



# **EXSEV™** Product Guidebook for Extreme Special Environments

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**EXSEV**  
BEARING SERIES  
BEARINGS FOR  
EXTREME SPECIAL  
ENVIRONMENT

# **EXSEV** Bearing Series Product Guidebook

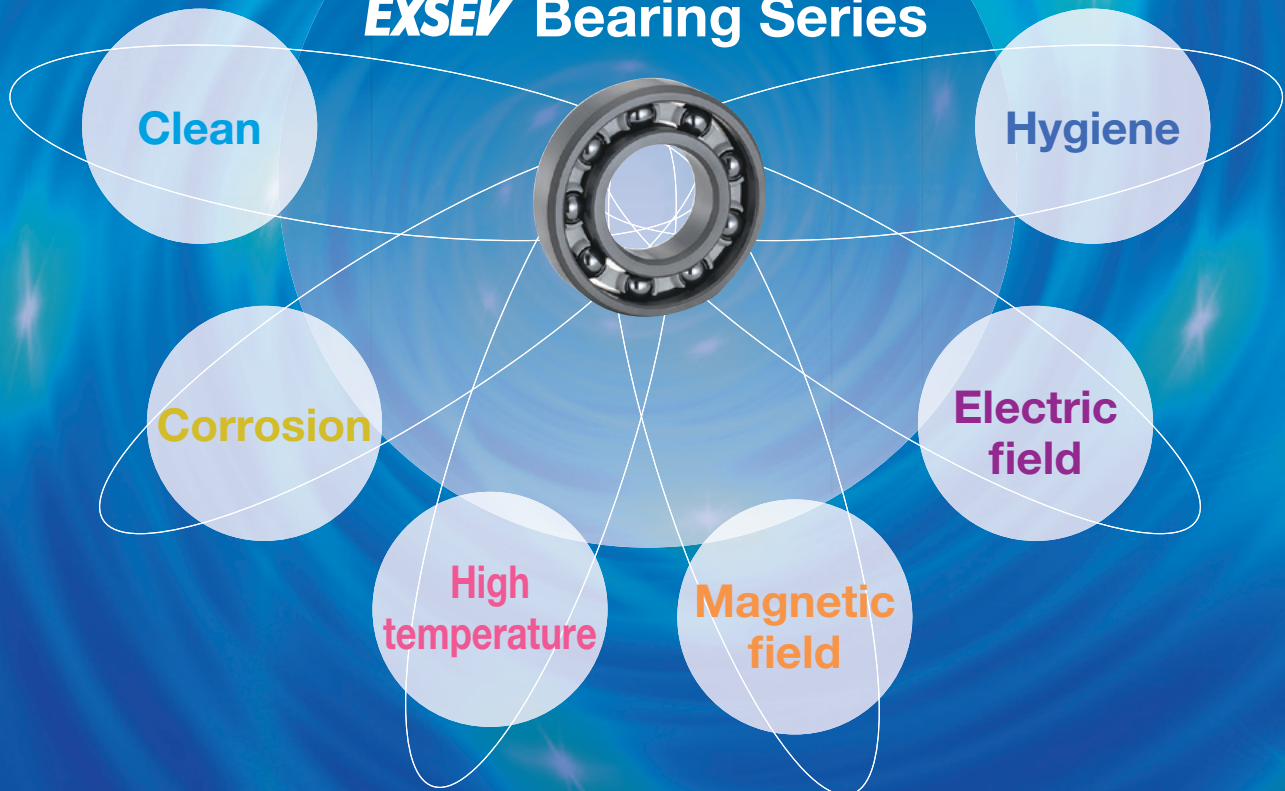
The EXSEV Bearing Series is a collection of high-performance bearings compatible with special operating environments and conditions, where conventional bearings are not applicable.

From among our varied collection of EXSEV Series bearings, this Guidebook includes products that are especially contributory to the semiconductor industry, such as in clean-room or vacuum-chamber applications.

JTEKT is certain that the high-performance EXSEV Bearing Series, which is the materialization of new values, will assist the many engineers working not only in the semiconductor industry but in a variety of fields.

For your needs in varied extreme special environments

## **EXSEV** Bearing Series






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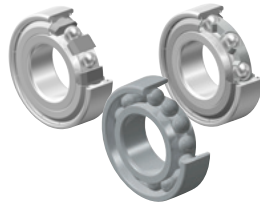
# EXSEV bearings in daily life and at the cutting edge of technology

**Electric field** Prevents damage from electric pitting to enable extended operation.

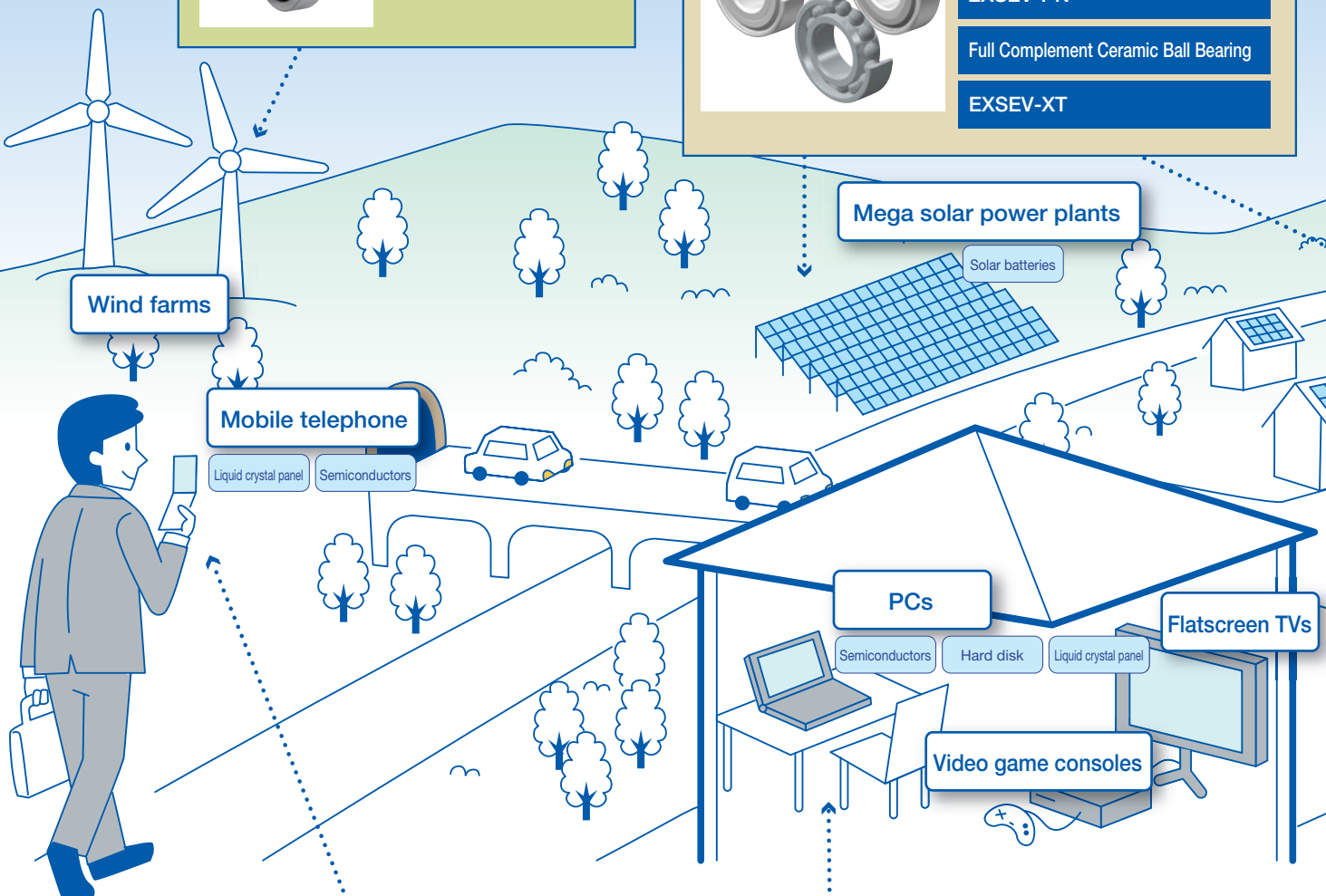


Hybrid Ceramic Bearing

**High temperature** Compatible with the high temperature environments of the surface treatment used in the solar cell manufacturing process.



EXSEV-WS  
EXSEV-PN  
Full Complement Ceramic Ball Bearing  
EXSEV-XT




**Corrosion** Can be used in the corrosive acid/alkaline environments needed for LC panel manufacturing.




Corrosion Guard Pro Bearing-MD  
Corrosion Guard Pro Bearing-ZO  
Corrosion Resistant Bearing Unit with Aligning Ring  
Ceramic Bearing

**Clean / Vacuum** Helps restrain gas and dust generation to maintain a clean semiconductor manufacturing environment.



New Clean Pro-PR  
Clean Pro-RZ  
Touchdown Bearings for Turbo Molecular Pump  
EXSEV-MO EXSEV-MG  
EXSEV-PN

**Magnetic field** Rotates smoothly even in magnetic fields.



Non-magnetic Hybrid Ceramic Bearing  
Ceramic Bearing

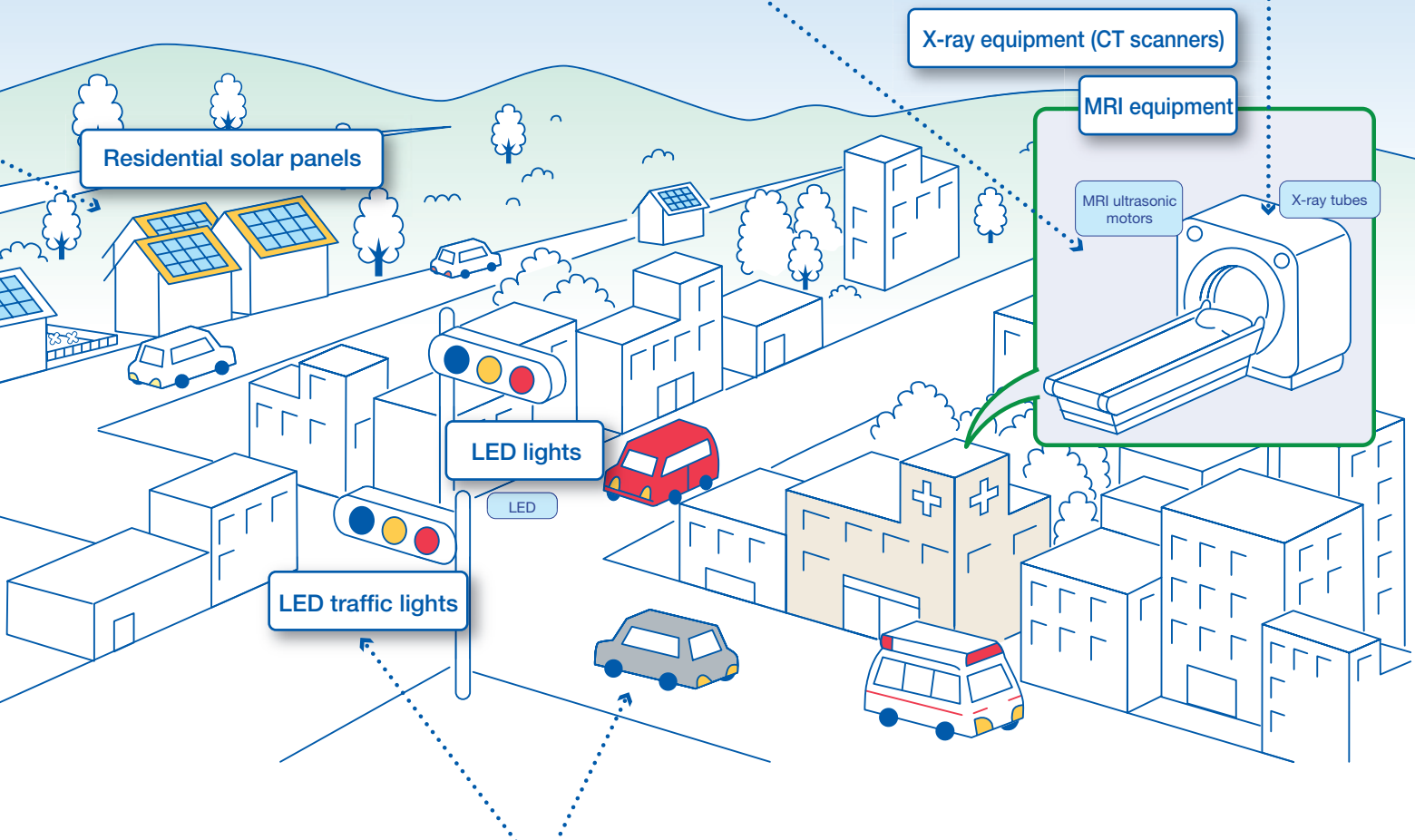
**High temperature** Compatible with the harsh environment needed to generate X-rays.

**Vacuum**


**High Speed**




Spindle Unit for X-ray Tube




**High temperature** Can be used in the harsh environment needed to manufacture LEDs.



EXSEV-WS  
EXSEV-PN  
Full Complement Ceramic Ball Bearing  
EXSEV-XT

 EXSEV bearings are used in the product itself.

 EXSEV bearings are used during manufacturing.

# EXSEV Bearings: Table of Characteristics

Major Uses	Products	Applicable Environments <sup>1)</sup>							
		Limiting Speeds Max.(min <sup>-1</sup> )	Permissible radial load	Operating Temp. (°C)					
				~120	~200	~260	~300	~350	~800
Clean environment	Clean Pro-RZ	1 000	Approximately 5% of C <sub>r</sub> or less	→	→				
	Clean Pro-RB	1 000	Approximately 3% of C <sub>r</sub> or less	→	→	→			
	New Clean Pro-PR	1 000	Approximately 3% of C <sub>r</sub> or less	→	→				
	EXSEV-EX	—	—	→	→	→			
	EXSEV-FA	1 000	Approximately 1% of C <sub>r</sub> or less	→	→				
Corrosive environment	Corrosion Guard Pro Bearing-SC	1 000	Approximately 3% of C <sub>r</sub> or less	→	→	→	→		
	Ceramic Bearing	1 000	Approximately 3% of C <sub>r</sub> or less	→	→	→	→		
	Corrosion Guard Pro Bearing-ZO	1 000	Approximately 3% of C <sub>r</sub> or less	→	→				
	Corrosion Guard Pro Bearing-MD	1 000	Approximately 3% of C <sub>r</sub> or less	→	→				
	EXSEV-SK	—	—	→					
High temperature environment	Full Complement Ceramic Ball Bearing	500	Approximately 1% of C <sub>r</sub> or less	→	→	→	→	→	→
	EXSEV-XT	—	—			→			
	EXSEV-WS	500	Approximately 5% of C <sub>r</sub> or less	→	→	→	→		
	EXSEV-MG	1 000	Approximately 3% of C <sub>r</sub> or less	→	→	→	→		
	EXSEV-PN	1 000	Approximately 3% of C <sub>r</sub> or less	→	→	→	→		
	EXSEV-MO	1 000	Approximately 3% of C <sub>r</sub> or less	→	→	→	→		
Magnetic field environment	Non-magnetic Hybrid Ceramic Bearing	1 000	Approximately 3% of C <sub>r</sub> or less	→	→				
Electric field environment	Hybrid Ceramic Bearing	No less than 1.2 times that of steel bearings	—	→					
Hygiene	Grease-filled Bearing for Food Machinery	Same as standard bearings	—	→					

1) Applicable environments in mainly determined by the performance of solid lubrication.  
 2) The cleanliness classes may vary depending on operating conditions.  
 3) The four blank boxes(□□□□) represent the basic number of the bearing. A basic number consists of three or four alphanumeric characters. A bearing number may be used as a convenience in the case of any queries to JTEKT.

						Performance and functions	Bearing Number <sup>3)</sup> (Cage Code)	Page
Vacuum (Pa)			Cleanliness (class) <sup>2)</sup>					
Atmosphere	10 <sup>-5</sup>	10 <sup>-10</sup>	1000	100	10			
→	→		→	→	→	<p>High</p> <p>Low</p>	SE□□□□ZZSTPRZ (YS)	Page 5
→	→		→	→	SE□□□□ZZSTPRB (YS)		Page 5	
→	→		→	→	SE□□□□ZZSTPR (YS)		Page 6	
→	→		→	→	SV□□□□ZZST (YS) EX		Page 6	
→	→		→	→	SE□□□□ZZST (FA)		Page 7	
→	→				<p>High</p> <p>Low</p>	NCZ□□□□ (PN)	Page 7	
→	→					NC□□□□ (PN)	Page 8	
→	→					NCB□□□□ (PN)	Page 8	
→	→					3NC□□□□ZZMD4 (PN)	Page 9	
→	→					SK□□□□ZZST (YS) HX	Page 9	
→	→				<p>High</p> <p>Low</p>	NC□□□□V (-)	Page 10	
→	→					SV□□□□ZZST (YS) XT	Page 10	
→	→					SE□□□□ZZST (WS)	Page 11	
Cannot be used under the atmosphere.	→					SE□□□□ZZSTMG3 (YS)	Page 11	
→	→					SE□□□□ZZST (PN)	Page 12	
→	→					SE□□□□ZZSTMSA7 (YS)	Page 12	
→	→		→			3NC□□□□YH4 (PN)	Page 13	
→	→				3NC□□□□ZZ (FG)	Page 13		
→	→				□□□□ZZ (YS)	Page 14		

Clean environment

Clean Pro-RZ



Clean Pro-RB



Typical bearing number

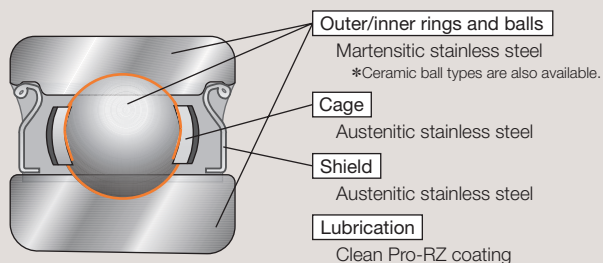
SE□□□□ZZSTPRZ (YS)

Advantages

Long Service Life for Clean Environments

A gel-type fluoropolymer coating achieves a service life more than 10 times longer than the conventional standard type.

Specifications



Performance

Cleanliness : Class 10<sup>1)</sup>  
 Ambient pressure : Atmospheric pressure to 10<sup>-5</sup> Pa  
 Temperature : -30 to 200 °C  
 Limiting speed :  $d_{mn} < 18\,000$ <sup>2)</sup>  
 1 000 min<sup>-1</sup> max.  
 Permissible radial load :  $\leq 5\%$  of the basic dynamic load rating<sup>3)</sup>

Applications

- Semiconductor manufacturing equipment
- Lithography equipment
- Transfer systems
- Vacuum motors
- Vacuum equipment

Typical bearing number

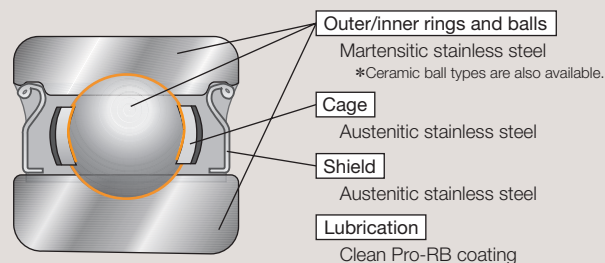
SE□□□□ZZSTPRB (YS)

Advantages

For Clean and Vacuum Environments up to 260°C

High-temperature operation is achieved by applying a heat-resistant fluoropolymer coating to the bearing rolling surfaces.

Specifications



Performance

Cleanliness : Class 10<sup>1)</sup>  
 Ambient pressure : Atmospheric pressure to 10<sup>-5</sup> Pa  
 Temperature : -100 to 260 °C  
 Limiting speed :  $d_{mn} < 18\,000$ <sup>2)</sup>  
 1 000 min<sup>-1</sup> max.  
 Permissible radial load :  $\leq 3\%$  of the basic dynamic load rating<sup>3)</sup>

Applications

- Semiconductor manufacturing equipment
- LCD manufacturing equipment
- Transfer systems
- Vacuum equipment
- Sputtering equipment

1) The cleanliness class number represents specific environments where the individual products are useful. The cleanliness of the products themselves may vary depending on operating conditions.  
 2) When used in an environment where cleanliness is not a significant factor, the product can be used at higher speed, reaching the same limiting speed as that of standard products.

## New Clean Pro-PR



## EXSEV-EX



### Typical bearing number

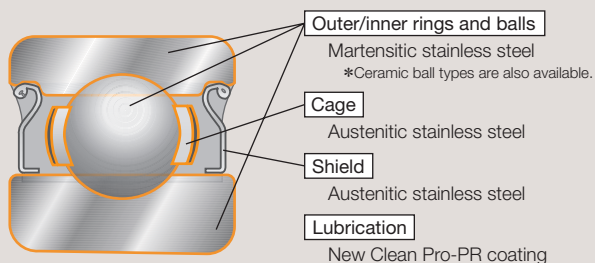
SE□□□□ZZSTPR (YS)

### Advantages

#### For Cleanrooms, Vacuum Equipment, and Similar Demanding Applications

Lubrication with a fluoropolymer coating achieves low particle generation and low outgassing.

### Specifications



### Performance

Cleanliness : Class 10 <sup>1)</sup>  
 Ambient pressure : Atmospheric pressure to 10<sup>-5</sup> Pa  
 Temperature : -100 to 200 °C  
 Limiting speed :  $d_m n < 18\,000$  <sup>2)</sup>  
 1 000 min<sup>-1</sup> max.  
 Permissible radial load :  $\leq 3\%$  of the basic dynamic load rating <sup>3)</sup>

### Applications

- Semiconductor manufacturing equipment
- LCD manufacturing equipment
- Vacuum equipment
- Lithography equipment
- Sputtering equipment
- Vacuum motors

### Typical bearing number

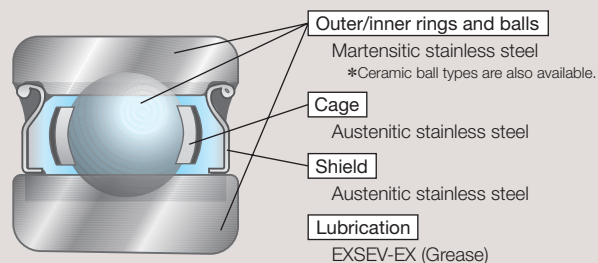
SV□□□□ZZST (YS) EX

### Advantages

#### Grease Lubrication for Clean and Vacuum Applications

Fluorinated grease for vacuum environments (EXSEV-EX grease) provides high lubricity and low particle generation. Compliant with environmental regulations (PFOA-free).

### Specifications



### Performance

Cleanliness : Class 100 <sup>1)</sup>  
 Ambient pressure : Atmospheric pressure to 10<sup>-8</sup> Pa  
 Temperature : -50 to 260 °C  
 Limiting speed :  $d_m n < 72\,000$  <sup>2)</sup>

### Applications

- Semiconductor manufacturing equipment
- LCD manufacturing equipment
- Transfer robots
- Vacuum pumps

3) The permissible radial load indicates the approximate size of radial load the bearing can carry. If the bearing carries an axial load, the permissible radial load may be lower. Refer to the EXSEV Bearings and CERAMIC Bearings catalog for each product's basic dynamic load rating ( $C_r$ ).

**EXSEV-FA**



**Corrosion Guard Pro Bearing-SC**



**Typical bearing number**

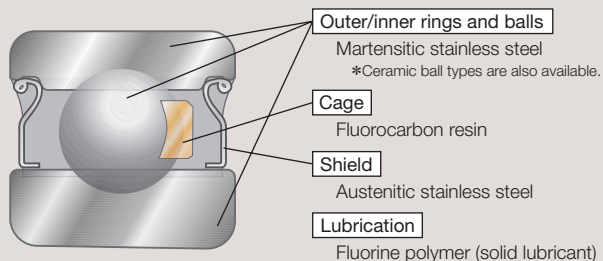
**SE**□□□□**ZZST (FA)**

**Advantages**

**Fundamental Specifications for Clean and Vacuum Environments**

Low particle generation is achieved through solid lubrication using a fluoropolymer cage.

**Specifications**



**Performance**

Cleanliness : Class 1 000 <sup>1)</sup>  
 Ambient pressure : Atmospheric pressure to 10<sup>-5</sup> Pa  
 Temperature : -100 to 200 °C  
 Limiting speed :  $d_m n < 18\,000$  <sup>2)</sup>  
 1 000 min<sup>-1</sup> max.  
 Permissible radial load : ≤ 1% of the basic dynamic load rating <sup>3)</sup>

**Applications**

- Semiconductor manufacturing equipment
- LCD manufacturing equipment
- Transfer systems
- Inspection systems

**Typical bearing number**

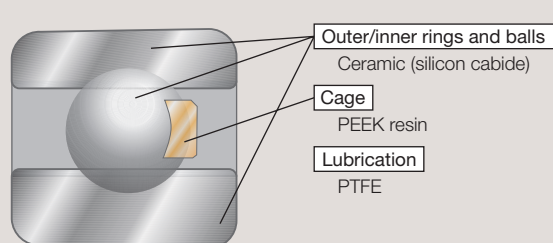
**NCZ**□□□□**(PN)**

**Advantages**

**For Extremely Corrosive Environments**

Silicon carbide ceramics, which are highly resistant to corrosion even from strong acids, are used.

**Specifications**



**Performance**

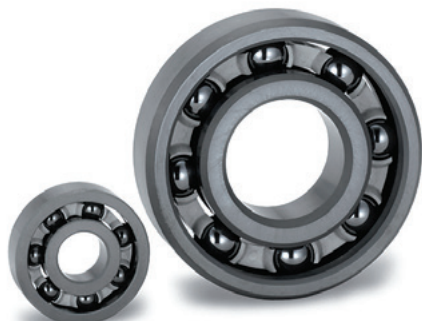
Cleanliness : -  
 Ambient pressure : Atmospheric pressure to 10<sup>-5</sup> Pa  
 Temperature : -30 to 300 °C  
 Limiting speed :  $d_m n < 18\,000$   
 1 000 min<sup>-1</sup> max.  
 Permissible radial load : ≤ 3% of the basic dynamic load rating <sup>3)</sup>

**Applications**

- Aluminum electrolytic capacitor manufacturing equipment

1) The cleanliness class number represents specific environments where the individual products are useful. The cleanliness of the products themselves may vary depending on operating conditions.  
 2) When used in an environment where cleanliness is not a significant factor, the product can be used at higher speed, reaching the same limiting speed as that of standard products.

## Ceramic Bearing



### Typical bearing number

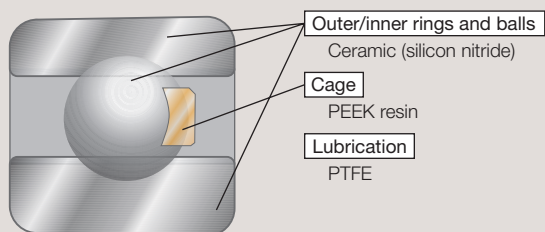
NC□□□□ (PN)

### Advantages

#### Ceramics for a Wide Range of Applications

Ceramics (silicon nitride) are used as the bearing material and are lubricated with a solid lubricant that provides excellent heat resistance. Mainly used in vacuum and corrosive environments.

### Specifications



### Performance

Cleanliness : -  
 Ambient pressure : Atmospheric pressure to  $10^{-5}$  Pa  
 Temperature :  $-30$  to  $300$  °C  
 Limiting speed :  $d_{mn} < 18\,000$   
 1 000  $\text{min}^{-1}$  max.  
 Permissible radial load :  $\leq 3\%$  of the basic dynamic load rating <sup>3)</sup>

### Applications

- Semiconductor manufacturing equipment
- LCD manufacturing equipment
- Semiconductor inspection equipment
- Synthetic fiber manufacturing equipment
- Canning machinery
- Ultrasonic motors

## Corrosion Guard Pro Bearing-ZO



### Typical bearing number

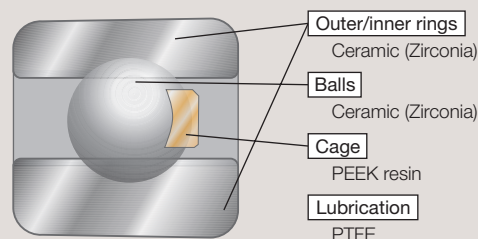
NCB□□□□ (PN)

### Advantages

#### Zirconia Ceramic Bearings

Can be used in corrosive solutions or in water and also offer excellent impact resistance.

### Specifications



### Performance

Cleanliness : -  
 Ambient pressure : Atmospheric pressure to  $10^{-5}$  Pa  
 Temperature :  $-30$  to  $150$  °C  
 Limiting speed :  $d_{mn} < 18\,000$   
 1 000  $\text{min}^{-1}$  max.  
 Permissible radial load :  $\leq 3\%$  of the basic dynamic load rating <sup>3)</sup>

### Applications

- High-performance film manufacturing equipment
- Cleaning equipment

<sup>3)</sup> The permissible radial load indicates the approximate size of radial load the bearing can carry. If the bearing carries an axial load, the permissible radial load may be lower. Refer to the EXSEV Bearings and CERAMIC Bearings catalog for each product's basic dynamic load rating ( $C_r$ ).

**Corrosion Guard Pro Bearing-MD**



**EXSEV-SK**



**Typical bearing number**

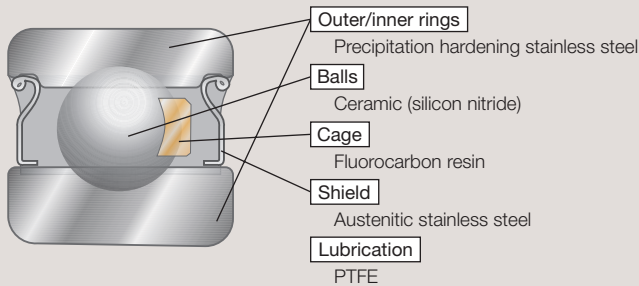
**3NC□□□□ZZMD4 (PN)**

**Advantages**

**For Environments Exposed to Salt Water and Chemical Solutions**

Offers excellent corrosion resistance and suitability for vacuum environments.

**Specifications**



**Performance**

Cleanliness : -  
 Ambient pressure : Atmospheric pressure to  $10^{-5}$  Pa  
 Temperature :  $-30$  to  $200$  °C  
 Limiting speed :  $d_{mn} < 18\,000$   
 $1\,000 \text{ min}^{-1}$  max.  
 Permissible radial load :  $\leq 3\%$  of the basic dynamic load rating <sup>1)</sup>

**Applications**

- Semiconductor manufacturing equipment
- Chemical manufacturing equipment
- Food machinery
- Cleaning equipment

**Typical bearing number**

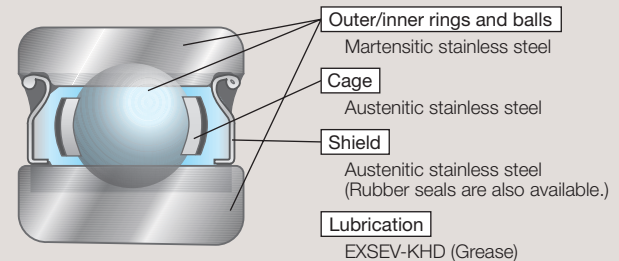
**SK□□□□ZZST (YS) HX**

**Advantages**

**Standard Stainless Steel Bearing**

A stainless steel bearing filled with lithium-based KHD grease for mildly corrosive environments.

**Specifications**



**Performance**

Cleanliness : -  
 Ambient pressure : Atmospheric pressure  
 Temperature :  $-30$  to  $120$  °C  
 Limiting speed : Equal to the  $d_{mn}$  value of normal bearings

**Applications**

- Chemical equipment
- Transfer systems

1) The permissible radial load indicates the approximate size of radial load the bearing can carry. If the bearing carries an axial load, the permissible radial load may be lower. Refer to the EXSEV Bearings and CERAMIC Bearings catalog for each product's basic dynamic load rating ( $C_r$ ).

## High temperature environment

### Full Complement Ceramic Ball Bearing



### EXSEV-XT



#### Typical bearing number

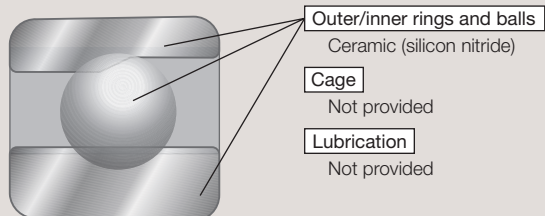
NC□□□□V (-)

#### Advantages

##### For Ultra-High Temperatures up to 800°C

Full-ceramic construction provides not only high-temperature capability but also corrosion resistance, non-magnetism, electrical insulation, and vacuum compatibility.

#### Specifications



#### Performance

Cleanliness : -

Ambient pressure : Atmospheric pressure to  $10^{-10}$  Pa

Temperature : -200 to 800 °C

Limiting speed :  $d_{mn} < 7\,200$

500 min<sup>-1</sup> max.

Permissible radial load :  $\leq 1\%$  of the basic dynamic load rating <sup>1)</sup>

#### Applications

- Baking furnace cars
- Fans in furnaces

#### Typical bearing number

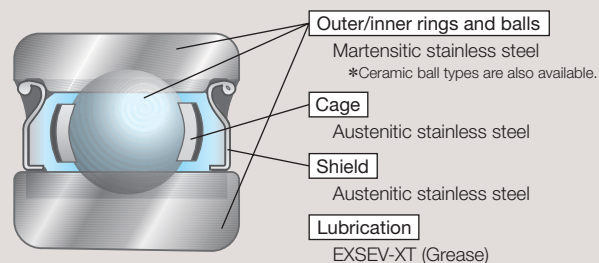
SV□□□□ZZST (YS) XT

#### Advantages

##### Long Service Life with Grease Lubrication Even at 300°C

Filled with high-temperature fluorinated grease usable up to 300°C.

#### Specifications



#### Performance

Cleanliness : -

Ambient pressure : Atmospheric pressure to  $10^{-5}$  Pa

Temperature : 200 to 300 °C

Limiting speed :  $d_{mn} < 7\,200$

#### Applications

- Semiconductor manufacturing equipment
- LCD manufacturing equipment
- Transfer robots
- Vacuum pumps

**EXSEV-WS**



**EXSEV-MG**



Typical bearing number

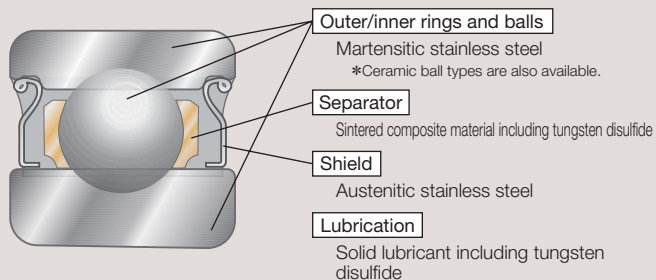
**SE□□□□ZZST (WS)**

Advantages

**Heat Resistance up to 350°C with High Load Capacity**

Suitable for vacuum environments requiring both heat resistance and load capacity.

Specifications



Performance

Cleanliness : -  
 Ambient pressure : Atmospheric pressure to  $10^{-5}$  Pa  
 Temperature :  $-100$  to  $350$  °C  
 Limiting speed :  $d_{mn} < 7\,200$   
 500 min<sup>-1</sup> max.  
 Permissible radial load :  $\leq 5\%$  of the basic dynamic load rating <sup>1)</sup>

Applications

- Semiconductor manufacturing equipment
- LCD manufacturing equipment
- Vacuum evaporator
- Plasma display panel manufacturing equipment

Typical bearing number

**SE□□□□ZZSTMG3 (YS)**

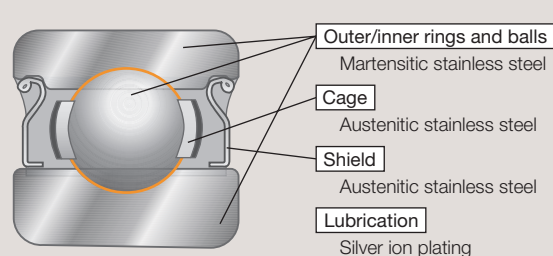
Advantages

**For High-Temperature Ultra-High Vacuum Environments**

Silver-ion-plated balls achieve low outgassing in high-temperature and high-vacuum environments.

\* Avoid contact with the atmosphere as much as possible during assembly, and do not use in atmospheric conditions.

Specifications



Performance

Cleanliness : -  
 Ambient pressure :  $10^{-3}$  to  $10^{-10}$  Pa  
 Temperature :  $-200$  to  $350$  °C  
 Limiting speed :  $d_{mn} < 18\,000$   
 1 000 min<sup>-1</sup> max.  
 Permissible radial load :  $\leq 3\%$  of the basic dynamic load rating <sup>1)</sup>

Applications

- Semiconductor manufacturing equipment
- LCD manufacturing equipment
- Vacuum evaporator
- Medical equipment
- Vacuum motors

1) The permissible radial load indicates the approximate size of radial load the bearing can carry. If the bearing carries an axial load, the permissible radial load may be lower. Refer to the EXSEV Bearings and CERAMIC Bearings catalog for each product's basic dynamic load rating ( $C_1$ ).

## EXSEV-PN



## EXSEV-MO



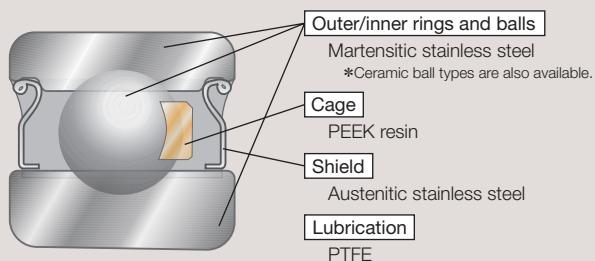
### Typical bearing number

SE□□□□ZZST (PN)

### Advantages

**Superior Heat Resistance for Use up to 300°C**  
Solid lubrication enables use in high-temperature vacuum environments.

### Specifications



### Performance

Cleanliness : -  
Ambient pressure : Atmospheric pressure to  $10^{-5}$  Pa  
Temperature :  $-30$  to  $300$  °C  
Limiting speed :  $d_m n < 18\,000$   
1 000 min<sup>-1</sup> max.  
Permissible radial load :  $\leq 3\%$  of the basic dynamic load rating <sup>1)</sup>

### Applications

- Carton manufacturing equipment
- LCD cleaning equipment

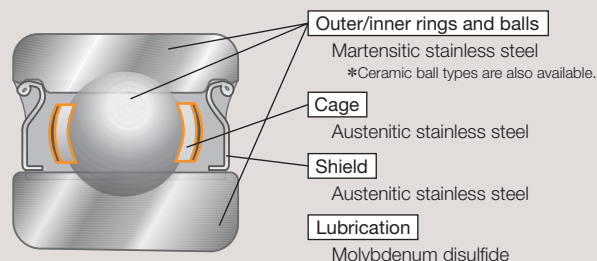
### Typical bearing number

SE□□□□ZZSTMSA7 (YS)

### Advantages

**Fundamental Specifications for 300°C Applications**  
Solid lubrication using molybdenum disulfide enables use in high-temperature environments.

### Specifications



### Performance

Cleanliness : -  
Ambient pressure : Atmospheric pressure to  $10^{-5}$  Pa  
Temperature :  $-100$  to  $300$  °C  
Limiting speed :  $d_m n < 18\,000$   
1 000 min<sup>-1</sup> max.  
Permissible radial load :  $\leq 3\%$  of the basic dynamic load rating <sup>1)</sup>

### Applications

- Semiconductor manufacturing equipment
- LCD manufacturing equipment
- Vacuum evaporator
- Turbo molecular pump
- Rotary furnaces

**Non-magnetic Hybrid Ceramic Bearing**



**Hybrid Ceramic Bearing**



**Typical bearing number**

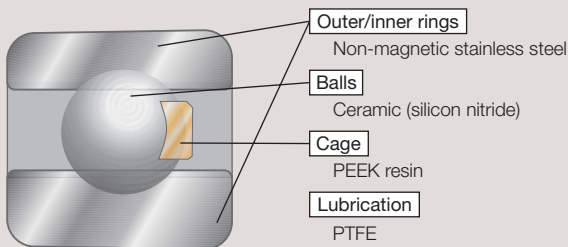
**3NC□□□□YH4 (PN)**

**Advantages**

**Non-Magnetic Stainless Steel**

Provides non-magnetic properties and can be used in vacuum environments.

**Specifications**



**Performance**

Cleanliness : -  
 Ambient pressure : Atmospheric pressure to  $10^{-5}$  Pa  
 Temperature :  $-30$  to  $200$  °C  
 Limiting speed :  $d_{mn} < 18\,000$  <sup>1)</sup>  
 1 000 min<sup>-1</sup> max.  
 Permissible radial load :  $\leq 3\%$  of the basic dynamic load rating <sup>2)</sup>

**Applications**

- Semiconductor manufacturing equipment
- Semiconductor inspection equipment
- Canning machinery
- Superconductivity-related equipment
- Welder
- MRI ultrasonic motors

**Typical bearing number**

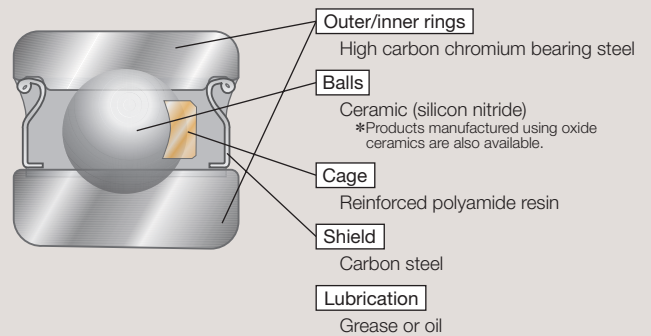
**3NC□□□□ZZ (FG)**

**Advantages**

**For Insulation and High-Speed Applications**

Standard type of hybrid ceramic bearing.

**Specifications**



**Performance**

Cleanliness : -  
 Ambient pressure : Atmospheric pressure  
 Temperature :  $-30$  to  $120$  °C  
 Limiting speed : Equal to or higher than 1.2 times the limiting speed of steel bearings

**Applications**

- High speed stranding machine guide rollers
- Motors
- Generators

1) When used in an environment where cleanliness is not a significant factor, the product can be used at higher speed, reaching the same limiting speed as that of standard products.

## Hygiene

### Grease-filled Bearing for Food Machinery



#### Typical bearing number

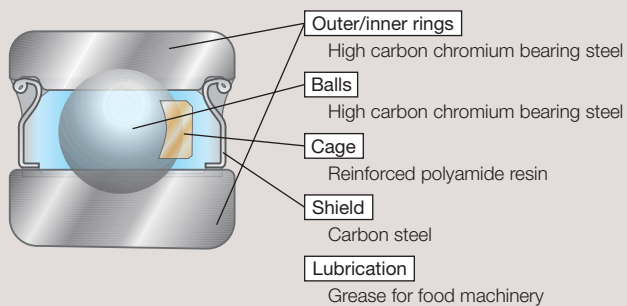
□□□□ZZ (YS)

#### Advantages

##### Bearings Filled with NSF-Registered Grease

Filled with food-grade grease recommended by international standards, suitable for food processing environments where high safety and hygiene are required.

#### Specifications



#### Performance

Cleanliness : -  
 Ambient pressure : Atmospheric pressure  
 Temperature : -20 to 100 °C  
 Limiting speed : Equal to the dn value of normal bearings

#### Applications

- Food machinery
- Chemical manufacturing equipment

### K Series Full Complement Hybrid Ceramic Ball Bearing



#### Typical bearing number

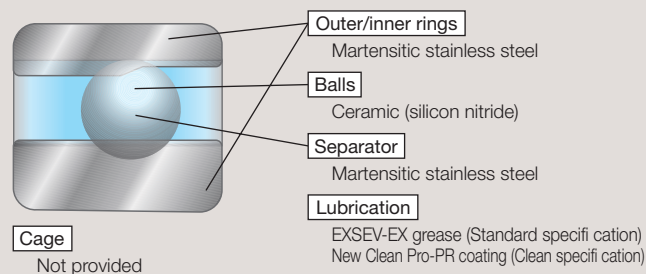
3NC□□□□VST4-1

#### Advantages

##### Ultra-Thin Section Bearings for Clean Applications

Ultra-thin section ball bearings suitable for clean and vacuum applications.

#### Specifications



#### Performance

Lubrication specification	Performance		
	Cleanliness	Temperature	Ambient pressure
EXSEV-EX (Grease)	Class 100	-50 to 260 °C	Atmospheric pressure to 10 <sup>-8</sup> Pa
New Clean Pro-PR coating	Class 10	-100 to 200 °C	Atmospheric pressure to 10 <sup>-5</sup> Pa

#### Applications

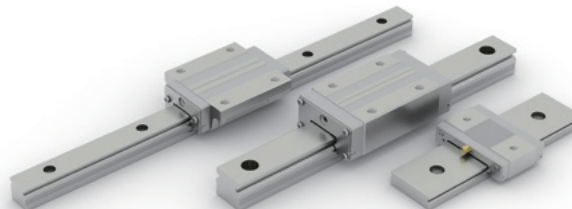
- Wafer transfer robot
- LCD manufacturing equipment
- Semiconductor manufacturing equipment

2) The permissible radial load indicates the approximate size of radial load the bearing can carry. If the bearing carries an axial load, the permissible radial load may be lower. Refer to the EXSEV Bearings and CERAMIC Bearings catalog for each product's basic dynamic load rating (C<sub>r</sub>).

**Linear Motion Ball Bearings**



**Linear Way Bearing Units**



**Typical bearing number**

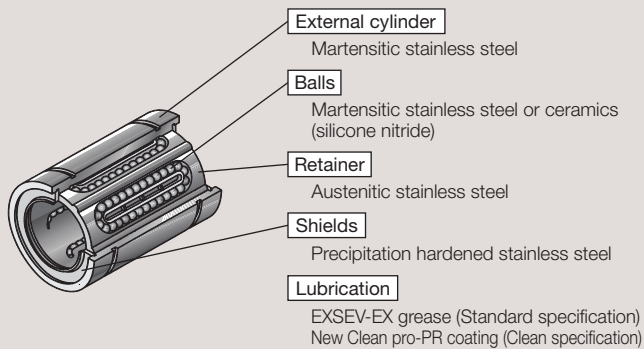
○○SDM□□ST△△ 1)

**Advantages**

**Compact Infinite Linear Motion Bearing**

A high-precision bearing that performs axial linear motion and supports various special environments through the EXSEV series material configuration.

**Specifications**



**Performance**

Lubrication specification	Performance		
	Cleanliness	Temperature	Ambient pressure
EXSEV-EX (Grease)	Class 100	-50 to 260 °C	Atmospheric pressure to 10 <sup>-8</sup> Pa
New Clean Pro -PR coating	Class 10	-100 to 200 °C	Atmospheric pressure to 10 <sup>-5</sup> Pa

**Typical bearing number**

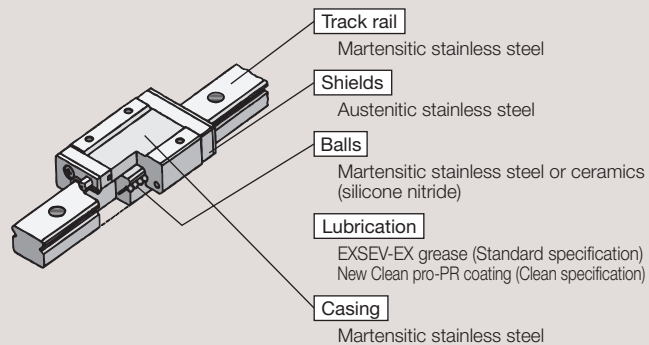
○○LW□□□□△△ 1)

**Advantages**

**Easy High-Precision Linear Motion**

A bearing unit in which a slide unit, constructed with EXSEV series materials for various special environments, performs infinite linear motion on a track rail.

**Specifications**



**Performance**

Lubrication specification	Performance		
	Cleanliness	Temperature	Ambient pressure
EXSEV-EX (Grease)	Class 100	-50 to 260 °C	Atmospheric pressure to 10 <sup>-8</sup> Pa
New Clean Pro -PR coating	Class 10	-100 to 200 °C	Atmospheric pressure to 10 <sup>-5</sup> Pa

1) Symbols determined according to factors such as the type, size, and material are entered in place of ○, □, and △.

## Ceramic Balls



### Advantages

#### Proven Performance in a Wide Range of Special Environments

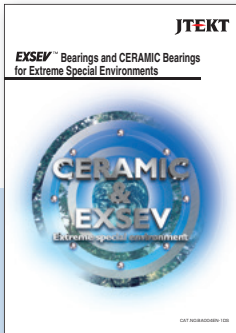
Utilizing the characteristics of silicon nitride, improved performance such as lighter weight and higher rigidity is achieved compared with high-carbon chromium bearing steel.

## EXSEV-EX (Grease)

### Advantages

#### Fluorinated Grease for Vacuum Environments with Low Particle Generation

- EXSEV-EX grease expresses its high properties when used with rolling bearings, linear-motion bearings, and ball screws.
- JTEKT also respond to requests only for grease, so consult JTEKT with such requests.
- For use at high temperatures or in high-vacuum environments, please consult JTEKT.



For details, refer to the EXSEV Bearings and CERAMIC Bearings catalog or the website, or contact JTEKT.  
【 Website 】 <https://koyo.jtekt.co.jp/en/products/type/special-environment-ball-bearing/>

JTEKT Corporation Website

<https://www.jtekt.co.jp/e/>



JTEKT Bearing Website

<https://koyo.jtekt.co.jp/en/>



JTEKT Overseas hubs

<https://www.jtekt.co.jp/e/company/global.html>



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