



NEW

Precision Ball Screw with Finished Shaft Ends

SDA-VZ



Combines with dedicated support units
to reduce design and assembly time



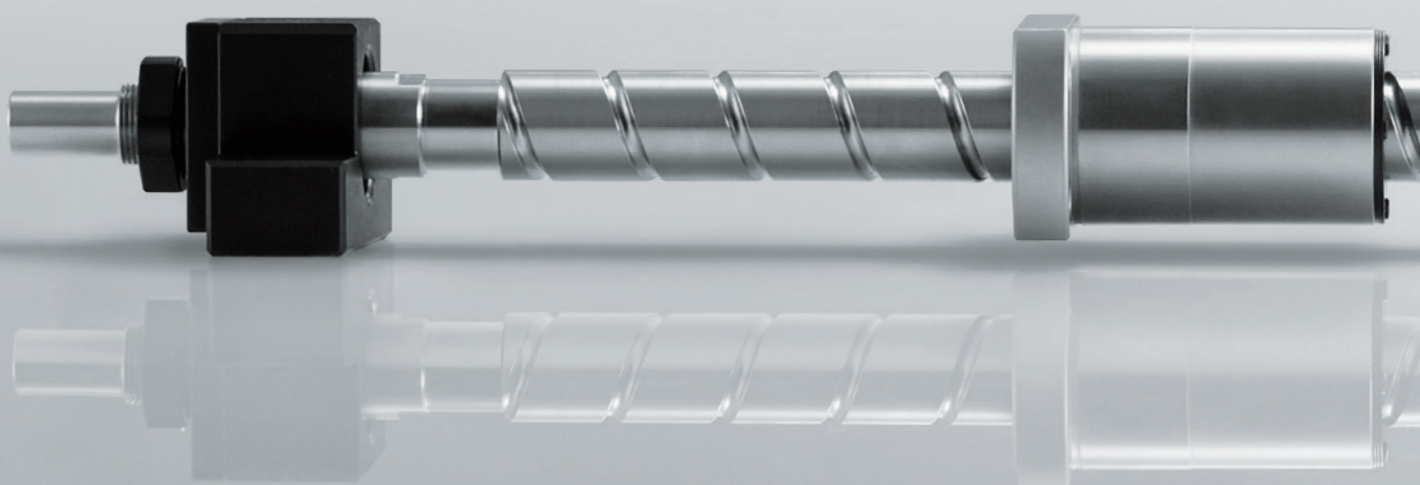
**HENNLICH -
ŽIJEME TECHNIKOU**

o.z. LIN-TECH HENNLICH s.r.o.
Českolipská 9, 412 01 Litoměřice

Telefon: +420 416 711 333
E-mail: lin-tech@hennlich.cz

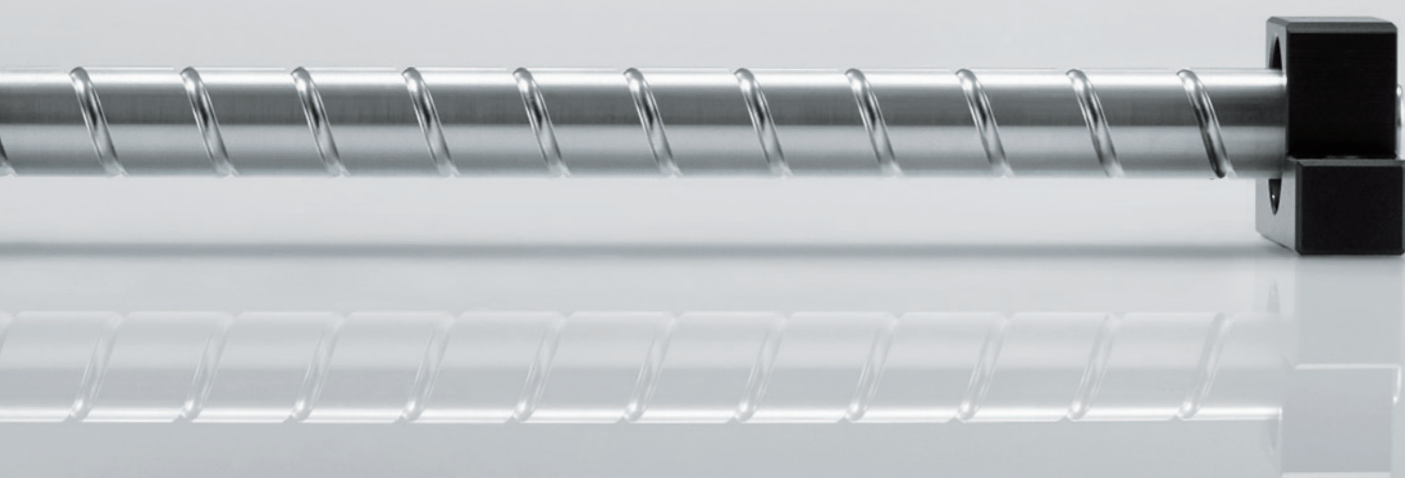
www.hennlich.cz/lin-tech

Combines with dedicated support units
to achieve an ultra-low shaft center



Precision Ball Screw with Finished Shaft Ends

SDA-VZ



- Reduces design and assembly time
- Optimal for high-speed and compact, space-saving designs
- Compatible with support units for low shaft centers*

* Compatible with shaft diameters 10, 12, 15, and 20

Precision Ball Screw with Finished Shaft Ends

SDA-VZ

Finished Shaft End Series

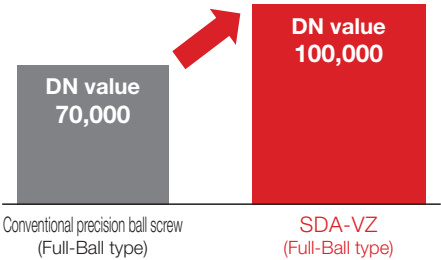
These ball screw products are fabricated with standardized shaft end shapes. The Model SDA-VZ, which features a compact, ISO-compliant nut, has been added to the lineup.

These products can be used in combination with dedicated support units to make assembly design easy and significantly faster.



Model SDA-VZ Feature **High speed**

This product picks up balls in the tangential direction and achieves a maximum rotational speed of 5,000 min⁻¹ (DN value: 100,000). Torque remains stable even during long periods of high-speed operation.

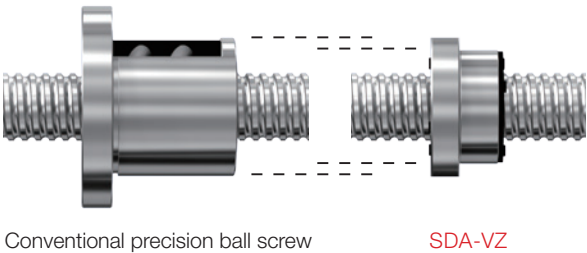


Model SDA-VZ Feature **Keeps equipment compact with space-saving design and low shaft center compatibility**

This product keeps equipment designs compact by featuring an outer diameter that is up to 30% smaller than conventional THK products.

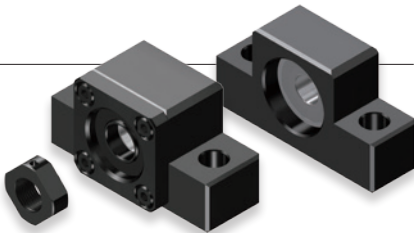
The nut dimensions conform to ISO standards (ISO 3408).*

* Excluding SDA15VCZ and 20VCZ



Lineup of support units optimized for low shaft centers ► p. 6

Compared to conventional support units, the design is better optimized for ball screws with lower shaft centers. Combining these support units with the Model SDA-VZ will maximize the space-saving potential.





Lineup

We meet the requirements of a wide variety of shaft diameters, leads, and strokes.

Unit: mm

Shaft diameter	Lead	Stroke													Support unit	
		50	100	150	200	300	400	500	600	700	800	1000	1200	1600	Fixed side	Supported side
10	5	●	●		●	●									EK8L, FK8	EF8L, FF6
	10		●		●	●									EK8L, FK8	EF8L, FF6
12	5	●	●		●	●	●	●							EK8L, FK8	EF8L, FF6
	10		●		●	●	●	●							EK8L, FK8	EF8L, FF6
	20		●		●	●	●	●							EK8L, FK8	EF8L, FF6
	30		●		●	●	●	●							EK8L, FK8	EF8L, FF6
15	5	●			●	●	●	●	●						EK12L, FK12	EF12L, FF12
	10		●		●	●	●	●	●	●	●				EK12L, FK12	EF12L, FF12
	20		●		●	●	●	●	●	●	●				EK12L, FK12	EF12L, FF12
	30		●		●	●	●	●	●	●	●				EK12L, FK12	EF12L, FF12
20	5			●	●	●	●	●	●	●	●				EK15L, FK15	EF15L, FF15
	10				●	●	●	●	●	●	●	●	●		EK15L, FK15	EF15L, FF15
	20					●	●	●	●	●	●	●	●		EK15L, FK15	EF15L, FF15
	30				●	●	●	●	●	●	●	●	●		EK15L, FK15	EF15L, FF15
	40						●	●	●	●	●	●	●		EK15L, FK15	EF15L, FF15
	60						●	●	●	●	●	●	●		EK15L, FK15	EF15L, FF15
25	5			●	●	●	●	●		●	●	●			EK20, FK20	EF20, FF20
	10					●	●	●	●	●	●	●	●		EK20, FK20	EF20, FF20
	20							●	●	●	●	●	●	●	EK20, FK20	EF20, FF20
	25							●	●	●	●	●	●	●	EK20, FK20	EF20, FF20
	30							●	●	●	●	●	●	●	EK20, FK20	EF20, FF20
	50							●	●	●	●	●	●	●	EK20, FK20	EF20, FF20

Model Number Coding

Select an option

Fixed symbol

SDA2010VC

Ball screw model No.

Z

Full-Ball

-3

Turns

TT

Seal symbol
TT: Thin film seal ▶ p. 8

G0

Axial clearance ▶ p. 7

+687L

Overall screw shaft length (mm)

C5

Accuracy ▶ p. 7

EK15L

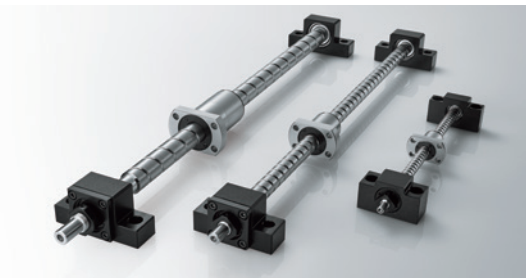
Support unit model No.

Note: Support units must be ordered separately.

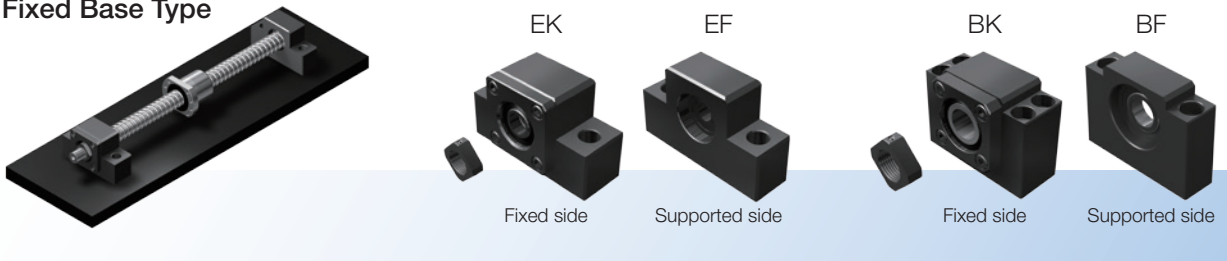
Support Units

We offer a lineup of support units with specifications that match the shaft end shapes of precision ball screws with finished shaft ends. Combined use with these support units helps reduce design time. In addition, the support unit on the fixed side has an integrated angular ball bearing with the preload adjusted. This contributes to faster assembly time and boosts assembly accuracy.

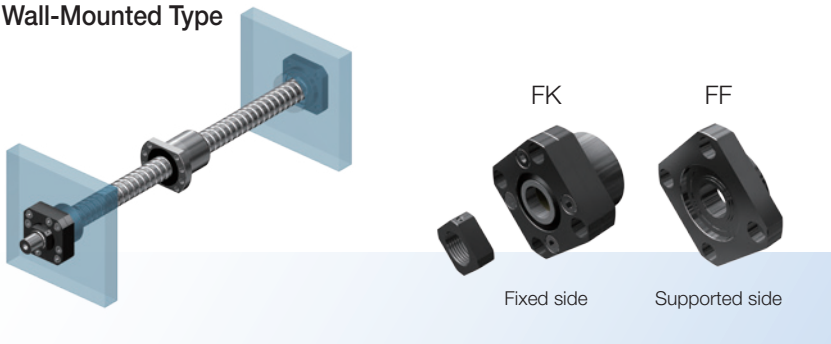
Note: Support units are designed so that one pair of EK and EF units, one pair of BK and BF units, or one pair of FK and FF units are used per shaft.



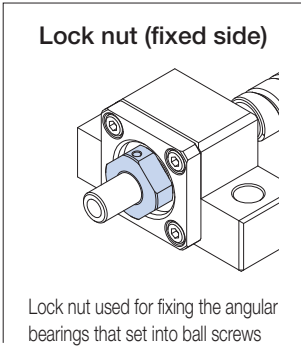
Fixed Base Type



Wall-Mounted Type



Note: See the end of this catalog for details about the wall-mounted Model FK/FF.

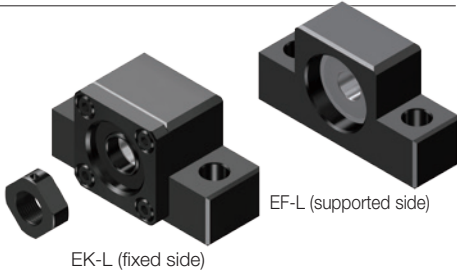


Model Numbers of Bearings and Characteristic Values

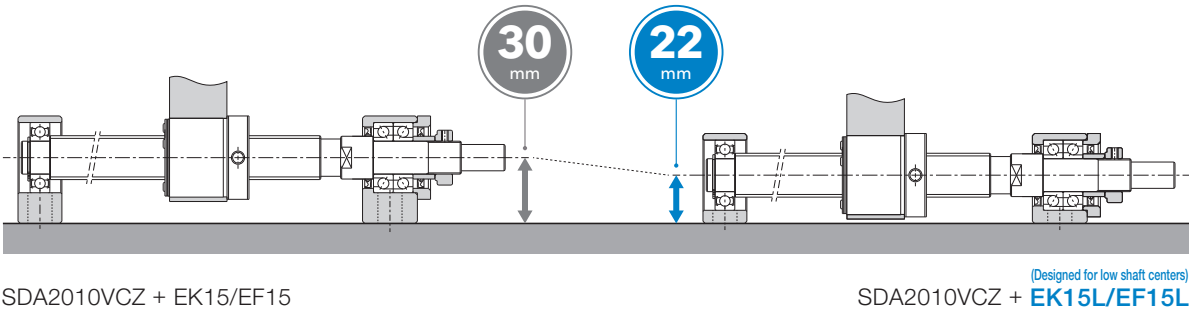
Angular ball bearing on the fixed side					Deep-groove ball bearing on the supported side			
Support unit model No.	Bearing	Axial direction			Support unit model No.	Bearing	Radial direction	
		Basic dynamic load rating Ca (kN)	Permissible load (kN)	Rigidity (N/μm)			Basic dynamic load rating C (kN)	Basic static load rating Co (kN)
EK8L FK8	798 equivalent (DF P5)	2.93	2.15	49	EF8L FF6	606ZZ	2.19	0.87
EK12L FK12	7001 equivalent (DF P5)	6.66	3.25	88	EF12L FF12	6000ZZ	4.55	1.96
EK15L FK15	7002 equivalent (DF P5)	7.6	4	100	EF15L FF15	6002ZZ	5.6	2.84
EK20 FK20	7204 equivalent (DF P5)	17.9	9.5	170	EF20 FF20	6204ZZ	12.8	6.65

Support Unit for Low Shaft Centers EK-L/EF-L

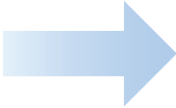
We offer a lineup of support units with specifications that match the shaft end shapes of precision ball screws with finished shaft ends. Combined use with these support units helps reduce design time.



Shaft Center Height Comparison for Precision Ball Screw Model SDA2010VCZ



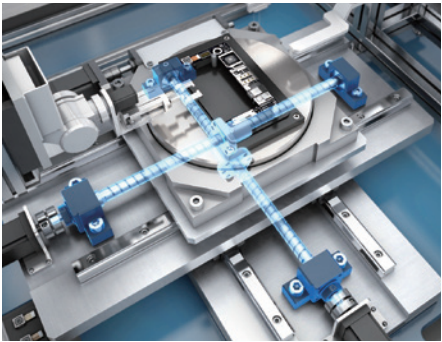
Existing Product		Unit: mm
Model No.	Shaft center height	
EK8/EF8	17	
EK12/EF12	25	
EK15/EF15	30	



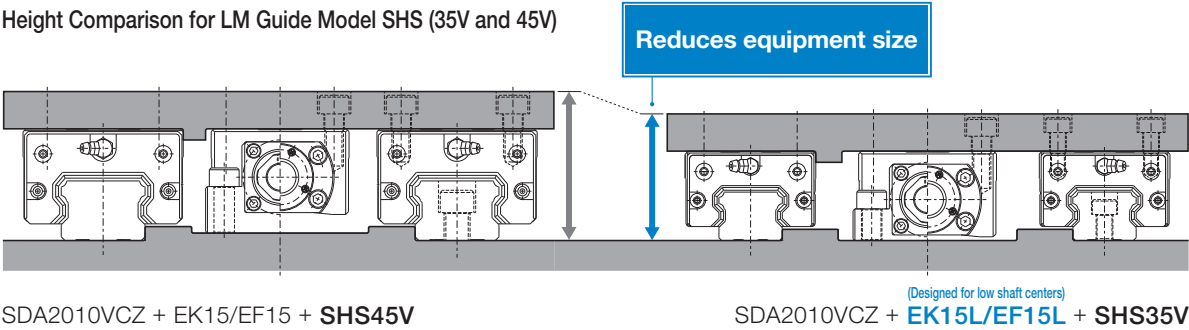
Designed for Low Shaft Centers		Unit: mm
Model No.	Shaft center height	
EK8L/EF8L	15.5	
EK12L/EF12L	20	
EK15L/EF15L	22	

■ LM Guide Size Reduction Example

Using support units for low shaft centers doesn't merely keep equipment size down. It also allows for more compact LM Guide configurations and reduces the amount of machining required for the mounting (base).



Height Comparison for LM Guide Model SHS (35V and 45V)



Lead Angle Accuracy and Axial Clearance

Lead Angle Accuracy

This product is only available with a C5 lead angle accuracy. It complies with JIS (Japanese Industrial Standards) as well as ISO (international standards) and DIN (German industry standards).

* C5 as defined by JIS B1192 is a higher level of precision than a grade 5 positioning ball screw in ISO 3408-3.

Accuracy Standards Correspondence Table

Accuracy standard	Lead angle accuracy (permissible value)
JIS	C5

Axial Clearance

The table on the right shows the axial clearance of precision ball screws. This product is available with G0 clearance only.

Clearance symbol	G0
Axial clearance (mm)	0 or less

Static Safety Factor

Basic Static Load Rating Coa

The basic static load rating (Coa) generally equals the permissible axial load of a ball screw. Depending on the operating conditions, it is necessary to take into account the following static safety factor with regard to the calculated load. When the ball screw is stationary or in motion, an unexpected external force may be applied due to inertia caused by an impact or starting and stopping.

Static Safety Factor (fs)

$$Fa_{max} = \frac{Coa}{fs}$$

fs: Static safety factor
Coa: Basic static load rating* (kN)
Fa_{max}: Permissible axial load (kN)

* The basic static load rating (Coa) is a static load with a constant direction and magnitude whereby the sum of the permanent deformation of a ball and that of a rolling groove on a contact area under the maximum stress is 0.0001 times that of the ball diameter.
With the ball screw, it is defined as the axial load. (Specific values of each ball screw model are indicated in the dimensional tables for the corresponding model.)

Static Safety Factor (fs)

Machine type	Load conditions	Lower limit of fs
General industrial machinery	Without vibrations or impacts	1.0 to 3.5
	With vibrations or impacts	2.0 to 5.0
Machine tools	Without vibrations or impacts	1.0 to 4.0
	With vibrations or impacts	2.5 to 7.0

Nominal Life and Service Life Time

Basic Dynamic Load Rating Ca

The basic dynamic load rating (Ca) is used in calculations of service life for when the ball screw is under an axial load. The basic dynamic load rating (Ca) indicates the load for which the nominal life L equals 10⁶ rev when a group of identical ball screws independently operate under that load and it is applied with a constant direction and size.

The basic dynamic load ratings (Ca) for each model number are indicated in the dimensional tables.

Nominal Life L10m (Total Rotations)

A ball screw's service life is obtained from the following formula using the basic dynamic load rating and applied axial load.

$$L_{10m} = \left(\frac{Ca}{fw \cdot Fa} \right)^3 \times 10^6$$

L: Modified nominal life (total rotations) (rev)
Ca: Basic dynamic load rating* (kN)
Fa: Applied axial load (kN)
fw: Load factor

* The nominal life is obtained by calculating the load on the premise that the product is set up in ideal mounting conditions with the assurance of good lubrication. The service life can be affected by the precision of the mounting materials used and any distortion.

Load Factor (fw)

Vibration/impacts	Speed (V)	fw
Faint	Very low speed V ≤ 0.25 m/s	1.0 to 1.2
Low	Slow speed 0.25 m/s < V ≤ 1.0 m/s	1.2 to 1.5
Medium	Medium speed 1.0 m/s < V ≤ 2.0 m/s	1.5 to 2.0
Strong	High speed 2.0 m/s < V	2.0 to 3.5

Service Life Lh

Once the nominal life (L10m) has been obtained, the service life time (Lh) can be calculated using the following formula, if the stroke length and the number of cycles are constant.

$$L_h = \frac{L_{10m} \times Ph}{2 \times ls \times n \times 60}$$

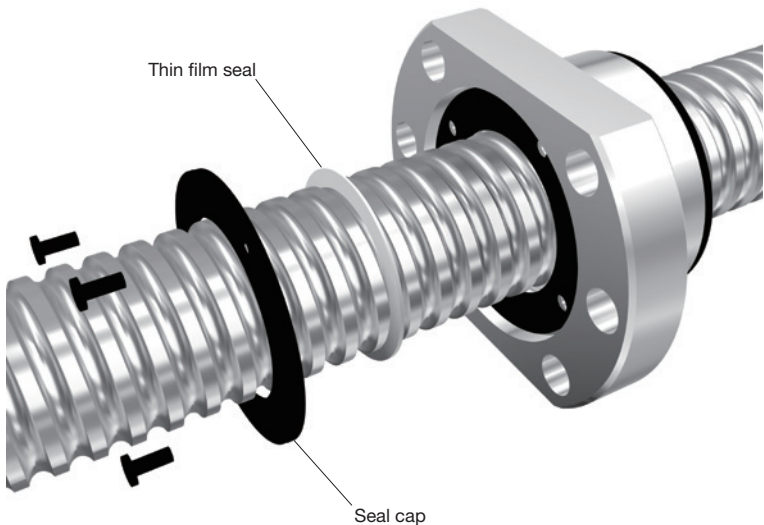
Lh: Service life time (h)
ls: Stroke length (mm)
n: Cycles per minute (min⁻¹)
Ph: Lead (mm)

Contamination Protection

If foreign materials enter the ball screw nut, they may lead to abnormal wear and ball jamming, which could shorten the life of the product. Therefore, it is necessary to prevent foreign material from entering the product. If it is likely that foreign materials will get inside, it is important to select an effective contamination protection device suited to the conditions in which it will be used.

■ Thin Film Seal (TT)

Thin film seals protect against foreign impurities and lubricant discharge through direct contact. They have low sliding resistance and generate little heat.



Lubrication

Standard Grease AFJ

AFJ grease uses refined mineral oil as its base and has a urea-based consistency enhancer and other special additives that give it excellent lubrication properties at a wide range of speeds from low to high.

* The $\varnothing 10$ is filled with lithium-based grease No. 2 (Multemp PS-2 grease) as standard.

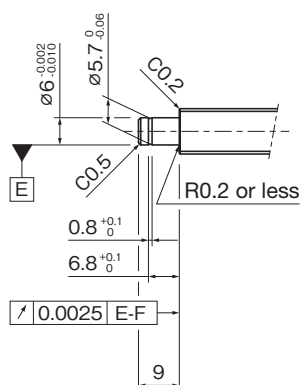
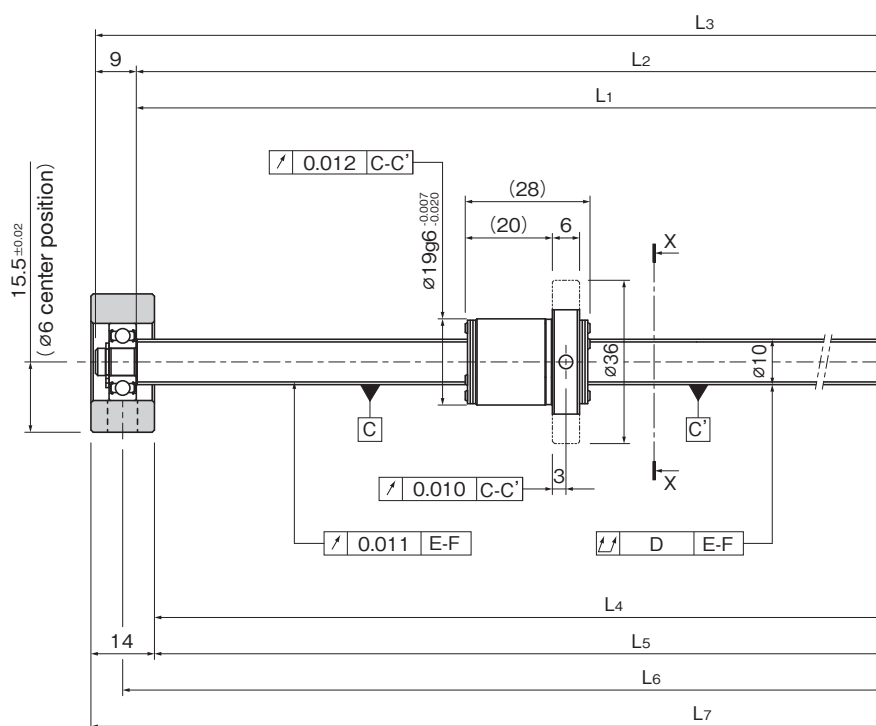
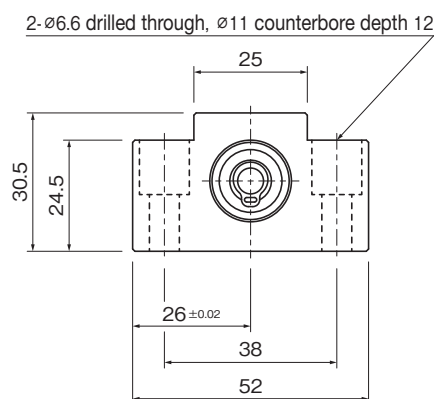
Representative Physical Properties

Item		Representative property	Test method
Thickening agent		Urea-based	
Base oil		Refined mineral oil	
Base oil kinematic viscosity: mm ² /s (40°C)		20	JIS K 2220 23
Worked penetration (25°C, 60 W)		325	JIS K 2220 7
Mixing stability (100,000 W)		360	JIS K 2220 15
Dropping point: °C		185	JIS K 2220 8
Evaporation volume: mass% (99°C, 22 h)		0.6	JIS K 2220 10
Oil separation rate: mass% (100°C, 24 h)		7.0	JIS K 2220 11
Copper plate corrosion (B method, 100°C, 24 h)		Passed	JIS K 2220 9
Low-temperature torque: mN·m (-20°C)	Starting	38	JIS K 2220 18
	Rotation	13	
4-ball testing (welding load): N		3089	ASTM D2596
Operating temperature range: °C		-20 to 120	
Color		Yellowish brown	

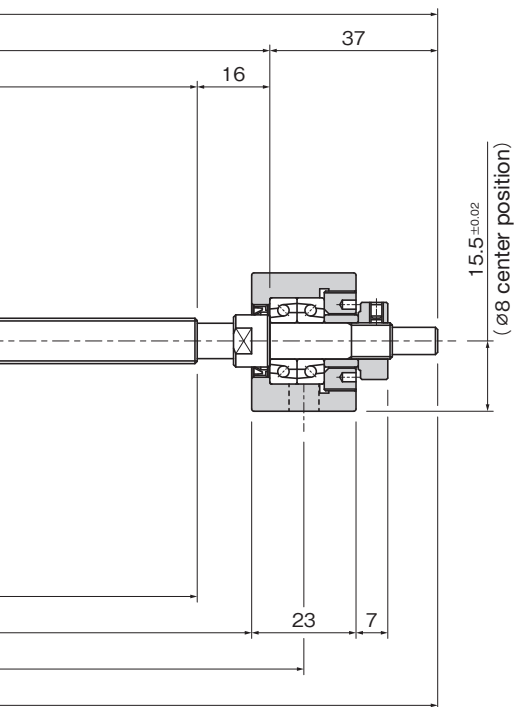
Lead 5

SDA1005VZ-4 + Support Unit for Low Shaft Centers EK8L/EF8L

EF8L (Supported Side)

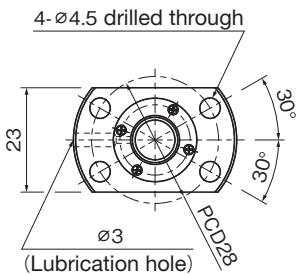
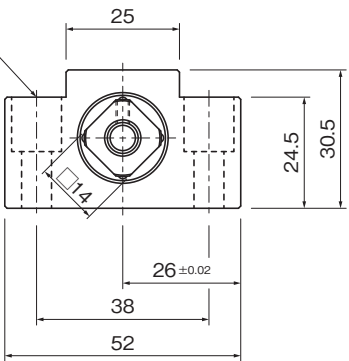


Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis D	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇		
SDA1005VZ-4TTG0+171LC5Y	50	109	125	171	105	117	135.5	172	0.035	
SDA1005VZ-4TTG0+221LC5Y	100	159	175	221	155	167	185.5	222	0.040	
SDA1005VZ-4TTG0+321LC5Y	200	259	275	321	255	267	285.5	322	0.050	
SDA1005VZ-4TTG0+421LC5Y	300	359	375	421	355	367	385.5	422	0.060	

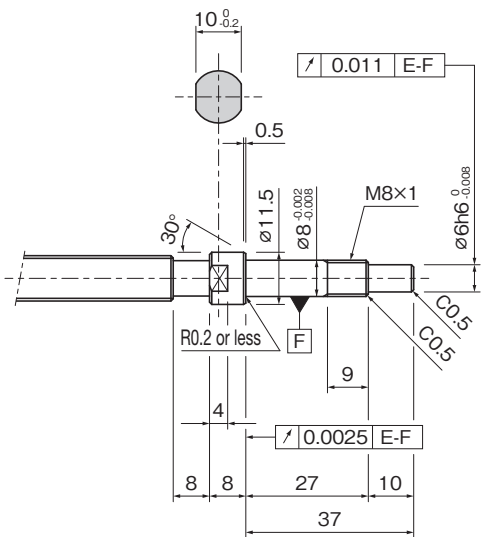


EK8L (Fixed Side)

2-Ø6.6 drilled through, Ø11 counterbore depth 12



X-X view



Unit: mm

	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.020	0.018	0.052	0.585
	±0.020	0.018		
	±0.023	0.018		
	±0.025	0.020		

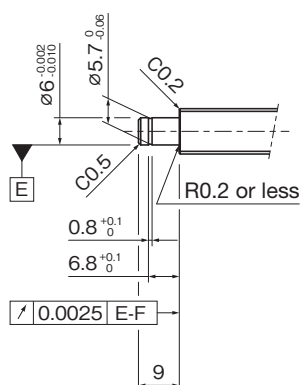
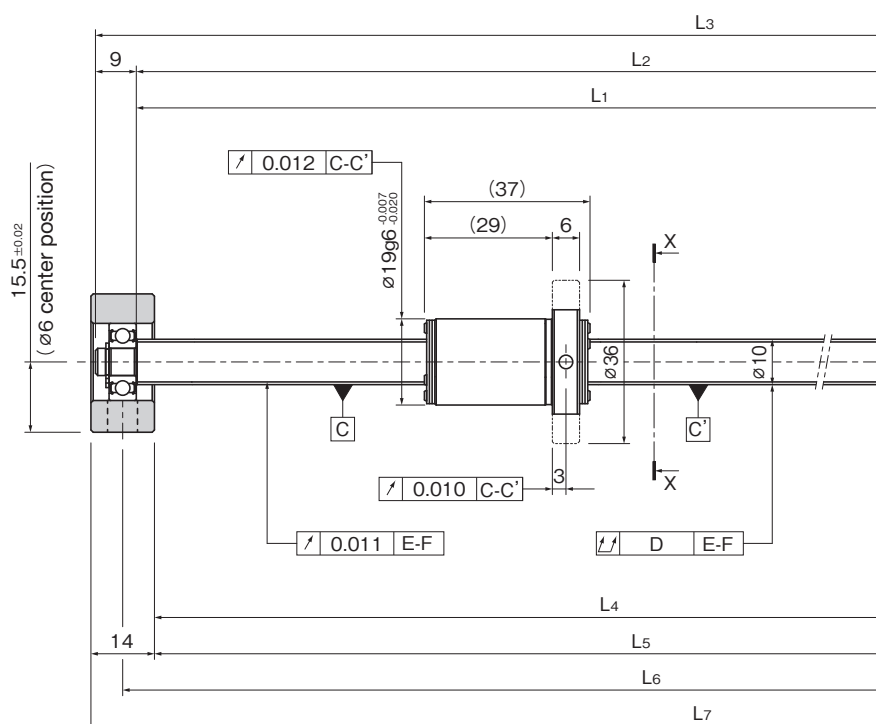
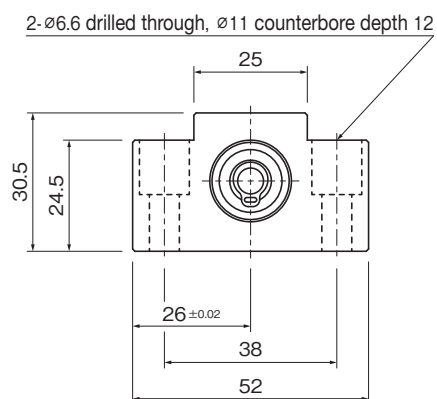
Ball screw specifications

Screw shaft outer diameter (mm)	10
Lead (mm)	5
Ball center-to-center diameter (mm)	10.4
Thread minor diameter (mm)	8.77
Threading direction, No. of threaded grooves	Rightward, 1
No. of circuits	4 turns × 1 row
Axial clearance (mm)	0
Basic dynamic load rating Ca (kN)	3.53
Basic static load rating Coa (kN)	5.44
Preload torque (N·m)	0.001 to 0.037
Rigidity value (N/μm)	143
Permissible rotational speed (min ⁻¹)	5000

Lead 10

SDA1010VZ-3 + Support Unit for Low Shaft Centers EK8L/EF8L

EF8L (Supported Side)

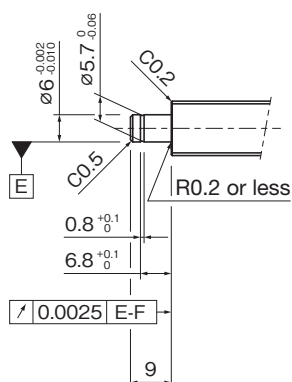
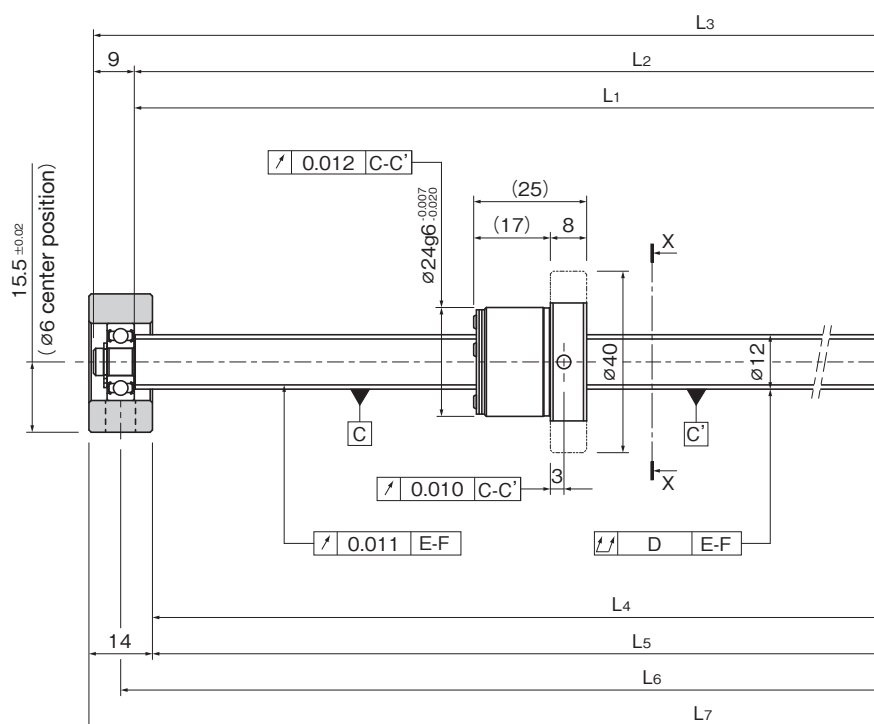
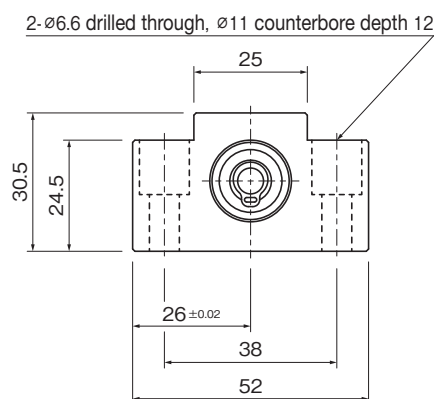


Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis D	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇		
SDA1010VZ-3TTG0+221LC5Y	100	157	175	221	153	167	185.5	222	0.040	
SDA1010VZ-3TTG0+321LC5Y	200	257	275	321	253	267	285.5	322	0.050	
SDA1010VZ-3TTG0+421LC5Y	300	357	375	421	353	367	385.5	422	0.060	

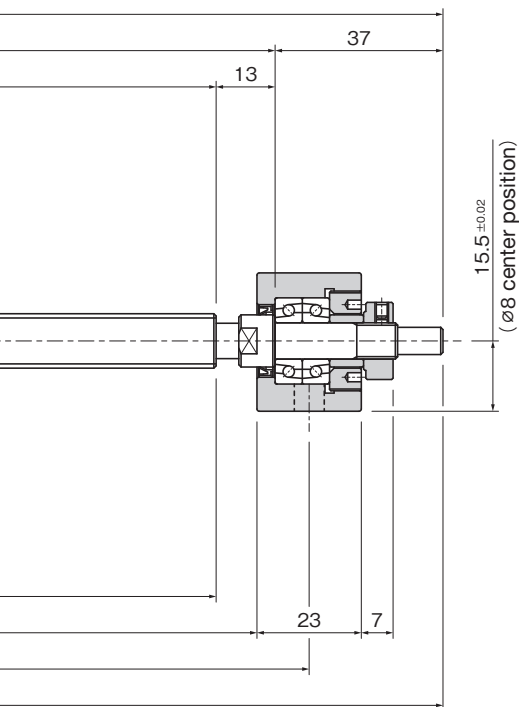
Lead 5

SDA1205VZ-3 + Support Unit for Low Shaft Centers EK8L/EF8L

EF8L (Supported Side)

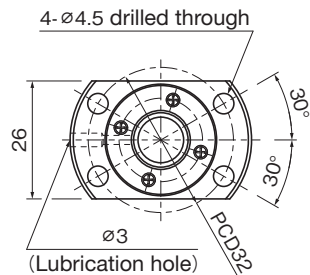
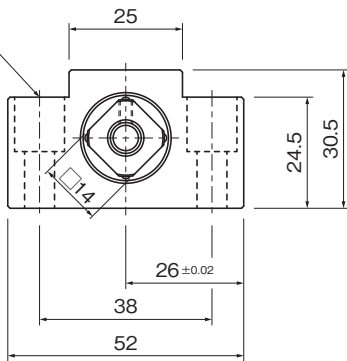


Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis D	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇		
SDA1205VZ-3TTG0+171LC5Y	50	112	125	171	108	117	135.5	172	0.035	
SDA1205VZ-3TTG0+221LC5Y	100	162	175	221	158	167	185.5	222	0.040	
SDA1205VZ-3TTG0+321LC5Y	200	262	275	321	258	267	285.5	322	0.050	
SDA1205VZ-3TTG0+421LC5Y	300	362	375	421	358	367	385.5	422	0.060	
SDA1205VZ-3TTG0+521LC5Y	400	462	475	521	458	467	485.5	522	0.070	
SDA1205VZ-3TTG0+621LC5Y	500	562	575	621	558	567	585.5	622	0.070	

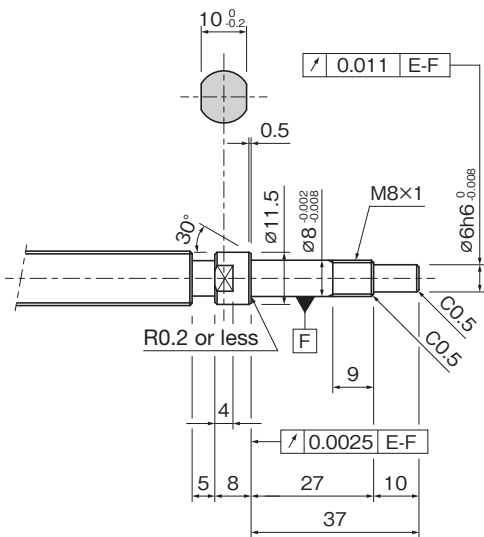


EK8L (Fixed Side)

2-ø6.6 drilled through, ø11 counterbore depth 12



X-X view



Unit: mm

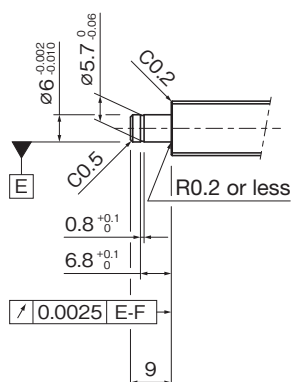
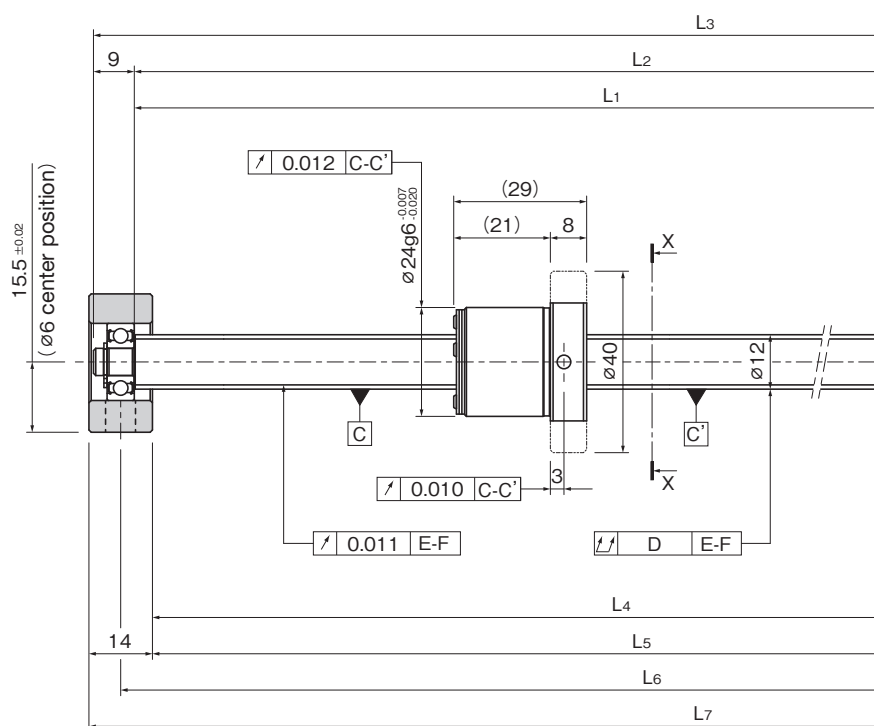
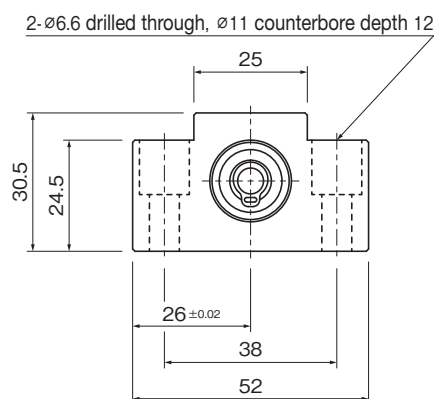
	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.020	0.018	0.073	0.796
	±0.020	0.018		
	±0.023	0.018		
	±0.025	0.020		
	±0.027	0.020		
	±0.030	0.023		

Ball screw specifications		
Screw shaft outer diameter	(mm)	12
Lead	(mm)	5
Ball center-to-center diameter	(mm)	12.5
Thread minor diameter	(mm)	10.06
Threading direction, No. of threaded grooves	Rightward, 1	
No. of circuits	3 turns × 1 row	
Axial clearance	(mm)	0
Basic dynamic load rating Ca	(kN)	4.99
Basic static load rating Coa	(kN)	7.02
Preload torque	(N·m)	0.006 to 0.044
Rigidity value	(N/μm)	128
Permissible rotational speed	(min ⁻¹)	5000

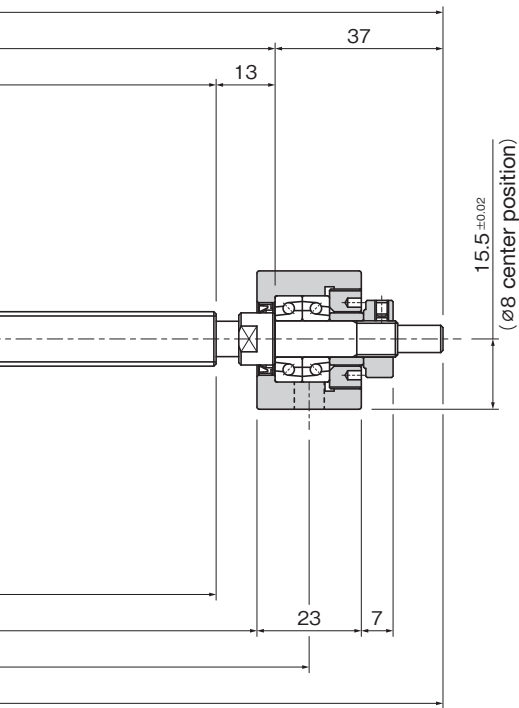
Lead 10

SDA1210VZ-2 + Support Unit for Low Shaft Centers EK8L/EF8L

EF8L (Supported Side)

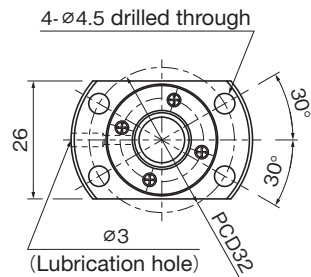
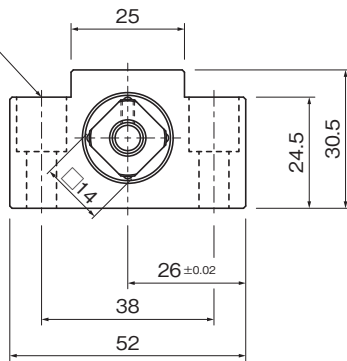


Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis D	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇		
SDA1210VZ-2TTG0+221LC5Y	100	162	175	221	158	167	185.5	222	0.040	
SDA1210VZ-2TTG0+321LC5Y	200	262	275	321	258	267	285.5	322	0.050	
SDA1210VZ-2TTG0+421LC5Y	300	362	375	421	358	367	385.5	422	0.060	
SDA1210VZ-2TTG0+521LC5Y	400	462	475	521	458	467	485.5	522	0.070	
SDA1210VZ-2TTG0+621LC5Y	500	562	575	621	558	567	585.5	622	0.070	

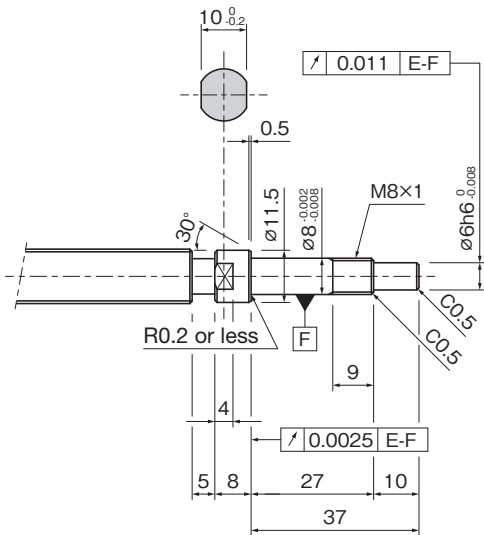


EK8L (Fixed Side)

2-ø6.6 drilled through, ø11 counterbore depth 12



X-X view



Unit: mm

	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.020	0.018	0.082	0.841
	±0.023	0.018		
	±0.025	0.020		
	±0.027	0.020		
	±0.030	0.023		

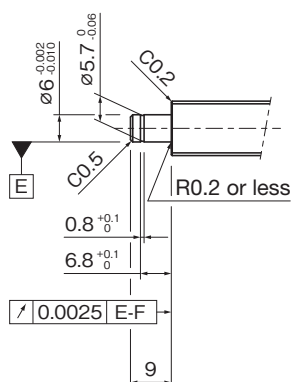
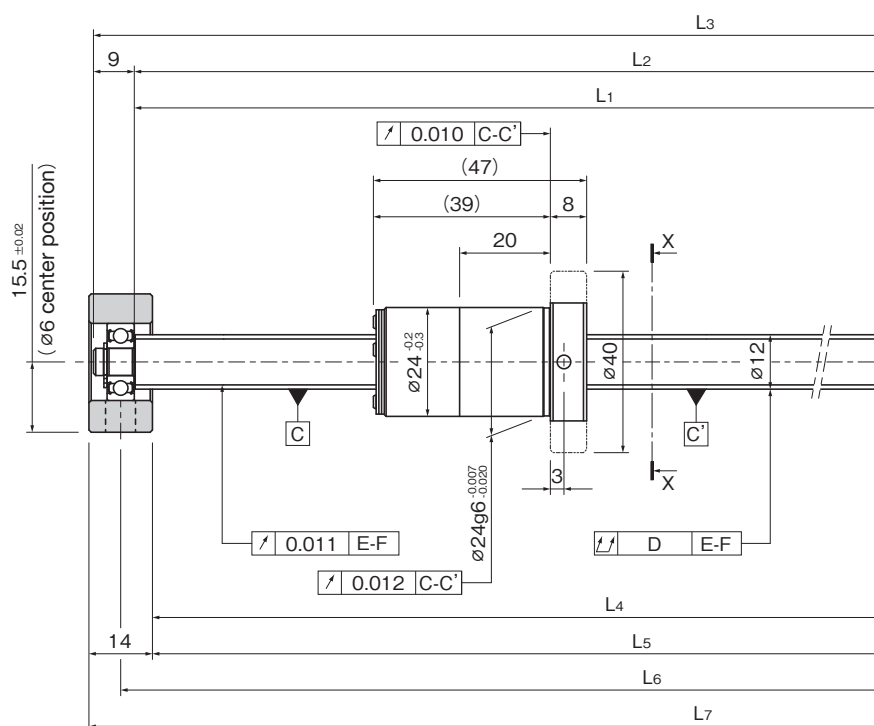
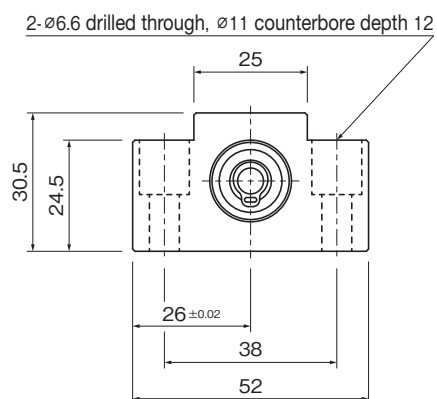
Ball screw specifications

Screw shaft outer diameter (mm)	12
Lead (mm)	10
Ball center-to-center diameter (mm)	12.5
Thread minor diameter (mm)	10.06
Threading direction, No. of threaded grooves	Rightward, 1
No. of circuits	2 turns × 1 row
Axial clearance (mm)	0
Basic dynamic load rating Ca (kN)	3.31
Basic static load rating Coa (kN)	4.25
Preload torque (N·m)	0.006 to 0.040
Rigidity value (N/μm)	83
Permissible rotational speed (min ⁻¹)	5000

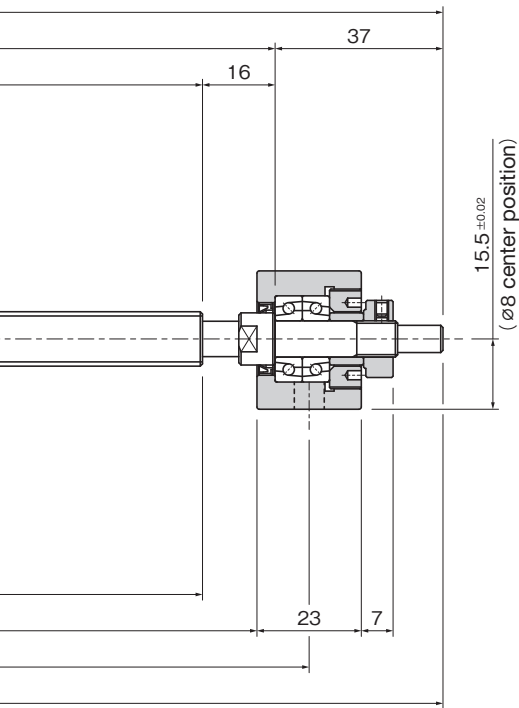
Lead 20

SDA1220VZ-2 + Support Unit for Low Shaft Centers EK8L/EF8L

EF8L (Supported Side)

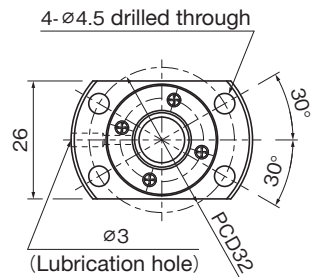
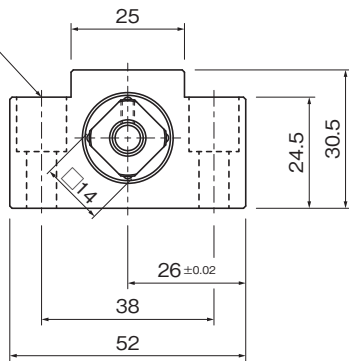


Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis D	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇		
SDA1220VZ-2TTG0+271LC5Y	100	209	225	271	205	217	235.5	272	0.040	
SDA1220VZ-2TTG0+371LC5Y	200	309	325	371	305	317	335.5	372	0.050	
SDA1220VZ-2TTG0+471LC5Y	300	409	425	471	405	417	435.5	472	0.060	
SDA1220VZ-2TTG0+571LC5Y	400	509	525	571	505	517	535.5	572	0.070	
SDA1220VZ-2TTG0+671LC5Y	500	609	625	671	605	617	635.5	672	0.080	

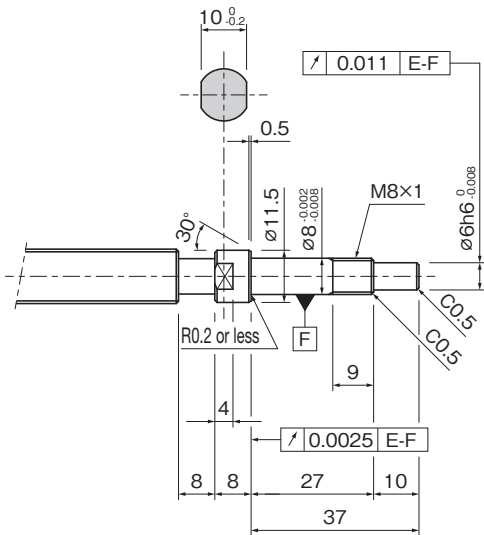


EK8L (Fixed Side)

2-Ø6.6 drilled through, Ø11 counterbore depth 12



X-X view



Unit: mm

	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.023	0.018	0.126	0.863
	±0.023	0.018		
	±0.027	0.020		
	±0.030	0.023		
	±0.030	0.023		

Ball screw specifications

Screw shaft outer diameter (mm)	12
Lead (mm)	20
Ball center-to-center diameter (mm)	12.5
Thread minor diameter (mm)	10.06
Threading direction, No. of threaded grooves	Rightward, 1
No. of circuits	2 turns × 1 row
Axial clearance (mm)	0
Basic dynamic load rating Ca (kN)	3.13
Basic static load rating Coa (kN)	4.63
Preload torque (N·m)	0.007 to 0.056
Rigidity value (N/μm)	87
Permissible rotational speed (min ⁻¹)	5000

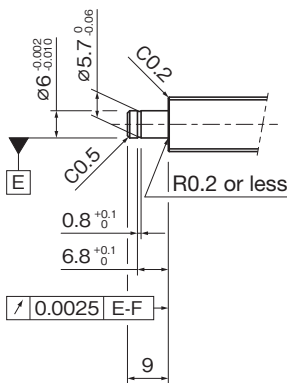
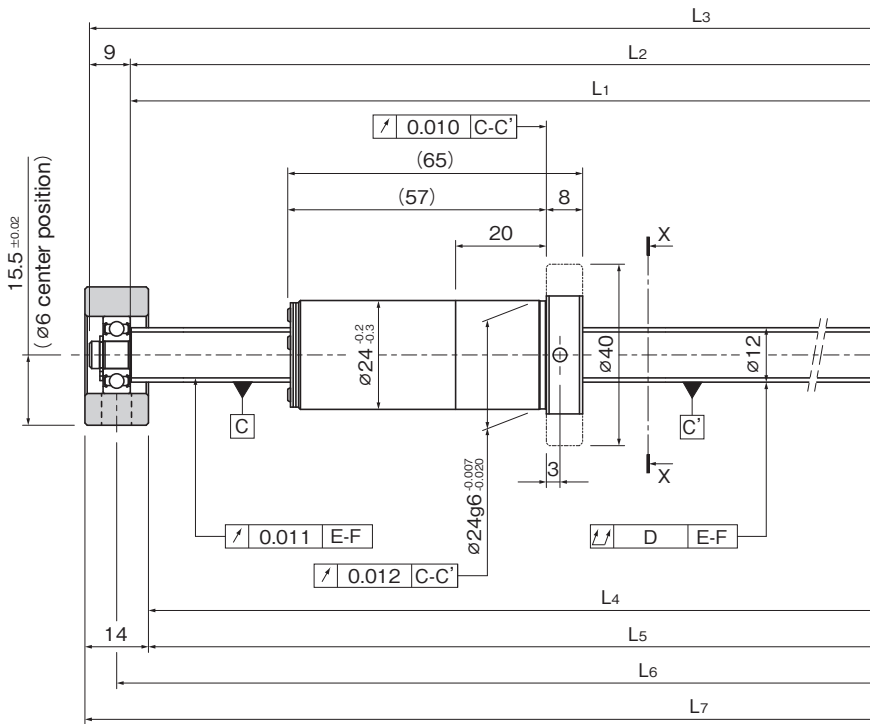
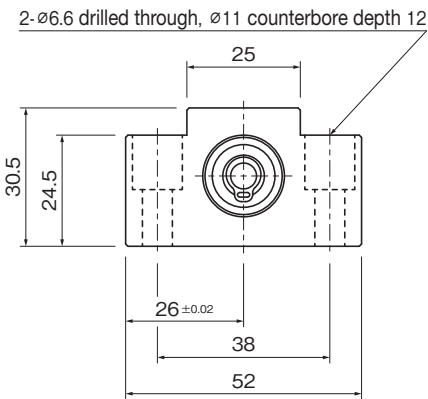
Dimensional Table

Shaft diameter 12

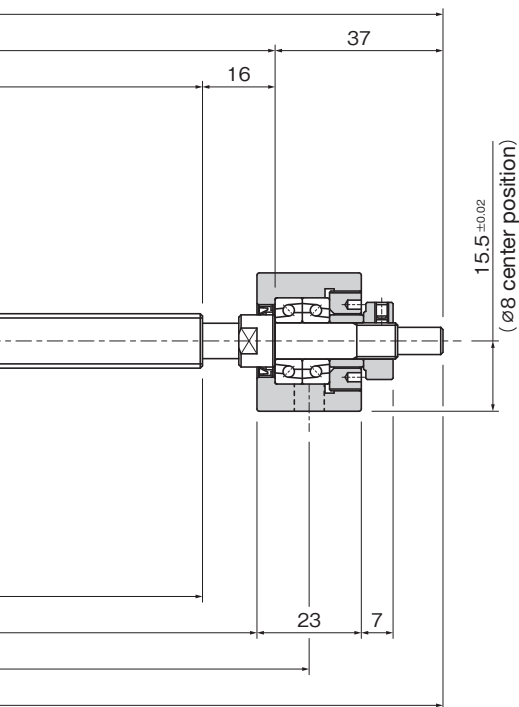
Lead 30

SDA1230VZ-2 + Support Unit for Low Shaft Centers EK8L/EF8L

EF8L (Supported Side)

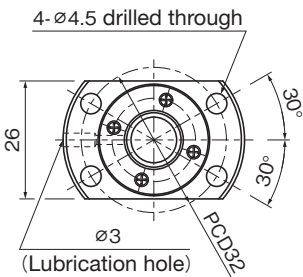
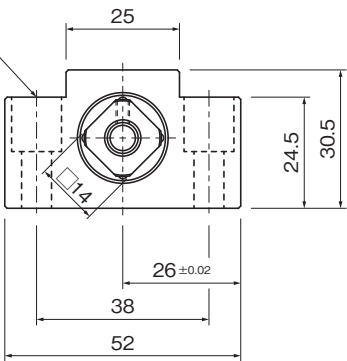


Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis D	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇		
SDA1230VZ-2TTG0+271LC5Y	100	209	225	271	205	217	235.5	272	0.040	
SDA1230VZ-2TTG0+371LC5Y	200	309	325	371	305	317	335.5	372	0.050	
SDA1230VZ-2TTG0+471LC5Y	300	409	425	471	405	417	435.5	472	0.060	
SDA1230VZ-2TTG0+571LC5Y	400	509	525	571	505	517	535.5	572	0.070	
SDA1230VZ-2TTG0+671LC5Y	500	609	625	671	605	617	635.5	672	0.080	

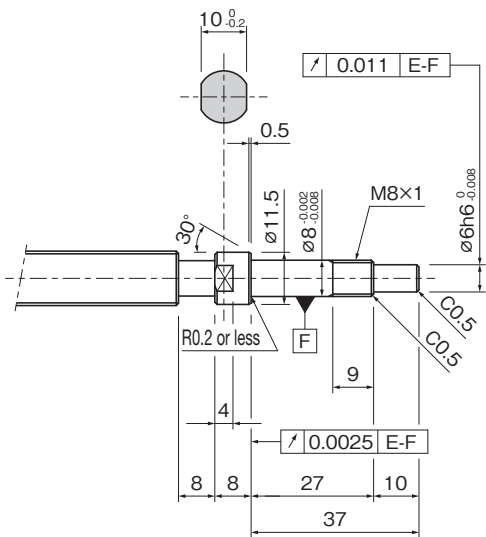


EK8L (Fixed Side)

2-ø6.6 drilled through, ø11 counterbore depth 12



X-X view



Unit: mm

	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.023	0.018	0.172	0.869
	±0.023	0.018		
	±0.027	0.020		
	±0.030	0.023		
	±0.030	0.023		

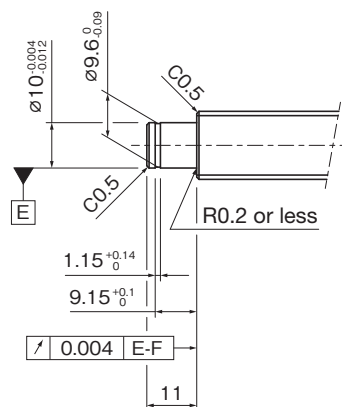
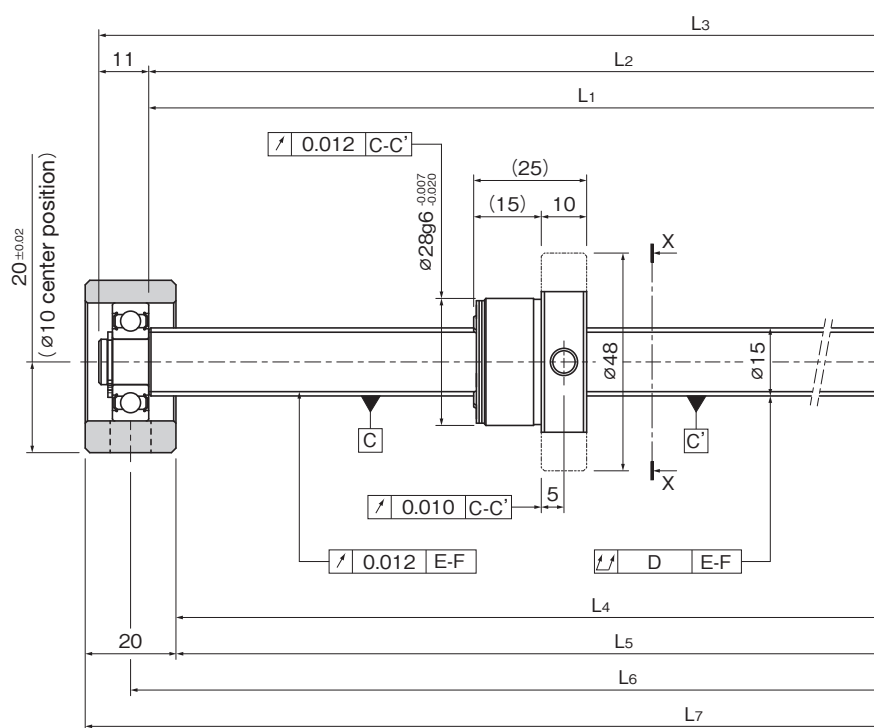
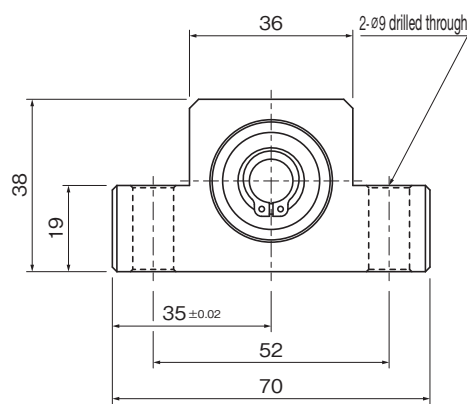
Ball screw specifications		
Screw shaft outer diameter	(mm)	12
Lead	(mm)	30
Ball center-to-center diameter	(mm)	12.5
Thread minor diameter	(mm)	10.06
Threading direction, No. of threaded grooves	Rightward, 1	
No. of circuits	2 turns × 1 row	
Axial clearance	(mm)	0
Basic dynamic load rating Ca	(kN)	2.92
Basic static load rating Coa	(kN)	4.14
Preload torque	(N·m)	0.008 to 0.066
Rigidity value	(N/μm)	91
Permissible rotational speed	(min ⁻¹)	5000

Dimensional Table

Shaft diameter 15 Lead 5

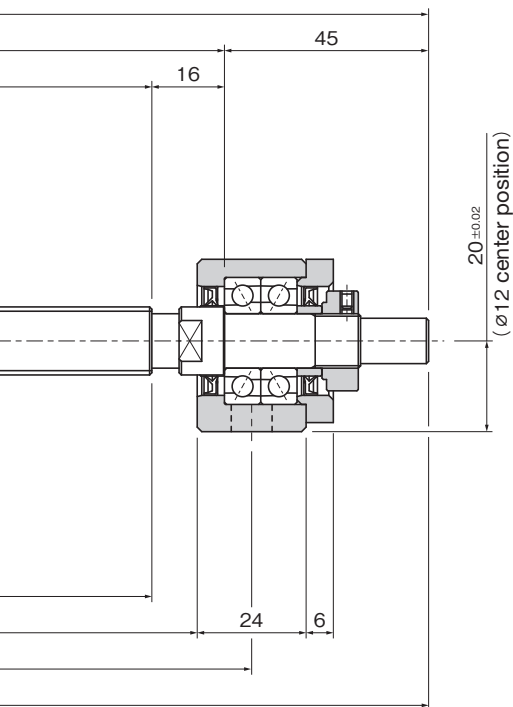
SDA1505VCZ-3 + Support Unit for Low Shaft Centers EK12L/EF12L

EF12L (Supported Side)

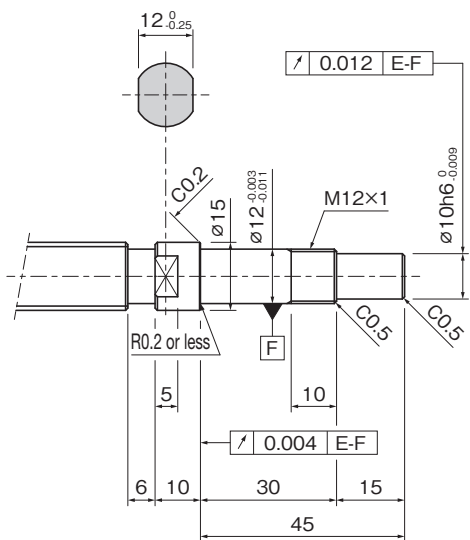
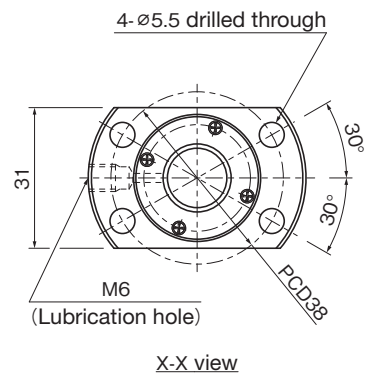
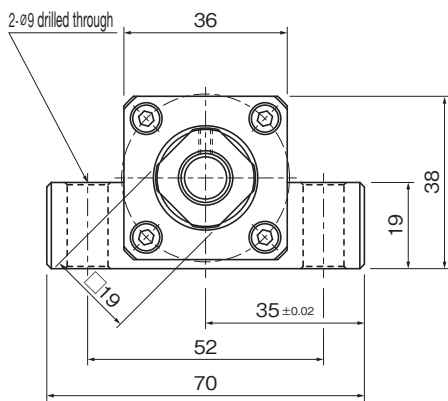


Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇	D	
SDA1505VCZ-3TTG0+210LC5Y	50	138	154	210	132	142	164	213	0.030	
SDA1505VCZ-3TTG0+260LC5Y	100	188	204	260	182	192	214	263	0.030	
SDA1505VCZ-3TTG0+360LC5Y	200	288	304	360	282	292	314	363	0.035	
SDA1505VCZ-3TTG0+460LC5Y	300	388	404	460	382	392	414	463	0.040	
SDA1505VCZ-3TTG0+560LC5Y	400	488	504	560	482	492	514	563	0.050	
SDA1505VCZ-3TTG0+660LC5Y	500	588	604	660	582	592	614	663	0.065	
SDA1505VCZ-3TTG0+760LC5Y	600	688	704	760	682	692	714	763	0.065	





EK12L (Fixed Side)



Unit: mm

	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.020	0.018	0.13	1.27
	±0.020	0.018		
	±0.023	0.018		
	±0.025	0.020		
	±0.027	0.020		
	±0.030	0.023		
	±0.035	0.025		

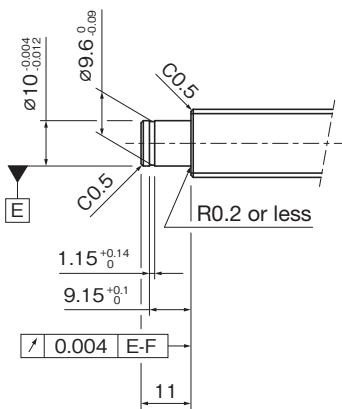
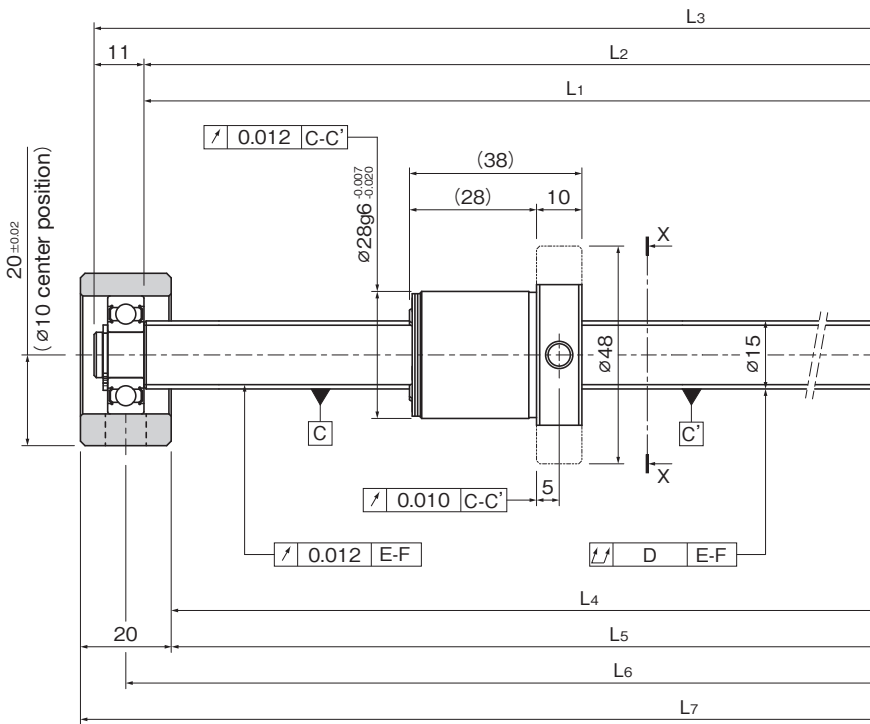
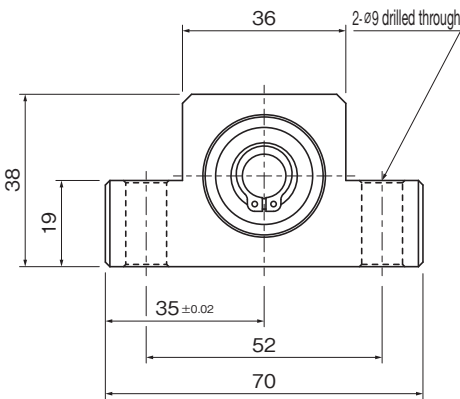
Ball screw specifications		
Screw shaft outer diameter	(mm)	15
Lead	(mm)	5
Ball center-to-center diameter	(mm)	15.5
Thread minor diameter	(mm)	13.1
Threading direction, No. of threaded grooves	Rightward, 1	
No. of circuits	3 turns × 1 row	
Axial clearance	(mm)	0
Basic dynamic load rating Ca	(kN)	5.6
Basic static load rating Coa	(kN)	8.8
Preload torque	(N·m)	0.01 to 0.07
Rigidity value	(N/μm)	153
Permissible rotational speed	(min ⁻¹)	5000

Dimensional Table

Shaft diameter 15 Lead 10

SDA1510VCZ-3 + Support Unit for Low Shaft Centers EK12L/EF12L

EF12L (Supported Side)



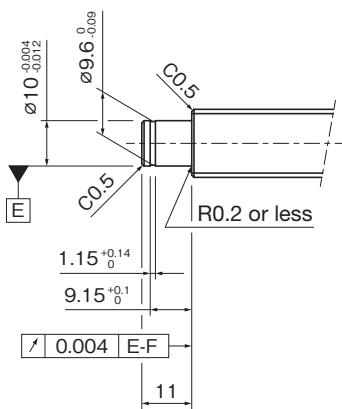
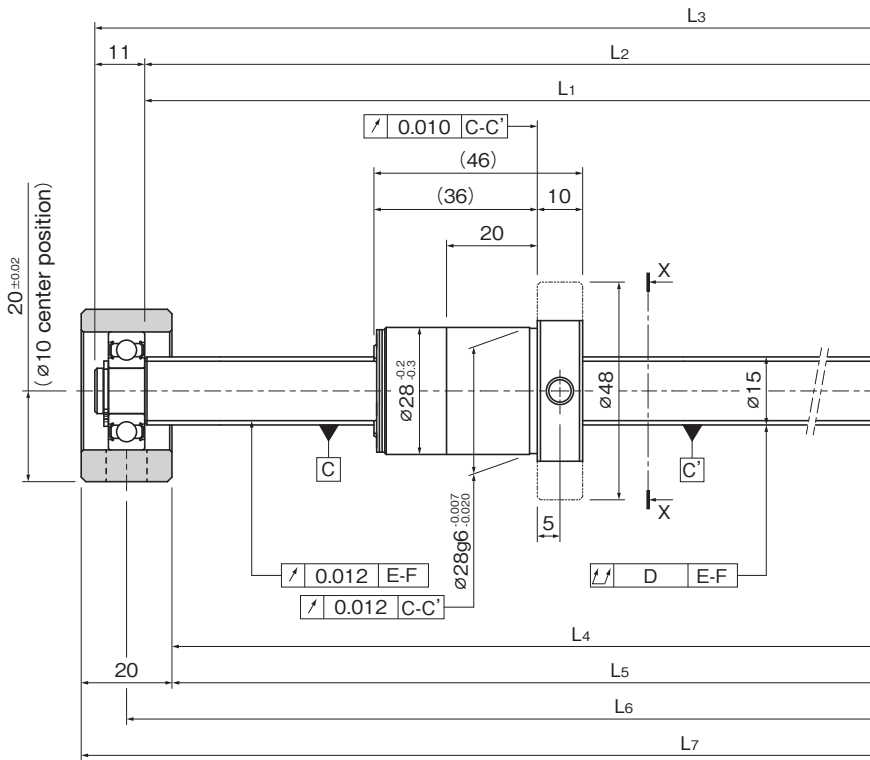
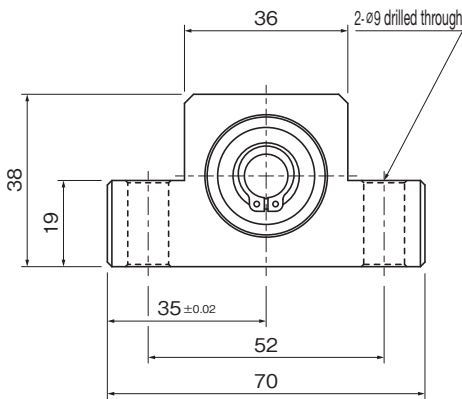
Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis D	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇		
SDA1510VCZ-3TTG0+260LC5Y	100	185	204	260	179	192	214	263	0.030	
SDA1510VCZ-3TTG0+360LC5Y	200	285	304	360	279	292	314	363	0.035	
SDA1510VCZ-3TTG0+460LC5Y	300	385	404	460	379	392	414	463	0.040	
SDA1510VCZ-3TTG0+560LC5Y	400	485	504	560	479	492	514	563	0.050	
SDA1510VCZ-3TTG0+660LC5Y	500	585	604	660	579	592	614	663	0.065	
SDA1510VCZ-3TTG0+760LC5Y	600	685	704	760	679	692	714	763	0.065	
SDA1510VCZ-3TTG0+860LC5Y	700	785	804	860	779	792	814	863	0.085	
SDA1510VCZ-3TTG0+960LC5Y	800	885	904	960	879	892	914	963	0.085	

Dimensional Table

Shaft diameter 15 Lead 20

SDA1520VCZ-4 + Support Unit for Low Shaft Centers EK12L/EF12L

EF12L (Supported Side)



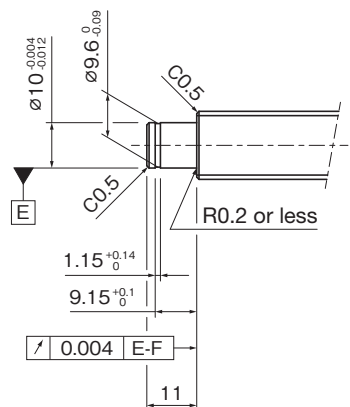
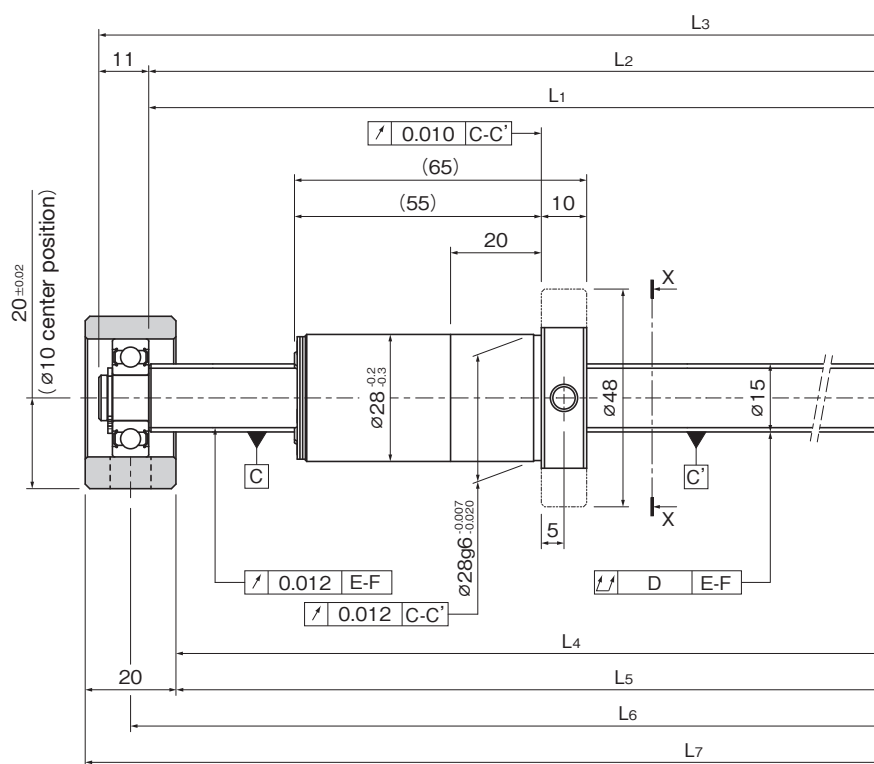
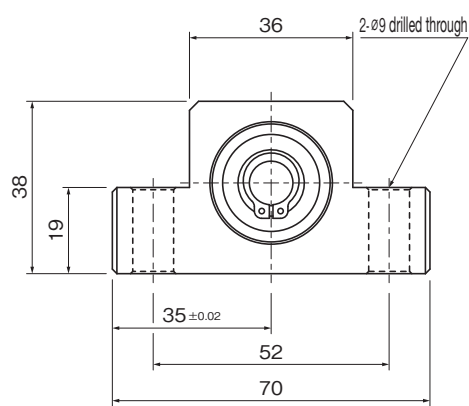
Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis D	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇		
SDA1520VCZ-4TTG0+260LC5Y	100	181	204	260	175	192	214	263	0.030	
SDA1520VCZ-4TTG0+360LC5Y	200	281	304	360	275	292	314	363	0.035	
SDA1520VCZ-4TTG0+460LC5Y	300	381	404	460	375	392	414	463	0.040	
SDA1520VCZ-4TTG0+560LC5Y	400	481	504	560	475	492	514	563	0.050	
SDA1520VCZ-4TTG0+660LC5Y	500	581	604	660	575	592	614	663	0.065	
SDA1520VCZ-4TTG0+760LC5Y	600	681	704	760	675	692	714	763	0.065	
SDA1520VCZ-4TTG0+860LC5Y	700	781	804	860	775	792	814	863	0.085	
SDA1520VCZ-4TTG0+960LC5Y	800	881	904	960	875	892	914	963	0.085	

Dimensional Table

Shaft diameter 15 Lead 30

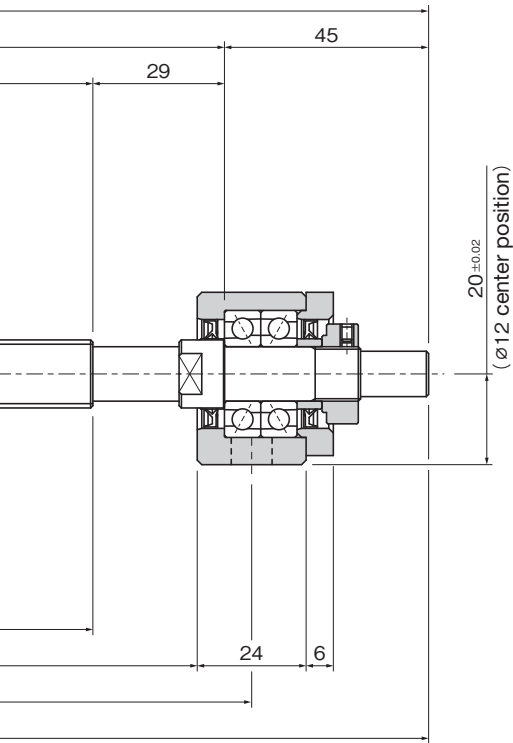
SDA1530VCZ-4 + Support Unit for Low Shaft Centers EK12L/EF12L

EF12L (Supported Side)

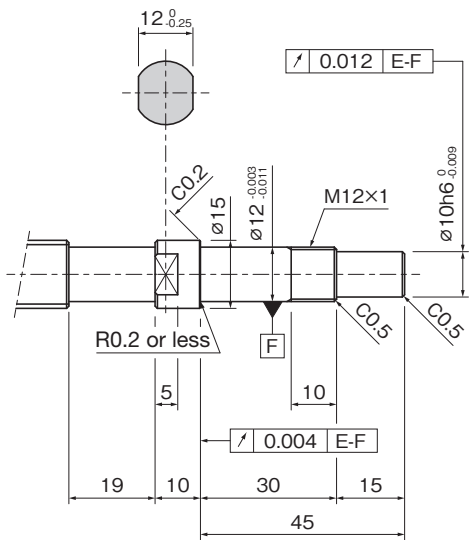
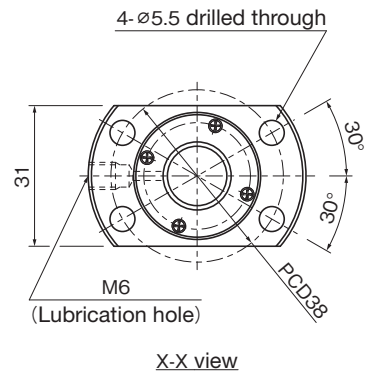
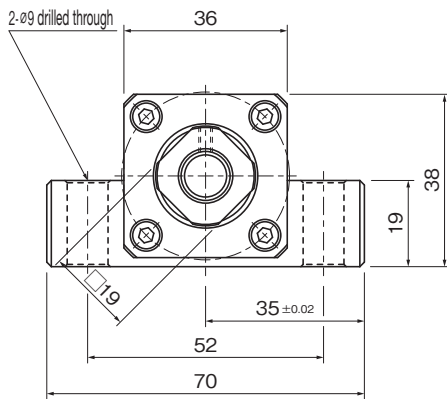


Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis D	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇		
SDA1530VCZ-4TTG0+310LC5Y	100	225	254	310	219	242	264	313	0.030	
SDA1530VCZ-4TTG0+410LC5Y	200	325	354	410	319	342	364	413	0.040	
SDA1530VCZ-4TTG0+510LC5Y	300	425	454	510	419	442	464	513	0.050	
SDA1530VCZ-4TTG0+610LC5Y	400	525	554	610	519	542	564	613	0.050	
SDA1530VCZ-4TTG0+710LC5Y	500	625	654	710	619	642	664	713	0.065	
SDA1530VCZ-4TTG0+810LC5Y	600	725	754	810	719	742	764	813	0.085	
SDA1530VCZ-4TTG0+910LC5Y	700	825	854	910	819	842	864	913	0.085	
SDA1530VCZ-4TTG0+1010LC5Y	800	925	954	1010	919	942	964	1013	0.110	





EK12L (Fixed Side)



Unit: mm

	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.023	0.018	0.25	1.34
	±0.025	0.020		
	±0.027	0.020		
	±0.030	0.023		
	±0.030	0.023		
	±0.035	0.025		
	±0.040	0.027		
	±0.040	0.027		

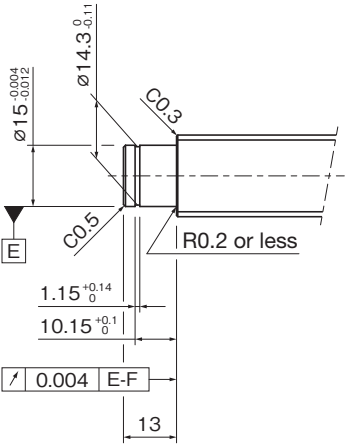
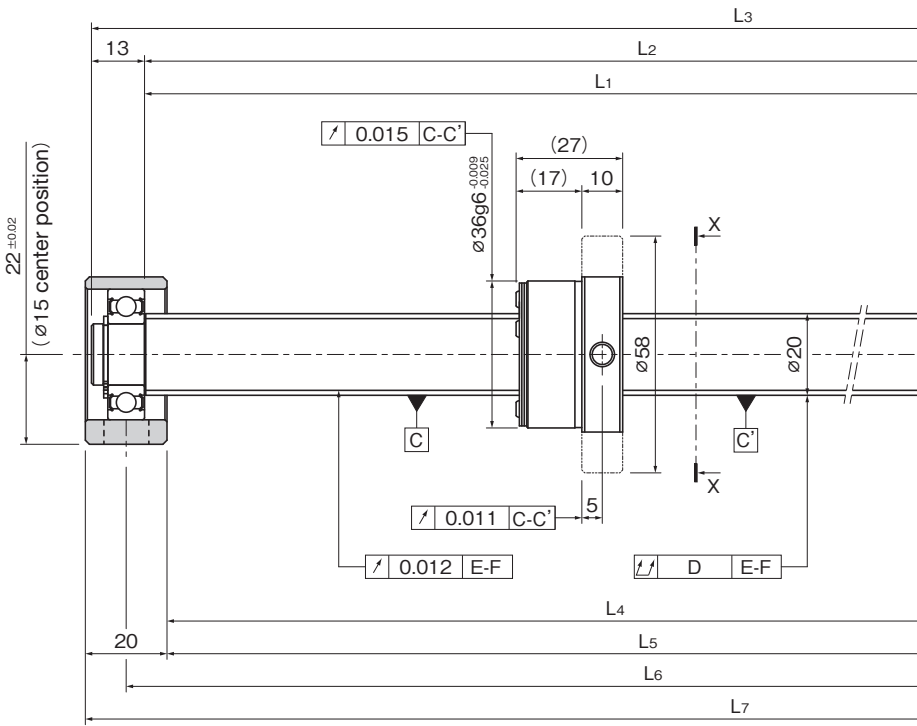
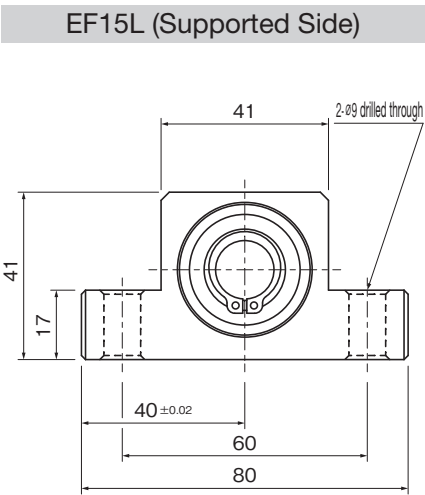
Ball screw specifications

Screw shaft outer diameter (mm)	15
Lead (mm)	30
Ball center-to-center diameter (mm)	15.5
Thread minor diameter (mm)	13.1
Threading direction, No. of threaded grooves	Rightward, 2
No. of circuits	2 turns × 2 rows
Axial clearance (mm)	0
Basic dynamic load rating Ca (kN)	6.2
Basic static load rating Coa (kN)	9.7
Preload torque (N·m)	0.01 to 0.07
Rigidity value (N/μm)	205
Permissible rotational speed (min ⁻¹)	5000

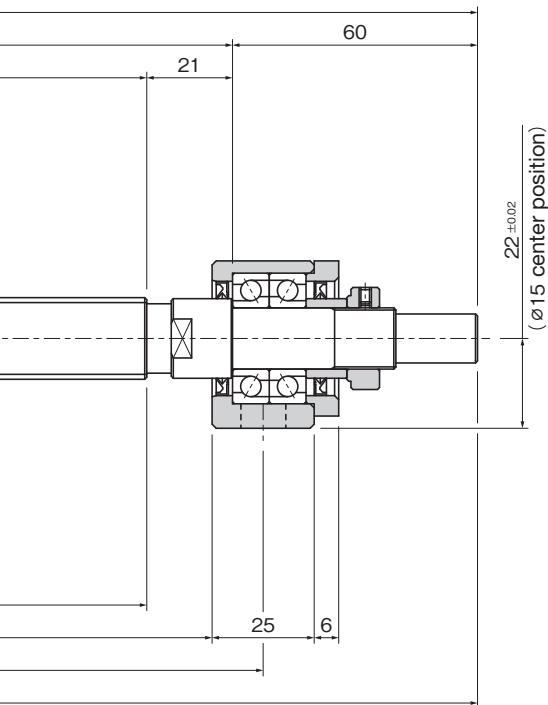
Dimensional Table

Shaft diameter 20 Lead 5

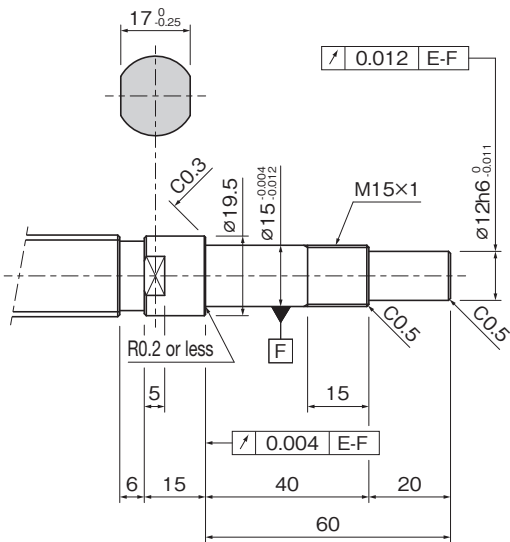
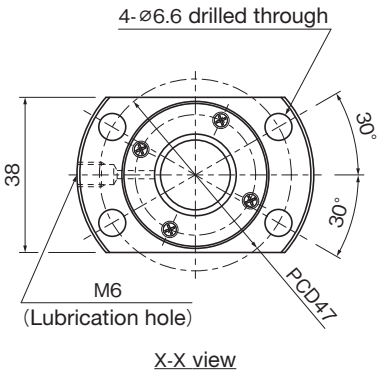
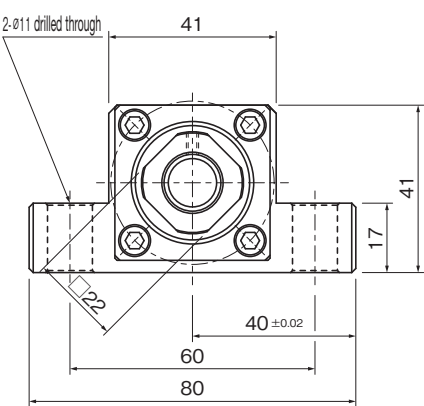
SDA2005VCZ-3 + Support Unit for Low Shaft Centers EK15L/EF15L



Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇	D	
SDA2005VCZ-3TTG0+323LC5Y	150	229	250	323	223.5	239.5	262	324.5	0.035	
SDA2005VCZ-3TTG0+373LC5Y	200	279	300	373	273.5	289.5	312	374.5	0.035	
SDA2005VCZ-3TTG0+473LC5Y	300	379	400	473	373.5	389.5	412	474.5	0.040	
SDA2005VCZ-3TTG0+573LC5Y	400	479	500	573	473.5	489.5	512	574.5	0.050	
SDA2005VCZ-3TTG0+673LC5Y	500	579	600	673	573.5	589.5	612	674.5	0.065	
SDA2005VCZ-3TTG0+773LC5Y	600	679	700	773	673.5	689.5	712	774.5	0.065	
SDA2005VCZ-3TTG0+873LC5Y	700	779	800	873	773.5	789.5	812	874.5	0.085	
SDA2005VCZ-3TTG0+973LC5Y	800	879	900	973	873.5	889.5	912	974.5	0.085	



EK15L (Fixed Side)



Unit: mm

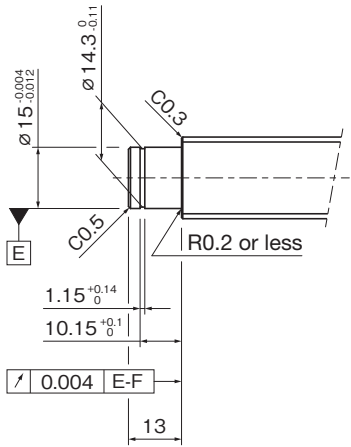
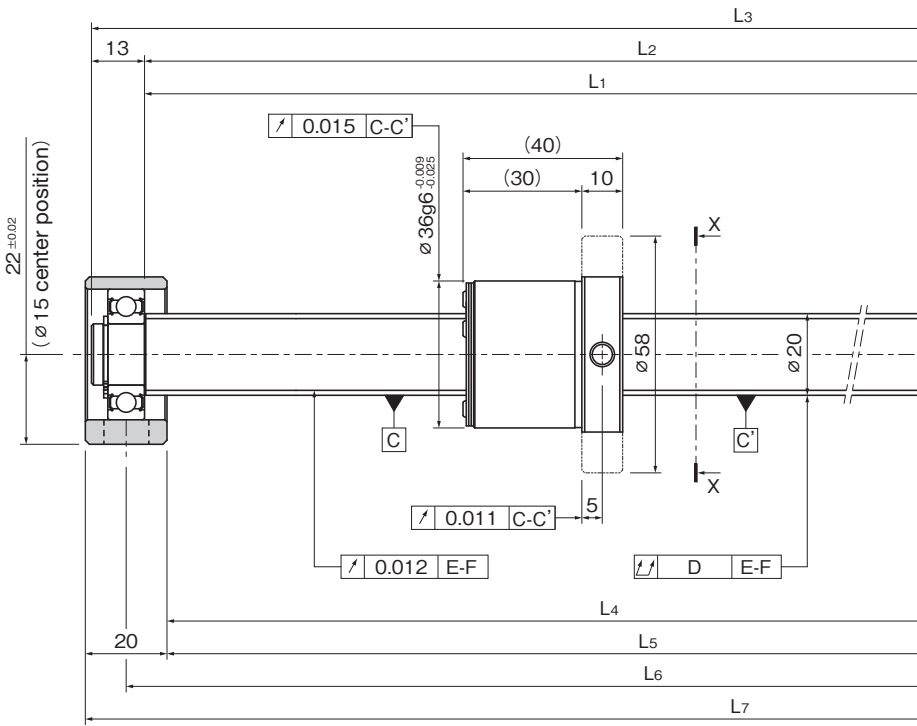
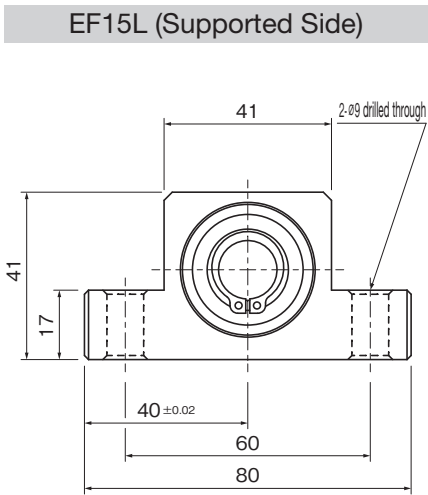
	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.023	0.018	0.18	2.21
	±0.023	0.018		
	±0.025	0.020		
	±0.027	0.020		
	±0.030	0.023		
	±0.035	0.025		
	±0.035	0.025		
	±0.040	0.027		

Ball screw specifications		
Screw shaft outer diameter	(mm)	20
Lead	(mm)	5
Ball center-to-center diameter	(mm)	20.75
Thread minor diameter	(mm)	17.1
Threading direction, No. of threaded grooves	Rightward, 1	
No. of circuits	3 turns × 1 row	
Axial clearance	(mm)	0
Basic dynamic load rating Ca	(kN)	11.1
Basic static load rating Coa	(kN)	18.9
Preload torque	(N·m)	0.01 to 0.07
Rigidity value	(N/μm)	213
Permissible rotational speed	(min ⁻¹)	4810

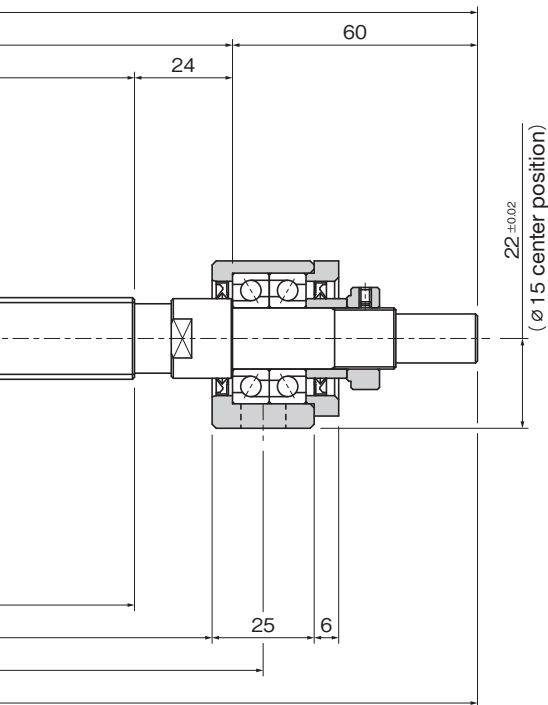
Dimensional Table

Shaft diameter 20 Lead 10

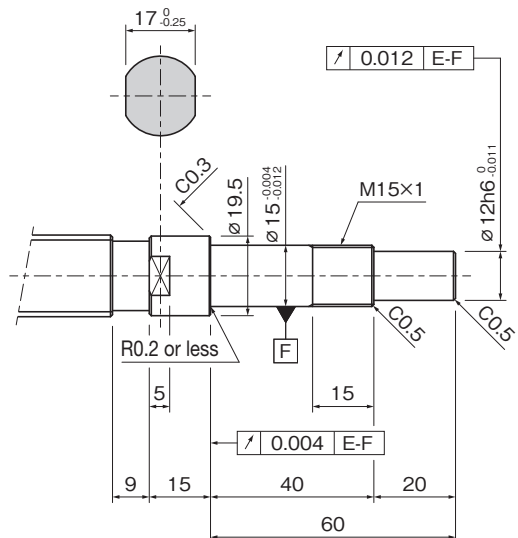
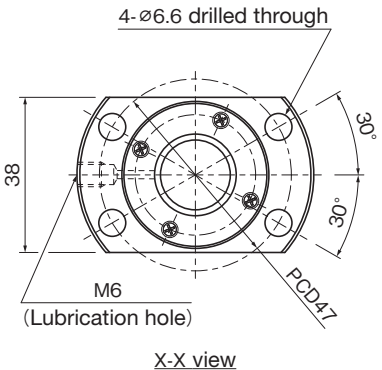
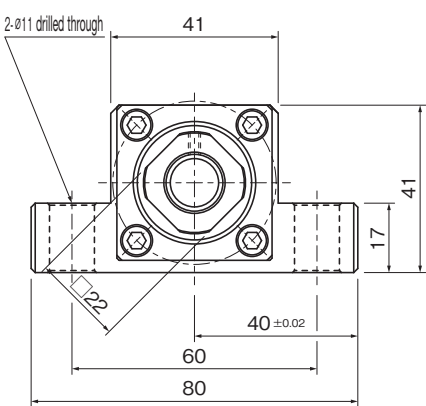
SDA2010VCZ-3 + Support Unit for Low Shaft Centers EK15L/EF15L



Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇	D	
SDA2010VCZ-3TTG0+387LC5Y	200	290	314	387	284.5	303.5	326	388.5	0.035	
SDA2010VCZ-3TTG0+487LC5Y	300	390	414	487	384.5	403.5	426	488.5	0.040	
SDA2010VCZ-3TTG0+587LC5Y	400	490	514	587	484.5	503.5	526	588.5	0.050	
SDA2010VCZ-3TTG0+687LC5Y	500	590	614	687	584.5	603.5	626	688.5	0.065	
SDA2010VCZ-3TTG0+787LC5Y	600	690	714	787	684.5	703.5	726	788.5	0.065	
SDA2010VCZ-3TTG0+887LC5Y	700	790	814	887	784.5	803.5	826	888.5	0.085	
SDA2010VCZ-3TTG0+987LC5Y	800	890	914	987	884.5	903.5	926	988.5	0.085	
SDA2010VCZ-3TTG0+1187LC5Y	1000	1090	1114	1187	1084.5	1103.5	1126	1188.5	0.110	
SDA2010VCZ-3TTG0+1387LC5Y	1200	1290	1314	1387	1284.5	1303.5	1326	1388.5	0.150	



EK15L (Fixed Side)



Unit: mm

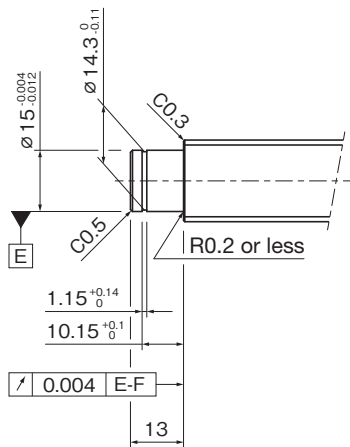
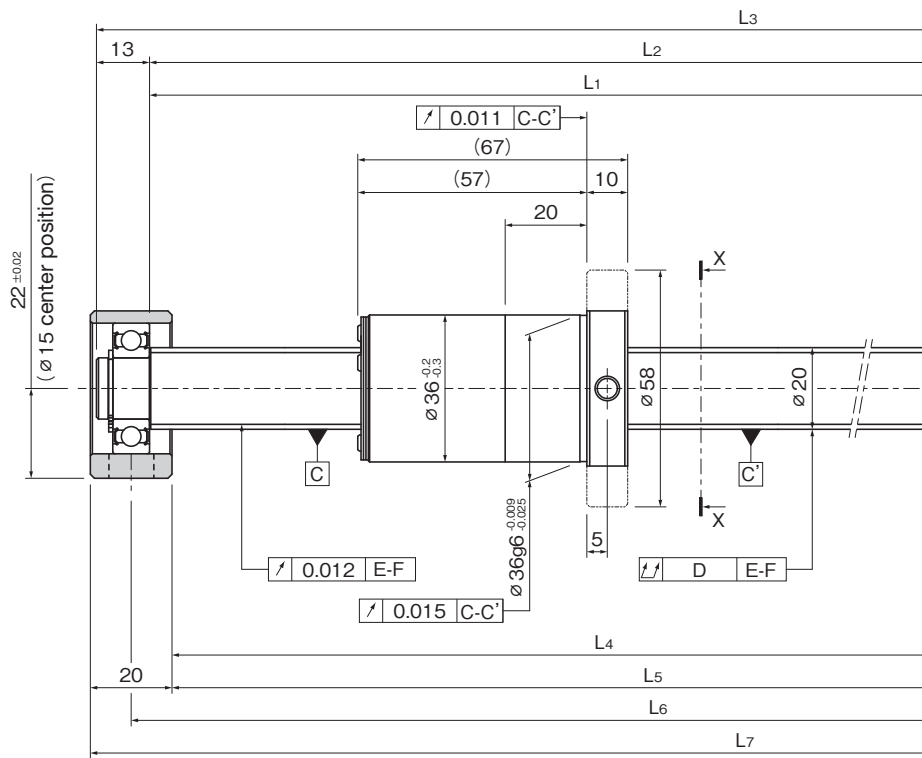
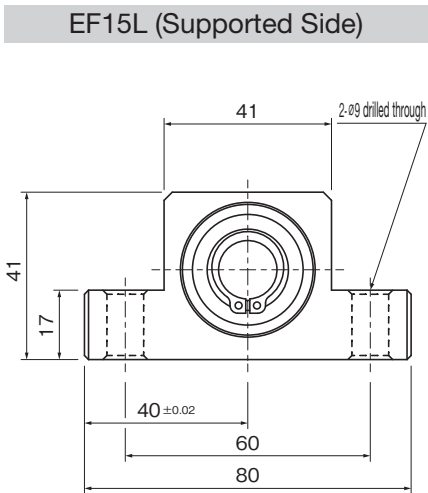
	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.023	0.018	0.25	2.34
	±0.025	0.020		
	±0.027	0.020		
	±0.030	0.023		
	±0.035	0.025		
	±0.035	0.025		
	±0.040	0.027		
	±0.046	0.030		
	±0.054	0.035		

Ball screw specifications		
Screw shaft outer diameter	(mm)	20
Lead	(mm)	10
Ball center-to-center diameter	(mm)	20.75
Thread minor diameter	(mm)	17.1
Threading direction, No. of threaded grooves		Rightward, 1
No. of circuits		3 turns × 1 row
Axial clearance	(mm)	0
Basic dynamic load rating Ca	(kN)	11
Basic static load rating Coa	(kN)	19
Preload torque	(N·m)	0.01 to 0.07
Rigidity value	(N/μm)	213
Permissible rotational speed	(min ⁻¹)	4810

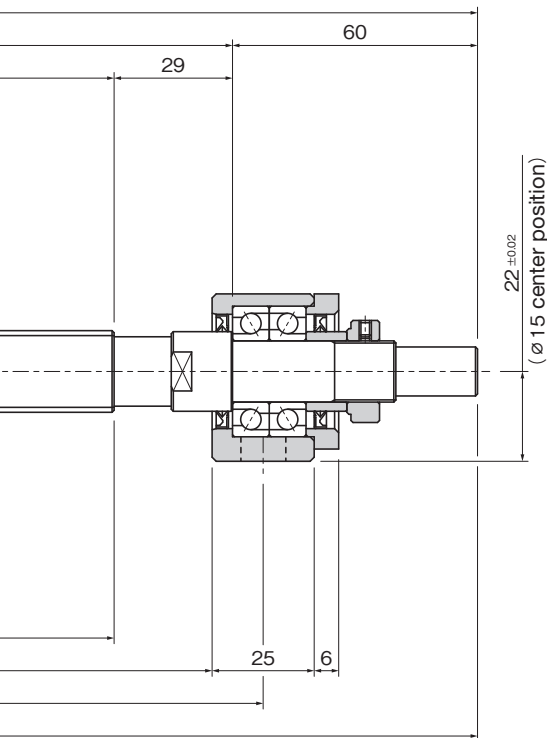
Dimensional Table

Shaft diameter 20 Lead 20

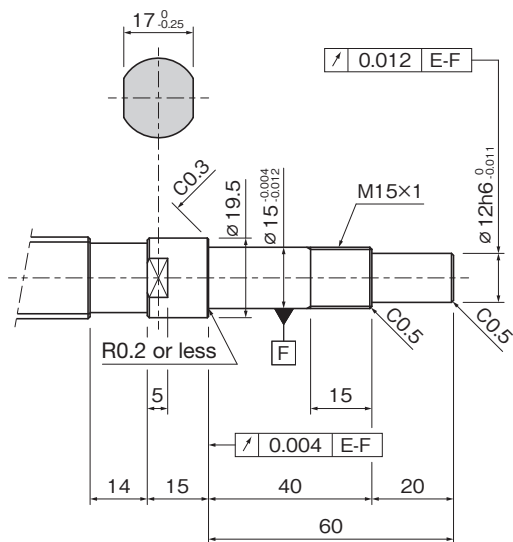
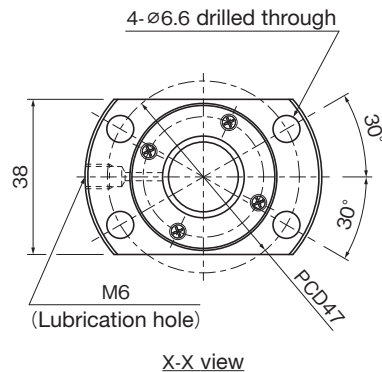
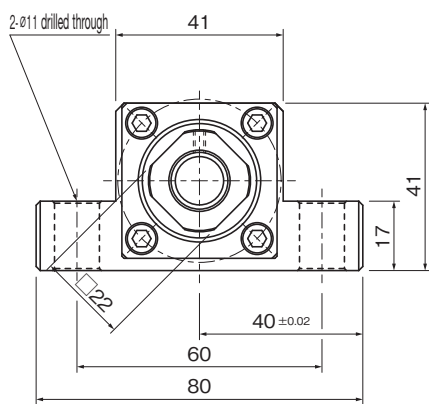
SDA2020VCZ-3 + Support Unit for Low Shaft Centers EK15L/EF15L



Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇	D	
SDA2020VCZ-3TTG0+508LC5Y	300	406	435	508	400.5	424.5	447	509.5	0.050	
SDA2020VCZ-3TTG0+608LC5Y	400	506	535	608	500.5	524.5	547	609.5	0.050	
SDA2020VCZ-3TTG0+708LC5Y	500	606	635	708	600.5	624.5	647	709.5	0.065	
SDA2020VCZ-3TTG0+808LC5Y	600	706	735	808	700.5	724.5	747	809.5	0.085	
SDA2020VCZ-3TTG0+908LC5Y	700	806	835	908	800.5	824.5	847	909.5	0.085	
SDA2020VCZ-3TTG0+1008LC5Y	800	906	935	1008	900.5	924.5	947	1009.5	0.110	
SDA2020VCZ-3TTG0+1208LC5Y	1000	1106	1135	1208	1100.5	1124.5	1147	1209.5	0.110	
SDA2020VCZ-3TTG0+1408LC5Y	1200	1306	1335	1408	1300.5	1324.5	1347	1409.5	0.150	



EK15L (Fixed Side)



Unit: mm

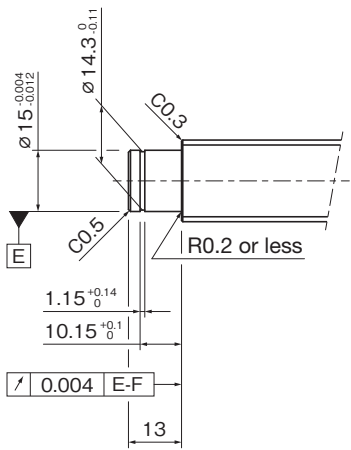
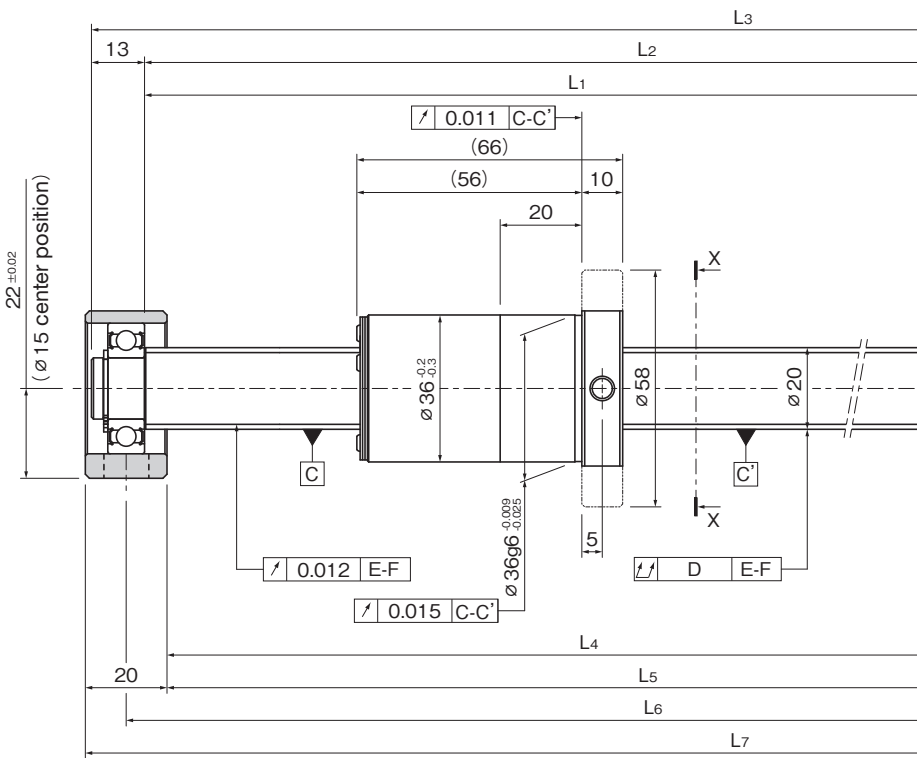
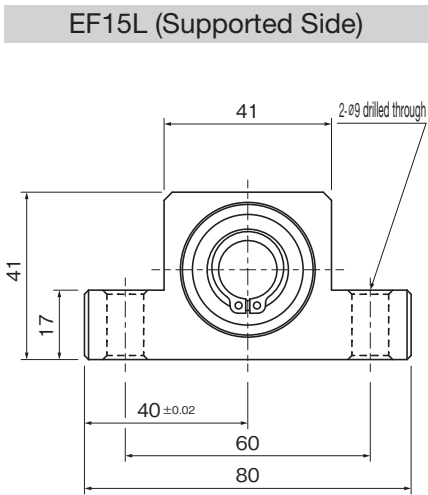
	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.027	0.020	0.39	2.4
	±0.030	0.023		
	±0.030	0.023		
	±0.035	0.025		
	±0.040	0.027		
	±0.040	0.027		
	±0.046	0.030		
	±0.054	0.035		

Ball screw specifications		
Screw shaft outer diameter	(mm)	20
Lead	(mm)	20
Ball center-to-center diameter	(mm)	20.75
Thread minor diameter	(mm)	17.1
Threading direction, No. of threaded grooves		Rightward, 1
No. of circuits		3 turns × 1 row
Axial clearance	(mm)	0
Basic dynamic load rating Ca	(kN)	10.8
Basic static load rating Coa	(kN)	18.5
Preload torque	(N·m)	0.03 to 0.10
Rigidity value	(N/μm)	217
Permissible rotational speed	(min ⁻¹)	4810

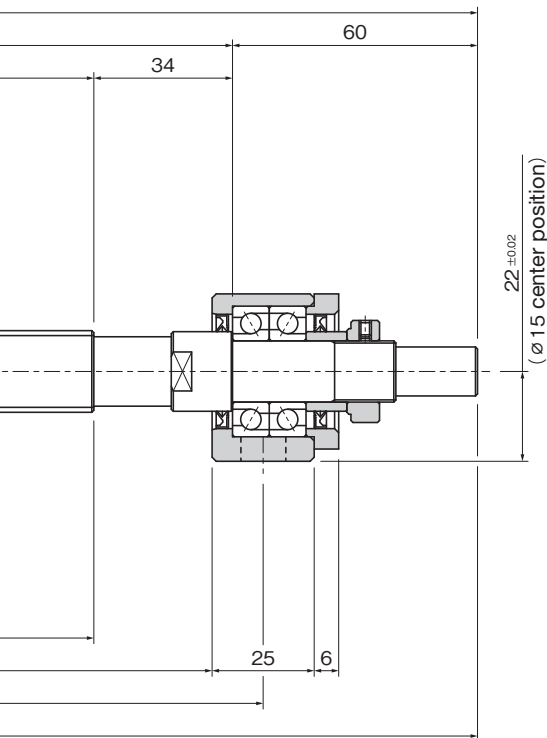
Dimensional Table

Shaft diameter 20 Lead 30

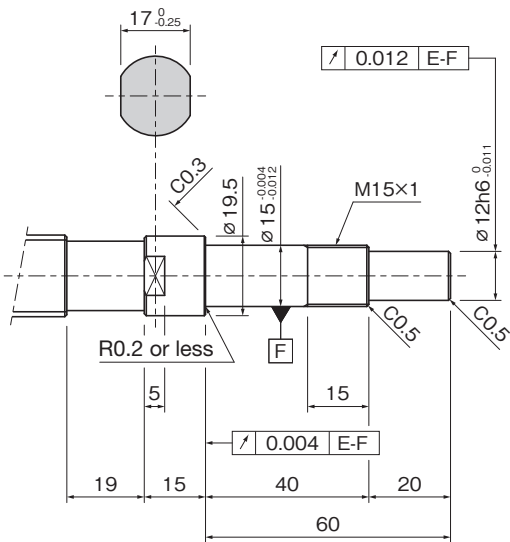
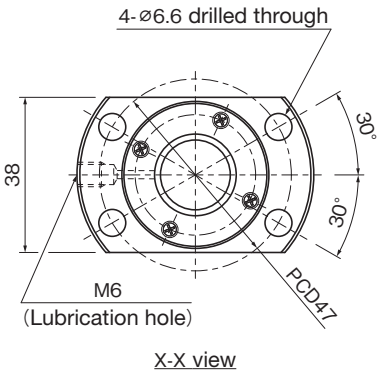
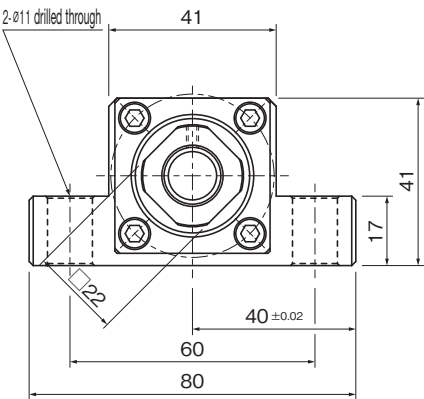
SDA2030VCZ-2 + Support Unit for Low Shaft Centers EK15L/EF15L



Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇	D	
SDA2030VCZ-2TTG0+408LC5Y	200	301	335	408	295.5	324.5	347	409.5	0.040	
SDA2030VCZ-2TTG0+508LC5Y	300	401	435	508	395.5	424.5	447	509.5	0.050	
SDA2030VCZ-2TTG0+608LC5Y	400	501	535	608	495.5	524.5	547	609.5	0.050	
SDA2030VCZ-2TTG0+708LC5Y	500	601	635	708	595.5	624.5	647	709.5	0.065	
SDA2030VCZ-2TTG0+808LC5Y	600	701	735	808	695.5	724.5	747	809.5	0.085	
SDA2030VCZ-2TTG0+908LC5Y	700	801	835	908	795.5	824.5	847	909.5	0.085	
SDA2030VCZ-2TTG0+1008LC5Y	800	901	935	1008	895.5	924.5	947	1009.5	0.110	
SDA2030VCZ-2TTG0+1208LC5Y	1000	1101	1135	1208	1095.5	1124.5	1147	1209.5	0.110	
SDA2030VCZ-2TTG0+1408LC5Y	1200	1301	1335	1408	1295.5	1324.5	1347	1409.5	0.150	



EK15L (Fixed Side)



Unit: mm

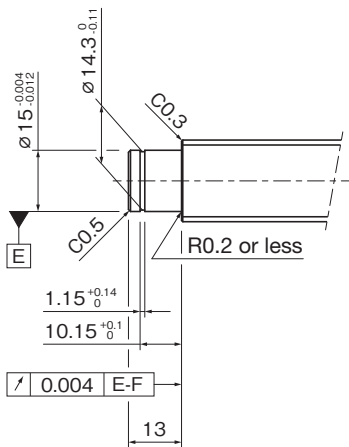
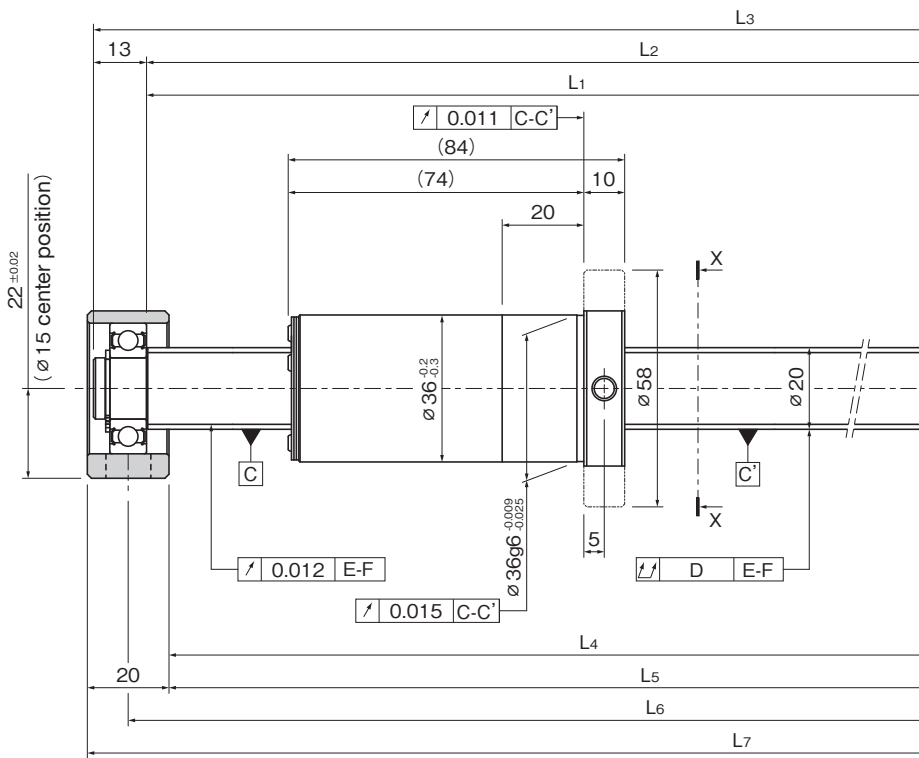
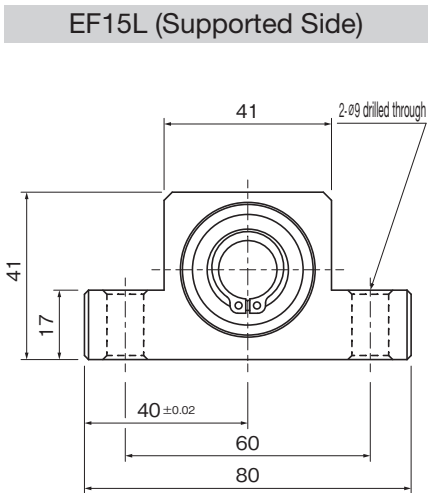
	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.023	0.018	0.38	2.42
	±0.027	0.020		
	±0.030	0.023		
	±0.030	0.023		
	±0.035	0.025		
	±0.040	0.027		
	±0.040	0.027		
	±0.046	0.030		
	±0.054	0.035		

Ball screw specifications		
Screw shaft outer diameter	(mm)	20
Lead	(mm)	30
Ball center-to-center diameter	(mm)	20.75
Thread minor diameter	(mm)	17.1
Threading direction, No. of threaded grooves		Rightward, 1
No. of circuits		2 turns × 1 row
Axial clearance	(mm)	0
Basic dynamic load rating Ca	(kN)	7
Basic static load rating Coa	(kN)	12.3
Preload torque	(N·m)	0.03 to 0.08
Rigidity value	(N/μm)	143
Permissible rotational speed	(min ⁻¹)	4810

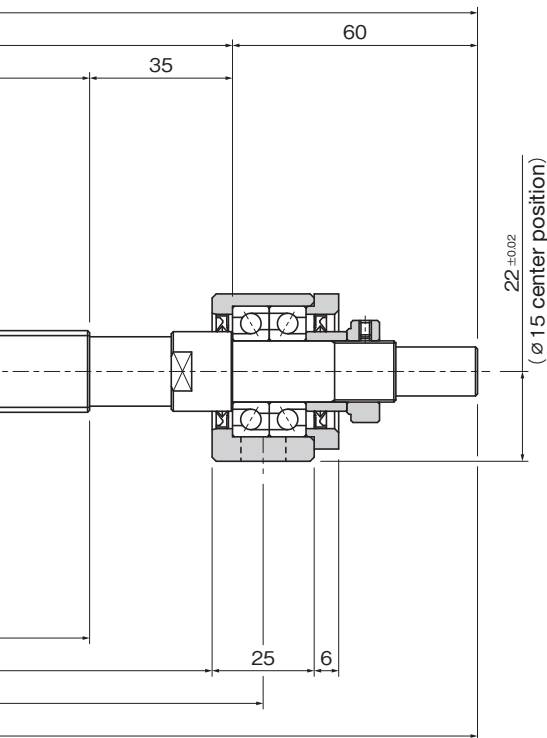
Dimensional Table

Shaft diameter 20 Lead 40

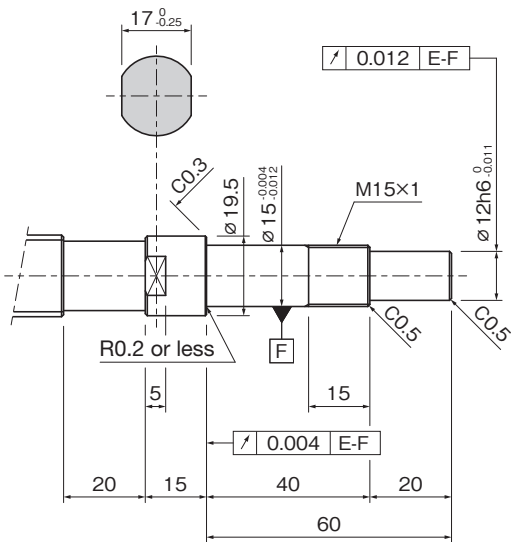
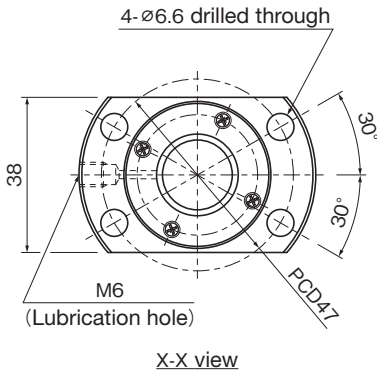
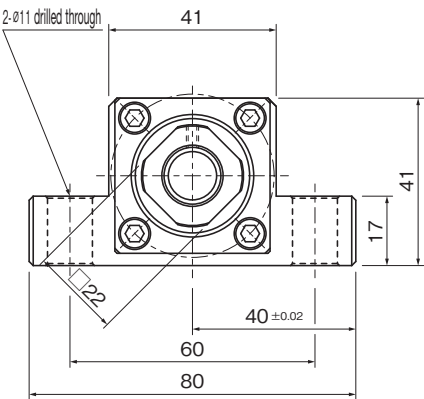
SDA2040VCZ-2 + Support Unit for Low Shaft Centers EK15L/EF15L



Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis D	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇		
SDA2040VCZ-2TTG0+658LC5Y	400	550	585	658	544.5	574.5	597	659.5	0.065	
SDA2040VCZ-2TTG0+758LC5Y	500	650	685	758	644.5	674.5	697	759.5	0.065	
SDA2040VCZ-2TTG0+858LC5Y	600	750	785	858	744.5	774.5	797	859.5	0.085	
SDA2040VCZ-2TTG0+958LC5Y	700	850	885	958	844.5	874.5	897	959.5	0.085	
SDA2040VCZ-2TTG0+1058LC5Y	800	950	985	1058	944.5	974.5	997	1059.5	0.110	
SDA2040VCZ-2TTG0+1258LC5Y	1000	1150	1185	1258	1144.5	1174.5	1197	1259.5	0.150	
SDA2040VCZ-2TTG0+1458LC5Y	1200	1350	1385	1458	1344.5	1374.5	1397	1459.5	0.150	



EK15L (Fixed Side)



Unit: mm

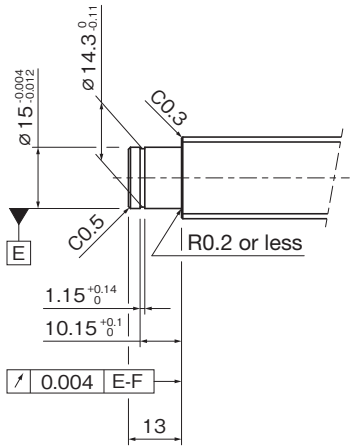
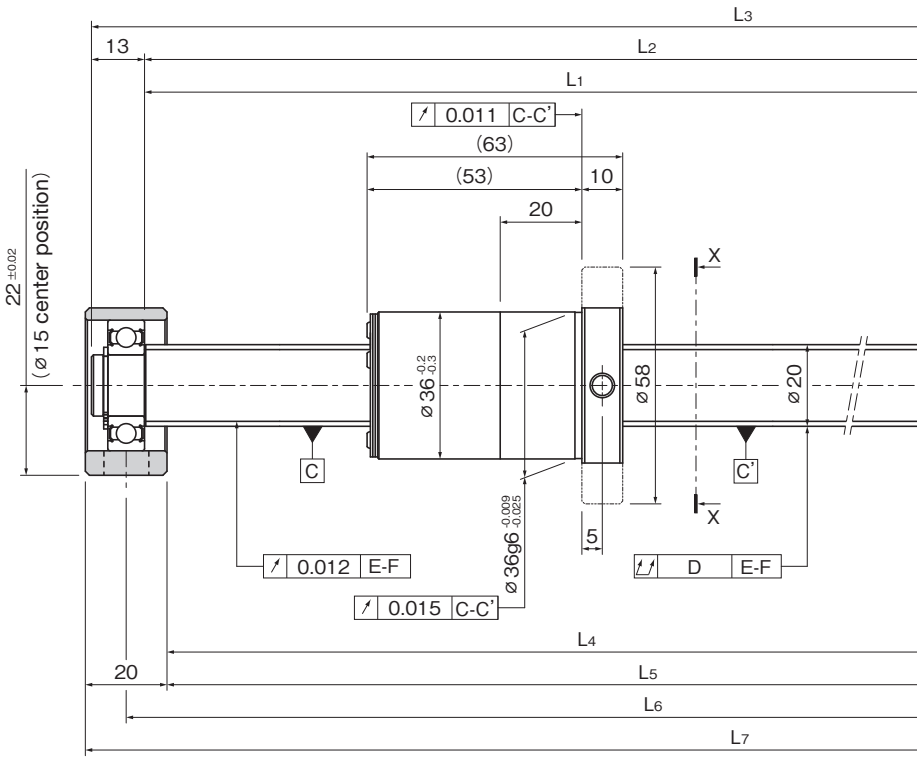
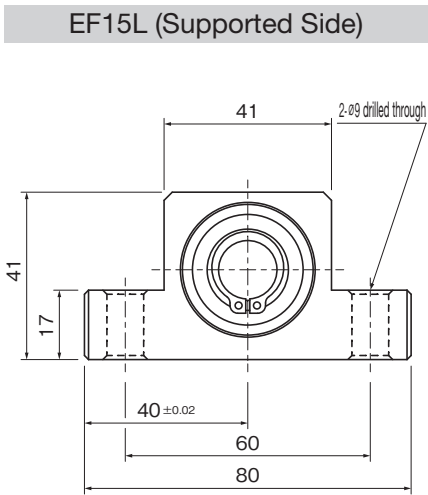
	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.030	0.023	0.47	2.43
	±0.035	0.025		
	±0.035	0.025		
	±0.040	0.027		
	±0.040	0.027		
	±0.046	0.030		
	±0.054	0.035		

Ball screw specifications		
Screw shaft outer diameter	(mm)	20
Lead	(mm)	40
Ball center-to-center diameter	(mm)	20.75
Thread minor diameter	(mm)	17.1
Threading direction, No. of threaded grooves		Rightward, 1
No. of circuits		2 turns × 1 row
Axial clearance	(mm)	0
Basic dynamic load rating Ca	(kN)	6.8
Basic static load rating Coa	(kN)	10.4
Preload torque	(N·m)	0.03 to 0.10
Rigidity value	(N/μm)	147
Permissible rotational speed	(min ⁻¹)	4810

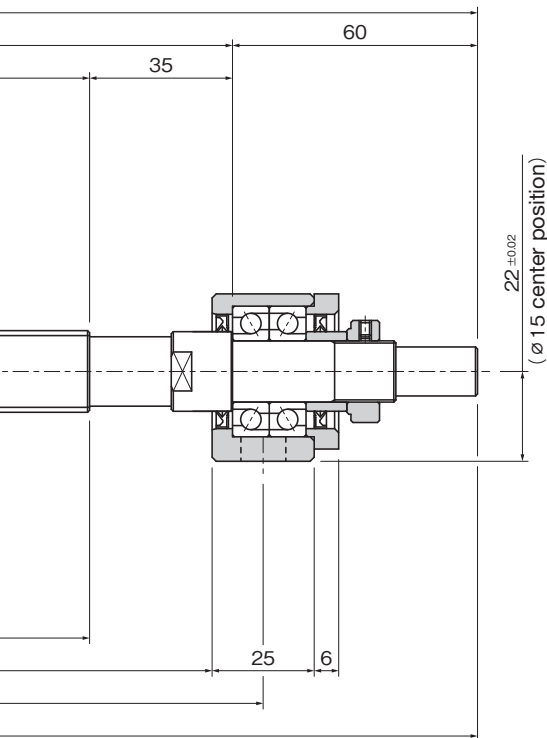
Dimensional Table

Shaft diameter 20 Lead 60

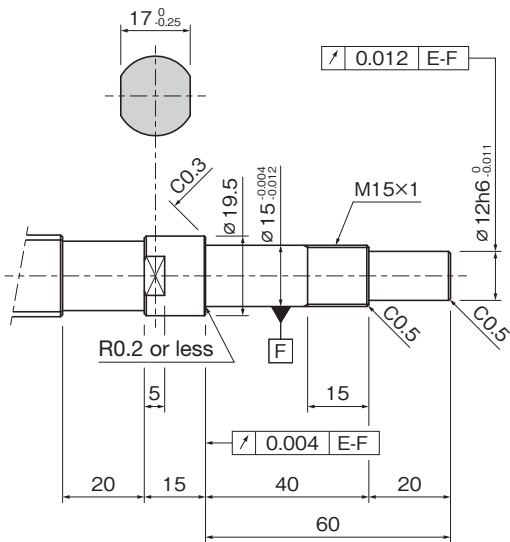
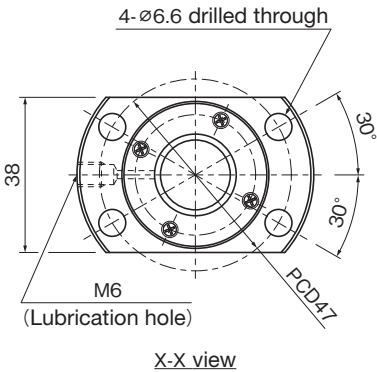
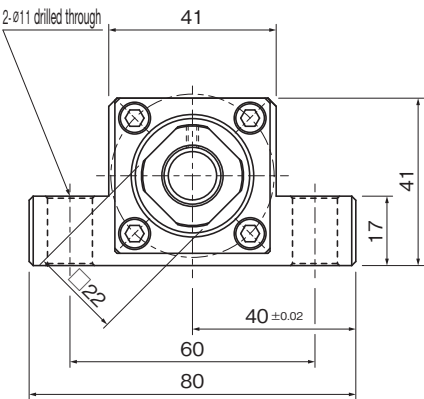
SDA2060VCZ-2 + Support Unit for Low Shaft Centers EK15L/EF15L



Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇	D	
SDA2060VCZ-2TTG0+708LC5Y	400	600	635	708	594.5	624.5	647	709.5	0.065	
SDA2060VCZ-2TTG0+808LC5Y	500	700	735	808	694.5	724.5	747	809.5	0.085	
SDA2060VCZ-2TTG0+908LC5Y	600	800	835	908	794.5	824.5	847	909.5	0.085	
SDA2060VCZ-2TTG0+1008LC5Y	700	900	935	1008	894.5	924.5	947	1009.5	0.110	
SDA2060VCZ-2TTG0+1108LC5Y	800	1000	1035	1108	994.5	1024.5	1047	1109.5	0.110	
SDA2060VCZ-2TTG0+1308LC5Y	1000	1200	1235	1308	1194.5	1224.5	1247	1309.5	0.150	
SDA2060VCZ-2TTG0+1508LC5Y	1200	1400	1435	1508	1394.5	1424.5	1447	1509.5	0.150	



EK15L (Fixed Side)



Unit: mm

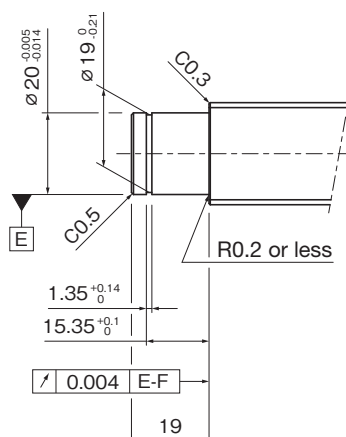
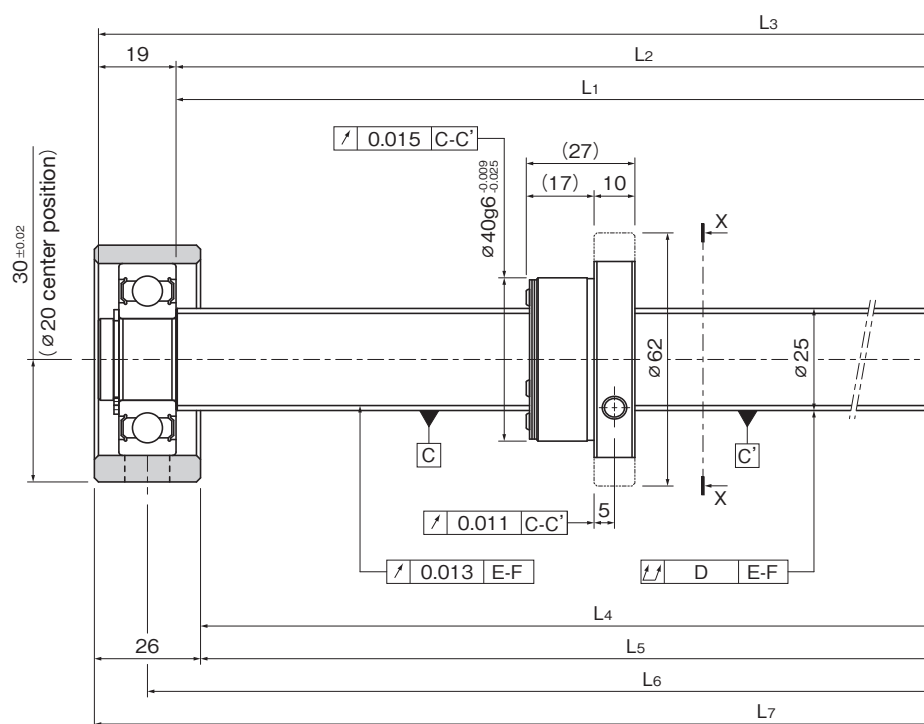
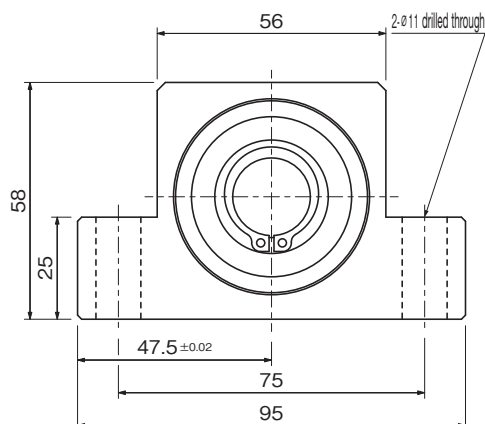
	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.030	0.023	0.38	2.41
	±0.035	0.025		
	±0.035	0.025		
	±0.040	0.027		
	±0.040	0.027		
	±0.046	0.030		
	±0.054	0.035		

Ball screw specifications		
Screw shaft outer diameter	(mm)	20
Lead	(mm)	60
Ball center-to-center diameter	(mm)	20.75
Thread minor diameter	(mm)	17.1
Threading direction, No. of threaded grooves	Rightward, 2	
No. of circuits	1 turn × 2 rows	
Axial clearance	(mm)	0
Basic dynamic load rating Ca	(kN)	5.2
Basic static load rating Coa	(kN)	9.9
Preload torque	(N·m)	0.03 to 0.08
Rigidity value	(N/μm)	131
Permissible rotational speed	(min ⁻¹)	4810

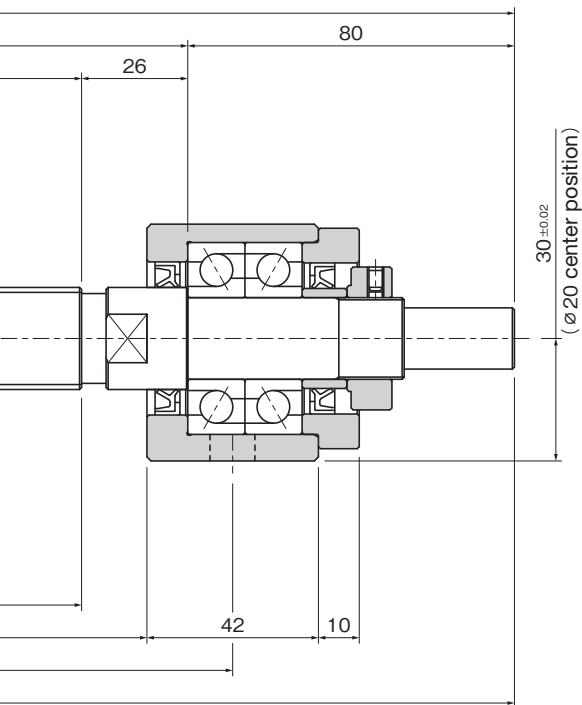
Lead 5

SDA2505VZ-3 + Support Unit EK20/EF20

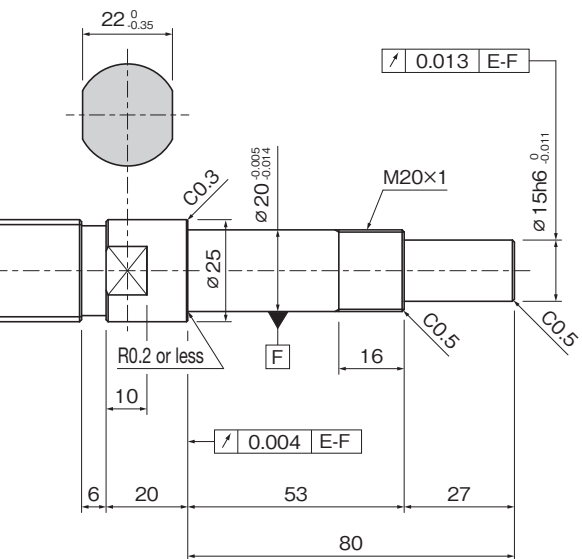
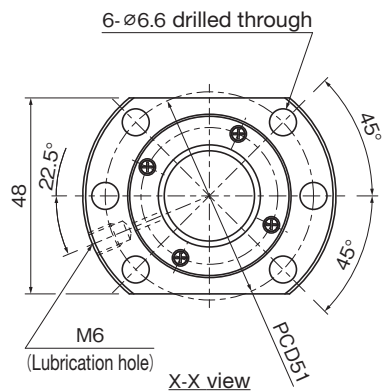
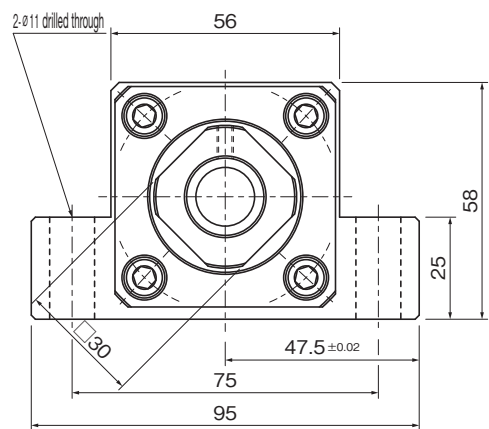
EF20 (Supported Side)



Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis D	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇		
SDA2505VZ-3TTG0+349LC5Y	150	224	250	349	218	234	268	350	0.045	
SDA2505VZ-3TTG0+399LC5Y	200	274	300	399	268	284	318	400	0.045	
SDA2505VZ-3TTG0+499LC5Y	300	374	400	499	368	384	418	500	0.050	
SDA2505VZ-3TTG0+599LC5Y	400	474	500	599	468	484	518	600	0.055	
SDA2505VZ-3TTG0+699LC5Y	500	574	600	699	568	584	618	700	0.055	
SDA2505VZ-3TTG0+899LC5Y	700	774	800	899	768	784	818	900	0.065	
SDA2505VZ-3TTG0+999LC5Y	800	874	900	999	868	884	918	1000	0.065	
SDA2505VZ-3TTG0+1199LC5Y	1000	1074	1100	1199	1068	1084	1118	1200	0.085	



EK20 (Fixed Side)



Unit: mm

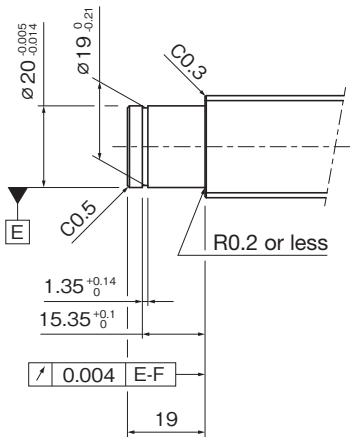
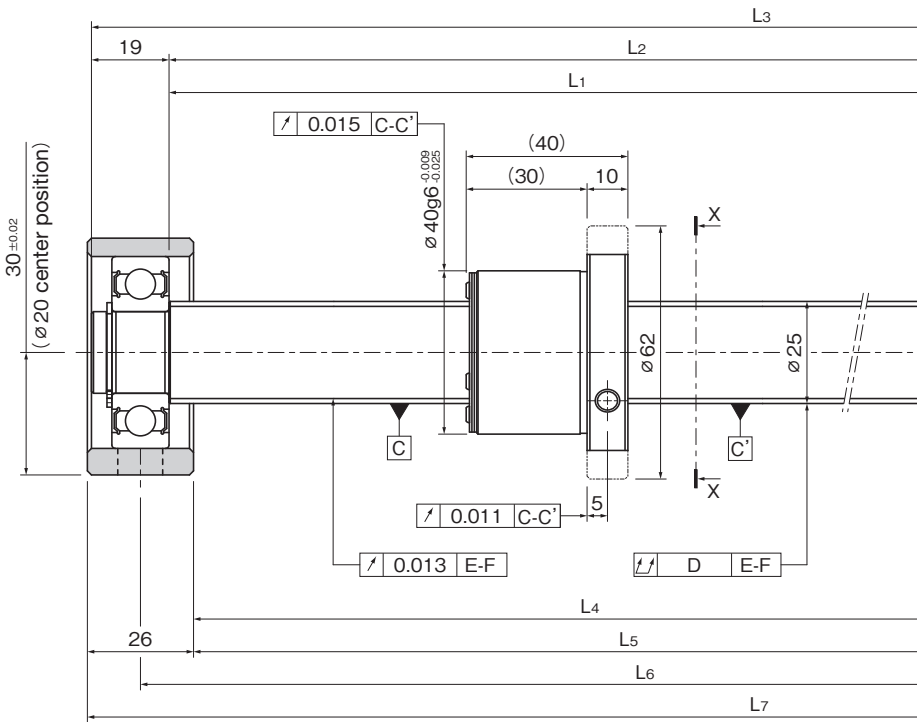
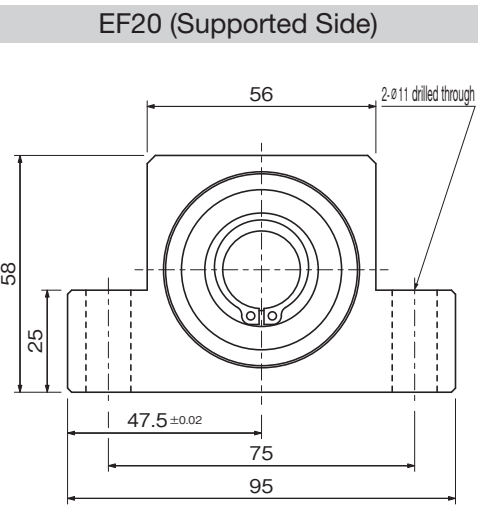
	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.023	0.018	0.2	3.53
	±0.023	0.018		
	±0.025	0.020		
	±0.027	0.020		
	±0.030	0.023		
	±0.035	0.025		
	±0.040	0.027		
	±0.046	0.030		

Ball screw specifications		
Screw shaft outer diameter	(mm)	25
Lead	(mm)	5
Ball center-to-center diameter	(mm)	25.75
Thread minor diameter	(mm)	22.1
Threading direction, No. of threaded grooves	Rightward, 1	
No. of circuits	3 turns × 1 row	
Axial clearance	(mm)	0
Basic dynamic load rating Ca	(kN)	12.3
Basic static load rating Coa	(kN)	23.7
Preload torque	(N·m)	0.01 to 0.07
Rigidity value	(N/μm)	254
Permissible rotational speed	(min ⁻¹)	3880

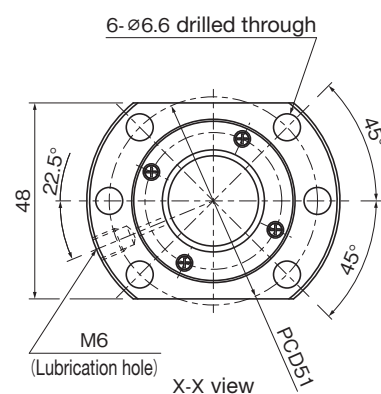
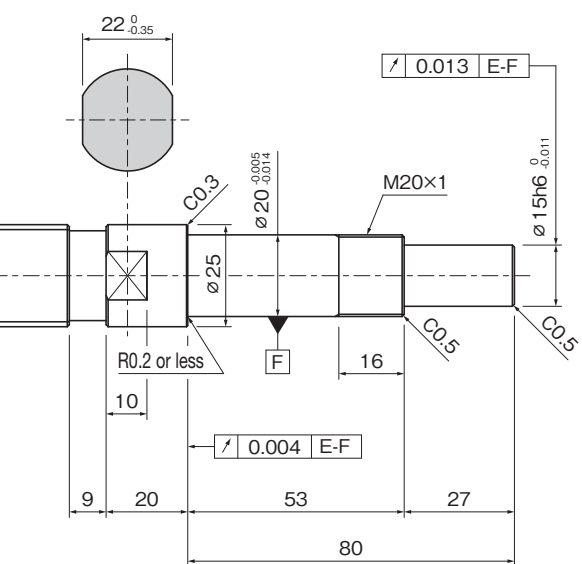
Dimensional Table

Shaft diameter 25 Lead 10

SDA2510VZ-3 + Support Unit EK20/EF20



Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis D	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇		
SDA2510VZ-3TTG0+549LC5Y	300	421	450	549	415	434	468	550	0.055	
SDA2510VZ-3TTG0+649LC5Y	400	521	550	649	515	534	568	650	0.055	
SDA2510VZ-3TTG0+749LC5Y	500	621	650	749	615	634	668	750	0.055	
SDA2510VZ-3TTG0+849LC5Y	600	721	750	849	715	734	768	850	0.065	
SDA2510VZ-3TTG0+949LC5Y	700	821	850	949	815	834	868	950	0.065	
SDA2510VZ-3TTG0+1049LC5Y	800	921	950	1049	915	934	968	1050	0.085	
SDA2510VZ-3TTG0+1249LC5Y	1000	1121	1150	1249	1115	1134	1168	1250	0.085	
SDA2510VZ-3TTG0+1849LC5Y	1600	1721	1750	1849	1715	1734	1768	1850	0.140	



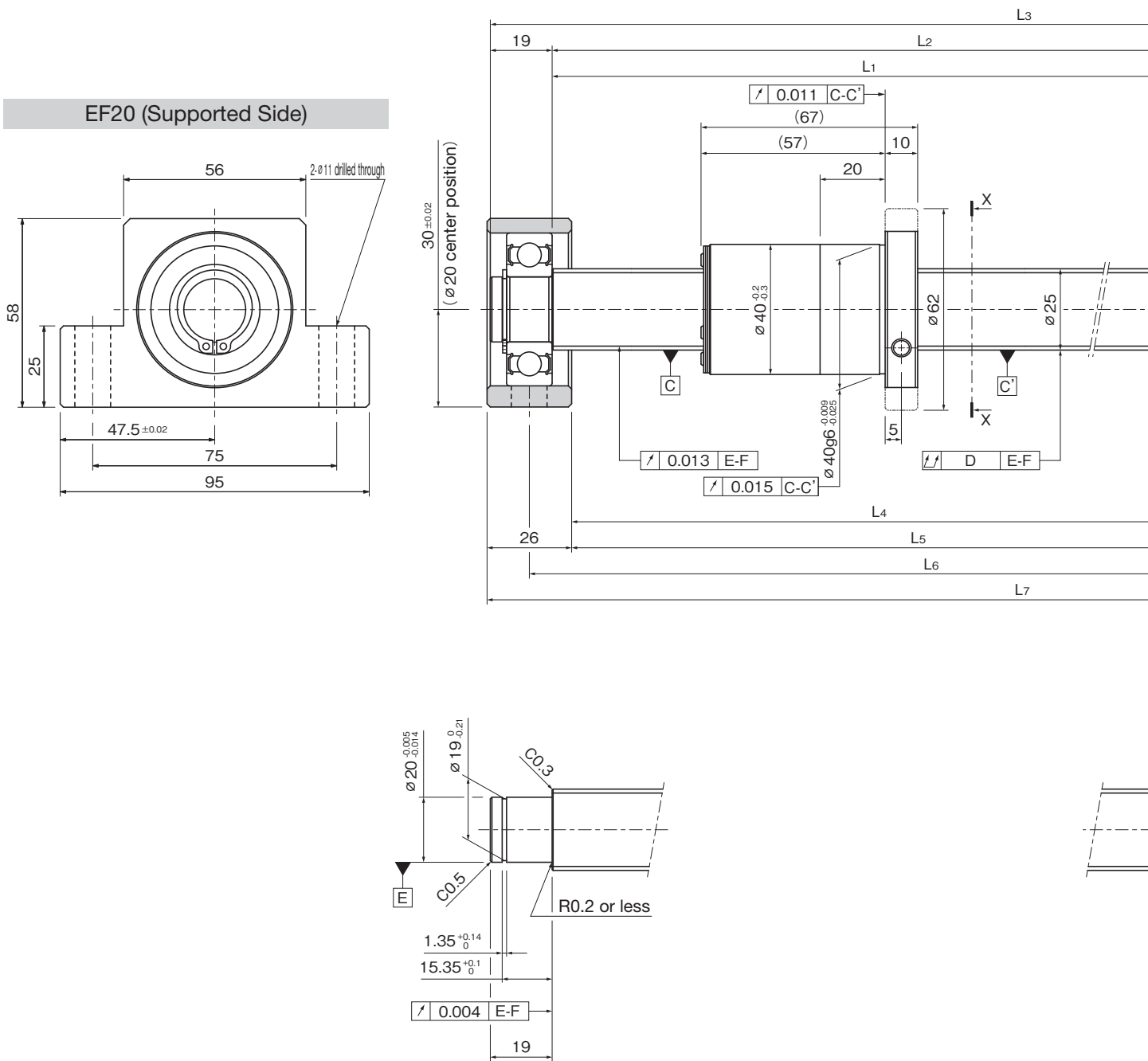
Unit: mm				
	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.027	0.020	0.28	3.7
	±0.030	0.023		
	±0.030	0.023		
	±0.035	0.025		
	±0.040	0.027		
	±0.040	0.027		
	±0.046	0.030		
	±0.065	0.040		

Ball screw specifications	
Screw shaft outer diameter (mm)	25
Lead (mm)	10
Ball center-to-center diameter (mm)	25.75
Thread minor diameter (mm)	22.1
Threading direction, No. of threaded grooves	Rightward, 1
No. of circuits	3 turns × 1 row
Axial clearance (mm)	0
Basic dynamic load rating C_a (kN)	12.2
Basic static load rating C_{0a} (kN)	23.8
Preload torque (N·m)	0.03 to 0.10
Rigidity value (N/μm)	254
Permissible rotational speed (min ⁻¹)	3880

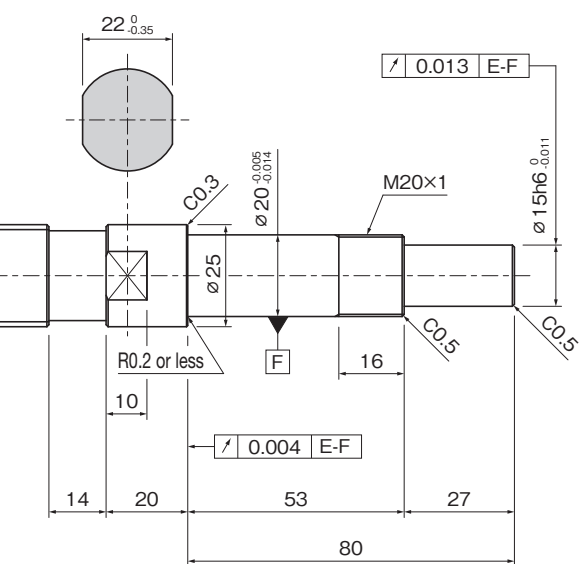
Dimensional Table

Shaft diameter 25 Lead 20

SDA2520VZ-3 + Support Unit EK20/EF20

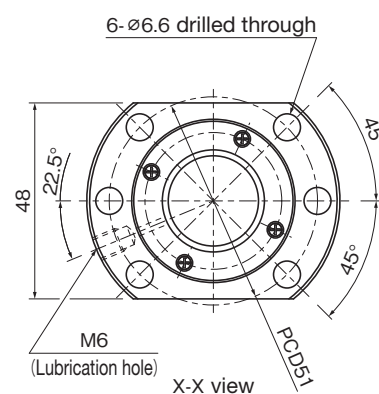


Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇	D	
SDA2520VZ-3TTG0+729LC5Y	500	596	630	729	590	614	648	730	0.055	
SDA2520VZ-3TTG0+829LC5Y	600	696	730	829	690	714	748	830	0.065	
SDA2520VZ-3TTG0+929LC5Y	700	796	830	929	790	814	848	930	0.065	
SDA2520VZ-3TTG0+1029LC5Y	800	896	930	1029	890	914	948	1030	0.085	
SDA2520VZ-3TTG0+1229LC5Y	1000	1096	1130	1229	1090	1114	1148	1230	0.085	
SDA2520VZ-3TTG0+1429LC5Y	1200	1296	1330	1429	1290	1314	1348	1430	0.110	
SDA2520VZ-3TTG0+1829LC5Y	1600	1696	1730	1829	1690	1714	1748	1830	0.140	



Technical drawing of a square flange with a central hexagonal hole and four mounting holes. The drawing includes the following dimensions and features:

- Overall width: 95
- Overall height: 58
- Central hole diameter: 56
- Mounting hole diameter: 25
- Mounting hole offset from center: 47.5 ± 0.02
- Chamfer on the bottom-left corner: 30°
- Feature: 2- $\varnothing 11$ drilled through (pointing to the mounting holes)



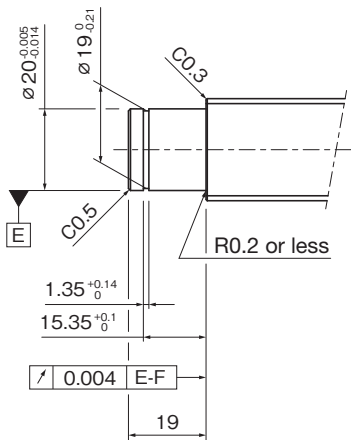
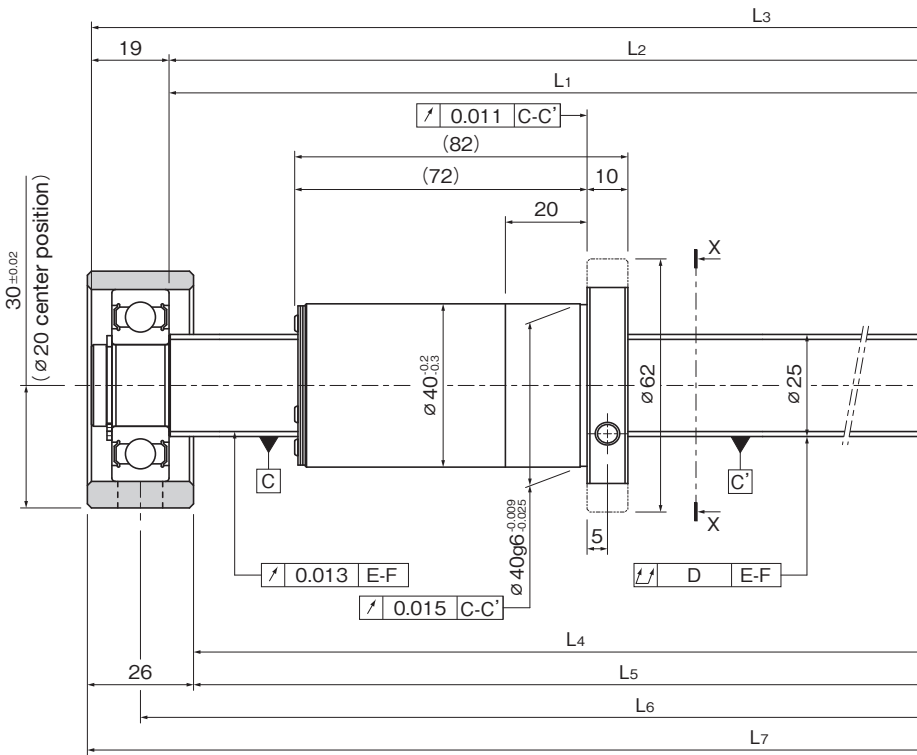
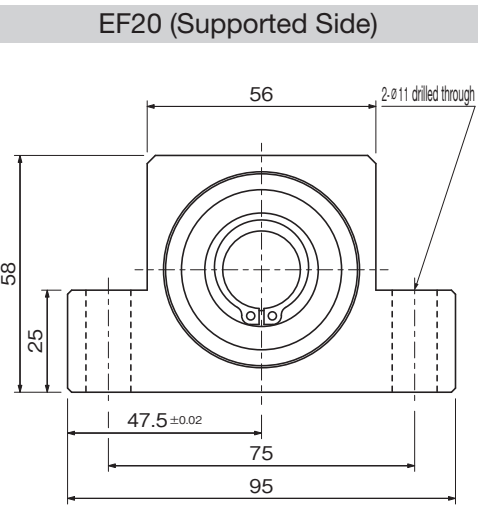
Unit: mm				
	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.030	0.023	0.42	3.78
	±0.035	0.025		
	±0.035	0.025		
	±0.040	0.027		
	±0.046	0.030		
	±0.054	0.035		
	±0.065	0.040		

Ball screw specifications	
Screw shaft outer diameter (mm)	25
Lead (mm)	20
Ball center-to-center diameter (mm)	25.75
Thread minor diameter (mm)	22.1
Threading direction, No. of threaded grooves	Rightward, 1
No. of circuits	3 turns $\times$ 1 row
Axial clearance (mm)	0
Basic dynamic load rating C_a (kN)	12.1
Basic static load rating C_{0a} (kN)	22.9
Preload torque (N·m)	0.05 to 0.14
Rigidity value (N/ μ m)	257
Permissible rotational speed (min^{-1})	3880

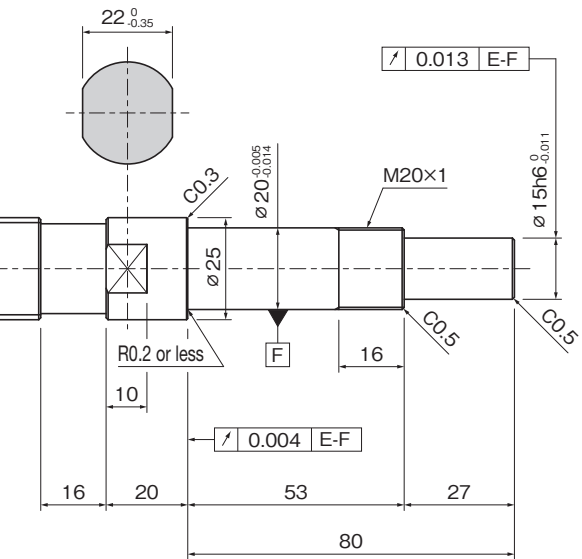
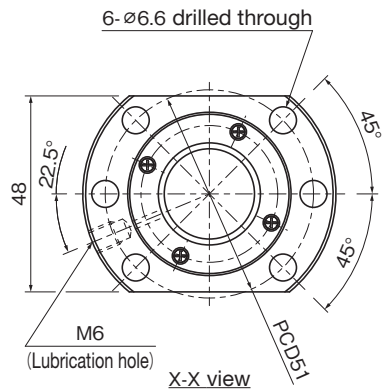
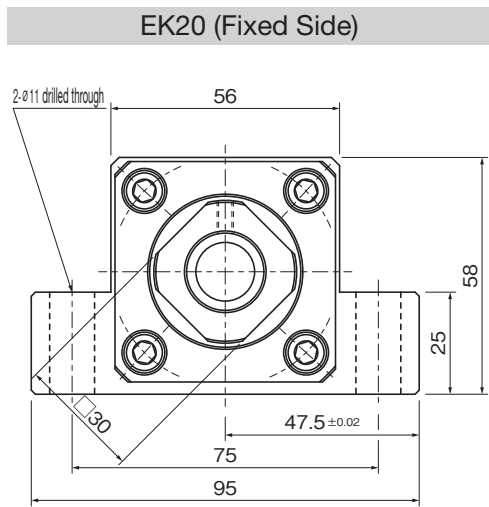
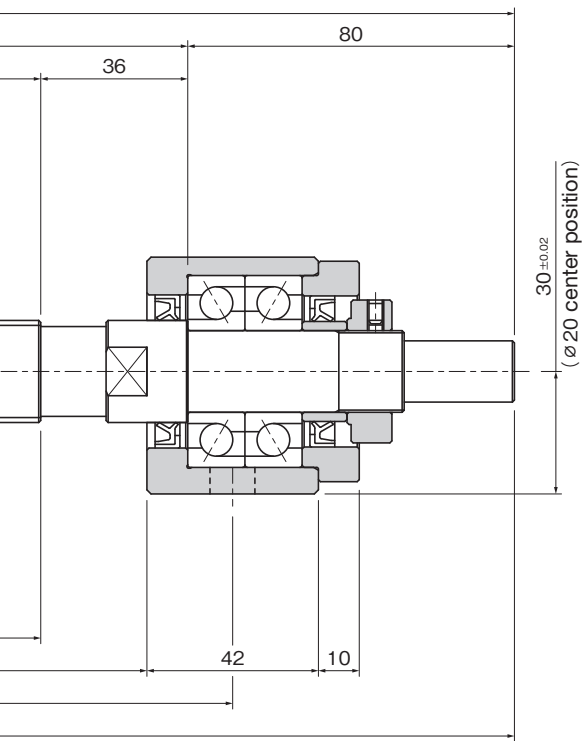
Dimensional Table

Shaft diameter 25 Lead 25

SDA2525VZ-3 + Support Unit EK20/EF20



Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇	D	
SDA2525VZ-3TTG0+779LC5Y	500	644	680	779	638	664	698	780	0.055	
SDA2525VZ-3TTG0+879LC5Y	600	744	780	879	738	764	798	880	0.065	
SDA2525VZ-3TTG0+979LC5Y	700	844	880	979	838	864	898	980	0.065	
SDA2525VZ-3TTG0+1079LC5Y	800	944	980	1079	938	964	998	1080	0.085	
SDA2525VZ-3TTG0+1279LC5Y	1000	1144	1180	1279	1138	1164	1198	1280	0.110	
SDA2525VZ-3TTG0+1479LC5Y	1200	1344	1380	1479	1338	1364	1398	1480	0.110	
SDA2525VZ-3TTG0+1879LC5Y	1600	1744	1780	1879	1738	1764	1798	1880	0.140	



Unit: mm

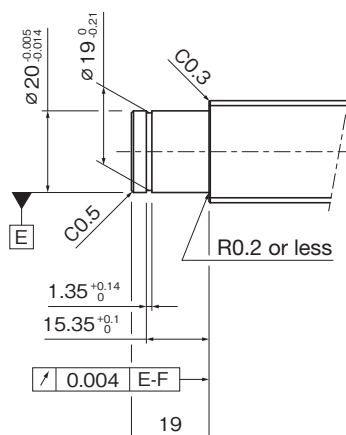
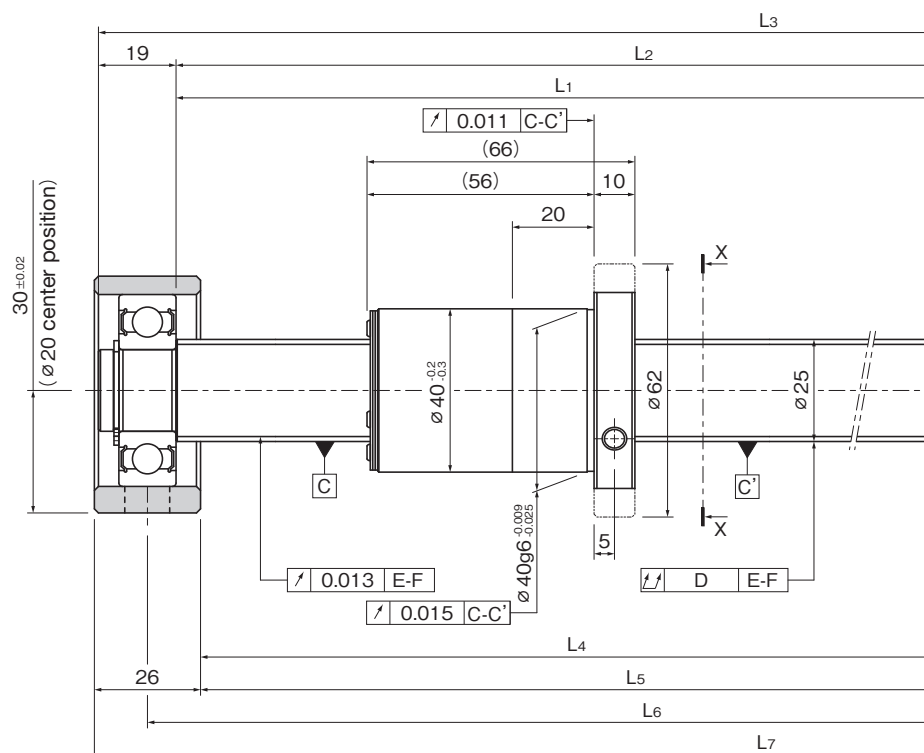
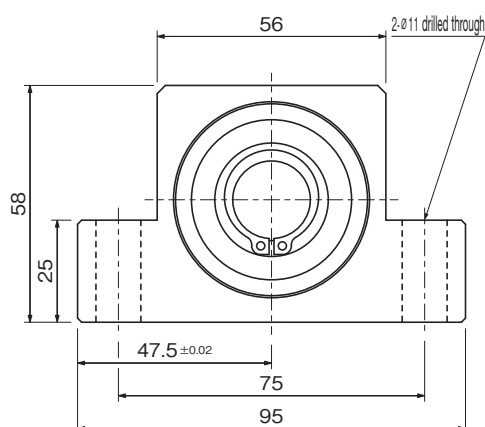
	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.035	0.025	0.5	3.79
	±0.035	0.025		
	±0.040	0.027		
	±0.040	0.027		
	±0.046	0.030		
	±0.054	0.035		
	±0.065	0.040		

Ball screw specifications		
Screw shaft outer diameter	(mm)	25
Lead	(mm)	25
Ball center-to-center diameter	(mm)	25.75
Thread minor diameter	(mm)	22.1
Threading direction, No. of threaded grooves		Rightward, 1
No. of circuits		3 turns × 1 row
Axial clearance	(mm)	0
Basic dynamic load rating Ca	(kN)	11.9
Basic static load rating Coa	(kN)	23.3
Preload torque	(N·m)	0.05 to 0.14
Rigidity value	(N/μm)	259
Permissible rotational speed	(min ⁻¹)	3880

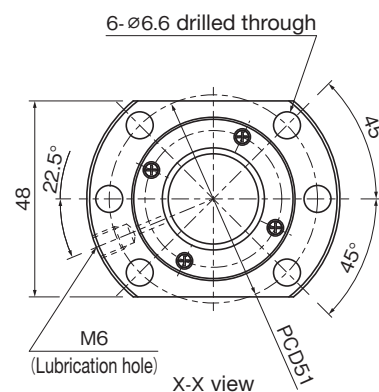
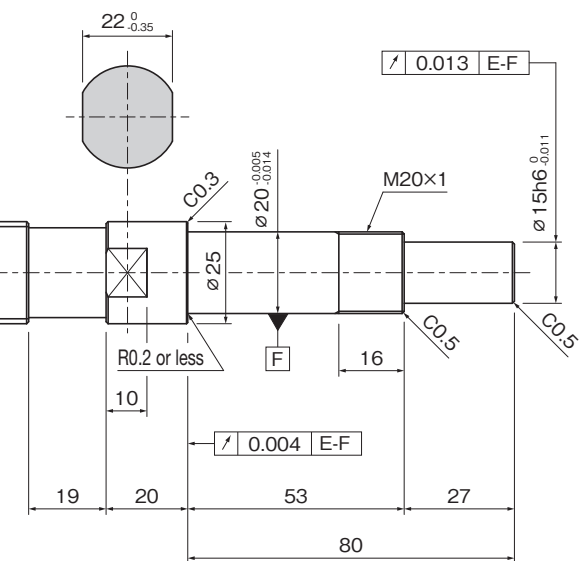
Lead 30

SDA2530VZ-2 + Support Unit EK20/EF20

EF20 (Supported Side)



Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis D	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇		
SDA2530VZ-2TTG0+779LC5Y	500	641	680	779	635	664	698	780	0.055	
SDA2530VZ-2TTG0+879LC5Y	600	741	780	879	735	764	798	880	0.065	
SDA2530VZ-2TTG0+979LC5Y	700	841	880	979	835	864	898	980	0.065	
SDA2530VZ-2TTG0+1079LC5Y	800	941	980	1079	935	964	998	1080	0.085	
SDA2530VZ-2TTG0+1279LC5Y	1000	1141	1180	1279	1135	1164	1198	1280	0.110	
SDA2530VZ-2TTG0+1479LC5Y	1200	1341	1380	1479	1335	1364	1398	1480	0.110	
SDA2530VZ-2TTG0+1879LC5Y	1600	1741	1780	1879	1735	1764	1798	1880	0.140	



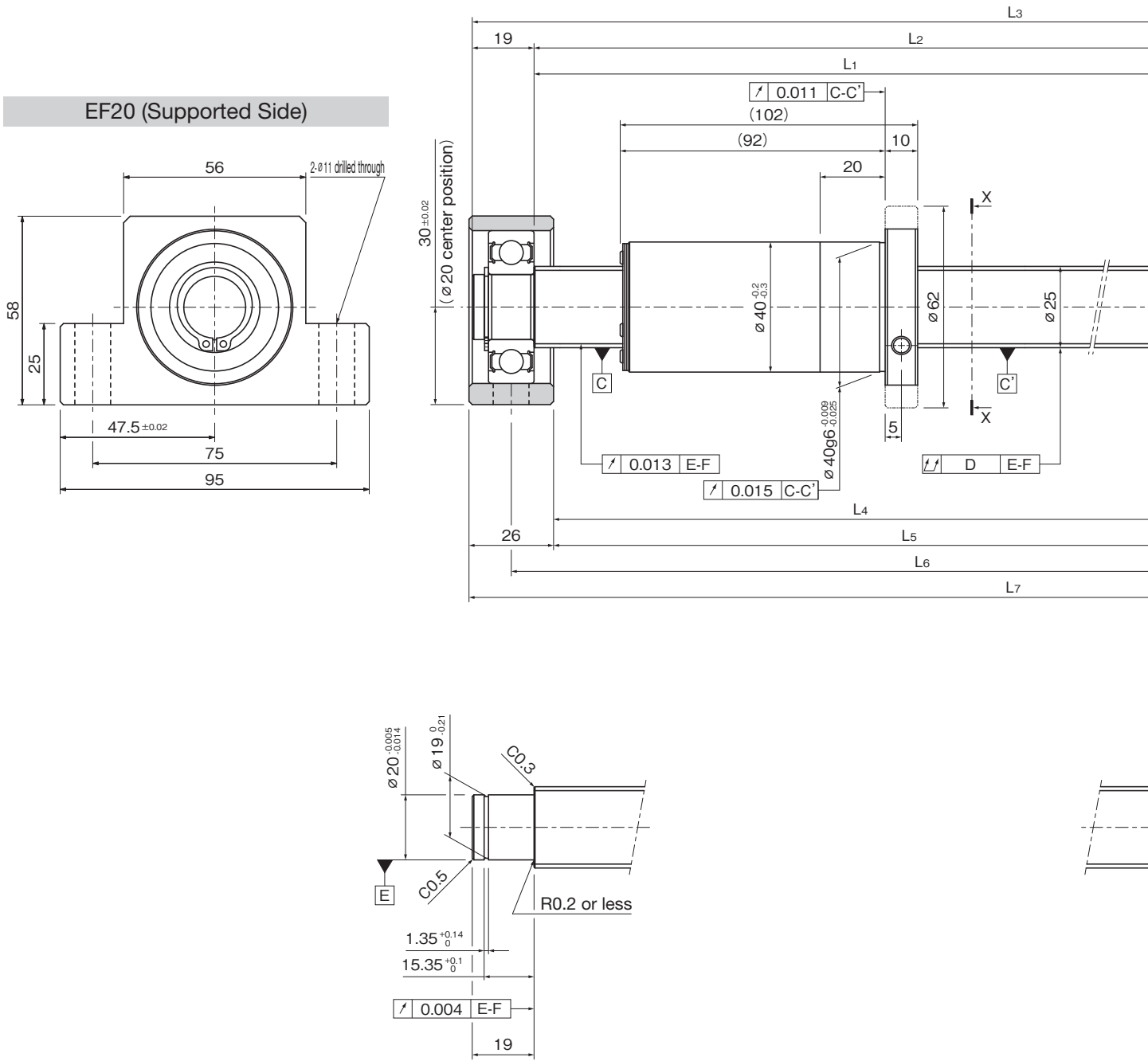
Unit: mm				
	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.035	0.025	0.41	3.8
	±0.035	0.025		
	±0.040	0.027		
	±0.040	0.027		
	±0.046	0.030		
	±0.054	0.035		
	±0.065	0.040		

Ball screw specifications	
Screw shaft outer diameter (mm)	25
Lead (mm)	30
Ball center-to-center diameter (mm)	25.75
Thread minor diameter (mm)	22.1
Threading direction, No. of threaded grooves	Rightward, 1
No. of circuits	2 turns $\times$ 1 row
Axial clearance (mm)	0
Basic dynamic load rating C_a (kN)	7.9
Basic static load rating C_{0a} (kN)	14.9
Preload torque (N·m)	0.03 to 0.10
Rigidity value (N/ μ m)	168
Permissible rotational speed (min^{-1})	3880

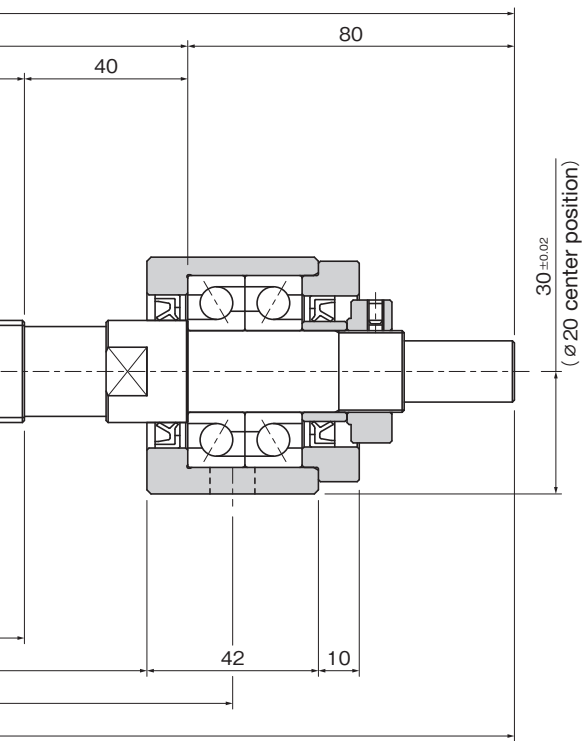
Dimensional Table

Shaft diameter 25 Lead 50

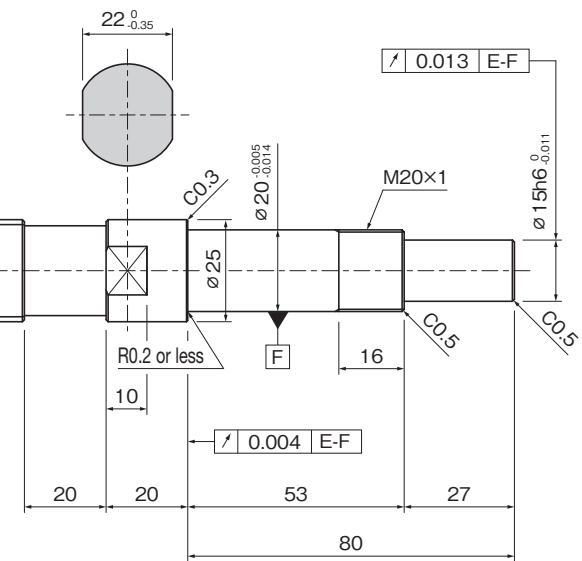
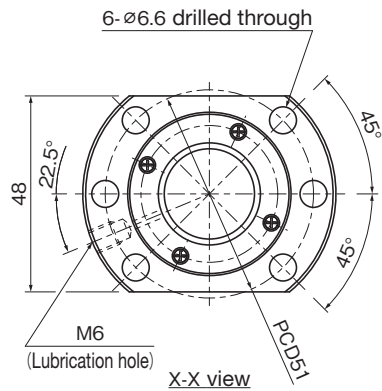
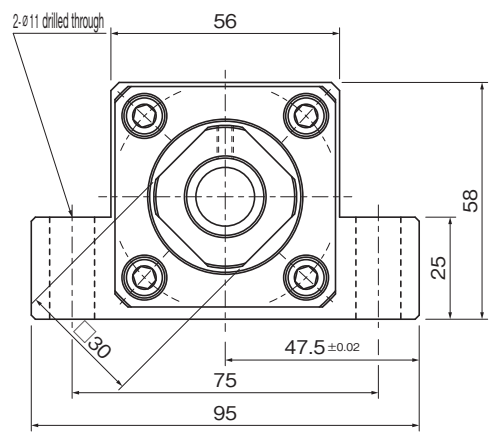
SDA2550VZ-2 + Support Unit EK20/EF20



Model No.	Stroke	Screw shaft length			Mounting dimensions				Runout of the screw shaft axis	
		L ₁	L ₂	L ₃	L ₄	L ₅	L ₆	L ₇	D	
SDA2550VZ-2TTG0+829LC5Y	500	690	730	829	684	714	748	830	0.065	
SDA2550VZ-2TTG0+929LC5Y	600	790	830	929	784	814	848	930	0.065	
SDA2550VZ-2TTG0+1029LC5Y	700	890	930	1029	884	914	948	1030	0.085	
SDA2550VZ-2TTG0+1129LC5Y	800	990	1030	1129	984	1014	1048	1130	0.085	
SDA2550VZ-2TTG0+1329LC5Y	1000	1190	1230	1329	1184	1214	1248	1330	0.110	
SDA2550VZ-2TTG0+1529LC5Y	1200	1390	1430	1529	1384	1414	1448	1530	0.110	
SDA2550VZ-2TTG0+1929LC5Y	1600	1790	1830	1929	1784	1814	1848	1930	0.140	



EK20 (Fixed Side)



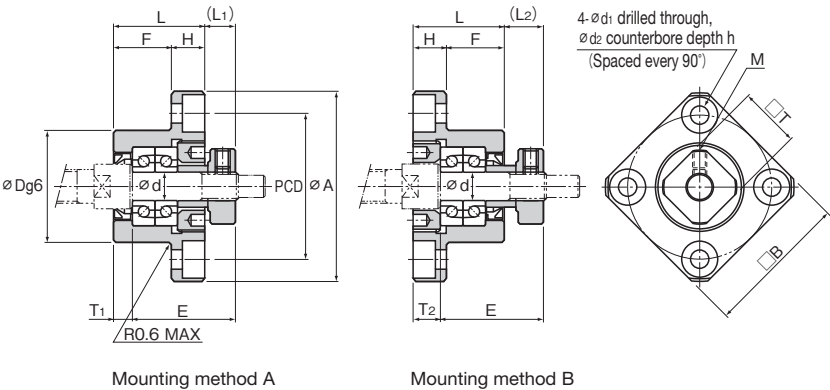
Unit: mm

	Lead angle accuracy		Nut mass (kg)	Shaft mass (kg/m)
	Representative travel distance error	Fluctuation		
	±0.035	0.025	0.61	3.83
	±0.035	0.025		
	±0.040	0.027		
	±0.040	0.027		
	±0.046	0.030		
	±0.054	0.035		
	±0.065	0.040		

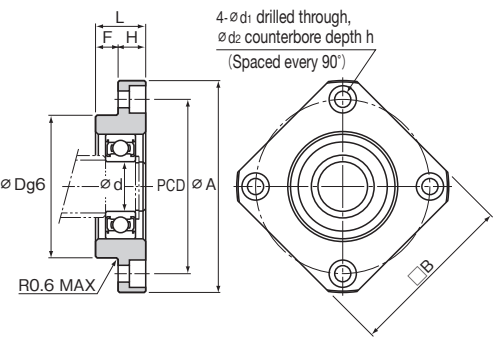
Ball screw specifications		
Screw shaft outer diameter	(mm)	25
Lead	(mm)	50
Ball center-to-center diameter	(mm)	25.75
Thread minor diameter	(mm)	22.1
Threading direction, No. of threaded grooves		Rightward, 1
No. of circuits		2 turns × 1 row
Axial clearance	(mm)	0
Basic dynamic load rating Ca	(kN)	7.5
Basic static load rating Coa	(kN)	13.1
Preload torque	(N·m)	0.04 to 0.13
Rigidity value	(N/μm)	176
Permissible rotational speed	(min ⁻¹)	3880

Wall-Mounted Type Support Unit FK/FF

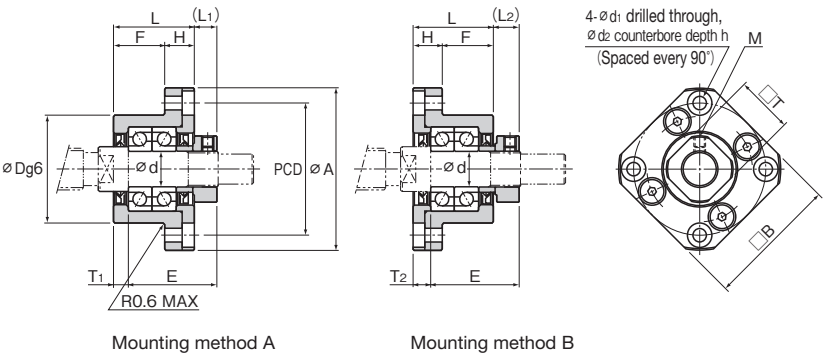
Wall-Mounted Type FK (Fixed Side) Model FK8



Wall-Mounted Type FF (Supported Side)



Wall-Mounted Type FK (Fixed Side) Models FK12 to 20



Wall-Mounted Type FK (Fixed Side)

Unit: mm

Model No.	Bearing unit shaft outer diameter d	L	H	F	E	D	A	PCD	B	Mounting method A		Mounting method B		d ₁	d ₂	h	M	T	Mass (kg)
										L ₁	T ₁	L ₂	T ₂						
FK8	8	23	9	14	26	28 ^{+0.007} _{-0.020}	43	35	35	7	4	10	7	3.4	6.5	4	M3	14	0.15
FK12	12	27	10	17	29.5	36 ^{+0.009} _{-0.025}	54	44	44	7.5	5	8.5	6	4.5	8	4	M3	19	0.22
FK15	15	32	15	17	36	40 ^{+0.009} _{-0.025}	63	50	52	10	6	12	8	5.5	9.5	6	M3	22	0.39
FK20	20	52	22	30	50	57 ^{+0.010} _{-0.029}	85	70	68	8	10	12	14	6.6	11	10	M4	30	1.09

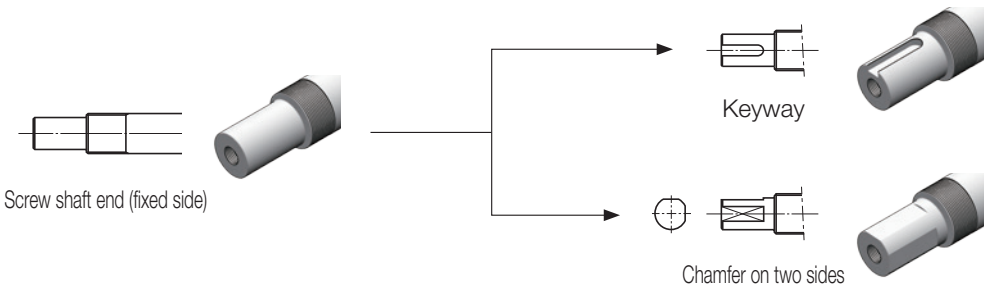
Wall-Mounted Type FF (Supported Side)

Unit: mm

Model No.	Bearing unit shaft outer diameter d	L	H	F	D	A	PCD	B	d ₁	d ₂	h	Snap ring	Mass (kg)
FF6	6	10	6	4	22 ^{+0.007} _{-0.020}	36	28	28	3.4	6.5	4	C6	0.04
FF12	10	15	7	8	34 ^{+0.009} _{-0.025}	52	42	42	4.5	8	4	C10	0.11
FF15	15	17	9	8	40 ^{+0.009} _{-0.025}	63	50	52	5.5	9.5	5.5	C15	0.2
FF20	20	20	11	9	57 ^{+0.010} _{-0.029}	85	70	68	6.6	11	6.5	C20	0.27

Additional Machining for Shaft Ends

Two types of additional machining are available for shaft ends on the fixed side of the Finished Shaft End Series Model SDA-VZ. Contact THK for details.



Handling

- (1) Please use at least two people to move any product weighing 20 kg or more, or use a cart or another method of conveyance. Otherwise, it may cause injury or damage the unit.
- (2) Do not disassemble the parts. This will result in loss of functionality.
- (3) Tilting the screw shaft and nut may cause them to fall under their own weight.
- (4) Take care not to drop or strike this product. Otherwise, it may cause injury or damage the unit. Even if there is no outward indication of damage, a sudden impact could prevent the unit from functioning properly.
- (5) When assembling, be sure not to remove the nut from the screw shaft.
- (6) Wear appropriate safety gear, such as protective gloves and safety shoes, when handling the product.

Use

- (1) Prevent foreign materials, such as cutting chips or coolant, from entering the product. Failure to do so could damage the product.
- (2) Prevent foreign materials, such as cutting chips, coolant, corrosive solvents, or water from getting in the product by using a bellows or cover when the product is used in an environment where such a thing is likely.
- (3) Do not use this product if the external temperature exceeds 80°C. If used above this temperature, there is a risk that the resin and rubber parts may deform or become damaged (except for the heat-resistant type).
- (4) If foreign materials such as cutting chips adhere to the product, replenish the lubricant after washing the product.
- (5) Slight oscillations can inhibit the formation of an oil film between the raceways and the area of contact for the balls, resulting in fretting. Therefore, be sure to use a type of grease with high fretting resistance. We recommend periodically rotating the nut once to help ensure that a film forms between the raceways and balls.
- (6) Do not forcibly drive a pin, key, or any other positioning device into the product. This could create indentations in the raceways and impair the product's function.
- (7) Skewing or misalignment of the nut and the element that supports the shaft can drastically reduce service life. Inspect the components carefully and make sure they are mounted correctly.
- (8) If any balls fall out of the nut, contact THK. Do not use the product in that condition.
- (9) If the unit will be mounted vertically, install safety equipment or take other measures to prevent it from falling. The nut may fall under its own weight.
- (10) Do not exceed the permissible rotation speed when using the product. This could damage the product or otherwise cause it to malfunction. Please use the product within the range of speeds we have specified.
- (11) Do not allow the nut to overshoot. The product may malfunction if any of the balls fall out, the circulation components become damaged, or any indentations form in the ball raceways. Continuing to use the product under these circumstances may lead to premature wear or damage to the circulation components.
- (12) Use ball screws in conjunction with guide elements such as an LM Guide or ball spline. Failure to do so could damage the product.
- (13) Insufficient rigidity or accuracy of the mounting surface could cause an unexpected load to act on the ball screw, which could lead to premature failure of the product. Therefore, give sufficient consideration to the rigidity and accuracy of the housing and base.

Lubrication

- (1) Thoroughly wipe off anti-rust oil and feed lubricant before using the product.
- (2) Do not mix different lubricants. Even grease containing the same type of thickening agent may, if mixed, interact negatively due to disparate additives or other ingredients.
- (3) When using the product in locations exposed to constant vibrations or in special environments such as in clean rooms, vacuums, and extreme heat or cold, use a lubricant suitable for its use/environment.
- (4) When lubricating products that do not feature a grease nipple or lubrication hole, directly coat the raceways with lubricant and perform several warm-up strokes to ensure that the grease permeates the interior.
- (5) Grease viscosity can vary depending on the temperature. Please keep in mind that the torque of the ball screw may be affected by changes in viscosity.
- (6) After lubrication, the rotational torque of the ball screw may increase due to the stirring resistance of the grease. Be sure to perform a warming-up operation and allow the grease to break in sufficiently before operating the machinery.
- (7) Excess grease may spatter after lubrication. Wipe off spattered grease as necessary.
- (8) Grease deteriorates over time, which decreases the lubricity. Perform regular grease inspections and replenish grease based on frequency of use.
- (9) The lubrication interval varies depending on the operating conditions and environment. Lubricate the system approximately every 100 km of travel distance (3 to 6 months). The final lubrication interval/amount should be set at the actual machine.
- (10) Depending on the mounting orientation and nut lubrication port position, the lubricant may not circulate sufficiently. Take note of this during the design process.
- (11) It is necessary to provide adequate lubrication when using ball screws. Using the product without lubrication may increase wear on the rolling elements and shorten the service life.

Storage

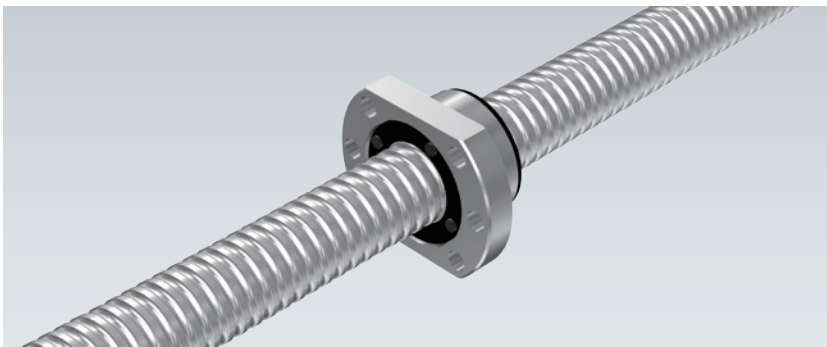
When storing the ball screw, pack it as designated by THK and store it indoors in a horizontal position away from high or low temperatures and high humidity. Please note that if the product has been kept in storage for an extended period, the lubricant inside may have deteriorated. Please ensure that you replenish the lubricant before using.

Disposal

The product should be treated as industrial waste and disposed of appropriately.

High-Speed Compact Ball Screw
SDA-V

- Compact nut compliant with ISO, DIN, and JIS standards.
- 108 products are available with a combination of shaft diameters from $\varnothing 10$ to $\varnothing 50$ and leads from 4 mm to 60 mm.



Precision Ball Screw with Finished Shaft Ends **SDA-VZ**

- “LM Guide” and “” are registered trademarks of THK CO., LTD.
- The actual products may differ from the pictures and photographs in this catalog.
- Outward appearances and specifications are subject to change without notice for the purpose of improvement. Please consult with THK before using.
- Although great care has been taken in the production of this catalog, THK will not take any responsibility for damage resulting from typographical errors or omissions.
- For exports of our products and technologies and sales for export, our basic policy is to comply with the Foreign Exchange and Foreign Trade Act and other laws and regulations. Please consult us in advance if you want to export our products by the piece.

All rights reserved

THK CO., LTD.

Global Headquarters 2-12-10 Shibaura, Minato-ku, Tokyo 108-8506 Japan
International Sales Department Phone: +81-3-5730-3860
www.thk.com