





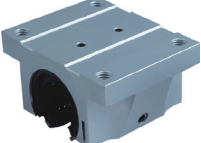
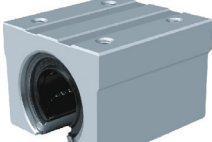
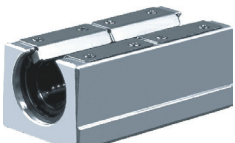



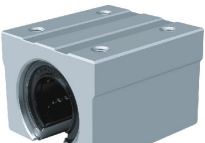

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Capacità di Carico

Coefficiente di Carico Dinamico (C)

Questo dato è ricavato sulla base della valutazione di un test di un numero di sistemi lineari identici ed eseguito singolarmente e nelle stesse condizioni su ognuno. Viene eseguito con il carico costante (un valore costante in una costante direzione) per una distanza di 50 Km, se il 90% di essi si presenta senza danni di laminazione causati da fatica, viene considerata la base della valutazione.

Momento Statico (M)

Questo termine definisce il valore limite consentito del momento di Carico Statico, con riferimento alla quantità di deformazione permanente simile a quello utilizzato per la valutazione del Carico Nominale di Base (Co).

Fattore di Sicurezza Statica (fs)

Questo fattore è utilizzato in base alla condizione di applicazione come mostrato nella tabella 1.

Durata Nominale

Durata nominale del Sistema Lineare

Finché il sistema lineare si muove alternativamente mentre viene caricato, il continuo stress agisce sul sistema lineare causando lo sfaldamento delle sfere e del piano di rotolamento a causa della fatica a cui è sottoposto il materiale. La durata del sistema lineare fino allo sfaldamento, è chiamata vita del sistema, purché dimensioni, struttura, materiale, trattamento termico e metodo di elaborazione siano considerati nelle stesse condizioni. Questa variazione è causata dalla essenziale variazione nella fatica del materiale stesso. La durata nominale definita è usata come indice per la speranza di vita del sistema lineare.

Durata Vita (L)

La durata nominale è la distanza totale che il 90% di un gruppo di sistemi della stessa dimensione può raggiungere senza causare rotture quando operano nelle stesse condizioni. La durata nominale può essere ottenuta dalla seguente equazione con la capacità di carico dinamico e il carico sul sistema lineare.

$$\text{Per Tipo a Sfera: } L = (C/P)^3 \times 50 \text{ ----- (1)}$$

L: Durata Vita (Km) - C: Coefficiente di Carico Dinamico (N) - P: Carico (N)

Capacità di Carico Statico (Co)

Questo termine definisce un carico statico tale che considera la posizione dove la sollecitazione è esercitata al massimo, la somma della deformazione permanente degli elementi di rotolamento e quella del piano di rotolamento è 0,0001 del diametro dei corpi volventi.

Tabella 1 - Fattori di Sicurezza Statica

Condizioni d'uso	Limite minimo fs
Albero con poca flessione e shock	1 a 2
Deformazione elastica rispetto al carico di schiacciamento	2 a 4
Equipaggiamento soggetto a urti e vibrazioni	3 a 5

Load Rating

Basic Dynamic Load Rating (C)

This term is arrived at based on an evaluation of a number of identical linear system individually run in the same conditions, if 90% of them can run with the load (with a constant value in a constant direction) for a distance of 50 Km without damage caused by rolling fatigue. This is the basis of the rating.

Allowable Static Moment (M)

This term defines the allowable limit value of static moment load, with reference to the amount of permanent deformation similar to that used for evaluation of basic rated load (Co).

Static Safety Factor (fs)

This factor is used based on the application condition as shown in table 1.

Rating Life

Rating Life of the Linear System

As long as the linear system reciprocates while being loaded, continuous stress acts on the linear system to cause flaking on the rolling bodies and planes because of material fatigue. The travelling distance of linear system until the first flaking occurs is called the life of the system of the same dimensions, structure, material, heat treatment and processing method, when used in the same conditions. This variation is brought about from the essential variations in the material fatigue itself. The rating life defined below is used as an index for the life expectancy of the linear system.

Rating Life (L)

Rating life is the total travelling distance that 90% of a group of systems of the same size can reach without causing any flaking when they operate under the same conditions. The rating life can be obtained from the following equation with the basic dynamic load rating and the load on the linear system.

$$\text{For Ball type: } L = (C/P)^3 \times 50 \text{ ----- (1)}$$

L: rating life (Km) - C: Basic dynamic load rating (N) - P: Load (N)

Basic Static Load Rating (Co)

This term defines a static load such that, at the contacting position where the maximum stress is exercised, the sum of the permanent deformation of the rolling elements and that of the rolling plane is 0,0001 time of the diameter of the rolling elements.

Table 1 - Static Safety Factors

Condition of use	Low limit of fs
When the shaft has less deflection and shock	1 to 2
When elastic deformation should be considered with respect to pinch load	2 to 4
When the equipment is subject to vibration and impacts	3 to 5

Consideration and influence of vibration impact loads and distribution of load should be taken into account when designing a linear motion system, it is difficult to calculate the

Considerazioni e influenza dei carichi di impatto delle vibrazioni e distribuzione del carico deve sempre essere preso in considerazione quando si progetta un sistema di movimento lineare. E' difficile calcolare il carico effettivo. La durata nominale è anche influenzata dalla temperatura di esercizio, in queste condizioni la formula (1) è disposta come segue:

$$\text{Per Tipo a Sfera: } L = \left(\frac{f_H \cdot f_r \cdot f_c \cdot C}{f_w \cdot P} \right)^3 \cdot 50$$

L: Durata di Vita (Km) - fh: Fattore di Durezza (vedi fig.1)

C: Coefficiente di Carico Dinamico (N)

fT: Coefficiente di Temperatura (vedi fig.2) . P: Carico (N)

fC: Coefficiente di Contatto (vedi tabella 2)

fw: Coefficiente di Carico (vedi tabella 3)

La durata nominale in ore può essere calcolata mediante l'ottenimento della distanza di viaggio per unità di tempo. La durata nominale in ore può essere ottenuta con la seguente formula quando la lunghezza della corsa è costante:

$$L_h = \frac{L \cdot 10^3}{2e_s \cdot n_1 \cdot 60}$$

Lh: Durata di Vita in ore (hr)

es: Lunghezza della Corsa (m)

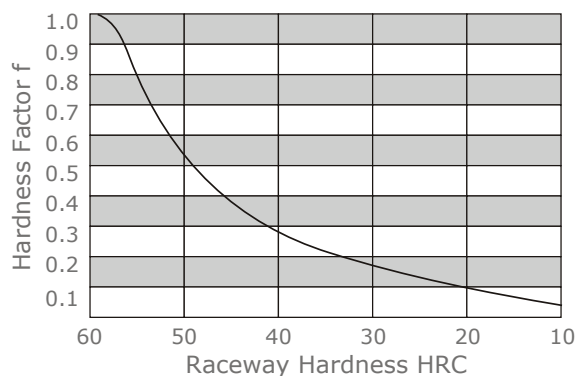
L: Durata di Vita (Km)

n1: No. corse per minuto (cpm)

Fattore di Durezza (fH)

L'albero deve essere sufficientemente indurito quando si utilizza un manicotto lineare. Se non adeguatamente indurito il carico ammesso sarà diminuito e la vita del manicotto sarà ridotta.

Fig.1 Fattore di Durezza - Hardness Factor



Coefficiente di Temperatura (fT)

Se la temperatura del sistema lineare supera i 100° C la durezza del sistema lineare e dell'albero si abbassa per diminuire il carico ammissibile rispetto a quella del sistema lineare utilizzato a temperatura ambiente. Come risultato otteniamo che l'aumento anomalo della temperatura riduce la durata nominale.

actual load. the rating life is also affected by the operating temperature. In these conditions, the expression (1) is arranged as follows:

$$\text{For ball type: } L = \left(\frac{f_H \cdot f_r \cdot f_c \cdot C}{f_w \cdot P} \right)^3 \cdot 50$$

L: Rating life (Km) - fh: Hardness factor (see Fig.1)

C: Basic dynamic load rating (N)

fT: Temperature coefficient (see Fig.2) - P: Load (N)

fC Contact coefficient (see table 2)

fw: Load coefficient (see table 3)

The rating life in hours can be calculated by obtaining the travelling distance for unit time. The rating life in hours can be obtained from the following expression when the stroke length and the number of strokes are constant:

$$L_h = \frac{L \cdot 10^3}{2e_s \cdot n_1 \cdot 60}$$

Lh: Rating life in hours (hr)

es: Stroke length (m)

L: Rating life (Km)

n1: No. of stroke for minute (cpm)

Hardness Factor (fh)

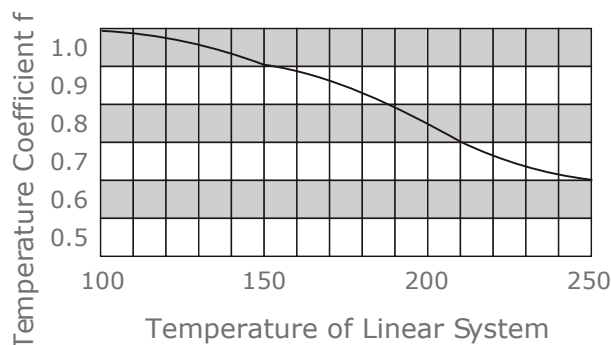
The shaft must be sufficient hardened when a linear bushing is used.

If not properly hardened, permissible load is lowered and the life of the bushing will be shortened.

Temperature Coefficient (fT)

If the temperature of the linear system exceeds 100° C, hardness of the linear system and the shaft lowers to decrease the permissible load compared to that of the linear system used at room temperature. As a result, the abnormal temperature rise shortens the rating life.

Fig.1 Fattore di Durezza - Hardness Factor



Coefficiente di Contatto (fc)

Generalmente due o più manicotti sono utilizzati su uno stesso albero. Così il carico su ogni sistema lineare differisce a seconda della di ogni precisione di lavorazione poichè i manicotti non sono caricati allo stesso modo. Il numero dei manicotti a sfere per albero cambia il carico ammissibile del sistema.

Contact Coefficient (fc)

Generally two or more linear bushings are used on one shaft. Thus, the load on each linear system differs depending on each processing accuracy. Because the linear bushings are not loaded equally, the number of linear bushings for shaft changes the permissible load of the system.

Tabella 2 Coefficiente di Contatto

Numero sistemi lineari per albero	Coeffic. Contatto fc
1	1,00
2	0,81
3	0,72
4	0,66
5	0,61

Table 2 Coefficient Contact

Number of linear systems for shaft	Contact Coefficient fc
1	1,00
2	0,81
3	0,72
4	0,66
5	0,61

Coefficiente di Carico (fw)

Quando si calcola il carico sul sistema lineare è necessario sapere con precisione il peso dell'oggetto, la forza inerziale in base alla velocità di movimento, il momento di carico e ogni ripetizione nel tempo. Tuttavia è difficile calcolare questi valori accuratamente perchè il movimento alternativo comporta la ripetizione di avvio e arresto e anche vibrazioni e impatti. Un approccio più pratico per ottenere il coefficiente di carico è prendere le effettive condizioni di esercizio in considerazione.

Load Coefficient (fw)

When calculating the load on the linear system, it is necessary to accurately obtain object weight, inertial force based on motion speed, moment load and each transition as time passes. However, it is difficult to calculate those value accurately because reciprocating motion involves the repetition of start and stop as well as vibration and impact. A more practical approach is to obtain the load coefficient by taking the actual operating conditions into account.

Tabella 3 Coefficiente di Carico

Condizioni Operative	fw
Funzionamento a bassa velocità (15m/min. o meno) senza shock impulsivo dall'esterno	1,0 a 1,5
Funzionamento a velocità intermedia (60 m/min. o meno) senza shock impulsivo dall'esterno	1,5 a 2,0
Funzionamento ad alta velocità (oltre 60 m/min.) con shock impulsivo dall'esterno	2,0 a 3,5

Table 3 Load Coefficient

Operating Conditions	fw
Operation at low speed (15 m/min. or less) without impulsive shock from outside.	1,0 to 1,5
Operation at intermediate speed (60 m/min. or less) without impulsive shock.	1,5 to 2,0
Operation at high speed (over 60 m/min.) with impulsive shock form outside.	2,0 to 3,5

Resistenza all'attrito

La resistenza di Attrito Statico del sistema lineare K.S.B. è così bassa da essere solo leggermente diversa dalla resistenza di Attrito Cinetico. In generale la resistenza di attrito è espressa dalla seguente formula:

Frictional Resistance

The static frictional resistance of the K.S.B. linear system is so low as to be only slightly different from the kinetic frictional resistance, enabling smooth linear movement from low to high speeds, in general, the frictional resistance is expressed by the following equation:

$$F = \mu \cdot W + f$$

F: Frictional resistance μ : Coefficient of friction
W: Load weight f: Sealing resistance

L'attrito di ciascun sistema lineare K.S.B. dipende dal modello, dal peso del carico, dalla velocità e dal tipo di lubrificante. La resistenza della tenuta dipende dall'interferenza fra labbro e lubrificante, indipendentemente dal carico.

Temperatura Ambiente di Lavoro

Il campo della temperatura di funzionamento per ciascun sistema lineare K.S.B. dipende dal modello.

Equazione di conversione della Temperatura

$$C = 5/9 (F - 32)$$

$$F = 32 + 5/9 C$$

The frictional resistance of each K.S.B. linear system depends on the model, load weight, speed, and lubricant. The sealing resistance depends on the lip interference and lubricant, regardless of the load.

Ambient Working Temperature

The ambient working temperature range for each K.S.B. linear system depends on the model

Temperature conversion equation

$$C = 5/9 (F - 32)$$

$$F = 32 + 5/9 C$$

Lubrificazione e Protezione dalla Polvere

Utilizzando i sistemi lineari K.S.B. senza aumenti di lubrificazione l'abrasione dei corpi volventi diminuisce l'arco di vita degli stessi. I sistemi lineari K.S.B. richiedono pertanto un'opportuna lubrificazione. Per la lubrificazione K.S.B. raccomanda olio per turbine conforme alle norme ISO G32 o G38 o con grasso a base di sapone di litio. Alcuni sistemi lineari K.S.B. sono sigillati per bloccare fuori la polvere e sigillare il lubrificante all'interno. Se utilizzato in un ambiente difficile o corrosivo però si consiglia di applicare una copertura di protezione per la parte che coinvolge il movimento lineare. La resistenza di tenuta di un sistema lineare è di circa 2000-500 gf. Il coefficiente di attrito dipende dal peso del carico. La tabella 6 mostra il coefficiente di attrito cinetico di ciascun tipo di sistema lineare che è stato installato e lubrificato correttamente e con applicato un carico normale. (P/C = 0,2).

Lubrication and Dust Prevention

Using K.S.B. linear systems without lubrication increases the abrasion of the rolling elements, shortening the life span, the K.S.B. linear systems therefore require appropriate lubrication. For lubrication K.S.B. recommends turbine oil conforming to ISO standards G32 or G68 or lithium base soap grease. Some K.S.B. linear systems are sealed to block dust out and seal lubricant in. If used in a harsh or corrosive environment, however, apply a protective cover to the part involving linear motion weight. The sealing resistance of one linear system is about 2000 to 500 gf. The coefficient of friction depends on the load weight. Table 6 shows the coefficient of kinetic friction of each type of linear system which has been installed and lubricated properly and applied with normal load (P/C = 0,2).

Tabella 5 Coefficiente di attrito del Sistema Lineare

Tipo Sistema Lineare	Modello	Coeff. Attrito (u)
Bussola Lineare	LM-LME-LMB	0,002 a 0,003

Table 5 Coefficient of Linear System Friction (u)

Linear System Type	Models	Coeff. Friction (u)
Linear Bushing	LM-LME-LMB	0,002 a 0,003

Tabella 6 - Temperatura Ambiente di Lavoro

Tipo Sistema Lineare	Modello	Temp. Ambiente Lavoro
Bussola Lineare	LM-LME-LMB	-20 a 80° C
Bussola Lineare	LM-ALME-ALMB-A	-20 a 110° C

Table 6 Ambient Working Temperature

Linear System Type	Models	Ambient Working Temp.
Linear Bushing	LM-LME-LMB	-20 a 80° C
Linear Bushing	LM-ALME-ALMB-A	-20 a 110° C

Struttura e Caratteristiche

Il manicotto lineare K.S.B. è costituito da un cilindro esterno, fermo per le sfere, sfere e due anelli terminali. La gabbia delle sfere che mantiene le sfere nei canali di ricircolo è inserita all'interno del cilindro esterno e bloccata da anelli terminali. Queste parti vengono assemblate per ottimizzare le funzioni richieste. Il cilindro esterno viene mantenuto della durezza necessaria mediante trattamento termico, quindi assicura ai manicotti una durata soddisfacente. La gabbia è realizzata in acciaio o in resina sintetica. La gabbia in acciaio ha alta rigidità, ottenuta con un trattamento di calore. La gabbia in resina sintetica può aumentare la silenziosità di funzionamento. L'utilizzatore può selezionare il tipo ottimale per soddisfare le proprie condizioni di utilizzo.

1 - Alta Precisione e Rigidità

Il manicotto lineare K.S.B. è costituito da un cilindro esterno in acciaio con inserito una gabbia bloccata da fermi in resina.

2 - Facilità di Montaggio

Il manicotto lineare standard K.S.B. può essere caricato in qualsiasi direzione. La precisione è possibile utilizzando solo il sostegno dell'albero e il montaggio può essere effettuato facilmente.

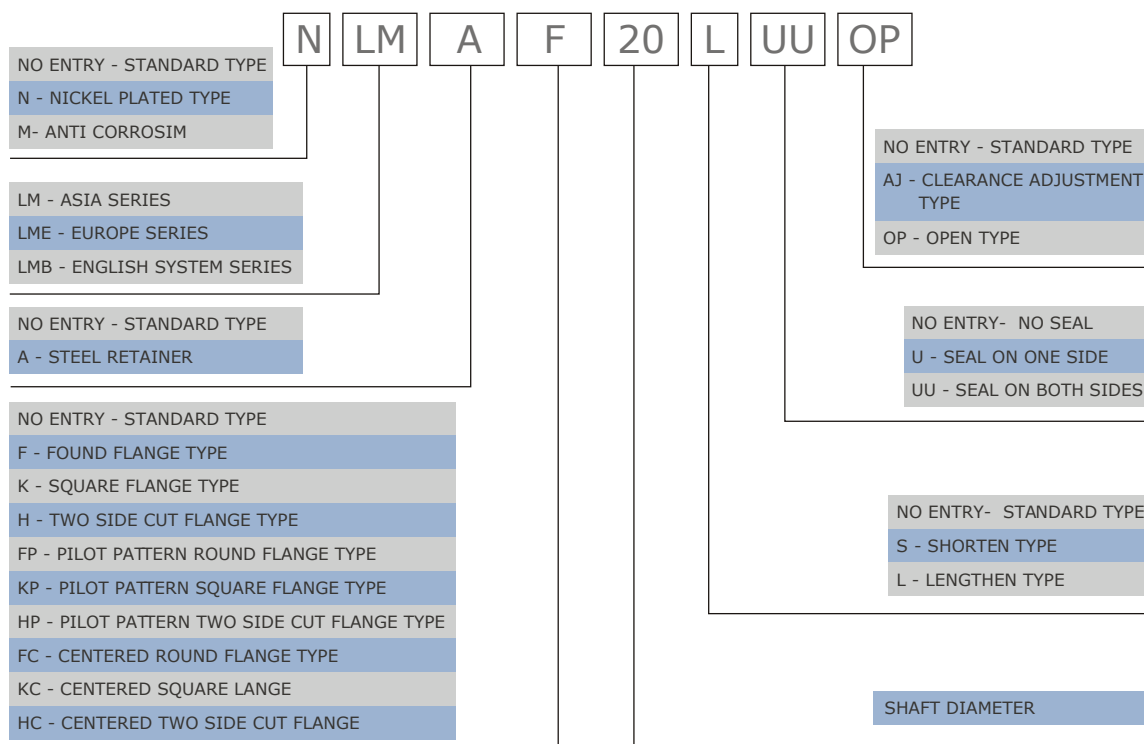
3 - Facilità di Sostituzione

I manicotti lineari K.S.B. di ogni tipo sono completamente intercambiabili avendo standardizzato le dimensioni e grazie a un rigoroso controllo sulla precisione. La sostituzione a causa di usura o di danneggiamento è quindi molto semplice.

4 - Varietà di Tipi

K.S.B. offre una linea completa di manicotti lineari: lo standard, e i tipi chiusi con singolo fermo integrale. L'utilizzatore può quindi scegliere tra questi in base ai requisiti e alle applicazioni da rispettare.

Composizione del numero del Tipo del Manicotto Lineare



Structure and Feature

The K.S.B. linear bushing consist of an outer cylinder, ball retainer, balls and two end rings. The ball retainer which holds the balls in the recirculating tucks in held inside the outer cylinder by end rings. Those parts are assembled to optimize their required functions. The outer cylinder is maintained sufficient hardness by heat treatment, therefore it ensures the bushings projected travel life and satisfactory durability. The ball retainer is made from steel or synthetics resin. The steel retainer has high rigidity, obtained by heat treat meant. The synthetics resin retainer can reduce running noise. The user can select the optimum type for meeting the user's service conditions.

1 - High Precision and Rigidity

The K.S.B. linear bushing is produced from a solid steel outer cylinder and incorporates an industrial strength resin retainer.

2 - Ease of Assembly

The standard type of K.S.B. liner bushing can be loaded from any direction. Precision control is possible using only the shaft supporter, and the mounting surface can be machined easily.

3 - Ease of Replacement

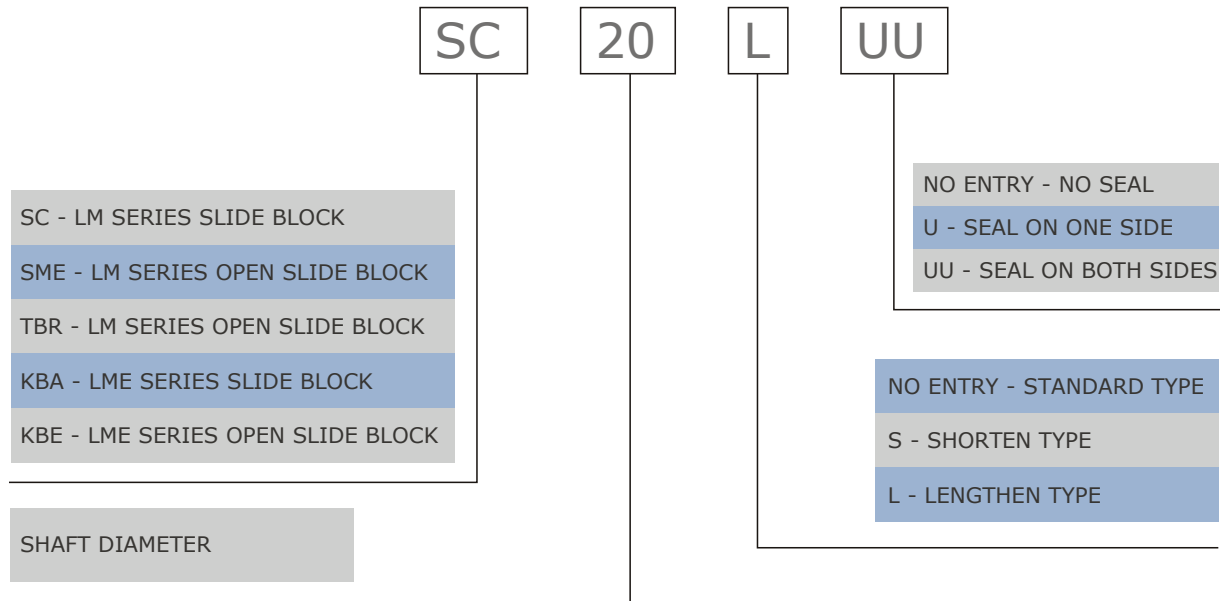
K.S.B. liner bushing of each type are completely interchangeable because of their standardized dimensions and strict precision control. Replacement because of wear or damage is therefore easy and accurate.

4 - Variety of Types

K.S.B. offers a full line of liner bushing: the standard, integral single-retainer closed types. The user can choose from among these according to the application requirements to be met.

Type number Format at Linear Bushing

Composizione del numero del Tipo del Unità Lineare Type number Format at Slide Unit



Tolleranze

Si noti che la precisione del diametro del cerchio inscritto e dei diametri esterni per il tipo di gioco regolabile (...AJ) e il tipo aperto (...OP) indica il valore ottenuto prima che il tipo corrispondente sia sotto posto al processo di taglio.

Relazione tra numero di giri sfera e valutazione del Carico

Il manicotto lineare K.S.B. comprende circuiti a sfera che sono equamente distanziati sulla circonferenza. La valutazione del carico varia secondo la posizione del carico sulla circonferenza. Il valore nella tabella dimensionale indica il valore del carico quando il carico è posto direttamente sulla cima di una sfera. Se il manicotto lineare K.S.B. viene utilizzato con due circuiti a sfera caricati uniformemente, il carico sarà maggiore. La seguente tabella mostra i valori in base al numero dei circuiti a sfera.

Tolerance

Note that precision of inscribed circle diameters and outside diameter for the clearance adjustable type (...AJ) and the open type (...OP) indicates the value obtained before the corresponding type is subjected to cutting.

Relation between ball circuits and load rati

The K.S.B. linear bushing includes ball circuits that are spaced equally and circumferentially. The load rating varies according to the loaded position on the circumference. The value in the dimension table indicates the load rating when the load is placed on top of one ball circuit. If the K.S.B. linear bushing is used with two ball circuits loaded uniformly, the load rating will be greater. The following table shows the values by the number of ball circuits in such cases:

Number of rows	34		5	6	8
Row position n load ratio					
Row position					
Row position					
Load ratio	$Q_0/Q_1=1$	$Q_0/Q_1=1.414$	$Q_0/Q_1=1.463$	$Q_0/Q_1=1.280$	$Q_0/Q_1=1.115$

Tolleranza e Forma

Quando viene utilizzato un tipo standard di Manicotto Lineare K.S.B. su di un'albero con tolleranza insufficiente la regolazione può causare un deterioramento precoce. Se si utilizza una Busola Lineare aperta questo spazio può essere regolato. Tuttavia la troppa regolazione del gioco aumenta la deformazione. Il cilindro esterno va a influenzare la sua precisione e la durata, pertanto il passaggio appropriato fra manicotto e albero e il gioco fra la bussola e l'alloggiamento sono necessari a seconda dell'applicazione. La tabella 2 mostra il rapporto raccomandato fra tipo e tolleranza.

Tabella 2 - Table 2

Model \ Division		Shaft		Housing	
		Normal fit	Transitional	loose fit	Tight fit
LM	High class	g6	h6	H7	J7
LMB					
LME	High class	h6	j6	H7	J7

Albero e Alloggiamento

Per ottimizzare le prestazioni del manicotto lineare K.S.B. ad alta precisione sull'albero è richiesto l'alloggiamento.

Albero

Le sfere che rotolano nel manicotto K.S.B. sono a contatto con il punto della superficie dell'albero, pertanto le dimensioni degli alberi, la tolleranza, la finitura superficiale e la durezza influenzano notevolmente la durata e le prestazioni del manicotto. L'albero deve essere realizzato con la dovuta attenzione ai seguenti punti:

- 1 - La finitura superficiale influisce criticamente sul rotolamento delle sfere, lisciare l'albero a 1,5 S o migliore.
- 2 - La migliore durezza dell'albero è 60-64 HRC. Durezze inferiori a 60 HRC diminuiscono considerevolmente la durata e quindi riducono anche il carico ammissibile. D'altra parte una durezza superiore a 64 HRC accelera l'usura delle sfere.

Alloggiamento

Esiste una vasta gamma di alloggiamenti diversi per progettazione, lavorazione e montaggio per il tipo di fissaggio vedere la seguente sezione di montaggio.

Montaggio

Quando si inserisce il manicotto lineare nell'alloggiamento, non colpire il manicotto sul lato dell'anello ma applicare il colpo sulla circonferenza del cilindro con una vera e propria maschera e spingere il manicotto lineare nell'alloggiamento a mano o con una leggera pressione (vedi fig.1). Nell'inserimento dell'albero dopo il montaggio del manicotto prestare attenzione a non rovinare le sfere. Si noti che se due alberi sono usati in parallelo, il parallelismo è il fattore più importante per assicurare il regolare movimento lineare.

Esempi di Montaggio

Il modo più comune per montare un manicotto lineare è di operare con una appropriata interferenza, si raccomanda tuttavia di fare un'accoppiamento libero perchè altrimenti la precisione può essere minimizzata.

Vedi esempi di seguito:

Clearance and Fit

When a standard-type K.S.B. linear bushing is used with a shaft, inadequate clearance, adjustment may cause early bush failure and/or poor, rough traveling. The clearance adjustable linear bush and open linear bush can be clearance adjusted when assembled in the housing which can control the outside cylinder diameter. However, too much clearance adjustment increases the deformation of the outside cylinder, to affect its precision and life. Therefore the appropriate clearance between the bush and shaft, and clearance between the bush and housing are required according to the application. Table 2 shows recommended fit of the bush.

Shaft and Housing

To optimize performance of the K.S.B. linear bushing high precision of the shaft and housing is required.

Shaft

The rolling balls in the K.S.B. linear bushing are in point contact with the shaft surface therefore the shaft dimensions, tolerance, surface finish, and hardness greatly affect the traveling performance of the bush. The shaft should be manufactured with due attention to the following point::

- 1 - The surface finish critically affects smooth rolling of balls, grind the shaft at 1,5 S or better.
- 2 - The best hardness of the shaft is HRC 60 to 64. Hardness less than HRC 60 decreases the life considerably, and hence reduces the permissible load. On the other hand, hardness over HRC 64 accelerates ball wear.

Housing

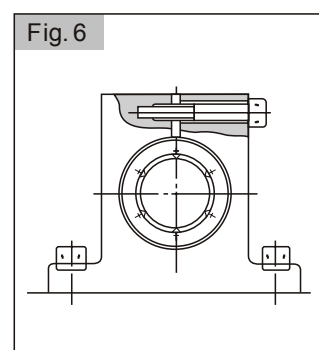
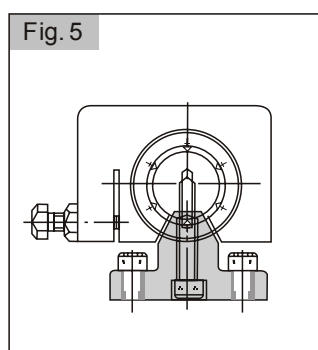
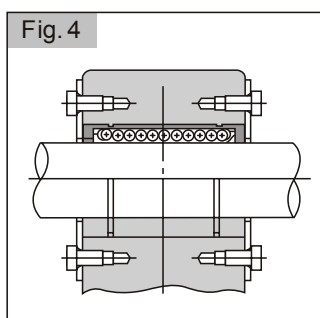
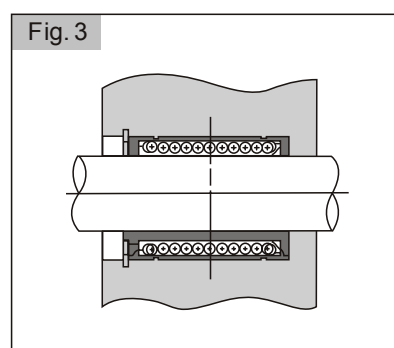
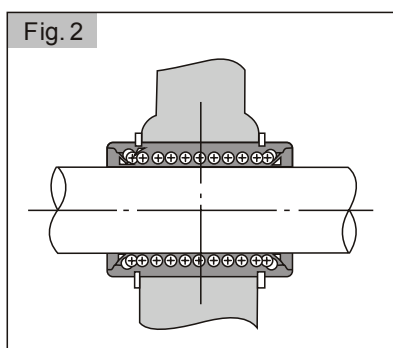
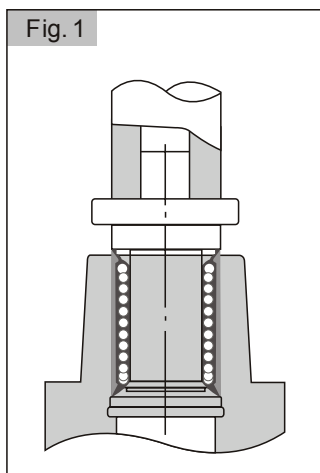
There is a wide range of housing differing in design, machining, and mounting. For the fitness and shapes of housing, see the following section on mounting.

Mounting

When inserting the linear bush into the housing, do not hit the linear bush on the side ring holding the retainer but apply the cylinder circumference with a proper jig and push the linear bush into the housing by hand or lightly knock it in. (see fig.1) In inserting the shaft after mounting the bush, be careful into to shock the balls. Note that if two shafts are used in parallel, the parallelism is the most important factor to assure the smooth linear movement. Take care in setting the shafts.

Examples of Mounting

The popular way to mount a linear bush is to operate it with an appropriate interference, it is recommended, however, to make a loose fit in principle because otherwise precision is apt to be minimized. See the following examples:



Informazioni Tecniche sulle Viti a Ricircolo di Sfere

“Zero” Gioco Assiale

Prezzo basso e consegna veloce.

Le Viti a Ricircolo di Sfere sono prodotte in serie da rullatura e il risultato di questo processo consiste in una notevole riduzione dei costi.

Sempre disponibili a magazzino per una consegna veloce.

Elevata efficienza di Trasmissione

Con un'albero a vite e rulli a sfera e una rotazione regolare l'alta efficienza di trasmissione è possibile. Pertanto la coppia motrice è minore di un terzo rispetto a quello di viti scorrevoli convenzionali, e inoltre è facile da modificare l'azione lineare per il moto rotatorio.

Eccezionale Durata

Materiali rigidamente selezionati, corretto trattamento termico e elaborazioni avanzate sono combinati per fornire una straordinaria durata.

Lubrificazione

Adeguata lubrificazione deve essere fornita quando si utilizzano viti a ricircolo di sfere, una lubrificazione insufficiente comporterà un contatto del metallo, che a sua volta porta all'aumento dell'attrito così da causare guasti o accorciamento della vita di servizio. I lubrificanti applicati alle viti a ricircolo di sfere possono essere suddivisi in due tipi, vale a dire olio lubrificante e grasso consistente. In generale nel rispetto della manutenzione il grasso porterà ad aumentare la dinamica di coppia dell'attrito lineare con aumento della velocità di rotazione, e quindi la lubrificazione ad olio è considerata

Technical Information of Rolled Ball Screws
“Zero” Axial Clearance

Low price Quick Delivery

Ball Screw shafts are mass-produced by thread rolling process result in considerable cost reduction.

Always stocked for short delivery.

High Transmission Efficiency

As ball roll between a screw shaft and nut, smooth rotation and high transmission efficiency are possible. Therefore, driving torque is lower one third as compared with that of conventional sliding screws, and moreover, it is easy to change the linear action to the rotary motion.

Outstanding durability

Rigidly selected materials, proper heat treatment and advanced processing are combined to provide outstanding durability.

Lubrication

Adequate lubrication must be provided when ball screw is used, insufficient lubrication will result in contact of metal, which in turn leads to increase of friction and friction loss, thus cause failure or shortening of service life. Lubricants applied to ball screws can be divided into 2 types, namely lubricating oil and consistent grease. In general speaking, in respect of maintenance, consistent grease will lead to increase of dynamic friction torque linearly along with increase of rotating speed, hence oil lubrication is deemed the better way when speed exceeds 3-5 m/min., however don't forget the fact that there have been examples that using grease has been capable of achieving speed of 10 m/min, with respect to the equipment.

il modo migliore quando la velocità supera i 3-5 m/min., ma da non dimenticare che ci sono stati anche esempi in cui con il grasso si è raggiunta una velocità di 10 m/min.

Prevenzione Contaminanti

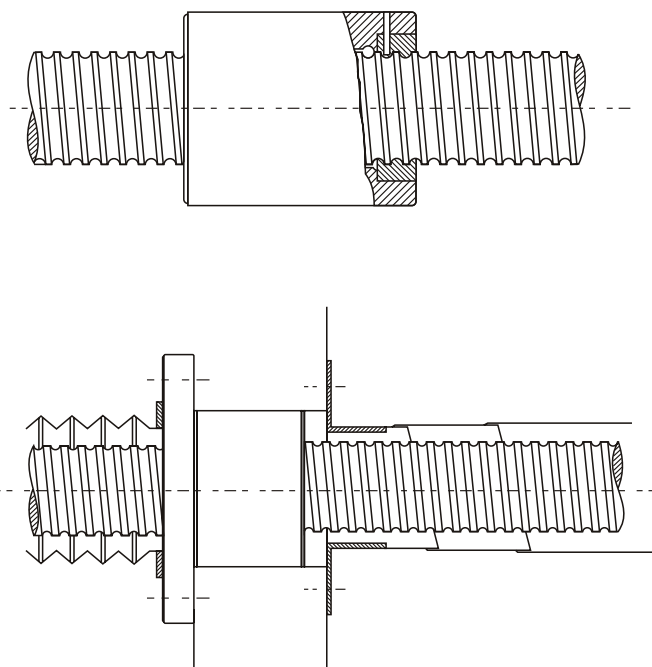
Se viene permesso a sostanze estranee o acqua di entrare nelle sfere e nella vite, può aumentare l'attrito e provocare danni. Ad esempio trucioli o olio da taglio può essere previsto con macchine utensili e a seconda dell'ambiente di lavoro. Per ovviare all'ingresso di corpi estranei si consiglia di utilizzare un soffiato o una copertura telescopica come mostrato nella fig.5.1, per coprire completamente l'albero a vite.

Contaminant Prevention

Any foreign matter or water, if allowed to enter the ball screw, may increase friction and cause damage. For example, the entry of chips or cutting oil may be expected with machine tools depending on the work environment. Where entry of foreign matter is anticipated, use a bellows or telescopic cover as shown in fig.5.1, to cover the screw shaft completely.

Fig.5.1 - Esempio di Copertura Telescopica e Soffietto

Fig.5.1 - Dust proof Method by Telescopic Cover and Bellows



Compensazione del Carico

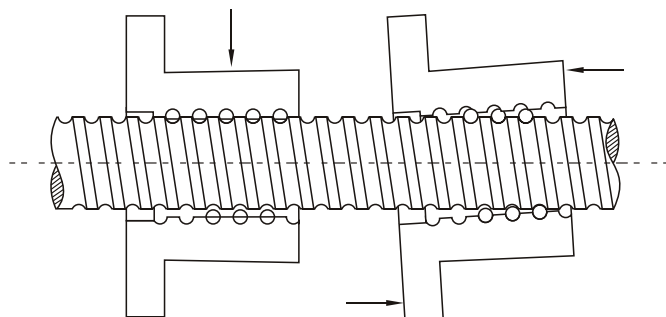
Quando si verifica un fenomeno di carico sbilanciato sulla vite la vita e il rumore tendono ad essere colpiti direttamente anche quando si accompagna con la mano alla corsa massima. Nel caso in cui si scarichino corsa su corsa subito dopo il montaggio, questa dovrebbe essere attribuita alla scarsa precisione di assemblaggio che produrrà un fenomeno di compensazione del carico come mostrato nella fig.5.2

Fig.5.2 - Compensazione del Carico

Offset Load

when offset load phenomenon occurs, screw life and noise tend to be directly affected, which would usually be accompanied with hand feel of rough running. In the event unloading and running right after assembling demonstrate different degree of cases, this should be ascribed to the poor assembly accuracy which will produce offset load phenomenon as shown in fig.5.2

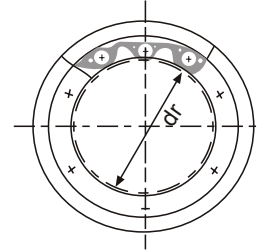
Fig.5.2 - Offset Load



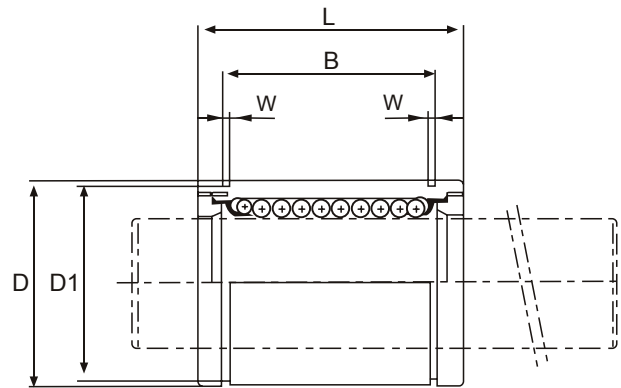
K.S.B.[®]
Bearings and Components



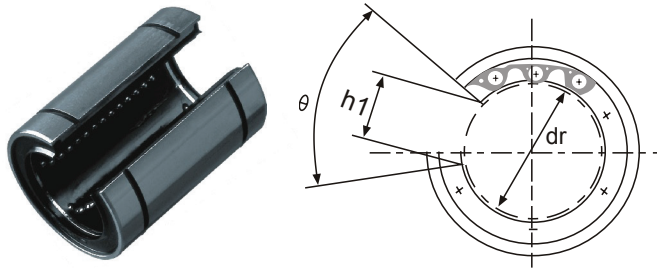
Serie Bussole Lineari - Linear Bush Series



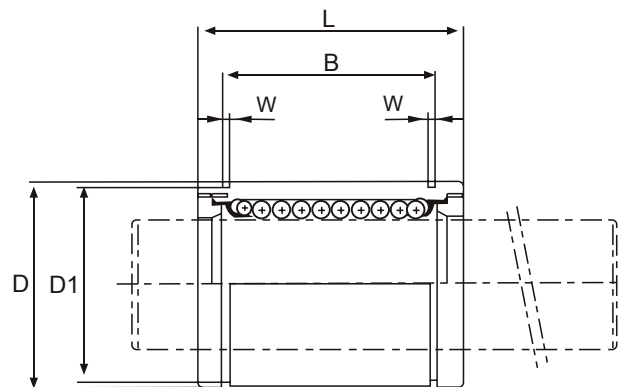
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tollerance (μm)	D mm	Tolleranza - Tollerance (μm)	L mm	Tolleranza - Tollerance (μm)	B mm	Tolleranza - Tollerance (μm)
SM4	4	4	0 -8	8	0 -9	12	0 -120	-	
SM5UU	4	5		10		15		10.2	
SM6UU	4	6		12		19		13.5	
SM8SUU	4	8		15	0 -11	17		11.5	
SM8UU	4	8	0 -9	15		24	0 -200	17.5	0 -200
SM10UU	4	10		19		29		22	
SM12UU	4	12		21	0 -13	30		23	
SM13UU	4	13		23		32		23	
SM16UU	5	16		28		37		26.5	
SM20UU	5	20		32	0 -16	42		30.5	
SM25UU	6	25	0 -10	40		59		41	
SM30UU	6	30		45		64		44.5	
SM35UU	6	35		52	0 -19	70	0 -300	49.5	0 -400
SM40UU	6	40	0 -12	60		80		60.5	
SM50UU	6	50		80		100		74	
SM60UU	6	60	0/-15	90	0/-22	110		85	



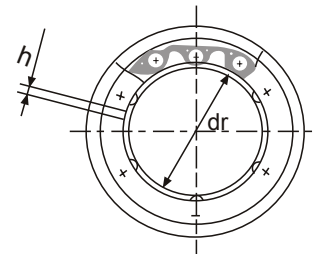
Typo Type	W mm	D1 mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clea- rance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SM4	-	-	8		88	127	2
SM5UU	1.1	9.6			167	206	4
SM6UU	1.1	11.5	12	-3	206	265	8.5
SM8SUU	1.1	14.3			176	216	11
SM8UU	1.1	14.3			274	392	17
SM10UU	1.3	18			372	549	36
SM12UU	1.3	20	15	-4	510	784	42
SM13UU	1.3	22			510	784	49
SM16UU	1.6	27			774	1180	76
SM20UU	1.6	30.5	20	-6	882	1370	100
SM25UU	1.85	38			980	1570	240
SM30UU	1.85	43	25	-8	1570	2740	270
SM35UU	2.1	49			1670	3140	425
SM40UU	2.1	57			2160	4020	654
SM50UU	2.6	76.5	20	-10	3820	7940	1700
SM60UU	3.15	86.5			4700	10000	2000



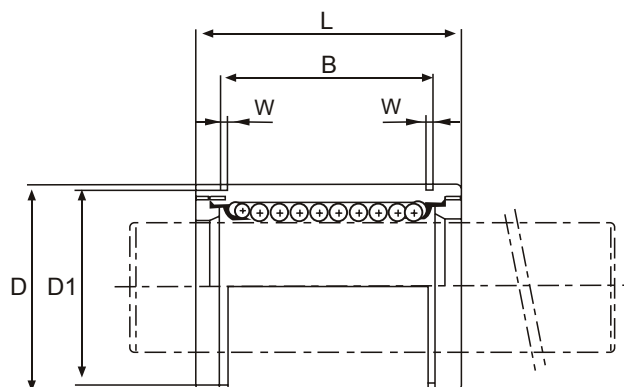
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μ m)	D mm	Tolleranza - Tolerance (μ m)	L mm	Tolleranza - Tolerance (μ m)	B mm	Tolleranza - Tolerance (μ m)
SM12UU-OP	3	12		21		30		23	
SM13UU-OP	3	13	0 -9	23	0 -13	32	0 -200	23	0 -200
SM16UU-OP	4	16		28		37		26.5	
SM20UU-OP	4	20		32		42		30.5	
SM25UU-OP	5	25	0 -10	40	0 -16	59	0 -300	41	0 -400
SM30UU-OP	5	30		45		64		44.5	
SM35UU-OP	5	35		52	0 -19	70		49.5	
SM40UU-OP	5	40	0 -12	60		80		60.5	
SM50UU-OP	5	50		80		100		74	
SM60UU-OP	5	60	0/-15	90	0/-22	110		85	



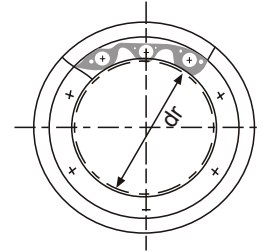
Tipo Type	W mm	D1 mm	h1 mm	θ	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clearance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SM12UU-OP	1.3	20	8	80°	12	-4	510	784	42
SM13UU-OP	1.3	22	9	80°			510	784	49
SM16UU-OP	1.6	27	11	80°	15	-6	774	1180	76
SM20UU-OP	1.6	30.5	11	60°			882	1370	100
SM25UU-OP	1.85	38	12	50°			980	1570	240
SM30UU-OP	1.85	43	15	50°	20	-8	1570	2740	270
SM35UU-OP	2.1	49	17	50°			1670	3140	425
SM40UU-OP	2.1	57	20	50°	25	-10	2160	4020	654
SM50UU-OP	2.6	76.5	25	50°			3820	7940	1700
SM60UU-OP	3.15	86.5	30	50°			4700	10000	2000



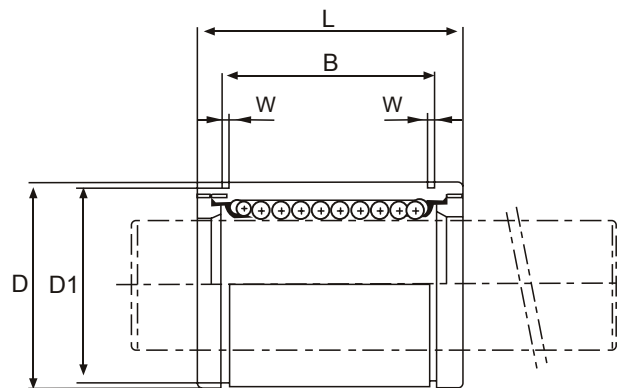
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L mm	Tolleranza - Tolerance (μm)	B mm	Tolleranza - Tolerance (μm)
SM6UU-AJ	4	6		12		19		13.5	
SM8SUU-AJ	4	8		15	0 -11	17		11.5	
SM8UU-AJ	4	8		15		24		17.5	
SM10UU-AJ	4	10	0 -9	19		29	0 -200	22	0 -200
SM12UU-AJ	4	12		21		30		23	
SM13UU-AJ	4	13		23	0 -13	32		23	
SM16UU-AJ	5	16		28		37		26.5	
SM20UU-AJ	5	20		32		42		30.5	
SM25UU-AJ	6	25	0 -10	40	0 -16	59		41	
SM30UU-AJ	6	30		45		64		44.5	
SM35UU-AJ	6	35		52		70	0 -300	49.5	0 -400
SM40UU-AJ	6	40	0 -12	60	0 -19	80		60.5	
SM50UU-AJ	6	50		80		100		74	
SM60UU-AJ	6	60	0/-15	90	0/-22	110		85	



Tipo Type	W mm	D1 mm	h mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clea- rance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SM6UU-AJ	1.1	11.5	1.0	12	-3	206	265	8.5
SM8SUU-AJ	1.1	14.3	1.0			176	216	11
SM8UU-AJ	1.1	14.3	1.0			274	392	17
SM10UU-AJ	1.3	18	1.0	15	-4	372	549	36
SM12UU-AJ	1.3	20	1.5			510	784	42
SM13UU-AJ	1.3	22	1.5			510	784	49
SM16UU-AJ	1.6	27	1.5	20	-6	774	1180	76
SM20UU-AJ	1.6	30.5	1.5			882	1370	100
SM25UU-AJ	1.85	38	2			980	1570	240
SM30UU-AJ	1.85	43	2.5	25	-8	1570	2740	270
SM35UU-AJ	2.1	49	2.5			1670	3140	425
SM40UU-AJ	2.1	57	3			2160	4020	654
SM50UU-AJ	2.6	76.5	3	25	-10	3820	7940	1700
SM60UU-AJ	3.15	86.5	3			4700	10000	2000

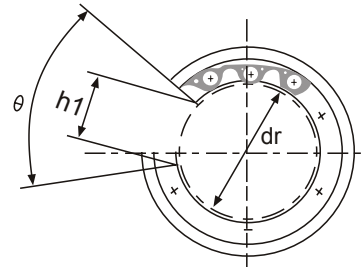


Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tollerance (μ m)	D mm	Tolleranza - Tollerance (μ m)	L mm	Tolleranza - Tollerance (μ m)	B mm	Tolleranza - Tollerance (μ m)
KB 05 22	4	5		12	0	22		14.5	
KB 08 25	4	8	+8 0	16	-8	25	0	16.5	0
KB 12 32	4	12		22	0	32	-200	22.9	-300
KB 16 36	5	16	+9 -1	26	-9	36		24.9	
KB 20 45	5	20		32		45		31.5	
KB 25 58	6	25	+11 -1	40	0 -11	58		44.1	
KB 30 68	6	30		47		68	0 -300	52.1	0
KB 40 80	6	40		62	0 -13	80		60.6	-400
KB 50 100	6	50	+13 -2	75		100		77.6	
KB 60 125	6	60		90	0/-15	125	0/-400	101.7	

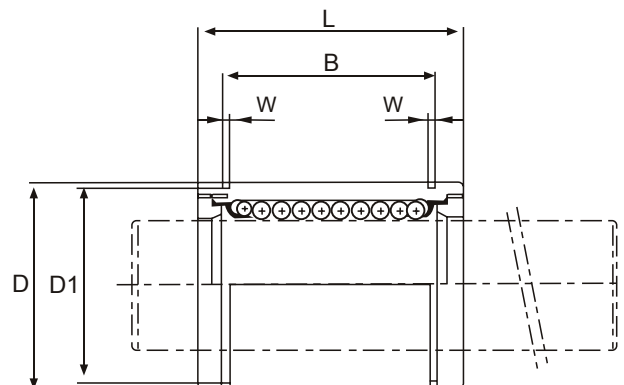


Tipo Type	W mm	D1 mm	Eccentricità Eccentricity max µm	Gioco Radiale Radial Clearance max µm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
KB 05 22	1.1	11.5	12	-3	206	265	11
KB 08 25	1.1	15.2			265	402	22
KB 12 32	1.3	21		-4	510	784	45
KB 16 36	1.3	24.9	15	-6	578	892	60
KB 20 45	1.6	30.3			862	1370	102
KB 25 58	1.85	37.5		-8	980	1570	235
KB 30 68	1.85	44.5	17	-8	1570	2740	360
KB 40 80	2.15	59			2160	4020	770
KB 50 100	2.65	72		-13	3820	7940	1250
KB 60 125	3.15	86.5	20		4700	9800	2220

- Sigla - Specification number: KB (senza tenute - without seals)
- Sigla - Specification number: KBPP (tenute in entrambi i lati - Seals on both sides)



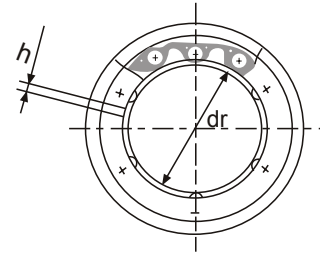
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μ m)	D mm	Tolleranza - Tolerance (μ m)	L mm	Tolleranza - Tolerance (μ m)	B mm	Tolleranza - Tolerance (μ m)
KBO 12 32	3	12	+8/0	22	0	32		22.9	
KBO 13 36	4	16	+9	26	-9	36	0	24.9	0
KBO 20 45	4	20	-1	32		45	-200	31.5	-300
KBO 25 58	5	25	+11	40	0	58		44.1	
KBO 30 68	5	30	-1	47	-11	68	0	52.1	0
KBO 40 80	5	40		62	0	80	-300	60.6	-400
KBO 50 100	5	50	+13	75	-13	100		77.6	
KBO 60 125	5	60	-2	90	0/-15	125	0/-400	101.7	



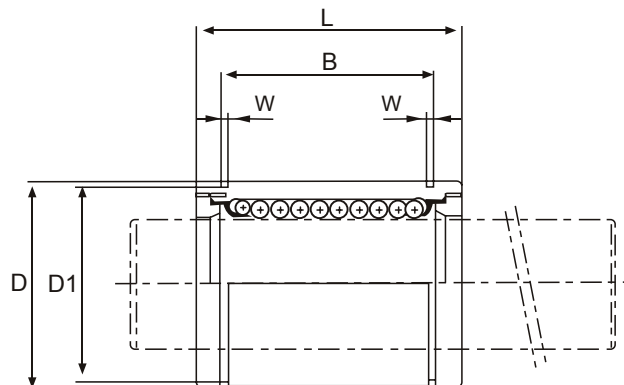
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KBO 12 32	1.3	21	7.5	78°	12	-4	510	784	45
KBO 16 36	1.3	24.9	10	78°			578	892	60
KBO 20 45	1.6	30.3	10	60°	15	-6	862	1370	102
KBO 25 58	1.85	37.5	12.5	60°			980	1570	235
KBO 30 68	1.85	44.5	12.5	50°			1570	2740	360
KBO 40 80	2.15	59	16.8	50°	17	-8	2160	4020	770
KBO 50 100	2.65	72	21	50°			3820	7940	1250
KBO 60 125	3.15	86.5	27.2	54°	20	-13	4700	9800	2220

- Sigla - Specification number: KBO..... (senza tenute - without seals)

- Sigla - Specification number: KBOPP (tenute in entrambi i lati - Seals on both sides)



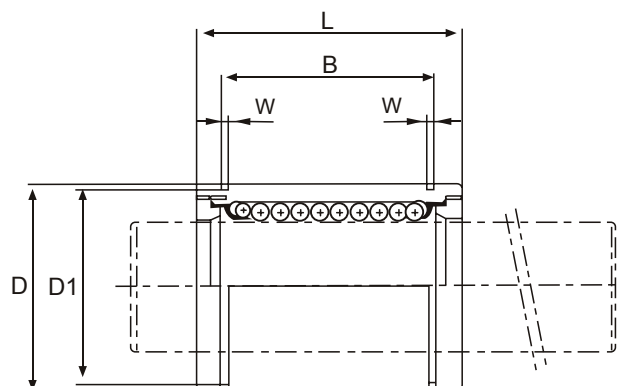
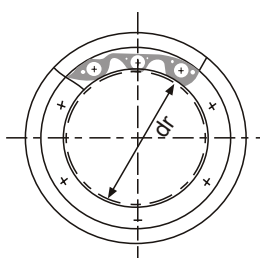
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L mm	Tolleranza - Tolerance (μm)	B mm	Tolleranza - Tolerance (μm)
KBS 05 22	4	5		12	0	22		14.5	
KBS 08 25	4	8	+8 0	16	-8	25	0	16.5	0
KBS 12 32	4	12		22	0	32	-200	22.9	-300
KBS 16 36	5	16	+9 -1	26	-9	36		24.9	
KBS 20 45	5	20		32	0	45		31.5	
KBS 25 58	6	25	+11 -1	40	-11	58		44.1	
KBS 30 68	6	30		47		68	0	52.1	0
KBS 40 80	6	40		62	0	80	-300	60.6	-400
KBS 50 100	6	50	+13 -222	75	-13	100		77.6	
KBS 60 125	6	60		90	0/-15	125	0/-400	101.7	



Tipo Type	W mm	D1 mm	h mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clea- rance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
KBS 05 22	1.1	11.5	-	12	-3	206	265	11
KBS 08 25	1.1	15.2	-			265	402	22
KBS 12 32	1.3	21	1.5	15	-4	510	784	45
KBS 16 36	1.3	24.9	1.5			578	892	60
KBS 20 45	1.6	30.3	2	17	-6	862	1370	102
KBS 25 58	1.85	37.5	2			980	1570	235
KBS 30 68	1.85	44.5	2	20	-8	1570	2740	360
KBS 40 80	2.15	59	3			2160	4020	770
KBS 50 100	2.65	72	3	-13	-13	3820	7940	1250
KBS 60 125	3.15	86.5	3			4700	9800	2220

- Sigla - Specification number: KBS..... (senza tenute - without seals)

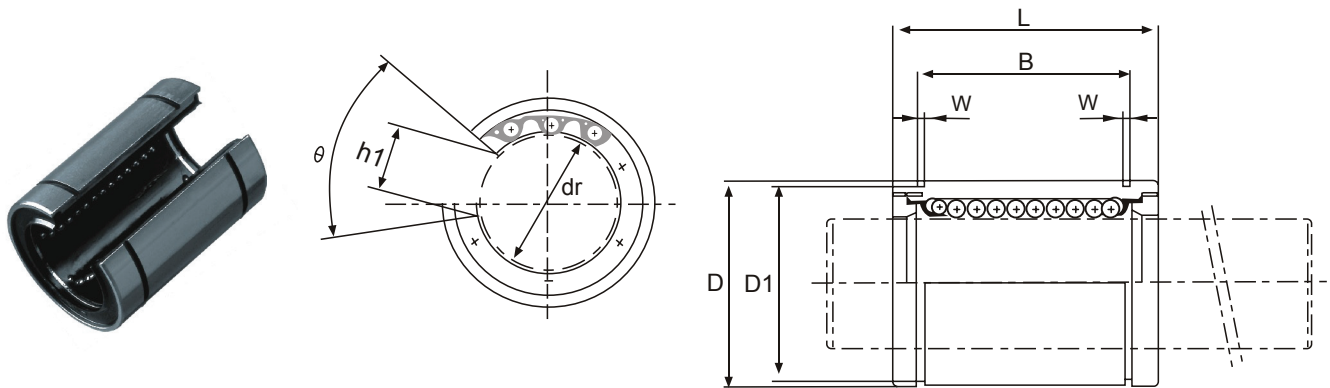
- Sigla - Specification number: KBSPP (tenute in entrambi i lati - Seals on both sides)



Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L mm	Tolleranza - Tolerance (μm)	B mm	Tolleranza - Tolerance (μm)
SW04UU	3	6.35	0 -9	12.7	0/-11	19.05	0 -200	12.98	0 -200
SW06UU	4	9.525		15.875	22.225	22.225		16.15	
SW08UU	4	12.7		22.225	31.75	24.46			
SW10UU	4	15.875		28.575	38.1	28.04			
SW12UU	5	19.05	0 -10	31.75	0	41.275	0 -300	29.61	0 -300
SW16UU	5	25.4	39.688	57.15	44.57				
SW20UU	6	31.75	50.8	66.675	50.92				
SW24UU	6	38.1	60.325	76.2	61.26				
SW32UU	6	50.8	0 -12	76.2	0/-22	101.6	81.07	81.07	

Tipo Type	W mm	D1 mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clearance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SW04UU	0.992	11.996	12	-3	206	265	9.5
SW06UU	0.992	14.935			225	314	15
SW08UU	1.168	20.853		-4	510	784	42
SW10UU	1.422	26.899			774	1180	85
SW12UU	1.422	29.87	15	-6	862	1370	104
SW16UU	1.727	37.306			980	1570	220
SW20UU	1.727	47.904	20	-8	1570	2740	465
SW24UU	2.184	56.87			2180	4020	720
SW32UU	2.616	72.085			25	-13	3820

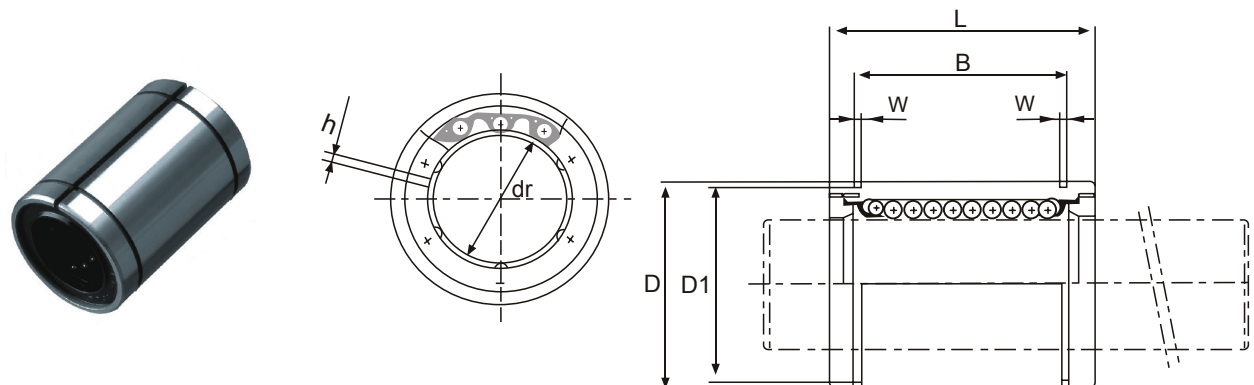
Solo su richiesta - Only on request



Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (µm)	D mm	Tolleranza - Tolerance (µm)	L mm	Tolleranza - Tolerance (µm)	B mm	Tolleranza - Tolerance (µm)
SW08-OP	3	12.7	0	22.225	0	31.75		24.46	
SW10-OP	3	15.875	-9	28.575	-13	38.1	0 -200	28.04	0 -200
SW12-OP	4	19.05	0	31.75	0	41.275		29.61	
SW16-OP	4	25.4	-10	39.688	-16	57.15		44.57	
SW20-OP	5	31.75		50.8	0	66.675	0 -300	50.92	0 -300
SW24-OP	5	38.1	0 -12	60.325	-19	76.2		61.26	
SW32-OP	5	50.8		76.2	0/-22	101.6		81.07	

Tipo Type	W mm	D1 mm	h1 mm	θ	Eccentricità Eccentricity max µm	Gioco Radiale Radial Clearance max µm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SW08-OP	1.168	20.853	7.9375	80°	12	-4	510	784	42
SW10-OP	1.422	26.899	9.525	80°			774	1180	85
SW12-OP	1.422	29.87	11.1125	60°	15	-6	862	1370	104
SW16-OP	1.727	37.306	14.2875	50°			980	1570	220
SW20-OP	1.727	47.904	15.875	50°	20	-8	1570	2740	465
SW24-OP	2.184	56.87	19.05	50°			2180	4020	720
SW32-OP	2.616	72.085	25.4	50°	25	-13	3820	7940	1310

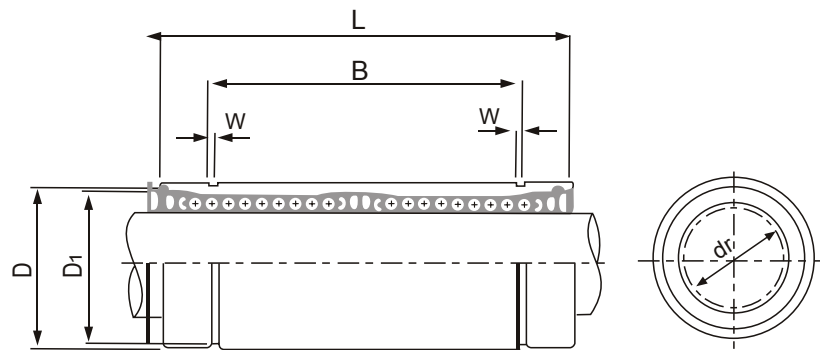
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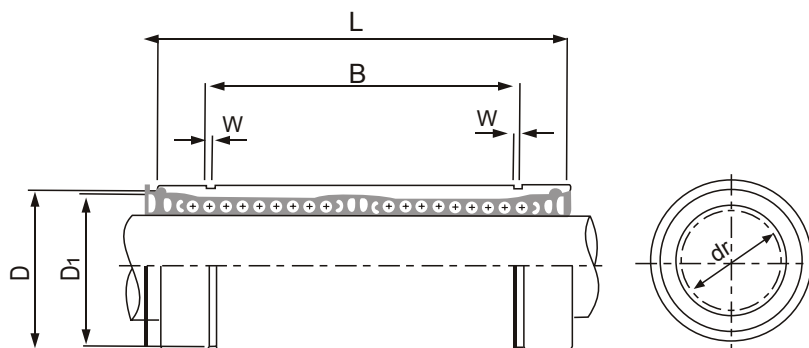
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L mm	Tolleranza - Tolerance (μm)	B mm	Tolleranza - Tolerance (μm)
SW08-AJ	4	12.7	0	22.225	0	31.75		24.46	
SW10-AJ	4	15.875	-9	28.575	-13	38.1	0	28.04	0
SW12-AJ	5	19.05	0	31.75	0	41.275		29.61	
SW16-AJ	5	25.4	-10	39.688	-16	57.15		44.57	
SW20-AJ	6	31.75	0	50.8	0	66.675	0	50.92	0
SW24-AJ	6	38.1	-12	60.325	-19	76.2	-300	61.26	-300
SW32-AJ	6	50.8		76.2	0/-22	101.6		81.07	

Tipo Type	W mm	D1 mm	h mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clearance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SW08-AJ	1.168	20.853	1.5	12	-4	510	784	42
SW10-AJ	1.422	26.899	1.5			774	1180	85
SW12-AJ	1.422	29.87	1.5	15	-6	862	1370	104
SW16-AJ	1.727	37.306	1.5			980	1570	220
SW20-AJ	1.727	47.904	2.5	20	-8	1570	2740	465
SW24-AJ	2.184	56.87	3			2180	4020	720
SW32-AJ	2.616	72.085	3	25	-13	3820	7940	1310

Solo su richiesta - Only on request



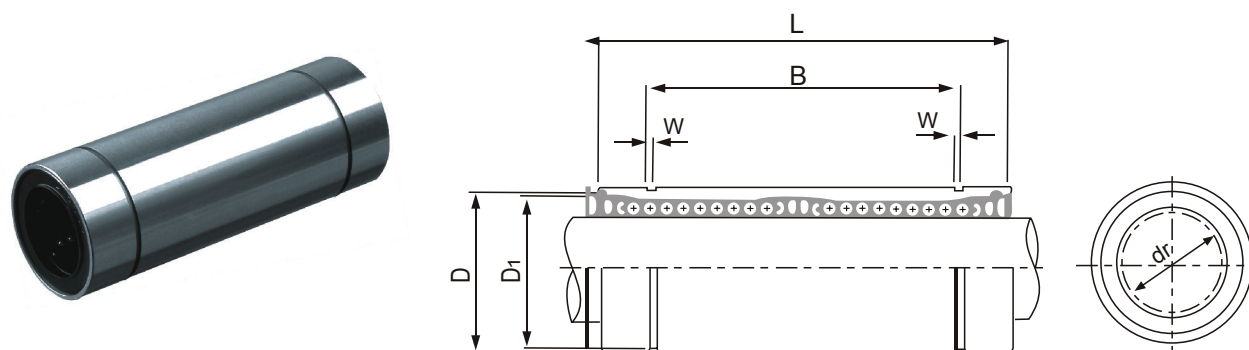
Tipo Type	Circuiti Sferi - Ball Circuit	dr mm	Tolleranza - Tollerance (μm)	D mm	Tolleranza - Tollerance (μm)	L mm	Tolleranza - Tollerance (μm)	B mm	Tolleranza - Tollerance (μm)	W mm	D1 mm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Eccentricità Eccentricity	Peso Weight g.
SM6W	4	6		12	0	35		27		1.1	11.5	323	530		16
SM8W	4	8		15	-13	45		35		1.1	14.3	431	784		31
SM10W	4	10	0	19		55		44		1.3	18	588	1100		62
SM12W	4	12	-10	21	0	57	-300	46	-400	1.3	20	813	1570	15	80
SM13W	4	13		23		61		46		1.3	22	813	1570		90
SM16W	5	16		28		70		53		1.6	27	1230	2350		145
SM20W	5	20		32		80		61		1.6	30.5	1400	2740		180
SM25W	6	25	0	40	0	112		82		1.85	38	1560	3140	20	440
SM30W	6	30	-12	45	-19	123		89		1.85	43	2490	5490		480
SM35W	6	35	0	52	0	135	0	99	-400	2.1	49	2650	6270		795
SM40W	6	40	-15	60	-22	151		121		2.1	57	3430	8040	25	1170
SM50W	6	50		80		192		148		2.6	76.5	6080	15900		3100
SM60W	6	60	0/-20	90	0/-25	209		170		3.15	86.5	7550	20000	30	3500



Tipo Type	Circuiti Sferre - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L mm	Tolleranza - Tolerance (μm)	B mm	Tolleranza - Tolerance (μm)	W mm	D1 mm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Eccentricità Eccentricity	Peso Weight g.
KBL 08 45	4	8	+9	16	0/-9	45		33		1.1	15.2	421	804		40
KBL 12 57	4	12	-1	22	0	57	0	45.8	0	1.3	21	813	1570	15	80
KBL 16 70	5	16	+11	26	-11	70	-300	49.8	-400	1.3	24.9	921	1780		115
KBL 20 80	5	20	-1	32		80		61		1.6	30.5	1370	2740		180
KBL 25 112	6	25	+13	40	0	112		82		1.85	38	1570	3140	17	430
KBL 30 123	6	30	-2	47	-13	123	0	104.2	0	1.85	44.5	2500	5490		615
KBL 40 154	6	40		62	0	154	-400	121.2	-500	2.15	59	3430	8040	20	1400
KBL 50 192	6	50	+16	75	-15	192		155.2		2.65	72	6080	15900		2320
KBL 60 211	6	60	-4	90	0/-20	211		170		3.15	86.5	7550	20000	25	3900

- Sigla - Specification number: KBL..... (senza tenute - without seals)

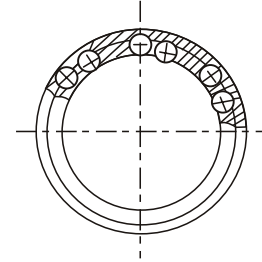
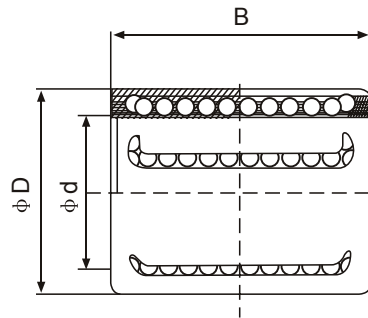
- Sigla - Specification number: KBLPP (tenute in entrambi i lati - Seals on both sides)



Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L mm	Tolleranza - Tolerance (μm)	B mm	Tolleranza - Tolerance (μm)
SW04W	3	6.35		12.7	0/-13	34.925		25.959	
SW06W	4	9.525	0	15.875		40.481	0	32.298	0
SW08W	4	12.7	-10	22.225	0 -16	60.325	-300	48.895	-300
SW10W	4	15.875		28.575		71.438		56.08	
SW12W	5	19.05	0	31.75	0	78.581		59.218	
SW16W	5	25.4	-12	39.688	-19	108.744		89.139	
SW20W	6	31.75		50.8	0	127	0	101.839	0
SW24W	6	38.1	-15	60.325	-22	144.463	-400	122.519	-400
SW32W	6	50.8		76.2	0/-25	196.85		162.138	

Tipo Type	W mm	D1 mm	Eccentricità Eccentricity max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SW04W	0.992	11.906		323	530	17.5
SW06W	0.992	14.935	15	353	630	28
SW08W	1.168	20.853		813	1570	80
SW10W	1.422	26.899		1230	2350	160
SW12W	1.422	29.87	20	1370	2740	195
SW16W	1.727	37.306		1570	3140	410
SW20W	1.727	47.904	25	2500	5490	820
SW24W	2.184	56.87		3430	8040	1250
SW32W	2.616	72.085	30	6080	15900	2350

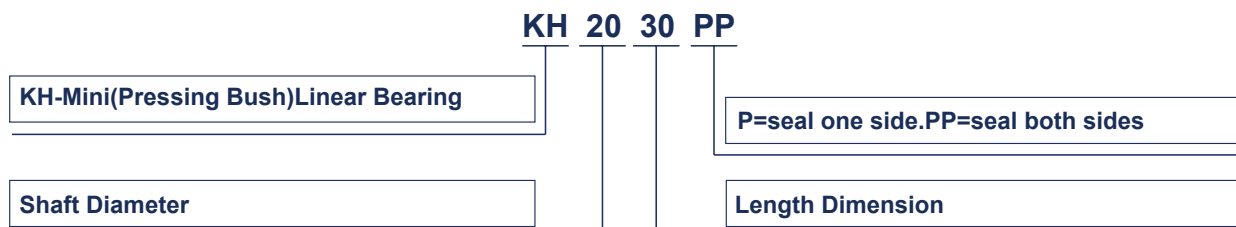
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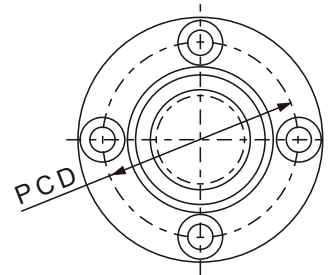
Tipo Type	ϕd	ϕD	B	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
KH-0622	6	12	22	400	239	7
KH-0824	8	15	24	435	280	12
KH-1026	10	17	26	500	370	14.5
KH-1228	12	19	28	620	510	18.5
KH-1428	14	21	28	620	520	20.5
KH-1630	16	24	30	800	620	27.5
KH-2030	20	28	30	950	790	32.5
KH-2540	25	35	40	1990	1670	66
KH-3050	30	40	50	2800	2700	95
KH-4060	40	52	60	4400	4450	182
KH-5070	50	62	70	5500	6300	252

- Sigla - Specification number: KH (senza tenute - without seals)

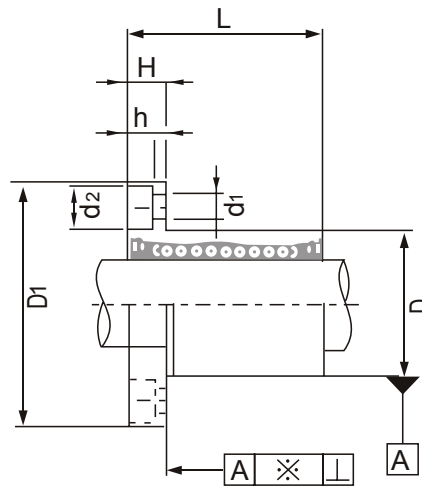
- Sigla - Specification number: KHPP (tenute in entrambi i lati - Seals on both sides)



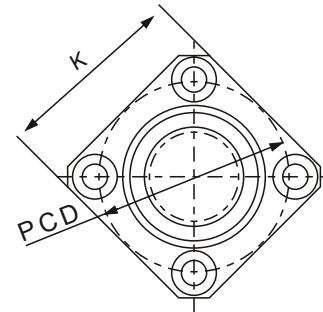




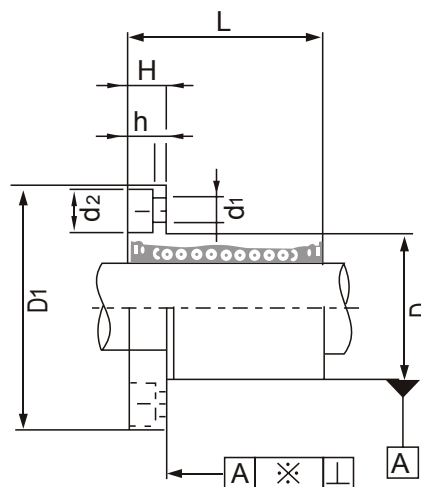
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μ m)	D mm	Tolleranza - Tolerance (μ m)	L +/- 0,3 mm	D1 mm	H mm	PCD mm
SMF6UU	4	6	0 -9	12	0 -11	19	28	5	20
SMF8UU	4	8		15	24	32	5	24	
SMF10UU	4	10		19	29	40	6	29	
SMF12UU	4	12	0 -13	21	30	42	6	32	
SMF13UU	4	13		23	32	43	6	33	
SMF16UU	5	16		28	37	48	6	38	
SMF20UU	5	20	0 -10	32	42	54	8	43	
SMF25UU	6	25		40	59	62	8	51	
SMF30UU	6	30		45	64	74	10	60	
SMF35UU	6	35	0 -12	52	70	82	10	67	
SMF40UU	6	40		60	80	96	13	78	
SMF50UU	6	50		80	100	116	13	98	
SMF60UU	6	60	0/-15	90	0/-22	110	134	18	112



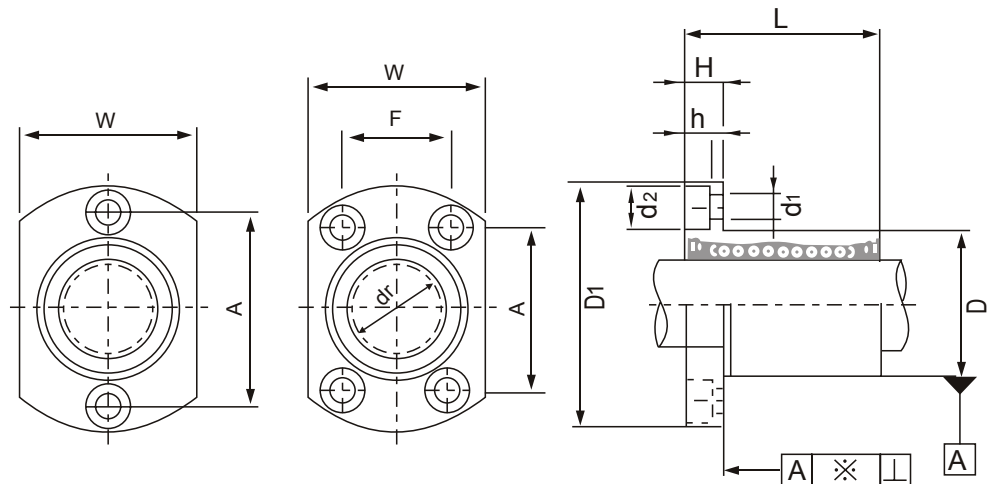
Tipo Type	d1xd2xh mm	Eccentricità Eccentricity max μ m	Gioco Radiale Radial Clearance max μ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.	
SMF6UU	3.5x6x3.1	12	-3	206	265	24	
SMF8UU	3.5x6x3.1		274	392	37		
SMF10UU	4.5x7.5x4.1		-4	372	549	72	
SMF12UU	4.5x7.5x4.1			510	784	76	
SMF13UU	4.5x7.5x4.1			510	784	88	
SMF16UU	4.5x7.5x4.1			774	1180	120	
SMF20UU	5.5x9x5.1	15	-6	882	1370	180	
SMF25UU	5.5x9x5.1		980	1570	340		
SMF30UU	6.6x11x6.1		-8	1570	2740	470	
SMF35UU	6.6x11x6.1	1670		3140	650		
SMF40UU	9x14x8.1	20		-10	2160	4020	1060
SMF50UU	9x14x8.1			-13	3820	7940	2200
SMF60UU	11x17x11.1	25		4700	10000	3000	



Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μ m)	D mm	Tolleranza - Tolerance (μ m)	L +/- 0,3 mm	D1 mm	H mm	PCD mm
SMK6UU	4	6	0 -9	12	0 -11	19	28	5	20
SMK8UU	4	8		15	24	32	5	24	
SMK10UU	4	10		19	29	40	6	29	
SMK12UU	4	12	0 -13	21	30	42	6	32	
SMK13UU	4	13		23	32	43	6	33	
SMK16UU	5	16		28	37	48	6	38	
SMK20UU	5	20	0 -10	32	42	54	8	43	
SMK25UU	6	25		40	59	62	8	51	
SMK30UU	6	30		45	64	74	10	60	
SMK35UU	6	35	0 -12	52	70	82	10	67	
SMK40UU	6	40		60	80	96	13	78	
SMK50UU	6	50		80	100	116	13	98	
SMK60UU	6	60	0/-15	90	0/-22	110	134	18	112

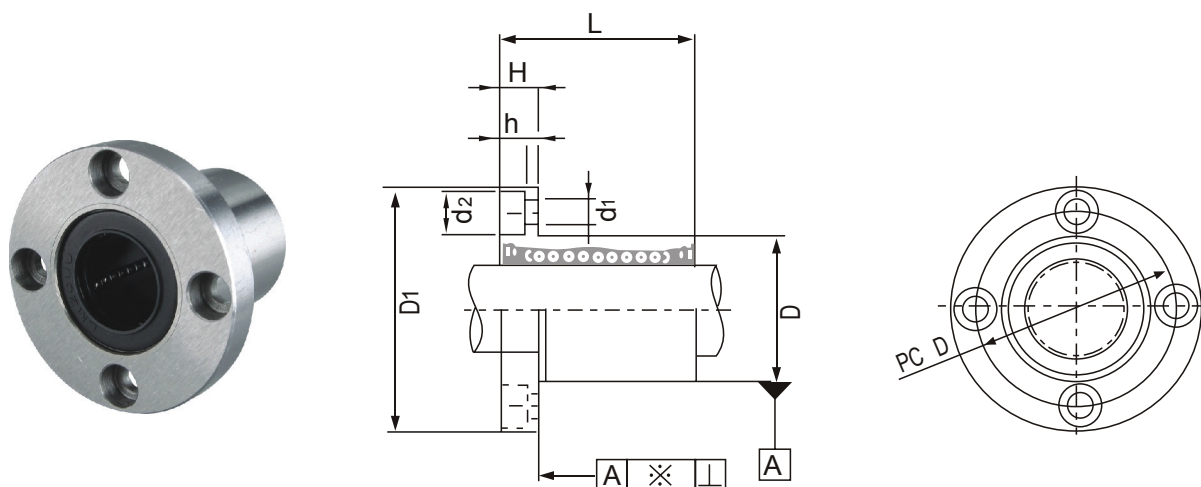


Tipo Type	K mm	d1xd2xh mm	Eccentricità Eccentricity max μ m	Gioco Radiale Radial Clearance max μ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMK6UU	22	3.5x6x3.1	12	-3	206	265	24
SMK8UU	25	3.5x6x3.1		274	392	37	
SMK10UU	30	4.5x7.5x4.1		-4	372	549	72
SMK12UU	32	4.5x7.5x4.1			510	784	76
SMK13UU	34	4.5x7.5x4.1			510	784	88
SMK16UU	37	4.5x7.5x4.1		15	-6	774	1180
SMK20UU	42	5.5x9x5.1	882		1370	180	
SMK5UU	50	5.5x9x5.1	980		1570	340	
SMK30UU	58	6.6x11x6.1	20	-8	1570	2740	470
SMK35UU	64	6.6x11x6.1		1670	3140	650	
SMK40UU	75	9x14x8.1		-10	2160	4020	1060
SMK50UU	92	9x14x8.1	25	-13	3820	7940	2200
SMK60UU	106	11x17x11.1		4700	10000	3000	



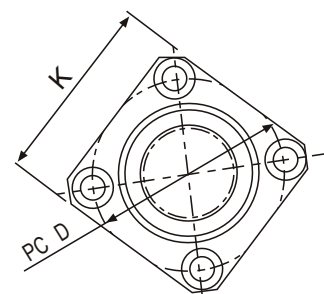
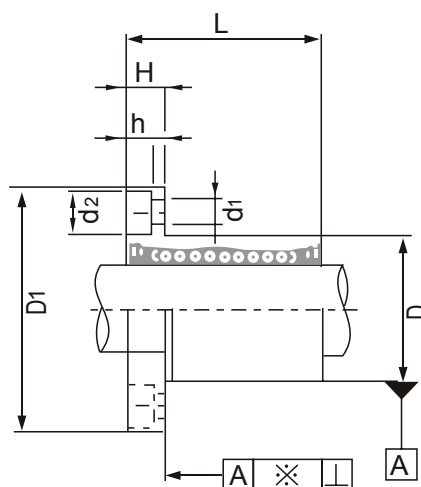
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L +/- 0,3 mm	D1 mm	H mm	W mm	A mm
SMH6UU	4	6	0 -9	12	0 -11	19	28	5	18	20
SMH8UU	4	8		15	24	32	5	21	24	
SMH10UU	4	10		19	29	40	6	25	29	
SMH12UU	4	12		21	30	42	6	27	32	
SMH13UU	4	13		23	32	43	6	29	33	
SMH16UU	5	16		28	37	48	6	34	31	
SMH20UU	5	20	0 -10	32	0 -16	42	54	8	38	36
SMH25UU	6	25		40		59	62	8	46	40
SMH30UU	6	30		45		64	74	10	51	49

Tipo Type	F mm	d1xd2xh mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clearance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMH6UU	-	3.5x6x3.1	12	-3	206	265	24
SMH8UU	-	3.5x6x3.1			274	392	37
SMH10UU	-	4.5x7.5x4.1			-4	372	549
SMH12UU	-	4.5x7.5x4.1		510		784	76
SMH13UU	-	4.5x7.5x4.1		510		784	88
SMH16UU	22	4.5x7.5x4.1		15	-6	774	1180
SMH20UU	24	5.5x9x5.1	882			1370	180
SMH5UU	32	5.5x9x5.1	980			1570	340
SMH30UU	35	6.6x11x6.1	-8			1570	2740



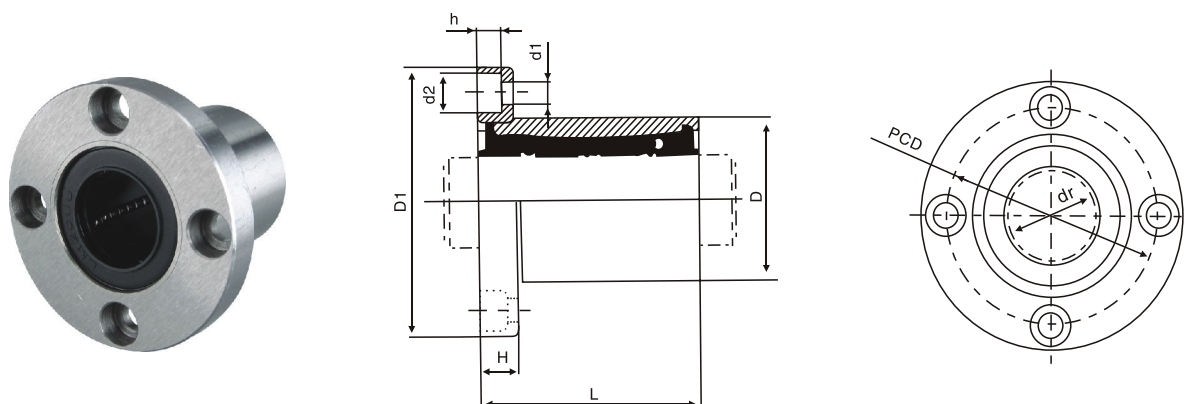
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μ m)	D mm	Tolleranza - Tolerance (μ m)	L +/- 0,3 mm	D1 mm	H mm	PCD mm
KBF8UU	4	8	+8 0	16	0/-11	25	32	5	24
KBF12UU	4	12		22	0 -13	32	42	6	32
KBF16UU	5	16	+9 -1	26		36	46	6	36
KBF20UU	5	20		32		45	54	8	43
KBF25UU	6	25	+11 -1	40	0 -16	58	62	8	51
KBF30UU	6	30		47		68	76	10	62
KBF40UU	6	40		62	0 -19	80	98	13	80
KBF50UU	6	50	+13 -1	75		100	112	13	94
KBF60UU	6	60		90	0/-22	125	134	18	112

Tipo Type	d1xd2xh mm	Eccentricità Eccentricity max μ m	Gioco Radiale Radial Clearance max μ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
KBF8UU	3.5x6x3.1		-3	265	402	41
KBF12UU	4.5x7.5x4.1	12	-4	510	784	80
KBF16UU	4.5x7.5x4.1			578	892	103
KBF20UU	5.5x9x5.1		-6	862	1370	182
KBF25UU	5.5x9x5.1	15		980	1570	335
KBF30UU	6.6x11x6.1		-8	1570	2740	560
KBF40UU	9x14x8.1	20		2160	4020	1175
KBF50UU	9x14x8.1		-13	3820	7940	1745
KBF60UU	11x17x11.1	25		4700	9800	3220



Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L +/- 0,3 mm	D1 mm	H mm	PCD mm
KBK8UU	4	8	+8	16	0/-11	25	32	5	24
KBK12UU	4	12	0	22	0	32	42	6	32
KBK16UU	5	16	+9	26	-13	36	46	6	36
KBK20UU	5	20	-1	32	0	45	54	8	43
KBK25UU	6	25	+11	40	-16	58	62	8	51
KBK30UU	6	30	-1	47	0	68	76	10	62
KBK40UU	6	40	+13	62	-19	80	98	13	80
KBK50UU	6	50	-1	75	0	100	112	13	94
KBK60UU	6	60	-1	90	0/-22	125	134	18	112

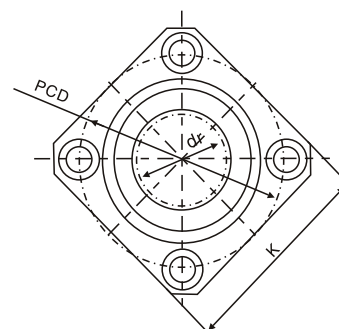
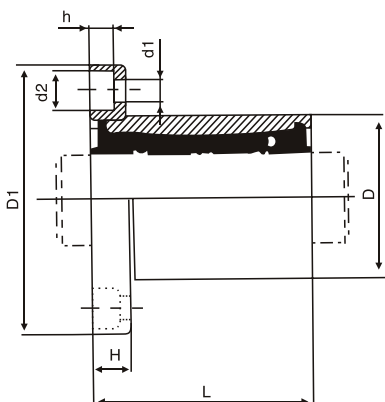
Tipo Type	K mm	d1xd2xh mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clearance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
KBK8UU	25	3.5x6x3.1	12	-3	265	402	41
KBK12UU	32	4.5x7.5x4.1		-4	510	784	80
KBK16UU	35	4.5x7.5x4.1		578	892	103	
KBK20UU	42	5.5x9x5.1	15	-6	862	1370	182
KBK25UU	50	5.5x9x5.1		980	1570	335	
KBK30UU	60	6.6x11x6.1		-8	1570	2740	560
KBK40UU	75	9x14x8.1	20	-13	2160	4020	1175
KBK50UU	88	9x14x8.1			3820	7940	1745
KBK60UU	106	11x17x11.1			4700	9800	3220



Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (µm)	D mm	Tolleranza - Tolerance (µm)	L +/- 0,3 mm	D1 mm	H mm
SWF04UU	3	6.35		12.7	0/-13	19.05	31.75	5.556
SWF06UU	4	9.525	0	15.875	0	22.225	38.1	6.35
SWF08UU	4	12.7	-9	22.225	-16	31.75	44.45	6.35
SWF10UU	4	15.875		28.575		38.1	50.8	6.35
SWF12UU	4	19.05	0	31.75	0	41.275	55.563	7.938
SWF16UU	5	25.4	-10	39.688	-19	57.15	63.5	7.938
SWF20UU	5	31.75		50.8	0	66.675	79.375	9.525
SWF24UU	6	38.1	0	60.325	-22	76.2	95.25	12.7
SWF32UU	6	50.8	-12	76.2	0/-25	101.6	111.125	12.7

Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max µm	Gioco Radiale Radial Clearance max µm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SWF04UU	22.225	3.969x6.35x3.572	12	-3	206	265	32
SWF06UU	26.988	4.763x7.541x4.366		-4	225	314	47
SWF08UU	33.338	4.763x7.541x4.366		510	784	88	
SWF10UU	39.688	4.763x7.541x4.366	15	-6	774	1180	140
SWF12UU	43.656	5.556x8.731x5.159			862	1370	190
SWF16UU	51.594	5.556x8.731x5.159			980	1570	325
SWF20UU	65.088	7.144x10.319x6.747	20	-8	1570	2740	665
SWF24UU	77.788	8.731x12.7x8.334			2180	4020	1100
SWF32UU	93.662	8.731x12.7x8.334			25	-13	3820

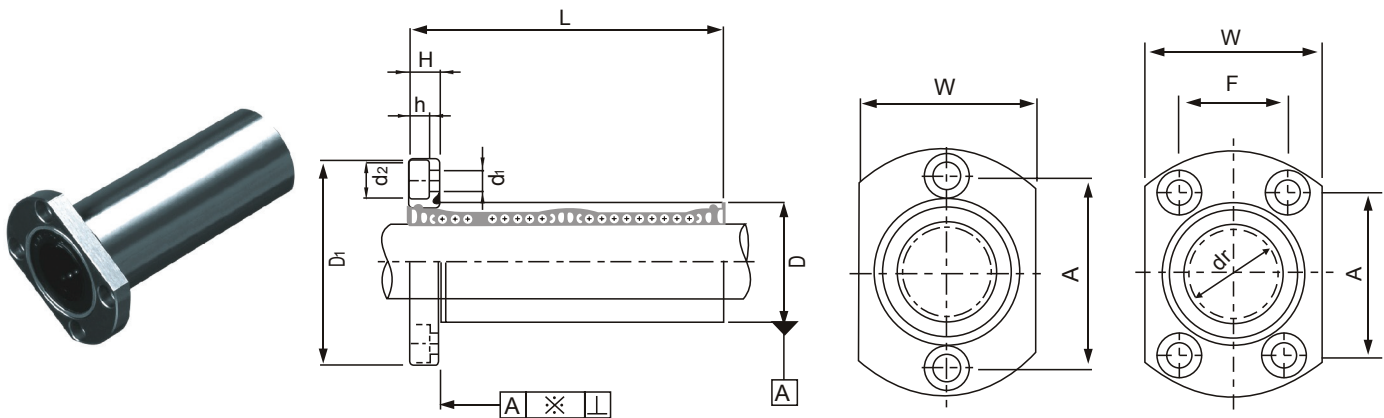
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Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L +/- 0,3 mm	D1 mm	K mm	H mm
SWK04UU	3	6.35	0 -9	12.7	0/-13	19.05	31.75	25.4	5.556
SWK06UU	4	9.525		15.875	0	22.225	38.1	31.75	6.35
SWK08UU	4	12.7		22.225	-16	31.75	44.45	34.925	6.35
SWK10UU	4	15.875		28.575	0	38.1	50.8	38.1	6.35
SWK12UU	4	19.05	0 -10	31.75	-19	41.275	55.563	42.863	7.938
SWK16UU	5	25.4		39.688	0	57.15	63.5	50.8	7.938
SWK20UU	5	31.75	0 -12	50.8	0	66.675	79.375	63.5	9.525
SWK24UU	6	38.1		60.325	-22	76.2	95.25	76.2	12.7
SWK32UU	6	50.8		76.2	0/-25	101.6	111.125	88.9	12.7

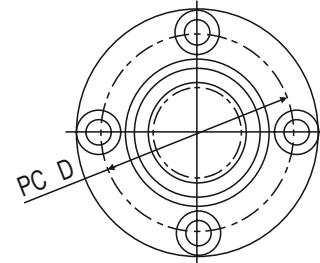
Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clearance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SWK04UU	22.225	3.969x6.35x3.572	12	-3	206	265	32
SWK06UU	26.988	4.763x7.541x4.366		-4	225	314	47
SWK08UU	33.338	4.763x7.541x4.366		510	784	88	
SWK10UU	39.688	4.763x7.541x4.366	15	-6	774	1180	140
SWK12UU	43.656	5.556x8.731x5.159			862	1370	190
SWK16UU	51.594	5.556x8.731x5.159			980	1570	325
SWK20UU	65.088	7.144x10.319x6.747	20	-8	1570	2740	665
SWK24UU	77.788	8.731x12.7x8.334	25	-13	2180	4020	1100
SWK32UU	93.662	8.731x12.7x8.334			3820	7940	1760

Solo su richiesta - Only on request

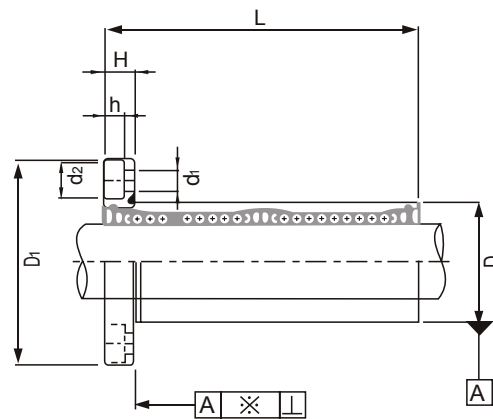


Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L +/- 0,3 mm	D1 mm	H mm	W mm	A mm
SMH6UUW	4	6	0 -10	12	0 -13	35	28	5	18	20
SMH8UUW	4	8		15	45	32	5	21	24	
SMH10UUW	4	10		19	55	40	6	25	29	
SMH12UUW	4	12		21	57	42	6	27	32	
SMH13UUW	4	13		23	61	43	6	29	33	
SMH16UUW	5	16	0 -12	28	0 -19	70	48	6	34	31
SMH20UUW	5	20		32		80	54	8	38	36
SMH25UUW	6	25		40		112	62	8	46	40
SMH30UUW	6	30		45		123	74	10	51	49

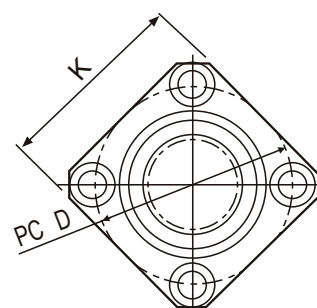
Tipo Type	F mm	d1xd2xh mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clearance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMH6UUW	-	3.5x6x3.1	15	-3	323	529	31
SMH8UUW	-	3x5x6x3.1		431	784	51	
SMH10UUW	-	4.5x7.5x4.1		-4	588	1100	98
SMH12UUW	-	4.5x7.5x4.1			813	1570	110
SMH13UUW	-	4.5x7.5x4.1			813	1570	130
SMH16UUW	22	4.5x7.5x4.1	20	-6	1230	2350	190
SMH20UUW	24	5.5x9x5.1		1400	2740	260	
SMH25UUW	32	5.5x9x5.1		1560	3140	540	
SMH30UUW	35	6.6x11x6.1		-8	2490	5490	680



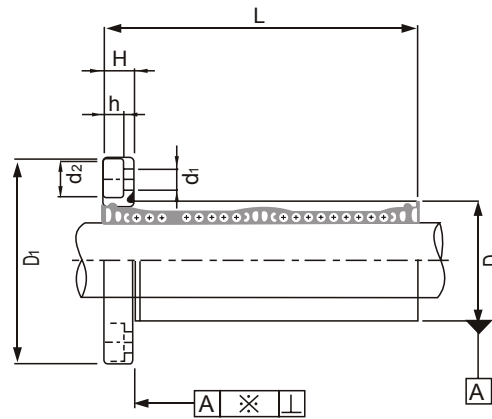
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L +/- 0,3 mm	D1 mm	H mm	PCD mm
SMF6UUW	4	6	0 -10	12	0 -13	35	28	5	20
SMF8UUW	4	8		15		45	32	5	24
SMF10UUW	4	10		19		55	40	6	29
SMF12UUW	4	12		21		57	42	6	32
SMF13UUW	4	13		23		61	43	6	33
SMF16UUW	5	16		28		70	48	6	38
SMF20UUW	5	20	0 -12	32	0 -19	80	54	8	43
SMF25UUW	6	25		40		112	62	8	51
SMF30UUW	6	30		45		123	74	10	60
SMF35UUW	6	35	0 -15	52	0 -22	135	82	10	67
SMF40UUW	6	40		60		151	96	13	78
SMF50UUW	6	50		80		192	116	13	98
SMF60UUW	6	60		0/-20		90	0/-25	209	134



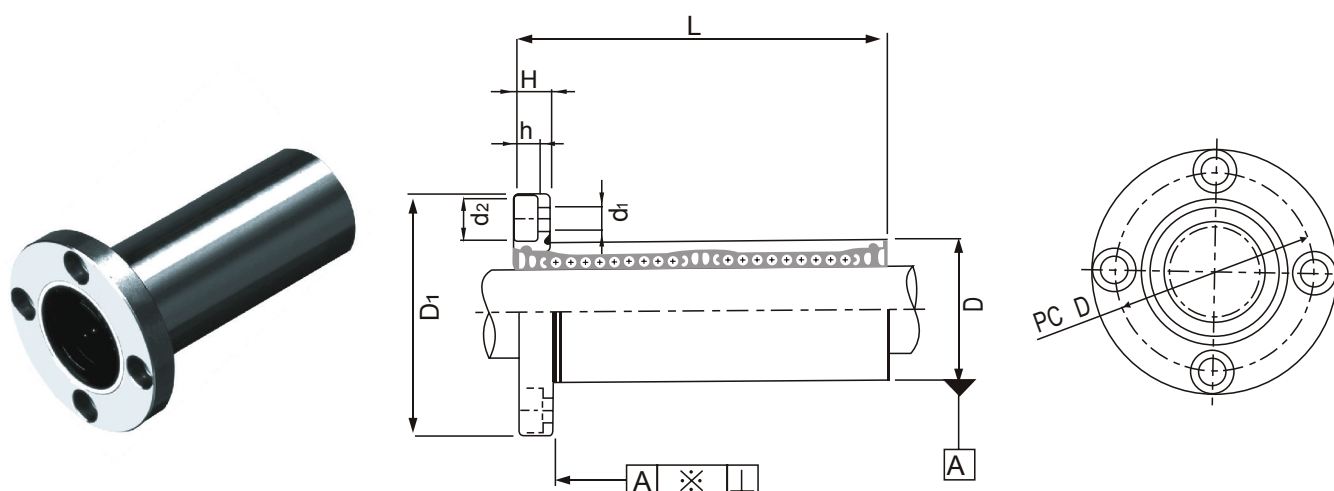
Tipo Type	d1xd2xh mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clearance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMF6UUW	3.5x6x3.1	15	-3	323	529	31
SMF8UUW	3.5x6x3.1			431	784	51
SMF10UUW	4.5x7.5x4.1			588	1100	98
SMF12UUW	4.5x7.5x4.1		-4	813	1570	110
SMF13UUW	4.5x7.5x4.1			813	1570	130
SMF16UUW	4.5x7.5x4.1			1230	2350	190
SMF20UUW	5.5x9x5.1	20	-6	1400	2740	260
SMF25UUW	5.5x9x5.1			1560	3140	540
SMF30UUW	6.6x11x6.1	25	-8	2490	5490	680
SMF35UUW	6.6x11x6.1			2650	6270	1020
SMF40UUW	9x14x8.1		-10	3430	8040	1570
SMF50UUW	9x14x8.1			6080	15900	3600
SMF60UUW	11x17x11.1		-13	7550	20000	4500



Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (µm)	D mm	Tolleranza - Tolerance (µm)	L +/- 0,3 mm	D1 mm	H mm	PCD mm
SMK6UUW	4	6	0 -10	12	0 -13	35	28	5	20
SMK8UUW	4	8		15	45	32	5	24	
SMK10UUW	4	10		19	0 -16	55	40	6	29
SMK12UUW	4	12		21		57	42	6	32
SMK13UUW	4	13		23		61	43	6	33
SMK16UUW	5	16		28	70	48	6	38	
SMK20UUW	5	20	0 -12	32	0 -19	80	54	8	43
SMK25UUW	6	25		40		112	62	8	51
SMK30UUW	6	30		45		123	74	10	60
SMK35UUW	6	35	0 -15	52	0 -22	135	82	10	67
SMK40UUW	6	40		60		151	96	13	78
SMK50UUW	6	50		80		192	116	13	98
SMK60UUW	6	60	0/-20	90	0/-25	209	134	18	112

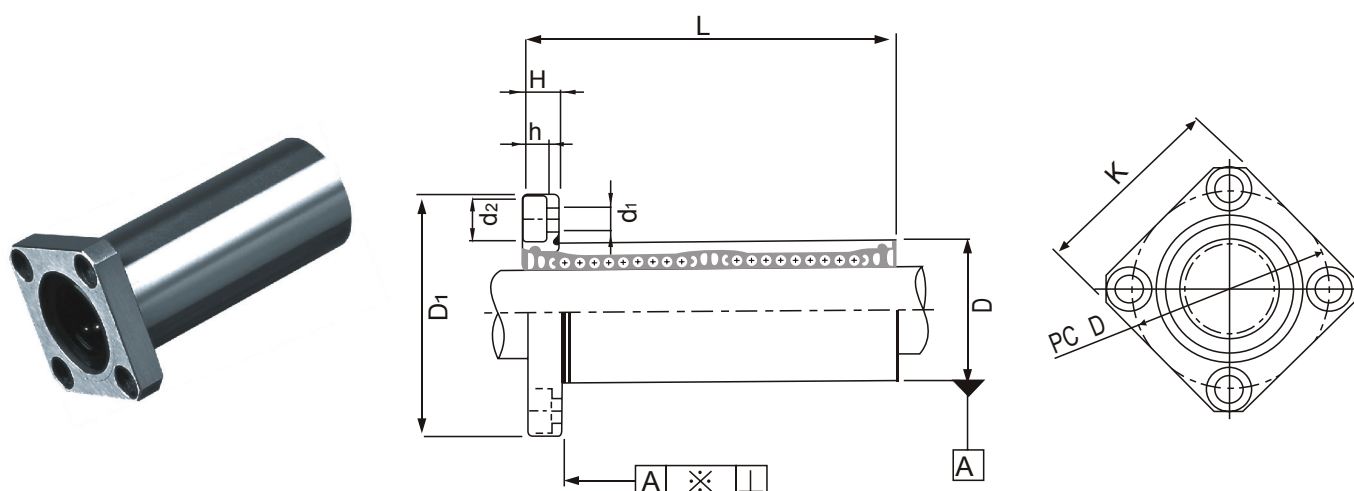


Tipo Type	K mm	d1xd2xh mm	Eccentricità Eccentricity max μ m	Gioco Radiale Radial Clearance max μ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMK6UUW	22	3.5x6x3.1	15	-3	323	529	31
SMK8UUW	25	3.5x6x3.1		431	784	51	
SMK10UUW	30	4.5x7.5x4.1		-4	588	1100	98
SMK12UUW	32	4.5x7.5x4.1			813	1570	110
SMK13UUW	34	4.5x7.5x4.1			813	1570	130
SMK16UUW	37	4.5x7.5x4.1	20	-6	1230	2350	190
SMK20UUW	42	5.5x9x5.1			1400	2740	260
SMK5UUW	50	5.5x9x5.1			1560	3140	540
SMK30UUW	58	6.6x11x6.1	25	-8	2490	5490	680
SMK35UUW	64	6.6x11x6.1		-10	2650	6270	1020
SMK40UUW	75	9x14x8.1			3430	8040	1570
SMK50UUW	92	9x14x8.1		-13	6080	15900	3600
SMK60UUW	106	11x17x11.1	7550		20000	4500	



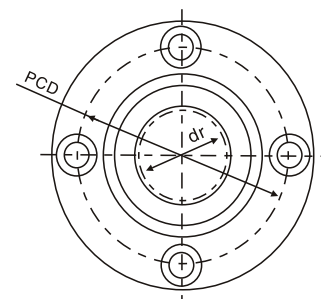
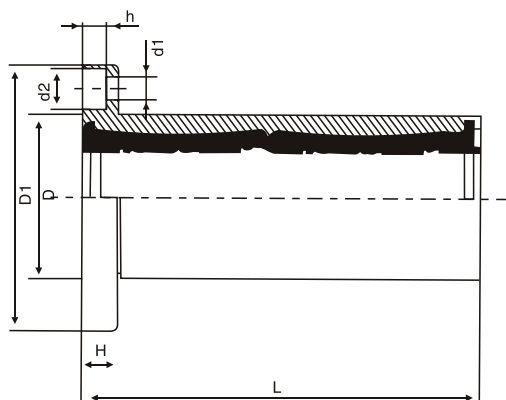
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L +/- 0,3 mm	D1 mm	H mm	PCD mm
KBF8UUW	4	8	+9	16	0/-13	46	32	5	24
KBF12UUW	4	12	-1	22	0	61	42	6	32
KBF16UUW	5	16	+11	26	-16	68	46	6	36
KBF20UUW	5	20	-1	32		80	54	8	43
KBF25UUW	6	25	+13	40	0	112	62	8	51
KBF30UUW	6	30	-2	47	-19	123	76	10	62
KBF40UUW	6	40		62	0	151	98	13	80
KBF50UUW	6	50	+16	75	-22	192	112	13	94
KBF60UUW	6	60	-4	90	0/-25	209	134	18	112

Tipo Type	d1xd2xh mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clearance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
KBF8UUW	3.5x6x3.1	15	-3	421	804	59
KBF12UUW	4.5x7.5x4.1		-4	813	1570	110
KBF16UUW	4.5x7.5x4.1			921	1780	160
KBF20UUW	5.5x9x5.1	17	-6	1370	2740	260
KBF25UUW	5.5x9x5.1			1570	3140	540
KBF30UUW	6.6x11x6.1		-8	2500	5490	815
KBF40UUW	9x14x8.1	20		3430	8040	1805
KBF50UUW	9x14x8.1	25	-13	6080	15900	2820
KBF60UUW	11x17x11.1			7550	20000	4920



Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μ m)	D mm	Tolleranza - Tolerance (μ m)	L +/- 0,3 mm	D1 mm	H mm	PCD mm
KBK8UUW	4	8	+9	16	0/-13	46	32	5	24
KBK12UUW	4	12	-1	22	0	61	42	6	32
KBK16UUW	5	16	+11	26	-16	68	46	6	36
KBK20UUW	5	20	-1	32	0	80	54	8	43
KBK25UUW	6	25	+13	40	-19	112	62	8	51
KBK30UUW	6	30	-2	47	0	123	76	10	62
KBK40UUW	6	40	+16	62	-22	151	98	13	80
KBK50UUW	6	50	-4	75	0	192	112	13	94
KBK60UUW	6	60		90	0/-25	209	134	18	112

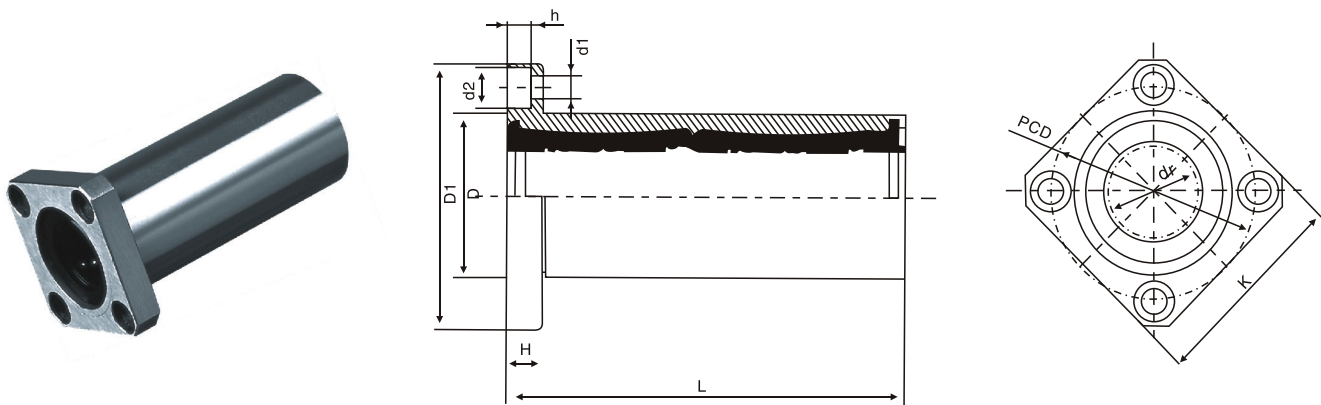
Tipo Type	K mm	d1xd2xh mm	Eccentricità Eccentricity max (μ m)	Gioco Radiale Radial Clearance max (μ m)	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
KBK8UUW	25	3.5x6x3.1	15	-3	421	804	59
KBK12UUW	32	4.5x7.5x4.1		-4	813	1570	110
KBK16UUW	35	4.5x7.5x4.1		-6	921	1780	160
KBK20UUW	42	5.5x9x5.1	17	-6	1370	2740	260
KBK25UUW	50	5.5x9x5.1		-8	1570	3140	540
KBK30UUW	60	6.6x11x6.1	20	-8	2500	5490	815
KBK40UUW	75	9x14x8.1		-13	3430	8040	1805
KBK50UUW	88	9x14x8.1		25	6080	15900	2820
KBK60UUW	106	11x17x11.1			7550	20000	4920



Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (µ m)	D mm	Tolleranza - Tolerance (µ m)	L +/- 0,3 mm	D1 mm	H mm
SWF04UUW	3	6.35		12.7	0/-13	34.925	31.75	5.556
SWF06UUW	4	9.525	0	15.875	0	40.481	38.1	6.35
SWF08UUW	4	12.7	-10	22.225	-16	60.325	44.45	6.35
SWF10UUW	4	15.875		28.575		71.438	50.8	6.35
SWF12UUW	4	19.05	0	31.75	0	78.581	55.563	7.938
SWF16UUW	5	25.4	-12	39.688	-19	108.744	63.5	7.938
SWF20UUW	5	31.75		50.8	0	127.00	79.375	9.525
SWF24UUW	6	38.1	0	60.325	-22	144.463	95.25	12.7
SWF32UUW	6	50.8	-15	76.2	0/-25	196.85	111.125	12.7

Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max µ m	Gioco Ra- diale Radial Clea- rance max µ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SWF04UUW	22.225	3.969x6.35x3.572		-3	323	530	40
SWF06UUW	26.988	4.763x7.541x4.366	12	-4	353	630	60
SWF08UUW	33.338	4.763x7.541x4.366			813	1570	126
SWF10UUW	39.688	4.763x7.541x4.366			1230	2350	215
SWF12UUW	43.656	5.556x8.731x5.159	15	-6	1370	2740	280
SWF16UUW	51.594	5.556x8.731x5.159			1570	3140	515
SWF20UUW	65.088	7.144x10.319x6.747	20	-8	2500	5490	1020
SWF24UUW	77.788	8.731x12.7x8.334			3430	8040	1630
SWF32UUW	93.662	8.731x12.7x8.334	25	-13	6080	15900	2800

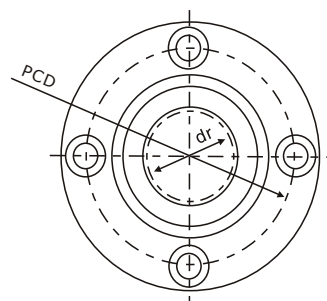
Solo su richiesta - Only on request



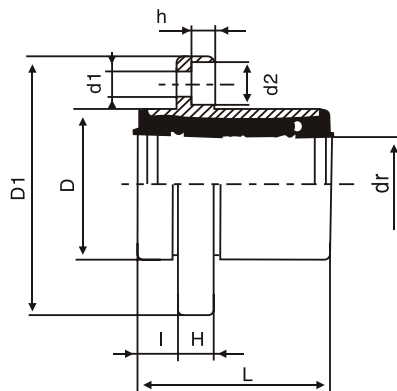
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (µ m)	D mm	Tolleranza - Tolerance (µ m)	L +/- 0,3 mm	D1 mm	K mm	H mm
SWK04UUW	3	6.35	0 -10	12.7	0/-13	34.925	31.75	25.4	5.556
SWK06UUW	4	9.525		15.875	0	40.481	38.1	31.75	6.35
SWK08UUW	4	12.7		22.225	-16	60.325	44.45	34.925	6.35
SWK10UUW	4	15.875		28.575	0	71.438	50.8	38.1	6.35
SWK12UUW	4	19.05	0 -12	31.75	0 -19	78.581	55.563	42.863	7.938
SWK16UUW	5	25.4		39.688		108.744	63.5	50.8	7.938
SWK20UUW	5	31.75	0 -15	50.8	0 -22	127.00	79.375	63.5	9.525
SWK24UUW	6	38.1		60.325		144.463	95.25	76.2	12.7
SWK32UUW	6	50.8		76.2		0/-25	196.85	111.125	88.9

Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max µ m	Gioco Radiale Radial Clearance max µ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SWK04UUW	22.225	3.969x6.35x3.572	12	-3	323	530	40
SWK06UUW	26.988	4.763x7.541x4.366		-4	353	630	60
SWK08UUW	33.338	4.763x7.541x4.366		813	1570	126	
SWK10UUW	39.688	4.763x7.541x4.366	15	-6	1230	2350	215
SWK12UUW	43.656	5.556x8.731x5.159			1370	2740	280
SWK16UUW	51.594	5.556x8.731x5.159			1570	3140	515
SWK20UUW	65.088	7.144x10.319x6.747	20	-8	2500	5490	1020
SWK24UUW	77.788	8.731x12.7x8.334			3430	8040	1630
SWK32UUW	93.662	8.731x12.7x8.334	25	-13	6080	15900	2800

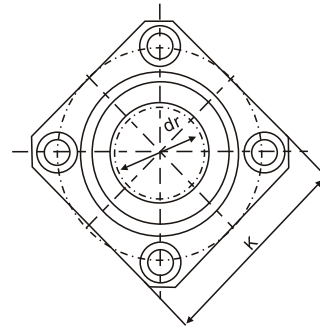
Solo su richiesta - Only on request



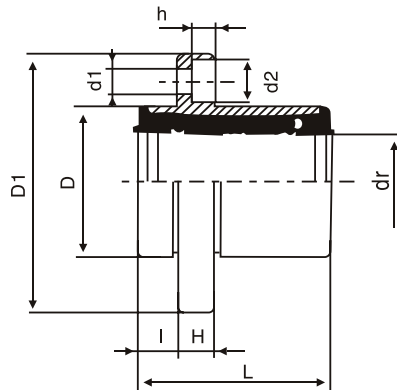
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μ m)	D mm	Tolleranza - Tolerance (μ m)	L +/- 0,3 mm	I mm	D1 mm	H mm
SMF6UUE	4	6	0 -9	12	0 -13	19	5	28	5
SMF8UUE	4	8		15	24	5	32	5	
SMF10UUE	4	10		19	29	6	40	6	
SMF12UUE	4	12		21	30	6	42	6	
SMF13UUE	4	13		23	32	6	43	6	
SMF16UUE	5	16	0 -10	28	0 -16	37	6	48	6
SMF20UUE	5	20		32		42	8	54	8
SMF25UUE	6	25		40		59	8	62	8
SMF30UUE	6	30	0 -12	45	0 -19	64	10	74	10
SMF35UUE	6	35		52		70	10	82	10
SMF40UUE	6	40	0 -15	60	0 -22	80	13	96	13
SMF50UUE	6	50		80		100	13	116	18
SMF60UUE	6	60		90		110	18	134	18



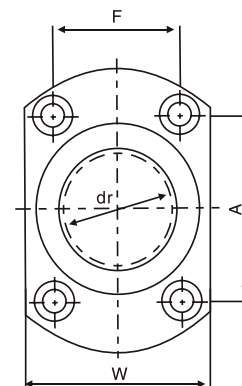
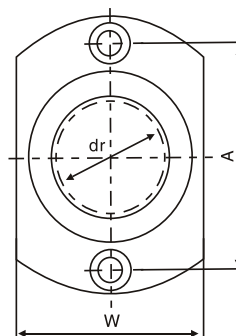
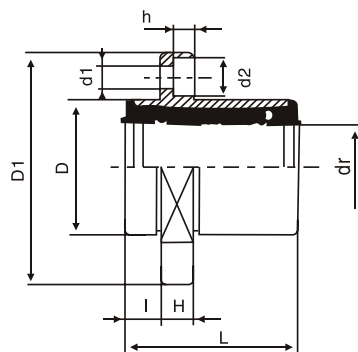
Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max μ m	Gioco Radiale Radial Clearance max μ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMF6UUE	20	3.5x6x3.1	12	-3	206	265	24
SMF8UUE	24	3.5x6x3.1		274	392	37	
SMF10UUE	29	4.5x7.5x4.1		-4	372	549	72
SMF12UUE	32	4.5x7.5x4.1			510	784	76
SMF13UUE	33	4.5x7.5x4.1			510	784	88
SMF16UUE	38	4.5x7.5x4.1			774	1180	120
SMF20UUE	43	5.5x9x5.1	15	-6	882	1370	180
SMF25UUE	51	5.5x9x5.1			980	1570	340
SMF30UUE	60	6.6x11x6.1	20	-8	1570	2740	470
SMF35UUE	67	6.6x11x6.1			1670	3140	650
SMF40UUE	78	9x14x8.1		-10	2160	4020	1060
SMF50UUE	98	9x14x8.1			3820	7940	2200
SMF60UUE	112	11x17x11.1	25	-13	4700	10000	3000



Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μ m)	D mm	Tolleranza - Tolerance (μ m)	L +/- 0,3 mm	I mm	D1 mm	K mm	H mm
SMK6UUE	4	6	0 -9	12	0 -13	19	5	28	22	5
SMK8UUE	4	8		15	24	5	32	25	5	
SMK10UUE	4	10		19	29	6	40	30	6	
SMK12UUE	4	12	0 -16	21	0	30	6	42	32	6
SMK13UUE	4	13		23	32	6	43	34	6	
SMK16UUE	5	16		28	37	6	48	37	6	
SMK20UUE	5	20	0 -10	32	0	42	8	54	42	8
SMK25UUE	6	25		40	59	8	62	50	8	
SMK30UUE	6	30		45	64	10	74	58	10	
SMK35UUE	6	35	0 -12	52	0	70	10	82	64	10
SMK40UUE	6	40		60	80	13	96	75	13	
SMK50UUE	6	50		80	100	13	116	92	18	
SMK60UUE	6	60	0/-15	90	0/-25	110	18	134	106	18

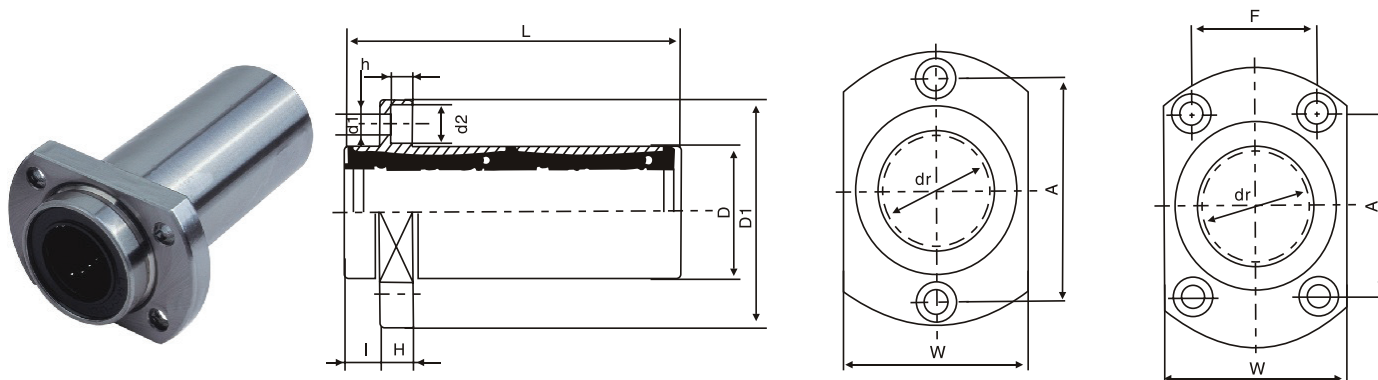


Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max μ m	Gioco Radiale Radial Clearance max μ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMK6UUE	20	3.5x6x3.1	12	-3	206	265	24
SMK8UUE	24	3.5x6x3.1		274	392	37	
SMK10UUE	29	4.5x7.5x4.1		-4	372	549	72
SMK12UUE	32	4.5x7.5x4.1			510	784	76
SMK13UUE	33	4.5x7.5x4.1	15	-6	510	784	88
SMK16UUE	38	4.5x7.5x4.1			774	1180	120
SMK20UUE	43	5.5x9x5.1			882	1370	180
SMK25UUE	51	5.5x9x5.1	20	-8	980	1570	340
SMK30UUE	60	6.6x11x6.1			1570	2740	470
SMK35UUE	67	6.6x11x6.1	25	-10	1670	3140	650
SMK40UUE	78	9x14x8.1			2160	4020	1060
SMK50UUE	98	9x14x8.1			-13	3820	7940
SMK60UUE	112	11x17x11.1	4700	10000		3000	



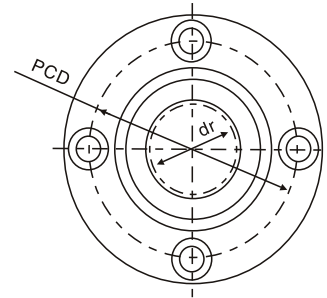
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L +/- 0,3 mm	I mm	D1 mm	W mm	H mm
SMT6UUE	4	6	0 -9	12	0 -13	19	5	28	18	5
SMT8UUE	4	8		15	24	5	32	21	5	
SMT10UUE	4	10		19	29	6	40	25	6	
SMT12UUE	4	12	0 -16	21	0	30	6	42	27	6
SMT13UUE	4	13		23	32	6	43	29	6	
SMT16UUE	5	16		28	37	6	48	34	6	
SMT20UUE	5	20	0 -10	32	0	42	8	54	38	8
SMT25UUE	6	25		40	59	8	62	46	8	
SMT30UUE	6	30		45	64	10	74	51	10	

Tipo Type	A mm	F mm	d1xd2xh mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clearance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMT6UUE	20	-	3.5x6x3.1	12	-3	206	265	21
SMT8UUE	24	-	3.5x6x3.1		274	392	33	
SMT10UUE	29	-	4.5x7.5x4.1		-4	372	549	64
SMT12UUE	32	-	4.5x7.5x4.1	510		784	68	
SMT13UUE	33	-	4.5x7.5x4.1	510		784	81	
SMT16UUE	31	22	4.5x7.5x4.1	15	774	1180	112	
SMT20UUE	36	24	5.5x9x5.1		-6	882	1370	167
SMT25UUE	40	32	5.5x9x5.1			980	1570	325
SMT30UUE	49	35	6.6x11x6.1	-8		1570	2740	388

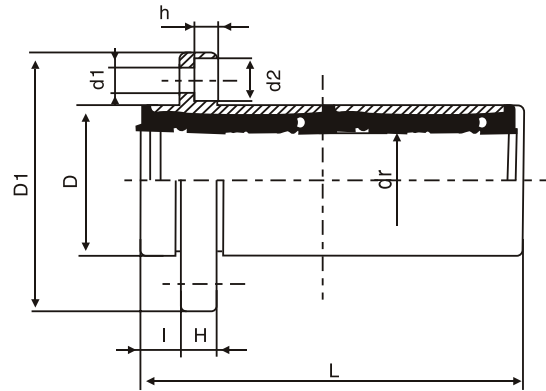


Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L +/- 0,3 mm	I mm	D1 mm	W mm	H mm
SMT6UUWE	4	6	0 -9	12	0 -13	35	5	28	18	5
SMT8UUWE	4	8		15	45	5	32	21	5	
SMT10UUWE	4	10		19	55	6	40	25	6	
SMT12UUWE	4	12	0 -16	21	0	58	6	42	27	6
SMT13UUWE	4	13		23	61	6	43	29	6	
SMT16UUWE	5	16		28	70	6	48	34	6	
SMT20UUWE	5	20	0 -10	32	0	80	8	54	38	8
SMT25UUWE	6	25		40	112	8	62	46	8	
SMT30UUWE	6	30		45	123	10	74	51	10	

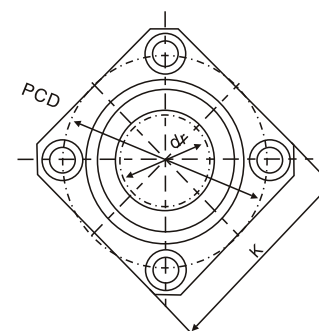
Tipo Type	A mm	F mm	d1xd2xh mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clearance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMT6UUWE	20	-	3.5x6x3.1	15	-3	323	529	28
SMT8UUWE	24	-	3.5x6x3.1		431	784	47	
SMT10UUWE	29	-	4.5x7.5x4.1		588	1100	90	
SMT12UUWE	32	-	4.5x7.5x4.1	20	-4	813	1570	102
SMT13UUWE	33	-	4.5x7.5x4.1		813	1570	123	
SMT16UUWE	31	22	4.5x7.5x4.1		1230	2350	182	
SMT20UUWE	36	24	5.5x9x5.1	20	-6	1400	2740	247
SMT25UUWE	40	32	5.5x9x5.1		1560	3140	525	
SMT30UUWE	49	35	6.6x11x6.1		-8	2490	5490	645



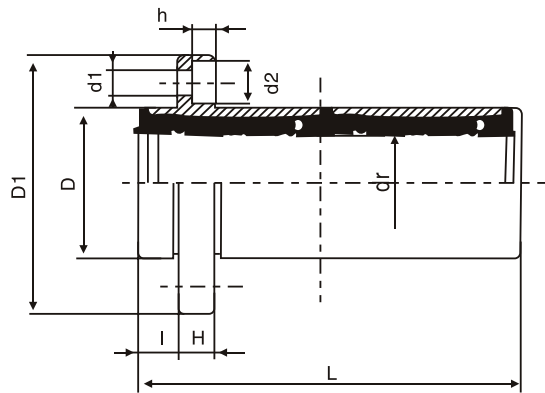
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L +/- 0,3 mm	I mm	D1 mm	H mm
SMF6UUWE	4	6	0 -10	12	0 -13	35	5	28	5
SMF8UUWE	4	8		15	45	5	32	5	
SMF10UUWE	4	10		19	55	6	40	6	
SMF12UUWE	4	12		21	57	6	42	6	
SMF13UUWE	4	13		23	61	6	43	6	
SMF16UUWE	5	16		28	70	6	48	6	
SMF20UUWE	5	20	0 -12	32	0 -19	80	8	54	8
SMF25UUWE	6	25		40		112	8	62	8
SMF30UUWE	6	30		45		123	10	74	10
SMF35UUWE	6	35	0 -15	52	0 -22	135	10	82	10
SMF40UUWE	6	40		60		151	13	96	13
SMF50UUWE	6	50		80		192	13	116	13
SMF60UUWE	6	60		0/-20		90	0/-25	209	18



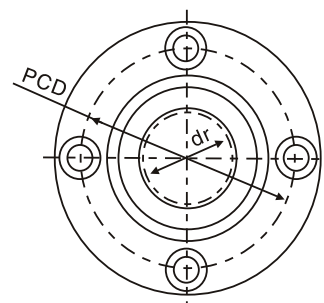
Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max μ m	Gioco Radiale Radial Clearance max μ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMF6UUWE	20	3.5x6x3.1	15	-3	323	529	31
SMF8UUWE	24	3.5x6x3.1		431	784	51	
SMF10UUWE	29	4.5x7.5x4.1		-4	588	1100	98
SMF12UUWE	32	4.5x7.5x4.1			813	1570	110
SMF13UUWE	33	4.5x7.5x4.1		813	1570	130	
SMF16UUWE	38	4.5x7.5x4.1		1230	2350	190	
SMF20UUWE	43	5.5x9x5.1	20	-6	1400	2740	260
SMF25UUWE	51	5.5x9x5.1		1560	3140	540	
SMF30UUWE	60	6.6x11x6.1	25	-8	2490	5490	680
SMF35UUWE	67	6.6x11x6.1		2650	6270	1020	
SMF40UUWE	78	9x14x8.1		-10	3430	8040	1570
SMF50UUWE	98	9x14x8.1		-13	6080	15900	3600
SMF60UUWE	112	11x17x11.1			7550	20000	4500



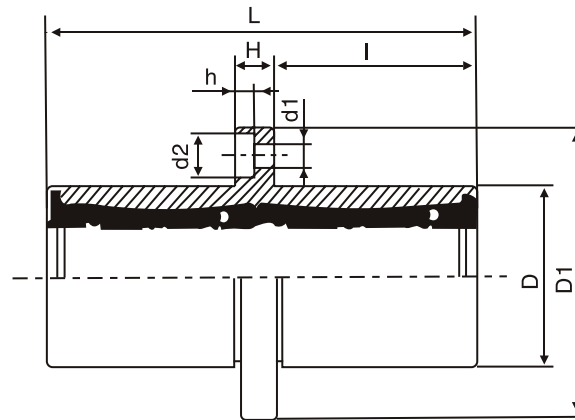
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L +/- 0,3 mm	I mm	D1 mm	K mm	H mm
SMK6UUWE	4	6	0 -10	12	0 -13	35	5	28	22	5
SMK8UUWE	4	8		15	44	5	32	25	5	
SMK10UUWE	4	10		19	55	6	40	30	6	
SMK12UUWE	4	12		21	57	6	42	32	6	
SMK13UUWE	4	13		23	61	6	43	34	6	
SMK16UUWE	5	16		28	70	6	48	37	6	
SMK20UUWE	5	20	0 -12	32	0 -19	80	8	54	42	8
SMK25UUWE	6	25		40		112	8	62	50	8
SMK30UUWE	6	30		45		123	10	74	58	10
SMK35UUWE	6	35	0 -15	52	0 -22	135	10	82	64	10
SMK40UUWE	6	40		60		151	13	96	75	13
SMK50UUWE	6	50		80		192	13	116	92	13
SMK60UUWE	6	60		0/-20		90	0/-25	209	18	134



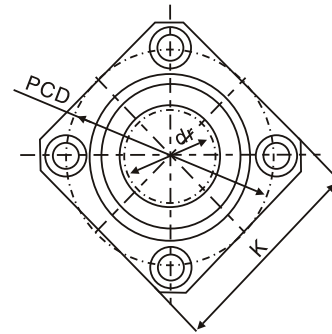
Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max μ m	Gioco Radiale Radial Clearance max μ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMK6UUWE	20	3.5x6x3.1	15	-3	323	529	31
SMK8UUWE	24	3.5x6x3.1		431	784	51	
SMK10UUWE	29	4.5x7.5x4.1		-4	588	1100	98
SMK12UUWE	32	4.5x7.5x4.1			813	1570	110
SMK13UUWE	33	4.5x7.5x4.1			813	1570	130
SMK16UUWE	38	4.5x7.5x4.1	20	-6	1230	2350	190
SMK20UUWE	43	5.5x9x5.1			1400	2740	260
SMK25UUWE	51	5.5x9x5.1			1560	3140	540
SMK30UUWE	60	6.6x11x6.1	25	-8	2490	5490	680
SMK35UUWE	67	6.6x11x6.1		-10	2650	6270	1020
SMK40UUWE	78	9x14x8.1			3430	8040	1570
SMK50UUWE	98	9x14x8.1		-13	6080	15900	3600
SMK60UUWE	112	11x17x11.1	7550		20000	4500	



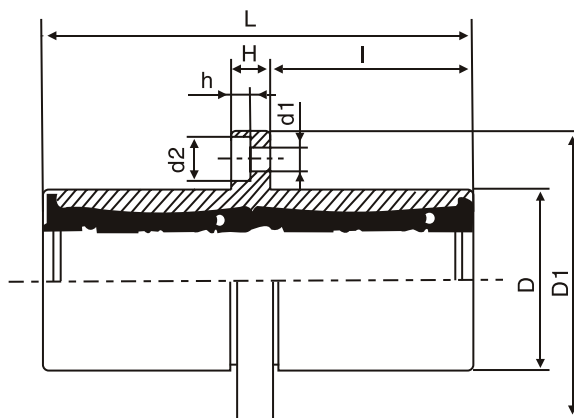
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μ m)	D mm	Tolleranza - Tolerance (μ m)	L +/- 0,3 mm	I mm	D1 mm	H mm
SMFC6UU	4	6	0 -10	12	0 -13	35	15	28	5
SMFC8UU	4	8		15	45	20	32	5	
SMFC10UU	4	10		19	55	24.5	40	6	
SMFC12UU	4	12		21	57	25.5	42	6	
SMFC13UU	4	13	0 -12	23	0 -16	61	27.5	43	6
SMFC16UU	5	16		28		70	32	48	6
SMFC20UU	5	20		32		80	36	54	8
SMFC25UU	6	25	0 -15	40	0 -19	112	52	62	8
SMFC30UU	6	30		45		123	56.5	74	10
SMFC35UU	6	35	0 -22	52	0 -22	135	62.5	82	10
SMFC40UU	6	40		60		151	69	96	13
SMFC50UU	6	50		80		192	89.5	116	13
SMFC60UU	6	60	0/-20	90	0/-25	209	95.5	134	18



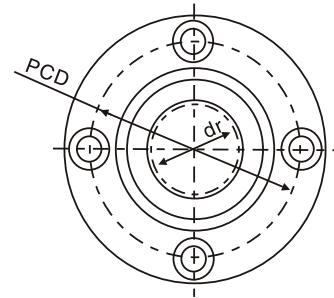
Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clea- rance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMFC6UU	20	3.5x6x3.1	15	-3	323	529	31
SMFC8UU	24	3.5x6x3.1		431	784	51	
SMFC10UU	29	4.5x7.5x4.1		-4	588	1100	98
SMFC12UU	32	4.5x7.5x4.1			813	1570	110
SMFC13UU	33	4.5x7.5x4.1		-6	813	1570	130
SMFC16UU	38	4.5x7.5x4.1			1230	2350	190
SMFC20UU	43	5.5x9x5.1	20		1400	2740	260
SMFC25UU	51	5.5x9x5.1		1560	3140	540	
SMFC30UU	60	6.6x11x6.1	25	-8	2490	5490	680
SMFC35UU	67	6.6x11x6.1		-10	2650	6270	1020
SMFC40UU	78	9x14x8.1			3430	8040	1570
SMFC50UU	98	9x14x8.1	30	-13	6080	15900	3600
SMFC60UU	112	11x17x11.1		7550	20000	4500	



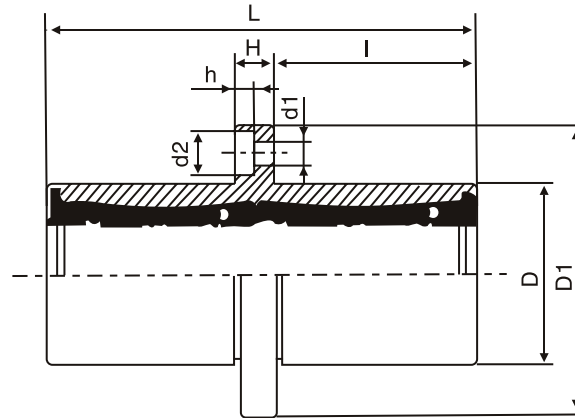
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L +/- 0,3 mm	I mm	D1 mm	K mm	H mm
SMKC6UU	4	6	0 -10	12	0 -13	35	15	28	22	5
SMKC8UU	4	8		15	44	20	32	25	5	
SMKC10UU	4	10		19	55	24.5	40	30	6	
SMKC12UU	4	12	0 -16	21	0	57	25.5	42	32	6
SMKC13UU	4	13		23	61	27.5	43	34	6	
SMKC16UU	5	16		28	70	32	48	37	6	
SMKC20UU	5	20	0 -12	32	0	80	36	54	42	8
SMKC25UU	6	25		40	112	52	62	50	8	
SMKC30UU	6	30		45	123	56.5	74	58	10	
SMKC35UU	6	35	0 -15	52	0	135	62.5	82	64	10
SMKC40UU	6	40		60	151	69	96	75	13	
SMKC50UU	6	50		80	192	89.5	116	92	13	
SMKC60UU	6	60	0/-20	90	0/-25	209	95.3	134	106	18



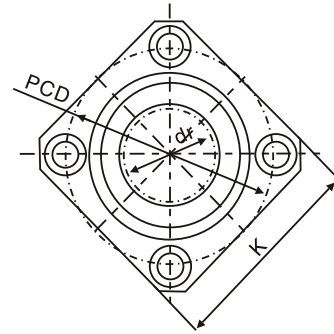
Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max μ m	Gioco Radiale Radial Clearance max μ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMKC6UU	20	3.5x6x3.1	15	-3	323	529	31
SMKC8UU	24	3.5x6x3.1		431	784	51	
SMKC10UU	29	4.5x7.5x4.1		-4	588	1100	98
SMKC12UU	32	4.5x7.5x4.1			813	1570	110
SMKC13UU	33	4.5x7.5x4.1		-6	813	1570	130
SMKC16UU	38	4.5x7.5x4.1			1230	2350	190
SMKC20UU	43	5.5x9x5.1	20		1400	2740	260
SMKC25UU	51	5.5x9x5.1		1560	3140	540	
SMKC30UU	60	6.6x11x6.1	25	-8	2490	5490	680
SMKC35UU	67	6.6x11x6.1		-10	2650	6270	1020
SMKC40UU	78	9x14x8.1			3430	8040	1570
SMKC50UU	98	9x14x8.1	30	-13	6080	15900	3600
SMKC60UU	112	11x17x11.1		7550	20000	4500	



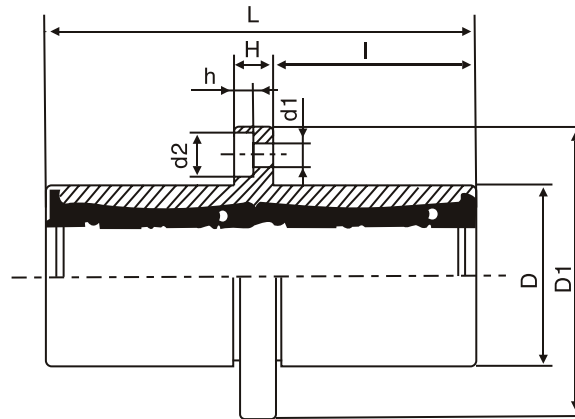
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μ m)	D mm	Tolleranza - Tolerance (μ m)	L +/- 0,3 mm	I mm	D1 mm	H mm
KBFC8UU	4	8	+9 -1	16	0/-13	46	20.5	32	5
KBFC12UU	4	12	+11 -1	22	0 -16	61	27.5	42	6
KBFC16UU	5	16	+13 -2	26	0 -19	68	31	46	6
KBFC20UU	5	20	+16 -4	32	0 -22	80	36	54	8
KBFC25UU	6	25	+16 -4	40	0 -22	112	52	62	8
KBFC30UU	6	30	+16 -4	47	0 -22	123	56.5	76	10
KBFC40UU	6	40	+16 -4	62	0 -22	151	69	98	13
KBFC50UU	6	50	+16 -4	75	0 -22	192	89.5	112	13
KBFC60UU	6	60	+16 -4	90	0/-25	209	95.5	134	18



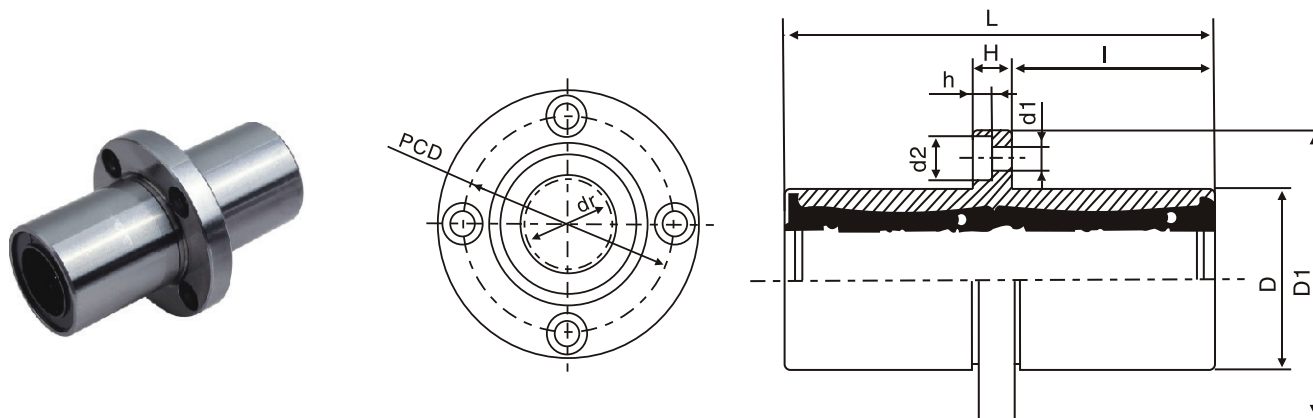
Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max μ m	Gioco Radiale Radial Clearance max μ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
KBFC8UU	24	3.5x6x3.1	15	-3	431	804	59
KBFC12UU	32	4.5x7.5x4.1		813	1570	110	
KBFC16UU	36	4.5x7.5x4.1		-4	921	1780	160
KBFC20UU	43	5.5x9x5.1	1370		2740	260	
KBFC25UU	51	5.5x9x5.1	17	-6	1570	3140	540
KBFC30UU	62	6.6x11x6.1			2500	5490	815
KBFC40UU	80	9x14x8.1	20	-6	3430	8040	1805
KBFC50UU	94	9x14x8.1			6080	15900	2820
KBFC60UU	112	11x17x11.1	25	-8	7550	20000	4920



Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tollerance (μ m)	D mm	Tolleranza - Tollerance (μ m)	L +/- 0,3 mm	I mm	D1 mm	K mm	H mm
KBKC8UU	4	8	+9 -1	16	0/-13	46	20.5	32	25	5
KBKC12UU	4	12		22	0 -16	61	27.5	42	32	6
KBKC16UU	5	16	+11 -1	26		68	31	46	35	6
KBKC20UU	5	20		32		80	36	54	42	8
KBKC25UU	6	25	+13 -2	40	0 -19	112	52	62	50	8
KBKC30UU	6	30		47		123	56.5	76	60	10
KBKC40UU	6	40		62	0 -22	151	69	98	75	13
KBKC50UU	6	50	+16 -4	75		192	89.5	112	88	13
KBKC60UU	6	60		90	0/-25	209	95.5	134	106	18



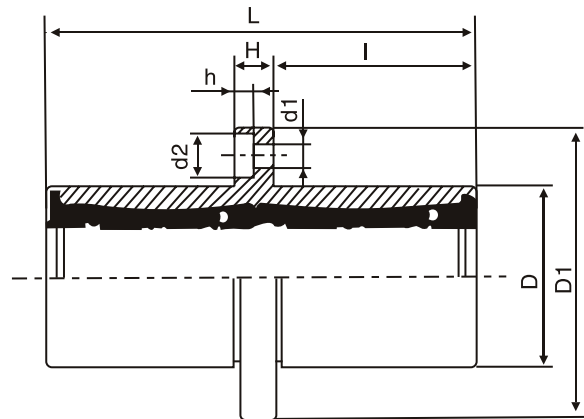
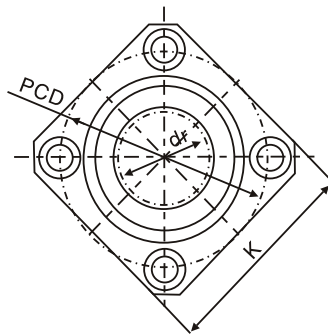
Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max μ m	Gioco Radiale Radial Clearance max μ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
KBKC8UU	24	3.5x6x3.1	15	-3	431	804	59
KBKC12UU	32	4.5x7.5x4.1		813	1570	110	
KBKC16UU	36	4.5x7.5x4.1		-4	921	1780	160
KBKC20UU	43	5.5x9x5.1	1370		2740	260	
KBKC25UU	51	5.5x9x5.1	17	-6	1570	3140	540
KBKC30UU	62	6.6x11x6.1			2500	5490	815
KBKC40UU	80	9x14x8.1	25	-8	3430	8040	1805
KBKC50UU	94	9x14x8.1			6080	15900	2820
KBKC60UU	112	11x17x11.1			7550	20000	4920



Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μ m)	D mm	Tolleranza - Tolerance (μ m)	L +/- 0,3 mm	I mm	D1 mm	H mm
SWFC04UU	3	6.35	0 -10	12.7	0/-13	34.925	14.684	31.75	5.556
SWFC06UU	4	9.525		15.875	0	40.481	17.066	38.1	6.35
SWFC08UU	4	12.7		22.225	-16	60.325	26.988	44.45	6.35
SWFC10UU	4	15.875		28.575	0	71.438	32.544	50.8	6.35
SWFC12UU	4	19.05	0 -12	31.75	0	78.581	35.322	55.563	7.938
SWFC16UU	5	25.4		39.688	-19	108.744	50.403	63.5	7.938
SWFC20UU	5	31.75	0 -15	50.8	0	127.00	58.738	79.375	9.525
SWFC24UU	6	38.1		60.325	-22	144.463	65.882	95.25	12.7
SWFC32UU	6	50.8		76.2	0/-25	196.85	92.075	111.125	12.7

Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max μ m	Gioco Radiale Radial Clearance max μ m	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SWFC04UU	22.225	3.969x6.35x3.572	12	-3	323	530	40
SWFC06UU	26.988	4.763x7.541x4.366		-4	353	630	60
SWFC08UU	33.338	4.763x7.541x4.366		813	1570	126	
SWFC10UU	39.688	4.763x7.541x4.366	15	-6	1230	2350	215
SWFC12UU	43.656	5.556x8.731x5.159			1370	2740	280
SWFC16UU	51.594	5.556x8.731x5.159			1570	3140	515
SWFC20UU	65.088	7.144x10.319x6.747	20	-8	2500	5490	1020
SWFC24UU	77.788	8.731x12.7x8.334	25	-13	3430	8040	1630
SWFC32UU	93.662	8.731x12.7x8.334			6080	15900	2800

Solo su richiesta - Only on request



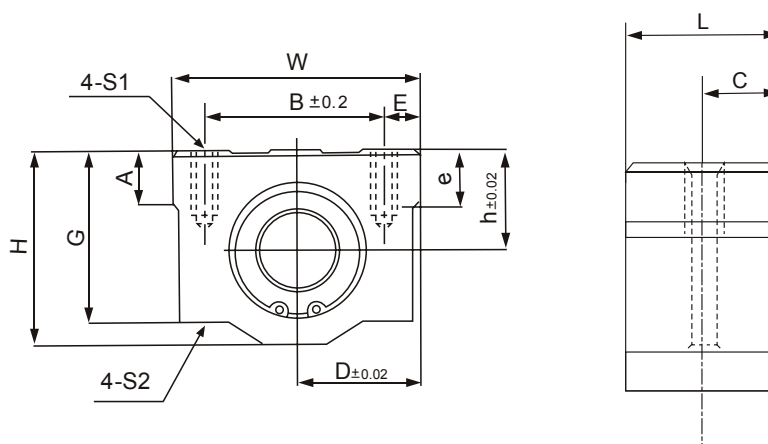
Tipo Type	Circuiti Sfere - Ball Circuit	dr mm	Tolleranza - Tolerance (μm)	D mm	Tolleranza - Tolerance (μm)	L +/- 0,3 mm	I mm	D1 mm	K mm	H mm
SWKC04UU	3	6.35		12.7	0/-13	34.925	14.684	31.75	25.4	5.556
SWKC06UU	4	9.525	0	15.875	0	40.481	17.066	38.1	31.75	6.35
SWKC08UU	4	12.7	-10	22.225	-16	60.325	26.988	44.45	34.925	6.35
SWKC10UU	4	15.875		28.575		71.438	32.544	50.8	38.1	6.35
SWKC12UU	4	19.05	0	31.75	0	78.581	35.322	55.563	42.863	7.938
SWKC16UU	5	25.4	-12	39.688	-19	108.744	50.403	63.5	50.8	7.938
SWKC20UU	5	31.75		50.8	0	127.00	58.738	79.375	63.5	9.525
SWKC24UU	6	38.1	0	60.325	-22	144.463	65.882	95.25	76.2	12.7
SWKC32UU	6	50.8	-15	76.2	0/-25	196.85	92.075	111.125	88.9	12.7

Tipo Type	PCD mm	d1xd2xh mm	Eccentricità Eccentricity max μm	Gioco Radiale Radial Clearance max μm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SWKC04UU	22.225	3.969x6.35x3.572	12	-3	323	530	40
SWKC06UU	26.988	4.763x7.541x4.366		-4	353	630	60
SWKC08UU	33.338	4.763x7.541x4.366		813	1570	126	
SWKC10UU	39.688	4.763x7.541x4.366	15	-6	1230	2350	215
SWKC12UU	43.656	5.556x8.731x5.159			1370	2740	280
SWKC16UU	51.594	5.556x8.731x5.159			1570	3140	515
SWKC20UU	65.088	7.144x10.319x6.747	20	-8	2500	5490	1020
SWKC24UU	77.788	8.731x12.7x8.334	25	-13	3430	8040	1630
SWKC32UU	93.662	8.731x12.7x8.334			6080	15900	2800

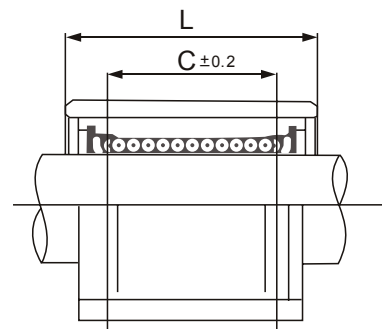
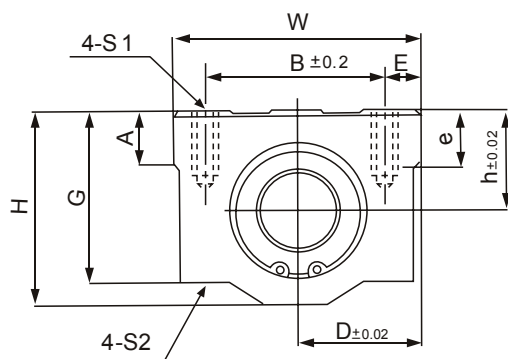
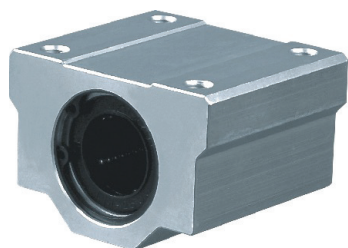
Solo su richiesta - Only on request



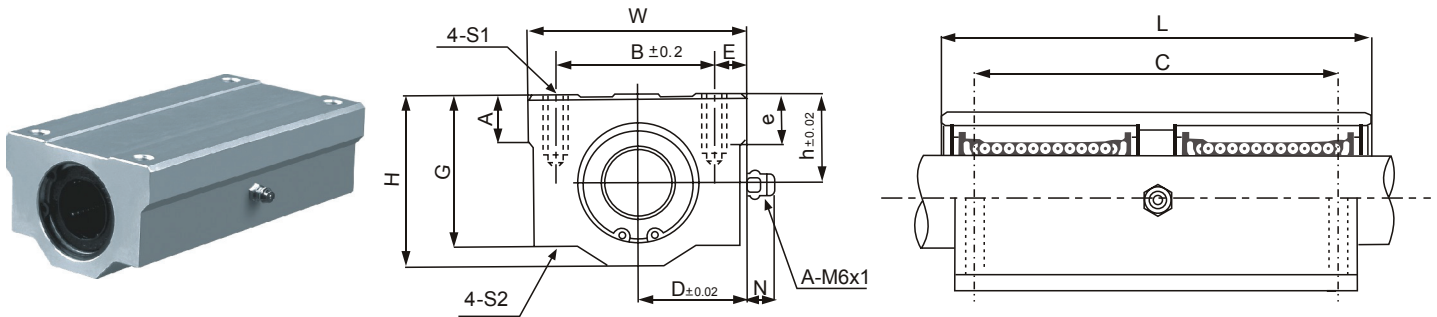
Serie Unità di Guida - Slide Unit Series



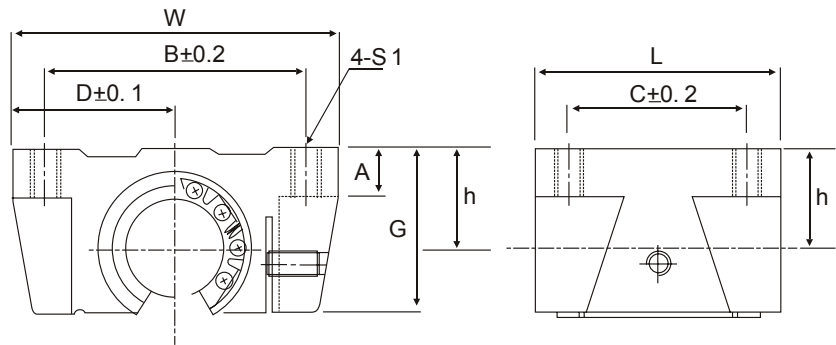
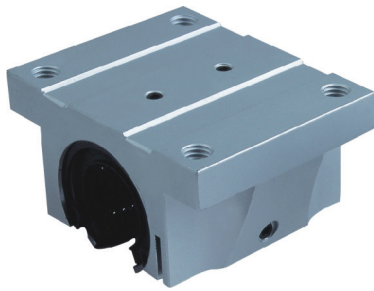
Tipo Type	h mm	D mm	W mm	H mm	G mm	A mm	B mm	E mm	S1xe mm	S2 mm	C mm	L mm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMA8SUU	11	17	34	22	18	6	24	5	M4x8	3.4	7.7	15.4	274	392	27
SMA10SUU	13	20	40	26	21	8	28	6	M5x12	4.3	9.95	19.9	372	549	53
SMA12SUU	15	21	42	28	24	8	30.5	5.75	M5x12	4.3	10.45	20.9	510	784	60
SMA13SUU	15	22	44	30	24.5	8	33	5.5	M5x12	4.3	10.45	20.9	510	784	64
SMA16SUU	19	25	50	38.5	32.5	9	36	7	M5x12	4.3	12	24	774	1180	110
SMA20SUU	21	27	54	41	35	11	40	7	M6x12	5.2	14	28	882	1370	144
SMA25SUU	26	38	76	51.5	42	12	54	11	M8x18	7	18.9	37.8	980	1570	340
SMA30SUU	30	39	78	59.5	49	15	58	10	M8x18	7	20.65	41.3	1574	2740	424
SMA35SUU	34	45	90	68	54	18	70	10	M8x18	7	22.65	45.3	1670	3140	626
SMA40SUU	40	51	102	78	62	20	80	11	M10x25	8.7	28.15	56.3	2160	4020	1000
SMA50SUU	52	61	122	102	80	25	100	11	M10x25	8.7	34.4	68.8	3820	7940	2100



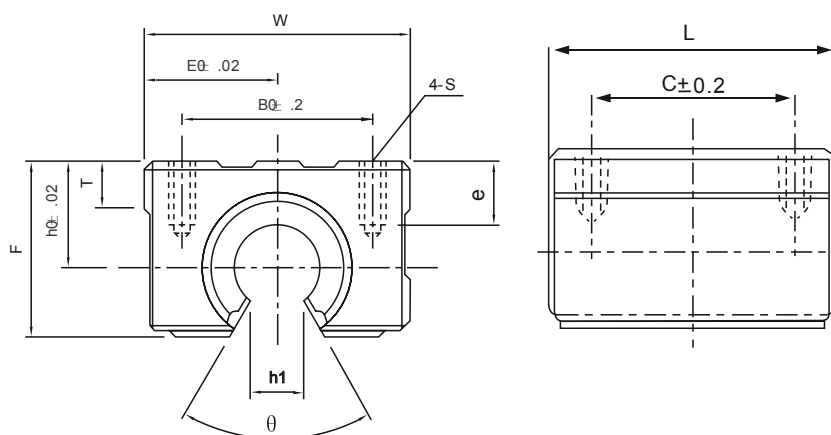
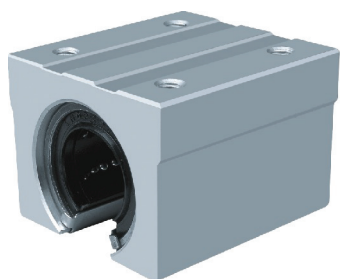
Tipo Type	h mm	D mm	W mm	H mm	G mm	A mm	B mm	E mm	S1xe mm	S2 mm	C mm	L mm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMA8UU	11	17	34	22	18	6	24	5	M4x8	3.4	18	30	274	392	52
SMA10UU	13	20	40	26	21	8	28	6	M5x12	4.3	21	35	372	549	92
SMA12UU	15	21	42	28	24	8	30.5	5.75	M5x12	4.3	26	36	510	784	102
SMA13UU	15	22	44	30	24.5	8	33	5.5	M5x12	4.3	26	39	510	784	120
SMA16UU	19	25	50	38.5	32.5	9	36	7	M5x12	4.3	34	44	774	1180	200
SMA20UU	21	27	54	41	35	11	40	7	M6x12	5.2	40	50	882	1370	255
SMA25UU	26	38	76	51.5	42	12	54	11	M8x18	7	50	67	980	1570	600
SMA30UU	30	39	78	59.5	49	15	58	10	M8x18	7	58	72	1574	2740	735
SMA35UU	34	45	90	68	54	18	70	10	M8x18	7	60	80	1670	3140	1100
SMA40UU	40	51	102	78	62	20	80	11	M10x25	8.7	60	90	2160	4020	1590
SMA50UU	52	61	122	102	80	25	100	11	M10x25	8.7	80	110	3820	7940	3340



Tipo Type	h mm	D mm	W mm	H mm	G mm	A mm	B mm	E mm	S1xe mm	S2 mm	C mm	L mm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SMA8SUUW	11	17	34	22	18	6	24	5	M4x8	3.4	7.7	15.4	274	392	27
SMA10SUUW	13	20	40	26	21	8	28	6	M5x12	4.3	9.95	19.9	372	549	53
SMA12SUUW	15	21	42	28	24	8	30.5	5.75	M5x12	4.3	10.45	20.9	510	784	60
SMA13SUUW	15	22	44	30	24.5	8	33	5.5	M5x12	4.3	10.45	20.9	510	784	64
SMA16SUUW	19	25	50	38.5	32.5	9	36	7	M5x12	4.3	12	24	774	1180	110
SMA20SUUW	21	27	54	41	35	11	40	7	M6x12	5.2	14	28	882	1370	144
SMA25SUUW	26	38	76	51.5	42	12	54	11	M8x18	7	18.9	37.8	980	1570	340
SMA30SUUW	30	39	78	59.5	49	15	58	10	M8x18	7	20.65	41.3	1574	2740	424
SMA35SUUW	34	45	90	68	54	18	70	10	M8x18	7	22.65	45.3	1670	3140	626
SMA40SUUW	40	51	102	78	62	20	80	11	M10x25	8.7	28.15	56.3	2160	4020	1000
SMA50SUUW	52	61	122	102	80	25	100	11	M10x25	8.7	34.4	68.8	3820	7940	2100

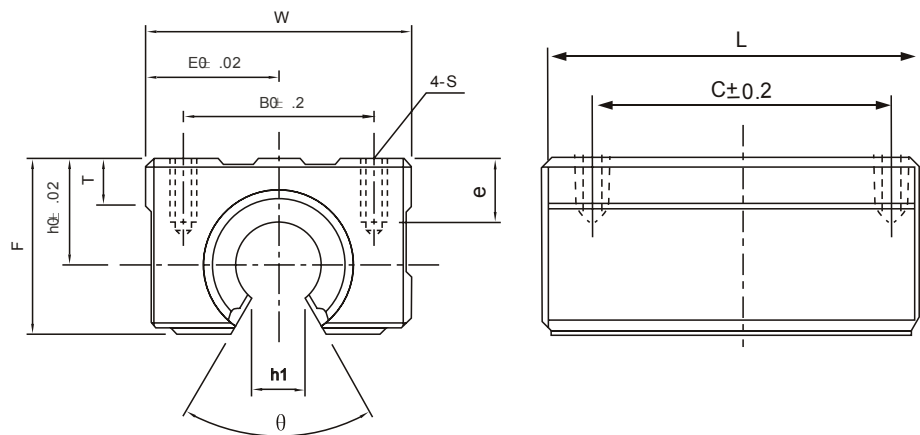
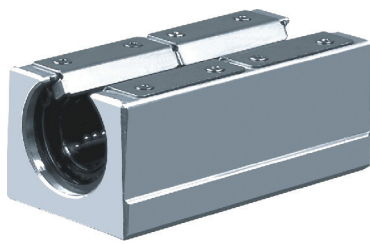


Tipo Type	W mm	G mm	A mm	L mm	B mm	D mm	C mm	h mm	S1 mm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
TBR16UU	62	26	8	42	50	31	30	18	M5	392	490	180
TBR20UU	68	31	10	51	54	34	37	21	M6	784	1176	300
TBR25UU	82	41	12	65	65	41	50	28	M8	1568	2352	600
TBR30UU	91	48	12	75	75	45.5	60	33.5	M8	1764	2940	900



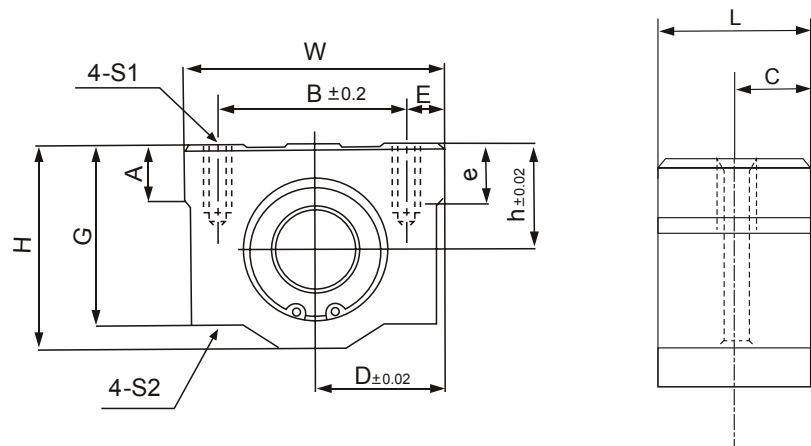
Tipo Type	h mm	D mm	W mm	L mm	F mm	T mm	h1 mm	θ	B mm	C mm
SME16UU	20	22.5	45	45	33	9	10	80°	32	30
SME20UU	23	24	48	50	39	11	10	60°	35	35
SME25UU	27	30	60	65	47	14	11.5	50°	40	40
SME30UU	33	35	70	70	56	15	14	50°	50	50
SME35UU	37	40	80	80	63	18	16	50°	55	55
SME40UU	42	45	90	90	72	20	19	50°	65	65
SME50UU	53	60	120	110	92	25	23	50°	94	80

Tipo Type	Sxe mm	Bussole Slide Bush mm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SME16UU	M5x12	SM16UU-OP	774	1180	150
SME20UU	M6x12	SM20UU-OP	882	1370	200
SME25UU	M6x12	SM25UU-OP	980	1570	450
SME30UU	M8x18	SM30UU-OP	1570	2740	630
SME35UU	M8x18	SM35UU-OP	1670	3140	925
SME40UU	M10x20	SM40UU-OP	2160	4020	1330
SME50UU	M10x20	SM50UU-OP	3820	7940	3000

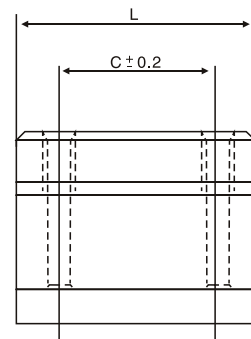
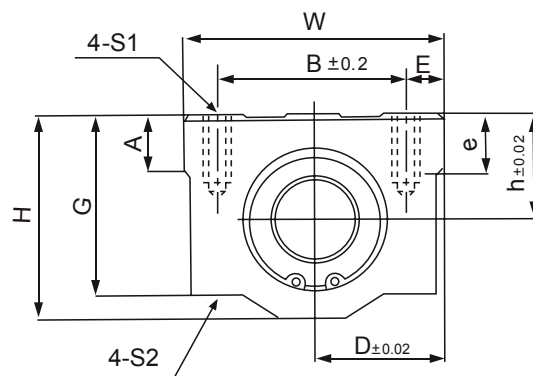
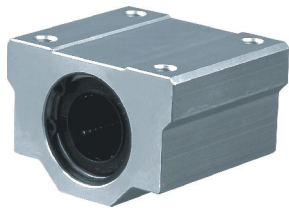


Tipo Type	h mm	D mm	W mm	L mm	F mm	T mm	h1 mm	θ	B mm	C mm
SME16UUL	20	22.5	45	85	33	9	10	80°	32	60
SME20UUL	23	24	48	95	39	11	10	60°	35	70
SME25UUL	27	30	60	130	47	14	11.5	50°	40	90
SME30UUL	33	35	70	140	56	15	14	50°	50	100

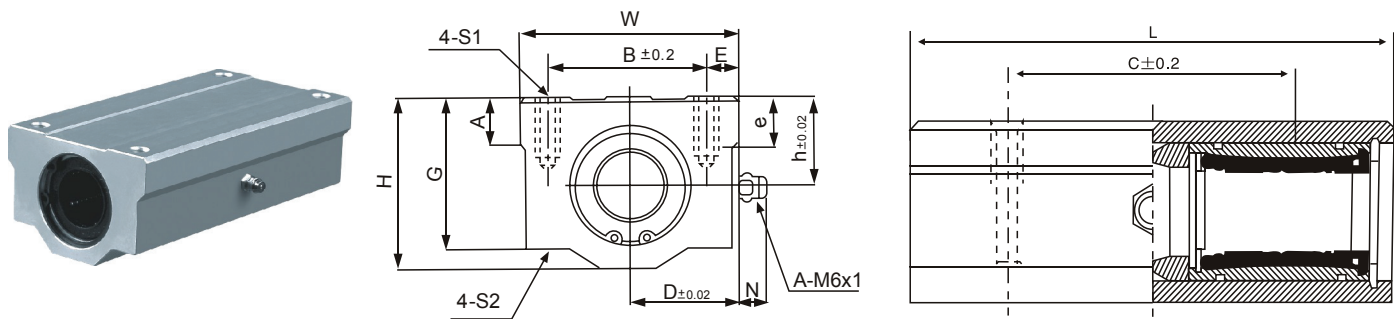
Tipo Type	Sxe mm	Bussole Slide Bush mm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SME16UUL	M5x12	SM16UU-OPx2	1230	2350	300
SME20UUL	M6x12	SM20UU-OPx2	1400	2740	400
SME25UUL	M6x12	SM25UU-OPx2	1560	3140	900
SME30UUL	M8x18	SM30UU-OPx2	2490	5490	1260



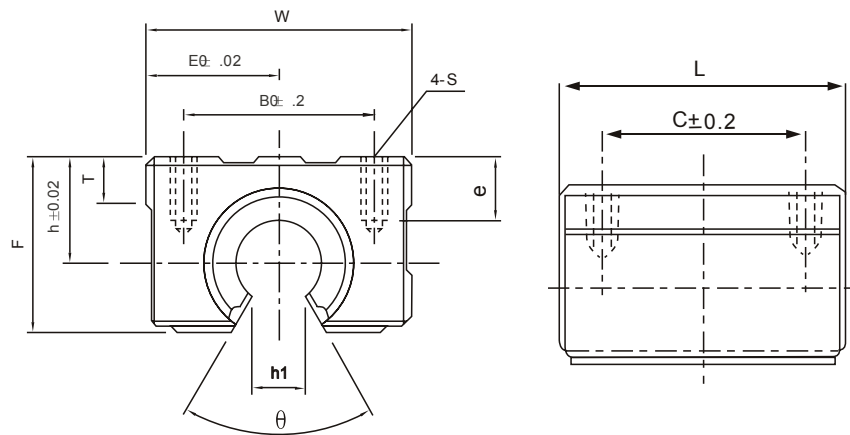
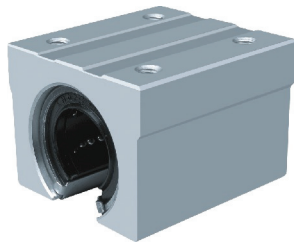
Tipo Type	h mm	D mm	W mm	H mm	G mm	A mm	B mm	E mm	S1xe mm	S2 mm	C mm	L mm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
SC8UUV	11	17	34	22	18	6	24	5	M4x8	3.4	7.2	14.4	274	392	25
SC12UUV	15	22	44	30	24.5	8	33	5.5	M5x12	4.3	10.4	20.8	510	784	65
SC16UUV	19	25	50	38.5	32.5	9	36	7	M5x12	4.3	11.2	22.4	774	1180	100
SC20UUV	21	27	54	41	35	11	40	7	M6x12	5.2	14.5	29	882	1370	148
SC25UUV	26	38	76	51.5	42	12	54	11	M8x18	7	20.45	140.9	980	1570	368
SC30UUV	30	39	78	59.5	49	15	58	10	M8x18	7	24.45	48.9	1570	2740	500
SC40UUV	40	51	102	78	62	20	80	11	M10x25	8.7	28.2	56.4	2160	4020	1000
SC50UUV	52	61	122	102	80	25	100	11	M10x25	8.7	36.2	72.4	3820	7940	2205



Tipo Type	Albero Shaft Diam.	h mm	D mm	W mm	L mm	F mm	G mm	T mm	B mm	C mm	E mm	S1xe mm	S2 mm	Peso Weight g.
SCE10UU	10	13	20	40	35	26	21	8	28	21	6	M5x12	4.3	92
SCE12UU	12	15	22	44	39	30	24.5	8	33	26	5.5	M5x12	4.3	120
SCE16UU	16	19	25	50	44	38.5	32.5	9	36	34	7	M5x12	4.3	200
SCE20UU	20	21	27	54	53	41	35	11	40	40	7	M6x12	5.2	270
SCE25UU	25	26	38	76	67	51.5	42	12	54	50	11	M8x18	7	600
SCE30UU	30	30	39	78	76	59.5	49	15	58	58	10	M8x18	7	776
SCE40UU	40	40	51	102	90	78	62	20	80	60	11	M10x25	8.7	1590
SCE50UU	50	52	61	122	110	102	80	25	100	80	11	M10x25	8.7	3340
SCE60UU	60	58	66	132	137	114	94	30	108	90	12	M12x25	10.7	4800



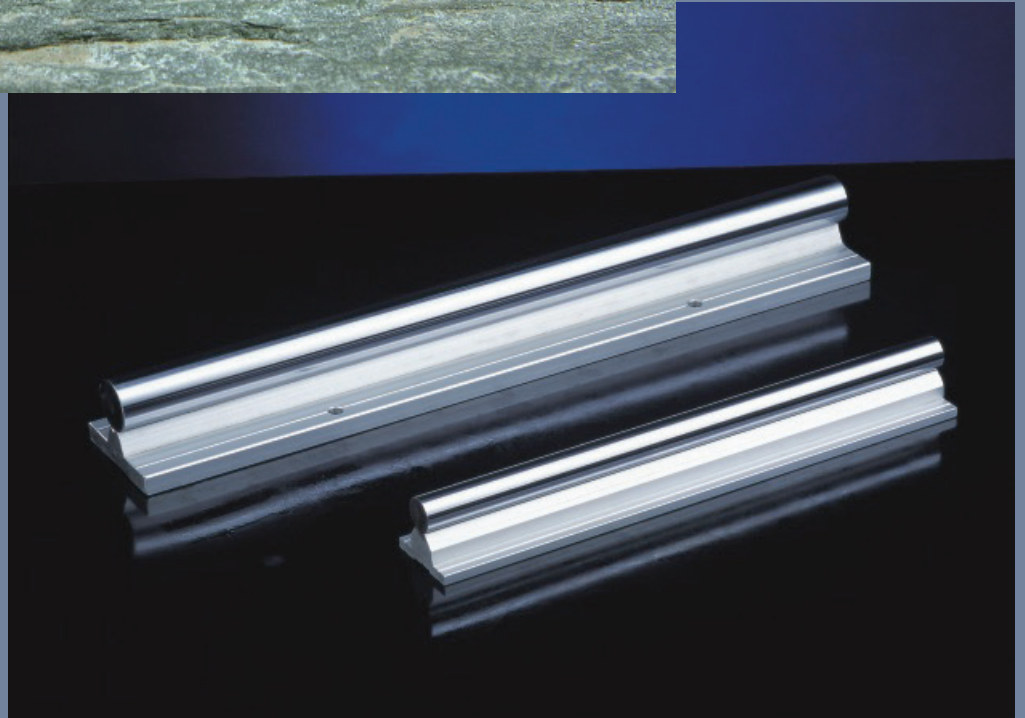
Tipo Type	Albero Shaft Diam.	h mm	D mm	W mm	L mm	F mm	G mm	T mm	B mm	C mm	E mm	S1xe mm	S2 mm	Peso Weight g.
SCE10UUL	10	13	20	40	68	26	21	8	28	21	6	M5x12	4.3	180
SCE12UUL	12	15	22	44	77	30	24.5	8	33	26	5.5	M5x12	4.3	237
SCE16UUL	16	19	25	50	89	38.5	32.5	9	36	34	7	M5x12	4.3	405
SCE20UUL	20	21	27	54	100	41	35	11	40	40	7	M6x12	5.2	510
SCE25UUL	25	26	38	76	136	51.5	42	12	54	50	11	M8x18	7	1220
SCE30UUL	30	30	39	78	154	59.5	49	15	58	58	10	M8x18	7	1580
SCE40UUL	40	40	51	102	180	78	62	20	80	60	11	M10x25	8.7	3180
SCE50UUL	50	52	61	122	230	102	80	25	100	80	11	M10x25	8.7	6990



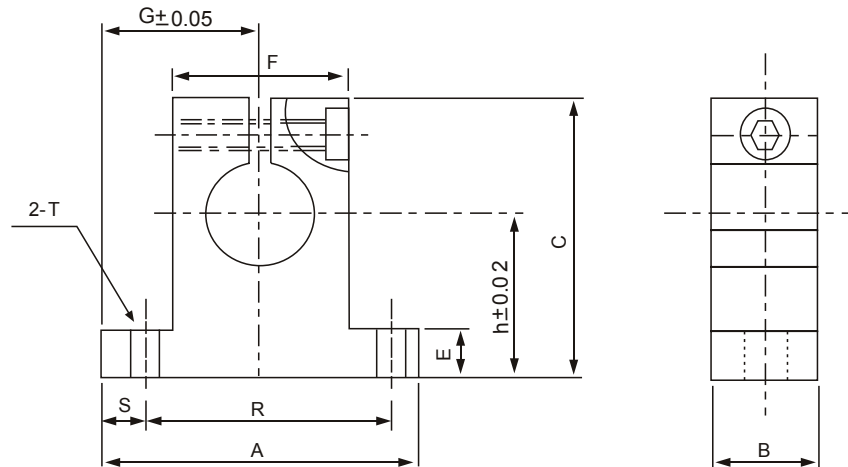
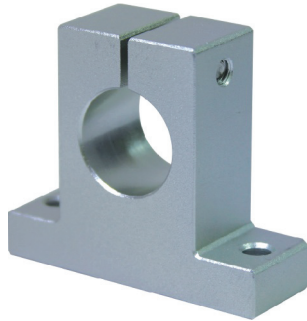
Tipo Type	Albero Shaft Diam.	h mm	D mm	W mm	L mm	F mm	T mm	h1 mm	θ	B mm	C mm
KBE16UU	16	20	22.5	45	45	33	9	10	80°	32	30
KBE20UU	20	23	24	48	50	39	11	10	60°	35	35
KBE25UU	25	27	30	60	65	47	14	11.5	60°	40	40
KBE30UU	30	33	35	70	70	56	15	14	60°	50	50
KBE40UU	40	42	45	90	90	72	20	19	60°	65	65
KBE50UU	50	53	60	120	110	92	25	23	60°	94	80

Tipo Type	Sxe mm	Bussole Slide Bush mm	Coefficiente di Carico - Basic Load Rating C Nm	Coefficiente di Carico - Basic Load Rating Co Nm	Peso Weight g.
KBE16UU	M5x12	SM16UU-OP	774	1180	150
KBE20UU	M6x12	SM20UU-OP	882	1370	200
KBE25UU	M6x12	SM25UU-OP	980	1570	450
KBE30UU	M8x18	SM30UU-OP	1570	2740	630
KBE40UU	M10x20	SM40UU-OP	2160	4020	1330
KBE50UU	M10x20	SM50UU-OP	3820	7940	3000

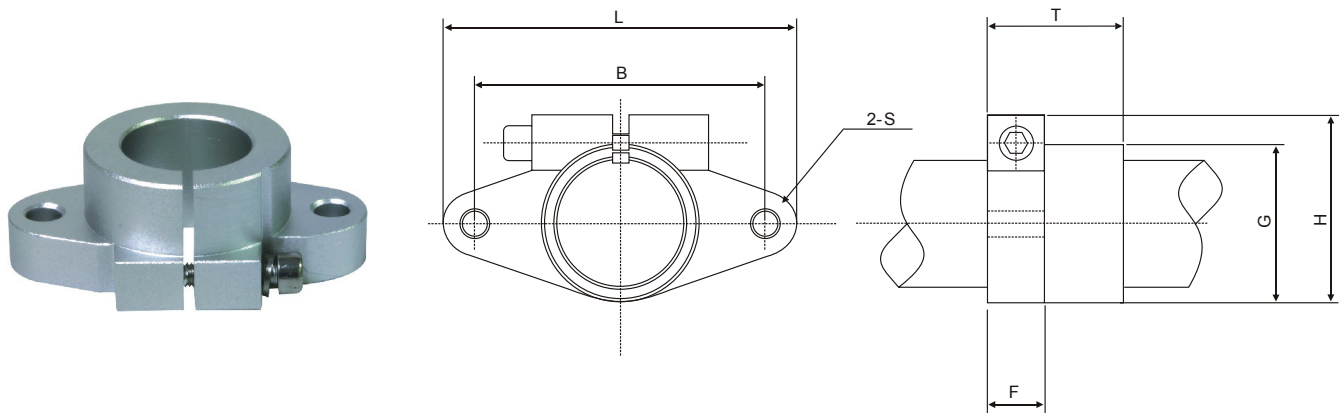
S



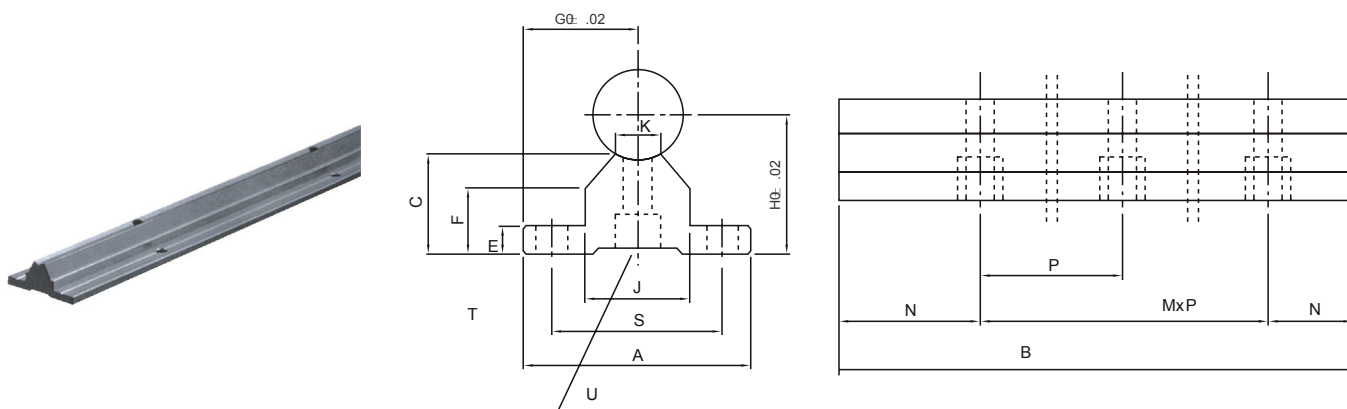
Serie Supporti Albero - Shaft Support Series



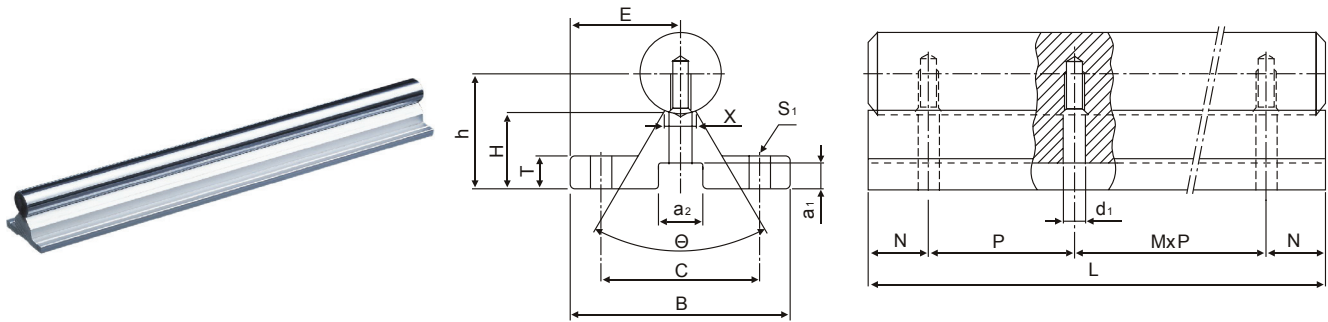
Tipo Type	Albero Shaft Diam.	h mm	G mm	A mm	B mm	C mm	E mm	F mm	R mm	S mm	T mm	Vite Bloc-caggio Clamping Bolt	Vite Mon-taggio Mounting Bolt	Peso Weight g
SH-8A	8	20	21	42	14	32.8	6	18	32	5	5.5	M4	M5	24
SH-10A	10	20	21	42	14	32.8	6	18	32	5	5.5	M4	M5	24
SH-12A	12	23	21	42	14	37.5	6	20	32	5	5.5	M4	M5	30
SH-13A	13	23	21	42	14	37.5	6	20	32	5	5.5	M4	M5	30
SH-16A	16	27	24	48	16	44	8	25	38	5	5.5	M4	M5	40
SH-20A	20	31	30	60	20	51	10	30	45	7.5	6.6	M5	M6	70
SH-25A	25	35	35	70	24	60	12	38	56	7	6.6	M6	M6	130
SH-30A	30	42	42	84	28	70	12	44	64	10	9	M6	M8	180
SH-35A	35	50	49	98	32	82	15	50	74	12	11	M8	M10	270
SH-40A	40	60	57	114	36	96	15	60	90	12	11	M8	M10	420
SH-50A	50	70	63	126	40	120	18	74	100	13	14	M12	M12	750



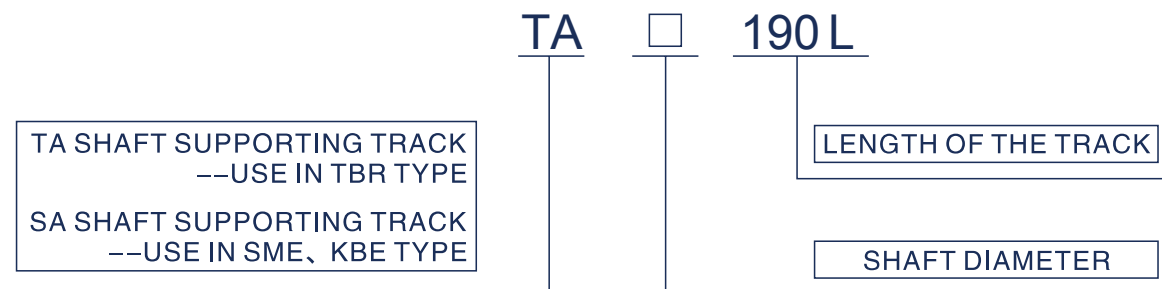
Tipo Type	Albero Shaft Diam.	L mm	T mm	F mm	B mm	G mm	H mm	S mm	Vite Bloc-caggio Clamping Bolt	Vite Mon-taggio Mounting Bolt	Peso Weight g
SHF-10	10	43	10	5	32	20	24	5.5	M5	M4	13
SHF-12	12	47	13	7	36	25	28	5.5	M5	M4	20
SHF-13	13	47	13	7	36	25	28	5.5	M5	M4	20
SHF-16	16	50	16	8	40	28	31	5.5	M5	M4	27
SHF-20	20	60	20	8	48	34	37	7	M6	M5	40
SHF-25	25	70	25	10	56	40	42	7	M6	M5	60
SHF-30	30	80	30	12	64	46	50	9	M8	M6	110
SHF-35	35	92	35	14	72	50	58	12	M10	M8	380
SHF-40	40	105	40	16	80	56	67	12	M10	M10	510
SHF-50	50	122	50	19	96	70	83	14	M12	M12	890

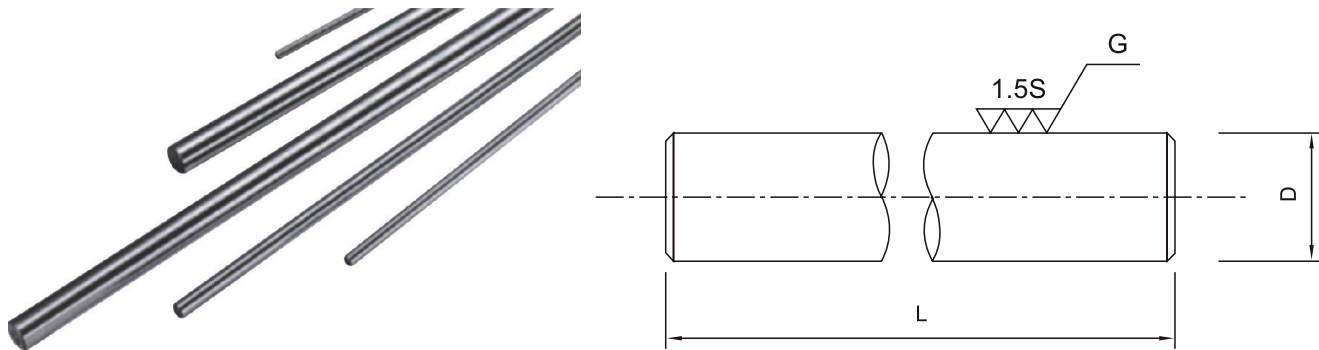


Tipo Type	Albero Shaft Diam.	H mm	G mm	A mm	B mm	C mm	E mm	F mm	J mm	K mm	L mm	N mm	MxP mm	S mm	T mm	U mm	Peso Weight g
SA16-200L	16	25	20	40	200	17.8	5	11.7	18.5	8	80°	25	1x150	30	5.5	M5	200
SA16-300L					300							75	1x150				300
SA16-400L					400							50	2x150				400
SA16-500L					500							25	3x150				500
SA16-600L					600							75	3x150				600
SA20-200L					20							27	22.5				45
SA20-300L	300	75	1x150	300													
SA20-400L	400	50	2x150	400													
SA20-500L	500	25	3x150	510													
SA20-600L	600	75	3x150	610													
SA25-300L	25	33	27.5	55	300	21	6	12	21.5	8	50°	50	1x200	35	6.5	M6	430
SA25-400L					400							100	1x200				580
SA25-500L					500							50	2x200				730
SA25-600L					600							100	2x200				880
SA30-300L	30	37	30	60	300	22.8	7	13	26.5	10.3	50°	50	1x200	40	6.5	M8	550
SA30-400L					400							100	1x200				730
SA30-500L					500							50	2x200				920
SA30-600L					600							100	2x200				1100
SA35-300L	35	43	32.5	65	300	26.5	8	15.5	28	13	50°	50	1x200	45	9	M8	700
SA35-400L					400							100	1x200				950
SA35-500L					500							50	2x200				1190
SA35-600L					600							100	2x200				1420



Tipo Type	Albero Shaft Diam.	E mm	h mm	B mm	L mm	H mm	T mm	X mm	θ	C mm	N mm	S1 mm	MxP mm	a1 mm	a2 mm	d1 mm	Peso Weight g
TA16	16	25	22.14	50	190	14.84	6	8	60°	37	20	5.5	1x150	6	9.5	5.5	200
					340								2x150				360
					640								4x150				670
					940								6x150				980
TA20	20	27.5	29.01	55	340	19.64	8	8	50°	40	20	5.5	2x150	6.5	11	6.5	365
					640								4x150				690
					940								6x150				1015
					1240								8x150				1340
TA25	25	32.5	31.97	65	250	20	10	8	50°	45	25	6.6	1x200	6.5	11	6.6	400
					450								2x200				715
					850								4x200				1350
					1250								6x200				1990
TA30	30	37.5	36.52	75	450	22.28	12	10.3	50°	55	25	6.6	2x200	8.5	14	9	900
					850								4x200				1680
					1250								6x600				2500
					1450								7x200				2900

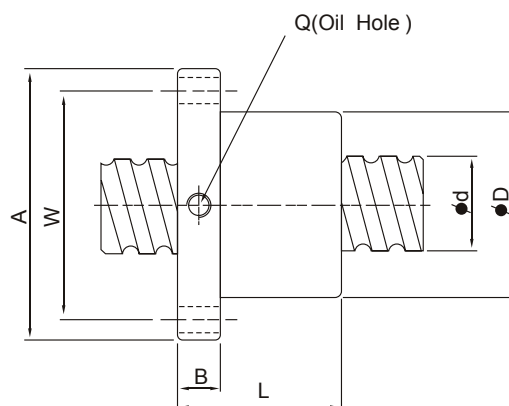
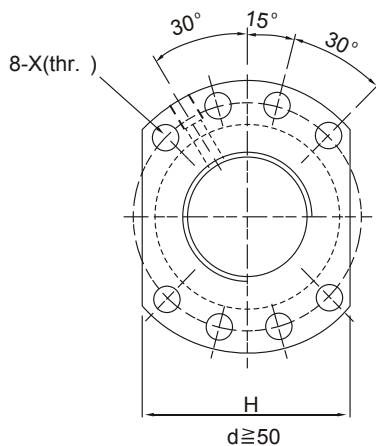
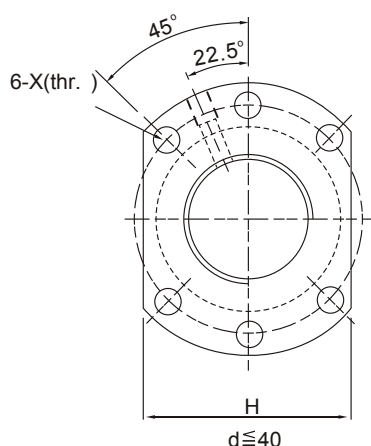




Tipo Type	Albero Shaft Diam.	Rotondità Circular degree μ m	Paralleli- simo Straight line μ m	Rettilinea- rità Shelter degree mm/m	Profondità Tempra Harden depth. mm	Lungh. Lenght mm	Peso Weight Kg/m
SF6	6	4	6	0.16	0.5-0.8	6000	0.23
SF8	8	4	6	0.16	0.6-0.9	6000	0.40
SF10	10	4	6	0.12	0.7-1.0	6000	0.62
SF12	12	5	8	0.12	0.8-1.2	6000	0.89
SF16	16	5	8	0.1	1.1-1.5	6000	1.58
SF20	20	6	8	0.1	1.2-1.5	6000	2.47
SF25	25	6	9	0.1	1.5-1.7	6000	3.85
SF30	30	6	9	0.1	1.5-1.9	6000	5.55
SF35	35	7	11	0.1	1.8-1.9	6000	7.55
SF40	40	7	11	0.1	1.6-2.0	6000	9.87
SF50	50	7	11	0.1	2.2-2.6	6000	15.4
SF60	60	8	13	0.1	2.2-2.6	6000	22.2



Viti a Ricircolo di Sfere - Rolled Ball Screw



Tipo Type	d mm	i mm	Da mm	D mm	A mm	B mm	L mm	W mm	X mm	H mm	Q mm	n	Ca Kgf	Coa Kgf	K Kg/μm
SFU1604	16	4	2.381	28	48	10	40	38	5.5	40	M6	4	629	1270	35
SFU1605		5	3.175	28	48	10	50	38	5.5	40	M6	4	780	1790	20
SFU1610		10	3.175	28	48	10	57	38	5.5	40	M6	3	721	1249	15
SFU2004	20	4	2.381	34	57	11	46	45	5.5	40	M6	4	670	1480	41
SFU2005		5	3.175	36	58	10	51	47	6.6	44	M6	4	1130	2380	25
SFU2505	25	5	3.175	40	62	10	51	51	6.6	48	M6	4	1280	3110	35
SFU2510		10	4.762	40	62	12	85	51	6.6	48	M6	4	1944	3877	33
SFU3205	32	5	3.175	50	80	12	52	65	9	62	M6	4	1450	4150	40
SFU3210		10	6.350	50	80	12	90	65	9	62	M6	4	3390	7170	79
SFU4005	40	5	3.175	63	93	14	55	78	9	70	M8	4	1610	5330	49
SFU4010		10	6.350	63	93	14	93	78	9	70	M8	4	3910	9520	50
SFU5010	50	10	6.350	75	110	16	93	93	11	85	M8	4	4450	12500	65
SFU5020		20	7.144	75	110	16	138	93	11	85	M8	4	4644	14327	59.5

I = Guide - Lead

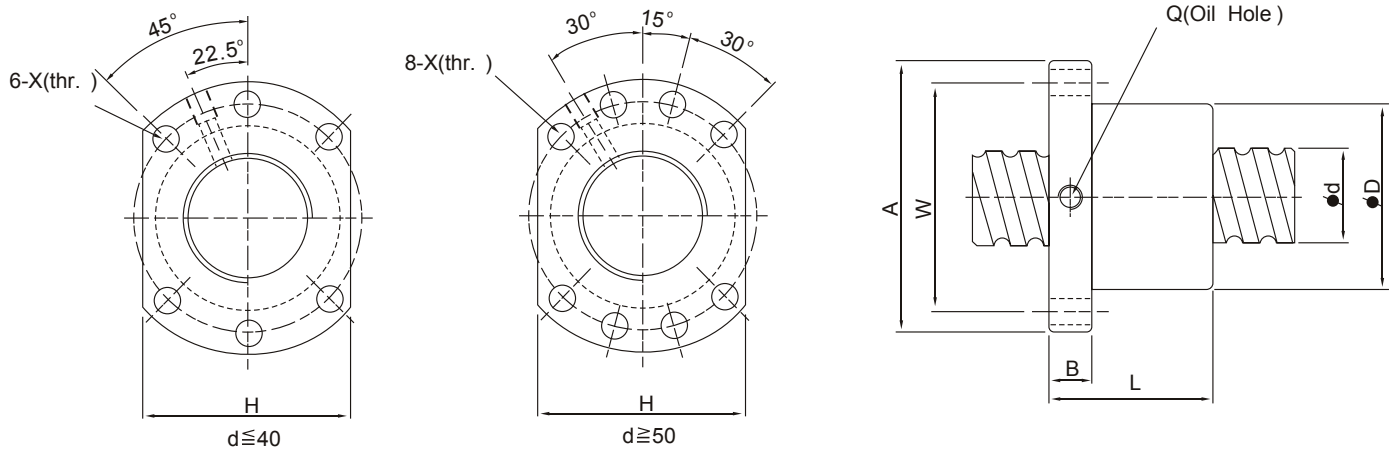
Da = Diametro Sfere - Ball Diameter

n = n° Circuiti - n° Circuits

K = Durezza - Stiffness

Ca = Coefficiente di Carico Dinamico - Basic Dynamic Rating Load

Coa = Coefficiente di Carico Statico - Basic Static Rating Load



Tipo Type	d mm	i mm	Da mm	D mm	A mm	B mm	L mm	W mm	X mm	H mm	Q mm	n	Ca Kgf	Coa Kgf	K Kg/μm
DFU1604-4	16	4	2.381	28	48	10	80	38	5.5	40	M6	4	629	1270	35
DFU1605-4		5	3.175	28	48	10	100	38	5.5	40	M6	4	780	1790	20
DFU1610-3		10	3.175	28	48	10	118	38	5.5	40	M6	3	721	1249	15
DFU2004-4	20	4	2.381	34	58	10	80	47	6.6	44	M6	4	699	1617	41
DFU2005-4		5	3.175	36	58	10	101	47	6.6	44	M6	4	1130	2380	25
DFU2505-4	25	5	3.175	40	62	10	101	51	6.6	48	M6	4	1280	3110	35
DFU2510-4		10	4.762	40	62	12	145	51	6.6	48	M6	4	1944	3877	33
DFU3205-4	32	5	3.175	50	80	12	102	65	9	62	M6	4	1450	4150	40
DFU3210-4		10	6.350	50	80	12	162	65	9	62	M6	4	3390	7170	79
DFU4005-4	40	5	3.175	63	93	14	105	78	9	70	M8	4	1610	5330	49
DFU4010-4		10	6.350	63	93	14	165	78	9	70	M8	4	3910	9520	50
DFU5010-4	50	10	6.350	75	110	16	171	93	11	85	M8	4	4450	12500	65
DFU5020-4		20	7.144	75	110	16	280	93	11	85	M8	4	4644	14327	59.5

I = Guide - Lead

Da = Diametro Sfere - Ball Diameter

n = n° Circuiti - n° Circuits

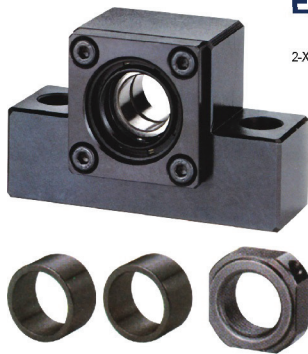
K = Durezza - Stiffness

Ca = Coefficiente di Carico Dinamico - Basic Dynamic Rating Load

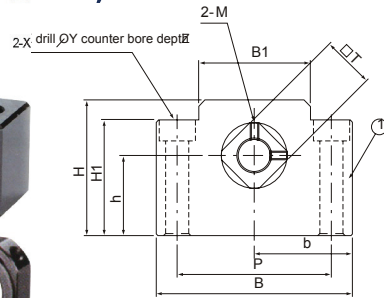
Coa = Coefficiente di Carico Statico - Basic Static Rating Load



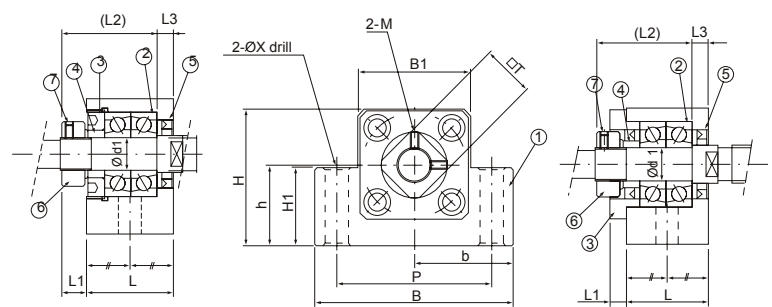
Supporti Viti a Ricircolo - Ballscrew Support Unit



EK-6, EK-8

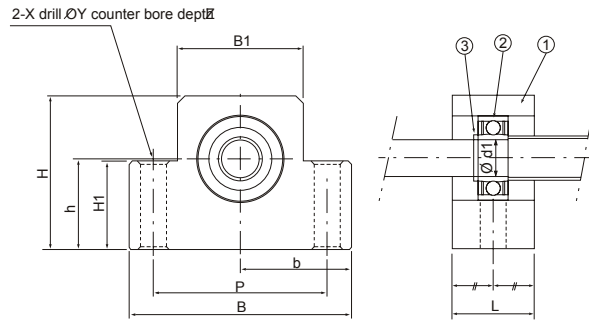
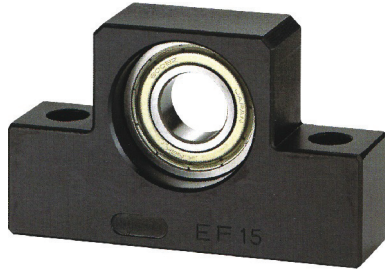


EK-10~EK-20



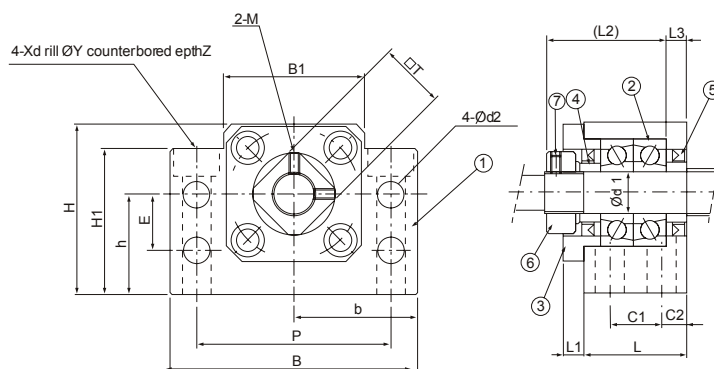
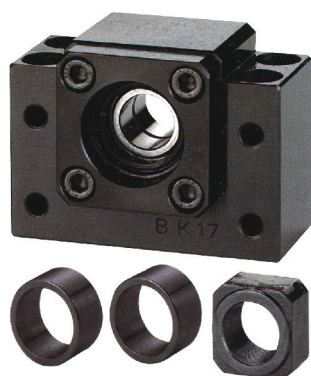
Tipo Type	Albero Shaft diam. d1 mm	L mm	L1 mm	L2 mm	L3 mm	B mm	H mm	b mm	h mm	B1 mm	H1 mm	P mm	X mm	Y mm	Z mm	M mm	T mm
EK-6	6	20	5.5	22	3.5	42	25	21	13	18	20	30	5.5	-	-	M3	12
EK-8	8	23	7	26	4	52	32	26	17	25	26	38	6.6	9.5	11	M3	14
EK-10	10	24	6	29.5	6	70	43	35	25	36	24	52	9	11	12	M3	16
EK-12	12	24	6	29.5	6	70	43	35	25	36	24	52	9	-	-	M4	19
EK-15	15	25	6	36	5	80	49	40	30	41	25	60	11	-	-	M4	22
EK-20	20	42	10	50	10	95	58	47.5	30	56	25	75	11	-	-	M4	30

- 1 = Supporto - Housing
- 2 = Cuscinetto - Bearing
- 3 = Coperchio Tenuta - Holding Lid
- 4 = Collare - Collar
- 5 = Anello di Tenuta - Seal
- 6 = Ghiera di Bloccaggio - Lock Nut
- 7 = Set Viti di Bloccaggio - Hexagon socket-head Setscrew



Tipo Type	Albero Shaft diam. d1 mm	L mm	B mm	H mm	b mm	h mm	B1 mm	H1 mm	P mm	X mm	Y mm	Z mm	Cuscinetto Bearing	Anello Elastico Snap Ring
EF-6	6	12	42	25	21	13	18	20	30	5.5	9.5	11	606 ZZ	S 06
EF-8	6	14	52	32	26	17	25	26	38	6.6	11	12	606 ZZ	S 06
EF-10	8	20	70	43	35	25	36	24	52	9	-	-	608 ZZ	S 08
EF-12	10	20	70	43	35	25	36	24	52	9	-	-	6000 ZZ	S 10
EF-15	15	20	80	49	40	30	41	25	60	9	-	-	6002 ZZ	S 15
EF-20	20	26	95	58	47.5	30	56	45	75	11	-	-	6204 ZZ	S 20

- 1 = Supporto - Housing
- 2 = Cuscinetto - Bearing
- 3 = Anello Elastico - Snap Ring

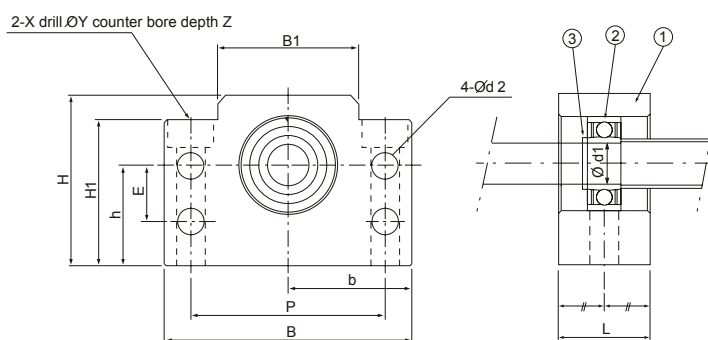
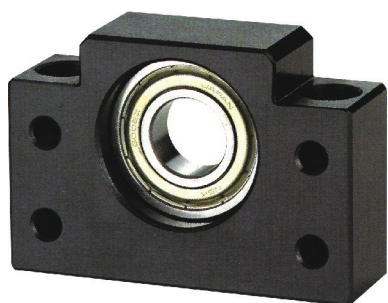


Tipo Type	Albero - Shaft diam. d1 mm	L mm	L1 mm	L2 mm	L3 mm	B mm	H mm	b mm	h mm	B1 mm
BK-10	10	25	5	29	5	60	39	30	22	34
BK-12	12	25	5	29	5	60	43	30	25	35
BK-15	15	27	6	32	6	70	48	35	28	40
BK-17	17	35	9	44	7	86	64	43	39	50
BK-20	20	35	8	43	8	86	60	44	34	52
BK-25	25	42	12	54	9	106	80	53	48	64
BK-30	30	45	14	61	9	128	89	64	51	76
BK-35	35	50	14	67	12	140	96	70	52	88
BK-40	40	61	18	76	15	160	110	80	60	100

Tipo Type	H1 mm	E mm	P mm	C1 mm	C2 mm	d2 mm	X mm	Y mm	Z mm	M mm	T mm
BK-10	32.5	15	46	13	6	5.5	6.6	10.8	5	M3	16
BK-12	32.5	18	46	13	6	5.5	6.6	10.8	6.5	M4	19
BK-15	38	18	54	15	6	5.5	6.6	11	6.5	M4	22
BK-17	55	28	68	19	8	6.6	9	14	8.5	M4	24
BK-20	50	22	70	19	8	6.6	9	14	8.5	M4	30
BK-25	70	33	85	22	10	9	11	17.5	11	M5	35
BK-30	78	33	102	23	11	11	14	20	13	M6	40
BK-35	79	35	114	26	12	11	14	20	13	M8	50
BK-40	90	37	130	33	14	14	18	26	17.5	M8	50

1 = Supporto - Housing
 2 = Cuscinetto - Bearing
 3 = Coperchio Tenuta - Holding Lid
 4 = Collare - Collar

5 - Anello di Tenuta - Seal
 6 - Ghiera di Bloccaggio - Lock Nut
 7 - Set Viti di Bloccaggio - Hexagon socket-head Setscrew

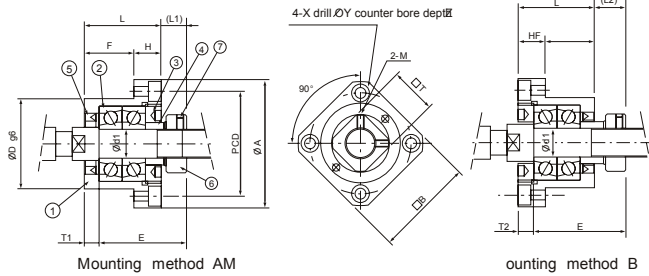


Tipo Type	Albero Shaft diam. d1 mm	L mm	B mm	H mm	b mm	h mm	B1 mm	H1 mm	E mm	P mm	d2 mm	X mm	Y mm	Z mm	Cuscinetto Bearing	Anello Elastico Snap Ring
BF-10	8	20	60	39	30	22	34	32.5	15	46	5.5	6.6	10.8	5	608 ZZ	S 08
BF-12	10	20	60	43	30	25	35	32.5	18	46	5.5	6.6	10.8	6.5	6000 ZZ	S 10
BF-15	15	20	70	48	35	28	40	38	18	54	5.5	6.6	11	6.5	6002 ZZ	S 15
BF-17	17	23	86	64	43	39	50	55	28	68	6.6	9	14	8.5	6203 ZZ	S 17
BF-20	20	26	88	60	44	34	52	50	22	70	6.6	9	14	8.5	6004 ZZ	S 20
BF-25	25	30	106	80	53	48	64	70	33	85	9	11	17.5	11	6205 ZZ	S 25
BF-30	30	32	128	89	64	51	76	78	33	102	11	14	20	13	6206 ZZ	S 30
BF-35	35	32	140	96	70	52	88	79	35	114	11	14	20	13	6207 ZZ	S 35
BF-40	40	37	160	110	80	60	100	90	37	130	14	18	26	17.5	6208 ZZ	S 40

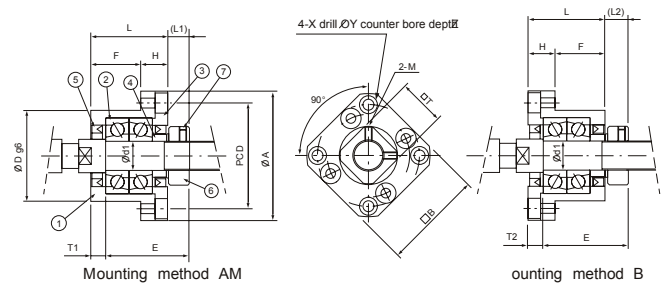
- 1 = Supporto - Housing
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FK-6~FK-8



FK-10~FK-30

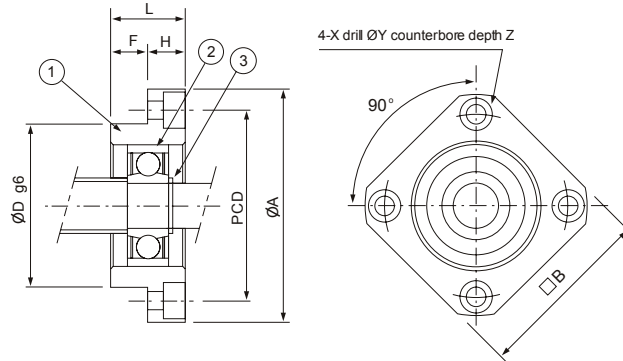
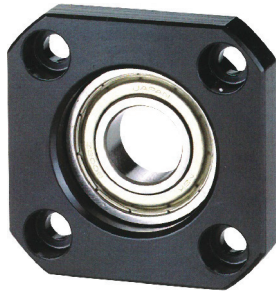


Tipo Type	Albero - Shaft diam. d1 mm	L mm	H mm	F mm	E mm	Dg6 mm	A mm	PCD mm	B mm
FK-6	6	20	7	13	22	22 h7	36	28	28
FK-8	8	23	9	14	26	28 h7	43	35	35
FK-10	10	27	10	17	29.5	34 h7	52	42	42
FK-12	12	27	10	17	29.5	36 h7	54	44	44
FK-15	15	32	15	17	36	40 h7	63	50	52
FK-17	17	45	22	23	47	50 h7	77	62	61
FK-20	20	52	22	30	50	57 h7	85	70	68
FK-25	25	57	27	30	60	63 h7	98	80	79
FK-30	30	62	30	32	61	75 h7	117	95	93

Tipo Type	L1 mm	T1 mm	L2 mm	T2 mm	X mm	Y mm	Z mm	M mm	T mm
FK-6	5.5	3.5	8.5	6.5	3.4	6.5	4	M3	12
FK-8	7	4	10	7	3.4	6.5	4	M3	14
FK-10	7.5	5	8.5	6	4.5	8	4	M3	16
FK-12	7.5	5	8.5	6	4.5	8	4	M4	19
FK-15	10	6	12	8	5.5	9.5	6	M4	22
FK-17	11	9	14	12	6.6	11	10	M4	24
FK-20	8	10	12	14	6.6	11	10	M4	30
FK-25	13	10	20	17	9	15	13	M5	35
FK-30	11	12	17	18	11	17.5	15	M6	40

- 1 = Supporto - Housing
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- 3 = Coperchio Tenuta - Holding Lid
- 4 = Collare - Collar

- 5 - Anello di Tenuta - Seal
- 6 - Ghiera di Bloccaggio - Lock Nut
- 7 - Set Viti di Bloccaggio - Hexagon socket-head Setscrew



Tipo Type	Albero Shaft diam. d1 mm	L mm	B mm	H mm	Dg6 mm	B1 mm	H1 mm	P mm	X mm	Y mm	Z mm	Cuscinetto Bearing	Anello Elastico Snap Ring
FF-6	6	10	6	4	22 h7	36	28	28	3.4	6.5	4	606 ZZ	S 06
FF-10	8	12	7	5	28 h7	43	35	35	3.4	6.5	4	608 ZZ	S 08
FF-12	10	15	7	8	34 h7	52	42	42	4.5	8	4	6000 ZZ	S 10
FF-15	12	17	9	8	40 h7	63	50	52	5.5	9.5	5.5	6002 ZZ	S 15
FF-17	15	20	11	9	50 h7	77	62	61	6.6	11	6.5	6203 ZZ	S 17
FF-20	20	20	11	9	57 h7	85	70	68	6.6	11	6.5	6204 ZZ	S 20
FF-25	25	24	14	10	63 h7	98	80	79	9	14	8.5	6205 ZZ	S 25
FF-30	30	27	18	9	75 h7	117	95	93	11	17.5	11	6206 ZZ	S 30

- 1 = Supporto - Housing
- 2 = Cuscinetto - Bearing
- 3 = Anello Elastico - Snap Ring

Serie KH - KH Series

KSB	INA	FAG	SKF	STAR	NTN	KBS
KH.....	KH.....	LNA.....	LBBR.....	0658-0...-00	KH.....	KH.....
KH.....PP	KH.....PP	LNA.....2RS	LBBR.....2LS	0658-2...-40	KH.....LL	KH.....PP

Serie KB - KB Series

KSB	INA	SKF	KBS	NB	THK	IKO	THOMSON
KB.....	KB.....	LBAR/LBCR...	LME...	KB...G	LME...	LBE...	MA M...
KB.....PP	KB.....PP	LBAR/LBCR..2LS	LME...UU	KB...GUU	LME...UU	LBE...UU	MA M...WW
KBO.....	KBO.....	LBAT/LBCT...	LME...OP	KB...GOP	LME...OP	LBE...OP	MA M...OPN
KBO.....PP	KBO.....PP	LBAT/LBCT...2LS	LME...UUOP	KB...GUUOP	LME...UUOP	LBE...UUOP	MA M...OPN WW
KBS.....	KBS.....	LBAS...	LME...AJ	KB...GAJ	LME...AJ	LBE...AJ	MA M...ADJ
KBS.....PP	KBS.....PP	LBAS...2LS	LME...UUAJ	KB...GUUAJ	LME...UUAJ	LBE...UUAJ	MA M...ADJ WW
KBL.....	KBL.....	-	-	-	-	-	-
KBL.....PP	KBL.....PP	-	-	-	-	-	-

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