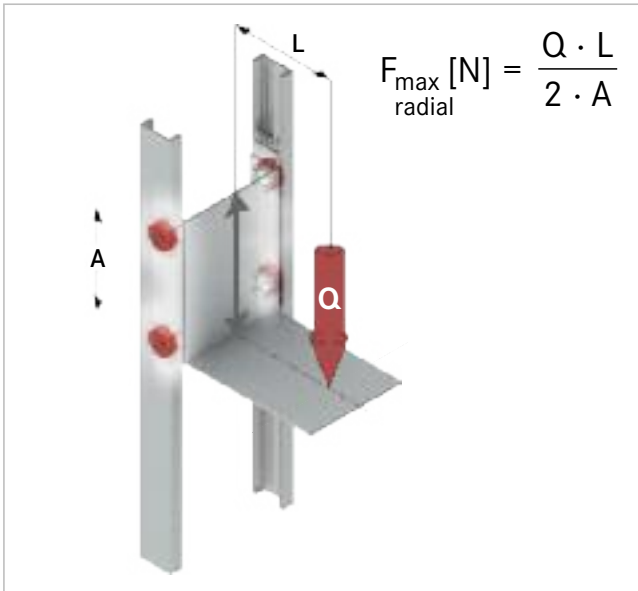




WINKEL-Rollen | WINKEL Bearings

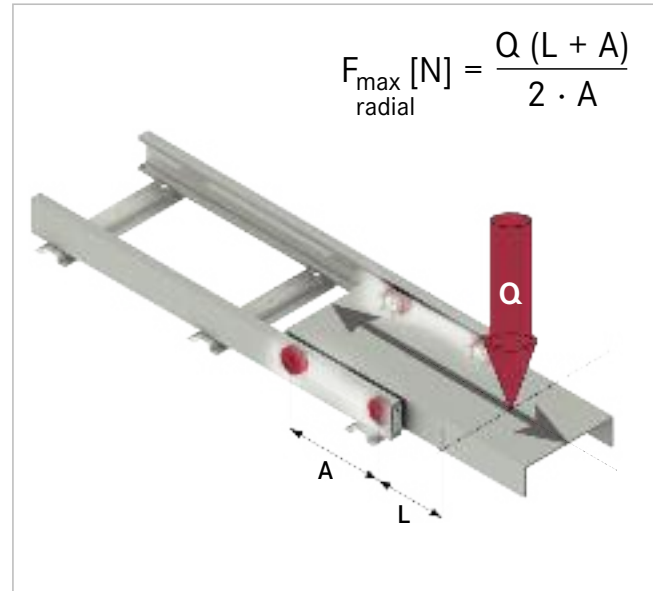
Berechnung der Rollenbelastung

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



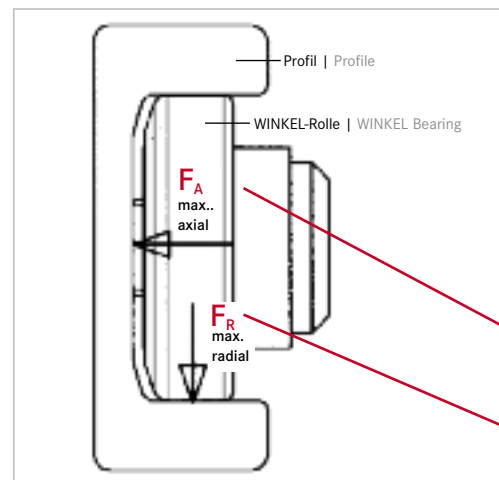
Calculation of the bearing forces

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



Um Einwalzungen am nicht gehärteten Profil zu vermeiden sollte die Pressung maximal $P_{\text{zul}} = 900 \text{ MPa [N/mm}^2\text{]}$ für NbV-Profile, $P_{\text{zul}} = 750 \text{ MPa [N/mm}^2\text{]}$ für alle restlichen Stahlprofile betragen. $F_{\text{max radial}} + \text{axial}$ 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. $P_{\text{zul}} = 900 \text{ MPa [N/mm}^2\text{]}$ for NbV-profiles, $P_{\text{zul}} = 750 \text{ MPa [N/mm}^2\text{]}$ for all steel profiles except NbV-series. Here indicated are $F_{\text{max radial}} + \text{axial}$ for each bearing.



Beispiel | Example

Typ Type	Artikel-Nr. Article no.	D -0.1 [mm]	T [mm]	d -0.05 [mm]	H [mm]	h [mm]	B [mm]	A [mm]	S [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

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 by 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. radial		max. 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								
	-	1,00	-	3,10	-		-	-	-	4.052 P	-	-	-
	-	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) 7 NbV	-	72,00	-	18,50	-	(PR) 4.064	(PR) 4.464	-	(PR) 2.064	(PR) 4.084 P*	-	-	-
(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. Axialbelastung der WINKEL-Rollen bitte dem jeweiligen Rollendatenblatt entnehmen
 * for max. axial load of WINKEL bearing please refer to the respective data sheet

Typ	F_R [kN]	F_A [kN]	C [kN]	C_0 [kN]	C_A [kN]	C_{0A} [kN]	Gewicht kg	Anschraubplatten			Profile Standard	
Type	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	Weight kg	Flange plates			Profiles standard	
4.053	5,23	1,68	24,0	32,0	7	7	0,46	APS	I	-	I APS-Q	S
4.054	10,30	3,20	31,0	35,5	11	11	0,53	AP0	I	AP0-LUB	I AP0-Q	0 NbV
4.055	12,40	3,87	45,5	51,0	13	14	0,80	AP1	I	AP1-LUB	I AP1-Q	1 NbV 3018 NbV
4.056	12,90	4,00	48,0	56,8	18	18	1,00	AP2	I	AP2-LUB	I AP2-Q	2 NbV
4.057	12,90	4,00	48,0	56,8	18	18	0,87	-			3019 NbV	
4.058	22,40	7,00	68,0	72,0	23	23	1,62	AP3.1	I	AP3.1-LUB	I AP3-Q	3 NbV 3020 NbV
4.059	22,00	7,00	73,0	82,0	25	27	1,74	-			2912 NbV	
4.060	23,80	7,44	81,0	95,0	31	36	2,27	-			3100 NbV	
4.061	23,80	7,44	81,0	95,0	31	36	2,82	AP4	I	AP4-LUB	I AP4-Q	4 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

