

## B-1-5 When Placing Orders

To avoid confusion, please use "reference number" or "specification number" when inquiring about desired ball screw specifications.

### ◇ Reference number:

Alpha-numeric codes are assigned to each ball screw. When placing order, please use this reference number.

### ◇ Specification number:

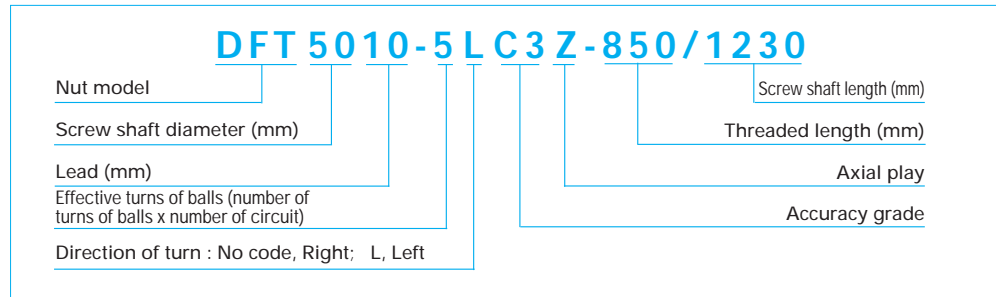
Specification factors are identified by alpha-numeric codes. Codes are for easy explanation of your requirements. (If you do not use these numbers, please itemize your requirements.)

### B-1-5.1 When Ordering Made-to-Order Ball Screws

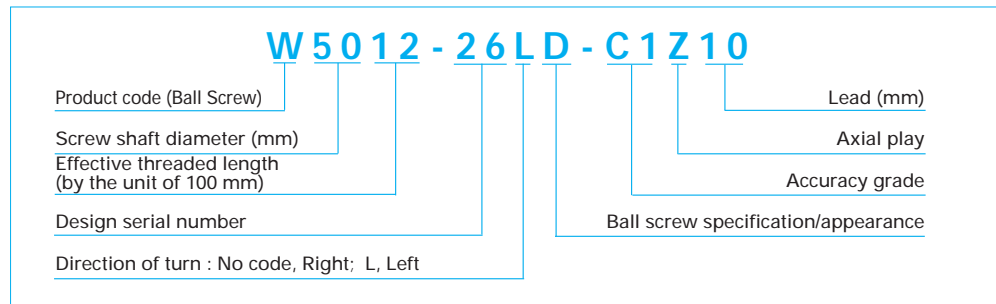
If you would like to discuss technical points regarding specifications, use the NSK ball screw technical data sheet as an aid (Page B36). For

high-load drive ball screws, use the technical sheet for NSK high-load drive ball screw.

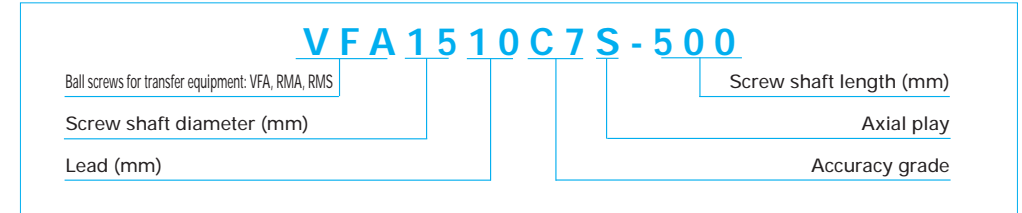
#### (1) Specification number of made-to-order ball screw



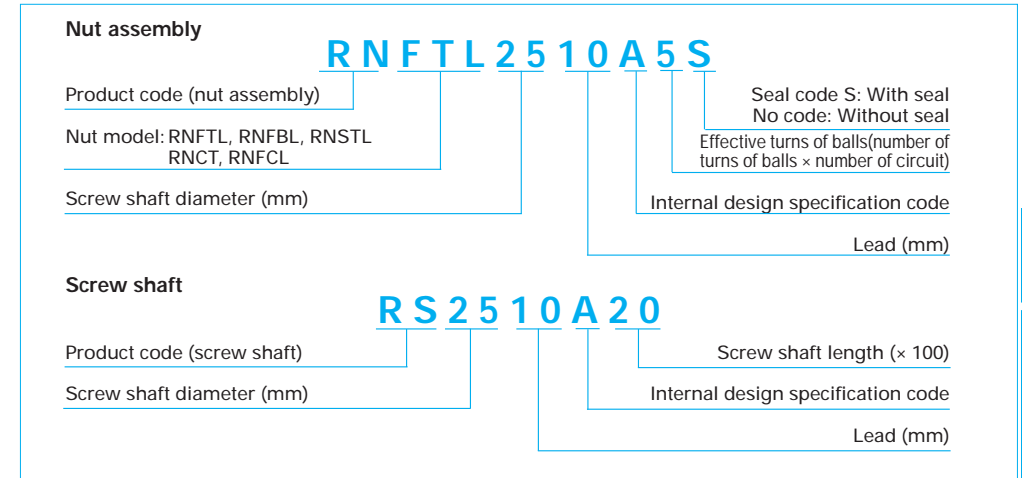
#### (2) Reference number of made-to-order ball screw



#### (3) Reference number of ball screws for transfer equipment with finished shaft end and blank shaft end



#### (4) Reference number of R series ball screws for transfer equipment





**NSK Ball Screw Technical Data Sheet (example)**

(2) Made-to-order ball screw

Company name \_\_\_\_\_ Date: Day Month Year \_\_\_\_\_  
 Address \_\_\_\_\_ Telephone \_\_\_\_\_  
 Person in charge \_\_\_\_\_ Section \_\_\_\_\_  
 Machine which uses the ball screw Machining center Model MC- Application Table left/right movement (X axis)  
 Drawing/rough sketch attached? Yes  No

**Use conditions**

Maximum load	9 000 N	20 min <sup>-1</sup>	15 %	Operating conditions	Shaft rotation - Moving nut (Normal operation)
Load in normal use	4 000 N	360 min <sup>-1</sup>	60 %		Shaft rotation - Moving shaft Back drive operation
Minimum load	2 000 N	1 000 min <sup>-1</sup>	25 %		Nut rotation - Moving nut Nut rotation - Moving shaft Oscillation
				Degree of vibration shock	Normal
Maximum rotational speed	1 000 min <sup>-1</sup>			Required life	2 000 h
Lubricant	Grease/oil (Brand name: <u>NSK GRS AS2</u> ) Maker: _____			Motor in use	Company A, Model 1
Seal	Yes	No		Control system	Company B, Model 2 ( resolution: <u>1µm</u> )
Support bearing	Drive side <u>35TAC62DF</u>	Opposite to drive side <u>35TAC62DF</u>			
Guide way	<u>Rolling</u>	Sliding ( <u>RA451500GM2-P4Z3-I</u> )			
Environment	Temperature (Normal temperature in degrees Celsius)	Dust	Humidity	Gas	Liquid (where?) Clean room In vacuum
Schedule for prototype	Day	Month	Year (approx.)	Quantity used	Piece
Date, going in production/Quantity	/Month	/Year	/Lot	per machine	

**Specification factors of the ball screw**

Screw shaft diameter	50 mm	Direction of turn	right	Accuracy grade	C2	Screw shaft length	880 mm	Preload	3000 N
Lead	10 mm	Effective turns of balls		Axial play	0 mm	Overall shaft length	1335 mm	Required torque	
Nut model	ZFT5010-10	Flange type	Circular I	Nut orientation	Same as shown in the dimension table			Opposite	

Supplemental explanation/requests

**NSK Ball Screw Technical Data Sheet (example)**

(2) Made-to-order ball screw

Company name \_\_\_\_\_ Date: Day Month Year \_\_\_\_\_  
 Address \_\_\_\_\_ Telephone \_\_\_\_\_  
 Person in charge \_\_\_\_\_ Section \_\_\_\_\_  
 Machine which uses the ball screw \_\_\_\_\_ Application \_\_\_\_\_  
 Drawing/rough sketch attached? Yes  No

**Use conditions**

Maximum load	N	min <sup>-1</sup>	%	Operating conditions	Shaft rotation - Moving nut Normal operation
Load in normal use	N	min <sup>-1</sup>	%		Shaft rotation - Moving shaft Back drive operation
Minimum load	N	min <sup>-1</sup>	%		Nut rotation - Moving nut Nut rotation - Moving shaft Oscillation
				Degree of vibration shock	
Maximum rotational speed	min <sup>-1</sup>			Required life	
Lubricant	Grease/oil (Brand name: _____ ) Maker: _____			Motor in use	
Seal	Yes	No		Control system	(resolution: _____ )
Support bearing	Drive side	Opposite to drive side			
Guide way	Rolling	Sliding ( _____ )			
Environment	Temperature (Normal temperature in degrees Celsius)	Dust	Humidity	Gas	Liquid (where?) Clean room In vacuum
Schedule for prototype	Day	Month	Year (approx.)	Quantity used	Piece
Date, going in production/Quantity	/Month	/Year	/Lot	per machine	

**Specification factors of the ball screw**

Screw shaft diameter		Direction of turn		Accuracy grade		Screw shaft length		Preload	
Lead		Effective turns of balls		Axial play		Overall shaft length		Required torque	
Nut model		Flange type		Nut orientation	Same as shown in the dimension table			Opposite	

Supplemental explanation/requests

# NSK Technical Data Sheet for NSK High-Load Drive Ball Screw

Made-to-order ball screw

Company name:	Date:	NSK sales office
Section:	Person in charge:	
Address:		

Name of machine\*1 : Electric injection molding machine; 30-ton capacity Application\*2 : Clamping axis

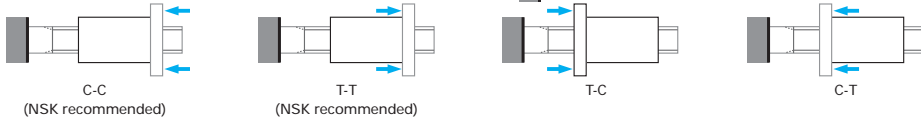
Drawing/rough sketch attached?:  Yes  No

\*1 Please specify capacity of the machine in case of injection molding machine or press.  
\*2 If the application is injection molding machine, please indicate the axis. (Examples: injection axis and clamping axis)

## 1. Use conditions

Operating conditions	<input checked="" type="checkbox"/> Shaft rotation — Moving nut	<input checked="" type="checkbox"/> Normal operation	Degree of vibration/impact	<input type="checkbox"/> Smooth operation without impact
	<input type="checkbox"/> Shaft rotation — Moving shaft	<input type="checkbox"/> Back drive operation		<input checked="" type="checkbox"/> Normal operation
Direction of load*3	<input type="checkbox"/> C-C <input checked="" type="checkbox"/> T-T <input type="checkbox"/> T-C	<input type="checkbox"/> C-T <input type="checkbox"/> Other	Mounting orientation	<input checked="" type="checkbox"/> Horizontal
	(Refer to figures below.)			<input type="checkbox"/> Vertical (Indicate the direction of gravity.)
Lubricant	<input checked="" type="checkbox"/> Grease (Brand name: <i>High-load grease with an extreme pressure additive</i> )	How to replenish lubricant	<input checked="" type="checkbox"/> Grease gun	<input type="checkbox"/> Automatic
Request for oil hole	<input type="checkbox"/> Oil (Maker: )		(      cm <sup>3</sup> /      cycles)	
Necessity of seals	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	NSK S1 necessary?	<input checked="" type="checkbox"/> NSK recommended	<input type="checkbox"/> Not necessary
Environment	Temperature ( 40 deg)	Particles / <input type="checkbox"/> Yes (Size of particle : a) -0.1, b) over 0.1-0.3, c) over 0.3- , d) Ingredient: )	<input checked="" type="checkbox"/> No particle.	
Surface treatment	<input checked="" type="checkbox"/> Not required	<input type="checkbox"/> Low-temperature chrome plating	<input type="checkbox"/> Fluoride low-temperature chrome plating	<input type="checkbox"/> Other
Quantity in mass-production	/Month	/Year	/Lot	Quantity used per machine: 1 pcs./machine

\*3 Please specify loading direction code on the figures below. (Shaft fixed: ■ Main load: ←)



## 2. Specifications

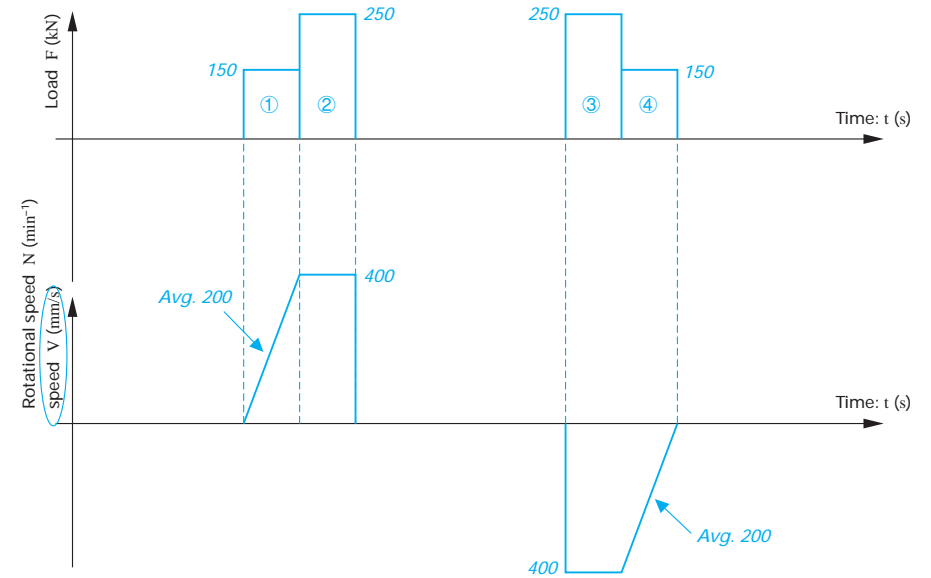
Shaft diameter	φ 140 mm	Lead	32 mm	Accuracy grade	Cl7	Axial play	0.050 or less mm max.
Nut model No.	HTF 14032-7.5-S1	Effective turns of balls	2.5 × 2	Direction of turn	right	Thread length / Overall shaft length	1000 / 1500

Special note / Requests

Please calculate the life as a continuous operation based on "3. Load chart".

# NSK Technical Data Sheet for NSK High-Load Drive Ball Screw

## 3. Load chart



	Axial load* F (kN)	Rotational speed or Average speed N (min <sup>-1</sup> )	V (mm/s)	Time t (s)	Stroke St (mm)	Remarks
1	150	200	200	0.5	100	
2	250	400	400	0.5	200	
3	250	400	400	0.5	200	
4	150	200	200	0.5	100	
5				Total: 2.0	Total: 600	
6						
7						
8						
9						
10						

Dynamic axial load (MAX.)\*: 250 (kN)      Static axial load (MAX.)\* (at 0 mm/s): (kN)  
Stroke in normal use: 300 (mm)      Maximum stroke: 500 (mm)  
Cycle time: 2.0 (s)      Required life: 2500 (✓ h or  cycles)

\*If you use multiple ball screws in an axis, fill out the axial load per ball screw.

## 4. Plan to conduct the endurance test of the ball screw?

Actual data on the machine  Yes  N/A

Planning to check endurance (Date: *From the middle of December 2009*)  No (Reason: )

### Endurance of the ball screw

- (1) Mounting accuracy, load conditions, and lubricating conditions are the main factors affecting the ball screw fatigue life. Therefore, we recommend evaluating the influence of those factors on actual use of your machines.
- (2) A temperature rise caused by operational and environmental conditions may reduce the effectiveness of lubricant.

# NSK Technical Data Sheet for NSK High-Load Drive Ball Screw

Made-to-order ball screw

Company name:	Date:	NSK sales office
Section:	Person in charge:	
Address:		

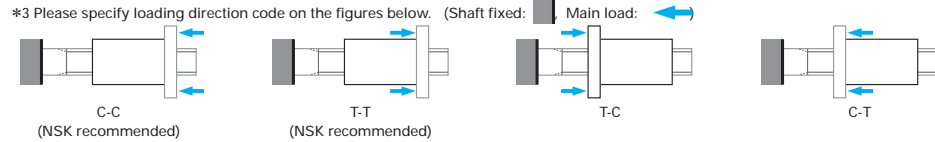
Name of machine\*1 : \_\_\_\_\_ Application\*2 : \_\_\_\_\_

Drawing/rough sketch attached?:  Yes  No

\*1 Please specify capacity of the machine in case of injection molding machine or press.  
 \*2 If the application is injection molding machine, please indicate the axis. (Examples: injection axis and clamping axis)

## 1. Use conditions

Operating conditions	<input type="checkbox"/> Shaft rotation — Moving nut <input type="checkbox"/> Shaft rotation — Moving shaft <input type="checkbox"/> Nut rotation — Moving nut <input type="checkbox"/> Nut rotation — Moving shaft	<input type="checkbox"/> Normal operation <input type="checkbox"/> Back drive operation <input type="checkbox"/> Oscillation	Degree of vibration/impact	<input type="checkbox"/> Smooth operation without impact <input type="checkbox"/> Normal operation <input type="checkbox"/> Operation associated with impact or vibration
Direction of load*3	<input type="checkbox"/> C-C <input type="checkbox"/> T-T <input type="checkbox"/> T-C <input type="checkbox"/> C-T <input type="checkbox"/> Other (Refer to figures below.)	Mounting orientation	<input type="checkbox"/> Horizontal <input type="checkbox"/> Vertical (Indicate the direction of gravity.)	
Lubricant	<input type="checkbox"/> Grease (Brand name: _____) <input type="checkbox"/> Oil (Maker: _____)		How to replenish lubricant	<input type="checkbox"/> Grease gun <input type="checkbox"/> Automatic ( _____ cm <sup>3</sup> / _____ cycles)
Request for oil hole	<input type="checkbox"/> NSK recommended <input type="checkbox"/> Your request		Necessity of seals	<input type="checkbox"/> Yes <input type="checkbox"/> No NSK S1 necessary? <input type="checkbox"/> NSK recommended <input type="checkbox"/> Not necessary
Environment	Temperature ( _____ deg)	Particles / <input type="checkbox"/> Yes (Size of particle : a) -0.1, b) over 0.1-0.3, c) over 0.3- _____, d) Ingredient: _____ ) <input type="checkbox"/> No particle.		
Surface treatment	<input type="checkbox"/> Not required <input type="checkbox"/> Low-temperature chrome plating <input type="checkbox"/> Fluoride low-temperature chrome plating <input type="checkbox"/> Other			
Quantity in mass-production	/Month	/Year	/Lot	Quantity used per machine _____ pcs./machine



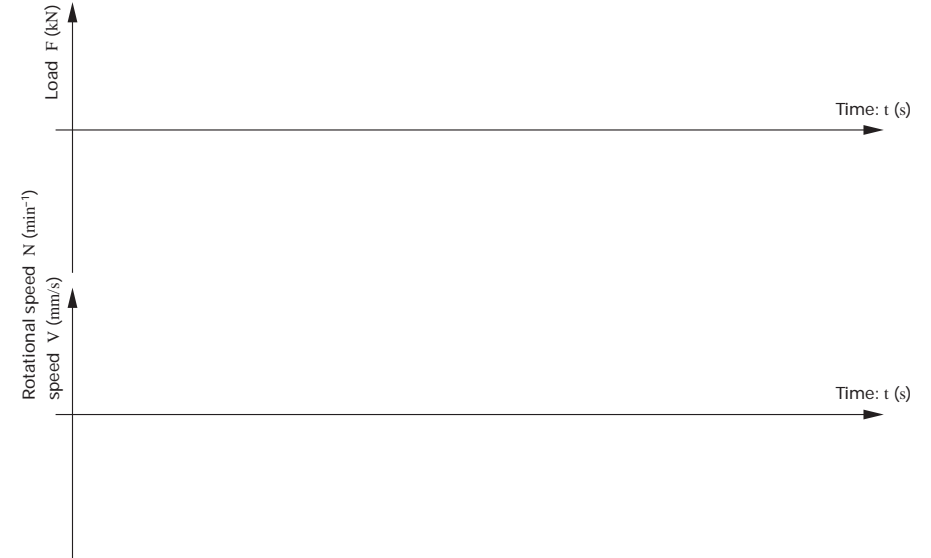
## 2. Specifications

Shaft diameter	φ	mm	Lead	mm	Accuracy grade	Axial play	mm max.
Nut model No.			Effective turns of balls		Direction of turn	Thread length / Overall shaft length	/

Special note / Requests

# NSK Technical Data Sheet for NSK High-Load Drive Ball Screw

## 3. Load chart



	Axial load* F (kN)	Rotational speed or Average speed N (min <sup>-1</sup> )	V (mm/s)	Time t (s)	Stroke St (mm)	Remarks
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						

Dynamic axial load (MAX.)\*: \_\_\_\_\_ (kN)      Static axial load (MAX.)\* (at 0 mm/s): \_\_\_\_\_ (kN)  
 Stroke in normal use: \_\_\_\_\_ (mm)      Maximum stroke: \_\_\_\_\_ (mm)  
 Cycle time: \_\_\_\_\_ (s)      Required life: \_\_\_\_\_ (  h or  cycles )  
 \*If you use multiple ball screws in an axis, fill out the axial load per ball screw.

## 4. Plan to conduct the endurance test of the ball screw?

Actual data on the machine  Yes  N/A

N/A → Planning to check endurance (Date: \_\_\_\_\_ )  
 N/A → No (Reason: \_\_\_\_\_ )

### Endurance of the ball screw

- (1) Mounting accuracy, load conditions, and lubricating conditions are the main factors affecting the ball screw fatigue life. Therefore, we recommend evaluating the influence of those factors on actual use of your machines.
- (2) A temperature rise caused by operational and environmental conditions may reduce the effectiveness of lubricant.