R3FCFH	RIF-3ZZ	FLRA3ZZ
0.25	FR168ZZS	FX1/4ZZ	RF1624.2Z	F6350A-2Z	ULKZ8012	FR168SS	614CHH	RIF-614ZZ	FLRA166ZZA
	FR188ZZ	FR188ZZ	RF1632.2Z	F6350B-2Z	ULKZ8016	FR188SS	814FCFH	RIF-814ZZ	FLRA188ZZA
	FR4ZZ	FY1/4ZZ	RF4.2Z	F1/4A-2Z	RKF8020	FR4SS	R4FCFH	RF-4ZZ	FLR4ZZ
0.3125	FR1810ZZS		RF2032.2Z	F7938-2Z		FR1810SS	8516FCFH	RIF-8516ZZ	
0.375	FR6ZZ	FY3/8ZZ	RF6.2Z			FR6SS	R6FRHH	RIF-1438ZZ	FLR6ZZ

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## Geschlossene Flanschlager (metrisch) / Flanged Shielded Type (metric series)

mm	inch	ZEN	ADR	GRW	RMB	BARDEN	MPB	NMB	NTN
1.5	0.591	F691XZZ	FX1.5ZZ	F69/1.5-2Z				RF-515ZZ	FLW69/1.5ZZA
		F601XZZS						RF-615ZZ	FLW60/1.5ZZA
2	0.0787	F682ZZ	FBX2ZZ	F682-2Z	ULKZ205	F682SS	UL20FCFH	LF-520ZZ	FLW682ZZA
		F692ZZ	FAX2ZZ			F692SS		RF-620ZZ	FLW692ZZA
		MF72ZZ						RF-720ZZY03	FLW8C2-7ZZA
		F602ZZS						RF-720ZZ	FLW602ZZA
2.5	0.0984	F682XZZS	FAX2.5ZZ	F68/2.5-2Z	ULKZ256	F68/2.5SS		LF-625ZZ	FLW68/2.5ZZA
		F692XZZ	FX2.5ZZ	F69/2.5-2Z		F69/2.5SS		RF-725ZZ	FLW69/2.5ZZA
		F602XZZS						RF-825ZZ	FLW60/2.5ZZA
3	0.1181	MF63ZZS						FL630ZZ	FLWA67ZZA
		F683ZZ	FAX3ZZ	F683-2Z	ULKZ307	F683SS	UL30FCFH	LF-730ZZ	FLW683ZZA
		F693ZZ	FX3ZZ	F693-2Z	RKF308			RF-830ZZ	FLW693ZZA
		MF93ZZ						RF-930ZZY04	FLWBC3-9ZZA
		F623ZZ	F623ZZ	F623-2Z	RKF310	F623SS		RF-1030ZZ	FL623ZZA
4	0.1575	MF74ZZ						LF-740ZZ	FLWA674ZZA
		MF84ZZ						LF-840ZZ	FLWBC4-8ZZA
		F684ZZ	F683/4ZZ	F684-2Z	ULKZ409	F684SS	UL40FCFH	LF-940ZZ	FLW684ZZA
		MF 104ZZ						LF-1040ZZ	FLAWBC4-10ZZA
		F694ZZ		F694-2Z		F694SS		RF-1140ZZ	FL694ZZA
		F604ZZ						RF-1240ZZ	FL604ZZ
		F624ZZ	F624ZZ	F624-2Z		F624SS		RF-1340ZZF	L624ZZ
		F634ZZ		F634-2Z		F634SS		RF-1640ZZ	FL634ZZ
5	0.1969	MF85ZZ						LF-850ZZ	FLWA675ZZA
		MF95ZZ						LF-950ZZ	FLWBC5-9ZZA
		MF105ZZ						LF-1050ZZ	FLAWBC5-10ZZA
		F685ZZ	F638/5ZZ	F685-2Z	ULKZ511	F685SS	UL50FCFH	LF-1150ZZ	FLW685ZZA
		F695ZZ		F695-2Z		F695SS		RF-1350ZZ	FL695ZZ
		F605ZZ		F605-2Z				RF-1450ZZ	FL605ZZ
		F625ZZ		F625-2Z		F625SS		RF-1850ZZ	FL625ZZ
		F635ZZ		F635-2Z		F635SS		RF1950ZZ	FL635ZZ
6	0.2362	MF106ZZ						RF-1650ZZ	FLWA676ZZA
		MF126ZZ						UF-1260ZZ	FLAWBC6-12ZZA
		F686ZZ	F628/6ZZ	F686-2Z	ULKZ613	F686SS	UL60FCFH	LF-1360ZZ	FLW686ZZA
		F696ZZ		F696-2Z		F696SS		RF-1560ZZ	FL696ZZ
		F606ZZ						RF-1760ZZ	FL606ZZ
		F626ZZ		F626-2Z		F626SS			FL626ZZ
7	0.2756	MF117ZZS						LF-1170ZZ	FLWA677ZZA
		MF137ZZS						LF-1370ZZ	FLAWBC7-13ZZA
		F687ZZ	FAX7ZZ	F687-2Z	ULKZ714	F687SS	UL70FCFH	LF-1470ZZ	FLW687ZZA
		F697ZZ		F697-2Z		F697SS			FL697ZZ
		F607ZZ	F607ZZ	F607-2Z		F607SS			FL607ZZ
		F627ZZ		F627-2Z		F627SS			FL627ZZ
8	0.315	MF128ZZ						RF-2270ZZ	
		MF148ZZ						LF-1280ZZ	FLAW678ZZA
		F688ZZ				F688SS		UF-1480ZZ	FLWBC8-14ZZA
		F698ZZ		F698-2Z		F698SS		UF-1680ZZ	FLW688ZZ
		F608-ZZ	F608ZZ	F608-2Z		F608SS			FL698ZZ
9		F689ZZ				F689SS		RF-2280ZZ	FL608ZZ
		F699ZZ						FL-1790ZZ	FLW689ZZ

Niro  
Stainless Steel

S

S

S

X

S

S

DD

W

## Zoll-mm Umrechnungstabelle / Inch to mm Conversion

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Fraction	Inch	mm	Fraction	Inch	mm	Fraction	Inch	mm
1/64	0.0156	0.3969		0.2883	7.3228	11/16	0.6875	17.4625
	0.0250	0.6350	19/64	0.2969	7.5406	45/64	0.7031	17.8594
1/32	0.0312	0.7937	5/16	0.3125	7.9375		0.7087	18.0000
	0.0394	1.0000		0.3150	8.0000	23/32	0.7187	18.2562
	0.0400	1.0160	21/64	0.3281	8.3344	47/64	0.7344	18.6532
3/64	0.0469	1.1906	11/32	0.3437	8.7312		0.7435	18.8849
	0.0472	1.2000		0.3543	9.0000		0.7480	19.0000
	0.0550	1.3970	23/64	0.3594	9.1281	3/4	0.7500	19.0500
	0.0591	1.5000	3/8	0.3750	9.5250	49/64	0.7656	19.4469
1/16	0.0625	1.5875	25/64	0.3906	9.2919		0.7717	19.6012
	0.0709	1.8000		0.3937	10.0000	25/32	0.7812	19.8433
5/64	0.0781	1.9844	13/32	0.4062	10.3187		0.7874	20.0000
	0.0787	2.0000		0.4100	10.4140	51/64	0.7969	20.2402
	0.0906	2.3012	27/64	0.4219	10.7156	13/16	0.8125	20.6375
3/32	0.0937	2.3812		0.4250	10.7950		0.8268	21.0000
	0.0984	2.5000		0.4331	11.0000	53/64	0.8281	21.0344
	0.1000	2.5400	7/16	0.4375	11.1125	27/32	0.8437	21.4312
	0.1024	2.6000	29/64	0.4531	11.5094	55/64	0.8594	21.8281
7/64	0.1094	2.7781		0.4600	11.6840		0.8661	22.0000
	0.1100	2.7940	15/32	0.4687	11.9062	7/8	0.8750	22.2250
	0.1102	2.8000		0.4724	12.0000	57/64	0.8906	22.6219
	0.1181	3.0000	31/64	0.4844	12.3031		0.9055	23.0000
1/8	0.1250	3.1750	1/2	0.5000	12.7000	29/32	0.9062	23.0187
	0.1256	3.1902		0.5118	13.0000	59/64	0.9219	23.4156
	0.1378	3.5000	33/64	0.5156	13.0968	15/16	0.9375	23.8125
9/64	0.1406	3.5719	17/32	0.5312	13.4937		0.9449	24.0000
5/32	0.1562	3.9687	35/64	0.5469	13.8906	61/64	0.9531	24.2094
	0.1575	4.0000		0.5512	14.0000	31/32	0.9687	24.6062
11/64	0.1719	4.3656	9/16	0.5625	14.2875		0.9843	25.0000
3/16	0.1875	4.7625	37/64	0.5781	14.6844	63/64	0.9844	25.0031
	0.1892	4.8057		0.5906	15.0000		1.0000	25.4000
	0.1969	5.0000	19/32	0.5937	15.0812		1.0236	26.0000
13/64	0.2031	5.1594	39/64	0.6094	15.4781		1.0415	26.4541
	0.2165	5.4991	5/8	0.6250	15.8750		1.0480	26.6192
7/32	0.2187	5.5562		0.6299	16.0000	1-1/16	1.0625	26.9875
15/64	0.2344	5.9531	41/64	0.6406	16.2719		1.0630	27.0000
	0.2362	6.0000		0.6500	16.5100		1.1025	28.0000
1/4	0.2500	6.3500	21/32	0.6562	16.6687	1-1/8	1.1250	28.5750
17/64	0.2656	6.7469		0.6620	16.8148		1.1417	29.0000
	0.2756	7.0000		0.6693	17.0000		1.1812	30.0000
9/32	0.2812	7.1437	43/64	0.6719	17.0656	1-3/16	1.1875	30.1625
						1-1/4	1.2500	31.7500
						1-1/2	1.5000	38.1000

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