WARTUNGSFREIE GLEITELEMENTE

Maintenance free – self lubricating sliding elements
Edition 2023

voestalpine Camtec GmbH
www.voestalpine.com/camtec

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ONE STEP AHEAD.

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1. Allgemeine Informationen über voestalpine Gleitelemente
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1.1 Einleitung
1.1 Introduction

voestalpine Camtec
Ihr innovativer und verlässlicher Partner

Die voestalpine Camtec ist ein weltweit führendes Unternehmen mit langjähriger Erfahrung in der Herstellung von Schiebern und wartungsfreien Gleitelementen.

Durch unser branchenspezifisches Know-how und unser Wissen um die Fertigungsprozesse unserer Kunden sind wir etablierter Partner von namhaften Unternehmen der Automobil- und Maschinenbauindustrie. Wir begleiten unsere Kunden mit hochwertigen Produkten und hoher Betreuungsqualität in die Zukunft: Ein engagiertes Team aus lösungsorientierten Spezialisten kümmert sich global um Ihre Anfragen. Zusätzlich punkten wir durch unsere bewährten Gleitelemente, State-of-the-art-Technologien, unser bewährtes Ersatzteilmanagement mit schnellen Reaktionszeiten sowie umfassende Serviceleistungen – einen Schritt voraus.

Unser global aufgestelltes Team ist weltweit für Sie im Einsatz:
Finden Sie Ihren richtigen Ansprechpartner online auf www.voestalpine.com/camtec oder kontaktieren Sie uns unter sales.camtec@voestalpine.com

voestalpine Camtec
Your innovative and reliable partner

voestalpine Camtec is a global leader with many years of experience in the production of cam units and maintenance free sliding elements.

Our sector-specific expertise and knowledge of the manufacturing processes of our customers have established us as a reliable partner to well-known companies in the automotive and mechanical engineering industries. We accompany our customers with innovative products and high-quality service. Our team of technical specialists is dedicated to providing effective solutions worldwide. Our state-of-the-art sliding elements and technologies, our spare parts management and rapid response times and our comprehensive services put us one step ahead.

Our international team of experts remains at your service:
Please find your contact partner online at www.voestalpine.com/camtec or contact us at sales.camtec@voestalpine.com

BESTELLUNGEN

Jedem Gleitelement ist eine Ident-Nr. zugeordnet. Es genügt daher bei Bestellungen zur Identifizierung eines Gleitelementes das Anführen dieser Ident-Nr.
Angaben über Schrauben und Passstifte dienen nur zur Information. Schrauben und Passstifte sind nicht Bestandteil der Lieferung.

ORDERS

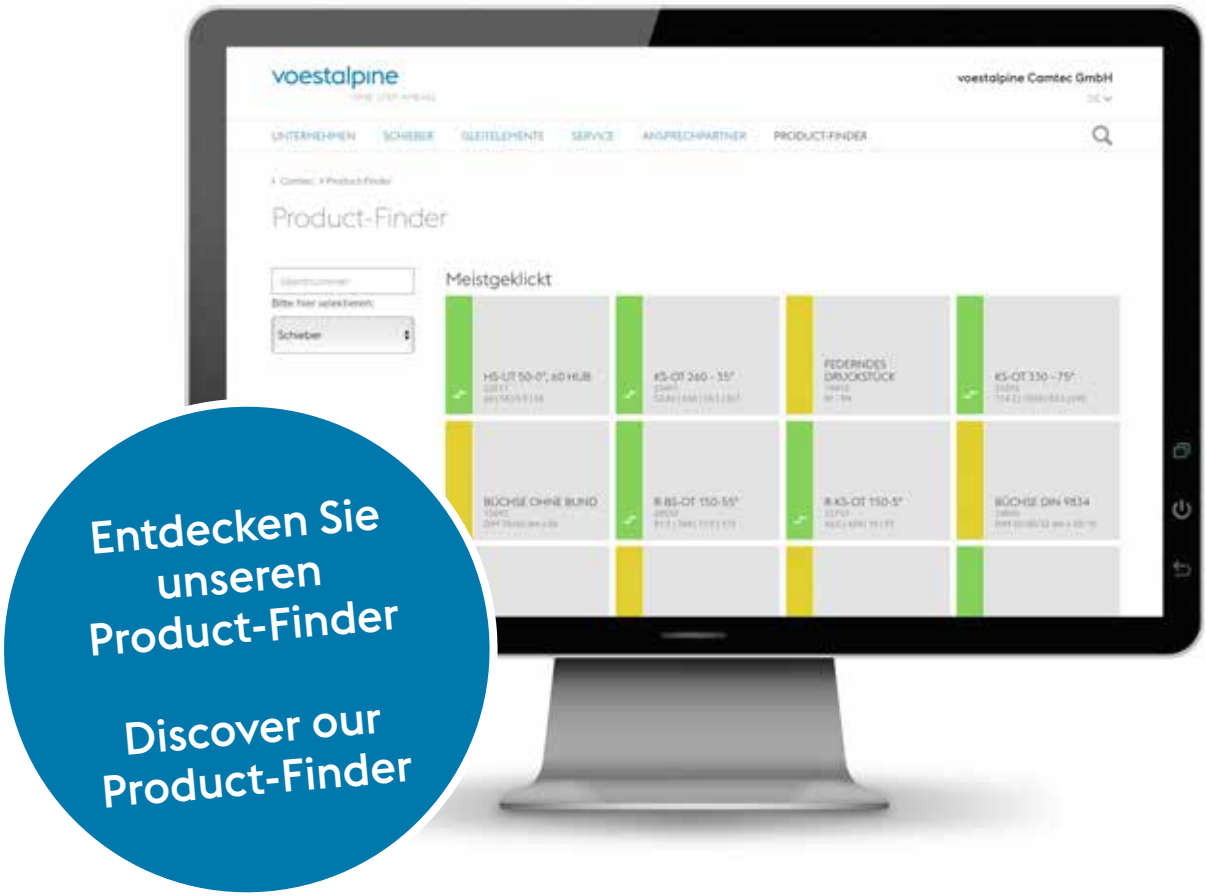
Each sliding element has an assigned ident number (Ident-No.). When ordering standard sliding elements, only this number has to be provided to us.
Details about screws and dowel pins are only for information. They are not included in the delivery.

EINFACH, SCHNELL UND GEZIELT ZUR OPTIMALEN LÖSUNG

In Bezug auf Design, Bestellung und Ersatzteilverwaltung finden Sie in unserem Product-Finder schnell und einfach detaillierte Produktinformationen:
https://www.voestalpine.com/camtec/Product-Finder

FIND YOUR SOLUTION QUICKLY, EASILY AND SYSTEMATICALLY

With respect to design, ordering and spare parts management, you will quickly and easily find detailed product information in our Product-Finder:
www.voestalpine.com/camtec/Product-Finder



1.1 Einleitung
1.1 Introduction

FÜR HOHE LEBENSDAUER UND PRÄZISION

Die voestalpine Camtec GmbH erhebt den weltweiten Anspruch auf Qualitäts- und Technologieführerschaft im Bereich von wartungsfreien Gleitelementen. Die Forschungs- und Entwicklungsleistung stützt sich auf nationale und internationale Zusammenarbeit mit Forschungsinstituten, Universitäten, Kunden, Lieferanten und Gießereien. Ziel der Kooperation ist die optimale Nutzung von Know-how und weltweit vorhandenen F&E-Ressourcen.

Die voestalpine Camtec GmbH ist zertifiziert nach ISO 9001, ISO 14001 und ISO 45001.
Die aktuellen Zertifikate finden Sie zum Download auf unserer Homepage unter www.voestalpine.com/camtec

Gleitplatten, Buchsen, Ringe und Formgussteile: Die hochpräzisen und wartungsfreien Gleitelemente der voestalpine Camtec GmbH kommen in verschiedenen Bereichen zum Einsatz:

- Automobilindustrie (Werkzeugführungen, Karosseriepressen)
- Kunststoffspritzgießmaschinen und Spritzgießwerkzeuge
- Maschinenbau, Stahl- und Walzwerke
- Bau- und Steinindustrie
- Wehranlagen und Wasserbau
- Schiffsbau
- Schweißtechnik
- Verpackungsindustrie
- Hebe- und Fördertechnik

FOR LONG SERVICE LIFE AND HIGH PRECISION

voestalpine Camtec GmbH is the worldwide leader in quality and technology in the field of maintenance-free sliding elements. Our research and development services are based on national and international cooperation with research institutes, universities, customers, suppliers and foundries. This cooperation aims to optimally utilize know-how and worldwide R&D resources.

voestalpine Camtec GmbH is certified according ISO 9001, ISO 14001 and ISO 45001.
The current certificates can be downloaded from our homepage at www.voestalpine.com/camtec

Sliding plates, bushings, rings and cast parts: High-precision and maintenance-free slide elements made by voestalpine Camtec GmbH primarily find their applications in the following industries:

- Automotive industry (tool guides, auto body presses)
- Plastic injection molding machines and injection molding tools
- Mechanical engineering, steelmaking plants and rolling mills
- Construction and stone industries
- Dam systems and hydro-power engineering
- Shipbuilding
- Welding technology
- Packing industry
- Crane and conveying engineering

INDIVIDUELL NACH IHREN BEDÜRFNISSEN GEFERTIGT

Es kommt oftmals zu Konstruktionen, die individuelle Lösungen erfordern. Wir fertigen, zusätzlich zu unserem Standardprogramm, auf Ihre Bedürfnisse angepasste Gleitelemente. Dabei bauen wir auf bewährte Standardkomponenten und individuelle Lösungen.
Ihre individuelle Anfrage wird schnell und kompetent durch unsere Konstruktionsabteilung bearbeitet. Für alle Anfragen rund um Sonderlösungen steht unser Team gerne zur Verfügung. Bitte richten Sie Ihre technischen Anfragen an engineering.camtec@voestalpine.com

INDIVIDUALLY MANUFACTURED BASED ON YOUR REQUIREMENTS

Individual requirements often require unique design. In addition to our flexible product portfolio, we are pleased to offer customized sliding elements. We rely on proven standard components and individual solutions.
Your customized request will be processed quickly and professionally in our design department. Our competent team will be happy to answer any of your questions about customized sliding element solutions. Please direct any technical inquiries to engineering.camtec@voestalpine.com

1.2 Werkstoffe für wartungsfreie Gleitpaarungen
1.2 Base-material for maintenance-free sliding couples

AUSWAHLHILFE

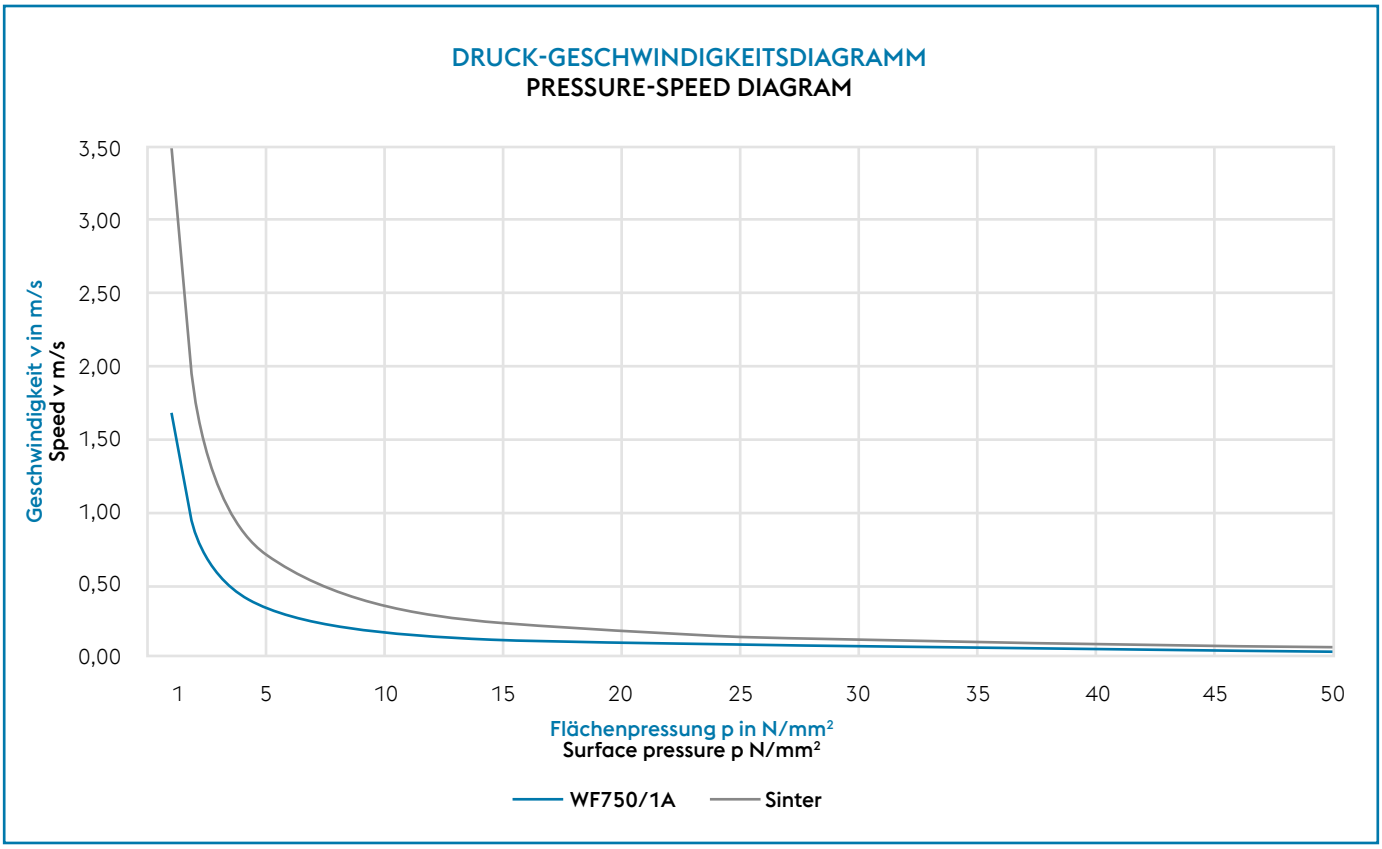
In folgender Tabelle finden Sie eine Übersicht der verschiedenen Materialien und deren Eigenschaften. Diese Auswahlhilfe dient zur Orientierung. Je nach Einsatzgebiet und Umgebungsbedingungen sollte vorab eine Prüfung bzw. ein Test erfolgen.

SELECTION GUIDE

In the following table you will find an overview of the different materials and their specifications. This selection guide is an orientation. Depending on the application and ambient conditions, an inspection or internal test should be done in advance.

Gleitelementwerkstoff Sliding element material	Wartungsfreie Gleitelemente Maintenance-free sliding elements		Gegenwerkstoffe Counter material	
	CuZn25Al5Mn4Fe3-C mit Festschmierstoff CuZn25Al5Mn4Fe3-C with solid lubricant	Stahl mit Sintermetallgleitschicht Steel with sintered metal sliding layer	Stahl /steel DIN EN ISO 683-3 1.7131 o.ä. / or similar	Stahl /steel DIN EN ISO 4957 1.2379 o.ä. / or similar
Abkürzung Keyword	WF750/1A	Sinter	St 1	St 2
Flächenanteil Festschmierstoff Surface area solid lubricant	20 – 25 %	15 – 20 %	-	-
Gleitrichtung Sliding direction	nach Vorgabe as specified	beliebig any	beliebig any	beliebig any
Temperaturbeständigkeit max. Temperature resistance max.	<150 °C	<230 °C	<230 °C	<230 °C
Härte Hardness	190 – 220 HBW 10/3000	230 HBW10/3000	oberflächengehärtet surface-hardened 650 – 750 HV 10 CHD min. 0,8	durchgehärtet hardened through 58 HRC +4
pv-Wert pv value	1,67 N/mm² x m/s	3,5 N/mm² x m/s	-	-
Flächenpressung max. (statisch) Surface pressure max. (static)	50 N/mm²	120 N/mm²	-	-
Flächenpressung max. (dynamisch) Surface pressure max. (dynamic)	35 N/mm²	70 N/mm²		
Stoßbelastung Imapct load	+++	-	++	++
Hubgeschwindigkeit Stroke rate	++	+++	++	++

Sinter	WF 750/1A
Schmierstoff in Sinterschicht Lubricant in sintered layer	Schmierstoff in Graphitinserts Lubricant in graphite inserts
Temperatur bis 230 °C Temperature up to 230 °C	Temperatur bis 150 °C Temperature up to 150 °C
Höhere Geschwindigkeit 1 m/s Higher speed 1 m/s	Geschwindigkeit 0,5 m/s Speed 0.5 m/s
Höhere Flächenpressung Higher surface pressure	Unempfindlich bei Stoßbelastung Insensitive to impact load
Gegenmaterial min. 50 HRC Counter material min. 50 HRC Oberflächengüte Rz ≤6,3 µm Surface finish Rz ≤6.3 µm	Gegenmaterial min. 30 HRC Counter material min. 30 HRC Oberflächengüte Rz ≤6,3 µm Surface finish Rz ≤6.3 µm
Geeignet für oszillierende Bewegungen Suitable for oscillating movements	Geeignet für oszillierende Bewegungen Suitable for oscillating movements



1.2 Werkstoffe für wartungsfreie Gleitpaarungen
1.2 Base-material for maintenance-free sliding couples

SPEZIFIKATIONEN

SPECIFICATIONS

WF750/1A	
DIN EN 1982	CuZn25Al5Mn4Fe3-C
Dichte Density	8,2 kg/dm³
Biegewechselfestigkeit Bending fatigue strength	+/- 150 MPa
Elastizitätsmodul Modulus of elasticity	120.000 N/mm²
Wärmeleitfähigkeit Thermal conductivity	50 W/(mK)
Elektrische Leitfähigkeit Electrical conductivity	7-8 m/(Ω·m⁻¹)
Ausdehnungskoeffizient (20 bis 200 °C) Coefficient of expansion (20 to 200 °C)	$18x10^{-6}$ K^{-1}
Reibungszahl (abhängig von Wertstoffpaarung und Belastung) Coefficient of friction (dependent on combination of material and load)	0,05 – 0,12
Flächenpressung statisch Static surface pressure	50 N/mm²
Flächenpressung dynamisch Dynamic surface pressure	35 N/mm²
pv-Wert pv-value	1,67 N/mm² x m/s
Schmierstoffanteil Lubricant content	20 – 25 %

ALLE WF-SORTEN MIT FESTSCHMIERSTOFF

ALL WF-GRADES WITH LUBRICANT

Sorte Grade	WF750/1A	WF750/2A	WF750/7A
Grundwerkstoff Base-material	CuZn25Al5Mn4Fe3-C	CuAl10Fe5Ni5-C	CuSn7Pb15-C
$R_{p0,2}$	450 – 550 MPa	250 – 280 MPa	80 – 90 MPa
R_m	750 – 800 MPa	600 – 650 MPa	170 – 200 MPa
A_5	5 – 8 %	7 – 13 %	7 – 8 %
Härte Hardness	190 – 220 HBW 10/3000	140 – 150 HBW 10/3000	60 – 65 HBW 10/3000
pv-Wert pv-value	1,67 N/mm² x m/s	1 N/mm² x m/s	1 N/mm² x m/s
Anmerkung Comments	Hohe Tragfähigkeit, sehr gute Abrieb- und Verschleißfestigkeit, mäßige Korrosionsbeständigkeit, gehärtete Gegenfläche günstig. High load capacity, very good wear and abrasion resistance, moderate corrosion resistance, hardened mating material favorable.	Hohe Kavitations-, Erosions- und Korrosionsbeständigkeit, unempfindlich gegenüber Stoßbeanspruchung, sehr gute Abrieb- und Verschleißfestigkeit, gehärtete Gegenfläche günstig. Good erosion and corrosion resistance, insensitive against impact stress, very good wear and abrasion resistance, hardened mating material favorable.	Gute Gleit- und Notlaufeigenschaften. Für Lager mit hohen Flächendrücken, bei denen hohe Kantenpressungen auftreten können. Good slide and distress properties, for bearings with high surface pressure and applications where high edge pressure can occur. Special suitable for strain rod bushings in injection molding machines.

SINTER

Einfach in der Pflege, zuverlässig im Betrieb: Die poröse Sintermetallschicht ist auf einer Trägergrundplatte aus Stahl aufgebracht. Das gewährleistet die hohe Strapazierfähigkeit und Festigkeit der Sinter-Gleitelemente. Ein weiteres Plus: Im Betrieb sind nur minimale Pflegemaßnahmen erforderlich, da die Sintermetallschicht mit einem Schmierstoff versetzt ist. Eine Schmierung sollte jedoch vor der ersten Inbetriebnahme sowie nach jeder Reinigung erfolgen.

SINTER

Sinter wear plates provide ease of maintenance and reliable service. The porous sinter metal layer is bonded to a steel base plate to create maximum sliding durability with high strength backing. These wear plates will require initial lubrication prior to use and after every cleaning.

Sinter	
Maximale Geschwindigkeit Maximum speed	1 m/s (nach Initialschmierung und abhängig vom pv-Wert) (after initial lubrication and depending on the pv value)
Arbeitstemperatur Working temperature	Maximal 230 °C (abhängig vom Schmiermittel) Maximum 230 °C (depending on the lubricant)
Gegenmaterial Mating material	Stahl gehärtet oder Guss hardened Steel or cast iron
Bearbeitung Processing	Grundsätzlich möglich (Bohren, Schleifen, Schneiden, ...) Generally possible (drilling, grinding, cutting, ...)
pv-Wert geschmiert pv value lubricated	3,5 N/mm² x m/s
Material Trägergrundplatte Material of base plate	Stahl – 1.1191 (oder gleichwertig) Steel – 1.1191 (or equivalent)
Reibungskoeffizient geschmiert Coefficient of friction lubricated	0,1
Schmierstoff Lubricant	Mobilgear 600XP 150
Schmierstoffanteil Lubricant share	15 – 20 %
Porosität Porosity	18 – 23 %
Gleitrichtung Sliding direction	Längs und quer length- and cross-wise
Flächenpressung statisch Static surface pressure	120 N/mm²
Flächenpressung dynamisch Dynamic surface pressure	70 N/mm²

1.3 Anwendungshinweise
1.3 Application instructions

EINBAUHINWEISE FÜR BUCHSEN

Die Aufnahmebohrung für die wartungsfreien Buchsen sollte der ISO-Toleranz H7 entsprechen. Eine Überdeckung der Passung wird durch das Wählen des Toleranzfeldes der Buchse erreicht, zum Beispiel m6 für einen leichten Presssitz. Dabei ist zu berücksichtigen, dass sich der Innendurchmesser des Gleitlagers nach dem Einpressen oder Einschrumpfen verkleinert. Nach dem Zusammenfügen sollte die Buchse gegen Verdrehen gesichert werden. Das erforderliche Laufspiel der Welle wird durch das Festlegen des Toleranzfeldes bestimmt.

Beispiel leichter Presssitz:
Aufnahmebohrung H7
Buchse Kapitel 2.1 m6/F7
Säule Kapitel 17.4 h6 für enges Lagerspiel
Säule Kapitel 17.8 f7 für größeres Lagerspiel

Beispiel strenger Presssitz:
Aufnahmebohrung H7
Buchse Kapitel 3.14 r6/E7
Säule Kapitel 17.4 h6 für enges Lagerspiel
Säule Kapitel 17.8 f7 für größeres Lagerspiel

Die Gleitflächen sind nach dem Einbau bzw. nach jeder Reinigung mit Öl zu versehen. Wir empfehlen, handelsübliche Öle zu verwenden.

GEGENWERKSTOFF

Der Gegenwerkstoff sollte min. 30 HRC aufweisen. Optimale Bedingungen werden mit gehärteten und geschliffenen Gegenwerkstoffen erreicht. Empfohlene Oberflächengüte Rz 6,3 (Ra max. 0,8 µm).

TEMPERATUR

Bei Temperaturen >80 °C ist die Pflege der Gleitelemente aufgrund des höheren Verbrauches an Schmierstoff empfehlenswert.

SCHMIERSTOFF

Um eine optimale Schmierung zu erreichen, wird der Schmierstoff in der Gleitrichtung überdeckend angeordnet. Der Schmierstoffanteil an der Gleitfläche liegt zwischen 20 – 25 %. Der Graphit dient primär als Schmierstoffdepot und sekundär als Notlaufschmierung. Bei extremer Beanspruchung (z. B. Gleitgeschwindigkeit >0,5 m/s) ist eine Zusatzschmierung empfehlenswert.

INSTALLATION GUIDELINES FOR BUSHES

The locating hole for the maintenance free bushings should confirm with ISO-tolerance H7. The overlapping of the fit is achieved through the tolerance zone of bushings, using as an example m6 for a light press fit. Please take into – consideration that the inner diameter of the bushing after the press fit or shrink will get smaller. The bushing needs to be secured against rotation after the installation. The necessary running clearance of the shaft has to be determined through the tolerance zone.

Example for light press fit:
Locating hole H7
Bushing chapter 2.1 m6/F7
Guide post chapter 17.4 h6 for tight bearing clearance
Guide post chapter 17.8 f7 for less tight bearing clearance

Example for tight press fit:
Locating hole H7
Bushing chapter 3.14 r6/E7
Guide post chapter 17.4 h6 for tight bearing clearance
Guide post chapter 17.8 f7 for less tight bearing clearance

After bushing installation or after cleaning, the sliding surface should be treated with commercial available oil. We recommend the use of commercially available oils.

COUNTER MATERIAL

The mating material should have min. 30 HRC. Optimum conditions are achieved with hardened and ground mating materials. Recommended surface quality Rz 6.3 (Ra max. 0.8 µm).

TEMPERATURE

At temperatures >80 °C, maintenance of the sliding elements is recommended due to the higher consumption of lubricant.

LUBRICANT

To achieve optimum lubrication, the lubricant is arranged overlapping in the sliding direction. The amount of solid lubricant in proportion to the sliding area is between 20 to 25 % of the total sliding area. The graphite serves primarily as a lubricant depot and secondarily as an emergency lubrication. For extreme application, sliding speed > 0,5 m/s, additional lubrication is recommended.

SONDERANFERTIGUNG

Die voestalpine Camtec GmbH liefert Gleitelemente und Buchsen einbaufertig bearbeitet in den unterschiedlichsten Formen, z. B.
Gleitplatten bis ca. 2000 x 500 mm
Buchsen, Ringe und Formgussteile bis Außendurchmesser 500 mm, Höhe 500 mm

Alle Gleitelemente können auch in unterschiedlichen Bronzewerkstoffen geliefert werden. Unser Erzeugungsprogramm senden wir Ihnen gerne auf Anfrage zu.

WICHTIGES IN KÜRZE

Gleitelemente aus WF750 Material sind vorzugsweise dort einsetzbar, wo Gleitgeschwindigkeiten <0,5 m/s vorliegen bzw. eine oszillierende Gleitbewegung auftritt. Der wartungsfreie Betrieb der Gleitelemente erfordert einen entsprechenden Schmierstoffanteil. Um den Schmierstoff einlagern zu können, empfehlen wir folgende Mindestwanddicken:
Gleitplatten: > 5 mm
Buchsen: 5 % des Innen-Ø + 3 mm

Art und Ausführung der Schmierstoff-Makrodepots sowie der Schmierstoffanteil sind von der Formgebung des Gleitelements und der Gleitrichtung abhängig. Sie werden für den jeweiligen Einsatzfall gesondert festgelegt.

CUSTOM-MADE

voestalpine Camtec GmbH supplies self-lubricating sliding elements and bushings ready for installation in various shapes:
Sliding plates up to 2000 x 500 mm
Bushings, rings and other special cast designs up to outer diameter 500 mm, height 500 mm

All sliding elements are available in different bronze materials and steel. We would be pleased to submit our standard production program upon request.

IMPORTANT FACTS

Self-lubricating sliding elements WF750 are preferable recommended and used where sliding speed are <0,5 m/s respectively where an oscillating sliding movement takes place. Maintenance-free performance of self-lubricating elements requires a proper portion of solid lubricant. In order to embed the solid lubricant, we recommend the following minimum wall thickness:
Wear plates: > 5 mm
Bushings: 5 % of inner diameter + 3 mm

Type of arrangement of the solid lubricant macro depots as well as amount of solid lubricant depends on shape of the self-lubricating element and the sliding direction. They will be established for each specific application.

1.4 Richtiger Umgang mit Gleitelementen in der Wartung
1.4 Correct treatment of sliding elements in the maintenance

GENERELLE INFORMATIONEN

Gleitelemente der voestalpine Camtec sind wartungsfrei. Als Schmiermittel dient Graphit mit Zusätzen. Wichtig: Graphit alleine hat keine ausreichende Schmierwirkung. Der Schmierstoffanteil auf der Gleitfläche beträgt 20 – 25 %. Im generellen Betrieb sind keine zusätzlichen Pflegemaßnahmen notwendig.
Die nachstehenden Pflegehinweise wirken sich positiv auf die Lebensdauer der Gleitelemente aus und sind daher empfohlen.

GENERAL INFORMATION

Sliding elements of voestalpine camtec are maintenance-free.
Graphite with additives is used as lubricant Important: Graphite alone doesn't have enough lubrication function. The proportion of lubrication on the sliding surface is 20 to 25 %. In general operation no additional maintenance measures are necessary.
The following care instructions have a positive effect on the service life of the sliding elements and are therefore recommended.

EINFLÜSSE, DIE ZUSÄTZLICHE PFLEGE ERFORDERN

Nach dem Schleifen im Werkzeugbau werden die Werkzeuge gereinigt. Die jetzt trockenen Gleitelemente sollten dann wieder mit dem richtigen Öl befeuchtet werden, um das „trockene" Laufen bis zur Betriebstemperatur zu vermeiden.

Bei der Reinigung der Werkzeuge im Presswerk in Werkzeugwaschanlagen oder mit Dampfstrahlern, ist darauf zu achten, dass die Gleitelemente nicht direkt vom Hochdruckstrahl erfasst werden.

Die Reinigung mit Fettlösern kann zu zusätzlichem Schaden der Gleitelemente führen. Beim Transport übergroßer Werkzeuge auf offenen Spezialtransportern werden die Werkzeuge oft versiegelt. Das gilt auch für Schiffstransporte. Diese Versiegelung kann die Poren des Graphits dauerhaft verschließen.

Wenn Gleitelemente zusätzlich oder nachträglich beölt werden, dürfen keine Fette verwendet werden, welche die Poren des Graphits verschließen.

INSTANCES, WHICH REQUIRE ADDITIONAL TREATMENT

After grinding in the die shop, the tools are cleaned. The sliding elements are dry now and should be treated with the correct oil to avoid „dry" running until the working temperature is reached.

If the tools are cleaned in the press-shop with high pressure washing machines it's important that the sliding elements aren't targeted by the high-pressure jet.

The cleaning with grease solvent is also dangerous for the additives in the graphite. By heavy transport or overseas transport the tools are often sealed. This sealing can permanently closes the pores of the graphite. So the additives cannot help for lubrication anymore.

If sliding elements are additionally or subsequently oiled, oil or grease, which closes the pores of the graphite, must not be used.

AUFLISTUNG KORREKTER SCHMIERSTOFFE

In nachfolgender Tabelle sind handelsübliche Öle und lithiumverseifte Fette aufgelistet, welche wir für die Initialschmierung und nach der Reinigung empfehlen.

	Hersteller	Bezeichnung
Öle	Castrol	ATF Dex II Multivehicle Transmax Dex III Mulivehicle
	ENI	Rotra ATF-Serie
	Mobil	ATF-Serie
	OMV	ATF-Serie
	Shell	Spirax S-Serie
Fette	BP	Energrease
	ENI	GR MU Serie
	Lukoil	Signum EPW2
	Mobil	Nebula EP2 Beacon EP2
	Shell	Gadus S-Serie

Beim Auftragen von Fett ist zu beachten, dass die aufgetragene Schicht nicht zu dick ist. Eine zu dicke Schicht führt zu einer zu großen Flächenbelastung (meist nur beim ersten Hub) und kann das Eindrücken der Graphiteinlagen zur Folge haben. Somit wäre der Schmiereffekt nicht mehr gegeben.

LIST OF CORRECT LUBRICANTS

The following table lists commercially oils and lithium-saponified greases that we recommend for initial lubrication and after cleaning:

	Company	Description
Oils	Castrol	ATF Dex II Multivehicle Transmax Dex III Mulivehicle
	ENI	Rotra ATF-Serie
	Mobil	ATF-Serie
	OMV	ATF-Serie
	Shell	Spirax S-Serie
Greases	BP	Energrease
	ENI	GR MU Serie
	Lukoil	Signum EPW2
	Mobil	Nebula EP2 Beacon EP2
	Shell	Gadus S-Serie

While applying grease, take care that the applied layer isn't too thick. In this case the grease would press the graphite inserts in the sliding element away from the sliding surface (mostly on the first stroke). So the lubrication effect would no longer be given.

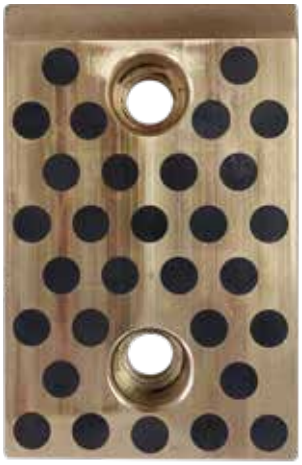
RESULTAT RICHTIGER PFLEGE

Das Bild zeigt eine Gleitplatte nach einem praktischen Versuch auf unserem Tribometer mit 500.000 Hüben mit einer einmaligen Einölung der Gleitoberfläche bei Versuchsbeginn.

Versuchsparameter:
Werkstoff: WF750/1 A
Laufleistung: 170 km
Gleitgeschwindigkeit: 0,5 m/s
Belastung: 5 MPa
Abrieb: 0,012 mm
Oberflächenrauheit
nach Versuch: Ra 0,26

RESULT OF CORRECT TREATMENT

The picture shows a slide plate after a practical test on our test machine after 500,000 strokes. The plate was treated once with oil before starting the test.



Parameter of the test:
Material: WF750/1 A
Performance: 170 km
Test velocity: 0.5 m/s
Area loading: 5 MPa
Wear: 0.012 mm
Surface roughness
after testing: Ra 0.26

1.5 Allgemeine Hinweise
1.5 General information

ISO-TOLERANZTABELLE

Bei den international verwendeten ISO-Toleranzen werden die Größe der Toleranz und ihre Lage zur Nulllinie durch die Toleranzklasse angegeben. Der Buchstabe gibt das Grundabmaß, die Zahl den Toleranzgrad an.

DESCRIPTION OF PREFERRED ISO FITS

In the internationally used ISO tolerances, the size of the tolerance and its position relative to the zero line are indicated by the tolerance class. The letter indicates the basic dimension, the number the degree of tolerance.

	ISO Symbol			
	Einheitsbohrung Hole basis	Einheitswelle Shaft basis	Beschreibung Description	
Spiel-passungen **Clearance Fits**	H11/c11	C11/h11	Loser Laufsitz für große handelsübliche Toleranzen oder Zugaben an Außenteilen. Loose running fit for wide commercial tolerances or allowances on external members.	Mehr Spielraum More Clearance
	H9/d9	D9/h9	Freilaufende Passung nicht für Anwendungen, bei denen es auf Genauigkeit ankommt, aber gut für große Temperaturschwankungen, hohe Laufgeschwindigkeiten oder hohen Zapfendruck. Free running fit not for use where accuracy is essential, but good for large temperature variations, high running speeds, or heavy journal pressures.	
	H8/f7	F8/h7	Eng anliegende Passung für den Einsatz auf genauen Maschinen und für eine genaue Positionierung bei mäßigen Geschwindigkeiten und Zapfendrücken. Close running fit for running on accurate machines and for accurate location at moderate speeds and journal pressures.	
	H7/g6	G7/h6	Schiebepassung nicht für freien Lauf, sondern für freie Bewegung und Drehung und genau zu positionieren. Sliding fit not intended to run freely, but to move and turn freely and locate accurately.	
	H7/h6	H7/h6	Die Spielpassung bietet eine feste Passung für die Positionierung stationärer Teile; kann jedoch frei montiert und demontiert werden. Locational clearance fit provides snug fit for locating stationary parts; but can be freely assembled and disassembled.	
Übergangs-passungen **Transition Fits**	H7/k6	K7/h6	Passende Übergangspassung für genaue Positionierung, ein Kompromiss zwischen Spiel und Übermaß. Locational transition fit for accurate location, a compromise between clearance and interference.	
	H7/n6	N7/h6	Örtliche Übergangspassung für eine genauere Positionierung, bei der ein größeres Übermaß zulässig ist. Locational transition fit for more accurate location where greater interference is permissible.	
Übermaß-passungen **Interference Fits**	H7/p6[1]	P7/h6	Formschlüssige Presspassung für Teile, die Steifigkeit und Ausrichtung mit höchster Lagegenauigkeit, aber ohne besondere Anforderungen an den Bohrungsdruck haben. Locational interference fit for parts requiring rigidity and alignment with prime accuracy of location but without special bore pressure requirements.	
	H7/s6	S7/h6	Mittlere Mitnahmepassung für gewöhnliche Stahlteile oder Schrumpfsitze auf leichten Profilen, die engste Passung, die bei Gusseisen verwendet werden kann. Medium drive fit for ordinary steel parts or shrink fits on light sections, the tightest fit usable with cast iron.	
	H7/u6	U7/h6	Kraftsitz geeignet für Teile, die stark beansprucht werden können oder für Schrumpfsitze, bei denen die erforderlichen hohen Presskräfte unpraktisch sind. Force fit suitable for parts which can be highly stressed or for shrink fits where the heavy pressing forces required are impractical.	Mehr Übermaß More Interference

[1] Übergangspassung für Basisgrößen im Bereich von 0 bis 3 mm.
[1] Transition fit for basic sizes in range from 0 through 3 mm.

1.6 Sondergleitelemente
1.6 Special sliding elements

SONDERGLEITELEMENTE

Sollten Sie Bedarf an einer Speziallösung haben, unterstützen wir Sie gerne bei der Umsetzung. Um eine zügige Auslegung zu ermöglichen, sind in den allermeisten Fällen folgende Basisinformationen nötig:

Anwendungsfall
» Um welchen Anwendungsbereich handelt es sich (Sonderbuchse für Säulenführung im Maschinenbau, Sondergleitplatte für Flachführung im Presswerk, etc.)?
» Bewegungsform (rotatorisch, translatorisch oszillierend)?

Belastung
» Welche einwirkenden Kräfte sind zu erwarten (Normalkraft, Radialkraft)?
» Welche Geschwindigkeiten m/s bzw. Drehzahlen 1/min sind geplant?
» Welcher Hub in mm ist geplant?
» Welche Laufzeit ist geplant?

Dimension bzw. Material
» Welche Abmessungen sollte das Gleitelement haben (Skizze oder Beschreibung)?
» Material Gleitelement?
» Material Gegenstück?
» Härte und Oberflächenbeschaffenheit Gegenstück?

Einsatzumgebung
» Welche Einsatztemperaturen sind zu erwarten?
» Kontakt mit Staub, Schmutz, Flüssigkeiten oder Chemikalien erwartet?
» Ist eine Zusatzschmierung geplant?
» Sind Wartungszyklen geplant?

Allgemeine Informationen
» Geplante Bestellmenge
» Geplantes Lieferdatum
» Kundendaten

SPECIAL SLIDING ELEMENTS

If you need a special solution for any sliding element, we are happy to help you in realizing your project. In order to give you a quick response, the following information helps us to give you a technical evaluation:

Field of application
» What is the field of application (special bushing for pillar guide machine building, special wear plate for flat guiding in a stamping tool, etc.)?
» Form of movement (rotational movement, translational movement oscillating)?

Load
» Which load is expected (normal force, radial force)?
» Which velocity m/s or rotation speed 1/min is planned?
» Which stroke mm is planned?
» Which runtime ist planned?

Dimensions and material
» Which dimensions the sliding element should have (sketch or description)?
» Material sliding element?
» Material counterpart?
» Hardness and surface quality of counterpart?

Environmental condition
» Which environmental temperature is expected?
» Contact with dust, dirt, fluids or chemicals expected?
» Additional lubrication planned?
» Maintenance cycles planned?

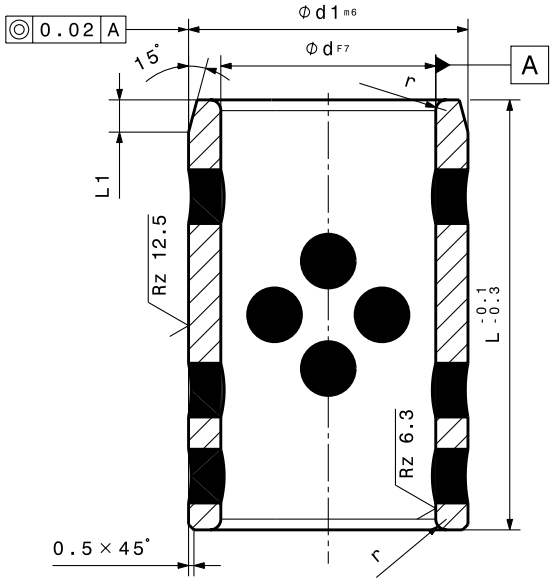
General information
» Planned order quantity
» Planned delivery date
» Customer data

2. Buchsen ohne Bund
2. Bushings without flange

2.1 Buchsen ohne Bund
Bushings without flange

2.1 Buchsen ohne Bund
2.1 Bushings without flange

Gleitrichtung
Slide direction



Ident-No. WF750/1A	Ød F7	Ød1 m6	L1	r	L -0,1 -0,3
14572	8	11	1	1	14
17004	8	11	1	1	15
19604	8	12	1	1	8
15356	8	12	1	1	10
14444	8	12	1	1	12
15573	8	12	1	1	15
15937	10	14	1	1	8
15294	10	14	1	1	10
15423	10	14	1	1	12
14764	10	14	1	1	15
15293	10	14	1	1	20
19605	10	15	1	1	10
15588	12	16	2	1	10
14445	12	16	2	1	12
13832	12	16	2	1	20
15424	12	18	2	1	10
19606	12	18	2	1	12
14996	12	18	2	1	15
17000	12	18	2	1	16
17001	12	18	2	1	20
17002	12	18	2	1	25

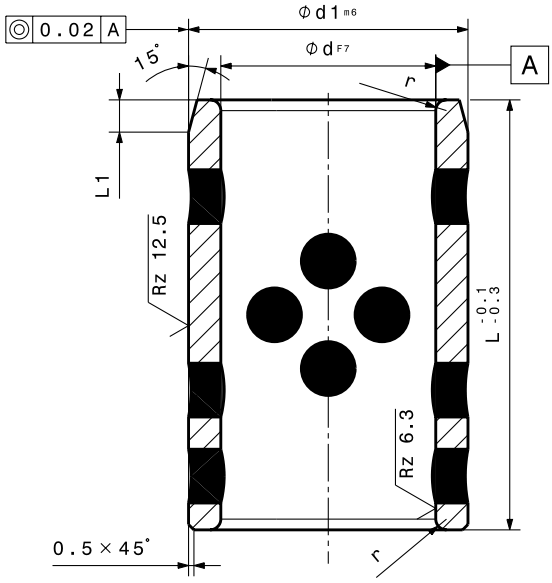
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. WF750/1A	Ød F7	Ød1 m6	L1	r	L -0,1 -0,3
17003	12	18	2	1	30
15425	13	19	2	1	10
61507	13	19	2	1	15
15355	13	19	2	1	16
15400	13	19	2	1	20
17011	14	20	2	1	10
17018	14	20	2	1	12
17112	14	20	2	1	15
17025	14	20	2	1	16
17037	14	20	2	1	20
14752	14	20	2	1	25
17048	14	20	2	1	30
17055	15	21	2	1	10
17075	15	21	2	1	12
15275	15	21	2	1	15
17086	15	21	2	1	20
15536	15	21	2	1	25
17087	15	21	2	1	30
14446	16	20	2	1	16
15076	16	20	2	1	20
15207	16	20	2	1	25
14094	16	20	2	1	28
17088	16	22	2	1	10
14762	16	22	2	1	12
13900	16	22	2	1	15
19607	16	22	2	1	16
17005	16	22	2	1	20
17006	16	22	2	1	25
17007	16	22	2	1	30
17008	16	22	2	1	35
17009	16	22	2	1	40
17089	18	24	2	1	12
15213	18	24	2	1	15
14387	18	24	2	1	16
15450	18	24	2	1	18
15466	18	24	2	1	20
15468	18	24	2	1	25
15636	18	24	2	1	30
15740	18	24	2	1	35
14388	18	24	2	1	40

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

2.1 Buchsen ohne Bund
2.1 Bushings without flange

Gleitrichtung
Slide direction



Ident-No. WF750/1A	Ød F7	Ød1 m6	L1	r	L -0,1 -0,3
16812	19	26	2	1	15
16813	19	26	2	1	20
15590	20	26	2	2	15
15710	20	26	2	2	20
14644	20	26	2	2	25
15206	20	26	2	2	30
17098	20	28	2	1	10
17099	20	28	2	1	12
15232	20	28	2	1	15
17010	20	28	2	1	16
19608	20	28	2	1	20
17012	20	28	2	1	25
17013	20	28	2	1	30
17014	20	28	2	1	35
17015	20	28	2	1	40
15276	20	28	2	1	50
14389	20	30	2	1	16
15422	20	30	2	1	20
15163	20	30	2	1	25
15935	20	30	2	1	30
15617	20	30	2	1	35

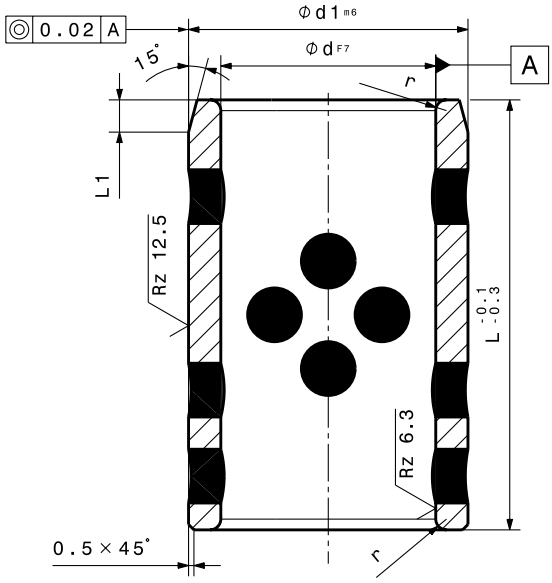
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. WF750/1A	Ød F7	Ød1 m6	L1	r	L -0,1 -0,3
14144	20	30	2	1	40
15712	20	30	2	1	50
13153	25	30	3	1	20
16800	22	32	3	2	12
16801	22	32	3	2	15
16802	22	32	3	2	20
16803	22	32	3	2	25
16804	25	33	3	2	12
17016	25	33	3	2	16
17017	25	33	3	2	20
19609	25	33	3	2	25
17019	25	33	3	2	30
17020	25	33	3	2	35
17021	25	33	3	2	40
17022	25	33	3	2	50
13858	25	33	3	2	60
16805	25	35	3	2	12
14606	25	35	3	2	16
14170	25	35	3	2	20
14730	25	35	3	2	25
14395	25	35	3	2	30
14390	25	35	3	2	35
14399	25	35	3	2	40
15345	25	35	3	2	50
15362	25	35	3	2	60
62165	28	38	3	2	40
16806	30	38	3	2	15
17023	30	38	3	2	20
17024	30	38	3	2	25
19610	30	38	3	2	30
17026	30	38	3	2	35
17027	30	38	3	2	40
14070	30	38	3	2	45
17028	30	38	3	2	50
17029	30	38	3	2	60
15421	30	40	3	2	20
14311	30	40	3	2	25
14542	30	40	3	2	30
14121	30	40	3	2	35
14104	30	40	3	2	40

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

2.1 Buchsen ohne Bund
2.1 Bushings without flange

Gleitrichtung
Slide direction



Ident-No. WF750/1A	Ød F7	Ød1 m6	L1	r	L -0,1 -0,3
15176	30	40	3	2	50
14919	30	40	3	2	60
15377	30	45	3	2	40
14582	31	40	3	2	30
14517	31	40	3	2	40
13460	32	42	3	2	30
16808	32	42	3	2	40
14391	35	44	3	2	25
17030	35	44	3	2	30
17031	35	44	3	2	35
17032	35	44	3	2	40
17033	35	44	3	2	50
17034	35	44	3	2	60
16809	35	45	3	2	20
14825	35	45	3	2	25
14103	35	45	3	2	30
14166	35	45	3	2	35
14952	35	45	3	2	40
14756	35	45	3	2	45
15138	35	45	3	2	50
15175	35	45	3	2	60

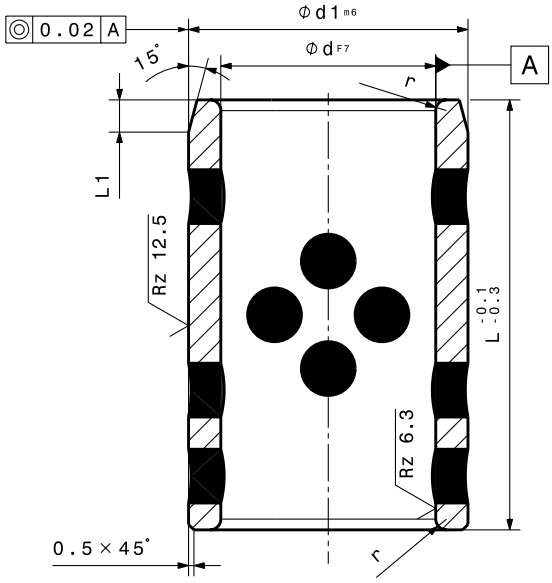
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. WF750/1A	Ød F7	Ød1 m6	L1	r	L -0,1 -0,3
14597	35	45	3	2	100
16810	38	48	3	2	30
16811	38	48	3	2	40
16814	40	50	3	2	20
15212	40	50	3	2	25
17035	40	50	3	2	30
17036	40	50	3	2	35
19611	40	50	3	2	40
17038	40	50	3	2	50
17039	40	50	3	2	60
62113	40	50	3	2	70
16815	40	50	3	2	80
14592	40	55	3	2	25
14680	40	55	3	2	30
14599	40	55	3	2	35
14396	40	55	3	2	40
14397	40	55	3	2	50
15237	40	55	3	2	60
14601	45	55	3	2	30
14610	45	55	3	2	35
15230	45	55	3	2	40
14613	45	55	3	2	50
14063	45	55	3	2	60
14099	45	55	3	2	110
13996	45	56	3	2	12
17040	45	56	3	2	30
17041	45	56	3	2	35
17042	45	56	3	2	40
17043	45	56	3	2	50
17044	45	56	3	2	60
14609	45	60	3	2	30
14612	45	60	3	2	40
15501	45	60	3	2	50
15570	45	60	3	2	60
16816	45	60	3	2	70
16817	45	60	3	2	80
14731	50	60	3	2	30
14615	50	60	3	2	35
14266	50	60	3	2	40
14732	50	60	3	2	50

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

2.1 Buchsen ohne Bund
2.1 Bushings without flange

Gleitrichtung
Slide direction



Ident-No. WF750/1A	Ød F7	Ød1 m6	L1	r	L -0,1 -0,3
15465	50	60	3	2	60
14621	50	60	3	2	70
15464	50	60	3	2	80
17045	50	62	3	2	30
17046	50	62	3	2	35
17047	50	62	3	2	40
19612	50	62	3	2	50
17049	50	62	3	2	60
17050	50	62	3	2	70
15113	50	62	3	2	80
14614	50	65	3	2	30
14617	50	65	3	2	40
15929	50	65	3	2	50
15957	50	65	3	2	60
15928	50	65	3	2	70
16845	50	65	3	2	80
16819	50	65	3	2	100
14622	55	70	3	2	40
14625	55	70	3	2	50
14308	55	70	3	2	60
14626	55	70	3	2	70

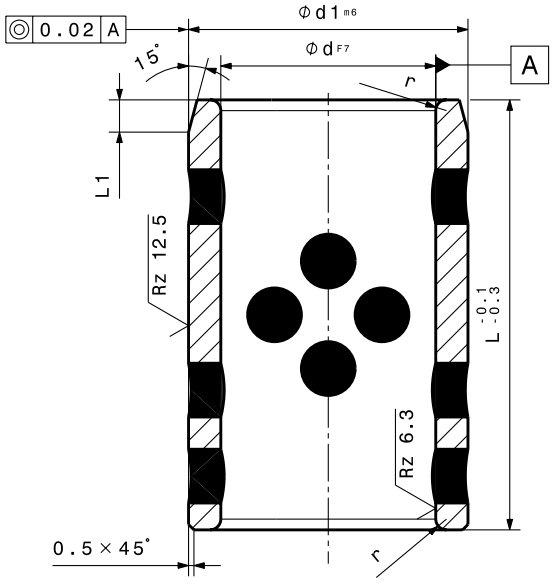
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. WF750/1A	Ød F7	Ød1 m6	L1	r	L -0,1 -0,3
13092	60	70	4	3	50
17051	60	74	4	3	30
17052	60	74	4	3	35
17053	60	74	4	3	40
15372	60	74	4	3	45
17054	60	74	4	3	50
19613	60	74	4	3	60
17056	60	74	4	3	70
17057	60	74	4	3	80
14627	60	75	4	3	30
15074	60	75	4	3	35
14628	60	75	4	3	40
14631	60	75	4	3	50
15467	60	75	4	3	60
15840	60	75	4	3	70
15307	60	75	4	3	80
15697	60	75	4	3	100
14632	63	75	4	3	60
15139	63	75	4	3	70
16820	63	75	4	3	80
16821	65	80	4	3	50
14959	65	80	4	3	60
14633	65	80	4	3	70
16822	65	80	4	3	80
17058	70	85	4	3	35
17059	70	85	4	3	40
17060	70	85	4	3	50
17061	70	85	4	3	60
17062	70	85	4	3	70
17063	70	85	4	3	80
17064	70	85	4	3	100
13236	70	90	4	3	40
16823	70	90	4	3	50
14634	70	90	4	3	60
14639	70	90	4	3	70
14643	70	90	4	3	80
16824	75	90	4	3	60
16825	75	90	4	3	70
16826	75	90	4	3	80
16827	75	90	4	3	100

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

2.1 Buchsen ohne Bund
2.1 Bushings without flange

Gleitrichtung
Slide direction



Ident-No. WF750/1A	Ød F7	Ød1 m6	L1	r	L -0,1 -0,3
16828	75	95	4	3	60
16829	75	95	4	3	70
16830	75	95	4	3	80
16831	75	95	4	3	100
17065	80	96	4	3	40
17066	80	96	4	3	50
17067	80	96	4	3	60
17068	80	96	4	3	70
19614	80	96	4	3	80
17070	80	96	4	3	100
17071	80	96	4	3	120
15569	80	100	4	3	40
14648	80	100	4	3	50
15930	80	100	4	3	60
15931	80	100	4	3	70
15967	80	100	4	3	80
14010	80	100	4	3	100
15393	80	100	4	3	120
16832	80	100	4	3	140
16833	90	110	4	3	50
14649	90	110	4	3	60

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. WF750/1A	Ød F7	Ød1 m6	L1	r	L -0,1 -0,3
14650	90	110	4	3	70
15087	90	110	4	3	80
14651	90	110	4	3	100
14656	90	110	4	3	120
17072	100	120	4	3	60
17073	100	120	4	3	70
17074	100	120	4	3	80
19615	100	120	4	3	100
17076	100	120	4	3	120
16834	100	120	4	3	140
17077	110	130	4	3	80
17078	110	130	4	3	100
17079	110	130	4	3	120
17080	120	140	4	3	80
17081	120	140	4	3	100
17082	120	140	4	3	120
16835	120	140	4	3	140
16836	125	145	4	3	100
16837	125	145	4	3	120
17083	130	150	4	3	100
17084	130	150	4	3	120
17085	130	150	4	3	130
16838	140	160	4	3	100
16839	140	160	4	3	140
16840	150	170	4	3	100
16841	150	170	4	3	150
16842	160	180	4	3	100
16843	160	180	4	3	150

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3. Buchsen mit Bund
3. Bushings with flange

3.1 Buchsen nach DIN 9834 und Klammern nach DIN 9832
Bushings acc. DIN 9832 and clamps acc. DIN 9832

3.2 Buchsen und Klammern nach NAAMS
Bushings and clamps acc. NAAMS

3.3 Buchsen mit Klammerfräsung und Klammern
Bushings with clamp milling and clamps

3.5 Buchsen
Bushings

3.6 Führungsbuchsen zum Einpressen
Guide bushings for force in

3.7 Buchsen
Bushings

3.8 Buchsen
Bushings

3.10 Buchsen
Bushings

3.11 Buchsen
Bushings

3.12 Buchsen
Bushings

3.14 Buchsen
Bushings

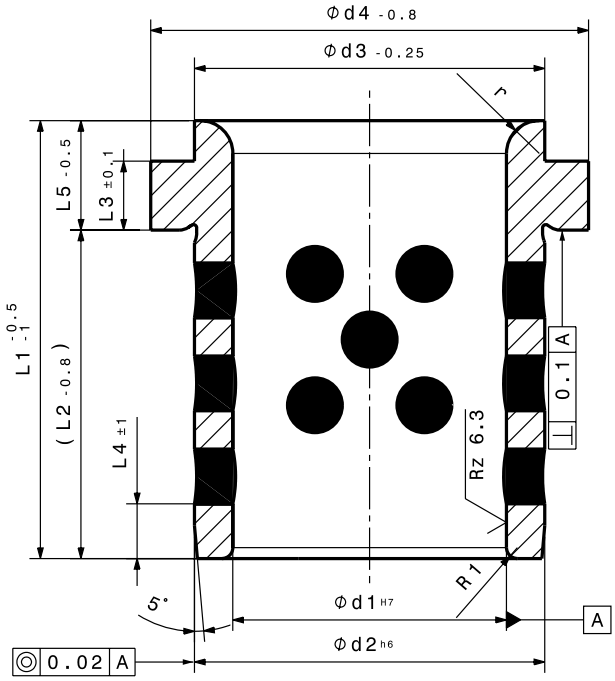
3.15 Buchsen
Bushings

3.19 Buchsen
Bushings

3.20 Buchsen und Klammern
Bushings and clamps

3.1 Buchsen nach DIN 9834 und Klammern nach DIN 9832
3.1 Bushings acc. DIN 9834 and clamps acc. DIN 9832

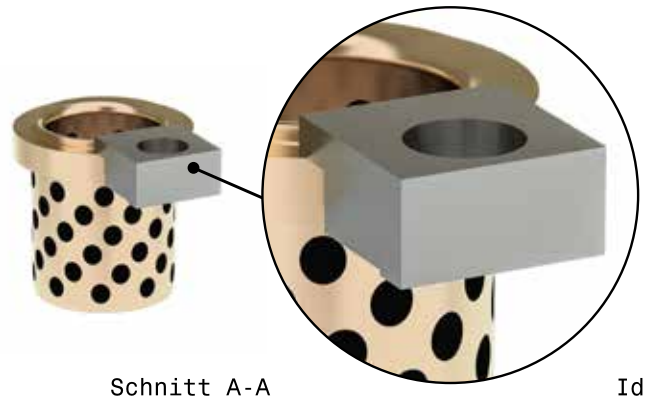
Gleitrichtung
Slide direction



Führungssäulen siehe Kapitel 17.1
Guide posts see Chapter 17.1

Ident-No. WF750/1A	Ød1 H7	Ød2 h6	Ød3 -0,25	Ød4 -0,8	L1 -0,5 -1	L3 ±0,1	L4 ±1	L5 -0,5	(L2) -0,8	r	Klammer ID-No. Clamp ID-No.
18798	25	32	32	40	32	6,3	4	10	22	3	
18799	25	32	32	40	40	6,3	3	10	30	3	19798
18797	25	32	32	40	40	6,3	4	8	32	3	19784
18796	24	32	32	40	40	6,3	4	8	32	3	19785
18800	32	40	40	50	50	6,3	4	12	38	3	64798
18801	40	50	50	63	63	6,3	5	15	48	3	
18802	50	63	63	71	71	6,3	6,3	17	54	5	
18803	63	80	80	90	80	10	8	19	61	6	
18804	80	100	100	112	100	10	10	22	78	8	
18808	100	125	125	140	125	10	12,5	25	100	10	19799
18805	100	125	125	140	125	10	12,5	21	104	10	64799
18806	125	160	160	180	160	10	16	30	130	12	
18807	160	200	200	220	200	10	16	32	168	18	

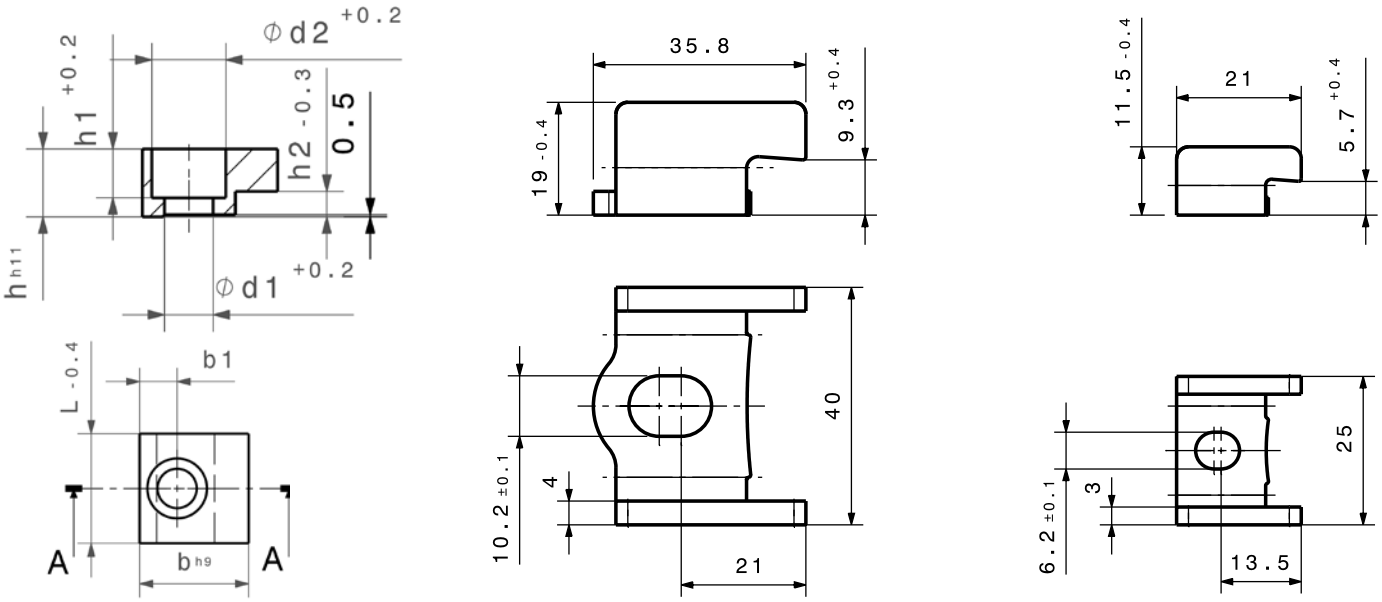
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



Schnitt A-A
View A-A

Ident-Nr. 64799
Code-No. 64799

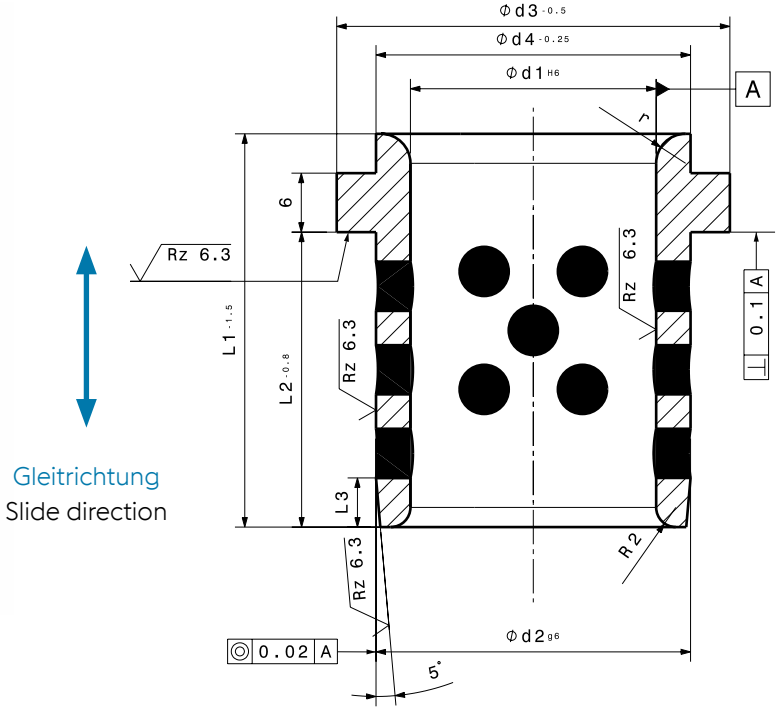
Ident-Nr. 64798
Code-No. 64798



Ident-No. 1.0037	b h9	L -0,4	h h11	b1	b2 +0,3	h1 +0,2	h2 -0,3	Ød1 +0,2	Ød2 +0,2
19798	20	20	10	7,5	5	7	6,3	7	11
19799	32	32	16	11	10	11,5	10	11,5	17,5
19784	25	20	12	10	5	8,5	6	9	15
19785	32	25	16	11	10	11,5	6	11,5	18

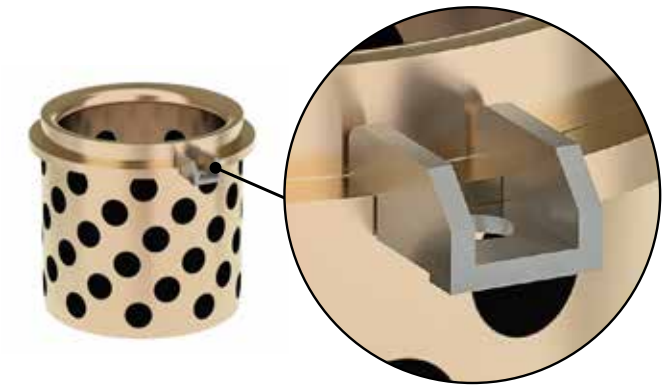
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

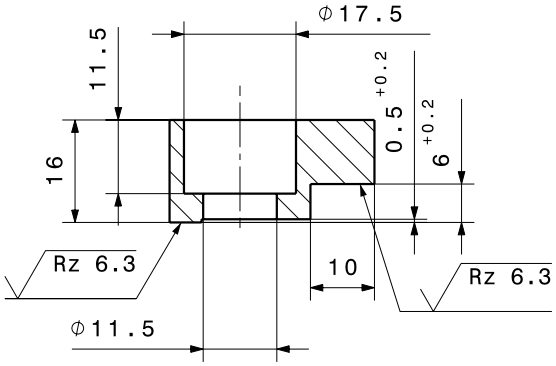
3.2 Buchsen und Klammern nach NAAMS
3.2 Bushings and clamps acc. NAAMS

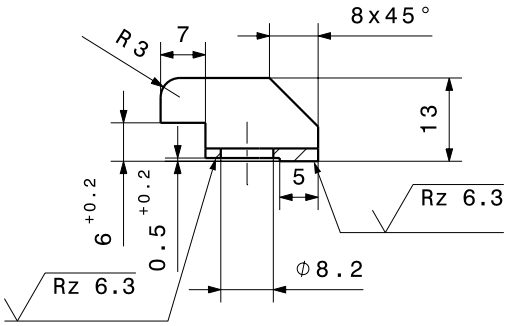


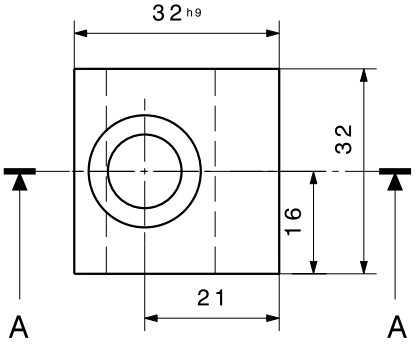
Ident-No. WF750/1A	Ød1 H6	Ød2 g6	Ød3 -0,5	Ød4 -0,25	L1 -1,5	L2 -0,8	L3	r	Klammer ID-No. Clamp ID-No.
18809	25	32	40	32	40	30	4	3	
18810	32	40	50	40	50	40	4	3	
18811	40	50	63	50	63	50	5	3	
18812	50	63	71	63	71	56	6	5	
18813	63	80	90	80	80	63	8	6	19786 / 19787
18814	80	100	112	100	100	80	10	8	
18815	100	125	140	125	125	106	12	10	
18817	115	140	155	140	140	120	12	10	
18816	125	160	180	160	160	132	12	12	

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

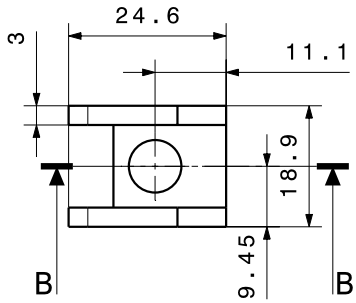








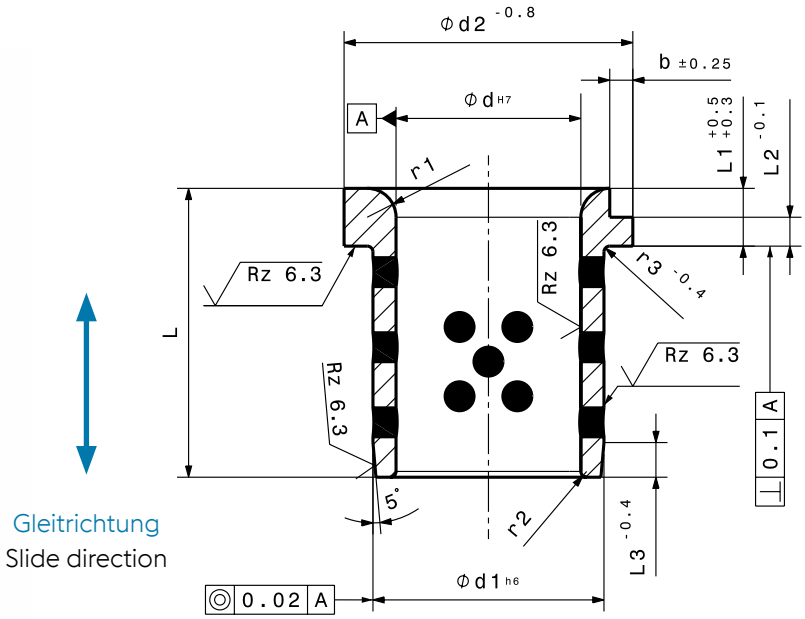
Ident-Nr. 19 786
Code-No. 19 786



Ident-Nr. 19 787
Code-No. 19 787

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

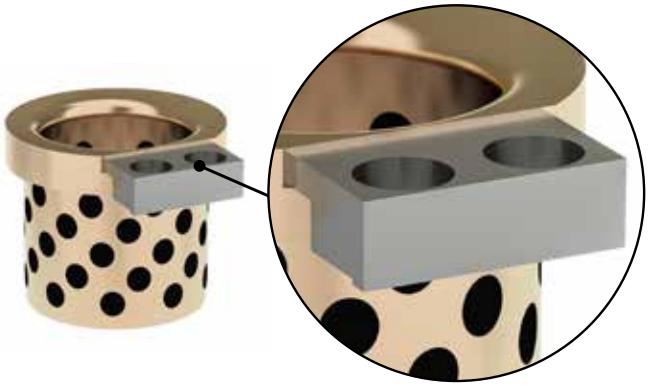
3.3 Buchsen mit Klammerfräsung und Klammern
3.3 Bushings with clamp milling and clamps

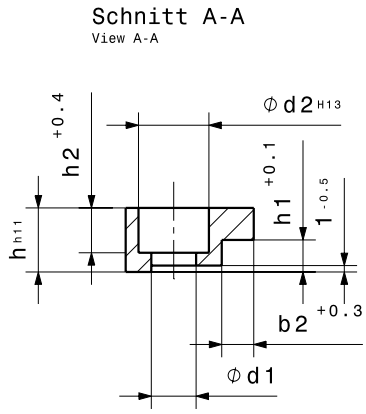


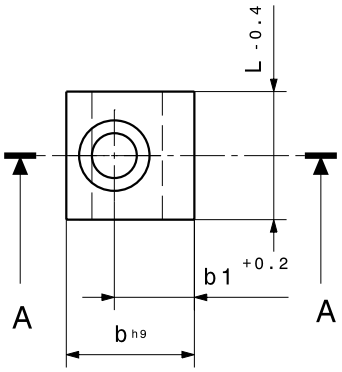
Führungssäule siehe Kapitel 17.1
Guide posts see Chapter 17.1

Ident-No. WF750/1A	Ød H7	L	Ød1 h6	Ød2 -0,8	L1 +0,5 +0,3	L2 -0,1	L3 -0,4	b ±0,25	r1	r2	r3 -0,4	Klammer ID-No. Clamp ID-No.
19000	16	25	25	32	10	5	2	3	3	1	1	19790
19001	20	32	25	32	10	5	3	3	4	1	1	
19002	25	32	32	40	10	5	4	3,5	4	1	1	
19003	32	50	40	50	10	5	6	4	5	1	1	
19004	40	63	50	63	13	8	6	5	6	1	1	19791
19005	50	72	63	75	14	8	8	6	6	1,6	1,6	19792
19006	63	80	80	95	17	10	8	8	8	2	2	19793
19007	80	100	100	120	20	10	8	10	8	2,5	2,5	
19008	100	125	125	150	25	16	8	13	10	3,2	3,2	19794
19009	125	160	160	190	30	16	10	13	13	4	4	
19010	140	180	180	210	30	16	10	13	16	5	6	
19011	160	200	200	240	30	16	12	13	18	6	6	

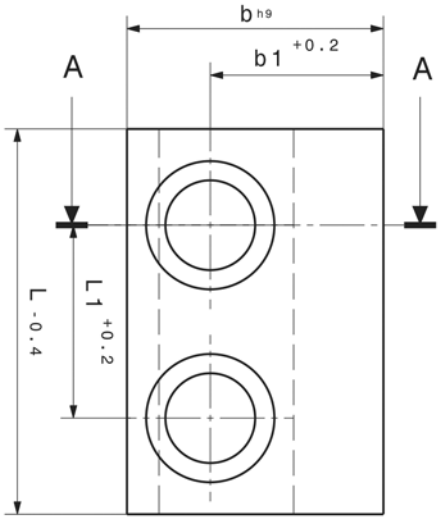
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium







Form A
Style A

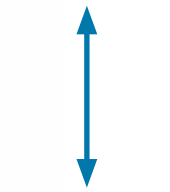


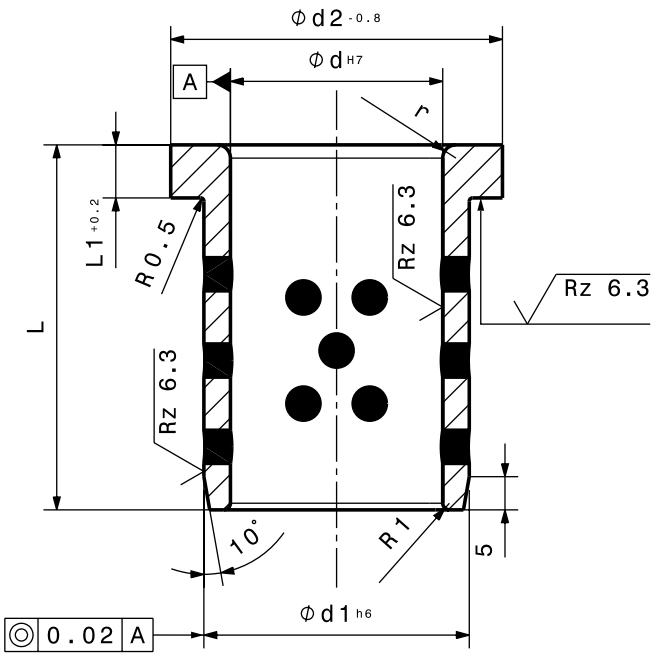
Form B
Style B

Ident-No. 1.0037	Buchsen Innen-Ø Bushing inner-Ø	b h9	L -0,4	h h11	b1 +0,2	b2 +0,3	h1 +0,1	h2 +0,4	L1 +0,2	Ød1	Ød2 H13	Zylinderschraube Cylinder head screw DIN EN ISO 4762	Form Style
19790	16-32	20	20	10	12,5	5	5	7	-	7	11	1x M6	A
19791	40	20	40	12	12,5	5	8	7	20	7	11	2x M6	B
19792	50	25	40	14	15,5	6	8	9	20	9,5	14,5	2x M8	B
19793	63-80	28	50	16	18	8	10	11,5	25	11,5	17,5	2x M10	B
19794	100-160	40	60	25	27	14	16	13,5	30	14	20	2x M12	B

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.5 Buchsen
3.5 Bushings



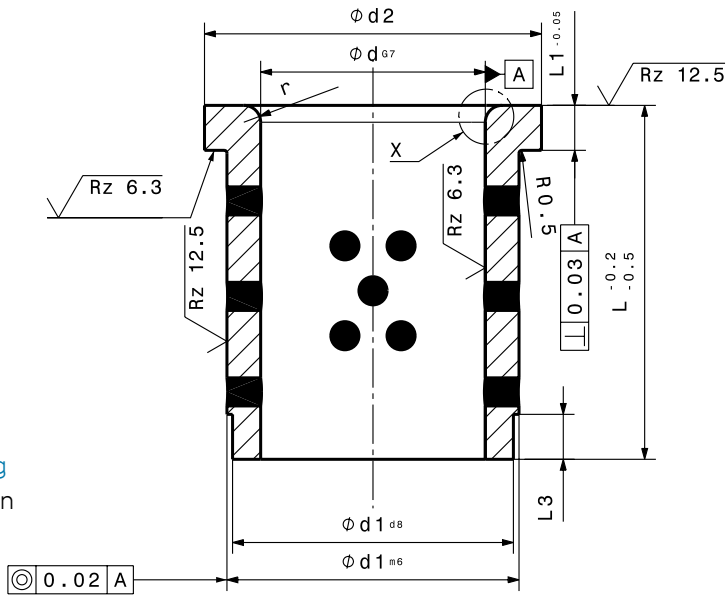


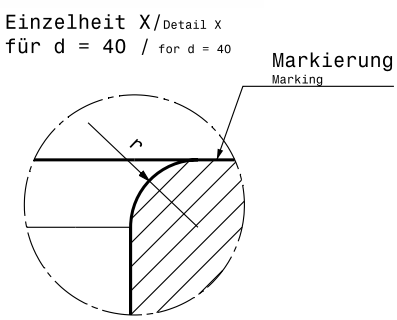
Ident-No. WF750/1A	Ød H7	L	Ød1 h6	Ød2 -0,8	L1 +0,2	r
19309	20	35	26	36	8	2
19300	20	35	28	36	8	2
19301	32	55	40	50	8	6
19302	40	70	50	60	8	6
19303	42	70	50	60	8	6
19304	50	75	63	75	12	8
19305	52	75	63	75	12	8
19306	63	80	80	90	12	8
19307	80	100	100	110	12	8
19308	100	125	125	135	12	8

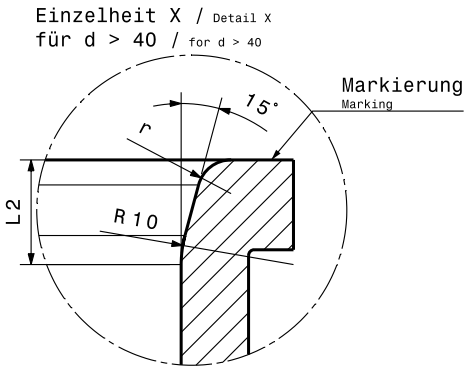
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.6 Führungsbuchsen zum Einpressen
3.6 Guide bushings for force in

Gleitrichtung
Slide direction





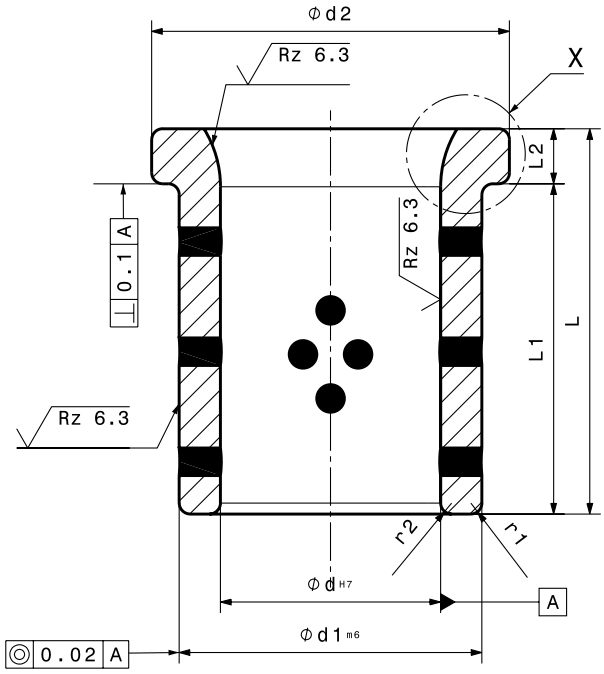


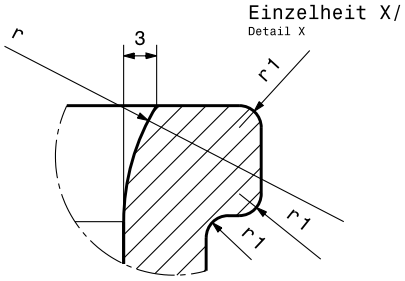
Ident-No. WF750/1A	Ød G7	L -0,2 -0,5	Ød1 d8 m6	Ød2	L1 -0,05	L2	L3	r
18700	40	63	52	60	8		8	3
18701	50	80	63	71	10	8	8	3
18702	63	100	80	90	12	10	10	3
18703	80	125	100	112	16	10	10	4
18704	100	160	125	140	20	10	10	4

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.7 Buchsen
3.7 Bushings

Gleitrichtung
Slide direction

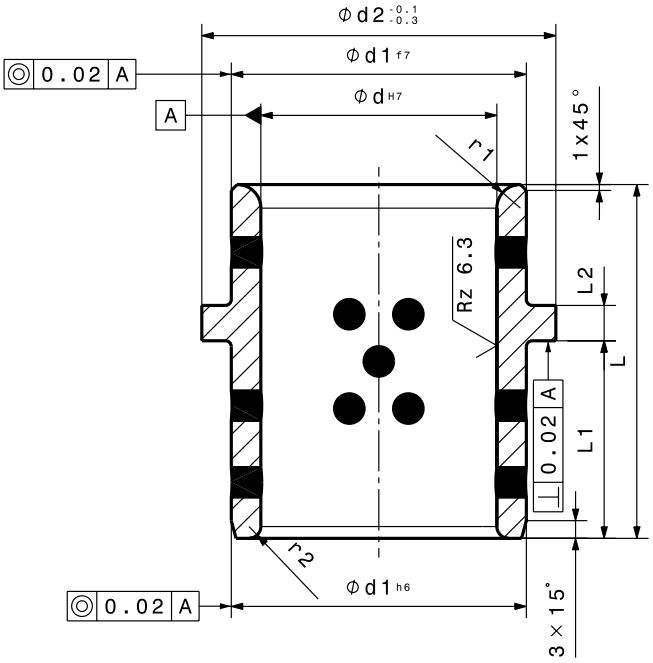




Ident-No. WF750/1A	Ød H7	L	Ød1 m6	Ød2	L1	L2	r	r1	r2
17100	25	40	35	45	33	7	10	1	2
17101	30	50	40	50	40	10	20	1	2
17102	40	70	55	65	60	10	20	2	2
17103	50	80	65	75	70	10	20	2	2
17104	60	80	75	85	70	10	20	2	2
17105	65	80	80	90	70	10	20	2	2
17106	65	120	80	90	110	10	20	2	2
17107	80	100	100	110	90	10	20	2	3
17108	80	140	100	110	130	10	20	2	3
17109	100	100	120	130	90	10	20	2	3
17110	100	140	120	130	130	10	20	2	3

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.8 Buchsen
3.8 Bushings



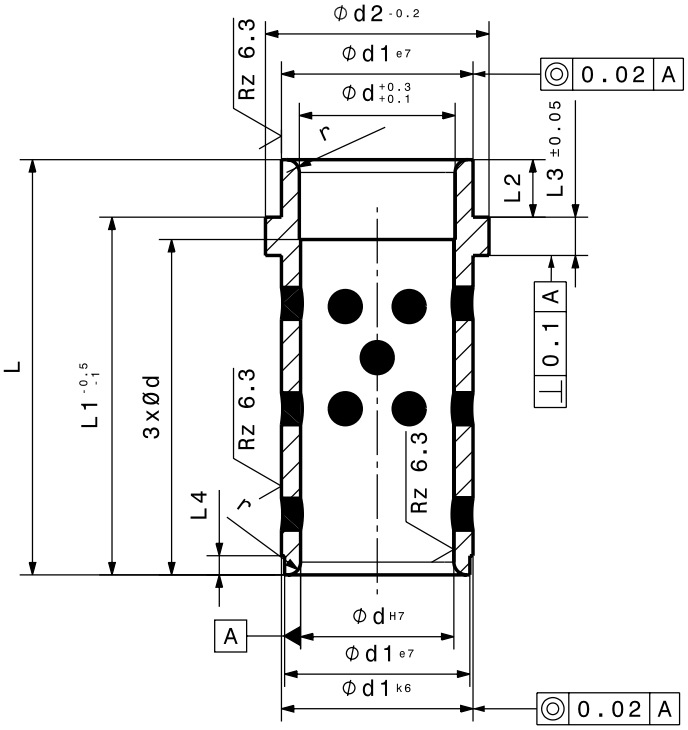
Gleitrichtung
Slide direction

Ident-No. WF750/1A	Ød H7	L	Ød1 f7 h6	Ød2 -0,1 -0,3	L1	L2	r1	r2
17115	25	43	35	40	24	7,5	3	2
17116	30	43	42	47	24	7,5	3	2
17117	40	60	50	60	35,5	6	4	2
17118	40	64	50	60	39,5	6	4	2
17119	50	77	63	72	44,5	8	4	3
17120	50	92	63	72	55,5	8	4	3
17121	60	78	80	86	49	7,5	3	3
17122	63	95	80	90	55,5	8	4	3
17123	63	100	80	90	62,5	8	4	3
17124	63	108	80	90	62,5	8	4	3

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.10 Buchsen
3.10 Bushings

Gleitrichtung
Slide direction



Ident-No. WF750/1A	Ød H7 +0,1/+0,3	L	Ød1 e7 k6	Ød2 -0,2	L1 -0,5 -1	L2	L3 ±0,05	L4	r
17874	9	15	14	18	12	3	3	2	1
17875	9	20	14	18	17	3	3	2	1
17876	9	25	14	18	22	3	3	2	1
17877	9	30	14	18	27	3	3	2	1
17878	9	39	14	18	36	3	3	2	1
17400	10	15	14	18	12	3	3	2	1
17401	10	20	14	18	17	3	3	2	1
17879	10	25	14	18	22	3	3	2	1
17880	10	30	14	18	27	3	3	2	1
17881	10	39	14	18	36	3	3	2	1
17402	14	26	20	25	17	9	6	3	1,5
17403	14	31	20	25	22	9	6	3	1,5
17404	14	36	20	25	27	9	6	3	1,5
17405	14	45	20	25	36	9	6	3	1,5
17882	14	55	20	25	46	9	6	3	1,5

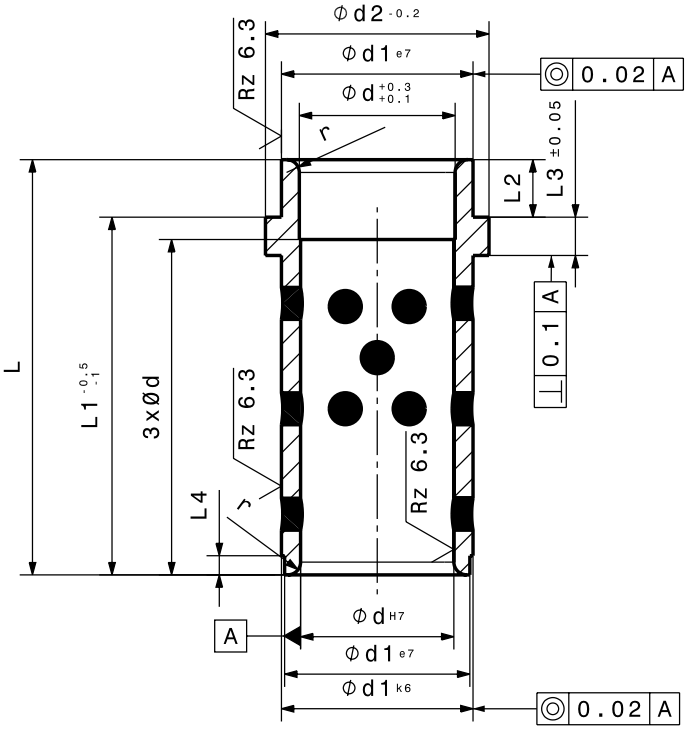
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. WF750/1A	Ød H7 +0,1/+0,3	L	Ød1 e7 k6	Ød2 -0,2	L1 -0,5 -1	L2	L3 ±0,05	L4	r
17883	14	65	20	25	56	9	6	3	1,5
17406	15	26	20	25	17	9	6	3	1,5
17407	15	31	20	25	22	9	6	3	1,5
17408	15	36	20	25	27	9	6	3	1,5
17409	15	45	20	25	36	9	6	3	1,5
17884	15	55	20	25	46	9	6	3	1,5
17885	15	65	20	25	56	9	6	3	1,5
17410	18	26	26	31	17	9	6	3	1,5
17411	18	31	26	31	22	9	6	3	1,5
17412	18	36	26	31	27	9	6	3	1,5
17413	18	45	26	31	36	9	6	3	1,5
17414	18	55	26	31	46	9	6	3	1,5
17886	18	65	26	31	56	9	6	3	1,5
17887	18	75	26	31	66	9	6	3	1,5
14541	18	85	26	31	76	9	6	3	1,5
17415	20	26	26	31	17	9	6	3	1,5
17416	20	31	26	31	22	9	6	3	1,5
17417	20	36	26	31	27	9	6	3	1,5
17418	20	45	26	31	36	9	6	3	1,5
17419	20	55	26	31	46	9	6	3	1,5
17420	20	65	26	31	56	9	6	3	1,5
17888	20	75	26	31	66	9	6	3	1,5
14548	20	85	26	31	76	9	6	3	1,5
17421	22	26	30	35	17	9	6	3	2
17422	22	31	30	35	22	9	6	3	2
17423	22	36	30	35	27	9	6	3	2
17424	22	45	30	35	36	9	6	3	2
17425	22	55	30	35	46	9	6	3	2
17426	22	65	30	35	56	9	6	3	2
17889	22	75	30	35	66	9	6	3	2
17890	22	85	30	35	76	9	6	3	2
17891	22	95	30	35	86	9	6	3	2
17427	24	26	30	35	17	9	6	3	2
17428	24	31	30	35	22	9	6	3	2
17429	24	36	30	35	27	9	6	3	2
17430	24	45	30	35	36	9	6	3	2
17431	24	55	30	35	46	9	6	3	2
17432	24	65	30	35	56	9	6	3	2
17433	24	75	30	35	66	9	6	3	2
17892	24	85	30	35	76	9	6	3	2

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.10 Buchsen
3.10 Bushings

Gleitrichtung
Slide direction



Ident-No. WF750/1A	Ød H7 +0,1/+0,3	L	Ød1 e7 k6	Ød2 -0,2	L1 -0,5 -1	L2	L3 ±0,05	L4	r
17893	24	95	30	35	86	9	6	3	2
17434	30	36	42	47	27	9	6	3	2
17435	30	45	42	47	36	9	6	3	2
17436	30	55	42	47	46	9	6	3	2
17437	30	65	42	47	56	9	6	3	2
17894	30	75	42	47	66	9	6	3	2
17438	30	85	42	47	76	9	6	3	2
17439	30	95	42	47	86	9	6	3	2
17895	30	105	42	47	96	9	6	3	2
17896	30	125	42	47	116	9	6	3	2
17440	32	36	42	47	27	9	6	3	2
17441	32	45	42	47	36	9	6	3	2
17442	32	55	42	47	46	9	6	3	2
17443	32	65	42	47	56	9	6	3	2
17897	32	75	42	47	66	9	6	3	2

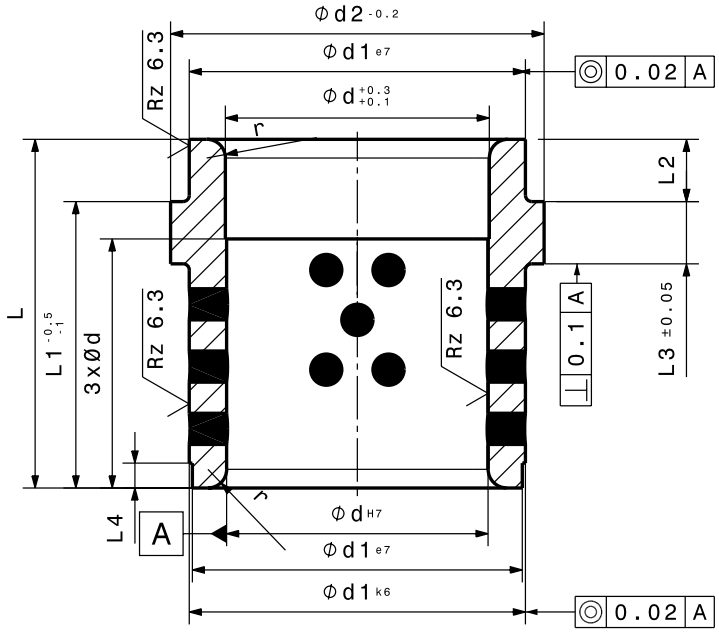
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. WF750/1A	Ød H7 +0,1/+0,3	L	Ød1 e7 k6	Ød2 -0,2	L1 -0,5 -1	L2	L3 ±0,05	L4	r
17444	32	85	42	47	76	9	6	3	2
17445	32	95	42	47	86	9	6	3	2
17898	32	105	42	47	96	9	6	3	2
17899	32	125	42	47	116	9	6	3	2
17446	40	68	54	60	56	12	10	4	3
17992	40	78	54	60	66	12	10	4	3
17447	40	88	54	60	76	12	10	4	3
17993	40	98	54	60	86	12	10	4	3
17448	40	108	54	60	96	12	10	4	3
17449	40	128	54	60	116	12	10	4	3
17994	40	148	54	60	136	12	10	4	3
17995	40	168	54	60	156	12	10	4	3
17450	42	68	54	60	56	12	10	4	3
17996	42	78	54	60	66	12	10	4	3
17451	42	88	54	60	76	12	10	4	3
17997	42	98	54	60	86	12	10	4	3
17452	42	108	54	60	96	12	10	4	3
17453	42	128	54	60	116	12	10	4	3
17998	42	148	54	60	136	12	10	4	3
17999	42	168	54	60	156	12	10	4	3

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.11 Buchsen
3.11 Bushings

Gleitrichtung
Slide direction



Ident-No. WF750/1A	Ød H7 +0,1/+0,3	L	Ød1 e7 k6	Ød2 -0,2	L1 -0,5 -1	L2	L3 ±0,05	L4	r
17213	9	17	14	16	12	5	3	2	1
17460	9	22	14	16	17	5	3	2	1
17461	9	27	14	16	22	5	3	2	1
17462	9	32	14	16	27	5	3	2	1
17463	9	41	14	16	36	5	3	2	1
17214	9	51	14	16	46	5	3	2	1
17215	9	61	14	16	56	5	3	2	1
17216	10	17	14	16	12	5	3	2	1
17464	10	22	14	16	17	5	3	2	1
17465	10	27	14	16	22	5	3	2	1
17466	10	32	14	16	27	5	3	2	1
17467	10	41	14	16	36	5	3	2	1
17217	10	51	14	16	46	5	3	2	1
17218	10	61	14	16	56	5	3	2	1
17468	14	23	20	26	17	6	6	3	1,5

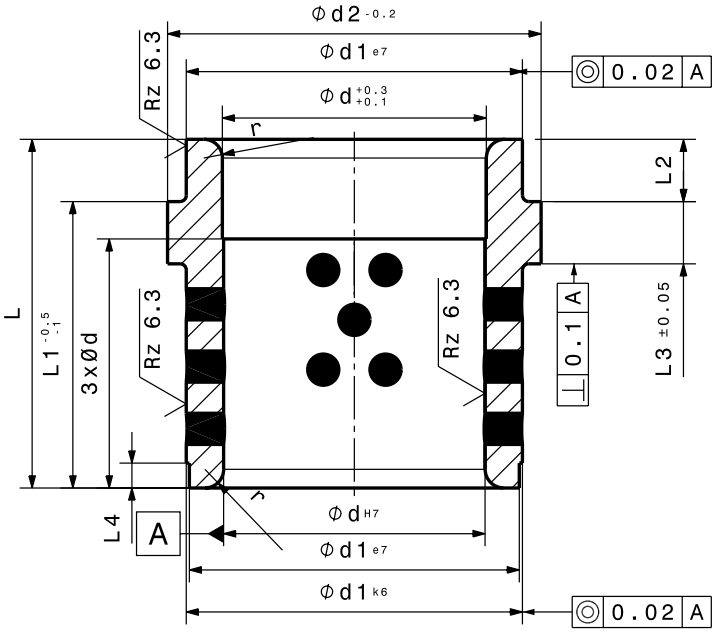
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. WF750/1A	Ød H7 +0,1/+0,3	L	Ød1 e7 k6	Ød2 -0,2	L1 -0,5 -1	L2	L3 ±0,05	L4	r
17469	14	28	20	26	22	6	6	3	1,5
17470	14	33	20	26	27	6	6	3	1,5
17471	14	42	20	26	36	6	6	3	1,5
17472	14	52	20	26	46	6	6	3	1,5
17473	14	62	20	26	56	6	6	3	1,5
17219	14	72	20	26	66	6	6	3	1,5
17220	14	82	20	26	76	6	6	3	1,5
17474	15	23	20	26	17	6	6	3	1,5
17475	15	28	20	26	22	6	6	3	1,5
17476	15	33	20	26	27	6	6	3	1,5
17477	15	42	20	26	36	6	6	3	1,5
17478	15	52	20	26	46	6	6	3	1,5
17479	15	62	20	26	56	6	6	3	1,5
17221	15	72	20	26	66	6	6	3	1,5
17222	15	82	20	26	76	6	6	3	1,5
17223	18	25	26	31	17	8	6	3	1,5
17480	18	30	26	31	22	8	6	3	1,5
17481	18	35	26	31	27	8	6	3	1,5
17482	18	44	26	31	36	8	6	3	1,5
17483	18	54	26	31	46	8	6	3	1,5
17484	18	64	26	31	56	8	6	3	1,5
17485	18	74	26	31	66	8	6	3	1,5
17224	18	84	26	31	76	8	6	3	1,5
17225	20	25	26	31	17	8	6	3	1,5
17486	20	30	26	31	22	8	6	3	1,5
17487	20	35	26	31	27	8	6	3	1,5
17488	20	44	26	31	36	8	6	3	1,5
17489	20	54	26	31	46	8	6	3	1,5
17490	20	64	26	31	56	8	6	3	1,5
17491	20	74	26	31	66	8	6	3	1,5
17226	20	84	26	31	76	8	6	3	1,5
17492	22	30	30	35	22	8	6	3	2
17493	22	35	30	35	27	8	6	3	2
17494	22	44	30	35	36	8	6	3	2
17495	22	54	30	35	46	8	6	3	2
17496	22	64	30	35	56	8	6	3	2
17497	22	74	30	35	66	8	6	3	2
17498	22	84	30	35	76	8	6	3	2
17227	22	94	30	35	86	8	6	3	2
17228	22	104	30	35	96	8	6	3	2

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.11 Buchsen
3.11 Bushings

Gleitrichtung
Slide direction



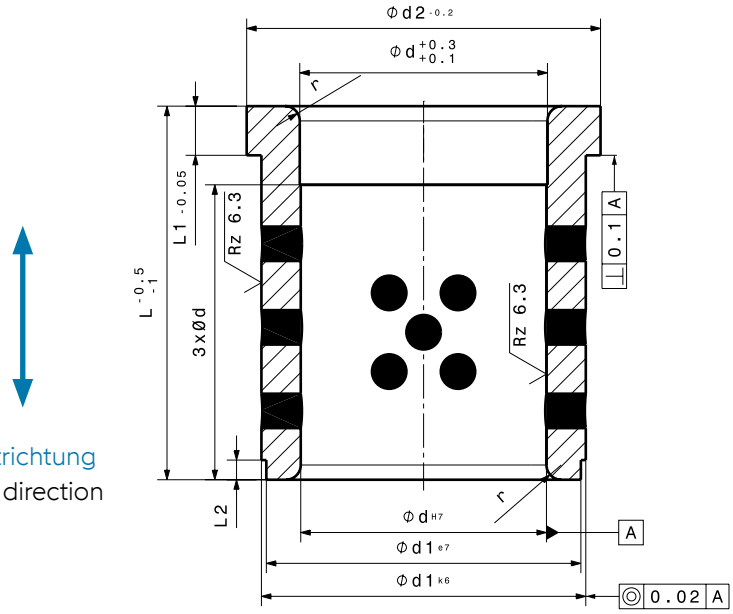
Ident-No. WF750/1A	Ød H7 +0,1/+0,3	L	Ød1 e7 k6	Ød2 -0,2	L1 -0,5 -1	L2	L3 ±0,05	L4	r
17229	22	124	30	35	116	8	6	3	2
17499	24	30	30	35	22	8	6	3	2
17970	24	35	30	35	27	8	6	3	2
17971	24	44	30	35	36	8	6	3	2
17972	24	54	30	35	46	8	6	3	2
17973	24	64	30	35	56	8	6	3	2
17974	24	74	30	35	66	8	6	3	2
17975	24	84	30	35	76	8	6	3	2
17288	24	94	30	35	86	8	6	3	2
17289	24	104	30	35	96	8	6	3	2
17290	24	124	30	35	116	8	6	3	2
17976	30	35	42	47	27	8	6	3	2
17977	30	44	42	47	36	8	6	3	2
17978	30	54	42	47	46	8	6	3	2
17979	30	64	42	47	56	8	6	3	2

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. WF750/1A	Ød H7 +0,1/+0,3	L	Ød1 e7 k6	Ød2 -0,2	L1 -0,5 -1	L2	L3 ±0,05	L4	r
17980	30	74	42	47	66	8	6	3	2
17981	30	84	42	47	76	8	6	3	2
17982	30	94	42	47	86	8	6	3	2
17983	30	104	42	47	96	8	6	3	2
17291	30	124	42	47	116	8	6	3	2
17292	30	144	42	47	136	8	6	3	2
17984	32	35	42	47	27	8	6	3	2
17985	32	44	42	47	36	8	6	3	2
17986	32	54	42	47	46	8	6	3	2
17987	32	64	42	47	56	8	6	3	2
17988	32	74	42	47	66	8	6	3	2
17989	32	84	42	47	76	8	6	3	2
17990	32	94	42	47	86	8	6	3	2
17991	32	104	42	47	96	8	6	3	2
17293	32	124	42	47	116	8	6	3	2
17294	32	144	42	47	136	8	6	3	2
17295	40	56	54	60	46	10	10	4	3
17296	40	66	54	60	56	10	10	4	3
17297	40	76	54	60	66	10	10	4	3
17298	40	86	54	60	76	10	10	4	3
17299	40	96	54	60	86	10	10	4	3
17300	40	106	54	60	96	10	10	4	3
17358	40	126	54	60	116	10	10	4	3
17359	40	146	54	60	136	10	10	4	3
17360	40	166	54	60	156	10	10	4	3
17361	40	206	54	60	196	10	10	4	3
17362	42	56	54	60	46	10	10	4	3
17363	42	66	54	60	56	10	10	4	3
17364	42	76	54	60	66	10	10	4	3
17365	42	86	54	60	76	10	10	4	3
17366	42	96	54	60	86	10	10	4	3
17367	42	106	54	60	96	10	10	4	3
17368	42	126	54	60	116	10	10	4	3
17369	42	146	54	60	136	10	10	4	3
17398	42	166	54	60	156	10	10	4	3
17399	42	206	54	60	196	10	10	4	3

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.12 Buchsen
3.12 Bushings



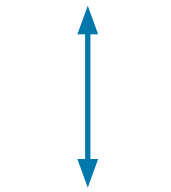
Ident-No. WF750/1A	Ød H7 +0,1/+0,3	L -0,5 -1	Ød1 e7 k6	Ød2 -0,2	L1 -0,05	L2	r
17830	9	12	14	16	3	2	1
17831	9	17	14	16	3	2	1
17832	9	22	14	16	3	2	1
17833	9	27	14	16	3	2	1
17834	9	36	14	16	3	2	1
17900	10	12	14	16	3	2	1
17901	10	17	14	16	3	2	1
17835	10	22	14	16	3	2	1
17836	10	27	14	16	3	2	1
17837	10	36	14	16	3	2	1
17902	12	17	18	23	6	3	1,5
17838	12	22	18	23	6	3	1,5
17839	12	27	18	23	6	3	1,5
17840	12	36	18	23	6	3	1,5
17903	14	17	20	25	6	3	1,5

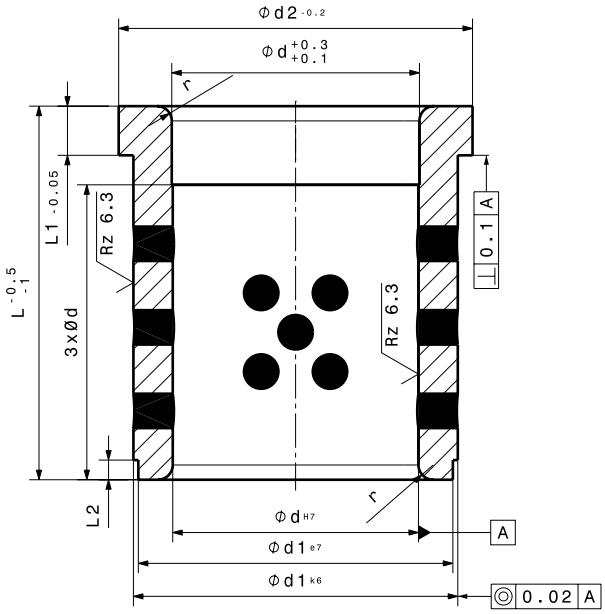
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. WF750/1A	Ød H7 +0,1/+0,3	L -0,5 -1	Ød1 e7 k6	Ød2 -0,2	L1 -0,05	L2	r
17904	14	22	20	25	6	3	1,5
17905	14	27	20	25	6	3	1,5
17906	14	36	20	25	6	3	1,5
17841	14	46	20	25	6	3	1,5
17842	14	56	20	25	6	3	1,5
17907	15	17	20	25	6	3	1,5
17908	15	22	20	25	6	3	1,5
17909	15	27	20	25	6	3	1,5
17910	15	36	20	25	6	3	1,5
17843	15	46	20	25	6	3	1,5
17844	15	56	20	25	6	3	1,5
17911	16	17	22	27	6	3	1,5
17912	16	22	22	27	6	3	1,5
17913	16	27	22	27	6	3	1,5
17914	16	36	22	27	6	3	1,5
17845	16	46	22	27	6	3	1,5
17846	16	56	22	27	6	3	1,5
17915	18	17	26	31	6	3	1,5
17916	18	22	26	31	6	3	1,5
17917	18	27	26	31	6	3	1,5
17918	18	36	26	31	6	3	1,5
17919	18	46	26	31	6	3	1,5
17847	18	56	26	31	6	3	1,5
17848	18	66	26	31	6	3	1,5
17920	20	17	26	31	6	3	1,5
17921	20	22	26	31	6	3	1,5
17922	20	27	26	31	6	3	1,5
17923	20	36	26	31	6	3	1,5
17924	20	46	26	31	6	3	1,5
17925	20	56	26	31	6	3	1,5
17849	20	66	26	31	6	3	1,5
17926	22	17	30	35	6	3	2
17927	22	22	30	35	6	3	2
17928	22	27	30	35	6	3	2
17929	22	36	30	35	6	3	2
17930	22	46	30	35	6	3	2
17931	22	56	30	35	6	3	2
17850	22	66	30	35	6	3	2
17851	22	76	30	35	6	3	2
17852	22	86	30	35	6	3	2

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.12 Buchsen
3.12 Bushings





Ident-No. WF750/1A	Ød H7 +0,1/+0,3	L -0,5 -1	Ød1 e7 k6	Ød2 -0,2	L1 -0,05	L2	r
17932	24	17	30	35	6	3	2
17933	24	22	30	35	6	3	2
17934	24	27	30	35	6	3	2
17935	24	36	30	35	6	3	2
17936	24	46	30	35	6	3	2
17937	24	56	30	35	6	3	2
17938	24	66	30	35	6	3	2
17853	24	76	30	35	6	3	2
17854	24	86	30	35	6	3	2
17939	30	27	42	47	6	3	2
17940	30	36	42	47	6	3	2
17941	30	46	42	47	6	3	2
17942	30	56	42	47	6	3	2
17855	30	66	42	47	6	3	2
17943	30	76	42	47	6	3	2

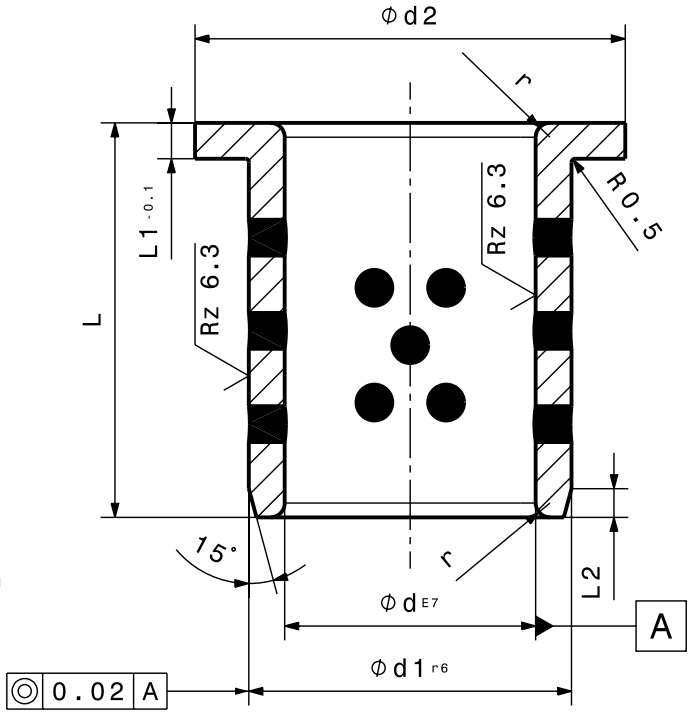
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. WF750/1A	Ød H7 +0,1/+0,3	L -0,5 -1	Ød1 e7 k6	Ød2 -0,2	L1 -0,05	L2	r
17856	30	86	42	47	6	3	2
17944	30	96	42	47	6	3	2
17857	30	116	42	47	6	3	2
17945	32	27	42	47	6	3	2
17946	32	36	42	47	6	3	2
17947	32	46	42	47	6	3	2
17948	32	56	42	47	6	3	2
17858	32	66	42	47	6	3	2
17949	32	76	42	47	6	3	2
17859	32	86	42	47	6	3	2
17950	32	96	42	47	6	3	2
17860	32	116	42	47	6	3	2
17951	40	56	54	60	10	4	3
17861	40	66	54	60	10	4	3
17952	40	76	54	60	10	4	3
17862	40	86	54	60	10	4	3
17953	40	96	54	60	10	4	3
17954	40	116	54	60	10	4	3
17863	40	136	54	60	10	4	3
17864	40	156	54	60	10	4	3
17955	42	56	54	60	10	4	3
17865	42	66	54	60	10	4	3
17956	42	76	54	60	10	4	3
17866	42	86	54	60	10	4	3
17957	42	96	54	60	10	4	3
17958	42	116	54	60	10	4	3
17867	42	136	54	60	10	4	3
17868	42	156	54	60	10	4	3
17959	50	76	66	72	10	4	3
17869	50	86	66	72	10	4	3
17960	50	96	66	72	10	4	3
17961	50	116	66	72	10	4	3
17962	50	136	66	72	10	4	3
17870	50	156	66	72	10	4	3
17871	50	196	66	72	10	4	3
17963	60	96	80	86	20	4	3
17964	60	116	80	86	20	4	3
17965	60	136	80	86	20	4	3
17872	60	156	80	86	20	4	3
17873	60	196	80	86	20	4	3

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.14 Buchsen
3.14 Bushings

Gleitrichtung
Slide direction



Ident-No. WF750/1A	Ød E7	L	Ød1 r6	Ød2	L1 -0,1	L2	r
17500	10	15	14	22	2	2	1
17501	10	20	14	22	2	2	1
17502	12	15	18	25	3	3	1
17503	12	20	18	25	3	3	1
17504	13	15	19	26	3	3	1,5
17505	13	20	19	26	3	3	1,5
17506	14	15	20	27	3	3	1,5
17507	14	20	20	27	3	3	1,5
17508	15	15	21	28	3	3	1,5
17509	15	20	21	28	3	3	1,5
17510	15	25	21	28	3	3	1,5
17511	16	15	22	29	3	3	1,5
17512	16	20	22	29	3	3	1,5
17513	16	25	22	29	3	3	1,5
13458	16	30	22	29	3	3	1,5
17514	20	15	30	40	5	3	1,5
17515	20	20	30	40	5	3	1,5
17516	20	30	30	40	5	3	1,5
17517	20	40	30	40	5	3	1,5
17518	25	20	35	45	5	3	2
17519	25	25	35	45	5	3	2

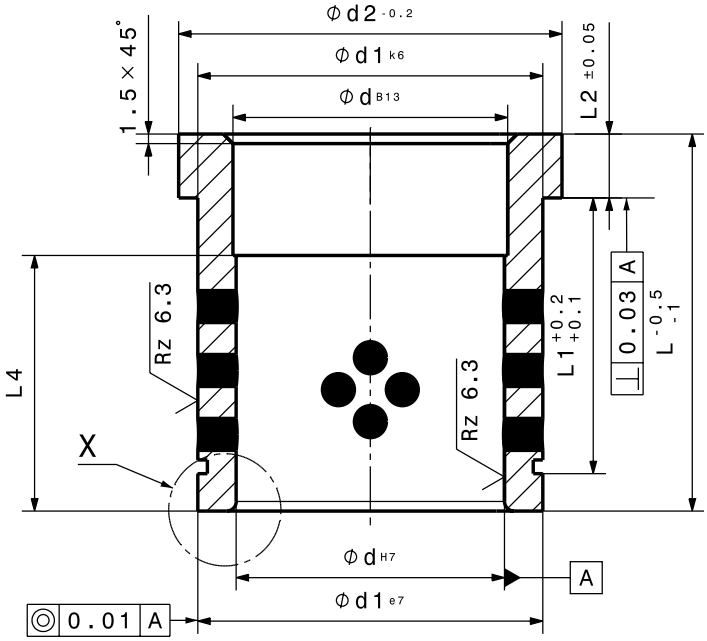
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

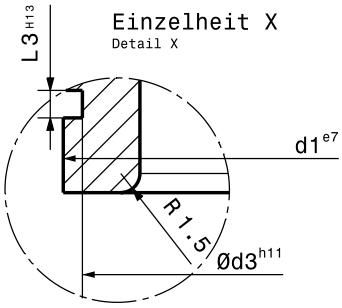
Ident-No. WF750/1A	Ød E7	L	Ød1 r6	Ød2	L1 -0,1	L2	r
17520	25	30	35	45	5	3	2
14925	25	35	35	45	5	3	2
17521	25	40	35	45	5	3	2
13560	30	20	40	50	5	3	2
14790	30	25	40	50	5	3	2
17522	30	30	40	50	5	3	2
17523	30	35	40	50	5	3	2
17524	30	40	40	50	5	3	2
17525	30	50	40	50	5	3	2
17526	31,5	35	40	50	5	3	2
14060	35	25	45	60	5	4	2
17527	35	30	45	60	5	4	2
17528	35	40	45	60	5	4	2
17529	35	50	45	60	5	4	2
17530	40	30	50	65	5	4	2
17531	40	40	50	65	5	4	2
17532	40	50	50	65	5	4	2
17533	45	30	55	70	5	4	2
17534	45	40	55	70	5	4	2
17097	45	50	55	70	5	4	2
17535	45	60	55	70	5	4	2
17536	50	30	60	75	5	4	2
17537	50	40	60	75	5	4	2
17111	50	50	60	75	5	4	2
17538	50	60	60	75	5	4	2
17539	55	40	65	80	5	4	2
17540	55	60	65	80	5	4	2
17541	60	40	75	90	7,5	4	3
17542	60	50	75	90	7,5	4	3
17543	60	80	75	90	7,5	4	3
17544	63	67,5	75	85	7,5	4	3
17545	70	50	85	105	7,5	4	3
17546	70	80	85	105	7,5	4	3
17547	75	60	90	110	7,5	4	3
17548	80	60	100	120	10	5	3
17549	80	80	100	120	10	5	3
17090	80	100	100	120	10	5	3
17091	90	60	110	130	10	5	3
17092	90	80	110	130	10	5	3
17093	100	80	120	150	10	5	3
17094	100	100	120	150	10	5	3
17095	120	80	140	170	10	5	3
17096	120	100	140	170	10	5	3

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.15 Buchsen
3.15 Bushings

Gleitrichtung
Slide direction





Ident-No. WF750/1A	Ød H7 B13	L -0,5 -1	Ød1 k6/e7	Ød2 -0,2	Ød3 h11	L1 +0,2 +0,1	L2 ±0,05	L3 H13	L4
16040	9	12	14	16	13,4	6,6	3	1,1	20
16041	9	17	14	16	13,4	11,6	3	1,1	20
16042	9	22	14	16	13,4	16,6	3	1,1	20
16043	9	27	14	16	13,4	21,6	3	1,1	20
16044	9	36	14	16	13,4	30,6	3	1,1	20
16045	9	46	14	16	13,4	40,6	3	1,1	20
16046	9	56	14	16	13,4	50,6	3	1,1	20
16048	10	12	14	16	13,4	6,6	3	1,1	20
16049	10	17	14	16	13,4	11,6	3	1,1	20
16050	10	22	14	16	13,4	16,6	3	1,1	20
16051	10	27	14	16	13,4	21,6	3	1,1	20
16052	10	36	14	16	13,4	30,6	3	1,1	20
16053	10	46	14	16	13,4	40,6	3	1,1	20

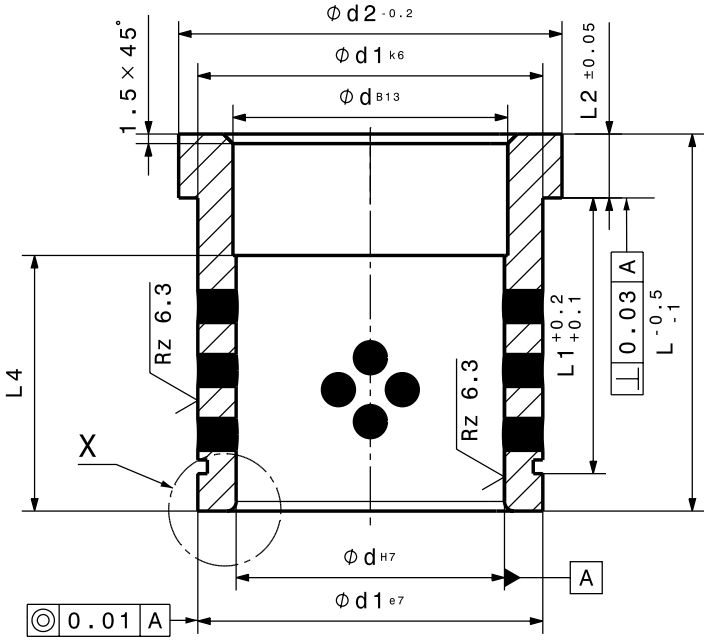
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

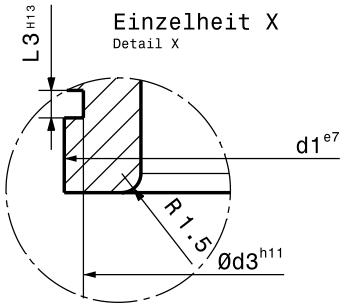
Ident-No. WF750/1A	Ød H7 B13	L -0,5 -1	Ød1 k6/e7	Ød2 -0,2	Ød3 h11	L1 +0,2 +0,1	L2 ±0,05	L3 H13	L4
16054	10	56	14	16	13,4	50,6	3	1,1	20
16056	12	17	18	23	17	8,3	6	1,3	24
16057	12	22	18	23	17	13,3	6	1,3	24
16058	12	27	18	23	17	18,3	6	1,3	24
16059	12	36	18	23	17	27,3	6	1,3	24
16060	12	46	18	23	17	37,3	6	1,3	24
16061	12	56	18	23	17	47,3	6	1,3	24
16063	14	17	20	25	19	8,3	6	1,3	30
16064	14	22	20	25	19	13,3	6	1,3	30
16065	14	27	20	25	19	18,3	6	1,3	30
16066	14	36	20	25	19	27,3	6	1,3	30
16067	14	46	20	25	19	37,3	6	1,3	30
16068	14	56	20	25	19	47,3	6	1,3	30
16070	15	17	20	25	19	8,3	6	1,3	30
16071	15	22	20	25	19	13,3	6	1,3	30
16072	15	27	20	25	19	18,3	6	1,3	30
16073	15	36	20	25	19	27,3	6	1,3	30
16074	15	46	20	25	19	37,3	6	1,3	30
16075	15	56	20	25	19	47,3	6	1,3	30
16077	16	22	22	27	21	13,3	6	1,3	32
16078	16	27	22	27	21	18,3	6	1,3	32
16079	16	36	22	27	21	27,3	6	1,3	32
16080	16	46	22	27	21	37,3	6	1,3	32
16081	16	56	22	27	21	47,3	6	1,3	32
16083	18	17	26	31	24,9	8,3	6	1,3	40
16084	18	22	26	31	24,9	13,3	6	1,3	40
16085	18	27	26	31	24,9	18,3	6	1,3	40
16086	18	36	26	31	24,9	27,3	6	1,3	40
16087	18	46	26	31	24,9	37,3	6	1,3	40
16088	18	56	26	31	24,9	47,3	6	1,3	40
16089	18	66	26	31	24,9	57,3	6	1,3	40
16090	18	76	26	31	24,9	67,3	6	1,3	40
16092	20	17	26	31	24,9	8,3	6	1,3	40
16093	20	22	26	31	24,9	13,3	6	1,3	40
16094	20	27	26	31	24,9	18,3	6	1,3	40
16095	20	36	26	31	24,9	27,3	6	1,3	40
16096	20	46	26	31	24,9	37,3	6	1,3	40
16097	20	56	26	31	24,9	47,3	6	1,3	40
16098	20	66	26	31	24,9	57,3	6	1,3	40
16099	20	76	26	31	24,9	67,3	6	1,3	40

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.15 Buchsen
3.15 Bushings

Gleitrichtung
Slide direction





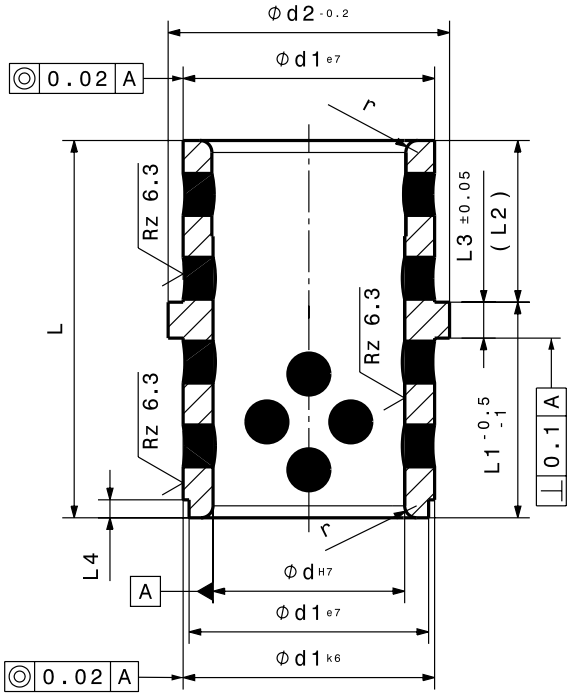
Ident-No. WF750/1A	Ød H7 B13	L -0,5 -1	Ød1 k6/e7	Ød2 -0,2	Ød3 h11	L1 +0,2 +0,1	L2 ±0,05	L3 H13	L4
16101	22	22	30	35	28,6	12,6	6	1,6	48
16102	22	27	30	35	28,6	17,6	6	1,6	48
16103	22	36	30	35	28,6	26,6	6	1,6	48
16104	22	46	30	35	28,6	36,6	6	1,6	48
16105	22	56	30	35	28,6	46,6	6	1,6	48
16106	22	66	30	35	28,6	56,6	6	1,6	48
16107	22	76	30	35	28,6	66,6	6	1,6	48
16108	22	86	30	35	28,6	76,6	6	1,6	48
16109	22	96	30	35	28,6	86,6	6	1,6	48
16111	24	22	30	35	28,6	12,6	6	1,6	48
16112	24	27	30	35	28,6	17,6	6	1,6	48
16113	24	36	30	35	28,6	26,6	6	1,6	48
16114	24	46	30	35	28,6	36,6	6	1,6	48

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. WF750/1A	Ød H7 B13	L -0,5 -1	Ød1 k6/e7	Ød2 -0,2	Ød3 h11	L1 +0,2 +0,1	L2 ±0,05	L3 H13	L4
16115	24	56	30	35	28,6	46,6	6	1,6	48
16116	24	66	30	35	28,6	56,6	6	1,6	48
16117	24	76	30	35	28,6	66,6	6	1,6	48
16118	24	86	30	35	28,6	76,6	6	1,6	48
16119	24	96	30	35	28,6	86,6	6	1,6	48
16121	30	27	42	47	39,5	15,85	6	1,85	64
16122	30	36	42	47	39,5	24,85	6	1,85	64
16123	30	46	42	47	39,5	34,85	6	1,85	64
16124	30	56	42	47	39,5	44,85	6	1,85	64
16125	30	66	42	47	39,5	54,85	6	1,85	64
16126	30	76	42	47	39,5	64,85	6	1,85	64
16127	30	86	42	47	39,5	74,85	6	1,85	64
16128	30	96	42	47	39,5	84,85	6	1,85	64
16129	30	116	42	47	39,5	104,85	6	1,85	64
16170	32	27	42	47	39,5	15,85	6	1,85	64
16171	32	36	42	47	39,5	24,85	6	1,85	64
16172	32	46	42	47	39,5	34,85	6	1,85	64
16173	32	56	42	47	39,5	44,85	6	1,85	64
16174	32	66	42	47	39,5	54,85	6	1,85	64
16175	32	76	42	47	39,5	64,85	6	1,85	64
16176	32	86	42	47	39,5	74,85	6	1,85	64
16177	32	96	42	47	39,5	84,85	6	1,85	64
16178	32	116	42	47	39,5	104,85	6	1,85	64
16180	40	46	54	60	51	30,15	10	2,15	80
16181	40	56	54	60	51	40,15	10	2,15	80
16182	40	66	54	60	51	50,15	10	2,15	80
16183	40	76	54	60	51	60,15	10	2,15	80
16184	40	86	54	60	51	70,15	10	2,15	80
16185	40	96	54	60	51	80,15	10	2,15	80
16186	40	116	54	60	51	100,15	10	2,15	80
16187	40	136	54	60	51	120,15	10	2,15	80
16189	42	46	54	60	51	30,15	10	2,15	80
16190	42	56	54	60	51	40,15	10	2,15	80
16191	42	66	54	60	51	50,15	10	2,15	80
16192	42	76	54	60	51	60,15	10	2,15	80
16193	42	86	54	60	51	70,15	10	2,15	80
16194	42	96	54	60	51	80,15	10	2,15	80
16195	42	116	54	60	51	100,15	10	2,15	80
16196	42	136	54	60	51	120,15	10	2,15	80

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

3.19 Buchsen
3.19 Bushings

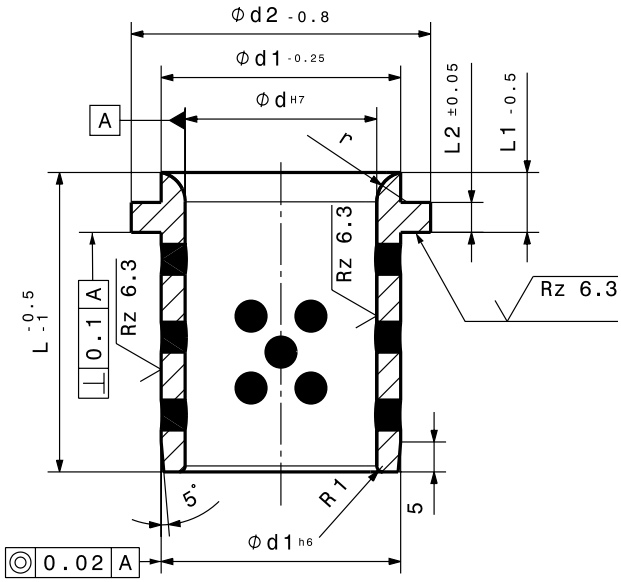


Ident-No. WF750/1A	Ød H7	L	Ød1 e7 k6	Ød2 -0,2	L1 -0,5 -1	L2	L3 ±0,05	L4	r
17966	9	15	14	16	9	6	3	2	1
17967	10	26	14	16	17	9	3	2	1
17968	15	39	20	25	22	17	6	3	1,5
17454	18	39	26	31	22	17	6	3	1,5
17455	20	39	26	31	22	17	6	3	1,5
17969	20	49	26	31	27	22	6	3	1,5
17456	22	49	30	35	27	22	6	3	2
17457	24	49	30	35	27	22	6	3	2
17714	24	63	30	35	36	27	6	3	2
17458	30	63	42	47	36	27	6	3	2
17459	32	63	42	47	36	27	6	3	2
17715	32	73	42	47	46	27	6	3	2

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

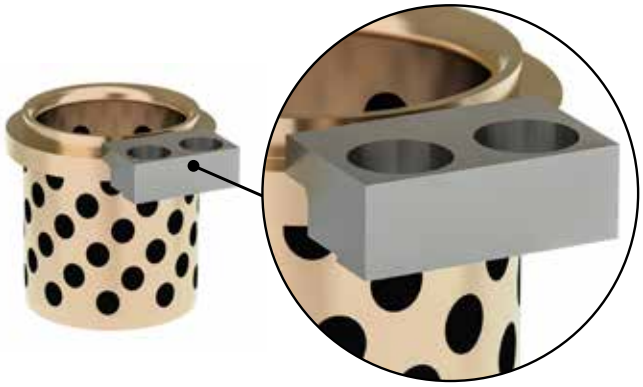
3.20 Buchsen und Klammern
3.20 Bushings and clamps

Gleitrichtung
Slide direction

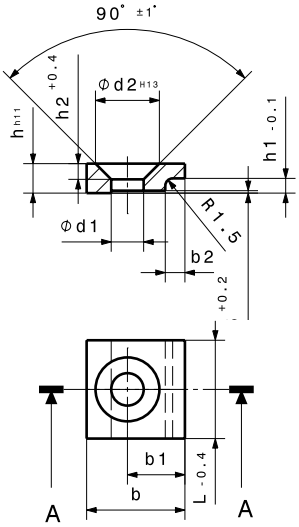


Ident-No. WF750/1A	Ød H7	L -0,5 -1	Ød1 h6 -0,25	Ød2	L1 -0,5	L2 ±0,05	r	Klammer ID-No. Clamp ID-No.
18299	23	40	32	40	6	3	5	19780
18300	25	40	32	40	6	3	5	
18301	32	50	40	50	10	5	5	19781
18302	40	63	50	63	13	8	6	19782
18303	42	63	50	63	13	8	6	
18304	50	72	63	75	14	8	6	
18305	52	72	63	75	14	8	6	
18306	63	80	80	95	17	10	8	19783
18307	65	80	80	95	16	10	8	
18308	80	100	100	120	20	10	8	
18309	82	100	100	120	20	10	8	
18310	100	125	125	150	25	16	10	19794
18311	125	160	160	190	30	16	13	

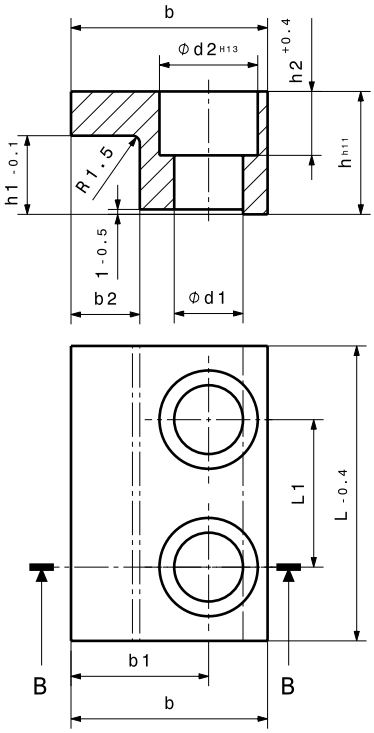
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



Form A/Schnitt A-A
Style A/ View A-A



Form B/Schnitt B-B
Style B/ View B-B



Ident-No. 1.0037	Buchsen-Innen-Ø Bushings inner-Ø	b	L -0,4	L1	h h11	h1 -0,1	h2 +0,4	b1	b2	Ød1	Ød2 H13	Schraube Screw	Form Style
19780	25	20	16	-	6	3	3,2	12	4	6,6	13	1x M6 (ISO 10642)	A
19781	32	20	20	-	10	5	6,8	12,5	5	6,6	13	1x M6 (ISO 4762)	B
19782	40-50	25	40	20	14	8	9	16	7	9	15	2x M8 (ISO 4762)	B
19783	63-80	32	50	25	16	10	11	20,5	9	11,5	18	2x M10 (ISO 4762)	B
19794	100-125	40	60	30	25	16	13	27	14	13,5	20	2x M12 (ISO 4762)	B

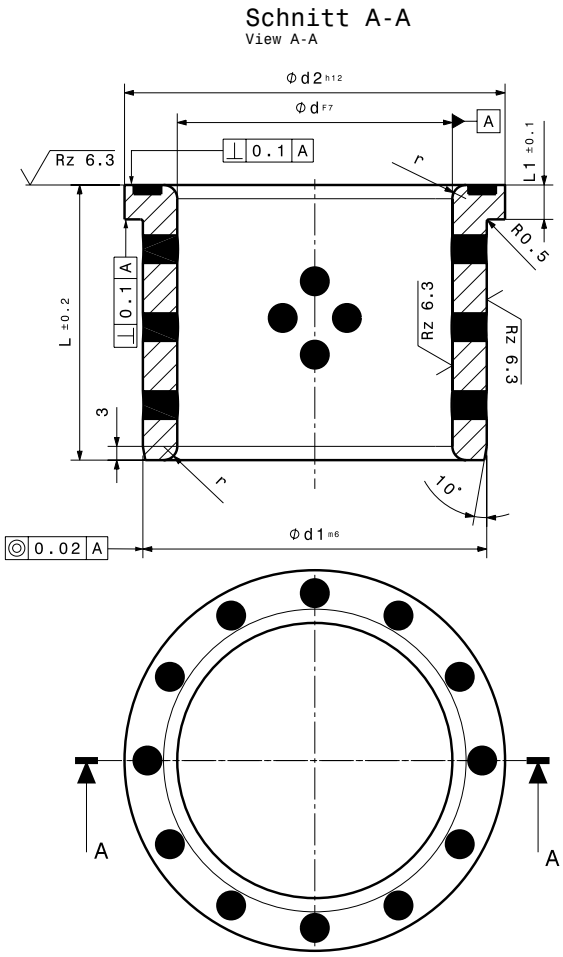
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

4. Buchsen mit Anlaufbund
4. Bushings with buffer flange

4.1 Buchsen mit Anlaufbund
Bushings with buffer flange

4.1 Buchsen mit Anlaufbund
4.1 Bushings with buffer flange

Gleitrichtung
Slide direction



Ident-No. WF750/1A	Ød F7	L ±0,2	Ød1 m6	Ød2 h12	L1 ±0,1	r
19691	12	15	18	25	4	1
19692	16	20	22	30	5	1
19693	20	25	28	36	5	1
19694	25	30	33	43	5	1
19695	30	35	38	48	5	1
19696	40	45	50	60	5	2
19697	50	50	60	68	5	2
19699	50	55	62	75	6	2
19698	60	60	75	83	7,5	3
19690	60	65	75	90	7	3

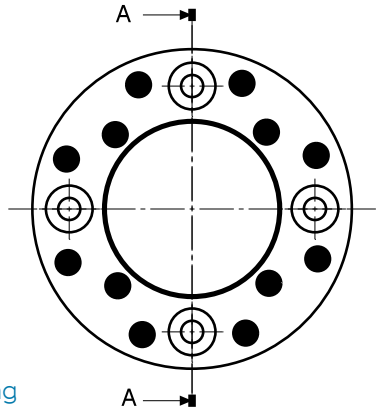
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

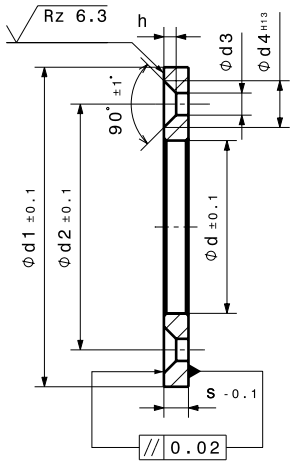
6. Anlaufscheiben
6. Washers

6.1 Anlaufscheiben
Washers

6.1 Anlaufscheiben
6.1 Washers

Gleitrichtung
Slide direction

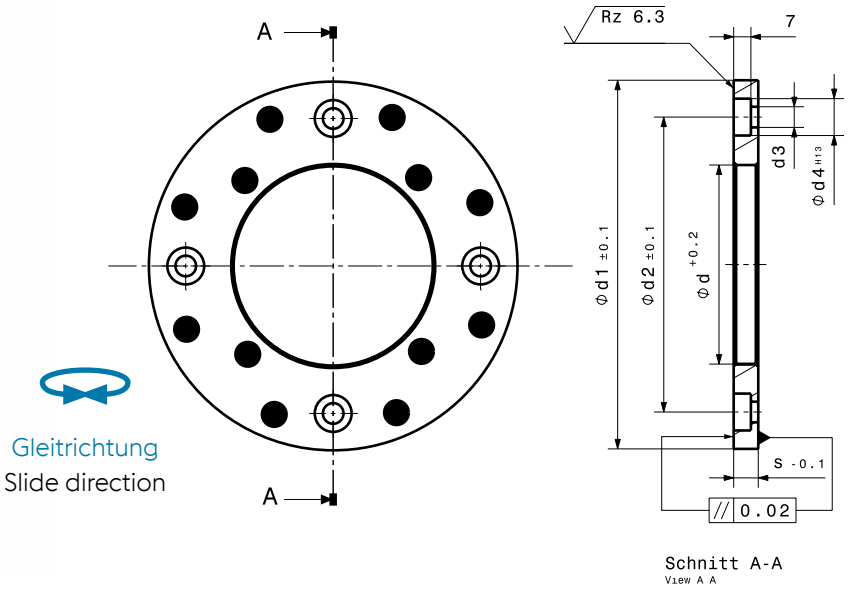




Schnitt A-A
View A-A

Ident-No. WF750/1A	Ød ±0,1	s -0,1	Ød1 ±0,1	Ød2 ±0,1	Ød3	Ød4	h	Senkschraube Countersunk screw DIN EN ISO 10642
15385	10,2	3	30	-	-	-	-	-
63337	10,2	3	30	20	3,4	6,9	1,8	2x M3
19616	12,2	3	40	28	3,4	6,9	1,8	2x M3
61410	13,2	3	40	28	3,4	6,9	1,8	2x M3
61506	14,2	3	40	28	3,4	6,9	1,8	2x M3
19617	16,2	3	50	35	3,4	6,9	1,8	2x M3
61787	18,2	3	50	35	3,4	6,9	1,8	2x M3
19618	20,2	5	50	35	5,5	11,5	3	2x M5
19619	25,2	5	55	40	5,5	11,5	3	2x M5
19620	30,2	5	60	45	5,5	11,5	3	2x M5
19621	35,2	5	70	50	5,5	11,5	3	2x M5
19622	40,2	7	80	60	6,6	13,7	3,6	2x M6
19623	45,3	7	90	67,5	6,6	13,7	3,6	2x M6
19624	50,3	8	100	75	6,6	13,7	3,6	4x M6
19625	60,3	8	120	90	9	18,3	4,6	4x M8
19626	70,3	10	130	100	9	18,3	4,6	4x M8
19627	80,3	10	150	120	9	18,3	4,6	4x M8
19628	90,5	10	170	140	11	22,7	5,9	4x M10
19629	100,5	10	190	160	11	22,7	5,9	4x M10
19600	120,5	10	200	175	11	22,7	5,9	4x M10

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



Ident-No. WF750/1A	Ød +0,2	s -0,1	Ød1 ±0,1	Ød2 ±0,1	Ød3	Ød4 H13	h	Zylinderschraube Cylinder head screw DIN EN ISO 6912
15895	81	10	150	120	8,4	15	-	4x M8

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7. Gleitplatten
7. Wear plates

7.1

Gleitplatten
Wear plates
Dicke / thickness = 20 mm

7.2

Gleitplatten
Wear plates
Dicke / thickness = 20 mm

7.3

Gleitplatten
Wear plates
Dicke / thickness = 16 mm, 25 mm

7.7

Gleitplatten
Wear plates
Dicke / thickness = 8 mm, 12 mm, 16 mm, 20 mm

7.9

Gleitplatten
Wear plates
Dicke / thickness = 8 mm, 10 mm

7.11

Führungsplatten
Guide plates
Dicke / thickness = 40 mm, 50 mm
WF750, Stahl / WF750, steel

7.12

Gleitplatten mit Schmiernut
Wear plates with oil groove
Dicke / thickness = 20 mm, 21 mm
WF750, CuZn25Al5, Stahl / WF750, CuZn25Al5, steel

7.13

Gleitplatten
Wear plates
Dicke / thickness = 16 mm

7.14

Gleitplatten nach VDI 3357
Wear plates acc. VDI 3357
Dicke / thickness = 20 mm
WF750, Stahl, Sinter / WF750, steel, sinter

7.15

Gleitplatten
Wear plates
Dicke / thickness = 10 mm

7.16

Gleitplatten
Wear plates
Dicke / thickness = 10 mm

7.18

Gleitplatten
Wear plates
Dicke / thickness = 5 mm

7.19

Gleitplatten
Wear plates
Dicke / thickness = 10 mm

7.21

Gleitplatten nach VDI 3357
Wear plates acc. VDI 3357
Dicke / thickness = 12 mm
WF750, Stahl, Sinter / WF750, steel, sinter

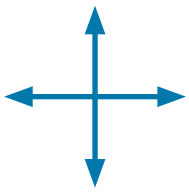
7.23

Führungsplatten
Guide plates
Dicke / thickness = 30 mm, 38 mm

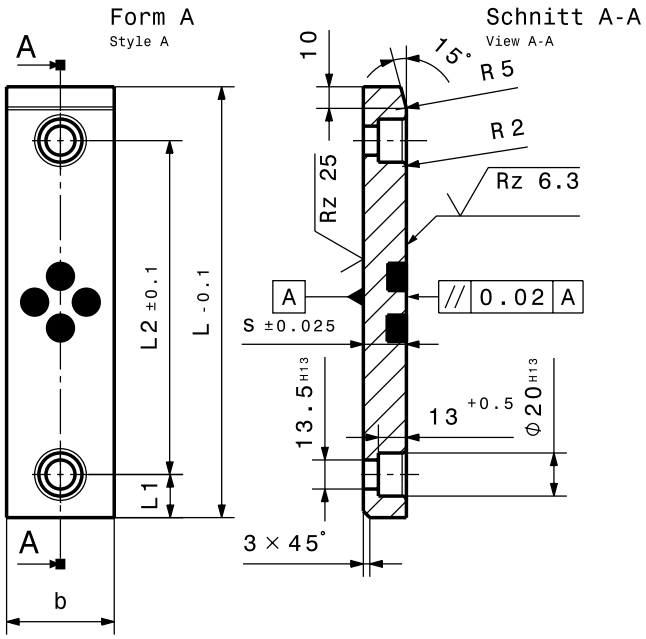
7.25

Gleitplatten
Wear plates
Dicke / thickness = 15 mm, 15,1mm
WF750, Stahl / WF750, steel

7.1 Gleitplatten
7.1 Wear plates

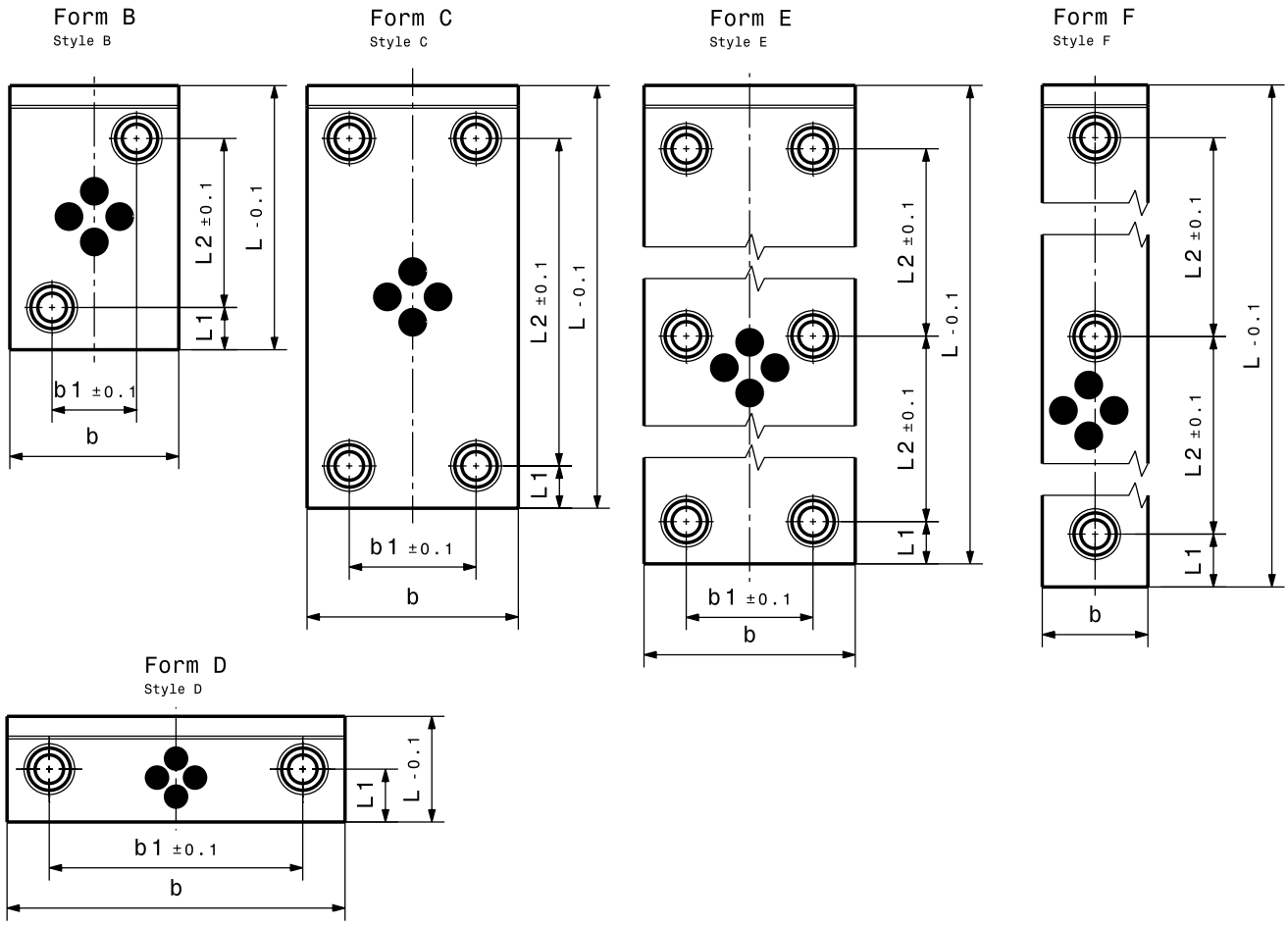


Gleitrichtung
Slide direction



Ident-No. WF750/1A	b	L -0,1	s ±0,025	L1	L2 ±0,1	b1 ±0,1	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18030	50	80	20	20	35	-	A	2x M12
18330	50	100	20	20	55	-	A	2x M12
18331	50	125	20	20	80	-	A	2x M12
18332	50	160	20	20	115	-	A	2x M12
18333	50	200	20	20	155	-	A	2x M12
18480	50	250	20	20	100	-	F	3x M12
18484	80	50	20	25	-	40	D	2x M12
18031	80	80	20	20	35	40	B	2x M12
18334	80	100	20	20	55	40	B	2x M12
18335	80	125	20	20	80	40	B	2x M12
18336	80	160	20	20	115	40	C	4x M12
18337	80	200	20	20	155	40	C	4x M12
18352	80	250	20	20	100	40	E	6x M12
18481	80	315	20	20	132	40	E	6x M12

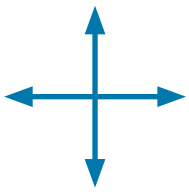
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



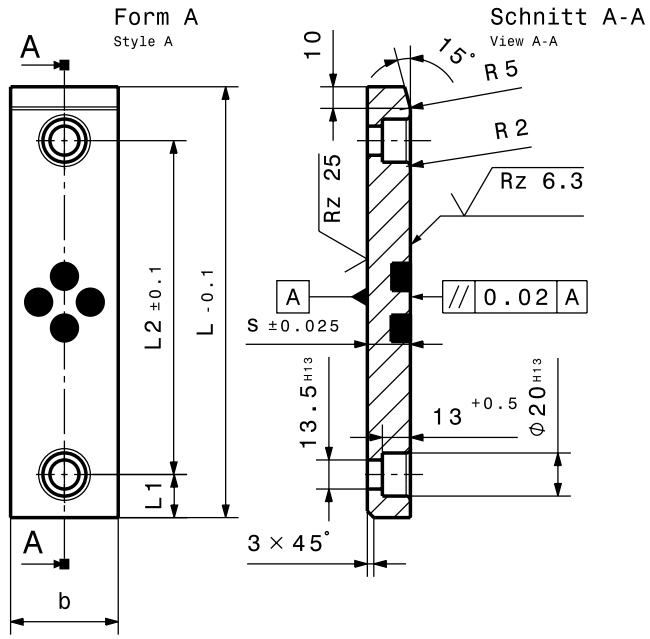
Ident-No. WF750/1A	b	L -0,1	s ±0,025	L1	L2 ±0,1	b1 ±0,1	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18338	100	50	20	25	-	60	D	2x M12
18339	100	80	20	20	35	60	B	2x M12
18340	100	100	20	20	55	60	B	2x M12
18341	100	125	20	20	80	60	C	4x M12
18342	100	160	20	20	115	60	C	4x M12
18343	100	200	20	20	155	60	C	4x M12
18353	100	250	20	20	100	60	E	6x M12
18482	100	315	20	20	132	60	E	6x M12
18485	125	50	20	25	-	85	D	2x M12
18344	125	80	20	20	35	85	B	2x M12
18345	125	100	20	20	55	85	C	4x M12
18346	125	125	20	20	80	85	C	4x M12
18347	125	160	20	20	115	85	C	4x M12
18044	125	200	20	20	155	85	C	4x M12

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.1 Gleitplatten
7.1 Wear plates

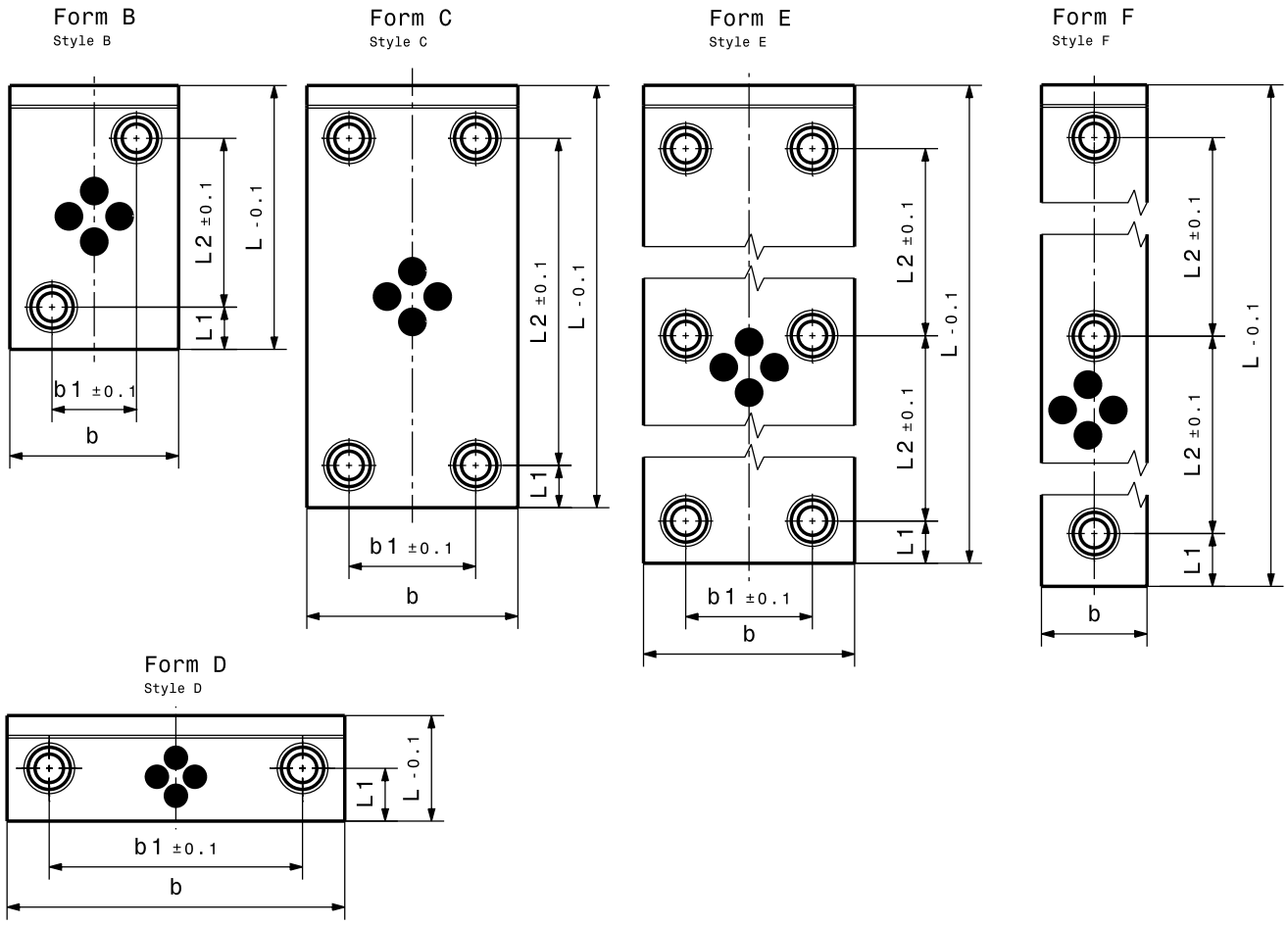


Gleitrichtung
Slide direction



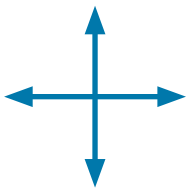
Ident-No. WF750/1A	b	L -0,1	s ±0,025	L1	L2 ±0,1	b1 ±0,1	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18354	125	250	20	20	100	85	E	6x M12
18483	125	315	20	20	132	85	E	6x M12
18486	160	50	20	25	-	120	D	2x M12
18359	160	80	20	20	35	120	C	4x M12
18348	160	100	20	20	55	120	C	4x M12
18349	160	125	20	20	80	120	C	4x M12
18350	160	160	20	20	115	120	C	4x M12
18351	160	200	20	20	155	120	C	4x M12
18355	160	250	20	20	100	120	E	6x M12
18356	160	315	20	20	132	120	E	6x M12
18357	200	160	20	20	115	160	C	4x M12
18358	200	200	20	20	155	160	C	4x M12

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

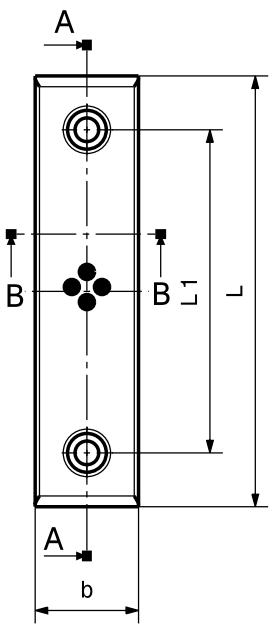


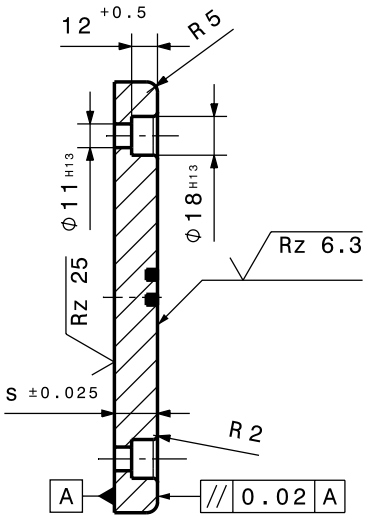
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

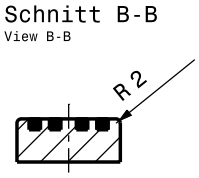
7.2 Gleitplatten
7.2 Wear plates



Gleitrichtung
Slide direction



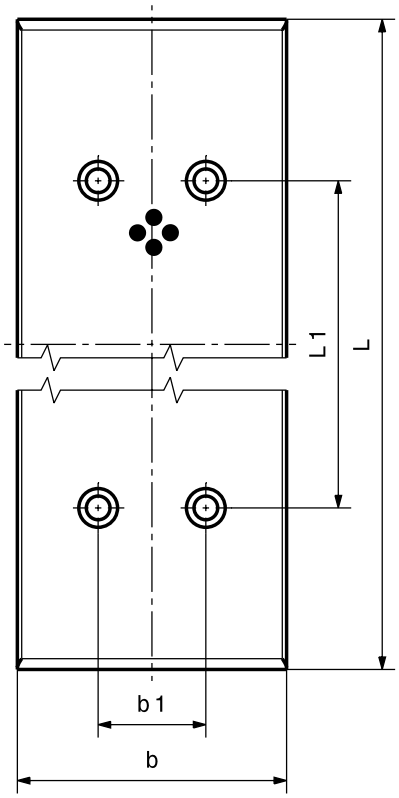




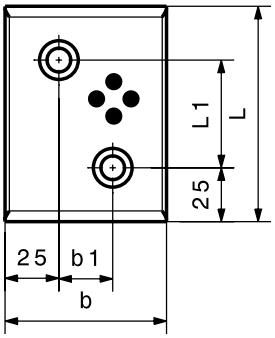
Ident-No. WF750/1A	b	L	s ±0,025	L1	b1	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
17180	28	75	20	45	-	A	2x M10
17181	28	100	20	50	-	A	2x M10
17184	28	125	20	75	-	A	2x M10
17182	28	150	20	100	-	A	2x M10
17183	38	75	20	45	-	A	2x M10
18930	38	100	20	50	-	A	2x M10
13269	38	125	20	75	-	A	2x M10
18931	38	150	20	100	-	A	2x M10
17185	38	200	20	150	-	A	2x M10
17150	48	75	20	45	-	A	2x M10
17151	48	100	20	50	-	A	2x M10
17152	48	125	20	75	-	A	2x M10
17153	48	150	20	100	-	A	2x M10
14371	48	200	20	150	-	A	2x M10

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Form B
Style B



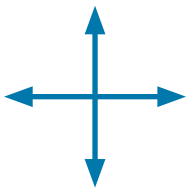
Form C
Style C



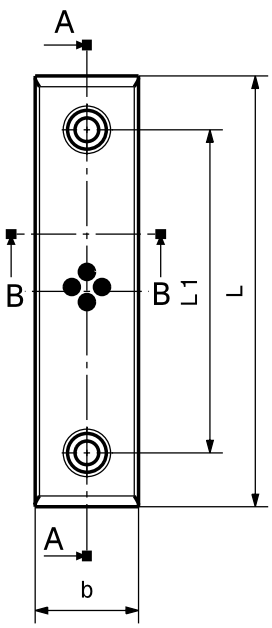
Ident-No. WF750/1A	b	L	s ±0,025	L1	b1	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
17189	58	75	20	45	-	A	2x M10
17190	58	100	20	50	-	A	2x M10
17191	58	150	20	100	-	A	2x M10
17155	75	75	20	25	-	A	2x M10
17157	75	100	20	50	-	A	2x M10
17156	75	125	20	75	-	A	2x M10
18933	75	150	20	100	-	A	2x M10
17158	75	200	20	150	-	A	2x M10
18932	75	100	20	50	25	C	2x M10
18934	100	100	20	50	50	B	4x M10
17160	100	125	20	75	50	B	4x M10
18935	100	150	20	100	50	B	4x M10
17162	100	200	20	150	50	B	4x M10
17163	100	250	20	200	50	B	4x M10

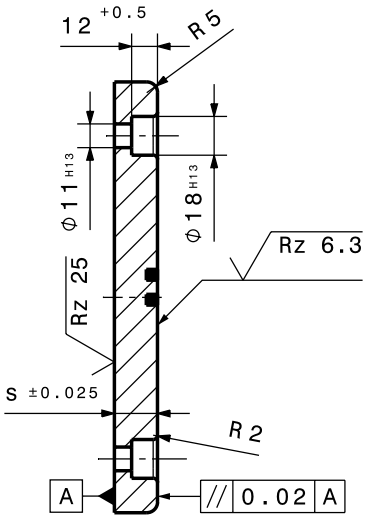
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

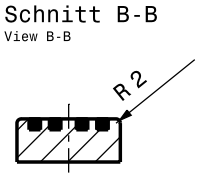
7.2 Gleitplatten
7.2 Wear plates



Gleitrichtung
Slide direction



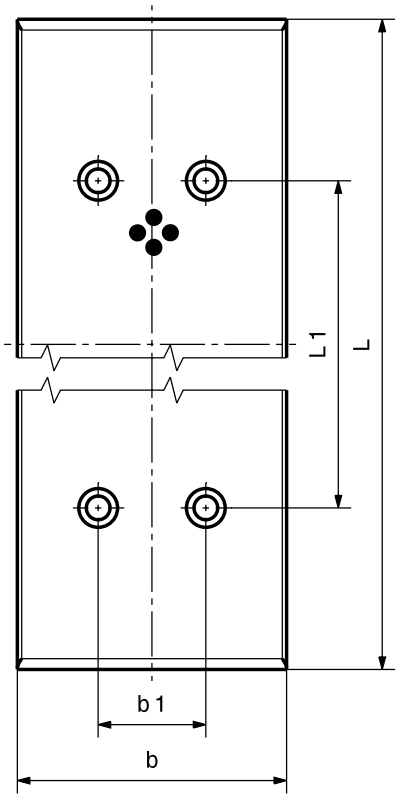




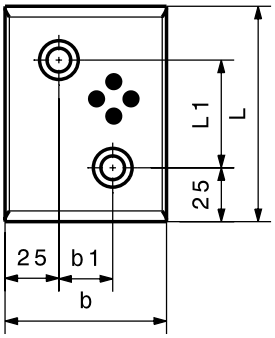
Ident-No. WF750/1A	b	L	s ±0,025	L1	b1	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
14799	100	300	20	200	50	B	4x M10
15291	125	125	20	75	50	B	4x M10
17164	125	150	20	100	50	B	4x M10
17165	125	200	20	150	50	B	4x M10
17166	125	250	20	200	50	B	4x M10
14805	125	300	20	250	50	B	4x M10
17159	125	350	20	200	50	B	4x M10
17167	150	150	20	100	100	B	4x M10
17168	150	200	20	150	100	B	4x M10
17169	150	250	20	200	100	B	4x M10
17192	150	300	20	250	100	B	4x M10
17193	200	200	20	150	150	B	4x M10
17194	200	250	20	200	150	B	4x M10
17195	200	300	20	250	150	B	4x M10

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Form B
Style B

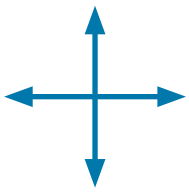


Form C
Style C

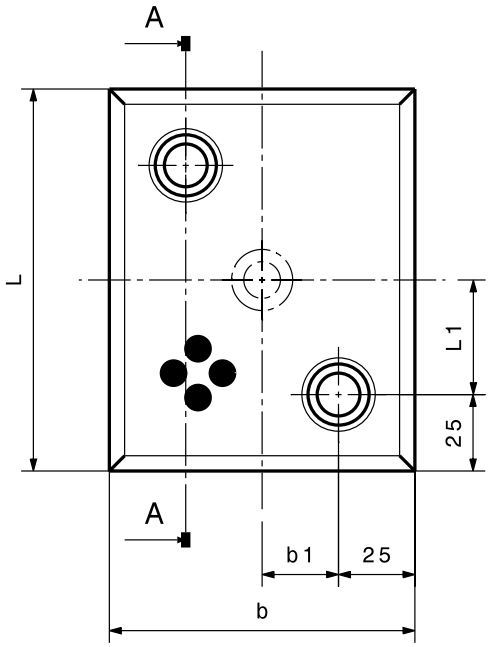


Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

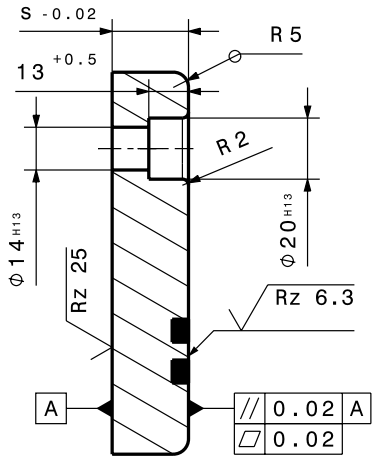
7.3 Gleitplatten
7.3 Wear plates



Gleitrichtung
Slide direction

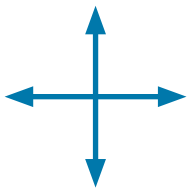


Section view A-A

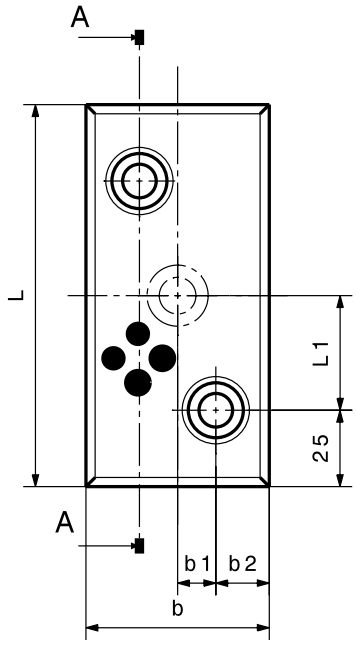


Ident-No. WF750/1A	b	L	s -0,02	L1	b1	b2	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19030	80	100	25	25	15	-	2x M12
19031	80	125	25	37,5	15	-	2x M12
19032	80	160	25	55	15	-	2x M12
19033	80	200	25	75	15	-	3x M12
19034	100	125	25	37,5	25	-	2x M12
19035	100	160	25	55	25	-	2x M12
19036	100	200	25	75	25	-	3x M12
19037	125	125	25	37,5	37,5	-	2x M12

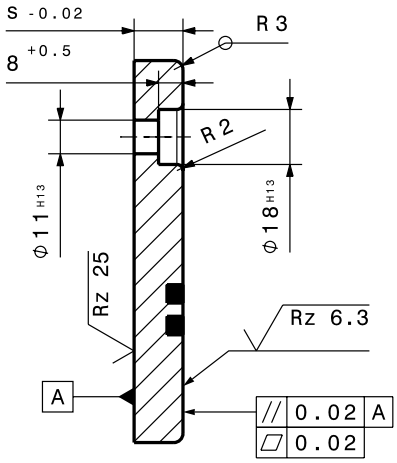
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



Gleitrichtung
Slide direction



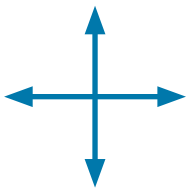
Section view A-A



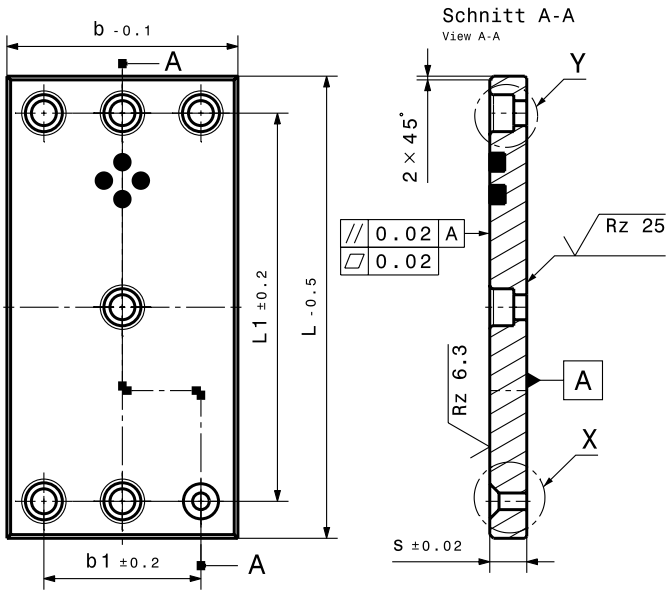
Ident-No. WF750/1A	b	L	s -0,02	L1	b1	b2	Zylinderschraube Cylinder head screw DIN 7984
19038	60	100	16	25	12,5	17,5	2x M10
19039	60	125	16	37,5	12,5	17,5	2x M10
19040	60	160	16	55	12,5	17,5	2x M10
19041	60	200	16	75	12,5	17,5	3x M10
19042	80	100	16	25	15	25	2x M10
19043	80	125	16	37,5	15	25	2x M10
19044	80	160	16	55	15	25	2x M10
19045	80	200	16	75	15	25	3x M10

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.7 Gleitplatten
7.7 Wear plates



Gleitrichtung
Slide direction

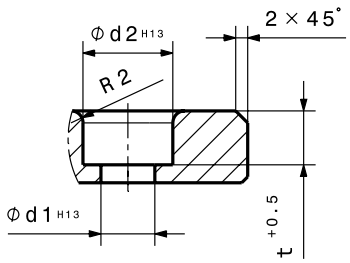


Ident-No. WF750/1A	b -0,1	L -0,5	s ±0,02	b1 ±0,2	L1 ±0,2	Form Style	d1 H13	d2 H13	t +0,5	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18070	125	100	20	85	60		13,5	20	13	M12x25
18071	125	160	20	85	120		13,5	20	13	M12x25
18072	125	250	20	85	210		13,5	20	13	M12x25
18073	100	100	16	60	60		11	18	11	M10x20
18074	100	160	16	60	120		11	18	11	M10x20
18075	100	250	16	60	210		11	18	11	M10x20
18076	80	100	12	40	60		9	15	9	M8x20
18077	80	160	12	40	120		9	15	9	M8x20
18078	80	250	12	40	210		9	15	9	M8x20
18079	80	100	20	40	60		13,5	20	13	M12x25
18080	80	160	20	40	120		13,5	20	13	M12x25
18081	80	250	20	40	210		13,5	20	13	M12x25
18082	60	100	16	30	60		11	18	11	M10x20
18069	60	160	16	30	120		11	18	11	M10x20
18083	60	160	16	30	120		11	18	11	M10x20
18084	60	250	16	30	210		11	18	11	M10x20
18085	50	100	20	20	60		13,5	20	13	M12x25
18086	50	160	20	20	120		13,5	20	13	M12x25
18087	50	250	20	20	210		13,5	20	13	M12x25

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

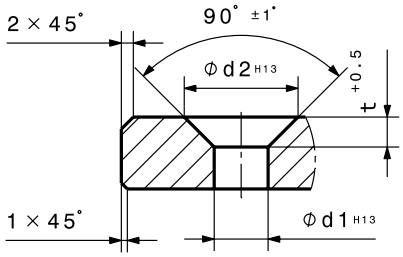
Zylinderschraube
DIN EN ISO 4762
Cylinder head screw
DIN EN ISO 4762

Einzelheit Y
Detail Y



Senkschraube
DIN EN ISO 10642
Countersunk screw
DIN EN ISO 10642

Einzelheit X
Detail X

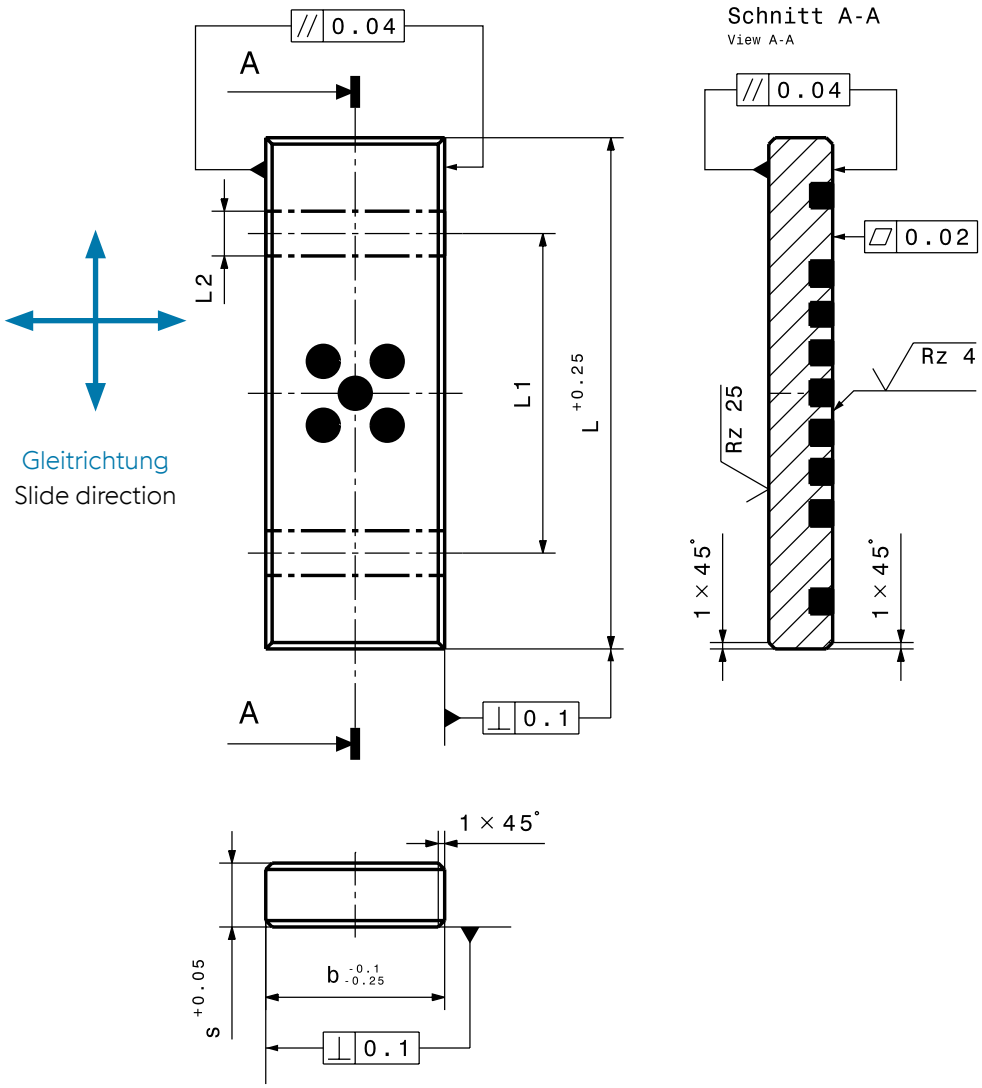


Ident-No. WF750/1A	b -0,1	L -0,5	s ±0,02	b1 ±0,2	L1 ±0,2	Form Style	d1 H13	d2 H13	t +0,5	Senkschraube Countersunk screw DIN EN ISO 10642
18088	40	100	8	-	60		9	16,4	5	M8x15
18089	40	160	8	-	120		9	16,4	5	M8x15
18090	40	250	8	-	210		9	16,4	5	M8x15

Ident-No. WF750/1A	b -0,1	L -0,5	s ±0,02	b1 ±0,2	L1 ±0,2	Form Style	d1 H13	d2 H13	t +0,5	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18091	40	100	12	-	60		9	15	9	M8x20
18092	40	160	12	-	120		9	15	9	M8x20
18093	40	250	12	-	210		9	15	9	M8x20
18094	40	100	16	-	60		11	18	11	M10x20
18095	40	160	16	-	120		11	18	11	M10x20
18096	40	250	16	-	210		11	18	11	M10x20
18097	30	100	12	-	60		9	15	9	M8x20
18098	30	160	12	-	120		9	15	9	M8x20
18099	30	250	12	-	210		9	15	9	M8x20

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.9 Gleitplatten
7.9 Wear plates



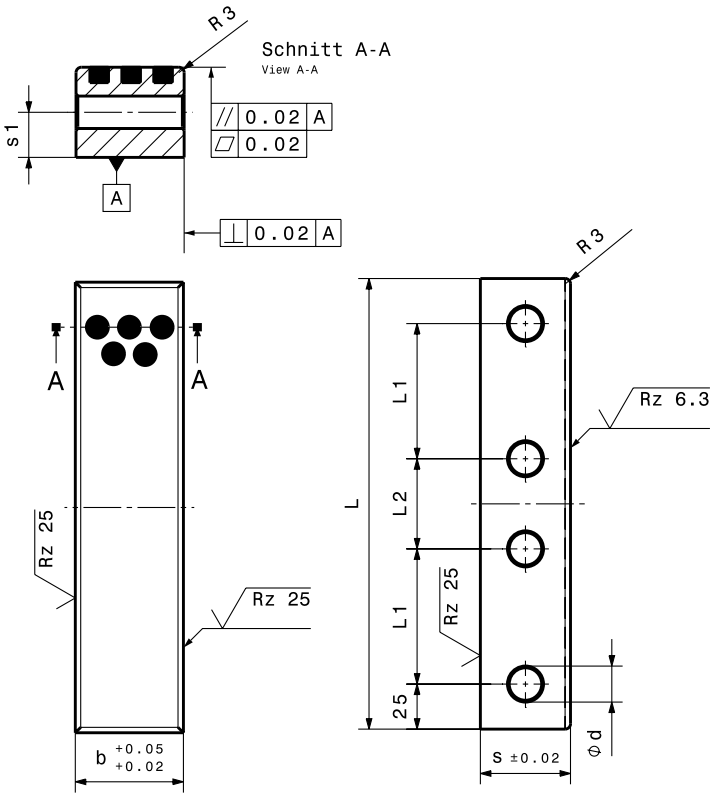
Ident-No. WF750/1A	b -0,1 -0,25	L ±0,25	s +0,05	L1	L2 [1]
16700	16	40	8	15	6
16701	18	50	8	28	6
16702	20	63	10	32	7
16703	25	71	10	40	7
16704	28	80	10	50	7

1) Festschmierstofffreie Zone für Befestigung
1) Area without solid lubricant macro-depots for fastening

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.11 Führungsplatten
7.11 Guide plates

Gleitrichtung
Slide direction

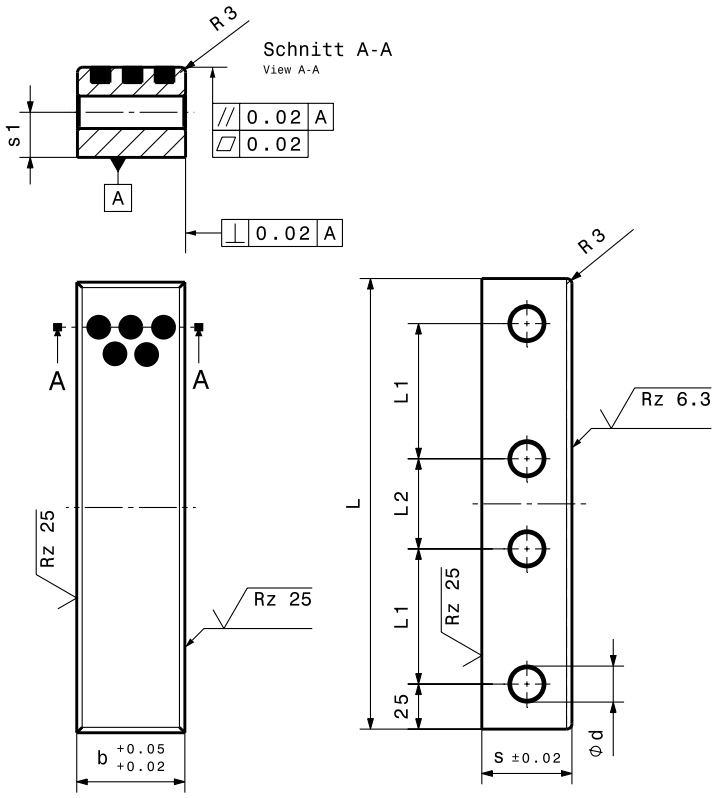


Ident-No. WF750/1A	b +0,05 +0,02	L	s ±0,02	L1	L2	s1	Ød	Zylinderschraube Cylinder head screw
19550	30	150	40	50	-	20	14	3x M12
19551	30	200	40	75	-	20	14	3x M12
19552	30	250	40	75	50	20	14	4x M12
19553	40	150	40	50	-	20	14	3x M12
19554	40	200	40	75	-	20	14	3x M12
19555	40	250	40	75	50	20	14	4x M12
19556	45	150	50	50	-	25	18	3x M16
19557	45	200	50	75	-	25	18	3x M16
19558	45	250	50	75	50	25	18	4x M16
19559	55	150	50	50	-	25	18	3x M16
19560	55	200	50	75	-	25	18	3x M16
19561	55	250	50	75	50	25	18	4x M16
19562	60	150	50	50	-	25	18	3x M16
19563	60	200	50	75	-	25	18	3x M16
19564	60	250	50	75	50	25	18	4x M16
19565	70	150	50	50	-	25	18	3x M16
19566	70	200	50	75	-	25	18	3x M16
19567	70	250	50	75	50	25	18	4x M16

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.11 Führungsplatten
7.11 Guide plates

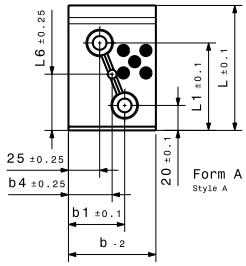
Gleitrichtung
Slide direction

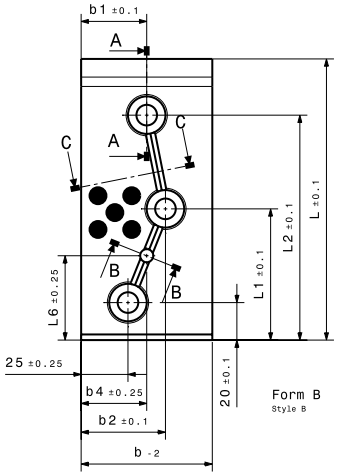


Ident-No. WF St 1	b +0,05 +0,02	L	s ±0,02	L1	L2	s1	Ød	Zylinderschraube Cylinder head screw
18141	40	150	40	50	-	20	14	3x M12
18142	55	150	50	50	-	25	18	3x M16
18144	55	200	50	75	-	25	18	3x M16
18146	55	250	50	75	50	25	18	4x M16
18143	70	150	50	50	-	25	18	3x M16
18145	70	200	50	75	-	25	18	3x M16

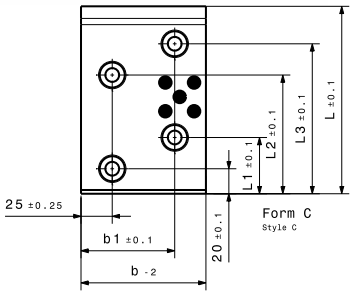
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

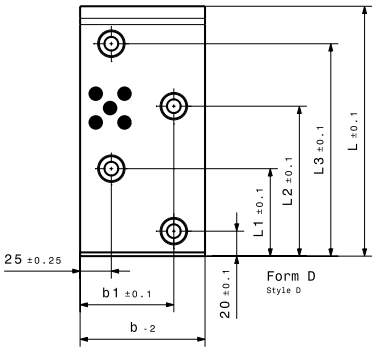
7.12 Gleitplatten mit Schmiernut
7.12 Wear plates with oil groove

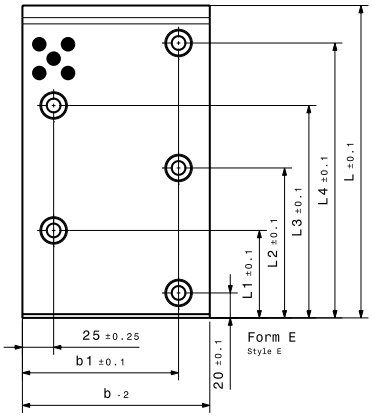




Gleitrichtung
Slide direction

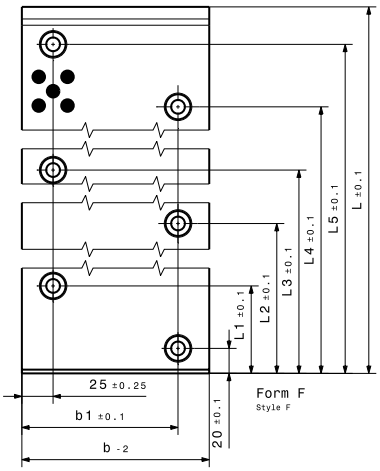


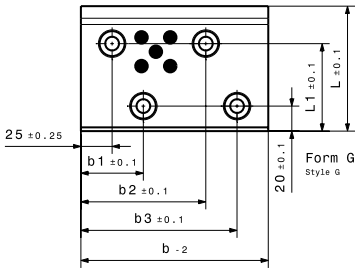


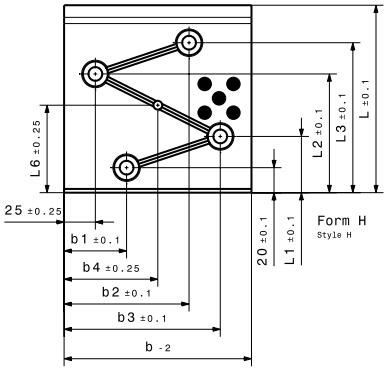


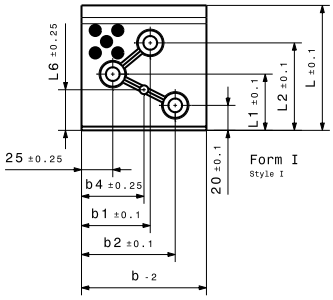
Ident-No. WF750/1A ohne Nut / without groove	Ident-No. CuZn25Al5 mit Nut / with groove	b -2	L ±0,1	s ±0,01	b1 ±0,1	b2 ±0,1	b3 ±0,1
18640	**18696**	70	100	20	45	-	-
18641	**18697**	70	150	20	35	45	-
18642	-	70	200	20	45	-	-
18643	**18698**	100	100	20	55	75	-
18644	-	100	150	20	75	-	-
18645	-	100	200	20	75	-	-
18646	-	100	250	20	75	-	-
18647	-	100	300	20	75	-	-
18648	-	150	100	20	50	100	125
18649	**18699**	150	150	20	50	100	125
18650	-	150	200	20	125	-	-
18651	-	150	250	20	125	-	-
18652	-	150	300	20	125	-	-
18653	-	200	100	20	75	125	175

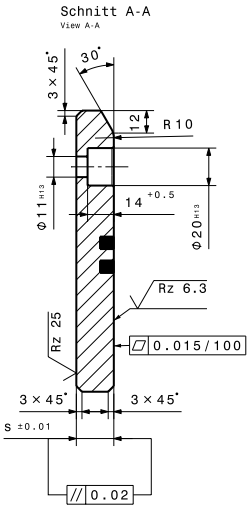
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

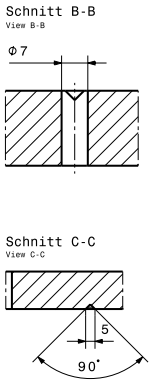










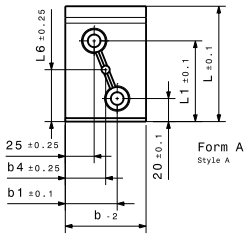


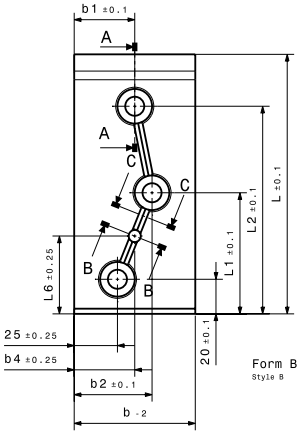
	L1 ±0,1	L2 ±0,1	L3 ±0,1	L4 ±0,1	L5 ±0,1	b4 ±0,25	L6 ±0,25	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
	70	-	-	-	-	35	45	A	2x M10
	70	120	-	-	-	35	45	B	3x M10
	70	120	170	-	-	-	-	D	4x M10
	45	70	-	-	-	50	32,5	I	3x M10
	45	95	120	-	-	-	-	C	4x M10
	70	120	170	-	-	-	-	D	4x M10
	70	120	170	220	-	-	-	E	5x M10
	70	120	170	220	270	-	-	F	6x M10
	70	-	-	-	-	-	-	G	4x M10
	45	95	120	-	-	75	70	H	4x M10
	70	120	170	-	-	-	-	D	4x M10
	70	120	170	220	-	-	-	E	5x M10
	70	120	170	220	270	-	-	F	6x M10
	70	-	-	-	-	-	-	G	4x M10

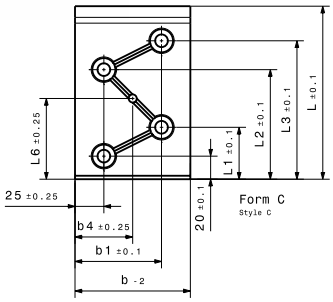
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

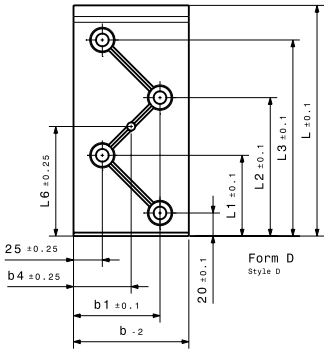
7.12 Gleitplatten mit Schmiernut
7.12 Wear plates with oil groove

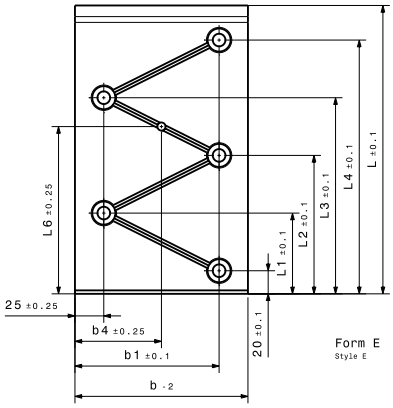
Gleitrichtung
Slide direction





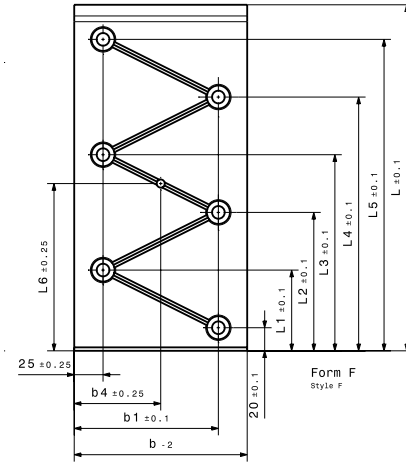


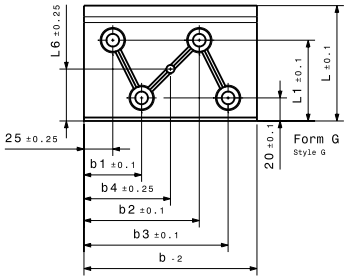


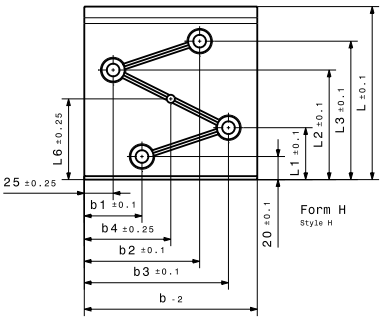


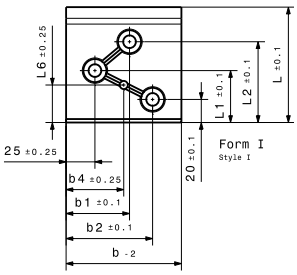
Ident-No. St 1	b -2	L ±0,1	s ±0,25	b1 ±0,1	b2 ±0,1	b3 ±0,1	L1 ±0,1	L2 ±0,1
18734	70	100	21	45	-	-	70	-
18735	70	150	21	35	45	-	70	120
18736	70	200	21	45	-	-	70	120
18737	100	100	21	55	75	-	45	70
18738	100	150	21	75	-	-	45	95
18739	100	200	21	75	-	-	70	120
18740	100	250	21	75	-	-	70	120
18741	100	300	21	75	-	-	70	120
18742	150	100	21	50	100	125	70	-
18743	150	150	21	50	100	125	45	95
18744	150	200	21	125	-	-	70	120
18745	150	250	21	125	-	-	70	120
18746	150	300	21	125	-	-	70	120
18747	200	100	21	75	125	175	70	-

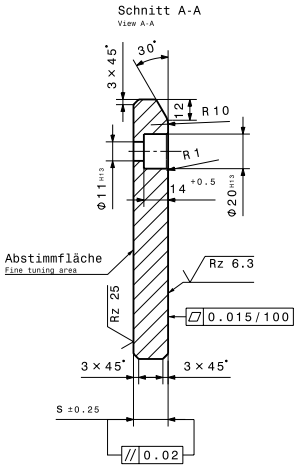
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

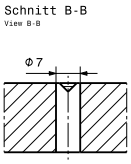


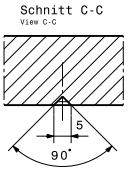








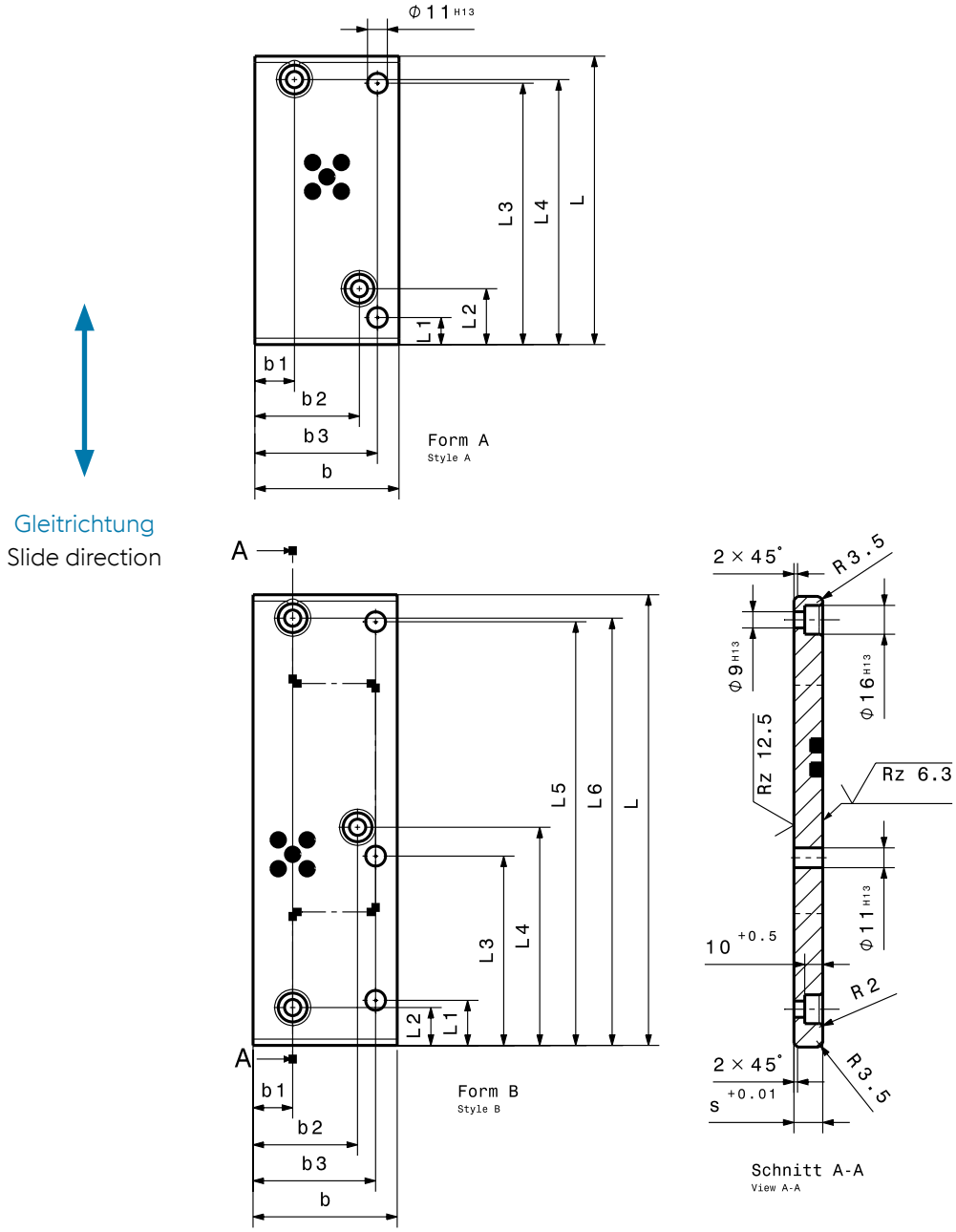




	L3 ±0,1	L4 ±0,1	L5 ±0,1	b4 ±0,25	L6 ±0,25	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
	-	-	-	35	45	A	2x M10
	-	-	-	35	45	B	3x M10
	170	-	-	35	95	D	4x M10
	-	-	-	50	325	I	3x M10
	120	-	-	50	70	C	4x M10
	170	-	-	50	95	D	4x M10
	170	220	-	50	145	E	5x M10
	170	220	270	50	145	F	6x M10
	-	-	-	75	45	G	4x M10
	120	-	-	75	70	H	4x M10
	170	-	-	75	95	D	4x M10
	170	220	-	75	145	E	5x M10
	170	220	270	75	145	F	6x M10
	-	-	-	100	45	G	4x M10

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

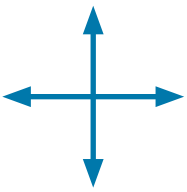
7.13 Gleitplatten
7.13 Wear plates



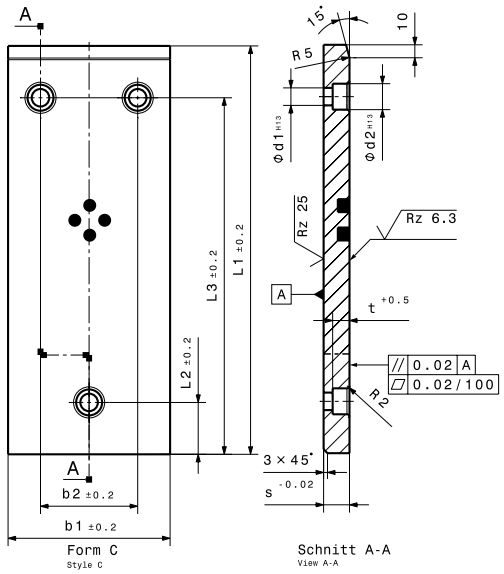
Ident-No. WF750/1A	b	L	s +0,01	b1	b2	b3	L1	L2	L3	L4	L5	L6	Form Style	Durchgangs-bohrung Through hole Ø11 H13	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18752	50	160	16	19	31	-	-	21	-	147	-	-	A	-	2x M8
18754	50	250	16	19	31	-	-	21	-	121	-	237	B	-	3x M8
18753	80	160	16	22	58	68	15	31	145	147	-	-	A	2	2x M8
18755	80	250	16	22	58	68	25	21	105	121	235	237	B	3	3x M8

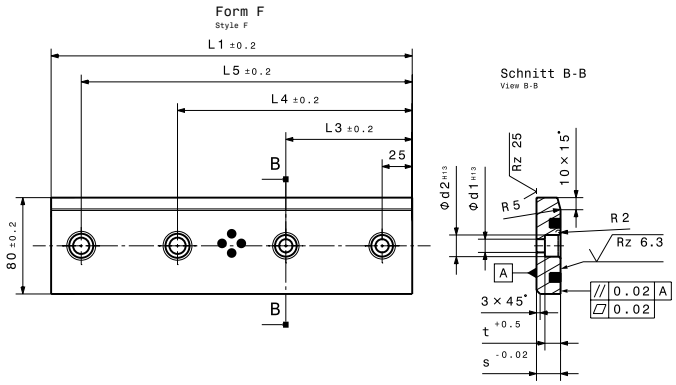
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

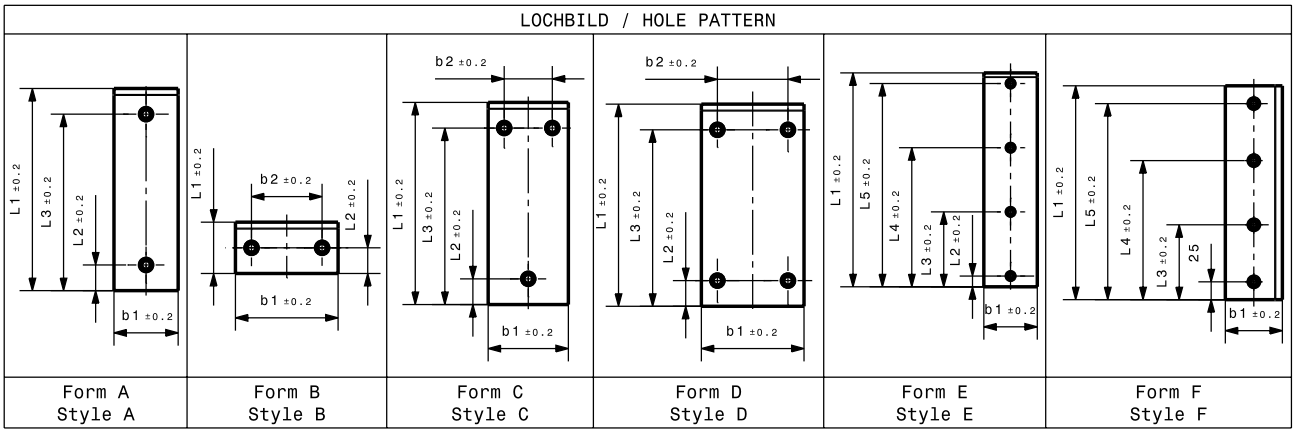
7.14 Gleitplatten nach VDI 3357
7.14 Wear plates acc. VDI 3357



Gleitrichtung
Slide direction





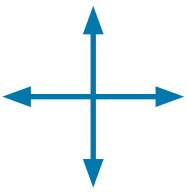


Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

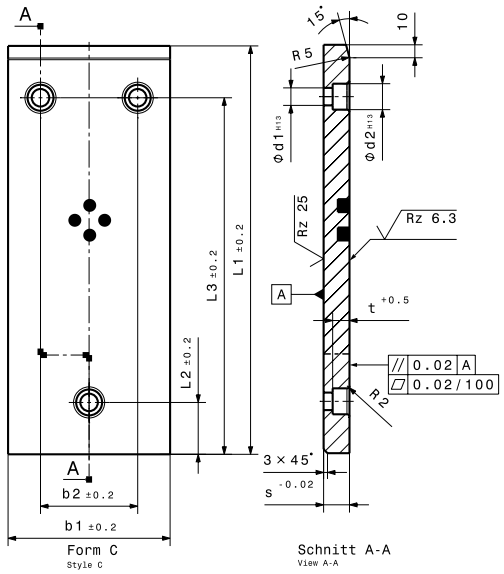
Ident-No. WF750/1A	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	d1 H13	d2 H13	t +0,5	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19800	50	80	20	25	55	-	-	-	9	15	9	A	2x M8x25
19801	50	100	20	25	75	-	-	-	13,5	20	13	A	2x M12x25
19802	50	125	20	25	100	-	-	-	13,5	20	13	A	2x M12x25
19803	50	160	20	25	135	-	-	-	13,5	20	13	A	2x M12x25
19804	50	200	20	25	175	-	-	-	13,5	20	13	A	2x M12x25
19837	50	250	20	25	85	165	225	-	13,5	20	13	E	4x M12x25
19838	50	300	20	25	105	195	275	-	13,5	20	13	E	4x M12x25
19839	50	350	20	25	125	225	325	-	13,5	20	13	E	4x M12x25
19840	50	400	20	25	145	255	375	-	13,5	20	13	E	4x M12x25
19841	50	450	20	25	165	285	425	-	13,5	20	13	E	4x M12x25
19842	50	500	20	25	175	325	475	-	13,5	20	13	E	4x M12x25
19805	80	50	20	25	-	-	-	30	9	15	9	B	2x M8x25
19806	80	80	20	25	55	-	-	-	13,5	20	13	A	2x M12x25
19807	80	100	20	25	75	-	-	-	13,5	20	13	A	2x M12x25
19808	80	125	20	25	100	-	-	-	13,5	20	13	A	2x M12x25
19809	80	160	20	25	135	-	-	-	13,5	20	13	A	2x M12x25
19810	80	200	20	25	175	-	-	-	13,5	20	13	A	2x M12x25
19829	80	250	20	40	210	-	-	-	13,5	20	13	A	2x M12x25
19830	80	315	20	40	275	-	-	-	13,5	20	13	A	2x M12x25
19843	80	250	20	25	85	165	225	-	13,5	20	13	E	4x M12x25
19844	80	300	20	25	105	195	275	-	13,5	20	13	E	4x M12x25
19845	80	350	20	25	125	225	325	-	13,5	20	13	E	4x M12x25
19846	80	400	20	25	145	255	375	-	13,5	20	13	E	4x M12x25
19847	80	450	20	25	165	285	425	-	13,5	20	13	E	4x M12x25
19848	80	500	20	25	175	325	475	-	13,5	20	13	E	4x M12x25
19811	100	50	20	25	-	-	-	50	13,5	20	13	B	2x M12x25
19812	100	80	20	40	-	-	-	50	13,5	20	13	B	2x M12x25
19813	100	100	20	25	75	-	-	-	13,5	20	13	A	2x M12x25
19814	100	125	20	25	100	-	-	-	13,5	20	13	A	2x M12x25
19815	100	160	20	25	135	-	-	-	13,5	20	13	A	2x M12x25
19816	100	200	20	25	175	-	-	-	13,5	20	13	A	2x M12x25
19831	100	250	20	40	210	-	-	-	13,5	20	13	A	2x M12x25
19832	100	315	20	40	275	-	-	-	13,5	20	13	A	2x M12x25
19849	100	450	20	25	165	285	425	-	13,5	20	13	E	4x M12x25
19924	100	500	20	25	175	325	475	-	13,5	20	13	E	4x M12x25
62698	100	250	20	25	85	165	225	-	13,5	20	13	E	4x M12x25
62699	100	300	20	25	105	195	275	-	13,5	20	13	E	4x M12x25
62700	100	350	20	25	125	225	325	-	13,5	20	13	E	4x M12x25
62701	100	400	20	25	145	255	375	-	13,5	20	13	E	4x M12x25
62702	125	250	20	25	85	165	225	-	13,5	20	13	E	4x M12x25

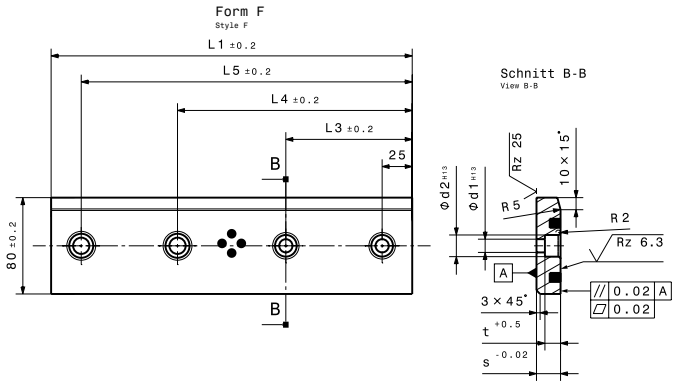
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

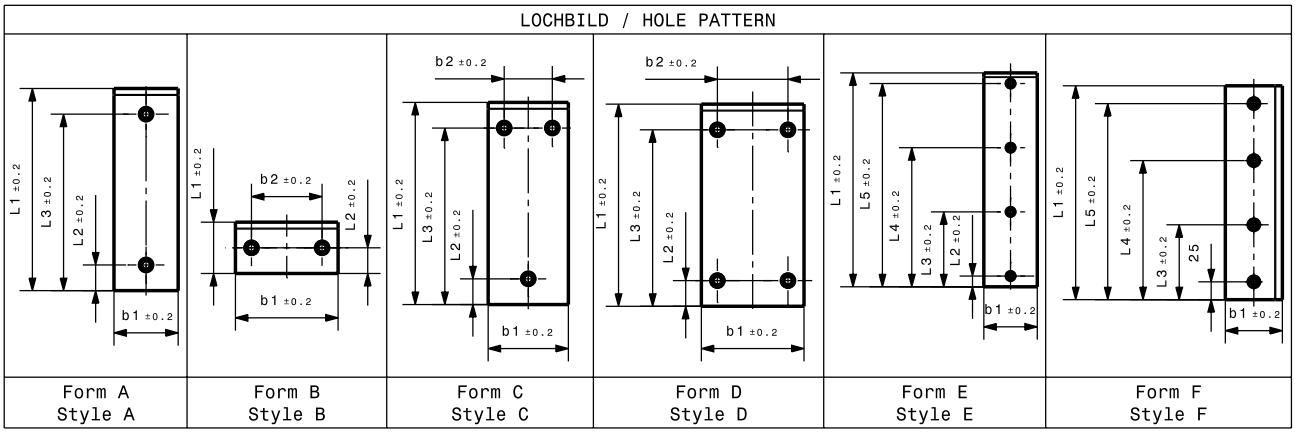
7.14 Gleitplatten nach VDI 3357
7.14 Wear plates acc. VDI 3357



Gleitrichtung
Slide direction





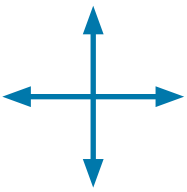


Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

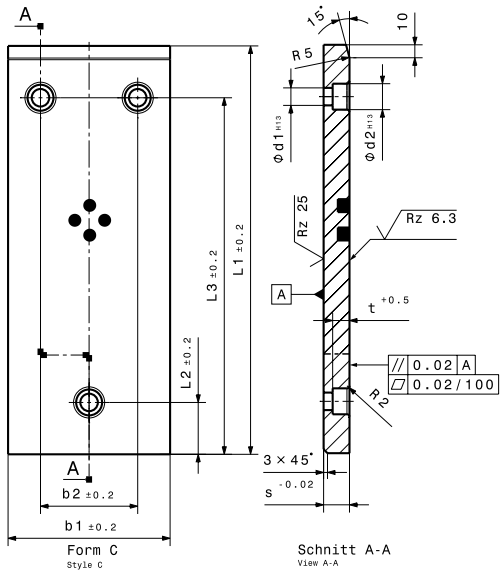
Ident-No. WF750/1A	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	d1 H13	d2 H13	t +0,5	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
62703	125	300	20	25	105	195	275	-	13,5	20	13	E	4x M12x25
62704	125	350	20	25	125	225	325	-	13,5	20	13	E	4x M12x25
62705	125	400	20	25	145	255	375	-	13,5	20	13	E	4x M12x25
19817	125	50	20	25	-	-	-	75	13,5	20	13	B	2x M12x25
19818	125	80	20	40	-	-	-	75	13,5	20	13	B	2x M12x25
19819	125	100	20	25	75	-	-	75	13,5	20	13	C	3x M12x25
19820	125	125	20	25	100	-	-	75	13,5	20	13	C	3x M12x25
19821	125	160	20	25	135	-	-	75	13,5	20	13	C	3x M12x25
19822	125	200	20	25	175	-	-	75	13,5	20	13	C	3x M12x25
19833	125	250	20	40	210	-	-	75	13,5	20	13	C	3x M12x25
19834	125	315	20	40	275	-	-	75	13,5	20	13	C	3x M12x25
19925	125	450	20	25	165	285	425	-	13,5	20	13	E	4x M12x25
19926	125	500	20	25	175	325	475	-	13,5	20	13	E	4x M12x25
62706	160	250	20	25	85	165	225	-	13,5	20	13	E	4x M12x25
62707	160	300	20	25	105	195	275	-	13,5	20	13	E	4x M12x25
62708	160	350	20	25	125	225	325	-	13,5	20	13	E	4x M12x25
62709	160	400	20	25	145	255	375	-	13,5	20	13	E	4x M12x25
62710	160	450	20	25	165	285	425	-	13,5	20	13	E	4x M12x25
62711	160	500	20	25	175	325	475	-	13,5	20	13	E	4x M12x25
19823	160	50	20	25	-	-	-	110	13,5	20	13	B	2x M12x25
19824	160	80	20	40	-	-	-	110	13,5	20	13	B	2x M12x25
19825	160	100	20	25	75	-	-	110	13,5	20	13	C	3x M12x25
19826	160	125	20	25	100	-	-	110	13,5	20	13	C	3x M12x25
19827	160	160	20	25	135	-	-	110	13,5	20	13	C	3x M12x25
19828	160	200	20	25	175	-	-	110	13,5	20	13	C	3x M12x25
19835	160	250	20	40	210	-	-	110	13,5	20	13	D	4x M12x25
19836	160	315	20	40	275	-	-	110	13,5	20	13	D	4x M12x25
19927	160	250	20	40	210	-	-	110	13,5	20	13	C	3x M12x25
19928	160	315	20	40	275	-	-	110	13,5	20	13	C	3x M12x25
63876	80	200	20	25	175	-	-	-	13,5	20	13	B	2x M12x25
63877	80	250	20	25	85	165	225	-	13,5	20	13	F	4x M12x25
63878	80	300	20	25	105	195	275	-	13,5	20	13	F	4x M12x25
63879	80	350	20	25	125	225	325	-	13,5	20	13	F	4x M12x25
63880	80	400	20	25	145	255	375	-	13,5	20	13	F	4x M12x25
63881	80	450	20	25	165	285	425	-	13,5	20	13	F	4x M12x25
63882	80	500	20	25	175	325	475	-	13,5	20	13	F	4x M12x25

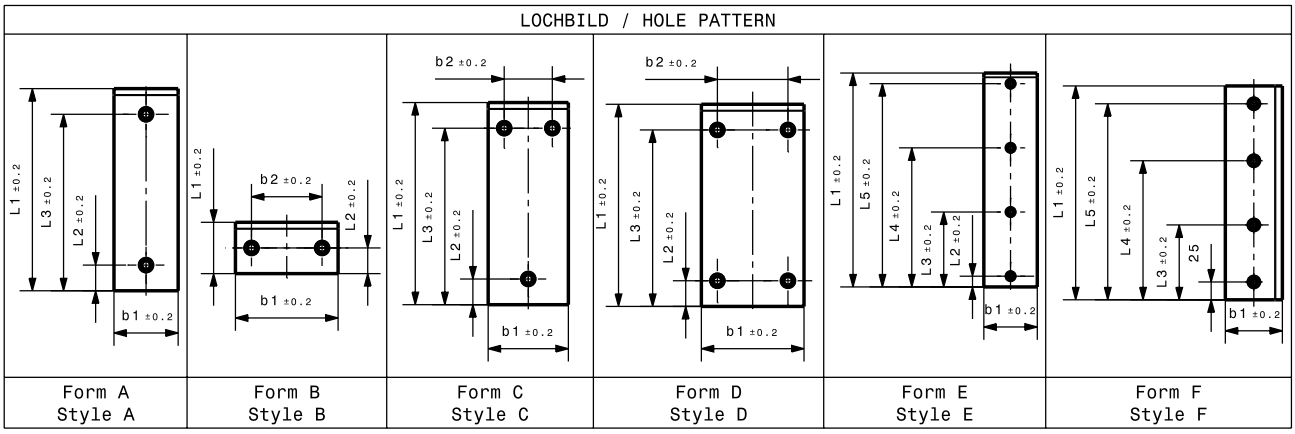
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.14 Gleitplatten nach VDI 3357
7.14 Wear plates acc. VDI 3357



Gleitrichtung
Slide direction



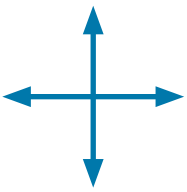


Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

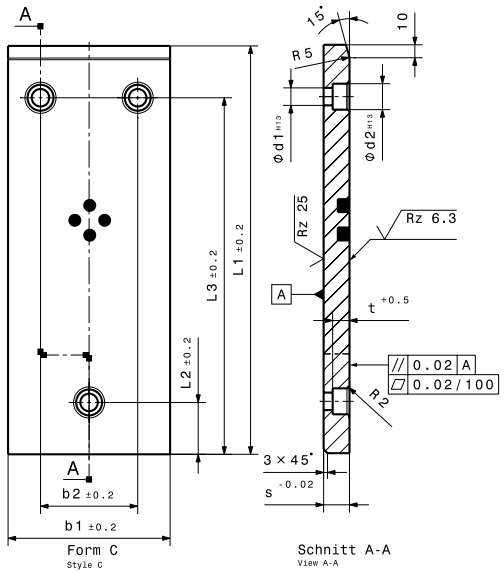
Ident-No. St 1	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	d1 H13	d2 H13	t +0,5	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19896	50	80	20	25	55	-	-	-	9	15	9	A	2x M8x25
19873	50	100	20	25	75	-	-	-	13,5	20	13	A	2x M12x25
19897	50	125	20	25	100	-	-	-	13,5	20	13	A	2x M12x25
19874	50	160	20	25	135	-	-	-	13,5	20	13	A	2x M12x25
19875	50	200	20	25	175	-	-	-	13,5	20	13	A	2x M12x25
19898	80	50	20	25	-	-	-	30	9	15	9	B	2x M8x25
19899	80	80	20	25	55	-	-	-	13,5	20	13	A	2x M12x25
19876	80	100	20	25	75	-	-	-	13,5	20	13	A	2x M12x25
19900	80	125	20	25	100	-	-	-	13,5	20	13	A	2x M12x25
19877	80	160	20	25	135	-	-	-	13,5	20	13	A	2x M12x25
19878	80	200	20	25	175	-	-	-	13,5	20	13	A	2x M12x25
19879	80	250	20	40	210	-	-	-	13,5	20	13	A	2x M12x25
19880	80	315	20	40	275	-	-	-	13,5	20	13	A	2x M12x25
19901	100	50	20	25	-	-	-	50	13,5	20	13	B	2x M12x25
19902	100	80	20	40	-	-	-	50	13,5	20	13	B	2x M12x25
19881	100	100	20	25	75	-	-	-	13,5	20	13	A	2x M12x25
19903	100	125	20	25	100	-	-	-	13,5	20	13	A	2x M12x25
19882	100	160	20	25	135	-	-	-	13,5	20	13	A	2x M12x25
19883	100	200	20	25	175	-	-	-	13,5	20	13	A	2x M12x25
19884	100	250	20	40	210	-	-	-	13,5	20	13	A	2x M12x25
19885	100	315	20	40	275	-	-	-	13,5	20	13	A	2x M12x25
19904	125	50	20	25	-	-	-	75	13,5	20	13	B	2x M12x25
19905	125	80	20	40	-	-	-	75	13,5	20	13	B	2x M12x25
19886	125	100	20	25	75	-	-	75	13,5	20	13	C	3x M12x25
19906	125	125	20	25	100	-	-	75	13,5	20	13	C	3x M12x25
19887	125	160	20	25	135	-	-	75	13,5	20	13	C	3x M12x25
19888	125	200	20	25	175	-	-	75	13,5	20	13	C	3x M12x25
19889	125	250	20	40	210	-	-	75	13,5	20	13	C	3x M12x25
19890	125	315	20	40	275	-	-	75	13,5	20	13	C	3x M12x25
19907	160	50	20	25	-	-	-	110	13,5	20	13	B	2x M12x25
19908	160	80	20	40	-	-	-	110	13,5	20	13	B	2x M12x25
19891	160	100	20	25	75	-	-	110	13,5	20	13	C	3x M12x25
19909	160	125	20	25	100	-	-	110	13,5	20	13	C	3x M12x25
19892	160	160	20	25	135	-	-	110	13,5	20	13	C	3x M12x25
19893	160	200	20	25	175	-	-	110	13,5	20	13	C	3x M12x25
19894	160	250	20	40	210	-	-	110	13,5	20	13	D	4x M12x25
19895	160	315	20	40	275	-	-	110	13,5	20	13	D	4x M12x25
19938	160	250	20	40	210	-	-	110	13,5	20	13	C	3x M12x25
19939	160	315	20	40	275	-	-	110	13,5	20	13	C	3x M12x25

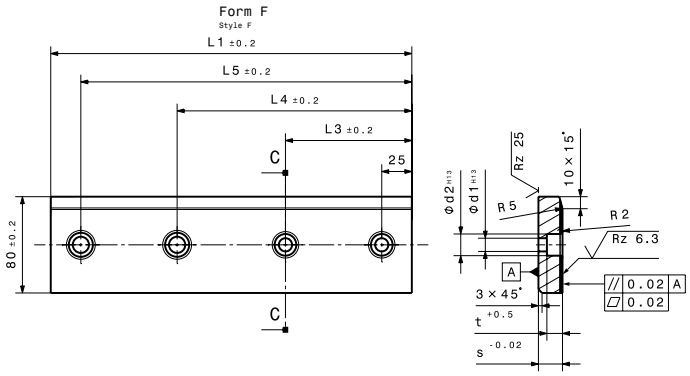
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

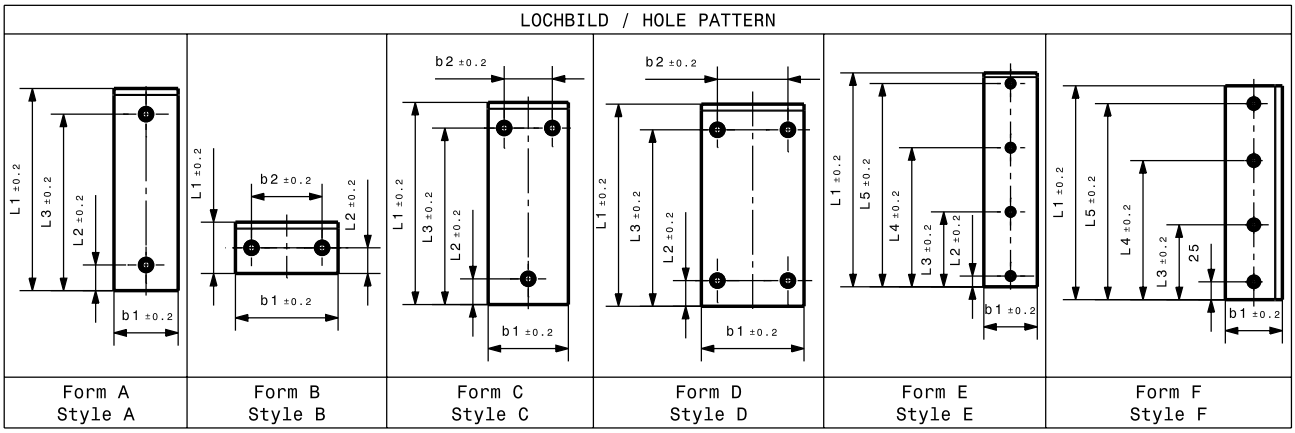
7.14 Gleitplatten nach VDI 3357
7.14 Wear plates acc. VDI 3357



Gleitrichtung
Slide direction





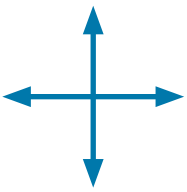


Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

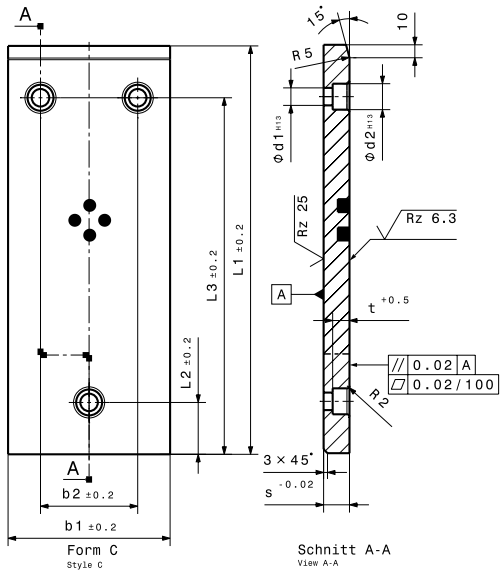
Ident-No. Sinter	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	d1 H13	d2 H13	t +0,5	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
63717	50	80	20	25	55	-	-	-	9	15	9	A	2x M8x25
63718	50	100	20	25	75	-	-	-	13,5	20	13	A	2x M12x25
63719	50	125	20	25	100	-	-	-	13,5	20	13	A	2x M12x25
63720	50	160	20	25	135	-	-	-	13,5	20	13	A	2x M12x25
63721	50	200	20	25	175	-	-	-	13,5	20	13	A	2x M12x25
63722	50	250	20	25	85	165	225	-	13,5	20	13	E	4x M12x25
63723	50	300	20	25	105	195	275	-	13,5	20	13	E	4x M12x25
63724	50	350	20	25	125	225	325	-	13,5	20	13	E	4x M12x25
63725	50	400	20	25	145	255	375	-	13,5	20	13	E	4x M12x25
63726	50	450	20	25	165	285	425	-	13,5	20	13	E	4x M12x25
63727	50	500	20	25	175	325	475	-	13,5	20	13	E	4x M12x25
63728	80	50	20	25	-	-	-	30	9	15	9	B	2x M8x25
63729	80	80	20	25	55	-	-	-	13,5	20	13	A	2x M12x25
63730	80	100	20	25	75	-	-	-	13,5	20	13	A	2x M12x25
63731	80	125	20	25	100	-	-	-	13,5	20	13	A	2x M12x25
63732	80	160	20	25	135	-	-	-	13,5	20	13	A	2x M12x25
63733	80	200	20	25	175	-	-	-	13,5	20	13	A	2x M12x25
63734	80	250	20	40	210	-	-	-	13,5	20	13	A	2x M12x25
63735	80	315	20	40	275	-	-	-	13,5	20	13	A	2x M12x25
63736	80	250	20	25	85	165	225	-	13,5	20	13	E	4x M12x25
63737	80	300	20	25	105	195	275	-	13,5	20	13	E	4x M12x25
63738	80	350	20	25	125	225	325	-	13,5	20	13	E	4x M12x25
63739	80	400	20	25	145	255	375	-	13,5	20	13	E	4x M12x25
63740	80	450	20	25	165	285	425	-	13,5	20	13	E	4x M12x25
63741	80	500	20	25	175	325	475	-	13,5	20	13	E	4x M12x25
63742	100	50	20	25	-	-	-	50	13,5	20	13	B	2x M12x25
63743	100	80	20	40	-	-	-	50	13,5	20	13	B	2x M12x25
63744	100	100	20	25	75	-	-	-	13,5	20	13	A	2x M12x25
63745	100	125	20	25	100	-	-	-	13,5	20	13	A	2x M12x25
63746	100	160	20	25	135	-	-	-	13,5	20	13	A	2x M12x25
63747	100	200	20	25	175	-	-	-	13,5	20	13	A	2x M12x25
63748	100	250	20	40	210	-	-	-	13,5	20	13	A	2x M12x25
63749	100	315	20	40	275	-	-	-	13,5	20	13	A	2x M12x25
63750	100	450	20	25	165	285	425	-	13,5	20	13	E	4x M12x25
63751	100	500	20	25	175	325	475	-	13,5	20	13	E	4x M12x25
63820	100	250	20	25	85	165	225	-	13,5	20	13	E	4x M12x25
63821	100	300	20	40	105	195	275	-	13,5	20	13	E	4x M12x25
63822	100	350	20	25	125	225	325	-	13,5	20	13	E	4x M12x25
63823	100	400	20	25	145	255	375	-	13,5	20	13	E	4x M12x25
63824	125	250	20	25	85	165	225	-	13,5	20	13	E	4x M12x25

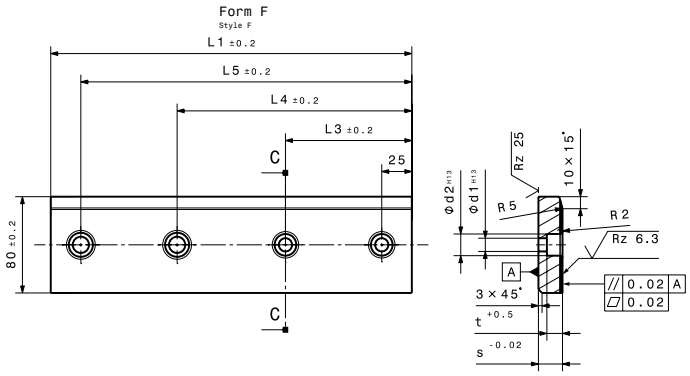
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

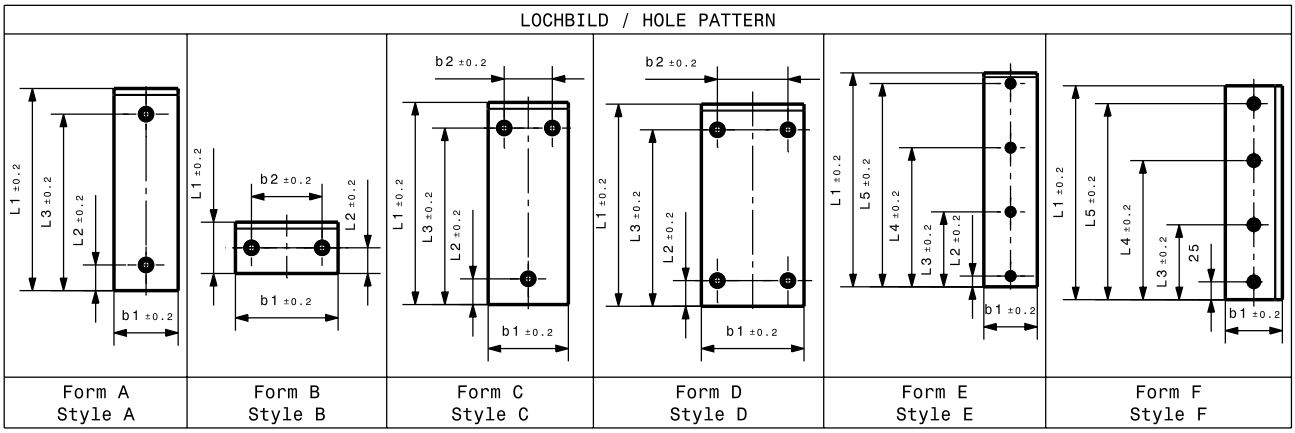
7.14 Gleitplatten nach VDI 3357
7.14 Wear plates acc. VDI 3357



Gleitrichtung
Slide direction





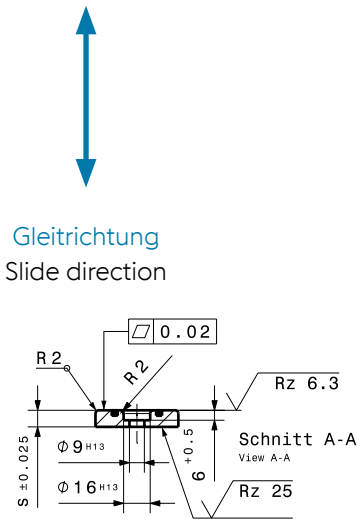


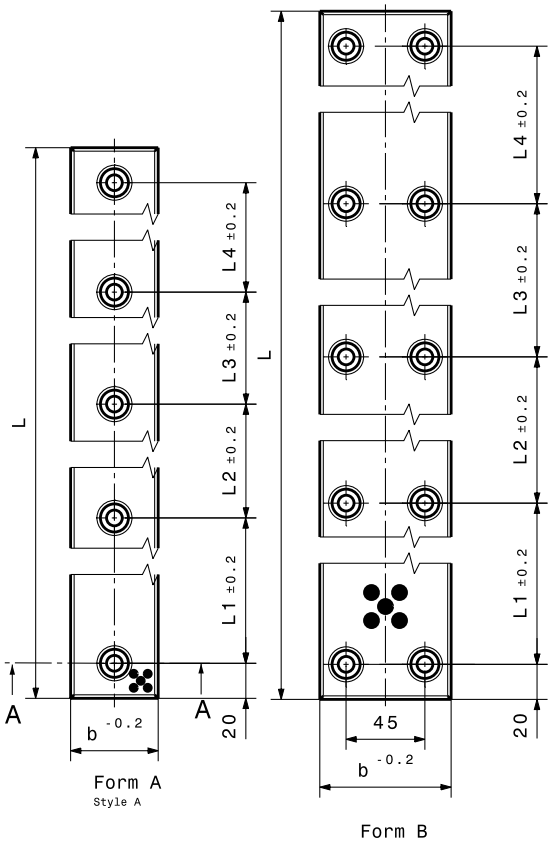
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. Sinter	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	d1 H13	d2 H13	t +0,5	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
63825	125	300	20	25	105	195	275	-	13,5	20	13	E	4x M12x25
63826	125	350	20	25	125	225	325	-	13,5	20	13	E	4x M12x25
63827	125	400	20	25	145	255	375	-	13,5	20	13	E	4x M12x25
63752	125	50	20	25	-	-	-	75	13,5	20	13	B	2x M12x25
63753	125	80	20	40	-	-	-	75	13,5	20	13	B	2x M12x25
63754	125	100	20	25	75	-	-	75	13,5	20	13	C	3x M12x25
63755	125	125	20	25	100	-	-	75	13,5	20	13	C	3x M12x25
63756	125	160	20	25	135	-	-	75	13,5	20	13	C	3x M12x25
63757	125	200	20	25	175	-	-	75	13,5	20	13	C	3x M12x25
63758	125	250	20	40	210	-	-	75	13,5	20	13	C	3x M12x25
63759	125	315	20	40	275	-	-	75	13,5	20	13	C	3x M12x25
63760	125	450	20	25	165	285	425	-	13,5	20	13	E	4x M12x25
63761	125	500	20	25	175	325	475	-	13,5	20	13	E	4x M12x25
63828	160	250	20	25	85	165	225	-	13,5	20	13	E	4x M12x25
63829	160	300	20	25	105	195	275	-	13,5	20	13	E	4x M12x25
63830	160	350	20	25	125	225	325	-	13,5	20	13	E	4x M12x25
63831	160	400	20	25	145	255	375	-	13,5	20	13	E	4x M12x25
63832	160	450	20	25	165	285	425	-	13,5	20	13	E	4x M12x25
63833	160	500	20	25	175	325	475	-	13,5	20	13	E	4x M12x25
63762	160	50	20	25	-	-	-	110	13,5	20	13	B	2x M12x25
63763	160	80	20	40	-	-	-	110	13,5	20	13	B	2x M12x25
63764	160	100	20	25	75	-	-	110	13,5	20	13	C	3x M12x25
63765	160	125	20	25	100	-	-	110	13,5	20	13	C	3x M12x25
63766	160	160	20	25	135	-	-	110	13,5	20	13	C	3x M12x25
63767	160	200	20	25	175	-	-	110	13,5	20	13	C	3x M12x25
63768	160	250	20	40	210	-	-	110	13,5	20	13	D	4x M12x25
63769	160	315	20	40	275	-	-	110	13,5	20	13	D	4x M12x25
63883	80	200	20	25	175	-	-	-	13,5	20	13	B	2x M12x25
63884	80	250	20	25	85	165	225	-	13,5	20	13	F	4x M12x25
63885	80	300	20	25	105	195	275	-	13,5	20	13	F	4x M12x25
63886	80	350	20	25	125	225	325	-	13,5	20	13	F	4x M12x25
63887	80	400	20	25	145	255	375	-	13,5	20	13	F	4x M12x25
63888	80	450	20	25	165	285	425	-	13,5	20	13	F	4x M12x25
63889	80	500	20	25	175	325	475	-	13,5	20	13	F	4x M12x25

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.15 Gleitplatten
7.15 Wear plates

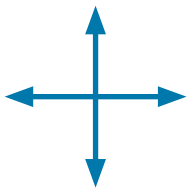




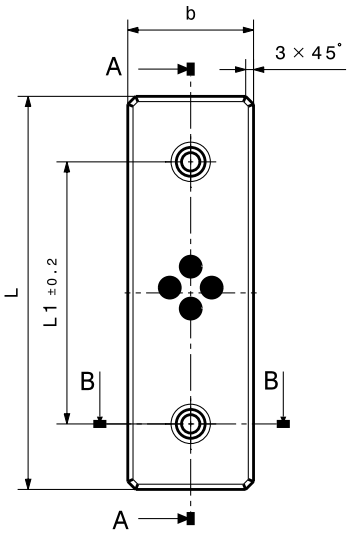
Ident-No. WF750/1A	b -0,2	L	s ±0,025	L1 ±0,2	L2 ±0,2	L3 ±0,2	L4 ±0,2	Form Style	Zylinderschraube Cylinder head screw DIN 7984
17340	35	100	10	60	-	-	-	A	2x M8
17341	35	150	10	55	55	-	-	A	3x M8
17342	35	200	10	55	50	55	-	A	4x M8
17343	35	250	10	70	70	70	-	A	4x M8
17344	35	300	10	65	65	65	65	A	5x M8
17345	35	350	10	80	75	75	80	A	5x M8
17346	50	100	10	60	-	-	-	A	2x M8
17347	50	150	10	55	55	-	-	A	3x M8
17348	50	200	10	55	50	55	-	A	4x M8
17349	50	250	10	70	70	70	-	A	4x M8
17350	50	300	10	65	65	65	65	A	5x M8
17351	50	350	10	80	75	75	80	A	5x M8
17352	75	150	10	110	-	-	-	B	4x M8
17353	75	200	10	80	80	-	-	B	6x M8
17354	75	250	10	105	105	-	-	B	6x M8
17355	75	300	10	85	90	85	-	B	8x M8
17356	75	400	10	120	120	120	-	B	8x M8
17357	75	500	10	115	115	115	115	B	10x M8

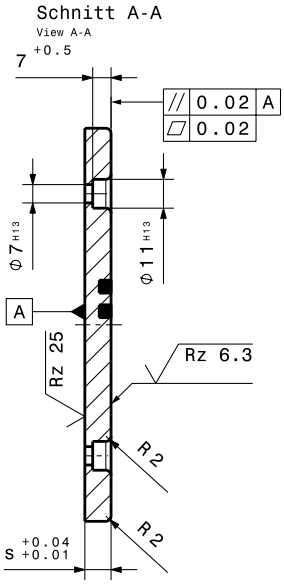
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

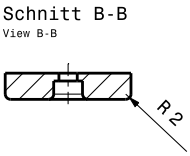
7.16 Gleitplatten
7.16 Wear plates



Gleitrichtung
Slide direction



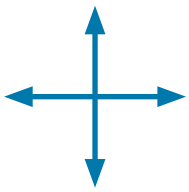




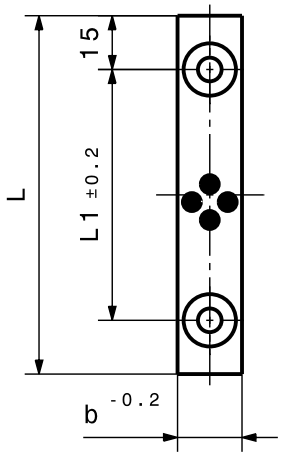
Ident-No. WF750/1A	b	L	s +0,04 +0,01	L1 ±0,2	Zylinderschraube Cylinder head screw DIN EN ISO 4762
17200	18	75	10	45	2x M6
17201	18	100	10	50	2x M6
17198	18	125	10	75	2x M6
17202	18	150	10	100	2x M6
17203	28	75	10	45	2x M6
17204	28	100	10	50	2x M6
17197	28	125	10	75	2x M6
17205	28	150	10	100	2x M6
17206	38	75	10	45	2x M6
17207	38	100	10	50	2x M6
17199	38	125	10	75	2x M6
17208	38	150	10	100	2x M6
17209	48	75	10	45	2x M6
17210	48	100	10	50	2x M6
17211	48	125	10	75	2x M6
17212	48	150	10	100	2x M6

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

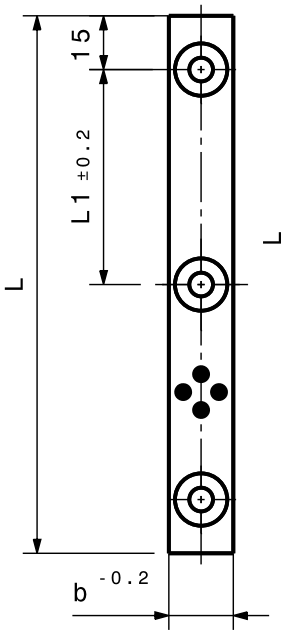
7.18 Gleitplatten
7.18 Wear plates



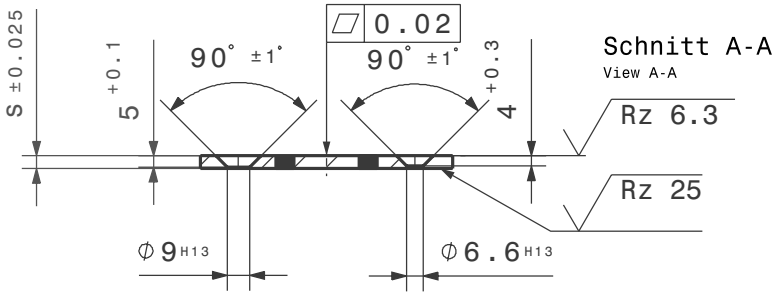
Gleitrichtung
Slide direction



Form A
Style A



Form B
Style B

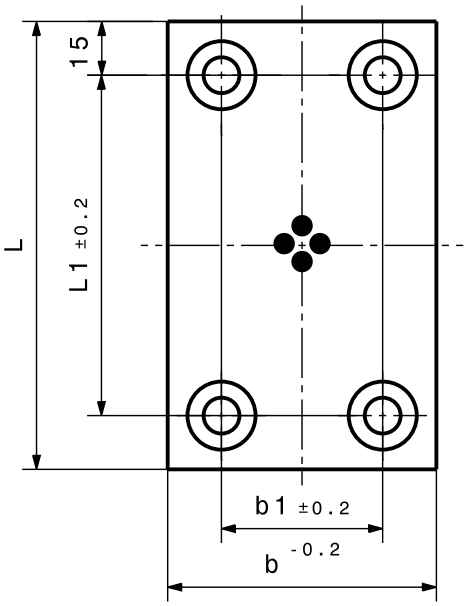


Für Schraube/screw M8

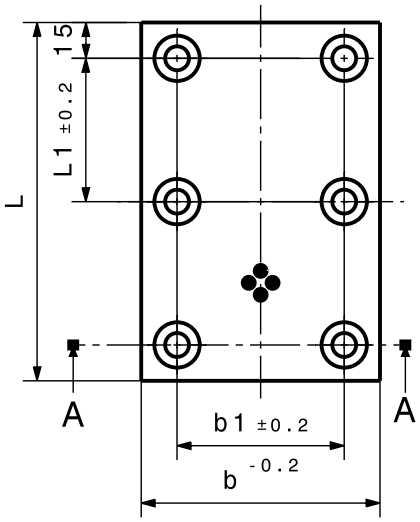
Für Schraube/screw M6

Ident-No. WF750/1A	b -0,2	L	s ±0,025	b1 ±0,2	L1 ±0,2	Form Style	Senkschraube Countersunk screw DIN EN ISO 10642
18540	18	50	5	-	20	A	2x M6
18541	18	75	5	-	45	A	2x M6
18542	18	100	5	-	70	A	2x M6
18543	18	150	5	-	60	B	3x M6
18544	28	50	5	-	20	A	2x M8
18545	28	75	5	-	45	A	2x M8
18546	28	100	5	-	70	A	2x M8
18547	28	150	5	-	60	B	3x M8
18548	38	50	5	-	20	A	2x M8
18549	38	75	5	-	45	A	2x M8
18550	38	100	5	-	70	A	2x M8
18551	38	150	5	-	60	B	3x M8

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



Form C
Style C

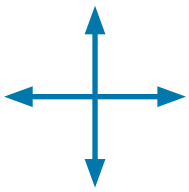


Form D
Style D

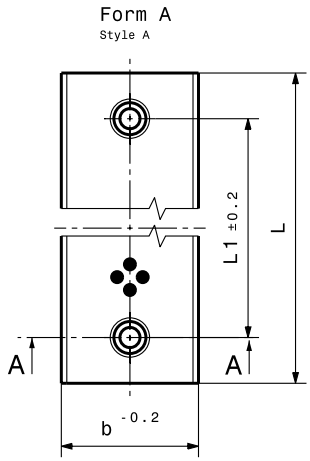
Ident-No. WF750/1A	b -0,2	L	s ±0,025	b1 ±0,2	L1 ±0,2	Form Style	Senkschraube Countersunk screw DIN EN ISO 10642
18552	48	75	5	-	45	A	2x M8
18553	48	100	5	-	70	A	2x M8
18554	48	125	5	-	95	A	2x M8
18555	48	150	5	-	60	B	3x M8
18556	75	75	5	45	45	C	4x M8
18557	75	100	5	45	70	C	4x M8
18558	75	125	5	45	95	C	4x M8
18559	75	150	5	45	60	D	6x M8
18560	100	100	5	70	70	C	4x M8
18561	100	125	5	70	95	C	4x M8
18562	100	150	5	70	60	D	6x M8

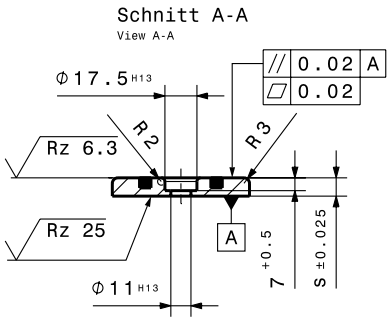
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.19 Gleitplatten
7.19 Wear plates



Gleitrichtung
Slide direction

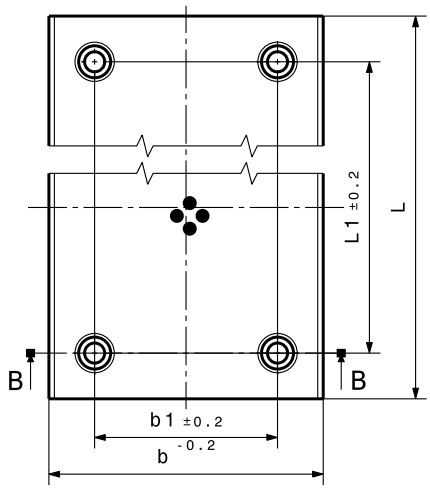




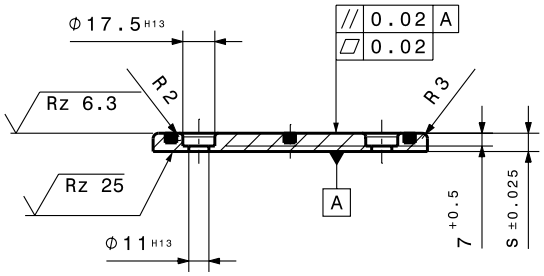
Ident-No. WF750/1A	b -0,2	L	s ±0,025	b1 ±0,2	L1 ±0,2	Form Style	Zylinderschraube Cylinder head screw DIN 7984
15493	28	75	10	-	45	A	2x M10
13606	28	100	10	-	50	A	2x M10
15274	28	125	10	-	75	A	2x M10
14781	28	150	10	-	100	A	2x M10
14369	38	75	10	-	45	A	2x M10
14368	38	100	10	-	50	A	2x M10
18867	38	125	10	-	75	A	2x M10
18861	38	150	10	-	100	A	2x M10
14795	48	75	10	-	45	A	2x M10
14796	48	100	10	-	50	A	2x M10
13344	48	125	10	-	75	A	2x M10
13021	48	150	10	-	100	A	2x M10
13229	48	200	10	-	150	A	2x M10
13228	75	75	10	-	45	A	2x M10
14800	75	100	10	-	50	A	2x M10

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Form B
Style B



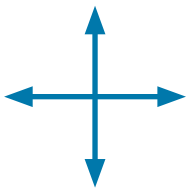
Schnitt B-B
View B-B



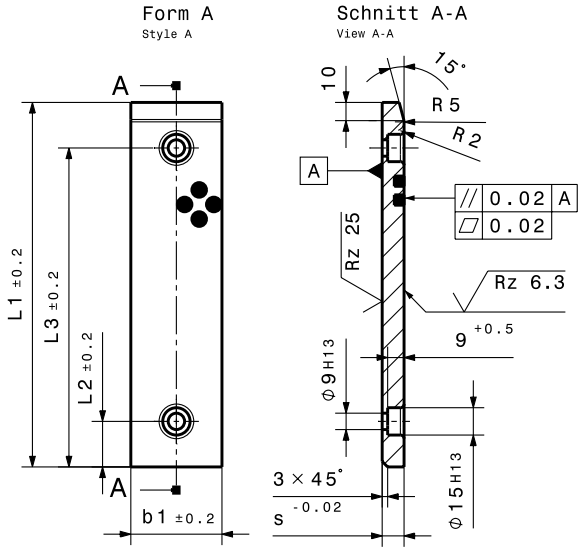
Ident-No. WF750/1A	b -0,2	L	s ±0,025	b1 ±0,2	L1 ±0,2	Form Style	Zylinderschraube Cylinder head screw DIN 7984
15313	75	125	10	-	75	A	2x M10
13020	75	150	10	-	100	A	2x M10
13141	75	200	10	-	150	A	2x M10
13337	100	100	10	50	50	B	4x M10
13345	100	125	10	50	75	B	4x M10
15190	100	150	10	50	100	B	4x M10
13031	100	200	10	50	150	B	4x M10
18862	100	250	10	50	200	B	4x M10
15312	125	150	10	50	100	B	4x M10
18863	125	200	10	50	150	B	4x M10
18864	125	250	10	50	200	B	4x M10
13035	150	150	10	100	100	B	4x M10
18865	150	200	10	100	150	B	4x M10
18866	150	250	10	100	200	B	4x M10

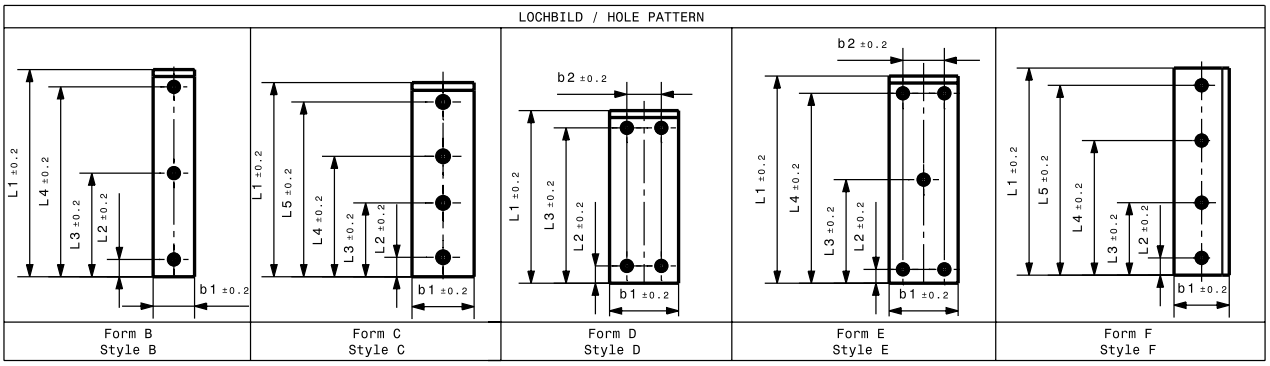
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.21 Gleitplatten nach VDI 3357
7.21 Wear plates acc. VDI 3357



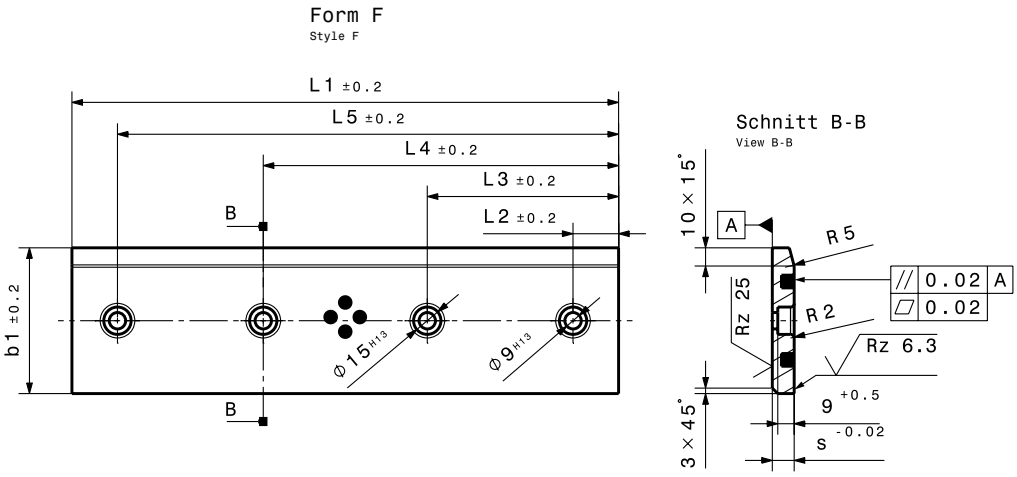
Gleitrichtung
Slide direction





Ident-No. WF750/1A	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18209	25	160	12	25	135	-	-	-	A	2x M8x20
18208	25	200	12	25	175	-	-	-	A	2x M8x20
18207	25	250	12	25	125	225	-	-	B	3x M8x20
18210	30	80	12	25	55	-	-	-	A	2x M8x20
18211	30	100	12	25	75	-	-	-	A	2x M8x20
18212	30	125	12	25	100	-	-	-	A	2x M8x20
18213	30	160	12	25	135	-	-	-	A	2x M8x20
18214	30	200	12	25	175	-	-	-	A	2x M8x20
18225	30	250	12	25	125	225	-	-	B	3x M8x20
18218	30	300	12	25	150	275	-	-	B	3x M8x20
18220	40	80	12	25	55	-	-	-	A	2x M8x20
18221	40	100	12	25	75	-	-	-	A	2x M8x20
18222	40	125	12	25	100	-	-	-	A	2x M8x20

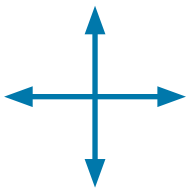
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



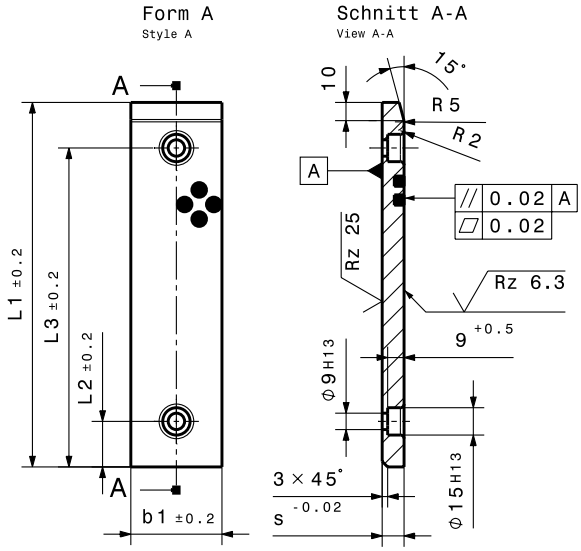
Ident-No. WF750/1A	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18223	40	160	12	25	135	-	-	-	A	2x M8x20
18224	40	200	12	25	175	-	-	-	A	2x M8x20
18240	50	80	12	25	55	-	-	-	A	2x M8x20
18226	50	100	12	25	75	-	-	-	A	2x M8x20
18241	50	125	12	25	100	-	-	-	A	2x M8x20
18228	50	160	12	25	135	-	-	-	A	2x M8x20
18229	50	200	12	25	175	-	-	-	A	2x M8x20
18196	50	250	12	25	85	165	225	-	C	4x M8x20
18197	50	300	12	25	105	195	275	-	C	4x M8x20
18198	50	350	12	25	125	225	325	-	C	4x M8x20
18199	50	400	12	25	145	255	375	-	C	4x M8x20
18230	60	80	12	25	55	-	-	-	A	2x M8x20
18231	60	100	12	25	75	-	-	-	A	2x M8x20

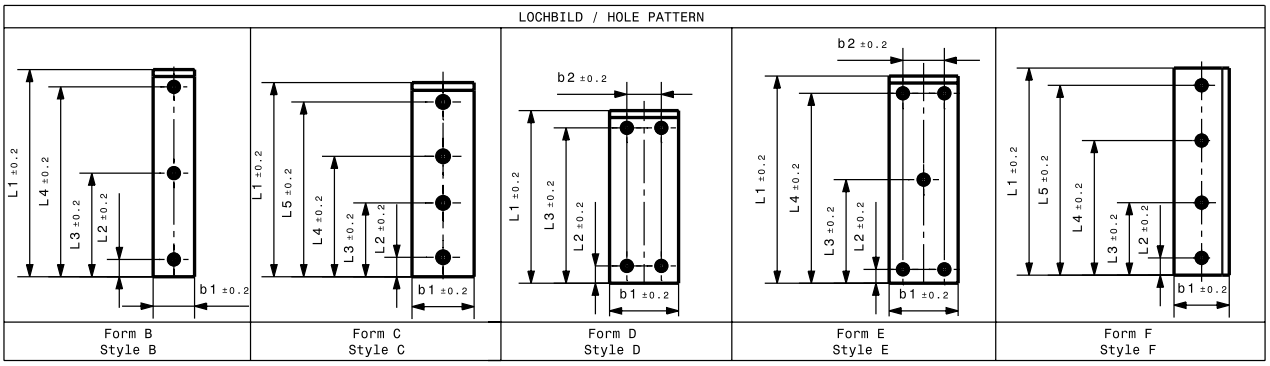
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.21 Gleitplatten nach VDI 3357
7.21 Wear plates acc. VDI 3357



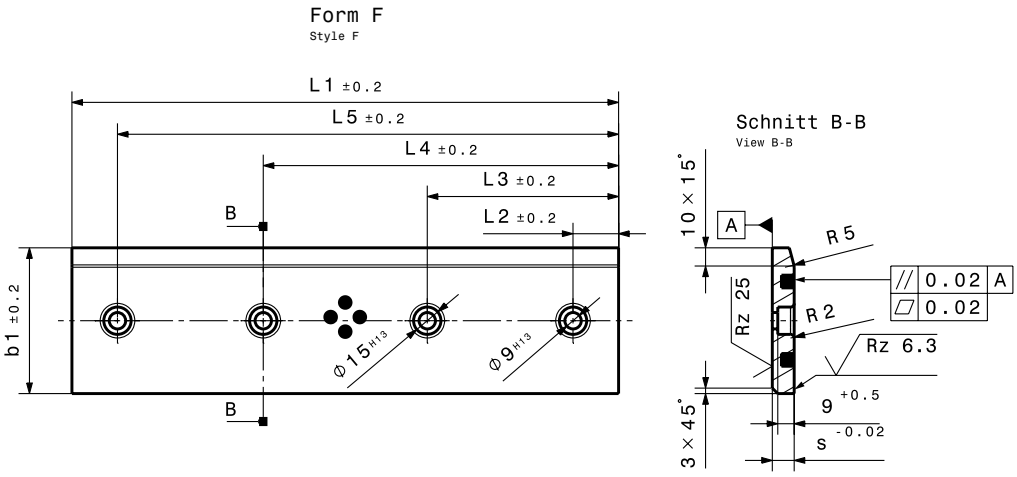
Gleitrichtung
Slide direction





Ident-No. WF750/1A	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18232	60	125	12	25	100	-	-	-	A	2x M8x20
18233	60	160	12	25	135	-	-	-	A	2x M8x20
18234	60	200	12	25	175	-	-	-	A	2x M8x20
18236	60	300	12	25	150	275	-	-	B	3x M8x20
18215	80	80	12	25	55	-	-	-	A	2x M8x20
18239	80	100	12	25	75	-	-	-	A	2x M8x20
18217	80	125	12	25	100	-	-	-	A	2x M8x20
18235	80	160	12	25	135	-	-	-	A	2x M8x20
18219	80	200	12	25	175	-	-	-	A	2x M8x20
18227	80	250	12	25	95	155	255	-	C	4x M8x20
18237	100	125	12	25	100	-	-	60	D	4x M8x20
18243	100	160	12	20	135	-	-	60	D	4x M8x20
18206	100	200	12	20	175	-	-	60	D	4x M8x20

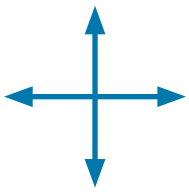
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



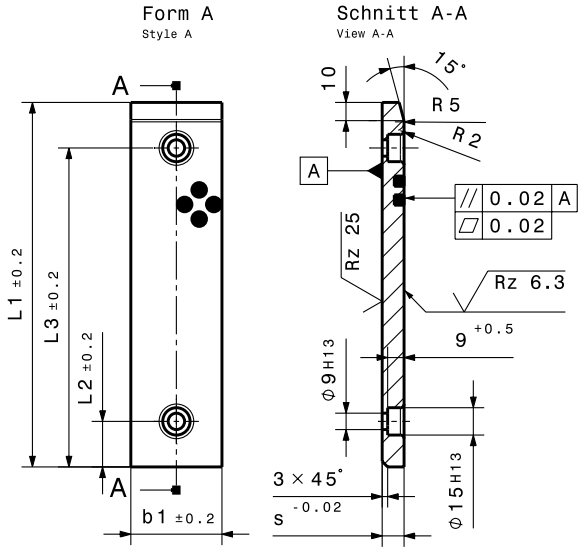
Ident-No. WF750/1A	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18242	100	250	12	25	225	-	-	50	D	4x M8x20
18216	100	300	12	20	150	275	-	60	E	5x M8x20
18315	125	160	12	25	135	-	-	85	D	4x M8x20
22002	150	160	12	25	135	-	-	110	D	4x M8x20
18238	160	160	12	25	135	-	-	120	D	4x M8x20
64138	80	200	12	25	175	-	-	-	F	2x M8x20
64139	80	250	12	25	85	165	225	-	F	4x M8x20
64140	80	300	12	25	105	195	275	-	F	4x M8x20
64141	80	350	12	25	125	225	325	-	F	4x M8x20
64142	80	400	12	25	145	255	375	-	F	4x M8x20
64143	80	450	12	25	165	285	425	-	F	4x M8x20
64144	80	500	12	25	175	325	475	-	F	4x M8x20

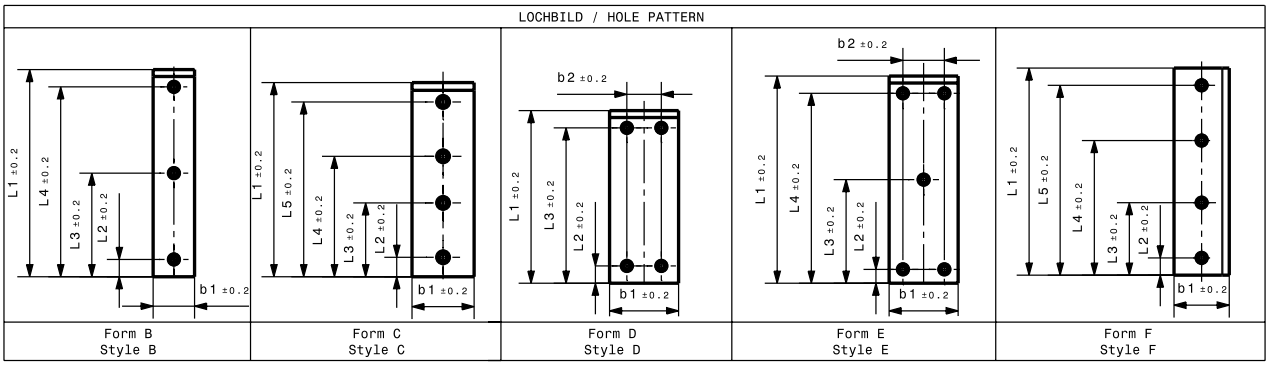
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.21 Gleitplatten nach VDI 3357
7.21 Wear plates acc. VDI 3357



Gleitrichtung
Slide direction





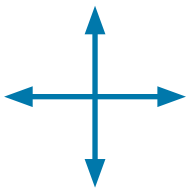
Ident-No. St 1	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18250	30	80	12	25	55	-	-	-	A	2x M8x20
18251	30	100	12	25	75	-	-	-	A	2x M8x20
18252	30	125	12	25	100	-	-	-	A	2x M8x20
18253	30	160	12	25	135	-	-	-	A	2x M8x20
18254	30	200	12	25	175	-	-	-	A	2x M8x20
18255	40	80	12	25	55	-	-	-	A	2x M8x20
18256	40	100	12	25	75	-	-	-	A	2x M8x20
18257	40	125	12	25	100	-	-	-	A	2x M8x20
18258	40	160	12	25	135	-	-	-	A	2x M8x20

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

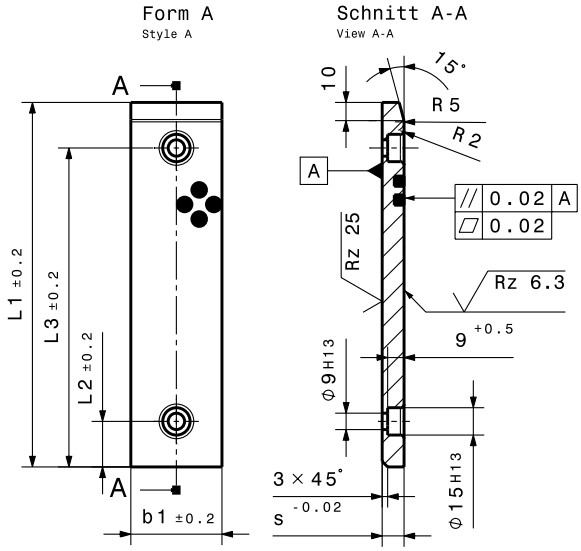
Ident-No. St 1	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18259	40	200	12	25	175	-	-	-	A	2x M8x20
18260	50	80	12	25	55	-	-	-	A	2x M8x20
18261	50	100	12	25	75	-	-	-	A	2x M8x20
18262	50	125	12	25	100	-	-	-	A	2x M8x20
18263	50	160	12	25	135	-	-	-	A	2x M8x20
18264	50	200	12	25	175	-	-	-	A	2x M8x20
18265	60	80	12	25	55	-	-	-	A	2x M8x20
18266	60	100	12	25	75	-	-	-	A	2x M8x20
18267	60	125	12	25	100	-	-	-	A	2x M8x20
18268	60	160	12	25	135	-	-	-	A	2x M8x20
18269	60	200	12	25	175	-	-	-	A	2x M8x20
18246	60	255	12	25	127,5	230	-	-	B	3x M8x20
18247	60	300	12	25	150	275	-	-	B	3x M8x20
18270	80	80	12	25	55	-	-	-	A	2x M8x20
18271	80	100	12	25	75	-	-	-	A	2x M8x20
18272	80	125	12	25	100	-	-	-	A	2x M8x20
18273	80	160	12	25	135	-	-	-	A	2x M8x20
18274	80	200	12	25	175	-	-	-	A	2x M8x20
18298	80	250	12	25	70	180	225	-	C	4x M8x20
18314	100	160	12	25	135	-	-	70	D	4x M8x20
18296	100	200	12	20	175	-	-	60	D	4x M8x20
18297	100	250	12	25	225	-	-	50	D	4x M8x20
18279	100	300	12	20	150	275	-	60	E	5x M8x20
18317	125	145	12	25	120	-	-	85	D	4x M8x20
18316	125	160	12	25	135	-	-	85	D	4x M8x20
18392	150	145	12	25	120	-	-	110	D	4x M8x20
18391	150	160	12	25	135	-	-	110	D	4x M8x20

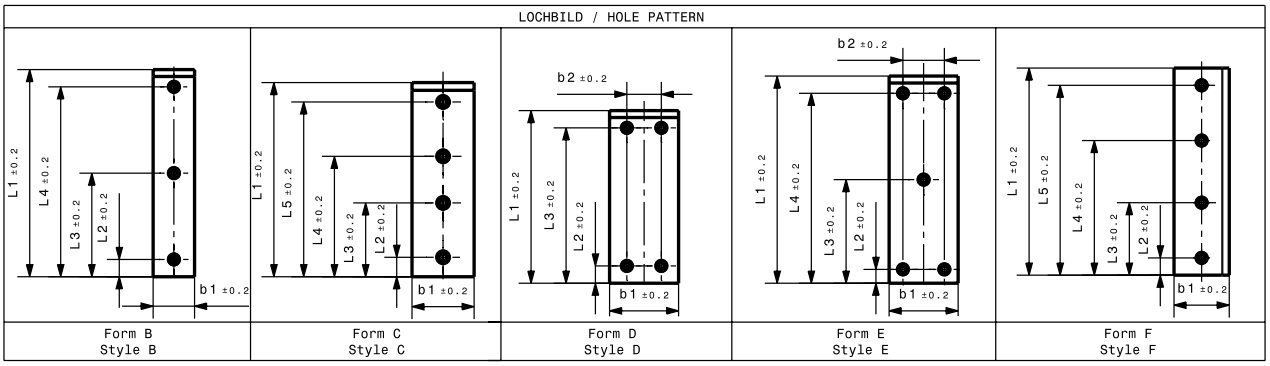
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.21 Gleitplatten nach VDI 3357
7.21 Wear plates acc. VDI 3357



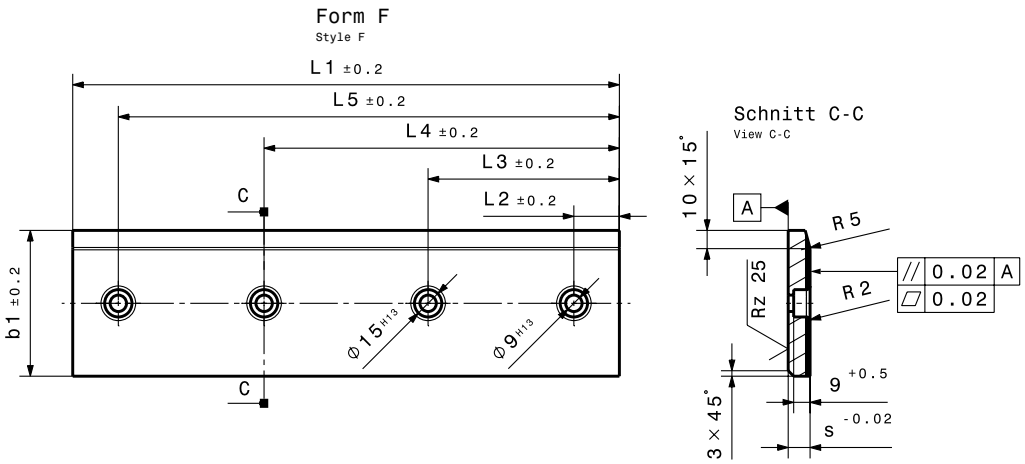
Gleitrichtung
Slide direction





Ident-No. Sinter	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
63775	25	160	12	25	135	-	-	-	A	2x M8x20
63776	25	200	12	25	175	-	-	-	A	2x M8x20
63777	25	250	12	25	125	225	-	-	B	3x M8x20
63778	30	80	12	25	55	-	-	-	A	2x M8x20
63779	30	100	12	25	75	-	-	-	A	2x M8x20
63780	30	125	12	25	100	-	-	-	A	2x M8x20
63781	30	160	12	25	135	-	-	-	A	2x M8x20
63782	30	200	12	25	175	-	-	-	A	2x M8x20
63783	30	250	12	25	125	225	-	-	B	3x M8x20
63784	30	300	12	25	150	275	-	-	B	3x M8x20
63785	40	80	12	25	55	-	-	-	A	2x M8x20
63786	40	100	12	25	75	-	-	-	A	2x M8x20
63787	40	125	12	25	100	-	-	-	A	2x M8x20

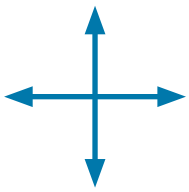
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



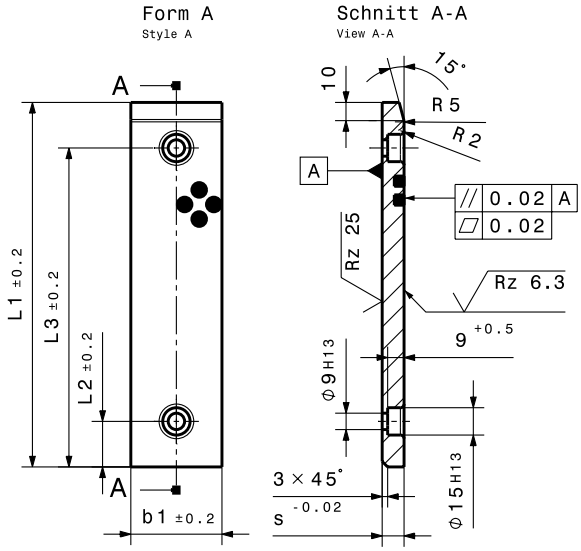
Ident-No. Sinter	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
63788	40	160	12	25	135	-	-	-	A	2x M8x20
63789	40	200	12	25	175	-	-	-	A	2x M8x20
63790	50	80	12	25	55	-	-	-	A	2x M8x20
63791	50	100	12	25	75	-	-	-	A	2x M8x20
63792	50	125	12	25	100	-	-	-	A	2x M8x20
63793	50	160	12	25	135	-	-	-	A	2x M8x20
63794	50	200	12	25	175	-	-	-	A	2x M8x20
63795	50	250	12	25	85	165	225	-	C	4x M8x20
63796	50	300	12	25	105	195	275	-	C	4x M8x20
63797	50	350	12	25	125	225	325	-	C	4x M8x20
63798	50	400	12	25	145	255	375	-	C	4x M8x20
63799	60	80	12	25	55	-	-	-	A	2x M8x20
63800	60	100	12	25	75	-	-	-	A	2x M8x20

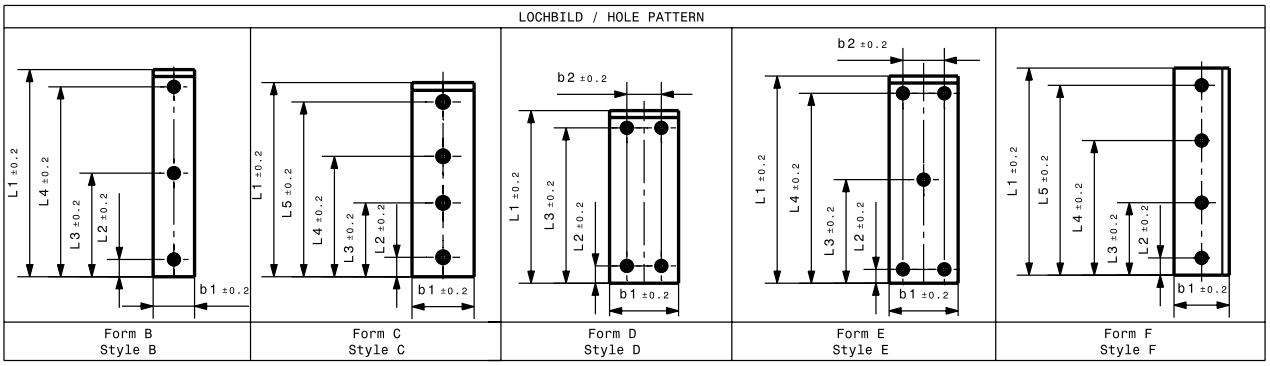
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.21 Gleitplatten nach VDI 3357
7.21 Wear plates acc. VDI 3357



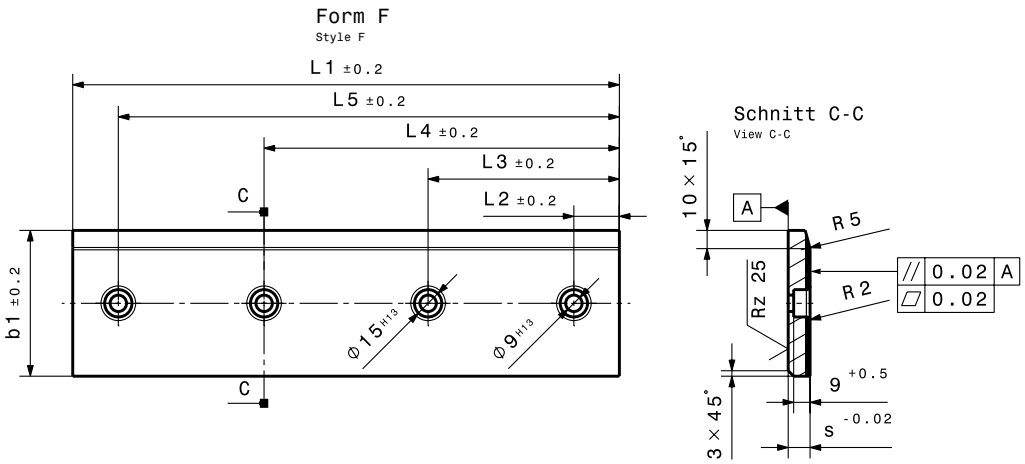
Gleitrichtung
Slide direction





Ident-No. Sinter	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
63801	60	125	12	25	100	-	-	-	A	2x M8x20
63802	60	160	12	25	135	-	-	-	A	2x M8x20
63803	60	200	12	25	175	-	-	-	A	2x M8x20
63804	60	300	12	25	150	375	-	-	B	3x M8x20
63805	80	80	12	25	55	-	-	-	A	2x M8x20
63806	80	100	12	25	75	-	-	-	A	2x M8x20
63807	80	125	12	25	100	-	-	-	A	2x M8x20
63808	80	160	12	25	135	-	-	-	A	2x M8x20
63809	80	200	12	25	175	-	-	-	A	2x M8x20
63810	80	250	12	25	95	155	225	-	C	4x M8x20
63811	100	125	12	25	100	-	-	60	D	4x M8x20
63812	100	160	12	20	135	-	-	60	D	4x M8x20
63813	100	200	12	20	175	-	-	60	D	4x M8x20

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

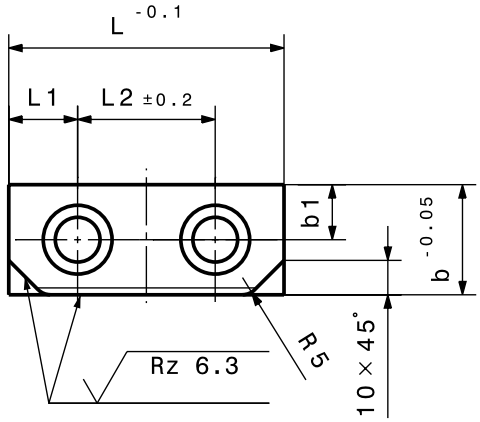


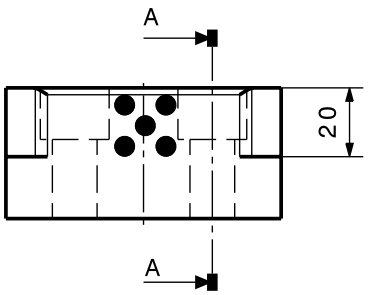
Ident-No. Sinter	b1 ±0,2	L1 ±0,2	s -0,02	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	b2 ±0,2	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
63814	100	250	12	25	225	-	-	50	D	4x M8x20
63815	100	300	12	20	150	275	-	60	E	5x M8x20
63816	125	160	12	25	135	-	-	85	D	4x M8x20
63817	150	160	12	25	135	-	-	110	D	4x M8x20
63818	160	160	12	25	135	-	-	120	D	4x M8x20
64145	80	200	12	25	175	-	-	-	F	2x M8x20
64146	80	250	12	25	85	165	225	-	F	4x M8x20
64147	80	300	12	25	105	195	275	-	F	4x M8x20
64148	80	350	12	25	125	225	325	-	F	4x M8x20
64149	80	400	12	25	145	255	375	-	F	4x M8x20
64150	80	450	12	25	165	285	425	-	F	4x M8x20
64151	80	500	12	25	175	325	475	-	F	4x M8x20

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

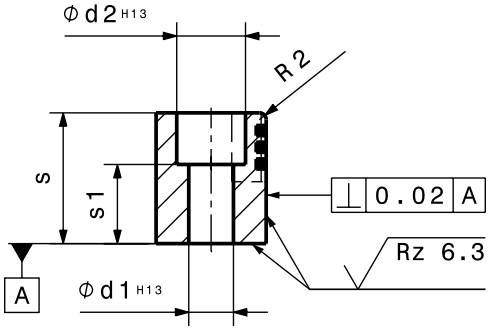
7.23 Führungsplatten
7.23 Guide plates

Gleitrichtung
Slide direction





Schnitt A-A
View A-A

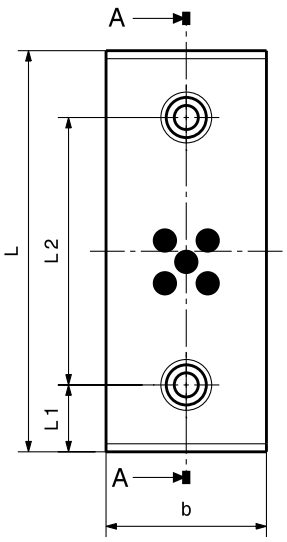


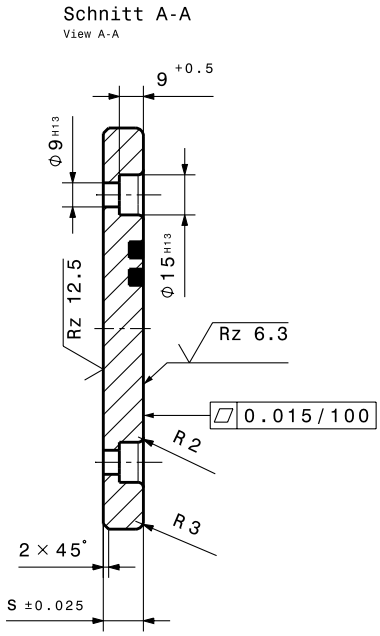
Ident-No. WF750/1A	b -0,05	L -0,1	s	L1	L2 ±0,2	b1	s1	Ø1 H13	Ø2 H13	Zylinderschraube Cylinder head screw DIN EN ISO 4762
14357	25	60	30	15	30	11	18	11	17,5	2x M10
15972	32	60	38	15	30	16	23	13	20	2x M12
15633	32	80	38	20	40	16	23	13	20	2x M12

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.25 Gleitplatten
7.25 Wear plates

Gleitrichtung
Slide direction

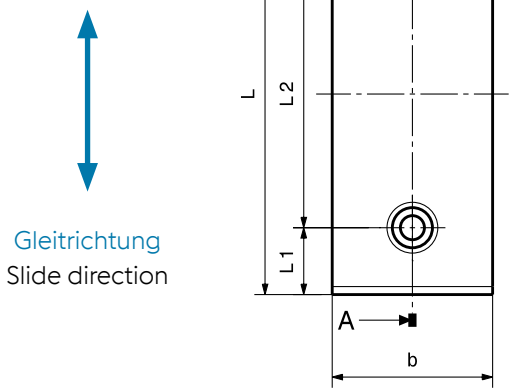


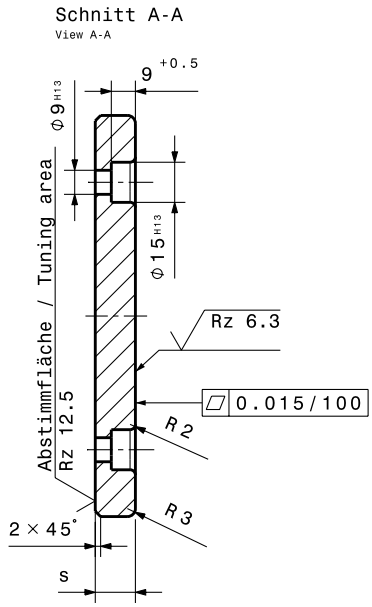


Ident-No. WF750/1A	b	L	s ±0,025	L1	L2	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19718	40	75	15	15	45	2x M8
19719	40	100	15	25	50	2x M8
19720	40	125	15	25	75	2x M8
19721	40	150	15	25	100	2x M8
19722	60	75	15	15	45	2x M8
19723	60	100	15	25	50	2x M8
19724	60	125	15	25	75	2x M8
19725	60	150	15	25	100	2x M8

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

7.25 Gleitplatten
7.25 Wear plates





Ident-No. St 1	b	L	s ±0,025	L1	L2	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19760	40	80	15,1	25	30	2x M8
19761	40	100	15,1	25	50	2x M8
19762	40	125	15,1	25	75	2x M8
19763	40	160	15,1	25	110	2x M8
19764	60	80	15,1	25	30	2x M8
19765	60	100	15,1	25	50	2x M8
19766	60	125	15,1	25	75	2x M8
19767	60	160	15,1	25	110	2x M8

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

8. Deckplatten
8. Cover plates

8.1

Deckplatten
Cover plates

8.2

Deckplatten mit/ohne Befestigungsbohrungen
Cover plates with/without mounting holes

8.3

Deckplatten
Cover plates

8.4

Deckplatten nach VDI 3357
Cover plates acc. VDI 3357

8.5

Deckplatten
Cover plates

8.7

Deckplatten
Cover plates
Dicke / thickness = 10 mm

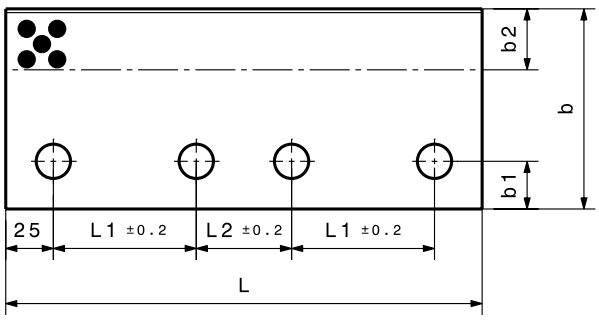
8.8

Deckplatten
Cover plates

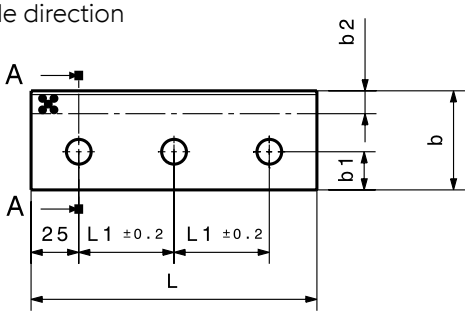
8.9

Deckleisten mit aufgeschraubten Gleitplatten
Cover strips with screwed wear plates
WF750, Sinter / WF750, sinter

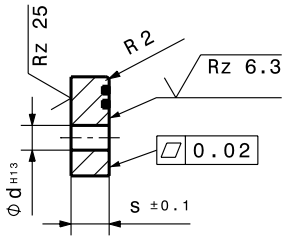
8.1 Deckplatten
8.1 Cover plates



Gleitrichtung
Slide direction



Schnitt A-A
View A-A

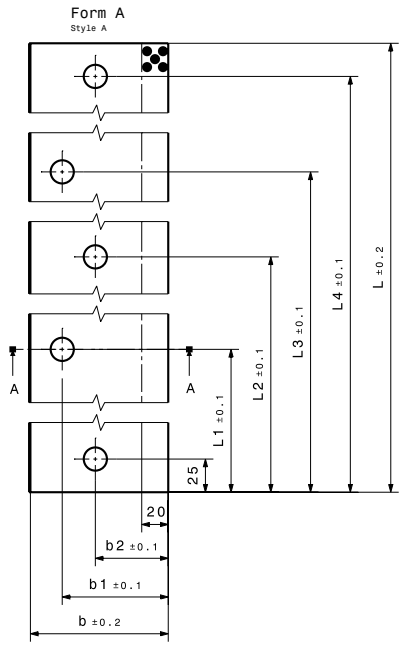


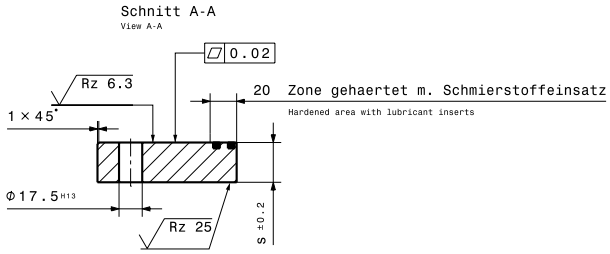
Ident-No. WF750/1A	b	L	s ±0,1	b1	b2	L1 ±0,2	L2 ±0,2	Ød H13	Schrauben Screws
17138	52	150	20	20	12	50	-	13,5	3x M12
17139	52	200	20	20	12	75	-	13,5	3x M12
17140	52	250	20	20	12	75	50	13,5	4x M12
17141	72	150	30	25	22	50	-	17,5	3x M16
17142	72	200	30	25	22	75	-	17,5	3x M16
17143	72	250	30	25	22	75	50	17,5	4x M16
17144	77	150	35	25	27	50	-	17,5	3x M16
17145	77	200	35	25	27	75	-	17,5	3x M16
17146	77	250	35	25	27	75	50	17,5	4x M16
17147	82	150	40	25	32	50	-	17,5	3x M16
17148	82	200	40	25	32	75	-	17,5	3x M16
17149	82	250	40	25	32	75	50	17,5	4x M16
17186	105	150	40	25	32	50	-	17,5	3x M16
17187	105	200	40	25	32	50	50	17,5	4x M16
17188	105	250	40	25	32	75	50	17,5	4x M16

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

8.2 Deckplatten mit/ohne Befestigungsbohrungen
8.2 Cover plates with/without mounting holes

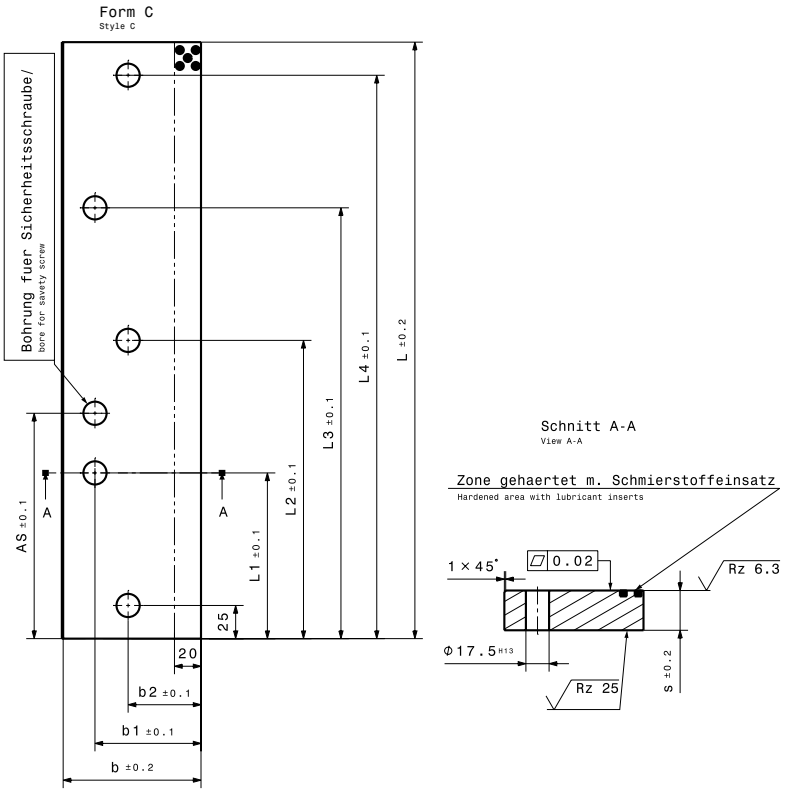
Gleitrichtung
Slide direction





Ident-No. WF St 1	b ±0,2	L ±0,2	s ±0,2	b1 ±0,1	b2 ±0,1	L1 ±0,1	L2 ±0,1	L3 ±0,1	L4 ±0,1	Zylinderschraube Cylinder head screw	Form Style
16540	75	200	30	55	40	100	-	-	175	3x M16	A
62927	75	250	30	55	40	125	-	-	225	3x M16	A
16541	75	250	30	55	40	90	-	160	225	4x M16	A
16542	75	315	30	55	40	90	158	225	290	5x M16	A
16543	75	350	30	55	40	100	175	250	325	5x M16	A
16544	75	400	30	55	40	115	200	285	375	5x M16	A
16545	75	450	30	55	40	125	225	325	425	5x M16	A
16150	100	200	30	80	55	100	-	-	175	3x M16	A
62932	100	250	30	80	55	125	-	-	225	3x M16	A
16151	100	250	30	80	55	90	-	160	225	4x M16	A
16152	100	315	30	80	55	90	158	225	290	5x M16	A
16153	100	350	30	80	55	100	175	250	325	5x M16	A
16154	100	400	30	80	55	115	200	285	375	5x M16	A

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



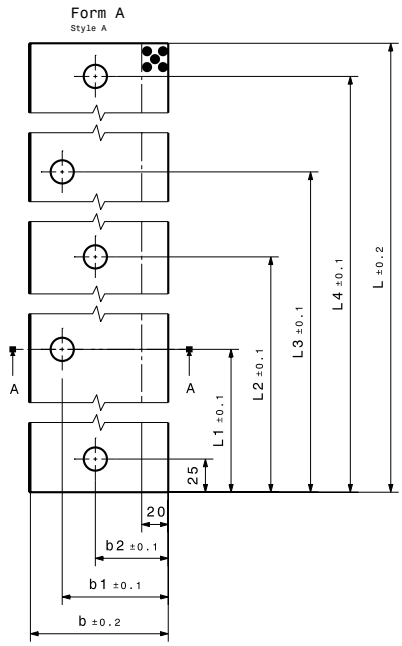
Form A / Style A: mit Befestigungsbohrungen / with mounting holes
Form B / Style B: ohne Befestigungsbohrungen / without mounting holes
Form C / Style C: mit Befestigungsbohrungen und Bohrung fuer Sicherheitsschraube / with mounting holes and bores for savety screw

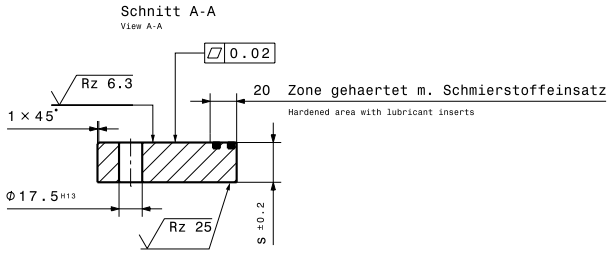
Ident-No. WF St 1	b ±0,2	L ±0,2	s ±0,2	b1 ±0,1	b2 ±0,1	L1 ±0,1	L2 ±0,1	L3 ±0,1	L4 ±0,1	Zylinderschraube Cylinder head screw	Form Style
16155	100	450	30	80	55	125	225	325	425	5x M16	A
16156	125	200	30	105	65	100	-	-	175	3x M16	A
62933	125	250	30	105	65	125	-	-	225	3x M16	A
16157	125	250	30	105	65	90	-	160	225	4x M16	A
16158	125	315	30	105	65	90	158	225	290	5x M16	A
16159	125	350	30	105	65	100	175	250	325	5x M16	A
16160	125	400	30	105	65	115	200	285	375	5x M16	A
16161	125	450	30	105	65	125	225	325	425	5x M16	A
16162	150	200	30	130	65	100	-	-	175	3x M16	A
62934	150	250	30	130	65	-	-	-	225	3x M16	A
16163	150	250	30	130	65	90	-	160	225	4x M16	A
16164	150	315	30	130	65	90	158	225	290	5x M16	A
16165	150	350	30	130	65	100	175	250	325	5x M16	A

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

8.2 Deckplatten mit/ohne Befestigungsbohrungen
8.2 Cover plates with/without mounting holes

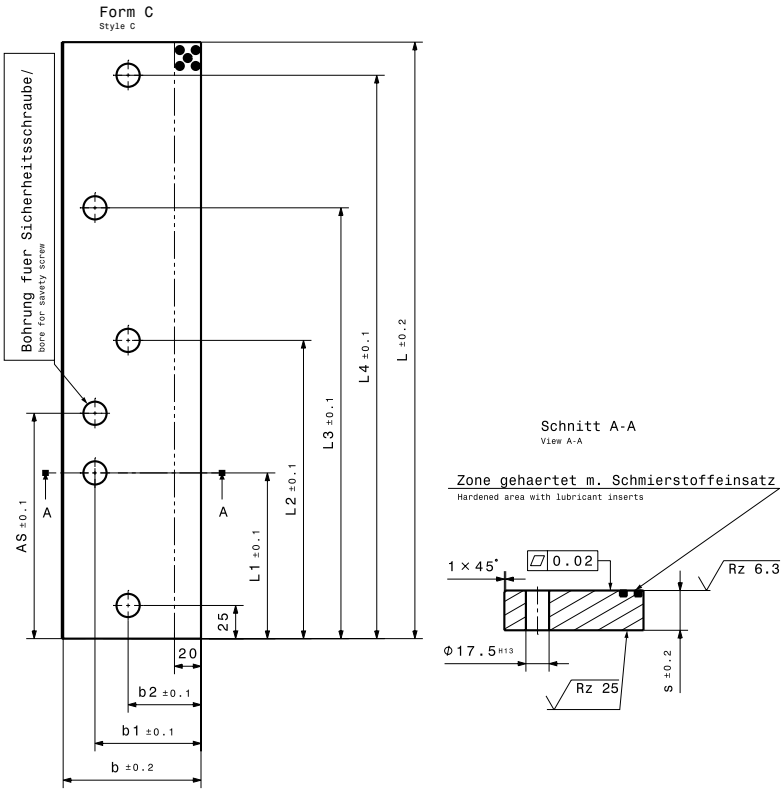
Gleitrichtung
Slide direction





Ident-No. WF St 1	b ±0,2	L ±0,2	s ±0,2	b1 ±0,1	b2 ±0,1	L1 ±0,1	L2 ±0,1	L3 ±0,1	L4 ±0,1	Zylinderschraube Cylinder head screw	Form Style
16166	150	400	30	130	65	115	200	285	375	5x M16	A
16167	150	450	30	130	65	125	225	325	425	5x M16	A
15142	75	200	30	-	-	-	-	-	-	-	B
15129	75	250	30	-	-	-	-	-	-	-	B
15140	75	315	30	-	-	-	-	-	-	-	B
15373	75	350	30	-	-	-	-	-	-	-	B
15141	75	400	30	-	-	-	-	-	-	-	B
15354	75	450	30	-	-	-	-	-	-	-	B
16131	100	200	30	-	-	-	-	-	-	-	B
16132	100	250	30	-	-	-	-	-	-	-	B
16133	100	315	30	-	-	-	-	-	-	-	B
16134	100	350	30	-	-	-	-	-	-	-	B
16135	100	400	30	-	-	-	-	-	-	-	B

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



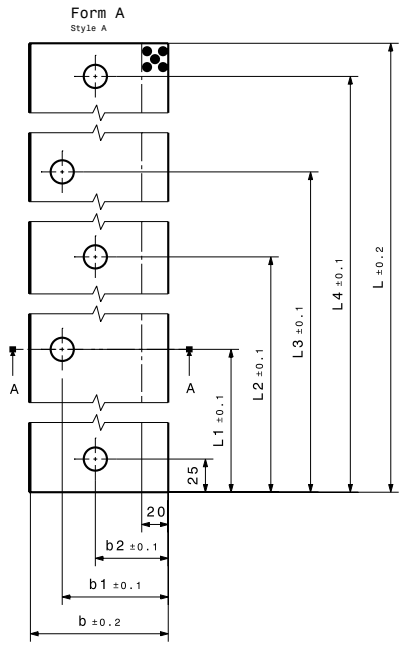
Form A / Style A: mit Befestigungsbohrungen / with mounting holes
Form B / Style B: ohne Befestigungsbohrungen / without mounting holes
Form C / Style C: mit Befestigungsbohrungen und Bohrung fuer Sicherheitsschraube / with mounting holes and bores for savety screw

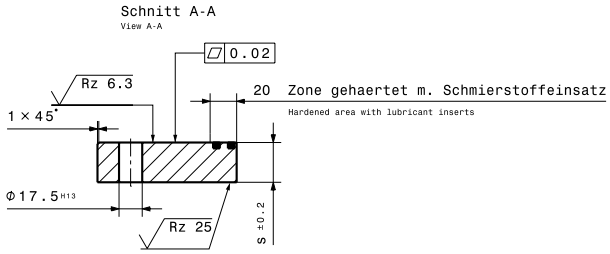
Ident-No. WF St 1	b ±0,2	L ±0,2	s ±0,2	b1 ±0,1	b2 ±0,1	L1 ±0,1	L2 ±0,1	L3 ±0,1	L4 ±0,1	Zylinderschraube Cylinder head screw	Form Style
16136	100	450	30	-	-	-	-	-	-	-	B
16137	125	200	30	-	-	-	-	-	-	-	B
16138	125	250	30	-	-	-	-	-	-	-	B
16139	125	315	30	-	-	-	-	-	-	-	B
16140	125	350	30	-	-	-	-	-	-	-	B
16141	125	400	30	-	-	-	-	-	-	-	B
16142	125	450	30	-	-	-	-	-	-	-	B
16143	150	200	30	-	-	-	-	-	-	-	B
16144	150	250	30	-	-	-	-	-	-	-	B
16145	150	315	30	-	-	-	-	-	-	-	B
16146	150	350	30	-	-	-	-	-	-	-	B
16147	150	400	30	-	-	-	-	-	-	-	B
16148	150	450	30	-	-	-	-	-	-	-	B

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

8.2 Deckplatten mit/ohne Befestigungsbohrungen
8.2 Cover plates with/without mounting holes

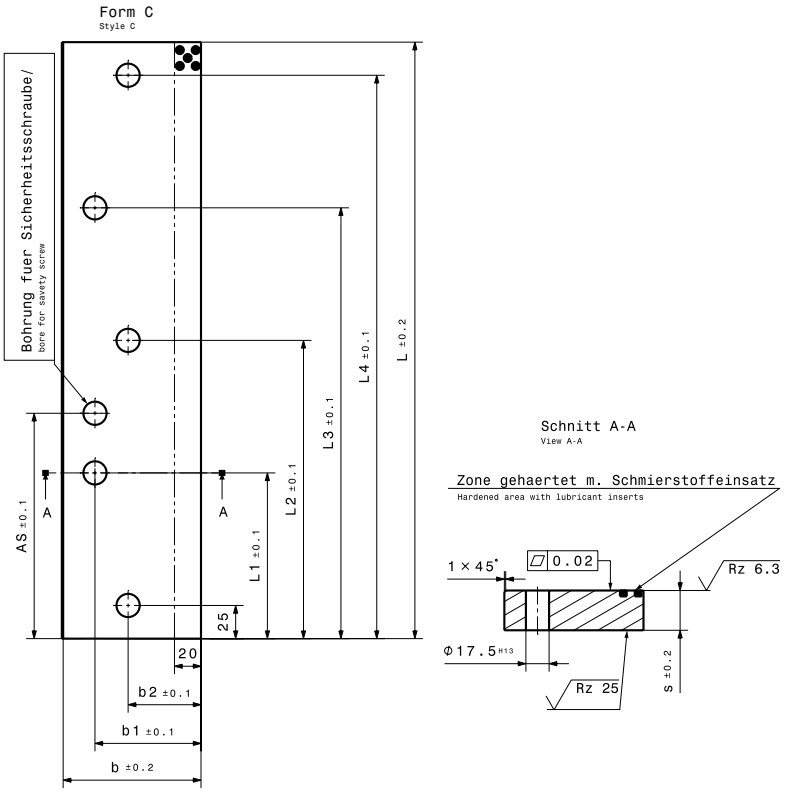
Gleitrichtung
Slide direction





Ident-No. WF St 1	b ±0,2	L ±0,2	s ±0,2	b1 ±0,1	b2 ±0,1	AS ±0,1	L1 ±0,1	L2 ±0,1	L3 ±0,1	L4 ±0,1	Zylinderschraube Cylinder head screw	Form Style
63843	75	200	30	55	40	125	100	-	-	175	3x M16	C
63844	75	250	30	55	40	135	125	-	-	225	3x M16	C
63845	75	315	30	55	40	150	90	158	225	290	5x M16	C
63846	75	350	30	55	40	160	100	175	250	325	5x M16	C
63847	75	400	30	55	40	135	115	200	285	375	5x M16	C
63848	75	450	30	55	40	160	125	225	325	425	5x M16	C
63840	100	200	30	80	55	135	100	-	-	175	3x M16	C
63841	100	315	30	80	55	160	90	158	225	290	5x M16	C
63849	100	250	30	80	55	125	125	-	-	225	3x M16	C
63850	100	350	30	80	55	135	100	175	250	325	5x M16	C
63851	100	400	30	80	55	150	115	200	285	375	5x M16	C
63852	100	450	30	80	55	160	125	225	325	425	5x M16	C

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

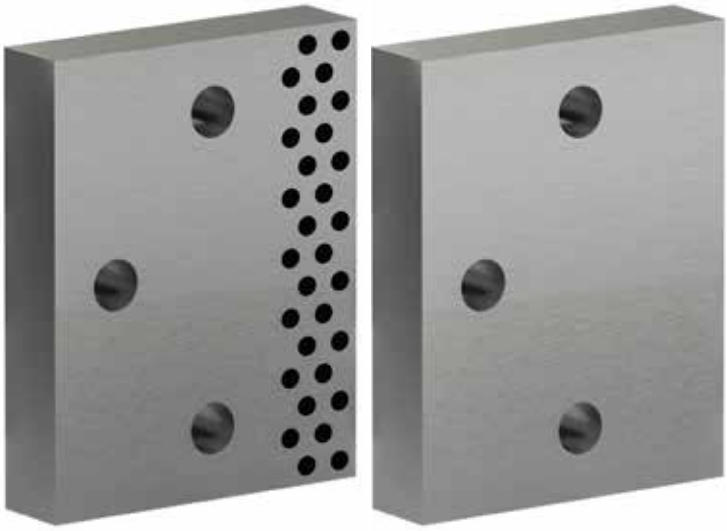


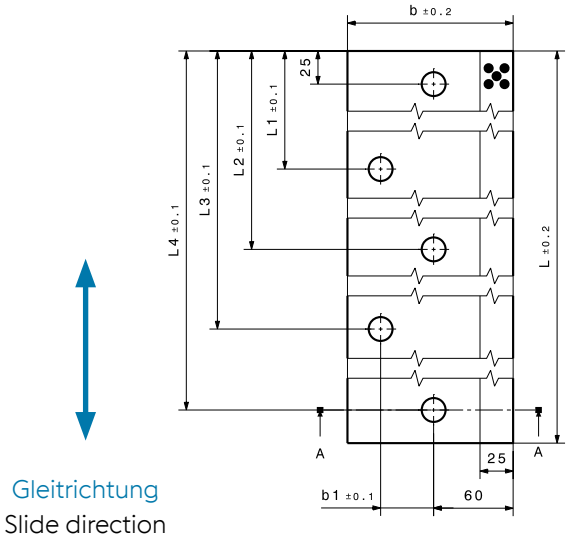
Form A / Style A: mit Befestigungsbohrungen / with mounting holes
Form B / Style B: ohne Befestigungsbohrungen / without mounting holes
Form C / Style C: mit Befestigungsbohrungen und Bohrung fuer Sicherheitsschraube / with mounting holes and bores for savety screw

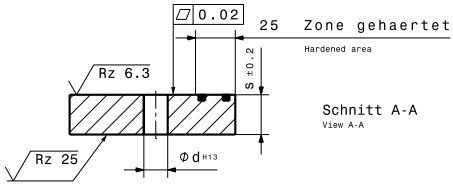
Ident-No. WF St 1	b ±0,2	L ±0,2	s ±0,2	b1 ±0,1	b2 ±0,1	AS ±0,1	L1 ±0,1	L2 ±0,1	L3 ±0,1	L4 ±0,1	Zylinderschraube Cylinder head screw	Form Style
63853	125	200	30	105	65	135	100	-	-	175	3x M16	C
63855	125	250	30	105	65	160	125	-	-	225	3x M16	C
63856	125	315	30	105	65	125	90	158	225	290	5x M16	C
63857	125	350	30	105	65	135	100	175	250	325	5x M16	C
63858	125	400	30	105	65	150	115	200	285	375	5x M16	C
63859	125	450	30	105	65	160	125	225	325	425	5x M16	C
63860	150	200	30	130	65	135	100	-	-	175	3x M16	C
63861	150	250	30	130	65	160	125	-	-	225	3x M16	C
63862	150	315	30	130	65	125	90	158	225	290	5x M16	C
63863	150	350	30	130	65	135	100	175	250	325	5x M16	C
63864	150	400	30	130	65	150	115	200	285	375	5x M16	C
63865	150	450	30	130	65	160	125	225	325	425	5x M16	C

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

8.3 Deckplatten
8.3 Cover plates





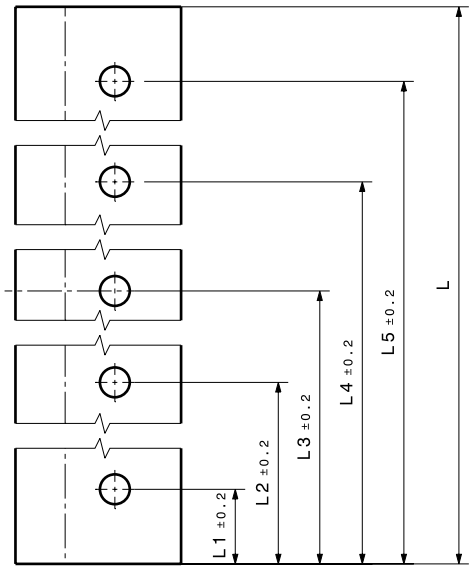


Ident-No. WF St 1	Ident-No. St 1	b ±0,2	L ±0,2	s ±0,2	b1 ±0,1	L1 ±0,1	L2 ±0,1	L3 ±0,1	L4 ±0,1	Ød H13	Zylinderschraube Cylinder head screw
18452	**18456**	100	160	20	20	80	135	-	-	13,5	3x M12
18453	**18457**	100	200	20	20	100	175	-	-	13,5	3x M12
18454	**18458**	100	250	20	20	125	225	-	-	13,5	3x M12
18455	**18459**	100	300	20	20	87,5	150	212,5	275	13,5	5x M12
18384	**18394**	125	160	30	40	80	135	-	-	17,5	3x M16
18385	**18395**	125	250	30	40	125	225	-	-	17,5	3x M16
18386	**18396**	125	300	30	40	87,5	150	212,5	275	17,5	5x M16
18387	**18397**	125	350	30	40	100	175	250	325	17,5	5x M16
18388	**18398**	125	400	30	40	112,5	200	287,5	375	17,5	5x M16

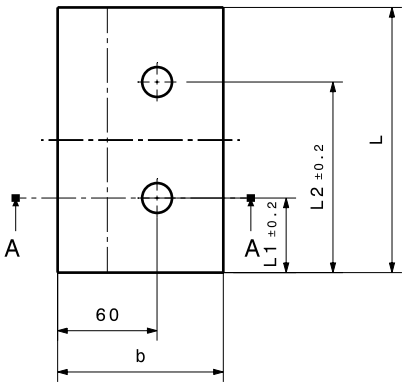
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

8.4 Deckplatten nach VDI 3357
8.4 Cover plates acc. VDI 3357

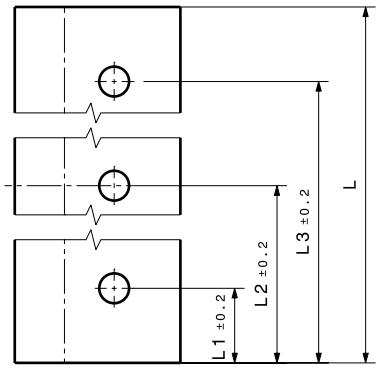
Gleitrichtung
Slide direction



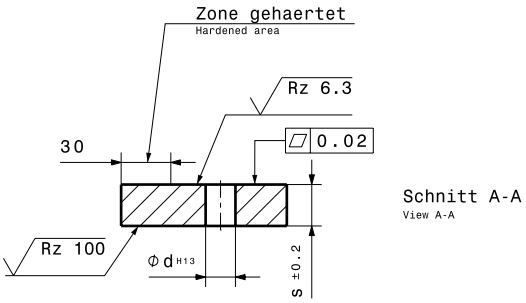
Form A



Form B



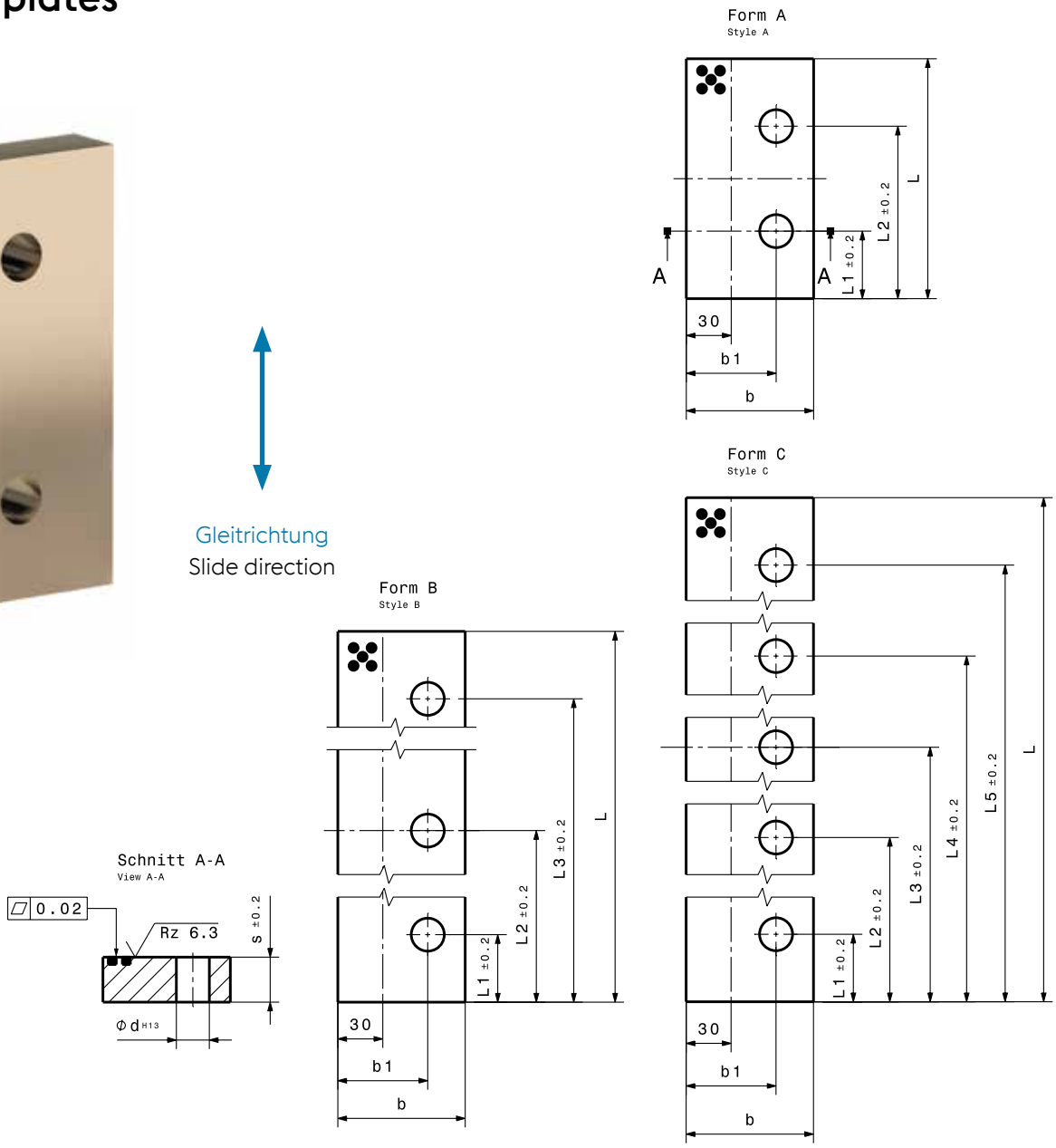
Form C



Ident-No. St 1	b	L	s ±0,2	L1 ±0,2	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	Ød H13	Zylinderschraube Cylinder head screw	Form Style
19292	100	160	25	45	115	-	-	-	17,5	2x M16	B
19293	100	200	25	45	155	-	-	-	17,5	2x M16	B
19294	100	250	25	45	125	205	-	-	17,5	3x M16	C
19295	100	400	25	45	125	200	275	355	17,5	5x M16	A
19296	100	160	30	45	115	-	-	-	22	2x M20	B
19297	100	200	30	45	155	-	-	-	22	2x M20	B
19298	100	250	30	45	125	205	-	-	22	3x M20	C
19299	100	400	30	45	125	200	275	355	22	5x M20	A

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

8.5 Deckplatten
8.5 Cover plates



Ident-No. WF750/1A	b	L	s ±0,2	b1	L1 ±0,2	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	Ød H13	Form Style	Zylinderschraube Cylinder head screw
19122	85	160	30	60	45	115	-	-	-	22	A	2x M20
19123	85	200	30	60	45	155	-	-	-	22	A	2x M20
19124	85	250	30	60	45	125	205	-	-	22	B	3x M20
19125	85	300	30	60	45	150	255	-	-	22	B	3x M20
19135	85	350	30	60	45	175	305	-	-	22	B	3x M20
19136	85	400	30	60	45	125	200	275	355	22	C	5x M20
19356	85	1005	30	-	-	-	-	-	-	-	-	ungebohrt/without holes
19083	125	160	25	75	45	115	-	-	-	17,5	A	2x M16

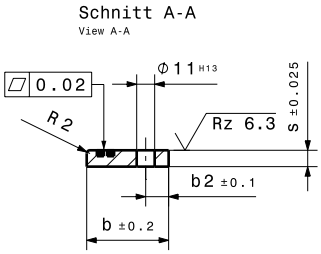
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

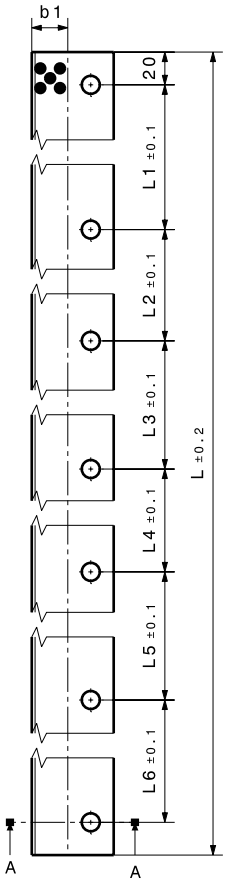
Ident-No. WF750/1A	b	L	s ±0,2	b1	L1 ±0,2	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	Ød H13	Form Style	Zylinderschraube Cylinder head screw
19084	125	200	25	75	45	155	-	-	-	17,5	A	2x M16
19085	125	250	25	75	45	125	205	-	-	17,5	B	3x M16
19086	125	400	25	75	45	125	200	275	355	17,5	C	5x M16
19359	125	1005	25	-	-	-	-	-	-	-	-	ungebohrt/without holes
14021	125	160	30	75	45	115	-	-	-	22	A	2x M20
14020	125	200	30	75	45	155	-	-	-	22	A	2x M20
19087	125	250	30	75	45	125	205	-	-	22	B	3x M20
19082	125	300	30	75	45	150	255	-	-	22	B	3x M20
19088	125	350	30	75	45	175	305	-	-	22	B	3x M20
14019	125	400	30	75	45	125	200	275	355	22	C	5x M20
19089	125	450	30	75	50	130	225	320	400	22	C	5x M20
19094	125	500	30	75	50	130	250	370	450	22	C	5x M20
19357	125	1005	30	-	-	-	-	-	-	-	-	ungebohrt/without holes

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

8.7 Deckplatten
8.7 Cover plates

Gleitrichtung
Slide direction

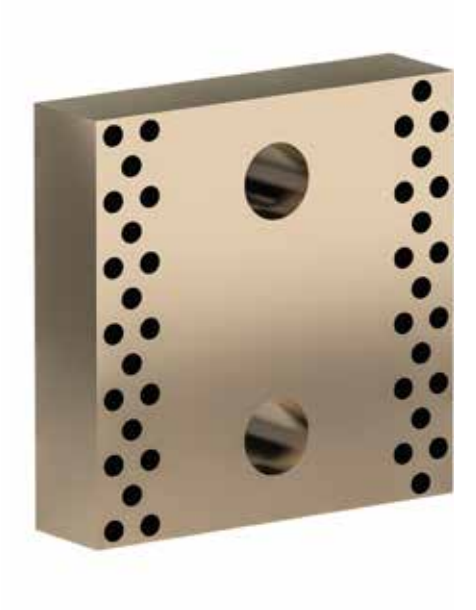




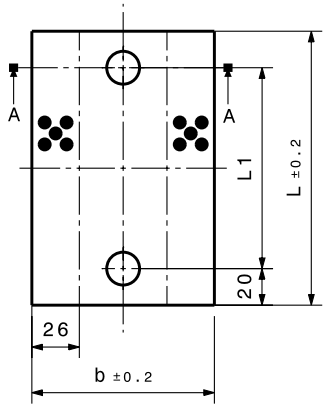
Ident-No. WF750/1A	b ±0,2	L ±0,2	s ±0,025	L1 ±0,1	L2 ±0,1	L3 ±0,1	L4 ±0,1	L5 ±0,1	L6 ±0,1	b1	b2 ±0,1	Schrauben Screws
18970	32	100	10	60	-	-	-	-	-	10	11	2x M10
18971	32	150	10	55	55	-	-	-	-	10	11	3x M10
18969	32	160	10	60	60	-	-	-	-	10	11	3x M10
18972	50	200	10	55	50	55	-	-	-	30	14	4x M10
18973	50	250	10	70	70	70	-	-	-	30	14	4x M10
18974	50	300	10	65	65	65	65	-	-	30	14	5x M10
14084	50	350	10	80	75	75	80	-	-	30	14	5x M10
14908	50	400	10	90	90	90	90	-	-	30	14	5x M10
15326	50	500	10	95	90	90	90	95	-	30	14	6x M10
14086	50	600	10	115	110	110	115	115	-	30	14	6x M10
15719	50	800	10	130	125	125	125	125	130	30	14	7x M10
17179	50	605	10	Dickentoleranz ±0,1 / Thickness tolerance ±0,1						30	-	ungebohrt/without holes
17809	50	1005	10							30	-	ungebohrt/without holes

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

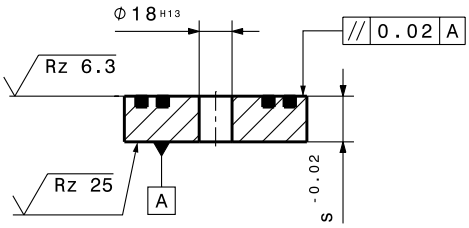
8.8 Deckplatten
8.8 Cover plates



Gleitrichtung
Slide direction



Schnitt A-A
View A-A

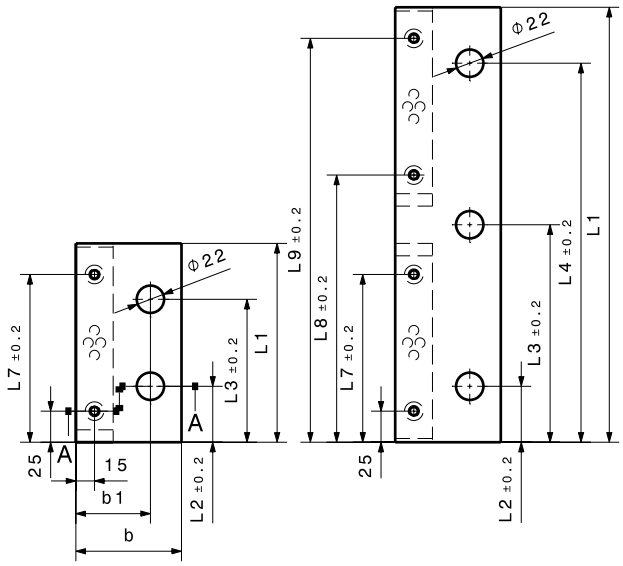


Ident-No. WF750/1A	b ±0,2	L ±0,2	s -0,02	L1
18380	100	100	25	60
18381	100	150	25	110
61500	120	150	25	110

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

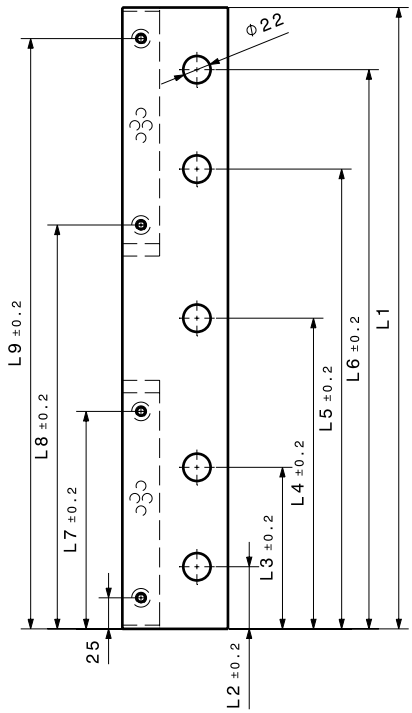
8.9 Deckleisten mit aufgeschraubten WF750/1A Gleitplatten
8.9 Cover strips with screwed WF750/1A wear plates

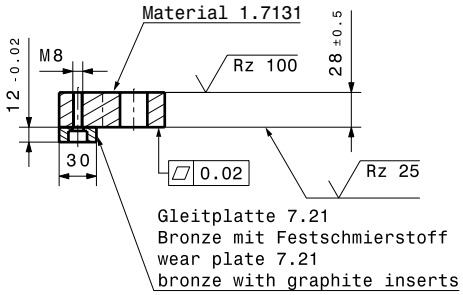
Gleitrichtung
Slide direction



Ident-No. Baugruppe Assembly	L1	b	b1	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	L6 ±0,2	L7 ±0,2
62470	160	85	60	45	115	-	-	-	135
62476	200	85	60	45	155	-	-	-	175
62478	250	85	60	45	125	205	-	-	100
62480	300	85	60	45	150	255	-	-	75
62482	350	85	60	45	175	305	-	-	135
62472	400	85	60	45	125	200	275	355	175
62553	450	85	60	50	130	225	320	400	175
62554	500	85	60	50	130	250	370	450	175
62552	160	125	75	45	115	-	-	-	135
62477	200	125	75	45	155	-	-	-	175
62479	250	125	75	45	125	205	-	-	100
62481	300	125	75	45	150	255	-	-	75
62471	350	125	75	45	175	305	-	-	135
62473	400	125	75	45	125	200	275	355	175
62474	450	125	75	50	130	225	320	400	175
62475	500	125	75	50	130	250	370	450	175

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



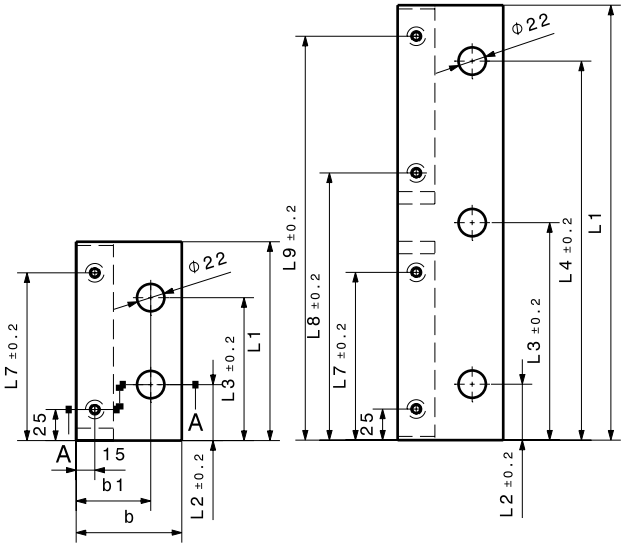


L8 ±0,2	L9 ±0,2	Zylinderschraube Cylinder head screw DIN EN ISO 4762	Ident-No. Leiste 1.7131 / Bar 1.7131	Ident-No. Gleitplatte / Wearplate WF750 Chapter 7.21	
-	-	2x M20x60	**62500**	**18213**	**-**
-	-	2x M20x60	**62506**	**18214**	**-**
150	225	3x M20x60	**62508**	**18212**	**18212**
125	275	3x M20x60	**62510**	**18211**	**18214**
215	325	3x M20x60	**62512**	**18213**	**18213**
225	375	5x M20x60	**62502**	**18214**	**18214**
275	425	5x M20x60	**62550**	**18214**	**18214**
325	475	5x M20x60	**62551**	**18214**	**18214**
-	-	2x M20x60	**62549**	**18213**	**-**
-	-	2x M20x60	**62507**	**18214**	**-**
150	225	3x M20x60	**62509**	**18212**	**18212**
125	275	3x M20x60	**62511**	**18211**	**18214**
215	325	3x M20x60	**62501**	**18213**	**18213**
225	375	5x M20x60	**62503**	**18214**	**18214**
275	425	5x M20x60	**62504**	**18214**	**18214**
325	475	5x M20x60	**62505**	**18214**	**18214**

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

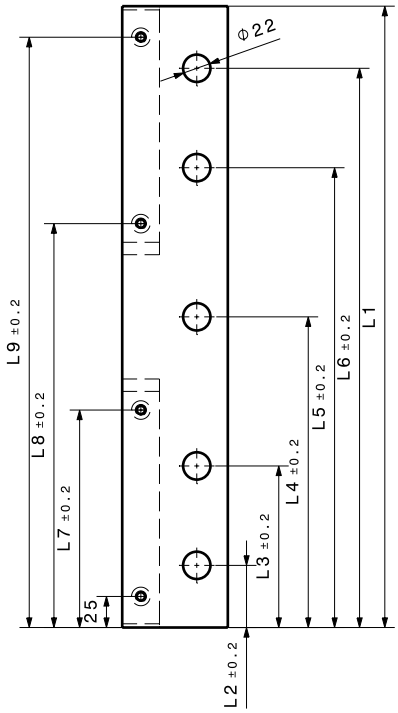
8.9 Deckleisten mit aufgeschraubten Sinter Gleitplatten
8.9 Cover strips with screwed sinter wear plates

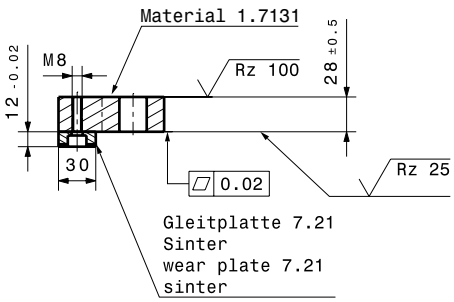
Gleitrichtung
Slide direction



Ident-No. Baugruppe Assembly	L1	b	b1	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	L6 ±0,2	L7 ±0,2
63920	160	85	60	45	115	-	-	-	135
63921	200	85	60	45	155	-	-	-	175
63922	250	85	60	45	125	205	-	-	100
63923	300	85	60	45	150	255	-	-	75
63924	350	85	60	45	175	305	-	-	135
63925	400	85	60	45	125	200	275	355	175
63926	450	85	60	50	130	225	320	400	175
63927	500	85	60	50	130	250	370	450	175
63928	160	125	75	45	115	-	-	-	135
63929	200	125	75	45	155	-	-	-	175
63930	250	125	75	45	125	205	-	-	100
63931	300	125	75	45	150	255	-	-	75
63932	350	125	75	45	175	305	-	-	135
63933	400	125	75	45	125	200	275	355	175
63934	450	125	75	50	130	225	320	400	175
63935	500	125	75	50	130	250	370	450	175

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium





	L8 ±0,2	L9 ±0,2	Zylinderschraube Cylinder head screw DIN EN ISO 4762	Ident-No. Leiste 1.7131 / Bar 1.7131	Ident-No. Gleitplatte / Wearplate Sinter Chapter 7.21	
	-	-	2x M20x60	**62500**	**63781**	**-**
	-	-	2x M20x60	**62506**	**63782**	**-**
	150	225	3x M20x60	**62508**	**63780**	**63780**
	125	275	3x M20x60	**62510**	**63779**	**63782**
	215	325	3x M20x60	**62512**	**63781**	**63781**
	225	375	5x M20x60	**62502**	**63782**	**63782**
	275	425	5x M20x60	**62550**	**63782**	**63782**
	325	475	5x M20x60	**62551**	**63782**	**63782**
	-	-	2x M20x60	**62549**	**63781**	**-**
	-	-	2x M20x60	**62507**	**63782**	**-**
	150	225	3x M20x60	**62509**	**63780**	**63780**
	125	275	3x M20x60	**62511**	**63779**	**63782**
	215	325	3x M20x60	**62501**	**63781**	**63781**
	225	375	5x M20x60	**62503**	**63782**	**63782**
	275	425	5x M20x60	**62504**	**63782**	**63782**
	325	475	5x M20x60	**62505**	**63782**	**63782**

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

9. Flachleisten
9. Plain wearstripes

9.1

Flachleisten
Plain wearstripes
Dicke / thickness = 4 mm, 5 mm, 6 mm, 8 mm, 10 mm, 12 mm, 16 mm, 20 mm

9.2

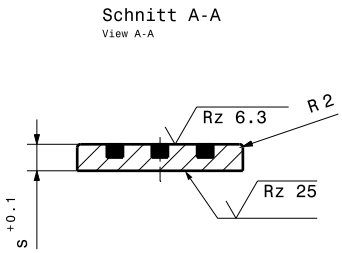
Flachleisten
Plain wearstripes
Dicke / thickness = 5 mm, 6 mm

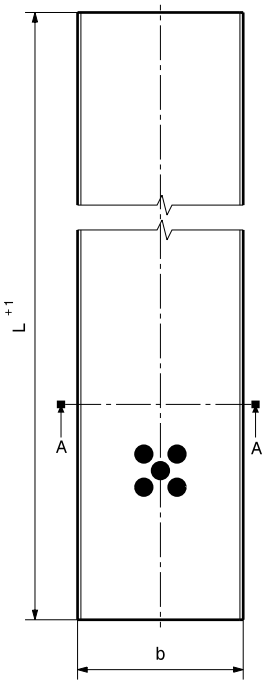
9.3

Flachleisten
Plain wearstripes
Dicke / thickness = 8 mm, 10 mm, 12 mm

9.1 Flachleisten
9.1 Plain wearstripes

Gleitrichtung
Slide direction





Es ist jeder Zuschnitt bis 1.005 mm Länge lieferbar.
Any length up to 1,005 mm is available.

Ident-No. WF750/1A	b	s +0,1	L +1
19700	20	4	305
17634	20	10	605
17636	20	10	1005
17635	20	12	1005
19701	25	5	305
17266	25	5	500
17620	25	5	605
17814	25	5	1005
17267	30	6	500
17621	30	6	605
17810	30	6	1005
17600	30	8	500
17622	30	8	605
17811	30	8	1005
17637	30	10	1005
17613	30	12	605
17604	35	10	500
17623	35	10	605

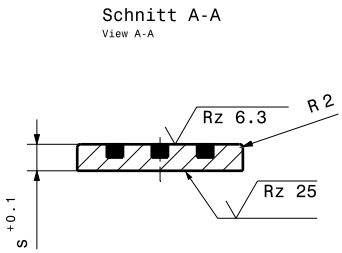
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

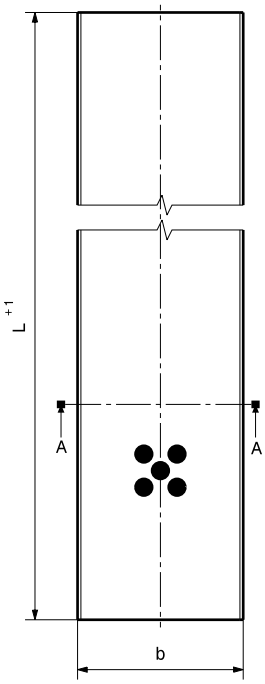
Ident-No. WF750/1A	b	s +0,1	L +1
15379	35	10	1005
17268	40	8	500
17624	40	8	605
17800	40	8	1005
17601	40	10	500
17625	40	10	605
17801	40	10	1005
17269	40	12	500
17626	40	12	605
17802	40	12	1005
17270	40	16	500
17813	40	16	605
17610	40	16	1005
17612	50	8	1005
17602	50	10	500
17627	50	10	605
17803	50	10	1005
17603	50	12	500
17628	50	12	605
17804	50	12	1005
17815	50	20	605
17823	50	20	1005
13226	60	8	605
17608	60	8	1005
15839	60	10	605
17822	60	10	1005
17629	60	12	605
17805	60	12	1005
17605	60	16	500
17630	60	16	605
17806	60	16	1005
17633	60	20	500
17812	60	20	1005
13232	75	12	605
13238	75	12	1005
13977	80	12	500
14678	80	12	605
17820	80	12	1005
17606	80	16	500
17631	80	16	605

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

9.1 Flachleisten
9.1 Plain wearstripes

Gleitrichtung
Slide direction



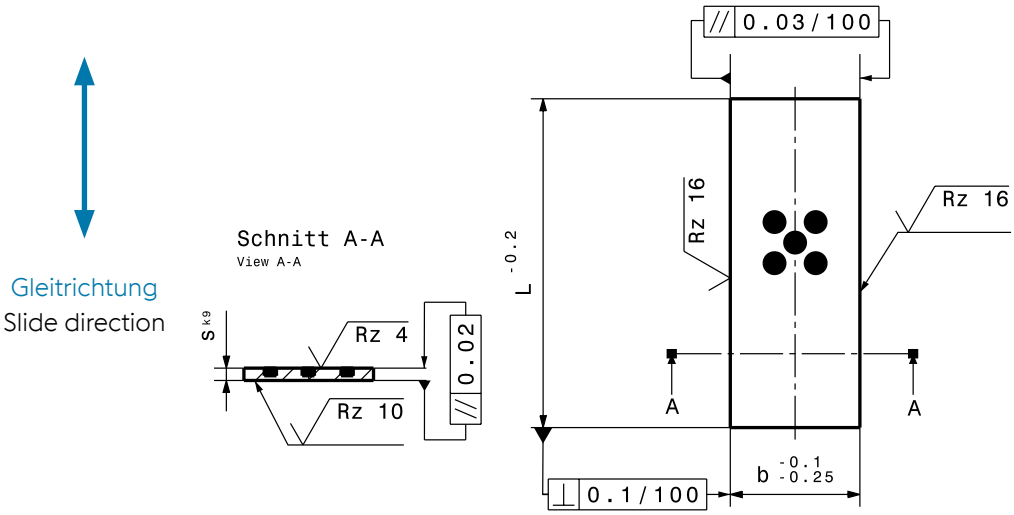


Es ist jeder Zuschnitt bis 1.005 mm Länge lieferbar.
Any length up to 1,005 mm is available.

Ident-No. WF750/1A	b	s +0,1	L +1
17807	80	16	1005
17607	80	20	500
17632	80	20	605
17808	80	20	1005
14197	100	10	500
17611	100	10	1005
17609	100	12	1005
17816	100	16	605
14737	100	20	500
17821	100	20	1005
17817	125	20	605
17824	125	20	1005
17825	160	20	1005

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

9.2 Flachleisten
9.2 Plain wearstripes

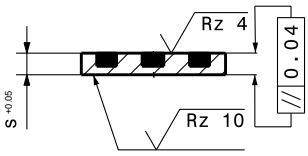


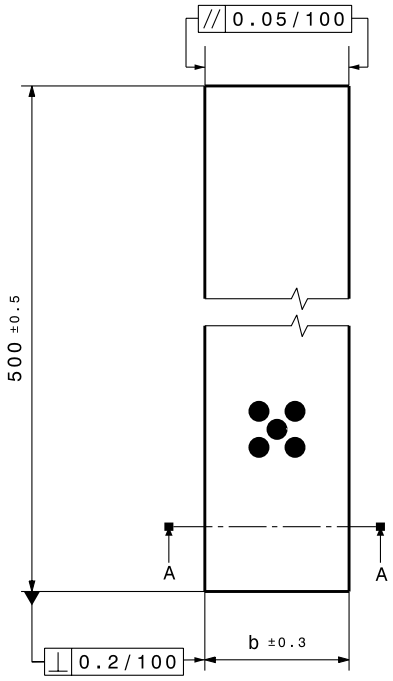
Ident-No. WF750/1A	b -0,1 -0,25	s k9	L -0,2
16710	25	5	50
16711	25	5	71
16712	25	5	90
16713	40	5	50
16714	40	5	71
16715	40	5	90
16716	40	6	80
16717	40	6	100
16718	40	6	125
16719	40	6	160
16720	40	6	200
16721	63	6	80
16722	63	6	100
16723	63	6	125
16724	63	6	160

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

9.3 Flachleisten
9.3 Plain wearstripes

Gleitrichtung
Slide direction





Ident-No. WF750/1A	b ±0,3	s +0,05
16705	32	8
16706	50	10
16707	80	12

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

10. Mehrflächenführungen
10. Multiple area guiding stripes

10.1

Führungsleisten mit 1, 2 oder 3 Gleitflächen
Multiple area guiding stripes with 1, 2 or 3 sliding areas

10.2

Führungsleisten mit 2 Gleitflächen
Multiple area guiding stripes with 2 sliding areas
Dicke / thickness = 25 mm

10.5

Führungsleisten mit 4 Gleitflächen
Multiple area guiding stripes with 4 sliding areas

10.6

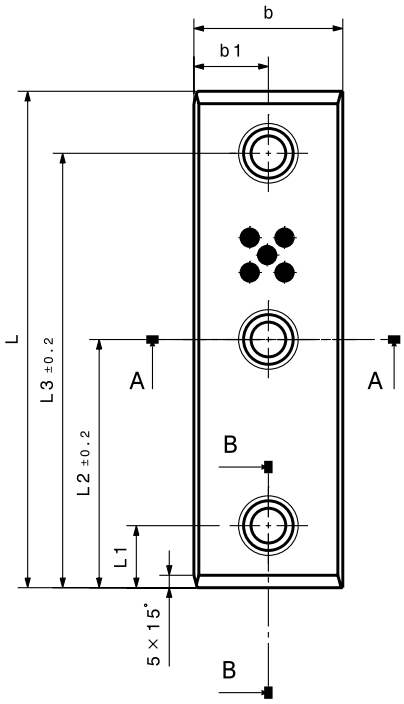
Führungsleisten mit 2 Gleitflächen
Multiple area guiding stripes with 2 sliding areas

10.8

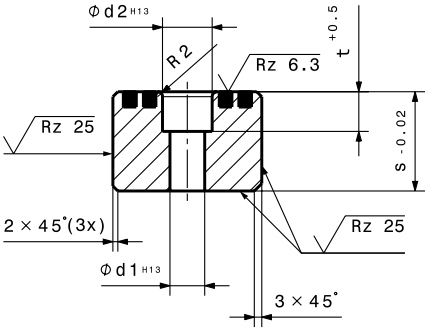
Führungsleisten mit 2 Gleitflächen
Multiple area guiding stripes with 2 sliding areas

10.1 Führungsleisten mit einer Gleitfläche
10.1 Guiding stripes with 1 sliding area

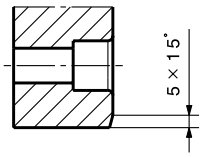
Gleitrichtung
Slide direction



Schnitt A-A
view A-A



Schnitt B-B
view B-B

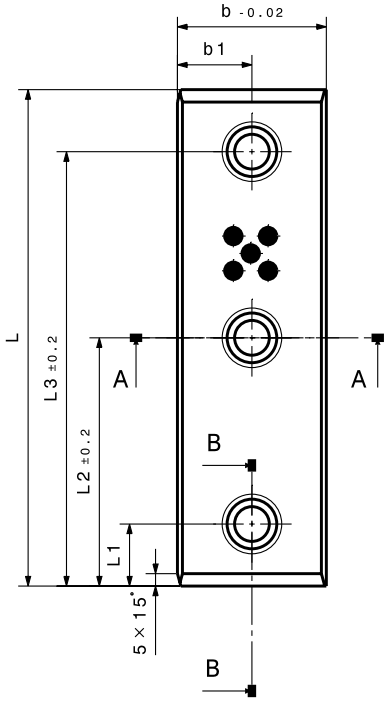


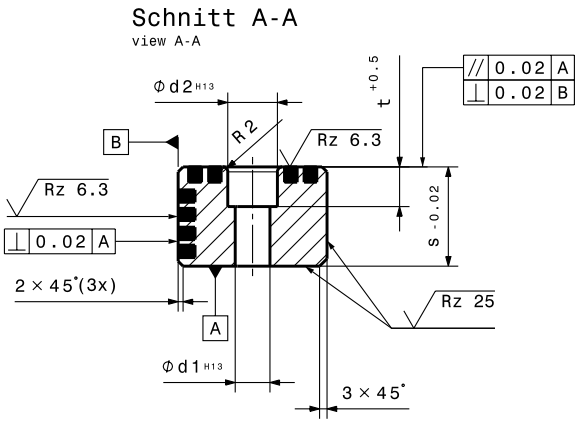
Ident-No. WF750/1A	b	L	s -0,02	L1	L2 ±0,2	L3 ±0,2	b1	d1 H13	d2 H13	t +0,5	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19702	60	125	30	25	100	-	30	13,5	20	13	2x M12x35
19703	60	160	30	25	135	-	30	13,5	20	13	2x M12x35
19704	60	200	30	25	100	175	30	13,5	20	13	3x M12x35
19707	60	125	40	25	100	-	30	13,5	20	13	2x M12x45
19708	60	160	40	25	135	-	30	13,5	20	13	2x M12x45
19709	60	200	40	25	100	175	30	13,5	20	13	3x M12x45

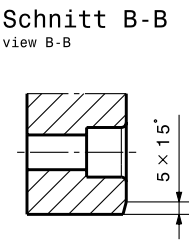
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

10.1 Führungsleisten mit 2 Gleitflächen nach VDI 3357
10.1 Multiple area guiding stripes with 2 sliding areas acc. VDI 3357

Gleitrichtung
Slide direction





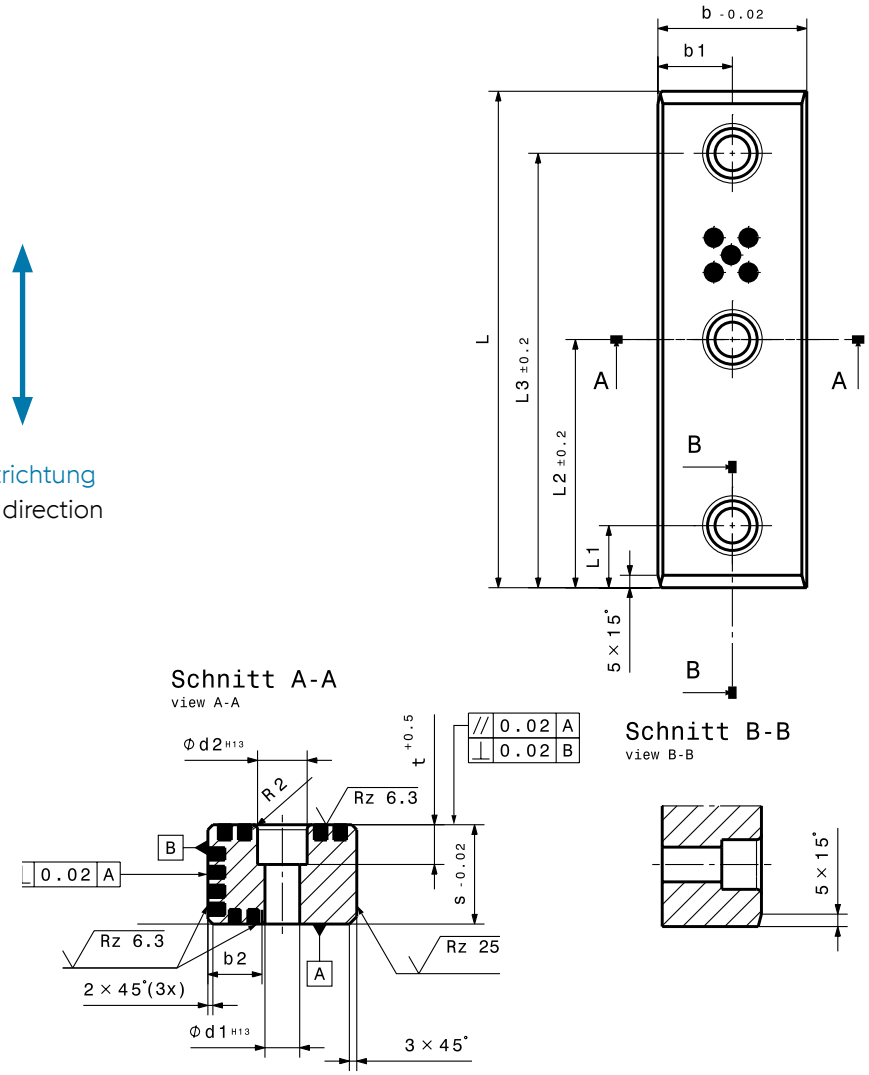


Ident-No. WF750/1A	b -0,02	L	s -0,02	L1	L2 ±0,2	L3 ±0,2	b1	d1 H13	d2 H13	t +0,5	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19658	60	125	30	25	100	-	30	13,5	20	13	2x M12x35
19659	60	150	30	25	125	-	30	13,5	20	13	2x M12x35
19713	60	160	30	25	135	-	30	13,5	20	13	2x M12x35
19660	60	200	30	25	100	175	30	13,5	20	13	3x M12x35
19661	60	125	40	25	100	-	30	13,5	20	13	2x M12x45
19662	60	150	40	25	125	-	30	13,5	20	13	2x M12x45
19714	60	160	40	25	135	-	30	13,5	20	13	2x M12x45
19663	60	200	40	25	100	175	30	13,5	20	13	3x M12x45

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

10.1 Führungsleisten mit 3 Gleitflächen
10.1 Multiple area guiding stripes with 3 sliding areas

Gleitrichtung
Slide direction

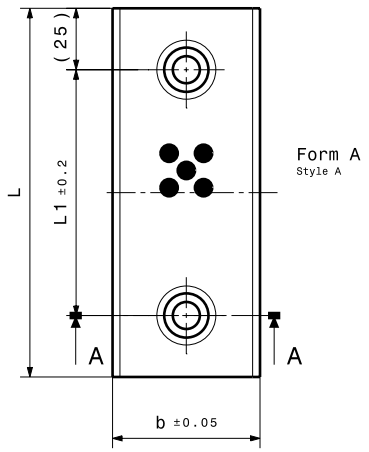


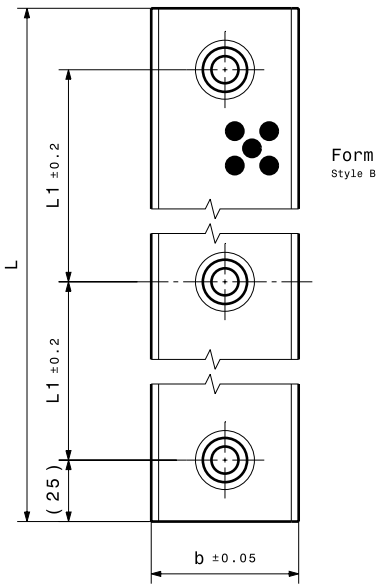
Ident-No. WF750/1A	b -0,02	L	s	L1	L2 ±0,2	L3 ±0,2	b1	b2	d1 H13	d2 H13	t +0,5	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19664	70	125	32	25	100	-	40	25	13,5	20	16	2x M12x40
19665	70	150	32	25	125	-	40	25	13,5	20	16	2x M12x40
19666	70	200	32	25	100	175	40	25	13,5	20	16	3x M12x40
19667	90	125	45	25	100	-	55	30	17,5	26	21	2x M16x50
19668	90	150	45	25	75	125	55	30	17,5	26	21	3x M16x50
19669	90	200	45	25	100	175	55	30	17,5	26	21	3x M16x50

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

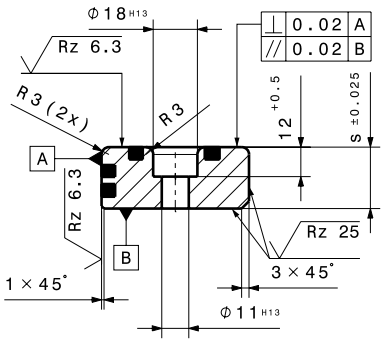
10.2 Führungsleisten mit 2 Gleitflächen
10.2 Multiple area guiding stripes with 2 sliding areas

Gleitrichtung
Slide direction





Schnitt A-A
View A-A

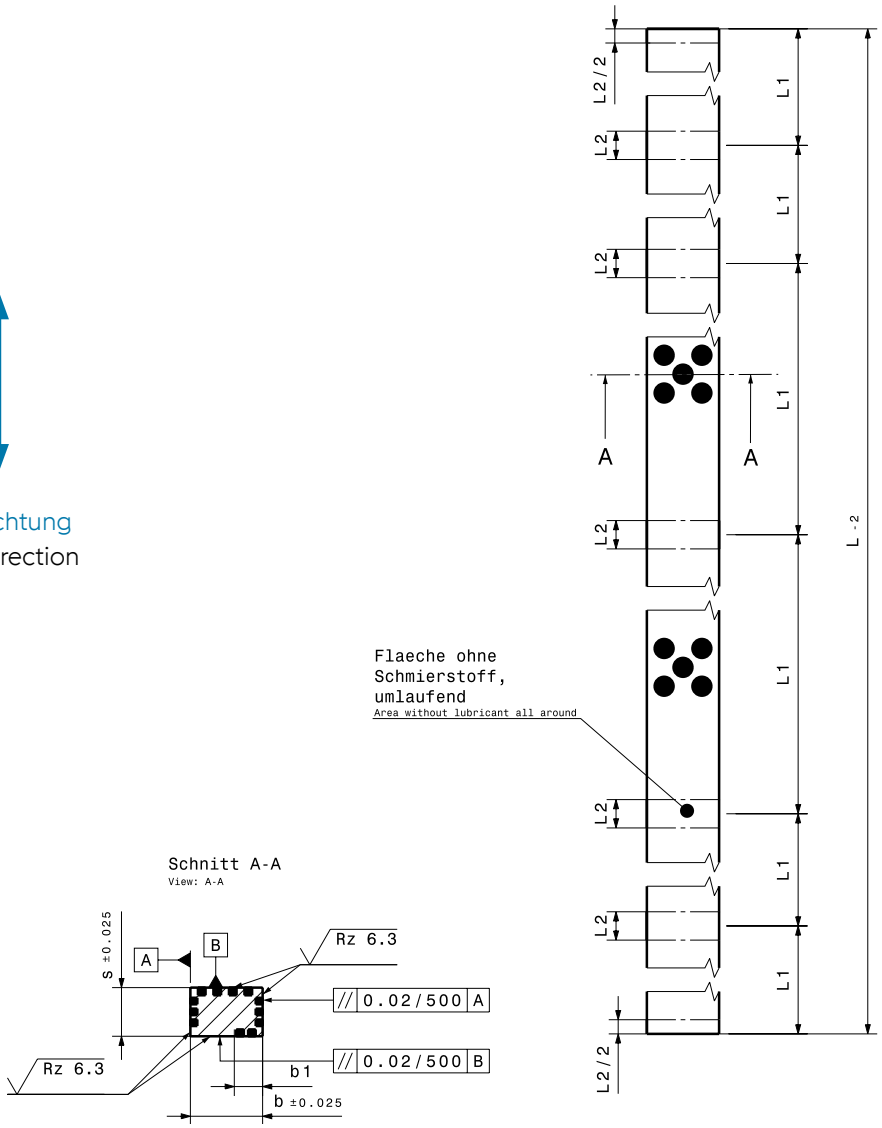


Ident-No. WF750/1A	b ±0,05	L	s ±0,025	L1 ±0,2	Form Style	Zylinderschraube Cylinder head screw
18400	50	150	25	100	A	2x M10
18401	50	200	25	150	A	2x M10
18402	50	250	25	100	B	3x M10
18406	75	150	25	100	A	2x M10
18407	75	200	25	75	B	3x M10
18408	75	250	25	100	B	3x M10

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

10.5 Führungsleisten mit 4 Gleitflächen
10.5 Multiple area guiding stripes with 4 sliding areas

Gleitrichtung
Slide direction



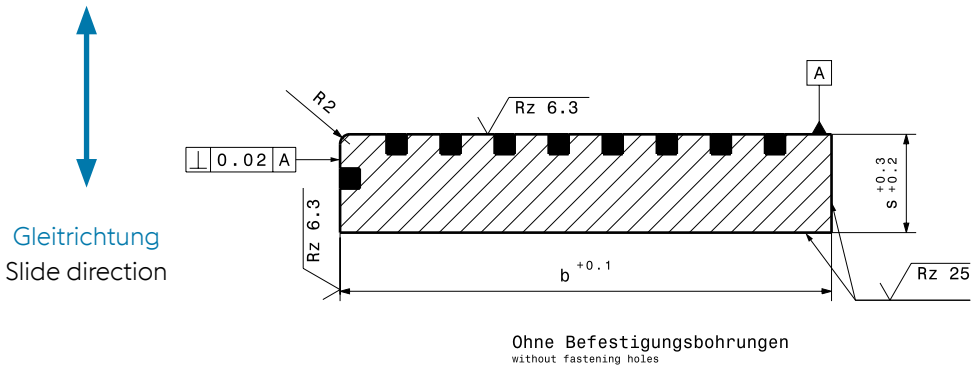
Ident-No. WF750/1A	b ±0,025	L -2	s ±0,025	b1	L1	L2
17243	15,3	75	10,3	6	25	6
17244	15,3	100	10,3	6	25	6
17245	15,3	125	10,3	6	25	6
17246	15,3	150	10,3	6	25	6
17247	15,3	175	10,3	6	25	6
17248	15,3	200	10,3	6	25	6
17249	15,3	225	10,3	6	25	6
17250	15,3	250	10,3	6	25	6
17251	15,3	275	10,3	6	25	6

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. WF750/1A	b ±0,025	L -2	s ±0,025	b1	L1	L2
17310	15,3	300	10,3	6	25	6
17370	25,3	105	15,3	8	35	8
17371	25,3	140	15,3	8	35	8
17372	25,3	175	15,3	8	35	8
17373	25,3	210	15,3	8	35	8
17374	25,3	245	15,3	8	35	8
17375	25,3	280	15,3	8	35	8
17376	25,3	315	15,3	8	35	8
17377	25,3	350	15,3	8	35	8
17378	25,3	385	15,3	8	35	8
17379	25,3	420	15,3	8	35	8
17380	25,3	455	15,3	8	35	8
17381	25,3	490	15,3	8	35	8
17382	35,3	135	25,3	12	45	10
17383	35,3	180	25,3	12	45	10
17384	35,3	225	25,3	12	45	10
17385	35,3	270	25,3	12	45	10
17386	35,3	315	25,3	12	45	10
17387	35,3	360	25,3	12	45	10
17388	35,3	405	25,3	12	45	10
17389	35,3	450	25,3	12	45	10
17390	35,3	495	25,3	12	45	10
17391	45,3	165	35,3	16	55	12
17392	45,3	220	35,3	16	55	12
17393	45,3	275	35,3	16	55	12
17394	45,3	330	35,3	16	55	12
17395	45,3	385	35,3	16	55	12
17396	45,3	440	35,3	16	55	12
17397	45,3	495	35,3	16	55	12

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

10.6 Führungsleisten mit 2 Gleitflächen
10.6 Multiple area guiding stripes with 2 sliding areas

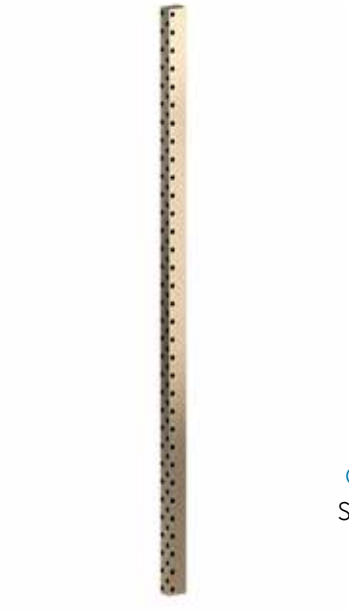


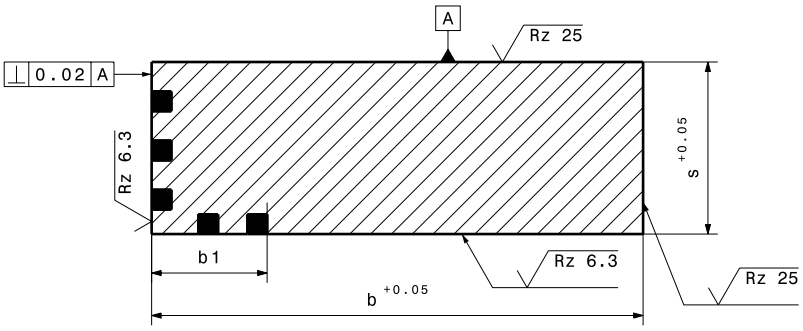
10.6

Ident-No. WF750/1A	b +0,1	L	s +0,3 +0,2
17650	25	305	5
17651	30	305	6
14992	40	605	8
15535	35	605	10
14607	50	605	10
13538	40	605	12
13775	80	605	12
13905	60	605	16
13271	80	605	20
14661	100	605	20
17652	40	1005	8
17653	35	1005	10
17654	50	1005	10
17655	40	1005	12
17656	80	1005	12
17657	60	1005	16
17660	50	1005	20
17661	60	1005	20
17658	80	1005	20
17659	100	1005	20

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

10.8 Führungsleisten mit 2 Gleitflächen
10.8 Multiple area guiding stripes with 2 sliding areas





Ohne Befestigungsbohrungen
without fastening holes

10.8

Ident-No. WF750/1A	Länge Length	b +0,05	s +0,05	b1
16390	650	15	10	4
16391	650	25	15	8
16392	1005	35	25	12
16393	1005	45	35	15

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

11. Winkelleisten
11. L-Gibs

11.1
Winkelleisten mit Abstimmfläche nach VDI 3357
L-Gibs with adept area acc. VDI 3357

11.3
Winkelleisten mit/ohne Befestigungsbohrungen
L-Gibs with/without mounting holes

11.4
Winkelleisten
L-Gibs

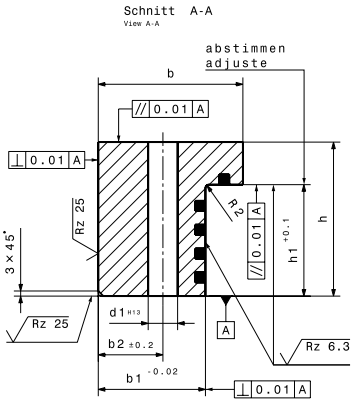
11.5
Winkelleisten ohne Befestigungsbohrungen
L-Gibs without mounting holes

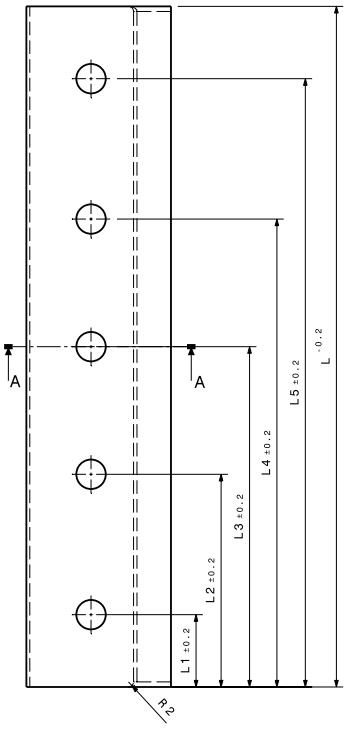
11.6
Winkelleisten
L-Gibs

11.7
Winkelleisten
L-Gibs

11.1 Winkelleisten mit Abstimmfläche nach VDI 3357
11.1 L-Gibs with adept area acc. VDI 3357

Gleitrichtung
Slide direction





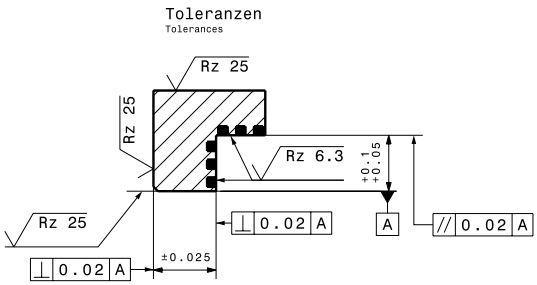
11.1

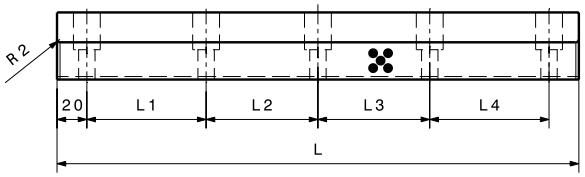
Ident-No. WF750/1A	b	L -0,2	b1 -0,02	h	b2 ±0,2	h1 +0,1	L1 ±0,2	L2 ±0,2	L3 ±0,2	L4 ±0,2	L5 ±0,2	d1 H13	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19540	25	125	18	15,5	9	8,5	27,5	97,5	-	-	-	9	2x M8
19541	25	160	18	15,5	9	8,5	27,5	132,5	-	-	-	9	2x M8
19542	32	125	22	30,5	11	15,5	27,5	97,5	-	-	-	11	2x M10
19543	32	160	22	30,5	11	15,5	27,5	132,5	-	-	-	11	2x M10
19544	32	200	22	30,5	11	15,5	27,5	172,5	-	-	-	11	2x M10
19050	45	100	30	50,5	15	34,5	27,5	72,5	-	-	-	13,5	2x M12
19049	45	125	30	50,5	15	34,5	27,5	97,5	-	-	-	13,5	2x M12
19051	45	160	30	50,5	15	34,5	27,5	132,5	-	-	-	13,5	2x M12
19052	55	100	37	55,5	20	39,5	27,5	72,5	-	-	-	13,5	2x M12
19053	55	160	37	55,5	20	39,5	27,5	132,5	-	-	-	13,5	2x M12
19054	70	160	50	75,5	30	55,5	35	125	-	-	-	17,5	2x M16
19055	70	200	50	75,5	30	55,5	35	165	-	-	-	17,5	2x M16
19056	70	250	50	75,5	30	55,5	35	125	215	-	-	17,5	3x M16
19063	70	400	50	75,5	30	55,5	35	125	200	275	365	17,5	5x M16
19057	85	160	63	90,5	38	65,5	42,5	117,5	-	-	-	22	2x M20
19058	85	200	63	90,5	38	65,5	42,5	157,5	-	-	-	22	2x M20
19059	85	250	63	90,5	38	65,5	42,5	125	207,5	-	-	22	3x M20
19064	85	400	63	90,5	38	65,5	42,5	125	200	275	357,5	22	5x M20
19060	100	160	75	100,5	45	75,5	45	115	-	-	-	26	2x M24
19061	100	200	75	100,5	45	75,5	45	155	-	-	-	26	2x M24
19062	100	250	75	100,5	45	75,5	45	125	205	-	-	26	3x M24

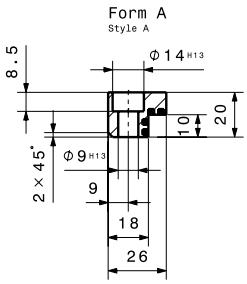
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

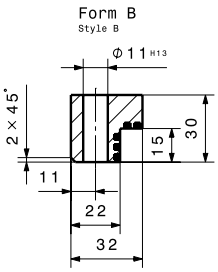
11.3 Winkelleisten mit Befestigungsbohrungen
11.3 L-Gibs with mounting holes

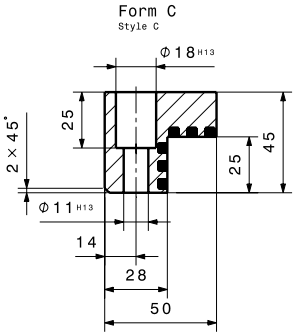
Gleitrichtung
Slide direction







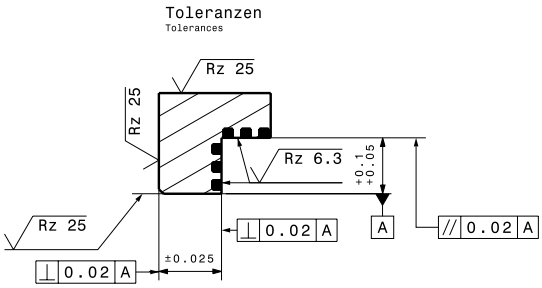


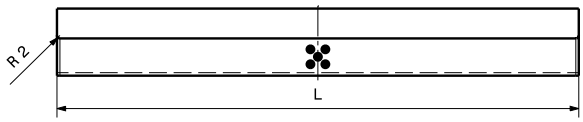


Ident-No. WF750/1A	L	L1	L2	L3	L4	Form Style	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19500	100	60	-	-	-	A	2x M8
19501	150	55	55	-	-	A	3x M8
19502	200	55	50	55	-	A	4x M8
19503	100	60	-	-	-	B	2x M10
19504	150	55	55	-	-	B	3x M10
19505	200	55	50	55	-	B	4x M10
19506	250	70	70	70	-	B	4x M10
19507	200	55	50	55	-	C	4x M10
19508	250	70	70	70	-	C	4x M10
19509	300	65	65	65	65	C	5x M10
19510	350	80	75	75	80	C	5x M10

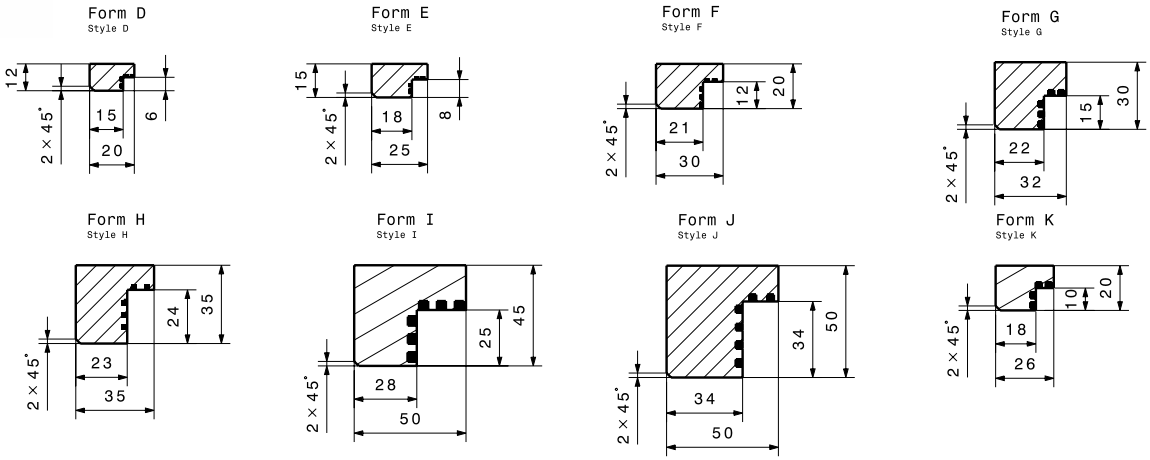
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

11.3 Winkelleisten ohne Befestigungsbohrungen
11.3 L-Gibs without mounting holes





Gleitrichtung
Slide direction



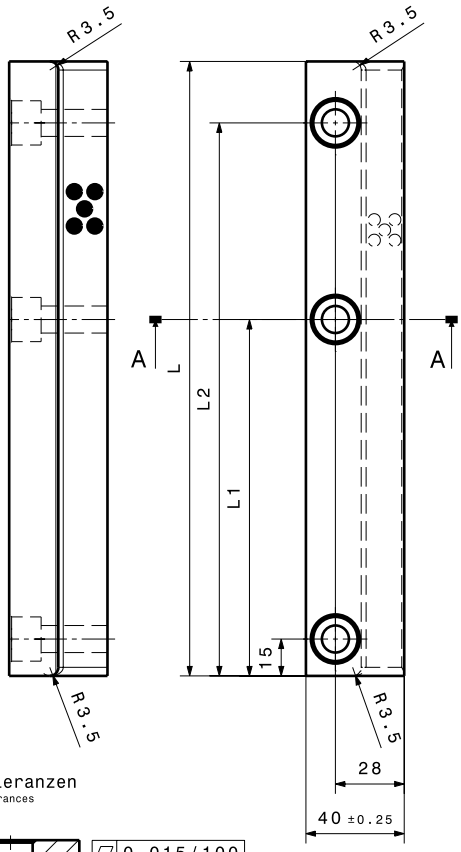
Ident-No. WF750/1A	L	Ident-No. WF750/1A	L	Ident-No. WF750/1A	L	Form Style
19470		**19480**		**-**	-	D
19471		**19481**		**19491**		E
19472		**19482**		**19492**		F
19473	500	**19483**	605	**19493**		G
19474		**19484**		**19494**	1005	H
19475		**19485**		**19495**		I
19476		**19486**		**19496**		J
19477		**19487**		**19497**		K

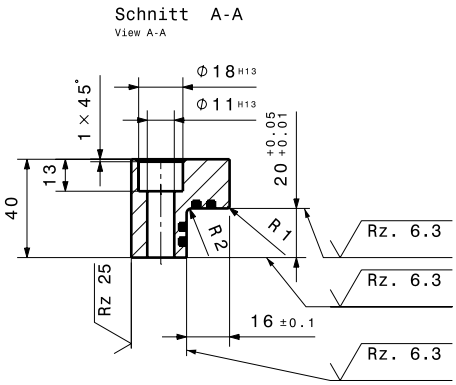
Es ist jeder Zuschnitt bis 1.005 mm Länge lieferbar.
Any length up to 1,005 mm is available.

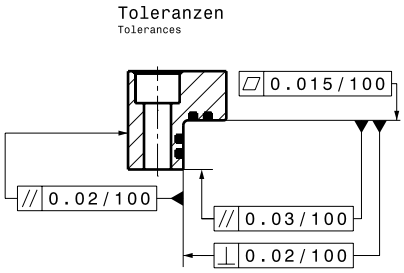
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

11.4 Winkelleisten
11.4 L-Gibs

Gleitrichtung
Slide direction





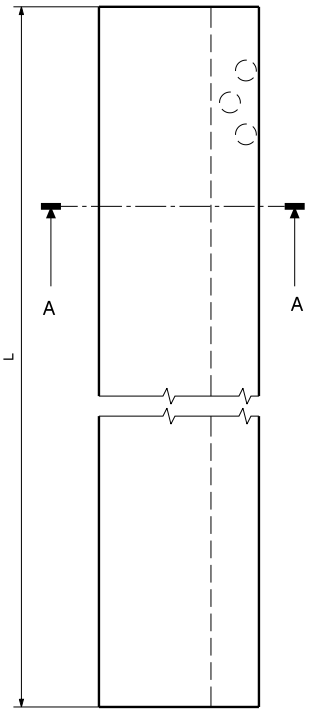


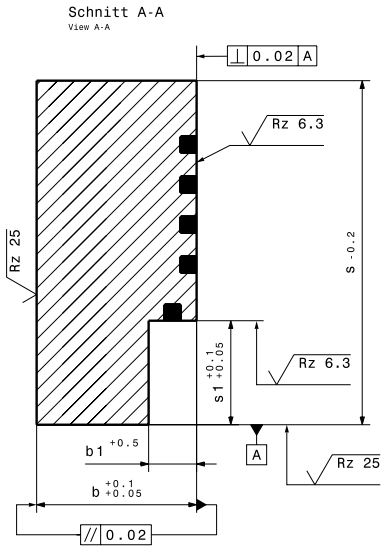
Ident-No. WF750/1A	L	L1	L2	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18965	160	145	-	2x M10
18966	250	145	225	3x M10

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

11.5 Winkelleisten ohne Befestigungsbohrungen
11.5 L-Gibs without mounting holes

Gleitrichtung
Slide direction





11.5

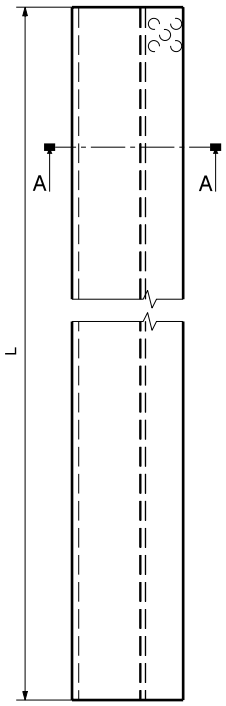
Es ist jeder Zuschnitt bis 605 mm Länge lieferbar. (max. 205 mm bei Ident-No. 17689)
Any length up to 605 mm is available. (max. 205 mm for Ident-No. 17689)

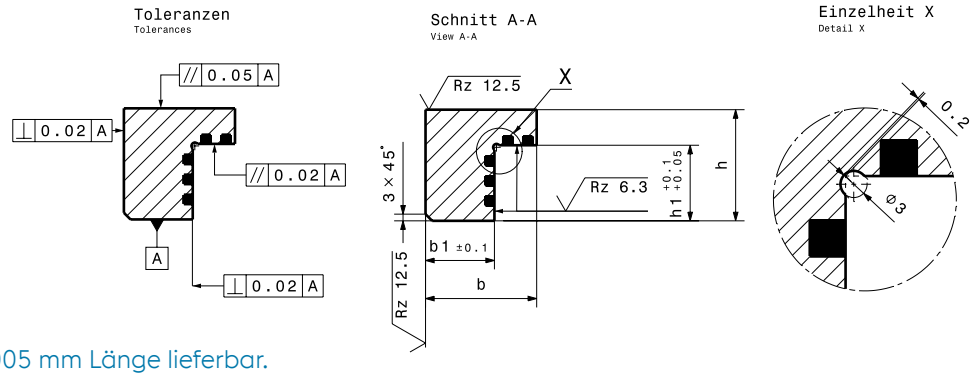
Ident-No. WF750/1A	b +0,1 +0,05	s -0,2	L	b1 +0,5	s1 +0,1 +0,05
17689	15	12	205	5	5
17690	20	17	605	5	7
17691	20	22	605	5	7
17692	28	27	605	8	10
17693	28	36	605	8	10
17694	28	46	605	8	10
17695	40	66	605	12	22
17696	40	86	605	12	26

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

11.6 Winkelleisten
11.6 L-Gibs

Gleitrichtung
Slide direction





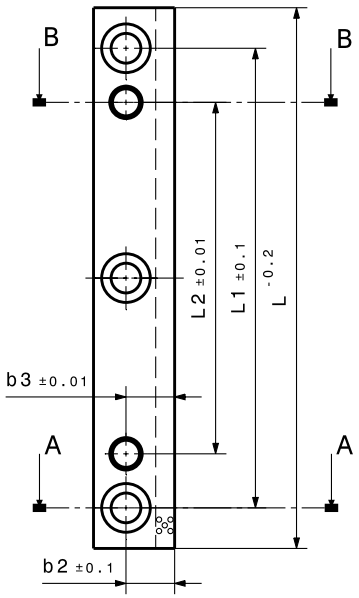
Es ist jeder Zuschnitt bis 1.005 mm Länge lieferbar.
Any length up to 1,005 mm is available.

Ident-No. WF750/1A	L	h	b	h1 +0,1 +0,05	b1 ±0,1
18150	1005	35	35	24	20
18151	1005	50	50	34	31

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

11.7 Winkelleisten
11.7 L-Gibs

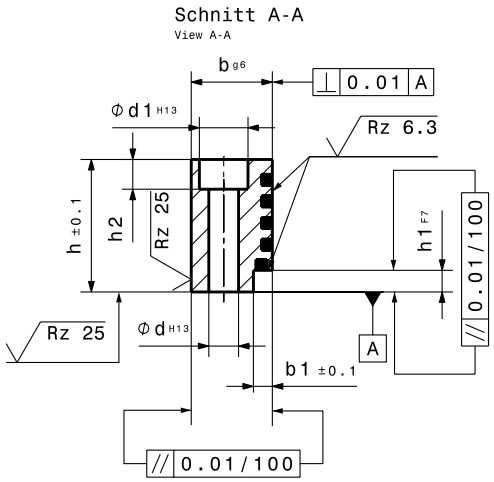
Gleitrichtung
Slide direction

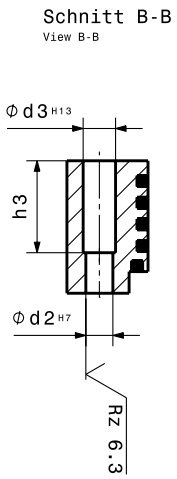


11.7

Ident-No. WF750/1A	b g6	L -0,2	h ±0,1	b1 ±0,1	b2 ±0,1	b3 ±0,01	L1 ±0,1	L2 ±0,01
16730	16	50	11	5	9,5	9,5	34	14
16731	16	71	11	5	9,5	9,5	55	35
16732	16	90	11	5	9,5	9,5	74	54
16733	20	80	19	5	12	12	64	40
16734	20	100	19	5	12	12	84	60
16735	20	125	19	5	12	12	109	85
16736	25	100	31	6	15,5	15,5	80	50
16737	25	125	31	6	15,5	15,5	105	75
16738	25	160	31	6	15,5	15,5	140	110
16739	30	125	49	7	18	18	95	55
16740	30	160	49	7	18	18	130	90
16741	30	200	49	7	18	18	170	130

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium





11.7

h1 F7	h2	h3	Ød H13	Ød1 H13	Ød2 H7	Ød3 H13	Zylinderschraube Cylinder head screw DIN EN ISO 4762
4	5,7	-	5,5	10	5	-	2x M5
4	5,7	-	5,5	10	5	-	2x M5
4	5,7	-	5,5	10	5	-	3x M5
5	6,8	9,5	6,6	11	6	7	2x M6
5	6,8	9,5	6,6	11	6	7	2x M6
5	6,8	9,5	6,6	11	6	7	3x M6
6	9	19	9	15	8	9	2x M8
6	9	19	9	15	8	9	2x M8
6	9	19	9	15	8	9	3x M8
8	11	34	11	18	10	12	2x M10
8	11	34	11	18	10	12	2x M10
8	11	34	11	18	10	12	3x M10

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

12. Überlaufkeile mit/ohne Rollen
12. Cam stroke plates with/without rollers

12.1

Überlaufkeile nach VDI 3357
Cam stroke plates acc. VDI 3357

WF750, Stahl / WF750, steel

12.2

Überlaufkeile
Cam stroke plates

WF750, Stahl / WF750, steel

12.3

Überlaufkeile
Cam stroke plates

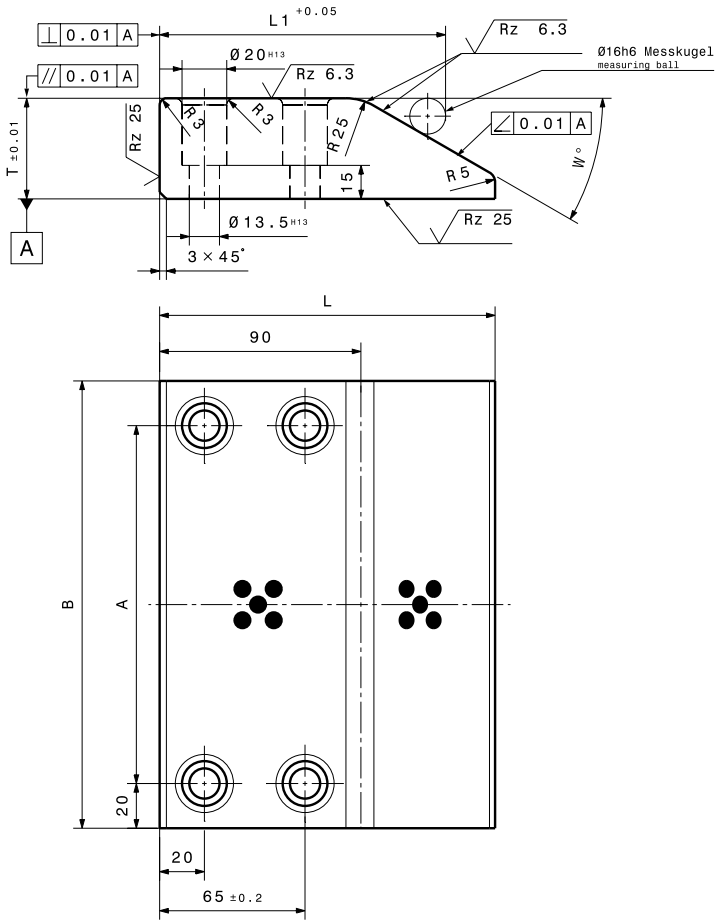
WF750, Stahl / WF750, steel

12.7

Überlaufkeile mit Rollen senkrecht/waagrecht
Cam stroke plates with rollers vertical/horizontal

12.1 Überlaufkeile nach VDI 3357
12.1 Cam stroke plates acc. VDI 3357

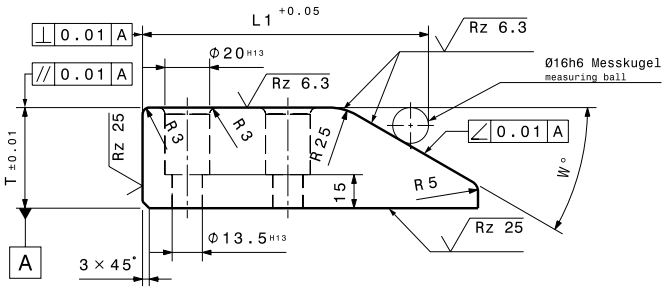
Gleitrichtung
Slide direction

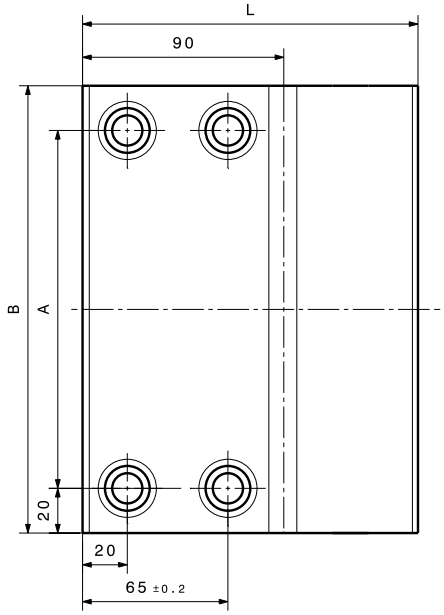


Ident-No. WF750/1A	B	L	T ±0,01	A	L1 +0,05	W°	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18590	100	170	45	60	143,37	20°	4x M12x40
18591	125	170	45	85	143,37	20°	4x M12x40
18592	150	170	45	110	143,37	20°	4x M12x40
18596	200	170	45	160	143,37	20°	4x M12x40
18421	100	150	45	60	127,86	30°	4x M12x40
18422	100	170	60	60	127,86	30°	4x M12x40
18424	125	150	45	85	127,86	30°	4x M12x40
18425	125	170	60	85	127,86	30°	4x M12x40
14814	150	150	45	110	127,86	30°	4x M12x40
14798	150	170	60	110	127,86	30°	4x M12x40
18597	200	150	45	160	127,86	30°	4x M12x40
18598	200	170	60	160	127,86	30°	4x M12x40

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Gleitrichtung
Slide direction

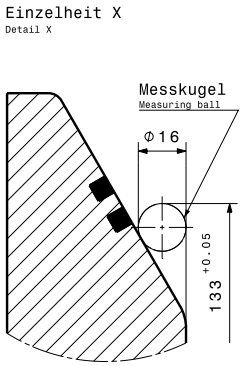




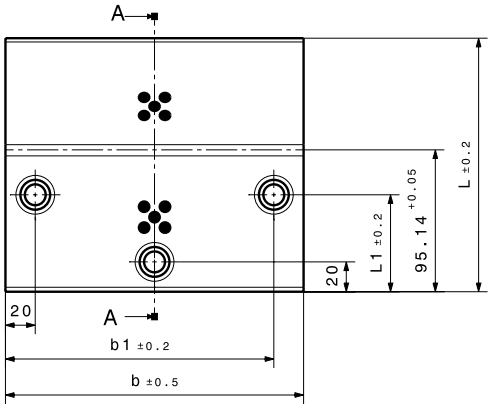
Ident-No. St 1	Ident-No. St 2	B	L	T ±0,01	A	L1 +0,05	W°	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18320	**63590**	100	170	45	60	143,37	20°	4x M12x40
18321	**63591**	125	170	45	85	143,37	20°	4x M12x40
18322	**63592**	150	170	45	110	143,37	20°	4x M12x40
18323	**63593**	200	170	45	160	143,37	20°	4x M12x40
18324	**63594**	100	150	45	60	127,86	30°	4x M12x40
18325	**63595**	100	170	60	60	127,86	30°	4x M12x40
18326	**63596**	125	150	45	85	127,86	30°	4x M12x40
18327	**63597**	125	170	60	85	127,86	30°	4x M12x40
18328	**63598**	150	150	45	110	127,86	30°	4x M12x40
18329	**63599**	150	170	60	110	127,86	30°	4x M12x40
18318	**63600**	200	150	45	160	127,86	30°	4x M12x40
18319	**63601**	200	170	60	160	127,86	30°	4x M12x40

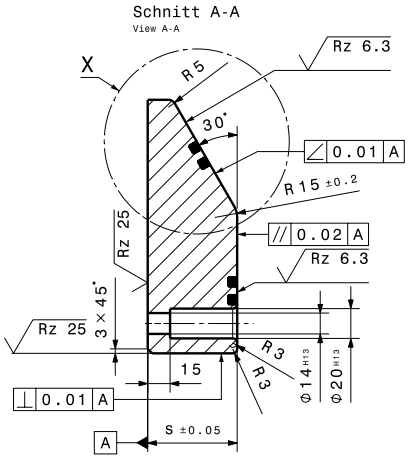
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

12.2 Überlaufkeile
12.2 Cam stroke plates



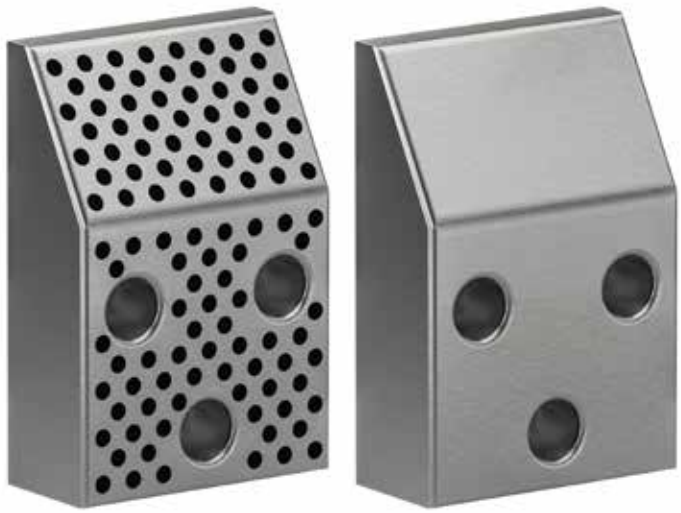
Gleitrichtung
Slide direction

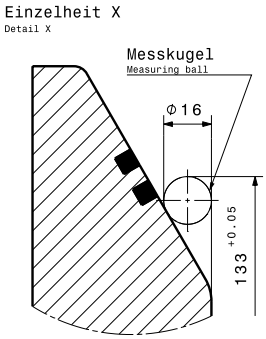




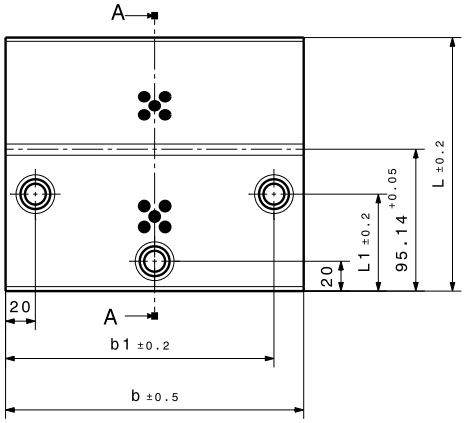
Ident-No. WF750/1A	b ±0,5	L ±0,2	s ±0,05	b1 ±0,2	L1 ±0,2	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19342	100	125	30	80	70	3x M12
19343	125	125	30	105	70	3x M12
19407	160	125	30	140	70	3x M12
19344	100	150	45	80	65	3x M12
19345	125	150	45	105	65	3x M12
19408	160	150	45	140	65	3x M12
19346	100	170	60	80	65	3x M12
19347	125	170	60	105	65	3x M12
19409	160	170	60	140	65	3x M12

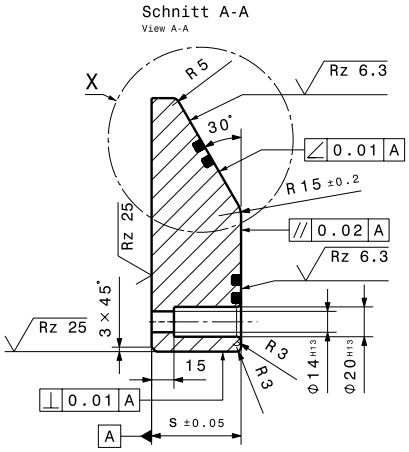
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium





Gleitrichtung
Slide direction



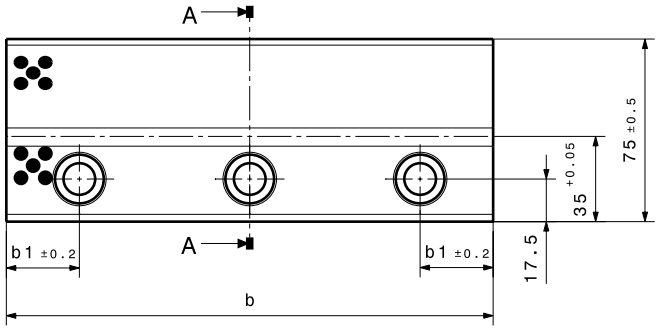


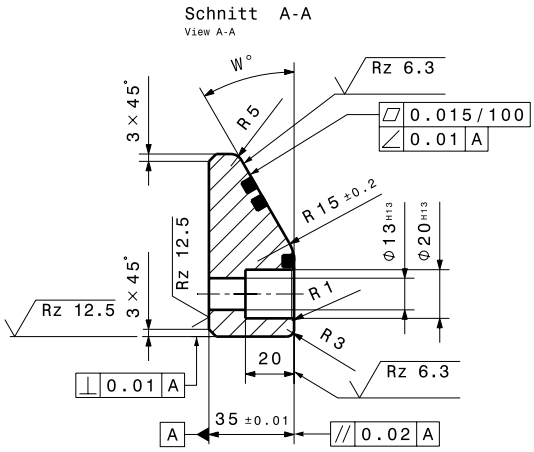
Ident-No. WF St 1	Ident-No. St 1	b ±0,5	L ±0,2	s ±0,05	b1 ±0,2	L1 ±0,2	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19390	**19348**	100	125	30	80	70	3x M12
19391	**19349**	125	125	30	105	70	3x M12
-	**19427**	160	125	30	140	70	3x M12
19392	**19350**	100	150	45	80	65	3x M12
19393	**19351**	125	150	45	105	65	3x M12
-	**19428**	160	150	45	140	65	3x M12
19394	**19352**	100	170	60	80	65	3x M12
19395	**19353**	125	170	60	105	65	3x M12
-	**19426**	160	170	60	140	65	3x M12

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

12.3 Überlaufkeile
12.3 Cam stroke plates

Gleitrichtung
Slide direction

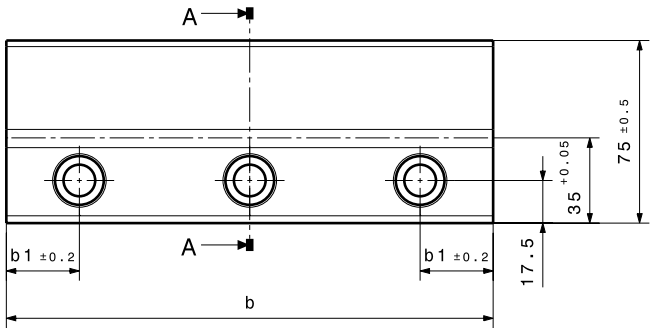


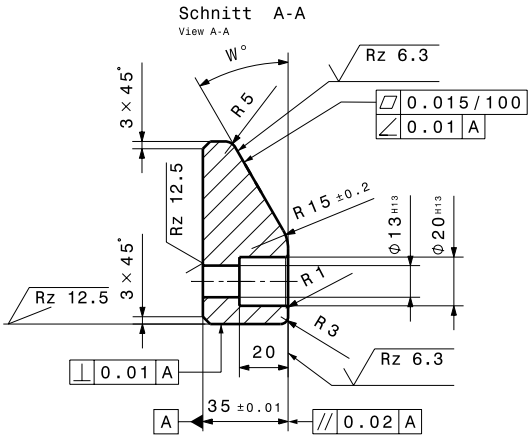


Ident-No. WF750/1A	b	b1 ±0,2	W°	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18190	100	20	25°	2x M12
18191	100	20	30°	2x M12
18192	150	20	25°	2x M12
18193	150	20	30°	2x M12
18194	200	30	25°	3x M12
18195	200	30	30°	3x M12

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Gleitrichtung
Slide direction



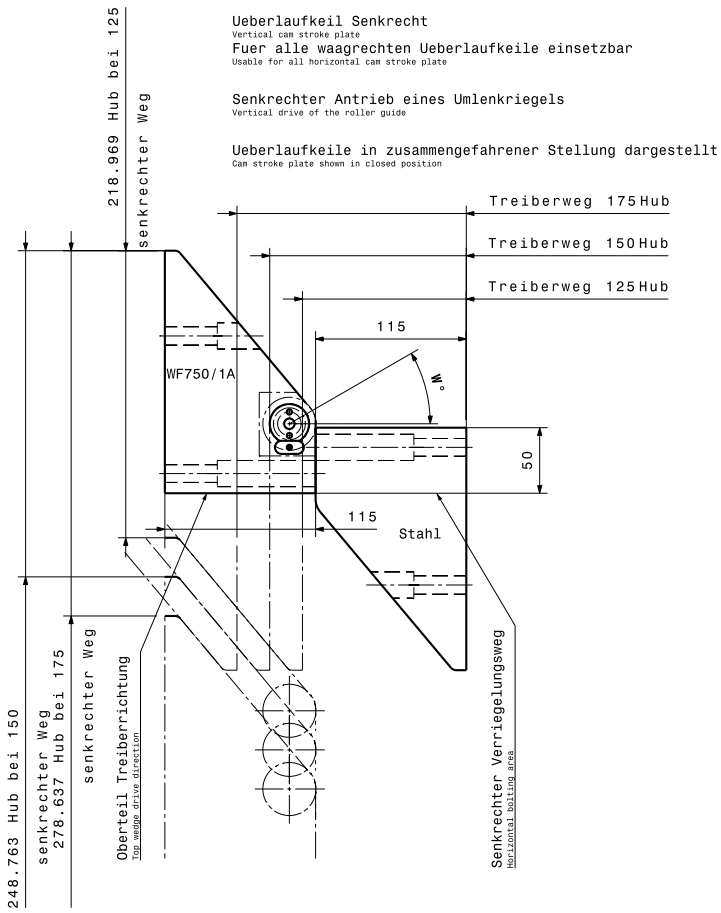


Ident-No. St 1	b	b1 ±0,2	W°	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18200	100	20	25°	2x M12
18201	100	20	30°	2x M12
18202	150	20	25°	2x M12
18203	150	20	30°	2x M12
18204	200	30	25°	3x M12
18205	200	30	30°	3x M12

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

12.7 Überlaufkeile mit Rollen senkrecht
12.7 Cam stroke plates with rollers vertical

Gleitrichtung
Slide direction



Überlaufkeil senkrecht
Vertical cam stroke plate

12.7

Für alle waagrechten Überlaufkeile einsetzbar
Usable for all horizontal cam stroke plate

Senkrechter Antrieb eines Umlenkriegels
Vertical drive of the roller guide

Überlaufkeile in zusammengefahrener Stellung dargestellt
Cam stroke plate shown in closed position

Ident-No. WF750/1A mit Rollen/with rollers	Ident-No. St 1	W°	Senkrechter Weg bei Hub Vertical path by stroke	Presskraft max. Press force max. to	Überrollkraft max. Over roll force max. to
16850	**16855**	40°	Hub 125 = 218,9	15	4
16851	**16856**	40°	Hub 150 = 248,7	20	4
16852	**16857**	40°	Hub 175 = 278,6	25	6

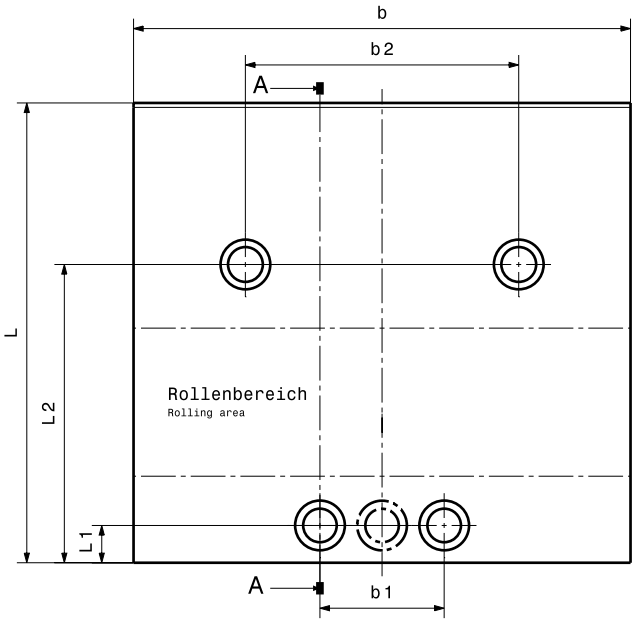
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

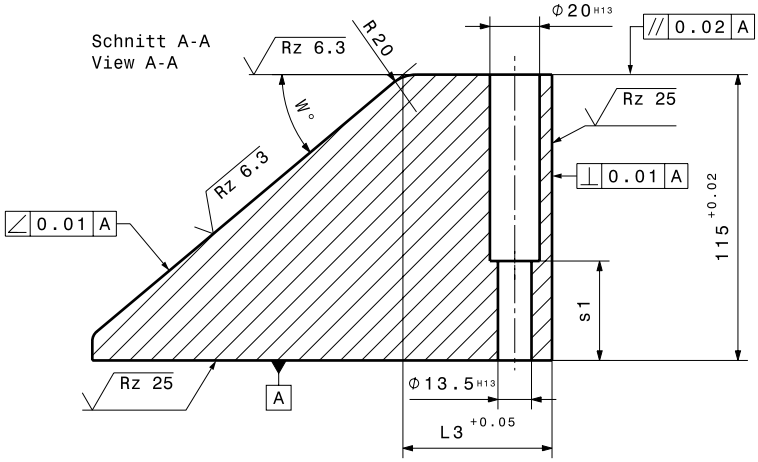
Die senkrechten Überlaufkeile sind für alle drei Hubvarianten einsetzbar.
The vertical cam stroke plates are employable with all 3 stroke variations.

Achtung: Die zulässige Überrollkraft darf nicht durch die Schieberrückholkraft und das Schiebergewicht überschritten werden!
Attention: The permitted over roll force must not exceed the cam return force and the cam weight.

Auswahl-Hinweis:
Anhand der zu erwartenden Endkraft des Füllschiebers werden die vertikalen Treibkräfte (Breite, Hub und Anzahl) ausgewählt und auf einem Umlenkriegel platziert. Die Auswahl des senkrechten Überlaufkeiles richtet sich nach der Rückzugskraft des Füllschiebers und des Umlenkriegels, sowie deren Gewichte. Dabei darf die maximale Überrollkraft in keinem Fall übrschritten werden (im Bedarfsfall mehrere Überlaufkeile nebeneinander vorsehen).

Selection recommendation:
Given the expected end force of the active driver, the vertical cam stroke plates (with stroke and quantity) should be selected and placed on the roller. The choice of the vertical cam stroke plates depends on the return force of the active driver and the roller as well as their espective weights. In this respect, the max. over roll force must not be exceeded (if necessary, use more cam stroke plates next to each other)

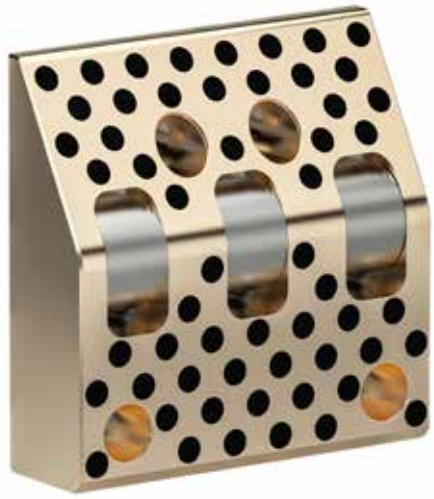


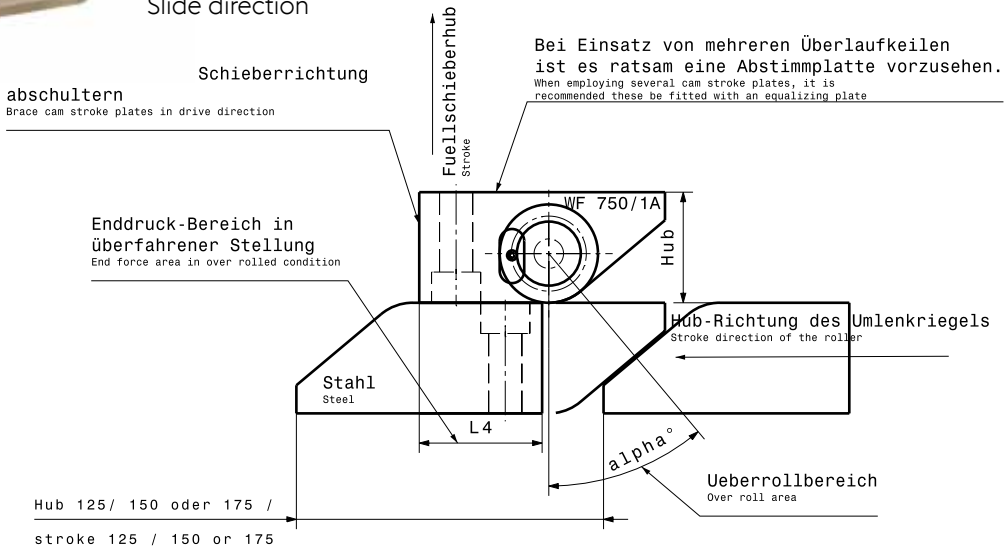


L	b	L1	L2	L3 +0,05	L4	b1	s1	b2	Zylinderschraube Cylinder head screw DIN EN ISO 4762	Rollen Rollers
185	100	15	120	60	50	-	40	60	3x M12	2
185	125	15	120	60	50	-	40	85	3x M12	2
185	150	15	120	60	50	50	40	110	4x M12	3

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

12.7 Überlaufkeile mit Rollen waagrecht
12.7 Cam stroke plates with rollers horizontal





12.7

Überlaufkeil waagrecht
Horizontal cam stroke plate

Waagrechter Überlaufkeil in zusammengefahrener Stellung dargestellt
Hoizontal cam stroke plates shown in closed position

Ident-No. WF750/1A mit Rollen/with rollers	Ident-No. St 1	Ident-No. St 2	W°	Hub max. Stroke max.	Treibweg Drive	Presskraft max. Press force max. to
16860	**16865**	-	40°	45	125	15
16861	**16866**	-	40°	45	125	20
16862	**16867**	-	40°	45	125	25
16870	**16875**	-	40°	45	150	30
16871	**16876**	-	40°	45	150	40
16872	**16877**	-	40°	45	150	50
16880	**16885**	-	40°	45	175	40
16881	**16886**	-	40°	45	175	50
16882	**16887**	-	40°	45	175	60

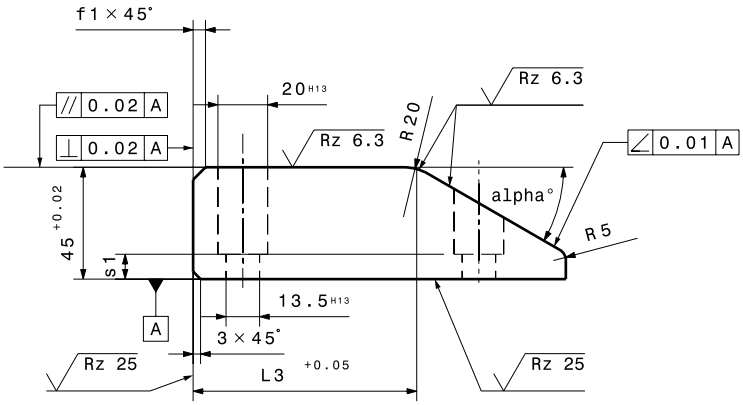
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

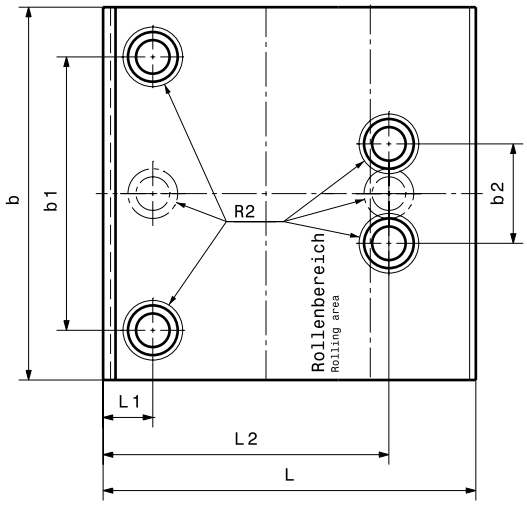
Alle funktionsrelevanten Fertigungsmaße liegen innerhalb von 0,02 mm.
All finished dimensions relevant to the function lie within 0.02 mm.

Achtung: Die senkrechten Überlaufkeile dürfen bei Enddruck nicht in Bewegung sein (Umlenkriegel muss überfahren!). Des weiteren müssen die Rollen immer überfahren und dürfen nicht im Enddruckbereich liegen. Das Freischleifen ist nicht zulässig, da es die angegebenen Presskraftangaben reduziert.
Attention: The vertical cam stroke plates must not be in motion at end force (roller must driver over). Thereafter the roller must drive over and not lie in the end force area. Face to face sliding is not permitted as this will reduce the given press power.

Der Einsatz eines senkrechten Überlaufkeiles mit 30 anstatt von 40 hat keinen Einfluss auf die Kräfte, erleichtert jedoch die Arbeit des senkrechten Überlaufkeils.
The use of a 30 or 40 has no inlfuence on the power but reduces the work of the vertical dirve wedge.

Breite, Anzahl und Hub entsprechend der erforderlichen Endkraft ist vom Konstrukteur auszuwählen.
Width, stroke and necessary end force to be determined in design.

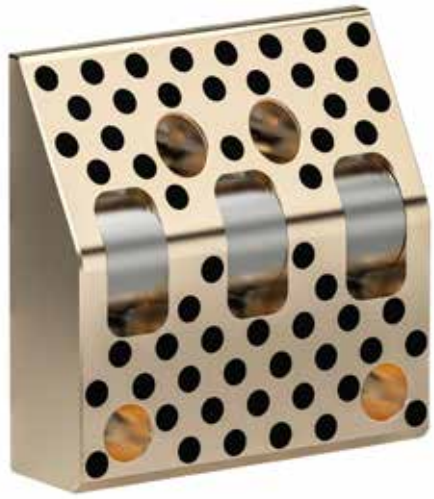


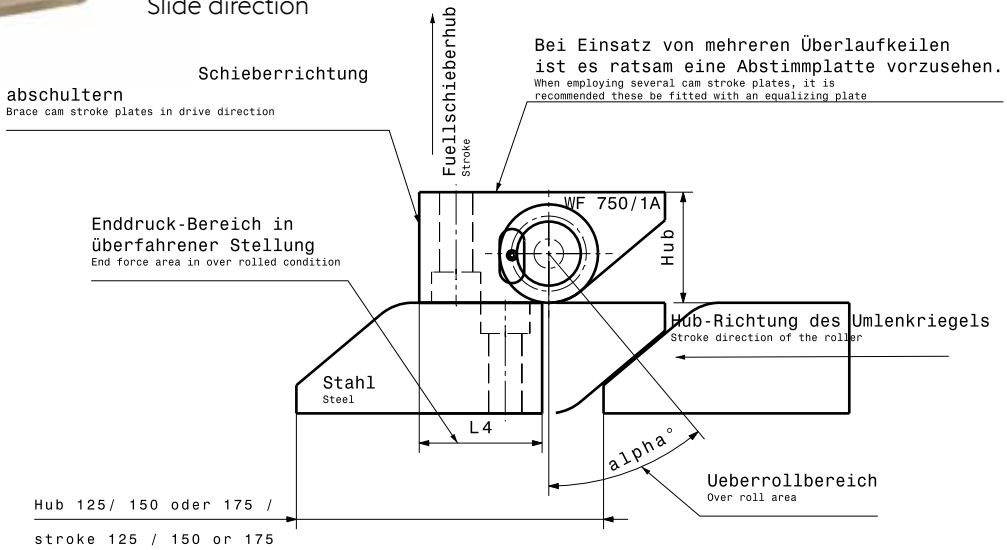


Überrollkraft max. Over roll force max. to	L	b	L1	L2	L3	L4 +0,05	b1	s1	b2	f1	Zylinderschraube Cylinder head screw DIN EN ISO 4762	Rollen Rollers
4	100	100	15	-	60	50	60	32,5	-	2	2x M12	2
4	100	125	15	-	60	50	85	32,5	-	2	2x M12	2
6	100	150	15	-	60	50	110	32,5	-	2	2x M12	3
4	125	100	40	-	85	75	60	32,5	-	2	2x M12	2
4	125	125	40	-	85	75	85	32,5	-	2	2x M12	2
6	125	150	15	40	85	75	-	32,5	110	2	3x M12	3
4	150	100	15	65	110	100	-	32,5	60	2	3x M12	2
4	150	125	15	65	110	100	-	32,5	85	2	3x M12	2
6	150	150	15	65	110	100	110	32,5	110	2	4x M12	3

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

12.7 Überlaufkeile mit Rollen waagrecht
12.7 Cam stroke plates with rollers horizontal





12.7

Überlaufkeil waagrecht
Horizontal cam stroke plate

Waagrechter Überlaufkeil in zusammengefahrener Stellung dargestellt
Hoizontal cam stroke plates shown in closed position

Ident-No. WF750/1A mit Rollen/with rollers	Ident-No. St 1	Ident-No. St 2	W°	Hub max. Stroke max.	Treibweg Drive	Presskraft max. Press force max. to
16890	**16895**	-	30°	45	150	15
16891	**16896**	-	30°	45	150	20
16892	**16897**	-	30°	45	150	25
16900	**16905**	-	30°	45	175	30
16901	**16906**	-	30°	45	175	40
16902	**16907**	-	30°	45	175	50
16908	-	**16911**	30°	45	175	30
16909	-	**16912**	30°	45	175	40
16910	-	**16913**	30°	45	175	50

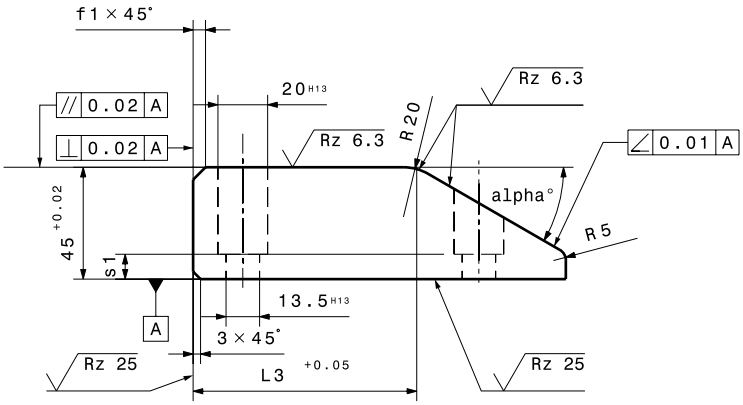
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

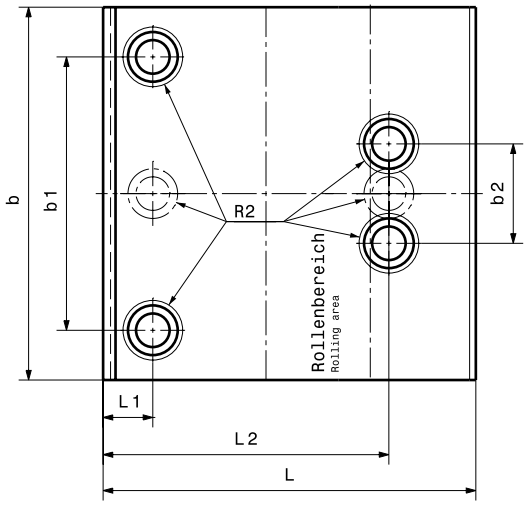
Alle funktionsrelevanten Fertigungsmaße liegen innerhalb von 0,02 mm.
All finished dimensions relevant to the function lie within 0.02 mm.

Achtung: Die senkrechten Überlaufkeile dürfen bei Enddruck nicht in Bewegung sein (Umlenkriegel muss überfahren!). Des weiteren müssen die Rollen immer überfahren und dürfen nicht im Enddruckbereich liegen. Das Freischleifen ist nicht zulässig, da es die angegebenen Presskraftangaben reduziert.
Attention: The vertical cam stroke plates must not be in motion at end force (roller must driver over). Thereafter the roller must drive over and not lie in the end force area. Face to face sliding is not permitted as this will reduce the given press power.

Der Einsatz eines senkrechten Überlaufkeiles mit 30 anstatt von 40 hat keinen Einfluss auf die Kräfte, erleichtert jedoch die Arbeit des senkrechten Überlaufkeils.
The use of a 30 or 40 has no inlfuence on the power but reduces the work of the vertical dirve wedge.

Breite, Anzahl und Hub entsprechend der erforderlichen Endkraft ist vom Konstrukteur auszuwählen.
Width, stroke and necessary end force to be determined in design.





Überrollkraft max. Over roll force max. to	L	b	L1	L2	L3	L4 +0,05	b1	s1	b2	f1	Zylinderschraube Cylinder head screw DIN EN ISO 4762	Rollen Rollers
4	115	100	15	85	60	50	60	10	-	2	3x M12	2
4	115	125	15	85	60	50	85	10	-	2	3x M12	2
6	115	150	15	85	60	50	110	10	40	2	4x M12	3
4	140	100	20	110	85	75	60	10	-	2	3x M12	2
4	140	125	20	110	85	75	85	10	-	2	3x M12	2
6	140	150	20	110	85	75	110	10	40	2	4x M12	3
4	150	100	20	115	90	75	60	10	-	5	3x M12	2
4	150	125	20	115	90	75	85	10	-	5	3x M12	2
6	150	150	20	115	90	75	110	10	40	5	4x M12	3

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

13. Prismenführungen
13. Prism guides

13.1

Prismenführungen
Prism guides
WF750, Stahl / WF750, steel

13.2

Prismenführungen
Prism guides
WF750, Stahl / WF750, steel

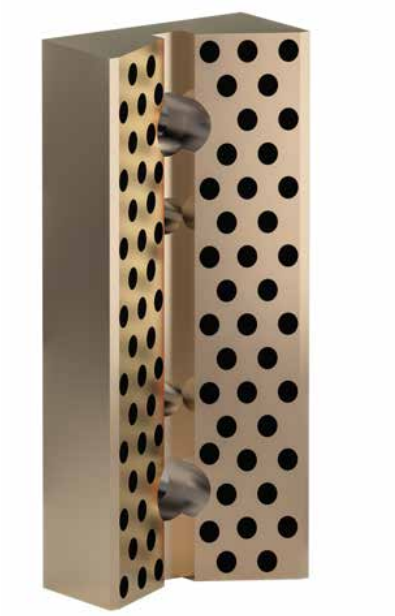
13.6

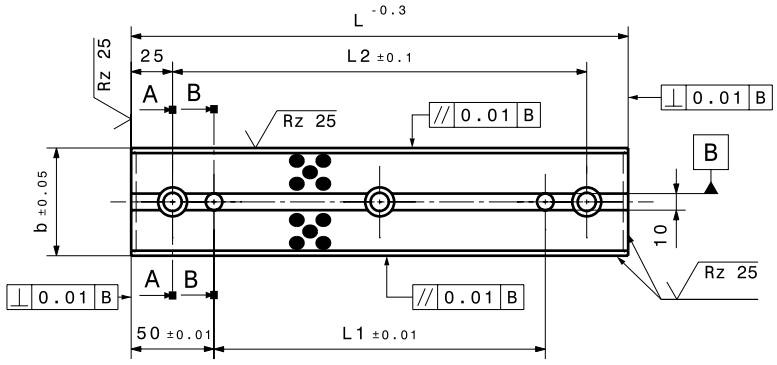
Prismenführungen
Prism guides
WF750, Stahl / WF750, steel

13.7

Prismenführungen nach VDI 3357
Prism guides acc. VDI 3357
WF750, Stahl / WF750, steel

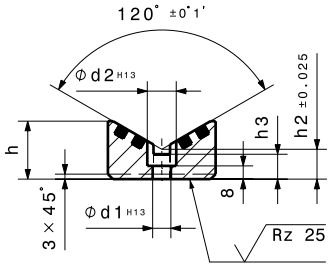
13.1 Prismenführungen – Teil A
13.1 Cam bottom plates – part A



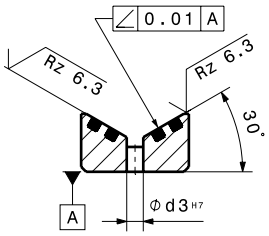


Gleitrichtung
Slide direction

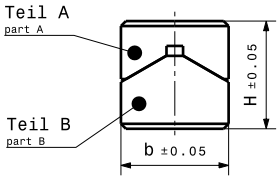
Schnitt A-A
View A-A



Schnitt B-B
View B-B



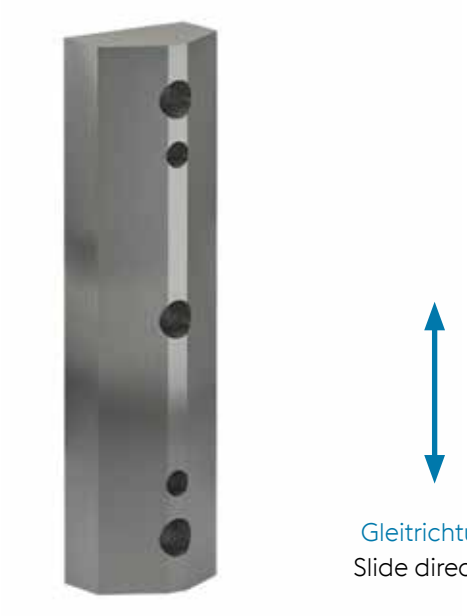
Zusammengebauter Zustand 13.1
Assembled condition 13.1



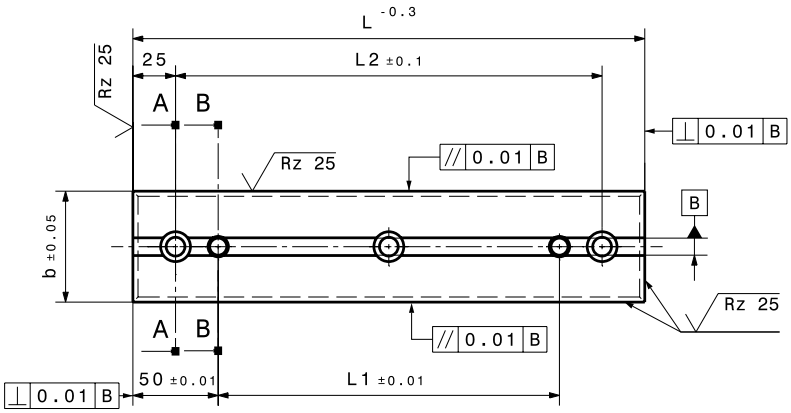
Ident-No. WF750/1A Teil A / Part A	b ±0,05	L -0,3	h	L1 ±0,01	L2 ±0,1	h2 ±0,025	h3	H ±0,05	Ød1 H13	Ød2 H13	Ød3 H7	Zylinderschraube Cylinder head screw DIN EN ISO 4762
18880	65	150	35	50	100	18	15	65	11	18	10	2x M10
18882	65	200	35	100	150	18	15	65	11	18	10	2x M10
18884	65	250	35	150	200	18	15	65	11	18	10	3x M10
18886	65	300	35	200	250	18	15	65	11	18	10	3x M10
18888	125	150	60	50	100	33	30	85	17,5	26	16	2x M16
18890	125	200	60	100	150	33	30	85	17,5	26	16	2x M16
18892	125	250	60	150	200	33	30	85	17,5	26	16	3x M16
18894	125	300	60	200	250	33	30	85	17,5	26	16	3x M16

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

13.1 Prismenführungen – Teil B
13.1 Cam bottom plates – part B

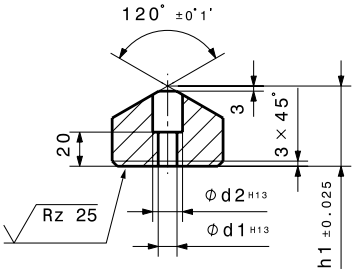


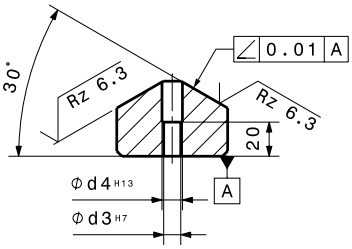
Gleitrichtung
Slide direction



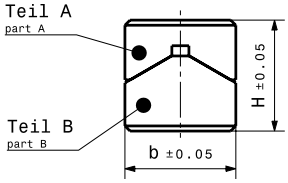
Schnitt A-A
View A-A

Schnitt B-B
View B-B





Zusammengebauter Zustand 13.1
Assembled condition 13.1

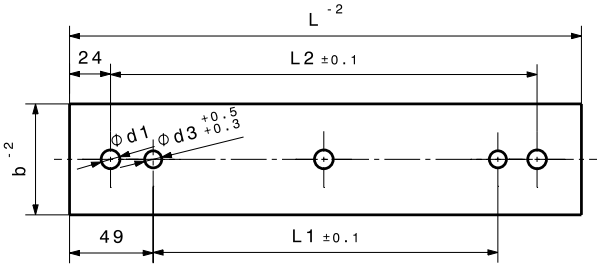


Ident-No. St 1 Teil B / Part B	Ident-No. Abstimmplatte Stahl / Adapter plate Steel Dicke / Thickness 5 mm	b ±0,05	L -0,3	L1 ±0,01
18881	**19730**	65	150	50
18883	**19731**	65	200	100
18885	**19732**	65	250	150
18887	**19733**	65	300	200
18889	**19734**	125	150	50
18891	**19735**	125	200	100
18893	**19736**	125	250	150
18895	**19737**	125	300	200

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Abstimmplatte

Adapter plate



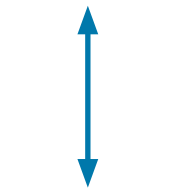
Ident-No. Abstimmplatte 1.0037 / Adapter plate 1.0037 Dicke / Thickness 5 mm	b -2	L -2	L1 ±0,1	L2 ±0,1	Ød1	Ød3 +0,3 +0,5	Zylinderschraube Cylinder head screw
19730	65	150	50	100	11	10	2
19731	65	200	100	150	11	10	2
19732	65	250	150	200	11	10	3
19733	65	300	200	250	11	10	3
19734	125	150	50	100	17,5	16	2
19735	125	200	100	150	17,5	16	2
19736	125	250	150	200	17,5	16	3
19737	125	300	200	250	17,5	16	3

13.1

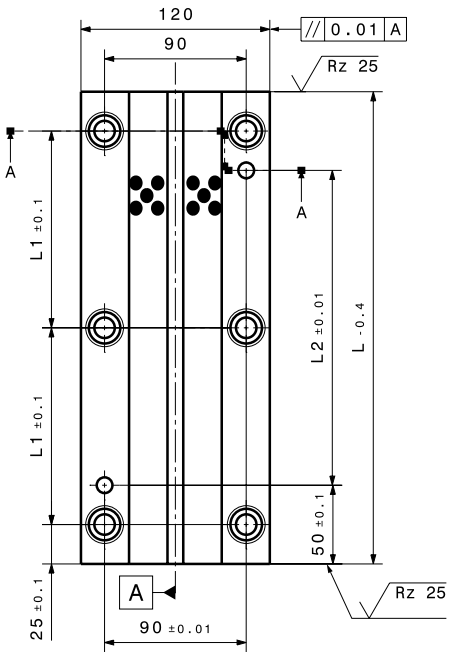
L2 ±0,1	h1 ±0,025	H	Ød1 H13	Ød2 H13	Ød3 H7	Ød4 H13	Zylinderschraube Cylinder head screw DIN EN ISO 4762
100	47	65	11	18	10	12	2x M10
150	47	65	11	18	10	12	2x M10
200	47	65	11	18	10	12	3x M10
250	47	65	11	18	10	12	3x M10
100	52	85	17,5	26	16	18	2x M16
150	52	85	17,5	26	16	18	2x M16
200	52	85	17,5	26	16	18	3x M16
250	52	85	17,5	26	16	18	3x M16

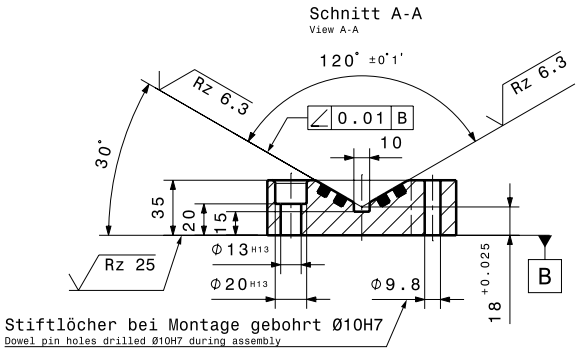
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

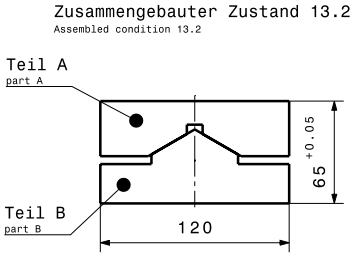
13.2 Prismenführungen
13.2 Cam bottom plates



Gleitrichtung
Slide direction



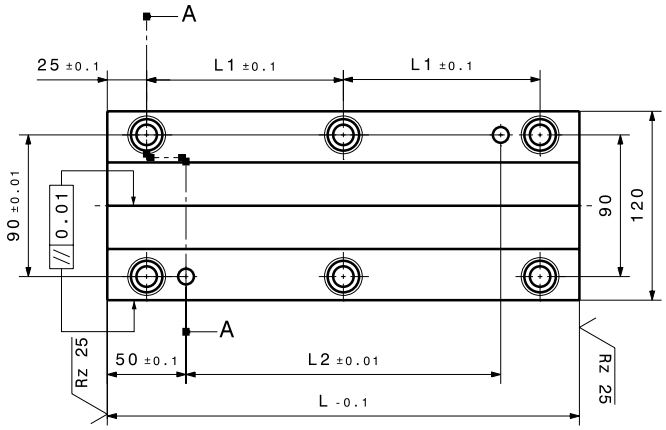




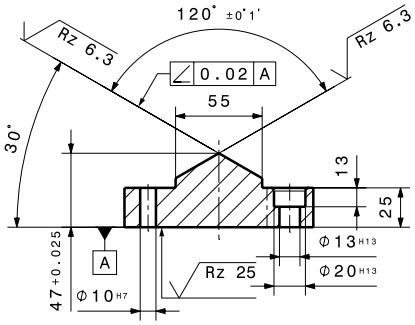
Ident-No. WF750/1A Teil A / Part A	L -0,4	L1 ±0,1	L2 ±0,01	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19101	150	50	50	6x M12
19103	200	75	100	6x M12
19105	250	100	150	6x M12
19107	300	125	200	6x M12

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

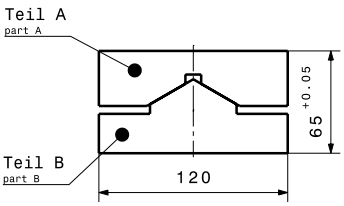
Gleitrichtung
Slide direction



Schnitt A-A
View A-A



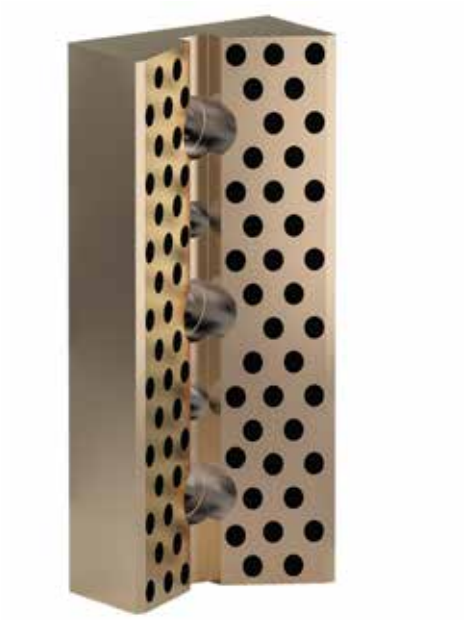
Zusammengebauter Zustand 13.2
Assembled condition 13.2

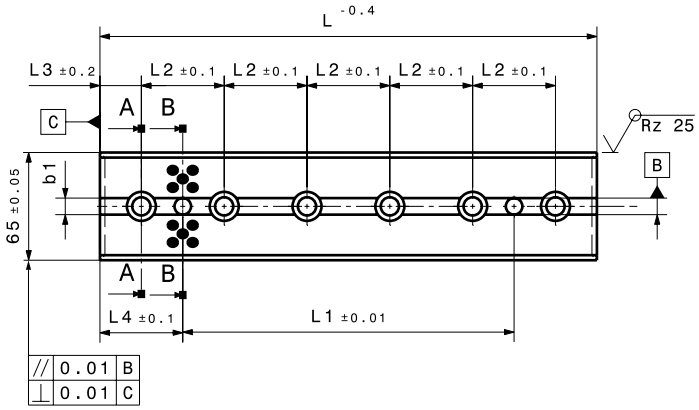


Ident-No. St 1 Teil B / Part B	L -0,1	L1 ±0,1	L2 ±0,01	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19102	150	50	50	6x M12
19104	200	75	100	6x M12
19106	250	100	150	6x M12
19108	300	125	200	6x M12

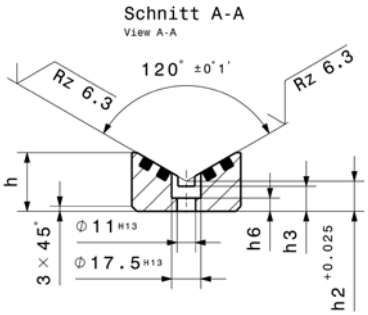
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

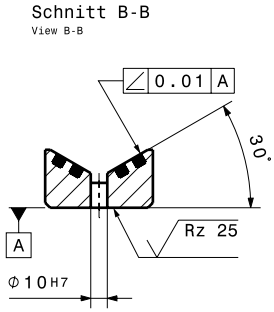
13.6 Prismenführungen
13.6 Cam bottom plates

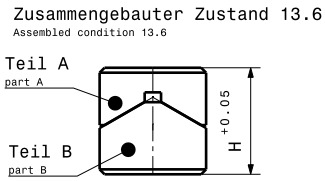




Gleitrichtung
Slide direction





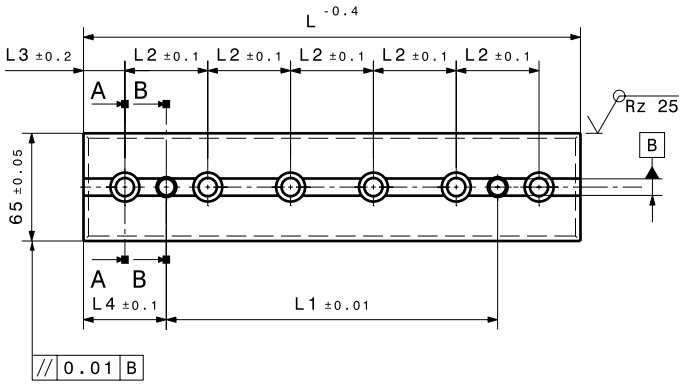


13.6

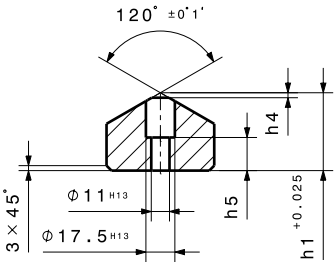
Ident-No. WF750/1A Teil A / Part A	L -0,4	h	L1 ±0,01	L2 ±0,1	L3 ±0,2	L4 ±0,1	h2 +0,025	h3	h6	H +0,05	b1	Zylinderschraube Cylinder head screw DIN EN ISO 4762
15603	100	35	20	60	20	40	18	15	8	65	10	2x M10
17280	150	35	50	50	25	50	18	15	8	65	10	3x M10
17282	200	35	100	50	25	50	18	15	8	65	10	4x M10
17284	250	35	150	50	25	50	18	15	8	65	10	5x M10
17286	300	35	200	50	25	50	18	15	8	65	10	6x M10
64420	350	35	250	50	25	50	18	15	8	65	10	7x M10
64421	400	35	300	50	25	50	18	15	8	65	10	8x M10
15587	100	37	20	60	20	40	20	20	10	50	13	2x M10
14763	125	37	25	75	25	50	20	20	10	50	13	2x M10
15463	150	37	50	100	25	50	20	20	10	50	13	2x M10
14324	200	37	100	75	25	50	20	20	10	50	13	3x M10
17276	250	37	150	100	25	50	20	20	10	50	13	3x M10
17278	300	37	200	125	25	50	20	20	10	50	13	3x M10

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

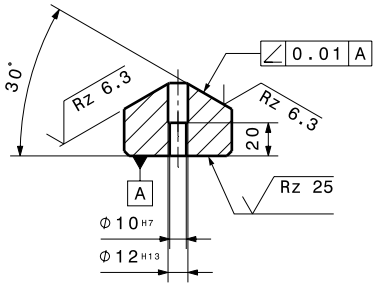
Gleitrichtung
Slide direction



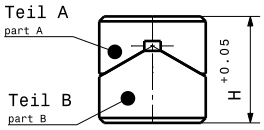
Schnitt A-A
View A-A



Schnitt B-B
View B-B



Zusammengebauter Zustand 13.6
Assembled condition 13.6

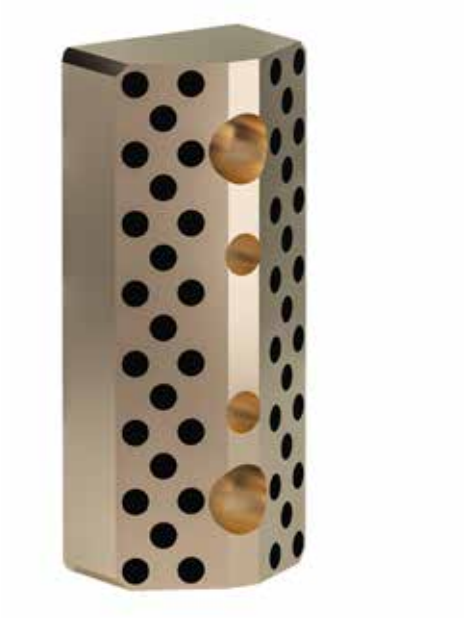


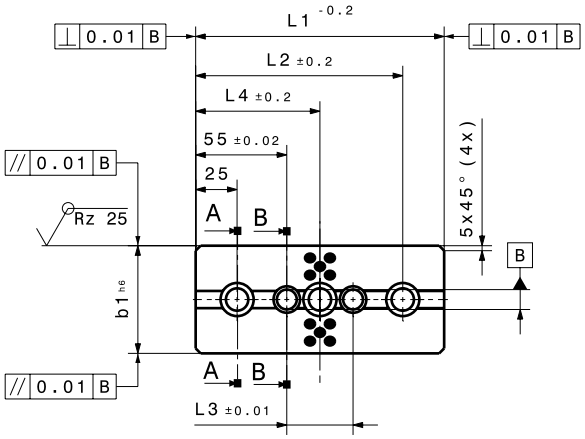
13.6

Ident-No. St 1 Teil B / Part B	L -0,4	L1 ±0,01	L2 ±0,1	L3 ±0,2	L4 ±0,1	h1 +0,025	h4	h5	H +0,05	Zylinderschraube Cylinder head screw DIN EN ISO 4762
15604	100	20	60	20	40	47	3	20	65	2x M10
17281	150	50	50	25	50	47	3	20	65	3x M10
17283	200	100	50	25	50	47	3	20	65	4x M10
17285	250	150	50	25	50	47	3	20	65	5x M10
17287	300	200	50	25	50	47	3	20	65	6x M10
64418	350	250	50	25	50	47	3	20	65	7x M10
64419	400	300	50	25	50	47	3	20	65	8x M10
15713	100	20	60	20	40	30	4	10	50	2x M10
14812	125	25	75	25	50	30	4	10	50	2x M10
15469	150	50	100	25	50	30	4	10	50	2x M10
14323	200	100	75	25	50	30	4	10	50	3x M10
17277	250	150	100	25	50	30	4	10	50	3x M10
17279	300	200	125	25	50	30	4	10	50	3x M10

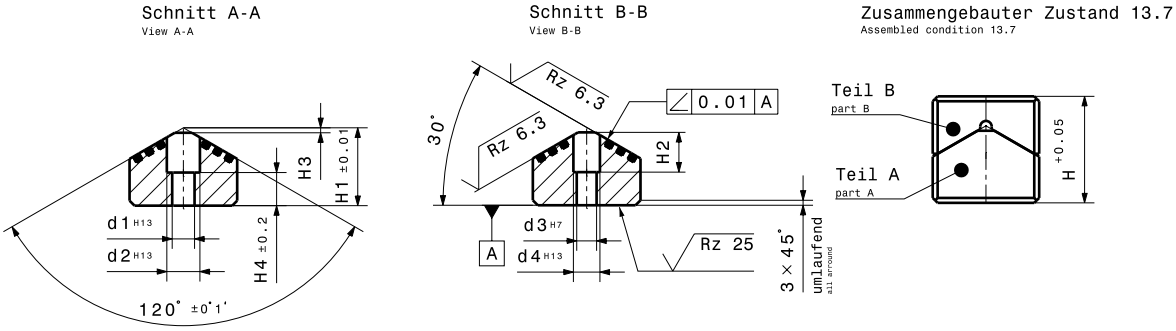
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

13.7 Prismenführungen nach VDI 3357
13.7 Cam bottom plates acc. VDI 3357





Gleitrichtung
Slide direction

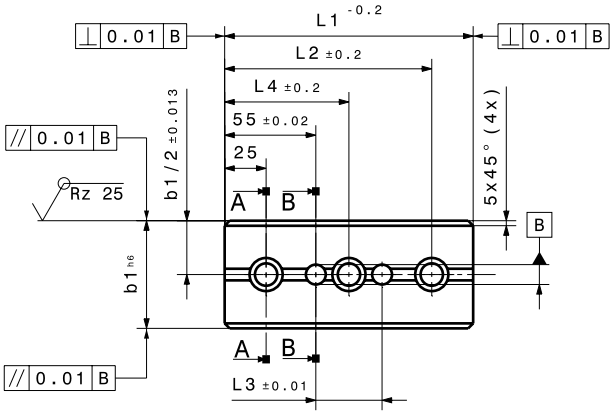


13.7

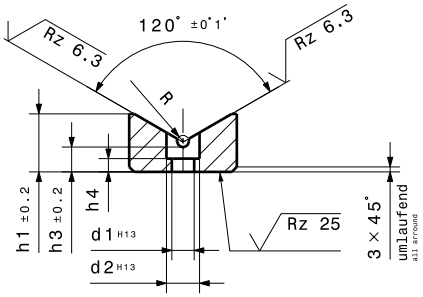
Ident-No. WF750/1A Teil A / Part A	b1 h6	H1 ±0,01	L1 -0,2	L2 ±0,2	L3 ±0,01	L4 ±0,2	H +0,05	H2	H3	H4 ±0,2	d1 H13	d2 H13	d3 H7	d4 H13	Zylinderschraube Cylinder head screw DIN EN ISO 4762
16010	65	47	150	125	45	-	65	20	3	20	13,5	20	12	14	2x M12
16011	65	47	200	175	95	-	65	20	3	20	13,5	20	12	14	2x M12
16012	65	47	250	225	145	125	65	20	3	20	13,5	20	12	14	3x M12
16009	65	47	300	275	195	150	65	20	3	20	13,5	20	12	14	3x M12
16000	125	57	150	125	45	-	85	20	5	15	17,5	26	16	18	2x M16
16001	125	57	200	175	95	-	85	20	5	15	17,5	26	16	18	2x M16
16002	125	57	250	225	145	125	85	20	5	15	17,5	26	16	18	3x M16
16003	125	57	300	275	195	150	85	20	5	15	17,5	26	16	18	3x M16

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

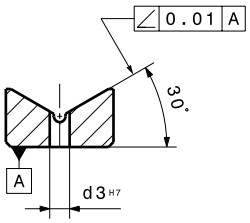
Gleitrichtung
Slide direction



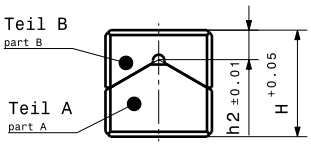
Schnitt A-A
View A-A



Schnitt B-B
View B-B



Zusammengebauter Zustand 13.7
Assembled condition 13.7



13.7

Ident-No. St 1 Teil B / Part B	b1 h6	h1 ±0,2	L1 -0,2	L2 ±0,2	L3 ±0,01	L4 ±0,2	H +0,05	h2 ±0,01	h3 ±0,2	h4	R	d1 H13	d2 H13	d3 H7	Zylinderschraube Cylinder head screw DIN EN ISO 4762
16015	65	35	150	125	45	-	65	18	15	8	7	13,5	20	12	2x M12
16016	65	35	200	175	95	-	65	18	15	8	7	13,5	20	12	2x M12
16017	65	35	250	225	145	125	65	18	15	8	7	13,5	20	12	3x M12
16008	65	35	300	275	195	150	65	18	15	8	7	13,5	20	12	3x M12
16004	125	60	150	125	45	-	85	28	24	15	10	17,5	26	16	2x M16
16005	125	60	200	175	95	-	85	28	24	15	10	17,5	26	16	2x M16
16006	125	60	250	225	145	125	85	28	24	15	10	17,5	26	16	3x M16
16007	125	60	300	275	195	150	85	28	24	15	10	17,5	26	16	3x M16

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

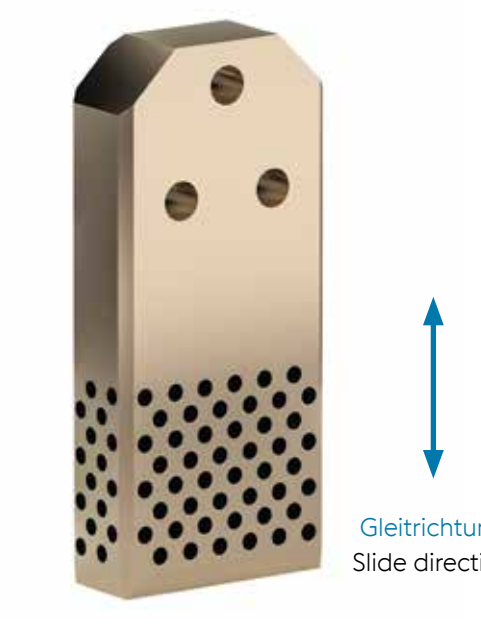
14. Laschen- und Rechteckführungen, Verriegelungen
14. Guide bars, rectangular guide blocks, lockings

14.1 Laschenführungen nach VDI 3387
Guide bars acc. VDI 3387
WF750, Stahl / WF750, steel

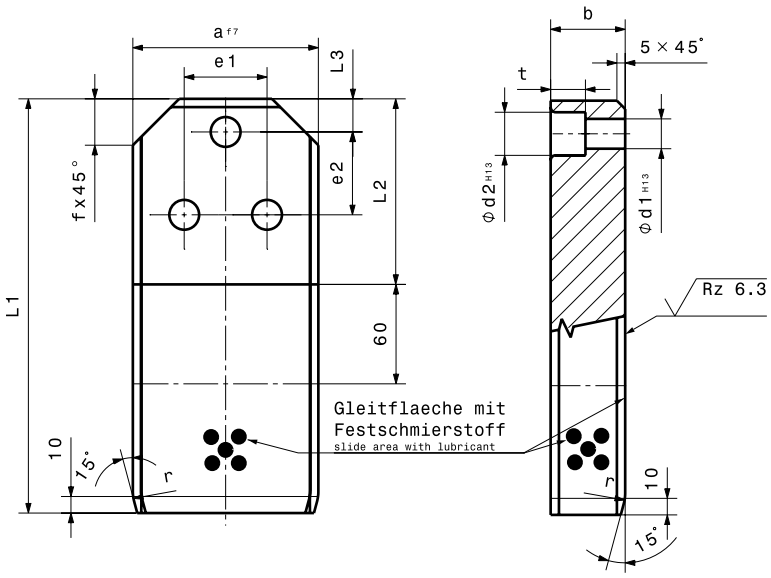
14.2 Rechteckführungen
Rectangular guide blocks

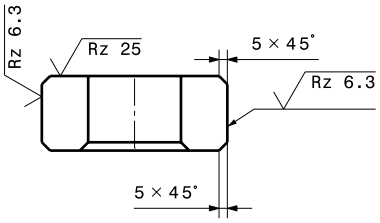
14.3 Verriegelungen
Lockings

14.1 Laschenführungen nach VDI 3387
14.1 Guide bars acc. VDI 3387



Gleitrichtung
Slide direction

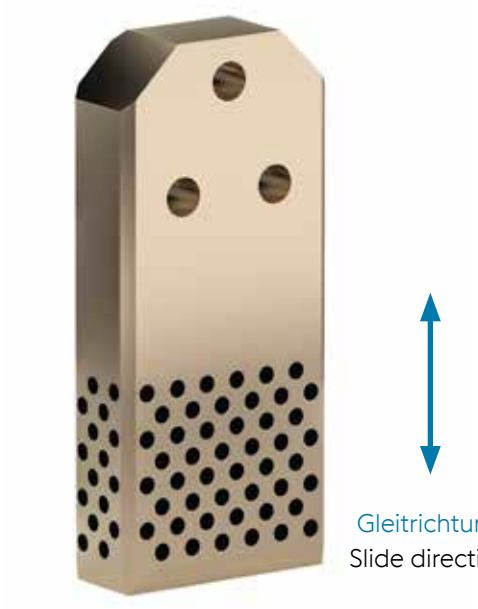




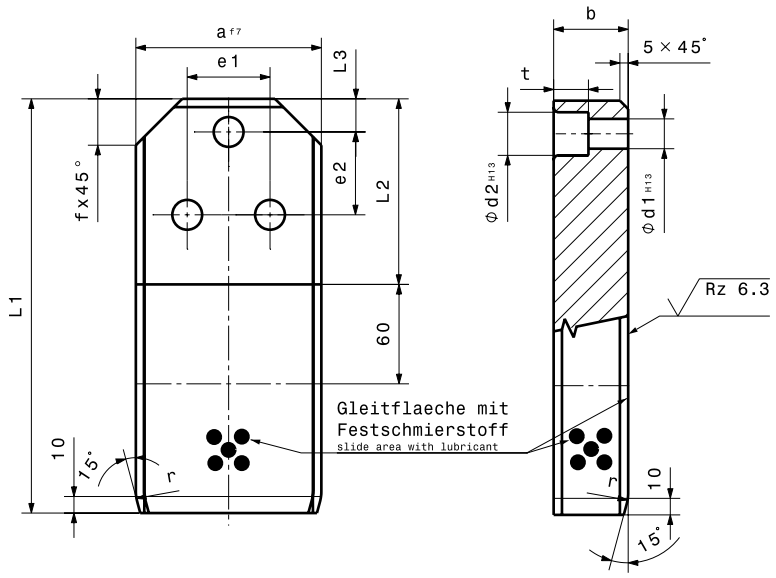
14.1

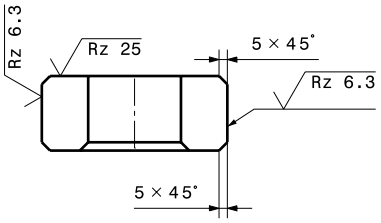
Ident-No. WF750/1A	a f7	L1	b	e1	e2	f	r	t	L2	L3	Ød1 H13	Ød2 H13	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19150	63	180	25	36	50	18	16	16	90	20	14	20	3x M12
19151	63	200	25	36	50	18	16	16	90	20	14	20	3x M12
19152	63	224	25	36	50	18	16	16	90	20	14	20	3x M12
19153	63	180	36	36	50	18	16	16	90	20	14	20	3x M12
19154	63	200	36	36	50	18	16	16	90	20	14	20	3x M12
19155	63	224	36	36	50	18	16	16	90	20	14	20	3x M12
19156	71	180	25	36	50	18	16	16	90	20	14	20	3x M12
19157	71	200	25	36	50	18	16	16	90	20	14	20	3x M12
19158	71	224	25	36	50	18	16	16	90	20	14	20	3x M12
19159	71	180	36	36	50	18	16	16	90	20	14	20	3x M12
19160	71	200	36	36	50	18	16	16	90	20	14	20	3x M12
19161	71	224	36	36	50	18	16	16	90	20	14	20	3x M12

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



Gleitrichtung
Slide direction





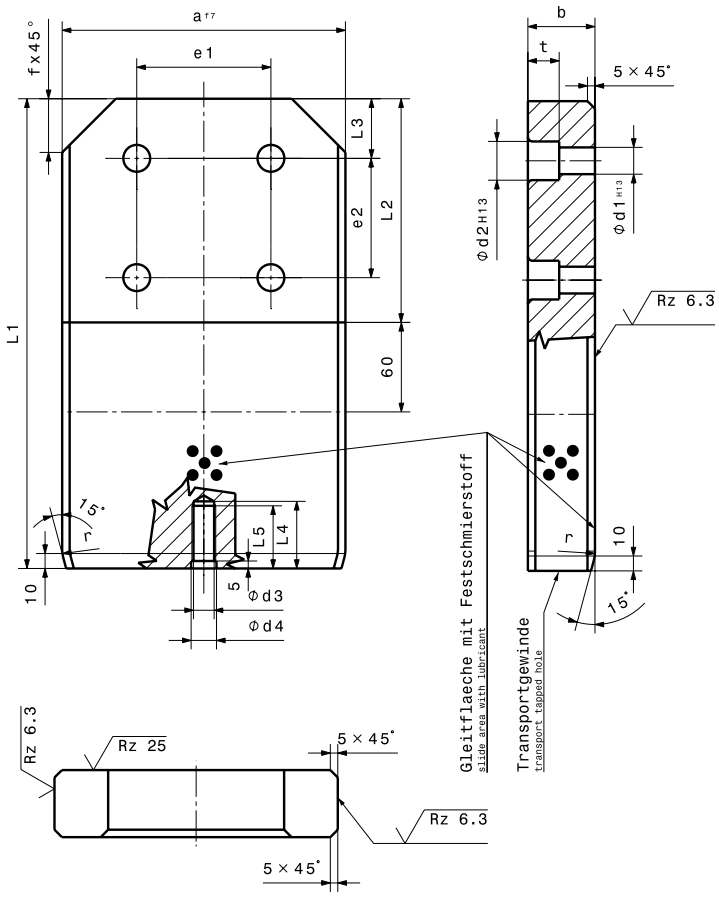
14.1

Ident-No. WF750/1A	a f7	L1	b	e1	e2	f	r	t	L2	L3	Ød1 H13	Ød2 H13	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19162	90	200	36	50	50	28	25	21	100	20	18	26	3x M16
19163	90	224	36	50	50	28	25	21	100	20	18	26	3x M16
19164	90	250	36	50	50	28	25	21	100	20	18	26	3x M16
19165	90	200	45	50	50	28	25	21	100	20	18	26	3x M16
19166	90	224	45	50	50	28	25	21	100	20	18	26	3x M16
19167	90	250	45	50	50	28	25	21	100	20	18	26	3x M16
19168	112	200	36	50	50	28	25	21	100	20	18	26	3x M16
19169	112	224	36	50	50	28	25	21	100	20	18	26	3x M16
19170	112	250	36	50	50	28	25	21	100	20	18	26	3x M16
19171	112	200	45	50	50	28	25	21	100	20	18	26	3x M16
19172	112	224	45	50	50	28	25	21	100	20	18	26	3x M16
19173	112	250	45	50	50	28	25	21	100	20	18	26	3x M16

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

14.1 Laschenführungen nach VDI 3387
14.1 Guide bars acc. VDI 3387

Gleitrichtung
Slide direction

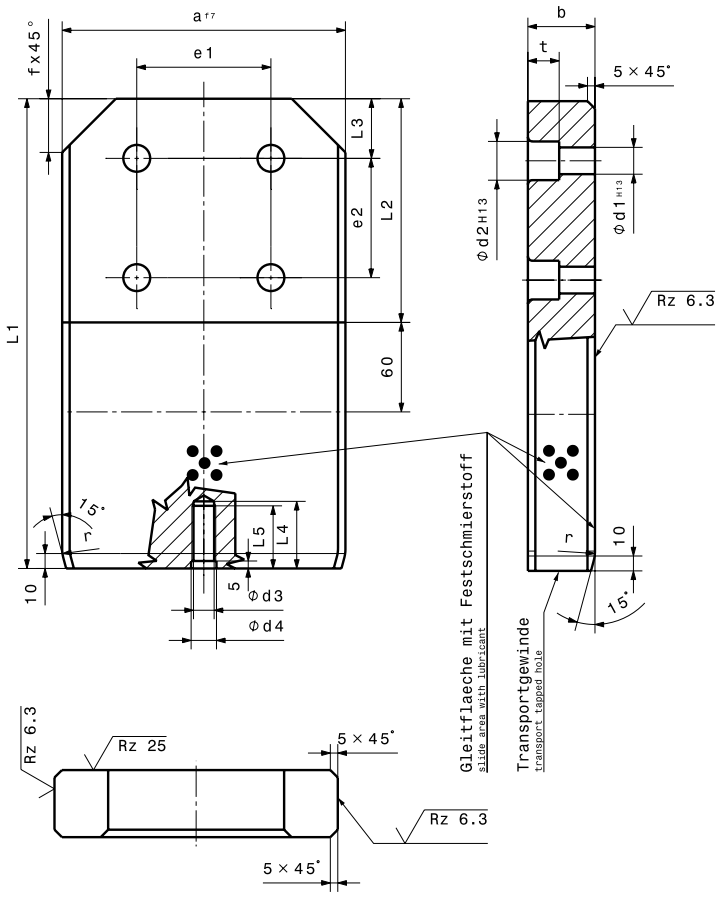


14.1

Ident-No. WF750/1A	a f7	L1	b	e1	e2	f	r	t	L2	L3	Ød1 H13	Ød2 H13	L4	L5	Ød3	Ød4	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19174	140	315	45	90	80	36	31,5	25,5	150	40	22	33	45	37	M16	17	4x M20
19242	140	355	45	90	80	36	31,5	25,5	150	40	22	33	45	37	M16	17	4x M20
19175	140	400	45	90	80	36	31,5	25,5	150	40	22	33	45	37	M16	17	4x M20
19176	140	315	56	90	80	36	31,5	25,5	150	40	22	33	45	37	M16	17	4x M20
19177	140	400	56	90	80	36	31,5	25,5	150	40	22	33	45	37	M16	17	4x M20
19178	190	315	45	90	80	36	31,5	25,5	150	40	22	33	45	37	M16	17	4x M20
19179	190	400	45	90	80	36	31,5	25,5	150	40	22	33	45	37	M16	17	4x M20
19180	190	315	56	90	80	36	31,5	25,5	150	40	22	33	45	37	M16	17	4x M20
19181	190	400	56	90	80	36	31,5	25,5	150	40	22	33	45	37	M16	17	4x M20
19182	190	315	71	90	80	36	31,5	25,5	150	40	22	33	45	37	M16	17	4x M20
19183	190	400	71	90	80	36	31,5	25,5	150	40	22	33	45	37	M16	17	4x M20

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Gleitrichtung
Slide direction

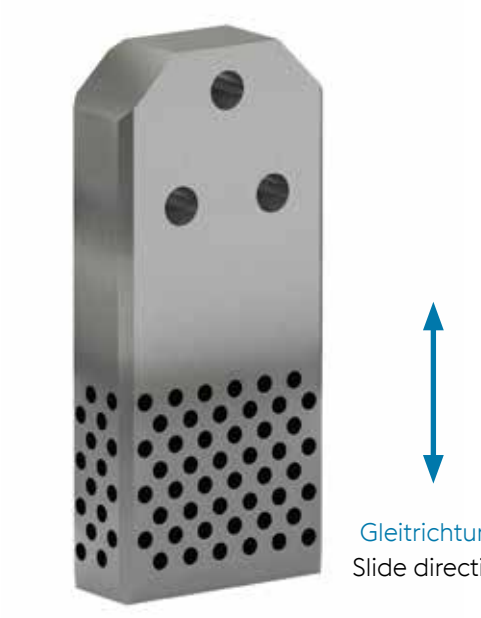


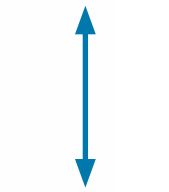
14.1

Ident-No. WF750/1A	a f7	L1	b	e1	e2	f	r	t	L2	L3	Ød1 H13	Ød2 H13	L4	L5	Ød3	Ød4	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19184	240	500	56	160	160	36	31,5	30,5	250	40	26	40	45	37	M16	17	4x M24
19185	240	630	56	160	160	36	31,5	30,5	250	40	26	40	45	37	M16	17	4x M24
19186	240	500	71	160	160	36	31,5	30,5	250	40	26	40	45	37	M16	17	4x M24
19187	240	630	71	160	160	36	31,5	30,5	250	40	26	40	45	37	M16	17	4x M24
19188	240	500	90	160	160	36	31,5	30,5	250	40	26	40	45	37	M16	17	4x M24
19189	240	630	90	160	160	36	31,5	30,5	250	40	26	40	45	37	M16	17	4x M24
19190	290	500	56	160	160	36	31,5	30,5	250	40	26	40	45	37	M16	17	4x M24
19191	290	630	56	160	160	36	31,5	30,5	250	40	26	40	45	37	M16	17	4x M24
19192	290	500	71	160	160	36	31,5	30,5	250	40	26	40	45	37	M16	17	4x M24
19193	290	630	71	160	160	36	31,5	30,5	250	40	26	40	49	41	M20	21	4x M24
19194	290	500	90	160	160	36	31,5	30,5	250	40	26	40	49	41	M20	21	4x M24
19195	290	630	90	160	160	36	31,5	30,5	250	40	26	40	49	41	M20	21	4x M24

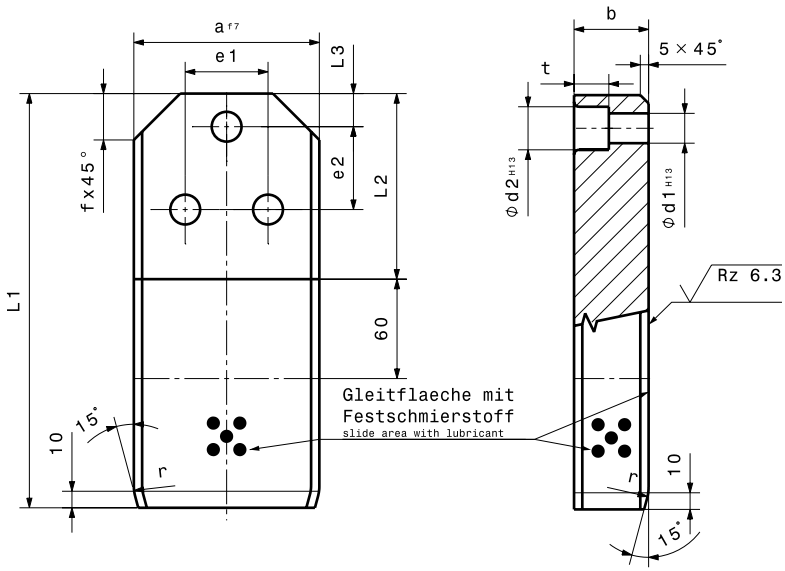
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

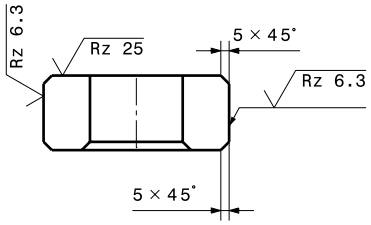
14.1 Laschenführungen nach VDI 3387
14.1 Guide bars acc. VDI 3387





Gleitrichtung
Slide direction

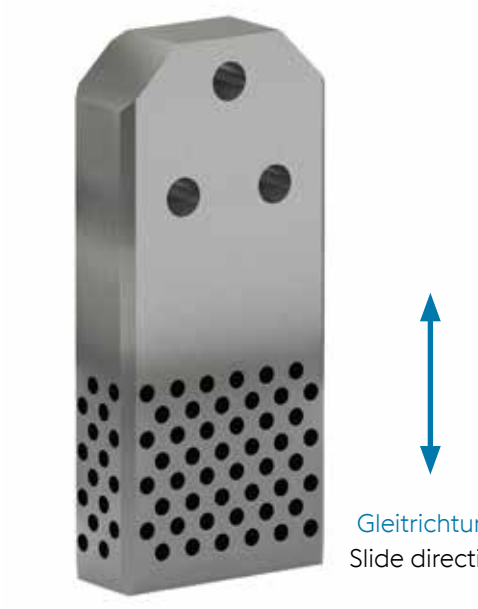




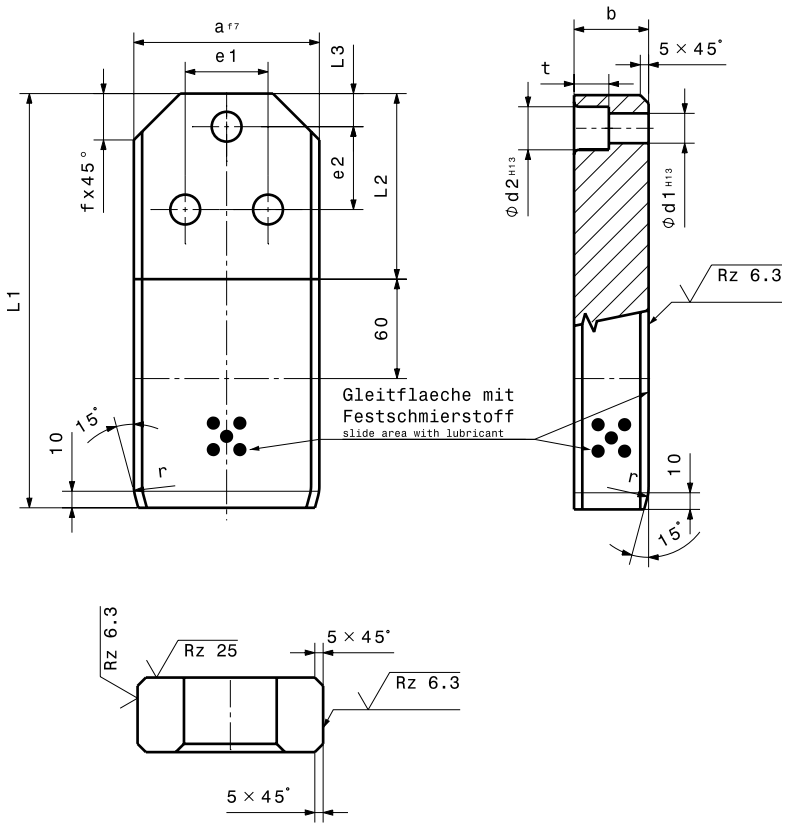
14.1

Ident-No. WF St 1	a f7	L1	b	e1	e2	f	r	t	L2	L3	Ød1 H13	Ød2 H13	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19196	63	180	25	36	50	18	16	16	90	20	14	20	3x M12
19197	63	200	25	36	50	18	16	16	90	20	14	20	3x M12
19198	63	224	25	36	50	18	16	16	90	20	14	20	3x M12
19199	63	180	36	36	50	18	16	16	90	20	14	20	3x M12
19200	63	200	36	36	50	18	16	16	90	20	14	20	3x M12
19201	63	224	36	36	50	18	16	16	90	20	14	20	3x M12
19202	71	180	25	36	50	18	16	16	90	20	14	20	3x M12
19203	71	200	25	36	50	18	16	16	90	20	14	20	3x M12
19204	71	224	25	36	50	18	16	16	90	20	14	20	3x M12
19205	71	180	36	36	50	18	16	16	90	20	14	20	3x M12
19206	71	200	36	36	50	18	16	16	90	20	14	20	3x M12
19207	71	224	36	36	50	18	16	16	90	20	14	20	3x M12

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



Gleitrichtung
Slide direction



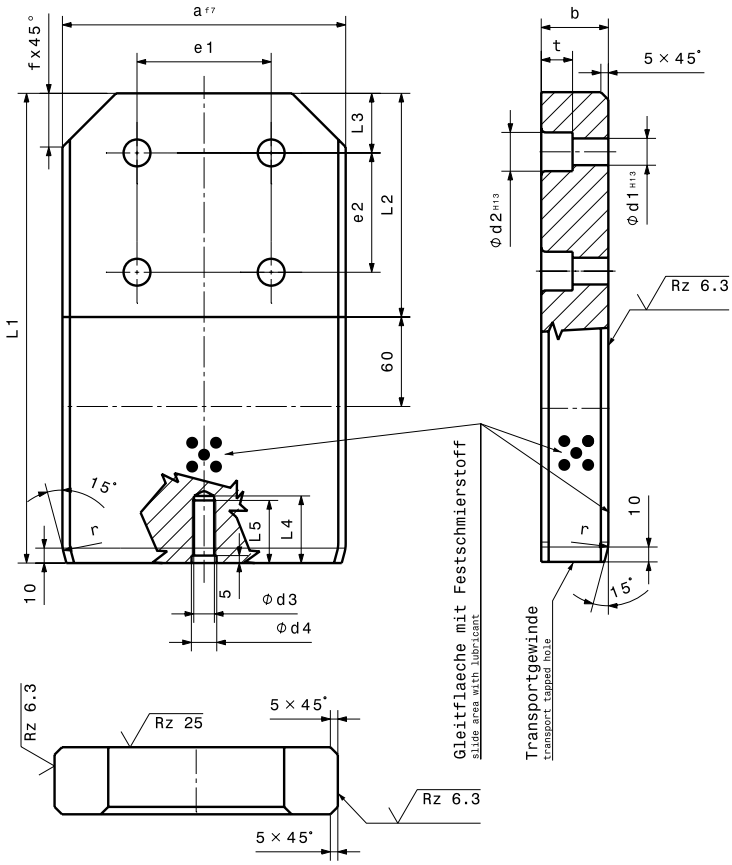
14.1

Ident-No. WF St 1	a f7	L1	b	e1	e2	f	r	t	L2	L3	Ød1 H13	Ød2 H13	Zylinderschraube Cylinder head screw DIN EN ISO 4762
19208	90	200	36	50	50	28	25	21	100	20	18	26	3x M16
19209	90	224	36	50	50	28	25	21	100	20	18	26	3x M16
19210	90	250	36	50	50	28	25	21	100	20	18	26	3x M16
19211	90	200	45	50	50	28	25	21	100	20	18	26	3x M16
19212	90	224	45	50	50	28	25	21	100	20	18	26	3x M16
19213	90	250	45	50	50	28	25	21	100	20	18	26	3x M16
19214	112	200	36	50	50	28	25	21	100	20	18	26	3x M16
19215	112	224	36	50	50	28	25	21	100	20	18	26	3x M16
19216	112	250	36	50	50	28	25	21	100	20	18	26	3x M16
19217	112	200	45	50	50	28	25	21	100	20	18	26	3x M16
19218	112	224	45	50	50	28	25	21	100	20	18	26	3x M16
19219	112	250	45	50	50	28	25	21	100	20	18	26	3x M16

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

14.1 Laschenführungen nach VDI 3387
14.1 Guide bars acc. VDI 3387

Gleitrichtung
Slide direction



14.1

Ident-No. WF St 1	a f7	L1	b	e1	e2	f	r	t	L2
19220	140	315	45	90	80	36	31,5	25,5	150
14023	140	355	45	90	80	36	31,5	25,5	150
19221	140	400	45	90	80	36	31,5	25,5	150
19222	140	315	56	90	80	36	31,5	25,5	150
19223	140	400	56	90	80	36	31,5	25,5	150
19224	190	315	45	90	80	36	31,5	25,5	150
19225	190	400	45	90	80	36	31,5	25,5	150
19226	190	315	56	90	80	36	31,5	25,5	150
19227	190	400	56	90	80	36	31,5	25,5	150
19228	190	315	71	90	80	36	31,5	25,5	150
19229	190	400	71	90	80	36	31,5	25,5	150

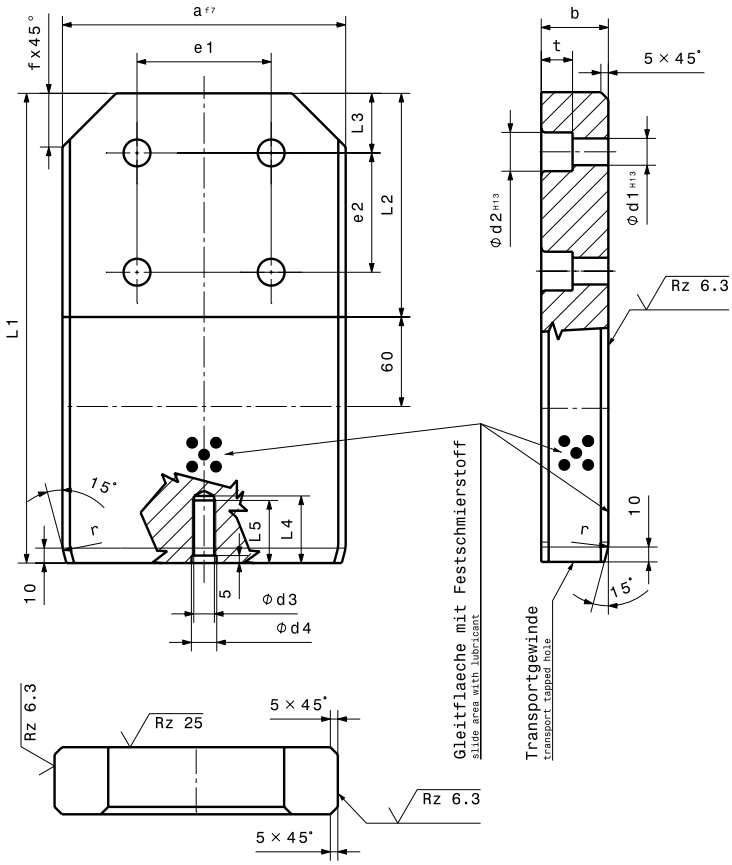
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

L3	Ød1 H13	Ød2 H13	L4	L5	Ød3	Ød4	Zylinderschraube Cylinder head screw DIN EN ISO 4762
40	22	33	45	37	M16	17	4x M20
40	22	33	45	37	M16	17	4x M20
40	22	33	45	37	M16	17	4x M20
40	22	33	45	37	M16	17	4x M20
40	22	33	45	37	M16	17	4x M20
40	22	33	45	37	M16	17	4x M20
40	22	33	45	37	M16	17	4x M20
40	22	33	45	37	M16	17	4x M20
40	22	33	45	37	M16	17	4x M20
40	22	33	45	37	M16	17	4x M20
40	22	33	45	37	M16	17	4x M20
40	22	33	45	37	M16	17	4x M20

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

14.1 Laschenführungen nach VDI 3387
14.1 Guide bars acc. VDI 3387

Gleitrichtung
Slide direction



14.1

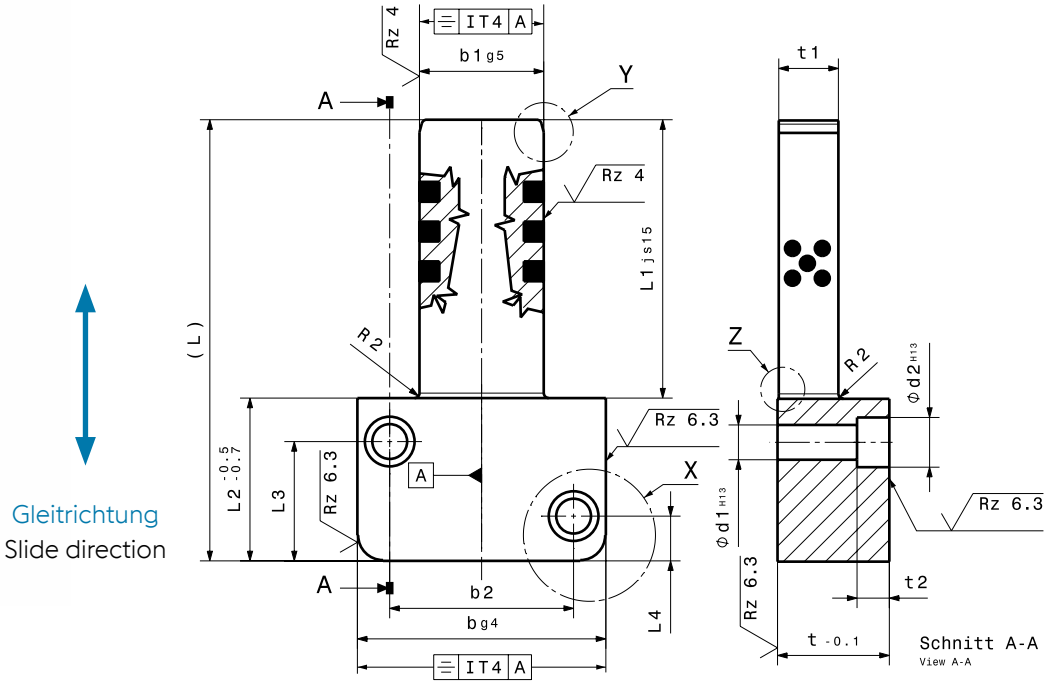
Ident-No. WF St 1	a f7	L1	b	e1	e2	f	r	t	L2
19230	240	500	56	160	160	36	31,5	30,5	250
19231	240	630	56	160	160	36	31,5	30,5	250
19232	240	500	71	160	160	36	31,5	30,5	250
19233	240	630	71	160	160	36	31,5	30,5	250
19234	240	500	90	160	160	36	31,5	30,5	250
19235	240	630	90	160	160	36	31,5	30,5	250
19236	290	500	56	160	160	36	31,5	30,5	250
19237	290	630	56	160	160	36	31,5	30,5	250
19238	290	500	71	160	160	36	31,5	30,5	250
19239	290	630	71	160	160	36	31,5	30,5	250
19240	290	500	90	160	160	36	31,5	30,5	250
19241	290	630	90	160	160	36	31,5	30,5	250

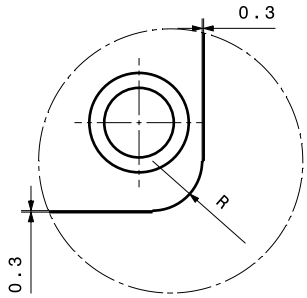
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

L3	Ød1 H13	Ød2 H13	L4	L5	Ød3	Ød4	Zylinderschraube Cylinder head screw DIN EN ISO 4762
40	26	40	45	37	M16	17	4x M24
40	26	40	45	37	M16	17	4x M24
40	26	40	45	37	M16	17	4x M24
40	26	40	45	37	M16	17	4x M24
40	26	40	45	37	M16	17	4x M24
40	26	40	45	37	M16	17	4x M24
40	26	40	45	37	M16	17	4x M24
40	26	40	45	37	M16	17	4x M24
40	26	40	45	37	M16	17	4x M24
40	26	40	49	41	M20	21	4x M24
40	26	40	49	41	M20	21	4x M24
40	26	40	49	41	M20	21	4x M24

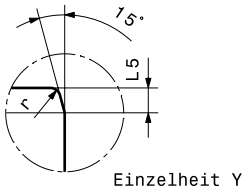
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

14.2 Rechteckführungen
14.2 Rectangular guide blocks

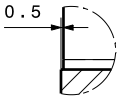




Einzelheit X



Einzelheit Y
Detail Y



Einzelheit Z
Detail Z

14.2

Ident-No. WF St 1	L	b g4	t -0,1	L1 js15	L2 -0,5 -0,7	L3	L4	b1 g5	b2
20240	42	40	20	20	22	15	7	16	26
20241	52	45	22	25	27	19	7	20	31
20242	68	50	25	32	36	27	9	25	35
20243	86	63	32	40	46	35	11	32	45
20244	106	85	36	50	56	40	15	40	60
20245	122	100	40	56	66	48	18	50	74
20250	62	40	20	40	22	15	7	16	26
20251	77	45	22	50	27	19	7	20	31
20252	99	50	25	63	36	27	9	25	35
20253	126	63	32	80	46	35	11	32	45
20254	156	85	36	100	56	40	15	40	60
20255	178	100	40	112	66	48	18	50	74

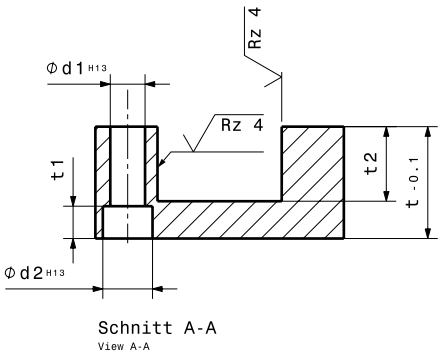
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

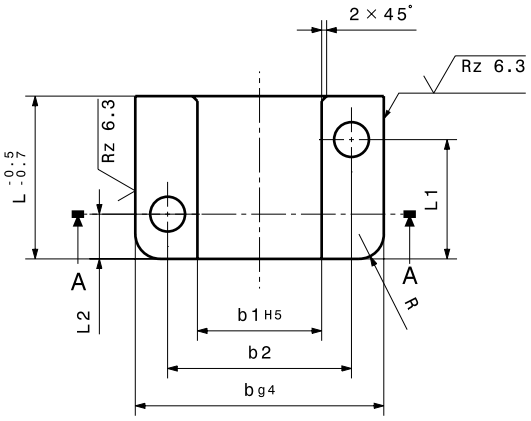
t1	t2	Ød1 H13	Ød2 H13	R	r	L5	Zylinderschraube Cylinder head screw DIN EN ISO 4762
11	6,9	6,6	11	6	1,5	4	2x M6
13	6,9	6,6	11	6	2	5	2x M6
14	6,9	6,6	11	8	2	7	2x M6
19	9	9	15	8	2	8	2x M8
22	11	11	18	10	2	10	2x M10
24	13	14	20	10	2	10	2x M12
11	6,9	6,6	11	6	1,5	4	2x M6
13	6,9	6,6	11	6	2	5	2x M6
14	6,9	6,6	11	8	2	7	2x M6
19	9	9	15	8	2	8	2x M8
22	11	11	18	10	2	10	2x M10
24	13	14	20	10	2	10	2x M12

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

14.2 Führungsaufnahmen zu Rechteckführungen
14.2 Guide block for rectangular guide blocks

Gleitrichtung
Slide direction





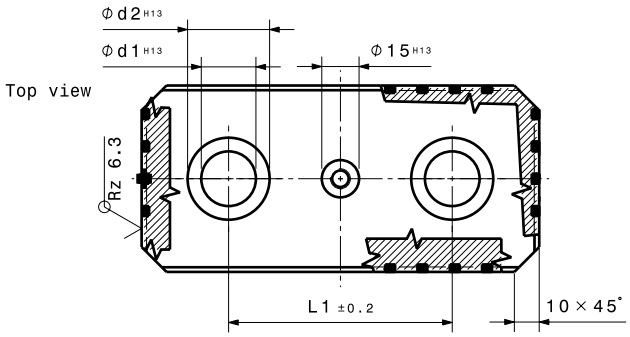
14.2

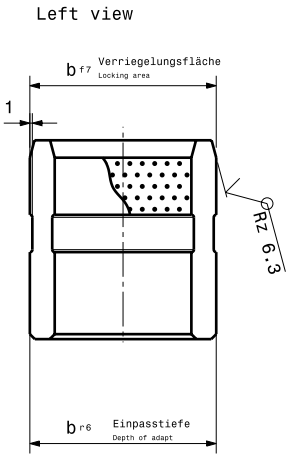
Ident-No. St 1	L -0,5 -0,7	b g4	t -0,1	L1	L2	b1 H5	b2	t1	t2	Ød1 H13	Ød2 H13	R	Zylinderschraube Cylinder head screw DIN EN ISO 4762
20230	22	40	20	15	7	16	26	6,9	12	6,6	11	6	2x M6
20231	27	45	22	19	7	20	31	6,9	14	6,6	11	6	2x M6
20232	36	50	25	27	9	25	35	6,9	15	6,6	11	8	2x M6
20233	46	63	32	35	11	32	45	9	20	9	15	8	2x M8
20234	56	85	36	40	15	40	60	11	23	11	18	10	2x M10
20235	66	100	40	48	18	50	74	13	25	14	20	10	2x M12

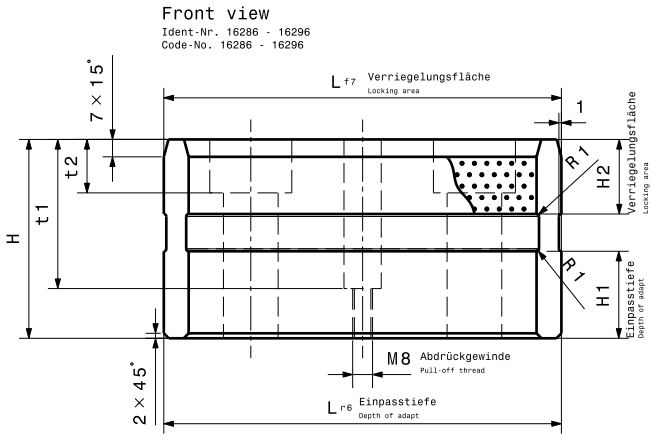
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

14.3 Verriegelungen
14.3 Lockings

Gleitrichtung
Slide direction



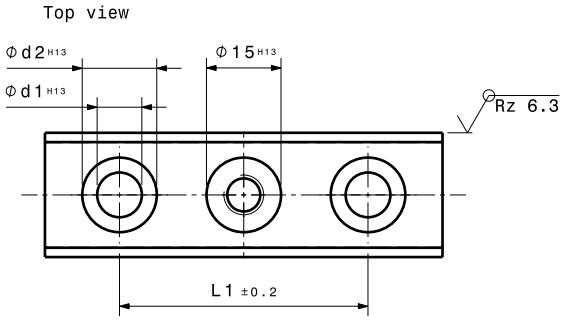


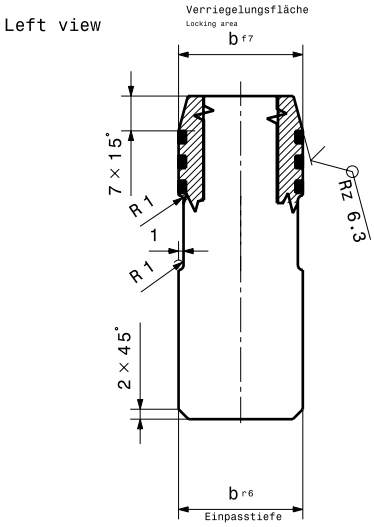


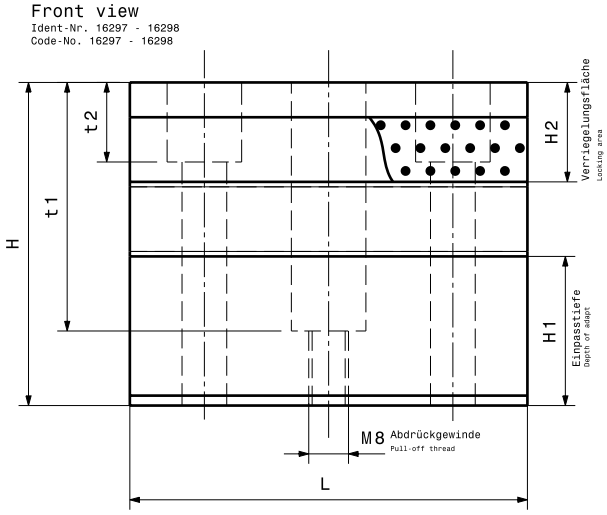
Ident-No. WF750/1A	L r6/f7	b r6/f7	H	L1 ±0,2	t1	t2	H1	H2	Ød1 H13	Ød2 H13	Zylinderschraube Cylinder head screw DIN EN ISO 4762
16286	80	35	80	50	60	13	35	30	13,5	20	2x M12x90
16287	100	35	80	60	60	13	35	30	13,5	20	2x M12x90
16288	125	35	80	80	60	13	35	30	13,5	20	2x M12x90
16289	160	35	80	100	60	13	35	30	13,5	20	2x M12x90
16290	100	55	80	60	60	17,5	35	30	17,5	26	2x M16x90
16291	125	55	80	70	60	17,5	35	30	17,5	26	2x M16x90
16293	160	55	80	100	60	17,5	35	30	17,5	26	2x M16x90
16294	100	75	80	50	60	21,5	35	30	22	33	2x M20x90
16295	125	75	80	70	60	21,5	35	30	22	33	2x M20x90
16296	160	75	80	90	60	21,5	35	30	22	33	2x M20x90

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Gleitrichtung
Slide direction







Ident-No. WF750/1A	L	b r6/f7	H	L1 ±0,2	t1	t2	H1	H2	Ød1 H13	Ød2 H13	Zylinderschraube Cylinder head screw DIN EN ISO 4762
16297	80	25	65	50	50	16	30	20	9	15	2x M8x80
16298	100	25	65	70	50	16	30	20	9	15	2x M8x80

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

16. Druckstücke, Kantenheber, Federbolzen
16. Spring ball plungers, flange lifters, spring bolts

16.2 Federnde Druckstücke
Springloaded triggers

16.3 Federnde Druckstücke, langer Hub
Springloaded triggers, long strike

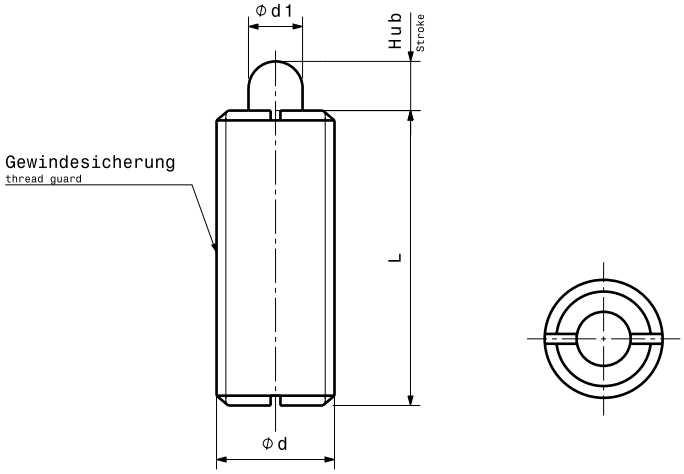
16.5 Ziehteilheber mit Führungsbuchse
Spring bolt with guide bush

16.6 Gasdruckfedern
Gas springs

16.7 Kantenheber
Flange lifters

16.10 Federbolzen
Spring bolts

16.2 Federnde Druckstücke
16.2 Springloaded triggers



* **Werkstoff:** Material:
Druckstueckgehaeuse, 34 CrMoS4, schwarz chromatiert
Trigger housing, 34 CrMoS4, black chromated
Druckbolzen, C80W2, 36-40 HRC
Springloaded trigger, C80W2, 36-40 HRC

Große Belastung / schwarz-chrom. Nase
High load / black-chrom nose

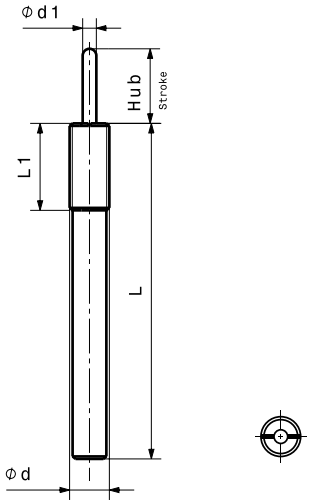
Ident-No.	Bezeichnung Type	Ød	L	Hub Stroke	Ød1	Federkraft min. Spring force min. N	Federkraft max. Spring force max. N
19415	SP-3H	M3 x 0,5	10	1,5	1	0,5	3
19416	SP-4H	M4 x 0,7	12	2	1,6	2	10
19410	SP-5H	M5 x 0,8	20	3	2	4	20
19411	SP-6H	M6 x 1	25	3	2,5	8	30
19412	SP-8H	M8 x 1,25	25	3	3,1	8	30
19413	SP-10H	M10 x 1,5	30	5	3,8	10	50
19414	SP-12H	M12 x 1,75	30	5	5,5	10	50

Kleine Belastung / silber-chrom. Nase
Low load / silver-chrom nose

Ident-No.	Bezeichnung Type	Ød	L	Hub Stroke	Ød1	Federkraft min. Spring force min. N	Federkraft max. Spring force max. N
19420	SP-5LS	M5 x 0,8	13	3	2	2	8
19421	SP-5L	M5 x 0,8	20	3	2	2	10
19422	SP-6L	M6 x 1	25	3	2,5	3	10
19423	SP-8L	M8 x 1,25	25	3	3,1	3	10
19424	SP-10L	M10 x 1,5	30	5	3,8	3	15
19425	SP-12L	M12 x 1,75	30	5	5,5	2	10

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

16.3 Federnde Druckstücke, langer Hub
16.3 Springloaded triggers, long strike



*** Werkstoff:** Material:
Federhuelse S235, brueniert
Trigger housing S235, burnished
Druckbolzen 16MnCr5, gehaertet auf min. 58 HRC
Plunger 16MnCr5, hardened to min. 58 HRC
Buechse WF 750/1A
Bushing WF 750/1A

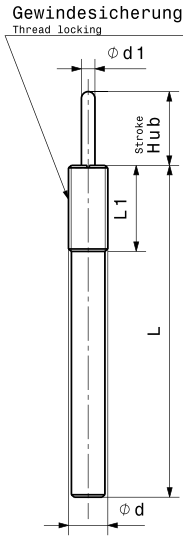
16.3

Federndes Druckstück mit wartungsfreier Führungsbuchse ohne Gewindesicherung
Springloaded triggers with maintenance free guide bushing, with thread guard

Ident-No.	Ød	Ident-No.	Ød	L	Hub Stroke	Ød1	L1	Federkraft min. Spring force min. N	Federkraft max. Spring force max. N
19590		**19400**		80	20	8	35	24	186
19591		**19401**		80	30	8	35	4	47
19592		**19402**		150	40	8	35	59	177
19593	M16x1.5	**19403**	M16x2	150	50	8	35	13	47
19594		**19404**		150	60	8	35	11	45
19595		**19405**		200	70	8	35	5	40
19596		**19406**		200	80	8	35	2	38

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

16.3 Federnde Druckstücke, langer Hub
16.3 Springloaded triggers, long strike



* **Werkstoff:** Material:
Federhülse, 34CrMoS4, schwarz chromatiert
Trigger housing, 34CrMoS4, black chromated
Druckbolzen, C80W2, gehaertet auf min. 36 HRC
Plunger, C80W2, hardened to min. 36 HRC

Federndes Druckstück ohne wartungsfreier Führungsbuchse mit Gewindesicherung
Springloaded triggers without maintenance free guide bushing, with thread guard

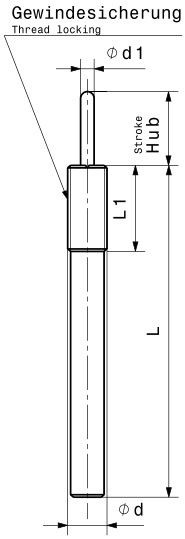
16.3

Hohe Belastung / dunkle Ausführung
High load / dark finishing

Ident-No.	Bezeichnung Type	Ød	L	Hub Stroke	Ød1	L1	Federkraft min. Spring force min. N	Federkraft max. Spring force max. N
19430	SP-12-10H	M12 x 1,75	43	10	5,5	35	7	40
19431	SP-16-10HS	M16 x 2	50	10	8	35	20	100
19432	SP-16-10H	M16 x 2	60	10	8	35	27	80
19433	SP-16-15H	M16 x 2	60	15	8	35	15	80
19435	SP-16-20H	M16 x 2	85	20	8	35	17	80
19436	SP-16-30H	M16 x 2	125	30	8	35	20	80
19439	SP-24-15H	M24 x 3	60	15	10	45	40	200
19440	SP-30-20H	M30 x 3,5	70	20	15	45	50	300

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

16.3 Federnde Druckstücke, langer Hub
16.3 Springloaded triggers, long strike



*** Werkstoff:** Material:
Federhülse, 34CrMoS4, schwarz chromatiert
Trigger housing, 34CrMoS4, black chromated
Druckbolzen, C80W2, gehaertet auf min. 36 HRC
Plunger, C80W2, hardened to min. 36 HRC

16.3

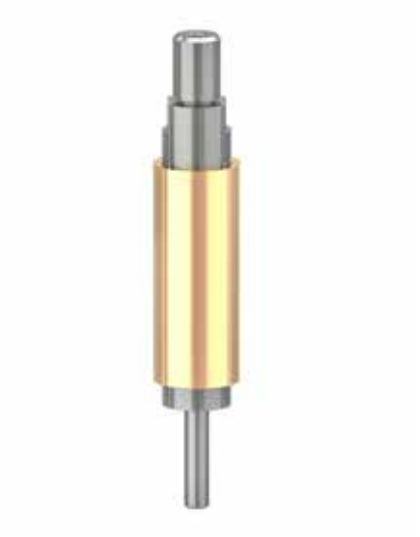
Federndes Druckstück ohne wartungsfreier Führungsbuchse mit Gewindesicherung
Springloaded triggers without maintenance free guide bushing, with thread guard

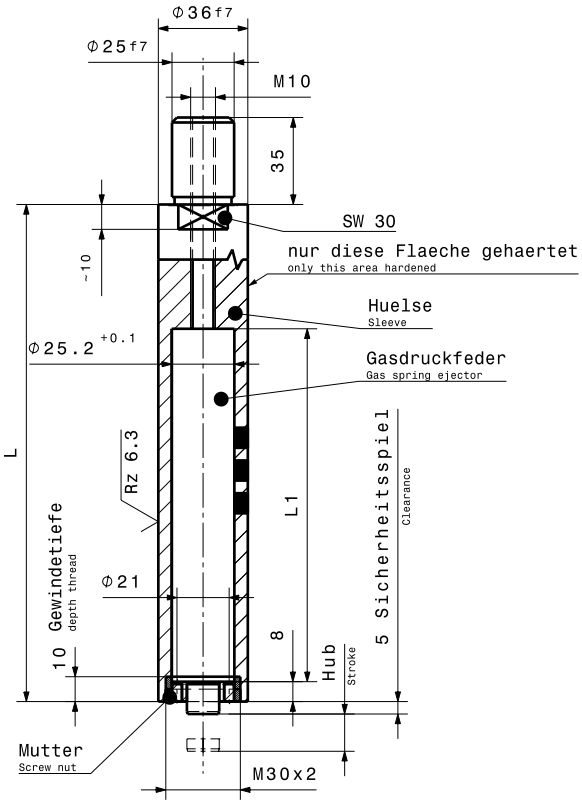
Geringe Belastung / helle Ausführung
Low load / light finishing

Ident-No.	Bezeichnung Type	Ød	L	Hub Stroke	Ød1	L1	Federkraft min. Spring force min. N	Federkraft max. Spring force max. N
19441	SP-12-10L	M12 x 1,75	43	10	5,5	35	4	20
19442	SP-16-10LS	M16 x 2	50	10	8	35	10	50
19443	SP-16-10L	M16 x 2	60	10	8	35	13	40
19444	SP-16-15L	M16 x 2	60	15	8	35	10	40
19445	SP-16-20L	M16 x 2	85	20	8	35	13	40
19447	SP-16-30L	M16 x 2	125	30	8	35	18	40
19448	SP-24-15L	M24 x 3	60	15	10	45	20	100
19450	SP-30-20L	M30 x 3,5	70	20	15	45	30	150

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

16.5 Ziehteilheber mit Führungsbuchse
16.5 Spring bolt with guide bush





* Werkstoff: C45 gehaertet Wkst.-Nr. 1.0503
Material: C45 hardened Mat.-No. 1.0503

* Werstoff: G-CuSn7ZnPb Wkst.-Nr. 2.1090
Material: G-CuSn7ZnPb Mat.No. 2.1090

Ziehteilanheber
Spring bolt

Ident-No.	L	L1	Federhub Spring stroke	Nutzhub Stroke
19131	160	107	63	50
19132	200	143	100	90

Lieferzustand: Gasdruckfeder mit 150 bar gefüllt
Delivery condition: Gas spring charged to 150 bar

Federkraft Spring force N	Ident-No. Hülse Sleeve	Ident-No. Gasdruckfeder Gas spring
1750	**19133**	**101553**
1750	**19134**	**101555**

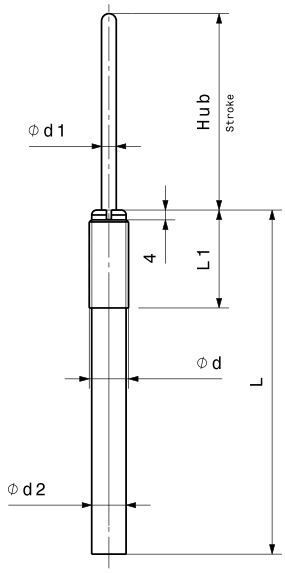
Buchse
Bushing

Ident-No. G-CuSn7ZnPb	L
15457	115
14879	145
15755	170

Buchse nicht im Lieferumfang enthalten (gesondert bestellen)
Bushing not included (order separately)

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

16.6 Gasdruckfedern
16.6 Gas springs

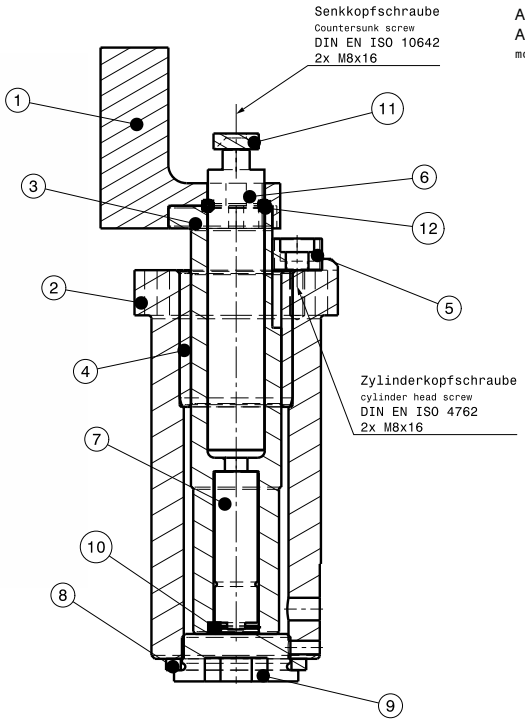


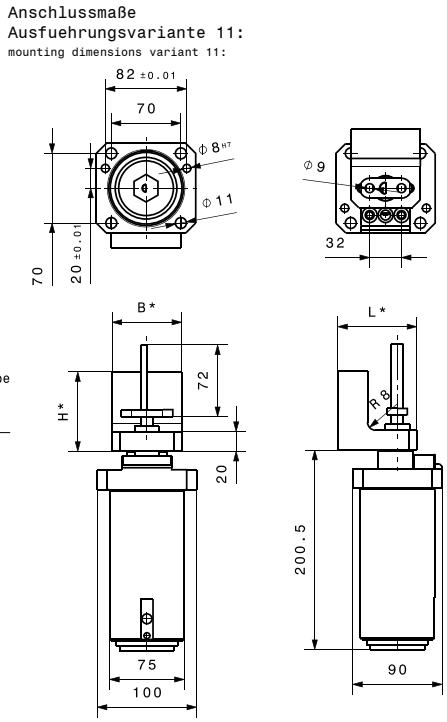
Lieferzustand: Gasdruckfeder mit 150 bar gefüllt
Delivery condition: Gas spring charged to 150 bar
Es ist eine unterschiedliche Befüllung von 20 bar bis zu 150 bar möglich.
The gas springs can be charged to a pressure of 20 bar up to 150 bar.

Ident-No.	Hub Stroke	L	L1	Ød	Ød1	Ød2	Federkraft MPa Spring force MPa 20 bar	Federkraft MPa Spring force MPa 150 bar	Ident-No. Befülladapter Charging adapter	Ident-No. Entladeadapter Discharging adapter
21108	10	70	40	M16x1.5	6	14	56	425	**21097**	**21098**
21100	20	80	40	M16x1.5	6	14	56	425	**21097**	**21098**
21101	30	90	40	M16x1.5	6	14	56	425	**21097**	**21098**
21102	40	100	40	M16x1.5	6	14	56	425	**21097**	**21098**
21103	50	110	40	M16x1.5	6	14	56	425	**21097**	**21098**
21104	60	120	40	M16x1.5	6	14	56	425	**21097**	**21098**
21105	70	130	40	M16x1.5	6	14	56	425	**21097**	**21098**
21106	80	140	40	M16x1.5	6	14	56	425	**21097**	**21098**
21107	100	160	40	M16x1.5	6	14	56	425	**21097**	**21098**
21109	10	70	45	M24x1.5	12	22	226	1690	**21097**	**21099**
21110	20	80	45	M24x1.5	12	22	226	1690	**21097**	**21099**
21111	30	90	45	M24x1.5	12	22	226	1690	**21097**	**21099**
21112	40	100	45	M24x1.5	12	22	226	1690	**21097**	**21099**
21113	50	110	45	M24x1.5	12	22	226	1690	**21097**	**21099**
21114	60	120	45	M24x1.5	12	22	226	1690	**21097**	**21099**
21115	70	130	45	M24x1.5	12	22	226	1690	**21097**	**21099**
21116	80	140	45	M24x1.5	12	22	226	1690	**21097**	**21099**
21117	100	160	45	M24x1.5	12	22	226	1690	**21097**	**21099**

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

16.7 Kantenheber
16.7 Flange lifters





*Bei Konstruktion festlegen und in der Bestellung angeben
*Specify at construction and establish in the order

Lieferumfang Ausführung 11:
Scope of delivery variant 11:

Teil Part	Bezeichnung Description	Ident-No.
1	Abkratzerkopf Lifter Block	111821
2	Gehäuse Housing	22364
3	Führungseinheit Guide unit	111822
4	Führungsbuchse Guide bushing di = 40 mm, da = 50 mm, L = 60 mm	17039
5	Verdrehsicherung Twist lock	111823
6	Gasdruckfeder Gas spring	101554
7	Gasdruckfeder (Anfangskraft nur 0,7 kN) Gas spring (Initial force only 0.7 kN)	111324
8	Abstimmscheibe Shim	22362

Teil Part	Bezeichnung Description	Ident-No.
9	Verschlussschraube (DIN 908/48x1,5) Lock screw (DIN 908/48x1.5)	22361
10	Sicherungsring (DIN 472/20x1) Retaining ring (DIN 472/20x1)	23211
11	Abstimmplatte Adjustment plate	111824
12	Haltering (für Gasdruckfeder Teil 6) Retaining ring (for gas spring part 6)	111325
	2 x Zylinderkopfschrauben 2 x Cylinder head screw DIN EN ISO 4762 M8x16	112572
	2 x Senkkopfschrauben 2 x Countersunk screw DIN EN ISO 10642 M8x16	112995

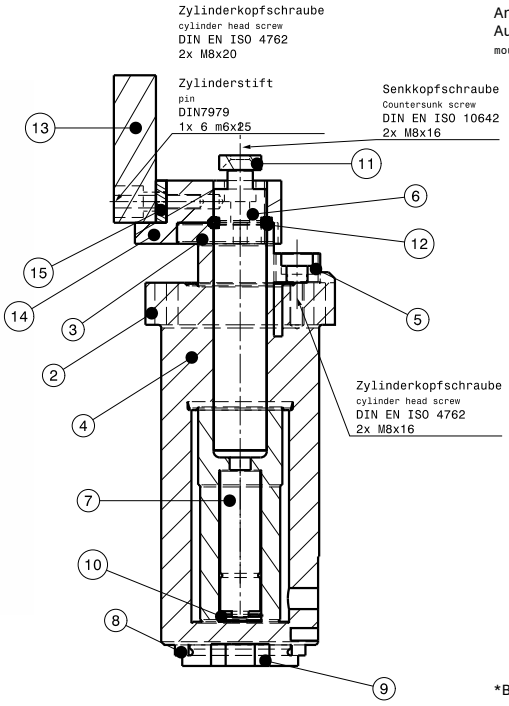
Patentanmeldung: 102015000411.5
Patent application: 102015000411.5

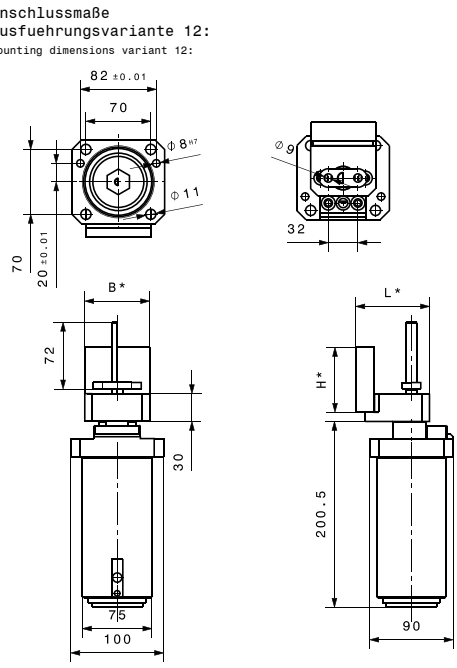
Ausführungsvariante 11
Design variant 11

Ident-No.	Abkratzerkopf Lifter Block	L	B	H
64127	ohne / without	-	-	-
64129	mit / with	80	70	80

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

16.7 Kantenheber
16.7 Flange lifters





*Bei Konstruktion festlegen und in der Bestellung angeben
*Specify at construction and establish in the order

Lieferumfang Ausführung 12:
Scope of delivery variant 12:

Teil Part	Bezeichnung Description	Ident-No.
2	Gehäuse Housing	22364
3	Führungseinheit Guide unit	111822
4	Führungsbuchse Guide bushing di = 40 mm, da = 50 mm, L = 60 mm	17039
5	Verdrehsicherung Twist lock	111823
6	Gasdruckfeder Gas spring	101554
7	Gasdruckfeder (Anfangskraft nur 0,7 kN) Gas spring (Initial force only 0.7 kN)	111324
8	Abstimmscheibe Shim	22362
9	Verschlussschraube (DIN 908/48x1,5) Lock screw (DIN 908/48x1.5)	22361
10	Sicherungsring (DIN 472/20x1) Retaining ring (DIN 472/20x1)	23211
11	Abstimmplatte Adjustment plate	111824

Teil Part	Bezeichnung Description	Ident-No.
12	Haltering (für Gasdruckfeder Teil 6) Retaining ring (for gas spring part 6)	111325
13	Abkratzerklinge Lifter blade	113803
14	Trägerteil Base	113804
15	Abstimmplatte Adjustment plate 39D 20631/50	22547
	2 x Zylinderkopfschrauben 2 x Cylinder head screw DIN EN ISO 4762 M8x16	112572
	2 x Senkkopfschrauben 2 x Countersunk screw DIN EN ISO 10642 M8x16	112995
	2 x Zylinderkopfschrauben 2 x Cylinder head screw DIN EN ISO 4762 M8x20	23029
	Zylinderstift Pin DIN 7979 6 M6x24	113801

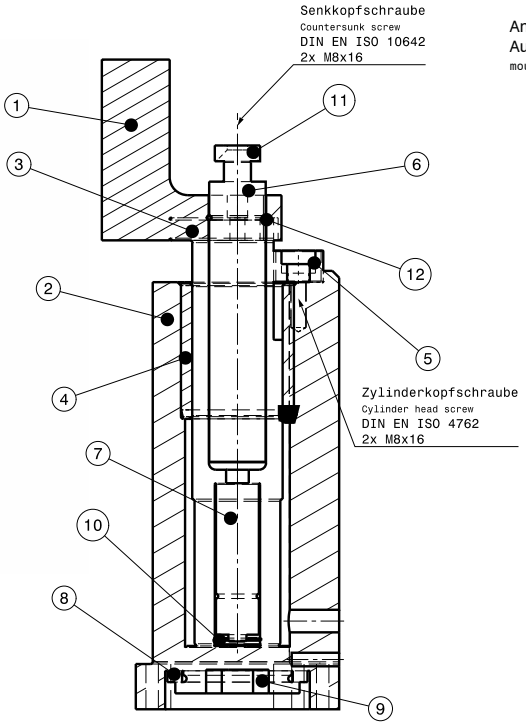
16.7

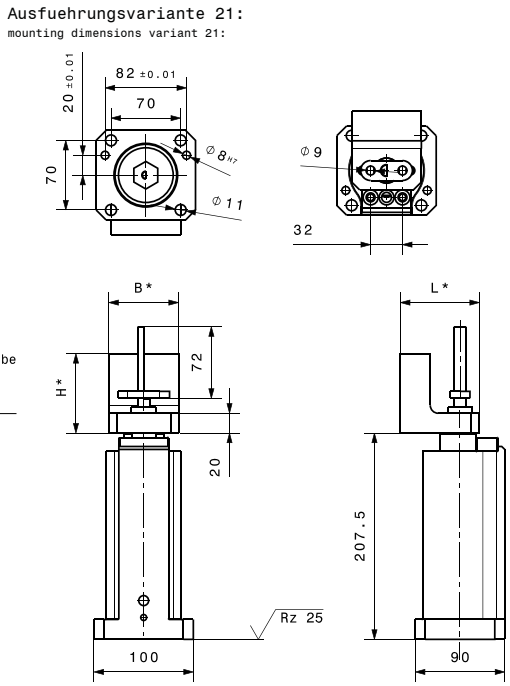
Ausführungsvariante 12
Design variant 12

Patentanmeldung: 102015000411.5
Patent application: 102015000411.5

Ident-No.	Abkratzerkopf Lifter Block	L	B	H
64127	ohne / without	-	-	-
64515	3-teilig / 3 parts	80	70	80

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium





*Bei Konstruktion festlegen und in der Bestellung angeben
*Specify at construction and establish in the order

Lieferumfang Ausführung 21:
Scope of delivery variant 21:

Teil Part	Bezeichnung Description	Ident-No.
1	Abkratzerkopf Lifter Block	111821
2	Gehäuse Housing	22363
3	Führungseinheit Guide unit	111822
4	Führungsbuchse Guide bushing di = 40 mm, da = 50 mm, L = 60 mm	17039
5	Verdrehsicherung Twist lock	111823
6	Gasdruckfeder Gas spring	101554
7	Gasdruckfeder (Anfangskraft nur 0,7 kN) Gas spring (Initial force only 0.7 kN)	111324
8	Abstimmscheibe Shim	22362

Teil Part	Bezeichnung Description	Ident-No.
9	Verschlussschraube (DIN 908/48x1,5) Lock screw (DIN 908/48x1.5)	22361
10	Sicherungsring (DIN 472/20x1) Retaining ring (DIN 472/20x1)	23211
11	Abstimmplatte Adjustment plate	111824
12	Haltering (für Gasdruckfeder Teil 6) Retaining ring (for gas spring part 6)	111325
	2 x Zylinderkopfschrauben 2 x Cylinder head screw DIN EN ISO 4762 M8x16	112572
	2 x Senkkopfschrauben 2 x Countersunk screw DIN EN ISO 10642 M8x16	112995

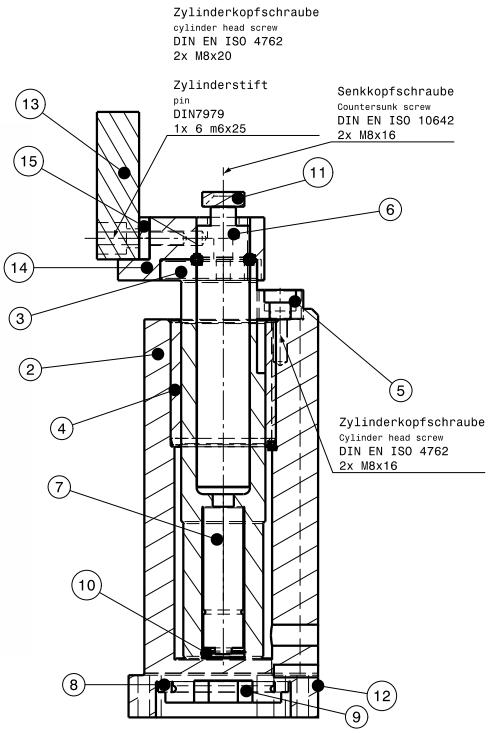
Patentanmeldung: 102015000411.5
Patent application: 102015000411.5

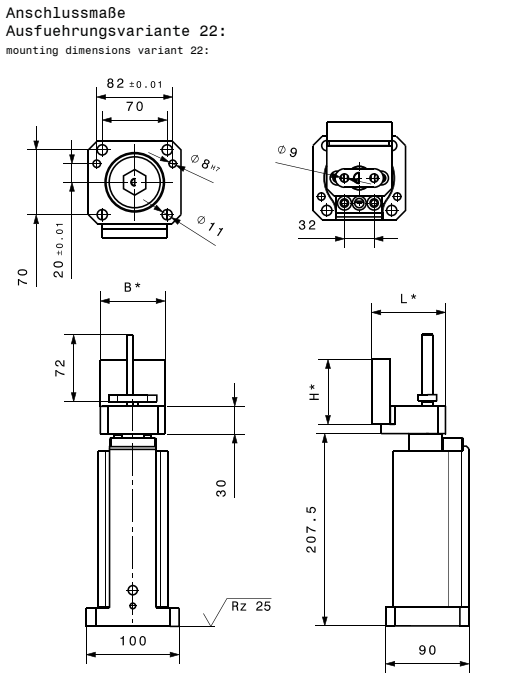
Ausführungsvariante 21
Design variant 21

Ident-No.	Abkratzerkopf Lifter Block	L	B	H
64128	ohne / without	-	-	-
64130	mit / with	80	70	80

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

16.7 Kantenheber
16.7 Flange lifters





*Bei Konstruktion festlegen und in der Bestellung angeben
*Specify at construction and establish in the order

Lieferumfang Ausführung 22:
Scope of delivery variant 22:

Teil Part	Bezeichnung Description	Ident-No.
2	Gehäuse Housing	22364
3	Führungseinheit Guide unit	111822
4	Führungsbuchse Guide bushing di = 40 mm, da = 50 mm, L = 60 mm	17039
5	Verdrehsicherung Twist lock	111823
6	Gasdruckfeder Gas spring	101554
7	Gasdruckfeder (Anfangskraft nur 0,7 kN) Gas spring (Initial force only 0.7 kN)	111324
8	Abstimmscheibe Shim	22362
9	Verschlussschraube (DIN 908/48x1,5) Lock screw (DIN 908/48x1.5)	22361
10	Sicherungsring (DIN 472/20x1) Retaining ring (DIN 472/20x1)	23211
11	Abstimmplatte Adjustment plate	111824

Teil Part	Bezeichnung Description	Ident-No.
12	Haltering (für Gasdruckfeder Teil 6) Retaining ring (for gas spring part 6)	111325
13	Abkratzerklinge Lifter blade	113803
14	Trägerteil Base	113804
15	Abstimmplatte Adjustment plate 39D 20631/50	22547
	2 x Zylinderkopfschrauben 2 x Cylinder head screw DIN EN ISO 4762 M8x16	112572
	2 x Senkkopfschrauben 2 x Countersunk screw DIN EN ISO 10642 M8x16	112995
	2 x Zylinderkopfschrauben 2 x Cylinder head screw DIN EN ISO 4762 M8x20	23029
	Zylinderstift Pin DIN 7979 6 M6x24	113801

16.7

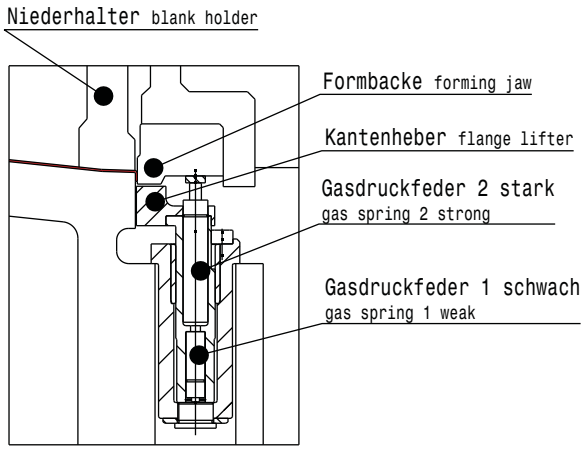
Ausführungsvariante 22
Design variant 22

Patentanmeldung: 102015000411.5
Patent application: 102015000411.5

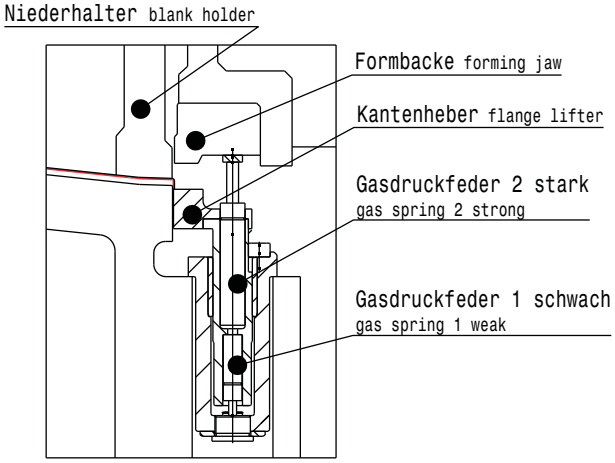
Ident-No.	Abkratzerkopf Lifter Block	L	B	H
64128	ohne / without	-	-	-
64516	3-teilig / 3 parts	80	70	80

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Funktionsprinzip functional principle

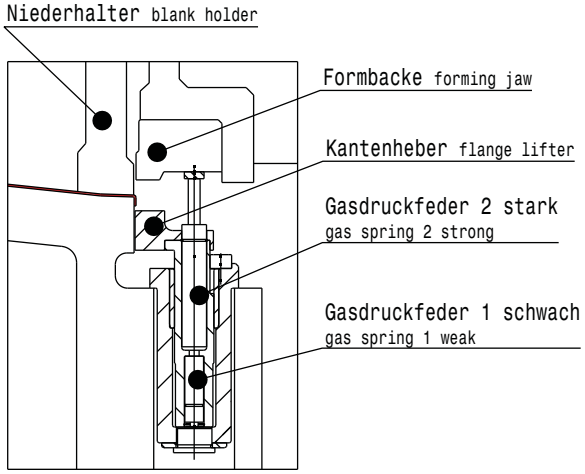


Oberteil mit Formbacke hebt ab.
Niederhalter hält während des Rückhubes das Bauteil auf der Form. Gasdruckfeder 2 hält Gasdruckfeder 1. Dadurch verdrängt der Kantenheber nicht das Bauteil und eine Verformung des Bauteiles ist ausgeschlossen.
The upper part of the tool lifts off with the forming jaw. The blank holder keeps the workpiece in the lower form during the return stroke.
Gas spring 2 keeps gas spring 1 compressed.
This prevents deformation of the workpiece during the return stroke.



Werkzeug UT
Kantenheber ist verdrängt bei geschlossenem Werkzeug
The flange lifter is compressed in the closed tool position

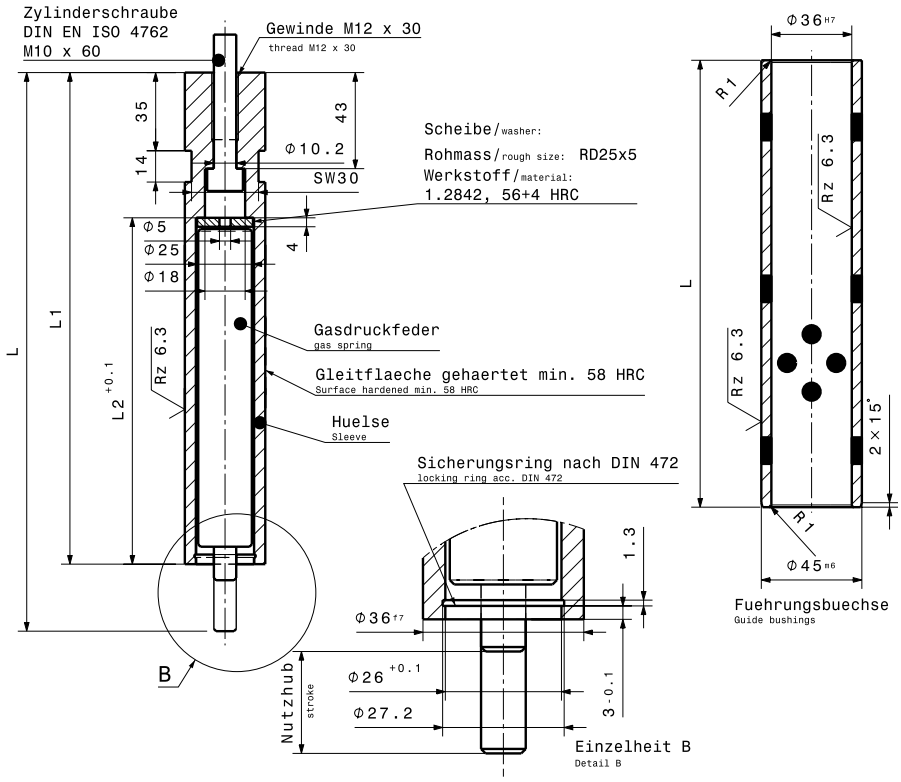
Komponenten
Component Parts:
Formbacke-> forming jaw
Kantenheber-> flange lifter
Gasdruckfeder 2 stark -> gas spring 2 strong
Gasdruckfeder 1 schwach -> gas spring 1 weak
Niederhalter -> blank holder



Werkzeug OT
Nach Abheben des Niederhalters hebt der Kantenheber das Bauteil durch die Gasdruckfeder 1 aus der Form.
After the blank holder has been lifted off, the flange lifter pushes the workpiece out of the form with the gas spring 1

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

16.10 Federbolzen
16.10 Spring bolts



Federbolzen
Spring bolts

Ident-No.	Hub Spring stroke	Nutzhub Stroke	L1	L2 +0,1	L	Federkraft Spring force	Ident-No. Gasdruckfeder Gas spring	Ident-No. Hülse Sleeve
19511	63	50	182	118	241	1600	**101553**	**19512**
19513	80	65	200	135	276	1600	**101554**	**19514**
19515	100	80	220	155	316	1600	**101555**	**19516**

Führungsbuchse
Guide bushings

Ident-No. WF750/1A	L	Hub Stroke
18016	115	50
18017	145	65
18018	170	80

Buchse nicht im Lieferumfang enthalten (gesondert bestellen)
Bushing not included (order separately)

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

17. Säulen, Tragzapfen
17. Guide posts, trunnions

17.1 Führungssäulen ohne Nut nach DIN 9833, Form D
Guide posts without groove acc. DIN 9833, style D

17.1 Führungssäulen mit Nut für Sicherungsplatte
Guide posts with groove for safety plate

17.1 Führungssäulen mit Nut für Sprengring
Guide post with groove for spring ring

17.1 Führungssäulen mit Nut nach FCA
Guide posts with groove acc. FCA

17.2 Führungssäulen mit ungehärtetem Fuß
Guide posts with no hardened bottom

17.4 Führungssäulen mit Klammer
Guide posts with clamp

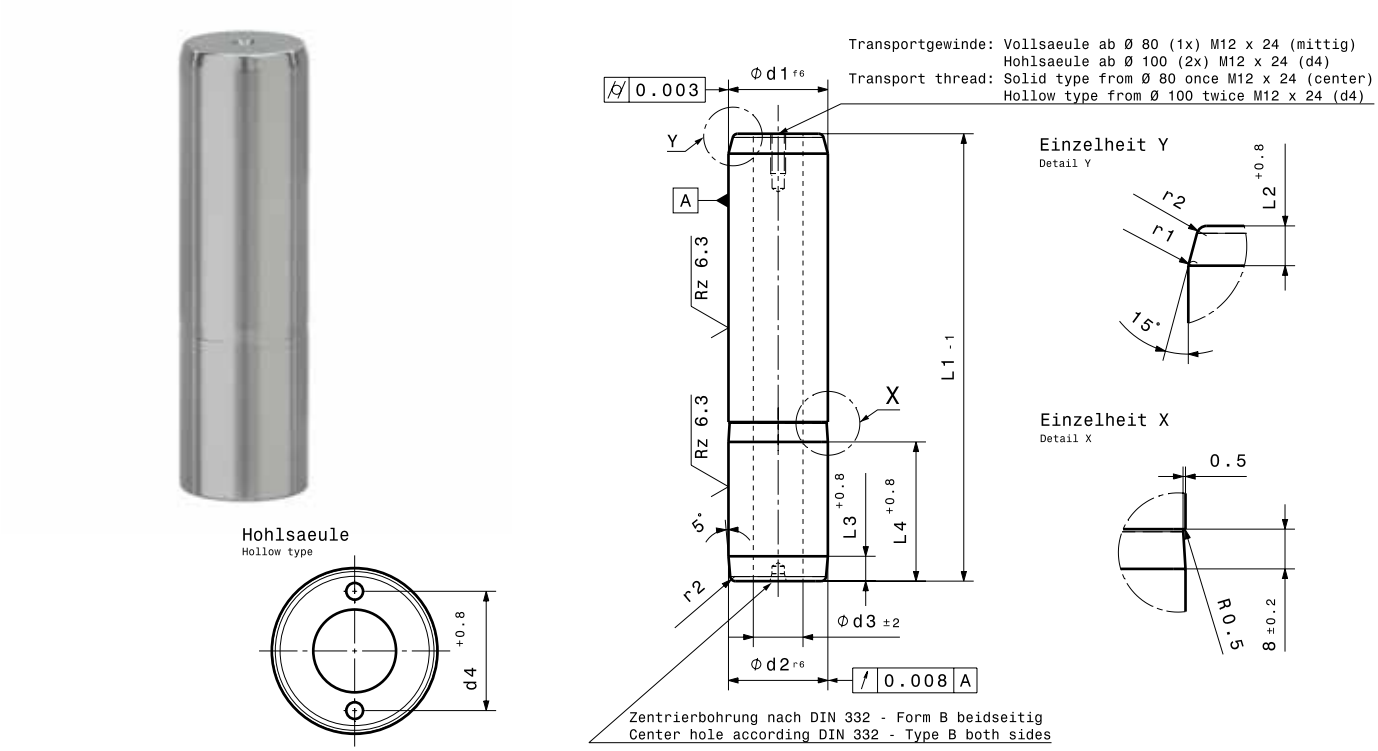
17.7 Führungssäulen ohne Klammer
Guide posts without clamp

17.8 Bolzen mit Achshalter
Bolts with axle support

17.11 Tragzapfen nach VDI 3366
Trunnions acc. VDI 3366

17.12 Tragbolzen mit Ringsicherung nach VDI 3366
Liftig bolts with retaining ring acc. VDI 3366

17.1 Führungssäulen ohne Nut nach DIN 9833, Form D
17.1 Guide posts without groove acc. DIN 9833, style D



Buchsen siehe Kapitel 3.1
Bushings see Chapter 3.1

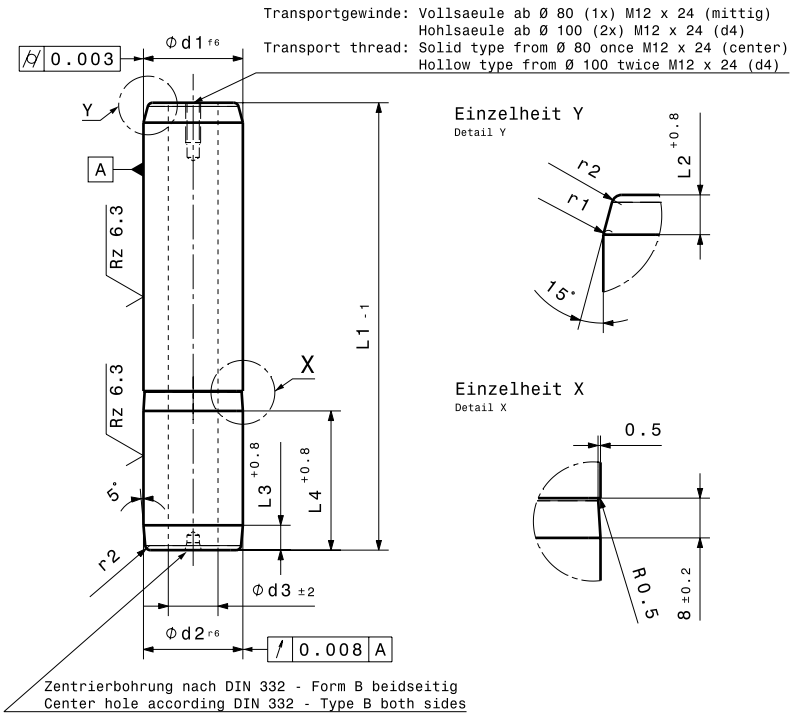
Ident-No. St 1	Ød1 f6	Ød2 r6	Ød3 ±2	Ød4 +0,8	L1 -1	L2 +0,8	L3 +0,8	L4 +0,8	r1	r2
31010	23	25	-	-	100	4	4	40	3	2
31011	23	25	-	-	125	4	4	40	3	2
31012	23	25	-	-	160	4	4	40	3	2
31013	25	25	-	-	100	8	4	40	3	2
31014	25	25	-	-	125	8	4	40	3	2
31015	25	25	-	-	140	8	4	40	3	2
31016	25	25	-	-	160	8	4	40	3	2
31017	25	25	-	-	180	8	4	40	3	2
31009	25	25	-	-	200	8	4	40	3	2
31018	32	32	-	-	125	8	4	45	3	2
31019	32	32	-	-	140	8	4	45	3	2
31020	32	32	-	-	160	8	4	45	3	2
31021	32	32	-	-	180	8	4	45	3	2
31022	32	32	-	-	200	8	4	45	3	2
31024	40	40	-	-	125	8	4	56	3	2
31025	40	40	-	-	140	8	4	56	3	2
31026	40	40	-	-	160	8	4	56	3	2

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. St 1	Ød1 f6	Ød2 r6	Ød3 ±2	Ød4 +0,8	L1 -1	L2 +0,8	L3 +0,8	L4 +0,8	r1	r2
31027	40	40	-	-	180	8	4	56	3	2
31028	40	40	-	-	200	8	4	56	3	2
31029	40	40	-	-	224	8	4	56	3	2
31030	40	40	-	-	250	8	4	56	3	2
31031	40	40	-	-	280	8	4	56	3	2
31032	40	40	-	-	315	8	4	56	3	2
31033	42	40	-	-	224	8	4	56	3	2
31034	42	40	-	-	250	8	4	56	3	2
31035	42	40	-	-	280	8	4	56	3	2
31036	50	50	-	-	160	10	4	70	5	2,5
31037	50	50	-	-	180	10	4	70	5	2,5
31038	50	50	-	-	200	10	4	70	5	2,5
31039	50	50	-	-	224	10	4	70	5	2,5
31040	50	50	-	-	250	10	4	70	5	2,5
31041	50	50	-	-	280	10	4	70	5	2,5
31042	50	50	-	-	315	10	4	70	5	2,5
31043	50	50	-	-	355	10	4	70	5	2,5
31044	50	50	-	-	400	10	4	70	5	2,5
31045	52	50	-	-	224	10	4	70	5	2,5
31046	52	50	-	-	250	10	4	70	5	2,5
31047	52	50	-	-	280	10	4	70	5	2,5
31048	52	50	-	-	355	10	4	70	5	2,5
31049	63	63	-	-	180	10	4	80	6	2,5
31050	63	63	-	-	200	10	4	80	6	2,5
31051	63	63	-	-	224	10	4	80	6	2,5
31052	63	63	-	-	250	10	4	80	6	2,5
31053	63	63	-	-	280	10	4	80	6	2,5
31054	63	63	-	-	315	10	4	80	6	2,5
31055	63	63	-	-	355	10	4	80	6	2,5
31056	63	63	-	-	400	10	4	80	6	2,5
31057	63	63	-	-	450	10	4	80	6	2,5
31058	63	63	-	-	500	10	4	80	6	2,5
31059	65	63	-	-	250	10	4	80	6	2,5
31060	65	63	-	-	280	10	4	80	6	2,5
31061	65	63	-	-	315	10	4	80	6	2,5
31062	80	80	-	-	200	10	4	100	8	3
31063	80	80	-	-	224	10	4	100	8	3
31064	80	80	-	-	250	10	4	100	8	3
31065	80	80	-	-	280	10	4	100	8	3
31066	80	80	-	-	315	10	4	100	8	3

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

17.1 Führungssäulen ohne Nut nach DIN 9833, Form D
17.1 Guide posts without groove acc. DIN 9833, style D



Buchsen siehe Kapitel 3.1
Bushings see Chapter 3.1

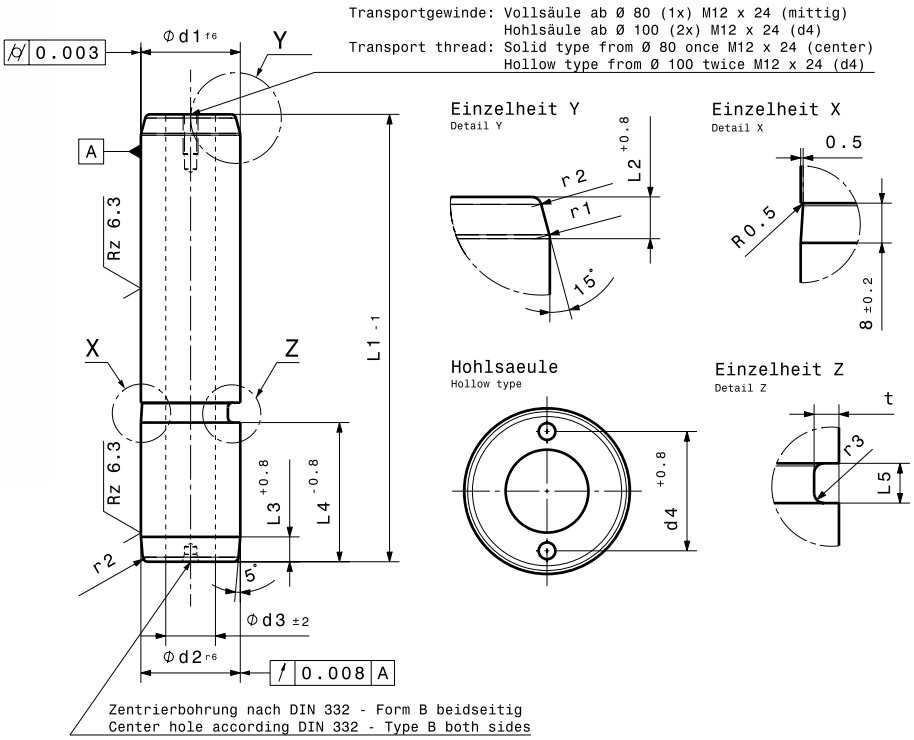
Ident-No. St 1	Ød1 f6	Ød2 r6	Ød3 ±2	Ød4 +0,8	L1 -1	L2 +0,8	L3 +0,8	L4 +0,8	r1	r2
31067	80	80	-	-	355	10	4	100	8	3
31068	80	80	-	-	400	10	4	100	8	3
31069	80	80	-	-	450	10	4	100	8	3
31070	80	80	-	-	500	10	4	100	8	3
31200	80	80	40	-	250	10	4	100	8	3
31201	80	80	40	-	280	10	4	100	8	3
31202	80	80	40	-	315	10	4	100	8	3
31203	80	80	40	-	355	10	4	100	8	3
31204	80	80	40	-	400	10	4	100	8	3
31071	100	100	-	-	224	10	4	125	10	3
31072	100	100	-	-	250	10	4	125	10	3
31073	100	100	-	-	280	10	4	125	10	3
31074	100	100	-	-	315	10	4	125	10	3
31075	100	100	-	-	355	10	4	125	10	3
31076	100	100	-	-	400	10	4	125	10	3
31077	100	100	-	-	450	10	4	125	10	3
31078	100	100	-	-	500	10	4	125	10	3

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. St 1	Ød1 f6	Ød2 r6	Ød3 ±2	Ød4 +0,8	L1 -1	L2 +0,8	L3 +0,8	L4 +0,8	r1	r2
31079	100	100	-	-	560	10	4	125	10	3
31205	100	100	50	72	280	10	4	125	10	3
31206	100	100	50	72	315	10	4	125	10	3
31207	100	100	50	72	355	10	4	125	10	3
31208	100	100	50	72	400	10	4	125	10	3
31209	100	100	50	72	450	10	4	125	10	3
31210	100	100	50	72	500	10	4	125	10	3
31211	100	100	50	72	550	10	4	125	10	3
31212	100	100	50	72	600	10	4	125	10	3
31213	100	100	50	72	650	10	4	125	10	3
31080	115	115	-	-	400	10	5	140	10	3
31081	115	115	-	-	500	10	5	140	10	3
31082	125	125	-	-	315	12	5	140	12	4
31083	125	125	-	-	355	12	5	140	12	4
31084	125	125	-	-	400	12	5	140	12	4
31085	125	125	-	-	450	12	5	140	12	4
31086	125	125	-	-	500	12	5	140	12	4
31214	125	125	65	90	315	12	5	140	12	4
31215	125	125	65	90	355	12	5	140	12	4
31216	125	125	65	90	400	12	5	140	12	4
31217	125	125	65	90	450	12	5	140	12	4
31218	125	125	65	90	500	12	5	140	12	4
31219	125	125	65	90	550	12	5	140	12	4
31220	125	125	65	90	560	12	5	140	12	4
31221	125	125	65	90	600	12	5	140	12	4
31222	125	125	65	90	650	12	5	140	12	4
31223	125	125	65	90	670	12	5	140	12	4
31087	160	160	-	-	355	12	5	180	18	4
31088	160	160	-	-	400	12	5	180	18	4
31089	160	160	-	-	450	12	5	180	18	4
31090	160	160	-	-	500	12	5	180	18	4
31091	160	160	-	-	560	12	5	180	18	4
31224	160	160	95	132	355	12	5	180	18	4
31225	160	160	95	132	400	12	5	180	18	4
31226	160	160	95	132	450	12	5	180	18	4
31227	160	160	95	132	500	12	5	180	18	4
31228	160	160	95	132	560	12	5	180	18	4
31229	160	160	95	132	670	12	5	180	18	4

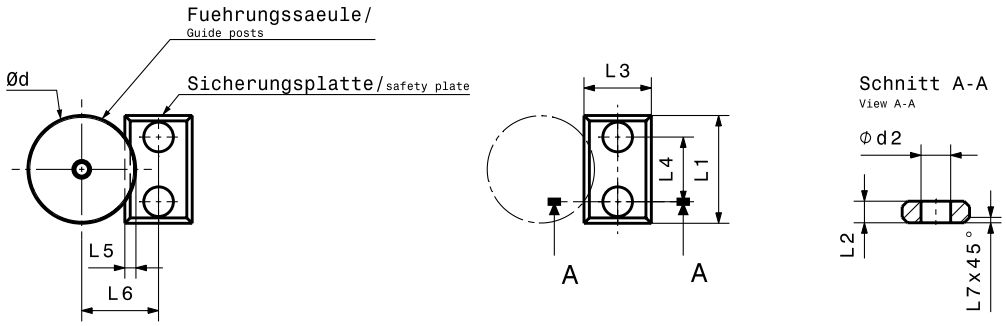
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

17.1 Führungssäulen mit Nut für Sicherungsplatte
17.1 Guide posts with groove for safety plate



Ident-No. St 1	Ød1 f6	Ød2 r6	Ød3 ±2	Ød4 +0,8	L1 -1	L2 +0,8	L3 +0,8	L4 -0,8	L5	t	r1	r2	r3
31113	25	25	-	-	100	8	4	40	7	3	3	2	1
31114	25	25	-	-	125	8	4	40	7	3	3	2	1
31115	25	25	-	-	140	8	4	40	7	3	3	2	1
31116	25	25	-	-	160	8	4	40	7	3	3	2	1
31117	25	25	-	-	180	8	4	40	7	3	3	2	1
31118	32	32	-	-	125	8	4	45	7	3	3	2	1
31119	32	32	-	-	140	8	4	45	7	3	3	2	1
31120	32	32	-	-	160	8	4	45	7	3	3	2	1
31121	32	32	-	-	180	8	4	45	7	3	3	2	1
31122	32	32	-	-	200	8	4	45	7	3	3	2	1
31125	40	40	-	-	140	8	4	56	10	4	3	2	2
31126	40	40	-	-	160	8	4	56	10	4	3	2	2
31127	40	40	-	-	180	8	4	56	10	4	3	2	2
31128	40	40	-	-	200	8	4	56	10	4	3	2	2
31129	40	40	-	-	224	8	4	56	10	4	3	2	2
31130	40	40	-	-	250	8	4	56	10	4	3	2	2
31131	40	40	-	-	280	8	4	56	10	4	3	2	2

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

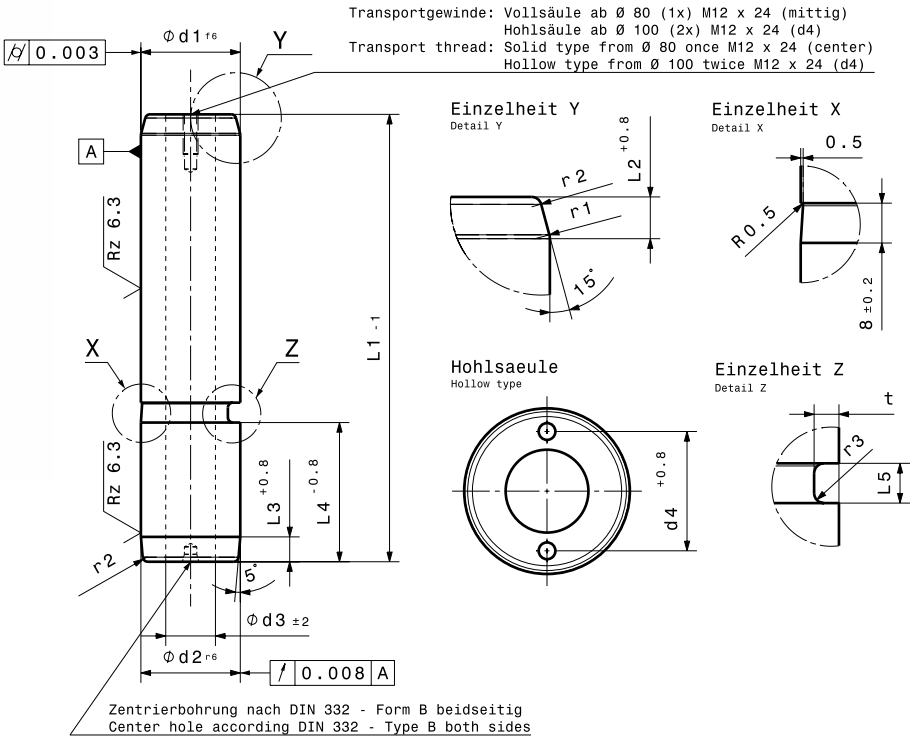


Ident-No. 1.0037	L1	L2	L3	L4	L5	L6	L7	Ød2	Säulen Ø Guide posts Ø
19014	40	5	20	20	2	20,5 / 24	1	9	25 / 32
19015	48	8	25	24	3 / 4	29,5 / 33,5	2	11	40 / 50
19016	60	10	34	30	5,5 / 7	43 / 50	2	14	63 / 80
19017	63	10	40	40	10	60	-	14	100
19018	80	10	40	50	12	75,5	-	14	125
19019	100	16	50	60	13 / 15	82 / 90	-	18	140 / 160

Ident-No. St 1	Ød1 f6	Ød2 r6	Ød3 ±2	Ød4 +0,8	L1 -1	L2 +0,8	L3 +0,8	L4 -0,8	L5	t	r1	r2	r3
31136	50	50	-	-	160	10	4	70	10	5	5	2,5	2
31137	50	50	-	-	180	10	4	70	10	5	5	2,5	2
31138	50	50	-	-	200	10	4	70	10	5	5	2,5	2
31139	50	50	-	-	224	10	4	70	10	5	5	2,5	2
31140	50	50	-	-	250	10	4	70	10	5	5	2,5	2
31141	50	50	-	-	280	10	4	70	10	5	5	2,5	2
31142	50	50	-	-	315	10	4	70	10	5	5	2,5	2
31143	50	50	-	-	355	10	4	70	10	5	5	2,5	2
31149	63	63	-	-	180	10	4	80	12	6,5	6	2,5	2
31150	63	63	-	-	200	10	4	80	12	6,5	6	2,5	2
31151	63	63	-	-	224	10	4	80	12	6,5	6	2,5	2
31152	63	63	-	-	250	10	4	80	12	6,5	6	2,5	2
31153	63	63	-	-	280	10	4	80	12	6,5	6	2,5	2
31154	63	63	-	-	315	10	4	80	12	6,5	6	2,5	2
31155	63	63	-	-	355	10	4	80	12	6,5	6	2,5	2
31156	63	63	-	-	400	10	4	80	12	6,5	6	2,5	2
31163	80	80	-	-	224	10	4	100	12	8	8	3	2

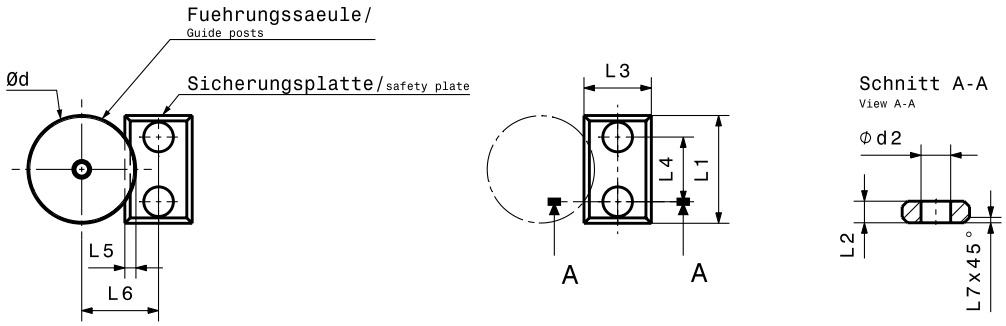
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

17.1 Führungssäulen mit Nut für Sicherungsplatte
17.1 Guide posts with groove for safety plate



Ident-No. St 1	Ød1 f6	Ød2 r6	Ød3 ±2	Ød4 +0,8	L1 -1	L2 +0,8	L3 +0,8	L4 -0,8	L5	t	r1	r2	r3
31164	80	80	-	-	250	10	4	100	12	8	8	3	2
31165	80	80	-	-	280	10	4	100	12	8	8	3	2
31166	80	80	-	-	315	10	4	100	12	8	8	3	2
31167	80	80	-	-	355	10	4	100	12	8	8	3	2
31168	80	80	-	-	400	10	4	100	12	8	8	3	2
31300	80	80	40	-	250	10	4	100	12	8	8	3	2
31301	80	80	40	-	280	10	4	100	12	8	8	3	2
31302	80	80	40	-	315	10	4	100	12	8	8	3	2
31303	80	80	40	-	355	10	4	100	12	8	8	3	2
31304	80	80	40	-	400	10	4	100	12	8	8	3	2
31173	100	100	-	-	280	10	4	125	12	10,5	10	3	2
31174	100	100	-	-	315	10	4	125	12	10,5	10	3	2
31175	100	100	-	-	355	10	4	125	12	10,5	10	3	2
31176	100	100	-	-	400	10	4	125	12	10,5	10	3	2
31305	100	100	50	72	280	10	4	125	12	10,5	10	3	2
31306	100	100	50	72	315	10	4	125	12	10,5	10	3	2
31307	100	100	50	72	355	10	4	125	12	10,5	10	3	2

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

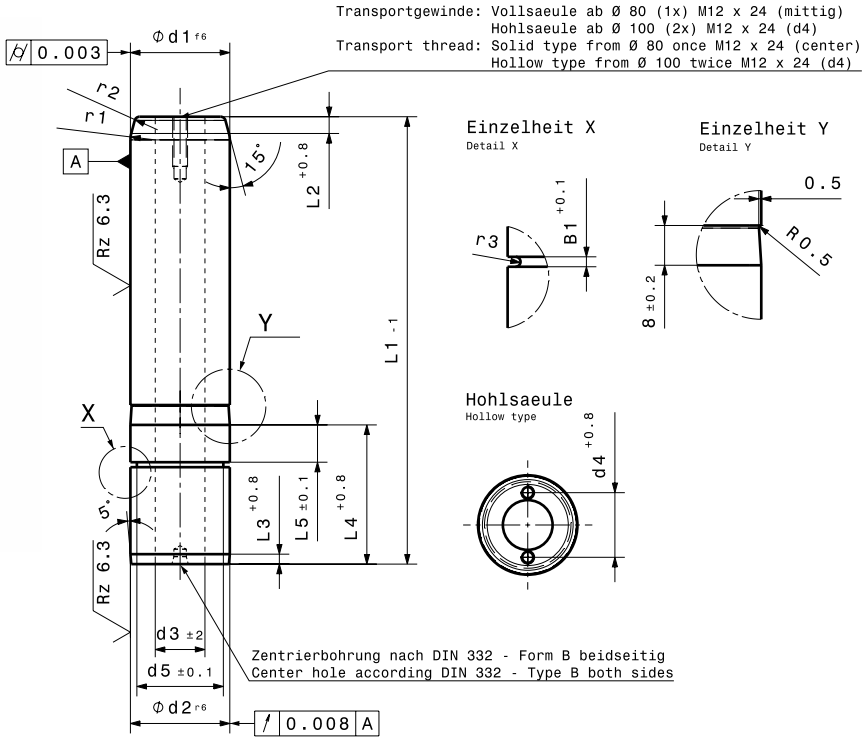


Ident-No. 1.0037	L1	L2	L3	L4	L5	L6	L7	Ød2	Säulen Ø Guide posts Ø
19014	40	5	20	20	2	20,5 / 24	1	9	25 / 32
19015	48	8	25	24	3 / 4	29,5 / 33,5	2	11	40 / 50
19016	60	10	34	30	5,5 / 7	43 / 50	2	14	63 / 80
19017	63	10	40	40	10	60	-	14	100
19018	80	10	40	50	12	75,5	-	14	125
19019	100	16	50	60	13 / 15	82 / 90	-	18	140 / 160

Ident-No. St 1	Ød1 f6	Ød2 r6	Ød3 ±2	Ød4 +0,8	L1 -1	L2 +0,8	L3 +0,8	L4 -0,8	L5	t	r1	r2	r3
31308	100	100	50	72	400	10	4	125	12	10,5	10	3	2
31185	125	125	-	-	450	12	5	140	12	12,5	12	4	2
31315	125	125	65	90	355	12	5	140	12	12,5	12	4	2
31316	125	125	65	90	400	12	5	140	12	12,5	12	4	2
31317	125	125	65	90	450	12	5	140	12	12,5	12	4	2
31318	125	125	65	90	500	12	5	140	12	12,5	12	4	2

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

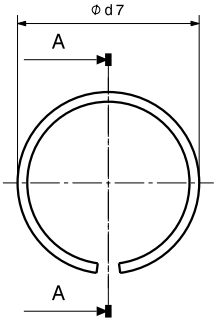
17.1 Führungssäulen mit Nut für Sprengring
17.1 Guide post with groove for spring ring



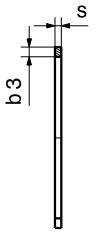
Ident-No. St 1	Ød1 f6	Ød2 r6	Ød3 ±2	Ød4 +0,8	Ød5 ±0,1	L1 -1	L2 +0,8	L3 +0,8	L4 +0,8	L5 ±0,1	B1 +0,1	r1	r2	r3
31400	40	40	-	-	33	160	8	4	56	15	2	3	2	1
31401	40	40	-	-	33	180	8	4	56	15	2	3	2	1
31402	40	40	-	-	33	200	8	4	56	15	2	3	2	1
31403	40	40	-	-	33	224	8	4	56	15	2	3	2	1
31404	40	40	-	-	33	250	8	4	56	15	2	3	2	1
31405	40	40	-	-	33	280	8	4	56	15	2	3	2	1
31406	50	50	-	-	43	160	10	4	70	15	2	5	2,5	1
31407	50	50	-	-	43	180	10	4	70	15	2	5	2,5	1
31408	50	50	-	-	43	200	10	4	70	15	2	5	2,5	1
31409	50	50	-	-	43	224	10	4	70	15	2	5	2,5	1
31410	50	50	-	-	43	250	10	4	70	15	2	5	2,5	1
31411	50	50	-	-	43	280	10	4	70	15	2	5	2,5	1
31412	50	50	-	-	43	315	10	4	70	15	2	5	2,5	1
31413	50	50	-	-	43	355	10	4	70	15	2	5	2,5	1
31414	63	63	-	-	55,7	180	10	4	80	15	2	6	2,5	1
31415	63	63	-	-	55,7	200	10	4	80	15	2	6	2,5	1
31416	63	63	-	-	55,7	224	10	4	80	15	2	6	2,5	1
31417	63	63	-	-	55,7	250	10	4	80	15	2	6	2,5	1
31418	63	63	-	-	55,7	280	10	4	80	15	2	6	2,5	1

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Sprengring
Retaining ring



Schnitt A-A
View A-A

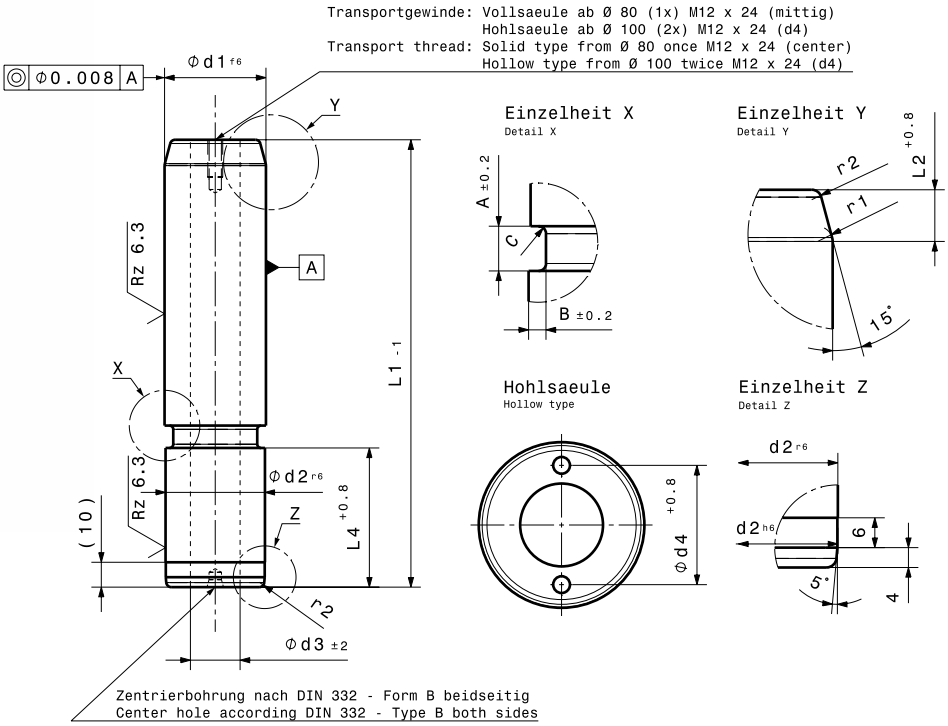


Ident-No.	Ød1 f6	b3	d7	s
63009	40	2,3	43	1,5
63010	50	2,3	53	1,5
63011	63	2,3	66	1,5
63012	80	2,8	83,2	2
63013	100	3,4	103,8	2,5
63014	125	3,4	128,8	2,5
63015	160	4	164,3	2,5

Ident-No. St 1	Ød1 f6	Ød2 r6	Ød3 ±2	Ød4 +0,8	Ød5 ±0,1	L1 -1	L2 +0,8	L3 +0,8	L4 +0,8	L5 ±0,1	B1 +0,1	r1	r2	r3
31419	63	63	-	-	55,7	315	10	4	80	15	2	6	2,5	1
31420	63	63	-	-	55,7	355	10	4	80	15	2	6	2,5	1
31421	63	63	-	-	55,7	400	10	4	80	15	2	6	2,5	1
31422	80	80	-	-	71,4	224	10	4	100	21	2,1	8	3	1,05
31423	80	80	-	-	71,4	250	10	4	100	21	2,1	8	3	1,05
31424	80	80	-	-	71,4	280	10	4	100	21	2,1	8	3	1,05
31425	80	80	-	-	71,4	315	10	4	100	21	2,1	8	3	1,05
31426	80	80	-	-	71,4	355	10	4	100	21	2,1	8	3	1,05
31427	80	80	-	-	71,4	400	10	4	100	21	2,1	8	3	1,05
31428	100	100	50	72	89,9	280	10	4	125	31	2,6	10	3	1,3
31429	100	100	50	72	89,9	315	10	4	125	31	2,6	10	3	1,3
31430	100	100	50	72	89,9	355	10	4	125	31	2,6	10	3	1,3
31431	100	100	50	72	89,9	400	10	4	125	31	2,6	10	3	1,3
31432	125	125	65	90	114,9	355	12	5	140	31	2,6	12	4	1,3
31433	125	125	65	90	114,9	400	12	5	140	31	2,6	12	4	1,3
31434	125	125	65	90	114,9	450	12	5	140	31	2,6	12	4	1,3
31435	160	160	95	132	148,9	450	12	5	180	31	2,6	18	4	1,3
31436	160	160	95	132	148,9	500	12	5	180	31	2,6	18	4	1,3
31437	160	160	95	132	148,9	560	12	5	180	31	2,6	18	4	1,3

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

17.1 Führungssäulen mit Nut nach FCA
17.1 Guide posts with groove acc. FCA



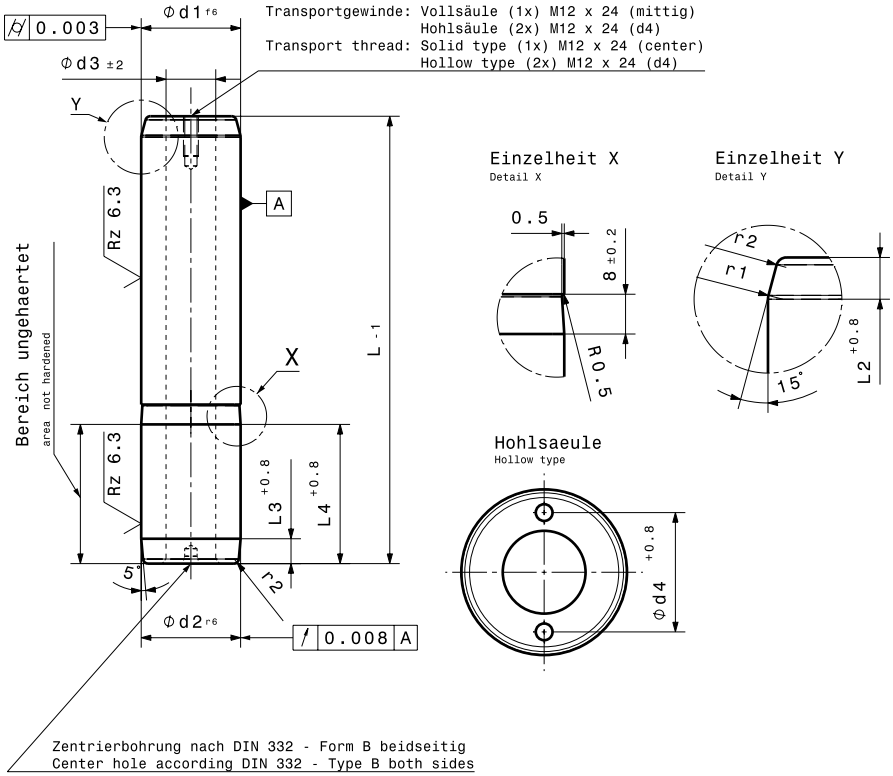
Ident-No. St 1	Ød1 f6	Ød2 r6 / h6	Ød3 ±2	Ød4 +0,8	L1 -1	L2 +0,8	L4 +0,8	r1	r2	A ±0,2	B ±0,2	C
64187	25	25	-	-	100	4	40	3	2	6	2,5	1
64188	25	25	-	-	125	4	40	3	2	6	2,5	1
64189	25	25	-	-	140	4	40	3	2	6	2,5	1
64190	25	25	-	-	160	4	40	3	2	6	2,5	1
64191	25	25	-	-	180	4	40	3	2	6	2,5	1
64192	32	32	-	-	100	8	45	3	2	6	2,5	1
64193	32	32	-	-	125	8	45	3	2	6	2,5	1
64194	32	32	-	-	140	8	45	3	2	6	2,5	1
64195	32	32	-	-	160	8	45	3	2	6	2,5	1
64196	32	32	-	-	180	8	45	3	2	6	2,5	1
64197	32	32	-	-	200	8	45	3	2	6	2,5	1
64198	40	40	-	-	160	10	56	3	2	9	3,5	1,5
64199	40	40	-	-	180	10	56	3	2	9	3,5	1,5
64200	40	40	-	-	200	10	56	3	2	9	3,5	1,5
64201	40	40	-	-	224	10	56	3	2	9	3,5	1,5
64202	40	40	-	-	250	10	56	3	2	9	3,5	1,5
64203	50	50	-	-	160	10	70	5	2,5	9	3,5	1,5
64204	50	50	-	-	180	10	70	5	2,5	9	3,5	1,5

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Ident-No. St 1	Ød1 f6	Ød2 r6 / h6	Ød3 ±2	Ød4 +0,8	L1 -1	L2 +0,8	L4 +0,8	r1	r2	A ±0,2	B ±0,2	C
64205	50	50	-	-	200	10	70	5	2,5	9	3,5	1,5
64206	50	50	-	-	224	10	70	5	2,5	9	3,5	1,5
64207	50	50	-	-	250	10	70	5	2,5	9	3,5	1,5
64208	50	50	-	-	280	10	70	5	2,5	9	3,5	1,5
64209	63	63	-	-	250	10	80	6	2,5	11	5,5	2
64210	63	63	-	-	280	10	80	6	2,5	11	5,5	2
64214	80	80	-	-	250	10	100	8	3	11	5,5	2
64215	80	80	-	-	280	10	100	8	3	11	5,5	2
64229	80	80	40	-	250	10	100	8	3	11	5,5	2
64230	80	80	40	-	280	10	100	8	3	11	5,5	2
64211	63	63	-	-	315	10	80	6	2,5	11	5,5	2
64212	63	63	-	-	355	10	80	6	2,5	11	5,5	2
64213	63	63	-	-	400	10	80	6	2,5	11	5,5	2
64216	80	80	-	-	315	10	100	8	3	11	5,5	2
64217	80	80	-	-	355	10	100	8	3	11	5,5	2
64218	80	80	-	-	400	10	100	8	3	11	5,5	2
64231	80	80	40	-	315	10	100	8	3	11	5,5	2
64232	80	80	40	-	355	10	100	8	3	11	5,5	2
64233	80	80	40	-	400	10	100	8	3	11	5,5	2
64219	100	100	-	-	315	10	125	10	3	11	5,5	2
64220	100	100	-	-	355	10	125	10	3	11	5,5	2
64221	100	100	-	-	400	10	125	10	3	11	5,5	2
64222	100	100	-	-	450	10	125	10	3	11	5,5	2
64223	100	100	-	-	500	10	125	10	3	11	5,5	2
64234	100	100	50	74	315	10	125	10	3	11	5,5	2
64235	100	100	50	74	355	10	125	10	3	11	5,5	2
64236	100	100	50	74	400	10	125	10	3	11	5,5	2
64237	100	100	50	74	450	10	125	10	3	11	5,5	2
64238	100	100	50	74	500	10	125	10	3	11	5,5	2
64239	100	100	50	74	550	10	125	10	3	11	5,5	2
64224	125	125	-	-	355	12	140	12	4	11	5,5	2
64225	125	125	-	-	400	12	140	12	4	11	5,5	2
64226	125	125	-	-	450	12	140	12	4	11	5,5	2
64227	125	125	-	-	500	12	140	12	4	11	5,5	2
64228	125	125	-	-	550	12	140	12	4	11	5,5	2
64240	125	125	65	84	355	12	140	12	4	11	5,5	2
64241	125	125	65	84	400	12	140	12	4	11	5,5	2
64242	125	125	65	84	450	12	140	12	4	11	5,5	2
64243	125	125	65	84	500	12	140	12	4	11	5,5	2
64244	125	125	65	84	550	12	140	12	4	11	5,5	2

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

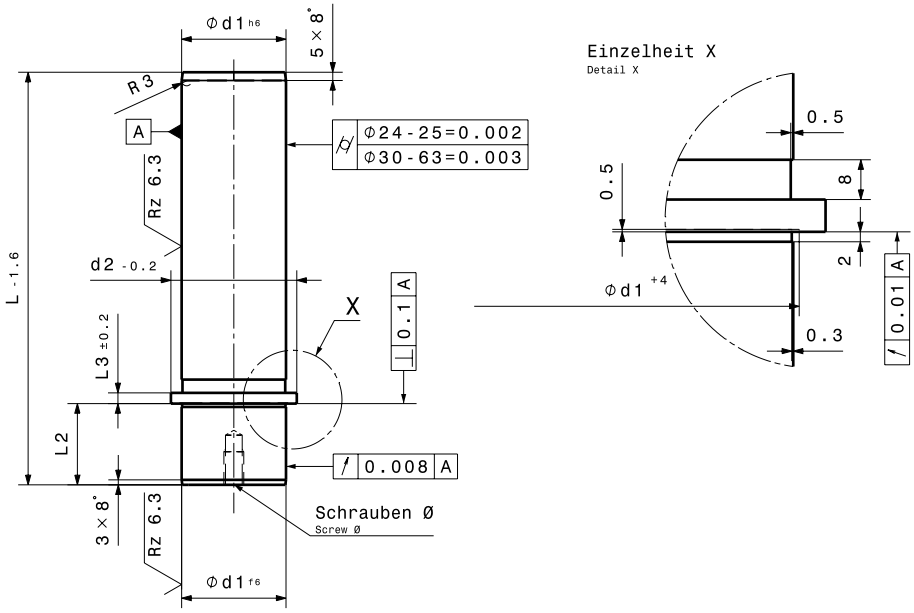
17.2 Führungssäulen mit ungehärtetem Fuß
17.2 Guide posts with no hardened bottom



Ident-No. St 1	Ød1 f6	Ød2 r6 ungehärtet / not hardened	Ød3 ±2	Ød4 +0,8	L -0,1	L2 +0,8	L3 +0,8	L4 +0,8	r1	r2
63636	80	80	-	-	250	10	4	100	8	3
63637	80	80	-	-	280	10	4	100	8	3
63638	80	80	-	-	315	10	4	100	8	3
63639	80	80	-	-	355	10	4	100	8	3
63282	100	100	-	-	280	10	4	125	10	3
31550	100	100	-	-	315	10	4	125	10	3
31580	100	100	50	72	315	10	4	125	10	3
31551	100	100	-	-	355	10	4	125	10	3
31581	100	100	50	72	355	10	4	125	10	3
31552	100	100	-	-	400	10	4	125	10	3
31582	100	100	50	72	400	10	4	125	10	3
31553	125	125	-	-	355	12	5	140	12	4
31583	125	125	65	90	355	12	5	140	12	4
31555	125	125	-	-	400	12	5	140	12	4
31586	125	125	65	90	400	12	5	140	12	4
31554	125	125	-	-	450	12	5	140	12	4
31584	125	125	65	90	450	12	5	140	12	4
31585	160	160	95	132	450	12	5	180	18	4

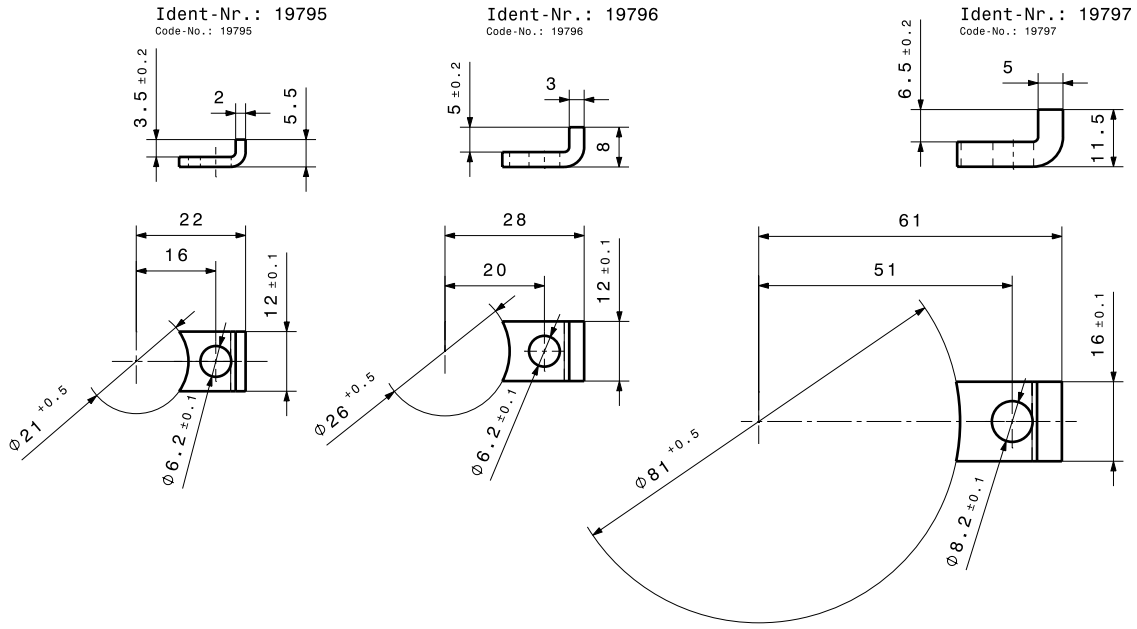
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

17.4 Führungssäulen mit Klammer
17.4 Guide posts with clamp



Ident-No. St 1	Ød1 h6/f6	Ød2 -0,2	L -1,6	L2	L3 ±0,2	Schrauben Ø Screw Ø	Ident-No. Klammer / Clamp
20300	18	26	90	20	3,5	M6	
20301	18	26	100	20	3,5	M6	
20302	18	26	110	20	3,5	M6	
20303	18	26	120	20	3,5	M6	
20304	18	26	130	20	3,5	M6	
20305	18	26	140	20	3,5	M6	
20306	18	26	150	20	3,5	M6	
20307	18	26	160	20	3,5	M6	
20308	18	26	170	20	3,5	M6	
20309	18	26	180	20	3,5	M6	19795
20310	19	26	90	20	3,5	M6	
20311	19	26	100	20	3,5	M6	
20312	19	26	110	20	3,5	M6	
20313	19	26	120	20	3,5	M6	
20314	19	26	130	20	3,5	M6	
20315	19	26	140	20	3,5	M6	
20316	19	26	150	20	3,5	M6	
20317	19	26	160	20	3,5	M6	
20318	19	26	170	20	3,5	M6	
20319	19	26	180	20	3,5	M6	

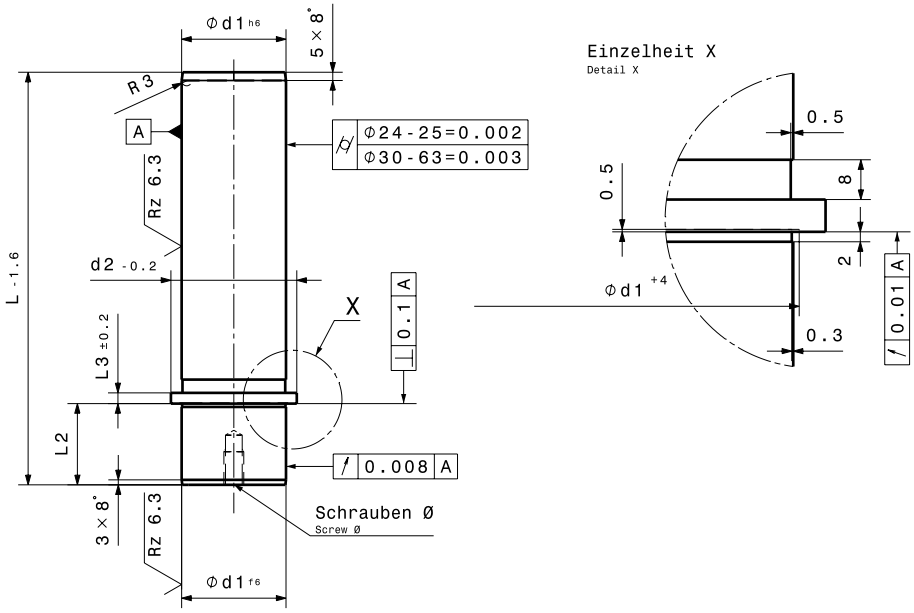
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



Ident-No. St 1	Ød1 h6/f6	Ød2 -0,2	L -1,6	L2	L3 ±0,2	Schrauben Ø Screw Ø	Ident-No. Klammer / Clamp
20320	24	33	94	24	5	M6	
20321	24	33	104	24	5	M6	
20322	24	33	114	24	5	M6	
20323	24	33	124	24	5	M6	
20324	24	33	134	24	5	M6	
20325	24	33	144	24	5	M6	
20326	24	33	154	24	5	M6	
20327	24	33	164	24	5	M6	
20328	24	33	174	24	5	M6	
20329	24	33	184	24	5	M6	19796
20330	24	33	194	24	5	M6	
20331	24	33	204	24	5	M6	
20332	25	33	94	24	5	M6	
20333	25	33	104	24	5	M6	
20334	25	33	114	24	5	M6	
20335	25	33	124	24	5	M6	
20336	25	33	134	24	5	M6	
20337	25	33	144	24	5	M6	
20338	25	33	154	24	5	M6	
20339	25	33	164	24	5	M6	

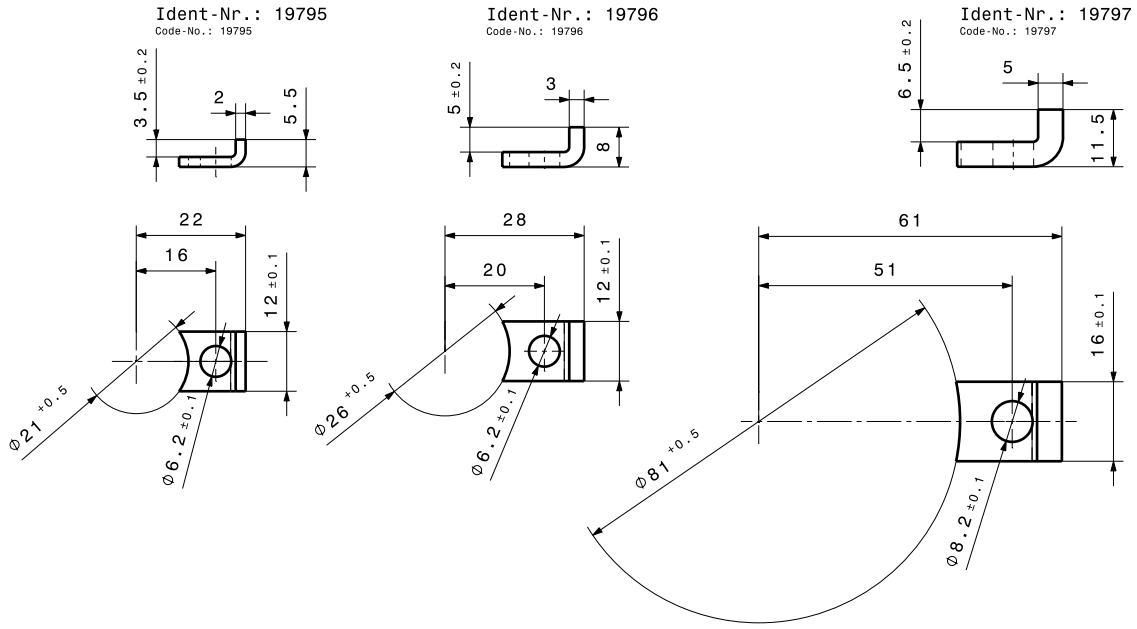
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

17.4 Führungssäulen mit Klammer
17.4 Guide posts with clamp



Ident-No. St 1	Ød1 h6/f6	Ød2 -0,2	L -1,6	L2	L3 ±0,2	Schrauben Ø Screw Ø	Ident-No. Klammer / Clamp
20340	25	33	174	24	5	M6	
20341	25	33	184	24	5	M6	19796
20342	25	33	194	24	5	M6	
20343	25	33	204	24	5	M6	
20344	32	41	120	30	6,5	M8	
20345	32	41	130	30	6,5	M8	
20346	32	41	140	30	6,5	M8	
20347	32	41	150	30	6,5	M8	
20348	32	41	160	30	6,5	M8	
20349	32	41	170	30	6,5	M8	
20350	32	41	180	30	6,5	M8	
20351	32	41	190	30	6,5	M8	19797
20352	32	41	200	30	6,5	M8	
20353	32	41	210	30	6,5	M8	
20354	32	41	230	30	6,5	M8	
20355	32	41	250	30	6,5	M8	
20356	32	41	270	30	6,5	M8	
20357	32	41	310	30	6,5	M8	
20358	40	51	137	37	6,5	M8	
20359	40	51	147	37	6,5	M8	

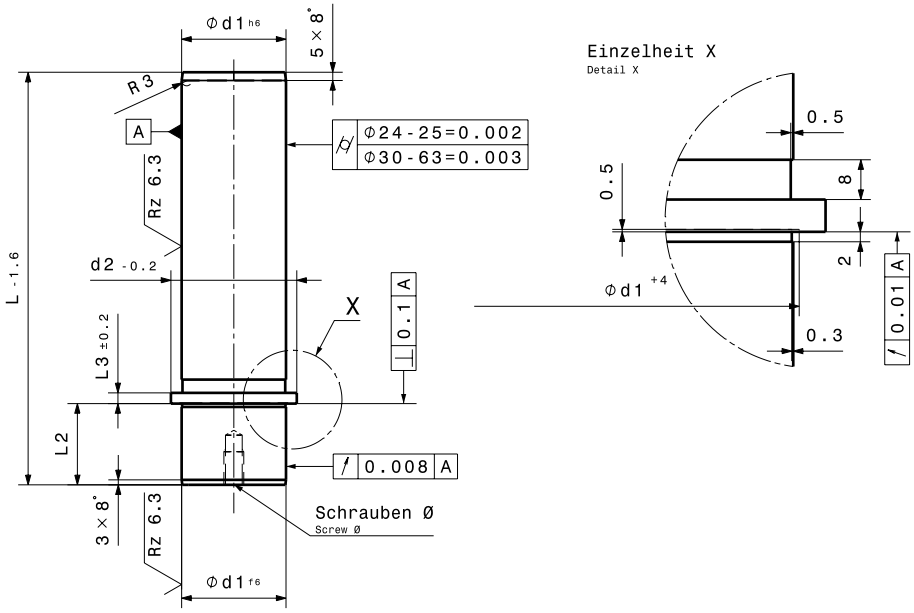
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



Ident-No. St 1	Ød1 h6/f6	Ød2 -0,2	L -1,6	L2	L3 ±0,2	Schrauben Ø Screw Ø	Ident-No. Klammer / Clamp
20360	40	51	157	37	6,5	M8	
20361	40	51	167	37	6,5	M8	
20362	40	51	177	37	6,5	M8	
20363	40	51	187	37	6,5	M8	
20364	40	51	197	37	6,5	M8	
20365	40	51	207	37	6,5	M8	
20366	40	51	217	37	6,5	M8	
20367	40	51	237	37	6,5	M8	
20368	40	51	257	37	6,5	M8	
20369	40	51	277	37	6,5	M8	19797
20370	40	51	317	37	6,5	M8	
20371	50	64	155	45	6,5	M10	
20372	50	64	165	45	6,5	M10	
20373	50	64	175	45	6,5	M10	
20374	50	64	185	45	6,5	M10	
20375	50	64	195	45	6,5	M10	
20376	50	64	205	45	6,5	M10	
20377	50	64	215	45	6,5	M10	
20378	50	64	225	45	6,5	M10	
20379	50	64	245	45	6,5	M10	

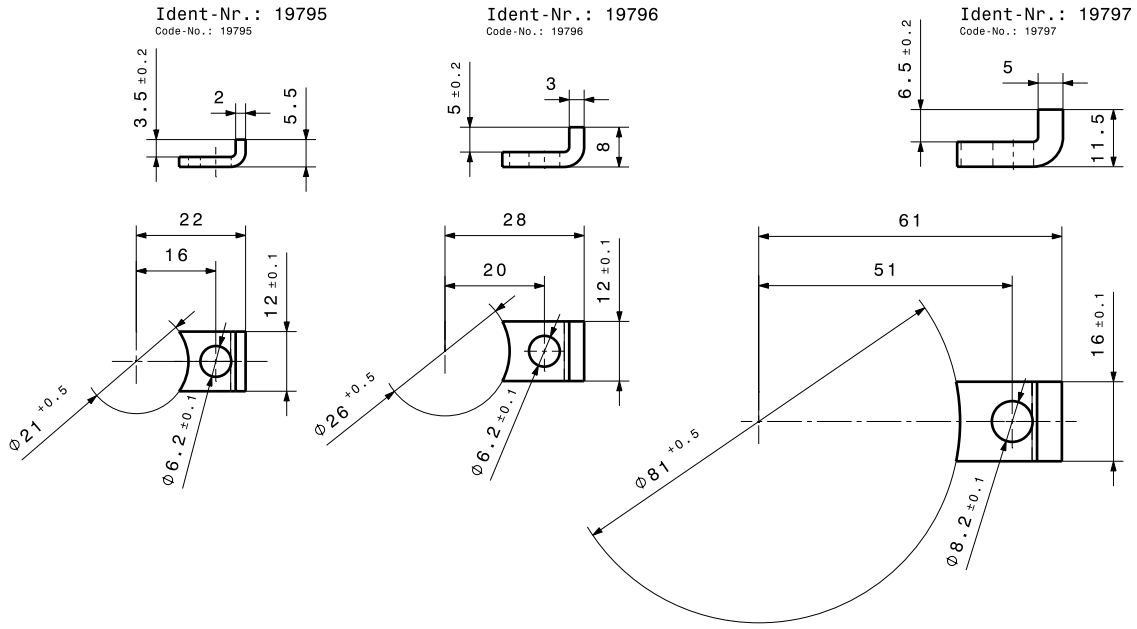
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

17.4 Führungssäulen mit Klammer
17.4 Guide posts with clamp



Ident-No. St 1	Ød1 h6/f6	Ød2 -0,2	L -1,6	L2	L3 ±0,2	Schrauben Ø Screw Ø	Ident-No. Klammer / Clamp
20380	50	64	265	45	6,5	M10	
20381	50	64	285	45	6,5	M10	
20382	50	64	325	45	6,5	M10	
20383	50	64	365	45	6,5	M10	
20384	50	64	425	45	6,5	M10	
20385	50	64	445	45	6,5	M10	
20386	63	76	169	49	6,5	M12	
20387	63	76	189	49	6,5	M12	
20388	63	76	209	49	6,5	M12	
20389	63	76	229	49	6,5	M12	19797
20390	63	76	249	49	6,5	M12	
20391	63	76	269	49	6,5	M12	
20392	63	76	289	49	6,5	M12	
20393	63	76	329	49	6,5	M12	
20394	63	76	369	49	6,5	M12	
20395	63	76	409	49	6,5	M12	
20396	63	76	449	49	6,5	M12	
20408	63	76	464	49	6,5	M12	
20409	63	76	479	49	6,5	M12	
20397	80	93	180	60	6,5	M12	

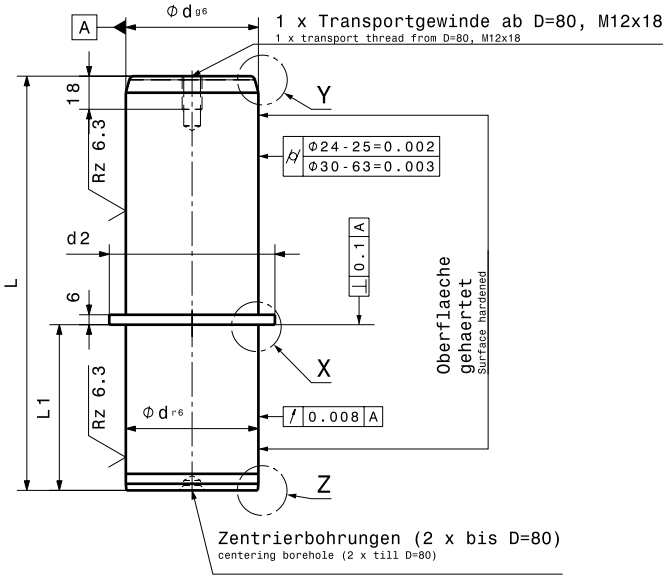
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



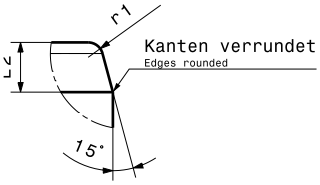
Ident-No. St 1	Ød1 h6/f6	Ød2 -0,2	L -1,6	L2	L3 ±0,2	Schrauben Ø Screw Ø	Ident-No. Klammer / Clamp
20398	80	93	200	60	6,5	M12	
20399	80	93	220	60	6,5	M12	
20400	80	93	240	60	6,5	M12	
20401	80	93	260	60	6,5	M12	
20402	80	93	280	60	6,5	M12	
20403	80	93	300	60	6,5	M12	19797
20404	80	93	340	60	6,5	M12	
20405	80	93	380	60	6,5	M12	
20406	80	93	420	60	6,5	M12	
20407	80	93	460	60	6,5	M12	

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

17.7 Führungssäulen ohne Klammer
17.7 Guide posts without clamp

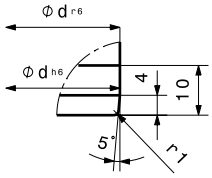


Einzelheit Y
Detail Y



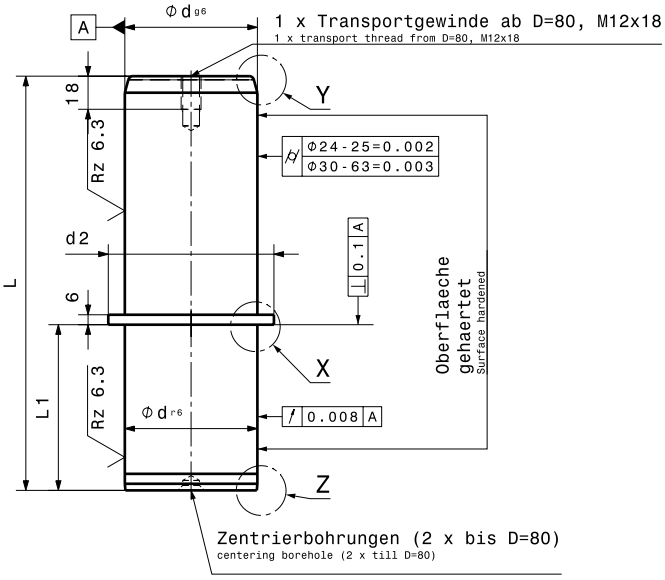
Einzelheit X
Detail X

Einzelheit Z
Detail Z

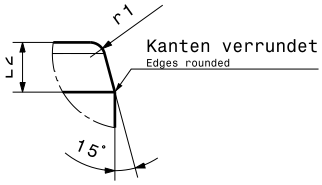


Ident-No. St 1	Ød h6/r6/g6	L	Ød2	L1	L2	r1
20496	32	140	40	45	8	2
20497	32	160	40	45	8	2
20498	32	180	40	45	8	2
20499	32	200	40	45	8	2
20500	40	160	50	56	8	2
20501	40	180	50	56	8	2
20502	40	200	50	56	8	2
20503	40	225	50	56	8	2
20504	40	250	50	56	8	2
20505	50	160	63	70	10	2,5
20506	50	180	63	70	10	2,5
20507	50	200	63	70	10	2,5
20508	50	225	63	70	10	2,5
20509	50	250	63	70	10	2,5
20510	50	280	63	70	10	2,5
20511	50	315	63	70	10	2,5

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

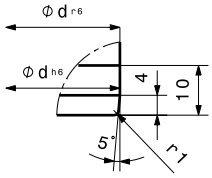


Einzelheit Y
Detail Y



Einzelheit X
Detail X

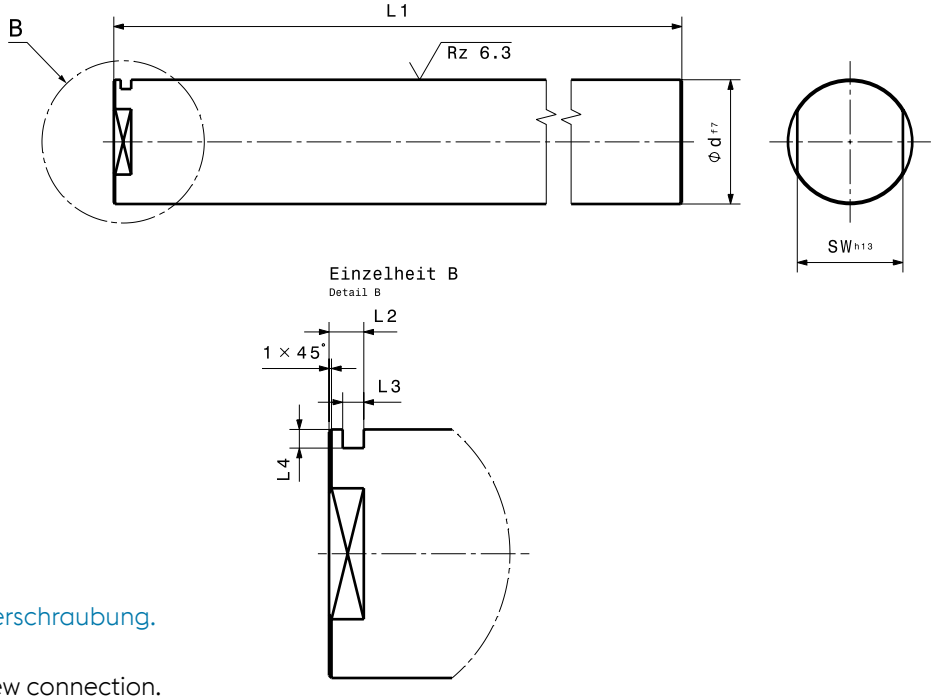
Einzelheit Z
Detail Z



Ident-No. St 1	Ød h6/r6/g6	L	Ød2	L1	L2	r1
20512	63	200	80	80	10	2,5
20513	63	225	80	80	10	2,5
20514	63	250	80	80	10	2,5
20515	63	280	80	80	10	2,5
20516	63	315	80	80	10	2,5
20517	63	355	80	80	10	2,5
20518	63	400	80	80	10	2,5
20519	80	250	100	100	10	3
20520	80	280	100	100	10	3
20521	80	315	100	100	10	3
20522	80	355	100	100	10	3
20523	80	400	100	100	10	3
20524	100	315	125	125	10	3
20525	100	355	125	125	10	3
20526	100	400	125	125	10	3
20527	100	450	125	125	10	3

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

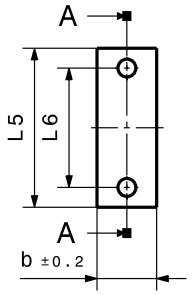
17.8 Bolzen mit Achshalter
17.8 Bolts with axle support

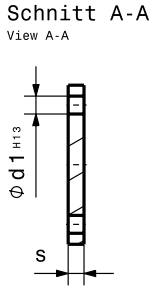


Länge bis zu L1 max. lieferbar.
Anlieferungszustand komplett inkl. Verschraubung.
Any length up to L1 max. available.
Delivery condition complete incl. screw connection.

Ident-No.	Ident-No. Achshalter axle support	Ød f7	L1 max.	L2	L3	L4	SW h13
20180		8	70	7	3,5	2,5	6
20181		10	90	7	3,5	2,5	8
20182	**20170**	12	140	7	3,5	3,5	10
20183		13	170	7	3,5	3,5	10
20184		16	190	7	3,5	3,5	13
20185		20	290	9	4,5	4,5	17
20186		25	340	9	4,5	4,5	17
20187		30	340	9	4,5	5,5	24
20188	**20171**	32	340	9	4,5	5,5	24
20198		35	390	9	4,5	5,5	27
20189		36	390	9	4,5	5,5	27
20190		40	390	9	4,5	5,5	36
20191		50	530	12	5,5	6	36
20192	**20172**	60	580	12	5,5	6	46
20193		63	580	12	5,5	6	50
20194		70	580	12	5,5	6	55
20195		80	580	14	8,5	7,5	65
20196	**20173**	90	580	14	8,5	7,5	75
20197		100	580	14	8,5	7,5	85

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

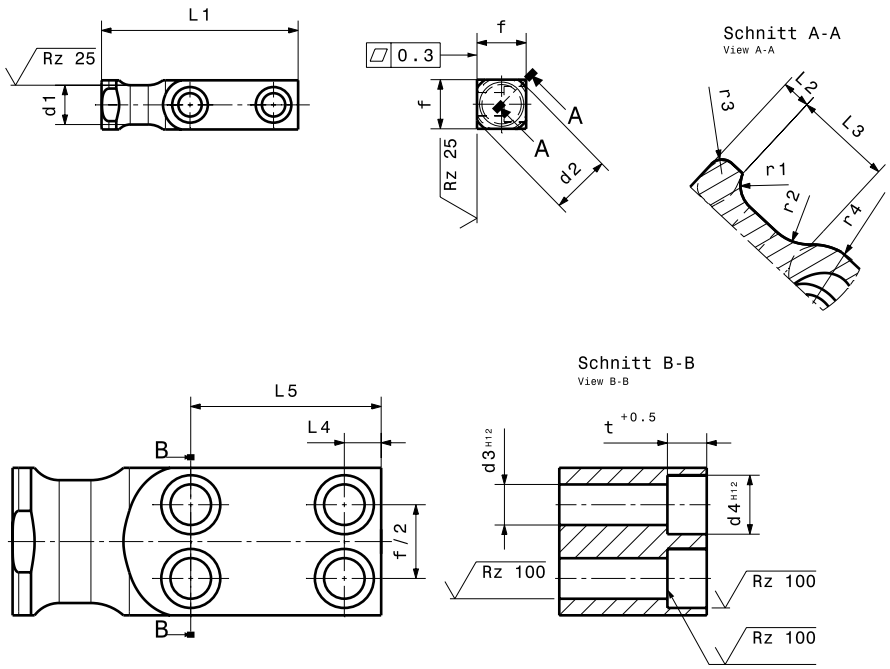




Ident-No. 1.0037 ungehärtet 1.0037 unhardened	L5	b ±0,2	L6	s	Ø d1 H13	Ød Bolzen Bolts	Zylinderschraube mit Federring Cylinder head screw with spring washer DIN EN ISO 4762
20170	25	13	13	3	5,5	8-16	M5x10
20171	40	13	25	4	5,5	20-40	M5x11
20172	60	20	45	5	6,6	50-70	M6x12
20173	80	30	60	8	9	80-100	M8x16

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

17.11 Tragzapfen nach VDI 3366
17.11 Trunnions acc. VDI 3366



17.11

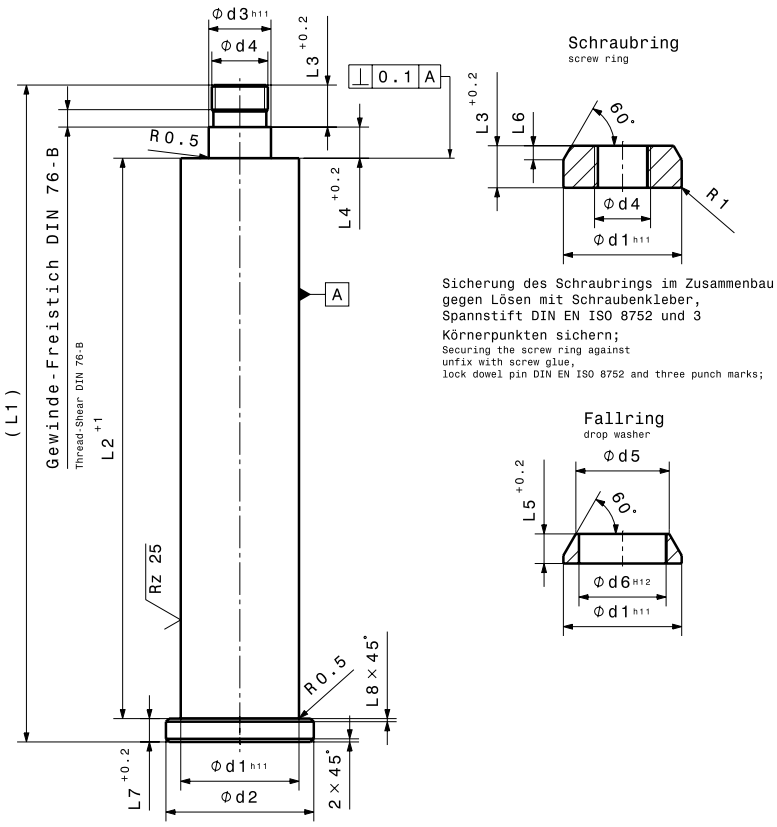
Ident-No. 1.0577	Ød1	Ød2	Ød3 H12	Ød4 H12	t +0,5	f	L1	L2	L3
16480	16	24	9,5	14,5	9	20	80	6	20
16481	20	30	11,5	17,5	11	25	90	8	25
16482	25	40	14	20	13	35	100	8	30
16483	32	50	18	26	17,5	40	120	10	32
16484	40	60	23	33	21,5	50	140	10	40
16485	50	70	27	39	25,5	60	160	12	45
16486	63	90	23	33	21,5	80	200	12	50
16487	80	110	27	39	25,5	100	250	15	65
16488	100	130	33	48	32	120	300	15	80

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

L4	L5	r1	r2	r3	r4	Zylinderschraube Cylinder head screw DIN EN ISO 4762
10	44	6	10	3	12	2x M8x30
10	47	8	12	3	12	2x M10x35
12	50	10	15	3	15	2x M12x40
16	62	10	15	3	20	2x M16x55
18	72	12,5	20	3	20	2x M20x70
22	81	12,5	20	5	25	2x M24x80
20	98	15	25	5	35	4x M20x100
25	125	20	35	5	45	4x M24x120
30	155	25	40	5	55	4x M30x140

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

17.12 Tragbolzen mit Ringsicherung nach VDI 3366
17.12 Liftig bolts with retaining ring acc. VDI 3366



Ident-No. 1.7131	Ød1 h11	Ød2	Ød3 h11	Ød4	Ød5	Ød6 H12	L1	L2 +1	L3 +0,2	L4 +0,2	L5 +0,2	L6	L7 +0,2	L8
16470	32	40	13	M10	24	21	175	145	10	10	9	5	10	2
16471	40	50	16	M12	30	28	225	188	13	14	13	6	10	2
16472	50	60	24	M20	38	36	273	230	16	16	15	7	11	2
16473	63	75	30	M24	48	45	347	295	20	18	17	8	14	3
16474	76	95	40	M36	60	56	422	360	27	20	19	9	15	6

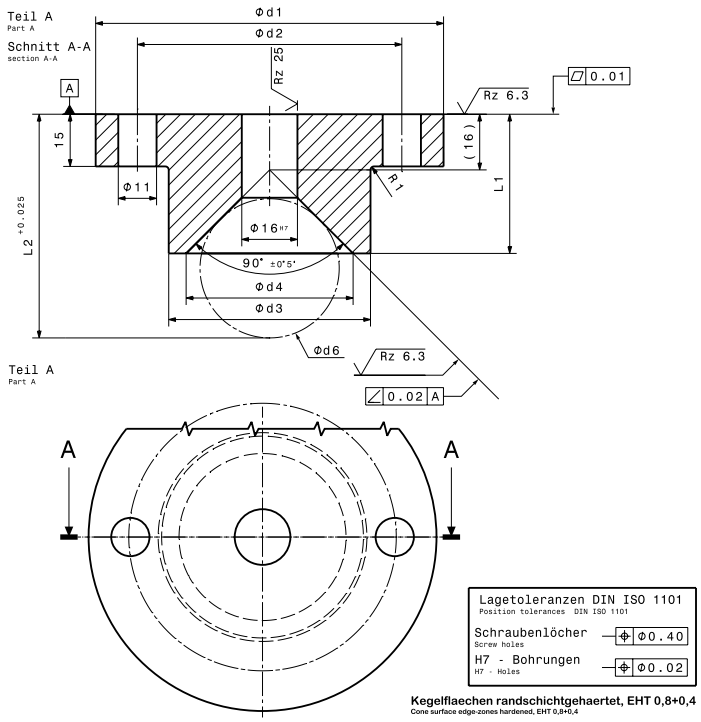
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

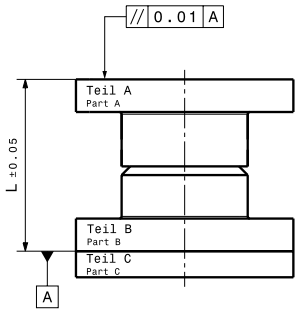
18. Zentriereinheiten
18. Centering units

18.1 Zentriereinheiten
Centering units

18.2 Zentriereinheiten
Centering units

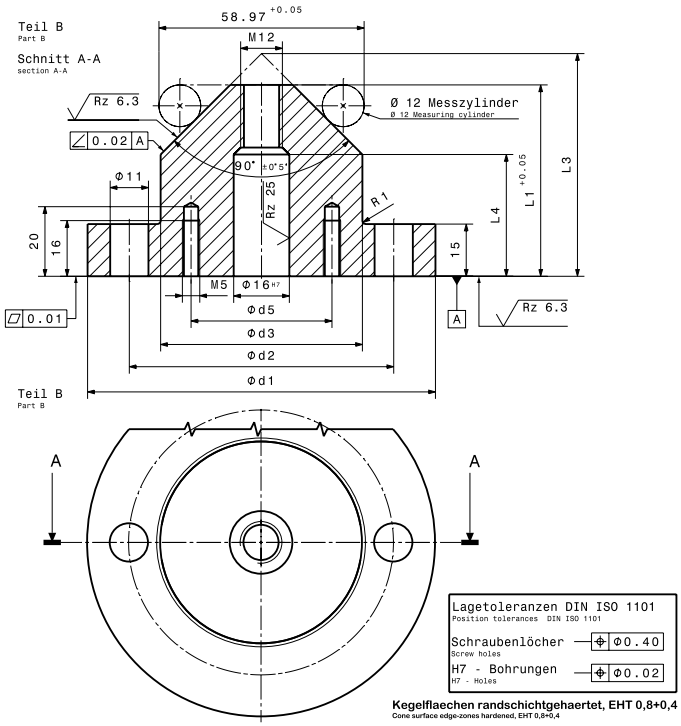
18.1 Zentriereinheiten
18.1 Centering units

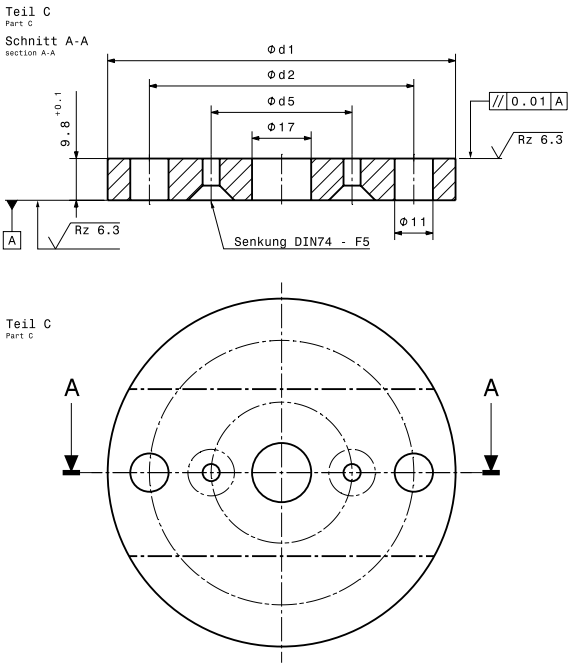


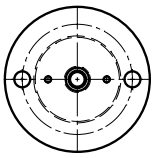


Ident-No. St 1	Ident-No. Zusammenbau Assembly A + B	Ident-No. Zusammenbau Assembly A + B + C	Ød1	Ød2	Ød3	Ød4	Ød5
19930	**62591**	**62947**	100	76	58	48	-
19931			100	76	58	-	40,5
62939	**-**		100	76	-	-	40,5
19932	**62592**	**63127**	120	96	78	68	-
19933			120	96	78	-	50,5
63124	**-**		120	96	-	-	50,5
62483	**62593**	**63128**	100	76	58	48	-
62484			100	76	58	-	40,5
63081	**-**		100	76	58	-	40,5

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

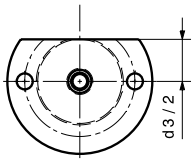




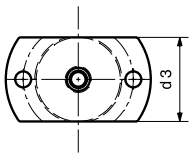


Draufsichten/View from top

Ausfuehrung 10 und 12
Design 10 and 12



Ausfuehrung 14 und 16
Design 14 and 16

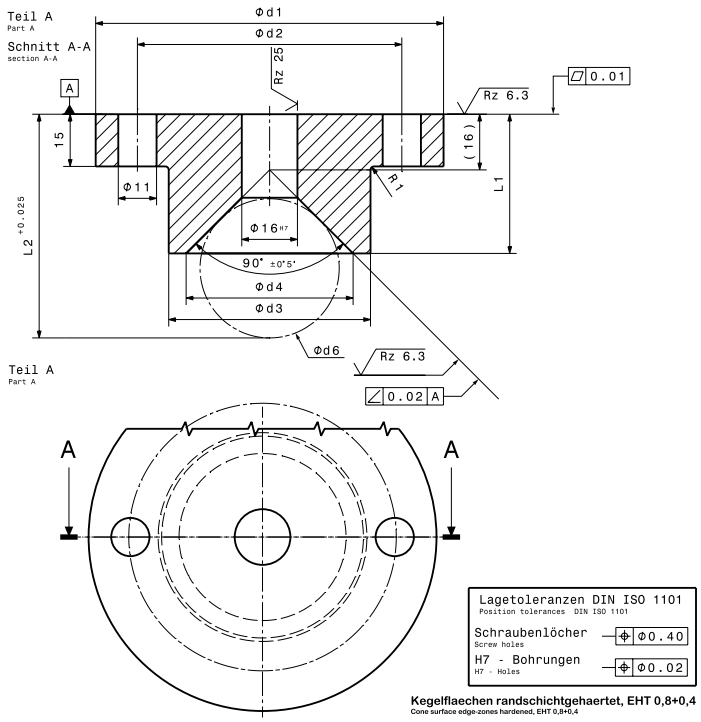


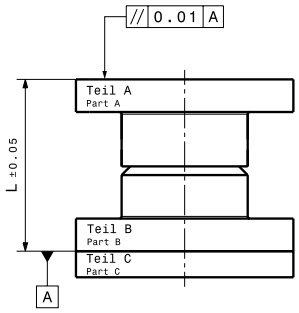
Ausfuehrung 18 und 20
Design 18 and 20

Ød6 Messkugel Measuring ball	L ±0,05	L1 ±0,05	L2 ±0,025	L3 ±0,025	L4	Teil Part	Ausführung Design
40	80	40	64,28	-	-	A	10
-	80	55	-	64	35	B	10
-	-	-	-	-	-	C	10
50	90	50	76,36	-	-	A	12
-	90	65	-	74	45	B	12
-	-	-	-	-	-	C	12
40	80	40	64,28	-	-	A	14
-	80	55	-	64	35	B	14
-	-	-	-	-	-	C	14

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

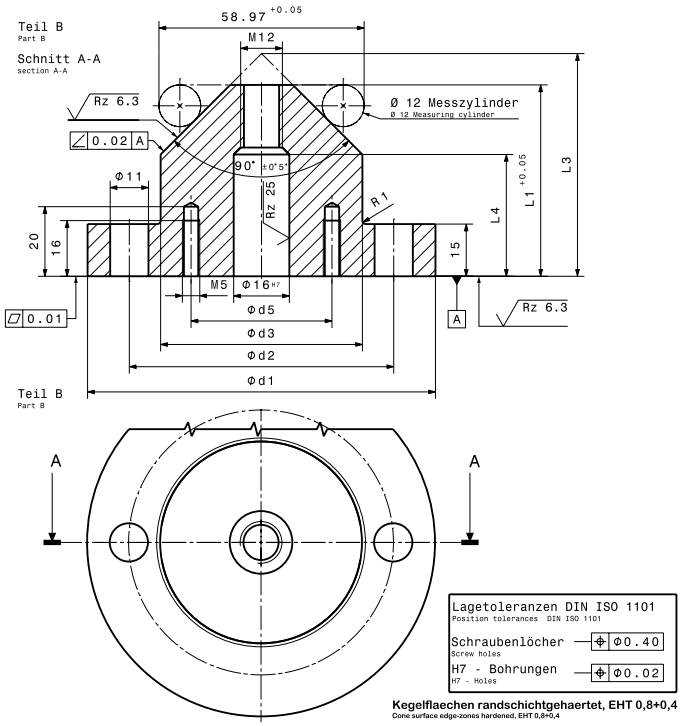
18.1 Zentriereinheiten
18.1 Centering units

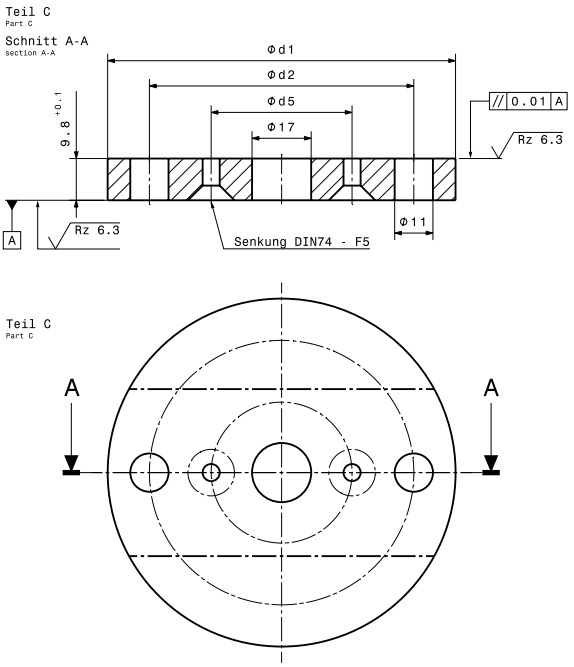


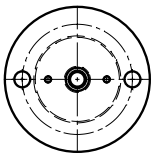


Ident-No. St 1	Ident-No. Zusammenbau Assembly A + B	Ident-No. Zusammenbau Assembly A + B + C	Ød1	Ød2	Ød3	Ød4	Ød5
62485	**62594**	**63129**	120	96	78	68	-
62486			120	96	78	-	50,5
63125	**-**		120	96	78	-	50,5
62487	**62595**	**62942**	100	76	58	48	-
62488			100	76	58	-	40,5
62941	**-**		100	76	58	-	40,5
62489	**62596**	**63130**	120	96	78	68	-
62490			120	96	78	-	50,5
63126	**-**		120	96	78	-	50,5

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

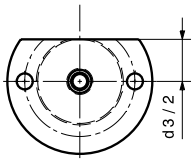




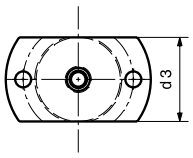


Draufsichten/View from top

Ausfuehrung 10 und 12
Design 10 and 12



Ausfuehrung 14 und 16
Design 14 and 16



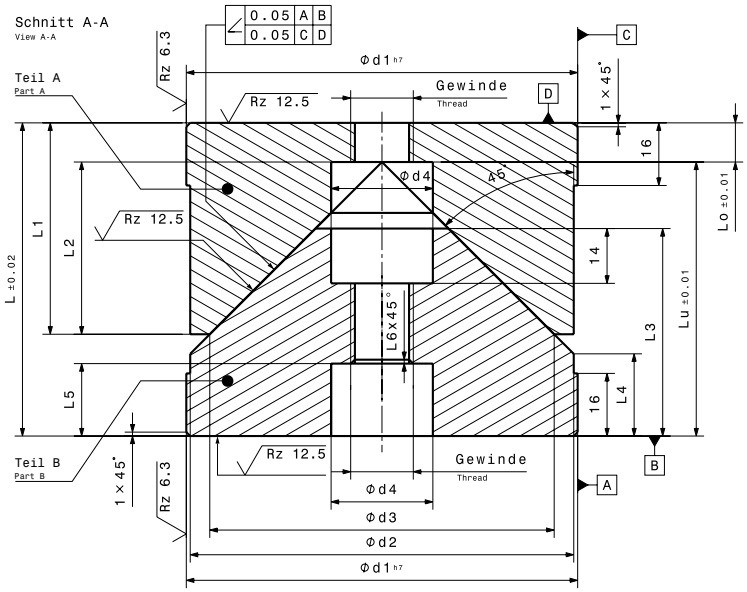
Ausfuehrung 18 und 20
Design 18 and 20

Ød6 Messkugel Measuring ball	L ±0,05	L1 ±0,05	L2 ±0,025	L3 ±0,025	L4	Teil Part	Ausführung Design
50	90	50	76,36	-	-	A	16
-	90	65	-	74	45	B	16
-	-	-	-	-	-	C	16
40	80	40	64,28	-	-	A	18
-	80	55	-	64	35	B	18
-	-	-	-	-	-	C	18
50	90	50	76,36	-	-	A	20
-	90	65	-	74	45	B	20
-	-	-	-	-	-	C	20

18.1

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

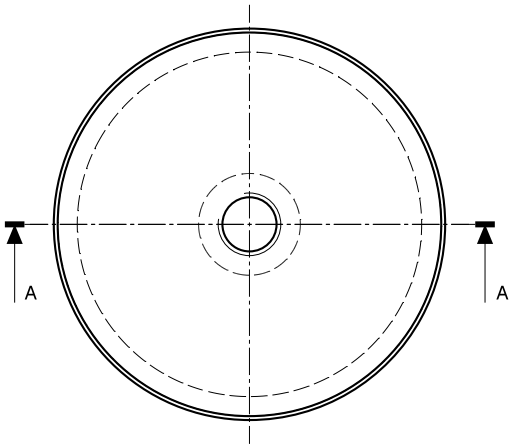
18.2 Zentriereinheiten
18.2 Centering units



Kegelflaeche randschichtgehaertet, EHT 0,8+0,4 / Cone surface edge-zone hardened, EHT 0,8+0,4

Ident-No. St 1	Ød1 h7	Ød2	Ød3	Ød4	L ±0,02	Lo theor. ±0,01	Lu theor. ±0,01
19934	100	98	88	26	80	10	-
19935	100	98	-	26	80	-	70
19936	75	74	62	20	65	9	-
19937	75	74	-	20	65	-	56

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



L1	L2	L3	L4	L5	L6	Gewinde Thread	Teil Part
54	44	-	-	-	-	M16	A
-	-	53	21	18,5	2	M16	B
40	30	-	-	-	-	M12	A
-	-	42	19	13	1	M12	B

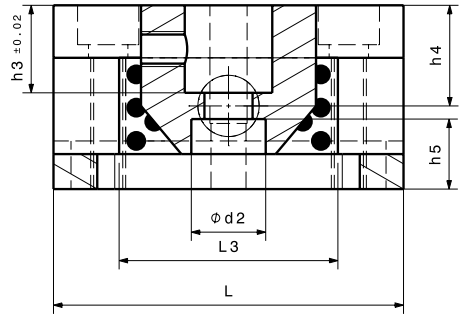
Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

19. Bolzenführungen
19. Bolt guides

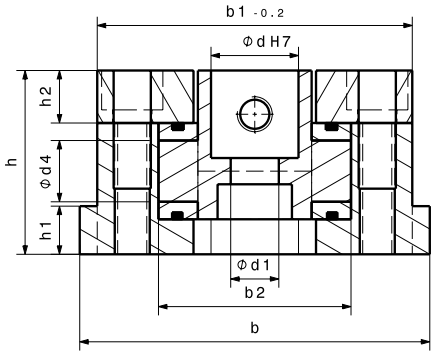
19.1 Bolzenführungen
Bolt guides

19.1 Bolzenführungen
19.1 Bolt guides

Section A-A

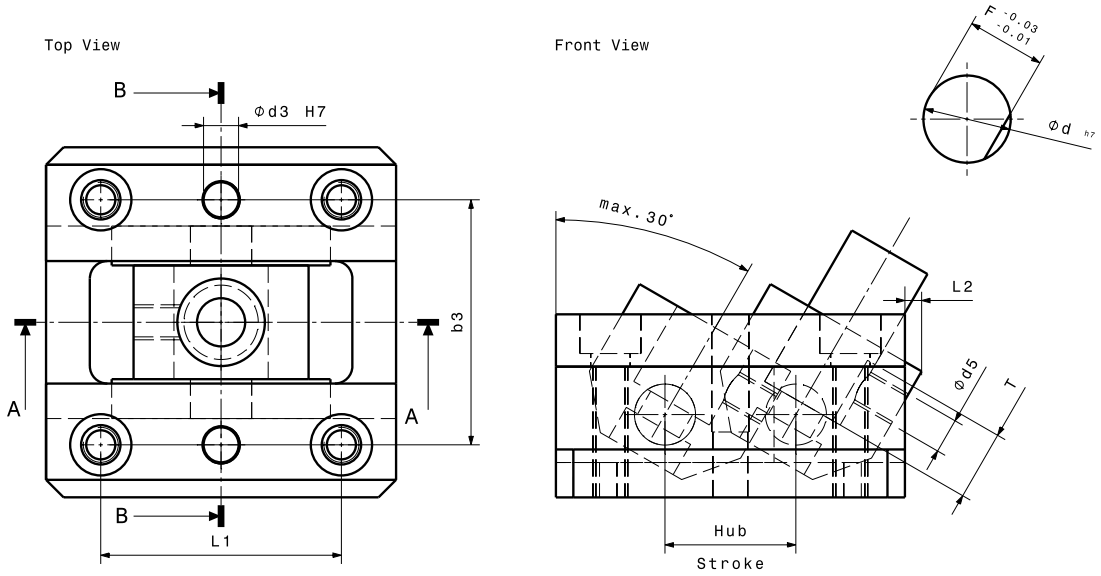


Section B-B



Ident-No.	b	L	h	b1 -0,2	b2	b3	L1	L2	L3	h1	h2	h3 ±0,02
19980	33	32	22	30	19	24	20	3,6	20	5	7	8
19981	45	45	27	40	25	32	30	4,5	25	5	8	10
19982	57	50	32	51	31	39	35	5	30	7	10	12
19983	65	65	36	58	38	46	40	5	40	8	10	16
19984	80	80	42	72	44	56	55	5	50	11	12	20
19985	93	90	50	85	52	66	65	6	55	15	15	25
19986	101	100	55	93	60	74	70	7	60	15	15	30
19987	120	120	62	110	70	85	80	8	75	15	18	35
19988	130	135	70	120	80	95	90	8	85	15	18	40
19989	140	150	80	130	90	105	110	10	95	15	20	45

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium



h4	h5	Ød H7	Ød1	Ød2	Ød3 H7	Ød4	Ød5	F -0,03 -0,1	T	Hub Stroke	Zylinderschraube Cylinder head screw
12,5	10	8	8	4,5	3	7	M4	7	8	10	M3
15,5	12,5	10	10	5,5	4	9	M5	9	9	18	M4
18	15	12	11	7	6	10	M6	11	10	20	M6
20	15	16	14	9	6	12	M8	14,5	12	25	M6
23	16	20	17	11	8	14	M8	18	16	30	M8
28	17	25	20	14	10	16	M10	22,5	20	35	M10
30	17	30	20	14	10	18	M10	27	25	40	M10
35	18	35	26	14	10	20	M10	32	30	45	M12
40	19	40	26	17,5	10	25	M12	36	35	50	M12
45	24	45	26	17,5	10	30	M12	40	40	55	M12

Maße ohne Toleranzangabe – DIN ISO 2768 mittel
Measurements without tolerance specification – DIN ISO 2768 medium

Klimaneutral
Druckprodukt
ClimatePartner.com/11293-2301-1001

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