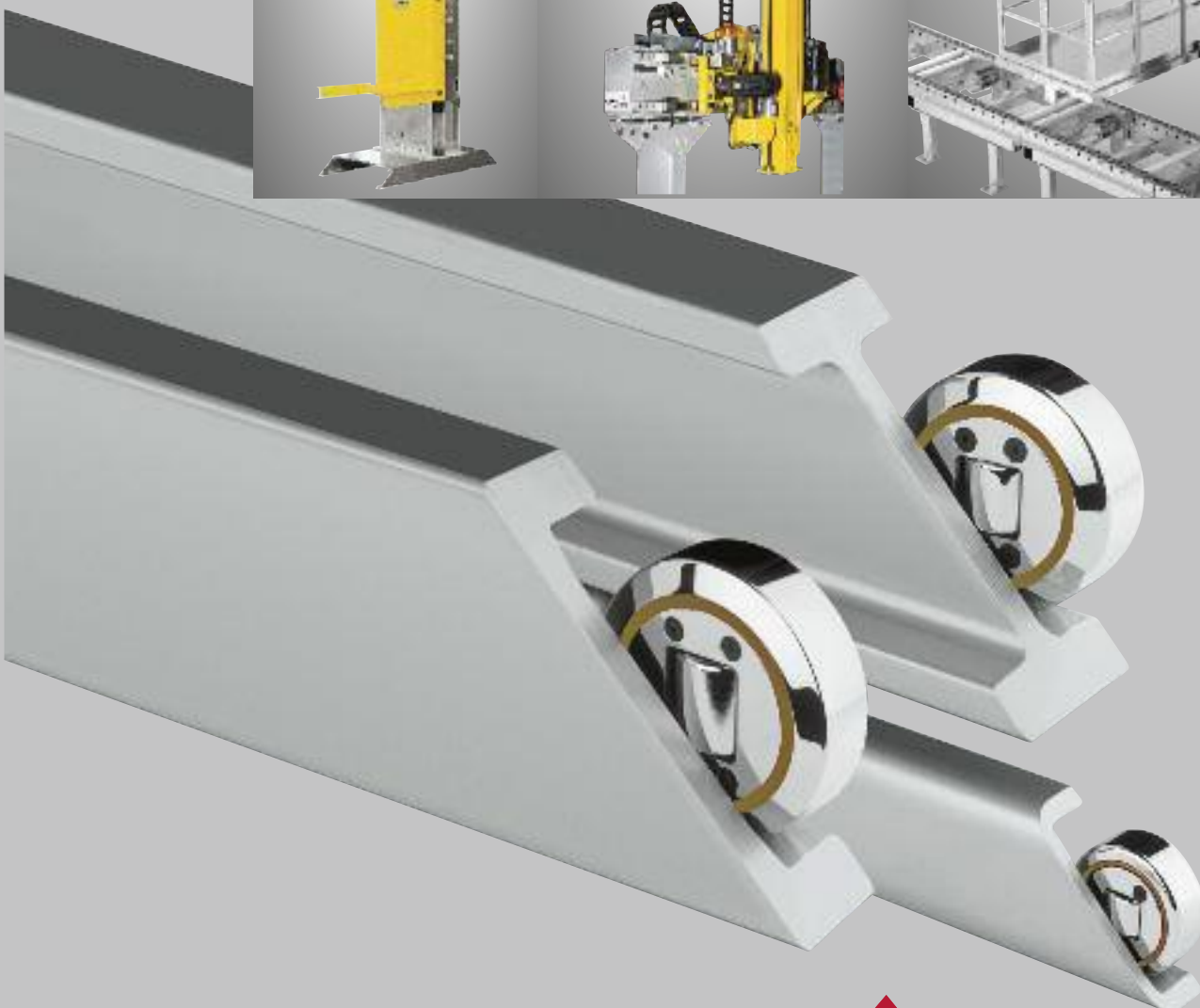


Innovationen die bewegen Innovations in motion



Schwerlast Komponenten ■ Schwerlast-Systeme | Heavy load components ■ Heavy load systems



V12M/2023

WINKEL 



Top-Qualität -
von der Konstruktion bis zur Montage

High quality -
from design to assembly





Konstruktion

Moderne 3D Konstruktion in CREO um auf Kundenwünsche schnell einzugehen. Unsere Konstrukteure mit langjährigem Fachwissen erarbeiten täglich Sonderlösungen in der Handhabungstechnik.

Lager

Hochregallager mit modernem Warenwirtschaftssystem für Just-in-Time Lieferung aller Komponenten.

Lackiererei

Modernste Lackieranlage mit Trockenkammer für hochwertige Produktlackierungen. Die Anlage entspricht neuesten Umweltrichtlinien. Einfaches Lasthandling über Hängebahn und Bodenführung.

Stahllager

Unser Stahllager mit über 1000 t Spezialprofilen die wir für Sie lagern. Wir liefern alle angebotenen Stahlprofile kurzfristig ab Lager. Außerdem liefern wir in Fixlängen und auf Wunsch feingerichtet, bearbeitet und beschichtet.

Fräsmaschinen

Wir verfügen über 15 moderne CNC Langbett Fräsmaschinen bis 13 m Bearbeitungslänge. Wir liefern Ihre Profile einbaufertig nach Ihren Zeichnungen komplett bearbeitet.

Schweißen

Auf Grund der individuellen Fertigung werden alle Stahlkonstruktionen in ILLINGEN von Facharbeitern gefertigt. Unsere Schweißer sind alle zertifiziert für höchstmögliche Produktqualität. Der große Schweißzeugnisnachweis ist die Voraussetzung für die hervorragende Qualität unserer Schweißarbeiten.

Verkauf

Unser mehrsprachiges Verkaufsteam steht Ihnen für Fragen und Lösungen jederzeit gerne zur Verfügung.

Design department

Modern 3D design in CREO to respond quickly to customer wishes. Our design engineers with many years of expertise develop special solutions in handling technology on a daily basis.

Warehouse

High-bay warehouse with modern inventory control system for just-in-time delivery of all components.

Paint shop

State-of-the-art paint shop with drying chamber for high-quality product painting. The plant complies with the latest environmental guidelines. Easy load handling via overhead conveyor and floor guide.

Steel warehouse

Our steel warehouse with over 1000 t of special profiles that we store for you. We deliver all offered steel profiles from stock at short notice. We also deliver in fixed lengths and, on request, precision-finished, machined and coated.

Milling machines

We have 15 modern CNC long bed milling machines up to 13 m machining length. We deliver your profiles completely machined and ready for installation according to your drawings.

Welding

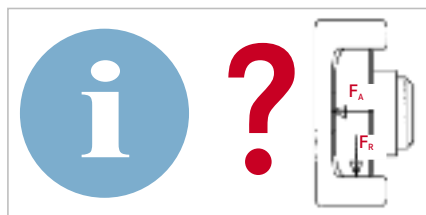
Due to the individual production, all steel constructions are manufactured in ILLINGEN by skilled workers. Our welders are all certified for the highest possible product quality. The large welding qualification certificate is the prerequisite for the excellent quality of our welding work.

Sales

Our multilingual sales team is always at your disposal for questions and solutions.



WINKEL-Rollen | WINKEL Bearings



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WINKEL Bearings axial fixed (PR)



26 Hochtemperatur-WINKEL-Rollen
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NEW



28 WINKEL-Rollen axial über Exzenter
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32 WINKEL-Rollen axial über Scheiben
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36 WINKEL-Rollen mit OILAMID-Einsatz (PR)
WINKEL Bearings, OILAMID insert (PR)



40 WINKEL-Rollen mit Kombibolzen (P)+(PR)
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48 WINKEL-Jumbo-Rollen
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50 WINKEL-Radiallager (PR)
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54 WINKEL-Rollen Heavy Duty (PR)
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58 Justierbare WINKEL-Rolleneinheit JC
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NEW



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U-Profiles/I-Profiles



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Gleitlagerausführung
WINKEL Bearings in INOX,
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102 WINKEL-Rollen in Edelstahl, kugellagert
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106 VULKOLLAN® WINKEL-Rollen
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114 Justierbare WINKEL VULKOLLAN®
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118 POLYAMID WINKEL-Rollen
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126 Justierbare WINKEL POLYAMID
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128 Profile für VULKOLLAN® + POLYAMID
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Profiles for VULKOLLAN® + POLYAMIDE
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Allgemeine Hinweise

Mit unseren WINKEL-Rollen können Vertikal- und Horizontalbewegungen an Maschinen und Hubvorrichtungen wirtschaftlich gelöst werden.

Vorteile der WINKEL-Rolle:

- Das WINKEL-Rollensystem senkt Ihre Konstruktions- und Produktionskosten
- Das WINKEL-Rollensystem kann hohe Radial- und Axialbelastungen aufnehmen
- Starkwandige Führungsprofile für hohe stat. und dynamische Belastungen
- Optimale Krafteinleitung in die Führungsprofile
- Höhere Lebensdauer von Rolle und Profil
- Montagezeiterparnis durch Einschweißbolzen
- Lagerkomponenten sind leicht tauschbar

Dimensionierung

- Bei der Dimensionierung von Rolle und Profil ist die maximal zulässige Belastung F [N] max. zu beachten. Siehe Seite 20.

Nachschmierung

- Unsere WINKEL-Rollen sind vollrollige Zylinderrollenlager, welche für den Einschicht- sowie unregelmäßigen Betrieb lebensdauergeschmiert sind. Wir können Ihnen aufgrund unserer langjährigen Erfahrung bestätigen, dass es bei diesen Anwendungen keinerlei Einschränkung der Lebensdauer bei normalen Applikationen gibt.
- Bei Einsatzfällen wie z.B. in Lager- und Maschinenhallen genügt eine leichte Oberflächenkonservierung mit handelsüblichem Sprühöl, sowie eine regelmäßige Abschmierung alle 6 Monate.
- Die WINKEL-Rollen 4.054 bis 4.064 sind zur Verlängerung der Lebensdauer nachschmierbar. Generell sind die Nachschmierbohrungen mit Gewindestopfen M6 verschlossen. Die Auslieferung erfolgt ohne Schmiernippel. Bei besonderen Umwelteinflüssen, wie Staub, Schmutz-anfall, Feuchtigkeit, Betrieb im Freien, Temperaturen über 40 °C, häufige Lastwechsel (Dauerbetrieb) und hohen Beanspruchungen sollte mindestens 1 mal im Monat nachgeschmiert werden. Hierzu empfehlen wir Ihnen den Einsatz unseres Schmiersystems WINKEL Combi-Lub 1 oder eine Zentralschmierung. WINKEL-Rollen werden bei der Montage mit Schmierfett Grad 3 (z.B. Shell Gadus S2 V100 3) befettet.

Verarbeitung

- Beim Einschweißen von WINKEL-Rollen deren Außendurchmesser kleiner als 100 mm ist, müssen die Lager-teile demontiert werden. WINKEL-Rollen mit einem Aussendurchmesser größer 130 mm müssen beidseitig verschweißt werden. Nach der Lagermontage oder Justierung müssen die Befestigungsschrauben wieder mit Loctite gesichert werden. Um Spannungsrisse beim Einschweißen zu vermeiden, sollten ausschließlich Fülldraht für unlegierte Stähle verwendet werden, z. B. Fülldraht T 46 6 M M 1 H5 nach ISO 17632.

General advice

With our WINKEL Bearings vertical and horizontal movements on machines and lifting devices can be solved economically.

Advantages of the WINKEL Bearing system:

- Reduces your design and production costs
- Can take up high radial and axial loads
- Strong profiles for high stat. and dynamic loads
- Best dispersion of forces in the profiles
- Longer lifetime for bearings and profiles
- Economical assembly by welding bolt
- Bearing components are easily exchangeable

Dimensions

- For the dimension of bearing and profile, the maximum allowable load F [N] max. has to be observed. See page 20.

Relubrication

- Our WINKEL Bearings are full complement cylindrical rollers which are lifetime lubricated for one shift and unsteady operation. Due to many years of experience we can assure you that for these kinds of use there will be no reduction of lifetime at normal applications.
- For applications such as for example in warehouses and machine halls a light surface conservation with commercial spray oil will be sufficient and in addition, a regular relubrication every 6 months.
- For extension of lifetime the WINKEL Bearings 4.054 up to 4.064 are relubricatable. Generally, the relubrication holes are closed with threaded plugs M6. The bearings are delivered without grease nipple. In case of special environmental conditions such as dust, incur of dirt, moisture, outdoor operations, temperatures over 40 °C, frequent load changes (continuous operation) and heavy duty the bearings should be relubricated at least one time per month. For this we would recommend to you to use our lubrication system WINKEL Combi-Lub 1 or a central lubrication system. WINKEL Bearings are lubricated with grease grade 3 (e.g. Shell Gadus S2 V100 3).

Working up

- For welding operations on WINKEL Bearings with a diameter less than 100 mm, all bearing components must be disassembled. WINKEL Bearings with an outer diameter more than 130 mm must be welded on both sides. After the assembly of the bearings, or after the adjusting operation, the front side screws should be secured with loctite. In order to avoid tension cracks during welding, only cored wire for unalloyed steels should be used, e. g. cored wire T 46 6 M M 1 H5 according to ISO 17 632.

WINKEL-Rollen | WINKEL Bearings

- Die Laufflächen der Profile sollten nicht lackiert werden, leichtes Einfetten ist ausreichend.

Sonderausführungen

- Bei WINKEL-Rollen der Reihe (PR) 4.072 (P) bis (PR) 4.080 (P) sind Sonderbolzen möglich.

Systemlösungen

- Wir konstruieren und bauen komplette Hub- und Fahrseinheiten nach Ihren Angaben. CAD-unterstützte Konstruktion und moderne Fertigungsanlagen erlauben eine hohe Flexibilität in der Realisierung von Systemlösungen der Handhabungs- und Automatisierungstechnik.

CAD Download

- Über unsere Internetseite www.winkel.de

Toleranzen

- Für alle nicht tolerierten Maße gilt ISO 2768 - m

Technische Daten:

- Die Außenringe sind aus Einsatzstahl 20 CrMnTi gehärtet 58-62 HRC
- Die Innenringe sind aus Stahl 100 Cr 6 gehärtet 58-62 HRC
- Flachköpfige Wälzkörper aus Stahl 100 Cr 6 gehärtet 60 – 65 HRC
- Anschweißbolzen aus C20 (Werkstoffnr. 1.1151)
- Nachschmierbarkeit für Rollen 4.054 – 4.064
- Einsatztemperatur der WINKEL-Rollen beträgt -20 °C bis +100 °C.

WINKEL-Hochtemperaturrollen können bis +250 °C Umgebungstemperatur eingesetzt werden.

Die max. Verfahrensgeschwindigkeit der WINKEL-Rollen in Stahlausführung beträgt 1,5 m/s, Heavy-Duty bis max. 2 m/s. Für die Ausführung in VULKOLLAN® und POLYAMID beträgt die max. Verfahrensgeschwindigkeit 6 m/s.

Das Spiel zwischen Axialrolle und Profillinenseite sollte max. 0,5 mm betragen.

WINKEL-Rollen werden bei der Montage mit Schmierfett Grad 3 (z.B. Shell Gadus S2 V100 3) befettet.

- The guide ways in the profiles should be lightly greased and not painted.

Special designs

- Special bolts are available for WINKEL Bearings of type (PR) 4.072 (P) to (PR) 4.080 (P).

System solutions

- We design and manufacture complete lift- and handling units according to customer needs. Designing with CAD and a progressive production enables high flexibility in achieving complete solutions in the field of handling systems and automation.

CAD Download

- Available at www.winkel.de

Tolerances

- For all not tolerated dimensions counts ISO 2768 - m

Technical characteristics:

- Outer rings are made from case-hardened steel 20 CrMnTi hardened at 58-62HRC
- Inner rings are made from bearing steel 100 Cr 6 hardened at 58-62 HRC
- Cylindrical rollers have flat ground heads, made of 100 Cr 6 steel hardened at 60 – 65 HRC
- Welding bolts are made of C20 (Material no. 1.1151)
- Bearings from 4.054 to 4.064 are relubricatable
- Working temperature of WINKEL Bearings is -20 °C up to +100 °C.

WINKEL High Temperature Bearings can be used at max. +250 °C environmental temperature.

The maximum speed of the WINKEL Bearings in steel version is 1.5 m/s, Heavy Duty up to max. 2 m/s. For VULKOLLAN® and POLYAMID Bearings the maximum speed is 6 m / s.

The clearance between axial bearing and inner side of the profile should not exceed 0,5 mm.

WINKEL Bearings are lubricated with grease grade 3 (e.g. Shell Gadus S2 V100 3).



WINKEL Jumbo-Rolle
Justierung der Axialrolle
über Exzenter
WINKEL Jumbo Bearing.
Axial bearing adjustable
by eccentric



WINKEL-Rolle
Justierung der Axialrolle
über Exzenter
WINKEL Bearing.
Axial bearing
adjustable by eccentric



Demontage und
Montage der WINKEL-
Rolle
Assembly and dis-
assembly of WINKEL
Bearing



Axiale Justierung über
Steckbleche
Adjustement of bearings
with screw-axial adjust-
ment of plug trays



Justierung der Axialrolle
über Distanzscheiben
Adjustment of the axial
clearance with shims



Standard NbV Profil -
Feinrichten der U Profile
Fine straightening to
U profiles



WINKEL-Rollen | WINKEL Bearings



Vorab-Auswahl der WINKEL-Führungssysteme		4.053 4.064	PR 4.054 PR 4.064	4.053 HT 4.063 HT	4.454 4.085	PR 4.454 PR 4.085	4.052 P 4.085 P
Preselection of WINKEL Linear Systems					4.072 4.080	PR 4.072 PR 4.080	
							
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		  			  	
Spiel Rolle/Profil Clearance Bearing/Profile	0,3 - 1,0 mm 0,3 - 1,0 mm	  		  	  		  
Geschwindigkeit Speed	> 1,5 m/sec > 1,5 m/sec						
Geschwindigkeit Speed	< 1,5 m/sec < 1,5 m/sec	  	  	  	  	  	  
Einstellbarkeit Adjustment		   ¹⁾	   ¹⁾	   ¹⁾	     	     	     
Verschmutzungsresistenz Dirt resistance		  	  	  	  	  	     
Nachschmierbarkeit ohne 4.053 Relubrication except 4.053		    	    	    	Lebensdauergeschmiert Lubricated for life		
Korrosionsschutz Corrosion resistance	HARTCHROM-Beschichtung auf Anfrage HARDCHROME coating on request						
Laufruhe Running smoothness		  	   	  	  	   	  
Temperatur Temperature	< 250 °C < 250 °C			  			
Temperatur Temperature	< 100 °C < 100 °C	 	 	  	 	 	 

¹⁾ In Verbindung mit AP

¹⁾ By using AP

²⁾ Einstellbarkeit über Steckbleche

²⁾ Adjustment by washers

WINKEL-Rollen | WINKEL Bearings



4.089 4.094	3.054 3.064	PR 3.054 PR 3.064	JC 4.054 JC 4.063	JT 2.055 JT 2.058	4.053 INOX 4.076 INOX	I 525 APS I 884 AP3	V 4000 V 1792 AP PA 4000 PA 1800 AP	JT-V 1012 JT-V 1792 JT-PA 1012 JT-PA 1792
								
48	54	56	58	60	100	102	106 / 118	114 / 126
								
								
								
	 ²⁾	 ²⁾	Radial Axial ²⁾ 	Radial Axial 	 ¹⁾	 ²⁾	 ²⁾	Radial Axial 
								
					Lebensdauergeschmiert Lubricated for life			
HARTCHROM-Beschichtung auf Anfrage HARDCHROME coating on request								
								
								

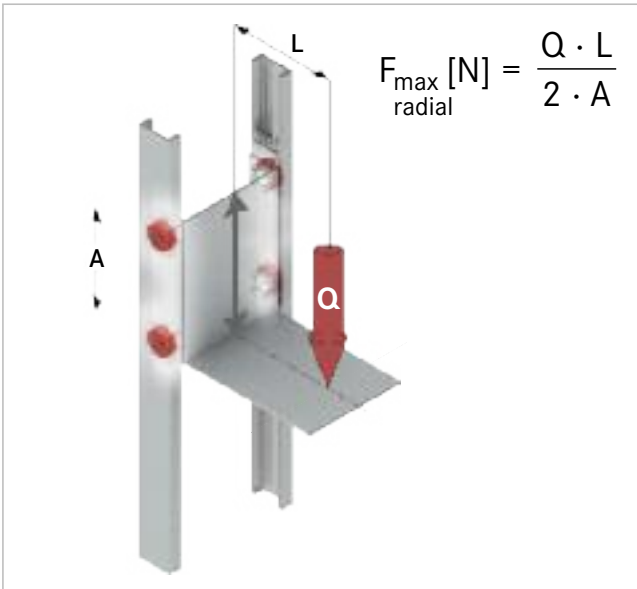


Berechnung der Rollenbelastung

Q = Nutzlast + Eigengewicht (N)

L = Lastabstand vom Aufhängepunkt (mm)

A = Rollenabstand (mm) empfohlen 500-1000 mm

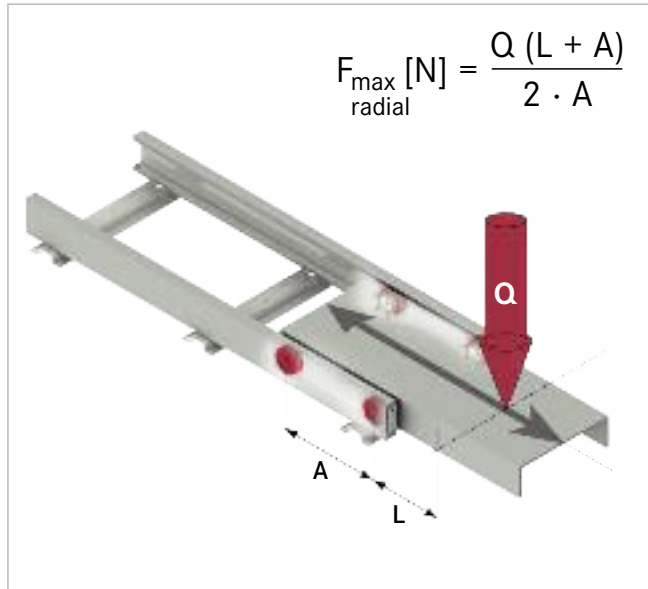


Calculation of the bearing forces

Q = Load capacity + total load (N)

L = Load distance to suspension point (mm)

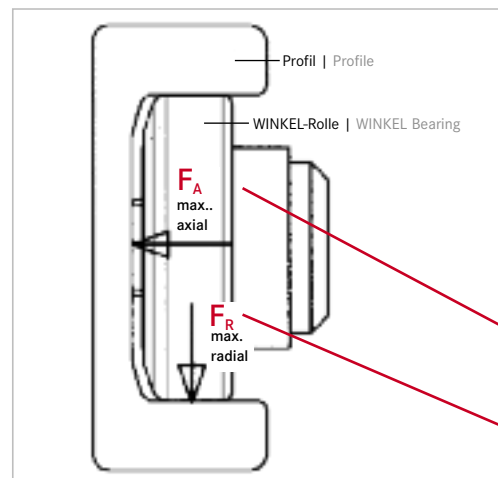
A = Bearing distance (mm) recommended 500-1000 mm



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

Here indicated are $F_{max \text{ radial}} + \text{axial}$ for each bearing.



Beispiel | Example

Type	Artikel-Nr.	D -0.1	T	d -0.05	H	h	B	A	S	r	
Type	Article no.	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[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								
A	-	1,00	-	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) 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	F_A	C	C₀	C_A	C_{0A}	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	-	S
4.054	10,30	3,20	31,0	35,5	11	11	0,53	AP0	I	AP0-LUB	0 NbV
4.055	12,40	3,87	45,5	51,0	13	14	0,80	AP1	I	AP1-LUB	1 NbV 3018 NbV
4.056	12,90	4,00	48,0	56,8	18	18	1,00	AP2	I	AP2-LUB	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	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	4 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-Rolle Axialrolle fest

Nachschmierbarkeit für Rollen 4.054 - 4.064

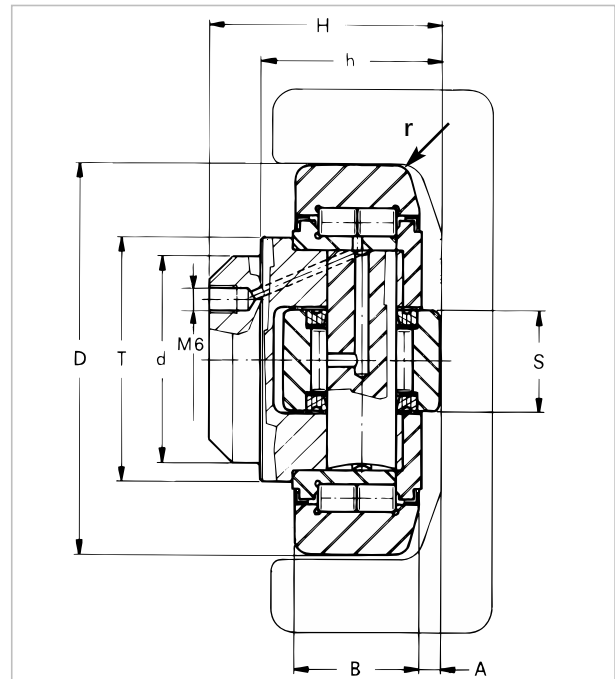


nur 4.053
only 4.053



WINKEL Bearing axial bearing fixed

Relubrication only for types 4.054 - 4.064



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



Axiale Justierung über
Steckbleche

Adjustment of bearings
with screw-axial adjust-
ment of plug trays



Nachschmiersysteme für WINKEL-Rollen

Lubrication systems for WINKEL bearings

(Seite/page 140)

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	3	
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	4,5	
4.056	200.003.000	77,7	54	40	48,0	36,5	23	3,0	26	4,5	
4.057	200.004.002	77,7	53	40	40,0	29,0	23	3,0	26	4,5	
4.058	200.005.000	88,4	59	45	57,0	44,0	30	3,5	26	4	
4.059	200.006.000	101,2	67	50	46,0	33,0	28	3,0	30	4	
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	5	
4.064	200.026.000	170,0	103	80	91,0	72,0	53	7,0	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

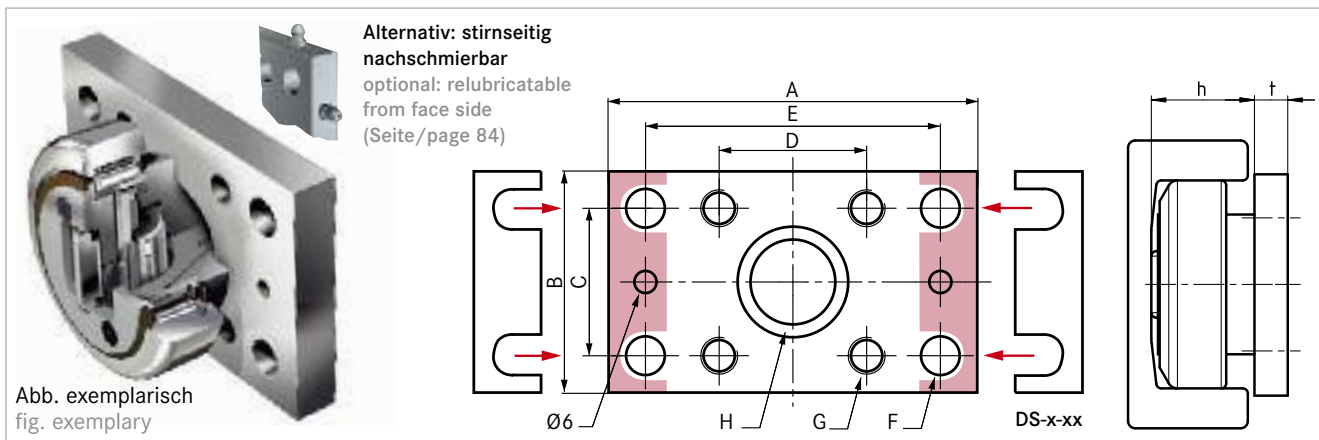
NEW

WINKEL-Rollen | WINKEL Bearings



Passende Anschraubplatten

Suitable flange plates

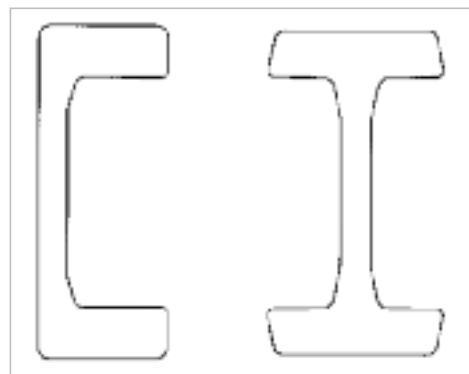
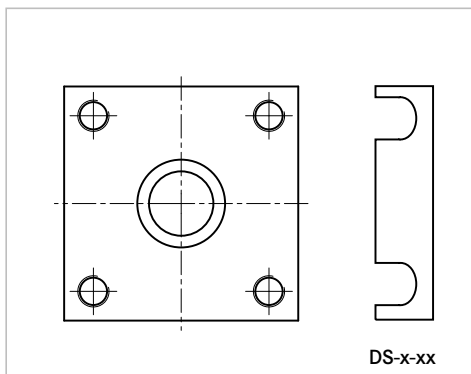


Type	Artikel-Nr. Article no.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Ø F [mm]	G [mm]	Ø H [mm]	t [mm]	Distanzsteckblech 0,5mm Washer 0.5mm		Distanzsteckblech 1,0mm Washer 1.0mm	
AP S	212.014.000	90	50	30	40	70	8,5	M 8	30	10	DS-S-0,5	238.025.000	DS-S-1,0	238.025.001
AP 0	212.003.000	100	60	40	40	80	10,5	M 10	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	M 12	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	M 12	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	M 16	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	M 16	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	M 16	60	20	DS-6-0,5	238.024.000	DS-6-1,0	238.024.001

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Wiper page 88

Anschraubplatten quadratisch Reihe AP-Q S. 90
Flange plates square series AP-Q page 90

Profile Seite 62 / 70
Profiles page 62 / 70



Typ	F _R	F _A	C	C ₀	C _A	C _{0A}	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 I 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 I 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
4.062	33,90 (26,00)	10,60	110,0	132,0	43	50	3,89	AP4	I	AP4-LUB	I AP4-Q	5 NbV (3353 NbV)
4.063	59,20	18,50	151,0	192,0	68	71	6,52	AP6	I	AP6-LUB	I AP6-Q	6 NbV
4.064	72,00	18,50	262,7	471,1	96	145	10,40	–	I	–	I AP89-Q	7 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



Präzisions-WINKEL-Rolle

Typ PR

Axialrolle fest

Vorteil:

- weniger Spiel zwischen Rolle und Profil

Nachschmierbarkeit für Rollen PR 4.054 - PR 4.064



Abb. exemplarisch
fig. exemplary

Precision WINKEL Bearing

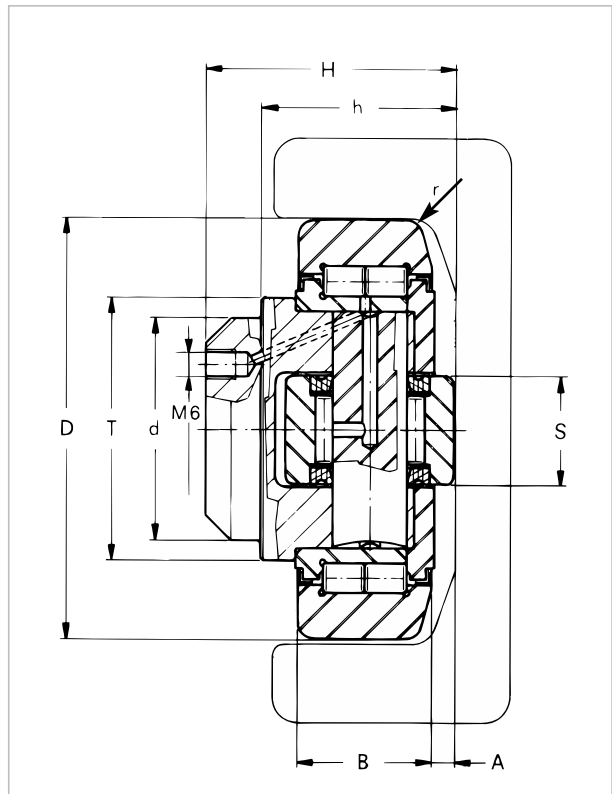
Type PR

axial bearing fixed

Advantage:

- less clearance between bearing and profile

Relubrication for types PR 4.054 - PR 4.064



Nachschmiersysteme für WINKEL-Rollen
Lubrication systems for WINKEL bearings
(Seite/page 140)



Axiale Justierung über
Steckbleche

Adjustment of bearings
with screw-axial adjust-
ment of plug trays



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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]	
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	4,5	
PR 4.056	200.102.000	81,8	54	40	48,0	36,5	23	3,0	26	4,5	
PR 4.058	200.103.000	92,8	59	45	57,0	44,0	30	3,5	26	4	
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	5	
PR 4.064	200.124.000	175,7	103	80	91,0	72,0	53	7,0	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

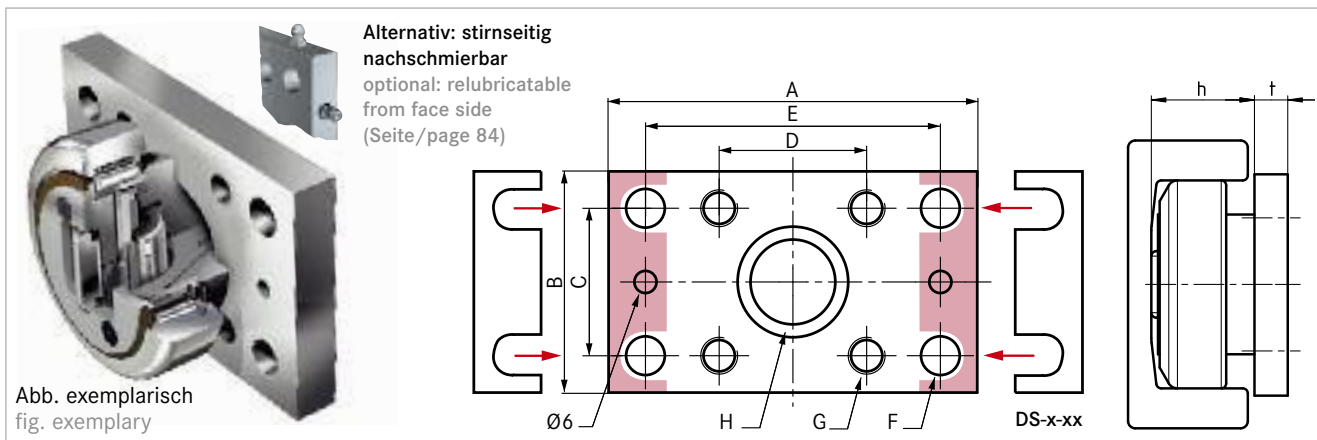
F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

NEW



Passende Anschraubplatten

Suitable flange plates

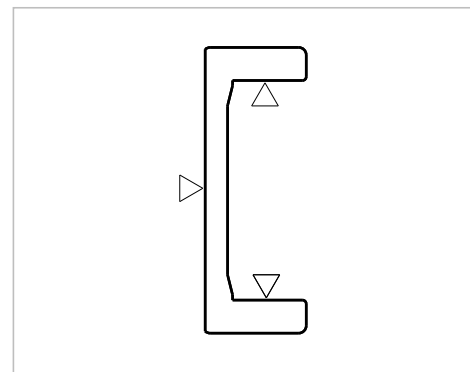
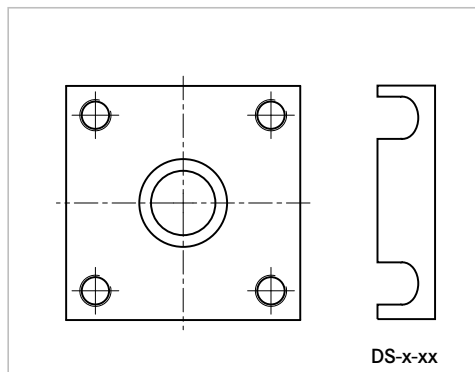


Typ Type	Artikel-Nr. Article no.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Ø F [mm]	G [mm]	Ø H [mm]	t [mm]	Distanzsteckblech 0,5mm Washer 0.5mm		Distanzsteckblech 1,0mm Washer 1.0mm	
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	50	50	90	12,5	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

Abstreifer Seite 88
Wiper page 88

Anschraubplatten quadratisch Reihe AP-Q S. 90
Flange plates square series AP-Q page 90

Profile Seite 66
Profiles page 66



Typ Type	F_R [kN]	F_A [kN]	C [kN]	C_0 [kN]	C_A [kN]	C_{0A} [kN]	Gewicht kg Weight kg	Anschraubplatten Flange plates	Profile Profiles
PR 4.054	10,30	3,20	31,0	35,5	11	11	0,55	AP0 AP0-LUB AP0-Q	PR 0 NbV
PR 4.055	12,40	3,87	45,5	51,0	13	14	0,85	AP1 AP1-LUB AP1-Q	PR 1 NbV
PR 4.056	12,90	4,00	48,0	56,8	18	18	1,10	AP2 AP2-LUB AP2-Q	PR 2 NbV
PR 4.058	22,40	7,00	68,0	72,0	23	23	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	2,95	AP4 AP4-LUB AP4-Q	PR 4 NbV
PR 4.062	33,90	10,60	110,0	132,0	43	50	4,10	AP4 AP4-LUB AP4-Q	PR 5 NbV
PR 4.063	59,20	18,50	151,0	192,0	68	71	6,85	AP6 AP6-LUB AP6-Q	PR 6 NbV
PR 4.064	72,00	18,50	262,7	471,1	96	145	11,04	- - AP89-Q	PR 7 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



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

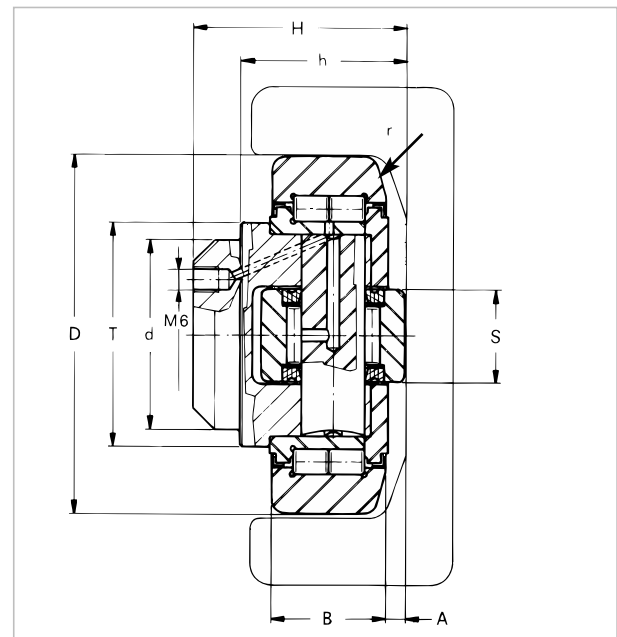


nur 4.053 HT
only 4.053 HT



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



Axiale Justierung über
Steckbleche

Adjustment of bearings
with screw-axial
adjustment of plug trays



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

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 HT	200.024.011	52,5	40	30	33,0	27,0	17	5,0	15	3	
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	4,5	
4.056 HT	200.003.018	77,7	54	40	48,0	36,5	23	3,0	26	4,5	
4.058 HT	200.005.014	88,4	59	45	57,0	44,0	30	3,5	26	4	
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	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)

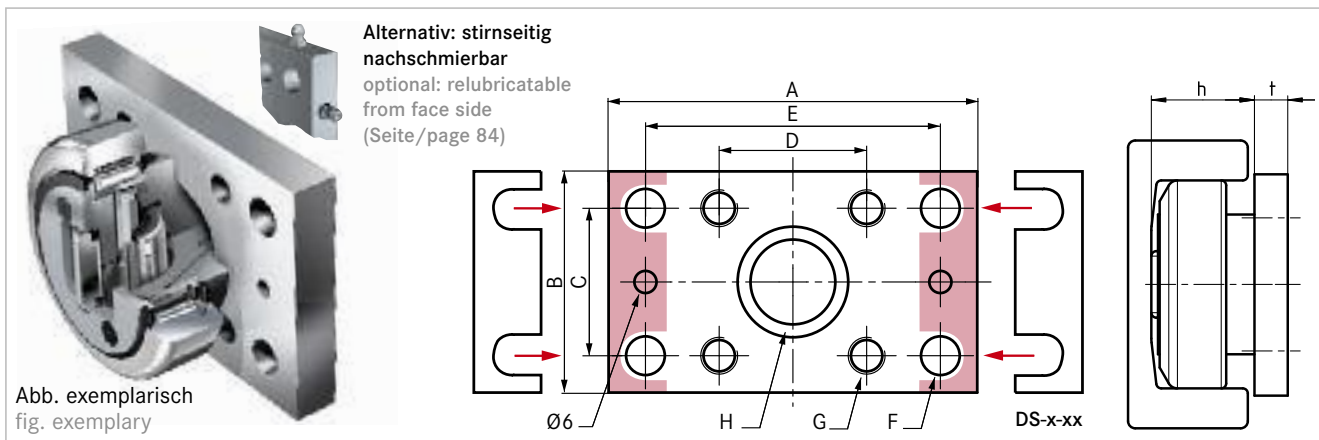
F_R = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil



Passende Anschraubplatten

Suitable flange plates

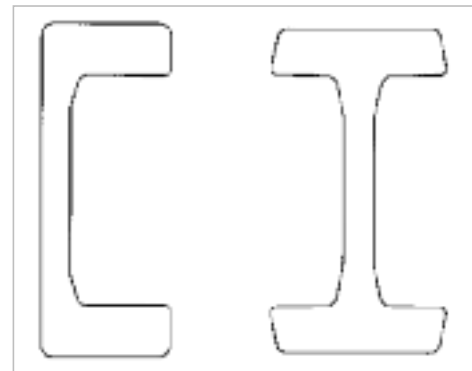
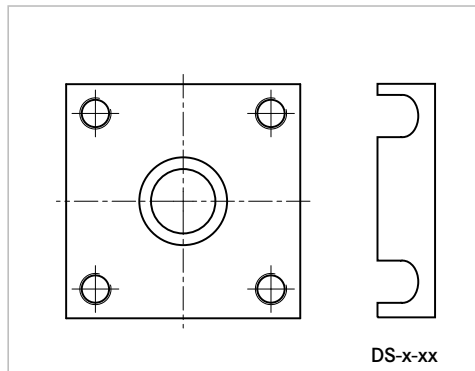


Type	Artikel-Nr. Article no.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Ø F [mm]	G [mm]	Ø H [mm]	t [mm]	Distanzsteckblech 0,5mm Washer 0.5mm		Distanzsteckblech 1,0mm Washer 1.0mm	
AP S	212.014.000	90	50	30	40	70	8,5	M 8	30	10	DS-S-0,5	238.025.000	DS-S-1,0	238.025.001
AP 0	212.003.000	100	60	40	40	80	10,5	M 10	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	M 12	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	M 12	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	M 16	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	M 16	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	M 16	60	20	DS-6-0,5	238.024.000	DS-6-1,0	238.024.001

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Wiper page 88

Anschraubplatten quadratisch Reihe AP-Q S. 90
Flange plates square series AP-Q page 90

Profile Seite 62 / 70
Profiles page 62 / 70



Type	F_R [kN]	F_A [kN]	C [kN]	C_o [kN]	C_A [kN]	C_{oA} [kN]	Gewicht kg Weight kg	Anschraubplatten Flange plates		Profile Profiles
4.053 HT	5,23	1,68	24,0	32,0	7	7	0,46	APS	APS-Q	S
4.054 HT	10,30	3,20	31,0	35,5	11	11	0,55	AP0	AP0-Q	0 NbV
4.055 HT	12,40	3,87	45,5	51,0	13	14	0,85	AP1	AP1-Q	1 NbV I 3018 NbV
4.056 HT	12,90	4,00	48,0	56,8	18	18	1,10	AP2	AP2-Q	2 NbV
4.058 HT	22,40	7,00	68,0	72,0	23	23	1,70	AP3.1	AP3-Q	3 NbV I 3020 NbV
4.061 HT	23,80	7,44	81,0	95,0	31	36	2,95	AP4	AP4-Q	4 NbV
4.062 HT	33,90 (26,00)	10,60	110,0	132,0	43	50	4,10	AP4	AP4-Q	5 NbV (3353 NbV)
4.063 HT	59,20	18,50	151,0	192,0	68	71	6,85	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-Rolle axial über Exzenter justierbar

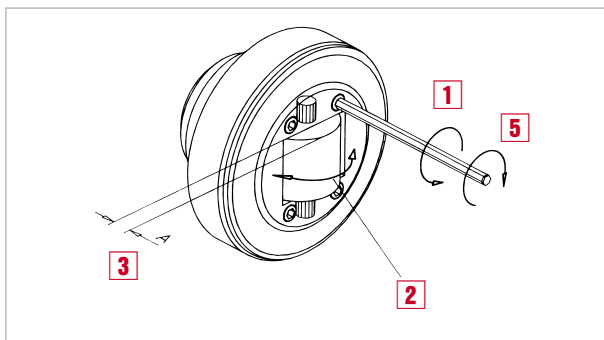
■ Rollen lebensdauergeschmiert



WINKEL-Rolle
Justierung der Axialrolle
über Exzenter bis 4.461
Adjustment of axial
bearing with eccentric
up to 4.461



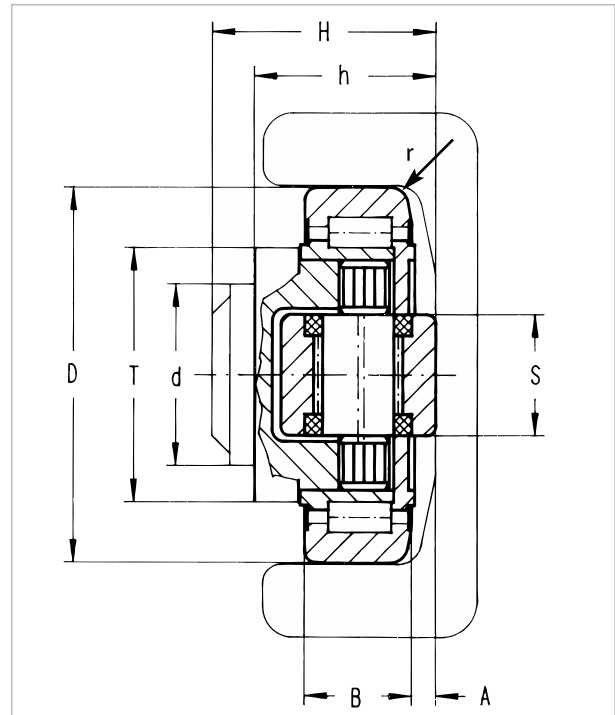
WINKEL Jumbo-Rolle
Justierung der Axialrolle
über Exzenter ab 4.462
Adjustment of axial
bearing with eccentric
from 4.462



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WINKEL Bearing axial bearing eccentric adjustable

■ 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

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

Type	Artikel-Nr.	D -0.1	T	d -0.05	H	h	B	A	S	r	
Type	Article no.	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
4.454	201.031.000	62,5	42	30	37,5 - 39,0	30,5 - 32,0	20,0	4,0 - 5,5	20	3	
4.455	201.032.000	70,1	48	35	44,0 - 45,5	36,0 - 37,5	23,0	4,0 - 5,5	20	4,5	
4.456	201.033.000	77,7	54	40	48,0 - 49,5	37,0 - 38,5	23,0	3,5 - 5,0	26	4,5	
4.457	201.034.003	77,7	54	40	40,0 - 41,5	29,0 - 30,5	23,0	3,5 - 5,0	26	4,5	
4.458	201.035.000	88,4	59	45	57,0 - 58,5	44,0 - 45,5	30,0	4,0 - 5,5	26	4	
4.459	201.036.000	101,6	69	50	46,0 - 48,0	33,0 - 35,0	26,0	4,5 - 6,5	30	4	
4.460	201.037.000	108,5	69	55	54,0 - 56,0	40,0 - 42,0	31,0	4,0 - 6,0	30	4	
4.461	201.038.000	107,7	69	60	69,0 - 71,0	55,0 - 57,0	31,0	4,0 - 6,0	30	5	
4.462	201.039.000	123,0	80	60	72,3 - 76,3	56,0 - 60,0	37,0	5,0 - 9,0	34	5	
4.463	201.040.000	149,4	108	60	77,5 - 81,5	58,5 - 62,5	45,0	6,0 - 10,0	34	5	
4.464	201.048.000	170,0	103	80	91,0 - 94,0	72,0 - 75,0	53,0	7,0 - 10,0	50	5	
4.085	201.049.000	180,0	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)

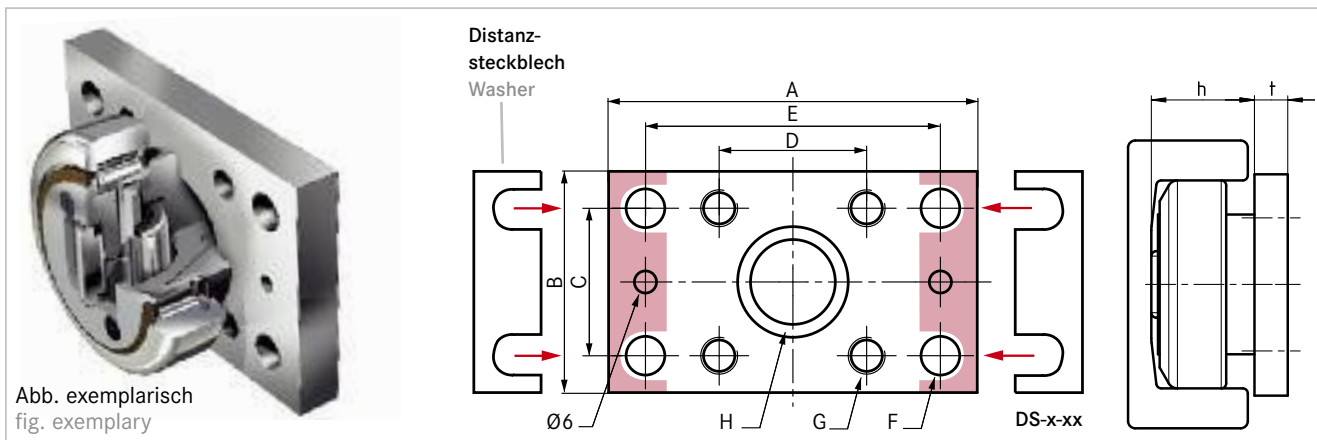
F_R = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil



Passende Anschraubplatten

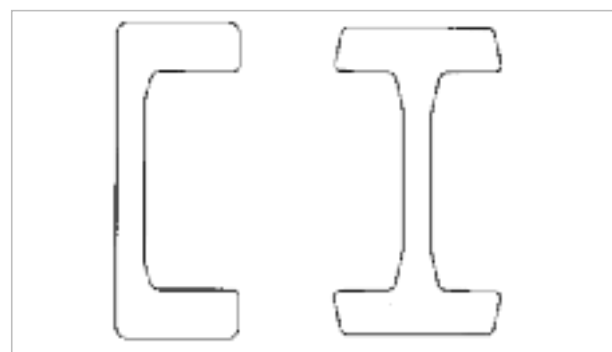
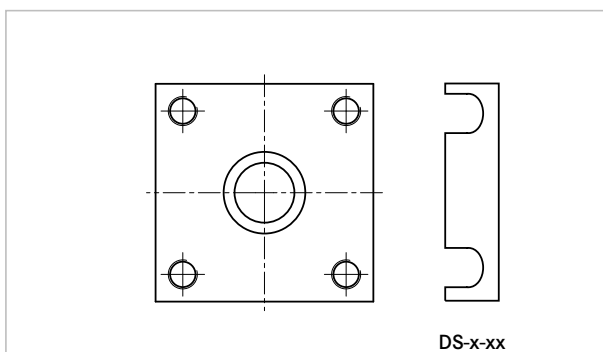
Suitable flange plates



Typ Type	Artikel-Nr. Article no.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Ø F [mm]	G [mm]	Ø H [mm]	t [mm]	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. 90
Flange plates square series AP-Q page 90

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Profiles page 62 / 70



Typ Type	F_R [kN]	F_A [kN]	C [kN]	C_o [kN]	C_A [kN]	C_{oA} [kN]	Gewicht kg Weight kg	Anschraubplatten Flange plates		Profile Standard Profiles standard
4.454	10,30	3,20	31,0	35,5	11	11	0,53	AP0	AP0-Q	0 NbV
4.455	12,40	3,87	45,5	51,0	13	14	0,80	AP1	AP1-Q	1 NbV I 3018 NbV
4.456	12,90	4,00	48,0	56,8	18	18	1,00	AP2	AP2-Q	2 NbV
4.457	12,90	4,00	48,0	56,8	18	18	0,87	-	-	3019 NbV
4.458	22,40	7,00	68,0	72,0	23	23	1,62	AP3.1	AP3-Q	3 NbV I 3020 NbV
4.459	22,00	7,00	73,0	82,0	25	27	1,74	-	-	2912 NbV
4.460	23,80	7,44	81,0	95,0	31	36	2,27	-	-	3100 NbV
4.461	23,80	7,44	81,0	95,0	31	36	2,82	AP4	AP4-Q	4 NbV
4.462	33,90 (26,00)	10,60	110,0	132,0	43	50	3,60	AP4	AP4-Q	5 NbV (3353 NbV)
4.463	59,20	18,50	151,0	192,0	68	71	6,30	AP6	AP6-Q	6 NbV
4.464	72,00	18,50	217,0	269,0	70	83	9,95	-	AP89-Q	7 NbV®
4.085	91,80	23,70	266,0	500,0	100	180	11,50	-	AP90-Q	8 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

Präzisions-WINKEL-Rolle Typ PR Axialrolle über Exzenter justierbar

Vorteil:

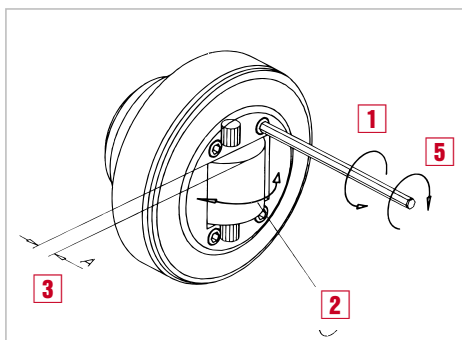
- weniger Spiel zwischen Rolle und Profil
- Rollen lebensdauergeschmiert



WINKEL-Rolle
Justierung der Axialrolle
über Exzenter bis 4.461
Adjustment of axial
bearing with eccentric
up to 4.461



WINKEL Jumbo-Rolle
Justierung der Axialrolle
über Exzenter ab 4.462
Adjustment of axial
bearing with eccentric
from 4.462



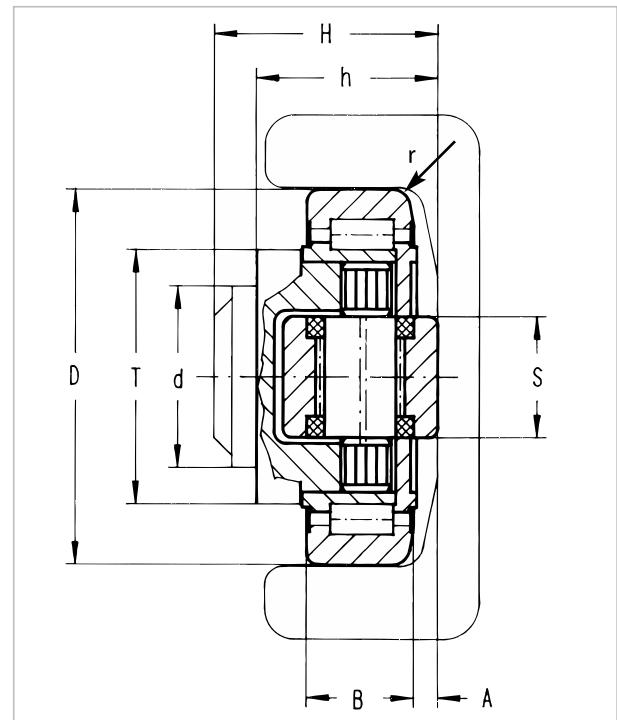
CAD Download in 2D/3D unter www.winkel.de

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]	
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	4,5	
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	4,5	
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	5	
PR 4.464	201.048.004	175,7	103	80	91,0 - 94,0	72,0 - 75,0	53,0	7,0 - 10,0	50	5	
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	

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

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

NEW

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)

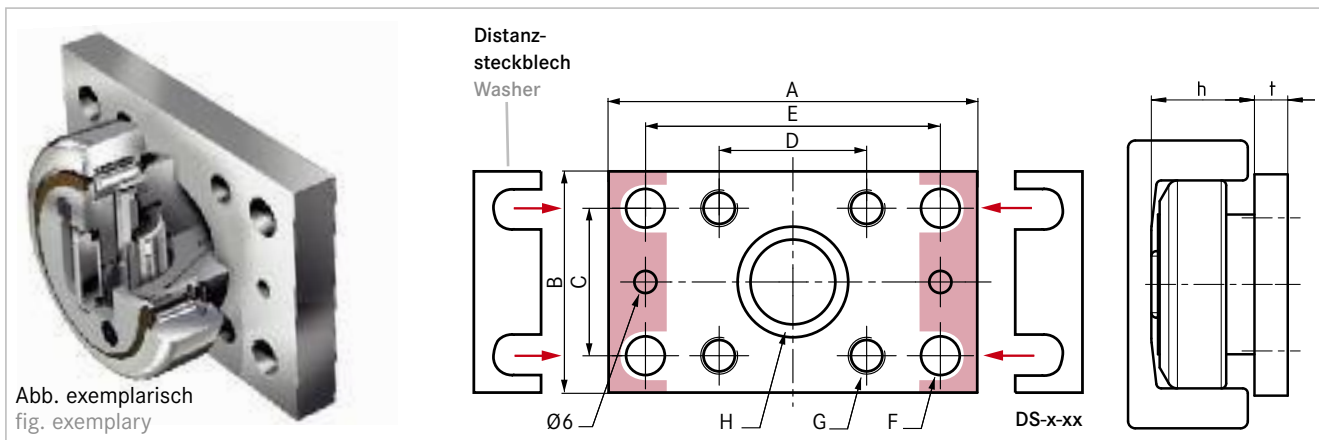
F_R = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil



Passende Anschraubplatten

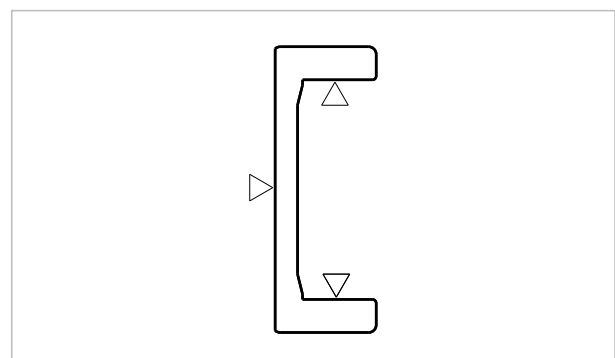
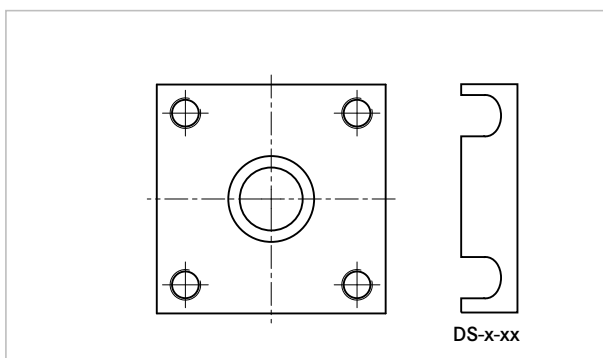
Suitable flange plates



Typ Type	Artikel-Nr. Article no.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Ø F [mm]	G [mm]	Ø H [mm]	t [mm]	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. 90
Flange plates square series AP-Q page 90

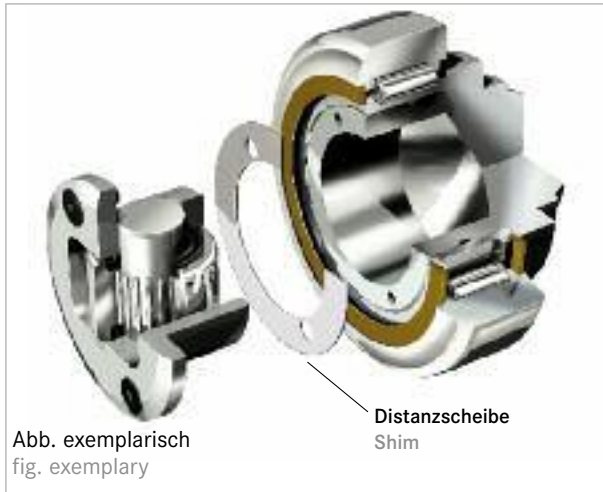
Profile Seite 66
Profiles page 66



Typ Type	F_R [kN]	F_A [kN]	C [kN]	C_o [kN]	C_A [kN]	C_{oA} [kN]	Gewicht kg Weight kg	Anschraubplatten Flange plates		Profile Profiles
PR 4.454	10,30	3,20	31,0	35,5	11	11	0,55	AP0	AP0-Q	PR 0 NbV
PR 4.455	12,40	3,87	45,5	51,0	13	14	0,80	AP1	AP1-Q	PR 1 NbV
PR 4.456	12,90	4,00	48,0	56,8	18	18	1,05	AP2	AP2-Q	PR 2 NbV
PR 4.458	22,40	7,00	68,0	72,0	23	23	1,65	AP3.1	AP3-Q	PR 3 NbV
PR 4.461	23,80	7,44	81,0	95,0	31	36	2,85	AP4	AP4-Q	PR 4 NbV
PR 4.462	33,90	10,60	110,0	132,0	43	50	4,00	AP4	AP4-Q	PR 5 NbV
PR 4.463	59,20	18,50	151,0	192,0	68	71	6,70	AP6	AP6-Q	PR 6 NbV
PR 4.464	72,00	18,50	217,0	269,0	70	83	10,59	-	AP89-Q	PR 7 NbV
PR 4.085	91,80	23,70	266,0	500,0	100	180	12,50	-	AP90-Q	PR 8 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-Rolle axial über Scheiben justierbar



Justierung der Axialrolle
über Distanzscheiben
Adjustment of the axial
clearance with shims



Justierung der Axialrolle

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

- 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

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]	
4.072	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	4,5	
4.074	200.013.007	78,1	54	40	50,5	39,5	23	7,0	21	4,5	
4.075	200.014.000	77,7	54	40	45,0	34,0	23	7,0	21	4,5	
4.076	200.015.000	88,4	59	45	61,0	48,0	30	7,0	21	4	
4.077	200.017.000	101,2	67	50	50,5	37,5	28	7,0	21	4	
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)

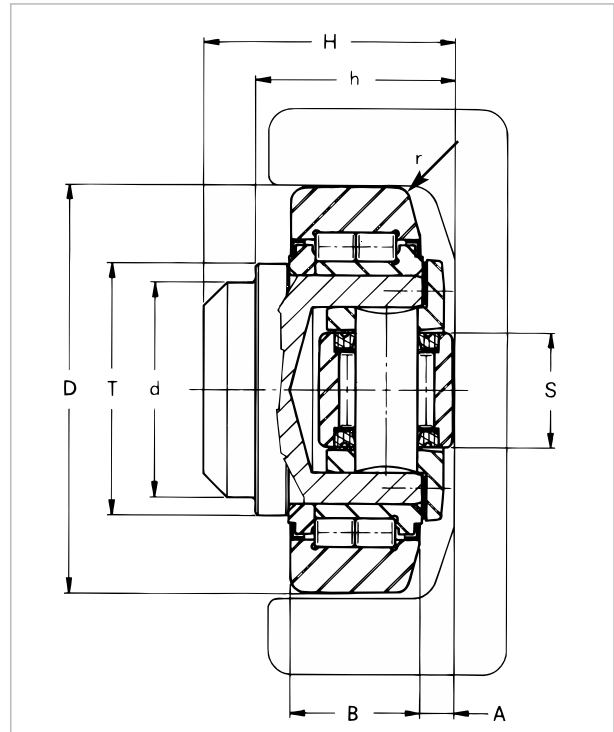
C_A = Dyn. Tragzahl Axiallager (ISO 281/1), C_{0A} = Stat. Tragzahl Axiallager (ISO 76)

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 Bearing axial adjustable by shims



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

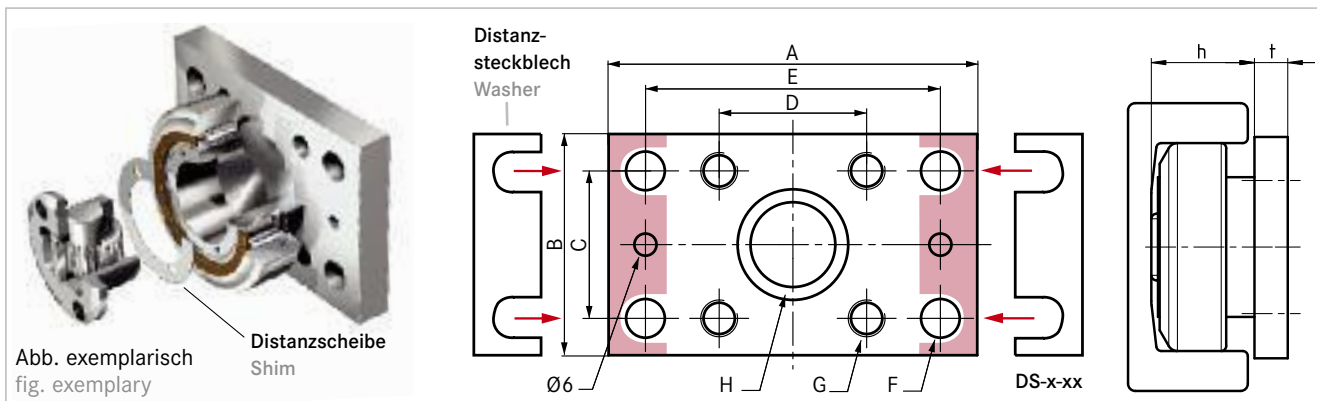
Special bolts on request.

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



Passende Anschraubplatten

Suitable flange plates

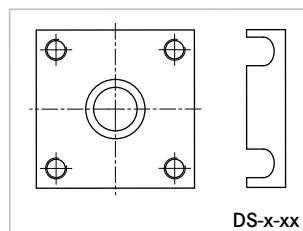


Typ Type	Artikel-Nr. Article no.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Ø F [mm]	G	Ø H [mm]	t [mm]	Distanzsteckblech 0,5mm Washer 0.5mm		Distanzsteckblech 1,0mm Washer 1.0mm	
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	50	50	90	12,5	M12	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

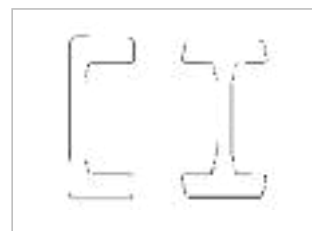
Passende Distanzscheiben | Suitable shims

Distanzscheiben passend für Shims suitable for	Distanzscheiben Stärke Shims thickness			
	0,5 mm		1,0 mm	
4.072 - 4.073	S-4.072-0,5	200.900.000	S-4.072-1,0	200.900.001
4.074 - 4.077	S-4.074-0,5	200.901.000	S-4.074-1,0	200.901.001
4.078 - 4.079	S-4.078-0,5	200.902.000	S-4.078-1,0	200.902.001
4.080	S-4.080-0,5	200.903.000	S-4.080-1,0	200.903.001

Anschraubplatten
quadratisch Reihe AP-Q S. 90
Flange plates
square series AP-Q page 90



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Profiles page 62 / 70



Typ Type	F_R [kN]	F_A [kN]	C [kN]	C_o [kN]	C_A [kN]	C_{oA} [kN]	Gewicht kg Weight kg	Anschraubplatten Flange plates		Profile Standard Profiles standard
4.072	10,30	3,20	31,0	35,5	8	8	0,56	AP0	AP0-Q	0 NbV
4.073	12,40	3,87	45,5	51,0	14	14	0,85	AP1	AP1-Q	1 NbV 3018 NbV
4.074	12,90	4,00	48,0	56,8	14	14	1,02	AP2	AP2-Q	2 NbV
4.075	12,90	4,00	48,0	56,8	14	14	0,92	-	-	3019 NbV
4.076	22,40	7,00	68,0	72,0	15	15	1,69	AP3.1	AP3-Q	3 NbV 3020 NbV
4.077	22,00	7,00	73,0	82,0	18	19	1,85	-	-	2912 NbV
4.078	23,80	7,44	81,0	95,0	31	36	2,38	-	-	3100 NbV
4.0784	23,80	7,44	81,0	95,0	31	36	2,80	AP4	AP4-Q	4 NbV
4.079	33,90 (26,00)	10,60	110,0	132,0	35	38	4,08	AP4	AP4-Q	5 NbV (3353 NbV)
4.080	39,50	18,50	151,0	192,0	68	71	6,70	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

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



Präzisions-WINKEL-Rolle Typ PR axial über Scheiben justierbar



Justierung der Axialrolle
über Distanzscheiben
Adjustment of the axial
clearance with shims



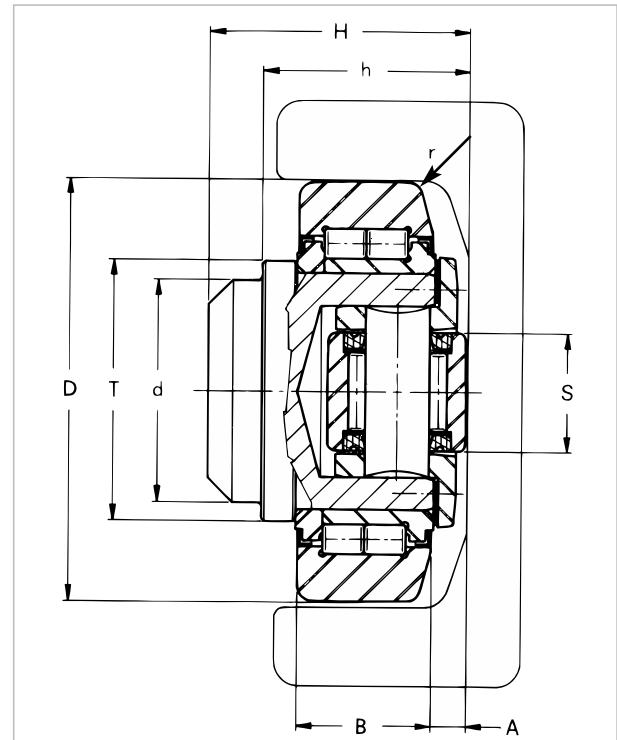
Justierung der Axialrolle

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

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

Sonderbolzen auf Anfrage.

Precision WINKEL Bearing Type PR axial bearing adjustable by shims



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 unter www.winkel.de

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

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]	
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	4,5	
PR 4.074	200.109.000	81,8	54	40	50,5	39,5	23	7,0	21	4,5	
PR 4.076	200.110.000	92,8	59	45	61,0	48,0	30	7,0	21	4	
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

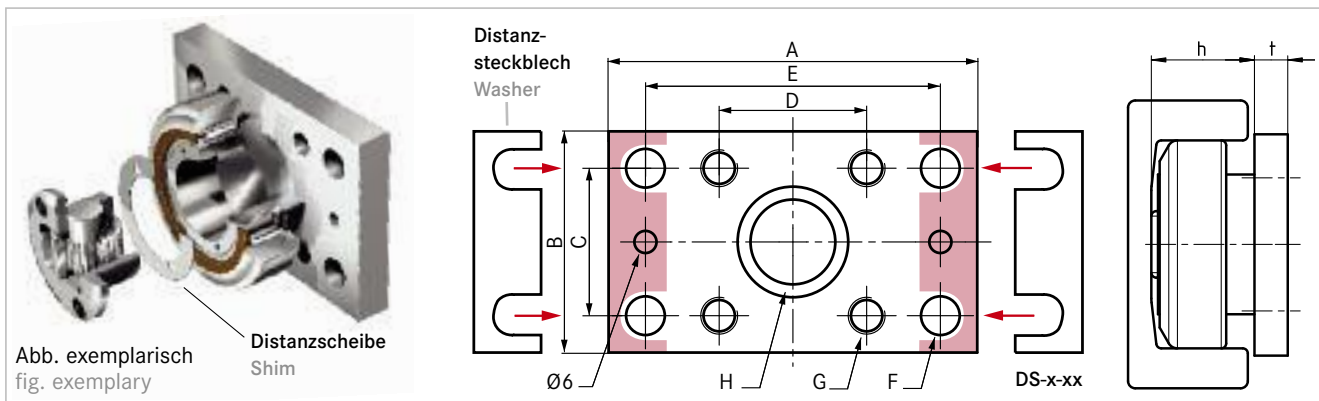
F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

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



Passende Anschraubplatten

Suitable flange plates

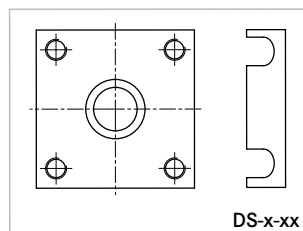


Type	Artikel-Nr.	A	B	C	D	E	Ø F	G	Ø H	t	Distanzsteckblech 0,5mm		Distanzsteckblech 1,0mm	
Type	Article no.	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]	Washer 0.5mm		Washer 1.0mm	
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	50	50	90	12,5	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

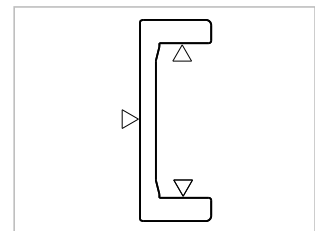
Passende Distanzscheiben | Suitable shims

Distanzscheiben passend für Shims suitable for	Distanzscheiben Stärke Shims thickness			
	0,5 mm		1,0 mm	
PR 4.072 - PR 4.073	S-4.072-0,5	200.900.000	S-4.072-1,0	200.900.001
PR 4.074 - PR 4.077	S-4.074-0,5	200.901.000	S-4.074-1,0	200.901.001
PR 4.078 - PR 4.079	S-4.078-0,5	200.902.000	S-4.078-1,0	200.902.001
PR 4.080	S-4.080-0,5	200.903.000	S-4.080-1,0	200.903.001

Anschraubplatten
quadratisch Reihe AP-Q S. 90
Flange plates
square series AP-Q page 90



Profile Seite 66
Profiles page 66



Type	F _R	F _A	C	C ₀	C _A	C _{0A}	Gewicht kg	Anschraubplatten		Profile
Type	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	Weight kg	Flange plates		Profiles
PR 4.072	10,30	3,20	31,0	35,5	8	8	0,56	AP0	AP0-Q	PR 0 NbV
PR 4.073	12,40	3,87	45,5	51,0	14	14	0,85	AP1	AP1-Q	PR 1 NbV
PR 4.074	12,90	4,00	48,0	56,8	14	14	1,02	AP2	AP2-Q	PR 2 NbV
PR 4.076	22,40	7,00	68,0	72,0	15	15	1,69	AP3.1	AP3-Q	PR 3 NbV
PR 4.0784	23,80	7,44	81,0	95,0	31	36	2,80	AP4	AP4-Q	PR 4 NbV
PR 4.079	33,90	10,60	110,0	132,0	35	38	4,08	AP4	AP4-Q	PR 5 NbV
PR 4.080	39,50	18,50	151,0	192,0	68	71	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)

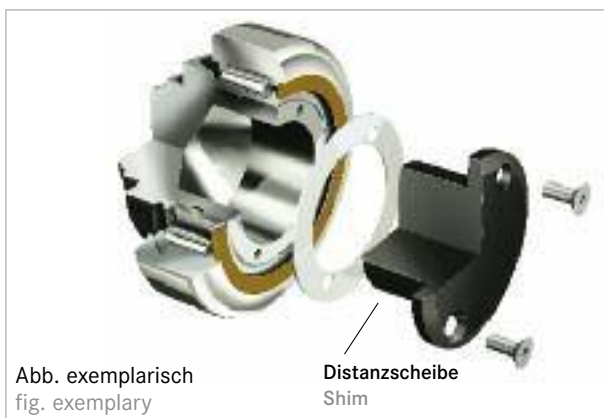
F_R = Load capacity radial bearing max. allowable force between bearing and profile

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



Justierung der Axialrolle
über Distanzscheiben
Adjustment of the axial
clearance with shims



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.

*OILAMID ist ein hochabriebfester selbstschmierender POLYAMID.

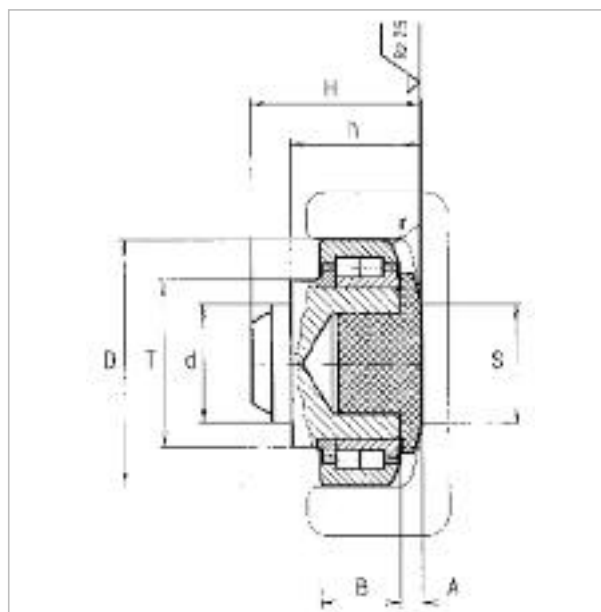
The adjustment of dimension (A) is obtained by means of an insert positioned between the main body of the bearing and the oilamid® insert.

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

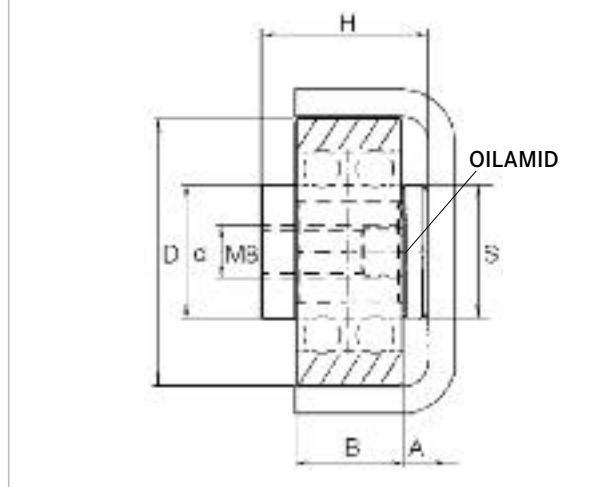
Notice: At high axial forces we recommend to mill the axial raceway of the profile.

*OILAMID is a high resistant, self lubricant POLYAMIDE

WINKEL Bearing adjustable with OILAMID* insert



nur 4.052 P | only 4.052 P



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

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

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 [ø mm]	r [mm]	
4.052 P	200.143.000	40,0	-	20	25,0	-	16	4,0	25	-	
4.072 P	200.011.002	62,5	42	30	43,0	33,0	20	5,5	30	3	
4.073 P	200.012.002	70,1	48	35	48,0	40,0	23	6,5	35	4,5	
4.074 P	200.013.002	78,1	54	40	50,5	39,5	23	7,0	37	4,5	
4.076 P	200.015.002	88,4	59	45	61,0	48,0	30	7,0	44	4	
4.0784 P	200.016.002	107,7	71	60	69,0	55,0	31	8,0	61	5	
4.079 P	200.018.002	123,0	80	60	75,5	59,5	37	8,0	77	5	
4.080 P	200.019.001	149,0	103	60	81,0	62,0	45	8,0	95	5	
4.084 P	201.048.008	170,0	103	80	91,0	72,0	53	7,0	100	5	
4.085 P	201.049.002	180,0	124	100	99,2	79,8	57,3	10,0	82	3	

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

NEW



Passende Anschraubplatten

Suitable flange plates

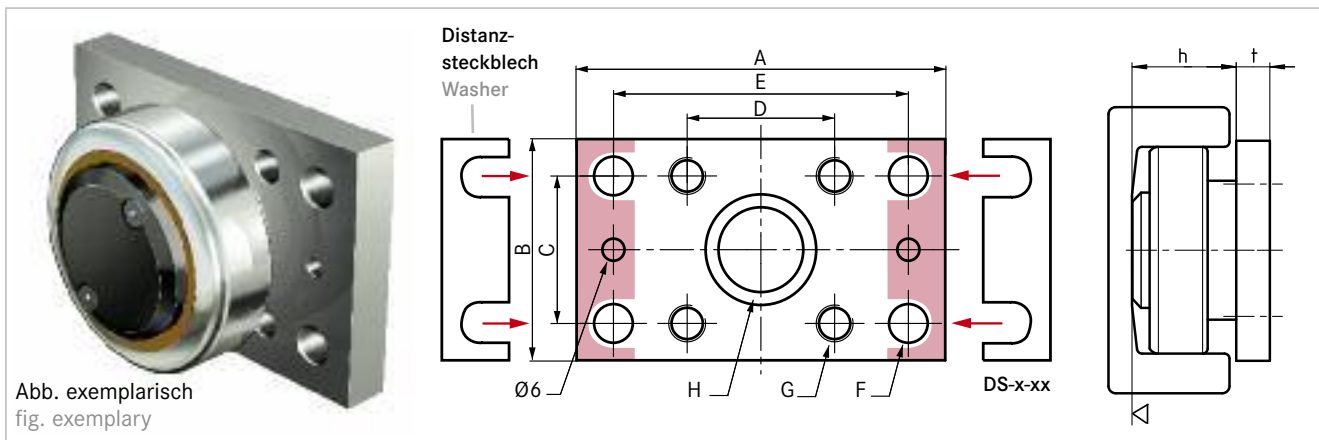


Abb. exemplarisch
fig. exemplary

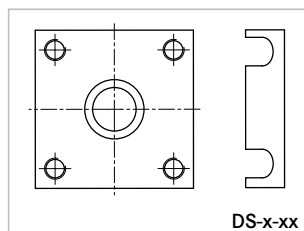
Type	Artikel-Nr. Article no.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Ø F [mm]	G	Ø H [mm]	t [mm]	Distanzsteckblech 0,5mm Washer 0.5mm		Distanzsteckblech 1,0mm Washer 1.0mm	
AP A	212.042.000	65	45	30	30	50	6,5	M 6	15	5	DS-A-0,5	238.026.000	DS-A-1,0	238.026.001
AP 0	212.003.000	100	60	40	40	80	10,5	M 10	30	10	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	M 12	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	M 12	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	M 16	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	M 16	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	M 16	60	20	DS-6-0,5	238.024.000	DS-6-1,0	238.024.001

Passende Distanzscheiben | Suitable shims

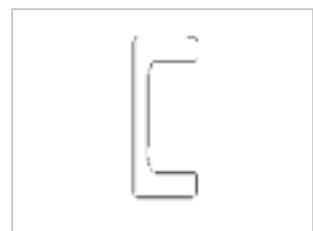
Distanzscheiben passend für Shims suitable for	Distanzscheiben Stärke Shims thickness			
	0,5 mm		1,0 mm	
4.072 P - 4.073 P	S-4.072-0,5	200.900.000	S-4.072-1,0	200.900.001
4.074 P - 4.077 P	S-4.074-0,5	200.901.000	S-4.074-1,0	200.901.001
4.078 P - 4.079 P	S-4.078-0,5	200.902.000	S-4.078-1,0	200.902.001
4.080 P	S-4.080-0,5	200.903.000	S-4.080-1,0	200.903.001
4.084 P	S-4.084-0,5	200.907.002	S-4.084-1,0	200.907.001
4.085 P	S-4.085-0,5	238.107.050	S-4.085-1,0	238.107.100

NEW

Anschraubplatten
quadratisch Reihe AP-Q S. 90
Flange plates
square series AP-Q page 90



Profile Seite 62
Profiles page 62



Type	F _R [kN]	F _A [kN]	C [kN]	C ₀ [kN]	Gewicht kg Weight kg	Anschraubplatten Flange plates		Profile Standard Profiles standard
4.052 P	1,00	3,1	10,0	5,7	0,15	APA	APA-Q	A
4.072 P	10,30	4,0	31,0	35,5	0,49	AP0	AP0-Q	0 NbV
4.073 P	12,40	6,7	45,5	51,0	0,74	AP1	AP1-Q	1 NbV
4.074 P	12,90	7,2	48,0	56,8	0,94	AP2	AP2-Q	2 NbV
4.076 P	22,40	8,9	68,0	72,0	1,57	AP3.1	AP3-Q	3 NbV
4.0784 P	23,80	14,4	81,0	95,0	2,63	AP4	AP4-Q	4 NbV
4.079 P	33,90	38,4	110,0	132,0	3,90	AP4	AP4-Q	5 NbV
4.080 P	59,20	41,6	151,0	192,0	6,50	AP6	AP6-Q	6 NbV
4.084 P	72,00	41,6	217,0	269,0	9,46	-	AP89-Q	7 NbV®
4.085 P	91,80	41,6	266,0	500,0	11,50	-	AP90Q	8 NbV

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

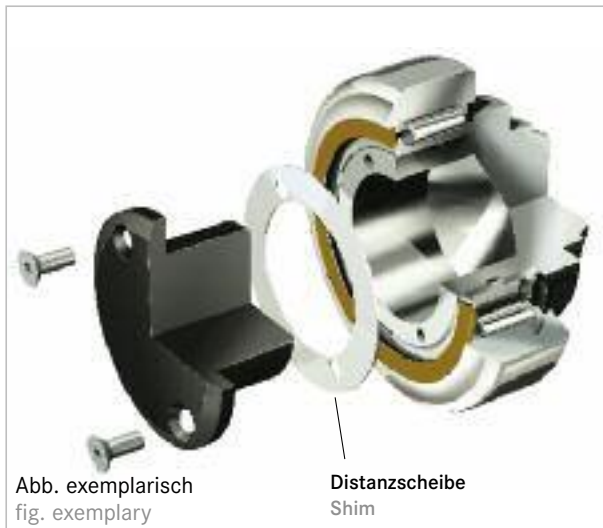
F_R = Load capacity radial bearing max. allowable force between bearing and profile,

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



Justierung der Axialrolle
über Distanzscheiben
Adjustment of the axial
clearance with shims



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

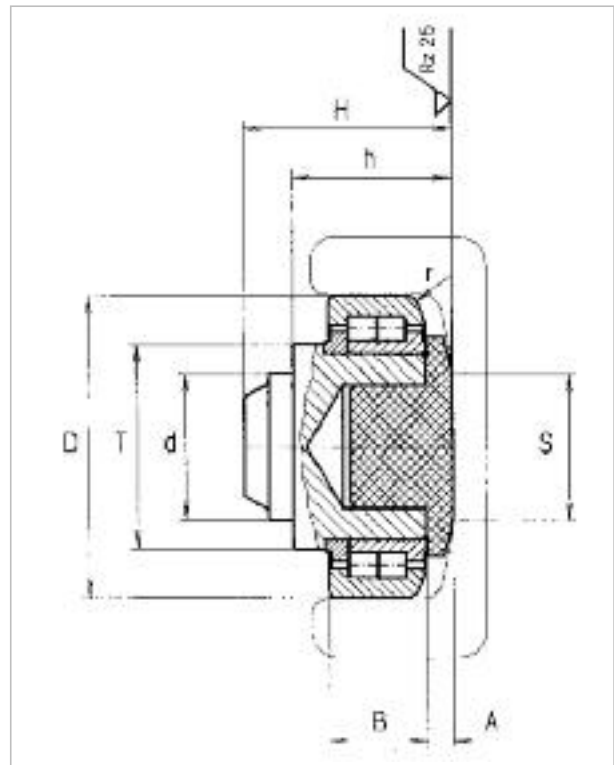
- Scheiben mit 0,5 und 1,0 mm sind lieferbar.
- Max. Einstellbereich + 2 mm
- Sonderbolzen auf Anfrage.

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

*OILAMID ist ein hochabriebfester selbstschmierender POLYAMID.

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

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



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.

*OILAMID is a high resistant, self lubricant POLYAMIDE

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

Type	Artikel-Nr.	D -0.1	T	d -0.05	H*	h*	B	A	S	r	
Type	Article no.	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[ø mm]	[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	4,5	
PR 4.074 P	200.013.004	81,8	54	40	50,5	39,5	23,0	7,0	40	4,5	
PR 4.076 P	200.015.003	92,8	59	45	61,0	48,0	30,0	7,0	45	4	
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 4.084 P	201.048.011	175,7	103	80	91,0	72,0	53,0	7,0	100	5	
PR 4.085 P	201.049.010	184,8	124	100	99,2	79,8	57,3	10,0	112	3	

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

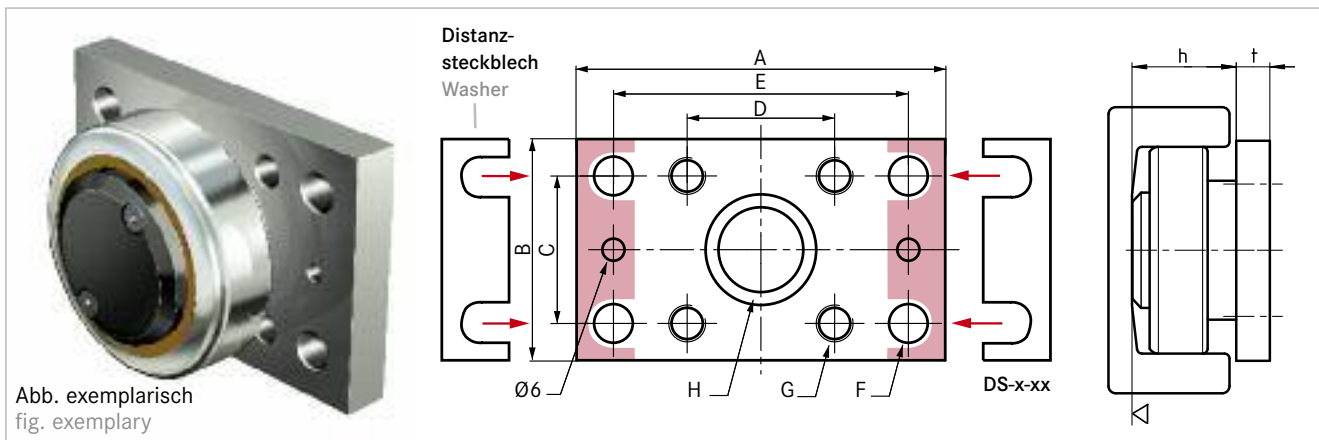
** Maße H und h ohne Distanzscheiben; max. +2 mm

NEW



Passende Anschraubplatten

Suitable flange plates



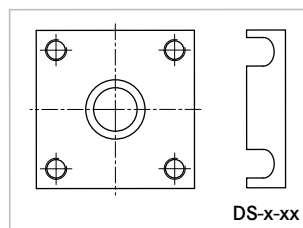
Type	Artikel-Nr.	A	B	C	D	E	Ø F	G	Ø H	t	Distanzsteckblech 0,5mm Washer 0.5mm		Distanzsteckblech 1,0mm Washer 1.0mm	
Type	Article no.	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]				
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	50	50	90	12,5	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

Passende Distanzscheiben | Suitable shims

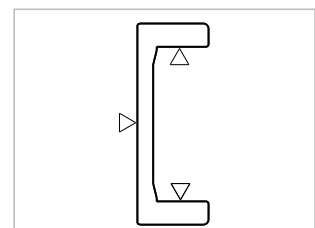
Distanzscheiben passend für Shims suitable for	Distanzscheiben Stärke Shims thickness			
	0,5 mm		1,0 mm	
PR 4.072 P - PR 4.073 P	S-4.072-0,5	200.900.000	S-4.072-1,0	200.900.001
PR 4.074 P - PR 4.077 P	S-4.074-0,5	200.901.000	S-4.074-1,0	200.901.001
PR 4.078 P - PR 4.079 P	S-4.078-0,5	200.902.000	S-4.078-1,0	200.902.001
PR 4.080 P	S-4.080-0,5	200.903.000	S-4.080-1,0	200.903.001
PR 4.084 P	S-4.084-0,5	200.907.002	S-4.084-1,0	200.907.001
PR 4.085 P	S-4.085-0,5	238.107.050	S-4.085-1,0	238.107.100

NEW

Anschraubplatten
quadratisch Reihe AP-Q S. 90
Flange plates
square series AP-Q page 90



Profile Seite 66
Profiles page 66



Type	F _R [kN]	F _A [kN]	C [kN]	C ₀ [kN]	Gewicht kg Weight kg	Anschraubplatten Flange plates		Profile Profiles
PR 4.072 P	10,30	4,0	31,0	35,5	0,49	AP0	AP0-Q	PR 0 NbV
PR 4.073 P	12,40	6,7	45,5	51,0	0,74	AP1	AP1-Q	PR 1 NbV
PR 4.074 P	12,90	7,2	48,0	56,8	0,94	AP2	AP2-Q	PR 2 NbV
PR 4.076 P	22,40	8,9	68,0	72,0	1,57	AP3.1	AP3-Q	PR 3 NbV
PR 4.0784 P	23,80	14,4	81,0	95,0	2,63	AP4	AP4-Q	PR 4 NbV
PR 4.079 P	33,90	38,4	110,0	132,0	3,90	AP4	AP4-Q	PR 5 NbV
PR 4.080 P	59,20	41,6	151,0	192,0	6,50	AP6	AP6-Q	PR 6 NbV
PR 4.084 P	72,00	41,6	217,0	269,0	10,10	-	AP89-Q	PR 7 NbV
PR 4.085 P	91,80	41,6	266,0	500,0	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-Rolle Typ KB mit Kombibolzen

Vorteile:

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

WINKEL Bearing Type KB with combined bolt

Advantages:

- universal fastening option
- screw-on or weld-on fastening bolt as desired
- no flange plate required



Abb. exemplarisch
fig. exemplary

- 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.	D -0.1 [mm]	A* [mm]	C [mm]	E [mm]	B [mm]	F	G [mm]	
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	

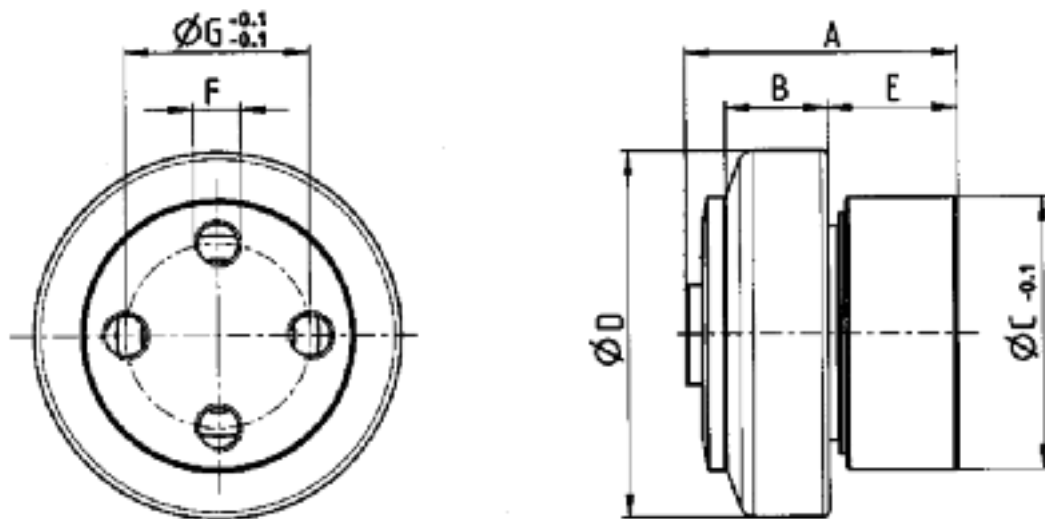
C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)

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



Passende Distanzscheiben | Suitable shims

Distanzscheiben passend für Shims suitable for	Distanzscheiben Stärke Shims thickness			
	0,5 mm		1,0 mm	
KB 4.072 - KB 4.073	S-4.072-0,5	200.900.000	S-4.072-1,0	200.900.001
KB 4.074 - KB 4.077	S-4.074-0,5	200.901.000	S-4.074-1,0	200.901.001
KB 4.078 - KB 4.079	S-4.078-0,5	200.902.000	S-4.078-1,0	200.902.001
KB 4.080	S-4.080-0,5	200.903.000	S-4.080-1,0	200.903.001

Profile Seite 62
Profiles page 62



Typ Type	F_R [kN]	F_A [kN]	C [kN]	C_o [kN]	C_A [kN]	C_{oA} [kN]	Gewicht kg Weight kg	Profile Profiles
KB 4.072	10,30	3,20	31,0	35,5	8	8	0,65	0 NbV
KB 4.073	12,40	3,87	45,5	51,0	14	14	1,10	1 NbV
KB 4.074	12,90	4,00	48,0	56,8	14	14	1,20	2 NbV
KB 4.076	22,40	7,00	68,0	72,0	15	15	2,05	3 NbV
KB 4.0784	23,80	7,44	81,0	95,0	31	36	3,20	4 NbV
KB 4.079	33,90	10,60	110,0	132,0	35	38	4,90	5 NbV
KB 4.080	39,50	18,50	151,0	192,0	68	71	8,00	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

*Dimension A without washers; max. 2 mm

WINKEL-Rollen | WINKEL Bearings

Präzisions-WINKEL-Rolle Typ KB PR mit Kombibolzen

Vorteile:

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

Precision WINKEL Bearing Type KB PR with combined bolt

Advantages:

- universal fastening option
- screw-on or weld-on fastening bolt as desired
- no flange plate required



Abb. exemplarisch
fig. exemplary

- 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.	D -0.1 [mm]	A* [mm]	C [mm]	E [mm]	B [mm]	F	G [mm]	
KB PR 4.072	200.202.000	64,8	43,0	50	17,5	20	M10x13	30	
KB PR 4.073	200.203.000	73,8	55,0	60	25,5	23	M12x18	40	
KB PR 4.074	200.204.000	81,8	54,5	60	24,5	23	M12x18	40	
KB PR 4.076	200.205.000	92,8	68,0	70	31,0	30	M14x20	44	
KB PR 4.0784	200.206.000	111,8	75,0	80	36,0	31	M14x22	54	
KB PR 4.079	200.207.000	127,8	79,2	100	34,2	37	M16x23	60	
KB PR 4.080	200.208.000	153,8	89,0	120	29,0	45	M16x23	80	

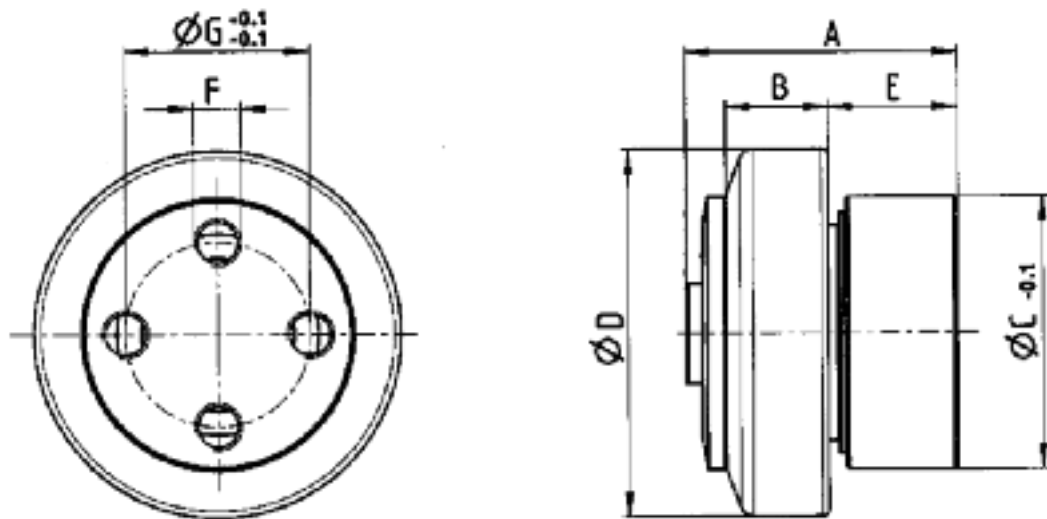
C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76),

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

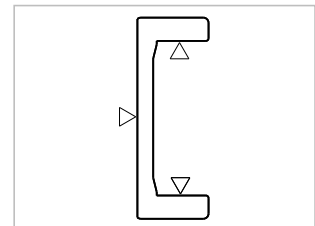
*Maß A ohne Distanzscheiben; max. +2 mm



Passende Distanzscheiben | Suitable shims

Distanzscheiben passend für Shims suitable for	Distanzscheiben Stärke Shims thickness			
	0,5 mm		1,0 mm	
KB PR 4.072 - KB PR 4.073	S-4.072-0,5	200.900.000	S-4.072-1,0	200.900.001
KB PR 4.074 - KB PR 4.077	S-4.074-0,5	200.901.000	S-4.074-1,0	200.901.001
KB PR 4.078 - KB PR 4.079	S-4.078-0,5	200.902.000	S-4.078-1,0	200.902.001
KB PR 4.080	S-4.080-0,5	200.903.000	S-4.080-1,0	200.903.001

Profile Seite 66
Profiles page 66



Typ Type	F_R [kN]	F_A [kN]	C [kN]	C_o [kN]	C_A [kN]	C_{oA} [kN]	Gewicht kg Weight kg	Profile Profiles
KB PR 4.072	10,30	3,20	31,0	35,5	8	8	0,68	PR 0 NbV
KB PR 4.073	12,40	3,87	45,5	51,0	14	14	1,15	PR 1 NbV
KB PR 4.074	12,90	4,00	48,0	56,8	14	14	1,30	PR 2 NbV
KB PR 4.076	22,40	7,00	68,0	72,0	15	15	2,13	PR 3 NbV
KB PR 4.0784	23,80	7,44	81,0	95,0	31	36	3,34	PR 4 NbV
KB PR 4.079	33,90	10,60	110,0	132,0	35	38	5,10	PR 5 NbV
KB PR 4.080	39,50	18,50	151,0	192,0	68	71	8,30	PR 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

*Dimension A without washers; max. 2 mm



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

Vorteile:

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

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

Advantages:

- universal fastening option
- screw-on or weld-on fastening bolt as desired
- no flange plate required



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.

*OILAMID ist ein hochabriebfester selbstschmierender POLYAMID.

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

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.

*OILAMID is a high resistant, self lubricant POLYAMIDE

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

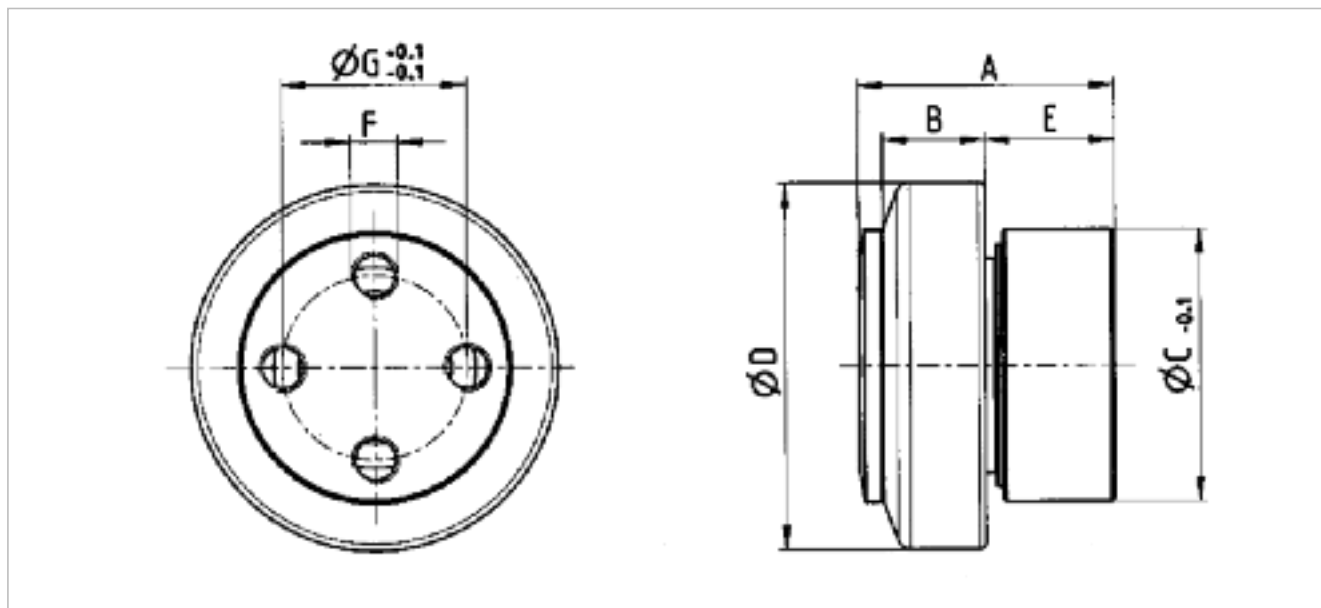
Typ Type	Artikel-Nr. Article no.	D -0.1 [mm]	A** [mm]	C [mm]	E [mm]	B [mm]	F	G [mm]	
KB 4.072 P	200.222.000	62,5	43,0	50	17,5	20	M 10x13	30	
KB 4.073 P	200.223.000	70,1	55,0	60	25,5	23	M 12x18	40	
KB 4.074 P	200.224.001	78,1	54,5	60	24,5	23	M 12x18	40	
KB 4.076 P	200.225.000	88,4	68,0	70	31,0	30	M 14x20	44	
KB 4.0784 P	200.226.000	107,7	75,0	80	36,0	31	M 14x22	54	
KB 4.079 P	200.227.000	123,0	79,2	100	34,2	37	M 16x23	60	
KB 4.080 P	200.228.000	149,0	82,0	120	29,0	45	M 16x23	80	

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

**Maß A ohne Distanzscheiben; max. +2 mm



Justierung der Axialrolle
über Distanzscheiben
Adjustment of the axial
clearance with shims

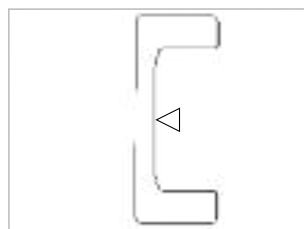


Passende Distanzscheiben | Suitable shims

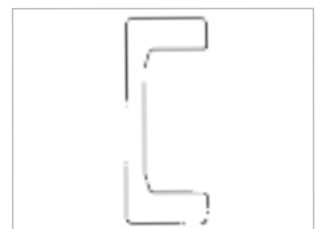
Distanzscheiben passend für Shims suitable for	Distanzscheiben Stärke Shims thickness			
	0,5 mm		1,0 mm	
KB 4.072 P - KB 4.073 P	S-4.072-0,5	200.900.000	S-4.072-1,0	200.900.001
KB 4.074 P - KB 4.077 P	S-4.074-0,5	200.901.000	S-4.074-1,0	200.901.001
KB 4.078 P - KB 4.079 P	S-4.078-0,5	200.902.000	S-4.078-1,0	200.902.001
KB 4.080 P	S-4.080-0,5	200.903.000	S-4.080-1,0	200.903.001

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 62
Profiles page 62



Typ Type	F_R [kN]	F_A [kN]	C [kN]	C_o [kN]	Gewicht kg Weight kg	Profile Profiles
KB 4.072 P	10,30	4,0	31,0	35,5	0,53	0 NbV
KB 4.073 P	12,40	6,7	45,5	51,0	1,00	1 NbV
KB 4.074 P	12,90	7,2	48,0	56,8	1,10	2 NbV
KB 4.076 P	22,40	8,9	68,0	72,0	1,93	3 NbV
KB 4.0784 P	23,80	14,4	81,0	95,0	3,00	4 NbV
KB 4.079 P	33,90	38,4	110,0	132,0	4,72	5 NbV
KB 4.080 P	59,20	41,6	151,0	192,0	7,80	6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C_o = 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



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

Vorteile:

- universelle Befestigungsmöglichkeit
- wahlweise Anschrauben oder Anschweißen des Befestigungsbolzens

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

Advantages:

- universal fastening option
- screw-on or weld-on fastening bolt as desired
- no flange plate required



Abb. exemplarisch
fig. exemplary

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.

*OILAMID ist ein hochabriebfester selbstschmierender POLYAMID.

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

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.

*OILAMID is a high resistant, self lubricant POLYAMIDE

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

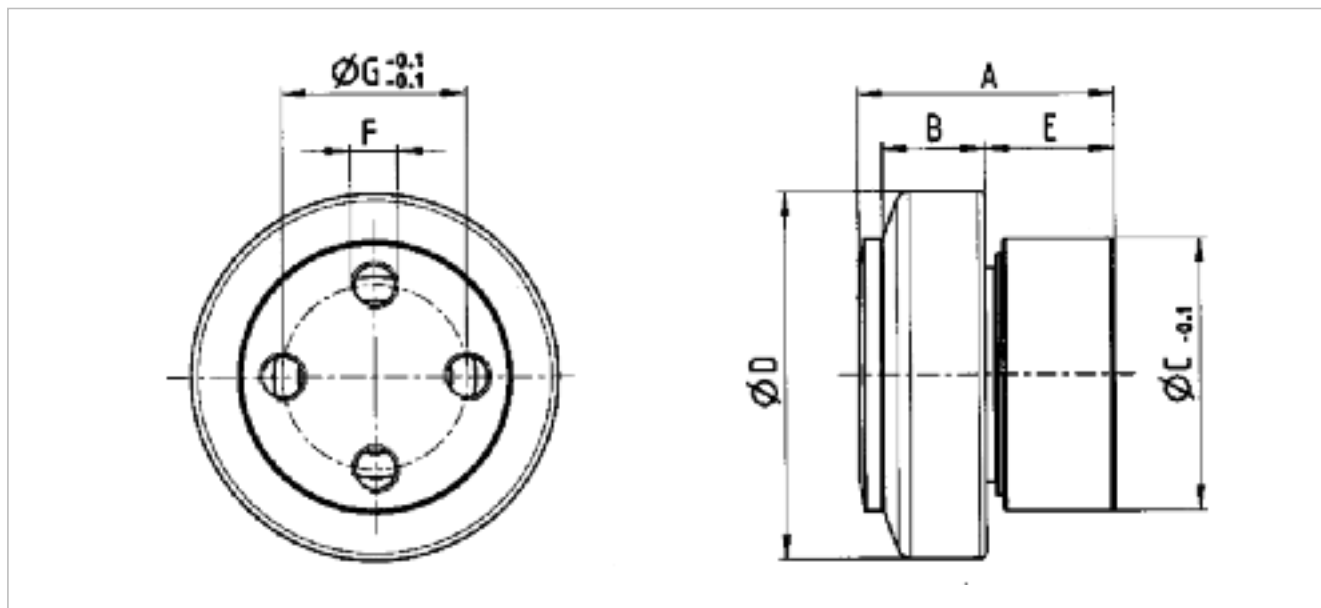
Typ Type	Artikel-Nr. Article no.	D -0.1 [mm]	A** [mm]	C [mm]	E [mm]	B [mm]	F	G [mm]	
KB PR 4.072 P	200.242.000	64,8	43,0	50	17,5	20	M 10x13	30	
KB PR 4.073 P	200.243.000	73,8	55,0	60	25,5	23	M 12x18	40	
KB PR 4.074 P	200.244.000	81,8	54,5	60	24,5	23	M 12x18	40	
KB PR 4.076 P	200.245.000	92,8	68,0	70	31,0	30	M 14x20	44	
KB PR 4.0784 P	200.246.000	111,8	75,0	80	36,0	31	M 14x22	54	
KB PR 4.079 P	200.247.000	127,8	79,2	100	34,2	37	M 16x23	60	
KB PR 4.080 P	200.248.000	153,8	82,0	120	29,0	45	M 16x23	80	

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

**Maß A ohne Distanzscheiben; max. +2 mm



Justierung der Axialrolle
über Distanzscheiben
Adjustment of the axial
clearance with shims

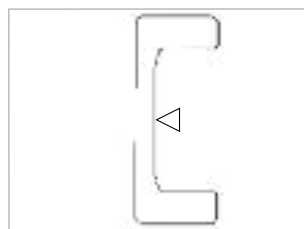


Passende Distanzscheiben | Suitable shims

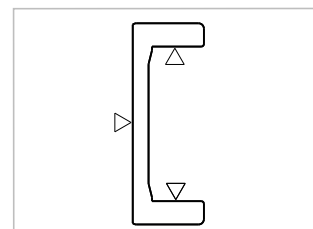
Distanzscheiben passend für Shims suitable for	Distanzscheiben Stärke Shims thickness			
	0,5 mm		1,0 mm	
KB PR 4.072 P - KB PR 4.073 P	S-4.072-0,5	200.900.000	S-4.072-1,0	200.900.001
KB PR 4.074 P - KB PR 4.077 P	S-4.074-0,5	200.901.000	S-4.074-1,0	200.901.001
KB PR 4.078 P - KB PR 4.079 P	S-4.078-0,5	200.902.000	S-4.078-1,0	200.902.001
KB PR 4.080 P	S-4.080-0,5	200.903.000	S-4.080-1,0	200.903.001

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 66
Profiles page 66



Type	F_R [kN]	F_A [kN]	C [kN]	C_o [kN]	Gewicht kg Weight kg	Profile Profiles
KB PR 4.072 P	10,30	3,0	31,0	35,5	0,56	PR 0 NbV
KB PR 4.073 P	12,40	6,7	45,5	51,0	1,05	PR 1 NbV
KB PR 4.074 P	12,90	7,2	48,0	56,8	1,20	PR 2 NbV
KB PR 4.076 P	22,40	8,9	68,0	72,0	2,00	PR 3 NbV
KB PR 4.0784 P	23,80	14,4	81,0	95,0	3,14	PR 4 NbV
KB PR 4.079 P	33,90	38,4	110,0	132,0	4,90	PR 5 NbV
KB PR 4.080 P	59,20	41,6	151,0	192,0	8,10	PR 6 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C_o = 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



Jumbo WINKEL-Rolle Axialrolle justierbar



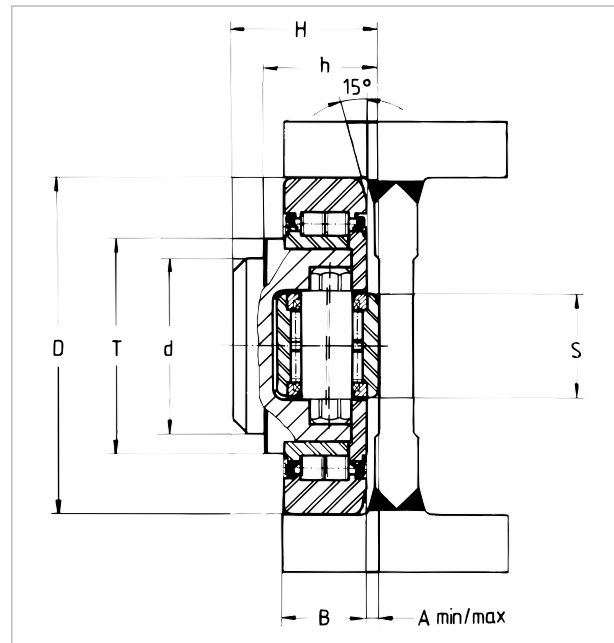
Die Einstellung der Axialrolle (Maß A) erfolgt durch Verdrehen des Bolzens der Axialrolle. Der Bolzen ist exzentrisch und hat 8 Stellpositionen. Das Radiallager ist nachschmierbar.

- **Jumbo-Rollen mit OILAMID-Einsatz auf Anfrage.**
- **Jumbo-Radiallager auf Anfrage.**



Nachschmiersysteme für WINKEL-Rollen
Lubrication systems for WINKEL bearings
(Seite/page 140)

Jumbo WINKEL Bearing axial bearing adjustable



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 Bearings with OILAMID insert on request.**
- **Jumbo Radial Bearing on request.**



WINKEL Jumbo-Rolle
Justierung der Axialrolle
über Exzenter
WINKEL Jumbo Bearing.
Axial bearing adjustable
by eccentric



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

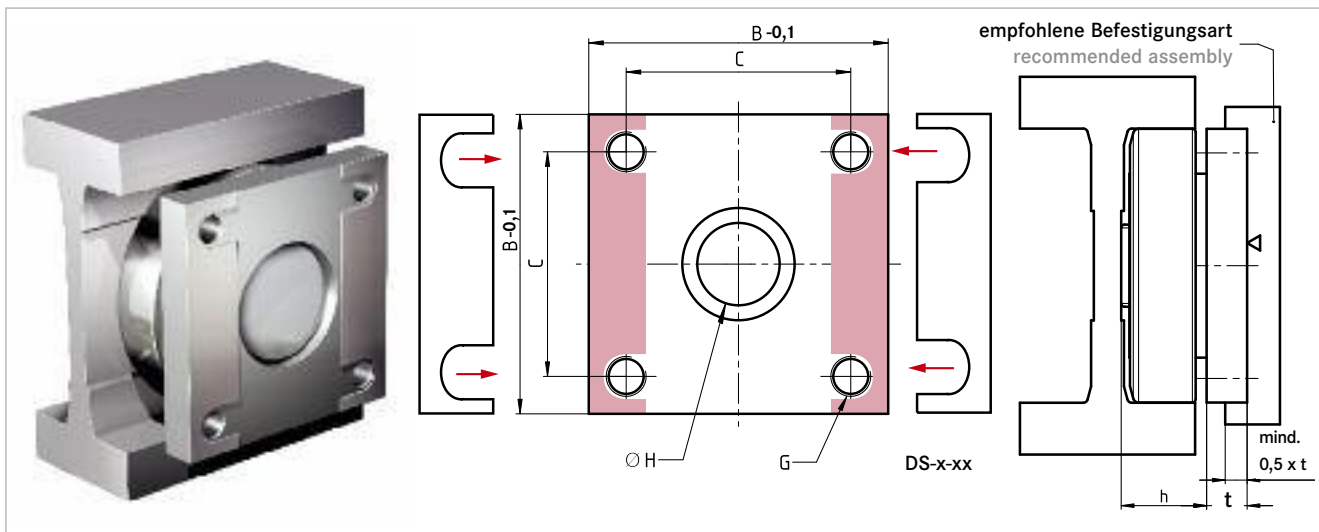
Typ Type	Artikel-Nr. Article no.	D -0.15 [mm]	T [mm]	d -0.05 [mm]	H [mm]	h [mm]	B [mm]	A [mm]	S [mm]	
4.089	201.050.000	165	113	80	69,0 - 72,0	53,0 - 56,0	40,0	5,0 - 8,0	50	
4.090	201.051.000	190	124	100	84,5 - 87,5	64,5 - 67,5	48,0	6,5 - 9,5	60	
4.091	201.052.000	220	146	110	94,5 - 97,5	74,5 - 77,5	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



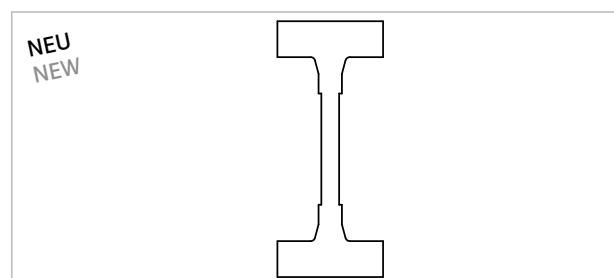
Passende Anschraubplatten

Suitable flange plates



Typ Type	Artikel-Nr. Article no.	B-0,1 [mm]	C [mm]	G [mm]	Ø H [mm]	h [mm]	t [mm]	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	212.200.002	190	150	M20	100	64,5 - 67,5	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

Profile S. 74
Profiles page 74



Typ Type	F_R [kN]	F_A [kN]	C [kN]	C_o [kN]	C_A [kN]	C_{oA} [kN]	Gewicht kg Weight kg	Anschraubplatten Flange plates	Profile Profiles
4.089	41,71	13,91	213	388	85	133	9,2	AP 89-Q	Standard 10
4.090	58,00	19,40	266	500	100	180	10,6	AP 90-Q	Standard 16
4.091	84,00	28,00	326	681	138	257	17,3	AP 91-Q	Standard 18
4.092	101,50	33,90	369	748	138	257	23,9	AP 92-Q	Standard 28
4.093	139,40	46,50	489	1066	182	488	36,0	AP 93-Q	Standard 36 + 42
4.094	192,00	57,70	542	1370	210	422	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-Radiallager

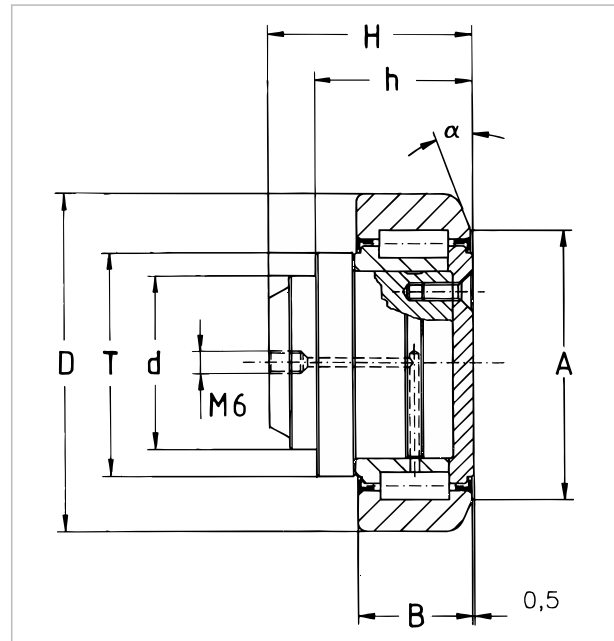
Abb. exemplarisch
fig. exemplary



Technische Daten:

- Die Außenringe sind aus Einsatzstahl 20 CrMnTi gehärtet 58-62 HRC
- Die Innenringe sind aus Stahl 100 Cr 6 gehärtet 58-62 HRC
- Flachköpfige Wälzkörper aus Stahl 100 Cr 6 gehärtet 60 – 65 HRC
- Anschweißbolzen aus C20 (Werkstoffnr. 1.1151)
- Bolzentoleranz $-0,05$ mm
- Nachschmierbarkeit für Rollen 2.054 – 2.064
- Radiallager werden bei der Montage mit Schmierfett Grad 3 (z.B. Shell Gadus S2 V 100 3) befüllt

WINKEL Radial Bearing



Technical characteristics:

- Outer rings are made from case-hardened steel 20 CrMnTi hardened at 58-62HRC
- Inner rings are made from bearing steel 100 Cr 6 hardened at 58-62 HRC
- Cylindrical rollers have flat ground heads, made of 100 Cr 6 steel hardened at 60 – 65 HRC
- Welding bolts are made of C20 (Material no. 1.1151)
- bolt tolerance -0.05 mm
- bearings from 2.054 to 2.064 are relubricatable
- bearings are lubricated with grease grade 3 (e.g. Shell Gadus S2 V 100 3)



Nachschmiersysteme für WINKEL-Rollen
Lubrication systems for WINKEL bearings
(Seite/page 140)

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

Typ Type	Artikel-Nr. Article no.	D -0.1 [mm]	T [mm]	d -0.05 [mm]	H [mm]	h [mm]	B [mm]	A [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°	
2.064	205.069.000	170,0	103	80	84,0	65,0	53	130	15°	

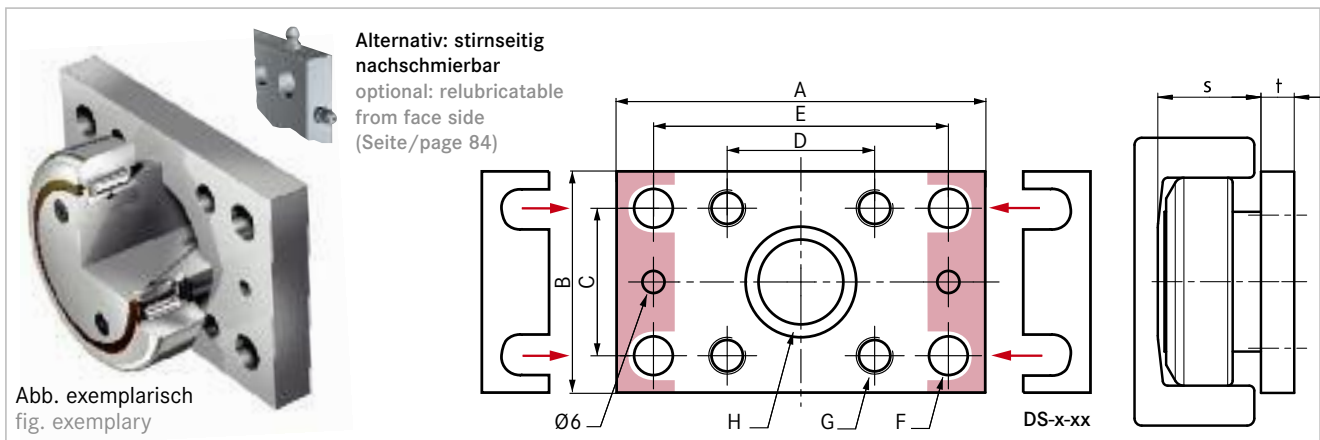
C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76),
F_R = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

NEW



Passende Anschraubplatten

Suitable flange plates

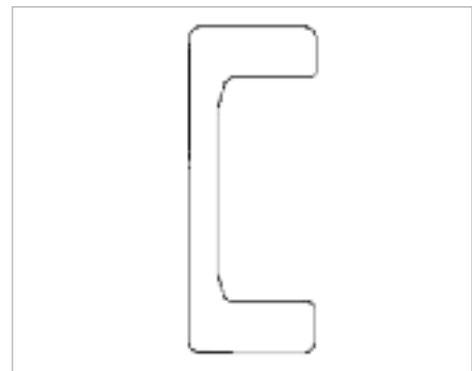
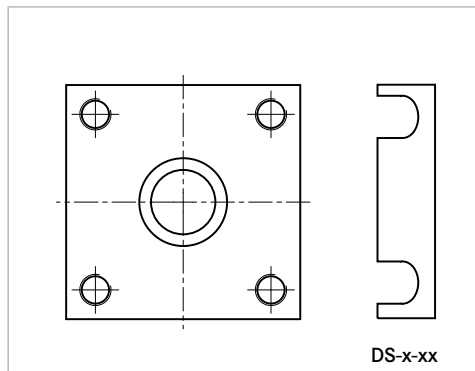


Type	Artikel-Nr. Article no.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	Ø F [mm]	G [mm]	Ø H [mm]	s [mm]	t [mm]	Distanzsteckblech 0,5mm Washer 0.5mm		Distanzsteckblech 1,0mm Washer 1.0mm	
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	30,5	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	50	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 88
Wiper page 88

Anschraubplatten quadratisch Reihe AP-Q S. 90
Flange plates square series AP-Q page 90

Profile Seite 62
Profiles page 62



Typ Type	F _R [kN]	C [kN]	C ₀ [kN]	Gewicht kg Weight kg	Anschraubplatten Flange plates				Profile standard Profiles standard	
2.054	10,30	31,0	35,5	0,55	AP0	I	AP0-LUB	I	AP0-Q	0 NbV
2.055	12,40	45,5	51,0	0,80	AP1	I	AP1-LUB	I	AP1-Q	1 NbV
2.056	12,90	48,0	56,8	1,05	AP2	I	AP2-LUB	I	AP2-Q	2 NbV
2.058	22,40	68,0	72,0	1,70	AP3.1	I	AP3.1-LUB	I	AP3-Q	3 NbV
2.061	23,80	81,0	95,0	2,90	AP4	I	AP4-LUB	I	AP4-Q	4 NbV
2.062	33,90	110,0	132,0	4,00	AP4	I	AP4-LUB	I	AP4-Q	5 NbV
2.063	59,20	151,0	192,0	6,70	AP6	I	AP6-LUB	I	AP6-Q	6 NbV
2.064	72,00	217,0	269,0	10,24	-	I	-	I	AP89-Q	7 NbV®

C = Dynamic load capacity radial bearing (ISO 281/1), C_0 = 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



Technische Daten:

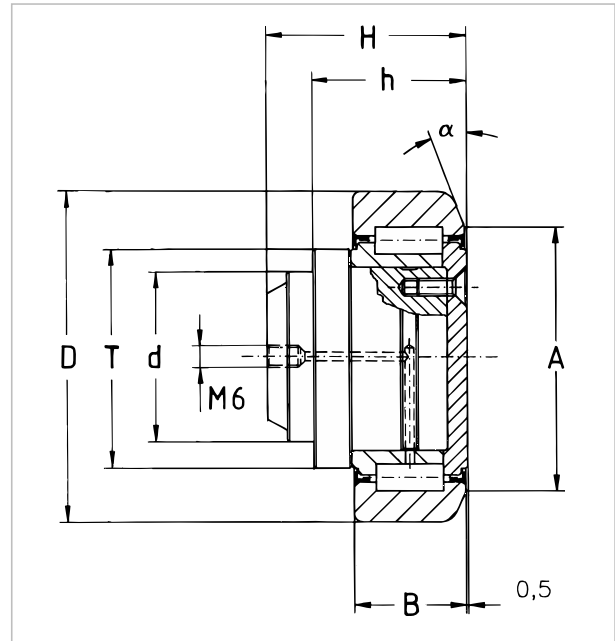
- Die Außenringe sind aus Einsatzstahl 20 CrMnTi gehärtet 58-62 HRC
- Die Innenringe sind aus Stahl 100 Cr 6 gehärtet 58-62 HRC
- Flachköpfige Wälzkörper aus Stahl 100 Cr 6 gehärtet 60 – 65 HRC
- Anschweißbolzen aus C20 (Werkstoffnr. 1.1151)
- Bolzentoleranz -0,05 mm
- Nachschmierbarkeit für Rollen PR 2.054 - PR 2.064
- Radiallager werden bei der Montage mit Schmierfett Grad 3 (z.B. Shell Gadus S2 V 100 3) befüllt



Nachschmiersysteme für WINKEL-Rollen
Lubrication systems for WINKEL bearings
(Seite/page 140)

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

WINKEL Precision Radial Bearing Type PR



Technical characteristics:

- Outer rings are made from case-hardened steel 20 CrMnTi hardened at 58-62HRC
- Inner rings are made from bearing steel 100 Cr 6 hardened at 58-62 HRC
- Cylindrical rollers have flat ground heads, made of 100 Cr 6 steel hardened at 60 – 65 HRC
- Welding bolts are made of C20 (Material no. 1.1151)
- bolt tolerance -0.05 mm
- bearings from PR 2.054 to PR 2.064 are relubricatable
- bearings are lubricated with grease grade 3 (e.g. Shell Gadus S2 V 100 3)

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

Typ Type	Artikel-Nr. Article no.	D -0.1 [mm]	T [mm]	d -0.05 [mm]	H [mm]	h [mm]	B [mm]	A [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°	
PR 2.064	205.079.000	175,7	103	80	84,0	65,0	53	130	15°	

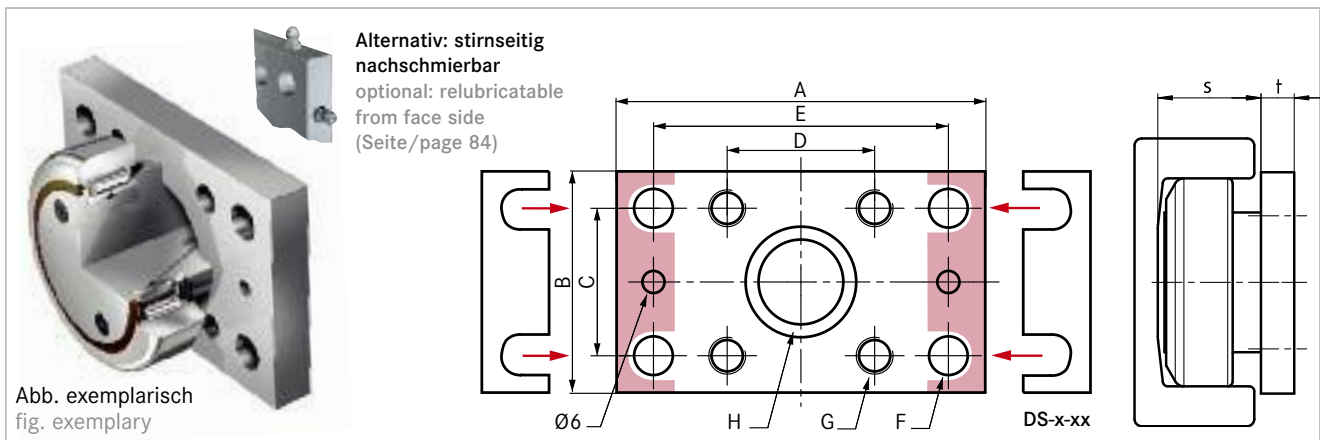
C = Dyn. Tragzahl Radiallager (ISO 281/1), C₀ = Stat. Tragzahl Radiallager (ISO 76)
F_R = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

NEW



Passende Anschraubplatten

Suitable flange plates

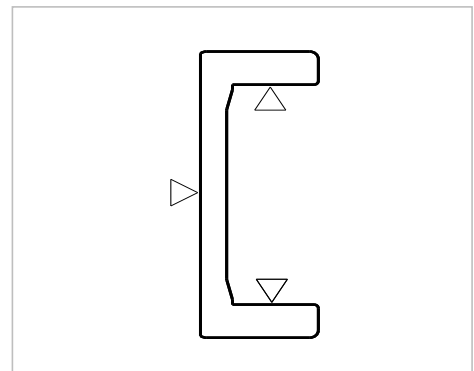
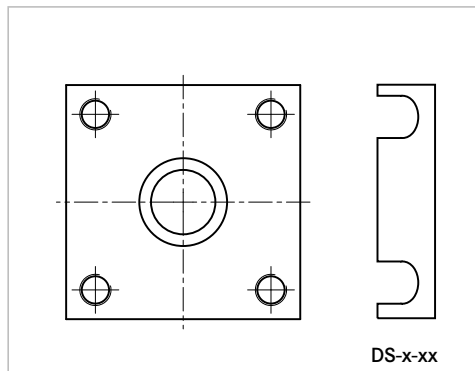


Type	Artikel-Nr.	A	B	C	D	E	Ø F	G	Ø H	s	t	Distanzsteckblech 0,5mm Washer 0.5mm		Distanzsteckblech 1,0mm Washer 1.0mm	
Type	Article no.	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[mm]	[mm]	[mm]				
AP 0	212.003.000	100	60	40	40	80	10,5	M10	30	30,5	10	DS-0-0,5	238.020.000	DS-0-1,0	238.020.001
AP 1	212.004.000	120	80	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

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Wiper page 88

Anschraubplatten quadratisch Reihe AP-Q S. 90
Flange plates square series AP-Q page 90

Profile Seite 66
Profiles page 66



Typ	F _R	C	C ₀	Gewicht kg	Anschraubplatten				Profile	
Type	[kN]	[kN]	[kN]	Weight kg	Flange plates				Profiles	
PR 2.054	10,30	31,0	35,5	0,55	AP0	I	AP0-LUB	I	AP0-Q	PR 0 NbV
PR 2.055	12,40	45,5	51,0	0,80	AP1	I	AP1-LUB	I	AP1-Q	PR 1 NbV
PR 2.056	12,90	48,0	56,8	1,05	AP2	I	AP2-LUB	I	AP2-Q	PR 2 NbV
PR 2.058	22,40	68,0	72,0	1,70	AP3.1	I	AP3.1-LUB	I	AP3-Q	PR 3 NbV
PR 2.061	23,80	81,0	95,0	2,90	AP4	I	AP4-LUB	I	AP4-Q	PR 4 NbV
PR 2.062	33,90	110,0	132,0	4,00	AP4	I	AP4-LUB	I	AP4-Q	PR 5 NbV
PR 2.063	59,20	151,0	192,0	6,70	AP6	I	AP6-LUB	I	AP6-Q	PR 6 NbV
PR 2.064	72,00	217,0	269,0	10,88	-	I	-	I	AP89-Q	PR 7 NbV

C = Dynamic load capacity radial bearing (ISO 281/1), C_0 = Static load capacity radial bearing (ISO 76)
 F_R = Load capacity radial bearing max. allowable force between bearing and profile



Heavy Duty WINKEL-Rolle 3.054 - 3.064

Vorteile:

- Schmutz unempfindliche WINKEL-Rolle für Heavy Duty Einsätze im Bereich Baustoffindustrie, Gießerei und Untertage
- Radiallager stirnseitig nachschmierbar
- Axiallager sind stoßunempfindliche Schwerlast-Kugellager, 2 RS abgedichtet und Lebensdauer geschmiert
- Axialjustierung über Distanzsteckbleche
- Für Einsätze mit höherer Verfahrensgeschwindigkeit bis 2 m/sec
- Lieferung inkl. 1 Schmiernippel M6 x 1, O-Ring sowie 2 Distanzbleche 0,5 mm

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

Heavy Duty WINKEL Bearing 3.054 - 3.064

Advantages:

- Maximum resistance against dirt for heavy duty applications in the building material industry, foundry and mining industry
- Radial bearings relubricatable from face side
- Axial bearings are shock resistant ball bearings with 2 RS seals, lubricated for life
- Axial adjustment with washers
- For high speed applications up to 2 m/sec
- Will be delivered inclusive 1 pc. grease nipple M6 x 1, O-ring and 2 pcs washers 0,5 mm

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



Abb. exemplarisch
fig. exemplary



Nachschmiersysteme für WINKEL-Rollen
Lubrication systems for WINKEL bearings
(Seite/page 140)

Typ Type	Artikel-Nr. Article no.	D -0.1 [mm]	F_R [kN]	F_A [kN]	Gewicht kg Weight kg	Profile Profiles	Distanzbleche 0,5 mm Washers 0,5 mm
3.054	200.216.300	62,5	10,30	3,20	1,4	0 NbV	DS-0-Q-LUB-0,5
3.055	200.216.301	70,1	12,40	3,87	2,3	1 NbV	DS-1-Q-LUB-0,5
3.056	200.216.302	77,7	12,90	4,00	2,6	2 NbV	DS-1-Q-LUB-0,5
3.058	200.216.303	88,4	22,40	7,16	5,5	3 NbV	DS-3-Q-LUB-0,5
3.061	200.216.304	107,7	22,80	7,44	6,8	4 NbV	DS-3-Q-LUB-0,5
3.062	200.216.305	123,0	33,90	18,50	9,6	5 NbV	DS-4-Q-LUB-0,5
3.063	200.216.306	149,0	59,20	18,50	13,6	6 NbV	DS-6-Q-LUB-0,5
3.064	200.216.307	170,0	72,00	18,50	19,6	7 NbV®	DS-7-Q-LUB-0,5

F_R = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

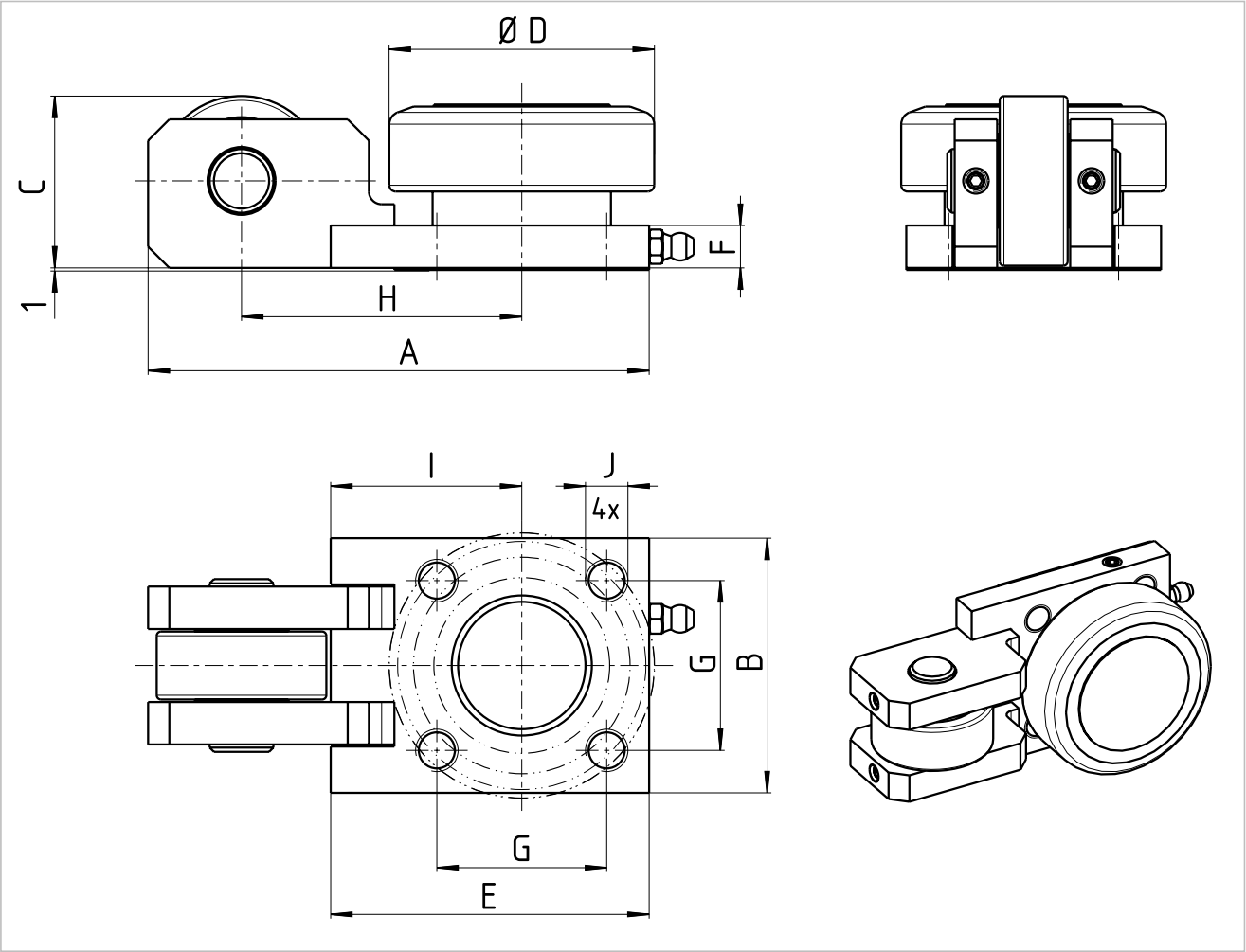
F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

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

NEW

WINKEL-Rollen | WINKEL Bearings



Typ Type	Distanzblech 0,5 mm Washers 0.5 mm	Artikel-Nr. Article no.
3.054	DS-0-Q-LUB-0,5	238.020.004
3.055	DS-1-Q-LUB-0,5	238.021.005
3.056	DS-1-Q-LUB-0,5	238.021.005
3.058	DS-3-Q-LUB-0,5	238.022.004
3.061	DS-3-Q-LUB-0,5	238.022.004
3.062	DS-4-Q-LUB-0,5	238.023.006
3.063	DS-6-Q-LUB-0,5	238.024.004
3.064	DS-7-Q-LUB-0,5	238.028.003

Profile Seite 63
Profiles page 63



NEW

Typ Type	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	J
3.054	118,0	60	40,5	75	10	40	66,0	45,0	M10
3.055	135,0	80	52,0	95	15	50	73,0	55,0	M12
3.056	135,0	80	52,0	95	15	50	73,0	55,0	M12
3.058	188,0	120	64,0	120	20	90	95,0	60,0	M16
3.061	193,0	120	75,0	125	20	90	100,0	65,0	M16
3.062	240,0	120	76,0	165	20	80	143,0	105,0	M16
3.063	265,0	150	78,4	190	20	100	153,0	115,0	M16
3.064	285,0	165	95,0	215	23	125	165,5	132,5	M20

NEW

WINKEL-Rollen | WINKEL Bearings



Heavy Duty Präzisions-WINKEL-Rolle PR 3.054 - PR 3.064

Vorteile:

- Schmutz unempfindliche WINKEL-Rolle für Heavy Duty Einsätze im Bereich Baustoffindustrie, Gießerei und Untertage
- Radiallager stirnseitig nachschmierbar
- Axiallager sind stoßunempfindliche Schwerlast-Kugellager, 2 RS abgedichtet und Lebensdauer geschmiert
- Axialjustierung über Distanzsteckbleche
- Für Einsätze mit höherer Verfahrensgeschwindigkeit bis 2 m/sec
- Lieferung inkl. 1 Schmiernippel M6 x 1, O-Ring sowie 2 Distanzbleche 0,5 mm

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

Heavy Duty Precision WINKEL Bearing PR 3.054 - PR 3.064

Advantages:

- Maximum resistance against dirt for heavy duty applications in the building material industry, foundry and mining industry
- Radial bearings relubricatable from face side
- Axial bearings are shock resistant ball bearings with 2 RS seals, lubricated for life
- Axial adjustment with washers
- For high speed applications up to 2 m/sec
- Will be delivered inclusive 1 pc. grease nipple M6 x 1, O-ring and 2 pcs washers 0,5 mm

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



Abb. exemplarisch
fig. exemplary



Nachschmiersysteme für WINKEL-Rollen
Lubrication systems for WINKEL bearings
(Seite/page 140)

Typ Type	Artikel-Nr. Article no.	D -0.1 [mm]	F_R [kN]	F_A [kN]	Gewicht kg Weight kg	Profile Profiles	Distanzbleche 0,5 mm Washers 0,5 mm
PR 3.054	200.217.300	64,8	10,30	3,20	1,4	PR 0 NbV	DS-0-Q-LUB-0,5
PR 3.055	200.217.301	73,8	12,40	3,87	2,3	PR 1 NbV	DS-1-Q-LUB-0,5
PR 3.056	200.217.302	81,8	12,90	4,00	2,6	PR 2 NbV	DS-1-Q-LUB-0,5
PR 3.058	200.217.303	92,8	22,40	7,16	5,5	PR 3 NbV	DS-3-Q-LUB-0,5
PR 3.061	200.217.304	111,8	23,80	7,44	6,8	PR 4 NbV	DS-3-Q-LUB-0,5
PR 3.062	200.217.305	127,8	33,90	18,50	9,6	PR 5 NbV	DS-4-Q-LUB-0,5
PR 3.063	200.217.306	153,8	59,20	18,50	13,6	PR 6 NbV	DS-6-Q-LUB-0,5
PR 3.064	200.217.307	175,7	72,00	18,50	20,2	PR 7 NbV	DS-7-Q-LUB-0,5

F_R = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

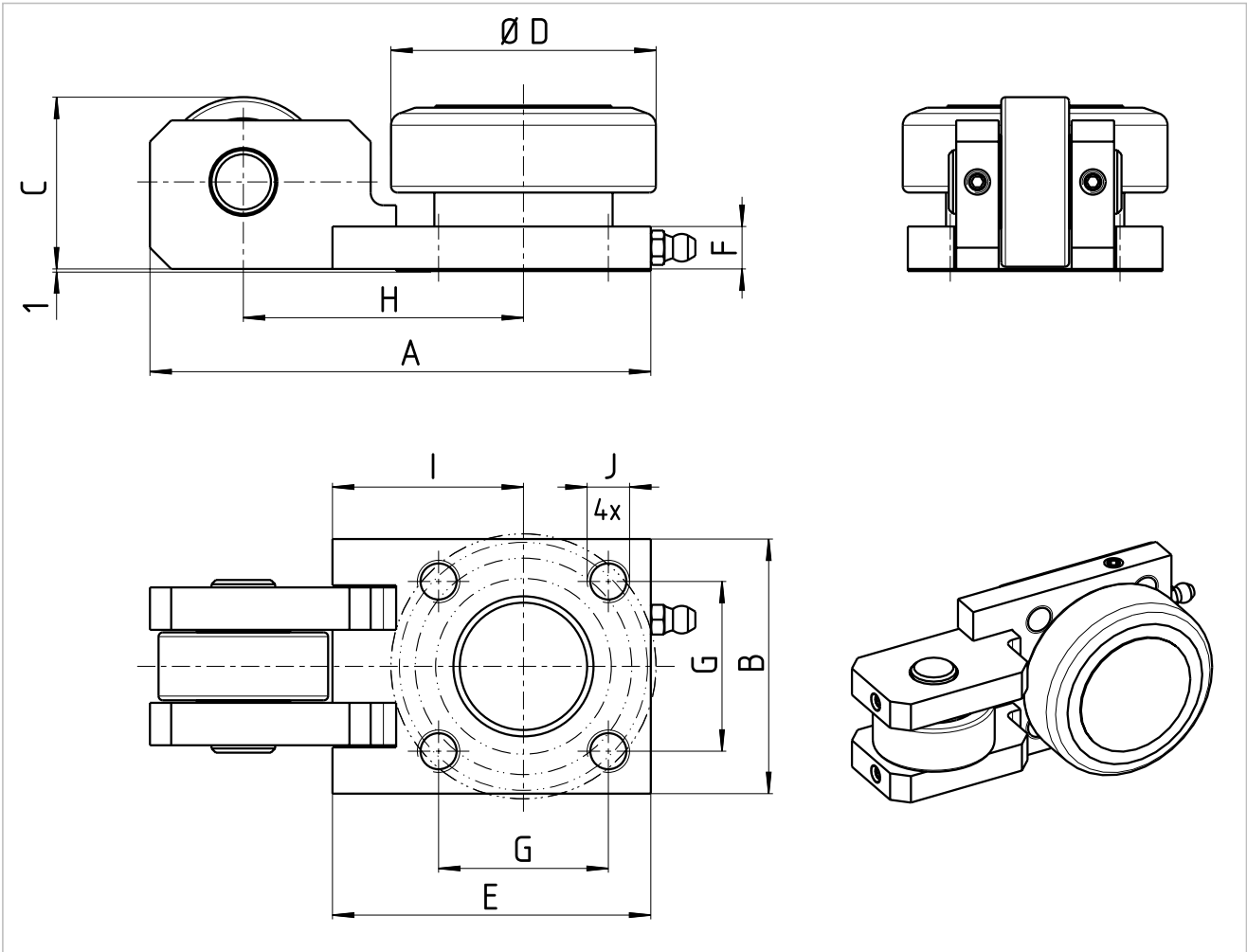
F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil

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

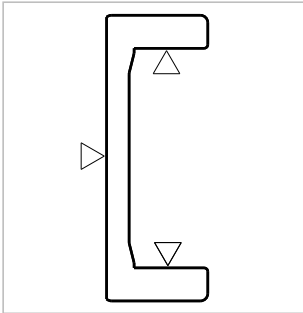
NEW

WINKEL-Rollen | WINKEL Bearings



Typ Type	Distanzblech 0,5 mm Washers 0.5 mm	Artikel-Nr. Article no.
PR 3.054	DS-0-Q-LUB-0,5	238.020.004
PR 3.055	DS-1-Q-LUB-0,5	238.021.005
PR 3.056	DS-1-Q-LUB-0,5	238.021.005
PR 3.058	DS-3-Q-LUB-0,5	238.022.004
PR 3.061	DS-3-Q-LUB-0,5	238.022.004
PR 3.062	DS-4-Q-LUB-0,5	238.023.006
PR 3.063	DS-6-Q-LUB-0,5	238.024.004
PR 3.064	DS-7-Q-LUB-0,5	238.028.003

Profile Seite 66
 Profiles page 66



Typ Type	A [mm]	B [mm]	C [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	J
PR 3.054	118,0	60	40,5	75	10	40	66,0	45,0	M10
PR 3.055	135,0	80	52,0	95	15	50	73,0	55,0	M12
PR 3.056	135,0	80	52,0	95	15	50	73,0	55,0	M12
PR 3.058	188,0	120	64,0	120	20	90	95,0	60,0	M16
PR 3.061	193,0	120	75,0	125	20	90	100,0	65,0	M16
PR 3.062	240,0	120	76,0	165	20	80	143,0	105,0	M16
PR 3.063	265,0	150	78,4	190	20	100	153,0	115,0	M16
PR 3.064	285,0	165	95,0	215	23	125	165,5	132,5	M20

WINKEL-Rollen | WINKEL Bearings

Justierbare WINKEL-Rolleneinheit Typ JC für alle Standard-Profile

Vorteile:

- Spielfreiheit zwischen Rolleneinheit und Profil
- Höhere Positioniergenauigkeit



Abb. exemplarisch
fig. exemplary

Einbau/Einstellung

- Die Einheit wird über die Flanschplatte angeschraubt
- Die Position der Justierrolle muss an der entgegengesetzten Seite der Last sein. Die Hauptlast soll auf das Radiallager der WINKEL-Rolle eingeleitet werden
- Das Justierlager wird eingestellt und anschließend gekontert

Vorsicht: Es dürfen keine großen Anpresskräfte auf die Justierrolle kommen, sonst droht die Gefahr von hohen Vorspannkräften die zu Profilbeschädigungen führen können.

Tipp: Lassen Sie ein Spiel von min. 0,5 mm bei un bearbeiteten Profilen und min. 0,2 mm bei bearbeiteten Profilen zwischen Justierrolle und Profil.

Test: Der Führungswagen soll sich ohne große Laufwiderstände bewegen können.



Nachschmiersysteme für WINKEL-Rollen
Lubrication systems for WINKEL bearings
(Seite/page 140)

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

Typ Type	Artikel-Nr. Article no.	F_R [kN]	F_A [kN]	C [kN]	C_o [kN]	C_A [kN]	C_{oA} [kN]	Gewicht kg Weight kg	Profile Profiles
JC 4.054	200.250.200	10,30	3,20	31,0	35,5	11	11	1,65	0 NbV
JC 4.055	200.250.001	12,40	3,87	45,5	51,0	13	14	2,95	1 NbV
JC 4.056	200.250.002	12,90	4,00	48,0	56,8	18	18	3,30	2 NbV
JC 4.058	200.250.003	22,40	7,00	68,0	72,0	23	23	5,80	3 NbV
JC 4.061	200.250.004	23,80	7,44	81,0	95,0	31	36	8,75	4 NbV
JC 4.062	200.250.005	33,90	10,60	110,0	132,0	43	50	9,75	5 NbV
JC 4.063	200.250.006	59,20	18,50	151,0	192,0	68	71	13,90	6 NbV

C = Dyn. Tragzahl Radiallager (ISO 281/1), C_o = Stat. Tragzahl Radiallager (ISO 76), (WINKEL-Rolle)

C_A = Dyn. Tragzahl Axiallager (ISO 281/1), C_{oA} = Stat. Tragzahl Axiallager (ISO 76), (WINKEL-Rolle)

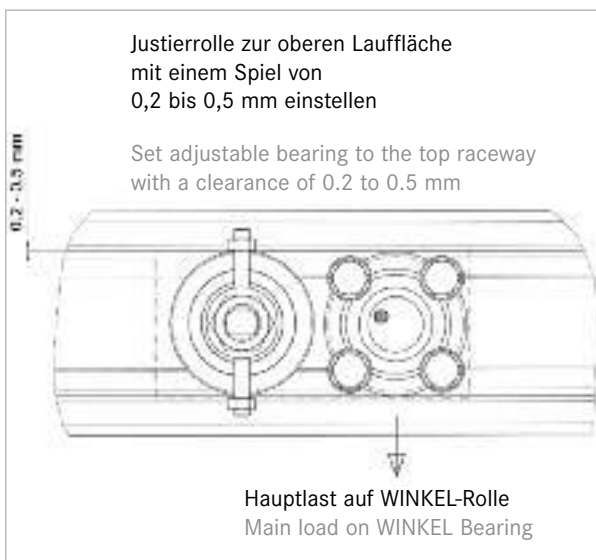
F_R = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil (WINKEL-Rolle)

Adjustable WINKEL Bearing unit Type JC for all standard profiles

Advantages:

- Min. clearance between bearing unit and profile
- Higher positioning accuracy



Justierrolle zur oberen Lauffläche
mit einem Spiel von
0,2 bis 0,5 mm einstellen

Set adjustable bearing to the top raceway
with a clearance of 0.2 to 0.5 mm

Hauptlast auf WINKEL-Rolle
Main load on WINKEL Bearing

Assembly/Adjusting

- The unit will be assembled by the flange plate
- The position of the adjustable bearing must be at the opposite side of the load. The main forces should be on the radial bearing of the WINKEL bearing
- The adjustable bearing will be adjusted and finally secured

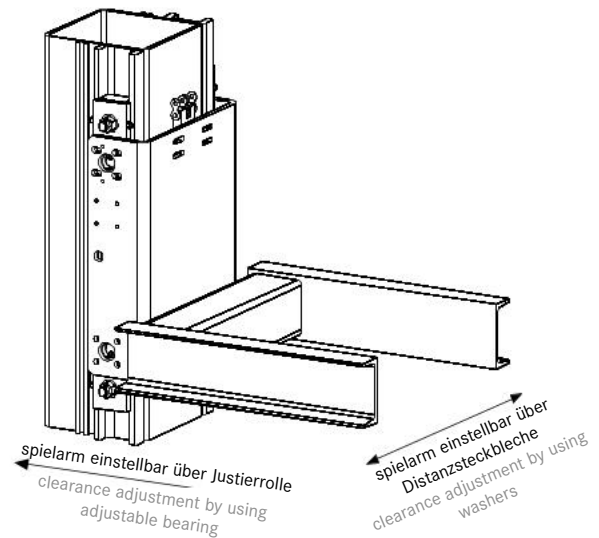
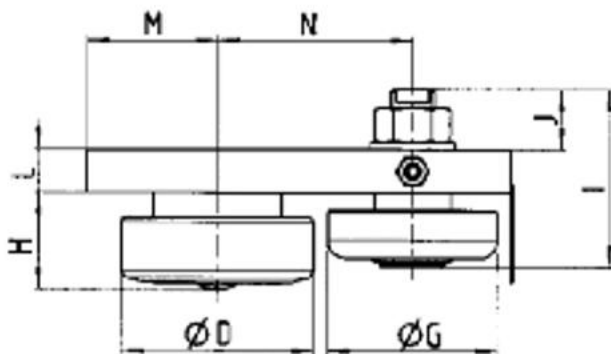
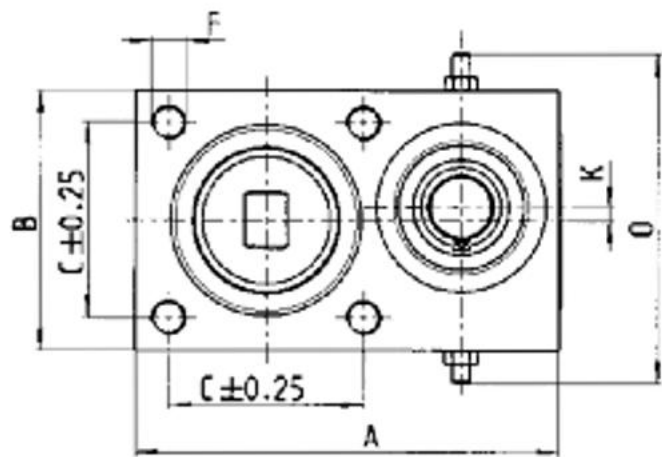
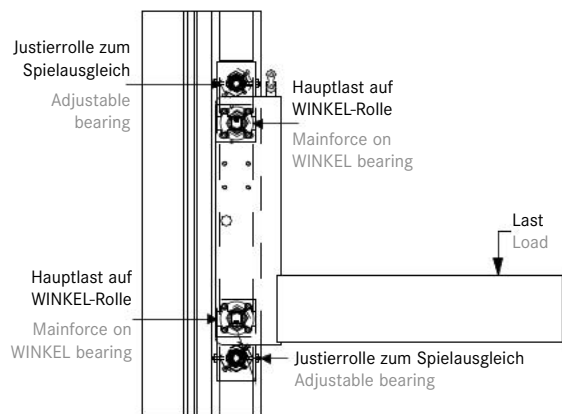
Attention: Avoid high contact pressure to the adjustable bearing. (Risk of profile wear out.)

Advice: Keep a clearance of min. 0.5 mm for un-machined profiles and min. 0.2 mm for machined profiles between the adjusting bearing and the profile.

Test: The carriage should run smoothly in the profile without big resistance.

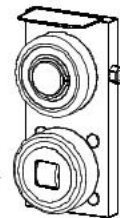
CAD download in 2D/3D at www.winkel.de

WINKEL-Rollen | WINKEL Bearings



Kontermutter der Justierrolle
Locking nut
Einstellschraube mit
Kontermutter (beidseitig)
Adjusting screw

Distanzsteckblech
Washer



Typ Type	Distanzsteckblech 0,5mm Washer 0.5mm			Distanzsteckblech 1,0mm Washer 1.0mm		
JC 4.054	DS-0-0,5	238.020.000		DS-0-1,0	238.020.001	
JC 4.055	DS-1-0,5	238.021.000		DS-1-1,0	238.021.001	
JC 4.056	DS-2-0,5	238.021.000		DS-2-1,0	238.021.001	
JC 4.058	DS-3-0,5	238.022.000		DS-3-1,0	238.022.001	
JC 4.061	DS-4-0,5	238.023.000		DS-4-1,0	238.023.001	
JC 4.062	DS-4-0,5	238.023.000		DS-4-1,0	238.023.001	
JC 4.063	DS-6-0,5	238.024.000		DS-6-1,0	238.024.001	

Typ Type	D -0.1 [mm]	H [mm]	G [mm]	A [mm]	B [mm]	C [mm]	F	L [mm]	I [mm]	J [mm]	K [mm]	M [mm]	N [mm]	O [mm]
JC 4.054	62,5	30,5	62,4	140	60	40	M10	10	62	24	±8	30	72,0	80
JC 4.055	70,1	36,0	70,0	170	80	50	M12	15	82	33	±10	40	83,5	102
JC 4.056	77,7	36,5	78,0	170	80	50	M12	15	82	33	±10	40	83,5	102
JC 4.058	88,4	44,0	78,0	195	120	90	M16	20	82	28	±20	60	90,0	152
JC 4.061	107,7	55,0	101,6	240	120	80	M16	20	98	29	±20	60	120,0	150
JC 4.062	123,0	56,0	101,6	240	120	80	M16	20	98	29	±20	60	120,0	150
JC 4.063	149,0	58,5	101,6	265	150	100	M16	20	98	29	±35	75	130,0	170

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

C_A = Dynamic load capacity axial bearing (ISO 281/1), C_{0A} = Static load capacity axial bearing (ISO 76), (WINKEL Bearing)

F_R = Load capacity radial bearing max. allowable force between bearing and profile, (WINKEL Bearing)

F_A = Load capacity axial bearing max. allowable force between bearing and profile, (WINKEL Bearing)



Justierbare WINKEL-Rolleneinheit Typ JT

Vorteile:

- Radial und axial stufenlos von außen einstellbar
- Höhere radiale und axiale Präzision
- Schmutzunempfindlich
- Für Einsatz von Verfahrensgeschwindigkeiten bis 2 m/sec
- Weitere Baugrößen auf Anfrage

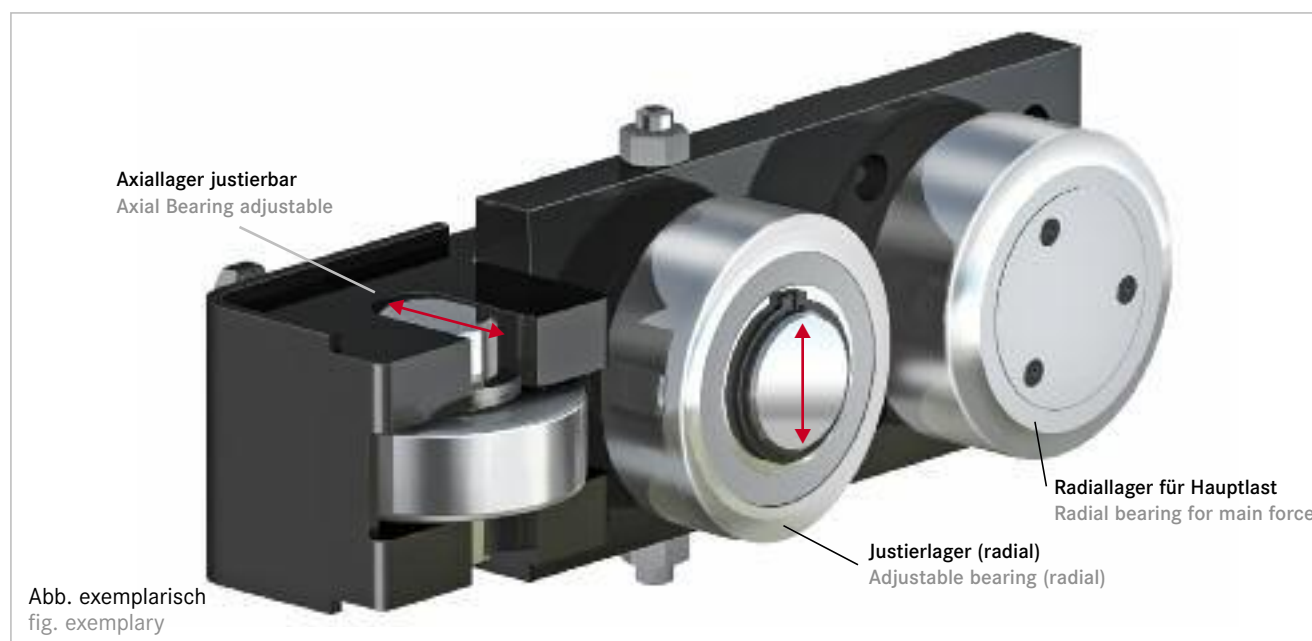
CAD Download in 2D/3D unter www.winkel.de

Adjustable WINKEL Bearing Unit Type JT

Advantages:

- Clearance radial and axial steplessly adjustable by thread bolts
- Higher radial and axial precision
- Higher dirt resistance
- For high speed application up to 2 m/sec
- Other sizes on request

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



Einbau/Einstellung

- Die Einheit wird über die Flanschplatte angeschraubt
- Die Position der Justierlager muss an der entgegengesetzten Seite der Last sein. Die Hauptlast soll auf das Radiallager eingeleitet werden
- Justierlager und Axiallager werden eingestellt und anschließend gekontert

Vorsicht: Es dürfen keine großen Anpresskräfte auf Axiallager und Justierlager kommen, sonst droht die Gefahr von hohen Vorspannkräften die zu Profilbeschädigungen führen können.

Tipp: Lassen Sie ein Spiel von 0,5 mm bei unbearbeiteten Profilen und 0,2 mm bei bearbeiteten Profilen zwischen Justierrolle und Profil.

Test: Der Führungswagen soll sich ohne große Laufwiderstände bewegen können.

 **Nachschmiersysteme für WINKEL-Rollen**
Lubrication systems for WINKEL bearings
(Seite/page 140)

Assembly/Adjusting

- The unit will be assembled by the flange plate
- The position of the adjustable bearings must be at the opposite side of the load. The main forces should be on the radial bearing
- The axial and adjustable bearing will be adjusted and finally locked

Attention: Avoid high contact pressure to the axial and adjustable bearing. (Risk of profile wear out.)

Advice: Keep a clearance of 0.5 mm for unmachined profiles and 0.2 mm for machined profiles between the adjusting bearing and the profile.

Test: The carriage should run smoothly in the profile without resistance.

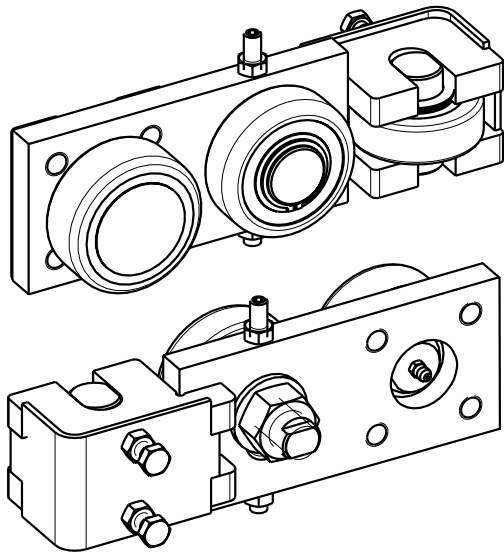
Type	Artikel-Nr.	D -0.1	F_R	F_A	C	C_0	C_A	C_{0A}	Gewicht kg	Profile
Type	Article no.	[mm]	[kN]	[kN]	[kN]	[kN]	[kN]	[kN]	Weight kg	Profiles
JT 2.055	200.210.301	70,1	12,40	4,2	45,5	51,0	14,5	8,0	4,50	1 NbV
JT 2.056	200.192.000	77,7	12,90	4,2	48,0	56,8	14,5	8,0	4,85	2 NbV
JT 2.058	200.210.303	88,4	22,40	7,4	68,0	72,0	19,0	12,0	8,16	3 NbV

C = Dyn. Tragzahl Radiallager (ISO 281/1), C_0 = Stat. Tragzahl Radiallager (ISO 76), (WINKEL-Rolle)

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

F_R = Tragzahl Radiallager zulässige Belastung zwischen Rolle und Profil

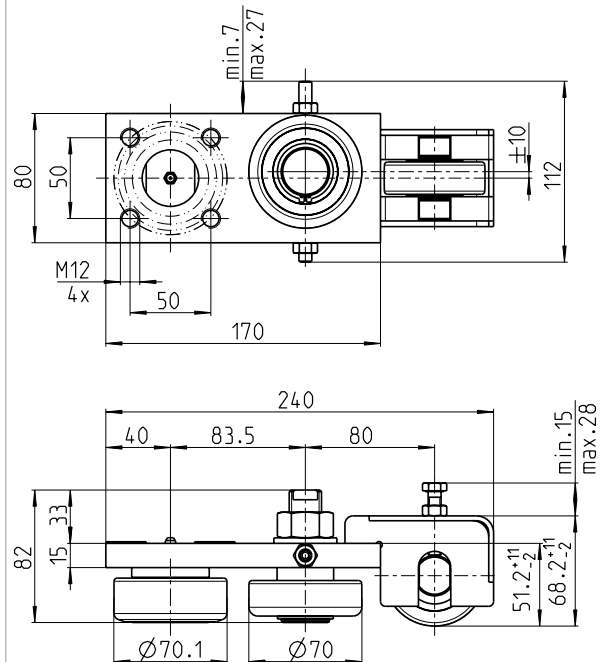
F_A = Tragzahl Axiallager zulässige Belastung zwischen Rolle und Profil (WINKEL-Rolle)



JT 2.055

Artikel-Nr. 200.210.301

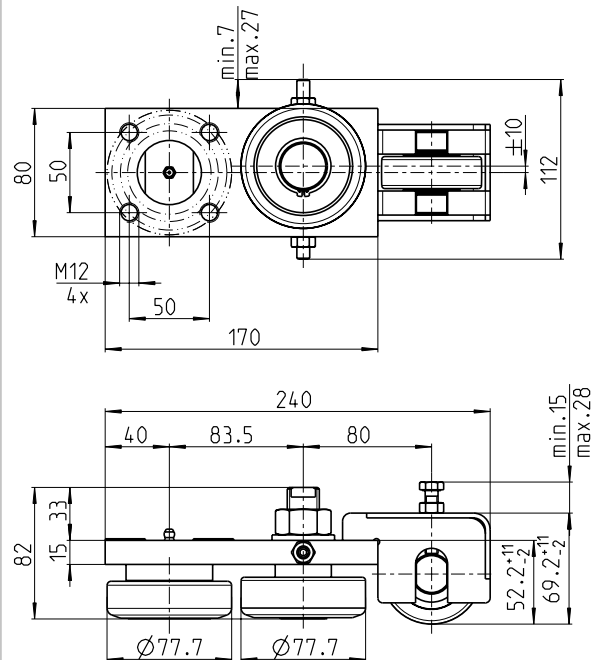
Article no.



JT 2.056

Artikel-Nr. 200.192.000

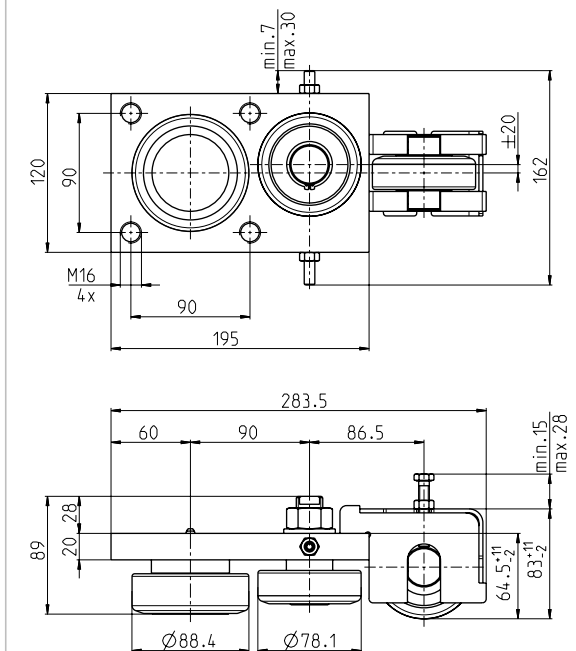
Article no.



JT 2.058

Artikel-Nr. 200.210.303

Article no.



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

C_A = Dynamic load capacity axial bearing (ISO 281/1), C_{0A} = Static load capacity axial bearing (ISO 76), (WINKEL Bearing)

F_R = Load capacity radial bearing max. allowable force between bearing and profile, (WINKEL Bearing)

F_A = Load capacity axial bearing max. allowable force between bearing and profile, (WINKEL Bearing)

WINKEL-Profile | WINKEL profiles



Standard NbV-Profil

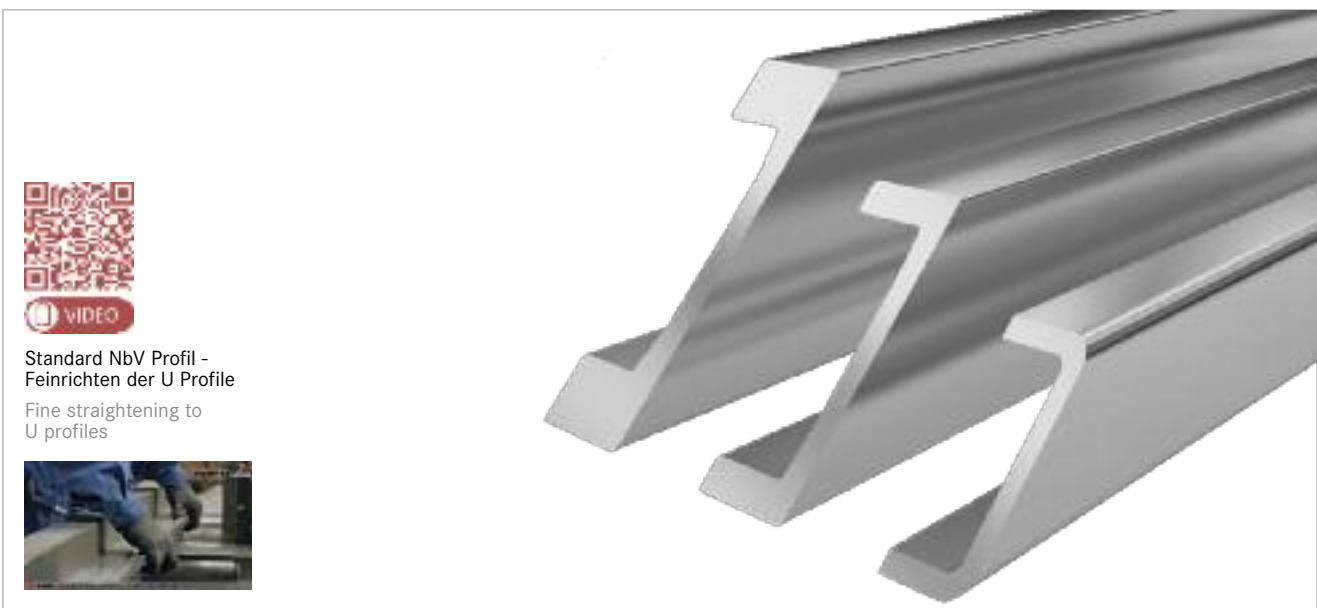
- Alle Profile ab Standard 0 NbV sind aus hochwertigem warmgewalzten Stahl in S450 J2 mod. gefertigt und sandgestrahlt. $L_{\max} = 12 \text{ m}$
- Passend zu unserem WINKEL-Rollensystem liefern wir alle Profiltypen in Fixlängen sofort ab Lager.
- Auf Wunsch sind alle NbV-Profile in feingerichteter Ausführung erhältlich ($\pm 0,3 \text{ mm/lfm.}$)
- Höhere Tragkräfte durch neue NbV-Serie
- **Komplette Profilbearbeitung nach Kundenzeichnungen auf Anfrage**

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

Standard NbV-profiles

- All profiles from Standard 0 NbV are made from high-quality hot rolled steel S450 J2 mod., in sandblasted version. $L_{\max} = 12 \text{ m}$
- Suitable for WINKEL Bearing system, we deliver all profiles in fixed lengths, immediately from stock
- All NbV-profiles are available in fine straightened style on request ($\pm 0.3 \text{ mm per meter}$)
- Higher load capacity with new NbV-series
- **Machined profiles according to customer drawings on request**

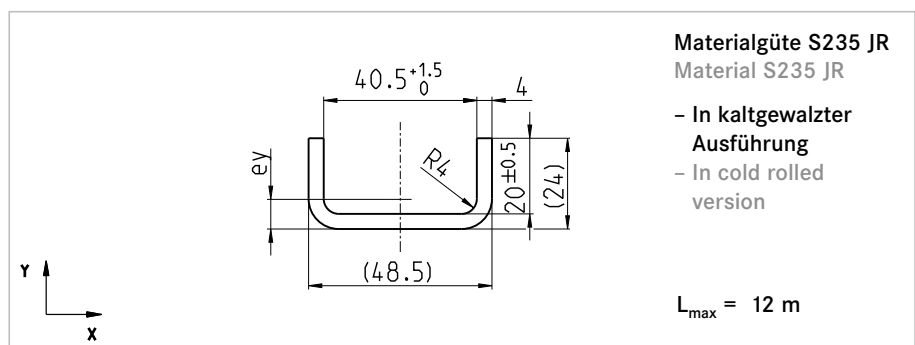
CAD download in 2D/3D at www.winkel.de



Standard A

Artikel-Nr. 113.001.000
Article no.

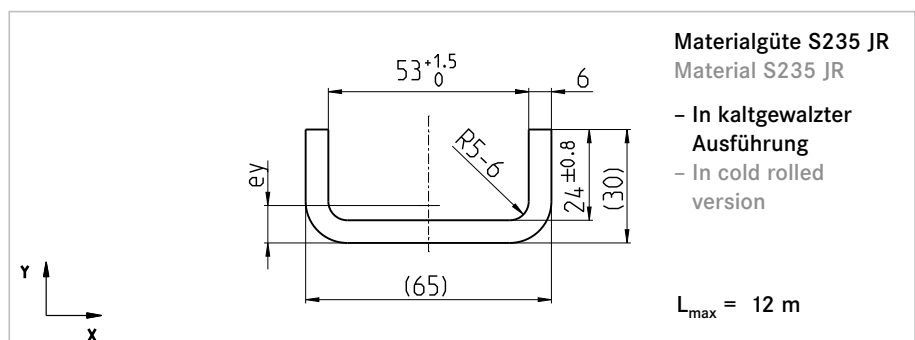
m	2,6	kg/m
A	3,3	cm ²
I _x	1,7	cm ⁴
W _x	1,1	cm ³
I _y	10,6	cm ⁴
W _y	4,4	cm ³
e _y	0,8	cm



Standard S

Artikel-Nr. 113.002.000
Article no.

m	5,3	kg/m
A	6,4	cm ²
I _x	5,0	cm ⁴
W _x	2,5	cm ³
I _y	34,9	cm ⁴
W _y	10,7	cm ³
e _y	1,0	cm



Hinweis: Feingerichtete Profile weisen eine Geradheit von $\pm 0,3 \text{ mm/lfm.}$ auf. Standard $\pm 1,0 \text{ mm/lfm.}$
Notice: The straightness for fine straightened profiles is $\pm 0,3 \text{ mm per meter}$. Standard $\pm 1,0 \text{ mm per meter}$

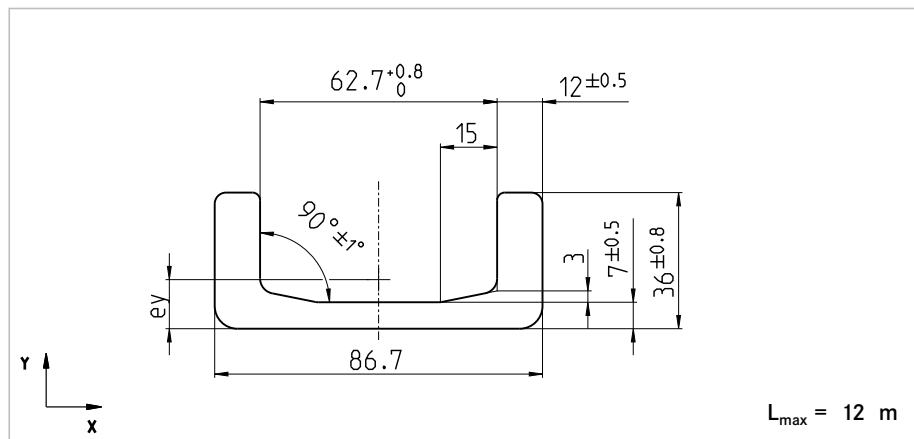
WINKEL-Profile | WINKEL profiles



Standard 0 NbV

Artikel-Nr. 113.010.000
Article no. 113.010.001
feingerichtet
fine straightened

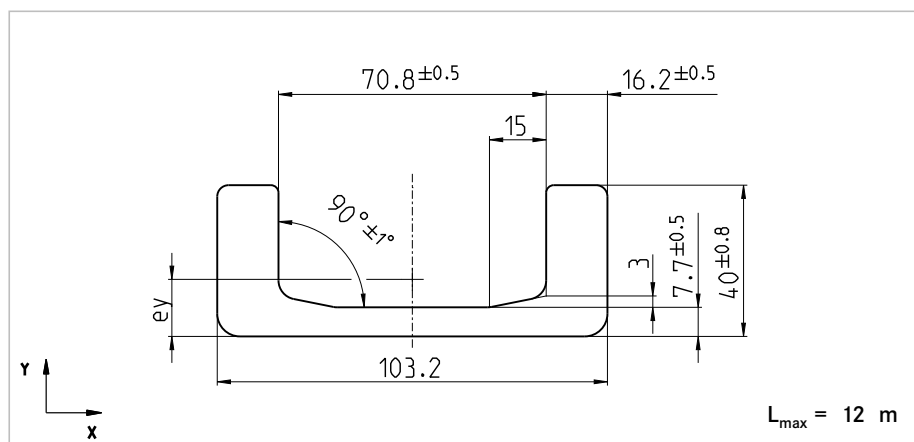
m	10,5	kg/m
A	13,3	cm ²
I _x	15,3	cm ⁴
W _x	6,6	cm ³
I _y	136,0	cm ⁴
W _y	31,4	cm ³
e _y	1,3	cm



Standard 1 NbV

Artikel-Nr. 113.011.000
Article no. 113.011.001
feingerichtet
fine straightened

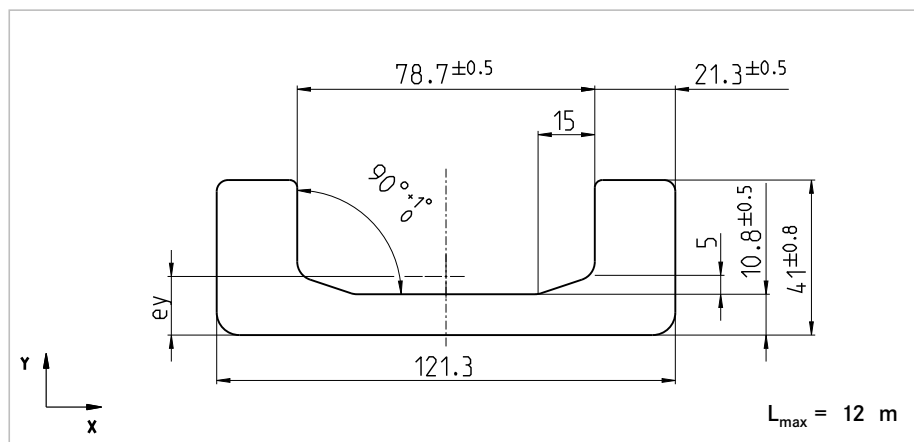
m	14,8	kg/m
A	18,7	cm ²
I _x	27,1	cm ⁴
W _x	10,9	cm ³
I _y	270,7	cm ⁴
W _y	52,5	cm ³
e _y	1,5	cm



Standard 2 NbV

Artikel-Nr. 113.012.000
Article no. 113.012.001
feingerichtet
fine straightened

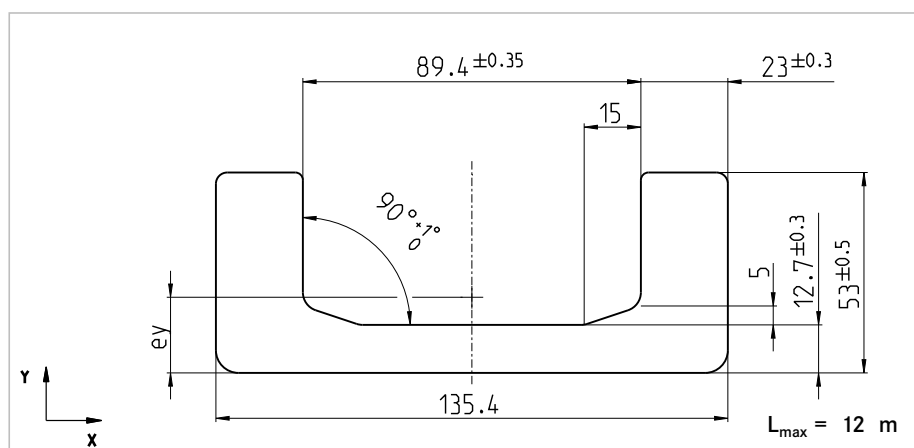
m	20,9	kg/m
A	26,6	cm ²
I _x	37,8	cm ⁴
W _x	14,8	cm ³
I _y	489,7	cm ⁴
W _y	80,7	cm ³
e _y	1,6	cm



Standard 3 NbV

Artikel-Nr. 113.013.000
Article no. 113.013.001
feingerichtet
fine straightened

m	28,6	kg/m
A	36,2	cm ²
I _x	89,2	cm ⁴
W _x	27,1	cm ³
I _y	860,4	cm ⁴
W _y	127,1	cm ³
e _y	2,0	cm

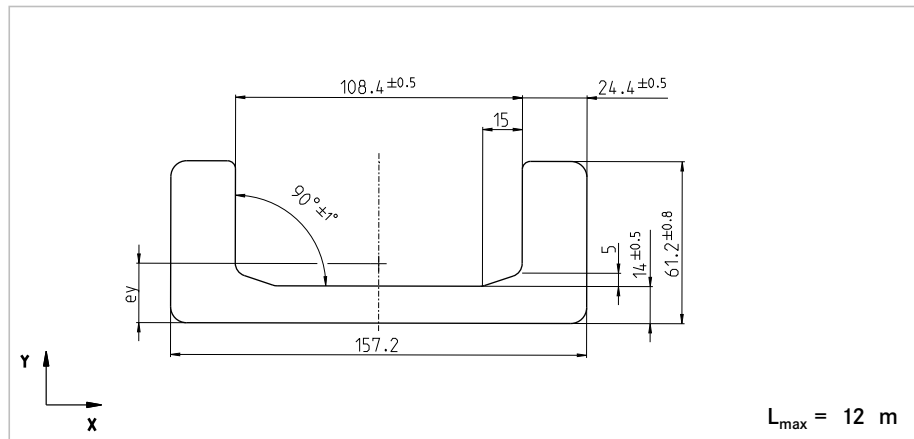


WINKEL-Profile | WINKEL profiles

Standard 4 NbV

Artikel-Nr. 113.014.000
Article no. 113.014.001
feingerichtet
fine straightened

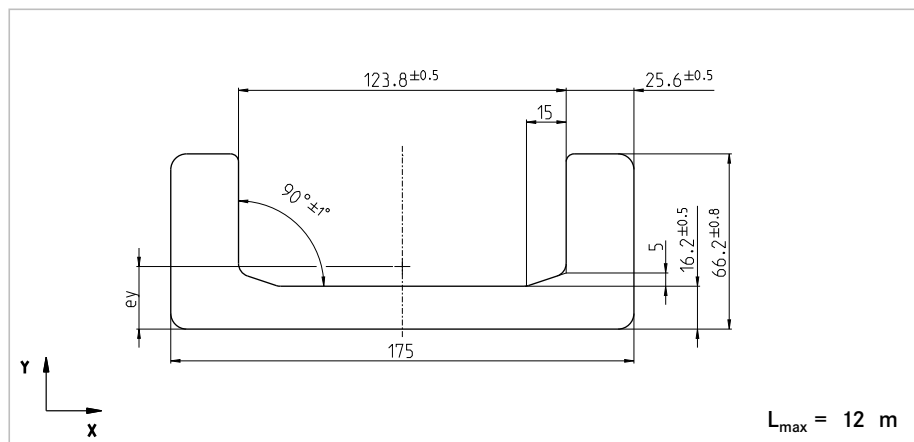
m	36,0	kg/m
A	45,5	cm ²
I _x	148,7	cm ⁴
W _x	38,4	cm ³
I _y	1480,2	cm ⁴
W _y	188,3	cm ³
e _y	2,2	cm



Standard 5 NbV

Artikel-Nr. 113.015.000
Article no. 113.015.001
feingerichtet
fine straightened

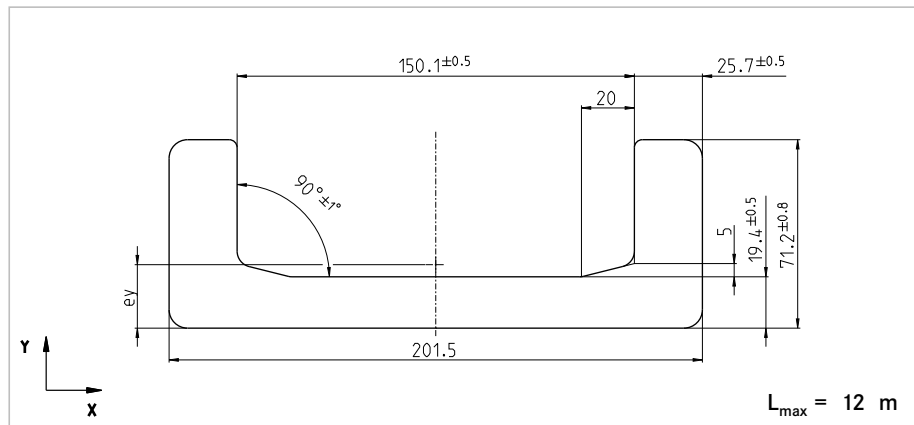
m	42,8	kg/m
A	54,4	cm ²
I _x	203,1	cm ⁴
W _x	47,7	cm ³
I _y	2167,7	cm ⁴
W _y	247,7	cm ³
e _y	2,4	cm



Standard 6 NbV

Artikel-Nr. 113.016.000
Article no. 113.016.001
feingerichtet
fine straightened

m	52,3	kg/m
A	66,3	cm ²
I _x	266,4	cm ⁴
W _x	56,4	cm ³
I _y	3402,5	cm ⁴
W _y	337,7	cm ³
e _y	2,4	cm

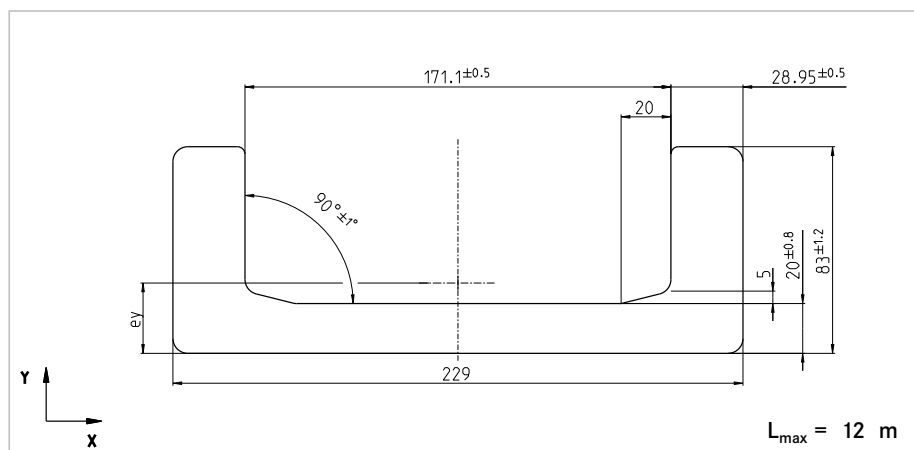


NEW

Standard 7[®] NbV

Artikel-Nr. 113.017.000
Article no. 113.017.001
feingerichtet
fine straightened

m	65,2	kg/m
A	83,0	cm ²
I _x	479,4	cm ⁴
W _x	87,6	cm ³
I _y	5702,6	cm ⁴
W _y	498,0	cm ³
e _y	2,8	cm



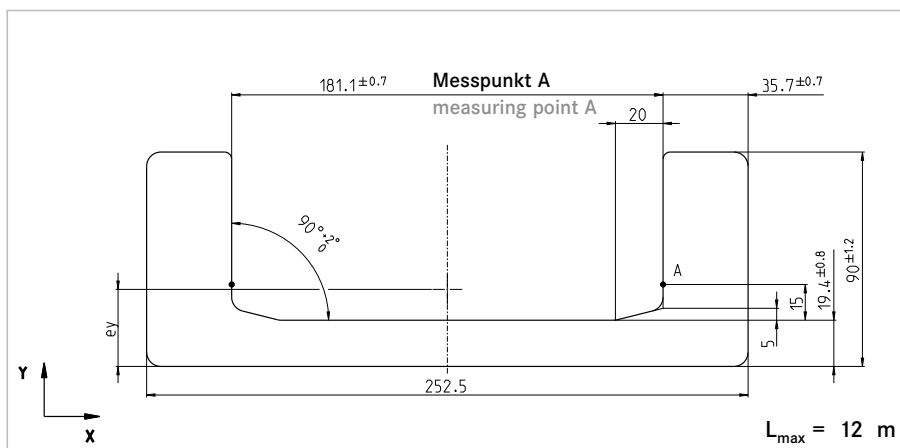
Hinweis: Feingerichtete Profile weisen eine Geradheit von ± 0,3 mm/lfm. auf. Standard ± 1,0 mm/lfm.
Notice: The straightness for fine straightened profiles is ± 0,3 mm per meter. Standard ± 1,0 per meter



Standard 8 NbV

Artikel-Nr. 113.018.000
Article no. 113.018.001
feingerichtet
fine straightened

m	78,8	kg/m
A	100,1	cm ²
I _x	721,5	cm ⁴
W _x	125,1	cm ³
I _y	8605,4	cm ⁴
W _y	681,6	cm ³
e _y	3,2	cm



WINKEL U-Profile mit 30% höherer Tragkraft

- Höhere Tragkraft bei gleichen Abmessungen durch Stahl S450 J2 mod.
- Auswahl eventuell kleinerer Baugrößen (Kostenvorteil)
- Höhere Verschleißfestigkeit gegen Auswalzen bei Überlastungen

WINKEL U-Profiles with 30% increased load capacity

- higher load capacity at same sizes by using profiles with steelgrade S450 J2 mod.
- choice of smaller sizes (price advantage)
- higher resistance against wear out effects

Vergleich S355 J2 - S450 J2 mod.

Merkmal / Characteristic	S355 J2	S450 J2 mod.
Streckgrenze 1 / Yield point 1	min 355 MPa [N/mm ²]	min 430 MPa [N/mm ²]
Streckgrenze 2 / Yield point 2	min 345 MPa [N/mm ²]	min 420 MPa [N/mm ²]
Zugfestigkeit / Tensile strength	470 - 630 MPa [N/mm ²]	550 - 700 MPa [N/mm ²]
max. zul. Hertz'sche Pressung max. hertzian pressure	750 MPa [N/mm ²]	900 MPa [N/mm ²]

Comparison S355 J2 - S450 J2 mod.

Hinweis: Streckgrenze 1 gilt für Flanschkicken < 20 mm, Streckgrenze 2 gilt für Flanschkicken ab 20 mm.

Notice: Yield point 1 is only valid for flange thickness < 20 mm, yield point 2 is only valid for flange thickness > 20 mm.

Bedingt durch eine Mikrolegierung mit Vanadium und/oder Niob weist der Stahl S450 J2 mod. deutlich höhere Festigkeits-eigenschaften und ein feinkörnigeres Gefüge auf als der herkömmliche Stahl S355 J2.

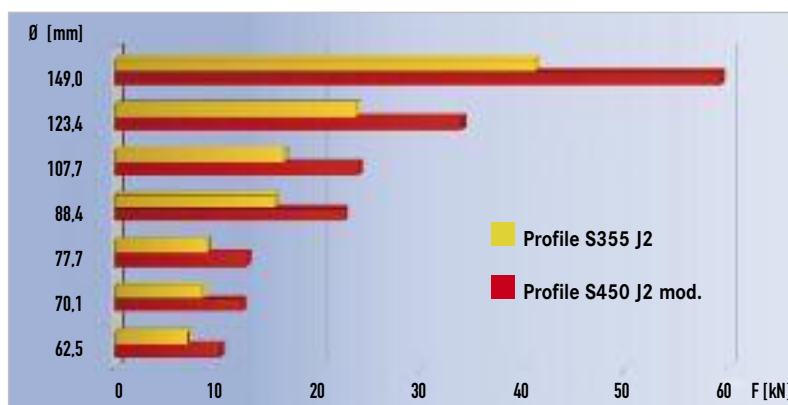
Daraus und aus einer stärkeren Begrenzung der Elemente P und S ergibt sich eine höhere Sprödbuchtsicherheit. Die damit verbundene höhere Flächenpressung zeigt die nachfolgende Grafik.

Because of micro alloying with Vanadium and/or Niobium the steel grade S450J2 mod. has a significantly higher tensile and yield strength and a more fine-grained structure than the customary steel grade S355 J2.

In consequence of this and due to a stronger limitation of the elements P and S the steel shows a higher resistance to brittle fracture. Related to this is an increased bearing pressure which is shown by the diagram below.

Tragzahlen der Radiallager im Vergleich:

Load capacity of radial bearings
in comparison:



WINKEL-Profile | WINKEL profiles

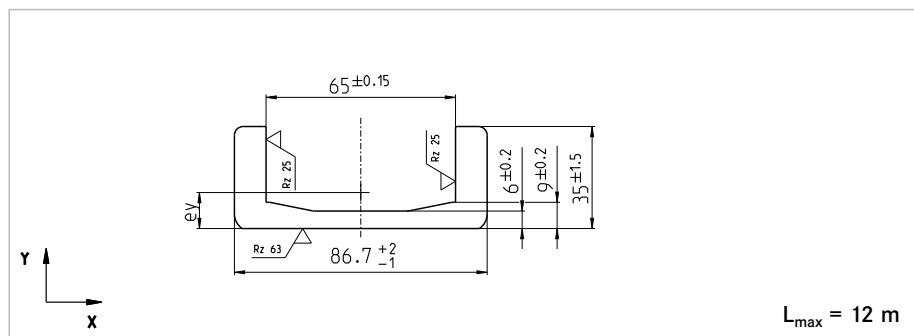
Präzisions-Profil Typ PR

- Alle Profile sind aus hochwertigem Stahl in S450 J2 mod. gefertigt und sandgestrahlt
- Passend zu unserem WINKEL-Rollensystem liefern wir alle Profiltypen in Fixlängen
- Profile in feingerichteter Ausführung $\pm 0,3$ mm/lfm.
- Maximale Produktionslänge 12 m
- Geringes Spiel zwischen Laufrolle und Profil
- Höhere Tragkräfte durch neue NbV-Serie
- *Komplette Profilmontage nach Kundenzeichnungen auf Anfrage*

PR 0 NbV

Artikel-Nr. 113.010.002
Article no.

m	9,4	kg/m
A	11,9	cm ²
I _x	13,2	cm ⁴
W _x	5,6	cm ³
I _y	125,5	cm ⁴
W _y	29,0	cm ³
e _y	1,2	cm

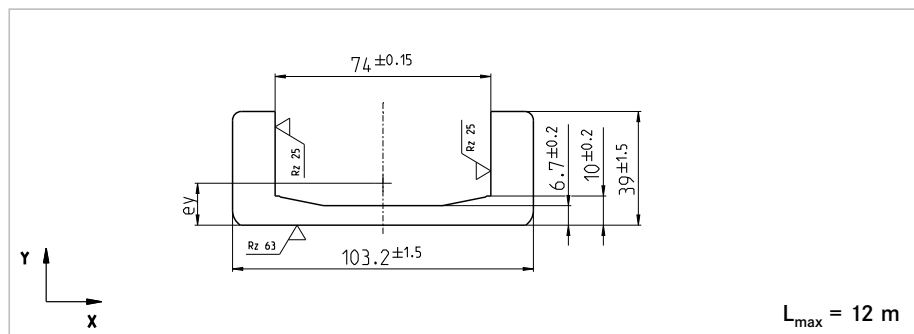


L_{max} = 12 m

PR 1 NbV

Artikel-Nr. 113.011.002
Article no.

m	13,4	kg/m
A	16,8	cm ²
I _x	23,5	cm ⁴
W _x	9,2	cm ³
I _y	250,7	cm ⁴
W _y	48,6	cm ³
e _y	1,4	cm

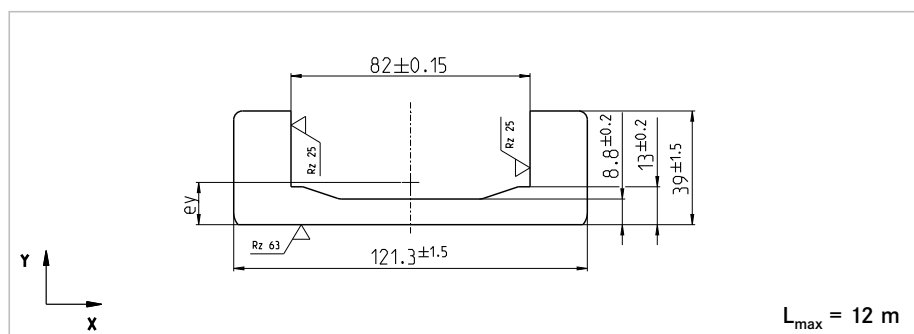


L_{max} = 12 m

PR 2 NbV

Artikel-Nr. 113.012.002
Article no.

m	18,3	kg/m
A	23,3	cm ²
I _x	31,0	cm ⁴
W _x	11,7	cm ³
I _y	449,4	cm ⁴
W _y	74,1	cm ³
e _y	1,4	cm

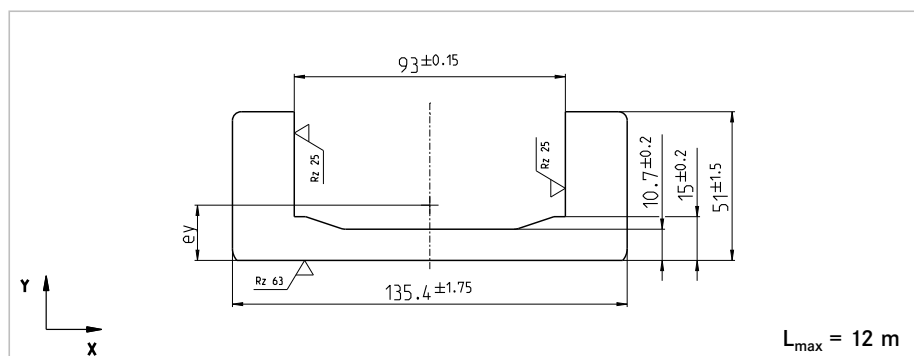


L_{max} = 12 m

PR 3 NbV

Artikel-Nr. 113.013.002
Article no.

m	25,4	kg/m
A	32,4	cm ²
I _x	75,4	cm ⁴
W _x	22,1	cm ³
I _y	796,2	cm ⁴
W _y	117,6	cm ³
e _y	1,9	cm



L_{max} = 12 m

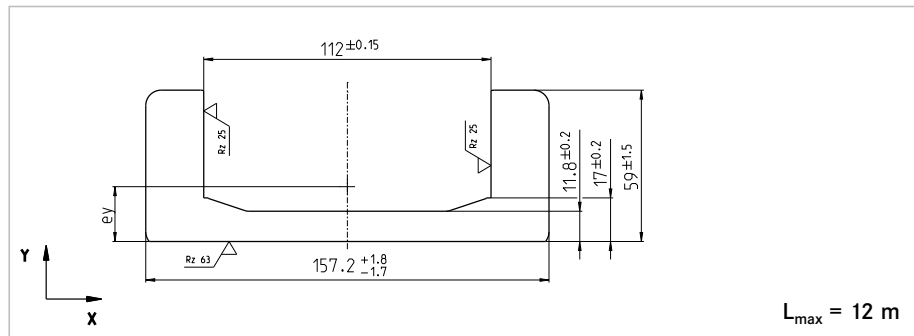
WINKEL-Profile | WINKEL profiles



PR 4 NbV

Artikel-Nr. 113.014.002
Article no.

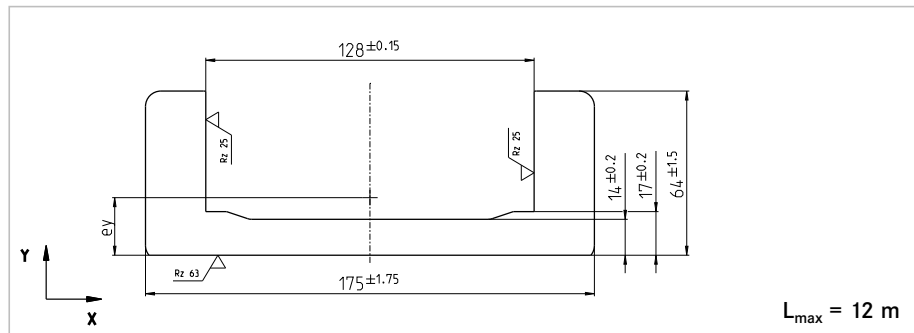
m	32,1	kg/m
A	40,6	cm ²
I _x	126,5	cm ⁴
W _x	31,8	cm ³
I _y	1370,0	cm ⁴
W _y	174,3	cm ³
e _y	2,1	cm



PR 5 NbV

Artikel-Nr. 113.015.002
Article no.

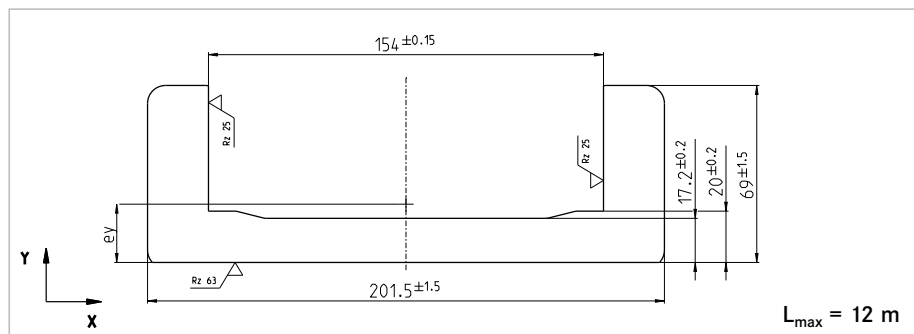
m	38,1	kg/m
A	48,6	cm ²
I _x	173,5	cm ⁴
W _x	39,7	cm ³
I _y	1995,6	cm ⁴
W _y	228,1	cm ³
e _y	2,2	cm



PR 6 NbV

Artikel-Nr. 113.016.002
Article no.

m	47,1	kg/m
A	59,9	cm ²
I _x	230,5	cm ⁴
W _x	47,6	cm ³
I _y	3144,4	cm ⁴
W _y	312,1	cm ³
e _y	2,3	cm

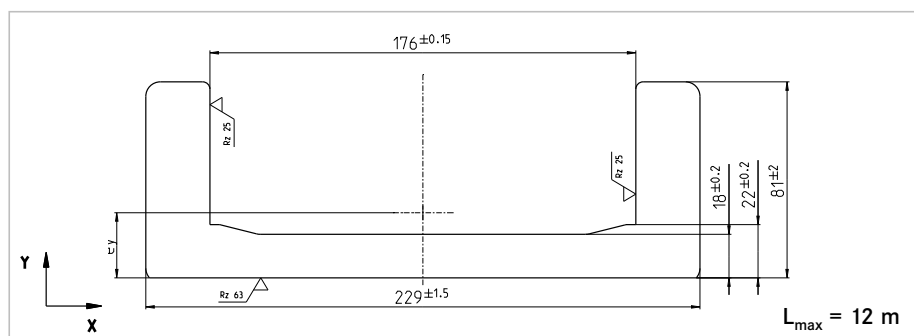


NEW

PR 7® NbV

Artikel-Nr. 113.017.002
Article no.

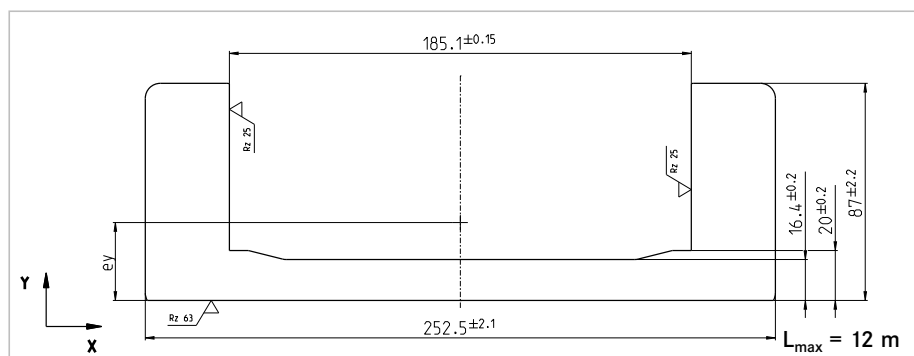
m	59,1	kg/m
A	75,3	cm ²
I _x	419,1	cm ⁴
W _x	77,5	cm ³
I _y	5279,5	cm ⁴
W _y	461,1	cm ³
e _y	2,7	cm



PR 8 NbV

Artikel-Nr. 113.018.011
Article no.

m	70,6	kg/m
A	89,9	cm ²
I _x	623,1	cm ⁴
W _x	106,0	cm ³
I _y	7990,1	cm ⁴
W _y	632,9	cm ³
e _y	3,1	cm





Standard U-Profil gebohrt Typ PG

Vorteile:

- Einbaufertige Profile passend zu den Standard WINKEL-Rollen mit standardisierten Befestigungsbohrungen
- Alle Profile feingerichtet $\pm 0,3 \text{ mm/lm}$

Max. Länge 12 m. Sonderlängen auf Anfrage.
CAD Download in 2D/3D unter www.winkel.de

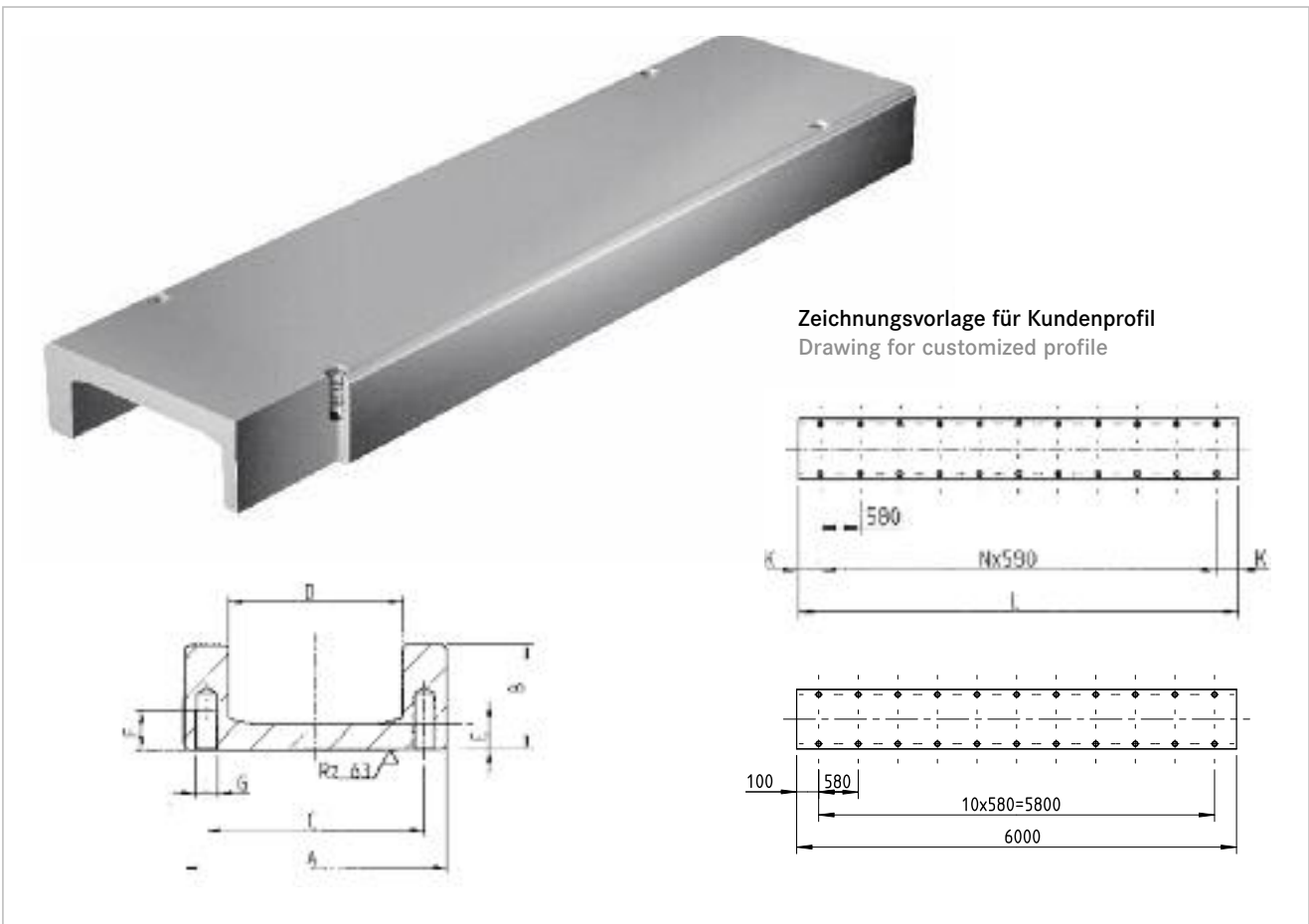
Standard U-profile drilled type PG

Advantages:

- Ready to mount profiles suitable for standard WINKEL Bearing with standardized thread holes
- All profiles fine straightened $\pm 0,3 \text{ mm/m}$

Max. length 12 m. Special lengths on request.

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



Profil Profile	Artikel-Nr. Article no.	A* [mm]	B* [mm]	C [mm]	D [mm]	E* [mm]	F [mm]	G
PG 0 NbV	113.021.000	86,7	35	75,8	62,7 + 0,80	6,0	15	M8
PG 1 NbV	113.021.001	103,2	39	89,0	70,8 $\pm 0,50$	6,7	18	M10
PG 2 NbV	113.021.002	121,3	39	101,7	78,7 $\pm 0,50$	8,8	20	M12
PG 3 NbV	113.021.003	135,4	51	114,2	89,4 $\pm 0,35$	10,7	20	M12
PG 4 NbV	113.021.004	157,2	59	134,6	108,4 $\pm 0,50$	11,8	20	M12
PG 5 NbV	113.021.005	175,0	64	151,5	123,8 $\pm 0,50$	14,0	30	M16
PG 6 NbV	113.021.006	201,5	69	177,8	150,1 $\pm 0,50$	17,2	30	M16
PG 7 NbV	113.021.007	229,0	81	200,0	171,1 $\pm 0,50$	18,0	30	M16
PG 8 NbV	113.021.008	252,5	87	217,0	181,1 $\pm 0,70$	16,4	40	M20

*Toleranzen gem. Profilen siehe Seite 66

*Tolerances according profiles see page 66

NEW



Präzisions-U-Profile gebohrt Typ PG - PR

Vorteile:

- Einbaufertige Profile passend zu den Präzisions-WINKEL-Rollen mit standardisierten Befestigungsbohrungen
- Alle Profile feingerichtet $\pm 0,3$ mm/lm
- Geringes Spiel zwischen Laufrolle und Profil

Max. Länge 12 m. Sonderlängen auf Anfrage.

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

Precision U-profiles drilled type PG - PR

Advantages:

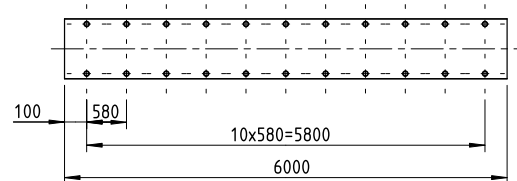
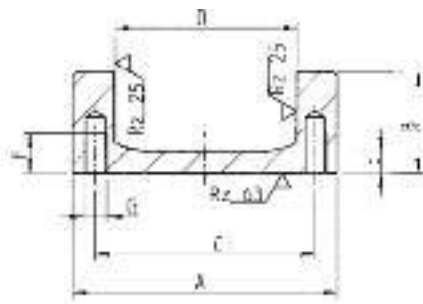
- Ready to mount profiles suitable for precision WINKEL Bearing with standardized thread holes
- All profiles fine straightened $\pm 0,3$ mm/m
- Min. clearance between bearing and profil

Max. length 12 m. Special lengths on request.

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



Zeichnungsvorlage für Kundenprofil
Drawing for customized profile



Profil Profile	Artikel-Nr. Article no.	A* [mm]	B* [mm]	C [mm]	D [mm]	E* [mm]	F [mm]	G
PG-PR 0 NbV	113.022.000	86,7	35	75,8	65,0 $\pm 0,15$	6,0	15	M8
PG-PR 1 NbV	113.022.001	103,2	39	89,0	74,0 $\pm 0,15$	6,7	18	M10
PG-PR 2 NbV	113.022.002	121,3	39	101,7	82,0 $\pm 0,15$	8,8	20	M12
PG-PR 3 NbV	113.022.003	135,4	51	114,2	93,0 $\pm 0,15$	10,7	20	M12
PG-PR 4 NbV	113.022.004	157,2	59	134,6	112,0 $\pm 0,15$	11,8	20	M12
PG-PR 5 NbV	113.022.005	175,0	64	151,5	128,0 $\pm 0,15$	14,0	30	M16
PG-PR 6 NbV	113.022.006	201,5	69	177,8	154,0 $\pm 0,15$	17,2	30	M16
PG-PR 7 NbV	113.022.007	229,0	81	200,0	176,0 $\pm 0,15$	18,0	30	M16
PG-PR 8 NbV	113.022.008	252,5	87	217,0	185,1 $\pm 0,15$	16,4	40	M20

*Toleranzen gem. PR-Profilen siehe Seite 66

*Tolerances according PR profiles see page 66

NEW



Doppel T-Profile NbV

- Alle Profile aus hochwertigem Stahl S450 J2 mod. gefertigt. $L_{\max} = 12 \text{ m}$
- Höhere Tragkräfte durch NbV-Serie
- Profile in walzblanker Ausführung
- Passend zu unserem WINKEL-Rollensystem liefern wir alle Profiltypen in Fixlängen sofort ab Lager
- Auf Wunsch sind alle Profile in feingerichteter und sandgestrahlter Ausführung erhältlich ($\pm 0,3 \text{ mm/lm.}$)
- Komplette Profilbearbeitung nach Kundenzeichnungen auf Anfrage

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

I-profiles NbV

- All profiles are made from high-quality steel S450 J2 mod. $L_{\max} = 12 \text{ m}$
- Higher load capacity with NbV-series
- Profiles not sandblasted
- Suitable for WINKEL Bearing system we deliver all profiles in fixed lengths, immediately from stock
- All profiles are available in fine straightened style and sandblasted on request ($\pm 0,3 \text{ mm per meter}$)
- Machined profiles according to customer drawings on request

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



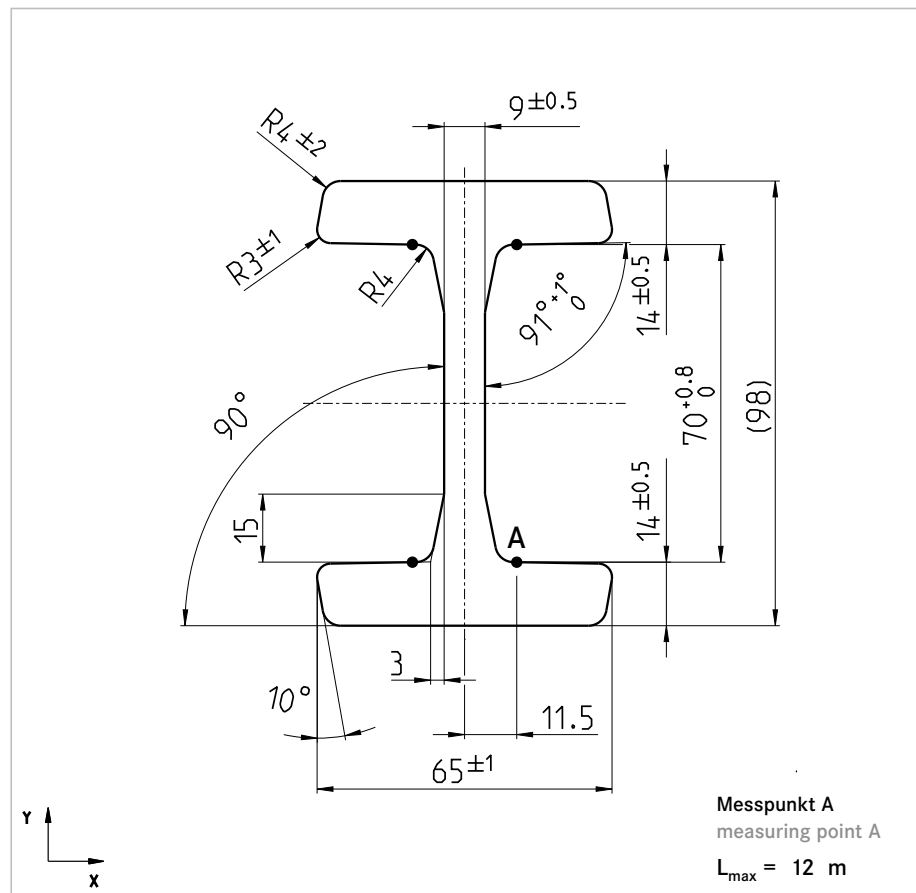
Hinweis: Feingerichtete Profile weisen eine Geradheit von $\pm 0,3 \text{ mm/lm.}$ auf. Standard $\pm 1,0 \text{ mm/lm.}$
 Notice: The straightness for fine straightened profiles is $\pm 0,3 \text{ mm per meter}$. Standard $\pm 1,0 \text{ per meter}$



3018 NbV

Artikel-Nr. 112.001.000
Article no.
feingerichtet 112.001.001
fine straightened

m	19,4	kg/m
A	24,8	cm ²
I _x	346,1	cm ⁴
W _x	70,6	cm ³
I _y	58,3	cm ⁴
W _y	18,0	cm ³



3019 NbV

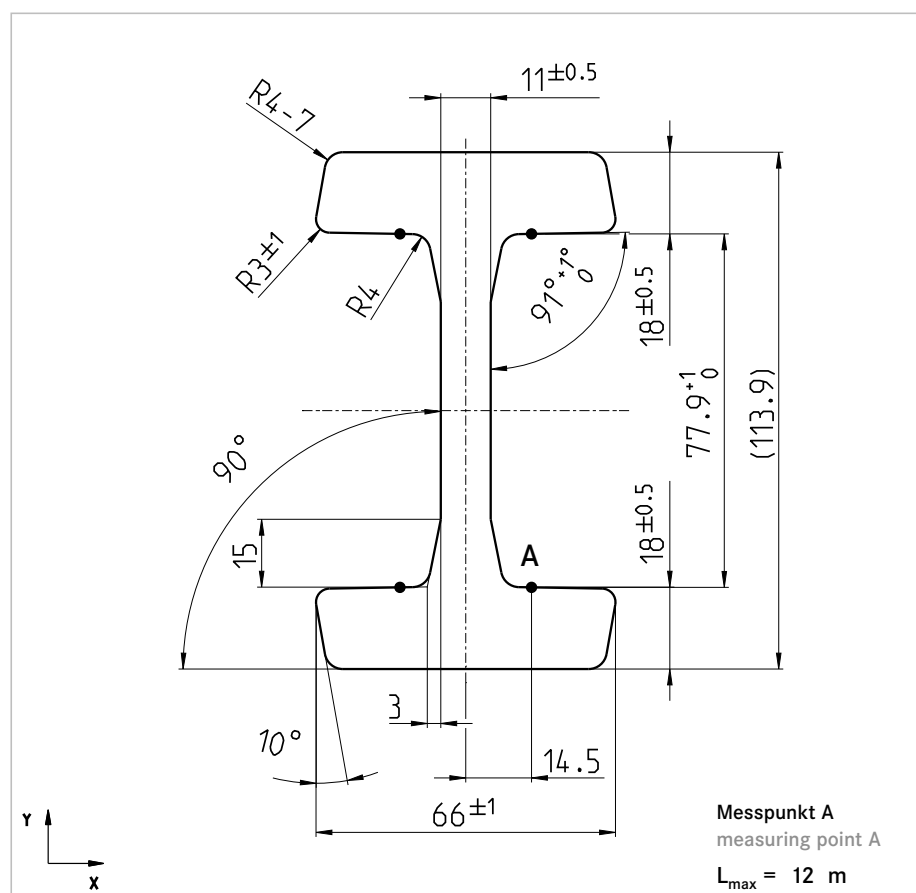
Artikel-Nr. 112.002.000
Article no.
feingerichtet 112.002.001
fine straightened

m	25,3	kg/m
A	32,3	cm ²
I _x	581,9	cm ⁴
W _x	102,2	cm ³
I _y	77,5	cm ⁴
W _y	23,5	cm ³



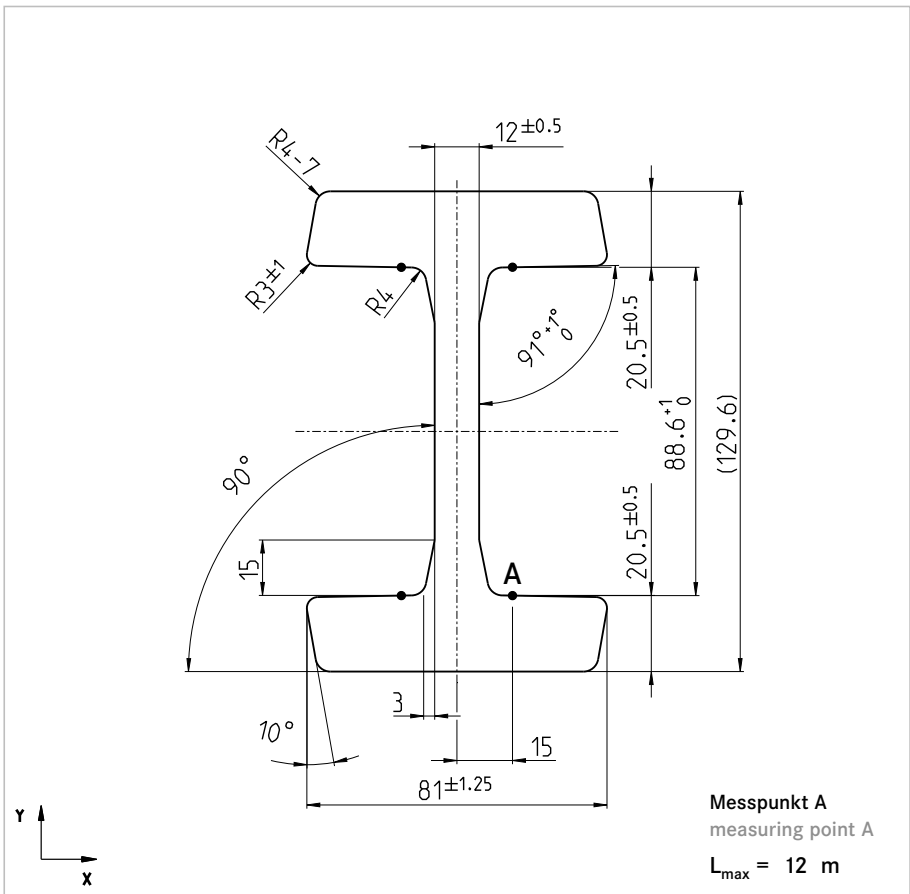
Standard NbV Profil -
Feinrichten der U Profile

Fine straightening to
U profiles



Artikel-Nr.	112.003.000
Article no.	
feingerichtet	112.003.001
fine straightened	

m	34,0	kg/m
A	43,4	cm ²
I _x	1040,3	cm ⁴
W _x	160,5	cm ³
I _y	163,0	cm ⁴
W _y	40,2	cm ³

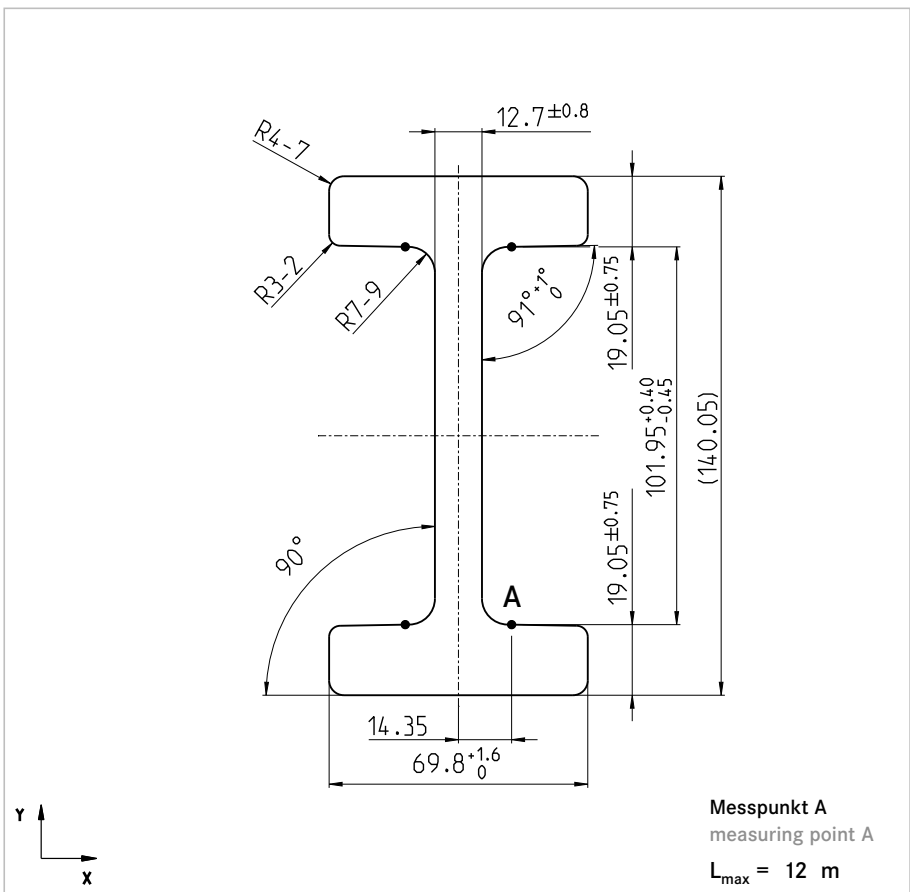


Artikel-Nr.	112.004.000
Article no.	
feingerichtet	112.004.001
fine straightened	

m	31,2	kg/m
A	39,6	cm ²
I _x	1091,6	cm ⁴
W _x	155,9	cm ³
I _y	106,3	cm ⁴
W _y	30,5	cm ³

Hinweis:
Materialgüte SAE 1027 mod.
Werkstoffnummer 1.9426.100

Please note:
Material SAE 1027 mod.
Material number 1.9426.100



Hinweis: Feingerichtete Profile weisen eine Geradheit von $\pm 0,3 \text{ mm/lfm.}$ auf. Standard $\pm 1,0 \text{ mm/lfm.}$
 Notice: The straightness for fine straightened profiles is $\pm 0,3 \text{ mm per meter.}$ Standard $\pm 1,0 \text{ per meter}$

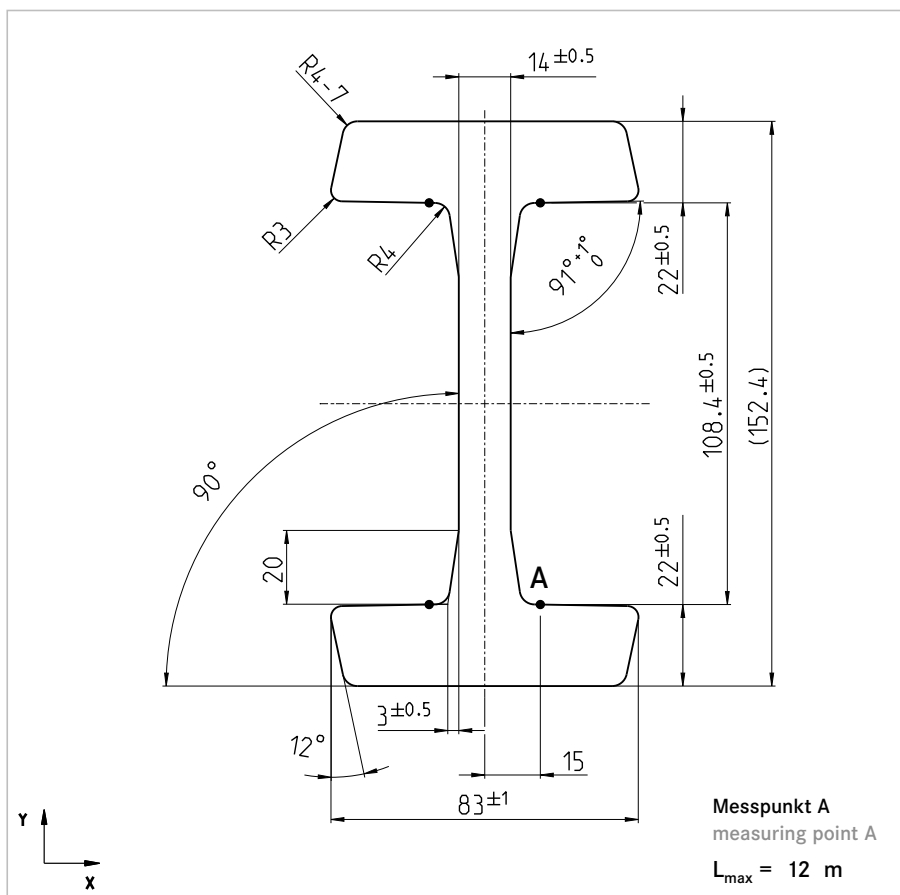
WINKEL-Profile | WINKEL profiles



3100 NbV

Artikel-Nr. 112.005.000
Article no.
feingerichtet 112.005.001
fine straightened

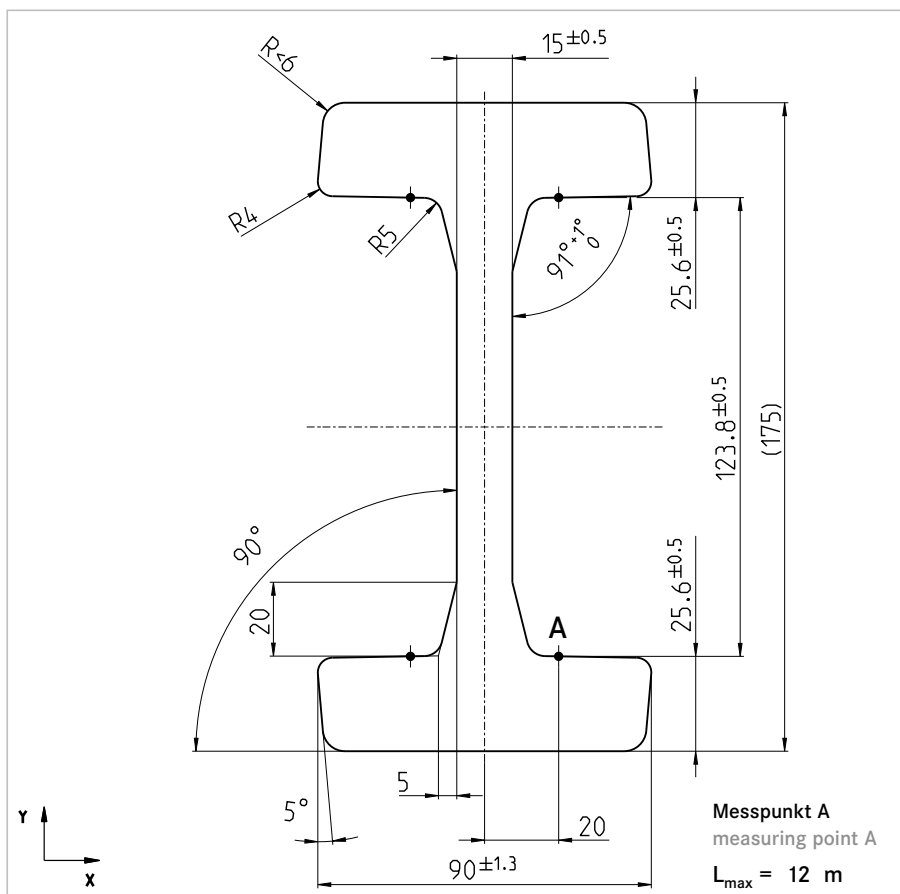
m	40,8	kg/m
A	51,7	cm ²
I _x	1661,7	cm ⁴
W _x	218,1	cm ³
I _y	185,0	cm ⁴
W _y	44,6	cm ³



3353 NbV

Artikel-Nr. 112.006.000
Article no.
feingerichtet 112.006.001
fine straightened

m	51,4	kg/m
A	65,4	cm ²
I _x	2817,1	cm ⁴
W _x	322,0	cm ³
I _y	291,2	cm ⁴
W _y	64,7	cm ³



WINKEL-Profile | WINKEL profiles



Jumbo-Profile einseitig bearbeitet

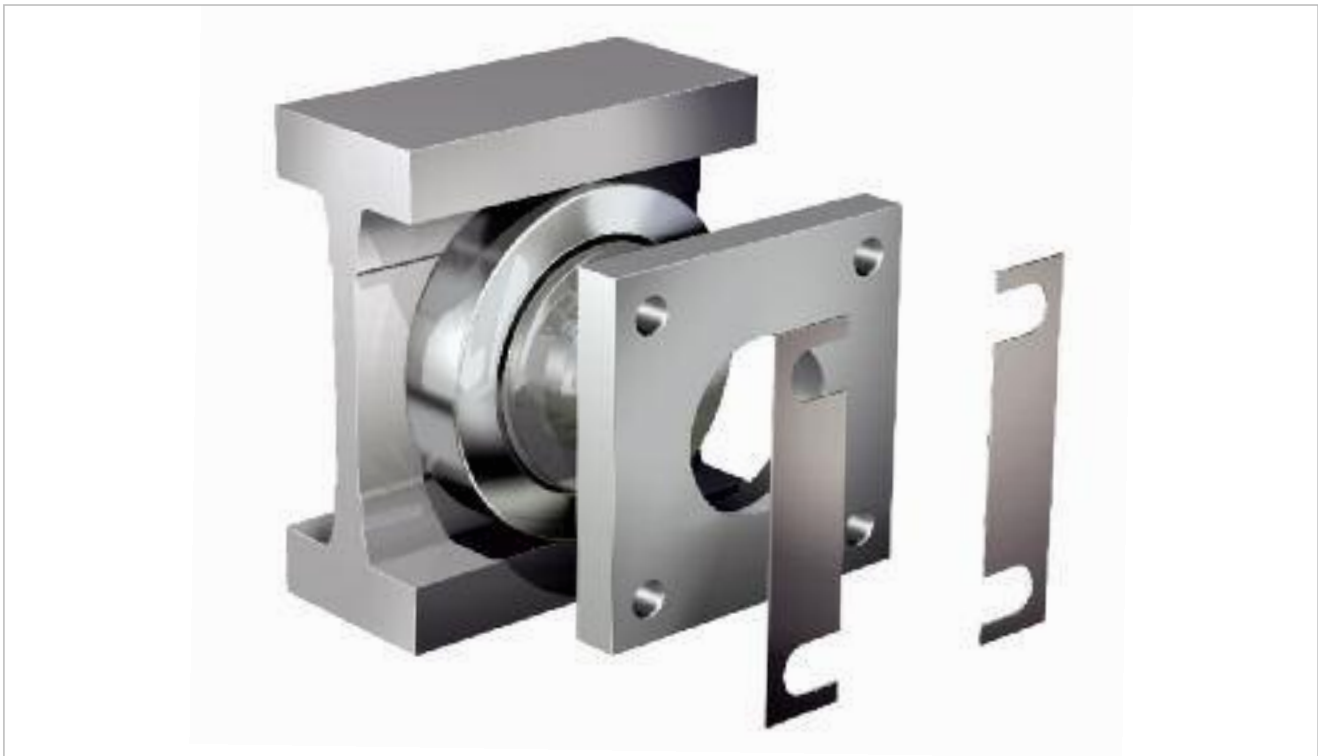
- Geschweißtes und gefrästes Schwerlastführungsprofil, gefertigt aus hochwertigem Stahl in S355 J2
- Profil einseitig bearbeitet passend für den Einsatz der WINKEL Rollen
- Alle Profile auftragsbezogen auf Fixlänge gefertigt
- Profillänge 12 m, Ausführung als U-Profile und Sonderausführungen auf Anfrage

Jumbo profiles machined on one side

- Welded and milled heavy load guide profile, made of high quality steel in S355 J2
- Profile machined on one side suitable for using WINKEL Bearings
- All profiles made to order to fixed length
- Profile length 12 m, design as U-profiles and special constructions on request

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

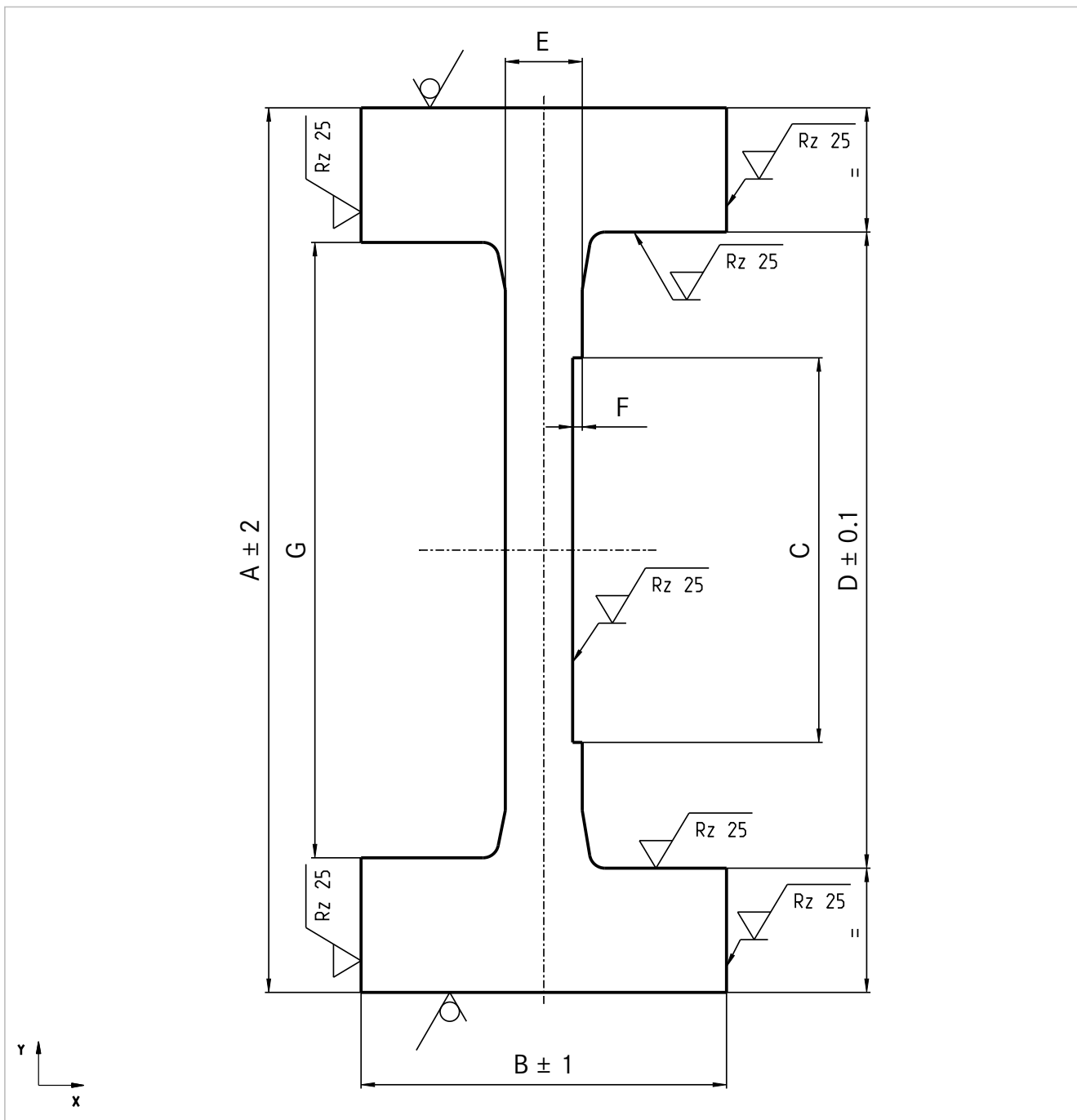
CAD download in 2D/3D at www.winkel.de



Jumbo-Profile einseitig bearbeitet

Jumbo profiles machined on one side

Typ Type	Artikel-Nr. Article no.	A ± 2 [mm]	B ± 1 [mm]	C [mm]	D ± 0,1 [mm]	E [mm]	F [mm]	G [mm]	
Standard 10	112.010.001	230	95	100	165,4	20	2,5	160	
Standard 16	112.016.001	255	130	100	190,4	25	2,5	185	
Standard 18	112.018.001	295	150	100	220,4	25	2,5	215	
Standard 28	112.028.001	345	160	100	250,4	30	2,5	245	
Standard 36	112.036.001	375	190	100	280,4	35	2,5	275	
Standard 42	112.042.001	395	190	100	280,4	35	2,5	275	
Standard 50	112.050.001	475	243	100	320,4	40	2,5	315	



Jumbo-Profile einseitig bearbeitet
Jumbo profiles machined on one side

Typ Type	m [kg/m]	A [cm ²]	I _x [cm ⁴]	W _x [cm ³]	I _y [cm ⁴]	W _y [cm ³]
Standard 10	74,4	94,8	6963,5	605,5	490,1	103,2
Standard 16	104,2	132,8	12214,7	958,0	1253,4	192,8
Standard 18	132,7	169,1	21448,2	1454,1	2205,0	294,0
Standard 28	179,5	228,7	38424,1	2227,5	3373,5	421,7
Standard 36	220,4	280,8	56013,7	2987,4	5655,5	595,3
Standard 42	250,2	318,8	70098,2	3549,3	6799,0	715,7
Standard 50	399,6	509,1	163263,1	6874,2	18976,7	1561,9

WINKEL-Profile | WINKEL profiles



Jumbo-Profile beidseitig bearbeitet

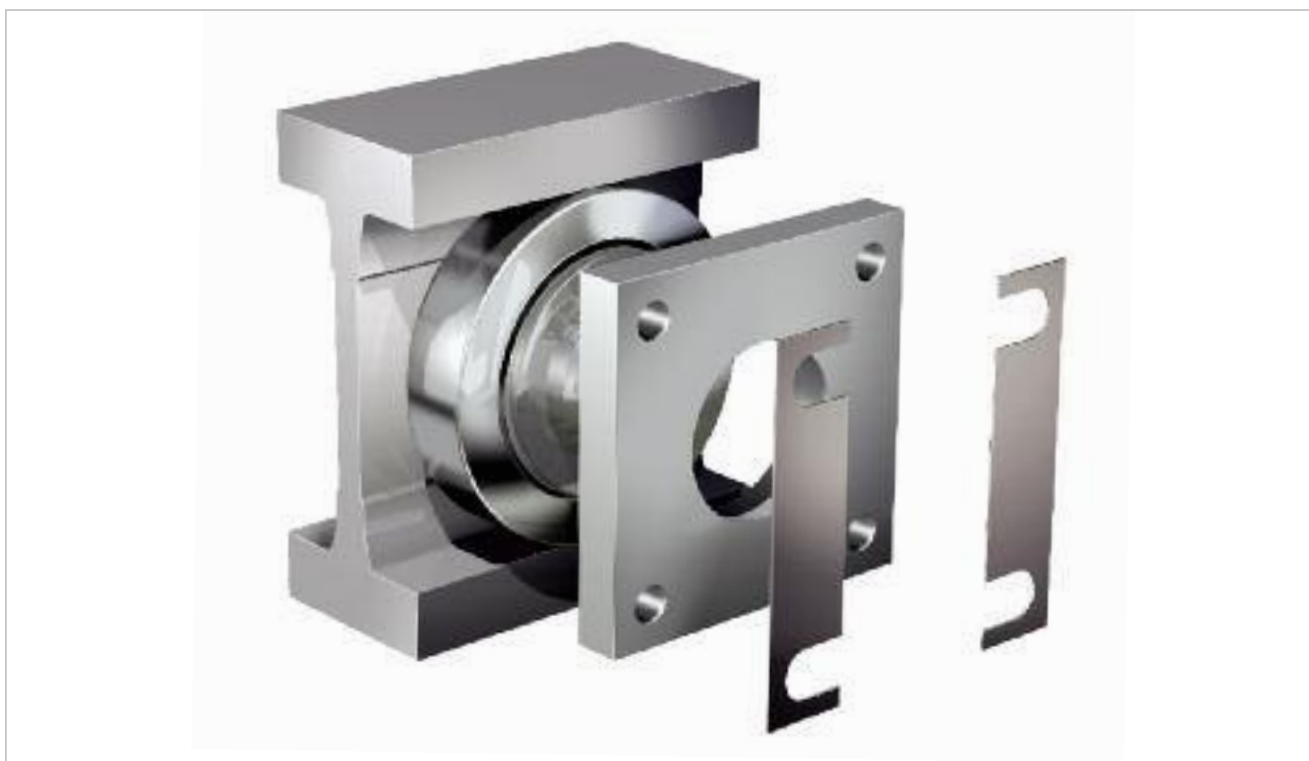
- Geschweißtes und gefrästes Schwerlastführungsprofil, gefertigt aus hochwertigem Stahl in S355 J2
- Profil beidseitig bearbeitet passend für den Einsatz der WINKEL Rollen
- Alle Profile auftragsbezogen auf Fixlänge gefertigt
- Profillänge 12 m, Ausführung als U-Profile und Sonderausführungen auf Anfrage

Jumbo profiles machined on both sides

- Welded and milled heavy-duty guide profile, made of high-quality steel in S355 J2
- Profile machined on both sides suitable for use with WINKEL Bearings
- All profiles made to order to fixed length
- Profile length 12 m, design as U-profiles and special constructions on request

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

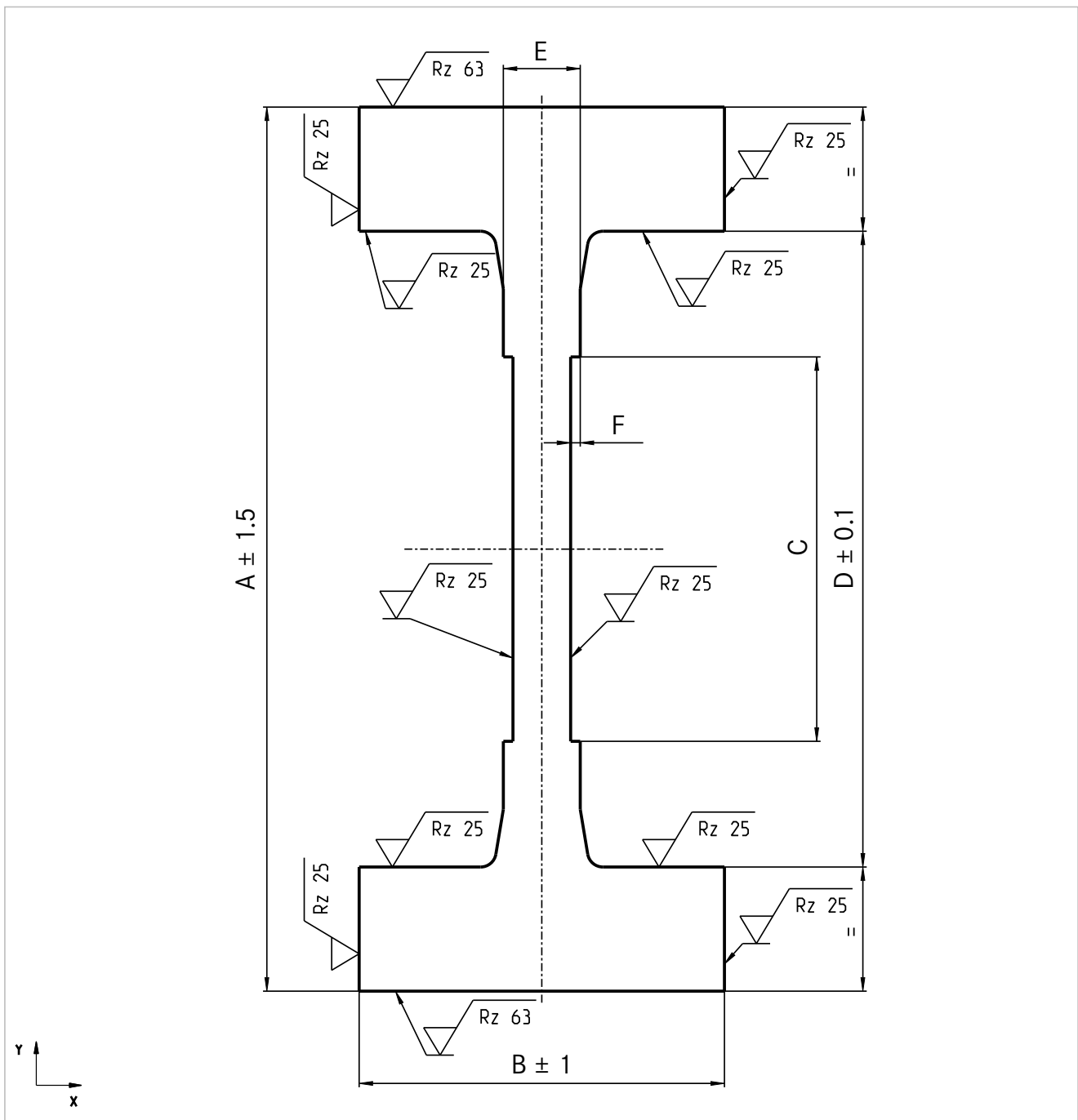
CAD download in 2D/3D at www.winkel.de



Jumbo-Profile beidseitig bearbeitet

Jumbo profiles machined on both side

Typ Type	Artikel-Nr. Article no.	A ± 1,5 [mm]	B ± 1 [mm]	C [mm]	D ± 0,1 [mm]	E [mm]	F [mm]	
Standard 10	112.010.000	230	95	100	165,4	20	2,5	
Standard 16	112.016.000	255	130	100	190,4	25	2,5	
Standard 18	112.018.000	295	150	100	220,4	25	2,5	
Standard 28	112.028.000	345	160	100	250,4	30	2,5	
Standard 36	112.036.000	375	190	100	280,4	35	2,5	
Standard 42	112.042.000	395	190	100	280,4	35	2,5	
Standard 50	112.050.000	475	243	100	320,4	40	2,5	



Jumbo-Profile beidseitig bearbeitet
Jumbo profiles machined on both side

Typ Type	m [kg/m]	A [cm ²]	I _x [cm ⁴]	W _x [cm ³]	I _y [cm ⁴]	W _y [cm ³]
Standard 10	71,0	90,3	6814,1	592,5	469,8	98,9
Standard 16	100,0	127,4	11951,2	937,4	1202,7	185,0
Standard 18	128,0	163,0	21006,2	1424,2	2122,3	283,0
Standard 28	175,0	222,7	37877,0	2195,8	3279,1	409,9
Standard 36	215,0	274,1	55201,0	2944,1	5498,5	578,8
Standard 42	245,0	312,1	69285,6	3508,1	6641,6	699,1
Standard 50	393,0	501,2	161897,3	6816,7	18650,8	1535,1



Anschraubplatten rechteckig für WINKEL-Rollen und Radiallager

WINKEL-Rollen mit Anschraubplatten sind fertige Systemelemente für schraubbare Verbindungen zwischen Konstruktion und Führungsprofil.

- alle Anschraubplatten mit eingeschweißter WINKEL-Rolle
- axiale Justierung mit Distanzsteckbleche Typ DS
- alle Anschraubplatten in brüniertem Ausführung
- Material: S235 JR

Sonderausführungen auf Anfrage.

Flange plates rectangular for WINKEL Bearings and Radial Bearings

WINKEL flange plates in combination with WINKEL Bearings are suitable for screw joints between construction and guide profile.

- all flange plates are welded with WINKEL Bearings
- axial adjusting with washers type DS
- all flange plates in burnished version
- material: S235 JR

Special designs on request.

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

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



Axiale Justierung über Steckbleche
Adjustment of bearings with screw-axial adjustment of plug trays

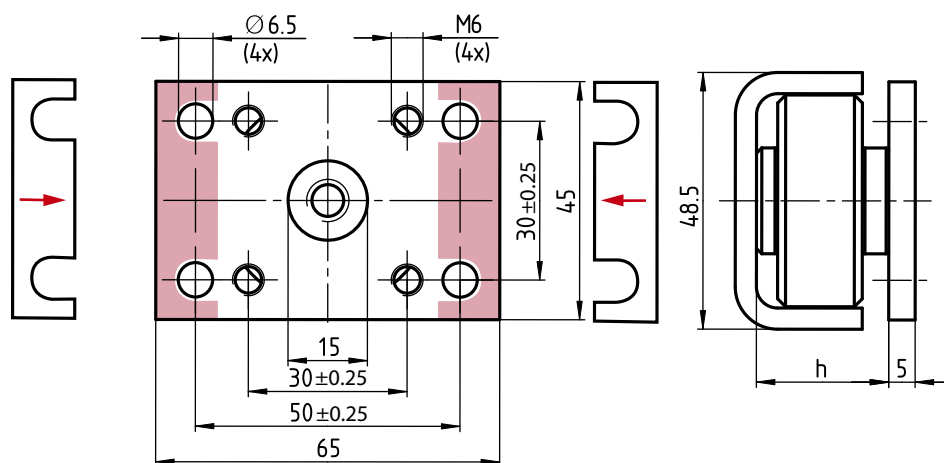


WINKEL-Rollen | WINKEL Bearings



AP A

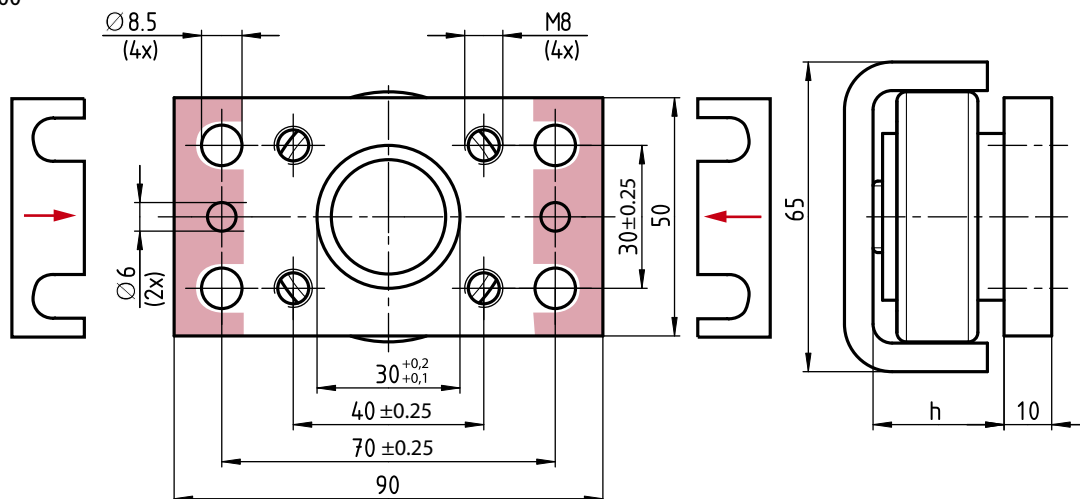
Artikel-Nr. 212.042.000
Article no.



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers
AP A	4.052 P + AP A	200.132.000	Standard A	25,0	0,10 kg	DS-A-0,5 238.026.000 DS-A-1,0 238.026.001

AP S

Artikel-Nr. 212.014.000
Article no.



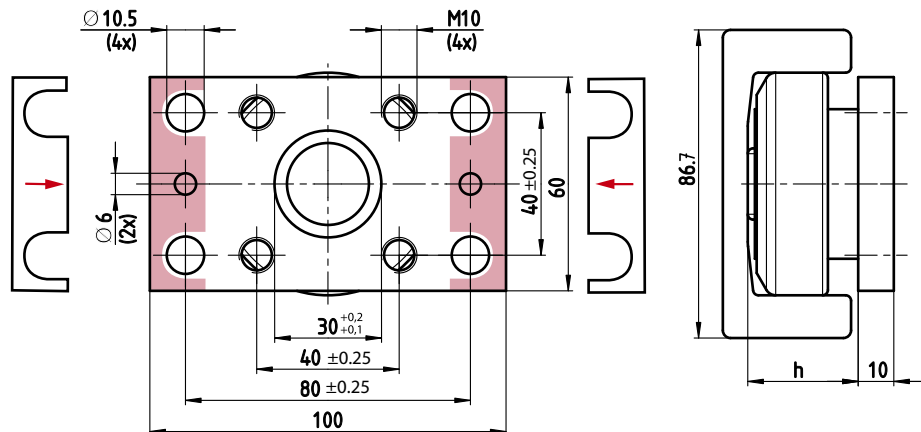
Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washer
AP S	4.053 + AP S	200.071.000	Standard S	27,0	0,25 kg	DS-S-0,5 238.025.000 DS-S-1,0 238.025.001
	4.053 HT + AP S	200.024.012	Standard S	27,0		

WINKEL-Rollen | WINKEL Bearings



AP 0

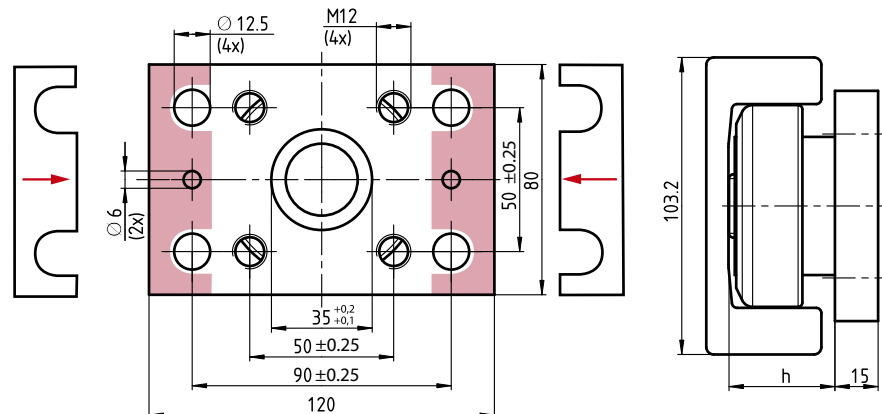
Artikel-Nr. 212.003.000
Article no.



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers
AP 0	2.054 + AP 0	205.061.003	Standard 0 NbV	26,5	0,35 kg	DS-0-0,5 DS-0-1,0 238.020.000 238.020.001
	4.054 + AP 0	200.051.000	Standard 0 NbV	30,5		
	4.054 HT + AP 0	200.001.021	Standard 0 NbV	30,5		
	4.454 + AP 0	201.031.001	Standard 0 NbV	30,5 - 32,0		
	4.072 + AP 0	201.011.000	Standard 0 NbV	33,0		
	4.072 P + AP 0	200.149.000	Standard 0 NbV	33,0		
	PR 2.054 + AP 0	205.071.002	PR 0 NbV	26,5		
	PR 4.054 + AP 0	200.100.002	PR 0 NbV	30,5		
	PR 4.454 + AP 0	200.114.001	PR 0 NbV	30,5 - 32,0		
	PR 4.072 + AP 0	200.107.001	PR 0 NbV	33,0		
	PR 4.072 P + AP 0	200.011.008	PR 0 NbV	33,0		

AP 1

Artikel-Nr. 212.004.000
Article no.



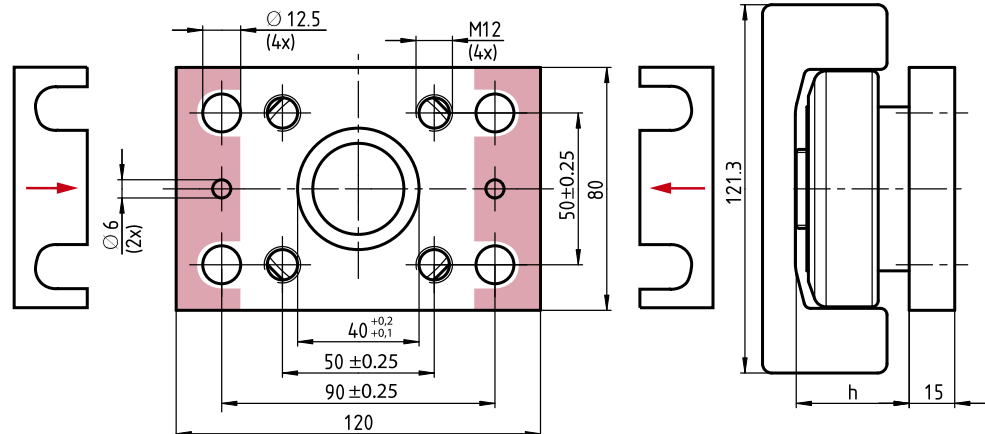
Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers
AP 1	2.055 + AP 1	205.109.000	Standard 1 NbV	34,0	0,90 kg	DS-1-0,5 DS-1-1,0 238.021.000 238.021.001
	4.055 + AP 1	200.052.000	Standard 1 NbV	36,0		
	4.055 HT + AP 1	200.002.021	Standard 1 NbV	36,0		
	4.455 + AP 1	201.032.001	Standard 1 NbV	36,0 - 37,5		
	4.073 + AP 1	200.077.000	Standard 1 NbV	40,0		
	4.073 P + AP 1	200.012.005	Standard 1 NbV	40,0		
	PR 2.055 + AP 1	205.072.001	PR 1 NbV	34,0		
	PR 4.055 + AP 1	200.101.002	PR 1 NbV	36,0		
	PR 4.455 + AP 1	200.115.001	PR 1 NbV	36,0 - 37,5		
	PR 4.073 + AP 1	200.108.001	PR 1 NbV	40,0		
	PR 4.073 P + AP 1	200.014.002	PR 1 NbV	40,0		

WINKEL-Rollen | WINKEL Bearings



AP 2

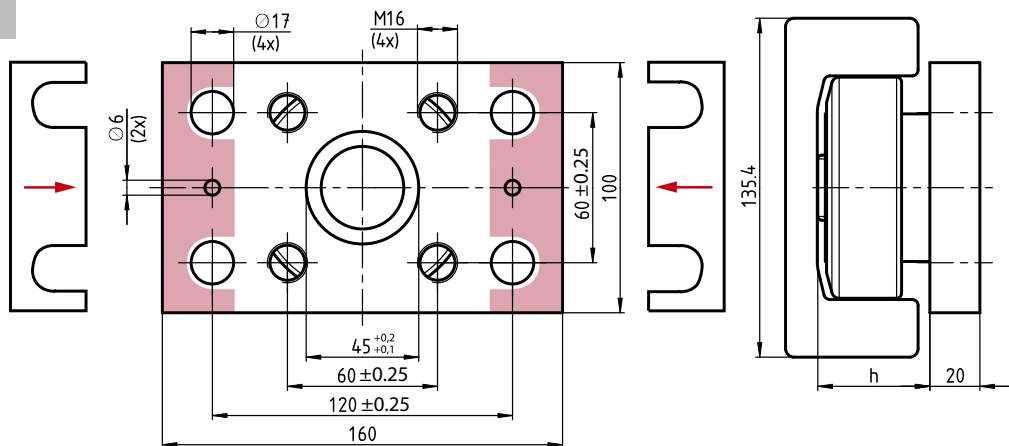
Artikel-Nr. 212.005.000
Article no.



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers
AP 2	2.056 + AP 2	205.107.000	Standard 2 NbV	34,0	0,85 kg	DS-2-0,5 DS-2-1,0 238.021.000 238.021.001
	4.056 + AP 2	200.053.000	Standard 2 NbV	36,5		
	4.056 HT + AP 2	200.003.021	Standard 2 NbV	36,5		
	4.456 + AP 2	201.033.002	Standard 2 NbV	37,0 - 38,5		
	4.074 + AP 2	200.127.000	Standard 2 NbV	39,5		
	4.074 P + AP 2	200.013.008	Standard 2 NbV	39,5		
	PR 2.056 + AP 2	205.073.002	PR 2 NbV	34,0		
	PR 4.056 + AP 2	200.066.000	PR 2 NbV	36,5		
	PR 4.456 + AP 2	200.116.001	PR 2 NbV	37,0 - 38,5		
	PR 4.074 + AP 2	200.109.002	PR 2 NbV	39,5		
	PR 4.074 P + AP 2	200.148.000	PR 2 NbV	39,5		

AP 3.1

Artikel-Nr. 212.006.001
Article no.



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers
AP 3.1	2.058 + AP 3.1	205.064.004	Standard 3 NbV	41,0	2,35 kg	DS-3.1-0,5 DS-3.1-1,0 238.105.000 238.105.001
	4.058 + AP 3.1	200.054.001	Standard 3 NbV	44,0		
	4.058 HT + AP 3.1	200.005.017	Standard 3 NbV	44,0		
	4.458 + AP 3.1	201.035.002	Standard 3 NbV	44,0 - 45,5		
	4.076 + AP 3.1	201.014.000	Standard 3 NbV	48,0		
	4.076 P + AP 3.1	200.015.009	Standard 3 NbV	48,0		
	PR 2.058 + AP 3.1	205.075.001	PR 3 NbV	41,0		
	PR 4.058 + AP 3.1	200.140.001	PR 3 NbV	44,0		
	PR 4.458 + AP 3.1	200.117.002	PR 3 NbV	44,0 - 45,5		
	PR 4.076 + AP 3.1	200.110.001	PR 3 NbV	48,0		
	PR 4.076 P + AP 3.1	200.015.012	PR 3 NbV	48,0		

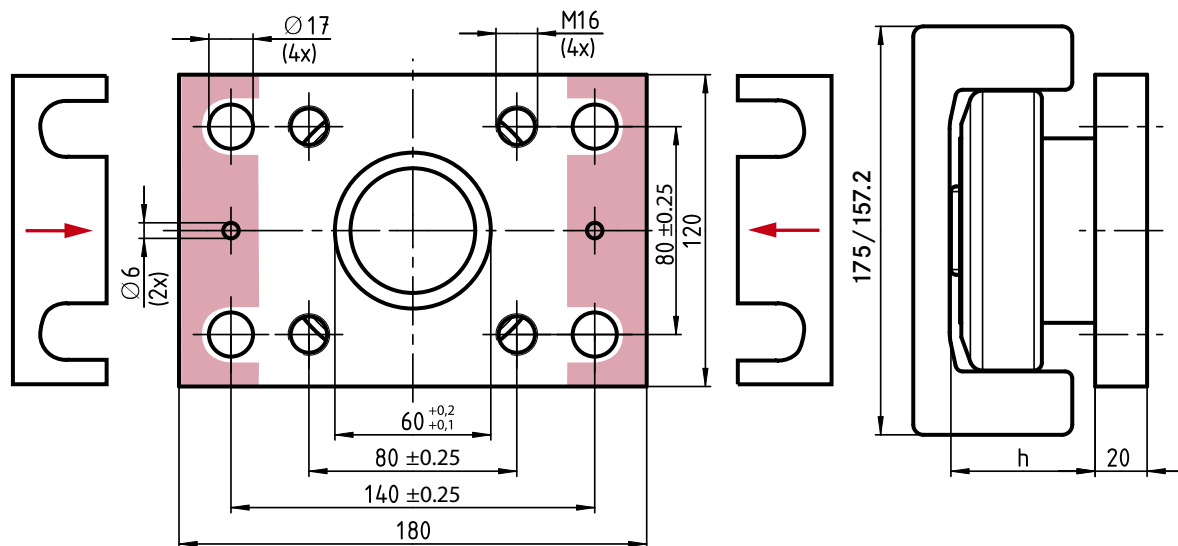
WINKEL-Rollen | WINKEL Bearings



AP 4

Artikel-Nr. 212.007.001

Article no.



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers
AP 4	2.061 + AP 4	205.108.000	Standard 4 NbV	51,5	2,65 kg	DS-4-0,5 DS-4-1,0 238.023.000 238.023.001
	4.061 + AP 4	200.055.000	Standard 4 NbV	55,0		
	4.061 HT + AP 4	200.008.009	Standard 4 NbV	55,0		
	4.461 + AP 4	201.038.001	Standard 4 NbV	55,0 - 57,0		
	4.0784 + AP 4	200.016.001	Standard 4 NbV	55,0		
	4.0784 P + AP 4	200.016.004	Standard 4 NbV	55,0		
	PR 2.061 + AP 4	205.075.003	PR 4 NbV	51,5		
	PR 4.061 + AP 4	200.104.001	PR 4 NbV	55,0		
	PR 4.461 + AP 4	200.118.001	PR 4 NbV	55,0 - 57,0		
	PR 4.0784 + AP 4	200.111.001	PR 4 NbV	55,0		
	PR 4.0784 P + AP 4	200.067.003	PR 4 NbV	55,0		
	2.062 + AP 4	205.066.004	Standard 5 NbV	51,5		
	4.062 + AP 4	200.076.000	Standard 5 NbV	56,0		
	4.062 HT + AP 4	200.009.024	Standard 5 NbV	56,0		
	4.462 + AP 4	201.039.001	Standard 5 NbV	56,0 - 60,0		
	4.079 + AP 4	201.015.000	Standard 5 NbV	59,5		
	4.079 P + AP 4	200.018.004	Standard 5 NbV	59,5		
	PR 2.062 + AP 4	205.076.001	PR 5 NbV	51,5		
	PR 4.062 + AP 4	200.105.001	PR 5 NbV	56,0		
	PR 4.462 + AP 4	200.119.001	PR 5 NbV	56,0 - 60,0		
	PR 4.079 + AP 4	200.112.001	PR 5 NbV	59,5		
	PR 4.079 P + AP 4	200.154.003	PR 5 NbV	59,5		

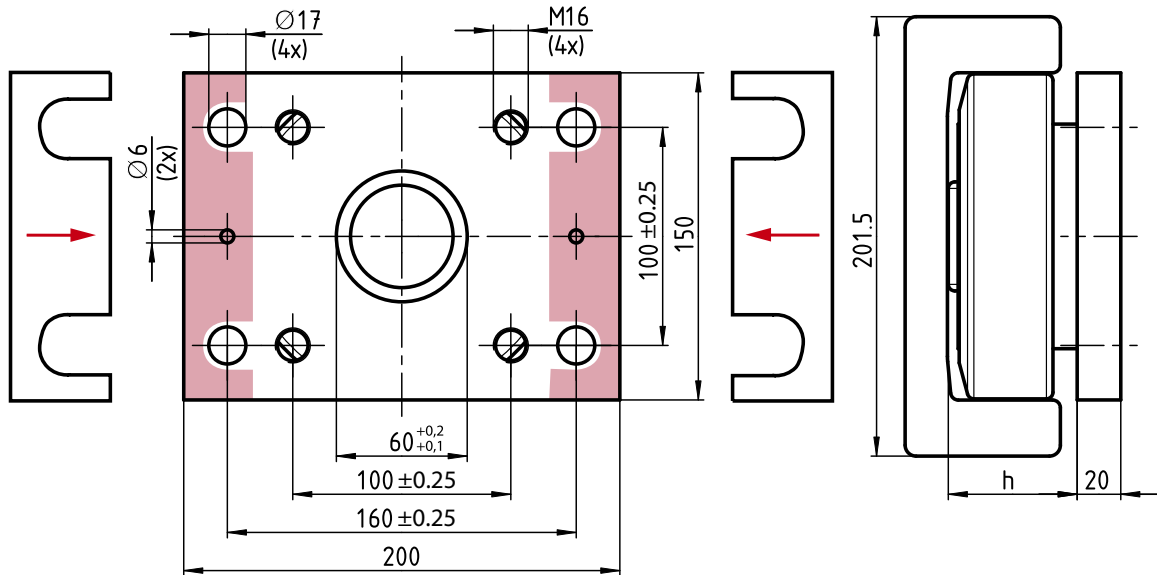
WINKEL-Rollen | WINKEL Bearings



AP 6

Artikel-Nr. 212.008.000

Article no.



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers
AP 6	2.063 + AP 6	205.067.002	Standard 6 NbV	54,0	4,0 kg	DS-6-0,5 DS-6-1,0 238.024.000 238.024.001
	4.063 + AP 6	200.056.000	Standard 6 NbV	58,5		
	4.063 HT + AP 6	200.010.036	Standard 6 NbV	58,5		
	4.463 + AP 6	201.040.001	Standard 6 NbV	58,5 - 62,5		
	4.080 + AP 6	200.019.003	Standard 6 NbV	69,0		
	4.080 P + AP 6	201.016.000	Standard 6 NbV	62,0		
	PR 2.063 + AP 6	205.077.001	PR 6 NbV	54,0		
	PR 4.063 + AP 6	200.106.002	PR 6 NbV	58,5		
	PR 4.463 + AP 6	200.120.001	PR 6 NbV	58,5 - 62,5		
	PR 4.080 + AP 6	200.113.001	PR 6 NbV	69,0		
	PR 4.080 P + AP 6	200.155.001	PR 6 NbV	62,0		



Anschraubplatten rechteckig mit stirnseitiger Nachschmierung für WINKEL-Rollen und Radiallager

WINKEL-Rollen mit Anschraubplatten sind fertige Systemelemente für schraubbare Verbindungen zwischen Konstruktion und Führungsprofil.

- alle Anschraubplatten mit eingeschweißter WINKEL-Rolle
- axiale Justierung mit Distanzblech Typ DS-LUB
- alle Anschraubplatten in brüniertem Ausführung
- Material: S235 JR
- Lieferung inkl. 1 Schmiernippel M6 x 1, O-Ring sowie 2 Distanzbleche 0,5 mm

Sonderausführungen auf Anfrage.

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

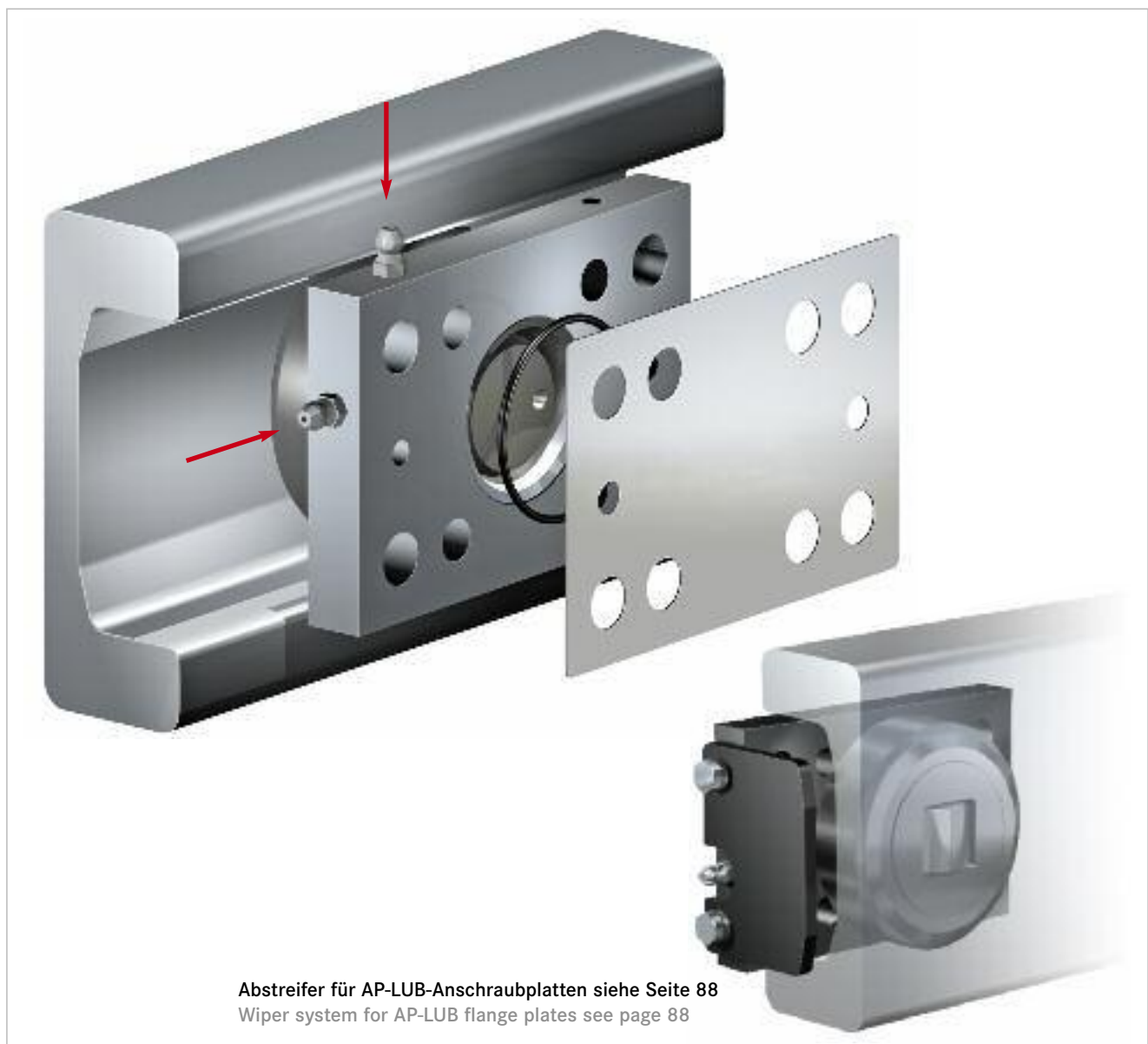
Flange plates rectangular with lubrication access from face side for WINKEL Bearings and Radial Bearings

WINKEL flange plates in combination with WINKEL Bearings are suitable for screw joints between construction and guide profile.

- all flange plates are welded with WINKEL Bearings
- axial adjusting with washer type DS-LUB
- all flange plates in burnished version
- material: S235 JR
- will be delivered 1 pc. grease nipple M6 x 1, O-ring and 2 pcs. washers 0,5 mm

Special designs on request.

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

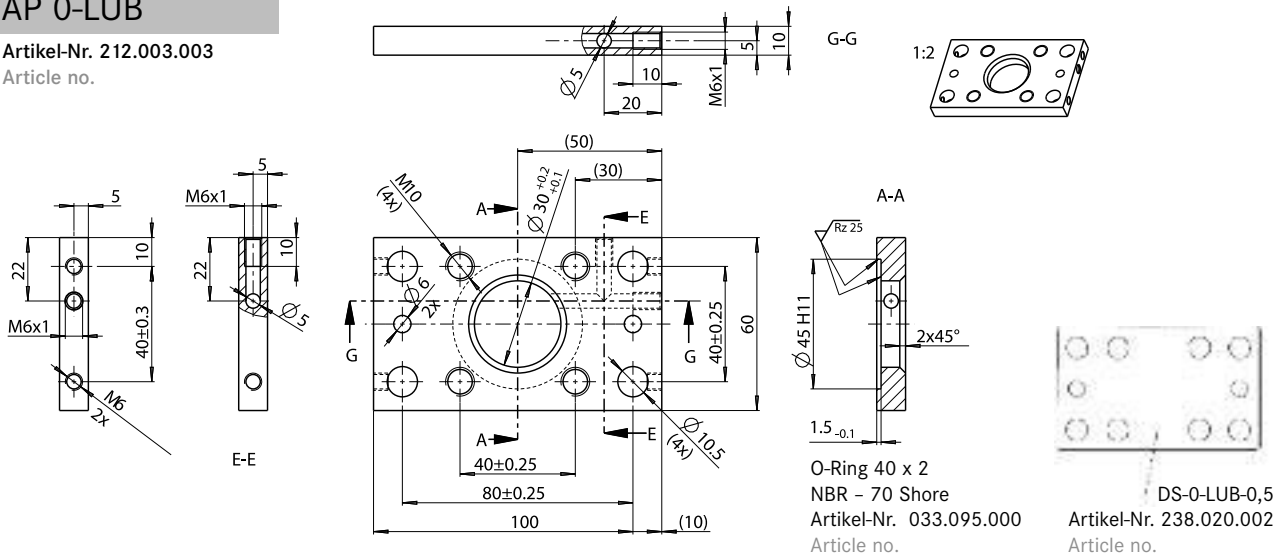


WINKEL-Rollen | WINKEL Bearings



AP 0-LUB

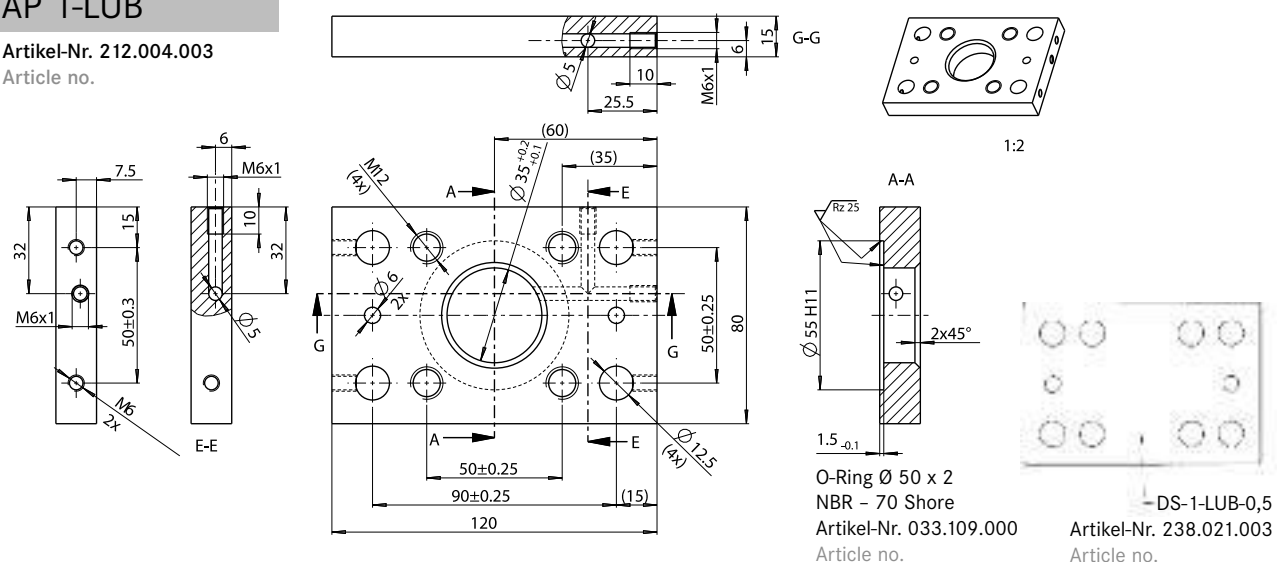
Artikel-Nr. 212.003.003
Article no.



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzbleche Washers
AP 0-LUB	2.054 + AP 0-LUB	205.061.015	Standard 0 NbV	26,5	0,35 kg	DS-0-LUB-0,5 238.020.002
	4.054 + AP 0-LUB	200.001.033	Standard 0 NbV	30,5		
	PR 2.054 + AP 0-LUB	205.071.006	PR 0 NbV	26,5		
	PR 4.054 + AP 0-LUB	200.100.013	PR 0 NbV	30,5		

AP 1-LUB

Artikel-Nr. 212.004.003
Article no.



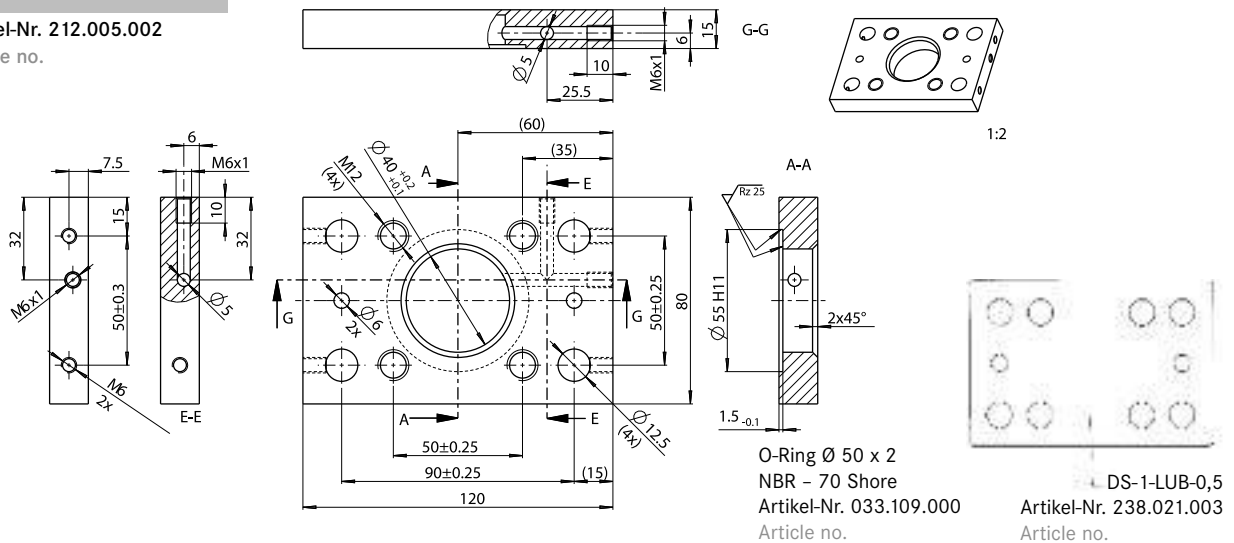
Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzbleche Washers
AP 1-LUB	2.055 + AP 1-LUB	205.062.015	Standard 1 NbV	34,0	0,90 kg	DS-1-LUB-0,5 238.021.003
	4.055 + AP 1-LUB	200.002.040	Standard 1 NbV	36,0		
	PR 2.055 + AP 1-LUB	205.072.004	PR 1 NbV	34,0		
	PR 4.055 + AP 1-LUB	200.101.006	PR 1 NbV	36,0		

WINKEL-Rollen | WINKEL Bearings



AP 2-LUB

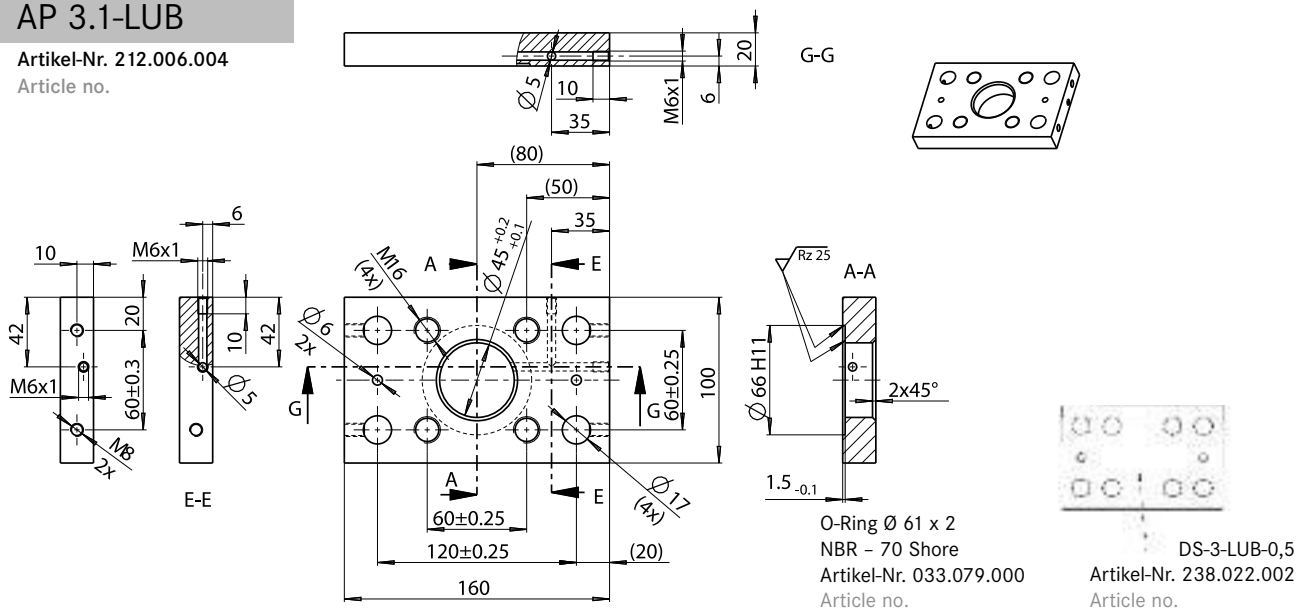
Artikel-Nr. 212.005.002
Article no.



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzbleche Washers
AP 2-LUB	2.056 + AP 2-LUB	205.063.007	Standard 2 NbV	34,0	0,85 kg	DS-1-LUB-0,5 238.021.003
	4.056 + AP 2-LUB	200.003.027	Standard 2 NbV	36,5		
	PR 2.056 + AP 2-LUB	205.073.005	PR 2 NbV	34,0		
	PR 4.056 + AP 2-LUB	200.102.001	PR 2 NbV	36,5		

AP 3.1-LUB

Artikel-Nr. 212.006.004
Article no.



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzbleche Washers
AP 3.1-LUB	2.058 + AP 3.1-LUB	205.064.010	Standard 3 NbV	41,0	2,35 kg	DS-3-LUB-0,5 238.022.002
	4.058 + AP 3.1-LUB	200.005.025	Standard 3 NbV	44,0		
	PR 2.058 + AP 3.1-LUB	205.074.005	PR 3 NbV	41,0		
	PR 4.058 + AP 3.1-LUB	200.103.002	PR 3 NbV	44,0		



Abstreifsystem für Anschraubplatte AP-LUB

Optimaler Schutz für WINKEL-Rollen und Profile. Abstreifsystem verhindert Eindringen von Schmutz und Gegenständen zwischen Rolle und Profil und schützt somit das Führungssystem vor Beschädigungen.

- Passend für Anschraubplatten AP-LUB mit nachschmierbaren WINKEL-Rollen
- Lieferung inkl. Befestigungsschrauben
- In X- und Y-Richtungen einstellbar
- Abmessungen abgestimmt auf das jeweilige WINKEL U-Profil.
- Werkstoff: POLYAMID

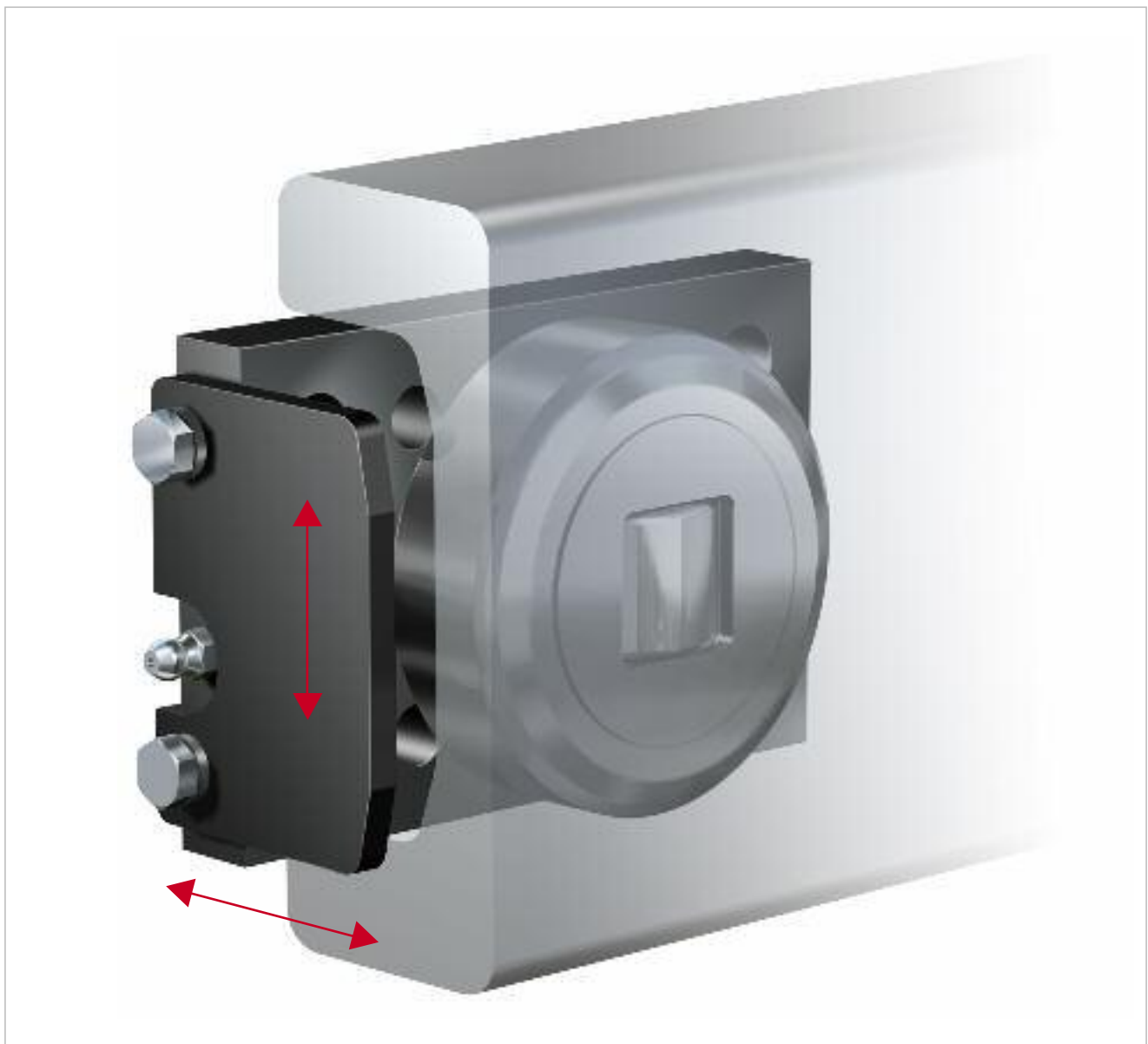
Wiper system for flange plate AP-LUB

Best protection for WINKEL Bearings and profiles. The wiper system prevent contamination of dust and debris between bearing and rail.

- Suitable for flange plate AP-LUB with relubricatable WINKEL Bearings
- Fastening screws included
- Adjustable in X and Y direction
- Dimensions suitable for the respective WINKEL U profile
- Material: POLYAMIDE

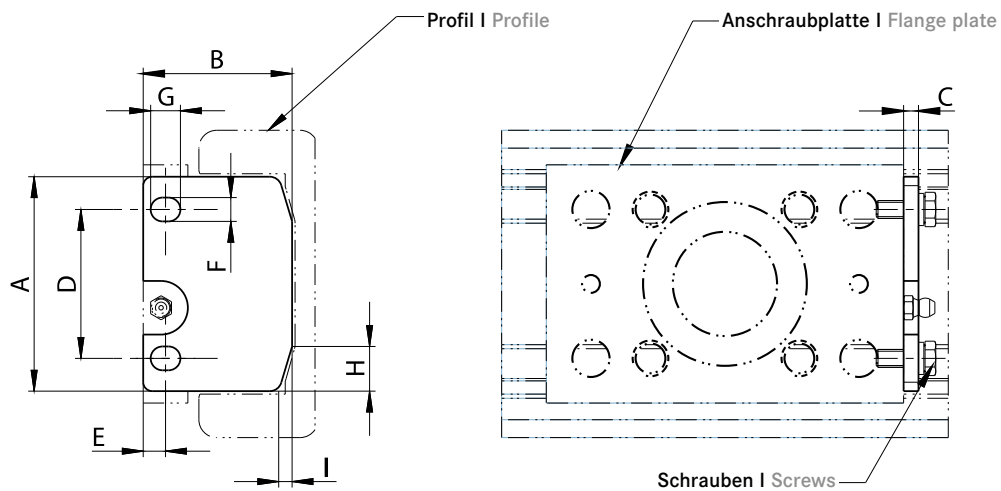
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CAD download in 2D/3D at www.winkel.de





Abstreifer | Wiper



Abstreifer für Standardprofile

Wiper for Standard profiles

Typ Type	Artikelnummer Article no.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	Anschraubplatte Flange plate	Profil Profile	Schrauben Screws
AS 4.054-LUB	212.510.000	61	40,0	5	38	7,5	7	10	14	3	AP 0-LUB	Std 0 NbV	2x M6 x 16-DIN 603
AS 4.055-LUB	212.510.001	69	50,0	5	50	7,5	8	10	14	5	AP 1-LUB	Std 1 NbV	2x M6 x 16-DIN 933
AS 4.056-LUB	212.510.002	77	50,5	5	50	7,5	8	10	14	5	AP 2-LUB	Std 2 NbV	2x M6 x 16-DIN 933
AS 4.058-LUB	212.510.003	88	63,0	5	60	10	10	15	14	5	AP 3.1-LUB	Std 3 NbV	2x M8 x 16-DIN 933
AS 4.061-LUB	212.510.004	105	73,0	5	80	10	12	15	14	5	AP 4-LUB	Std 4 NbV	2x M8 x 16-DIN 933
AS 4.062-LUB	212.510.005	120	74,0	5	80	10	12	15	14	5	AP 4-LUB	Std 5 NbV	2x M8 x 16-DIN 933
AS 4.063-LUB	212.510.006	146	76,5	5	100	10	12	15	19	5	AP 6-LUB	Std 6 NbV	2x M8 x 16-DIN 933

Abstreifer für Präzisionsprofile

Wiper for Precision profiles

Typ Type	Artikelnummer Article no.	A [mm]	B [mm]	C [mm]	D [mm]	E [mm]	F [mm]	G [mm]	H [mm]	I [mm]	Anschraubplatte Flange plate	Profil Profile	Schrauben Screws
AS PR 4.054-LUB	212.511.000	63	40,0	5	38	7,5	7	10	15	4	AP 0-LUB	PR 0 NbV	2x M6 x 16-DIN 603
AS PR 4.055-LUB	212.511.001	72	50,0	5	50	7,5	8	10	15	4,5	AP 1-LUB	PR 1 NbV	2x M6 x 16-DIN 933
AS PR 4.056-LUB	212.511.002	80	50,5	5	50	7,5	8	10	15	7	AP 2-LUB	PR 2 NbV	2x M6 x 16-DIN 933
AS PR 4.058-LUB	212.511.003	91	63,0	5	60	10	10	15	15	7	AP 3.1-LUB	PR 3 NbV	2x M8 x 16-DIN 933
AS PR 4.061-LUB	212.511.004	108	73,0	5	80	10	12	15	15	7	AP 4-LUB	PR 4 NbV	2x M8 x 16-DIN 933
AS PR 4.062-LUB	212.511.005	124	74,0	5	80	10	12	15	14	7	AP 4-LUB	PR 5 NbV	2x M8 x 16-DIN 933
AS PR 4.063-LUB	212.511.006	150	76,5	5	100	10	12	15	19	7	AP 6-LUB	PR 6 NbV	2x M8 x 16-DIN 933



Anschraubplatten quadratisch für WINKEL-Rollen und Radiallager

WINKEL-Rollen mit Anschraubplatten sind fertige Systemelemente für schraubbare Verbindungen zwischen Konstruktion und Führungsprofil.

- alle Anschraubplatten mit eingeschweißter WINKEL-Rolle
- axiale Justierung mit Distanzsteckbleche Typ DS
- alle Anschraubplatten in brünierten Ausführung
- Material: S235 JR

Sonderausführungen auf Anfrage.

Flange plates square for WINKEL Bearings and Radial Bearings

WINKEL flange plates in combination with WINKEL Bearings are suitable for screw joints between construction and guide profile.

- all flange plates are welded with WINKEL Bearings
- axial adjusting with washers type DS
- all flange plates in burnished version
- material S235 JR

Special designs on request.

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

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



Axiale Justierung über Steckbleche

Adjustment of bearings with screw-axial adjustment of plug trays

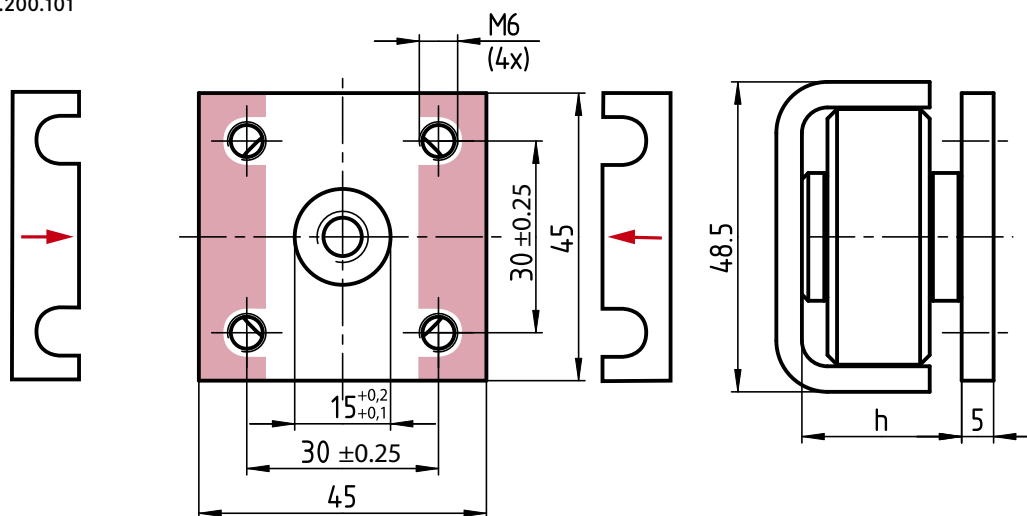


WINKEL-Rollen | WINKEL Bearings



AP A-Q

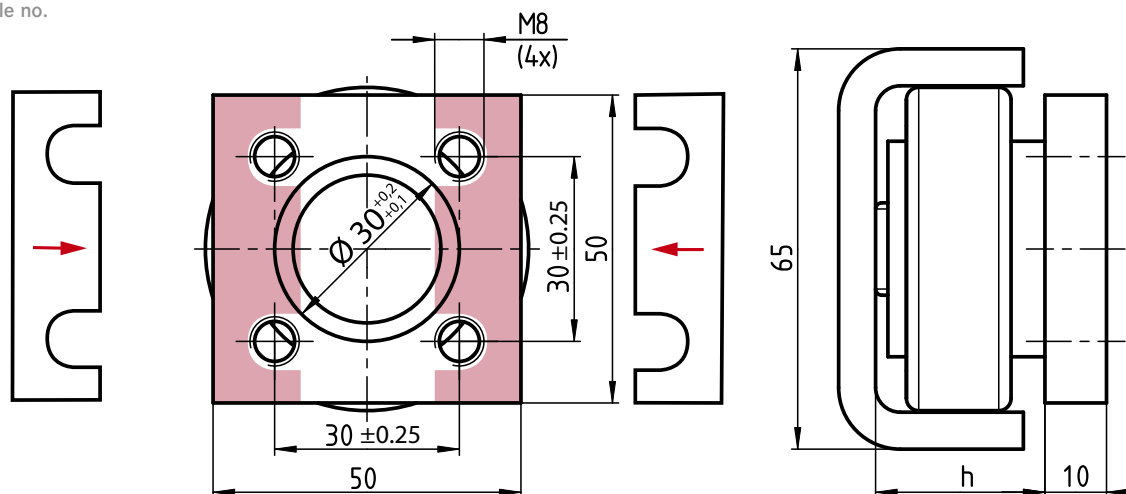
Artikel-Nr. 212.200.101
Article no.



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers	
AP A-Q	4.052 P + AP A-Q	201.032.003	Standard A	25,0	0,10 kg	DS-A-0,5 238.026.000	DS-A-1,0 238.026.001

AP S-Q

Artikel-Nr. 212.200.102
Article no.



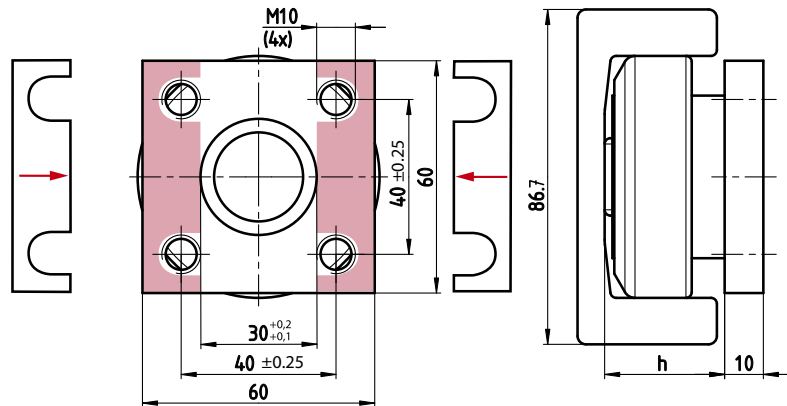
Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers	
AP S-Q	4.053 + AP S-Q	200.071.001	Standard S	27,0	0,20 kg	DS-S-0,5 238.025.000	DS-S-1,0 238.025.001
	4.053 HT + AP S-Q	200.024.019	Standard S	27,0			

WINKEL-Rollen | WINKEL Bearings



AP 0-Q

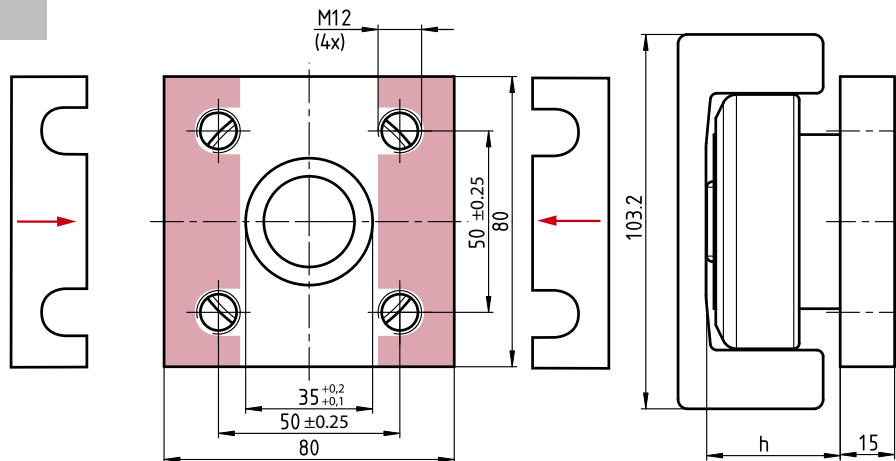
Artikel-Nr. 212.200.010
Article no.



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers
AP 0-Q	2.054 + AP 0-Q	205.061.004	Standard 0 NbV	26,5	0,28 kg	DS-0-0,5 238.020.000 DS-0-1,0 238.020.001
	4.054 + AP 0-Q	200.051.003	Standard 0 NbV	30,5		
	4.054 HT + AP 0-Q	200.001.022	Standard 0 NbV	30,5		
	4.454 + AP 0-Q	201.031.002	Standard 0 NbV	30,5 - 32,0		
	4.072 + AP 0-Q	201.011.002	Standard 0 NbV	33,0		
	4.072 P + AP 0-Q	200.149.001	Standard 0 NbV	33,0		
	PR 2.054 + AP 0-Q	205.071.003	PR 0 NbV	26,5		
	PR 4.054 + AP 0-Q	200.100.003	PR 0 NbV	30,5		
	PR 4.454 + AP 0-Q	200.114.002	PR 0 NbV	30,5 - 32,0		
	PR 4.072 + AP 0-Q	200.107.002	PR 0 NbV	33,0		
	PR 4.072 P + AP 0-Q	200.011.007	PR 0 NbV	33,0		

AP 1-Q

Artikel-Nr. 212.200.011
Article no.



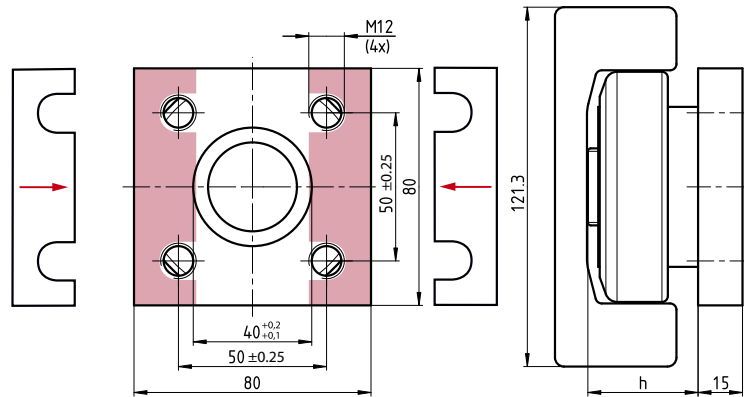
Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers
AP 1-Q	2.055 + AP 1-Q	205.062.004	Standard 1 NbV	34,0	0,75 kg	DS-1-0,5 238.021.000 DS-1-1,0 238.021.001
	4.055 + AP 1-Q	200.052.001	Standard 1 NbV	36,0		
	4.055 HT + AP 1-Q	200.002.022	Standard 1 NbV	36,0		
	4.455 + AP 1-Q	201.032.002	Standard 1 NbV	36,0 - 37,5		
	4.073 + AP 1-Q	201.012.000	Standard 1 NbV	40,0		
	4.073 P + AP 1-Q	200.012.006	Standard 1 NbV	40,0		
	PR 2.055 + AP 1-Q	205.072.002	PR 1 NbV	34,0		
	PR 4.055 + AP 1-Q	200.101.003	PR 1 NbV	36,0		
	PR 4.455 + AP 1-Q	200.115.002	PR 1 NbV	36,0 - 37,5		
	PR 4.073 + AP 1-Q	200.108.002	PR 1 NbV	40,0		
	PR 4.073 P + AP 1-Q	200.014.003	PR 1 NbV	40,0		

WINKEL-Rollen | WINKEL Bearings



AP 2-Q

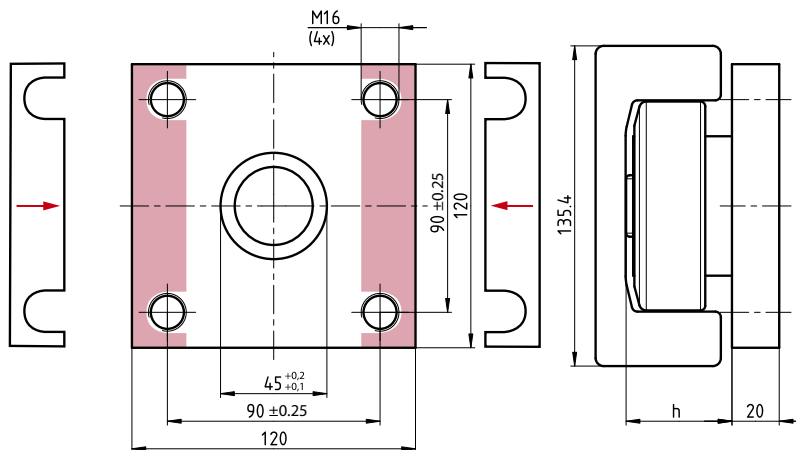
Artikel-Nr. 212.200.012
Article no.



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers
AP 2-Q	2.056 + AP 2-Q	205.107.001	Standard 2 NbV	34,0	0,75 kg	DS-2-0,5 DS-2-1,0 238.021.000 238.021.001
	4.056 + AP 2-Q	200.053.001	Standard 2 NbV	36,5		
	4.056 HT + AP 2-Q	200.003.022	Standard 2 NbV	36,5		
	4.456 + AP 2-Q	201.033.003	Standard 2 NbV	37,0 - 38,5		
	4.074 + AP 2-Q	201.013.000	Standard 2 NbV	39,5		
	4.074 P + AP 2-Q	200.013.009	Standard 2 NbV	39,5		
	PR 2.056 + AP 2-Q	205.073.003	PR 2 NbV	34,0		
	PR 4.056 + AP 2-Q	200.066.001	PR 2 NbV	36,5		
	PR 4.456 + AP 2-Q	200.116.002	PR 2 NbV	37,0 - 38,5		
	PR 4.074 + AP 2-Q	200.109.003	PR 2 NbV	39,5		
	PR 4.074 P + AP 2-Q	200.013.035	PR 2 NbV	39,5		

AP 3-Q

Artikel-Nr. 212.006.000
Article no.



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers
AP 3-Q	2.058 + AP 3-Q	205.064.003	Standard 3 NbV	41,0	1,85 kg	DS-3-0,5 DS-3-1,0 238.022.000 238.022.001
	4.058 + AP 3-Q	200.054.000	Standard 3 NbV	44,0		
	4.058 HT + AP 3-Q	200.005.018	Standard 3 NbV	44,0		
	4.458 + AP 3-Q	201.035.003	Standard 3 NbV	44,0 - 45,5		
	4.076 + AP 3-Q	201.017.000	Standard 3 NbV	48,0		
	4.076 P + AP 3-Q	200.015.010	Standard 3 NbV	48,0		
	PR 2.058 + AP 3-Q	205.074.001	PR 3 NbV	41,0		
	PR 4.058 + AP 3-Q	200.140.000	PR 3 NbV	44,0		
	PR 4.458 + AP 3-Q	200.117.003	PR 3 NbV	44,0 - 45,5		
	PR 4.076 + AP 3-Q	200.110.002	PR 3 NbV	48,0		
	PR 4.076 P + AP 3-Q	200.015.011	PR 3 NbV	48,0		

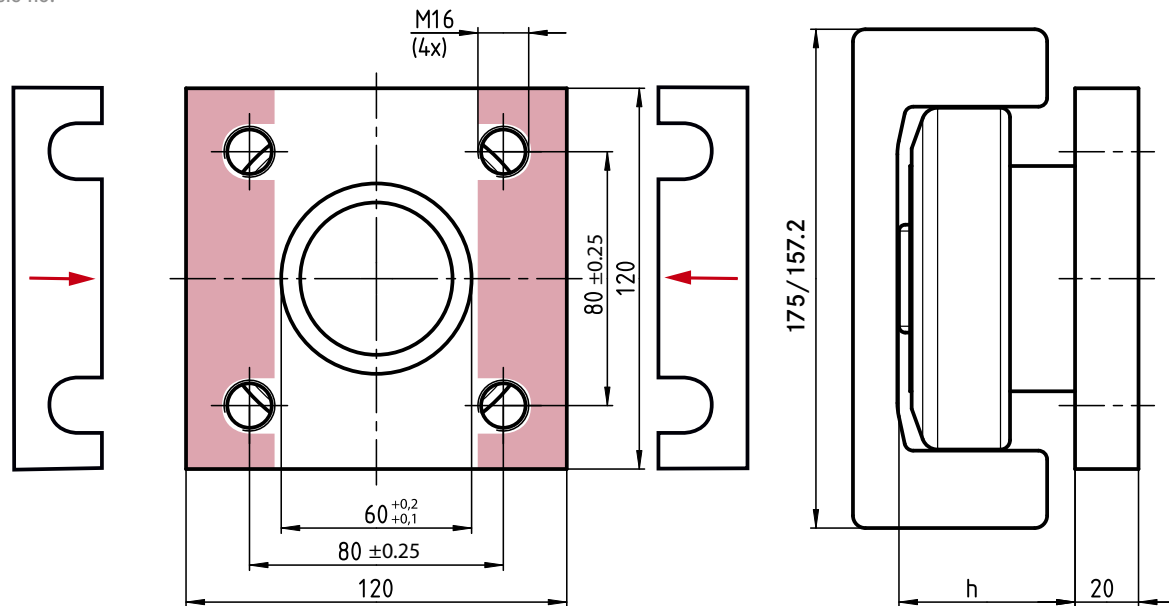
WINKEL-Rollen | WINKEL Bearings



AP 4-Q

Artikel-Nr. 212.200.014

Article no.



Type	WINKEL-Rolle mit AP	Artikel-Nr.	Profil	h	Gewicht AP	Distanzsteckbleche
Type	WINKEL Bearing with AP	Article no.	Profile	[mm]	Weight AP	Washers
AP 4-Q	2.061 + AP 4-Q	205.108.001	Standard 4 NbV	51,5	2,2 kg	DS-4-0,5 DS-4-1,0 238.023.000 238.023.001
	4.061 + AP 4-Q	200.055.001	Standard 4 NbV	55,0		
	4.061 HT + AP 4-Q	200.008.010	Standard 4 NbV	55,0		
	4.461 + AP 4-Q	201.038.002	Standard 4 NbV	55,0 - 57,0		
	4.0784 + AP 4-Q	200.016.003	Standard 4 NbV	55,0		
	4.0784 P + AP 4-Q	200.016.011	Standard 4 NbV	55,0		
	PR 2.061 + AP 4-Q	205.075.002	PR 4 NbV	51,5		
	PR 4.061 + AP 4-Q	200.104.002	PR 4 NbV	55,0		
	PR 4.461 + AP 4-Q	200.118.002	PR 4 NbV	55,0 - 57,0		
	PR 4.0784 + AP 4-Q	200.111.002	PR 4 NbV	55,0		
	PR 4.0784 P + AP 4-Q	200.067.002	PR 4 NbV	55,0		
	2.062 + AP 4-Q	205.066.002	Standard 5 NbV	51,5		
	4.062 + AP 4-Q	200.076.001	Standard 5 NbV	56,0		
	4.062 HT + AP 4-Q	200.009.025	Standard 5 NbV	56,0		
	4.462 + AP 4-Q	201.039.002	Standard 5 NbV	56,0 - 60,0		
	4.079 + AP 4-Q	201.015.001	Standard 5 NbV	59,5		
	4.079 P + AP 4-Q	200.018.005	Standard 5 NbV	59,5		
	PR 2.062 + AP 4-Q	205.076.002	PR 5 NbV	51,5		
	PR 4.062 + AP 4-Q	200.105.002	PR 5 NbV	56,0		
	PR 4.462 + AP 4-Q	200.119.002	PR 5 NbV	56,0 - 60,0		
	PR 4.079 + AP 4-Q	200.112.002	PR 5 NbV	59,5		
	PR 4.079 P + AP 4-Q	200.154.002	PR 5 NbV	59,5		

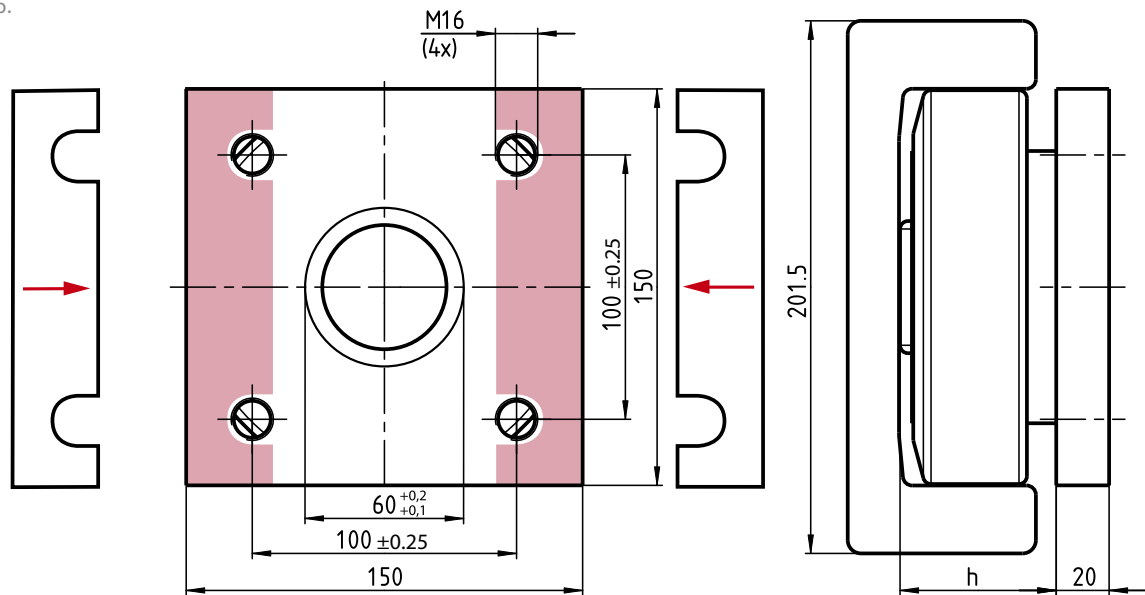
WINKEL-Rollen | WINKEL Bearings



AP 6-Q

Artikel-Nr. 212.200.016

Article no.



Type	WINKEL-Rolle mit AP	Artikel-Nr.	Profil	h	Gewicht AP	Distanzsteckbleche
Type	WINKEL Bearing with AP	Article no.	Profile	[mm]	Weight AP	Washers
AP 6-Q	2.063 + AP 6-Q	205.067.003	Standard 6 NbV	54,0	3,4 kg	DS-6-0,5 DS-6-1,0 238.024.000 238.024.001
	4.063 + AP 6-Q	200.056.001	Standard 6 NbV	58,5		
	4.063 HT + AP 6-Q	200.010.037	Standard 6 NbV	58,5		
	4.463 + AP 6-Q	201.040.002	Standard 6 NbV	58,5 - 62,5		
	4.080 + AP 6-Q	200.019.004	Standard 6 NbV	69,0		
	4.080 P + AP 6-Q	201.016.001	Standard 6 NbV	62,0		
	PR 2.063 + AP 6-Q	205.077.002	PR 6 NbV	54,0		
	PR 4.063 + AP 6-Q	200.106.003	PR 6 NbV	58,5		
	PR 4.463 + AP 6-Q	200.120.002	PR 6 NbV	58,5 - 62,5		
	PR 4.080 + AP 6-Q	200.113.002	PR 6 NbV	69,0		
	PR 4.080 P + AP 6-Q	200.155.002	PR 6 NbV	62,0		



Anschraubplatten quadratisch für Jumbo-WINKEL-Rollen

WINKEL-Rollen mit Anschraubplatten sind fertige Systemelemente für schraubbare Verbindungen zwischen Konstruktion und Führungsprofil.

- alle Anschraubplatten mit eingeschweißter WINKEL-Rolle
- Axiale Justierung mit Distanzsteckbleche Typ DS
- alle Anschraubplatten in korrosionsgeschützter Ausführung
- Material: S235 JR

Sonderausführungen auf Anfrage.

Flange plates square for Jumbo WINKEL Bearings

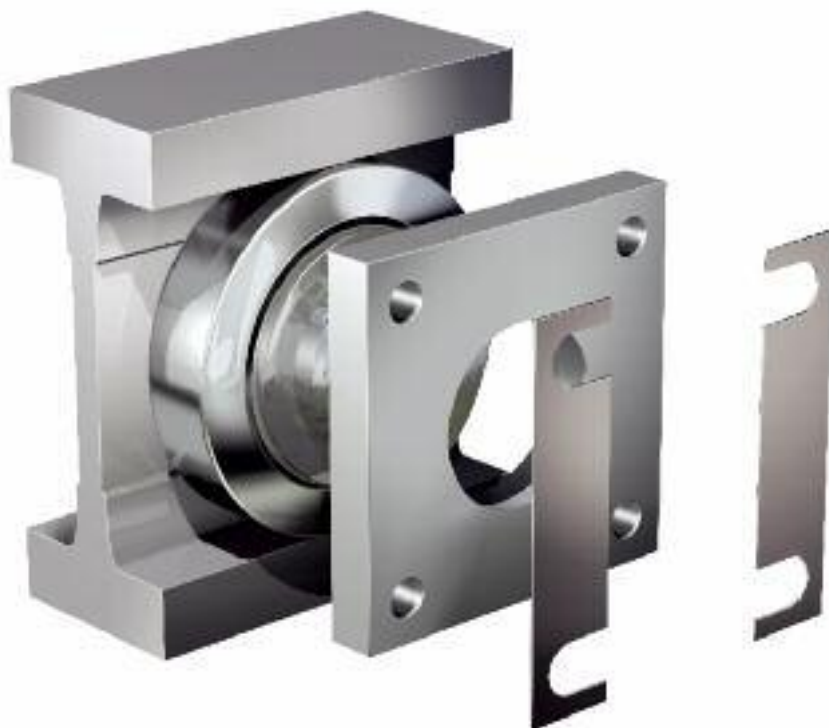
WINKEL flange plates in combination with WINKEL Bearings are suitable for screw joints between construction and guide profile.

- all flange plates are welded with WINKEL Bearings
- axial adjusting with washers type DS
- all flange plates in corrosion protected version
- material: S235 JR

Special designs on request.

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

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



Axiale Justierung über Steckbleche

Adjustment of bearings with screw-axial adjustment of plug trays



WINKEL Jumbo-Rolle Justierung der Axialrolle über Exzenter

WINKEL Jumbo Bearing. Axial bearing adjustable by eccentric

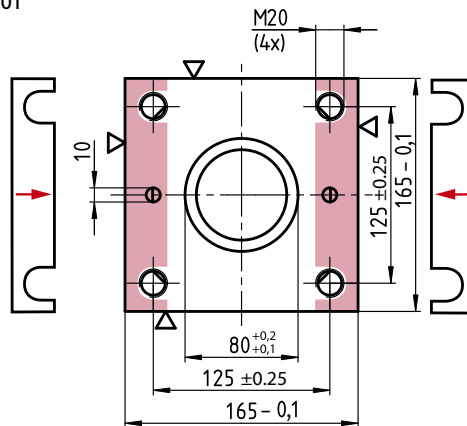


WINKEL-Rollen | WINKEL Bearings

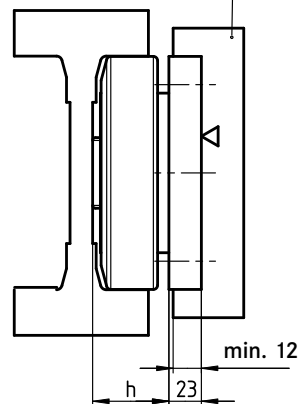


AP 89-Q

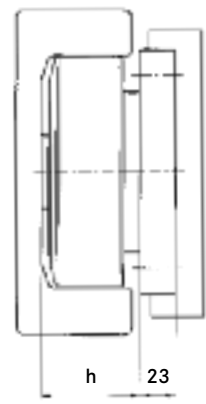
Artikel-Nr. 212.200.001
Article no.



empfohlene Befestigungsart
recommended assembly



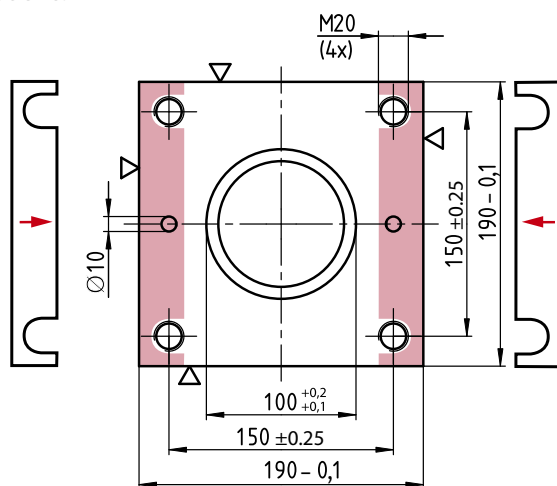
Std. / PR 7® NbV



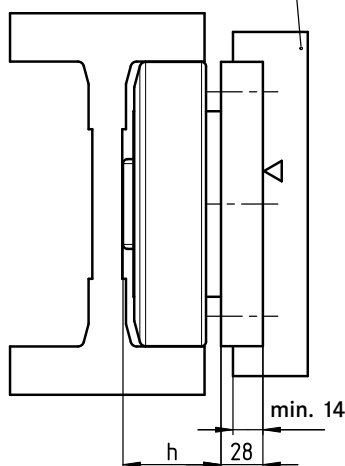
Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers	
AP 89-Q	2.064 + AP 89-Q	205.069.002	Standard 7® NbV	65	4,9 kg	DS-89-0,5 238.033.000	DS-89-1,0 238.033.001
	4.064 + AP 89-Q	200.026.002	Standard 7® NbV	72			
	4.464 + AP 89-Q	201.048.002	Standard 7® NbV	72-75			
	4.084 P + AP 89-Q	201.048.010	Standard 7® NbV	72			
	PR 2.064 + AP 89-Q	205.079.002	PR 7 NbV	65			
	PR 4.064 + AP 89-Q	200.124.002	PR 7 NbV	72			
	PR 4.464 + AP 89-Q	201.048.006	PR 7 NbV	72-75			
	PR 4.084 P + AP 89-Q	201.048.013	PR 7 NbV	72			
	4.089 + AP 89-Q	201.050.002	Standard 10	53-56			

AP 90-Q

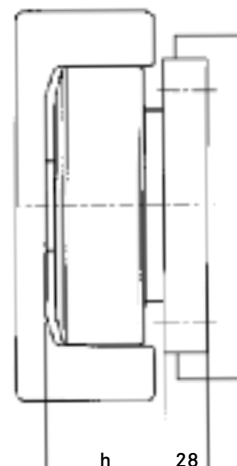
Artikel-Nr. 212.200.002
Article no.



empfohlene Befestigungsart
recommended assembly



Std. / PR 8 NbV



Std. 16

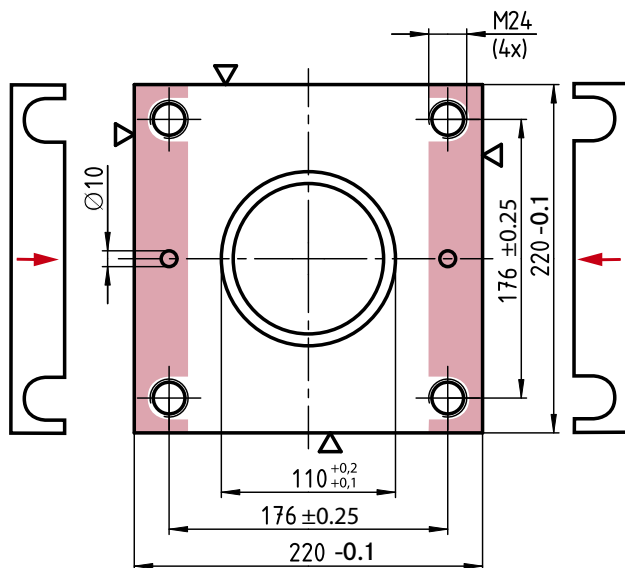
Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers	
AP 90-Q	4.085 + AP 90-Q	201.049.004	Standard 8 NbV	76,3-79,3	7,9 kg	DS-90-0,5 238.034.000	DS-90-1,0 238.034.001
	4.085 P + AP 90-Q	201.049.003	Standard 8 NbV	79,8			
	PR 4.085 + AP 90-Q	201.049.009	PR 8 NbV	76,3-79,3			
	PR 4.085 P + AP 90-Q	201.049.011	PR 8 NbV	79,8			
	4.090 + AP 90-Q	200.057.000	Standard 16	64,5-67,5			

WINKEL-Rollen | WINKEL Bearings

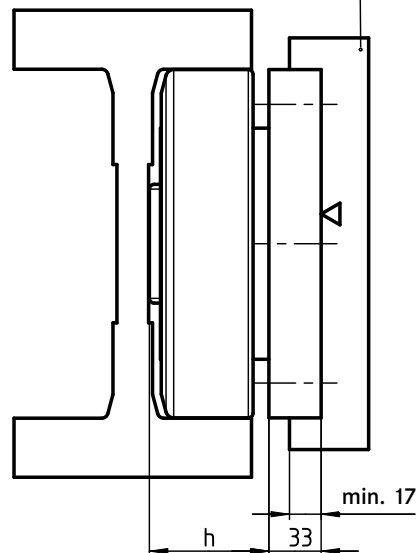


AP 91-Q

Artikel-Nr. 212.200.003
Article no.



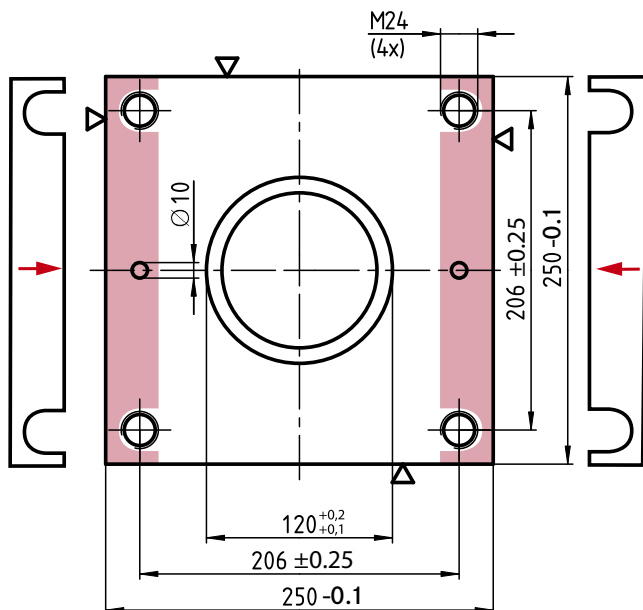
empfohlene Befestigungsart
recommended assembly



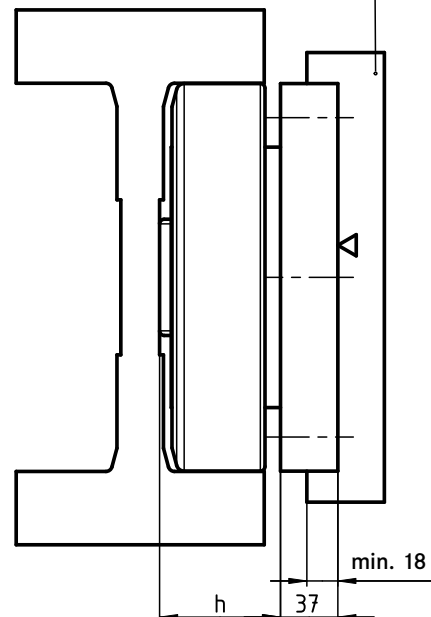
Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers	
AP 91-Q	4.091 + AP 91-Q	201.052.002	Standard 18	74,5-77,5	12,5 kg	DS-91-0,5 238.035.000	DS-91-1,0 238.035.001

AP 92-Q

Artikel-Nr. 212.200.004
Article no.



empfohlene Befestigungsart
recommended assembly



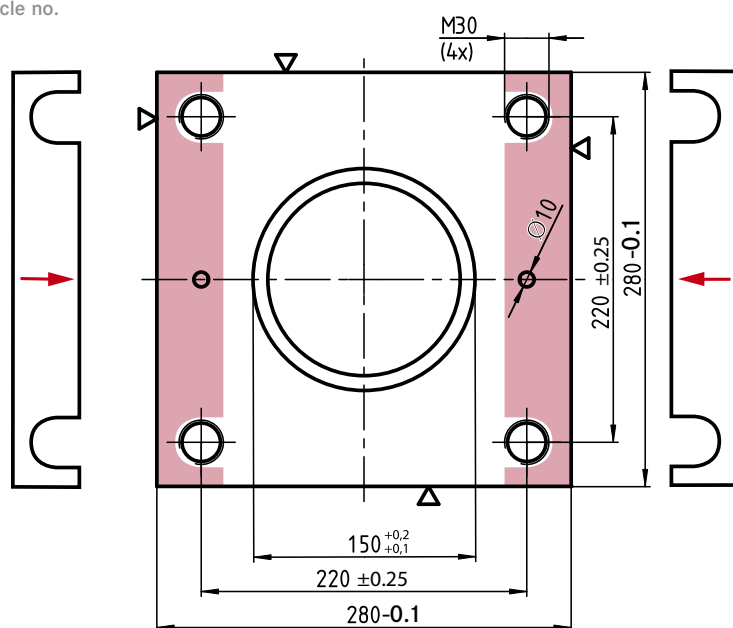
Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers	
AP 92-Q	4.092 + AP 92-Q	201.053.001	Standard 28	77-80	18,0 kg	DS-92-0,5 238.036.000	DS-92-1,0 238.036.001



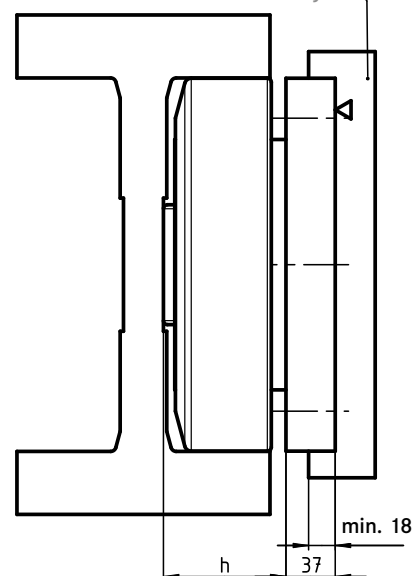
AP 93-Q

Artikel-Nr. 212.200.005

Article no.



empfohlene Befestigungsart
recommended assembly



Typ Type	WINKEL-Rolle mit AP WINKEL Bearing with AP	Artikel-Nr. Article no.	Profil Profile	h [mm]	Gewicht AP Weight AP	Distanzsteckbleche Washers
AP 93-Q	4.093 + AP 93 Q	201.054.001	Standard 36	89,5- 93,5	22,0 kg	DS-93-0,5
	4.094 + AP 93 Q	201.055.001	Standard 42	110,0 - 114,0		DS-93-1,0
			Standard 50			238.037.000 238.037.001

WINKEL-Rollen | WINKEL Bearings

WINKEL-Rolle in Edelstahlausführung

- Alle Rollen sind aus hochwertigem Edelstahl 1.4301 gefertigt
- Radial- und Axialgleitlager aus selbstschmierendem, hochabriebfestem OLIAMID
- Rollen für Einsatz unter Wasser auf Anfrage

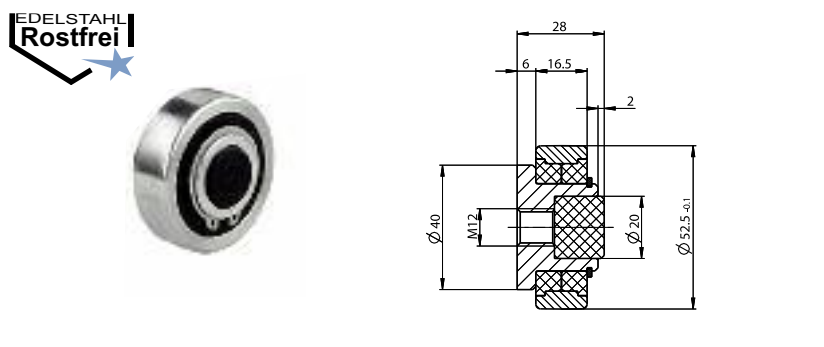
Stainless Steel WINKEL Bearing

- all bearings are made of UNS S30400 (USA), Grade 304S18 (UK), Z 6 CN 18.09 (France)
- radial and axial friction bearings are made of self-lubricating, highly abrasion-resistant OLIAMID
- bearings for application under water on request

4.053 INOX

Artikel-Nr. 200.024.015
Article no.

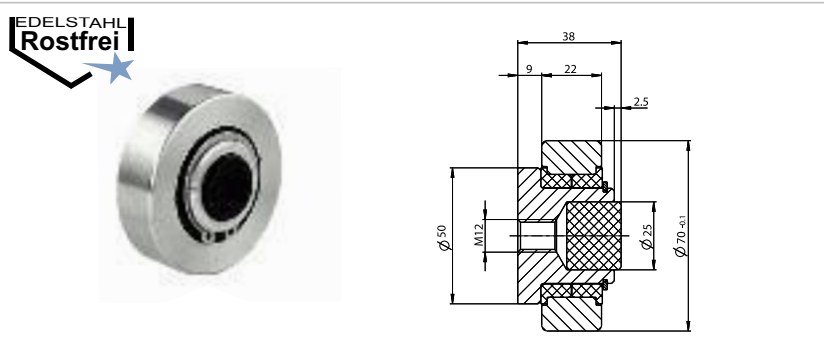
Gewicht Weight kg	0,24
F _r [kN]	3,5
F _a [kN]	2,0



4.055 INOX

Artikel-Nr. 200.002.029
Article no.

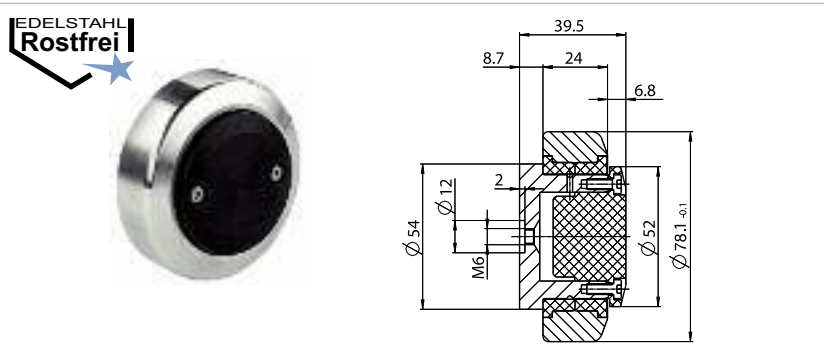
Gewicht Weight kg	0,65
F _r [kN]	6,0
F _a [kN]	3,0



4.074 INOX

Artikel-Nr. 200.013.003
Article no.

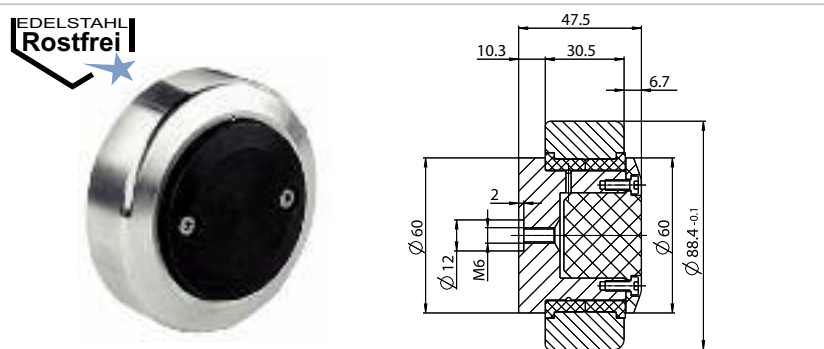
Gewicht Weight kg	0,76
F _r [kN]	7,2
F _a [kN]	4,0



4.076 INOX

Artikel-Nr. 200.015.040
Article no.

Gewicht Weight kg	1,40
F _r [kN]	10,6
F _a [kN]	8,9



WINKEL-Rollen | WINKEL Bearings



Anschraubplatten in Edelstahl

- Materialgüte 1.4301
- alle Anschraubplatten mit angeschweißter WINKEL-Rolle
- axiale Justierung mit Distanzsteckblechen Typ DS

Flange plates in stainless steel

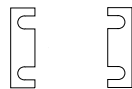
- flange plates made of UNS S30400 (USA), Grade 304S18 (UK), Z 6 CN 18.09 (France)
- all flange plates are welded with WINKEL Bearings
- axial adjusting with washers type DS

APS INOX

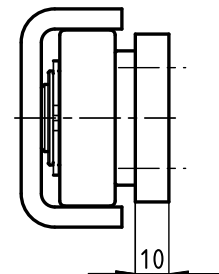
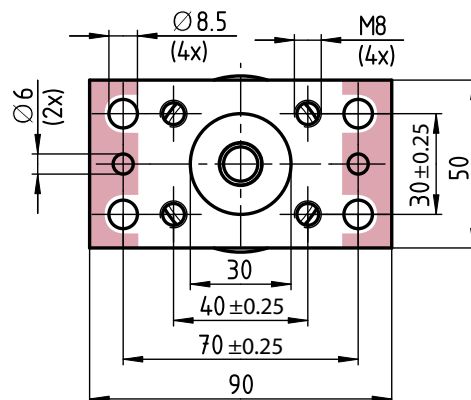
für I for 4.053 INOX

Artikel-Nr. 212.046.000
Article no.

WINKEL-Rolle mit AP WINKEL bearing with AP	Artikel-Nr. Article no.
4.053 INOX + APS INOX	200.024.016



Distanzsteckblech Washer	Artikel-Nr. Article no.
DS-S-0,5 INOX	238.025.003
DS-S-1,0 INOX	238.025.002

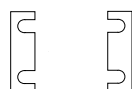


AP1 INOX

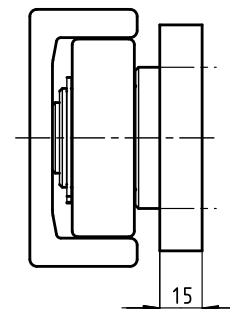
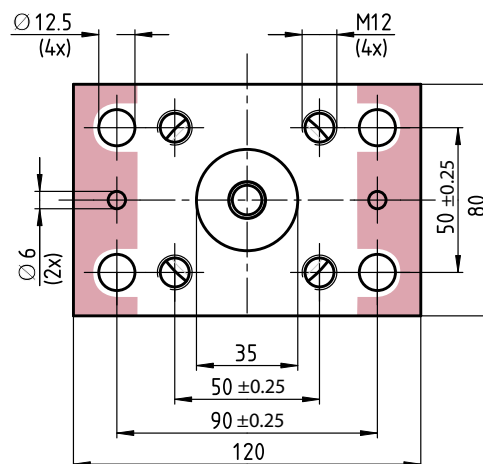
für I for 4.055 INOX + 4.074 INOX + 4.076 INOX

Artikel-Nr. 212.043.000
Article no.

WINKEL-Rolle mit AP WINKEL bearing with AP	Artikel-Nr. Article no.
4.055 INOX + AP1 INOX	200.002.030
4.074 INOX + AP1 INOX	200.013.020
4.076 INOX + AP1 INOX	200.015.041



Distanzsteckblech Washer	Artikel-Nr. Article no.
DS-1-0,5 INOX	238.106.000
DS-1-1,0 INOX	238.106.001



WINKEL-Rollen | WINKEL Bearings

WINKEL-Rolle in Edelstahlausführung

- Materialgüte 1.4301
- Mit kugellagerten Axial- und Radiallager
- Für höhere Verfahrensgeschwindigkeiten
- Lebensdauergeschmiert
- Weitere Baugrößen auf Anfrage

Stainless steel WINKEL Bearing

- flange plates made of UNS S30400 (USA), Grade 304S18 (UK), Z 6 CN 18.09 (France)
- with radial and axial ball bearings
- for high speed applications
- lubricated for life

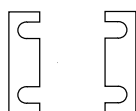


Abb. exemplarisch
Fig. exemplary

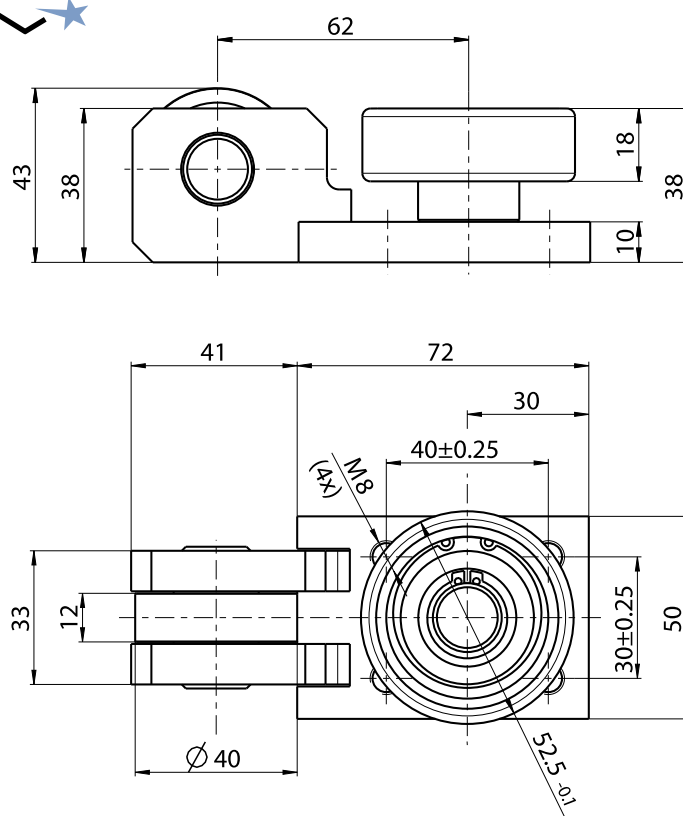
I 525 APS

Artikel-Nr. 200.230.000
Article no.

Gewicht Weight kg	0,97
F _R [kN]	3,5
F _A [kN]	2,0



Distanzsteckblech Washer	Artikel-Nr. Article no.
DS-S-0,5 INOX	238.025.003
DS-S-1,0 INOX	238.025.002



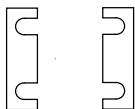
WINKEL-Rollen | WINKEL Bearings



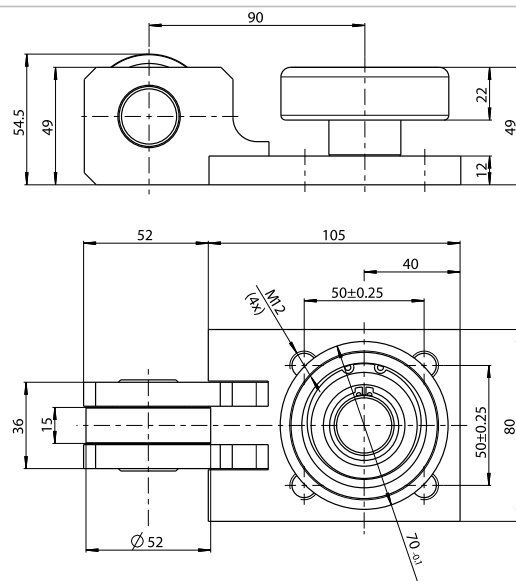
I 700 AP1

Artikel-Nr. 200.230.001
Article no.

Gewicht Weight kg	2,02
F _R [kN]	6,0
F _A [kN]	3,0



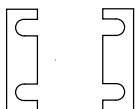
Distanzsteckblech Washer	Artikel-Nr. Article no.
DS-1-0,5 INOX	238.106.000
DS-1-1,0 INOX	238.106.001



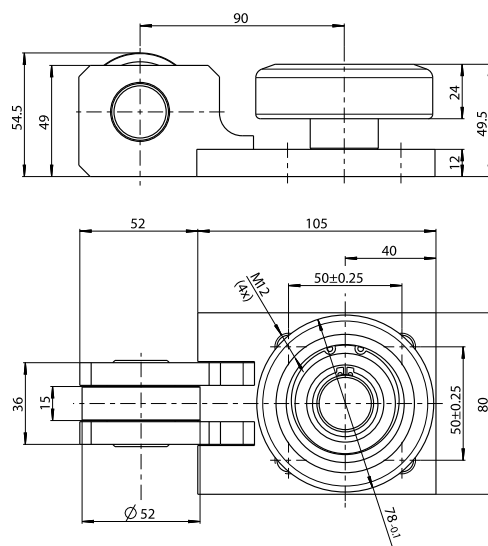
I 780 AP2

Artikel-Nr. 200.230.002
Article no.

Gewicht Weight kg	2,20
F _R [kN]	7,2
F _A [kN]	3,3



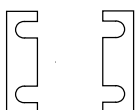
Distanzsteckblech Washer	Artikel-Nr. Article no.
DS-1-0,5 INOX	238.106.000
DS-1-1,0 INOX	238.106.001



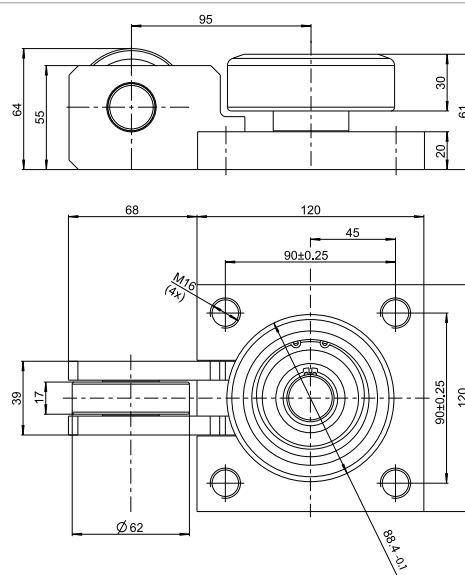
I 884 AP3

Artikel-Nr. 200.230.800
Article no.

Gewicht Weight kg	4,35
F _R [kN]	10,6
F _A [kN]	8,9



Distanzsteckblech Washer	Artikel-Nr. Article no.
DS-3-0,5 INOX	238.108.000
DS-3-1,0 INOX	238.108.001



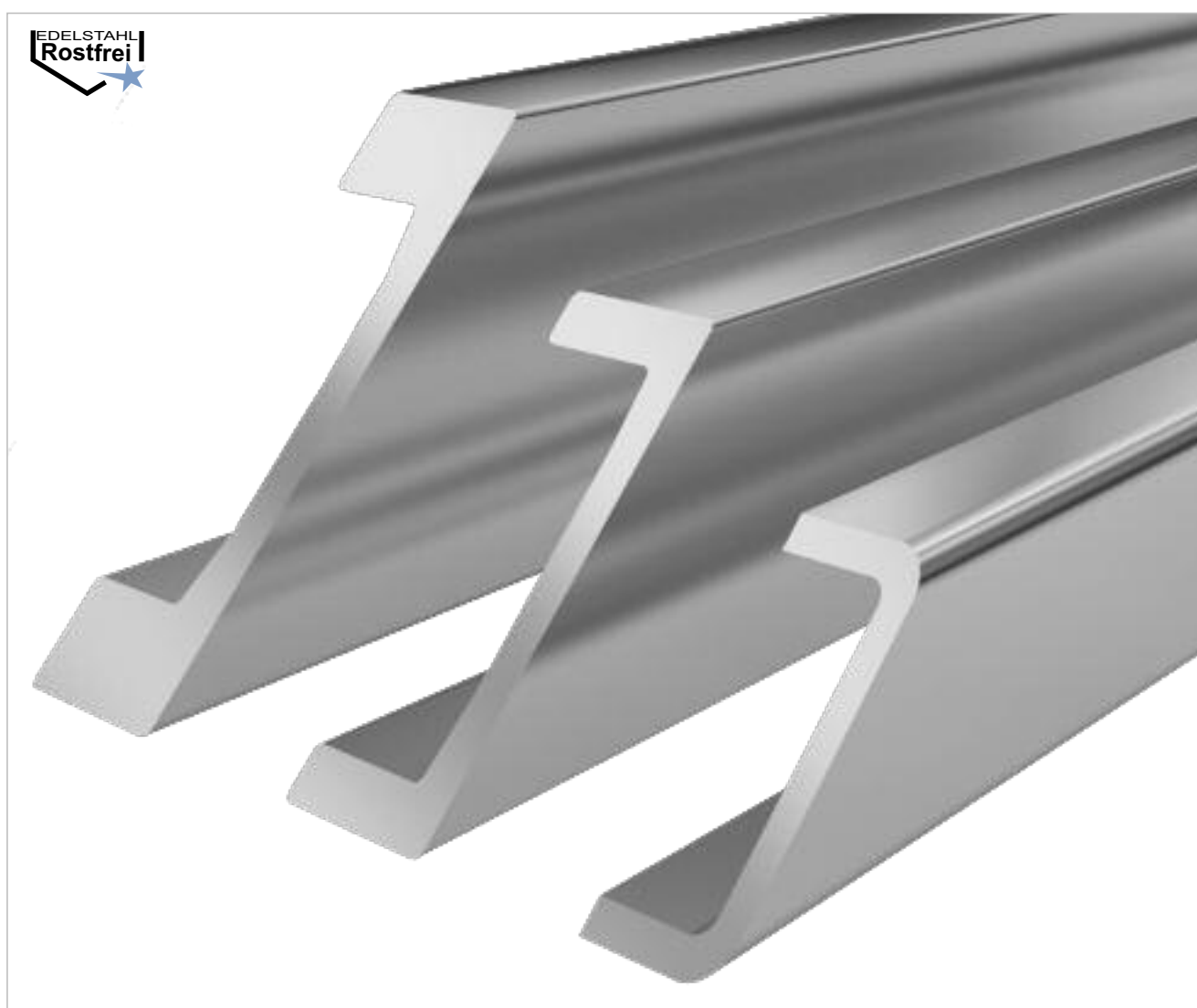


WINKEL-Edelstahlprofile

- Materialgüte 1.4301
- Profil korrosionsgeschützt
- Komplette Profilmontage nach Kundenzeichnung möglich

WINKEL profiles in stainless steel

- profiles made of UNS S30400 (USA), Grade 304S18 (UK), Z 6 CN 18.09 (France)
- profile corrosion protected
- machined profiles according to customer drawings on request

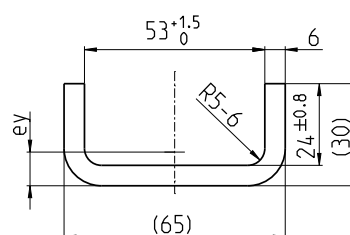


Standard S INOX

Artikel-Nr. 113.002.003
Article no.

m	5,0	kg/m
A	6,4	cm ²
I _x	5,0	cm ⁴
W _x	2,5	cm ³
I _y	35,4	cm ⁴
W _y	10,9	cm ³
e _y	1,0	cm

Ausführung: kaltgewalzt
Version: cold rolled



L_{max} = 12 m



WINKEL-Edelstahlprofile Typ L

- Materialgüte 1.4301
- Profil mit genauer Fertigungsqualität
- In lasergeschweißter Ausführung
- Profil edelstahlkugelgestrahlt
- Komplette Profildbearbeitung nach Kundenzeichnung möglich

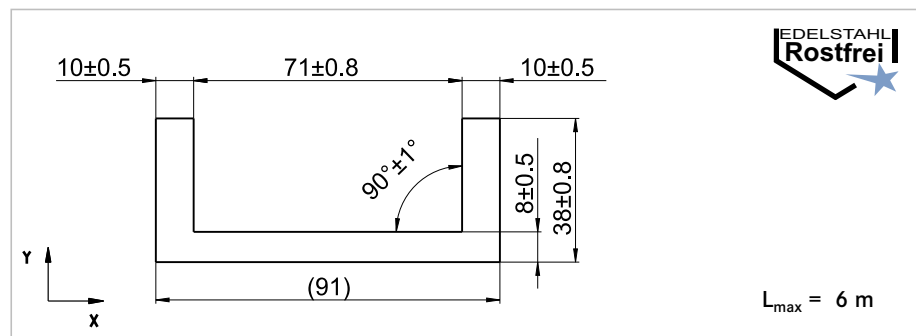
WINKEL profiles in stainless steel type L

- profiles made of UNS S30400 (USA), Grade 304S18 (UK), Z 6 CN 18.09 (France)
- profile with higher manufacturing precision
- profiles laser welded
- profile stainless steel shot peened
- machined profiles according to customer drawings on request

NEW Standard 1 INOX-L

Artikel-Nr. 113.011.020
Article no.

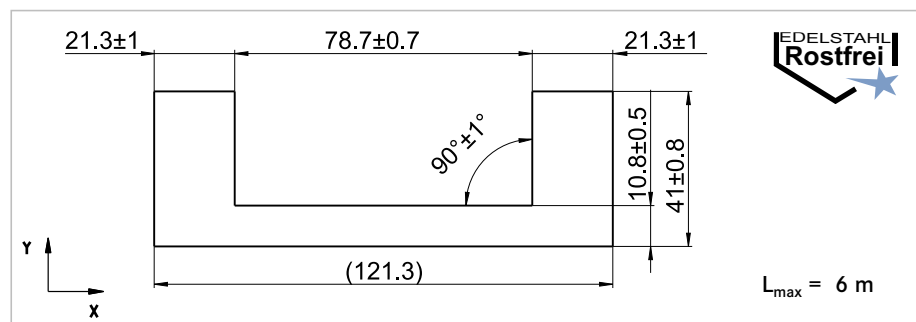
m	10,4	kg/m
A	13,3	cm ²
I _x	16,8	cm ⁴
W _x	6,6	cm ³
I _y	149,8	cm ⁴
W _y	32,8	cm ³
e _y	1,3	cm



NEW Standard 2 INOX-L

Artikel-Nr. 113.012.010
Article no.

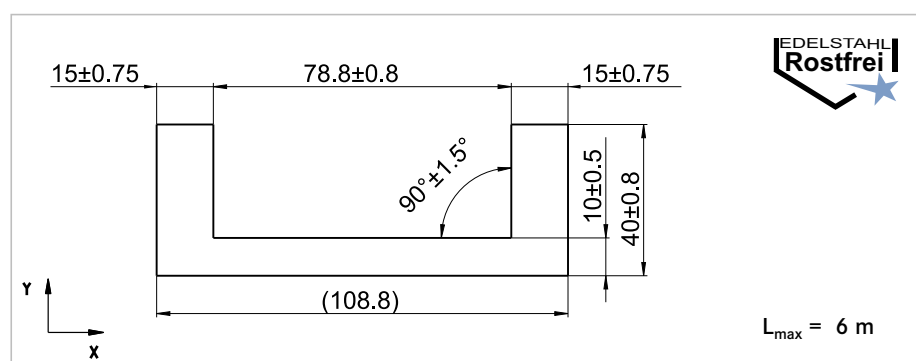
m	20,4	kg/m
A	26,0	cm ²
I _x	38,3	cm ⁴
W _x	15,1	cm ³
I _y	487,1	cm ⁴
W _y	80,3	cm ³
e _y	1,6	cm



NEW Standard 2 INOX-light

Artikel-Nr. 113.012.021
Article no.

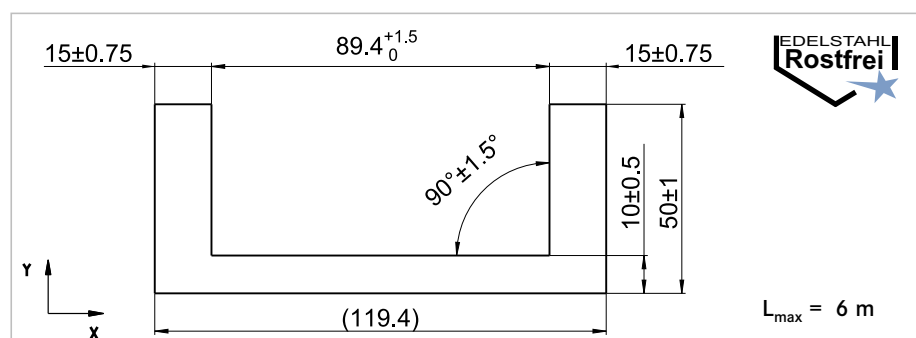
m	15,6	kg/m
A	19,9	cm ²
I _x	27,4	cm ⁴
W _x	10,5	cm ³
I _y	307,0	cm ⁴
W _y	56,4	cm ³
e _y	1,4	cm



Standard 3 INOX-L

Artikel-Nr. 113.013.003
Article no.

m	18,8	kg/m
A	23,9	cm ²
I _x	54,4	cm ⁴
W _x	16,8	cm ³
I _y	471,1	cm ⁴
W _y	78,9	cm ³
e _y	1,8	cm



VULKOLLAN® WINKEL-Rollen VULKOLLAN® WINKEL Bearings



SPEED + SILENT LINEARSYSTEM

Vorteile des SPEED + SILENT Linearsystems:

- Geräuscharmer Lauf durch VULKOLLAN®-Beschichtung
- Verfahrensgeschwindigkeiten bis 6 m/sec
- Einsatztemperatur -20 °C - +80 °C.
- Max. Umgebungsluftfeuchtigkeit 80 %
- Geringer Rollwiderstand durch Präzisionskugellager mit 2RS-Abdichtung
- Abrieb- und verschleißfest
- Lebensdauergeschmiert
- Ausführung in Edelstahl auf Anfrage

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

SPEED + SILENT LINEARSYSTEM

Advantages of the SPEED + SILENT linearsystem:

- silent run by VULKOLLAN® coated bearings
- for high speed application up to 6 m/sec
- working temperature -20 °C - +80 °C.
- max. air humidity 80%
- low friction by precision ball bearings in 2RS version
- runs wear-resistant
- lubricated for life

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



Tragzahlen für
VULKOLLAN® WINKEL-Rollen
bei 93° Shore Härte

Load capacities for
VULKOLLAN® WINKEL Bearings
at 93° shore hardness

Typ Type	Artikel-Nr. Article no.	F_R max. stat. Radial	F_A max. stat. Axial	Reduzierung der Traglast bei Reduction of load capacity at			Gewicht/kg Weight/kg	Profil Profile
				1m/sec	2m/sec	3m/sec		
V 4000 AP	231.015.000	600 N	400 N	0%	-20%	-30%	0,20	A
V 5250 AP	231.021.000	800 N	400 N	0%	-20%	-30%	0,28	S / S-ALU
V 6250 AP	231.002.000	1100 N	600 N	0%	-20%	-30%	0,80	M / M-ALU / 0 NbV
V 6250 P-AP	231.099.001	1100 N	600 N	0%	-20%	-30%	0,65	M / M-ALU / 0 NbV
V 1012 AP	231.004.000	1900 N	600 N	0%	-20%	-30%	1,60	V / V-ALU / V-L
V 1250 AP	231.067.000	4500 N	1000 N	0%	-20%	-30%	4,00	R / R-ALU / R-L
V 1432 AP	231.045.000	6000 N	3000 N	0%	-20%	-30%	9,20	W / W-ALU / W-L
V 1792 AP	231.046.000	10000 N	3000 N	0%	-20%	-30%	12,20	X / X-ALU / X-L
VE 4000	231.019.000	600 N	-	0%	-20%	-30%	0,25	A / S
VE 6250	231.005.000	1100 N	-	0%	-20%	-30%	0,25	0 NbV / M

Einfederung der Rolle bei zul. Nennbelastung ca. 0,5 mm.
Elastic deflection of the bearing at nominal load max. 0,5 mm.

VULKOLLAN®: Registered Trademark of Covestro Group

VULKOLLAN® WINKEL-Rollen
VULKOLLAN® WINKEL Bearings



Typ | Type
V 4000
V 4000 AP



Typ | Type
V 5250
V 5250 AP



Typ | Type
V 6250 AP



Typ | Type
V 6250 P
V 6250 P-AP



Typ | Type
V 1012 AP



Typ | Type
V 1250 AP



Typ | Type
V 1432 AP



Typ | Type
V 1792 AP



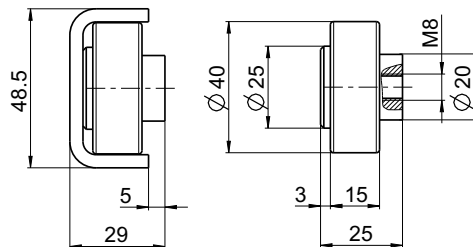
VULKOLLAN®: Registered Trademark of Covestro Group

VULKOLLAN® WINKEL-Rollen **VULKOLLAN® WINKEL Bearings**



V 4000

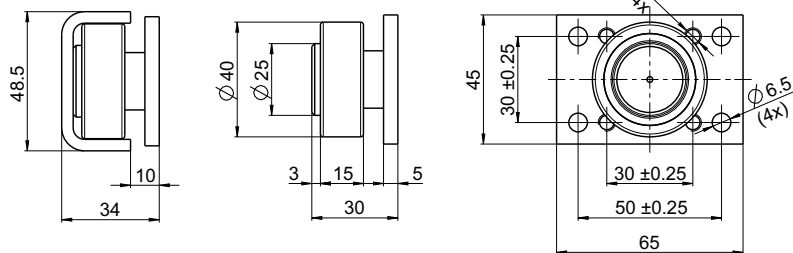
Artikel-Nr Article no.	231.006.000
Gewicht Weight	0,10 kg
F_R	0,6 kN
F_A	0,4 kN



Standard A
113.001.000

V 4000 AP

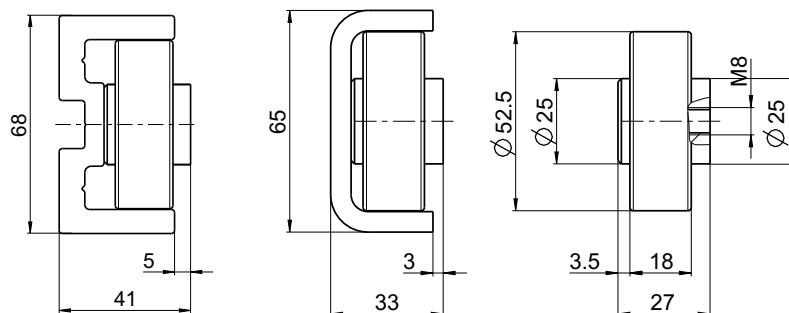
Artikel-Nr Article no.	231.015.000
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	0,20 kg
F_R	0,6 kN
F_A	0,4 kN



Standard A
113.001.000

V 5250

Artikel-Nr Article no.	231.017.000
Gewicht Weight	0,18 kg
F_R	0,8 kN
F_A	0,4 kN



Standard S-ALU
113.002.041

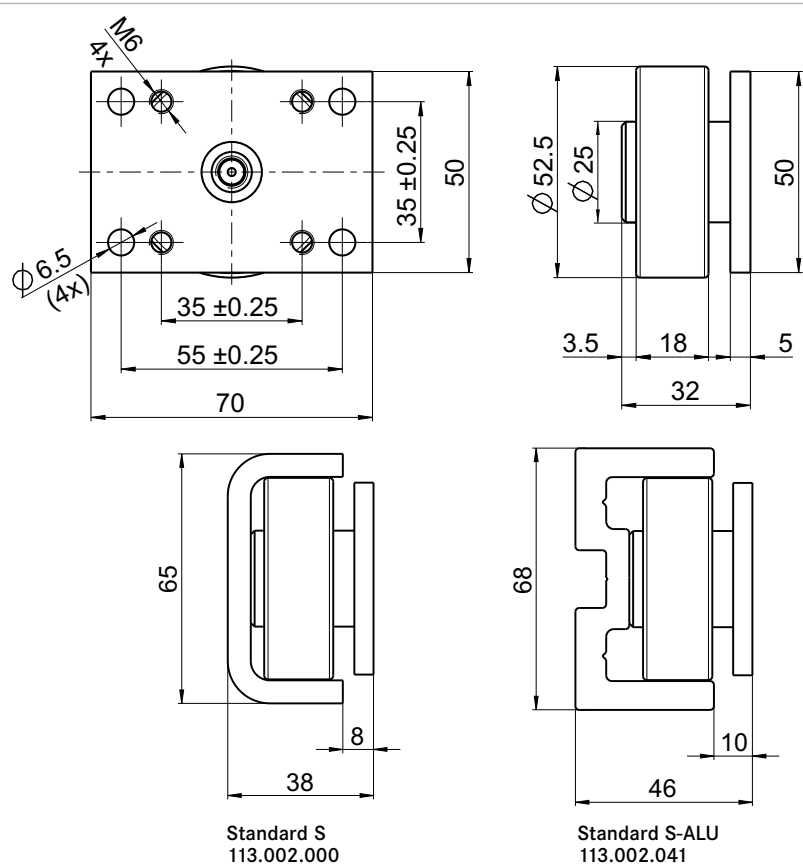
Standard S
113.002.000

VULKOLLAN® WINKEL-Rollen VULKOLLAN® WINKEL Bearings



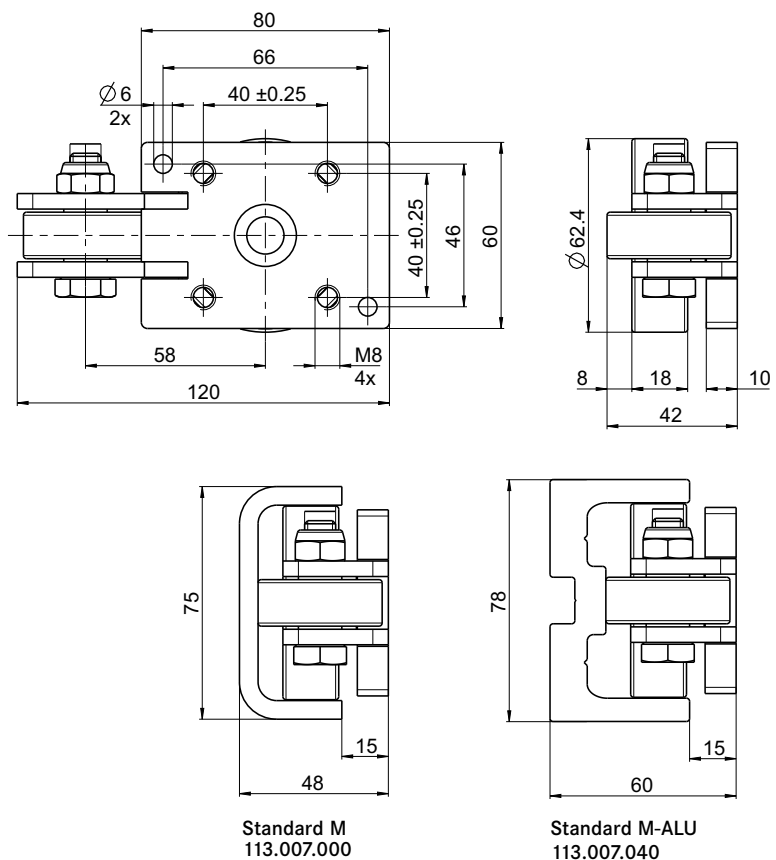
V 5250 AP

Artikel-Nr Article no.	231.021.000
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	0,28 kg
F_R	0,8 kN
F_A	0,4 kN



V 6250 AP

Artikel-Nr Article no.	231.002.000
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	0,80 kg
F_R	1,1 kN
F_A	0,6 kN

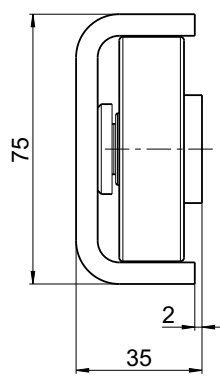
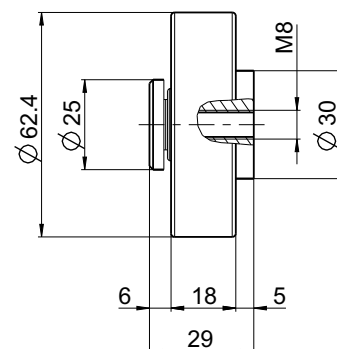


VULKOLLAN® WINKEL-Rollen **VULKOLLAN® WINKEL Bearings**

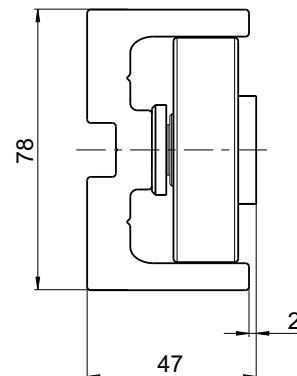


V 6250 P

Artikel-Nr Article no.	231.098.000
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	0,30 kg
F_R	1,1 kN
F_A	0,6 kN



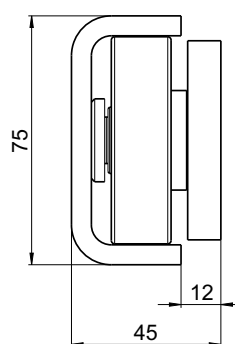
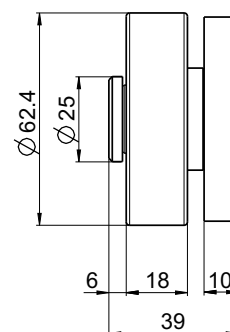
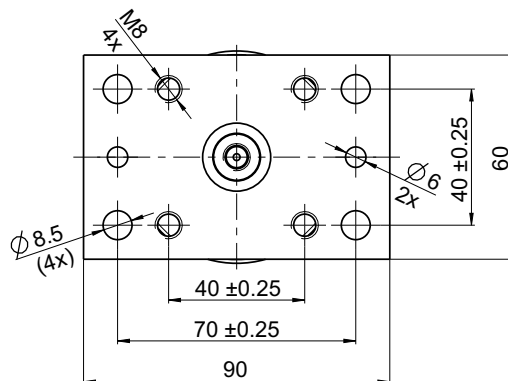
Standard M
113.007.000



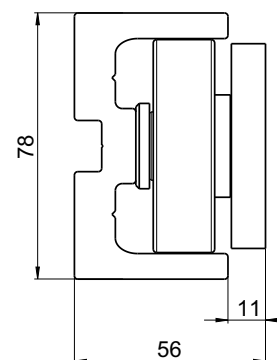
Standard M-ALU
113.007.040

V 6250 P AP

Artikel-Nr Article no.	231.099.001
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	0,65 kg
F_R	1,1 kN
F_A	0,6 kN



Standard M
113.007.000



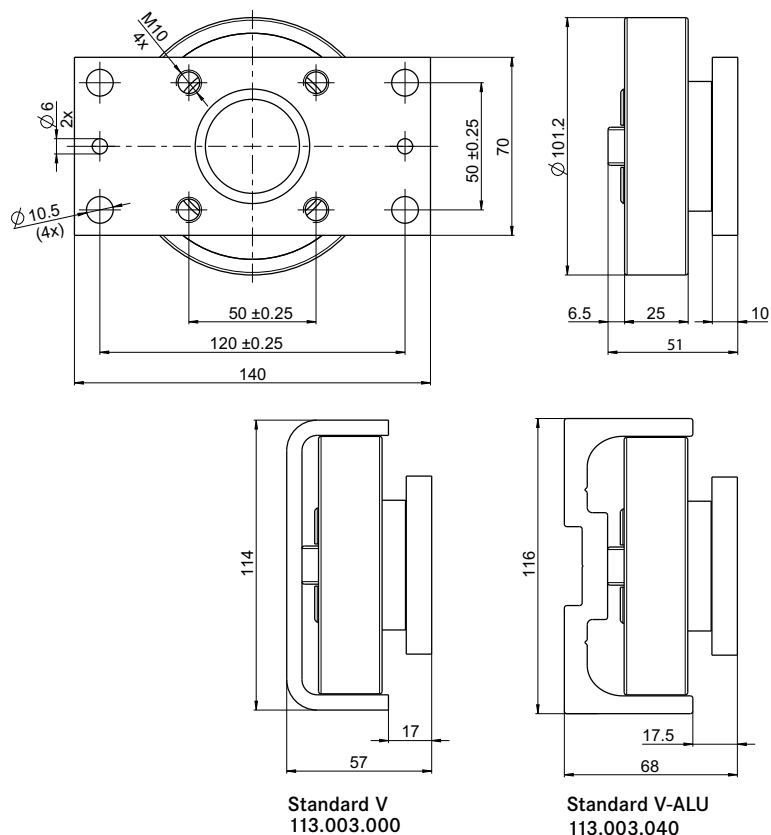
Standard M-ALU
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VULKOLLAN® WINKEL-Rollen **VULKOLLAN® WINKEL Bearings**



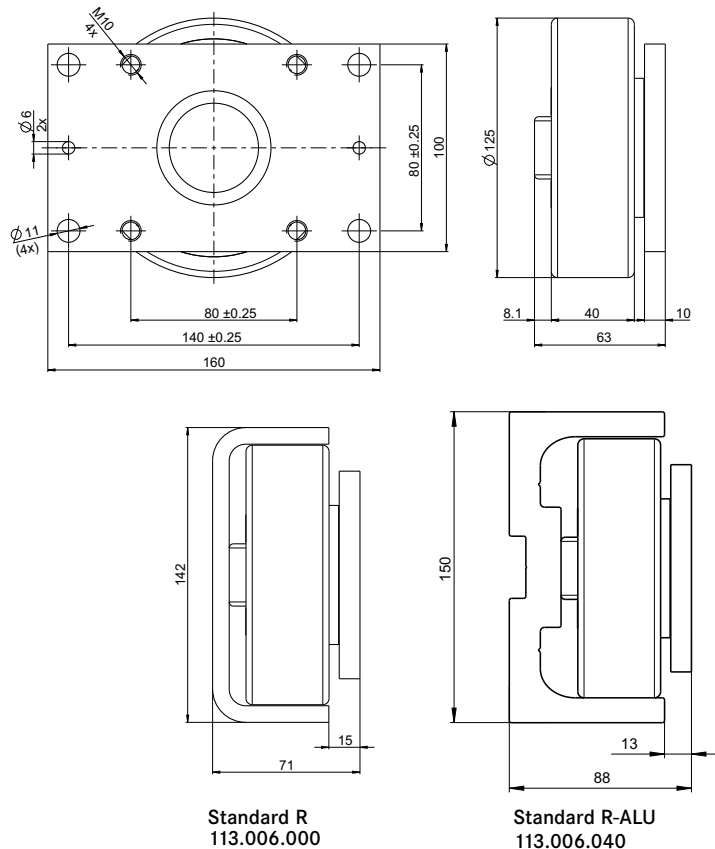
V 1012 AP

Artikel-Nr Article no.	231.004.000
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	1,60 kg
F_R	1,9 kN
F_A	0,6 kN



V 1250 AP

Artikel-Nr Article no.	231.067.000
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	4,00 kg
F_R	4,5 kN
F_A	1,0 kN

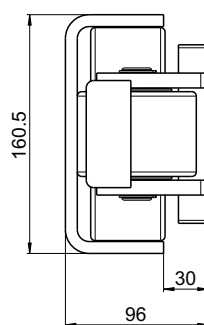
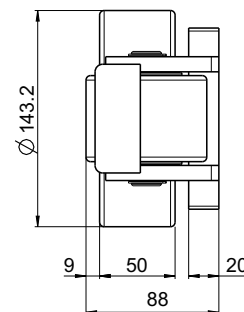
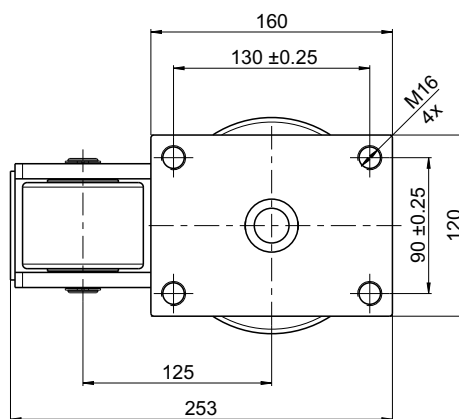


VULKOLLAN® WINKEL-Rollen **VULKOLLAN® WINKEL Bearings**

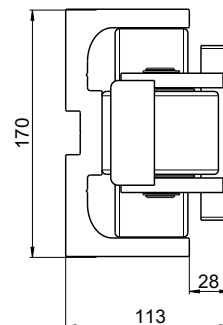


V 1432 AP

Artikel-Nr Article no.	231.045.000
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	9,2 kg
F_R	6,0 kN
F_A	3,0 kN



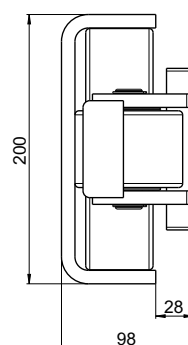
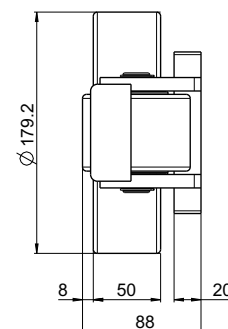
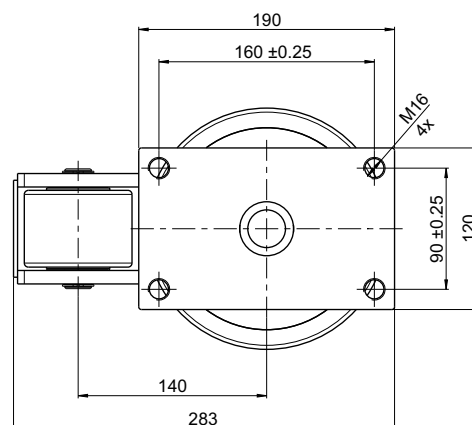
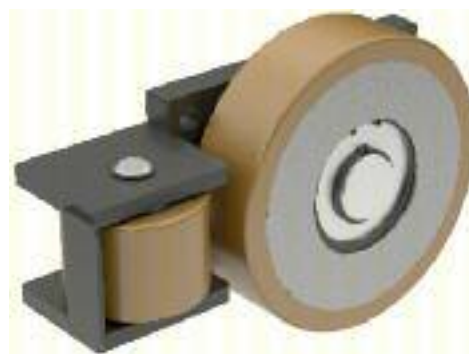
Standard W
113.004.000



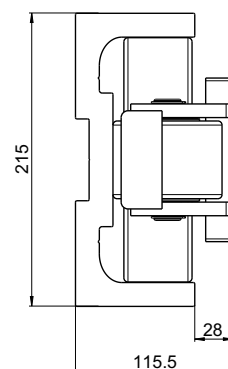
Standard W-ALU
113.004.040

V 1792 AP

Artikel-Nr Article no.	231.046.000
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	12,2 kg
F_R	10,0 kN
F_A	3,0 kN



Standard X
113.005.000



Standard X-ALU
113.005.040



VULKOLLAN®-Rolle

VULKOLLAN® Bearing

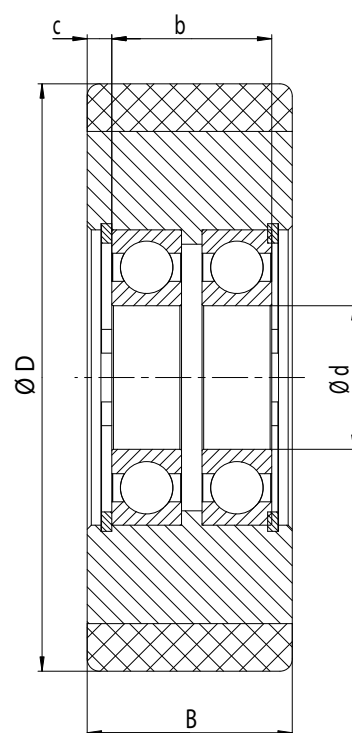


Abb. exemplarisch
 Fig. exemplary

Typ Type	Artikel-Nr. Article no.	Rollengröße Ø Bearing size Ø	D [mm]	B [mm]	d [mm]	b [mm]	c [mm]	Gewicht kg Weight kg	Tragfähigkeit Load capacity
V 50/30	231.066.002	50,0 x 30	50,0	30	12	30	–	0,25	1000 N
V 80/57	231.105.000	80,0 x 57	80,0	57	20	61	–	0,80	3000 N
V 101/25	231.062.000	101,2 x 25	101,2	25	45	16	4,5	0,65	1900 N
V 125/40	230.014.000	125,0 x 40	125,0	40	30	35	5,0	2,13	4500 N
V 143/50	231.041.000	143,2 x 50	143,2	50	35	38	6,0	3,75	6000 N
V 179/50	231.042.000	179,0 x 50	179,2	50	40	40	5,0	6,10	10000 N

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VULKOLLAN® WINKEL-Rollen VULKOLLAN® WINKEL Bearings



Justierbare WINKEL-VULKOLLAN® Rolleneinheit Typ JT-V

Vorteile:

- Radial und axial stufenlos von außen einstellbar
- Höhere radiale und axiale Präzision
- Schmutzunempfindlich
- Verfahrensgeschwindigkeiten bis 6 m/sec
- Einsatztemperatur -20 °C - +80 °C.
- Max. Umgebungsluftfeuchtigkeit 80 %
- Lebensdauergeschmiert

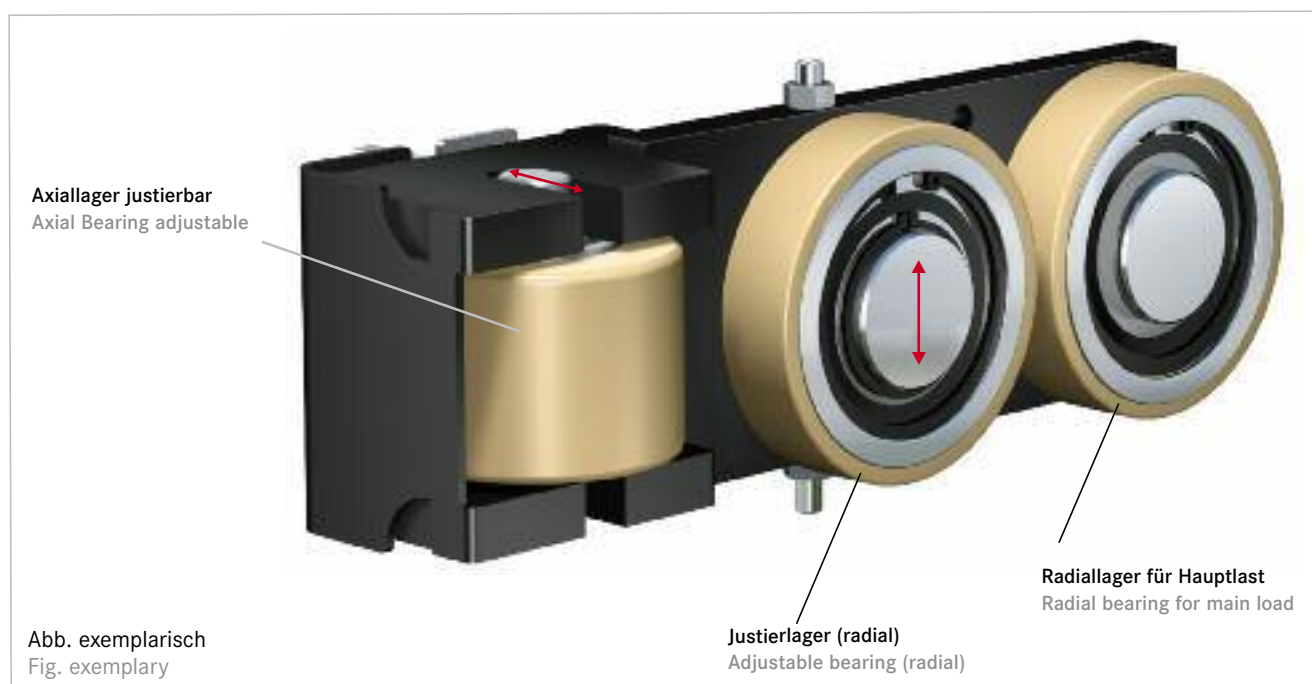
CAD Download in 2D/3D unter www.winkel.de

Adjustable WINKEL VULKOLLAN® Bearing Unit Type JT-V

Advantages:

- clearance adjustable by thread bolts in radial and axial direction
- higher precision in radial and axial direction
- higher dirt resistance
- for high speed application up to 6 m/sec
- working temperature -20 °C - +80 °C.
- max. air humidity 80%
- lubricated for life

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



Einbau/Einstellung

- Die Einheit wird über die Flanschplatte angeschraubt
- Die Position der Justierlager muss an der entgegengesetzten Seite der Last sein. Die Hauptlast soll auf das Radiallager eingeleitet werden
- Justierlager und Axiallager werden eingestellt und anschließend gekontert

Tipp: Lassen Sie ein Spiel von min. 0,5 mm zwischen den Axiallager und Justierlager und Profil.

Test: Der Führungswagen soll sich ohne große Laufwiderstände bewegen können.

Assembly/Adjusting

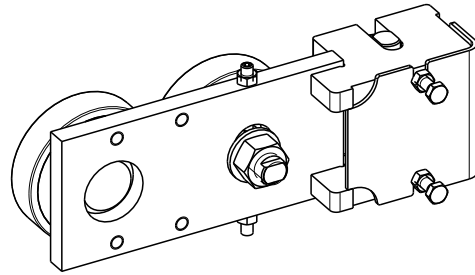
- The unit will be assembled by the flange plate
- The position of the adjustable bearings must be at the opposite side of the load. The main load should be on the radial bearing
- The axial and adjustable bearing will be adjusted and finally locked

Advice: Adjust the axial and adjustable bearing with a clearance of min. 0.5 mm to the profile.

Test: The carriage should run smoothly in the profile without resistance.

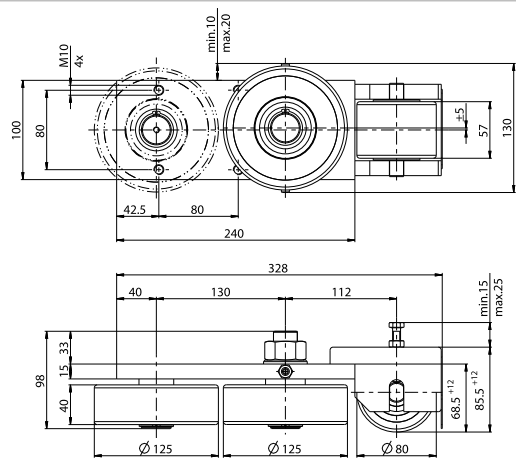
Typ Type	Artikel-Nr. Article no.	F _R max. [N]	F _A max. [N]	Reduzierung der Traglast bei Reduction of load capacity at			Gewicht kg Weight kg	Profile Profiles
				1m/sec	2m/sec	3m/sec		
JT-V 1012	200.210.403	1900	3000	0%	- 20%	- 30%	7,75	V / V-L / V-ALU
JT-V 1250	231.067.002	4500	3000	0%	- 20%	- 30%	10,15	R / R-L / R-ALU
JT-V 1432	231.045.010	6000	3000	0%	- 20%	- 30%	14,53	W / W-L / W-ALU
JT-V 1792	231.046.010	10000	3000	0%	- 20%	- 30%	18,65	X / X-L / X-ALU

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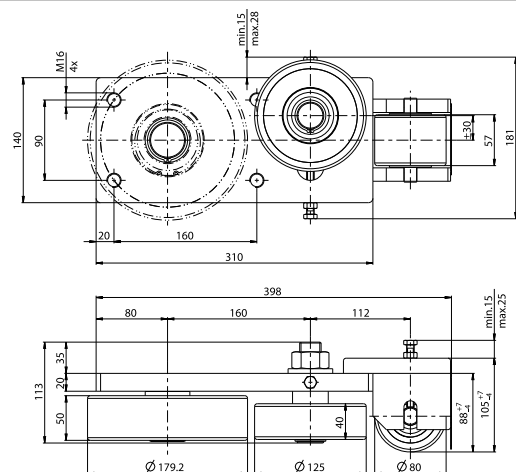
JT-V 1250

Artikel-Nr. Article no.	231.067.002
Gewicht Weight	10,15 kg
F _R	4,5 kN
F _A	3,0 kN



JT-V 1792

Artikel-Nr. Article no.	231.046.010
Gewicht Weight	18,65 kg
F _R	10,0 kN
F _A	3,0 kN



VULKOLLAN® WINKEL-Rollen

VULKOLLAN® WINKEL Bearings

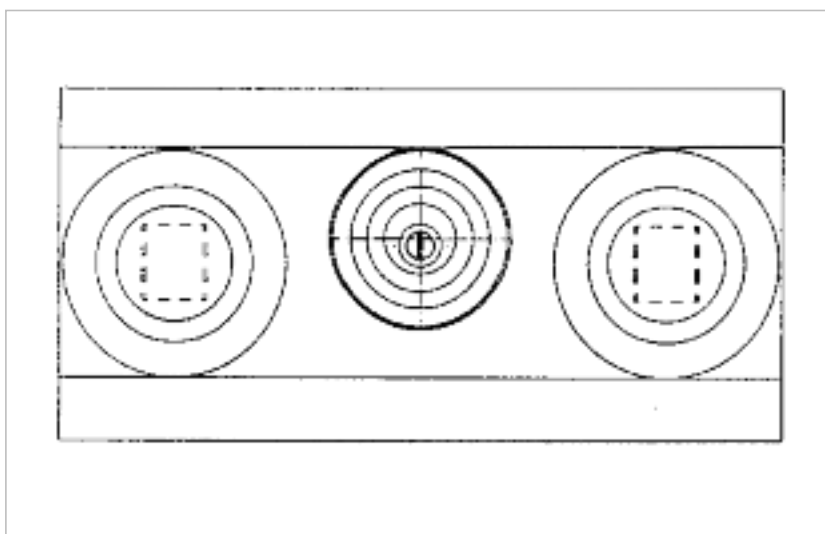


VULKOLLAN® Exzenter-Rollen

Exzenterrolle zur Spielminimierung

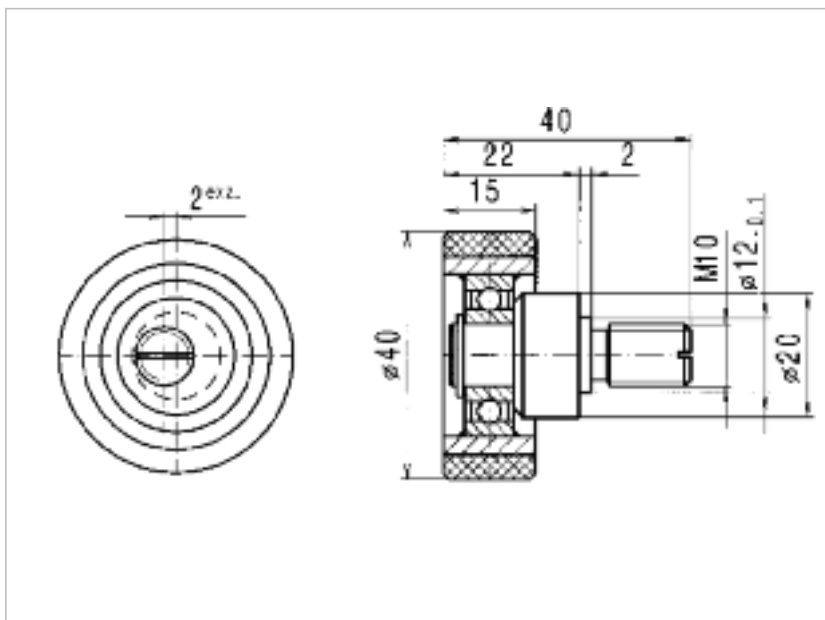
VULKOLLAN® eccentric bearings

Eccentric bearing to minimize clearance between bearing and profile



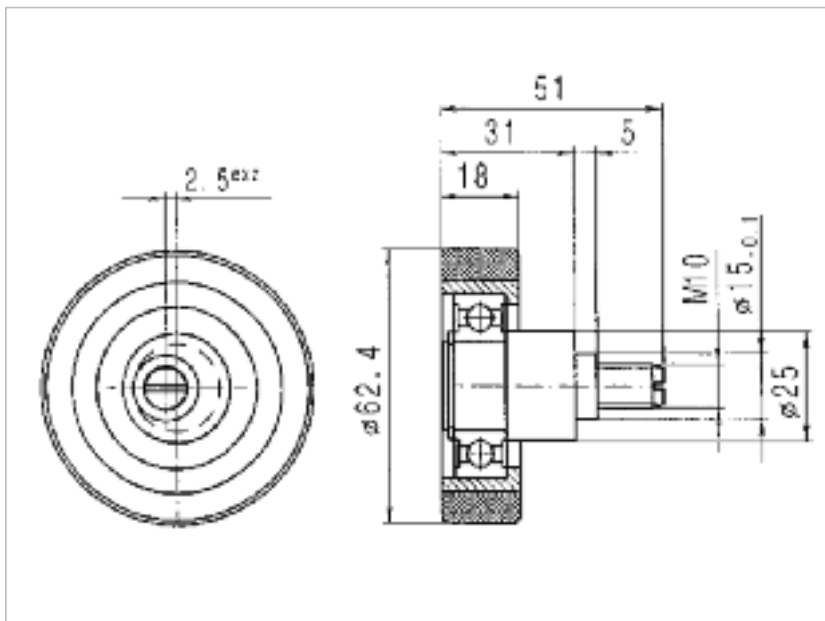
VE 4000

Artikel-Nr Article no.	231.019.000
Gewicht Weight	0,15 kg
F_R	600 N



VE 6250

Artikel-Nr Article no.	231.005.000
Gewicht Weight	0,25 kg
F_R	1100 N



VULKOLLAN® WINKEL-Rollen
VULKOLLAN® WINKEL Bearings



POLYAMID WINKEL-Rollen POLYAMIDE WINKEL Bearings



SPEED + FORCE LINEARSYSTEM

Vorteile des SPEED + FORCE LINEARSYSTEMS

- Geräuscharmer Lauf durch POLYAMID-Beschichtung
- Verfahrensgeschwindigkeiten bis 6 m/sec
- Einsatztemperatur -20 °C - +40 °C.
- Geringer Rollwiderstand durch Präzisionskugellager in 2RS-Abdichtung
- Abrieb- und verschleißfest
- Lebensdauergeschmiert
- Ausführung in Edelstahl auf Anfrage

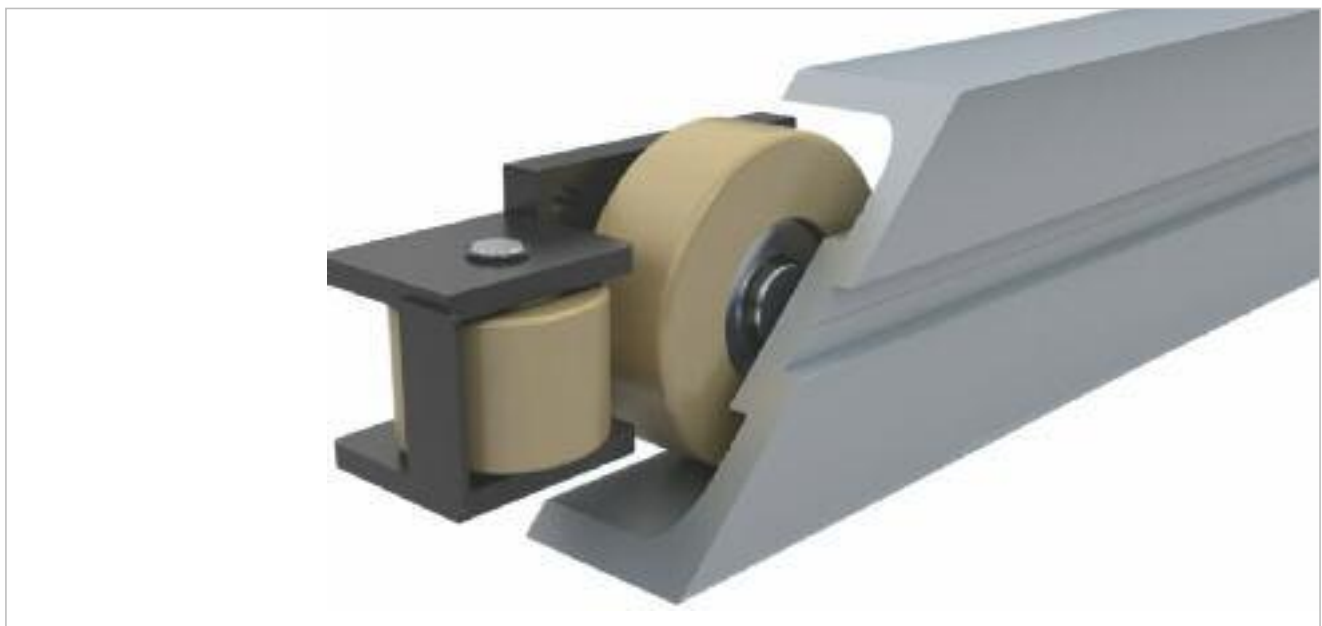
CAD Download in 2D/3D unter www.winkel.de

SPEED + FORCE LINEARSYSTEM

Advantage of the SPEED + FORCE LINEARSYSTEM

- silent run by POLYAMIDE coated bearings
- for high speed application up to 6 m/sec
- working temperature -20 °C - +40 °C.
- low friction by precision ball bearings in 2RS version
- runs wear-resistant
- lubricated for life
- stainless steel version on request

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



Traglast für POLYAMID WINKEL-Rollen

Load capacities for POLYAMIDE WINKEL Bearings

Typ Type	Artikel-Nr. Article no.	F_R max. stat. Radial	F_A max. stat. Axial	Reduzierung der Traglast bei Reduction of load capacity at			Gewicht/kg Weight/kg	Profil Profile
				1m/sec	2m/sec	3m/sec		
PA 4000 AP	231.218.001	1000 N	400 N	0%	-20%	-30%	0,18	A
PA 5250 AP	231.219.001	1400 N	400 N	0%	-20%	-30%	0,25	S / S-ALU
PA 6250 AP	231.220.001	2300 N	1000 N	0%	-20%	-30%	0,72	M / M-ALU / 0 NbV
PA 6250 P-AP	231.222.001	2300 N	600 N	0%	-20%	-30%	0,60	M / M-ALU / 0 NbV
PA 1012 AP	231.200.000	2500 N	1000 N	0%	-20%	-30%	1,60	V / V-ALU / V-L
PA 1250 AP	231.201.000	6000 N	1300 N	0%	-20%	-30%	4,00	R / R-ALU / R-L
PA 1432 AP	231.202.000	8000 N	6000 N	0%	-20%	-30%	9,20	W / W-ALU / W-L
PA 1792 AP	231.203.000	15000 N	6000 N	0%	-20%	-30%	12,20	X / X-ALU / X-L
PA 1800 AP	231.204.000	18000 N	6000 N	0%	-20%	-30%	12,50	Std. 8 NbV

POLYAMID WINKEL-Rollen **POLYAMIDE WINKEL Bearings**



Typ | Type
PA 4000
PA 4000 AP



Typ | Type
PA 5250
PA 5250 AP



Typ | Type
PA 6250 AP



Typ | Type
PA 6250 P
PA 6250 P-AP



Typ | Type
PA 1012 AP



Typ | Type
PA 1250 AP



Typ | Type
PA 1432 AP



Typ | Type
PA 1792 AP



Typ | Type
PA 1800 AP

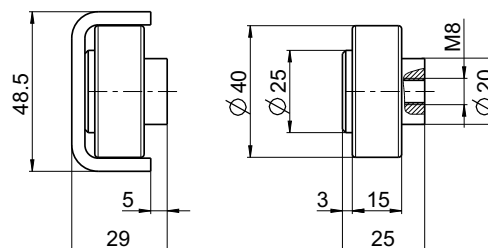


POLYAMID WINKEL-Rollen POLYAMIDE WINKEL Bearings



PA 4000

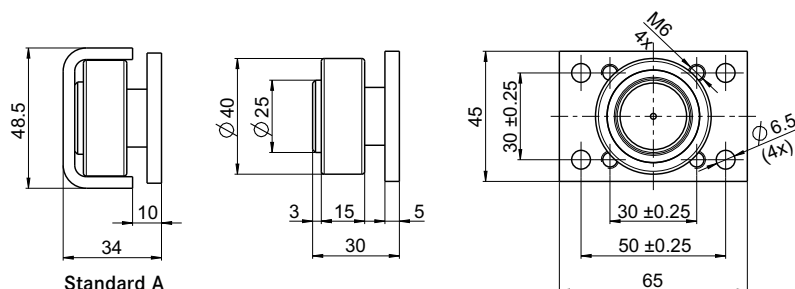
Artikel-Nr Article no.	231.218.003
Gewicht Weight	0,08 kg
F_R	1,0 kN
F_A	0,4 kN



Standard A
113.001.000

PA 4000 AP

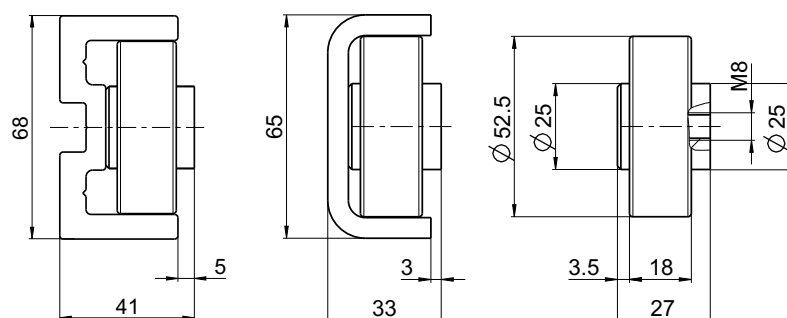
Artikel-Nr Article no.	231.218.001
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	0,18 kg
F_R	1,0 kN
F_A	0,4 kN



Standard A
113.001.000

PA 5250

Artikel-Nr Article no.	231.219.003
Gewicht Weight	0,125 kg
F_R	1,4 kN
F_A	0,4 kN



Standard S-ALU
113.002.041

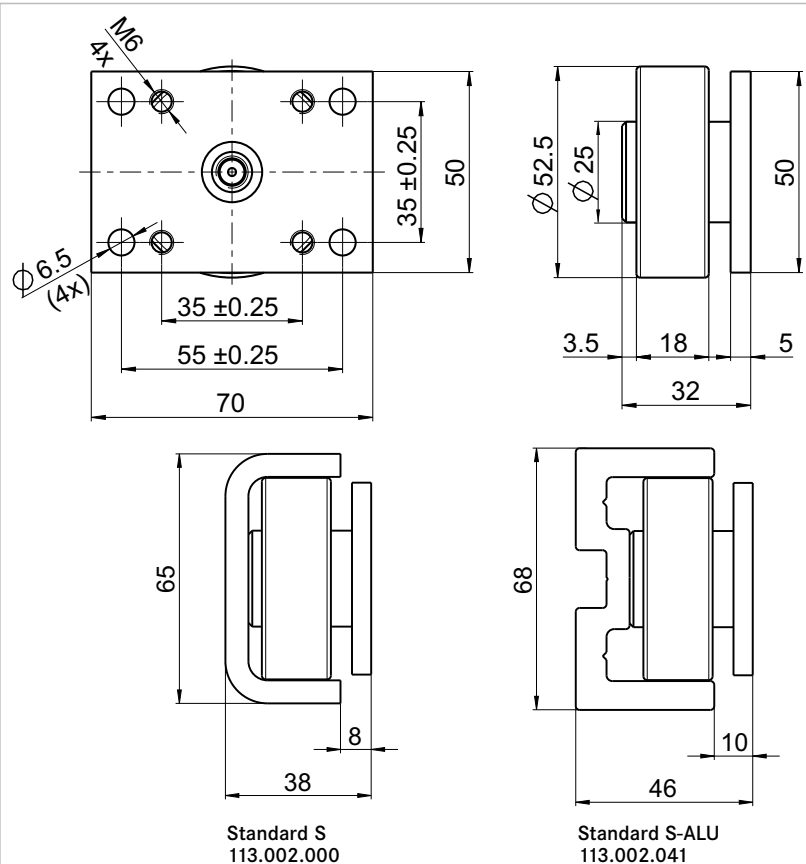
Standard S
113.002.000

POLYAMID WINKEL-Rollen POLYAMIDE WINKEL Bearings



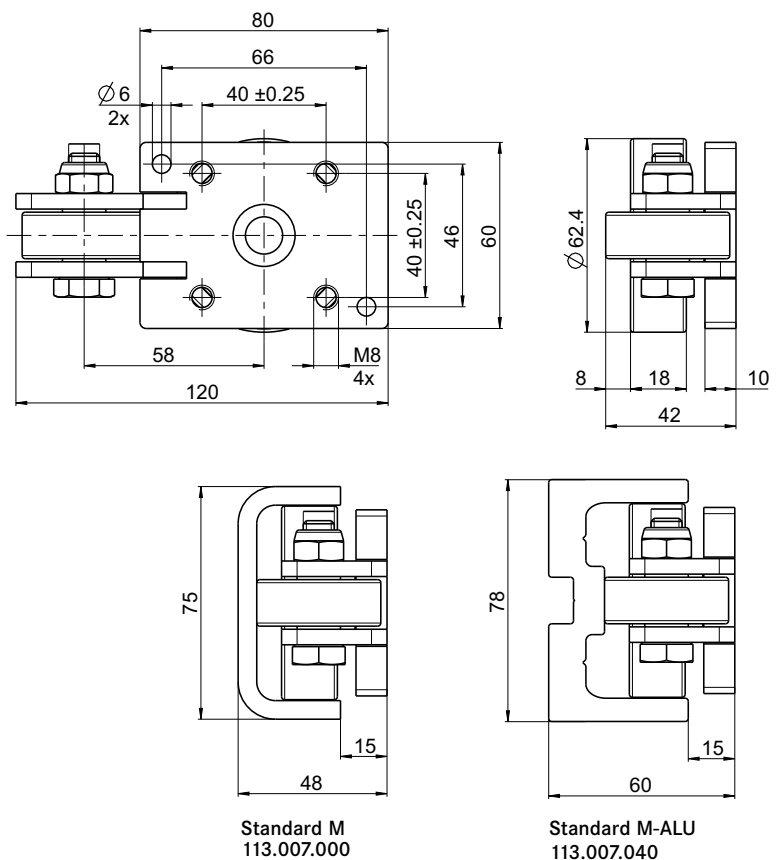
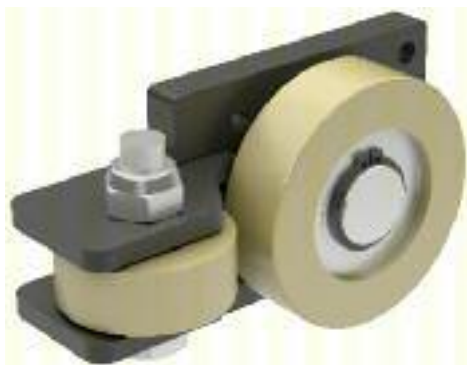
PA 5250 AP

Artikel-Nr Article no.	231.219.001
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	0,25 kg
F_R	1,4 kN
F_A	0,4 kN



PA 6250 AP

Artikel-Nr Article no.	231.220.001
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	0,72 kg
F_R	2,3 kN
F_A	1,0 kN

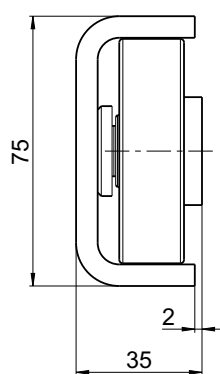
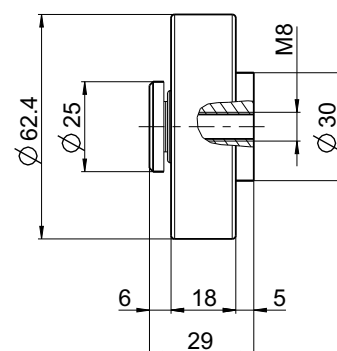


POLYAMID WINKEL-Rollen POLYAMIDE WINKEL Bearings

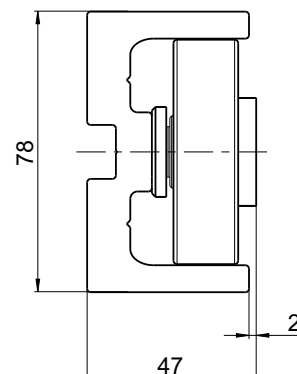


PA 6250 P

Artikel-Nr Article no.	231.222.002
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	0,20 kg
F_R	2,3 kN
F_A	0,6 kN



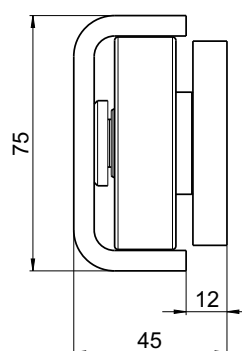
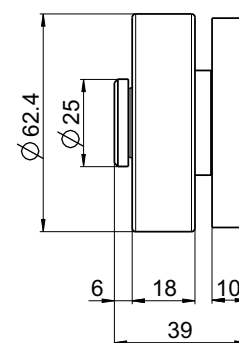
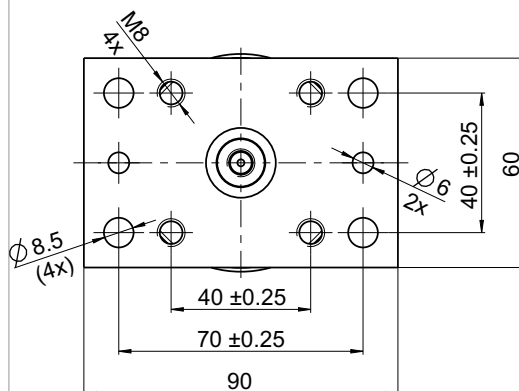
Standard M
113.007.000



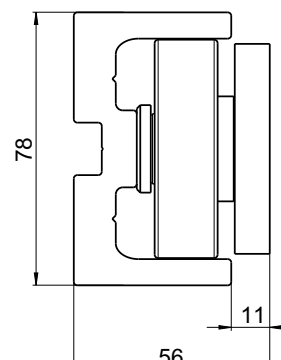
Standard M-ALU
113.007.040

PA 6250 P AP

Artikel-Nr Article no.	231.222.001
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	0,60 kg
F_R	2,3 kN
F_A	0,6 kN



Standard M
113.007.000



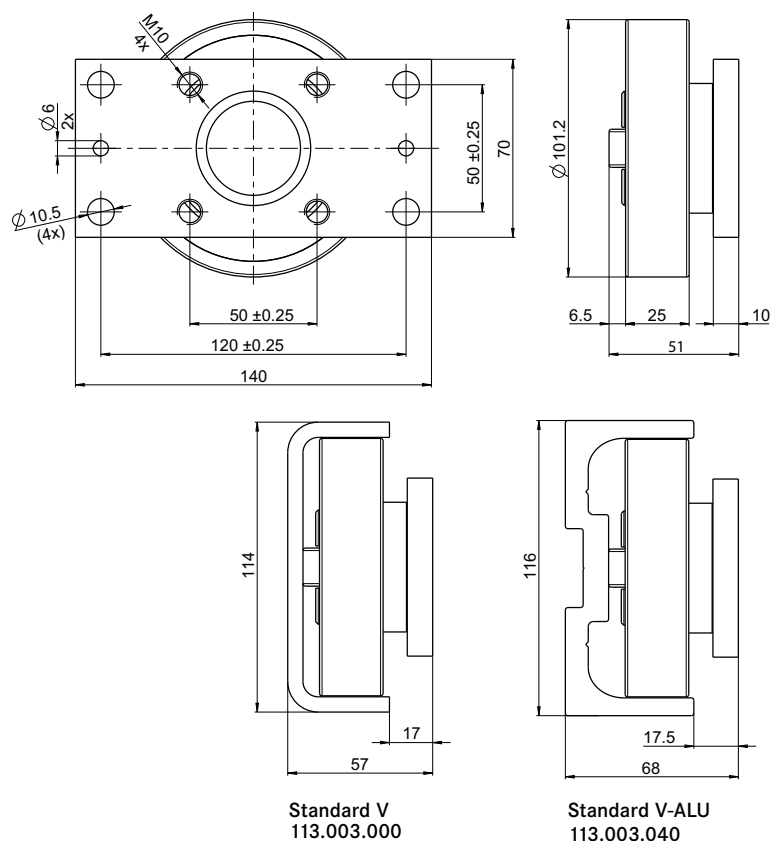
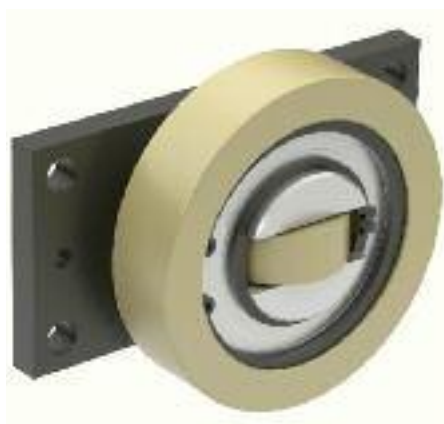
Standard M-ALU
113.007.040

POLYAMID WINKEL-Rollen POLYAMIDE WINKEL Bearings



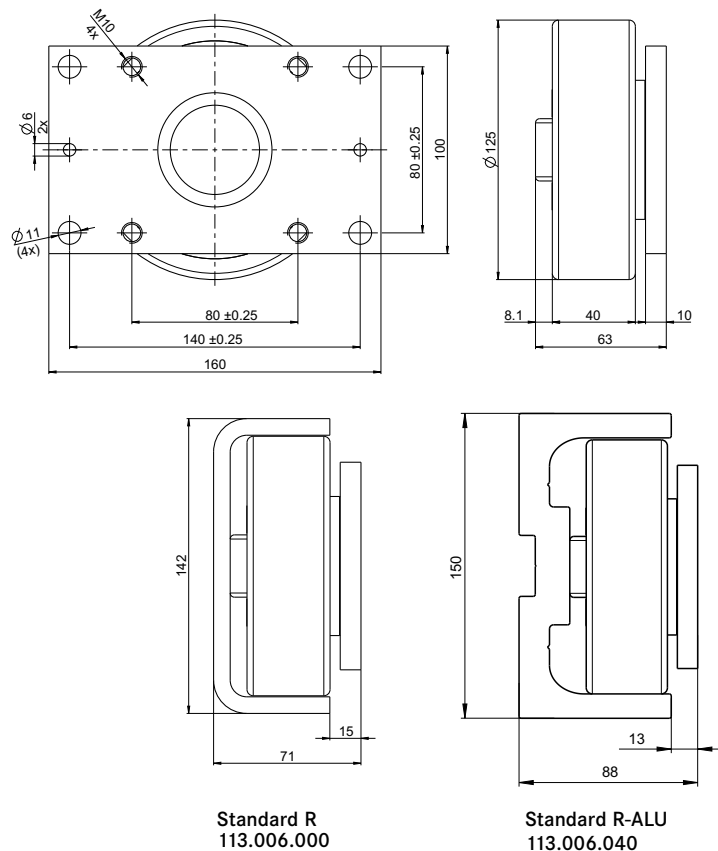
PA 1012 AP

Artikel-Nr Article no.	231.200.000
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	1,50 kg
F_R	2,5 kN
F_A	1,0 kN



PA 1250 AP

Artikel-Nr Article no.	231.201.000
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	2,47 kg
F_R	6,0 kN
F_A	1,3 kN

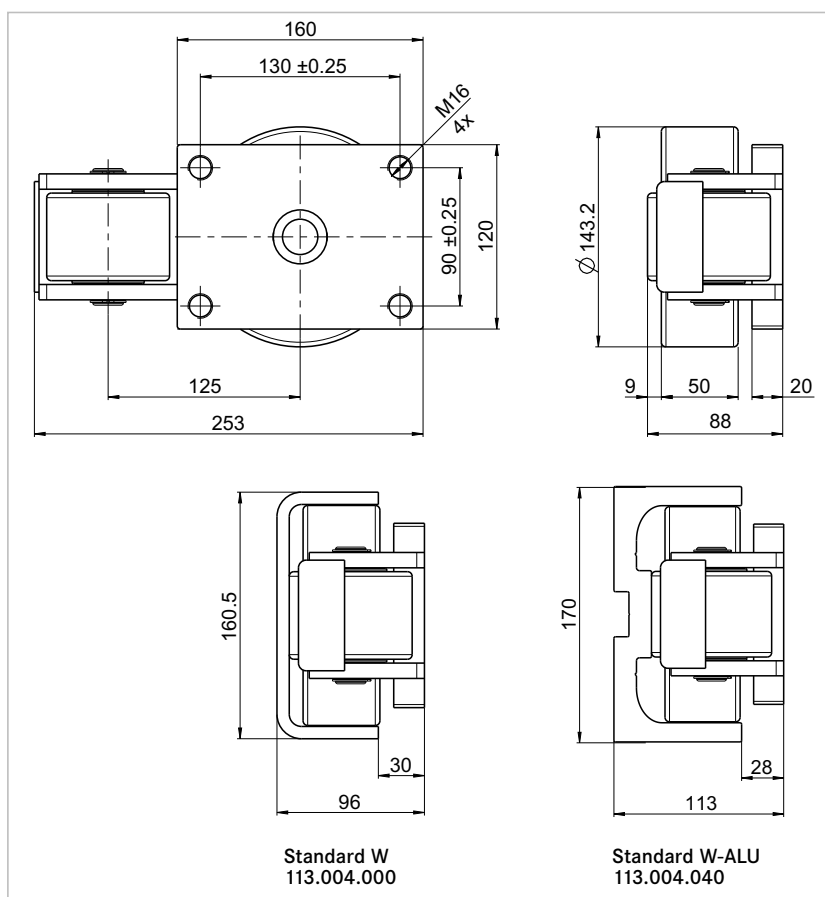


POLYAMID WINKEL-Rollen POLYAMIDE WINKEL Bearings



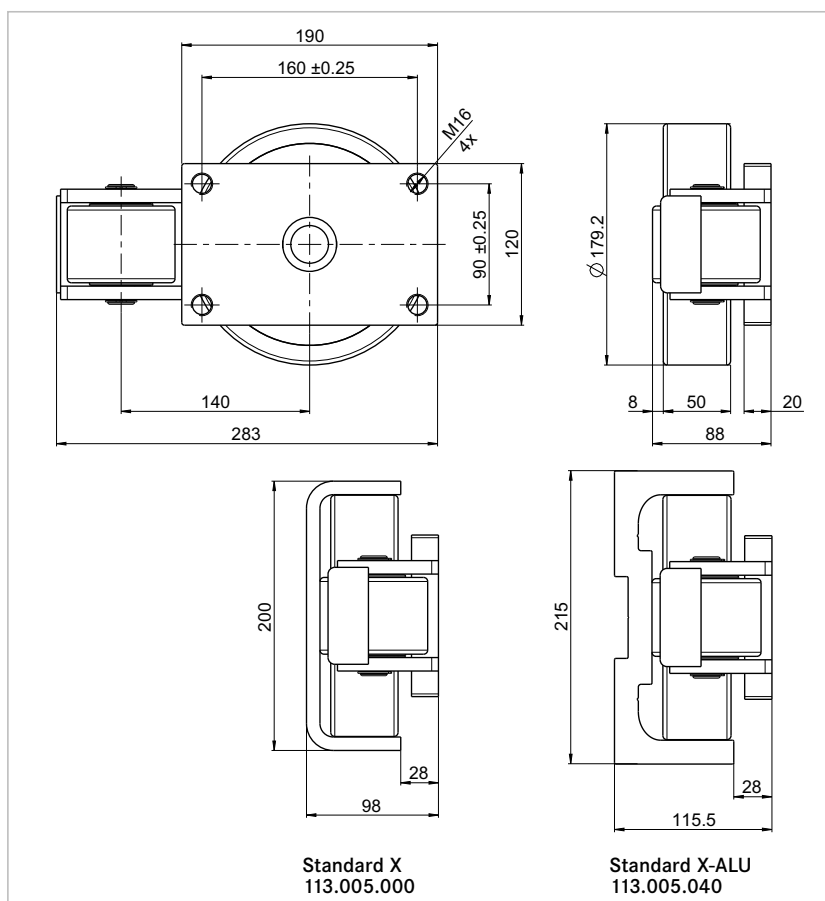
PA 1432 AP

Artikel-Nr Article no.	231.202.000
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	6,37 kg
F_R	8,0 kN
F_A	6,0 kN



PA 1792 AP

Artikel-Nr Article no.	231.203.000
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	7,7 kg
F_R	15,0 kN
F_A	6,0 kN

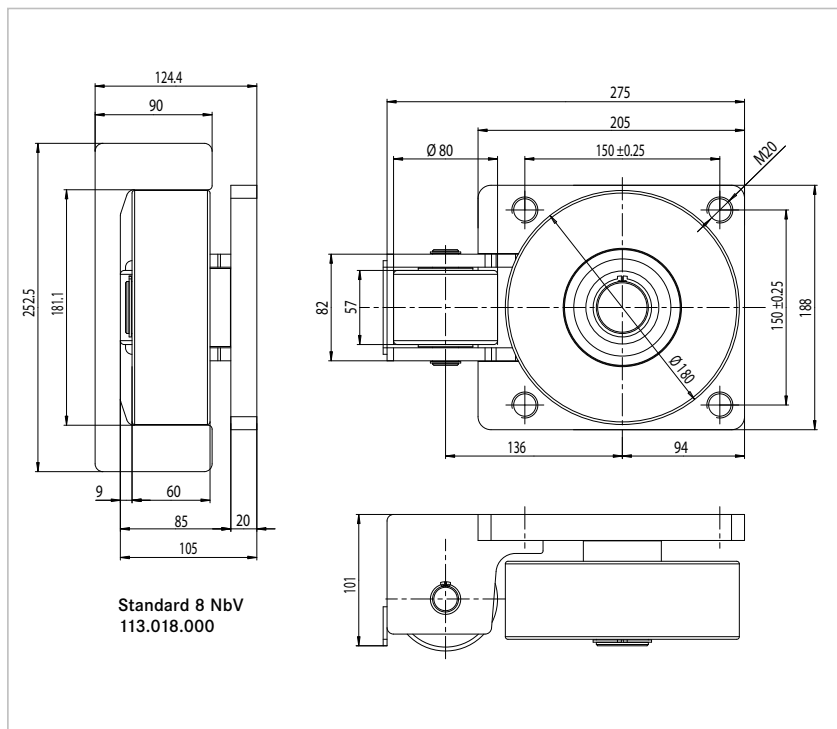


POLYAMID WINKEL-Rollen POLYAMIDE WINKEL Bearings



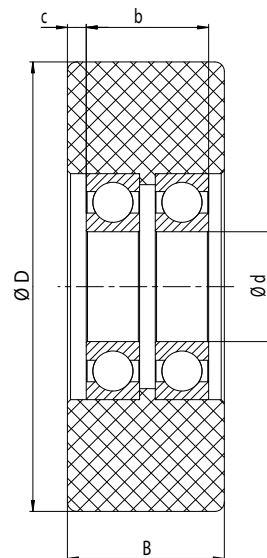
PA 1800 AP

Artikel-Nr Article no.	231.204.000
inkl. Anschraubplatte incl. flange plate	
Gewicht Weight	11,3 kg
F_R	18,0 kN
F_A	6,0 kN



POLYAMID Einzelrolle

POLYAMIDE single bearing



Typ Type	Artikel-Nr. Article no.	Rollengröße Ø Bearing size Ø	D [mm]	B [mm]	d [mm]	b [mm]	c [mm]	Gewicht kg Weight kg	Tragfähigkeit Load capacity
PA 50/30	231.210.000	50,0 x 30	50,0	30	12	30	-	0,10	1300 N
PA 80/57	231.211.000	80,0 x 57	80,0	57	20	61	-	0,40	6000 N
PA 101/25	231.212.000	101,2 x 25	101,2	25	45	16	4,5	0,35	2500 N
PA 125/40	231.100.003	125,0 x 40	125,0	40	30	40	-	0,81	6000 N
PA 143/50	231.045.004	143,2 x 50	143,2	50	35	40	5,0	1,25	8000 N
PA 160/60	231.100.002	160,0 x 60	160,0	60	40	60	-	2,20	13000 N
PA 179/50	231.216.000	179,2 x 50	179,2	50	40	40	5,0	1,85	15000 N
PA 180/60	231.217.000	180,0 x 60	180,0	60	40	60	-	2,60	18000 N
PA 200/80	231.221.000	200,0 x 80	200,0	80	55	69	-	4,30	25000 N

POLYAMID WINKEL-Rollen POLYAMIDE WINKEL Bearings



Justierbare WINKEL-POLYAMID Rolleneinheit Typ JT-PA

Vorteile:

- Radial- und Axiallager stufenlos von außen einstellbar
- Höhere radiale und axiale Präzision
- Schmutzunempfindlich
- Verfahrensgeschwindigkeiten bis 6 m/sec
- Einsatztemperatur -20 °C - +40 °C.
- Lebensdauer geschmiert

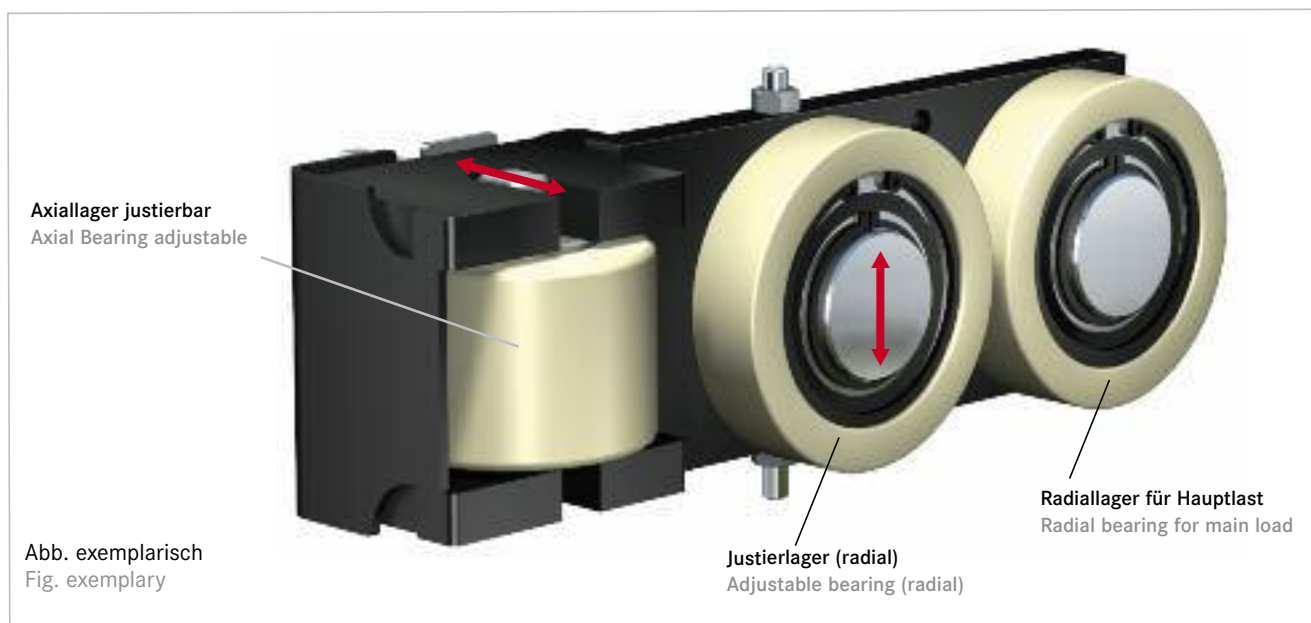
CAD Download in 2D/3D unter www.winkel.de

Adjustable WINKEL POLYAMID Bearing Unit Type JT-PA

Advantages:

- clearance adjustable by thread bolts in radial and axial direction
- higher precision in radial and axial direction
- higher dirt resistance
- for high speed application up to 6 m/sec
- working temperature -20 °C - +40 °C
- lubricated for life

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



Einbau/Einstellung

- Die Einheit wird über die Flanschplatte angeschraubt
- Die Position der Justierlager muß an der entgegengesetzten Seite der Last sein. Die Hauptlast soll auf das Radiallager eingeleitet werden
- Justierlager und Axiallager werden eingestellt und anschließend gekontert

Tip: Lassen Sie ein Spiel von min. 0,5 mm zwischen dem Axiallager und Justierlager und Profil.

Test: Der Führungswagen soll sich ohne große Laufwiderstände bewegen können.

Assembly/Adjusting

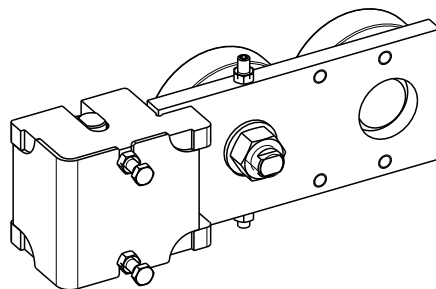
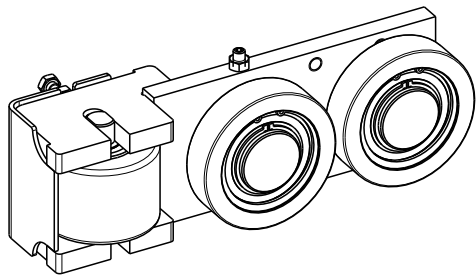
- The unit will be assembled by the flange plate
- The position of the adjustable bearings must be at the opposite side of the load. The main load should be on the radial bearing
- The axial and adjustable bearing will be adjusted and finally locked

Advice: Adjust the axial and adjustable bearing with a clearance of min. 0.5 mm to the profile.

Test: The carriage should run smoothly in the profile without resistance.

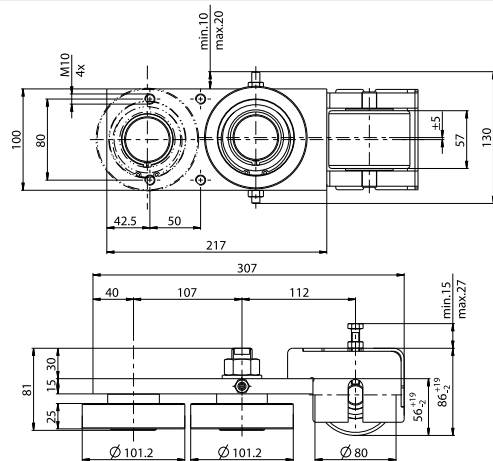
Typ Type	Artikel-Nr. Article no.	F _r max. [N]	F _a max. [N]	Reduzierung der Traglast bei Reduction of load capacity at			Gewicht kg Weight kg	Profile Profiles
				1m/sec	2m/sec	3m/sec		
JT-PA 1012	231.200.100	2500	3000	0%	- 20%	- 30%	6,49	V / V-L / V-ALU
JT-PA 1250	231.222.000	6000	3000	0%	- 20%	- 30%	6,64	R / R-L / R-ALU
JT-PA 1432	231.202.001	8000	3000	0%	- 20%	- 30%	10,02	W / W-L / W-ALU
JT-PA 1792	231.203.001	15000	3000	0%	- 20%	- 30%	12,22	X / X-L / X-ALU

POLYAMID WINKEL-Rollen POLYAMIDE WINKEL Bearings



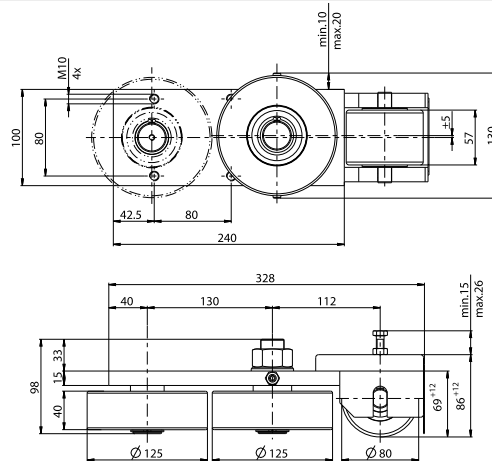
JT-PA 1012

Artikel-Nr Article no.	231.200.100
Gewicht Weight	6,49 kg
F_R	2,5 kN
F_A	3,0 kN



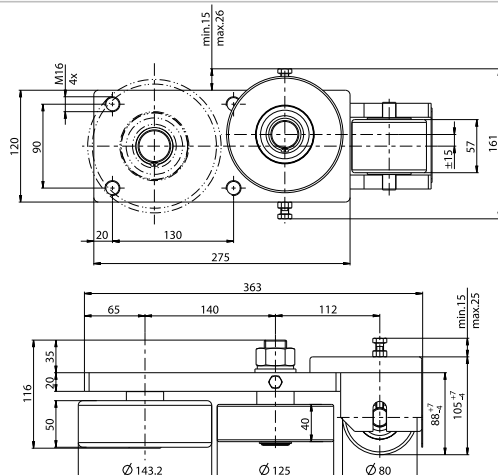
JT-PA 1250

Artikel-Nr Article no.	231.222.000
Gewicht Weight	6,64 kg
F_R	6,0 kN
F_A	3,0 kN



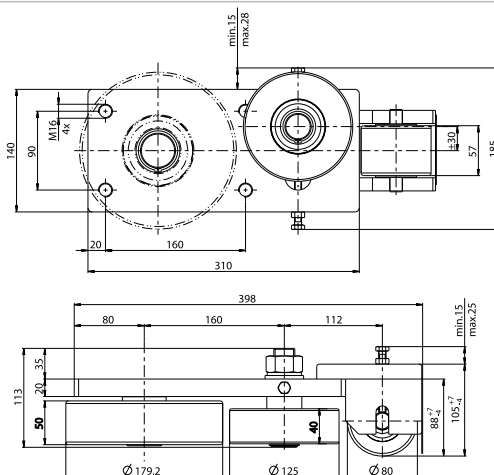
JT-PA 1432

Artikel-Nr Article no.	231.202.001
Gewicht Weight	10,02 kg
F_R	8,0 kN
F_A	3,0 kN



JT-PA 1792

Artikel-Nr Article no.	231.203.001
Gewicht Weight	12,22 kg
F_R	15,0 kN
F_A	3,0 kN



WINKEL-Profile | WINKEL profiles

SPEED + SILENT Profile SPEED + FORCE Profile

WINKEL-Profile in kaltgewalzter Ausführung, nicht gekantet
(Hinweis: Standard X gekantet)

Vorteile:

- Höhere Fertigungsgenauigkeit
- Kanten entgratet
- Alle Profile aus hochwertigem Stahl in S235 JR
- Oberfläche blank
- Alle Profile in Fixlängen sofort ab Lager lieferbar
- Komplette Profilmontage nach Kundenzeichnung auf Anfrage

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

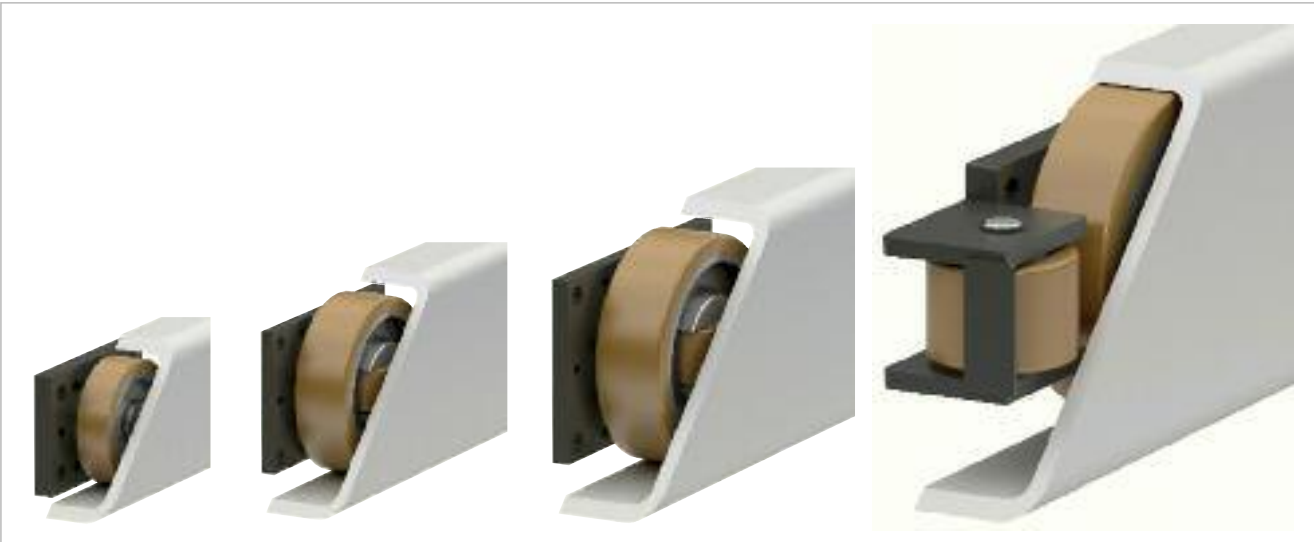
SPEED + SILENT profiles SPEED + FORCE profiles

WINKEL profiles in cold-rolled version, not edged
(Note: Standard X edged)

Advantages:

- Higher manufacturing accuracy
- Edges deburred
- All profiles made of high-quality steel in UNI FE 360 B
- Smooth surface
- All profiles in fixed lengths immediately available from stock
- Machined profiles according customers drawing on request

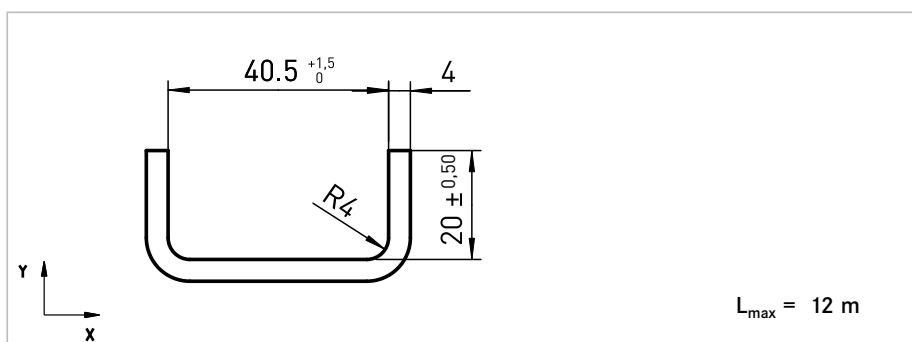
CAD download in 2D/3D at www.winkel.de



Standard A

Artikel-Nr. 113.001.000
Article no.

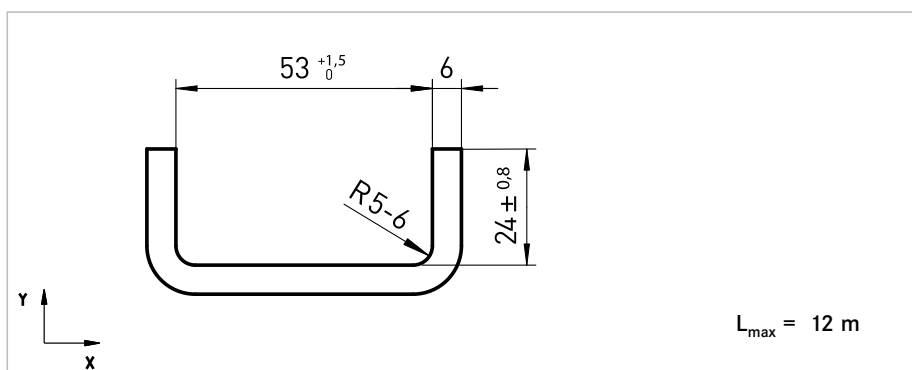
m	2,6	kg/m
A	3,3	cm ²
I _x	1,7	cm ⁴
W _x	1,1	cm ³
I _y	10,6	cm ⁴
W _y	4,4	cm ³
e _y	0,8	cm



Standard S

Artikel-Nr. 113.002.000
Article no.

m	5,3	kg/m
A	6,4	cm ²
I _x	5,0	cm ⁴
W _x	2,5	cm ³
I _y	34,9	cm ⁴
W _y	10,7	cm ³
e _y	1,0	cm



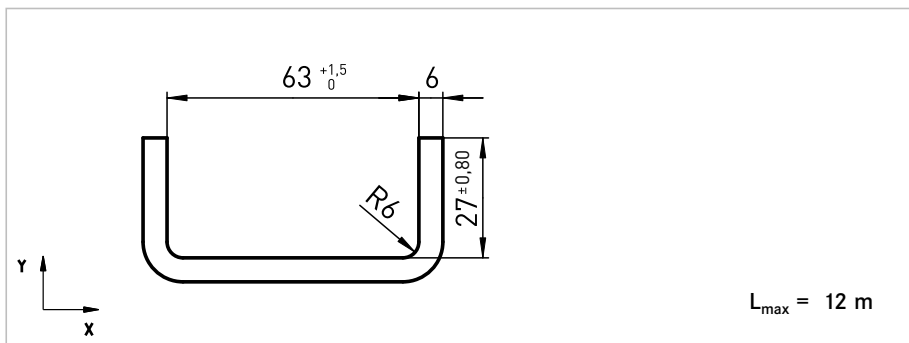
WINKEL-Profile | WINKEL profiles



Standard M

Artikel-Nr. 113.007.000
Article no.

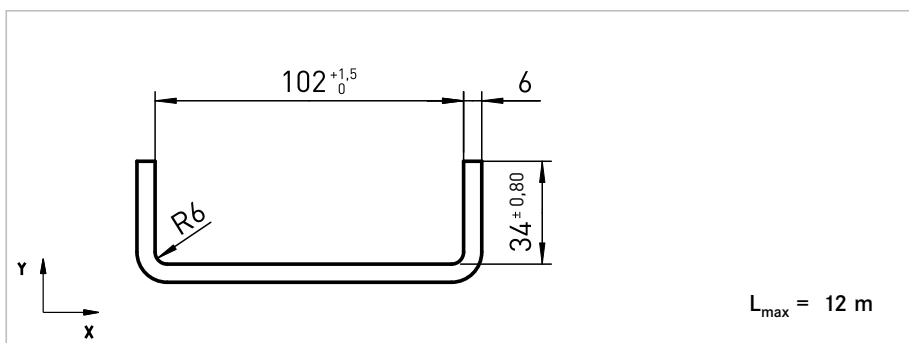
m	5,8	kg/m
A	7,3	cm ²
I _x	6,9	cm ⁴
W _x	3,1	cm ³
I _y	53,6	cm ⁴
W _y	14,3	cm ³
e _y	1,0	cm



Standard V

Artikel-Nr. 113.003.000
Article no.

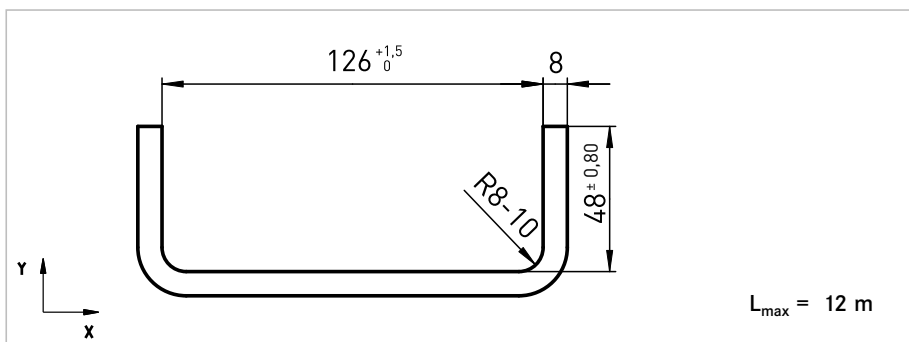
m	8,3	kg/m
A	10,5	cm ²
I _x	14,0	cm ⁴
W _x	4,8	cm ³
I _y	178,7	cm ⁴
W _y	31,4	cm ³
e _y	1,1	cm



Standard R

Artikel-Nr. 113.006.000
Article no.

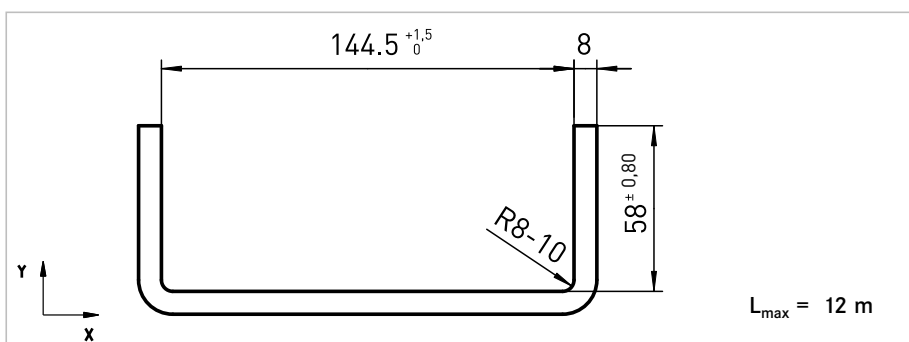
m	14,3	kg/m
A	18,2	cm ²
I _x	49,7	cm ⁴
W _x	12,4	cm ³
I _y	496,3	cm ⁴
W _y	69,9	cm ³
e _y	1,6	cm



Standard W

Artikel-Nr. 113.004.000
Article no.

m	16,9	kg/m
A	21,3	cm ²
I _x	83,1	cm ⁴
W _x	17,5	cm ³
I _y	764,6	cm ⁴
W _y	95,3	cm ³
e _y	1,8	cm

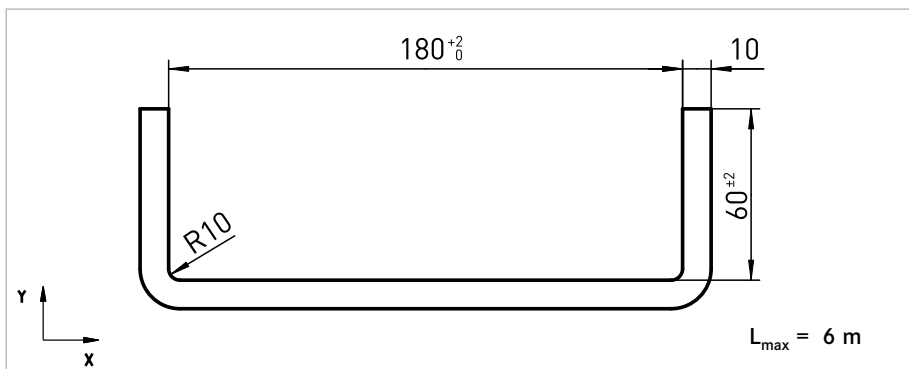


Standard X

Ausführung: gekantet
Version: bended

Artikel-Nr. 113.005.000
Article no.

m	24,1	kg/m
A	30,7	cm ²
I _x	126,1	cm ⁴
W _x	24,6	cm ³
I _y	1626,8	cm ⁴
W _y	162,7	cm ³
e _y	1,9	cm



WINKEL-Profile | WINKEL profiles

NEU

SPEED + SILENT Alu-Profile SPEED + FORCE Alu-Profile

WINKEL-Profile aus Aluminium

Vorteile:

- Höhere Fertigungsgenauigkeit
- Maximale Lieferlänge 6 m
- Alle Profile aus hochwertigem Aluminium AW 6060 T66 nach DIN EN 12020-2 gefertigt
- Oberfläche blank
- Alle Profile in Fixlängen sofort ab Lager lieferbar
- Komplette Profilmontage nach Kundenzeichnung auf Anfrage

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

NEW

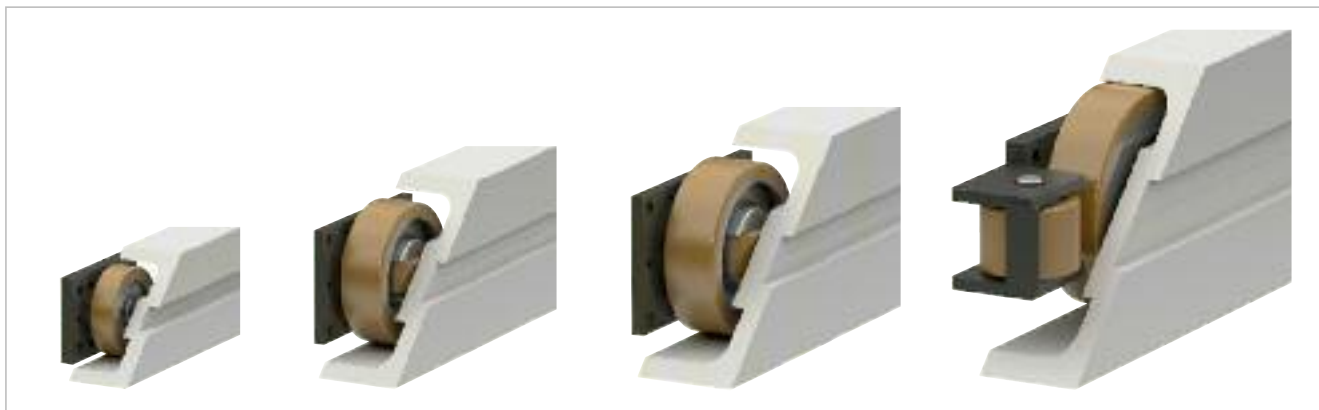
SPEED + SILENT alu profiles SPEED + FORCE alu profiles

WINKEL profiles made of aluminium

Advantages:

- higher manufacturing accuracy
- max. delivery length 6 m
- all profiles are made of high-quality aluminium AW 6060 T66 according to DIN EN 12020-2
- surface finished
- all profiles in fixed lengths, immediately from stock available
- machined profiles according customers drawing on request

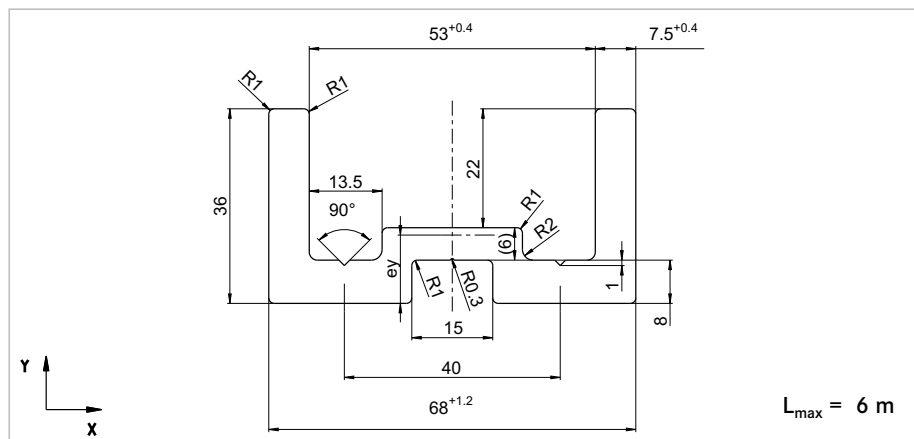
CAD download in 2D/3D at www.winkel.de



Standard S-ALU

Artikel-Nr. 113.002.041
Article no.

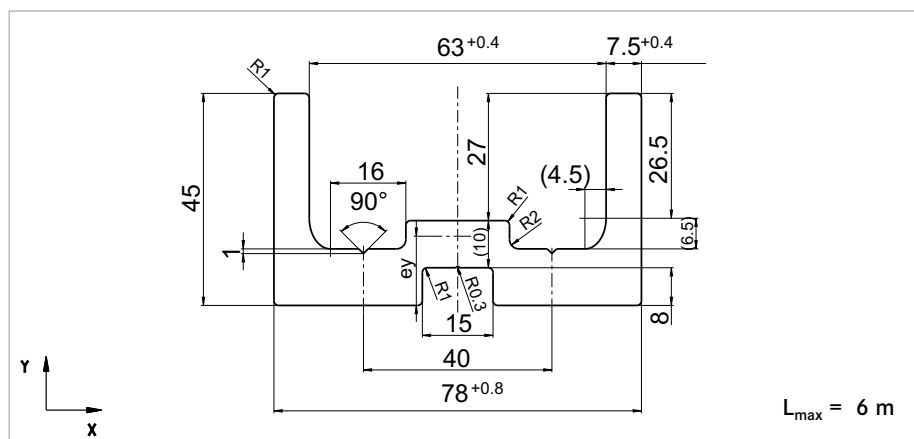
m	2,70 kg/m
A	9,98 cm ²
I _x	9,85 cm ⁴
W _x	4,20 cm ³
I _y	60,13 cm ⁴
W _y	17,68 cm ³
e _y	1,26 cm



Standard M-ALU

Artikel-Nr. 113.007.040
Article no.

m	3,92 kg/m
A	14,53 cm ²
I _x	20,64 cm ⁴
W _x	6,80 cm ³
I _y	110,43 cm ⁴
W _y	28,30 cm ³
e _y	1,47 cm



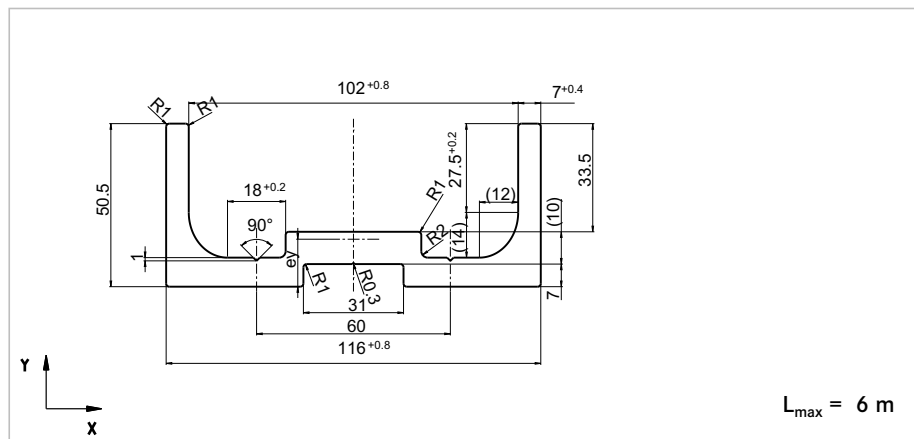
WINKEL-Profile | WINKEL profiles



Standard V-ALU

Artikel-Nr. 113.003.040
Article no.

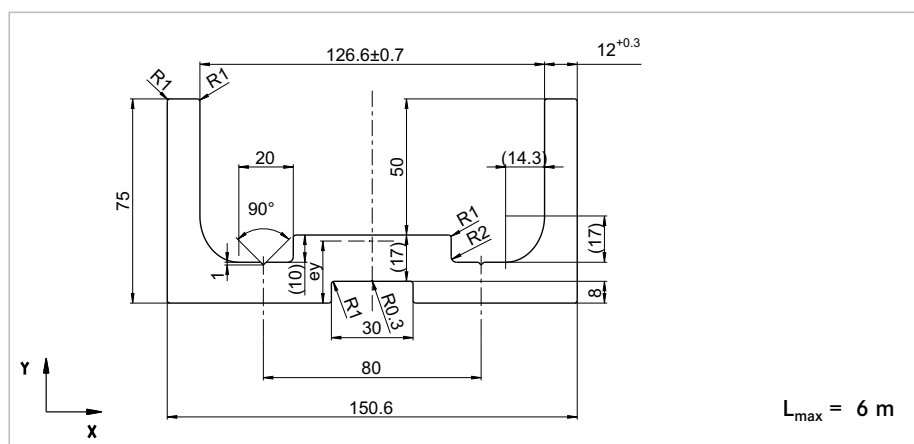
m	4,90 kg/m
A	18,14 cm ²
I _x	30,50 cm ⁴
W _x	8,50 cm ³
I _y	309,43 cm ⁴
W _y	53,40 cm ³
e _y	1,46 cm



Standard R-ALU

Artikel-Nr. 113.006.040
Article no.

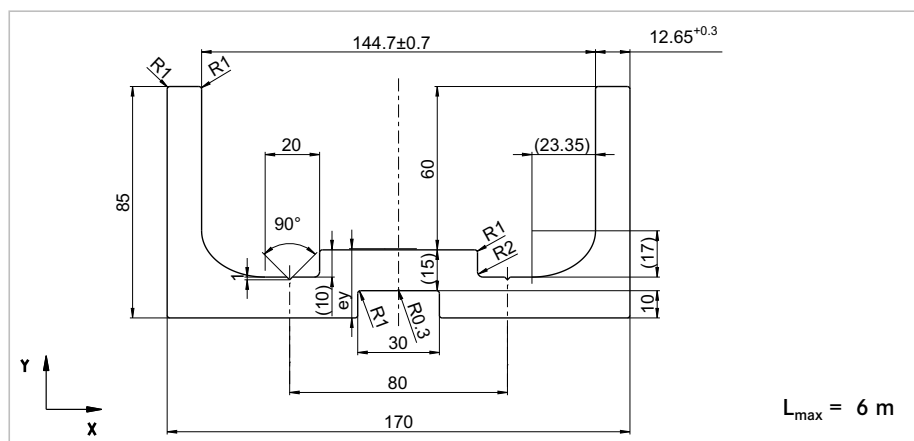
m	11,18 kg/m
A	41,41 cm ²
I _x	163,61 cm ⁴
W _x	31,40 cm ³
I _y	1171,61 cm ⁴
W _y	155,60 cm ³
e _y	2,28 cm



Standard W-ALU

Artikel-Nr. 113.004.040
Article no.

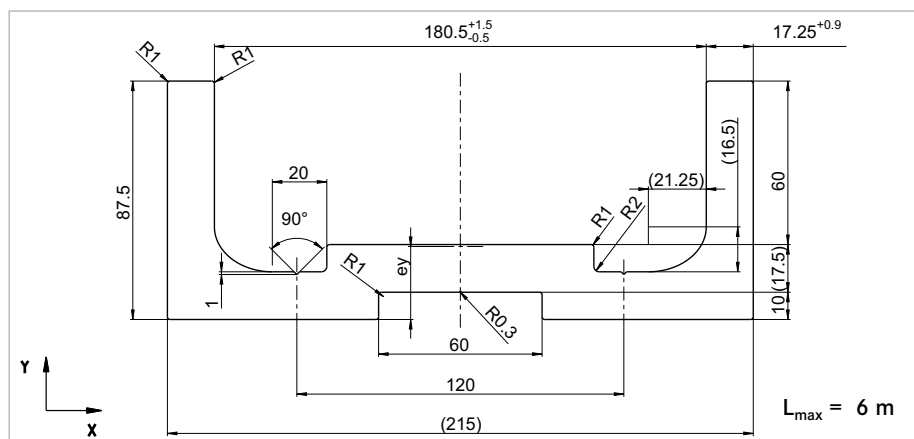
m	12,88 kg/m
A	47,69 cm ²
I _x	255,97 cm ⁴
W _x	42,90 cm ³
I _y	1802,77 cm ⁴
W _y	212,10 cm ³
e _y	2,54 cm



Standard X-ALU

Artikel-Nr. 113.005.040
Article no.

m	18,11 kg/m
A	67,05 cm ²
I _x	364,10 cm ⁴
W _x	60,30 cm ³
I _y	3985,25 cm ⁴
W _y	370,72 cm ³
e _y	2,68 cm



WINKEL-Profil | WINKEL profiles

SPEED + SILENT Profil Typ L

- Starkwandiges robustes Führungsprofil
- Materialgüte: S355 J2
- Profil in höherer Fertigungsqualität
- In lasergeschweißter Ausführung
- Passend für VULKOLLAN®- und POLYAMID WINKEL-Rollen
- Komplette Profilmachung und Oberflächenbeschichtung nach Kundenwunsch

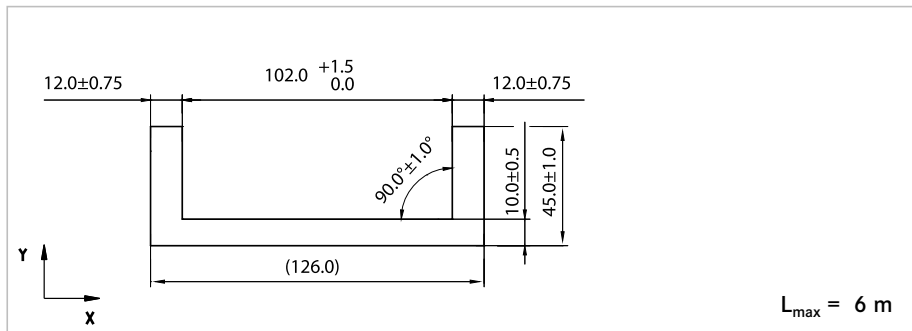
SPEED + SILENT profile Type L

- strong-walled robust guide profile
- material grade: S355 J2
- profile in higher production quality
- in laser-welded design
- suitable for VULKOLLAN® - and POLYAMID WINKEL Bearings
- complete profile machining and surface coating according to customer requirements

Standard V-L

Artikel-Nr. 113.003.010
Article no.

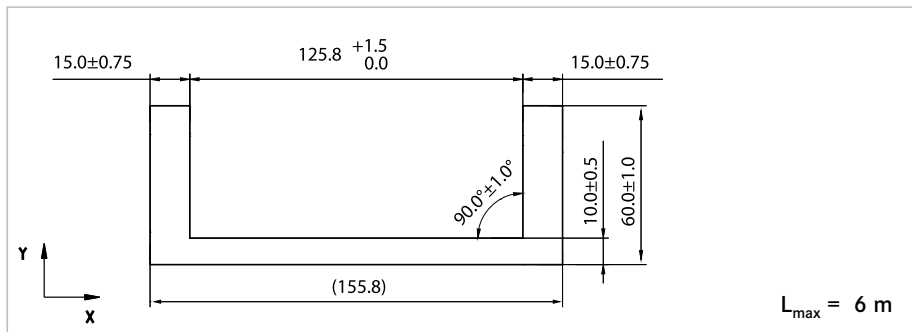
m	16,50 kg/m
A	21,00 cm ²
I _x	35,10 cm ⁴
W _x	11,30 cm ³
I _y	440,60 cm ⁴
W _y	69,90 cm ³
e _y	1,40 cm



Standard R-L

Artikel-Nr. 113.006.010
Article no.

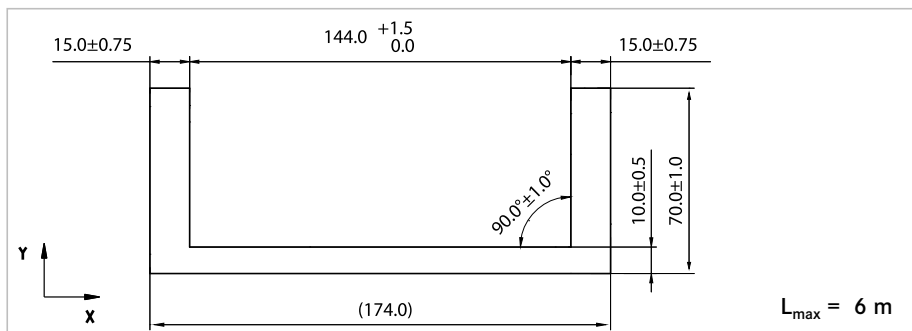
m	24,00 kg/m
A	30,60 cm ²
I _x	101,30 cm ⁴
W _x	25,20 cm ³
I _y	1061,40 cm ⁴
W _y	135,30 cm ³
e _y	1,97 cm



Standard W-L

Artikel-Nr. 113.004.010
Article no.

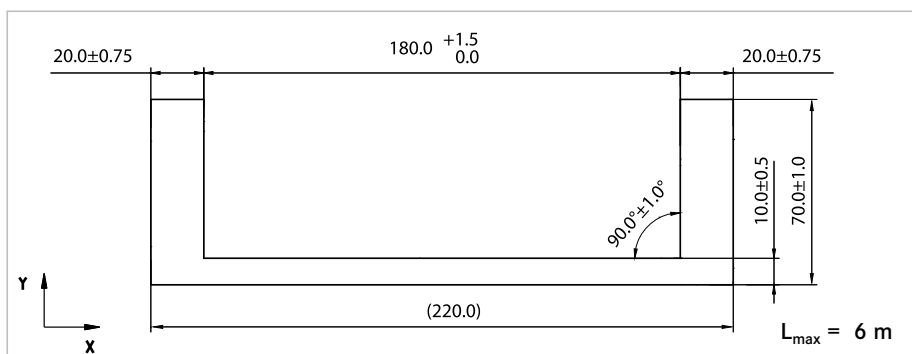
m	27,80 kg/m
A	35,40 cm ²
I _x	163,80 cm ⁴
W _x	34,71 cm ³
I _y	1580,00 cm ⁴
W _y	181,60 cm ³
e _y	2,28 cm



Standard X-L

Artikel-Nr. 113.005.010
Article no.

m	36,10 kg/m
A	46,00 cm ²
I _x	214,40 cm ⁴
W _x	45,88 cm ³
I _y	3295,30 cm ⁴
W _y	299,60 cm ³
e _y	2,33 cm



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WINKEL-Profil | WINKEL profiles



SPEED + SILENT Profil Typ PG-L gebohrt

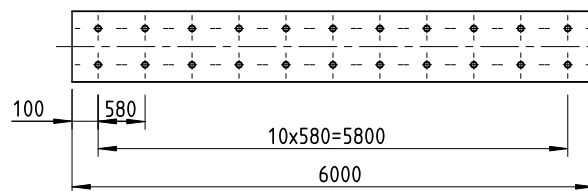
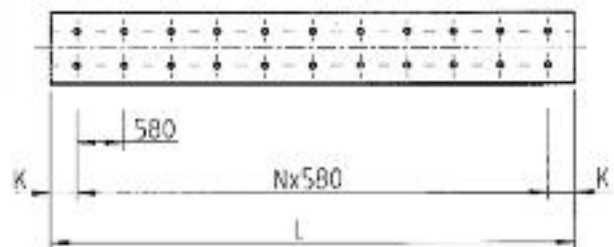
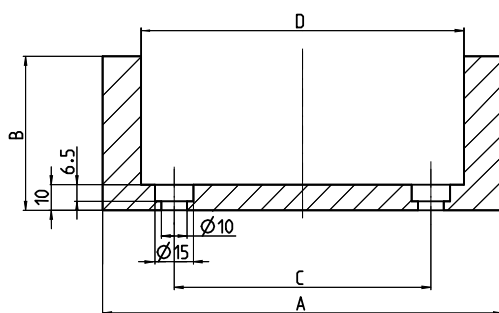
- Starkwandiges robustes Führungsprofil
- Einbaufertige Profile mit standardisierten Befestigungsbohrungen
- Materialgüte: S355 J2
- Profil in höherer Fertigungsqualität
- In lasergeschweißter Ausführung
- Passend für VULKOLLAN®- und POLYAMID WINKEL-Rollen
- Oberflächenbeschichtung nach Kundenwunsch

SPEED + SILENT profile Type PG-L drilled

- strong and robust guiding profile
- ready to mount profiles with standardized thread holes
- material: S355 J2
- profile with higher manufacturing precision
- laser welded version
- suitable for VULKOLLAN®- and POLYAMIDE WINKEL Bearings
- surface coating according customers drawing



Zeichnungsvorlage für Kundenprofil
Drawing for customized profile



Profil Profile	Artikel-Nr. Article no.	A [mm]	B [mm]	C [mm]	D [mm]	Gewicht kg Weight kg
PG V-L	113.003.020	126,0	45 ± 1,0	70,0	102,0 + 1,5	16,5
PG R-L	113.006.020	155,8	60 ± 1,0	100,0	125,8 + 1,5	24,0
PG W-L	113.004.020	174,0	70 ± 1,0	120,0	144,0 + 1,5	27,8
PG X-L	113.005.020	220,0	70 ± 1,0	150,0	180,0 + 1,5	36,1



Klemmflansche

für horizontale Bodenmontage

Vorteile:

- Justierbares Klemmsystem
- Kurze Montagezeit, keine Schweiß- und Richtzeiten
- Sicherer Sitz und leichte Austauschbarkeit der Profile
- Parallelität ist leicht einstellbar

Clamp flanges

for horizontal floor assembling

Advantages:

- adjustable clamp system
- short assembling, no welding and straightening works
- secure fixation and easy profile change
- parallelism easy to adjust

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

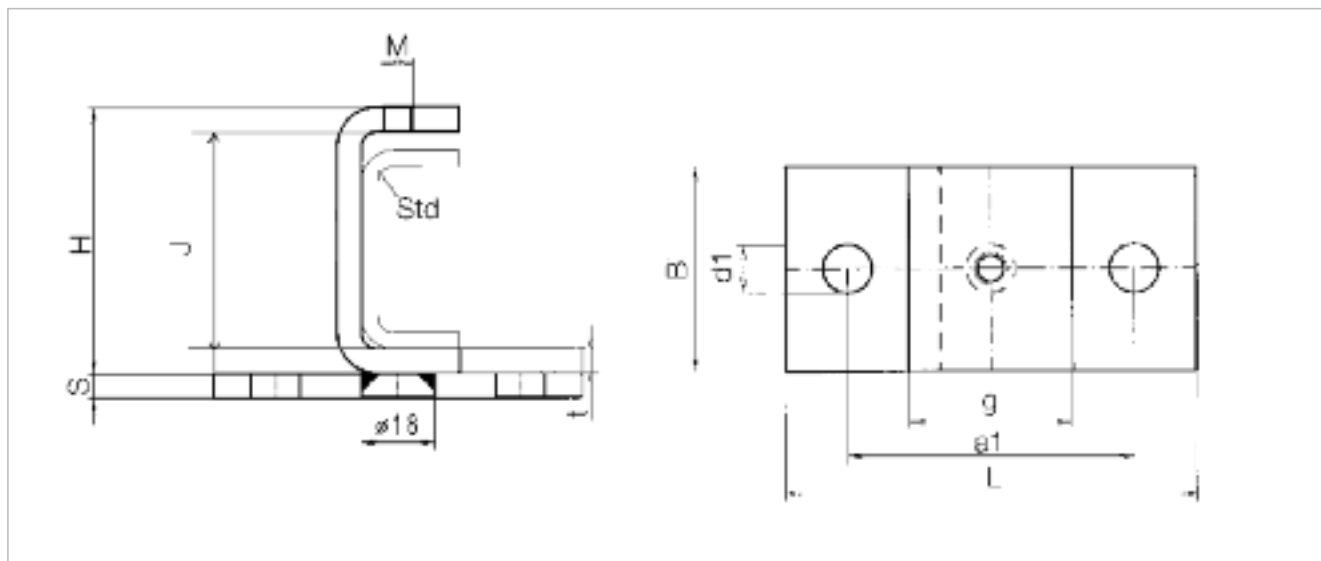
CAD download in 2D/3D at www.winkel.de





Klemmflansch KF-A und KF-S

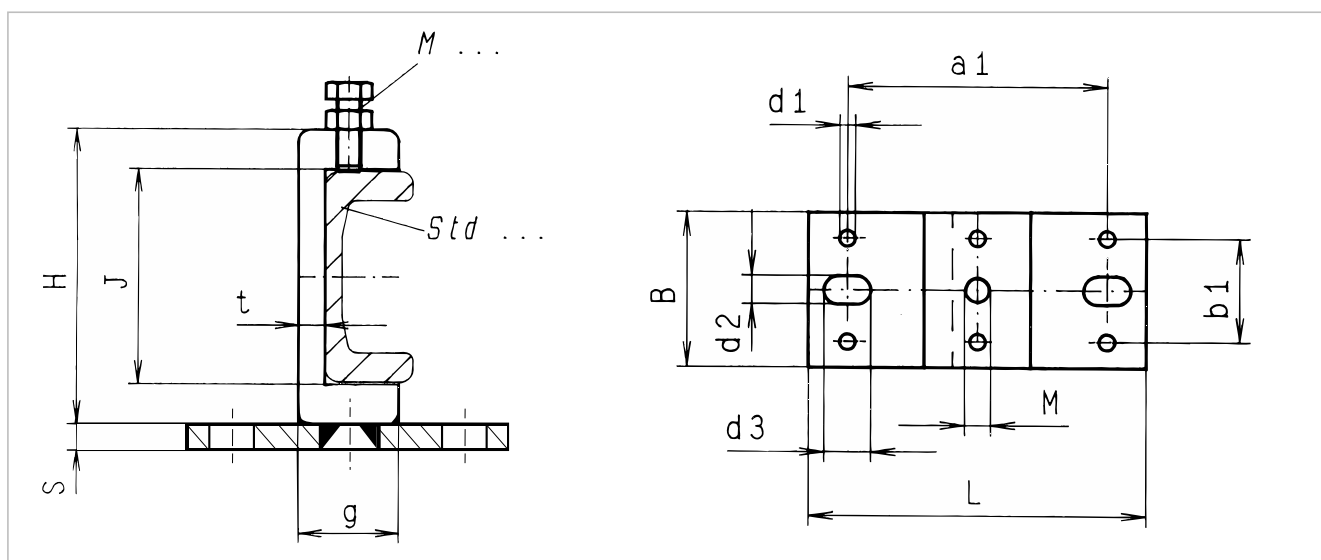
Clamp flange KF-A and KF-S



Typ Type	Artikel-Nr. Article no.	Profil Profile	H [mm]	B [mm]	L [mm]	S [mm]	J [mm]	g [mm]	t [mm]	a1 [mm]	d1 [mm]	M	Gewicht kg Weight kg
KF A	290.001.000	Std A	65	50	90	6	53	30	6	60	12	M8	0,40
KF S	290.002.000	Std S	83	50	100	8	67	40	8	70	12	M8	0,70

Klemmflansch KF 0-4

Clamp flange KF 0-4



Typ Type	Artikel-Nr. Article no.	Profil Profile	H [mm]	B [mm]	L [mm]	S [mm]	J [mm]	g [mm]	t [mm]	a1 [mm]	b1 [mm]	d1 [mm]	d2 [mm]	d3 [mm]	M	Gewicht kg Weight kg
KF 0	290.003.000	Std 0 NbV	121,3	60	130	10	88,5	41,0	10,8	100	40	6	11	18	M10x30	1,60
KF 1	290.004.000	Std 1 NbV	135,4	60	130	10	105,0	53,0	12,7	100	40	6	11	18	M10x30	1,95
KF 2	290.005.000	Std 2 NbV	157,2	80	160	15	123,0	61,2	14,0	130	60	6	13	18	M12x35	3,85
KF 3	290.006.000	Std 3 NbV	175,0	80	160	15	137,5	66,2	16,2	130	60	6	13	18	M12x35	4,30
KF 4	290.007.000	Std 4 NbV	201,5	80	160	15	159,0	71,2	19,4	130	60	6	13	18	M12x35	5,20

WINKEL Antriebskomponenten | WINKEL drive components

Antriebskomponenten

- Zahnstangen
- Zahnräder

Zahnstangen für fortlaufende Montage

gerade verzahnt, Verzahnung gefräst, 20° Eingriffswinkel, Stahl C 45 (Werkstoff-Nr. 1.0503), feingerichtet.

Verzahnungsqualität 9 e 27 analog DIN 3967.

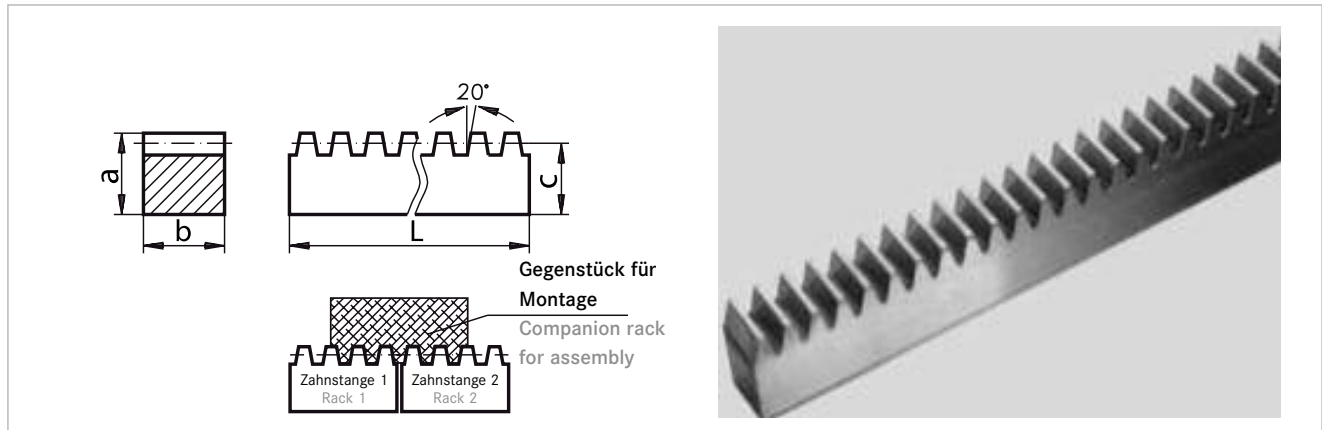
Drive components

- racks
- pinions

Rack for continuous linking

straight tooth systems, milled teeth, 20° pressure angle, steel C 45 (material code 1.0503), fine straightened.

Tooth quality 9 e 27 according DIN 3967.



Typ Type	Artikel-Nr. Article No.	a [mm]	b [mm]	c [mm]	Zähnezahl No. of teeth	L [mm]	Gewicht kg Weight kg
Modul / Module 2	228.502.000	20,0	20,0	18,0	318	1998,05	5,50
Modul / Module 3	228.503.000	30,0	30,0	27,0	216	2035,75	12,43
Modul / Module 4	228.504.000	40,0	40,0	36,0	160	2010,62	22,50
Modul / Module 5	228.505.000	50,0	50,0	45,0	128	2010,62	35,00
Modul / Module 6	228.506.000	60,0	60,0	54,0	108	2035,75	50,00

Weitere Bearbeitungen (härten, Gewindebohren etc.) auf Anfrage | Additional treatment (hardening, thread holes ...) on request.



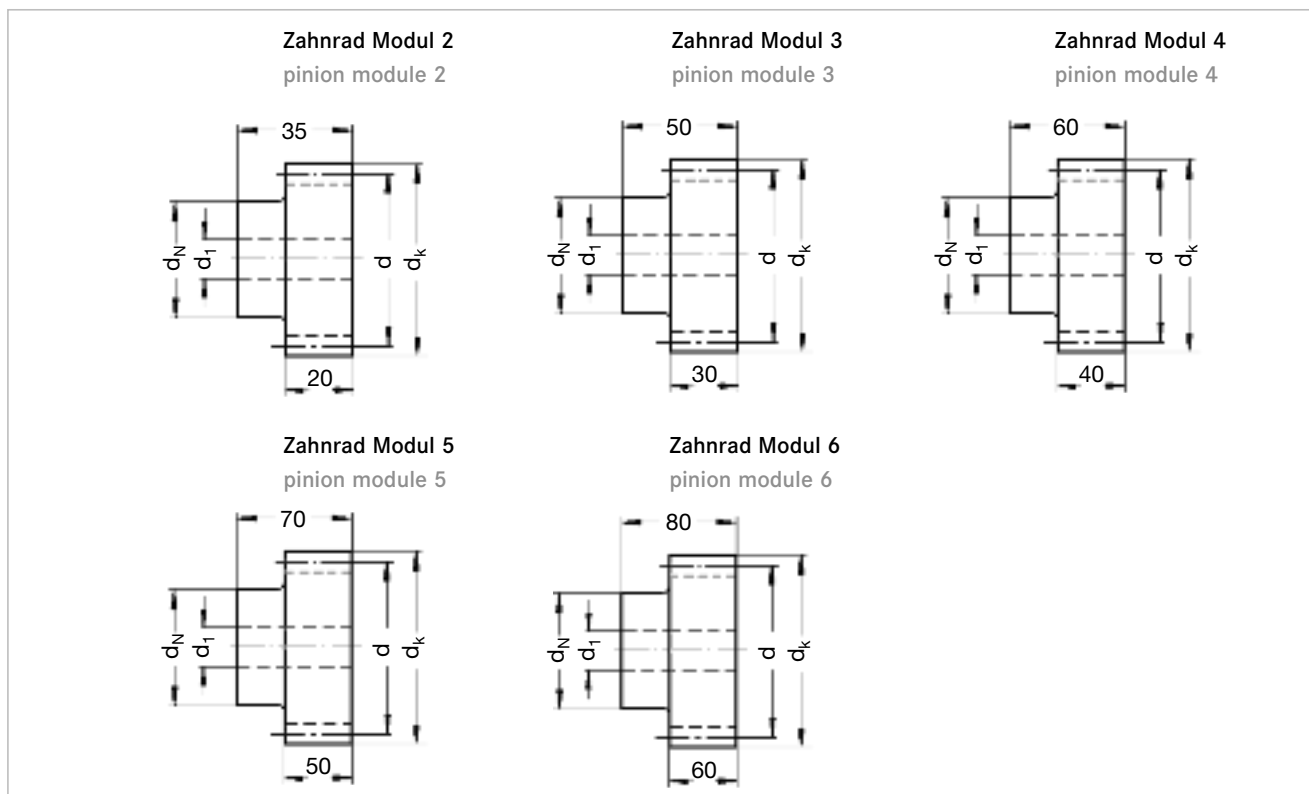


Zahnräder mit gefräster Verzahnung

gerade verzahnt, Verzahnung gefräst,
20° Eingriffswinkel, Stahl C 45 (Werkstoff-Nr. 1.0503).
Verzahnungsqualität 9 e 25.

Pinion with milled teeth

straight tooth system, milled teeth, 20° transverse pressure
angle, steel C 45 (material code 1.0503).
Gearing grade 9 e 25.



Typ Type	Artikel-Nr. Article No.	Anzahl Zähne z No. of teeth z	d [mm]	dk [mm]	d1 [mm]	dn [mm]	M1 max. [Nm]	M2 max. [Nm]	M3 max. [Nm]	Gewicht kg Weight kg
Mod. 2	218.502.020	20	40,0	44,0	9,0	30,0	14	28	75	0,22
Mod. 2	218.502.024	24	48,0	52,0	12,0	35,0	24	43	120	0,36
Mod. 2	218.502.030	30	60,0	64,0	12,0	40,0	44	74	152	0,50
Mod. 2	218.502.035	35	70,0	74,0	12,0	50,0	70	110	170	0,67
Mod. 3	218.503.015	15	45,0	51,0	14,0	35,0	13	41	87	0,41
Mod. 3	218.503.017	17	51,0	57,0	14,0	42,0	21	70	148	0,67
Mod. 3	218.503.023	23	69,0	75,0	14,0	50,0	76	132	350	1,10
Mod. 3	218.503.025	25	75,0	81,0	14,0	60,0	97	168	440	1,35
Mod. 4	218.504.017	17	68,0	76,0	16,0	50,0	60	175	365	1,30
Mod. 4	218.504.019	19	76,0	84,0	16,0	60,0	100	225	545	1,70
Mod. 4	218.504.023	23	92,0	100,0	16,0	75,0	190	338	950	2,60
Mod. 5	218.505.017	17	85,0	95,0	20,0	70,0	120	350	730	2,20
Mod. 5	218.505.021	21	105,0	115,0	20,0	70,0	280	560	1370	3,80
Mod. 5	218.505.023	23	115,0	125,0	20,0	80,0	380	675	1575	4,70
Mod. 6	218.506.021	21	126,0	138,0	20,0	90,0	510	970	2450	6,70
Mod. 6	218.506.025	25	150,0	162,0	20,0	110,0	870	1400	2950	9,60

M1 max. für Zahnstange und Zahnrad ungehärtet

M2 max. für Zahnstange ungehärtet und Zahnrad gehärtet

M3 max. für Zahnstange und Zahnrad gehärtet

Weitere Bearbeitungen (Bohrung ausdrehen, nuten, härten etc.)
auf Anfrage.

M1 max. for rack and pinion not hardened

M2 max. for rack not hardened and pinion hardened

M3 max. for rack and pinion hardened

Additional treatment (turning bores, keywaying, hardening ...)
on request.



Korrosionsschutz für WINKEL-Rollen: HARTCHROM-Beschichtung

HARTCHROM-Beschichtung

Die HARTCHROM-Beschichtung ist eine extrem haftfeste, rissarme, dichte, harte und hochreine Chrombeschichtung mit einer Kugelstruktur im Mikrobereich. Es handelt sich um eine rein metallische Chromschicht mit einer Schichtstärke von 2-12 µm. Der Verchromungsprozess wird in geschlossener Reaktortechnik in einem Temperaturbereich von 50-60 °C durchgeführt.

Ein Verzug der Bauteilgeometrie ist somit ausgeschlossen. Alle in diesem Katalog enthaltenen WINKEL-Rollen in Stahlausführung sind auf Anfrage mit HARTCHROM-Beschichtung erhältlich.

Vorteile der HARTCHROM-Beschichtung:

■ Korrosionsschutz

Die rissarme Hartchromschicht schützt das Grundmaterial, im Gegensatz zu herkömmlichen Beschichtungen, dauerhaft und nachhaltig gegen chemische und mechanische Korrosionsprozesse.

■ Haftfestigkeit

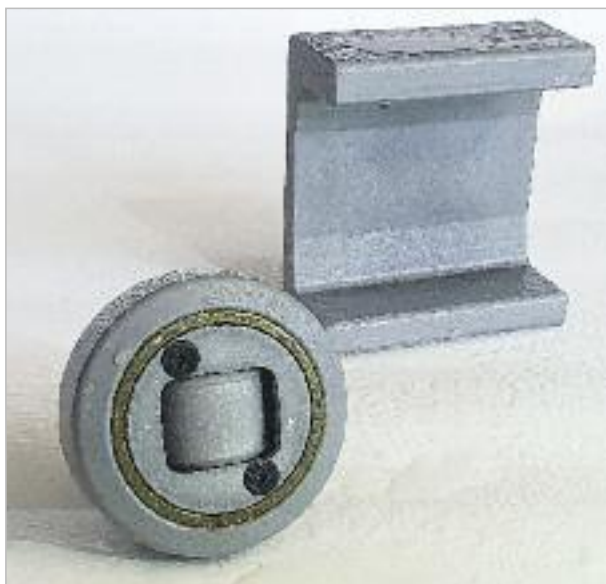
Die Bindung der Hartchromschicht zum Grundsubstrat ist molekularer Natur. Ein Abplatzen der Schicht vom Grundmaterial ist somit nahezu unmöglich.

■ Tribologie / Reibungskoeffizient

Die besondere Kugelstruktur der Hartchromoberfläche trägt dazu bei, den Reibkoeffizienten deutlich zu reduzieren.

■ Tribologie / Verschleißschutz

Die HARTCHROM-Beschichtung bietet einen hervorragenden Verschleißschutz, insbesondere bei Überrollbelastung. Weitere technische Informationen senden wir Ihnen gerne auf Anfrage zu.



Corrosion protection for WINKEL Bearings: HARTCHROM coating

The HARTCHROM coating:

The HARTCHROM coating is an extremely adhesive, low-crack, dense, hard and high-purity chrome coating with a spherical structure in the micro range. It is a purely metallic chrome coating with a layer thickness of 2-12 µm. The chrome plating process is carried out in closed reactor technology in at a temperature range of 50-60 °C.

Deformation of the component geometry is therefore excluded. All WINKEL steel bearings contained in this catalogue are available with HARTCHROM coating on request.

Advantages of the HARTCHROM coating:

■ Corrosion protection

In contrast to conventional coatings, the low-crack hardchrome layer protects the base material permanently and sustainably against chemical and mechanical corrosion processes.

■ Adhesion

The bond between the hardchrome layer and the base substrate is of a molecular nature. It is therefore almost impossible for the layer to lift off the base material.

■ Tribology / friction coefficient

The special spherical structure of the hardchrome surface helps to significantly reduce the coefficient of friction.

■ Tribology / Wear protection

The HARTCHROM coating provides excellent wear protection, especially against overrolling loads. We will be happy to send you further technical information on request.





Korrosionsschutz für WINKEL-Profile

Alle WINKEL-Profile sind in korrosionsgeschützter und beschichteter Ausführung lieferbar. Wir liefern die Führungen komplett bearbeitet und beschichtet für den sofortigen Einbau.

Folgende Verfahren stehen zur Auswahl:

■ Lackierte Ausführung

Die einfachste und effektivste Möglichkeit Profile gegen Korrosion zu schützen, ist das Lackieren. Die Profile bis zu 12 m werden gereinigt, grundiert und in RAL nach Wahl lackiert. Die Gesamtschichtstärke beträgt ca. 80 µm. Die Profilinnenseite bleibt unlackiert, da die Farbe abplatzen könnte, wenn die gehärtete Rolle darüber läuft. Ein leichter Fettfilm in der Profilinnenseite ist hier als Korrosionsschutz völlig ausreichend.

■ Galvanisch verzinkte Ausführung

Auf Anfrage sind alle Stahlprofile bis 4 m in galvanisch verzinkter Ausführung lieferbar. Bei diesem Verfahren werden auch die Laufflächen komplett beschichtet. Ein Abplatzen der Oberfläche in diesem Bereich kann im Betrieb nicht ausgeschlossen werden. Die Schichtstärke beträgt 10 – 20 µm.

■ Spritzflamverzinkte Ausführung

Alle WINKEL-Profile sind in Längen bis zu 12 m in spritzflamverzinkter Ausführung lieferbar. Bei diesem Prozess wird ein Zinkdraht durch eine Flamme angeschmolzen und durch Druckluft, fein zerstäubt, auf das Profil aufgebracht. Während des Auftragungsprozesses entsteht eine hochwertige Schutzschicht, die gegenüber den galvanischen Zinkschichten, bezüglich dem Abplatzen, überlegen ist. Die aufgetragene Schichtstärke beträgt mindestens 50 µm.

Corrosion protection for WINKEL Profiles

All WINKEL profiles are available in corrosion protected version. We deliver your profiles completely machined with the surface treatment of your choice - ready for installation.

Following coatings are available:

■ Painted version

The most simple and most effective way to protect profiles against corrosion is to paint them. The profiles up to 12 m are cleaned, primed and painted in the RAL colour of your choice. The total coating thickness is approx. 80 µm. The inside of the profile remains unpainted, as the paint could flake off when the hardened roller runs over it. A slight film of grease on the inside of the profile is completely sufficient against corrosion.

■ Chemical galvanized version

All steel profiles up to 4 m are available in a chemical galvanized version on request. With this technique, all surfaces are completely coated. Flaking off the running surface cannot be excluded during operation. The layer thickness is 10 - 20 µm.

■ Plasma galvanized version

All WINKEL profiles are available in lengths of up to 12 m in plasma galvanized version. In this process, a zinc wire is melted by a flame and then atomised by compressed air before it gets finely applied to the profile. During the application process a high-quality protective layer is created, which is much better than galvanic zinc coatings with regard to flaking. The thickness of the applied layer is at least 50 µm.





Schmiersystem für WINKEL-Rollen
Combi-Lub 1

Artikel-Nr. 051.060.100

Bestehend aus:

- Aktivierungsschrauben (6 Monate rot, 12 Monate grau)
- Schmierstoffgeber mit Hochleistungsfett WHF 04
- Halterung aus Edelstahl
- Nylonschlauch L = 2000 mm
- Schlauchanschluss M6
- Kegelschmiernippel R ¼ (zum Vorbefüllen des Systemes)

Austauschkit für Schmiersystem
Schmierstoffgeber WHF 04

Art.-Nr. 051.060.101

Bestehend aus:

- Aktivierungsschrauben (6 Monate rot, 12 Monate grau)
- Schmierstoffgeber mit Hochleistungsfett WHF 04

Hochleistungsfett zur Vorbefüllung
Hochleistungsfett WHF 04

Art.-Nr. 051.060.108

- 400 gr. Kartusche Hochleistungsfett WHF 04



Lubrication System for WINKEL Bearings
Combi-Lub 1

Article no. 051.060.100

consisting of:

- activator (6 months red, 12 months grey)
- lubrication system with high performance grease WHF 04
- bracket (stainless steel)
- nylon tube L = 2000 mm
- tube connection M6
- grease nipple R ¼ (for pre-filling of the tube)

Exchange kit for Combi-Lub 1
Exchange Kit WHF 04

Article no. 051.060.101

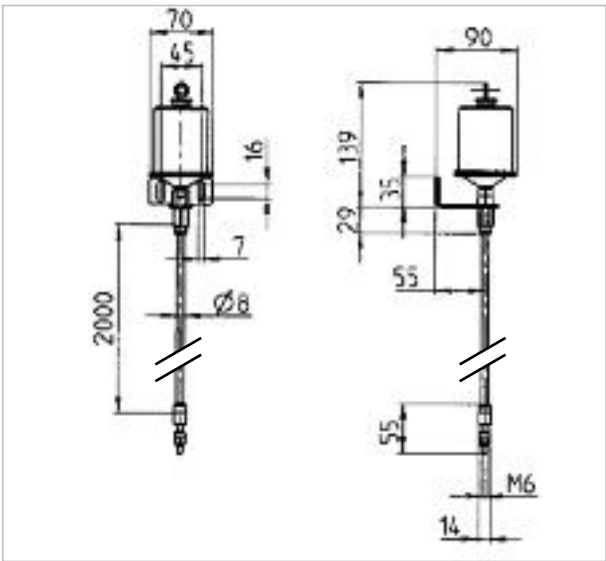
consisting of:

- activator (6 months red, 12 months grey)
- lubrication system with high performance grease WHF 04

High performance grease for pre-filling
High performance grease WHF 04

Article no. 051.060.108

- 400 gr. Cartridge High performance grease WHF 04



WINKEL Combi-Lub 1: Spendezeiten in Monaten

Aktivierungsschraube	6, rot	12, grau
bei Ø-Temperatur 0 °C	15	> 18
bei Ø-Temperatur + 10 °C	8	18
bei Ø-Temperatur + 20 °C	6	12
bei Ø-Temperatur + 30 °C	3	6
bei Ø-Temperatur + 40 °C	2	3

1 Tag Anlaufzeit bis zum ersten Schmierstoffaustritt ohne Gegendruck

WINKEL Combi-Lub 1: Discharge period in months

Activator	6, red	12, grey
at Ø-temperature 0 °C	15	> 18
at Ø-temperature + 10 °C	8	18
at Ø-temperature + 20 °C	6	12
at Ø-temperature + 30 °C	3	6
at Ø-temperature + 40 °C	2	3

1 day time required until first discharge takes place (without counter-pressure)



Alles aus einer Hand

Unser Maschinenpark umfasst 15 CNC-Bearbeitungszentren. Wir fertigen die WINKEL-Führungsprofile bis zu einer Länge von 13 m komplett nach Ihrer Fertigungszeichnung.

Ablängen, feinrichten, fräsen, bohren bis hin zur Oberflächenbehandlung (lackieren, galvanisch- oder spritzflamverzinken) – Sie erhalten alles einbaufertig aus einer Hand.

All from one source

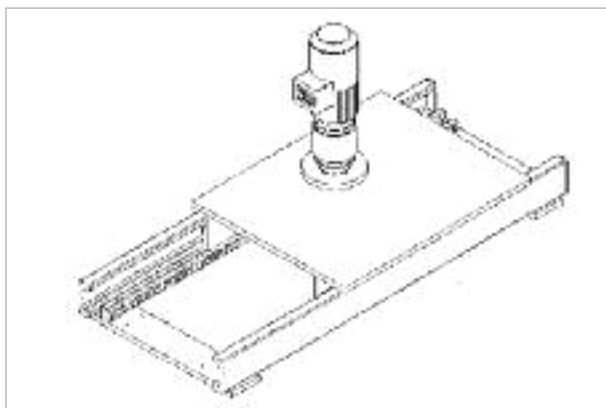
Our machinery includes 15 CNC machining centres. We manufacture WINKEL guide profiles up to a length of 13 m completely according to your production drawing.

Cutting to length, fine straightening, milling, drilling right through to surface treatment (painting, galvanising or spray-flame galvanising) – you get everything ready for installation from a single source.

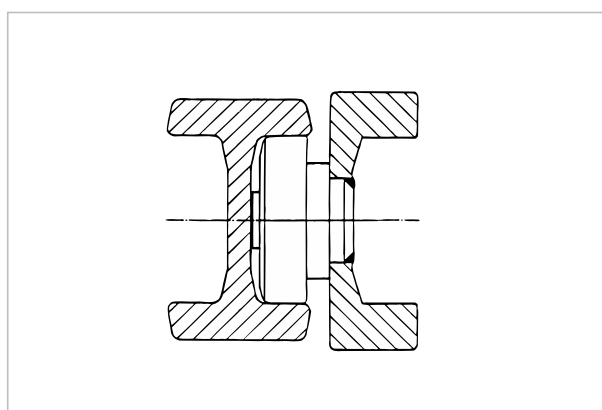
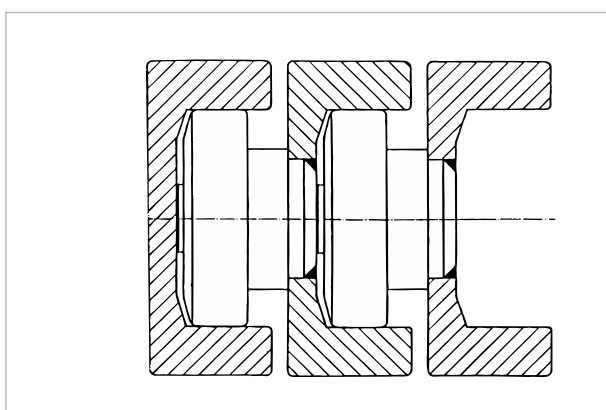
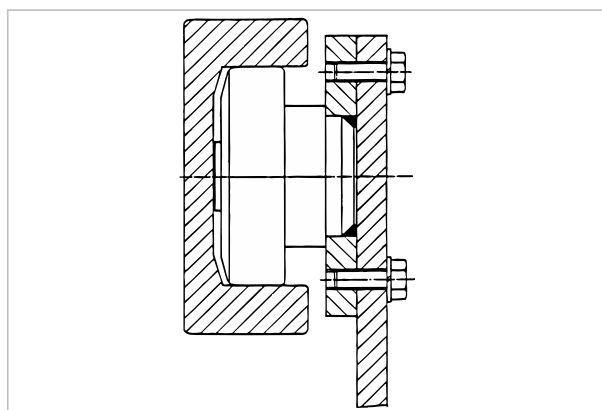
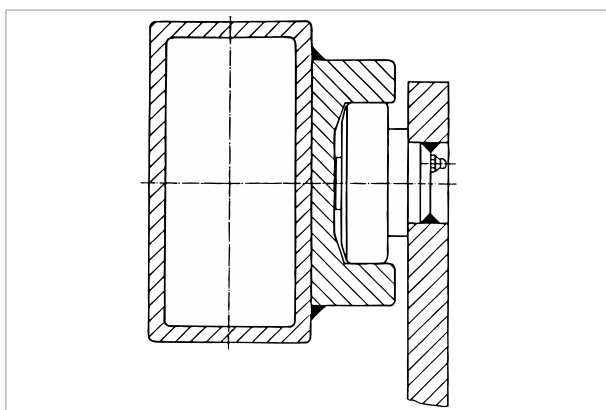
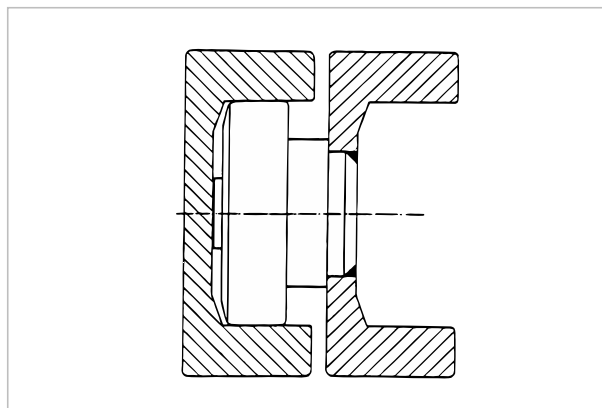
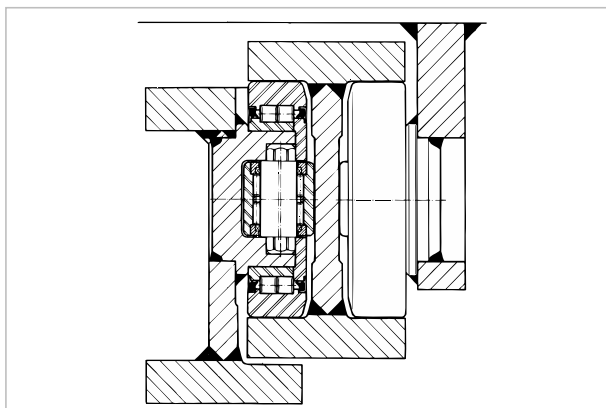
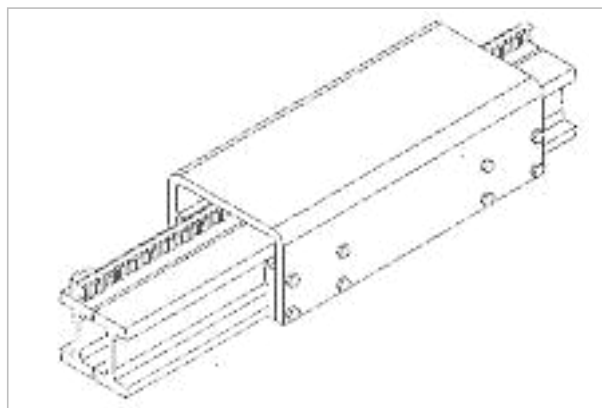




Anwendungsbeispiele



Application examples



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

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

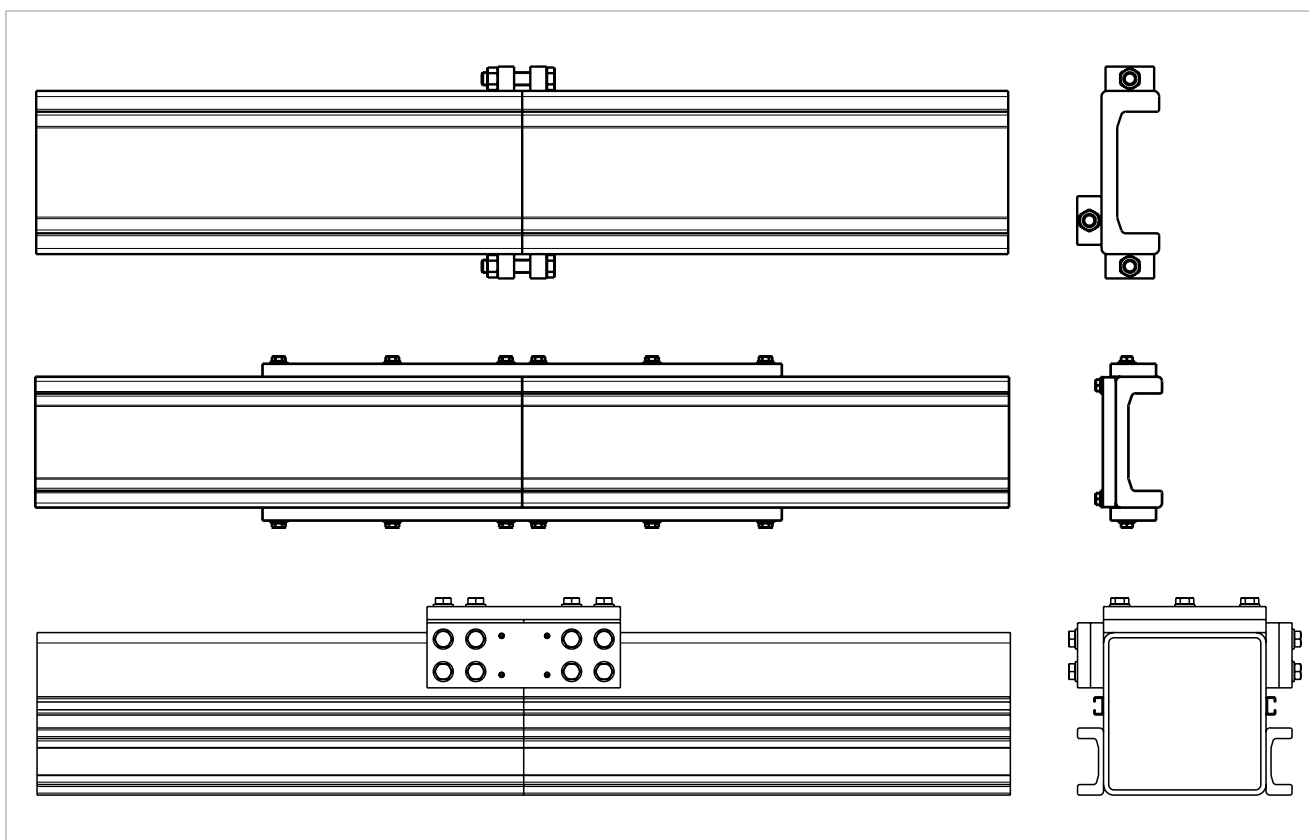
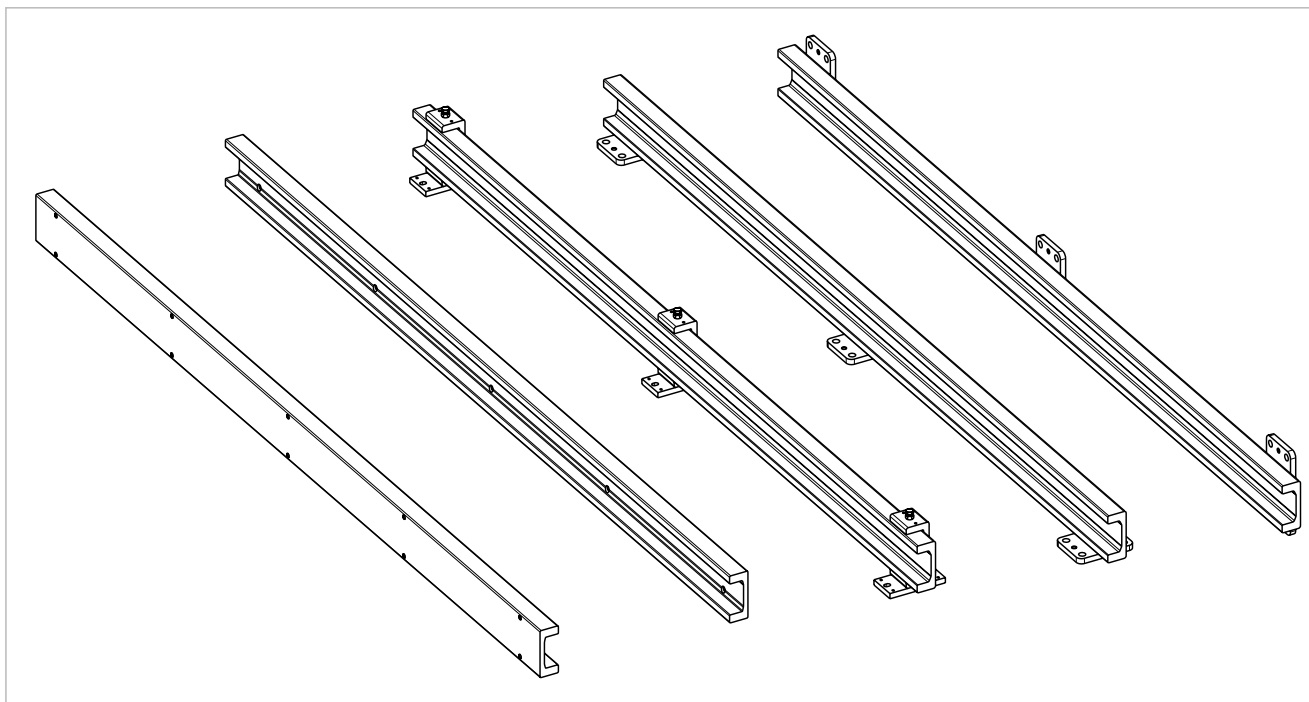


Anwendungsbeispiele

Application examples

Befestigungsbeispiele und Profil-Trennstellen

Fixation examples and profile disconnecting points

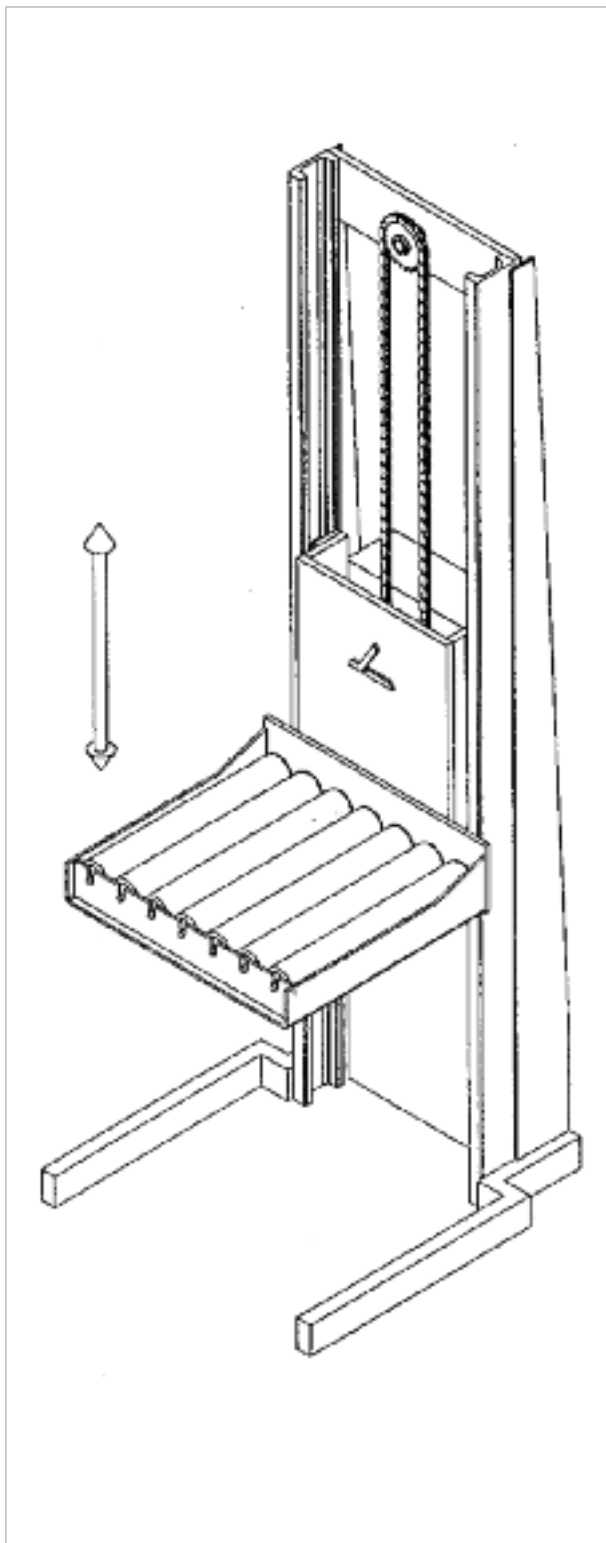




Anwendungsbeispiele

Hubvorrichtungen

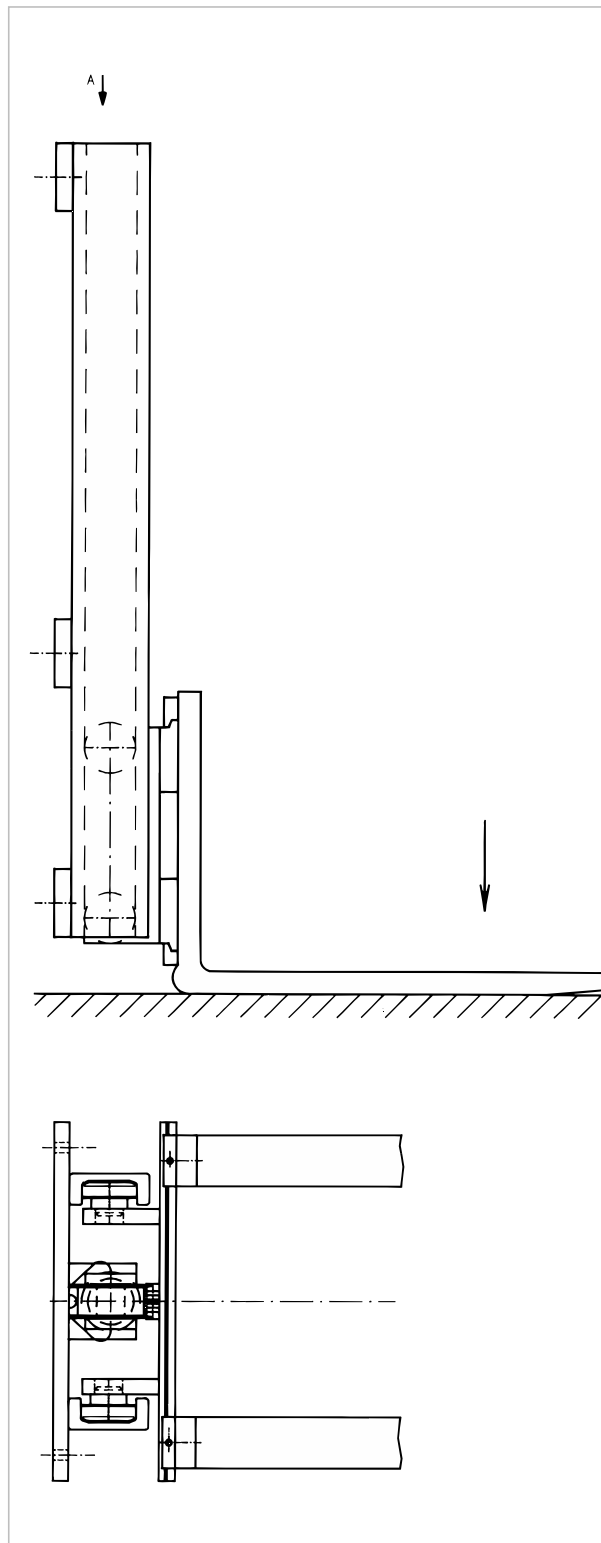
- Antrieb elektromechanisch oder hydraulisch mit einfach wirkendem Zylinder
- Lastaufnahmeteil zweckentsprechend
- Für stationären oder mobilen Einsatz



Application examples

Lifting units

- electromechanical or hydraulic powered with cylinder
- load carriage according to the application
- for stationary or mobile use





Anwendungsbeispiele

Horizontal-Teleskop

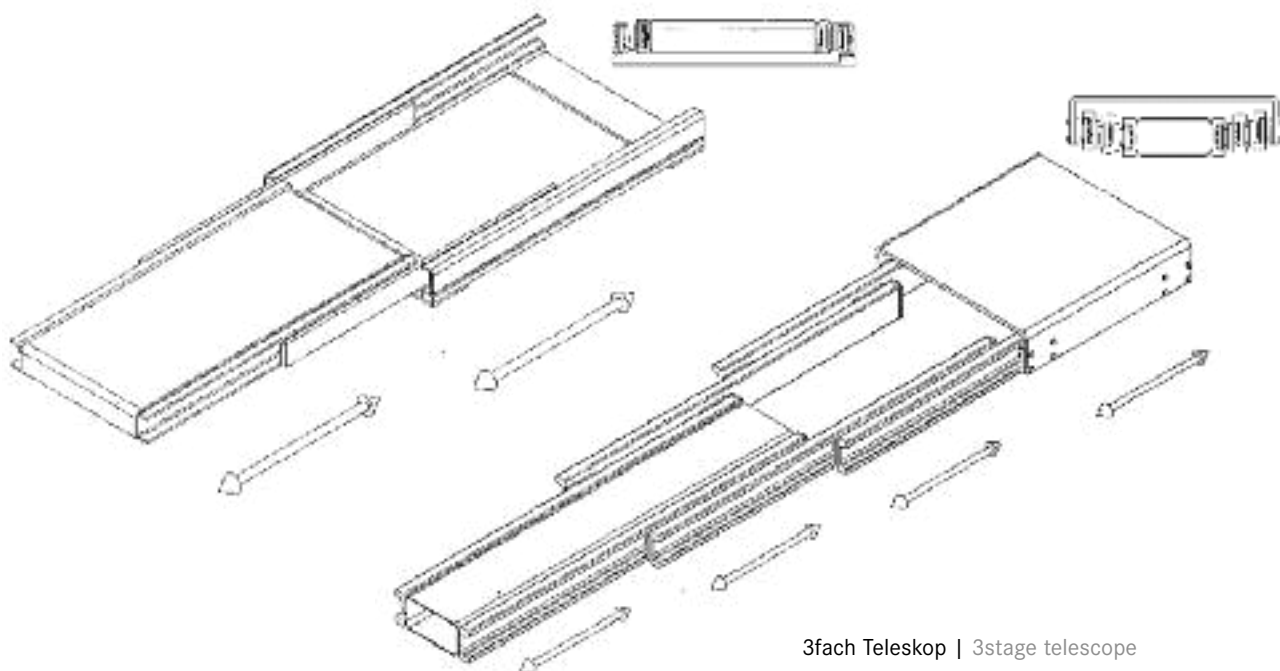
- Mit Handantrieb oder elektromechanischem Antrieb
- Mit Endanschlägen

Application examples

Horizontal telescopes

- manual or electromechanical powered
- with end stopper

2fach Teleskop | 2stage telescope

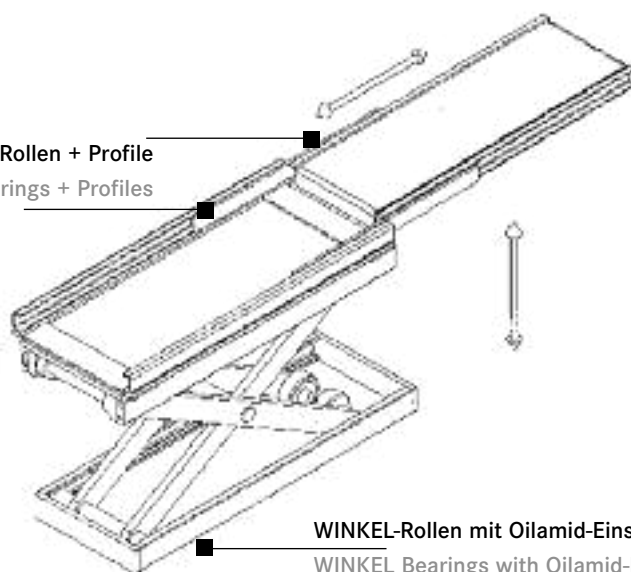


3fach Teleskop | 3stage telescope

WINKEL-Rollen für Scherenhubbühnen

WINKEL Bearings for scissor lifts

WINKEL-Rollen + Profile
WINKEL Bearings + Profiles



WINKEL-Rollen mit Oilamid-Einsatz
WINKEL Bearings with Oilamid-Insert





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