Product Reference Guide

CATALOG PRG

GENERAL INFORMATION

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This product section has been excerpted from our full Product Reference Guide to reduce download time. Our complete Product Reference Guide is available in print and on CD-ROM. To receive the full version, please contact your nearest INA Sales Office listed on the last page of this file.

FOREWORD

This publication was designed to serve as a quick reference to the standard product series offered by INA USA Corporation (INA) for its domestic market. The guide provides a current overview of INA products, including basic envelope dimensions and capacities, in one publication – it is not an engineering design guide intended to replace INA engineering catalogs. Consequently, the metric and inch conversions are listed to 3 decimal places for easy reference and rapid identification of correct replacement part(s), not 4 decimal places as necessary for quality control purposes.

This publication can be used to narrow the choices between the many different INA product lines and series for new designs. Detailed engineering information for new designs can be found in our traditional catalogs or by contacting the INA Engineering Department.

A significant portion of INA sales are special production sizes. The identification of those parts is sometimes difficult since a comprehensive listing is beyond the intent of this publication. Special part numbers take as many different forms as the series listed here, but the basic system is to use sequential numbers for each new design. Usually the prefix is F or FC but can include VH, INA or the bearing type such as NA. INA maintains a technical help desk to identify sizes not known or to match competitors' parts.

The toll free 800 numbers listed will give you access to INA Customer Service representatives. These representatives can tap into INA Worldwide resources to provide the bearings you need.

Storage Life

Lubricants age naturally due to environmental influences. It is therefore the user's responsibility to follow the directions given by the lubricant manufacturer.

The greases used in INA rolling bearings have a mineral oil base and experience shows that they can be stored for up to 3 years without deteriorating providing the following important conditions are met.

- Closed storage room
- Temperature between 0°C and 40°C
- Relative atmospheric humidity 65% or less
- Security from chemical agents (vapors, gases, fluids)
- Sealed rolling bearings

The frictional torque can be considerably higher after linger storage periods than in freshly greased bearings and the lubricity of the grease can also have deteriorated.

INA bearings have many optional features available including:

- ISO series of bearings generally include the standard clearance options CN, C2, C3 and C4.
- ISO bearing series include PN, P6 and P5 precision classes.
- Corrotect™ plating is available for most bearing designs. Corrotect is a patented process for zinc–iron and zinc–iron–cobalt plating in a thin layer which can be applied to standard components. The protection exceeds stainless steel and the cost is half. Add suffix RR.
- All sealed bearings are supplied pregreased. In most cases the standard lubricant is Shell Alvania 2 or equivalent. Other greases are available, some at extra cost.
- Unsealed bearings may not be greased when shipped.
- Speed limits as published, are based on oil lubrication for open bearings or grease lubrication for sealed bearings. The speed limits are calculated based on a nominal load and heat balance equation. Higher speeds may be allowed depending on the application.
- Dynamic capacities are published based on INA standard usage of ISO and ABMA formulas. New life theory threshold values are published in other INA publications.
- Life calculations and evaluations can be made from INA engineering based catalogs which are available from your INA Sales Representative.
- Other features are available based on current production volumes including heat stabilization of the rings, matched bearing sets, with oil holes and grooves, etc.

ABMA	American Bearing Manufacturers Association
ASTM	American Society Of Testing And Materials
DIN	Deutsches Institut für Normung e.V.
ISO	International Standards Organization

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INTRODUCTION

Many years of field experience have contributed to the optimization of INA products and systems for linear movement to meet the high demands of modern machine design; they have the following advantages:

- Very low and uniform resistance to displacement, giving improved positioning and running accuracy;
- The negative influences due to shock loading which occur in conventional rolling element guidance systems as the elements enter the load zone are reduced in INA guidance systems by means of special design features.

INA linear guidance systems have extremely high precision and operate virtually wear-free due to their rolling motion so that their high accuracy is maintained throughout the operating life.

A wide range of linear guidance systems are available, each designed for maximum rigidity. By selecting the optimum type of guidance and preloading of linear bearings, virtually any rigidity requirement can be fulfilled.

INA linear products have an extremely high load carrying capacity due to their optimum use of available space and manufacturing quality. Guidance systems for almost all load carrying requirements can be produced from the comprehensive product range.

INA Linear Roller Bearing And Guideway Assemblies Series RUE

INA linear recirculating roller bearing and guideway assemblies of series RUE are high accuracy, ready-to-assemble linear guidance units which can take high loads. They have a full complement rolling element system which is preloaded as standard and allows high running and positioning accuracy.

The basic static and dynamic load ratings of RUE assemblies are nearly twice that of comparable ball and guideway assemblies.

The rigidity of recirculating roller bearing and guideway assemblies is considerably higher than that of ball bearing and guideway assemblies. While some competitors argue that the rigidity can be improved by means of high preloads on the recirculating ball system, this is entirely at the expense of the life.

The linear recirculating roller bearing and guideway assembly also has a high crash safety.

The carriage is sealed on all sides. As opposed to the competition, the whole body of the guideways is ground which provides optimum sealing.

When these assemblies are used in machine tools, brass closing plugs are particularly advantageous.

The RUE unit is interchangeable with the ball bearing and guideway assemblies of the same section height produced by our competitors but they have considerably higher load ratings and rigidity. Due to the technical advantages of the roller system, the next smallest RUE unit can often be used compared to ball bearing and guideway assemblies.

The carriage can be fixed from above or below with 6 screws. The guideway has twice as many screws as the guideways produced by the competitors. Recirculating roller bearing and guideway assemblies may be combined with the damping carriage RUDS to counteract vibration, giving the benefits of both a sliding and a rolling guidance system. Plastic deformation of the rolling elements no longer occurs as the smaller damping gap and the increased surface area of the damping carriage reduce the specific contact load considerably.

Linear Recirculating Ball Bearing And Guideway Assemblies Series KUSE

Six-track linear recirculating ball bearing and guideway assemblies of series KUSE have the highest load rating of any recirculating ball bearing guidance system with the same envelope dimensions, and allow very high accelerations and velocities. Linear ball bearing and guideway assemblies of series KUSE should be classified between the traditional linear ball bearing and linear roller bearing guideway assemblies.

Linear ball bearing and guideway assemblies of series KUSE derive their high load carrying capacity from the six tracks of preloaded balls. They can take loads from all directions and moments about all axes. The low friction characteristics of this new linear recirculating ball system allows very high accelerations and velocities.

Linear Ball Bearing And Guideway Assemblies Series KUVS

INA linear guidance systems with recirculating ball bearing units, series KUVS, are four row linear guidance systems. Two of the main features of these assemblies are wide support distances and adjustable bearing clearance.

Linear recirculating ball bearing units of series KUVS have a high load carrying capacity in spite of their small boundary dimensions. They run on guideways of series TKVD with raceways on one or both sides. These units can be screwed into a carriage KWVK..AL which can form a four row linear ball bearing and guideway assembly when combined with the TKVD guideways.

INA Linear Ball Bearing And Guideway Assemblies Series KUE

INA linear ball bearing and guideway assemblies are ready-to-assemble linear guidance systems. They consist of one or more carriages on a guideway TKD. Linear ball bearing and guideway assemblies of series KUE have a four point contact recirculating ball system.

Due to their special features, INA linear recirculating ball bearing and guideway assemblies can meet the demands of modern guidance designs:

- Accuracy
  INA linear ball bearing and guideway assemblies are extremely accurate rolling bearings. They are clearance-free and operate with extremely low friction and completely free from stick-slip.
- High load carrying capacity and rigidity
  INA linear ball bearing and guideway assemblies have an extremely high load carrying capacity and rigidity for their dimensions.
- Load directions
  INA recirculating linear ball bearings can take loads in all perpendicular directions and moments about all axes. They need only one guideway for fixing: counterstay designs are therefore superfluous.
- Low section height
  INA linear ball bearing and guideway assemblies have an extremely low section height. This allows a very compact design of guidance system.

In addition, KUE assemblies have the following important features:

- High running and positioning accuracy (clearance-free)
- High reliability
- Easy mounting
  INA linear ball bearing and guideway assemblies are supplied ready for assembly. This allows economical designs of guidance systems.
- Interchangeability
  The components of a linear ball bearing and guideway assembly can be interchanged within the same preload and accuracy class.

INA Track Roller Linear Guidance System Series LF

Due to its modern and innovative design, the INA track roller linear guidance system offers the following advantages:

- Straightforward modular design
  The modular construction of the INA track roller linear guidance system allows individual guidance elements to be combined as required. Depending on the requirements, complete units may be used or variants may be produced with single guideways on the inside or outside combined with different rollers.
- Robust, wear-resistant, reliable system
  Vertical and horizontal motion can be achieved even in contaminated environments. Reliable operation and a long operating life are ensured, together with low maintenance requirements.
- High load carrying capacity
  Loads can be taken from all directions and moments about all axes. Depending on the load case, different guidance elements with differing high load carrying capacities are available to the user.
- High accuracy
  Due to the production process, the guideways have a high accuracy, providing clearance-free and low-friction operation. LF systems can be used in any mounting position.
- Unlimited stroke at high traverse speeds
  The INA track roller linear guidance system allows linear motion of any length and speeds up to 10 m/s.
- Straightforward assembly
  INA track roller linear guidance systems are supplied ready for mounting. The user has the option, depending on the guideway type, of fixing from above or below. The premounted carriage can be set clearance-free. The system can be matched to the customer's specific requirements.
- High wear resistance due to the optimized profile of the track rollers and the rolled precision steel shafts hardened to HRC 60
- Long life
- The load carrying capacity can be considerably increased if required by adding more track rollers
- Relubrication facility
- The individual components are easily interchangeable
- Systems have low mass due to the use of anodized aluminium components
- Systems are also available in corrosion resistant and black anodized versions
- There are many potential applications in almost all areas
- The standard version is readily available from stock
- The track rollers are lubricated for life
- Various sealing options and accessories are available

INA Linear Ball Bearings Series KH

INA linear ball bearings of series KH are linear recirculating ball bearing units of very small radial section height. They consist of a drawn and hardened outer cup and a plastic cage. The outer cup, cage and balls form a closed linear bearing which is ready to assemble. These units are suitable for applications where long travel distances, low space requirements and predominantly maintenance-free operation are required.

Linear ball bearings of series KH have the following advantages:

- Optimum price/performance ratio
- Very small radial section height
- Axial location is not required
- Double lip contact sealing rings on KH...P and KH...PP
- Optimum sealing
- Lubricant is retained in the bearing
- Relubrication via slots in the ball recirculation channel
- Long operating life
- Operating temperature up to 120°C
  Cage: polyamide 66-GK
  Sealing rings: polyester elastomer

INA ball bearings are superior bearings not only in terms of their resistance to temperature but also in their other features such as:

- Smooth running
- Load carrying capacity
- Rigidity

Good rigidity is achieved in all directions due to the uniform spacing of the rows.

INA Linear Ball Bearings Series KN

INA linear ball bearings of series KN and KNO are linear recirculating ball bearing units which can compensate misalignments (max. ±0.5°) due to their special design.

Linear ball bearings of this series consist of a cage and several load plates. The high-strength plastic cage guides the balls. The hardened load plates have a ground profile on the raceway side and they are supported externally by a steel retaining ring.

The retaining ring gives the following advantages:

- The rows of balls have a light preload and the press-in force is reduced. This also prevents the load plates embedding themselves in light metal housings.
- Smooth running
- High load carrying capacity
- Long operating life are also ensured as the self-adjusting compensation for misalignment always provides uniform load distribution along the rows of balls as well as smooth entry of the balls into the load zone.
- The double direction sealing rings prevent the ingress of dust and contamination and the egress of grease and oil.
- The lubrication hole is centrally located.
- Linear ball bearings KNO..PP with all-round sealing have additional reinforced longitudinal seals.

INA Linear Ball Bearings
Series KB

INA linear ball bearings of series KB consist of a hardened and ground outer ring and a cage in which the balls are guided. The balls in the return zones are held in place by spring elements. This ensures that even heavily loaded or preloaded bearings have a uniform, low resistance to displacement.

INA linear ball bearings of closed (KB), adjustable (KBS) and open version (KBO) have 4 to 6 rows of balls to support the load and are used where high precision and load carrying capacity are required.

Linear ball bearings of series KBS have a split outer ring which allows the operating clearance to be adjusted.

Linear ball bearings of series KBO have a segment cut out of the outer ring:
they are suitable for applications with shafts with continuous support.

Linear ball bearings of series KB, KBS and KBO can be relubricated.

The ground outside diameter on the linear ball bearings series KB are suitable as raceways for rolling bearings so that bearing units for linear and rotary motion can be created.

The special recirculation design provides a uniform, low resistance to displacement with extremely smooth running even in highly loaded and preloaded linear ball bearings.

Bearings of series KB are completely interchangeable with the bearings of our competitors.

INA Shafts
Series W, WH, WZ

INA shafts of series W, WH and WZ are suitable for guidance systems with closed, protected linear bearing units and are used in a wide range of applications in the construction of equipment and automatic machinery.

- INA shafts are surface hardened, precision ground and made from high grade steels.
- High material quality
- High surface hardness and surface quality
- High dimensional and geometrical accuracy ensure excellent running characteristics.
- Steel shafts are available in standard lengths ex stock and can be cut to the customer's requirements. They can be produced with various end configurations and other machined features.
- Special versions are available in other materials, e.g. corrosion-resistant steel.
- Shafts of 5 mm diameter are available in lengths up to about 3700 mm and shafts of 6 mm diameter and above in lengths up to about 4000 mm.
- INA can supply composite shafts where the length required exceeds the maximum single piece length.
- Special versions are available on request with other tolerances and special surface coatings and as unhardened shafts.

Shafts and support rails of series TSCW, TSNW, TSSW, TSUW, TSWW and TSWWA complete the INA linear range and remove the need for expensive, time consuming customer designs.

Support rails have the following advantages:

- They prevent flexing of the shaft
- They ensure correct functioning of the linear guidance system
- Low section height
- High rigidity

INA Linear Ball Bearings
Series KBZ

Linear ball bearings of series KBZ and KBZ..OP consist of a hardened and ground solid outer ring and a retainer. The outer ring is machined from high-carbon bearing steel. The retainer is manufactured from a high strength engineered resin. Series KBZ..OP have a segment removed from the outer ring for applications with supported shafts.

Series KNZ

Linear ball bearings of series KNZ.. consist of a precision molded retainer of a high strength engineered resin and hardened and ground bearing races. Series KNZ..OP.. bearings have a segment removed for applications requiring supported shafts.

The KNZ series offers:

- Up to (3) times more load capacity size for size.
- Up to (27) times more travel life.
- Ground races for smoothest operation.
- Self Aligning in any housing.
- Completely interchangeable with other standard makes.
- Lower noise level.
- Lighter weight.
- Wiper seal floats with the bearing.
- Most cost effective bearing for round shaft rails.

Linear Recirculating Ball Bearing And Guideway Assemblies
Series KUVE

The four-row linear recirculating ball bearing and guideway assembly KUVE comprises a total of six carriage cross-sections. The four rows of balls are preloaded. The unit has a high load carrying capacity; it can take loads from all directions and moments about all axes.

The special design of the recirculating ball system ensures low resistance to displacement and allows high velocities and accelerations.

Linear Modular Units Series MLF

The linear modular unit MLF allows small to medium loads to be moved with a high positional accuracy at speeds up to 7.5m/s[1)] and with a maximum acceleration of 40m/s^2 [1)]. When combined with a suitable control drive, a high repeatability can be achieved, usually within $\pm$0.08 mm.

The profiled support rails, which have high bending and torsional rigidity, allow the unit to operate without supports, even on longer modular units.

All the aluminium components are anodized.

A corrosion resistant execution is also available: suffix VA.

Design

- Profiled support rail LFS..M consisting of an anodized aluminium rail with hardened and ground steel rods inlaid on both sides. T-grooves provide various installation possibilities.
- Compact carriage in an enclosed design with integral toothed belt tensioner on both sides, lubrication and wiper unit. The carriage can be set clearance-free by means of two eccentric bolts.
- Return units with integral brush wipers and ball bearings which are lubricated for life.

Linear Modular Units Series MKUE

INA linear ball bearing and guideway assemblies are used in the linear modular units series MKUE. They are preloaded and operate virtually free from stick-slip.

The guidance accuracy of MKUE linear modular units is increased by machining the guideway seating surfaces on the support rail.

The INA linear modular unit with recirculating ball guidance system allows medium to high loads to be moved quickly and with a very high guidance accuracy.

The drive is via either a toothed belt or a ball screw.

Maximum traverse speeds are:

Toothed belt drive 3 m/s
Ball screw drive 1.73m/s

When the toothed belt drive is combined with a suitable control drive, a high repeatability can be achieved, usually within $\pm$0.08 mm.

The profiled support rails, which have high bending and torsional rigidity, allow the unit to operate without supports, even on longer units.

All the aluminium components are anodized.

Design

- Profiled support rail made from anodized aluminium with integral ball bearing and guideway assembly KUE. T-grooves provide various installation possibilities.

Linear Modular Unit MKUE 25 ZR..N

- Carriage with two T-grooves (with threaded holes if required) and integral belt tensioners on both ends
- Return unit with ball bearing lubricated for life.

Linear Modular Unit MKUE 25 KGT

- Carriage with threaded holes
- Preloaded double nut for leads of 5 and 10 mm. Accuracy 50 µm/300 mm
- INA axial angular contact ball bearings series ZKLF are used for the spindle bearing arrangements: the bearings are greased for life
- Bellows are used to protect the ball screw spindle and the KUE system.

[1)] These values are reduced when bellows are used.

INA Linear Roller Bearings Series RUS

INA linear roller bearings are manufactured in several basic types and meet the highest technical demands. Linear recirculating roller bearing systems are suitable for linear guidance systems in machine tools where high guidance and positioning accuracy with long strokes are required.

Linear roller bearings have the following advantages:

- Very high accuracy
- Increased compressive rigidity
- High load carrying capacity
- High functional reliability
- Very low frictional values compared to other linear guidance systems
- Very smooth running due to the special design of the supporting elements with compensation for bounce

Due to their robustness, linear roller bearings of series PR are also suitable for use at high temperatures as well as for extremely high velocities and accelerations.

With INA linear roller bearings of series RUSV..KS, there is no need for a separate adjusting gib. This gives advantages including:

- Fewer components
- Low section height
- Quicker, simpler mounting

INA also supplies a setting device for exact, repeatable, quick and straightforward adjustment of preload in linear roller bearings.

INA Adjusting Gibs Series VUS and VUSZ

INA Adjusting Gibs of series VUS and VUSZ are used for height adjustment or preloading of linear roller bearings. They consist of two ground wedges which are guided together by a central key. A plate fixed on one end face supports the adjusting screw and the locking screw. Lubrication ducts in the adjusting gibs allow for the lubrication of the linear bearings through the rolling element return zone in their supporting face.

INA Planetary Roller Screws Series RGT

The most significant advantage of these units over ball screws is the increased number of contact points per unit volume which provides a high load carrying capacity. The specific contact load of a roller screw drive is lower and the life longer compared to ball screw drives with the same dimensions.

Compared to the more widespread ball screw drives, planetary roller screws have greater rigidity, lower axial clearance and higher limiting speeds which are about three times those of ball screw drives. RGT units are very compact and robust, require only a small amount of space, and large ball screw drives can be replaced by small RGT units. Straightforward mounting and dismantling allow the nut to be mounted where access is difficult.

- Low sensitivity to shock loading
- High functional reliability under extreme conditions
- Extremely high displacement speeds
- Low internal friction — no stick-slip, high efficiency (up to 93%).

Excellent positioning and repeat accuracy throughout the operating life. Extremely accurate positioning is possible (2 µm) due to the small lead (1 mm) with very small advance movement. At high displacement speeds, a high positioning accuracy can be achieved with a large lead.

Special machining operations (e.g. shortening a spindle) can be quickly carried out.

The optimum solution for a particular application can be achieved with special setting of the nut e.g. reduction of the frictional moment.

INA planetary roller screws, Series RGT, basically consist of a screw (shaft) and a roller nut. Several planetary rollers are arranged parallel to the axis between the screw and the roller nut.

Roller Nut

The roller nut can be supplied split or as one piece. The two halves of the split roller nut **(9)**, see next page, are held together by the key **(7)**. During installation of the planetary roller screw the roller nut is preloaded. A shim **(8)** is used to control the preload. The one-piece roller nut cannot be preloaded.

Internally geared rings **(4)** are situated in the ends of the roller nut engaging with the external gearing provided at each end of the planetary rollers **(5)**. The spacing of the planetary rollers, is provided by the carrier plates **(3)** which also function as labyrinth seal. The plates are retained by the snap rings **(2)**.

Planetary Rollers

The planetary rollers **(5)** have a journal at each end which are guided by the holes of the carrier plates. The geared ends of the planetary rollers mesh with the internally geared rings in the nut. The planetary rollers have a single-start thread with a crowned flank. This allows the stresses created by the thread meshing to be distributed on larger ellipses which also reduce the harmful edge stresses. The planetary rollers rotate slip-free in the roller nut. They have no axial movement relative to the roller nut as the axial travel increments at the points of contact between both elements are equal.

Screw Shaft

Screws are manufactured from surface hardened, case hardening steel. The thread angle is 90 degrees. Screws in standard design are available with a nominal diameter d_0 from 5 mm to 20 mm. The standard ends configuration prescribes a straight journal on the floating side and provision for lock nut and driving system on the locating side. The screws are available in different lengths. Strokes from 25 mm to 1200 mm are possible, depending on the nominal diameter.

Screws with a nominal diameter d_0 between 24 and 63 mm are special designs. Their dimensions are pre-determined by the following dimension tables. The largest possible screw diameter d_0 is 250 mm.

All screws are available with custom tailored ends configuration.

Special Request Variations

INA planetary roller screws are available upon request in the following special designs:

- One-piece roller nut (not preloaded, higher load ratings, small axial clearance)
- Roller nut with flanges, middle or side flange

INA Planetary roller screws are also available upon request with:

- Left hand thread
- Inch pitch thread
- Hollow shaft

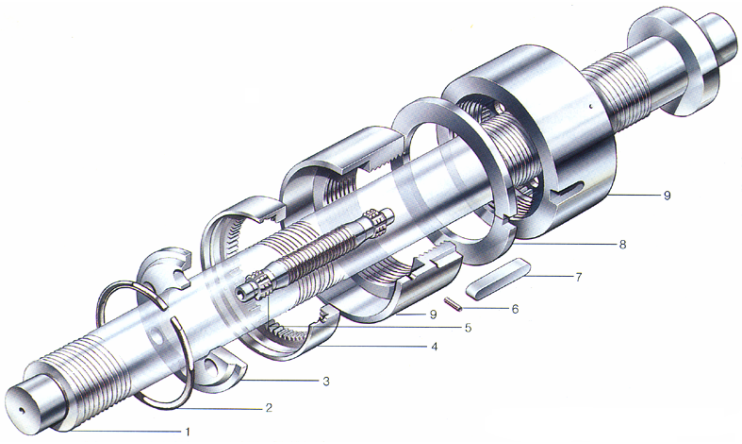
If aggressive media is acting on the planetary roller screw, corrosion resistant material should be chosen. Contact INA for details.

Wipers

If planetary roller screws are subject to heavy contamination, the roller nut can be equipped with wiper seals upon request.

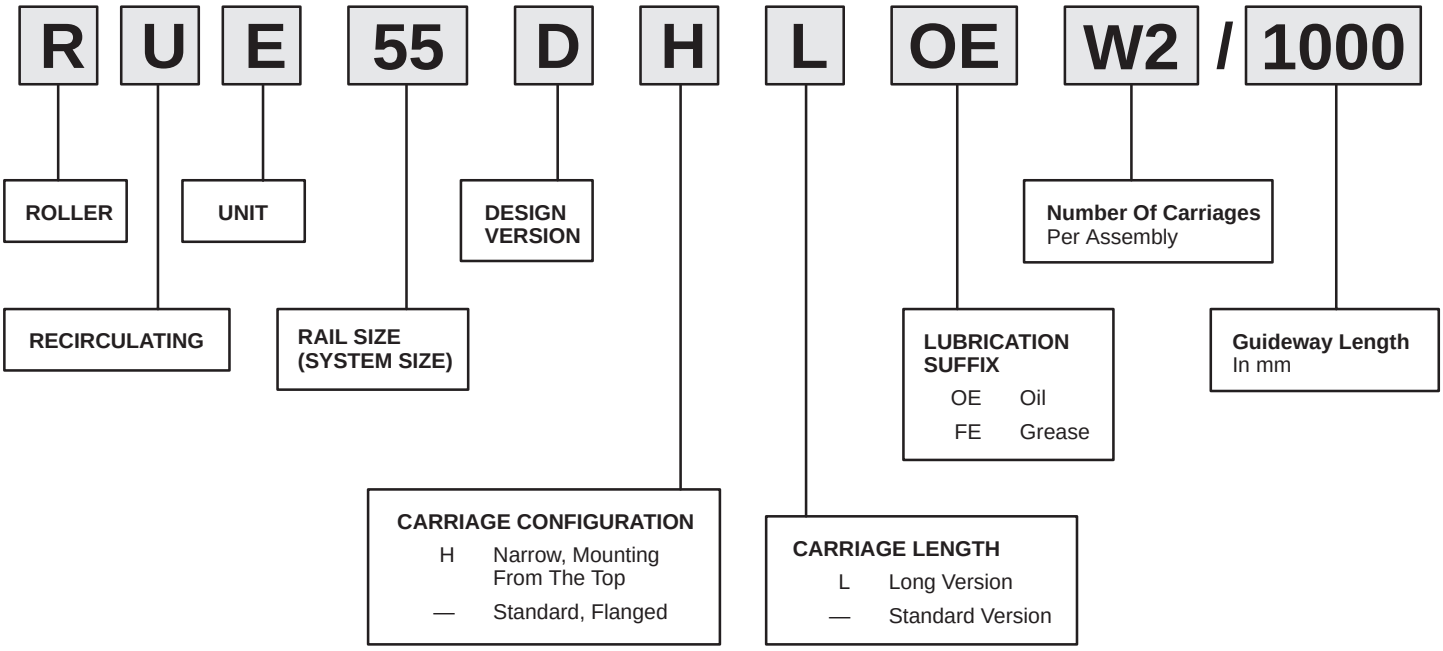
DESIGN OF THE INA PLANETARY ROLLER SCREW WITH SPLIT ROLLER NUT

1	SCREW (SHAFT)
2	SNAP RING
3	CARRIER PLATE
4	INTERNALLY GEARED RING
5	PLANETARY ROLLER
6	LOCATING PIN
7	KEY
8	SHIM
9	ROLLER NUT



Part Number Identification
LINEAR

LINEAR RECIRCULATING ROLLER BEARING & GUIDEWAY ASSEMBLY



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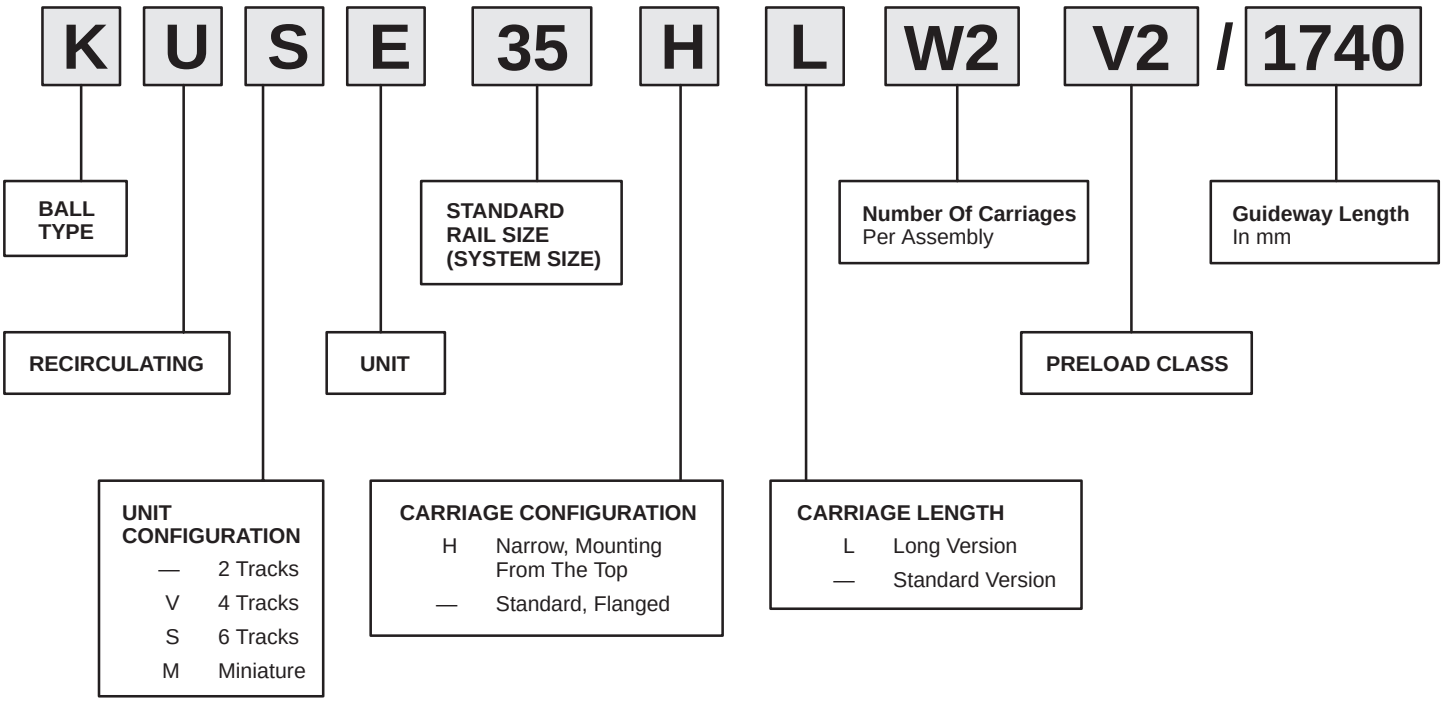

Part Number Identification
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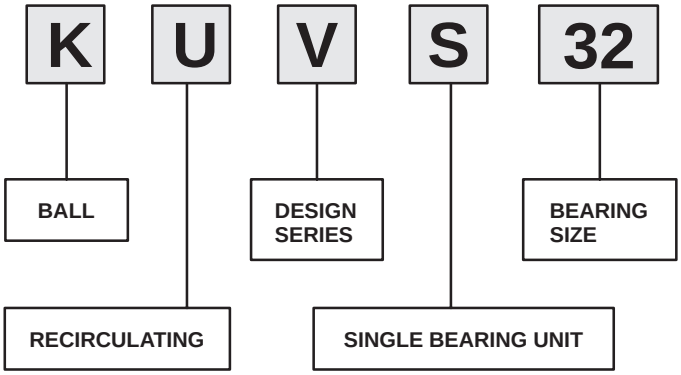
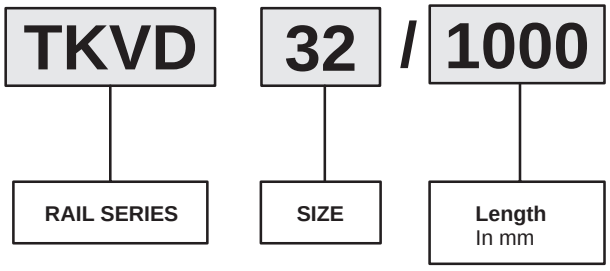
LINEAR GUIDANCE SYSTEMS





Part Number Identification
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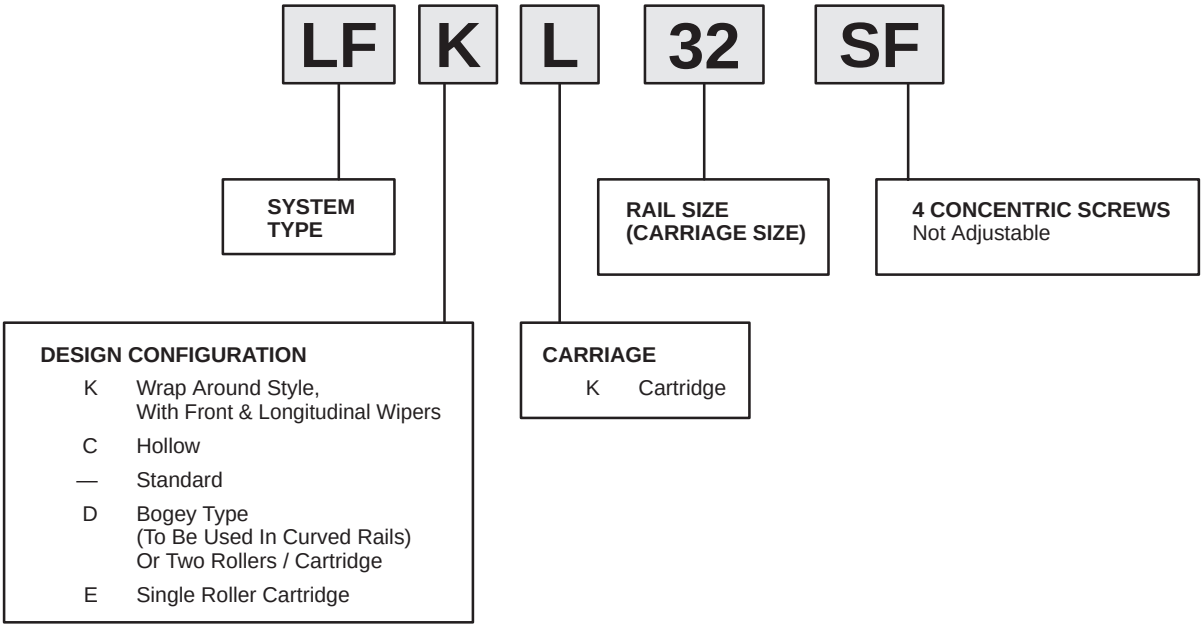
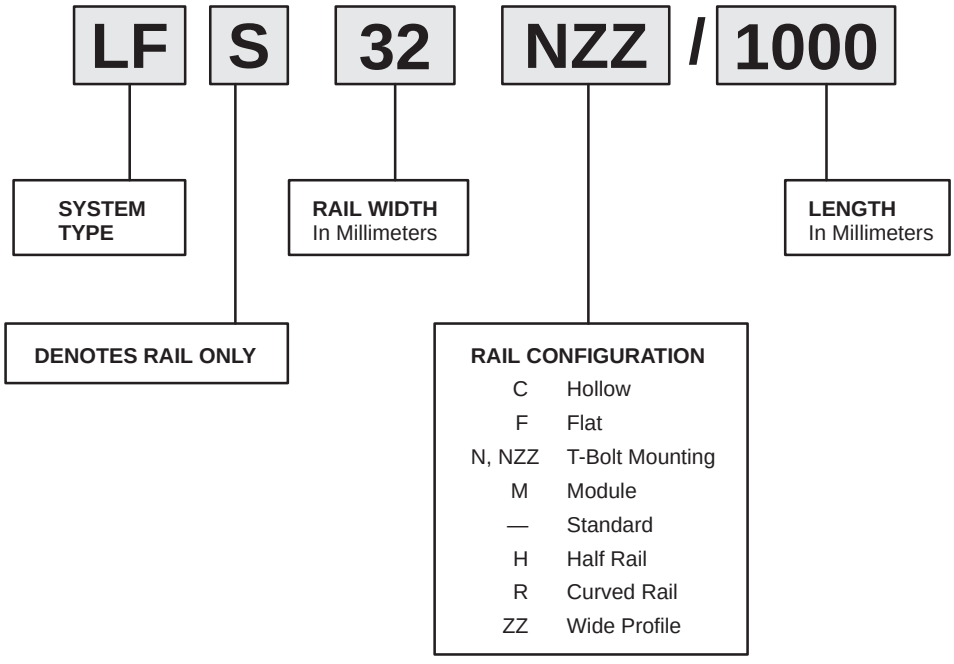
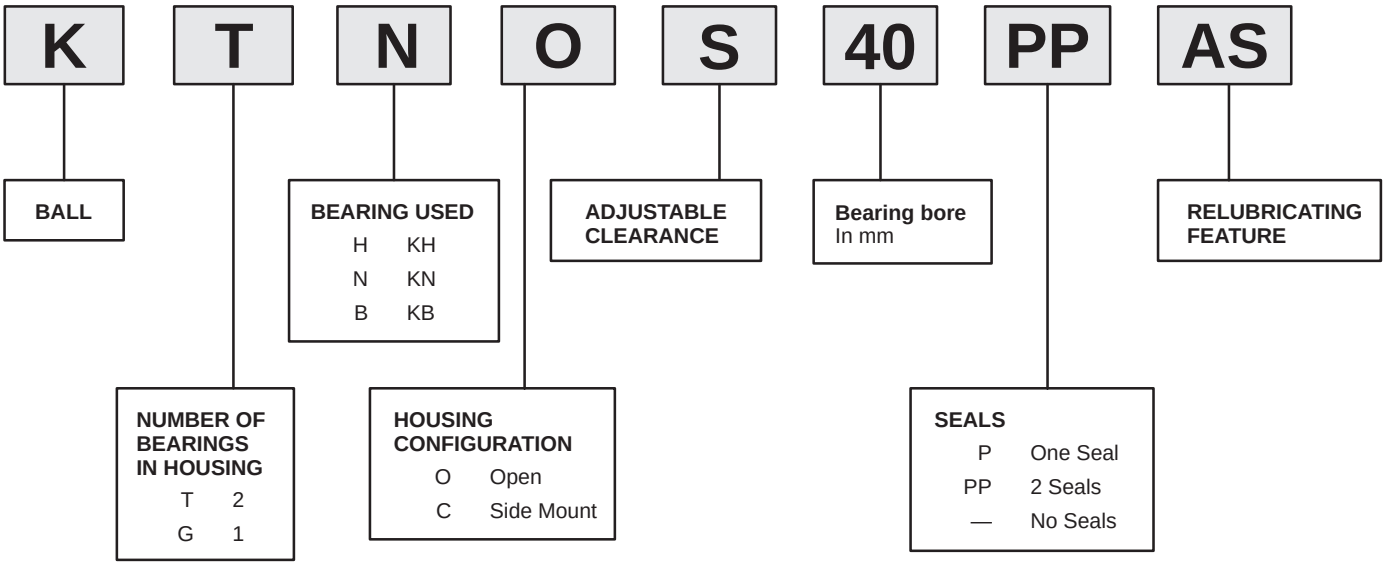
LF CARRIAGES & RAILS





Part Number Identification
LINEAR

METRIC HOUSING UNITS



Part Number Identification
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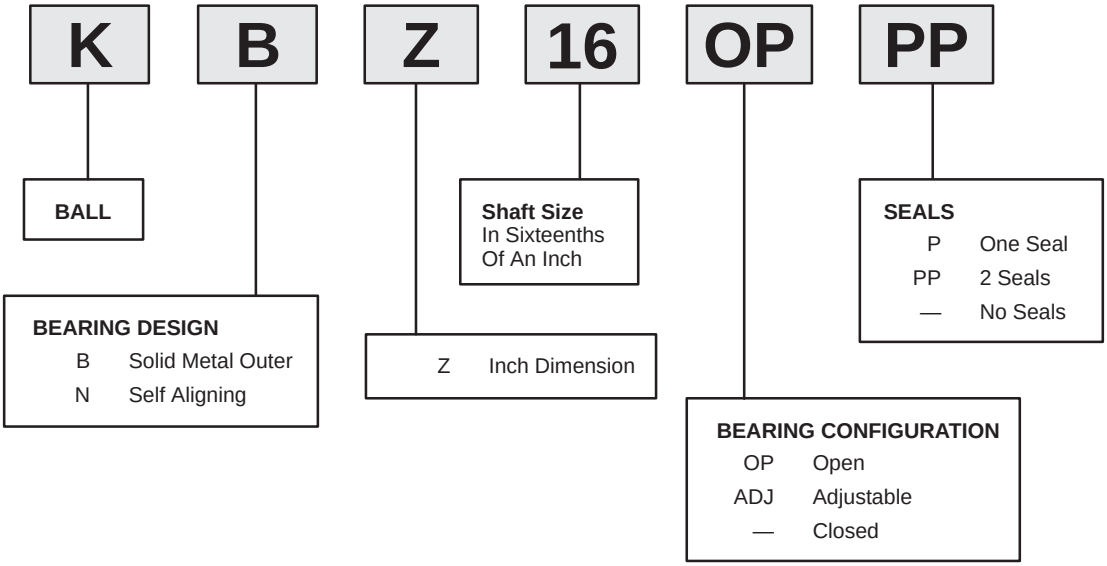
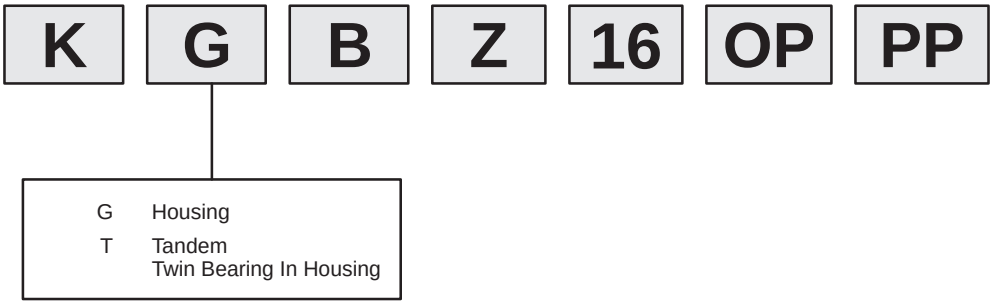
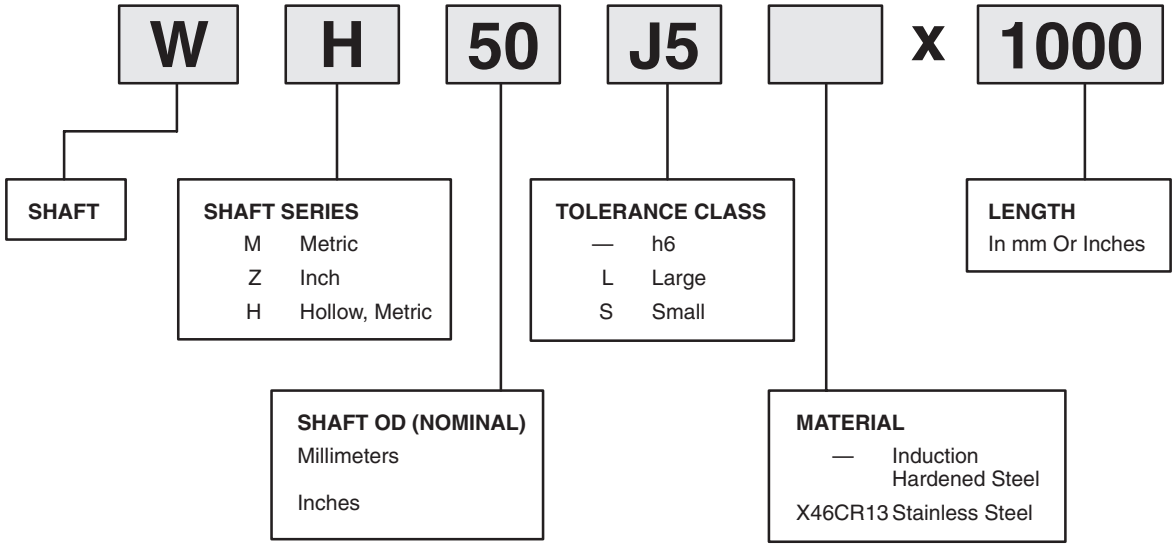
INCH BEARINGS & HOUSING UNITS



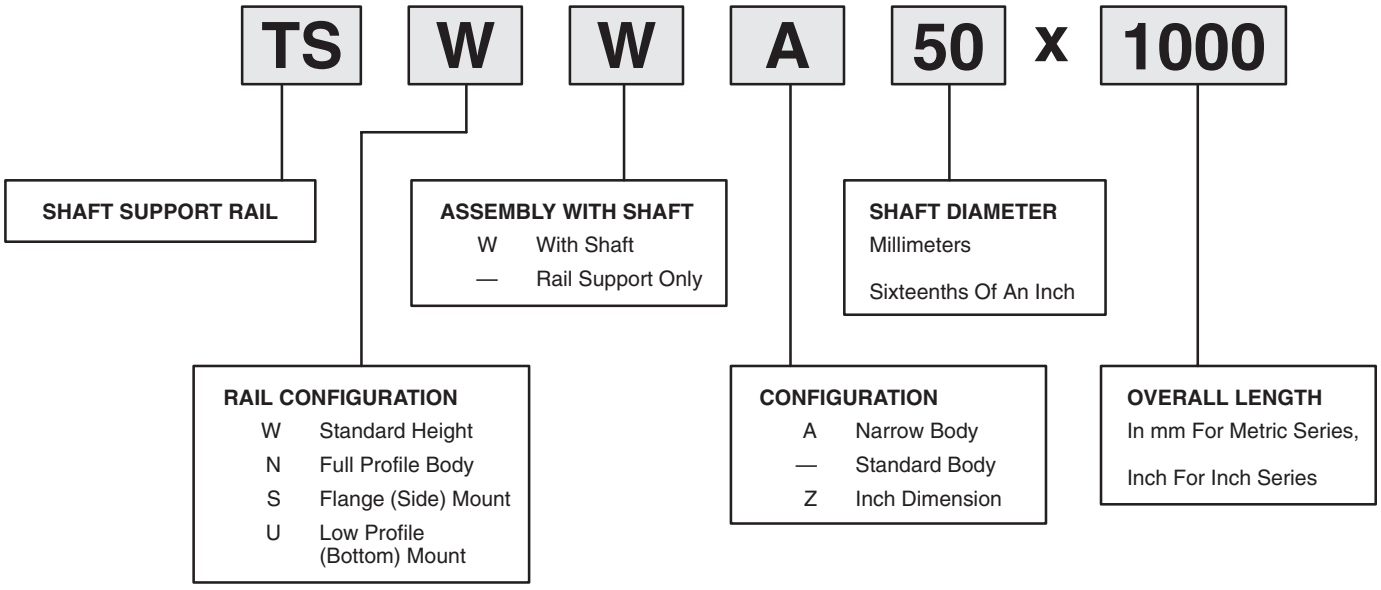


Part Number Identification
LINEAR

SHAFTS (METRIC & INCH)

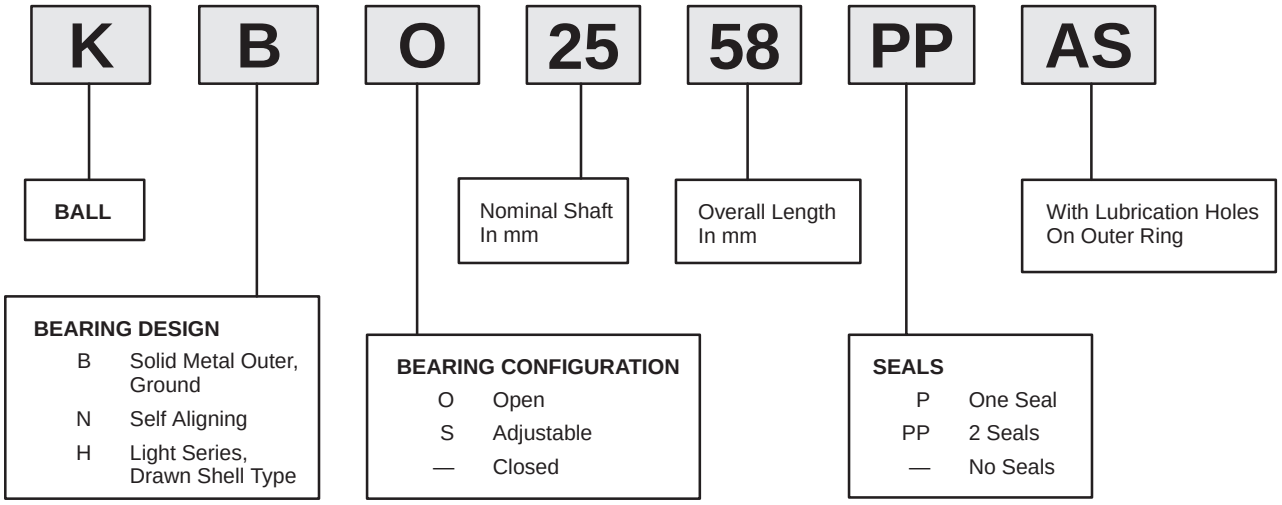


SUPPORT RAILS (METRIC & INCH)

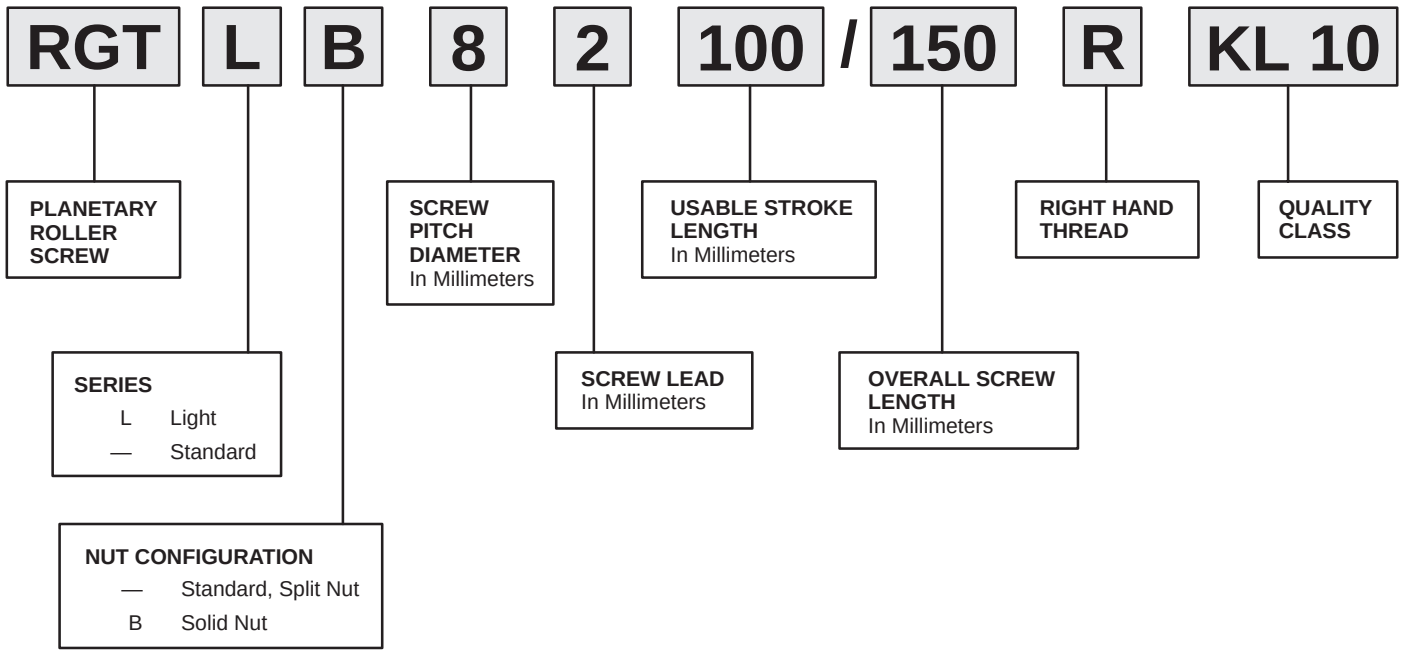


Part Number Identification
LINEAR

METRIC BALL BUSHINGS



PLANETARY ROLLER SCREWS



Part Number Identification
LINEAR
COMPONENT / FAMILY

LFS, LFS..C, M, TS..W, LFL, LFCL, LFR..

COMPONENT	FAMILY					
	LFS	**LFS..C,M**	**TS.W**	**LFL**	**LFCL**	**LFR..**
Cap wiper	—	—	—	—	—	AB LFR
Lube & wiper unit	—	—	AB..W	AB/AB..LFL	—	AB..W
Side plates	—	—	—	ABAL	—	—
End stops	PAH	—	—	—	—	—
End plate	—	ANS LFS	—	—	—	—
End Cover	—	KA LFS..C,M,CH	—	—	KA LFS..CL	—
Cover strip	—	NAD	—	—	—	—
Measuring system	LMS	LMS	LMS	—	—	—

RUE, KUSE, KUVE, KUVS, KUE, KUME

COMPONENT	FAMILY					
	RUE	**KUSE**	**KUVE**	**KUVS**	**KUE**	**KUME**
Cap wiper	—	—	—	—	—	AB LFR
Closing plugs (plastic)	KA..TN	KA..TN	KA..TN	KA..TN	KA..TN	KA..TN
Closing plugs (brass)	KA..M	KA..M	—	—	KA..M	—
Mounting rail	MSX	MKSD	MKVD	—	MKD	MKMD
Hydraulic mounting device	MVH	—	—	—	—	—
Cover strip	ABDU	ADBSE	—	—	—	—
Sheet steel wiper	APLU	APLSE	APLVE	—	APLE	—
Spring loaded scraper	—	AB KOL KWSE	—	—	—	—
Braking element	RUKS..D	—	—	—	—	—
Lube adapter plate	BPLU	BLSE	—	—	BPLE	—
Grease lube adapter	—	SMAD KFE	SMAD KFE	—	SMAD KFE	—
Oil lube adapter	—	SMAD KOE	SMAD KOE	—	SMAD KOE	—
Lube metering unit	SMDE	—	—	—	—	—
Damping carriage	RUDS	—	—	—	—	—
Bellows	—	FBALG	—	—	FBALG	—

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