



WINKEL-Rollen | WINKEL Bearings

Vorab-Auswahl der WINKEL-Führungssysteme Preselection of WINKEL Linear Systems		4.053 4.063	PR 4.054 PR 4.063	4.053 HT 4.063 HT	4.454 4.463 4.072 4.080	PR 4.454 PR 4.463 PR 4.072 PR 4.080	4.072 P 4.080 P
Seite / page		22	24	26	28 / 32	30 / 34	36
Spiel Rolle/Profil Clearance Bearing/Profile	0,1 - 0,3 mm 0,1 - 0,3 mm						
	0,3 - 1,0 mm 0,3 - 1,0 mm						
Geschwindigkeit Speed	> 1,5 m/sec > 1,5 m/sec						
	< 1,5 m/sec < 1,5 m/sec						
Einstellbarkeit Adjustment		²⁾	²⁾	²⁾			
Verschmutzungsresistenz Dirt resistance							
Nachschmierbarkeit ohne 4.053 Relubrication except 4.053					Lebensdauer geschmiert Lubricated for life		
Korrosionsschutz Corrosion resistance		Duralloy-Beschichtung auf Anfrage Duralloy coating on request					
Laufruhe Running smoothness							
Temperatur Temperature	< 250 °C < 250 °C						
	< 80 °C < 80 °C						

¹⁾ In Verbindung mit Profil Std. V-L – Std. X-L
¹⁾ By using profile Std. V-L – Std. X-L

²⁾ In Verbindung mit AP
²⁾ By using AP

³⁾ Einstellbarkeit über Steckbleche
³⁾ Adjustment by washers

WINKEL-Rollen | WINKEL Bearings



4.085 4.093	3.054 3.063	PR 3.054 PR 3.063	JC 4.054 JC 4.063	JT 2.055 JT 2.058	4.053 Inox 4.074 Inox	I 525 APS I 780 AP2	V 4000 V 1792 AP PA 4000 PA 1800 AP	JT-V 1012 JT-V 1792 JT-PA 1012 JT-PA 1792
48	54	59	64	66	107	108	110 / 122	116 / 130
							¹⁾	
	³⁾	³⁾	Radial Axial ³⁾ 	Radial Axial 	²⁾	³⁾	³⁾	Radial Axial
					Lebensdauer geschmiert Lubricated for life			
Duralloy-Beschichtung auf Anfrage Duralloy coating on request								



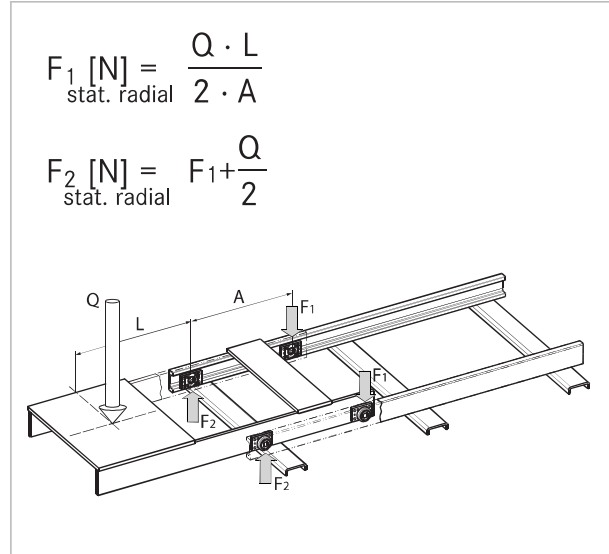
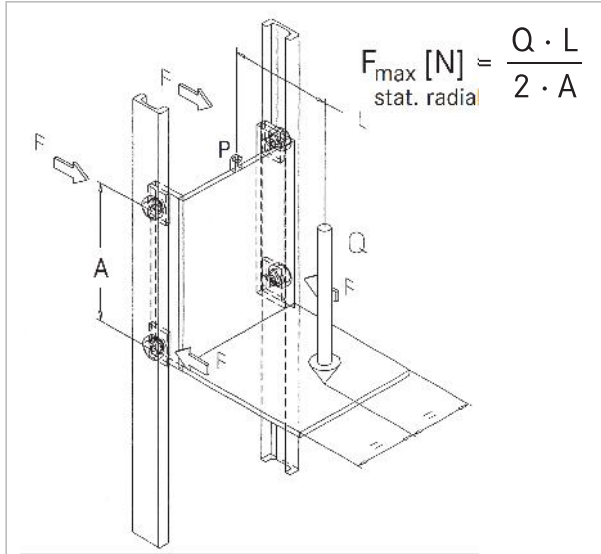
WINKEL-Rollen | WINKEL Bearings

Berechnung der Rollenbelastung

Q = Nutzlast + Eigengewicht (N)
 L = Lastabstand vom Aufhängepunkt (mm)
 P = Aufhängepunkt
 A = Rollenabstand (mm) empfohlen 500-1000 mm

Calculation of the bearing forces

Q = Load capacity + dead load (N)
 L = Load distance to suspension point (mm)
 P = Suspension point
 A = Bearing distance (mm) recommended 500-1000 mm

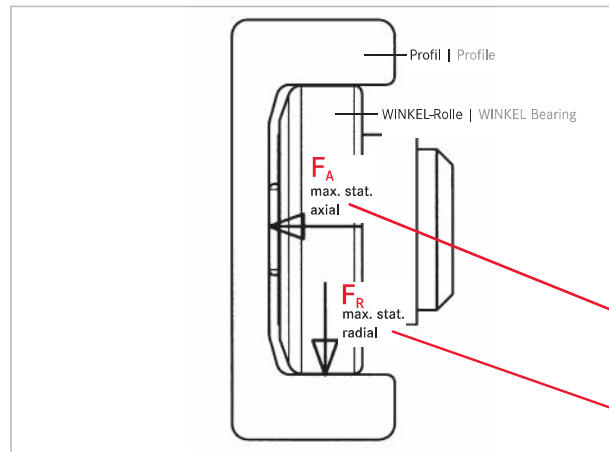


Um Einwalzungen am nicht gehärteten Profil zu vermeiden sollte die Pressung maximal

NEU P_{Zul} = 900 N/mm² für NbV-Profile,
 P_{Zul} = 750 N/mm² für alle restlichen Profile betragen.
 F max_{stat} radial + axial sind für die jeweiligen Lager in der Tabelle angegeben.

To avoid wear out in the profile, which is not hardened, the pressure between bearing and profile should be max.

NEW P_{Zul} = 900 N/mm² for NbV-profiles,
 P_{Zul} = 750 N/mm² for all profiles except NbV-series.
 Here indicated are Fmax_{stat} radial+axial for each bearing.



Beispiel | Example

Typ Type	Artikel-Nr. Article no.	D mm D mm	T mm T mm	d-0.05 mm d-0.05 mm	H mm H mm	h mm h mm	B mm B mm	A mm A mm	S mm S mm	r mm r mm
4.054	200.001.000	62,5	42	30	37,5	30,5	20	2,5	20	3
4.055	200.002.000	70,1	48	35	44,0	36,0	23	2,5	22	4
4.056	200.003.000	77,7	54	40	48,0	36,5	23	3,0	26	4
4.057	200.004.002	77,7	53	40	40,0	29,0	23	3,0	26	4
4.058	200.005.000	88,4	59	45	57,0	44,0	30	3,5	26	3
4.059	200.006.000	101,2	67	50	46,0	33,0	28	3,0	30	3
4.060	200.007.000	107,7	71	55	53,0	39,0	31	3,0	34	5
4.061	200.008.000	107,7	71	60	69,0	55,0	31	4,0	34	5
4.062	200.009.000	123,0	80	60	72,3	56,0	37	5,0	40	5
4.063	200.010.000	149,0	103	60	77,5	58,5	45	5,5	50	3

C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)

C_A = Dyn. Tragzahl Axiallager (ISO 281/1), C_{0A} = Stat. Tragzahl Axiallager (ISO 76)

F_R = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil



WINKEL-Rollen | WINKEL Bearings

Auswahl der Wälzlager über die Hertz'sche Pressung

Selection of bearings over the Hertzian pressure

Profile		F_R kN		F_A kN		WINKEL-Rolle Axialrolle fest	WINKEL-Rolle Axialrolle über Exzenter einstellbar	WINKEL-Rolle Axialrolle über Scheiben einstellbar	WINKEL-Radiallager	WINKEL-Rolle mit Oilamid-einsatz	Heavy Duty WINKEL-Rolle	Justierbare WINKEL-Rollen-einheit	WINKEL-Rolle mit Kombibolzen
Profile		max. stat. radial		max. stat. axial		WINKEL Bearing with fixed axial Bearing	WINKEL Bearing eccentric adjustable axial Bearing	WINKEL Bearing adjustable with shims	WINKEL Radial Bearing	WINKEL Bearing with Oilamide insert	Heavy Duty WINKEL Bearing	Adjustable WINKEL Bearing unit	WINKEL Bearing with combined bolt
U-Profil	Doppel T-Profil	U-Profil	Doppel T-Profil	U-Profil	Doppel T-Profil								
U-Profile	I-Profile	U-Profile	I-Profile	U-Profile	I-Profile								
A	-	0,80	-	3,10	-	-	-	-	-	4.052 P	-	-	-
S	-	5,23	-	1,68	-	4.053	-	-	-	-	-	-	-
(PR) 0 NbV	-	10,30	-	3,20	-	(PR) 4.054	(PR) 4.454	(PR) 4.072	(PR) 2.054	(PR) 4.072 P*	(PR) 3.054*	JC 4.054	KB (PR) 4.072 (P*)
(PR) 1 NbV	3018 NbV	12,40	12,40	3,87	3,87	(PR) 4.055	(PR) 4.455	(PR) 4.073	(PR) 2.055	(PR) 4.073 P*	(PR) 3.055*	JC 4.055	KB (PR) 4.073 (P*)
(PR) 2 NbV	-	12,90	-	4,00	-	(PR) 4.056	(PR) 4.456	(PR) 4.074	(PR) 2.056	(PR) 4.074 P*	(PR) 3.056*	JC 4.056	KB (PR) 4.074 (P*)
-	3019 NbV	-	12,90	-	4,00	4.057	4.457	4.075	-	-	-	-	-
(PR) 3 NbV	3020 NbV	22,40	22,40	7,00	7,00	(PR) 4.058	(PR) 4.458	(PR) 4.076	(PR) 2.058	(PR) 4.076 P*	(PR) 3.058*	JC 4.058	KB (PR) 4.076 (P*)
-	2912 NbV	-	22,00	-	7,00	4.059	4.459	4.077	-	-	-	-	-
-	3100 NbV	-	23,80	-	7,44	4.060	4.460	4.078	-	-	-	-	-
(PR) 4 NbV	-	23,80	-	7,44	-	(PR) 4.061	(PR) 4.461	(PR) 4.0784	(PR) 2.061	(PR) 4.0784 P*	(PR) 3.061*	JC 4.061	KB (PR) 4.0784 (P*)
(PR) 5 NbV	-	33,90	-	10,60	-	(PR) 4.062	(PR) 4.462	(PR) 4.079	(PR) 2.062	(PR) 4.079 P*	(PR) 3.062*	JC 4.062	KB (PR) 4.079 (P*)
-	3353 NbV	-	26,00	-	10,60	4.062	4.462	4.079	-	-	-	-	-
(PR) 6 NbV	-	59,20	-	18,50	-	(PR) 4.063	(PR) 4.463	-	(PR) 2.063	(PR) 4.080 P*	(PR) 3.063*	JC 4.063	KB (PR) 4.080 P*
(PR) 6 NbV	-	39,50	-	18,50	-	-	-	(PR) 4.080	-	-	-	-	KB (PR) 4.080
(PR) 8 NbV	-	91,80	-	23,70	-	-	(PR) 4.085	-	-	(PR) 4.085 P*	-	-	-
-	10	-	41,71	-	13,91	-	4.089	-	-	-	-	-	-
-	16	-	58,00	-	19,40	-	4.090	-	-	-	-	-	-
-	18	-	84,00	-	28,00	-	4.091	-	-	-	-	-	-
-	28	-	101,50	-	33,90	-	4.092	-	-	-	-	-	-
-	36 / 42	-	139,40	-	46,50	-	4.093	-	-	-	-	-	-
-	50	-	192,00	-	57,70	-	4.094	-	-	-	-	-	-

* max. stat. Axialbelastung der WINKEL-Rollen bitte dem jeweiligen Rollendatenblatt entnehmen
 * for max. static axial load of WINKEL bearing please refer to the respective data sheet

Typ	F_R kN	F_A kN	C kN	C_o kN	C_A kN	C_{oA} kN	u/min max.	Gewicht kg	Anschraubplatten	Profile Standard
Type	F_R kN	F_A kN	C kN	C_o kN	C_A kN	C_{oA} kN	r/pm max.	Weight kg	Flange plates	Profiles standard
4.054	10,30	3,20	31,0	35,5	11	11	900	0,53	AP0 AP0-Q	0 NbV
4.055	12,40	3,87	45,5	51,0	13	14	900	0,80	AP1 AP1-Q	1 NbV/3018 NbV
4.056	12,90	4,00	48,0	56,8	18	18	800	1,00	AP2 AP2-Q	2 NbV
4.057	12,90	4,00	48,0	56,8	18	18	800	0,87	-	3019 NbV
4.058	22,40	7,00	68,0	72,0	23	23	750	1,62	AP3.1 AP3-Q	3 NbV/3020 NbV
4.059	22,00	7,00	73,0	82,0	25	27	700	1,74	-	2912 NbV
4.060	23,80	7,44	81,0	95,0	31	36	650	2,27	-	3100 NbV
4.061	23,80	7,44	81,0	95,0	31	36	650	2,82	AP4 AP4-Q	4 NbV
4.062	33,90 (26,00)	10,60	110,0	132,0	43	50	550	3,89	AP4 AP4-Q	5 NbV (3353 NbV)
4.063	59,20	18,50	151,0	192,0	68	71	450	6,52	AP6 AP6-Q	6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C_o = Static load capacity radial bearing (ISO 76)
 C_A = Dynamic load capacity axial bearing (ISO 281/1), C_{oA} = Static load capacity axial bearing (ISO 76)
 F_R = Load capacity radial bearing max. allowable force between bearing and profile
 F_A = Load capacity axial bearing max. allowable force between bearing and profile





WINKEL-Rollen | WINKEL Bearings

WINKEL-Rolle Axialrolle fest

Nachschmierbarkeit für Rollen 4.054 - 4.063

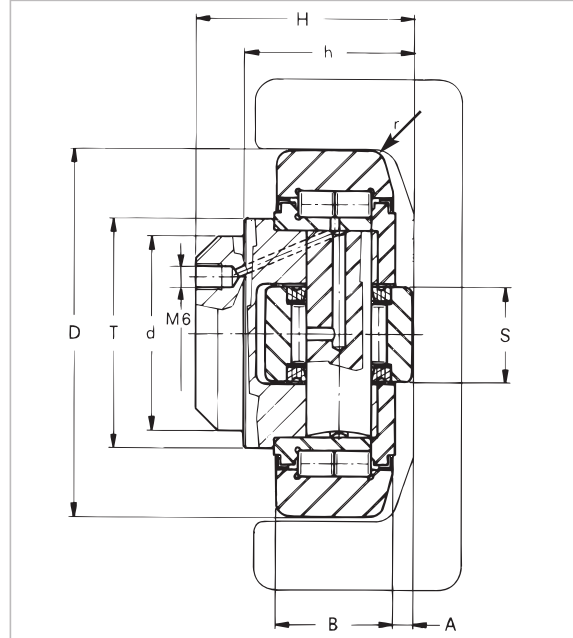


Abdichtung 2 RS/ZRS | Sealings 2 RS/ZRS

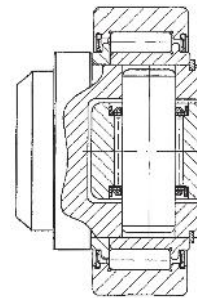
CAD Download in 2D/3D unter www.winkel.de
 CAD download in 2D/3D at www.winkel.de


WINKEL Bearing axial bearing fixed

Relubrication only for types 4.054 - 4.063



nur 4.053
 only 4.053



 **Nachschmiersysteme für WINKEL-Rollen**
 Lubrication systems for WINKEL bearings
 (Seite/page 144)

Typ Type	Artikel-Nr. Article no.	D mm D mm	T mm T mm	d-0.05 mm d-0.05 mm	H mm H mm	h mm h mm	B mm B mm	A mm A mm	S mm S mm	r mm r mm
4.053	200.024.000	52,5	40	30	33,0	27,0	17	5,0	15	2
4.054	200.001.000	62,5	42	30	37,5	30,5	20	2,5	20	3
4.055	200.002.000	70,1	48	35	44,0	36,0	23	2,5	22	4
4.056	200.003.000	77,7	54	40	48,0	36,5	23	3,0	26	4
4.057	200.004.002	77,7	53	40	40,0	29,0	23	3,0	26	4
4.058	200.005.000	88,4	59	45	57,0	44,0	30	3,5	26	3
4.059	200.006.000	101,2	67	50	46,0	33,0	28	3,0	30	3
4.060	200.007.000	107,7	71	55	53,0	39,0	31	3,0	34	5
4.061	200.008.000	107,7	71	60	69,0	55,0	31	4,0	34	5
4.062	200.009.000	123,0	80	60	72,3	56,0	37	5,0	40	5
4.063	200.010.000	149,0	103	60	77,5	58,5	45	5,5	50	3

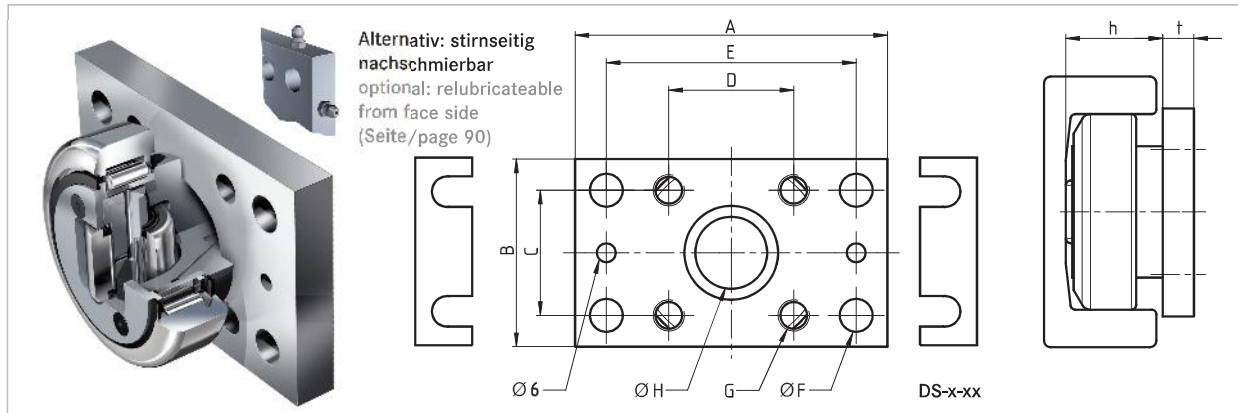
C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76),
 C_A = Dyn. Tragzahl Axiallager (ISO 281/1), C_{0A} = Stat. Tragzahl Axiallager (ISO 76),
 F_r = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil,
 F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

WINKEL-Rollen | WINKEL Bearings



Passende Anschraubplatten

Suitable flange plates

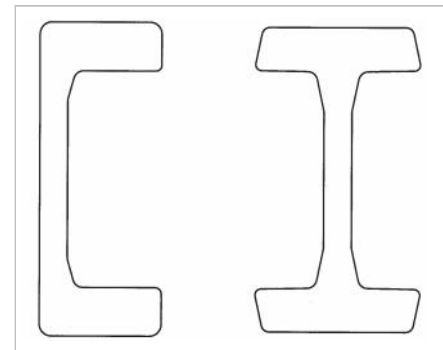
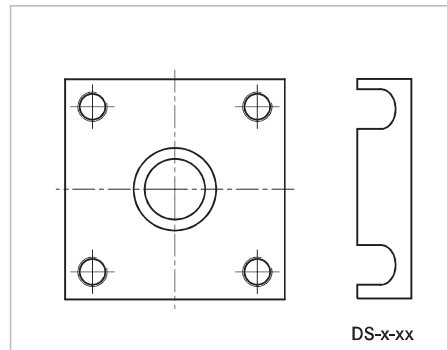


Typ Type	Artikel-Nr. Article no.	A	B	C	D	E	Ø F	G	Ø H	t	Distanzsteckblech 0,5mm Washer 0.5mm	Distanzsteckblech 1,0mm Washer 1.0mm		
AP S	212.014.000	90	50	30	40	70	8,5	M8	30	10	DS-S-0,5	238.025.000	DS-S-1,0	238.025.001
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	50	50	90	12,5	M12	35	15	DS-1-0,5	238.021.000	DS-1-1,0	238.021.001
AP 2	212.005.000	120	80	50	50	90	12,5	M12	40	15	DS-2-0,5	238.021.000	DS-2-1,0	238.021.001
AP 3.1	212.006.001	160	100	60	60	120	17,0	M16	45	20	DS-3.1-0,5	238.105.000	DS-3.1-1,0	238.105.001
AP 4	212.007.001	180	120	80	80	140	17,0	M16	60	20	DS-4-0,5	238.023.000	DS-4-1,0	238.023.001
AP 6	212.008.000	200	150	100	100	160	17,0	M16	60	20	DS-6-0,5	238.024.000	DS-6-1,0	238.024.001

Abstreifer Seite 94
Wiper page 94

Anschraubplatten quadratisch Reihe AP-Q S. 96
Flange plates square series AP-Q page 96

Profile Seite 68 / 76
Profiles page 68 / 76



Typ Type	F _R kN F _R kN	F _A kN F _A kN	C kN C kN	C ₀ kN C ₀ kN	C _A kN C _A kN	C _{0A} kN C _{0A} kN	u/min max. r/pm max.	Gewicht kg Weight kg	Anschraubplatten Flange plates	Profile Standard Profiles standard
4.053	5,23	1,68	24,0	32,0	7	7	800	0,46	APS - APS-Q	S
4.054	10,30	3,20	31,0	35,5	11	11	900	0,53	AP0 AP0-LUB AP0-Q	0 NbV
4.055	12,40	3,87	45,5	51,0	13	14	900	0,80	AP1 AP1-LUB AP1-Q	1 NbV 3018 NbV
4.056	12,90	4,00	48,0	56,8	18	18	800	1,00	AP2 AP2-LUB AP2-Q	2 NbV
4.057	12,90	4,00	48,0	56,8	18	18	800	0,87	-	3019 NbV
4.058	22,40	7,00	68,0	72,0	23	23	750	1,62	AP3.1 AP3.1-LUB AP3-Q	3 NbV 3020 NbV
4.059	22,00	7,00	73,0	82,0	25	27	700	1,74	-	2912 NbV
4.060	23,80	7,44	81,0	95,0	31	36	650	2,27	-	3100 NbV
4.061	23,80	7,44	81,0	95,0	31	36	650	2,82	AP4 AP4-LUB AP4-Q	4 NbV
4.062	33,90 (26,00)	10,60	110,0	132,0	43	50	550	3,89	AP4 AP4-LUB AP4-Q	5 NbV (3353 NbV)
4.063	59,20	18,50	151,0	192,0	68	71	450	6,52	AP6 AP6-LUB AP6-Q	6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76),
 C_A = Dynamic load capacity axial bearing (ISO 281/1), C_{0A} = Static load capacity axial bearing (ISO 76),
 F_R = Load capacity radial bearing max. allowable force between bearing and profile,
 F_A = Load capacity axial bearing max. allowable force between bearing and profile



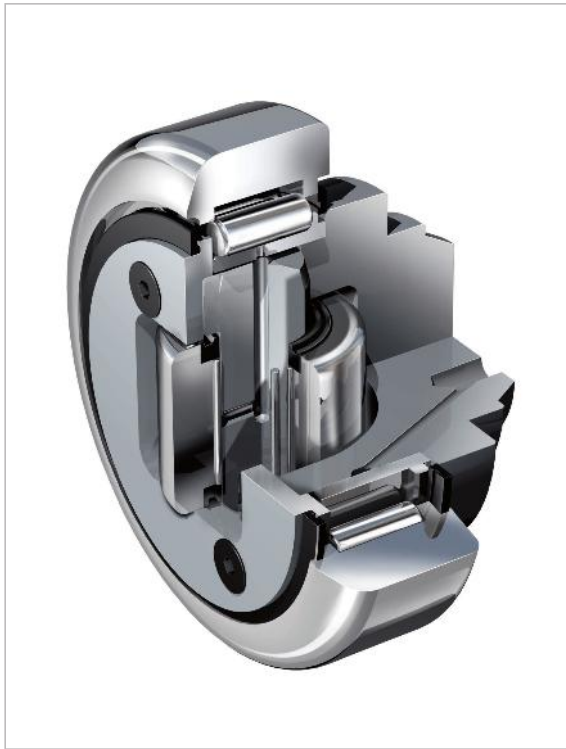
WINKEL-Rollen | WINKEL Bearings

Präzisions-WINKEL-Rolle
Typ PR
Axialrolle fest

Vorteil:

- weniger Spiel zwischen Rolle und Profil

Nachschmierbarkeit für Rollen PR 4.054 - PR 4.063

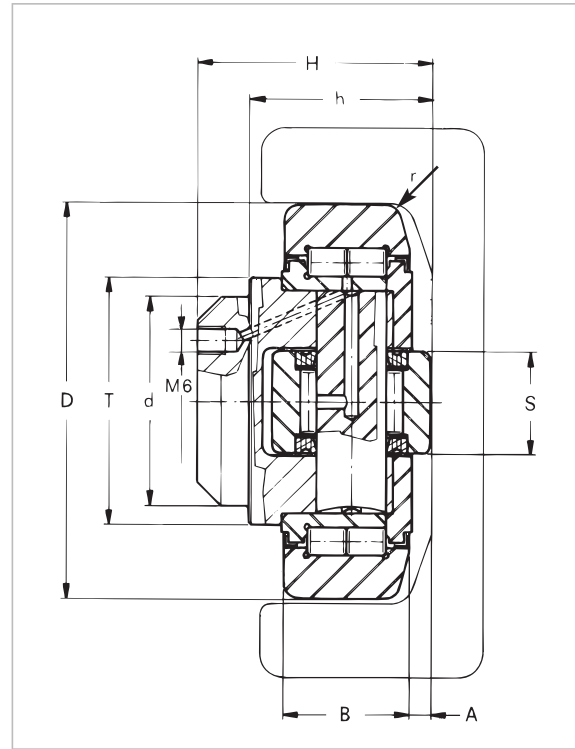



Precision WINKEL Bearing
Type PR
Axial Bearing fixed

Advantage:

- less clearance between bearing and profile

Relubrication for types PR 4.054 - PR 4.063



 **Nachschmiersysteme für WINKEL-Rollen**
Lubrication systems for WINKEL bearings
(Seite/page 144)

Typ Type	Artikel-Nr. Article no.	D mm D mm	T mm T mm	d-0.05 mm d-0.05 mm	H mm H mm	h mm h mm	B mm B mm	A mm A mm	S mm S mm	r mm r mm
PR 4.054	200.100.000	64,8	42	30	37,5	30,5	20	2,5	20	3
PR 4.055	200.101.000	73,8	48	35	44,0	36,0	23	2,5	22	4
PR 4.056	200.102.000	81,8	54	40	48,0	36,5	23	3,0	26	4
PR 4.058	200.103.000	92,8	59	45	57,0	44,0	30	3,5	26	3
PR 4.061	200.104.000	111,8	71	60	69,0	55,0	31	4,0	34	5
PR 4.062	200.105.000	127,8	80	60	72,3	56,0	37	5,0	40	5
PR 4.063	200.106.000	153,8	103	60	77,5	58,5	45	5,5	50	3

C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)

C_A = Dyn. Tragzahl Axiallager (ISO 281/1), C_{0A} = Stat. Tragzahl Axiallager (ISO 76)

F_r = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

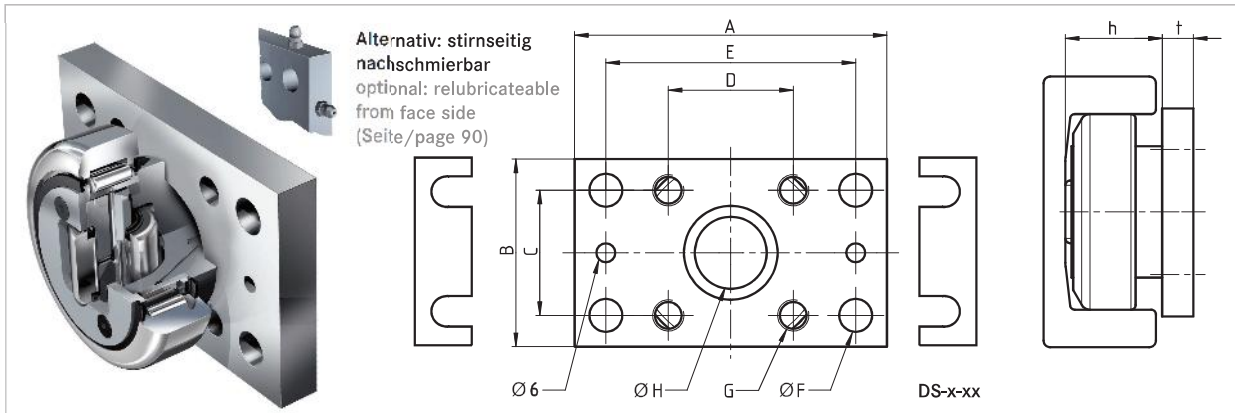
F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

WINKEL-Rollen | WINKEL Bearings



Passende Anschraubplatten

Suitable flange plates

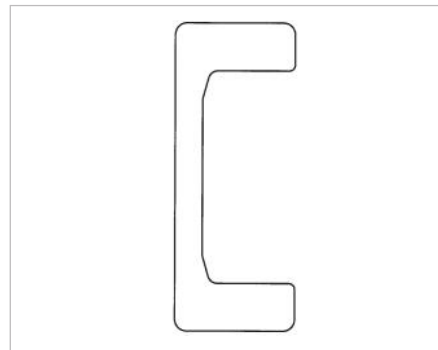
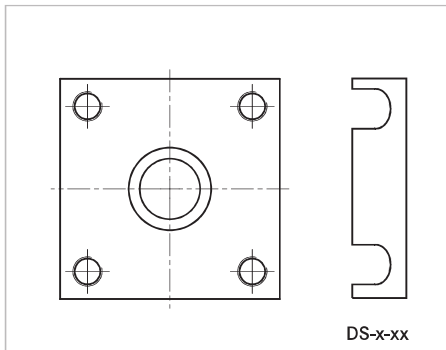


Typ Type	Artikel-Nr. Article no.	A	B	C	D	E	Ø F	G	Ø H	t	Distanzsteckblech 0,5mm Washer 0.5mm	Distanzsteckblech 1,0mm Washer 1.0mm
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	10	DS-0-0,5	238.020.000
AP 1	212.004.000	120	80	50	50	90	12,5	M12	35	15	DS-1-0,5	238.021.000
AP 2	212.005.000	120	80	50	50	90	12,5	M12	40	15	DS-2-0,5	238.021.000
AP 3.1	212.006.001	160	100	60	60	120	17,0	M16	45	20	DS-3.1-0,5	238.105.000
AP 4	212.007.001	180	120	80	80	140	17,0	M16	60	20	DS-4-0,5	238.023.000
AP 6	212.008.000	200	150	100	100	160	17,0	M16	60	20	DS-6-0,5	238.024.000

Abstreifer Seite 94
Wiper page 94

Anschraubplatten quadratisch Reihe AP-Q S. 96
Flange plates square series AP-Q page 96

Profile Seite 72
Profiles page 72



Typ Type	F _r kN F _r kN	F _a kN F _a kN	C kN C kN	C ₀ kN C ₀ kN	C _A kN C _A kN	C _{0A} kN C _{0A} kN	u/min max. r/pm max.	Gewicht kg Weight kg	Anschraubplatten Flange plates	Profile Profiles
PR 4.054	10,30	3,20	31,0	35,5	11	11	900	0,55	AP0 AP0-LUB AP0-Q	PR 0 NbV
PR 4.055	12,40	3,87	45,5	51,0	13	14	900	0,85	AP1 AP1-LUB AP1-Q	PR 1 NbV
PR 4.056	12,90	4,00	48,0	56,8	18	18	800	1,10	AP2 AP2-LUB AP2-Q	PR 2 NbV
PR 4.058	22,40	7,00	68,0	72,0	23	23	750	1,70	AP3.1 AP3.1-LUB AP3-Q	PR 3 NbV
PR 4.061	23,80	7,44	81,0	95,0	31	36	650	2,95	AP4 AP4-LUB AP4-Q	PR 4 NbV
PR 4.062	33,90	10,60	110,0	132,0	43	50	550	4,10	AP4 AP4-LUB AP4-Q	PR 5 NbV
PR 4.063	59,20	18,50	151,0	192,0	68	71	450	6,85	AP6 AP6-LUB AP6-Q	PR 6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76)
 C_A = Dynamic load capacity axial bearing (ISO 281/1), C_{0A} = Static load capacity axial bearing (ISO 76)
 F_r = Load capacity radial bearing max. allowable force between bearing and profile
 F_a = Load capacity axial bearing max. allowable force between bearing and profile



WINKEL-Rollen | WINKEL Bearings

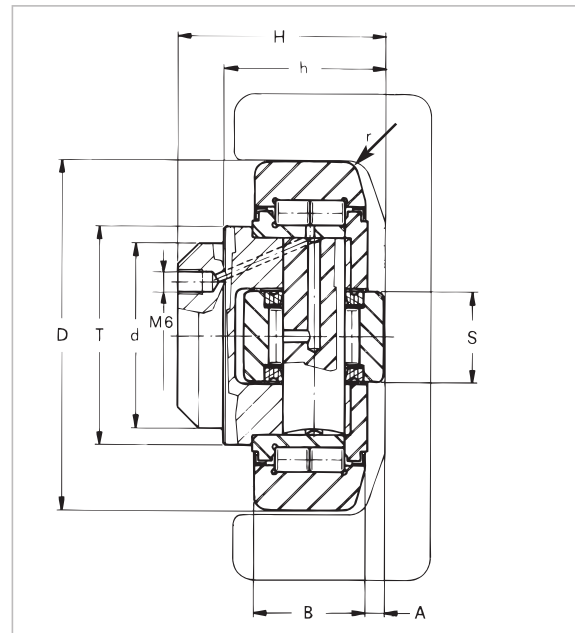
**Hochtemperatur-WINKEL-Rolle
Typ HT**

- WINKEL-Rollen der Baureihe HT in Hochtemperaturausführung sind geeignet für Einsatztemperaturen bis 250°C
- Die WINKEL-Rollen verfügen über Lagerluft C3, Hochtemperaturfett sowie Viton-Dichtungen
- Nachschmierbarkeit nur für Rollen 4.054 HT - 4.063 HT



**High temperature WINKEL Bearing
Type HT**

- WINKEL Bearings of range HT are made for high temperature applications up to 250°C
- The WINKEL Bearings are made with tolerance C3, high temperature grease and viton sealings
- Relubrication only for types 4.054 HT - 4.063 HT



Nachschmiersysteme für WINKEL-Rollen
Lubrication systems for WINKEL bearings
(Seite/page 144)

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Typ Type	Artikel-Nr. Article no.	D mm D mm	T mm T mm	d -0.05 mm d -0.05 mm	H mm H mm	h mm h mm	B mm B mm	A mm A mm	S mm S mm	r mm r mm
4.053 HT	200.024.011	52,5	40	30	33,0	27,0	17	5,0	15	2
4.054 HT	200.001.019	62,5	42	30	37,5	30,5	20	2,5	20	3
4.055 HT	200.002.020	70,1	48	35	44,0	36,0	23	2,5	22	4
4.056 HT	200.003.018	77,7	54	40	48,0	36,5	23	3,0	26	4
4.058 HT	200.005.014	88,4	59	45	57,0	44,0	30	3,5	26	3
4.061 HT	200.008.007	107,7	71	60	69,0	55,0	31	4,0	34	5
4.062 HT	200.009.021	123,0	80	60	72,3	56,0	37	5,0	40	5
4.063 HT	200.010.031	149,0	103	60	77,5	58,5	45	5,5	50	3

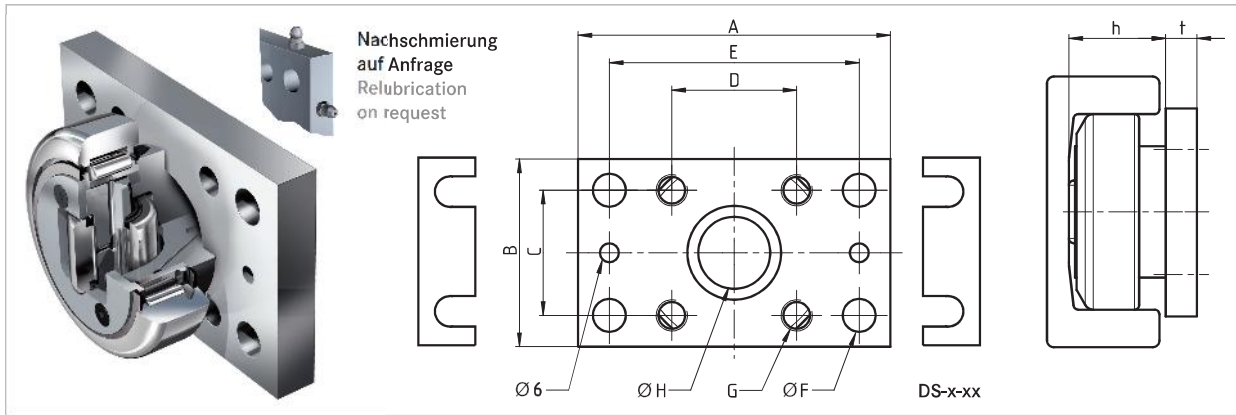
C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)
C_A = Dyn. Tragzahl Axiallager (ISO 281/1), C_{0A} = Stat. Tragzahl Axiallager (ISO 76)
F_r = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil
F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil



WINKEL-Rollen | WINKEL Bearings

Passende Anschraubplatten

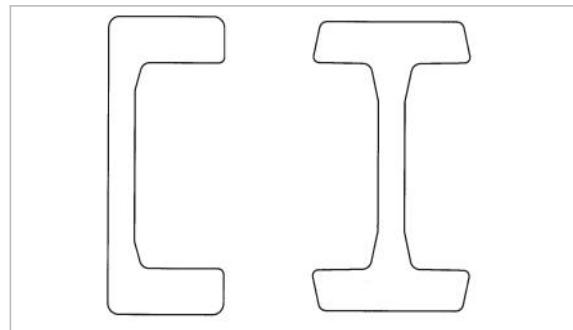
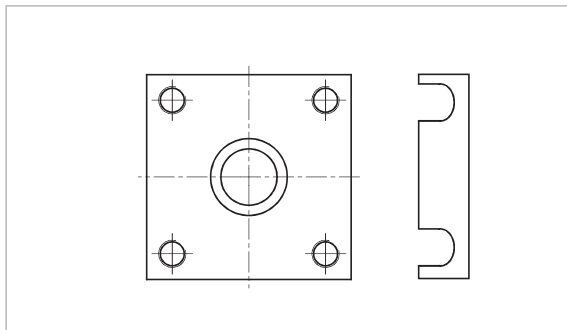
Suitable flange plates



Type	Artikel-Nr. Article no.	A	B	C	D	E	Ø F	G	Ø H	t	Distanzsteckblech 0,5mm Washer 0.5mm	Distanzsteckblech 1,0mm Washer 1.0mm		
AP S	212.014.000	90	50	30	40	70	8,5	M8	30	10	DS-S-0,5	238.025.000	DS-S-1,0	238.025.001
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	50	50	90	12,5	M12	35	15	DS-1-0,5	238.021.000	DS-1-1,0	238.021.001
AP 2	212.005.000	120	80	50	50	90	12,5	M12	40	15	DS-2-0,5	238.021.000	DS-2-1,0	238.021.001
AP 3.1	212.006.001	160	100	60	60	120	17,0	M16	45	20	DS-3.1-0,5	238.105.000	DS-3.1-1,0	238.105.001
AP 4	212.007.001	180	120	80	80	140	17,0	M16	60	20	DS-4-0,5	238.023.000	DS-4-1,0	238.023.001
AP 6	212.008.000	200	150	100	100	160	17,0	M16	60	20	DS-6-0,5	238.024.000	DS-6-1,0	238.024.001

Anschraubplatten quadratisch Reihe AP-Q S. 96
Flange plates square series AP-Q page 96

Profile Seite 68 / 76
Profiles page 68 / 76



Type	F _R kN	F _A kN	C kN	C ₀ kN	C _A kN	C _{0A} kN	u/min max. r/pm max.	Gewicht kg Weight kg	Anschraubplatten Flange plates	Profile Profiles
4.053 HT	5,23	1,68	24,0	32,0	7	7	800	0,46	APS APS-Q	S
4.054 HT	10,30	3,20	31,0	35,5	11	11	900	0,55	AP0 AP0-Q	0 NbV
4.055 HT	12,40	3,87	45,5	51,0	13	14	900	0,85	AP1 AP1-Q	1 NbV I 3018 NbV
4.056 HT	12,90	4,00	48,0	56,8	18	18	800	1,10	AP2 AP2-Q	2 NbV
4.058 HT	22,40	7,00	68,0	72,0	23	23	750	1,70	AP3.1 AP3-Q	3 NbV I 3020 NbV
4.061 HT	23,80	7,44	81,0	95,0	31	36	650	2,95	AP4 AP4-Q	4 NbV
4.062 HT	33,90 (26,00)	10,60	110,0	132,0	43	50	550	4,10	AP4 AP4-Q	5 NbV (3353 NbV)
4.063 HT	59,20	18,50	151,0	192,0	68	71	450	6,85	AP6 AP6-Q	6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76)
C_A = Dynamic load capacity axial bearing (ISO 281/1), C_{0A} = Static load capacity axial bearing (ISO 76)
F_R = Load capacity radial bearing max. allowable force between bearing and profile
F_A = Load capacity axial bearing max. allowable force between bearing and profile



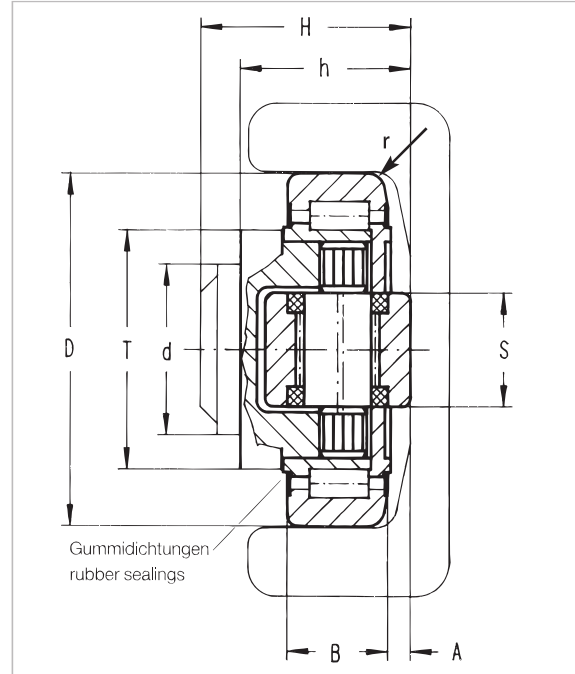
WINKEL-Rollen | WINKEL Bearings

WINKEL-Rolle axial über Exzenter justierbar

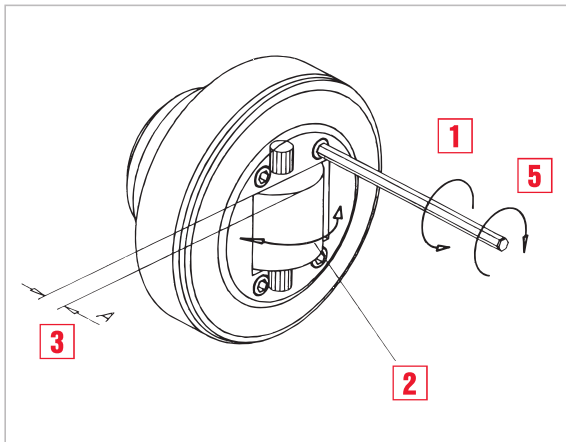
Axial Bearing eccentric adjustable

■ Rollen lebensdauer geschmiert

■ bearings are lubricated for life



Abdichtung 2 RS/ZRS | Sealings 2 RS/ZRS



Justierung der Axialrolle

- 1 Deckelschrauben lösen
- 2 Exzenterachse drehen (Axialrolle wird verdreht)
- 3 Maß A überprüfen (ggf. Punkt 2 wiederholen)
- 4 Schrauben mit Loctite sichern
- 5 Deckelschrauben festziehen

Adjusting of the Axial Bearing

- 1 loosen screws
- 2 turn eccentric axle (Axial Bearing will be turned)
- 3 check measure A (if necessary repeat Pos.2)
- 4 secure screws with loctite
- 5 lock screws

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CAD download in 2D/3D at www.winkel.de

Typ Type	Artikel-Nr. Article no.	D mm D mm	T mm T mm	d-0.05 mm d-0.05 mm	H mm H mm	h mm h mm	B mm B mm	A mm A mm	S mm S mm	r mm r mm
4.454	201.031.000	62,5	42	30	37,5 - 39,0	30,5 - 32,0	20	4,0 - 5,5	20	3
4.455	201.032.000	70,1	48	35	44,0 - 45,5	36,0 - 37,5	23	4,0 - 5,5	20	4
4.456	201.033.000	77,7	54	40	48,0 - 49,5	37,0 - 38,5	23	3,5 - 5,0	26	4
4.457	201.034.003	77,7	54	40	40,0 - 41,5	29,0 - 30,5	23	3,5 - 5,0	26	4
4.458	201.035.000	88,4	59	45	57,0 - 58,5	44,0 - 45,5	30	4,0 - 5,5	26	4
4.459	201.036.000	101,6	69	50	46,0 - 48,0	33,0 - 35,0	26	4,5 - 6,5	30	3
4.460	201.037.000	108,5	69	55	54,0 - 56,0	40,0 - 42,0	31	4,0 - 6,0	30	5
4.461	201.038.000	107,7	69	60	69,0 - 71,0	55,0 - 57,0	31	4,0 - 6,0	30	5
4.462	201.039.000	123,0	80	60	72,3 - 76,3	56,0 - 60,0	37	5,0 - 9,0	34	5
4.463	201.040.000	149,4	108	60	77,5 - 81,5	58,5 - 62,5	45	6,0 - 10,0	34	3

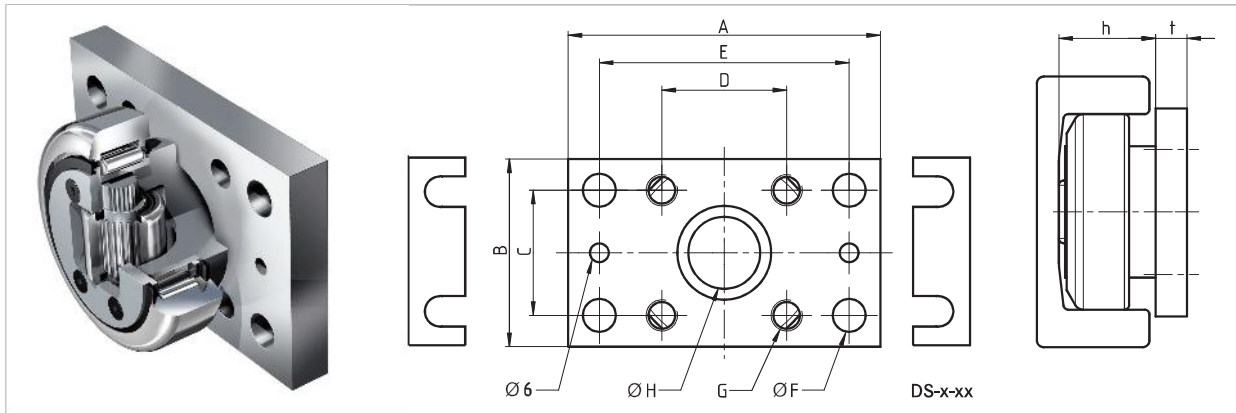
C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)
 C_A = Dyn. Tragzahl Axiallager (ISO 281/1), C_{0A} = Stat. Tragzahl Axiallager (ISO 76)
 F_r = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil
 F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

WINKEL-Rollen | WINKEL Bearings



Passende Anschraubplatten

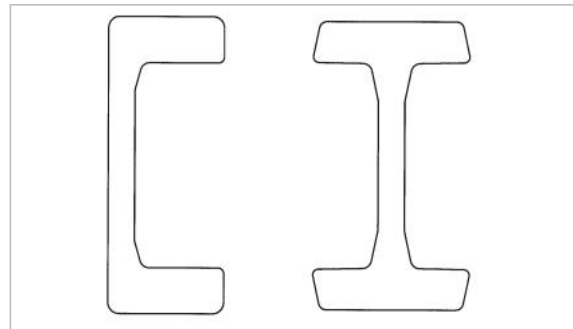
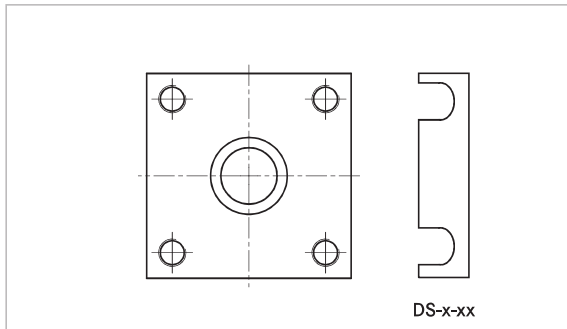
Suitable flange plates



Typ Type	Artikel-Nr. Article no.	A A	B B	C C	D D	E E	Ø F Ø F	G G	Ø H Ø H	t t	Distanzsteckblech 0,5mm Washer 0.5mm	Distanzsteckblech 1,0mm Washer 1.0mm
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	10	DS-0-0,5	238.020.000
AP 1	212.004.000	120	80	50	50	90	12,5	M12	35	15	DS-1-0,5	238.021.000
AP 2	212.005.000	120	80	50	50	90	12,5	M12	40	15	DS-2-0,5	238.021.001
AP 3.1	212.006.001	160	100	60	60	120	17,0	M16	45	20	DS-3.1-0,5	238.105.000
AP 4	212.007.001	180	120	80	80	140	17,0	M16	60	20	DS-4-0,5	238.023.000
AP 6	212.008.000	200	150	100	100	160	17,0	M16	60	20	DS-6-0,5	238.024.000

Anschraubplatten quadratisch Reihe AP-Q S. 96
Flange plates square series AP-Q page 96

Profile Seite 68 / 76
Profiles page 68 / 76



Typ Type	F _r kN F _r kN	F _A kN F _A kN	C kN C kN	C ₀ kN C ₀ kN	C _A kN C _A kN	C _{0A} kN C _{0A} kN	u/min max. r/pm max.	Gewicht kg Weight kg	Anschraubplatten Flange plates	Profile Standard Profiles standard
4.454	10,30	3,20	31,0	35,5	11	11	900	0,53	AP0 AP0-Q	0 NbV
4.455	12,40	3,87	45,5	51,0	13	14	900	0,80	AP1 AP1-Q	1 NbV 3018 NbV
4.456	12,90	4,00	48,0	56,8	18	18	800	1,00	AP2 AP2-Q	2 NbV
4.457	12,90	4,00	48,0	56,8	18	18	800	0,87	-	3019 NbV
4.458	22,40	7,00	68,0	72,0	23	23	750	1,62	AP3.1 AP3-Q	3 NbV 3020 NbV
4.459	22,00	7,00	73,0	82,0	25	27	700	1,74	-	2912 NbV
4.460	23,80	7,44	81,0	95,0	31	36	650	2,27	-	3100 NbV
4.461	23,80	7,44	81,0	95,0	31	36	650	2,82	AP4 AP4-Q	4 NbV
4.462	33,90 (26,00)	10,60	110,0	132,0	43	50	550	3,60	AP4 AP4-Q	5 NbV (3353 NbV)
4.463	59,20	18,50	151,0	192,0	68	71	450	6,30	AP6 AP6-Q	6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76)
C_A = Dynamic load capacity axial bearing (ISO 281/1), C_{0A} = Static load capacity axial bearing (ISO 76)
F_r = Load capacity radial bearing max. allowable force between bearing and profile
F_A = Load capacity axial bearing max. allowable force between bearing and profile



WINKEL-Rollen | WINKEL Bearings

Präzisions-WINKEL-Rolle
Typ PR
Axialrolle über Exzenter justierbar

Vorteil:

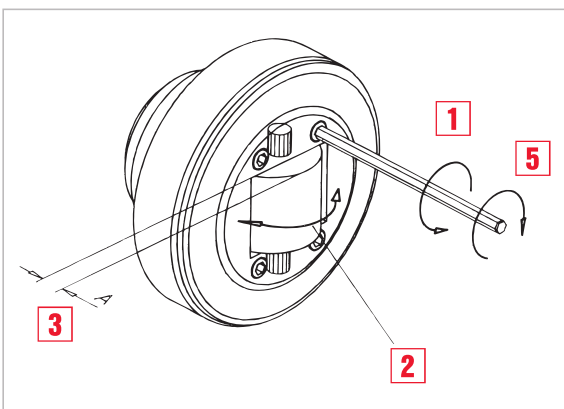
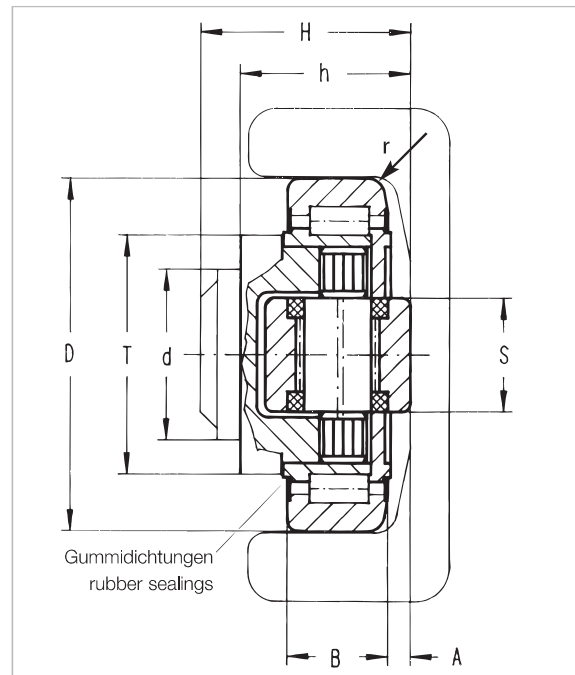
- weniger Spiel zwischen Rolle und Profil
- Rollen lebensdauergeschmiert



Precision WINKEL Bearing
Type PR
Axial Bearing eccentric adjustable

Advantage:

- less clearance between bearing and profile
- bearings are lubricated for life



Justierung der Axialrolle

- 1 Deckelschrauben lösen
- 2 Exzenterachse drehen (Axialrolle wird verdreht)
- 3 Maß A überprüfen (ggf. Punkt 2 wiederholen)
- 4 Schrauben mit Loctite sichern
- 5 Deckelschrauben festziehen

Adjusting of the Axial Bearing

- 1 loosen screws
- 2 turn eccentric axle (Axial Bearing will be turned)
- 3 check measure A (if necessary repeat Pos.2)
- 4 secure screws with loctite
- 5 lock screws

Typ Type	Artikel-Nr. Article no.	D mm D mm	T mm T mm	d-0.05 mm d-0.05 mm	H mm H mm	h mm h mm	B mm B mm	A mm A mm	S mm S mm	r mm r mm
PR 4.454	200.114.000	64,8	42	30	37,5 - 39,0	30,5 - 32,0	20,0	4,0 - 5,5	20	3
PR 4.455	200.115.000	73,8	48	35	44,0 - 45,5	36,0 - 37,5	23,0	4,0 - 5,5	20	4
PR 4.456	200.116.000	81,8	54	40	48,0 - 49,5	37,0 - 38,5	23,0	3,5 - 5,0	26	4
PR 4.458	200.117.000	92,8	59	45	57,0 - 58,5	44,0 - 45,5	30,0	4,0 - 5,5	26	4
PR 4.461	200.118.000	111,8	69	60	69,0 - 71,0	55,0 - 57,0	31,0	4,0 - 6,0	30	5
PR 4.462	200.119.000	127,8	80	60	72,3 - 76,3	56,0 - 60,0	37,0	5,0 - 9,0	34	5
PR 4.463	200.120.000	153,8	108	60	77,5 - 81,5	58,5 - 62,5	45,0	6,0 - 10,0	34	3
PR 4.085	201.049.001	184,8	124	100	95,7 - 98,7	76,3 - 79,3	57,3	6,5 - 9,5	60	3

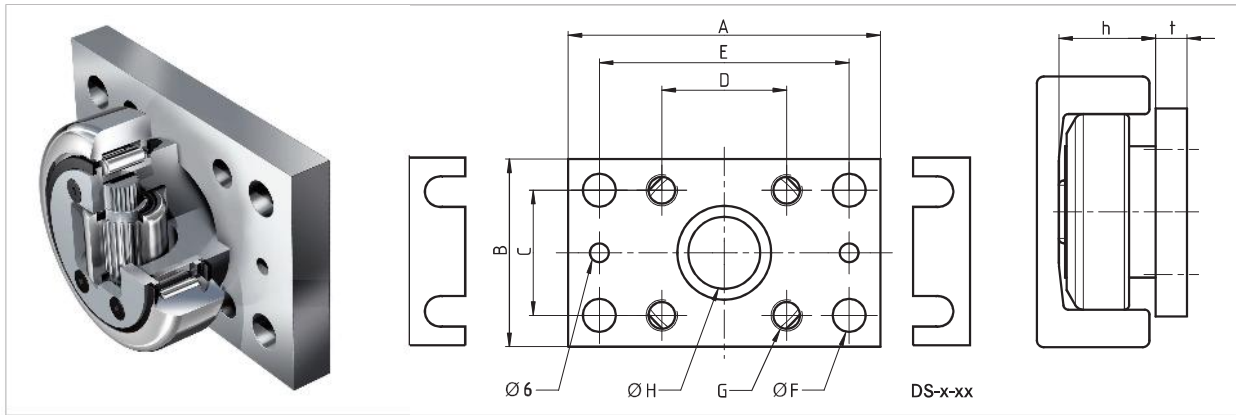
C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)
 C_A = Dyn. Tragzahl Axiallager (ISO 281/1), C_{0A} = Stat. Tragzahl Axiallager (ISO 76)
 F_r = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil
 F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

WINKEL-Rollen | WINKEL Bearings



Passende Anschraubplatten

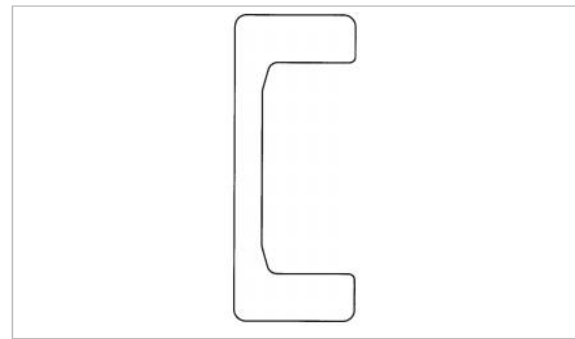
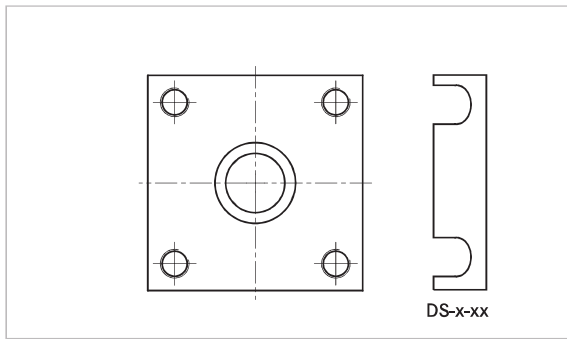
Suitable flange plates



Typ Type	Artikel-Nr. Article no.	A A	B B	C C	D D	E E	Ø F Ø F	G G	Ø H Ø H	t t	Distanzsteckblech 0,5mm Washer 0.5mm	Distanzsteckblech 1,0mm Washer 1.0mm		
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	50	50	90	12,5	M12	35	15	DS-1-0,5	238.021.000	DS-1-1,0	238.021.001
AP 2	212.005.000	120	80	50	50	90	12,5	M12	40	15	DS-2-0,5	238.021.000	DS-2-1,0	238.021.001
AP 3.1	212.006.001	160	100	60	60	120	17,0	M16	45	20	DS-3.1-0,5	238.105.000	DS-3.1-1,0	238.105.001
AP 4	212.007.001	180	120	80	80	140	17,0	M16	60	20	DS-4-0,5	238.023.000	DS-4-1,0	238.023.001
AP 6	212.008.000	200	150	100	100	160	17,0	M16	60	20	DS-6-0,5	238.024.000	DS-6-1,0	238.024.001

Anschraubplatten quadratisch Reihe AP-Q S. 96
Flange plates square series AP-Q page 96

Profile Seite 72
Profiles page 72



Typ Type	F _R kN F _R kN	F _A kN F _A kN	C kN C kN	C ₀ kN C ₀ kN	C _A kN C _A kN	C _{0A} kN C _{0A} kN	u/min max. r/pm max.	Gewicht kg Weight kg	Anschraubplatten Flange plates	Profile Profiles	
PR 4.454	10,30	3,20	31,0	35,5	11	11	900	0,55	AP0	AP0-Q	PR 0 NbV
PR 4.455	12,40	3,87	45,5	51,0	13	14	900	0,80	AP1	AP1-Q	PR 1 NbV
PR 4.456	12,90	4,00	48,0	56,8	18	18	800	1,05	AP2	AP2-Q	PR 2 NbV
PR 4.458	22,40	7,00	68,0	72,0	23	23	750	1,65	AP3.1	AP3-Q	PR 3 NbV
PR 4.461	23,80	7,44	81,0	95,0	31	36	650	2,85	AP4	AP4-Q	PR 4 NbV
PR 4.462	33,90	10,60	110,0	132,0	43	50	550	4,00	AP4	AP4-Q	PR 5 NbV
PR 4.463	59,20	18,50	151,0	192,0	68	71	450	6,70	AP6	AP6-Q	PR 6 NbV
PR 4.085	91,80	23,70	207,0	243,0	73	83	100	12,50	AP90-Q		PR 8 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76)
C_A = Dynamic load capacity axial bearing (ISO 281/1), C_{0A} = Static load capacity axial bearing (ISO 76)
F_R = Load capacity radial bearing max. allowable force between bearing and profile
F_A = Load capacity axial bearing max. allowable force between bearing and profile

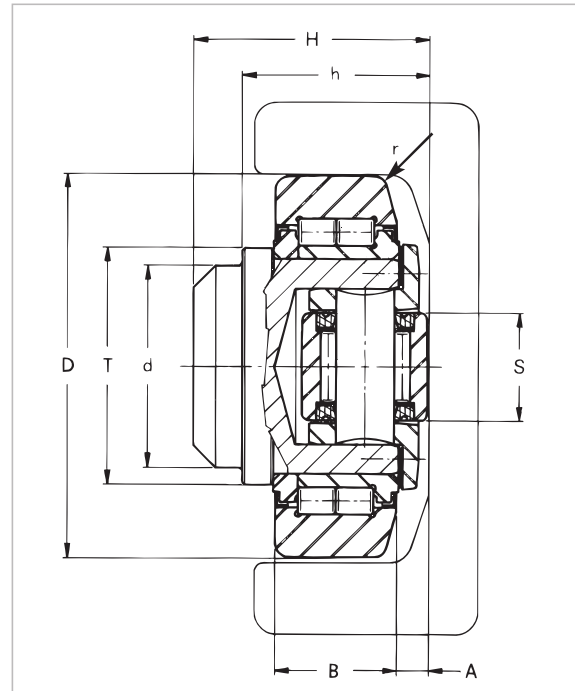


WINKEL-Rollen | WINKEL Bearings

WINKEL-Rolle axial über Scheiben justierbar



WINKEL Bearing axial bearing adjustable by shims



Justierung der Axialrolle

Die Einstellung des Maßes (A) erfolgt durch Distanzscheiben zwischen Hauptkörper und Bolzen der Seitenführungsrolle.

- Scheiben mit 0,5 und 1,0 mm sind lieferbar.
- Max. Einstellbereich + 2 mm

Sonderbolzen auf Anfrage.

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Adjusting of the Axial Bearing

The adjustment of dimension (A) is obtained by means of an insert positioned between the main body of the bearing and the housing of the side guide roller.

- Shims with 0.5 and 1.0 mm thickness are available.
- Max. adjusting + 2 mm

Special bolts on request.

CAD download in 2D/3D at www.winkel.de

Typ Type	Artikel-Nr. Article no.	D mm D mm	T mm T mm	d-0.05 mm d-0.05 mm	H* mm H* mm	h* mm h* mm	B mm B mm	A mm A mm	S mm S mm	r mm r mm
4.072	200.011.000	62,5	42	30	43,0	33,0	20	5,5	16	3
4.073	200.012.000	70,1	48	35	48,0	40,0	23	6,5	16	4
4.074	200.013.007	78,1	54	40	50,5	39,5	23	7,0	21	4
4.075	200.014.000	77,7	54	40	45,0	34,0	23	7,0	21	4
4.076	200.015.000	88,4	59	45	61,0	48,0	30	7,0	21	3
4.077	200.017.000	101,2	67	50	50,5	37,5	28	7,0	21	3
4.078	200.020.000	107,7	71	55	58,5	44,5	31	8,0	33	5
4.0784	200.016.000	107,7	71	60	69,0	55,0	31	8,0	33	5
4.079	200.018.000	123,0	80	60	75,5	59,5	37	8,0	33	5
4.080	200.019.000	149,0	103	60	88,0	69,0	45	15,0	50	5

C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)

C_A = Dyn. Tragzahl Axiallager (ISO 281/1), C_{0A} = Stat. Tragzahl Axiallager (ISO 76)

F_r = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

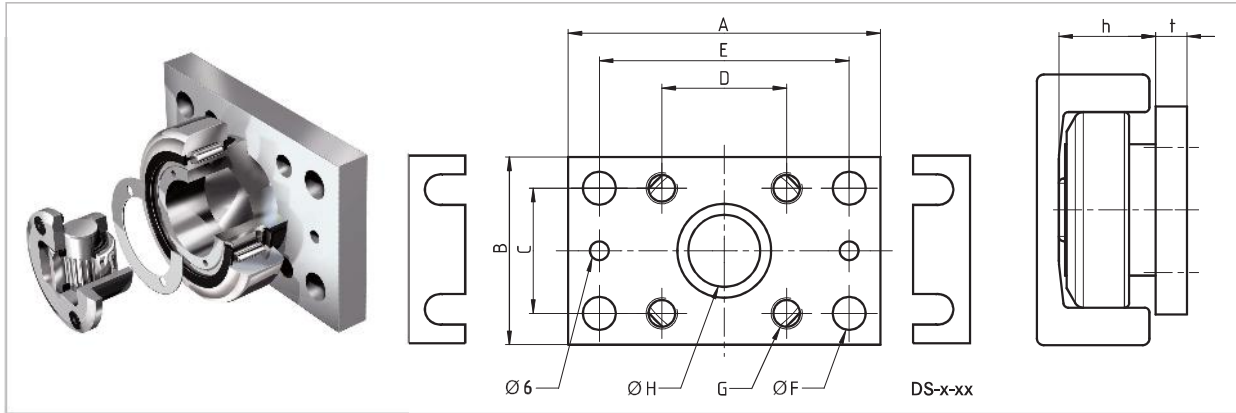
* Maße H und h ohne Distanzscheiben; max. +2 mm

WINKEL-Rollen | WINKEL Bearings



Passende Anschraubplatten

Suitable flange plates

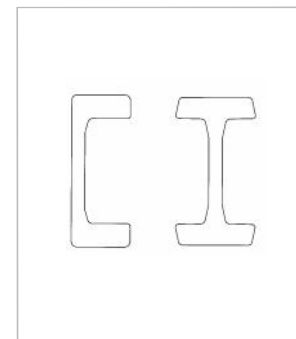
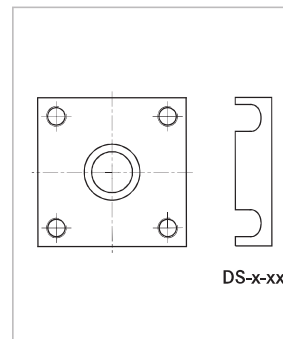


Typ Type	Artikel-Nr. Article no.	A	B	C	D	E	Ø F	G	Ø H	t	Distanzsteckblech 0,5mm Washer 0.5mm		Distanzsteckblech 1,0mm Washer 1.0mm	
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	50	50	90	12,5	M12	35	15	DS-1-0,5	238.021.000	DS-1-1,0	238.021.001
AP 2	212.005.000	120	80	50	50	90	12,5	M12	40	15	DS-2-0,5	238.021.000	DS-2-1,0	238.021.001
AP 3.1	212.006.001	160	100	60	60	120	17,0	M16	45	20	DS-3.1-0,5	238.105.000	DS-3.1-1,0	238.105.001
AP 4	212.007.001	180	120	80	80	140	17,0	M16	60	20	DS-4-0,5	238.023.000	DS-4-1,0	238.023.001
AP 6	212.008.000	200	150	100	100	160	17,0	M16	60	20	DS-6-0,5	238.024.000	DS-6-1,0	238.024.001

Anschraubplatten
quadratisch Reihe AP-Q S. 96
Flange plates
square series AP-Q page 96

Profile Seite 68 / 76
Profiles page 68 / 76

Typ Type	Distanzscheiben Shims	
	0,5 mm	1,0 mm
	4.072 -	S-4.072-0,5
4.073	200.900.000	200.900.001
4.074 -	S-4.074-0,5	S-4.074-1,0
4.077	200.901.000	200.901.001
4.078 -	S-4.078-0,5	S-4.078-1,0
4.079	200.902.000	200.902.001
4.080	S-4.080-0,5	S-4.080-1,0
	200.903.000	200.903.001



Typ Type	F _R kN F _R kN	F _A kN F _A kN	C kN C kN	C ₀ kN C ₀ kN	C _A kN C _A kN	C _{0A} kN C _{0A} kN	u/min max. r/pm max.	Gewicht kg Weight kg	Anschraubplatten Flange plates	Profile Standard Profiles standard
4.072	10,30	3,20	31,0	35,5	8	8	900	0,56	AP0 AP0-Q	0 NbV
4.073	12,40	3,87	45,5	51,0	14	14	800	0,85	AP1 AP1-Q	1 NbV 3018 NbV
4.074	12,90	4,00	48,0	56,8	14	14	700	1,02	AP2 AP2-Q	2 NbV
4.075	12,90	4,00	48,0	56,8	14	14	700	0,92	-	3019 NbV
4.076	22,40	7,00	68,0	72,0	15	15	600	1,69	AP3.1 AP3-Q	3 NbV 3020 NbV
4.077	22,00	7,00	73,0	82,0	18	19	600	1,85	-	2912 NbV
4.078	23,80	7,44	81,0	95,0	31	36	500	2,38	-	3100 NbV
4.0784	23,80	7,44	81,0	95,0	31	36	500	2,80	AP4 AP4-Q	4 NbV
4.079	33,90 (26,00)	10,60	110,0	132,0	35	38	500	4,08	AP4 AP4-Q	5 NbV (3353 NbV)
4.080	39,50	18,50	151,0	192,0	68	71	400	6,70	AP6 AP6-Q	6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76),
C_A = Dynamic load capacity axial bearing (ISO 281/1), C_{0A} = Static load capacity axial bearing (ISO 76)
F_R = Load capacity radial bearing max. allowable force between bearing and profile
F_A = Load capacity axial bearing max. allowable force between bearing and profile
* Dimension H and h without washers; max. + 2 mm



WINKEL-Rollen | WINKEL Bearings

Präzisions-WINKEL-Rolle

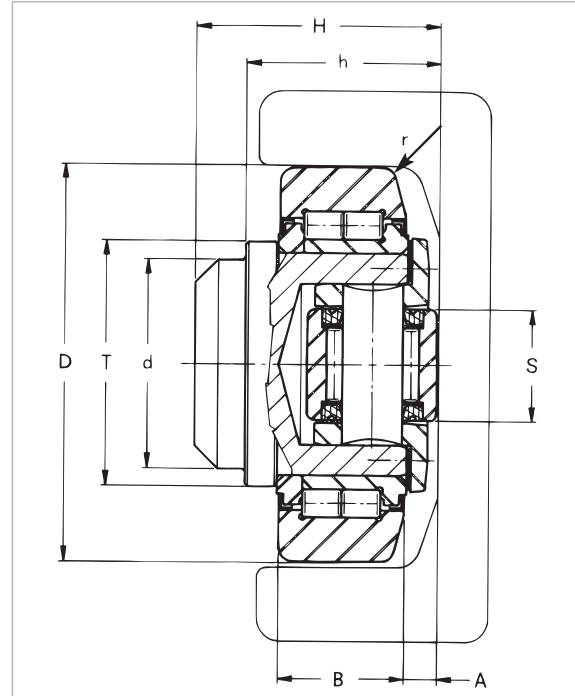
Typ PR

Axialrolle über Scheiben justierbar

Precision WINKEL Bearing

Type PR

Axial Bearing adjustable by shims



Justierung der Axialrolle

Die Einstellung des Maßes (A) erfolgt durch Distanzscheiben zwischen Hauptkörper und Bolzen der Seitenführungsrolle.

- Scheiben mit 0,5 und 1,0 mm sind lieferbar.
- Max. Einstellbereich + 2 mm

Sonderbolzen auf Anfrage.

CAD Download in 2D/3D unter www.winkel.de

Adjusting of the Axial Bearing

The adjustment of dimension (A) is obtained by means of an insert positioned between the main body of the bearing and the housing of the side guide roller.

- Shims with 0.5 and 1.0 mm thickness are available.
- Max. adjusting + 2 mm

Special bolts on request.

CAD download in 2D/3D at www.winkel.de

Typ Type	Artikel-Nr. Article no.	D mm D mm	T mm T mm	d-0.05 mm d-0.05 mm	H* mm H* mm	h* mm h* mm	B mm B mm	A mm A mm	S mm S mm	r mm r mm
PR 4.072	200.107.000	64,8	42	30	43,0	33,0	20	5,5	16	3
PR 4.073	200.108.000	73,8	48	35	48,0	40,0	23	6,5	16	4
PR 4.074	200.109.000	81,8	54	40	50,5	39,5	23	7,0	21	4
PR 4.076	200.110.000	92,8	59	45	61,0	48,0	30	7,0	21	3
PR 4.0784	200.111.000	111,8	71	60	69,0	55,0	31	8,0	33	5
PR 4.079	200.112.000	127,8	80	60	75,5	59,5	37	8,0	33	5
PR 4.080	200.113.000	153,8	103	60	88,0	69,0	45	15,0	50	5

C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)

C_A = Dyn. Tragzahl Axiallager (ISO 281/1), C_{0A} = Stat. Tragzahl Axiallager (ISO 76)

F_r = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

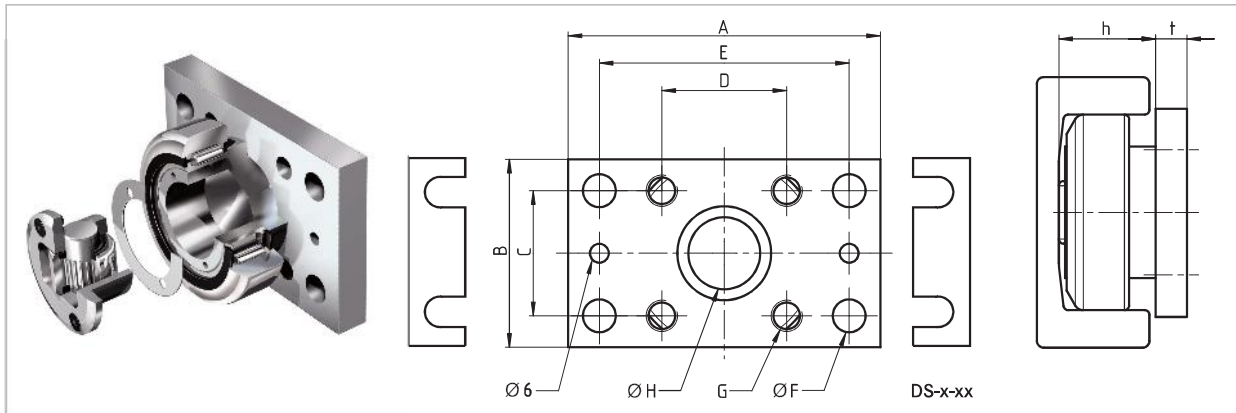
* Maße H und h ohne Distanzscheiben; max. +2 mm

WINKEL-Rollen | WINKEL Bearings



Passende Anschraubplatten

Suitable flange plates

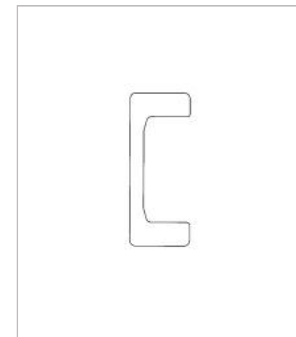
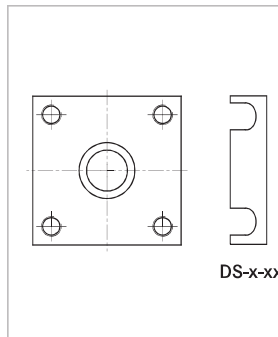


Typ Type	Artikel-Nr. Article no.	A A	B B	C C	D D	E E	Ø F Ø F	G G	Ø H Ø H	t t	Distanzsteckblech 0,5mm Washer 0.5mm	Distanzsteckblech 1,0mm Washer 1.0mm		
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	50	50	90	12,5	M12	35	15	DS-1-0,5	238.021.000	DS-1-1,0	238.021.001
AP 2	212.005.000	120	80	50	50	90	12,5	M12	40	15	DS-2-0,5	238.021.000	DS-2-1,0	238.021.001
AP 3.1	212.006.001	160	100	60	60	120	17,0	M16	45	20	DS-3.1-0,5	238.105.000	DS-3.1-1,0	238.105.001
AP 4	212.007.001	180	120	80	80	140	17,0	M16	60	20	DS-4-0,5	238.023.000	DS-4-1,0	238.023.001
AP 6	212.008.000	200	150	100	100	160	17,0	M16	60	20	DS-6-0,5	238.024.000	DS-6-1,0	238.024.001

Anschraubplatten
quadratisch Reihe AP-Q S. 96
Flange plates
square series AP-Q page 96

Profile Seite 72
Profiles page 72

Typ Type	Distanzscheiben Shims	
	0,5 mm	1,0 mm
PR 4.072 -	S-4.072-0,5	S-4.072-1,0
PR 4.073	200.900.000	200.900.001
PR 4.074 -	S-4.074-0,5	S-4.074-1,0
PR 4.077	200.901.000	200.901.001
PR 4.078 -	S-4.078-0,5	S-4.078-1,0
PR 4.079	200.902.000	200.902.001
PR 4.080	S-4.080-0,5	S-4.080-1,0
	200.903.000	200.903.001



Typ Type	F _r kN F _r kN	F _a kN F _a kN	C kN C kN	C ₀ kN C ₀ kN	C _A kN C _A kN	C _{0A} kN C _{0A} kN	u/min max. r/pm max.	Gewicht kg Weight kg	Anschraubplatten Flange plates	Profile Standard Profiles standard	
PR 4.072	10,30	3,20	31,0	35,5	8	8	900	0,56	AP0	AP0-Q	PR 0 NbV
PR 4.073	12,40	3,87	45,5	51,0	14	14	800	0,85	AP1	AP1-Q	PR 1 NbV
PR 4.074	12,90	4,00	48,0	56,8	14	14	700	1,02	AP2	AP2-Q	PR 2 NbV
PR 4.076	22,40	7,00	68,0	72,0	15	15	600	1,69	AP3.1	AP3-Q	PR 3 NbV
PR 4.0784	23,80	7,44	81,0	95,0	31	36	500	2,80	AP4	AP4-Q	PR 4 NbV
PR 4.079	33,90	10,60	110,0	132,0	35	38	500	4,08	AP4	AP4-Q	PR 5 NbV
PR 4.080	39,50	18,50	151,0	192,0	68	71	400	6,70	AP6	AP6-Q	PR 6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76)
 C_A = Dynamic load capacity axial bearing (ISO 281/1), C_{0A} = Static load capacity axial bearing (ISO 76)
 F_r = Load capacity radial bearing max. allowable force between bearing and profile
 F_a = Load capacity axial bearing max. allowable force between bearing and profile
 * Dimension H and h without washers; max. + 2 mm



WINKEL-Rollen | WINKEL Bearings

WINKEL-Rolle justierbar mit OILAMID*-Einsatz



Die Einstellung des Maßes (A) erfolgt durch Distanzscheiben zwischen Hauptkörper und Oilamid-Einsatz.

- Scheiben mit 0,5 und 1,0 mm sind lieferbar.
- Max. Einstellbereich + 2 mm
- Sonderbolzen auf Anfrage.

Hinweis: Bei hoher axialer Belastung ist eine Bearbeitung der Gleitfläche zu empfehlen.

CAD Download in 2D/3D unter www.winkel.de

*Oilamid ist ein hochabriebfester selbstschmierender Polyamid.

The adjustment of dimension (A) is obtained by means of an insert positioned between the main body of the bearing and the oilamid insert.

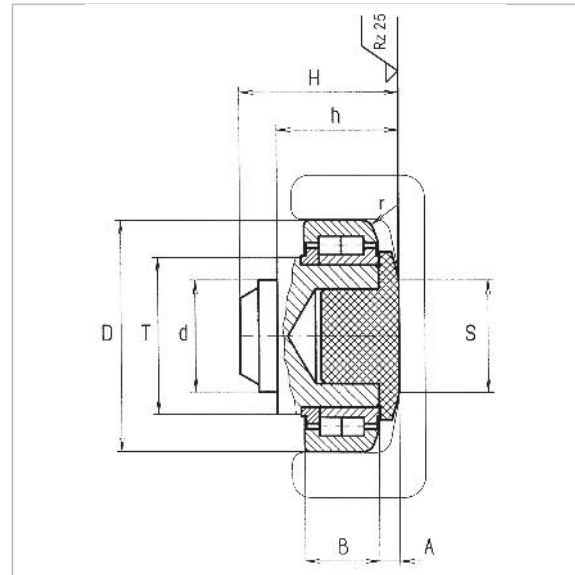
- Shims with 0.5 and 1.0 mm thickness are available.
- Max. adjusting + 2 mm
- Special bolts on request.

Notice: At high axial forces we recommend to mill the axial raceway of the profile.

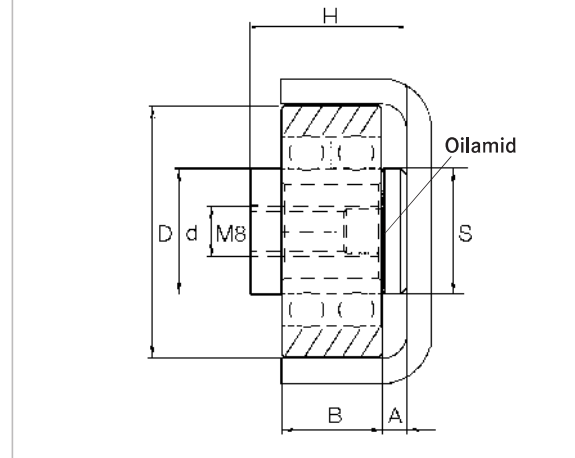
CAD download in 2D/3D at www.winkel.de

*Oilamid is a high resistant, self lubricant Polyamide

WINKEL Bearing adjustable with OILAMID* insert



nur 4.052 P | only 4.052 P



Typ Type	Artikel-Nr. Article no.	D mm D mm	T mm T mm	d-0.05 mm d-0.05 mm	H* mm H* mm	h* mm h* mm	B mm B mm	A mm A mm	S mm S mm	r mm r mm
4.052 P	200.143.000	40,0	-	20	25,0	-	16	4,0	ø 20	-
4.072 P	200.011.002	62,5	42	30	43,0	33,0	20	5,5	ø 25	3
4.073 P	200.012.002	70,1	48	35	48,0	40,0	23	6,5	ø 33	4
4.074 P	200.013.002	78,1	54	40	50,5	39,5	23	7,0	ø 40	4
4.076 P	200.015.002	88,4	59	45	61,0	48,0	30	7,0	ø 45	3
4.0784 P	200.016.002	107,7	71	60	69,0	55,0	31	8,0	ø 60	5
4.079 P	200.018.002	123,0	80	60	75,5	59,5	37	8,0	ø 70	5
4.080 P	200.019.001	149,0	103	60	81,0	62,0	45	8,0	ø 100	5
4.085 P	201.049.002	180,0	124	100	99,2	79,8	57,3	10,0	ø 112	5

C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)

F_r = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

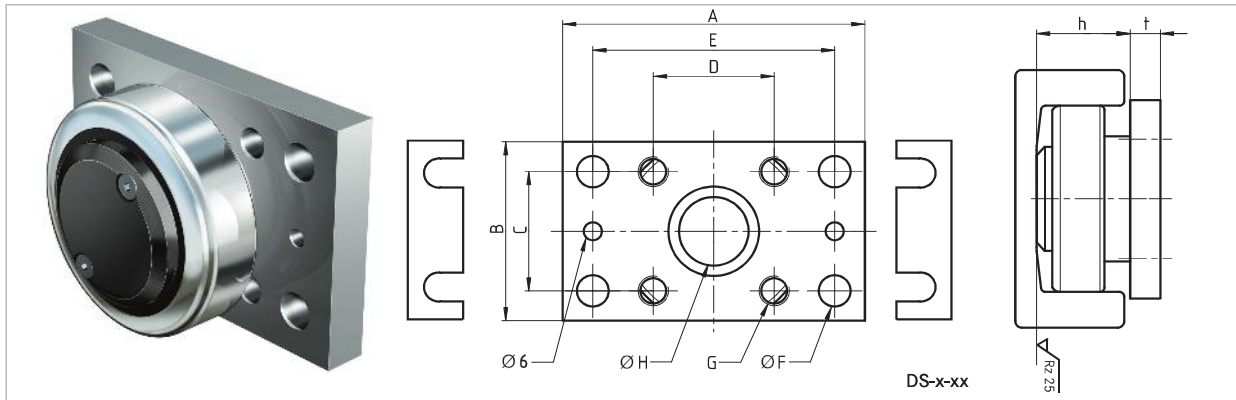
* Maße H und h ohne Distanzscheiben; max. +2 mm

WINKEL-Rollen | WINKEL Bearings



Passende Anschraubplatten

Suitable flange plates

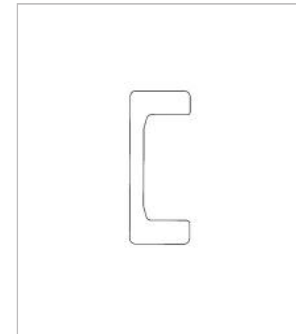
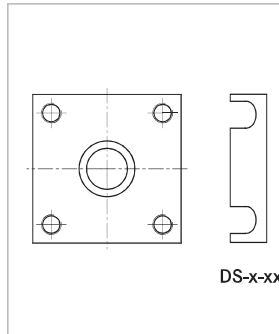


Typ Type	Artikel-Nr. Article no.	A	B	C	D	E	Ø F	G	Ø H	t	Distanzsteckblech 0,5mm Washer 0.5mm	Distanzsteckblech 1,0mm Washer 1.0mm
AP A	212.042.000	65	45	30	30	50	6,5	M 6	15	5	DS-A-0,5	238.026.000
AP 0	212.003.000	100	60	40	40	80	10,5	M 10	30	10	DS-0-0,5	238.020.000
AP 1	212.004.000	120	80	50	50	90	12,5	M 12	35	15	DS-1-0,5	238.021.000
AP 2	212.005.000	120	80	50	50	90	12,5	M 12	40	15	DS-2-0,5	238.021.000
AP 3.1	212.006.001	160	100	60	60	120	17,0	M 16	45	20	DS-3.1-0,5	238.105.000
AP 4	212.007.001	180	120	80	80	140	17,0	M 16	60	20	DS-4-0,5	238.023.000
AP 6	212.008.000	200	150	100	100	160	17,0	M 16	60	20	DS-6-0,5	238.024.001

Anschraubplatten
quadratisch Reihe AP-Q S. 96
Flange plates
square series AP-Q page 96

Profile Seite 68
Profiles page 68

Typ Type	Distanzscheiben Shims	
	0,5 mm	1,0 mm
4.072 P -	S-4.072-0,5	S-4.072-1,0
4.073 P	200.900.000	200.900.001
4.074 P -	S-4.074-0,5	S-4.074-1,0
4.077 P	200.901.000	200.901.001
4.078 P -	S-4.078-0,5	S-4.078-1,0
4.079 P	200.902.000	200.902.001
4.080 P	S-4.080-0,5 200.903.000	S-4.080-1,0 200.903.001



Typ Type	F _R kN F _R kN	F _A kN F _A kN	C kN C kN	C ₀ kN C ₀ kN	u/min max. r/pm max.	Gewicht kg Weight kg	Anschraubplatten Flange plates	Profile Profiles
4.052 P	0,80	3,1	10,0	5,7	800	0,15	APA APA-Q	A
4.072 P	10,30	4,0	31,0	35,5	900	0,49	AP0 AP0-Q	0 NbV
4.073 P	12,40	6,7	45,5	51,0	800	0,74	AP1 AP1-Q	1 NbV
4.074 P	12,90	7,2	48,0	56,8	700	0,94	AP2 AP2-Q	2 NbV
4.076 P	22,40	8,9	68,0	72,0	600	1,57	AP3.1 AP3-Q	3 NbV
4.0784 P	23,80	14,4	81,0	95,0	500	2,63	AP4 AP4-Q	4 NbV
4.079 P	33,90	38,4	110,0	132,0	500	3,90	AP4 AP4-Q	5 NbV
4.080 P	59,20	41,6	151,0	192,0	400	6,50	AP6 AP6-Q	6 NbV
4.085 P	91,80	41,6	207,0	243,0	200	11,50	AP90Q	8 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76)

F_R = Load capacity radial bearing max. allowable force between bearing and profile,

F_A = Load capacity axial bearing max. allowable force between bearing and profile

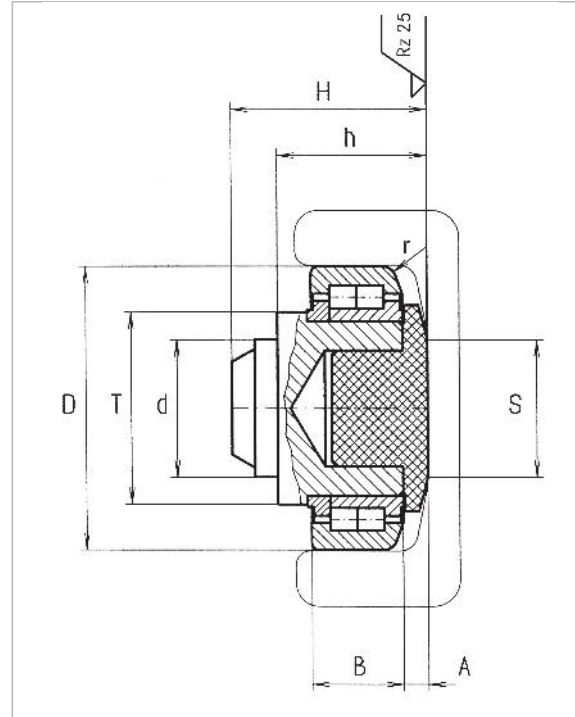
* Dimension H and h without washers; max. 2 mm



WINKEL-Rollen | WINKEL Bearings

Präzisions-WINKEL-Rolle
 Typ PR-P
 WINKEL-Rolle justierbar mit
 Oilamid*-Einsatz

Precision WINKEL Bearing
 Type PR-P
 WINKEL Bearing adjustable with
 Oilamid* insert



Die Einstellung des Maßes (A) erfolgt durch Distanzscheiben zwischen Hauptkörper und Oilamid-Einsatz.

- Scheiben mit 0,5 und 1,0 mm sind lieferbar.
- Max. Einstellbereich + 2 mm
- Sonderbolzen auf Anfrage.

Hinweis: Bei hoher axialer Belastung ist eine Bearbeitung der Gleitfläche zu empfehlen.

CAD Download in 2D/3D unter www.winkel.de

*Oilamid ist ein hochabriebfester selbstschmierender Polyamid.

The adjustment of dimension (A) is obtained by means of an insert positioned between the main body of the bearing and the oilamid insert.

- Shims with 0.5 and 1.0 mm thickness are available.
- Max. adjusting + 2 mm
- Special bolts on request.

Notice: At high axial forces we recommend to mill the axial raceway of the profile.

CAD download in 2D/3D at www.winkel.de

*Oilamid is a high resistant, self lubricant Polyamide

Typ Type	Artikel-Nr. Article no.	D mm D mm	T mm T mm	d-0.05 mm d-0.05 mm	H* mm H* mm	h* mm h* mm	B mm B mm	A mm A mm	S mm S mm	r mm r mm
PR 4.072 P	200.011.003	64,8	42	30	43,0	33,0	20,0	5,5	∅ 25	3
PR 4.073 P	200.013.005	73,8	48	35	48,0	40,0	23,0	6,5	∅ 33	4
PR 4.074 P	200.013.004	81,8	54	40	50,5	39,5	23,0	7,0	∅ 40	4
PR 4.076 P	200.015.003	92,8	59	45	61,0	48,0	30,0	7,0	∅ 45	3
PR 4.0784 P	200.067.000	111,8	71	60	69,0	55,0	31,0	8,0	∅ 60	5
PR 4.079 P	200.154.000	127,8	80	60	75,5	59,5	37,0	8,0	∅ 70	5
PR 4.080 P	200.155.000	153,8	103	60	81,0	62,0	45,0	8,0	∅ 100	5
PR 4.085 P	201.049.010	184,8	124	100	99,2	79,8	57,3	10,0	∅ 112	5

C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)

F_R = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

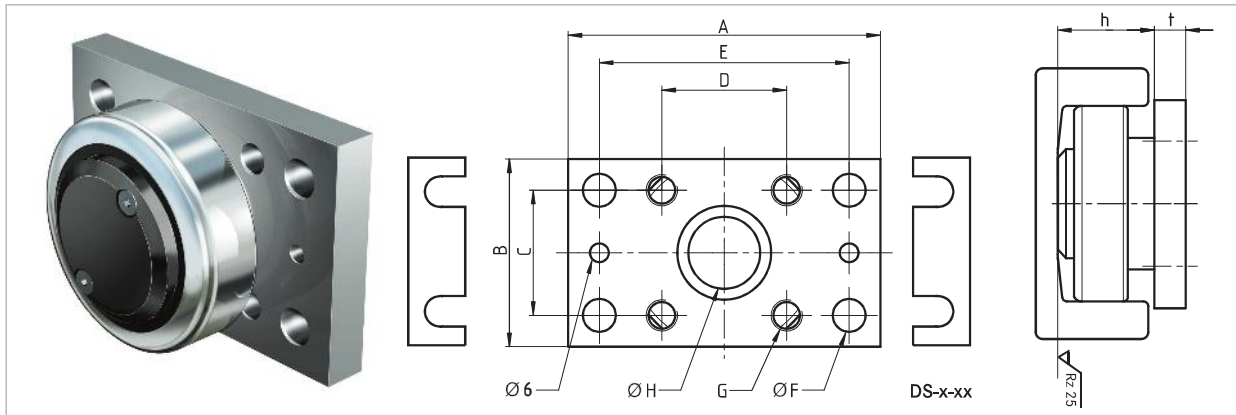
* Maße H und h ohne Distanzscheiben; max. +2 mm

WINKEL-Rollen | WINKEL Bearings



Passende Anschraubplatten

Suitable flange plates

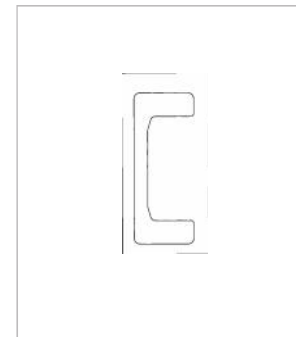
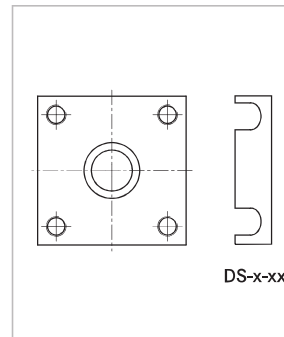


Typ Type	Artikel-Nr. Article no.	A	B	C	D	E	Ø F	G	Ø H	t	Distanzsteckblech 0,5mm Washer 0.5mm		Distanzsteckblech 1,0mm Washer 1.0mm	
											DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	50	50	90	12,5	M12	35	15	DS-1-0,5	238.021.000	DS-1-1,0	238.021.001
AP 2	212.005.000	120	80	50	50	90	12,5	M12	40	15	DS-2-0,5	238.021.000	DS-2-1,0	238.021.001
AP 3.1	212.006.001	160	100	60	60	120	17,0	M16	45	20	DS-3.1-0,5	238.105.000	DS-3.1-1,0	238.105.001
AP 4	212.007.001	180	120	80	80	140	17,0	M16	60	20	DS-4-0,5	238.023.000	DS-4-1,0	238.023.001
AP 6	212.008.000	200	150	100	100	160	17,0	M16	60	20	DS-6-0,5	238.024.000	DS-6-1,0	238.024.001

Anschraubplatten
quadratisch Reihe AP-Q S. 96
Flange plates
square series AP-Q page 96

Profile Seite 72
Profiles page 72

Typ Type	Distanzscheiben Shims	
	0,5 mm	1,0 mm
PR 4.072 P -	S-4.072-0,5	S-4.072-1,0
PR 4.073 P	200.900.000	200.900.001
PR 4.074 P -	S-4.074-0,5	S-4.074-1,0
PR 4.077 P	200.901.000	200.901.001
PR 4.078 P -	S-4.078-0,5	S-4.078-1,0
PR 4.079 P	200.902.000	200.902.001
PR 4.080 P	S-4.080-0,5	S-4.080-1,0
	200.903.000	200.903.001



Typ Type	F _R kN F _R kN	F _A kN F _A kN	C kN C kN	C ₀ kN C ₀ kN	u/min max. r/pm max.	Gewicht kg Weight kg	Anschraubplatten Flange plates	Profile Profiles
PR 4.072 P	10,30	4,0	31,0	35,5	900	0,49	AP0 AP0-Q	PR 0 NbV
PR 4.073 P	12,40	6,7	45,5	51,0	800	0,74	AP1 AP1-Q	PR 1 NbV
PR 4.074 P	12,90	7,2	48,0	56,8	700	0,94	AP2 AP2-Q	PR 2 NbV
PR 4.076 P	22,40	8,9	68,0	72,0	600	1,57	AP3.1 AP3-Q	PR 3 NbV
PR 4.0784 P	23,80	14,4	81,0	95,0	500	2,63	AP4 AP4-Q	PR 4 NbV
PR 4.079 P	33,90	38,4	110,0	132,0	500	3,90	AP4 AP4-Q	PR 5 NbV
PR 4.080 P	59,20	41,6	151,0	192,0	400	6,50	AP6 AP6-Q	PR 6 NbV
PR 4.085 P	91,80	41,6	207,0	243,0	200	11,50	AP90-Q	PR 8 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76)
 F_R = Load capacity radial bearing max. allowable force between bearing and profile
 F_A = Load capacity axial bearing max. allowable force between bearing and profile
 * Dimension H and h without washers; max. 2 mm



WINKEL-Rollen | WINKEL Bearings

WINKEL-Rolle mit Kombibolzen Typ KB

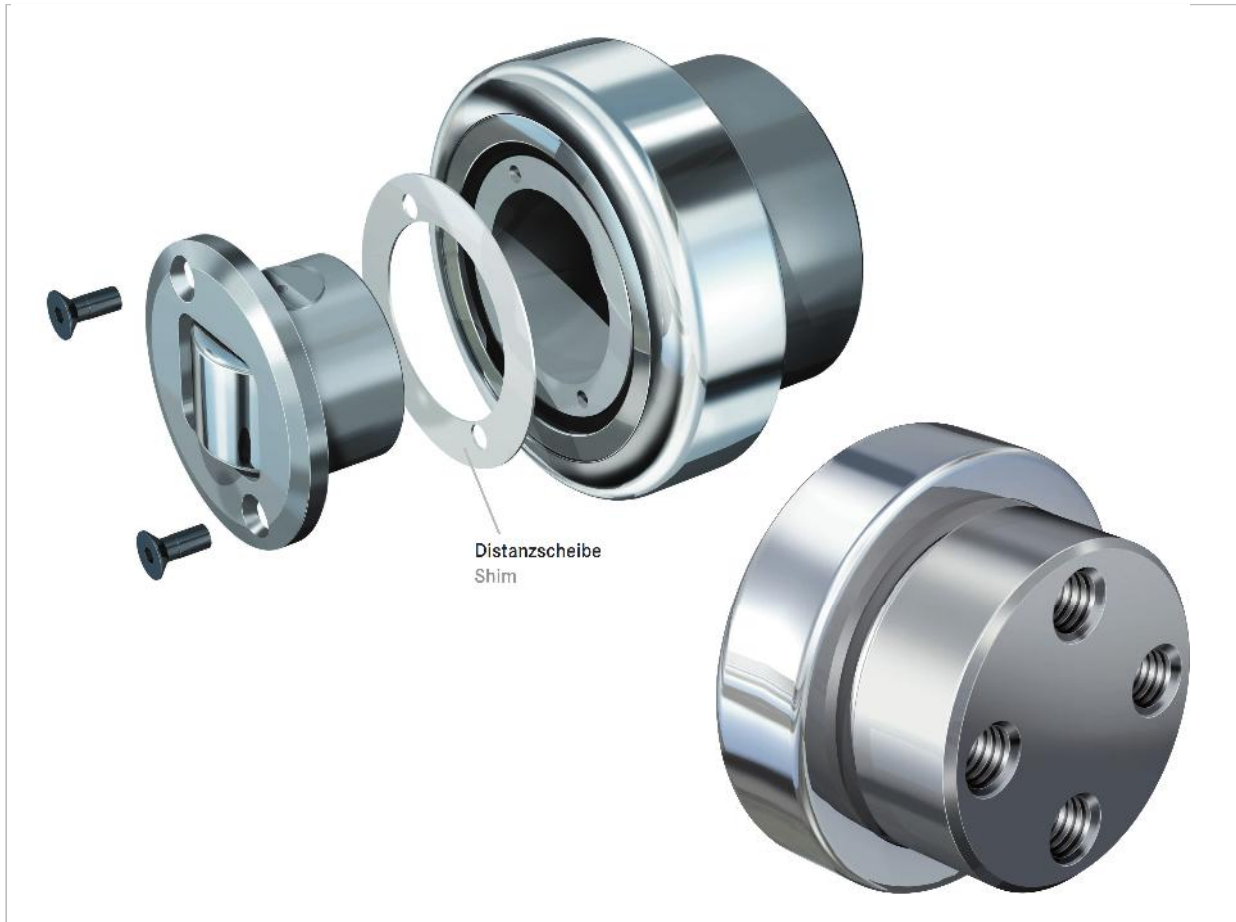
Vorteile:

- universelle Befestigungsmöglichkeit
- wahlweise Anschrauben oder Anschweißen des Befestigungsbolzens
- keine Anschraubplatte erforderlich

WINKEL Bearing with combined bolt Type KB

Advantages:

- free choice of mounting
- the bolt can be welded or screwed to your design
- no flange necessary



- Scheiben mit 0,5 und 1,0 mm sind lieferbar.
- Max. Einstellbereich + 2 mm

CAD Download in 2D/3D unter www.winkel.de

- Shims with 0.5 and 1.0 mm thickness are available.
- Max. adjusting + 2 mm

CAD download in 2D/3D at www.winkel.de

Typ Type	Artikel-Nr. Article no.	B B	A* A*	C C	D D	E E	F F	G G
KB 4.072	200.162.000	62,5	43,0	50	17,5	20	M10x13	30
KB 4.073	200.163.000	70,1	55,0	60	25,5	23	M12x18	40
KB 4.074	200.164.000	78,1	54,5	60	24,5	23	M12x18	40
KB 4.076	200.165.000	88,4	68,0	70	31,0	30	M14x20	44
KB 4.0784	200.166.000	107,7	75,0	80	36,0	31	M14x22	54
KB 4.079	200.167.000	123,0	79,2	100	34,2	37	M16x23	60
KB 4.080	200.168.000	149,0	89,0	120	29,0	45	M16x23	80

C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)

C_A = Dyn. Tragzahl Axiallager (ISO 281/1), C_{0A} = Stat. Tragzahl Axiallager (ISO 76)

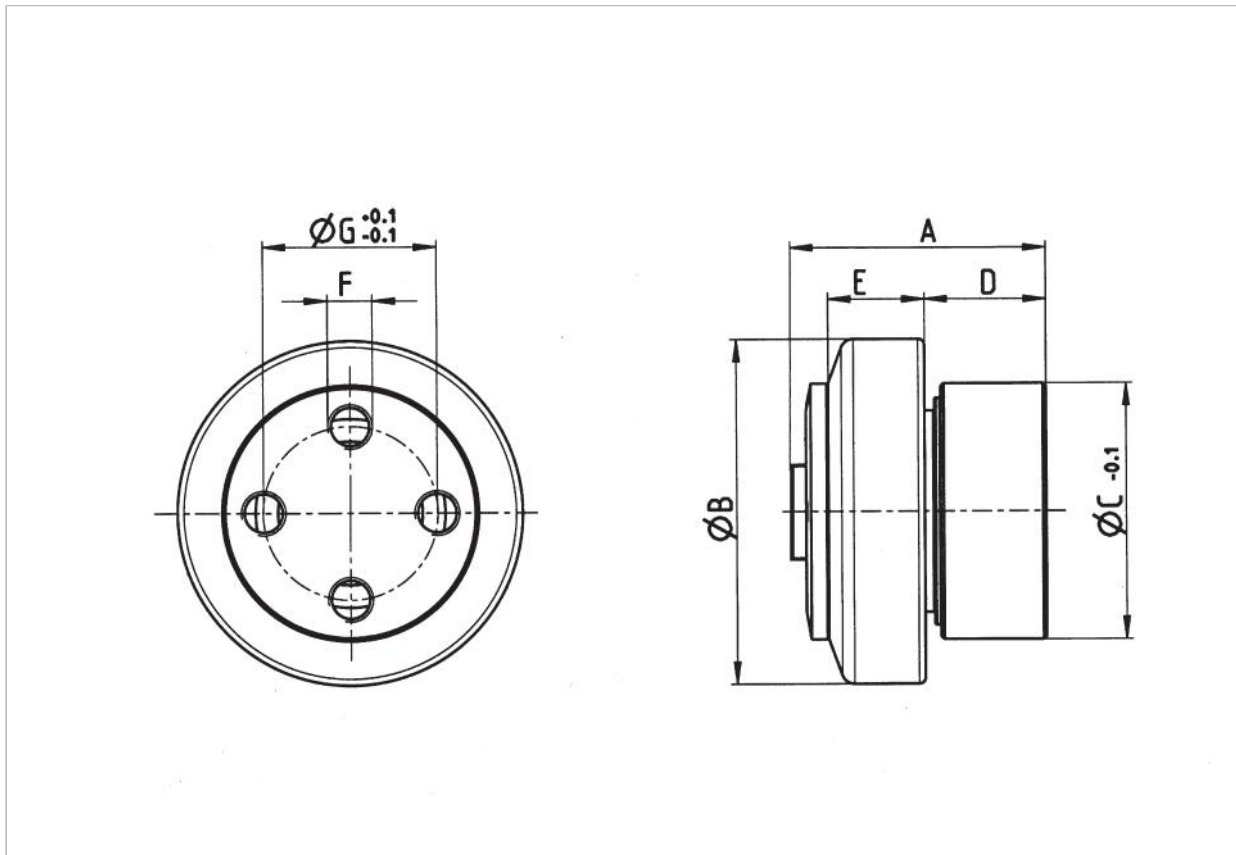
F_r = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

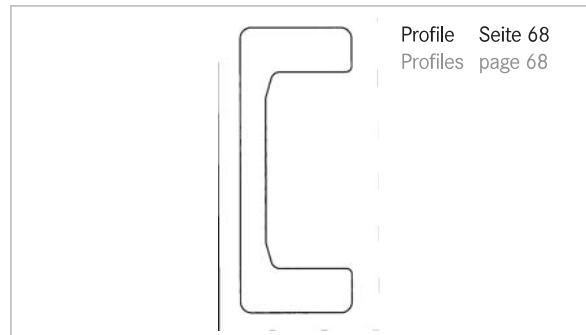
*Maß A ohne Distanzscheiben; max. +2 mm



WINKEL-Rollen | WINKEL Bearings



Typ Type	Distanzscheiben Shims	
	0,5 mm	1,0 mm
KB 4.072 -	S-4.072-0,5	S-4.072-1,0
KB 4.073	200.900.000	200.900.001
KB 4.074 -	S-4.074-0,5	S-4.074-1,0
KB 4.077	200.901.000	200.901.001
KB 4.078 -	S-4.078-0,5	S-4.078-1,0
KB 4.079	200.902.000	200.902.001
KB 4.080	S-4.080-0,5	S-4.080-1,0
	200.903.000	200.903.001



Typ Type	F _R kN F _R kN	F _A kN F _A kN	C kN C kN	C ₀ kN C ₀ kN	C _A kN C _A kN	C _{0A} kN C _{0A} kN	u/min max. r/pm max.	Gewicht kg Weight kg	Profile Profiles
KB 4.072	10,30	3,20	31,0	35,5	8	8	900	0,65	0 NbV
KB 4.073	12,40	3,87	45,5	51,0	14	14	800	1,10	1 NbV
KB 4.074	12,90	4,00	48,0	56,8	14	14	700	1,20	2 NbV
KB 4.076	22,40	7,00	68,0	72,0	15	15	600	2,05	3 NbV
KB 4.0784	23,80	7,44	81,0	95,0	31	36	500	3,20	4 NbV
KB 4.079	33,90	10,60	110,0	132,0	35	38	500	4,90	5 NbV
KB 4.080	39,50	18,50	151,0	192,0	68	71	400	8,00	6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76)
 C_A = Dynamic load capacity axial bearing (ISO 281/1), C_{0A} = Static load capacity axial bearing (ISO 76)
 F_R = Load capacity radial bearing max. allowable force between bearing and profile
 F_A = Load capacity axial bearing max. allowable force between bearing and profile
 *Dimension A without washers; max. 2 mm



WINKEL-Rollen | WINKEL Bearings

**Präzisions-WINKEL-Rolle
mit Kombibolzen
Typ KB PR**

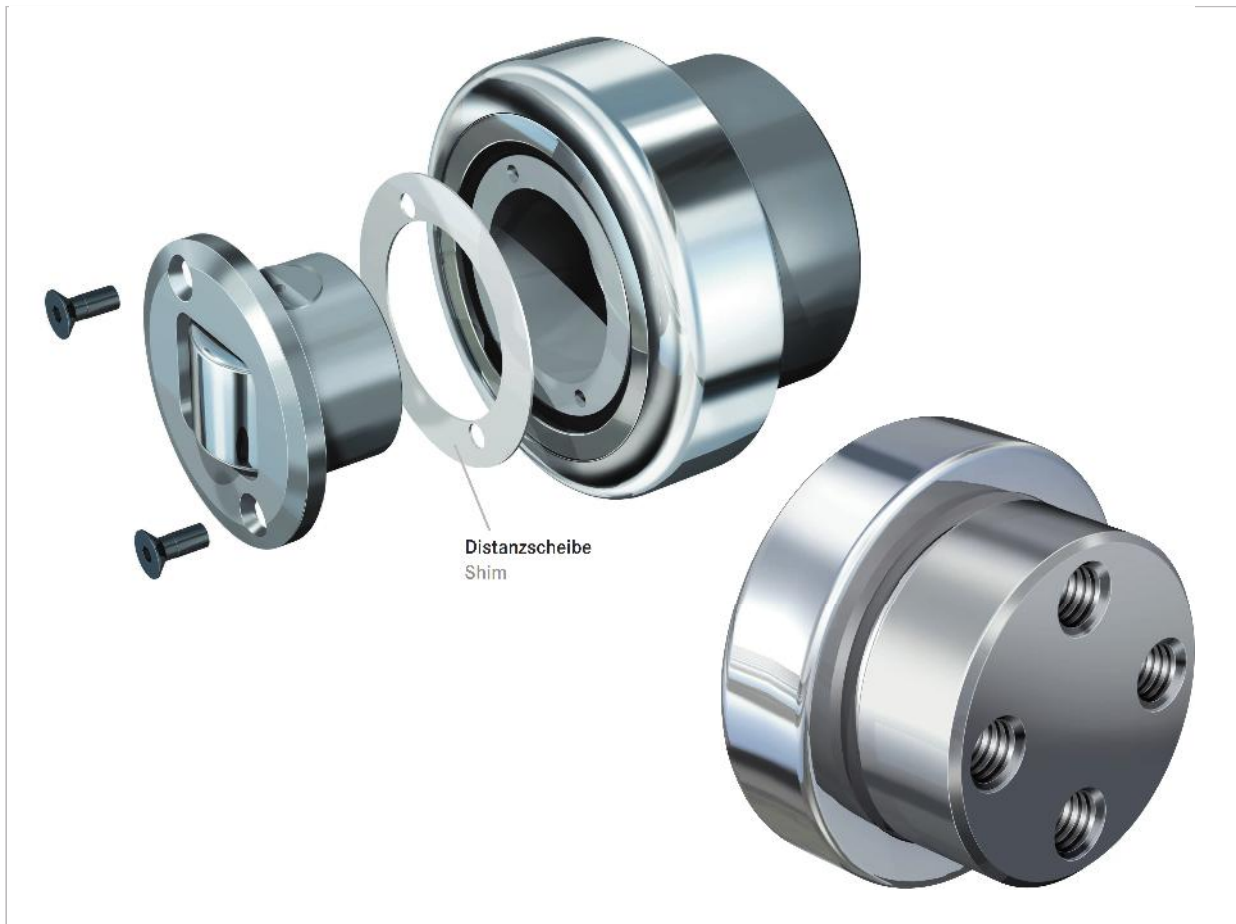
Vorteile:

- universelle Befestigungsmöglichkeit
- wahlweise Anschrauben oder Anschweißen des Befestigungsbolzens
- keine Anschraubplatte erforderlich

**Precision WINKEL Bearing
with combined bolt
Type KB PR**

Advantages:

- free choice of mounting
- the bolt can be welded or screwed to your design
- no flange necessary



- Scheiben mit 0,5 und 1,0 mm sind lieferbar.
- Max. Einstellbereich + 2 mm

CAD Download in 2D/3D unter www.winkel.de

- Shims with 0.5 and 1.0 mm thickness are available.
- Max. adjusting + 2 mm

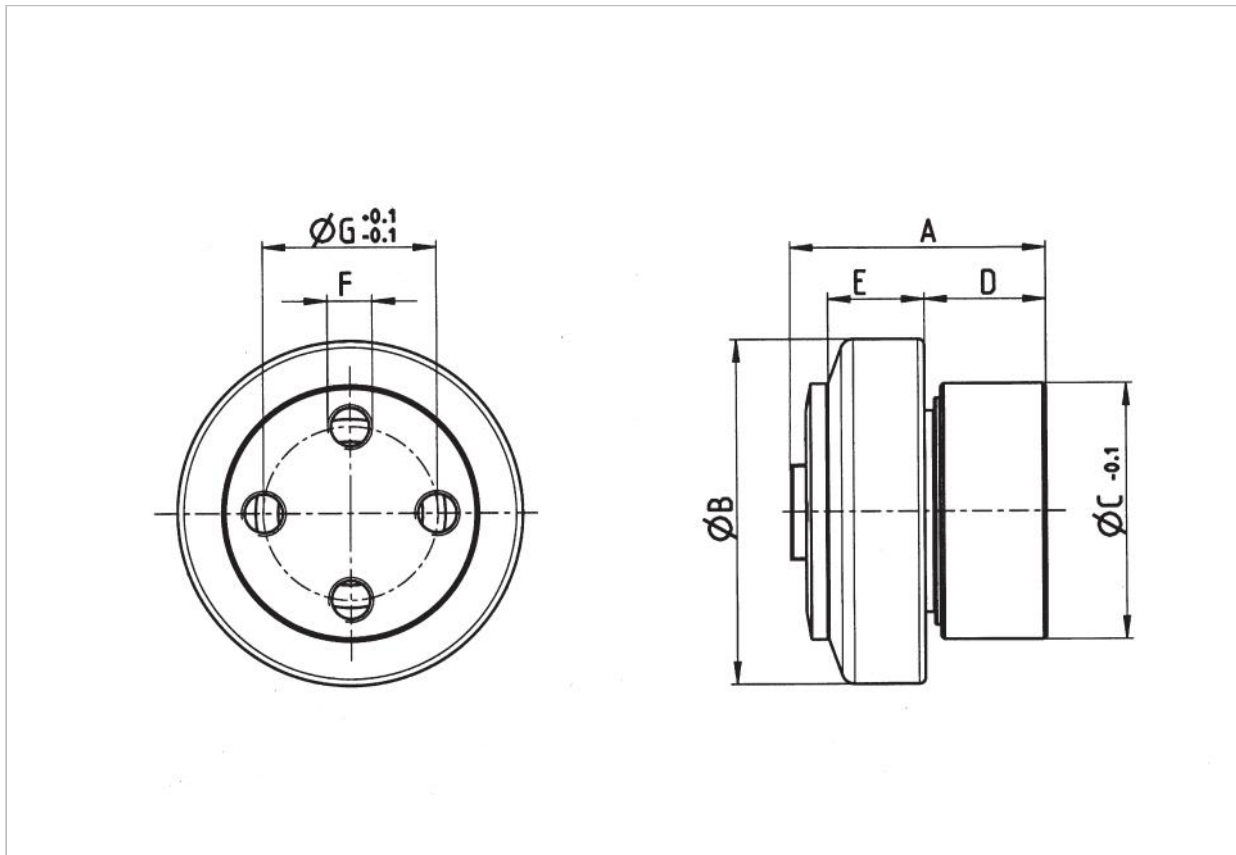
CAD download in 2D/3D at www.winkel.de

Typ Type	Artikel-Nr. Article no.	B	A*	C	D	E	F	G
		B	A*	C	D	E	F	G
KB PR 4.072	200.202.000	64,8	43,0	50	17,5	20	M 10x13	30
KB PR 4.073	200.203.000	73,8	55,0	60	25,5	23	M 12x18	40
KB PR 4.074	200.204.000	81,8	54,5	60	24,5	23	M 12x18	40
KB PR 4.076	200.205.000	92,8	68,0	70	31,0	30	M 14x20	44
KB PR 4.0784	200.206.000	111,8	75,0	80	36,0	31	M 14x22	54
KB PR 4.079	200.207.000	127,8	79,2	100	34,2	37	M 16x23	60
KB PR 4.080	200.208.000	153,8	89,0	120	29,0	45	M 16x23	80

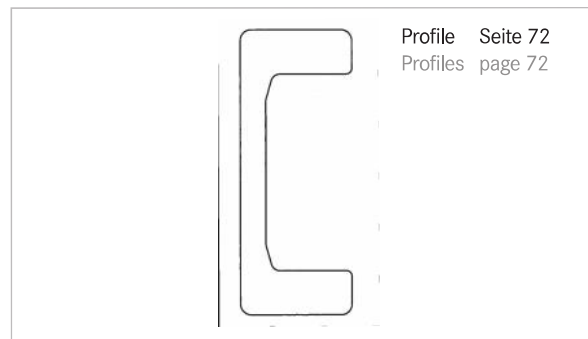
C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76),
 C_A = Dyn. Tragzahl Axiallager (ISO 281/1), C_{0A} = Stat. Tragzahl Axiallager (ISO 76),
 F_r = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil,
 F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil
 *Maß A ohne Distanzscheiben; max. +2 mm



WINKEL-Rollen | WINKEL Bearings



Typ Type	Distanzscheiben Shims	
	0,5 mm	1,0 mm
KB PR 4.072 -	S-4.072-0,5	S-4.072-1,0
KB PR 4.073	200.900.000	200.900.001
KB PR 4.074 -	S-4.074-0,5	S-4.074-1,0
KB PR 4.077	200.901.000	200.901.001
KB PR 4.078 -	S-4.078-0,5	S-4.078-1,0
KB PR 4.079	200.902.000	200.902.001
KB PR 4.080	S-4.080-0,5	S-4.080-1,0
	200.903.000	200.903.001



Typ Type	F_R kN F_R kN	F_A kN F_A kN	C kN C kN	C_0 kN C_0 kN	C_A kN C_A kN	C_{0A} kN C_{0A} kN	u/min max. r/pm max.	Gewicht kg Weight kg	Profile Profiles
KB PR 4.072	10,30	3,20	31,0	35,5	8	8	900	0,68	PR 0 NbV
KB PR 4.073	12,40	3,87	45,5	51,0	14	14	800	1,15	PR 1 NbV
KB PR 4.074	12,90	4,00	48,0	56,8	14	14	700	1,30	PR 2 NbV
KB PR 4.076	22,40	7,00	68,0	72,0	15	15	600	2,13	PR 3 NbV
KB PR 4.0784	23,80	7,44	81,0	95,0	31	36	500	3,34	PR 4 NbV
KB PR 4.079	33,90	10,60	110,0	132,0	35	38	500	5,10	PR 5 NbV
KB PR 4.080	39,50	18,50	151,0	192,0	68	71	400	8,30	PR 6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C_0 = Static load capacity radial bearing (ISO 76),
 C_A = Dynamic load capacity axial bearing (ISO 281/1), C_{0A} = Static load capacity axial bearing (ISO 76),
 F_R = Load capacity radial bearing max. allowable force between bearing and profile,
 F_A = Load capacity axial bearing max. allowable force between bearing and profile
 *Dimension A without washers; max. 2 mm



WINKEL-Rollen | WINKEL Bearings

**WINKEL-Rolle mit Kombibolzen und Oilamid* Einsatz
Typ KB P**

Vorteile:

- universelle Befestigungsmöglichkeit
- wahlweise Anschrauben oder Anschweißen des Befestigungsbolzens

**WINKEL Bearing with combined bolt and oilamid* insert
Type KB P**

Advantages:

- free choice of bolt assembly
- the bolt can be welded or screwed to your design



Die Einstellung des Maßes (A) erfolgt durch Distanzscheiben zwischen Hauptkörper und Oilamid-Einsatz.

- Scheiben mit 0,5 und 1,0 mm sind lieferbar.
- Max. Einstellbereich + 2 mm
- Sonderbolzen auf Anfrage.

Hinweis: Bei hoher axialer Belastung ist eine Bearbeitung der Gleitfläche zu empfehlen.

CAD Download in 2D/3D unter www.winkel.de

*Oilamid ist ein hochabriebfester selbstschmierender Polyamid.

The adjustment of dimension (A) is obtained by means of an insert positioned between the main body of the bearing and the oilamid insert.

- Shims with 0.5 and 1.0 mm thickness are available.
- Max. adjusting + 2 mm
- Special bolts on request.

Notice: At high axial forces we recommend to mill the axial raceway of the profile.

CAD download in 2D/3D at www.winkel.de

*Oilamid is a high resistant, self lubricant Polyamide

Typ Type	Artikel-Nr. Article no.	B B	A* A*	C C	D D	E E	F F	G G
KB 4.072 P	200.222.000	62,5	43,0	50	17,5	20	M10x13	30
KB 4.073 P	200.223.000	70,1	55,0	60	25,5	23	M12x18	40
KB 4.074 P	200.224.001	78,1	54,5	60	24,5	23	M12x18	40
KB 4.076 P	200.225.000	88,4	68,0	70	31,0	30	M14x20	44
KB 4.0784 P	200.226.000	107,7	75,0	80	36,0	31	M14x22	54
KB 4.079 P	200.227.000	123,0	79,2	100	34,2	37	M16x23	60
KB 4.080 P	200.228.000	149,0	82,0	120	29,0	45	M16x23	80

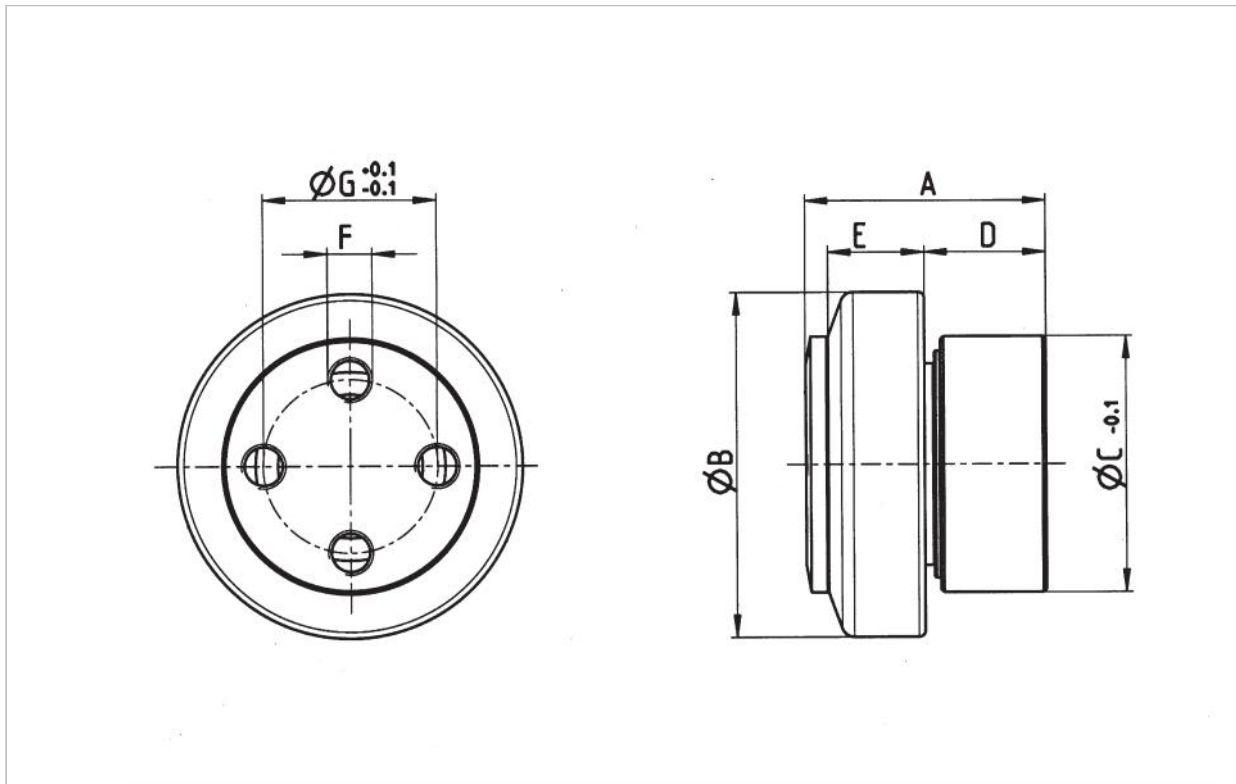
C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)

F_n = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

*Maß A ohne Distanzscheiben; max. +2 mm

WINKEL-Rollen | WINKEL Bearings

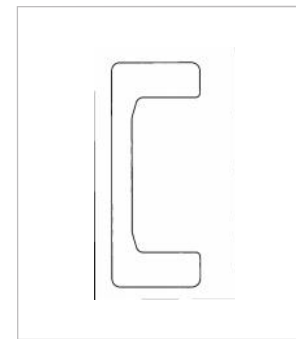
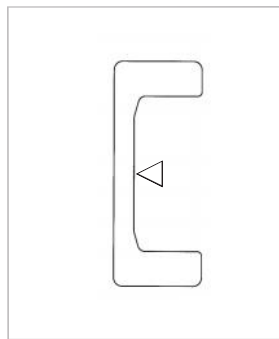


Hinweis: Bei hoher axialer Belastung ist eine spanende Bearbeitung der Gleitfläche zu empfehlen.

Notice: At high axial forces we recommend to mill the axial raceway of the profile.

Profile Seite 68
Profiles page 68

Typ Type	Distanzscheiben Shims	
	0,5 mm	1,0 mm
KB 4.072 P -	S-4.072-0,5	S-4.072-1,0
KB 4.073 P	200.900.000	200.900.001
KB 4.074 P -	S-4.074-0,5	S-4.074-1,0
KB 4.077 P	200.901.000	200.901.001
KB 4.078 P -	S-4.078-0,5	S-4.078-1,0
KB 4.079 P	200.902.000	200.902.001
KB 4.080 P	S-4.080-0,5	S-4.080-1,0
	200.903.000	200.903.001



Typ Type	F _r kN F _r kN	F _a kN F _a kN	C kN C kN	C ₀ kN C ₀ kN	u/min max. r/pm max.	Gewicht kg Weight kg	Profile Profiles
KB 4.072 P	10,30	4,0	31,0	35,5	900	0,53	0 NbV
KB 4.073 P	12,40	6,7	45,5	51,0	800	1,00	1 NbV
KB 4.074 P	12,90	7,2	48,0	56,8	700	1,10	2 NbV
KB 4.076 P	22,40	8,9	68,0	72,0	600	1,93	3 NbV
KB 4.0784 P	23,80	14,4	81,0	95,0	500	3,00	4 NbV
KB 4.079 P	33,90	38,4	110,0	132,0	500	4,72	5 NbV
KB 4.080 P	59,20	41,6	151,0	192,0	400	7,80	6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76)
 F_r = Load capacity radial bearing max. allowable force between bearing and profile
 F_a = Load capacity axial bearing max. allowable force between bearing and profile
 *Dimension A without washers; max. 2 mm



WINKEL-Rollen | WINKEL Bearings

Präzisions-WINKEL-Rolle mit Kombibolzen und Oilamid* Einsatz Typ KB PR P

Vorteile:

- universelle Befestigungsmöglichkeit
- wahlweise Anschrauben oder Anschweißen des Befestigungsbolzens

Precision WINKEL Bearing with combined bolt and oilamid* insert Type KB PR P

Advantages:

- free choice of bolt assembly
- the bolt can be welded or screwed to your design



Die Einstellung des Maßes (A) erfolgt durch Distanzscheiben zwischen Hauptkörper und Oilamid-Einsatz.

- Scheiben mit 0,5 und 1,0 mm sind lieferbar.
- Max. Einstellbereich + 2 mm
- Sonderbolzen auf Anfrage.

Hinweis: Bei hoher axialer Belastung ist eine Bearbeitung der Gleitfläche zu empfehlen.

CAD Download in 2D/3D unter www.winkel.de

*Oilamid ist ein hochabriebfester selbstschmierender Polyamid.

The adjustment of dimension (A) is obtained by means of an insert positioned between the main body of the bearing and the oilamid insert.

- Shims with 0.5 and 1.0 mm thickness are available.
- Max. adjusting + 2 mm
- Special bolts on request.

Notice: At high axial forces we recommend to mill the axial raceway of the profile.

CAD download in 2D/3D at www.winkel.de

*Oilamid is a high resistant, self lubricant Polyamide

Typ Type	Artikel-Nr. Article no.	B B	A* A*	C C	D D	E E	F F	G G
KB PR 4.072 P	200.242.000	64,8	43,0	50	17,5	20	M10x13	30
KB PR 4.073 P	200.243.000	73,8	55,0	60	25,5	23	M12x18	40
KB PR 4.074 P	200.244.000	81,8	54,5	60	24,5	23	M12x18	40
KB PR 4.076 P	200.245.000	92,8	68,0	70	31,0	30	M14x20	44
KB PR 4.0784 P	200.246.000	111,8	75,0	80	36,0	31	M14x22	54
KB PR 4.079 P	200.247.000	127,8	79,2	100	34,2	37	M16x23	60
KB PR 4.080 P	200.248.000	153,8	82,0	120	29,0	45	M16x23	80

C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)

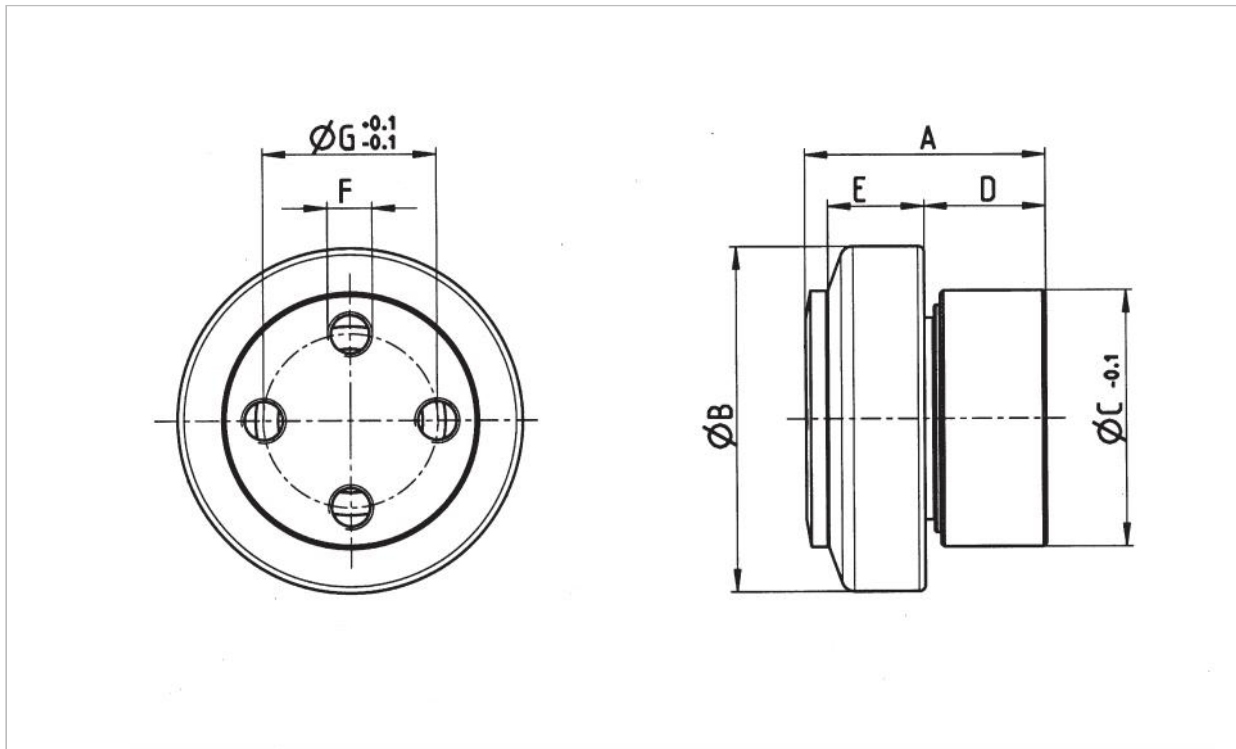
F_n = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

*Maß A ohne Distanzscheiben; max. +2 mm



WINKEL-Rollen | WINKEL Bearings

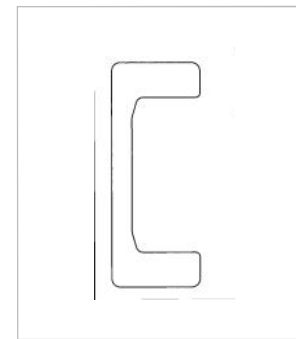
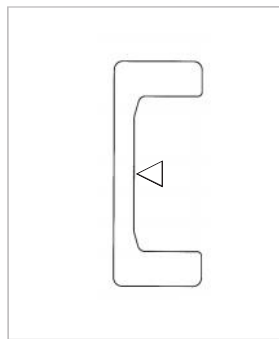


Hinweis: Bei hoher axialer Belastung ist eine spanende Bearbeitung der Gleitfläche zu empfehlen.

Notice: At high axial forces we recommend to mill the axial raceway of the profile.

Profile Seite 72
Profiles page 72

Typ Type	Distanzscheiben Shim	
	0,5 mm	1,0 mm
KB PR 4.072 P -	S-4.072-0,5	S-4.072-1,0
KB PR 4.073 P	200.900.000	200.900.001
KB PR 4.074 P -	S-4.074-0,5	S-4.074-1,0
KB PR 4.077 P	200.901.000	200.901.001
KB PR 4.078 P -	S-4.078-0,5	S-4.078-1,0
KB PR 4.079 P	200.902.000	200.902.001
KB PR 4.080 P	S-4.080-0,5	S-4.080-1,0
	200.903.000	200.903.001



Typ Type	F _r kN F _r kN	F _λ kN F _λ kN	C kN C kN	C ₀ kN C ₀ kN	u/min max. r/pm max.	Gewicht kg Weight kg	Profile Profiles
KB PR 4.072 P	10,30	3,0	31,0	35,5	900	0,56	PR 0 NbV
KB PR 4.073 P	12,40	6,7	45,5	51,0	800	1,05	PR 1 NbV
KB PR 4.074 P	12,90	7,2	48,0	56,8	700	1,20	PR 2 NbV
KB PR 4.076 P	22,40	8,9	68,0	72,0	600	2,00	PR 3 NbV
KB PR 4.0784 P	23,80	14,4	81,0	95,0	500	3,14	PR 4 NbV
KB PR 4.079 P	33,90	38,4	110,0	132,0	500	4,90	PR 5 NbV
KB PR 4.080 P	59,20	41,6	151,0	192,0	400	8,10	PR 6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76)
 F_r = Load capacity radial bearing max. allowable force between bearing and profile
 F_λ = Load capacity axial bearing max. allowable force between bearing and profile
 *Dimension A without washers; max. 2 mm

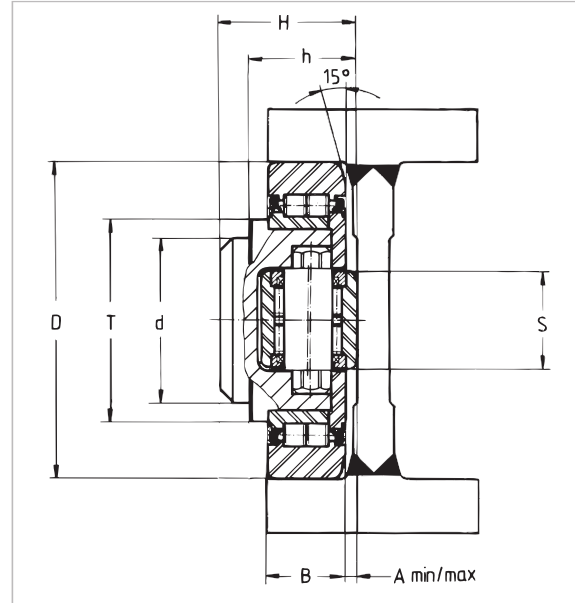


WINKEL-Rollen | WINKEL Bearings

Jumbo WINKEL-Rolle
Axialrolle justierbar



Jumbo WINKEL Bearing
Axial Bearing adjustable



Die Einstellung der Axialrolle (Maß A) erfolgt durch Verdrehen des Bolzens der Axialrolle. Der Bolzen ist exzentrisch und hat 8 Stellpositionen. Das Radiallager ist nachschmierbar.


Jumbo-Rollen mit Oilamid-Einsatz auf Anfrage.

The adjustment of dimension (A) is obtained by turning the bolt of the side guide roller. The bolt is eccentric and has 8 adjustment positions. The radial bearing can be relubricated.

Jumbo rolls of Oilamid use on request.

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 Nachschmiersysteme für WINKEL-Rollen
Lubrication systems for WINKEL bearings
(Seite/page 144)

NEU
NEW

NEU
NEW

Typ Type	Artikel-Nr. Article no.	D mm D mm	T mm T mm	d -0.05 mm d -0.05 mm	H mm H mm	h mm h mm	B mm B mm	A mm A mm	S mm S mm
4.085	201.049.000	180	124	100	95,7 - 98,7	76,3 - 79,3	57,3	6,5 - 9,5	60
4.089	201.050.000	165	113	80	69,0 - 72,0	53,0 - 56,0	40,0	5,0 - 8,0	50
4.090	201.051.000	190	124	100	84,5 - 87,5	64,5 - 67,5	48,0	6,5 - 9,5	60
4.091	201.052.000	220	146	110	94,5 - 97,5	74,5 - 77,5	58,0	6,5 - 9,5	75
4.092	201.053.000	250	168	120	102,0 - 105,0	77,0 - 80,0	60,0	7,0 - 10,0	75
4.093	201.054.000	280	188	150	119,5 - 123,5	89,5 - 93,5	72,0	7,5 - 11,5	90
4.094	201.055.000	320	218	150	135,0 - 139,0	110,0 - 114,0	85,0	10,0 - 14,0	90

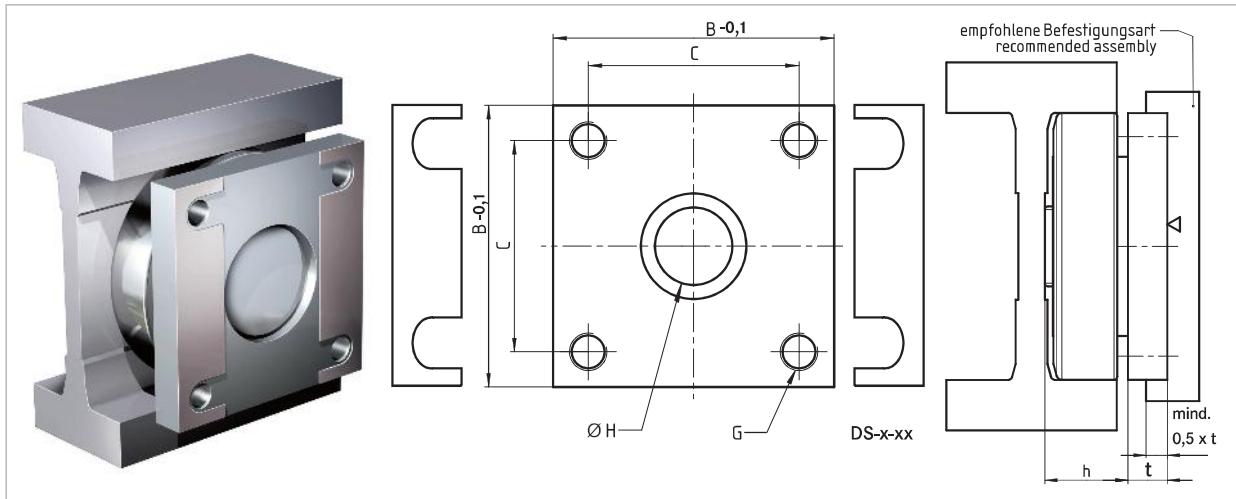
C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)
C_A = Dyn. Tragzahl Axiallager (ISO 281/1), C_{0A} = Stat. Tragzahl Axiallager (ISO 76)
F_r = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil
F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

WINKEL-Rollen | WINKEL Bearings



Passende Anschraubplatten

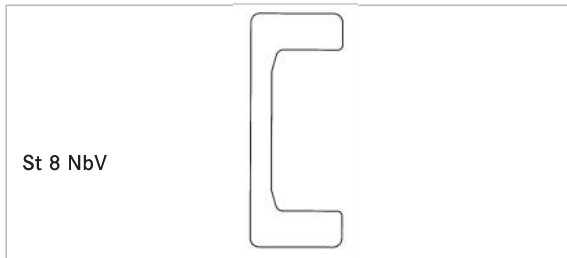
Suitable flange plates



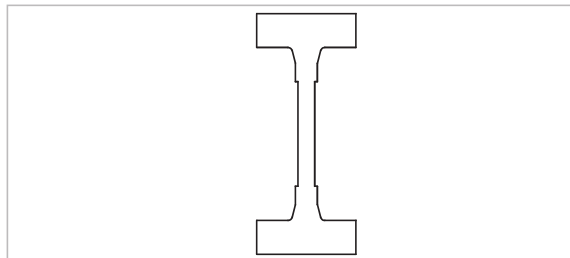
Typ Type	Artikel-Nr. Article no.	B-0,1 B-0,1	C C	G G	Ø H Ø H	h h	t t	Distanzsteckblech 0,5mm Washer 0.5mm		Distanzsteckblech 1,0mm Washer 1.0mm	
AP 89-Q	212.200.001	165	125	M20	80	53,0 - 56,0	23	DS-89-0,5	238.033.000	DS-89-1,0	238.033.001
AP 90-Q (4.085 + AP 90-Q)	212.200.002	190	150	M20	100	64,5 - 67,5 (76,0 - 79,3)	28	DS-90-0,5	238.034.000	DS-90-1,0	238.034.001
AP 91-Q	212.200.003	220	176	M24	110	74,5 - 77,5	33	DS-91-0,5	238.035.000	DS-91-1,0	238.035.001
AP 92-Q	212.200.004	250	206	M24	120	77,0 - 80,0	37	DS-92-0,5	238.036.000	DS-92-1,0	238.036.001
AP 93-Q (4.094 + AP 93-Q)	212.200.005	280	220	M30	150	89,5 - 93,5 (110,0 - 114,0)	37	DS-93-0,5	238.037.000	DS-93-1,0	238.037.001

NEU
NEW

Profile S. 70
Profiles page 70



Profile S. 80
Profiles page 80



Typ Type	F _R kN F _R kN	F _A kN F _A kN	C kN C kN	C _O kN C _O kN	C _A kN C _A kN	C _{OA} kN C _{OA} kN	u/min max. r/pm max.	Gewicht kg Weight kg	Anschraubplatten Flange plates	Profile Profiles
4.085	91,80	23,70	207	243	73	83	100	11,5	AP 90-Q	Standard 8 NbV
4.089	41,71	13,91	213	388	85	133	120	9,2	AP 89-Q	Standard 10
4.090	58,00	19,40	266	500	100	180	100	10,6	AP 90-Q	Standard 16
4.091	84,00	28,00	326	681	138	257	90	17,3	AP 91-Q	Standard 18
4.092	101,50	33,90	369	748	138	257	75	23,9	AP 92-Q	Standard 28
4.093	139,40	46,50	489	1066	182	488	50	36,0	AP 93-Q	Stand. 36 + 42
4.094	192,00	57,70	542	1370	210	422	50	50,0	AP 93-Q	Standard 50

C = Dynamic load capacity radial bearing (ISO 281/1), C_O = Static load capacity radial bearing (ISO 76)
 C_A = Dynamic load capacity axial bearing (ISO 281/1), C_{OA} = Static load capacity axial bearing (ISO 76)
 F_R = Load capacity radial bearing max. allowable force between bearing and profile
 F_A = Load capacity axial bearing max. allowable force between bearing and profile

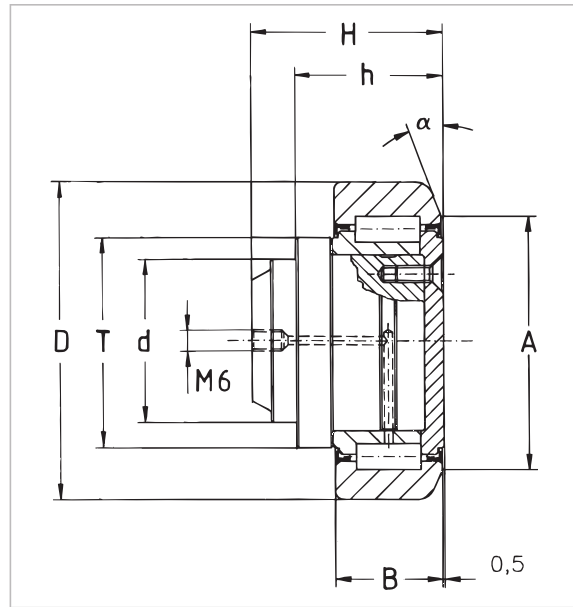


WINKEL-Rollen | WINKEL Bearings

WINKEL-Radiallager



WINKEL Radial Bearing



Technische Daten:

- die Außenringe sind aus Einsatzstahl
UNI 16 CrNi 4 gehärtet 62+2 HRC
- die Innenringe sind aus Stahl
DIN 100 Cr 6 gehärtet 62-2 HRC
- flachköpfige Rollen aus Stahl
DIN 100 Cr 6 gehärtet 59 – 64 HRC
- Anschweißbolzen aus Stahl C22E (Werkstoff-Nr. 1.1151)
- Bolzentoleranz -0,05 mm
- Nachschmierbarkeit für Rollen 2.054 – 2.063
- Radiallager werden bei der Montage mit Schmierfett Grad 3 (z.B. Shell Alvania 3, Esso Beacon 3) befüllt

Technical characteristics:

- outer rings are made from case-hardened steel
UNI 16 CrNi 4 hardened at 62+2HRC
- inner rings are made from bearing steel
En 31-SAE 52100 hardened at 62-2 HRC
- cylindrical rollers have flat ground heads, made from
En 31-SAE 52100 steel hardened at 59 – 64 HRC
- welding bolts are made from C22E (Material no. 1.1151)
- bolt tolerance -0.05 mm
- bearings from 2.054 to 2.063 are relubricateable
- bearings are lubricated with grease grade 3
(e.g. Shell Alvania 3, Esso Beacon 3)

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Nachschmiersysteme für WINKEL-Rollen
Lubrication systems for WINKEL bearings
(Seite/page 144)

Typ Type	Artikel-Nr. Article no.	D mm D mm	T mm T mm	d -0.05 mm d -0.05 mm	H mm H mm	h mm h mm	B mm B mm	A mm A mm	α mm α mm
2.054	205.061.000	62,5	42	30	34,5	26,5	20	50	20°
2.055	205.062.000	70,1	48	35	42,0	34,0	23	57	20°
2.056	205.063.000	77,7	53	40	45,5	34,0	23	61	20°
2.058	205.064.000	88,4	59	45	54,0	41,0	30	68	20°
2.061	205.065.000	107,7	71	60	65,5	51,5	31	82	20°
2.062	205.066.000	123,0	80	60	67,8	51,5	37	92	20°
2.063	205.067.000	149,0	103	60	73,0	54,0	45	116	15°

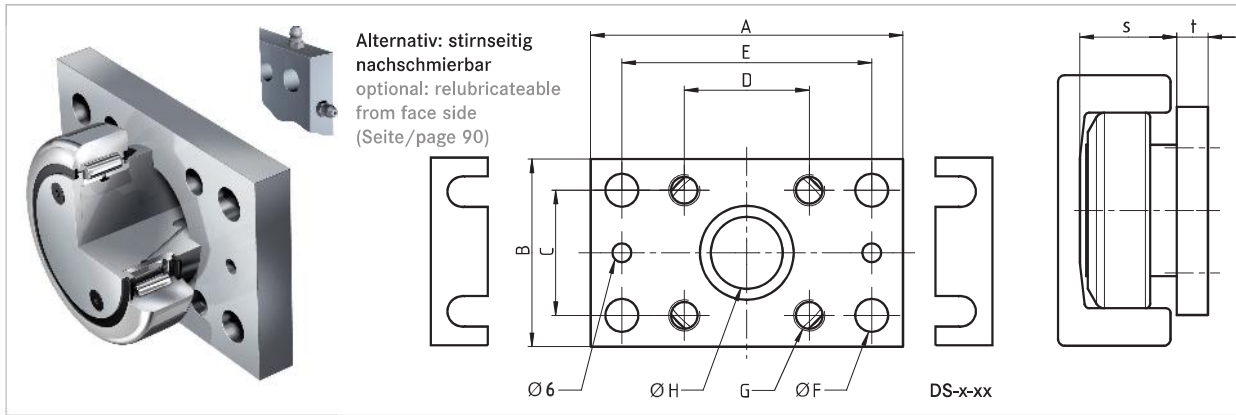
C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76),
F_R = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

WINKEL-Rollen | WINKEL Bearings



Passende Anschraubplatten

Suitable flange plates

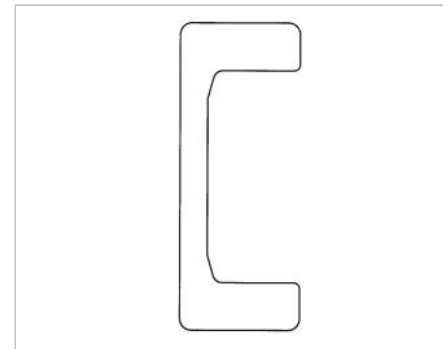
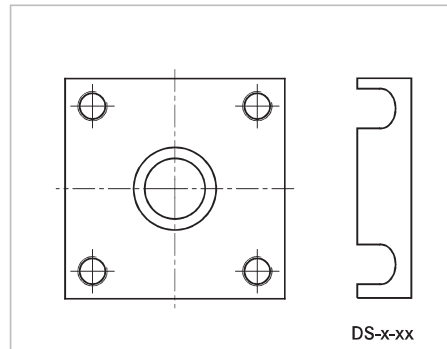


Typ Type	Artikel-Nr. Article no.	A	B	C	D	E	Ø F	G	Ø H	s	t	Distanzsteckblech 0,5mm Washer 0.5mm		Distanzsteckblech 1,0mm Washer 1.0mm	
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	30,5	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	50	50	90	12,5	M12	35	36,0	15	DS-1-0,5	238.021.000	DS-1-1,0	238.021.001
AP 2	212.005.000	120	80	50	50	90	12,5	M12	40	36,5	15	DS-2-0,5	238.021.000	DS-2-1,0	238.021.001
AP 3.1	212.006.001	160	100	60	60	120	17,0	M16	45	44,0	20	DS-3.1-0,5	238.105.000	DS-3.1-1,0	238.105.001
AP 4	212.007.001	180	120	80	80	140	17,0	M16	60	56,0	20	DS-4-0,5	238.023.000	DS-4-1,0	238.023.001
AP 6	212.008.000	200	150	100	100	160	17,0	M16	60	58,5	20	DS-6-0,5	238.024.000	DS-6-1,0	238.024.001

Abstreifer Seite 94
Wiper page 94

Anschraubplatten quadratisch Reihe AP-Q S. 96
Flange plates square series AP-Q page 96

Profile Seite 68
Profiles page 68



Typ Type	F _R kN F _R kN	C kN C kN	C ₀ kN C ₀ kN	u/min max. r/µm max.	Gewicht kg Weight kg	Anschraubplatten Flange plates			Profile Profiles
2.054	10,30	31,0	35,5	900	0,55	AP0	AP0-LUB	AP0-Q	0 NbV
2.055	12,40	45,5	51,0	900	0,80	AP1	AP1-LUB	AP1-Q	1 NbV
2.056	12,90	48,0	56,8	800	1,05	AP2	AP2-LUB	AP2-Q	2 NbV
2.058	22,40	68,0	72,0	750	1,70	AP3.1	AP3.1-LUB	AP3-Q	3 NbV
2.061	23,80	81,0	95,0	650	2,90	AP4	AP4-LUB	AP4-Q	4 NbV
2.062	33,90	110,0	132,0	550	4,00	AP4	AP4-LUB	AP4-Q	5 NbV
2.063	59,20	151,0	192,0	450	6,70	AP6	AP6-LUB	AP6-Q	6 NbV

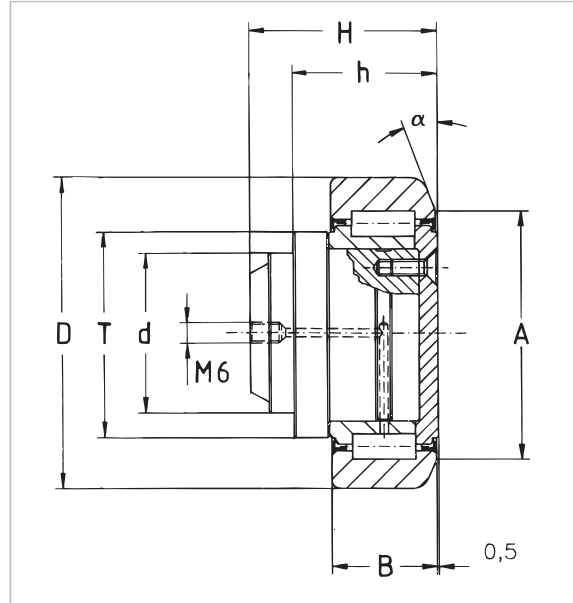
C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76),
F_R = Load capacity radial bearing max. allowable force between bearing and profile,



WINKEL-Präzisions-Radiallager Typ PR



WINKEL Precision Radial Bearing Type PR



Technische Daten:

- die Außenringe sind aus Einsatzstahl
UNI 16 CrNi 4 gehärtet 62+2 HRC
- die Innenringe sind aus Stahl
DIN 100 Cr 6 gehärtet 62-2 HRC
- flachköpfige Rollen aus Stahl
DIN 100 Cr 6 gehärtet 59 – 64 HRC
- Anschweißbolzen aus Stahl C22E (Werkstoff-Nr. 1.1151)
- Bolzentoleranz -0,05 mm
- Nachschmierbarkeit für Rollen PR 2.054 - PR 2.063
- Radiallager werden bei der Montage mit Schmierfett
Grad 3 (z.B. Shell Alvania 3, Esso Beacon 3) befettet

Technical characteristics:

- outer rings are made from case-hardened steel
UNI 16 CrNi 4 hardened at 62+2HRC
- inner rings are made from bearing steel
En 31-SAE 52100 hardened at 62-2 HRC
- cylindrical rollers have flat ground heads, made from
En 31-SAE 52100 steel hardened at 59 – 64 HRC
- welding bolts are made from C22E (Material no. 1.1151)
- bolt tolerance -0.05 mm
- bearings from PR 2.054 to PR 2.063 are relubricateable
- bearings are lubricated with grease grade 3
(e.g. Shell Alvania 3, Esso Beacon 3)



Nachschmiersysteme für WINKEL-Rollen
Lubrication systems for WINKEL bearings
(Seite/page 144)

Typ Type	Artikel-Nr. Article no.	D mm D mm	T mm T mm	d -0.05 mm d -0.05 mm	H mm H mm	h mm h mm	B mm B mm	A mm A mm	α mm α mm
PR 2.054	205.071.000	64,8	42	30	34,5	26,5	20	50	20°
PR 2.055	205.072.000	73,8	48	35	42,0	34,0	23	57	20°
PR 2.056	205.073.000	81,8	53	40	45,5	34,0	23	61	20°
PR 2.058	205.074.000	92,8	59	45	54,0	41,0	30	68	20°
PR 2.061	205.075.000	111,8	71	60	65,5	51,5	31	82	20°
PR 2.062	205.076.000	127,8	80	60	67,8	51,5	37	92	20°
PR 2.063	205.077.000	153,8	103	60	73,0	54,0	45	116	15°

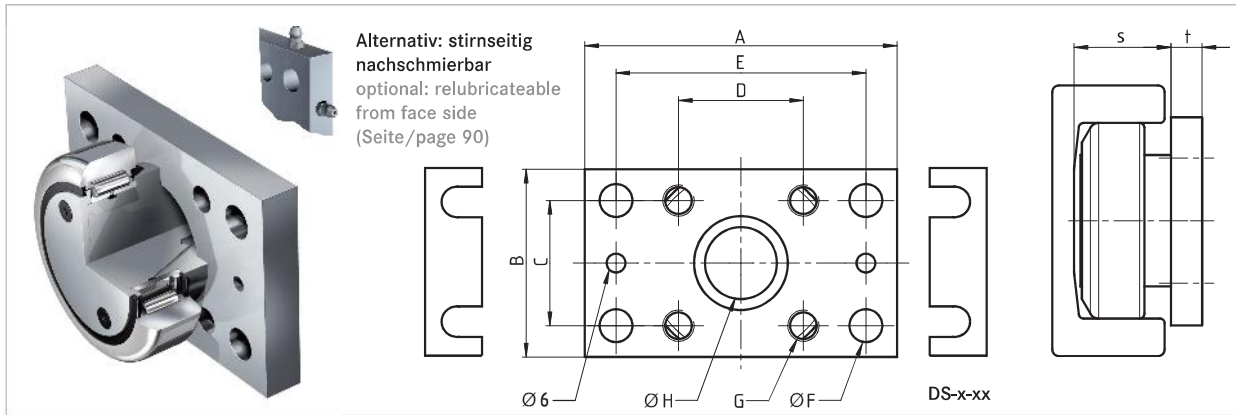
C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)
F_R = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

WINKEL-Rollen | WINKEL Bearings



Passende Anschraubplatten

Suitable flange plates

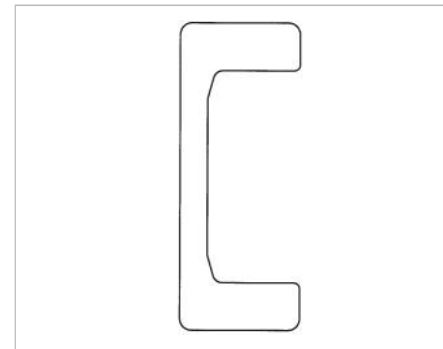
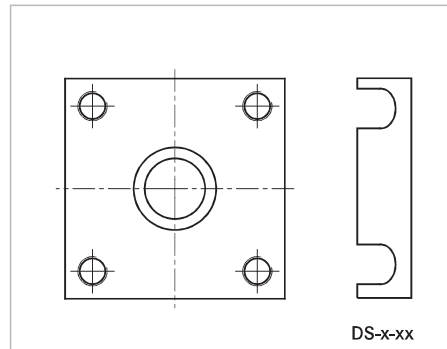


Typ Type	Artikel-Nr. Article no.	A	B	C	D	E	Ø F	G	Ø H	s	t	Distanzsteckblech t=0,5mm Washer t=0.5mm		Distanzsteckblech t=1,0mm Washer t=1.0mm	
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	30,5	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	50	50	90	12,5	M12	35	36,0	15	DS-1-0,5	238.021.000	DS-1-1,0	238.021.001
AP 2	212.005.000	120	80	50	50	90	12,5	M12	40	36,5	15	DS-2-0,5	238.021.000	DS-2-1,0	238.021.001
AP 3.1	212.006.001	160	100	60	60	120	17,0	M16	45	44,0	20	DS-3.1-0,5	238.105.000	DS-3.1-1,0	238.105.001
AP 4	212.007.001	180	120	80	80	140	17,0	M16	60	56,0	20	DS-4-0,5	238.023.000	DS-4-1,0	238.023.001
AP 6	212.008.000	200	150	100	100	160	17,0	M16	60	58,5	20	DS-6-0,5	238.024.000	DS-6-1,0	238.024.001

Abstreifer Seite 94
Wiper page 94

Anschraubplatten quadratisch Reihe AP-Q S. 96
Flange plates square series AP-Q page 96

Profile Seite 72
Profiles page 72



Typ Type	F _r kN F _r kN	C kN C kN	C ₀ kN C ₀ kN	u/min max. r/µm max.	Gewicht kg Weight kg	Anschraubplatten Flange plates			Profile Profiles
PR 2.054	10,30	31,0	35,5	900	0,55	AP0	AP0-LUB	AP0-Q	PR 0 NbV
PR 2.055	12,40	45,5	51,0	900	0,80	AP1	AP1-LUB	AP1-Q	PR 1 NbV
PR 2.056	12,90	48,0	56,8	800	1,05	AP2	AP2-LUB	AP2-Q	PR 2 NbV
PR 2.058	22,40	68,0	72,0	750	1,70	AP3.1	AP3.1-LUB	AP3-Q	PR 3 NbV
PR 2.061	23,80	81,0	95,0	650	2,90	AP4	AP4-LUB	AP4-Q	PR 4 NbV
PR 2.062	33,90	110,0	132,0	550	4,00	AP4	AP4-LUB	AP4-Q	PR 5 NbV
PR 2.063	59,20	151,0	192,0	450	6,70	AP6	AP6-LUB	AP6-Q	PR 6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C₀ = Static load capacity radial bearing (ISO 76)
F_r = Load capacity radial bearing max. allowable force between bearing and profile