

# SKF high temperature bearings



For operating temperatures  
up to 350 °C (660 °F)





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# SKF – the knowledge engineering company

From one simple but inspired solution to a misalignment problem in a textile mill in Sweden, and fifteen employees in 1907, SKF has grown to become a global industrial knowledge leader.



Over the years, we have built on our expertise in bearings, extending it to seals, mechatronics, services and lubrication systems. Our knowledge network includes 46 000 employees, 15 000 distributor partners, offices in more than 130 countries, and a growing number of SKF Solution Factory sites around the world.

## Research and development

We have hands-on experience in over forty industries based on our employees' knowledge of real life conditions. In addition, our world-leading experts and university partners pioneer advanced theoretical research and development in areas including tribology, condition monitoring, asset management and bearing life theory. Our ongoing commitment to research and development helps us keep our customers at the forefront of their industries.

## Meeting the toughest challenges

Our network of knowledge and experience, along with our understanding of how our core technologies can be combined, helps us create innovative solutions that meet the toughest of challenges. We work closely with our customers throughout the asset life cycle, helping them to profitably and responsibly grow their businesses.

## Working for a sustainable future

Since 2005, SKF has worked to reduce the negative environmental impact from our operations and those of our suppliers. Our continuing technology development resulted in the introduction of the SKF BeyondZero portfolio of products and services which improve efficiency and reduce energy losses, as well as enable new technologies harnessing wind, solar and ocean power. This combined approach helps reduce the environmental impact both in our operations and our customers' operations.



*SKF Solution Factory makes SKF knowledge and manufacturing expertise available locally to provide unique solutions and services to our customers.*

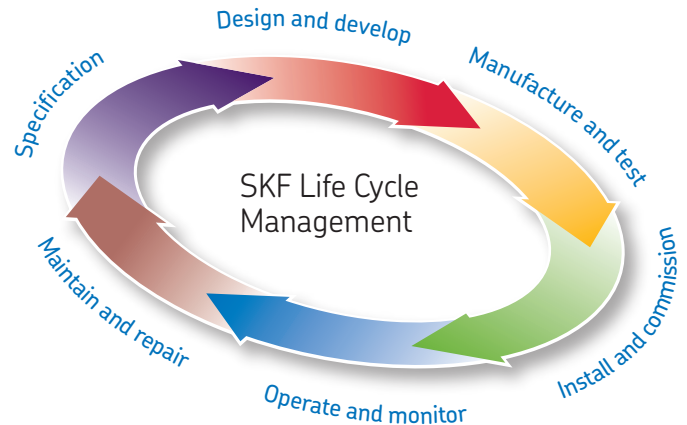


*Working with SKF IT and logistics systems and application experts, SKF Authorized Distributors deliver a valuable mix of product and application knowledge to customers worldwide.*



## Our knowledge – your success

**SKF Life Cycle Management is how we combine our technology platforms and advanced services, and apply them at each stage of the asset life cycle, to help our customers to be more successful, sustainable and profitable.**



### Working closely with you

Our objective is to help our customers improve productivity, minimize maintenance, achieve higher energy and resource efficiency, and optimize designs for long service life and reliability.



### Bearings

SKF is the world leader in the design, development and manufacture of high performance rolling bearings, plain bearings, bearing units and housings.

### Innovative solutions

Whether the application is linear or rotary or a combination, SKF engineers can work with you at each stage of the asset life cycle to improve machine performance by looking at the entire application. This approach doesn't just focus on individual components like bearings or seals. It looks at the whole application to see how each component interacts with each other.



### Machinery maintenance

Condition monitoring technologies and maintenance services from SKF can help minimize unplanned downtime, improve operational efficiency and reduce maintenance costs.

### Design optimization and verification

SKF can work with you to optimize current or new designs with proprietary 3-D modelling software that can also be used as a virtual test rig to confirm the integrity of the design.



### Sealing solutions

SKF offers standard seals and custom engineered sealing solutions to increase uptime, improve machine reliability, reduce friction and power losses, and extend lubricant life.



### Mechatronics

SKF fly-by-wire systems for aircraft and drive-by-wire systems for off-road, agricultural and forklift applications replace heavy, grease or oil consuming mechanical and hydraulic systems.



### Lubrication solutions

From specialized lubricants to state-of-the-art lubrication systems and lubrication management services, lubrication solutions from SKF can help to reduce lubrication related downtime and lubricant consumption.



### Actuation and motion control

With a wide assortment of products – from actuators and ball screws to profile rail guides – SKF can work with you to solve your most pressing linear system challenges.



# Reduce maintenance. Run longer. Run cleaner.

Bearings operating in high temperature applications can be unreliable due to premature failure. The result is high costs and time wasted on frequent bearing replacements. SKF offers a solution with an assortment of bearings designed to reduce maintenance, run longer and cleaner in high temperature applications.

## SKF high temperature bearings run trouble-free

SKF high temperature bearings incorporate a graphite-based lubrication that continuously lubricate the bearing, eliminating the use of grease and oil. Ideal for applications in industries such as metals and food & beverage, these bearings are designed for trouble-free operation at temperatures up to 350 °C (660 °F).

### SKF high temperature bearings provide:

- Reduced total operating cost through increased bearing service life
- Relubrication-free operation
- Reduced machine complexity
- Reduced environmental impact
- Excellent performance in hot conditions, dry environments and applications with low rotational speeds



## Common issues in high temperature applications

Bearings operating in high temperature applications may be impacted by a number of factors that can reduce bearing service life. Common issues include:

### Inadequate lubrication

At high temperatures, lubricating grease or oil becomes very thin. Oil that is too thin, in combination with low rotational speeds, results in metal-to-metal contact in the bearing. This will cause wear, leading to noise and excessive play (→ fig. 1).

### Short grease life

Grease ages rapidly at high temperatures, resulting in the need for very frequent relubrication. This is time consuming and costly and is a task that can be forgotten or even neglected. Frequent relubrication also creates the potential to over-fill the bearing, increasing the risk of excess grease contaminating the process and possibly catching fire. Additionally, old grease left in the bearings can carbonize at high temperatures and block the bearings (→ fig. 2).

### Loss of internal bearing clearance

When temperatures rise above the bearing stabilization temperature, thermal expansion and material structural changes will occur in the bearing. This can lead to an uncontrolled loss of internal radial clearance, and ultimately seized bearings (→ fig. 3).

*Inadequate lubrication cause wear which can be recognized by noise and excessive play*



Fig. 1

## The SKF high temperature bearing solution

SKF high temperature bearings are designed for challenging operating conditions, with variants capable of performing at temperatures as high as 350 °C (660 °F). These bearings incorporate graphite-based lubrication which can lubricate at high temperatures and low speeds, eliminating the risk of metal-to-metal contact. Unlike grease and oil, graphite does not age and will not lose its lubricating properties at temperatures up to 350 °C (660 °F). This eliminates the need to relubricate SKF high temperature bearings. Additionally, these bearings are designed with a special radial clearance specified to maintain the required radial clearance at high operating temperatures. This avoids bearing seizure and enables a long service life.

*A bearing housing in a steel mill lubricated with excessive amount of grease.*

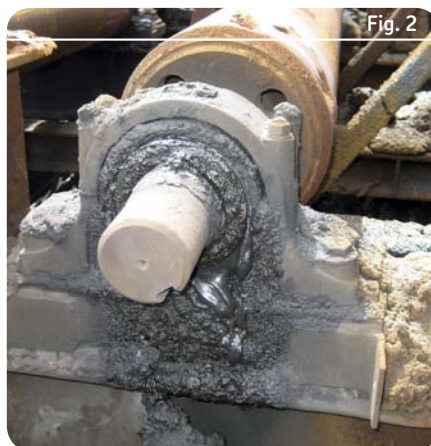


Fig. 2

## The SKF advantage: optimum performance, efficiency and savings

SKF high temperature bearings are designed to deliver increased reliability, reduced complexity, and decreased environmental impact. Because high temperature bearings correspond to the ISO boundary dimensions for standard bearings, production efficiencies and cost savings can be realized with a simple change to SKF high temperature bearings.

*Loss of internal radial clearance leading to a seized bearing*

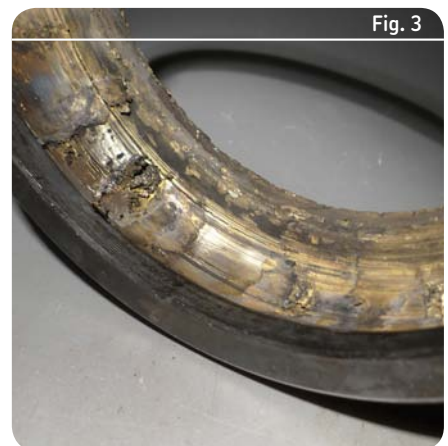


Fig. 3



# Customer benefits

## Increased reliability, reduced maintenance

By eliminating temperature related bearing failures, SKF high temperature bearings improve machine uptime, output and overall reliability. The SKF solution also eliminates the need to frequently relubricate bearings operating at high temperatures. This provides greater peace of mind, while enhancing operational efficiencies and cost savings.

## Reduced complexity

Because SKF high temperature bearings are designed for relubrication-free operation at temperatures up to 350 °C (660 °F), manual and automatic lubrication systems are eliminated along with their related costs and issues. Complex cooling systems used to reduce bearing operating temperatures may also be unnecessary.

# Reduced environmental impact

## Global factors

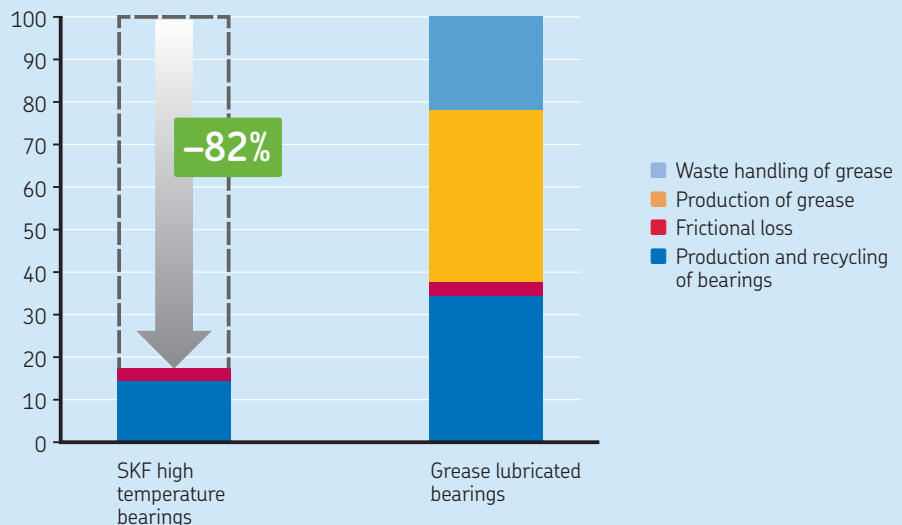
The significant environmental benefits of SKF high temperature bearings qualify them for inclusion in the SKF Beyond Zero product portfolio. These products are designed to reduce environmental impact and contribute to sustainability efforts (→ diagram 1).

## Workplace and process safety

With grease removed from the process environment, relubrication procedures in potentially dangerous areas of the operation can be avoided. Slippery surfaces from grease leakage and the risk of excess grease catching fire are eliminated. SKF high temperature bearings also contribute to food safety, because there is no risk of process lines and products being contaminated by grease.

Diagram 1

SKF high temperature bearings reduce CO<sub>2</sub>-emissions in a cooling bed for steel plates



*Environmental impact of SKF high temperature bearings compared to grease lubricated bearings*

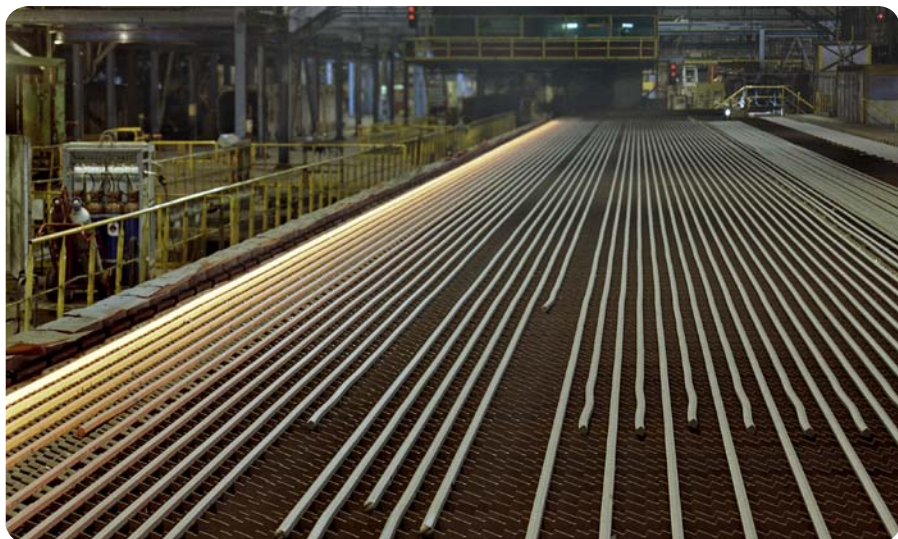
# Applications



## Proven performance across industries

SKF high temperature bearings provide solutions that are proven in a number of different applications across a variety of industries. Even if the design and purpose of the bearing applications differ greatly, they all share common operating conditions that are ideal for graphite lubrication.

To prove the benefits of SKF high temperature bearings, examples of successful installations are shown on the next few pages. Get inspiration from what other customers have done and experience the benefits and savings in your operation.





*A large cooling bed for steel plates. Each wheel is supported by four high temperature bearings.*

## Cooling bed for steel plates

In hot rolling mills, extremely large cooling beds accumulate and allow steel plates to cool. They use thousands of bearings, operating in intense heat standing still or rotating very slowly. A customer operating this application was using grease lubricated deep groove ball bearings with C4 radial clearance.

### Customer issues

The large number of bearings required large amounts of grease, making relubrication costly, difficult and time consuming.

Rollers that would not rotate due to seized bearings created scratches on the steel plates. Replacing failed bearings was causing costly downtime.

## Customer case

Grease-lubricated, deep groove ball bearings were replaced with SKF high temperature bearings. A total of 5 000 SKF bearings were installed. Performance improvements were immediately realized, including:

- Bearing service life increased from 6 months to more than six years
- Return on investment achieved in eight months
- Savings realized through eliminating grease purchase and waste handling costs
- Reduced maintenance time and costs
- Improved product quality (scratch marks eliminated)
- Reduced bearing related CO<sub>2</sub> emissions by 82%



*SKF 6212-2Z/VA228 high temperature bearings are an outstanding solution for cooling beds.*



*Roll-out table transporting slabs from a continuous casting machine.*

## Roll-out table for slabs, billets and blooms

In the metal industry, roll-out tables transport hot steel between processes. Bearings supporting the rolls rotate slowly under high temperatures. In this application, a customer was using grease-lubricated, spherical roller bearings.

### Customer issues

Despite frequent relubrication, the bearings had a short service life. Machine reliability was poor and maintenance costs were high. Seized bearings created scratch marks on the steel product.

Failure of the roll-out table resulted in unplanned and costly downtime.

## Customer case

SKF high temperature bearings were installed in the dry sections of the process. The grease-lubricated bearings and cooling system were removed. The customer achieved performance advantages including:

- Bearing service life increased from eight months to three years
- Improved roller table reliability, with fewer unplanned stops
- Reduced maintenance and costs
- Improved safety by eliminating lubricant leakage and dangerous relubrication tasks in a hot environment
- Return on investment achieved in 10 months



*SKF 22220 E/C4VA237 high temperature bearings provide superior reliability in roll-out tables.*



Guide rolls in a wire mill

## Guide rolls in wire mill

In wire production, the product is hot rolled into the final dimension. A process involving high operating temperatures for the bearings. A customer was operating a wire mill using guide rolls equipped with standard deep groove ball bearings. A centralized oil/air lubrication system was used to lubricate and cool the bearings.

### Customer issues

With a bearing service life of less than 20 days, frequent and costly bearing replacement was necessary.

The sensitive lubrication and cooling system often malfunctioned, and as such toxic fumes were generated when excessive bearing lubricant reached the hot rolled material.

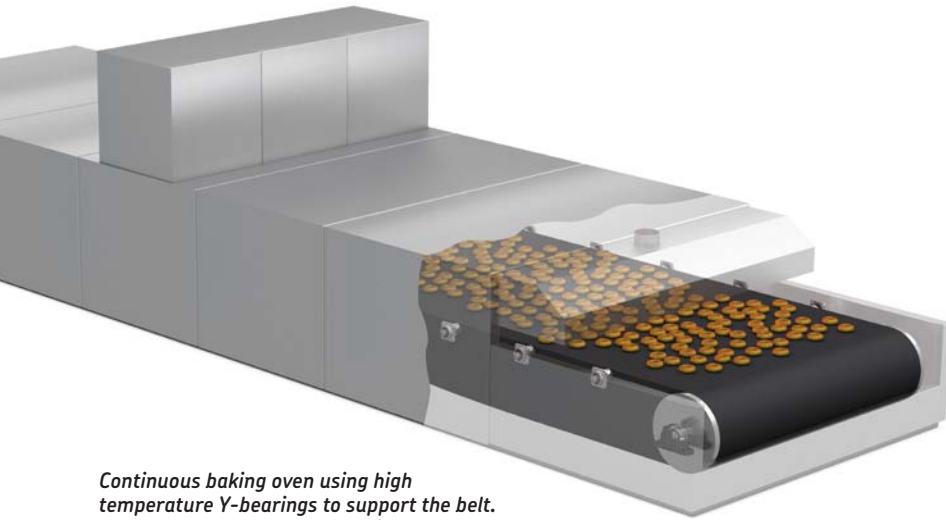
### Customer case

In the dry sections of the process, SKF high temperature bearings were installed in place of the oil/air lubricated bearings. Performance enhancements and operational efficiencies were immediately generated, including:

- Service life extended from 20 days to six months
- Toxic fumes eliminated
- Reduced machine complexity and energy use by removal of oil/air lubrication system
- Increased machine reliability
- Reduced maintenance costs



*SKF 6207-2Z/C4VA237 high temperature bearings offer increased service life and improved reliability in guide roll applications.*



*Continuous baking oven using high temperature Y-bearings to support the belt. The pulleys are supported by high temperature spherical roller bearings in a standard SNL housing.*

## Continuous baking ovens

Continuous baking ovens are used by large-volume industrial bakeries. Requirements for throughput and reliability are very high. Bearings rotate slowly and are exposed to high temperatures. A customer was using grease-lubricated Y-bearing units in a continuous baking oven.

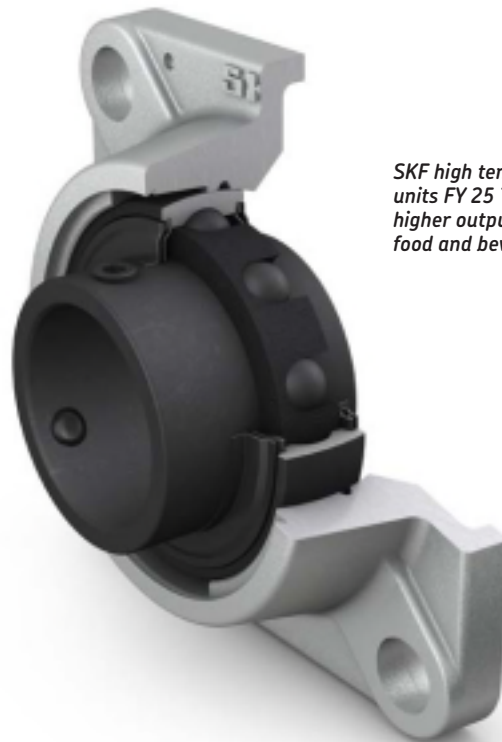
### Customer issues

High operating temperatures caused inadequate lubrication, increased wear in the bearings, poor reliability, unplanned stops and ultimately failure. Frequent relubrication using expensive high temperature grease required costly maintenance, while used grease ejected from the bearings created a risk of food contamination and worker safety issues.

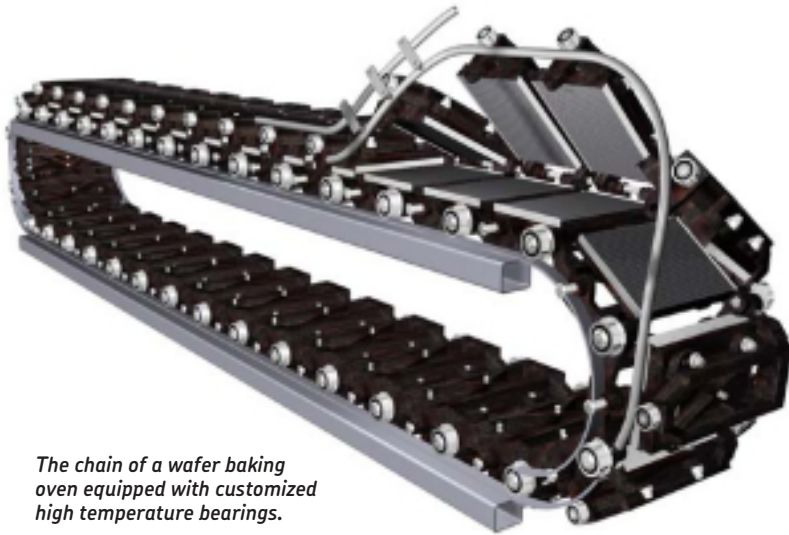
### Customer case

The grease-lubricated bearing units were replaced with SKF high temperature Y-bearing units, resulting in a number of performance and productivity enhancements, including:

- Bearing service life extended from six to 36 months
- Return on investment achieved in less than eight months
- SKF solution is NSF H1 certified
- High temperature bearings enabled higher process temperatures resulting in higher output
- Significantly improved reliability
- Maintenance costs reduced
- Food and worker safety improved due to the elimination of grease



*SKF high temperature Y-bearing units FY 25 TF/VA228 can enable higher output and reduced costs in food and beverage operations.*



*The chain of a wafer baking oven equipped with customized high temperature bearings.*

## Wafer baking ovens

Producers of confectionary products use fully automated wafer baking ovens for high-volume production. A food and beverage manufacturer running this process was using deep groove ball bearings lubricated with high temperature grease.

### Customer issues

Bearing relubrication was needed every 16 weeks, requiring costly planned maintenance. Grease leakage impacted food safety. Output was limited by the oven temperature restrictions of grease-lubricated bearings.

### Customer case

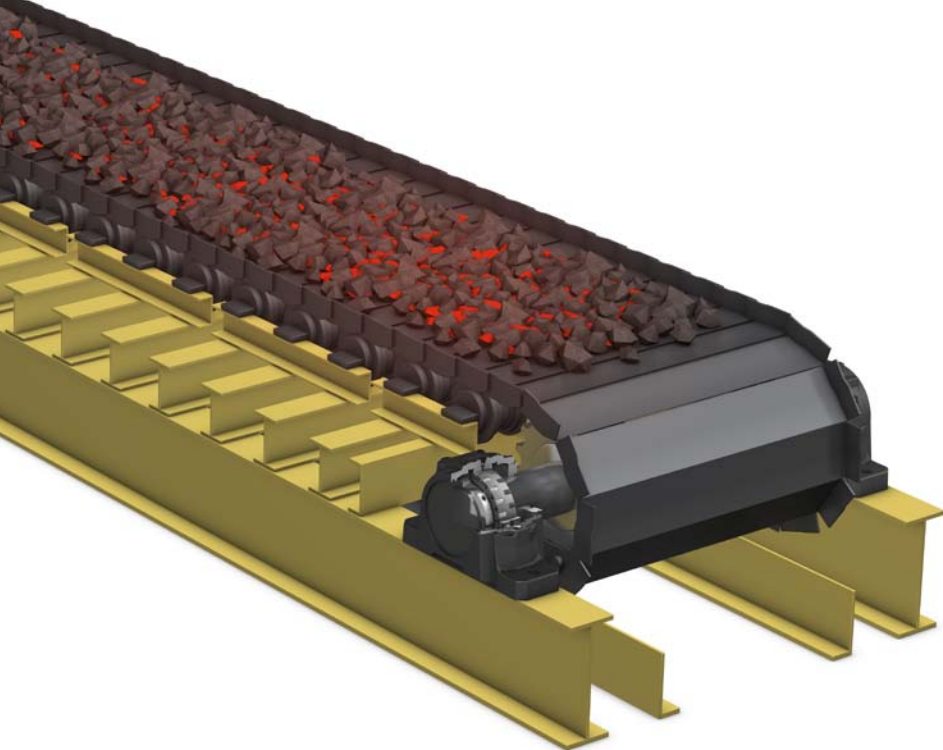
SKF high temperature wafer units were installed. These bearings incorporate graphite-based lubrication that continuously lubricates the bearing. Cost effectiveness and productivity were improved through benefits including:

- The relubrication-free wafer units ran for 5 years 24/7
- Eliminated costs for high temperature grease
- Eliminated 150 hours of labour annually
- 26 hours of planned down-time every 16 weeks was eliminated, increasing productivity through reduced maintenance
- Increased output, as graphite lubrication allows for higher process temperature
- Food and worker safety improved, due to eliminated consumption of grease



*SKF high temperature flanged carrier wheel units and smaller un-flanged top roller units offer relubrication-free performance and reliability in automatic wafer baking ovens.  
BB1-5067 B (carrier wheel)  
BB1-5098 B (top roller)*





*High temperature bearings are used in conveyors for hot material*

## Steel plate conveyor for hot material

A metal industry customer was using a steel plate conveyor system to transport hot material between processes. The grease-lubricated, deep groove ball bearings and spherical roller bearings used in the system operated at temperatures up to 250 °C (480 °F), and at low rotational speeds.

### Customer issues

Bearing service life was less than one week. Radiated heat from the transported hot material caused inadequate lubrication, resulting in elevated noise levels and increased play in the bearings.

The specified weekly relubrication was difficult, could only be done while the conveyor was stopped and offered no increase in bearing service life. Failed bearings required frequent replacement of conveyor bearings and wheels. Stops in the conveyor negatively affected production efficiency.

### Customer case

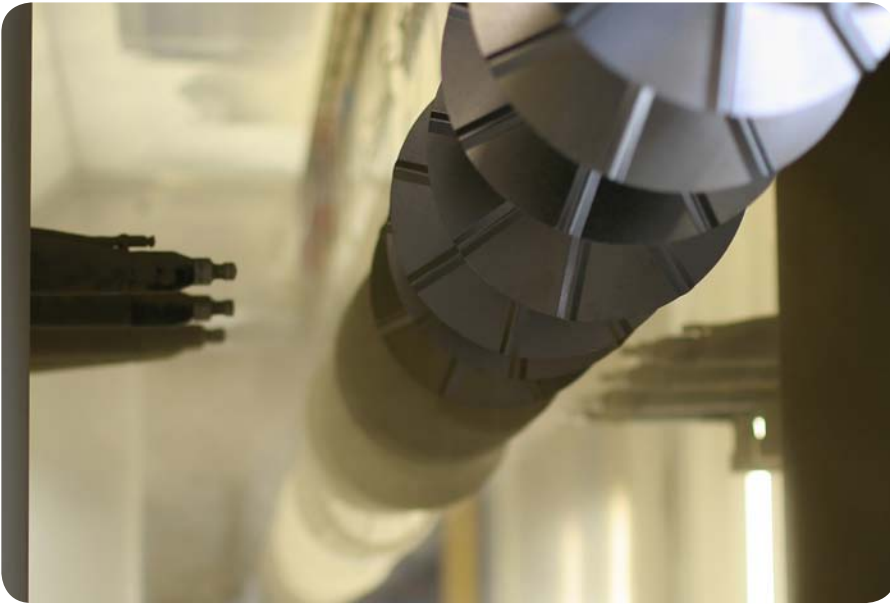
The grease-lubricated, deep groove ball bearings and spherical roller bearings were replaced with SKF high temperature bearings resulting in a number of advantages including:

- Bearing service life extended from 8 to 12 weeks to more than one year
- Improved conveyor reliability
- No relubrication needed



*SKF 22207 E/C4VA237 high temperature bearings can significantly increase service life in steel plate conveyors for hot material.*





*Paint line conveyors are supported by wheels equipped with graphite lubricated bearings.*

## Paint lines

Paint lines are conveyor systems that transport parts as they are painted and dried. For one customer, the bearing operating temperature in the drying section was up to 200 °C (390 °F). Deep groove ball bearings lubricated with high temperature grease needed frequent relubrication.

## Customer issues

Painted car chassis frequently needed to be reworked due to paint damage caused by lubricant leakage from the bearings. Grease could stain the drying paint, an issue made worse when water-based paints were used. The high temperature greases used were not PWIS-free (Paint-Wetting Impairment Substances). Damage to the paint on chassis parts caused production stops.

## Customer case

The grease-lubricated bearings were replaced with SKF high temperature bearings. Quality and productivity in the paint line was significantly improved, with results including:

- Reduction in the number of chassis needing rework
- Significant increase in paint line efficiency
- Reduced downtime

SKF high temperature bearings are available in versions that apply to common PWIS standards.



*SKF 6205-2Z/VA292 high temperature bearings offer a PWIS-free solution for paint-line drying processes.*

# Assortment

SKF offers a wide assortment of high temperature bearings and units according to ISO standards and also an assortment of customized high temperature bearings.

Selection of an appropriate high temperature bearing is based on the bearing type and the operating conditions (primarily the temperature and speed) of the machinery.

The SKF basic assortment of high temperature bearings and bearing units corresponding to ISO standards includes:

- deep groove ball bearings
- Y-bearings (insert bearings)
- Y-bearing units
- spherical roller bearings

The assortment includes variants that contain food-grade lubricants registered by NSF as category H1 (lubricant acceptable with incidental food contact for use in and around food processing areas).

In paint line applications, it is critical that the paint quality of the end product is not impaired by contamination. To address this

need for high temperature paint lines, SKF offers high temperature bearings variant VA292 that have the same bearing characteristics as version VA228 (table 1) but, in addition, comply with common PWIS standards (Paint Wetting Impairment Substance).

## Other high temperature bearing types

In addition to the basic assortment, SKF can also supply high temperature variants of the following bearing types, according to ISO boundary dimension standards:

- cylindrical roller bearings
- tapered roller bearings
- thrust ball bearings

These bearings use SKF's patented solid graphite lubricant with high-speed additives. For additional information, contact SKF.

On request, SKF can supply other high temperature bearings to meet the needs of a particular application. For information about these engineered products, contact the SKF application engineering service.

## Customized high temperature bearings

In addition to high temperature bearings corresponding to ISO standards, SKF offers an assortment of customized high temperature bearings.

These bearings are customized for use in equipment such as automatic wafer baking ovens in the food and beverage industry, in industrial furnaces and in chains. For additional information, contact SKF.



*Deep groove ball bearing*



*Spherical roller bearing*



*Y-bearing unit*

## Ideal operating conditions for SKF high temperature bearings

SKF high temperature bearings are designed to provide solutions to common issues in high temperature applications. In addition to operations involving high temperature, it is important to consider environmental conditions in the process area and the rotational speed of the shaft.

SKF high temperature bearings are an excellent choice for applications operating in hot environments with dry conditions and low rotational speeds. The hot, dry and slow criteria can be used as a rule of thumb for evaluating the use of graphite-lubricated bearings.



### **Hot:**

*Hot refers to operating temperatures up to 350 °C (660 °F) where grease-lubricated bearings often have a short service life. SKF high temperature bearings offer exceptional performance in positions affected by high operating temperatures.*



### **Dry:**

*Due to very limited protection against corrosion, graphite-lubricated bearings must be kept dry.*



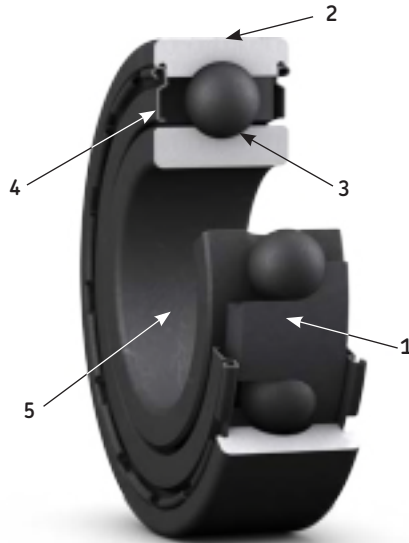
### **Slow:**

*In slowly rotating applications running at high temperatures, oil and grease lubricants become too thin to generate a lubrication film of sufficient thickness to prevent metal-to-metal contact. SKF graphite-lubricated bearings are designed to handle these conditions.*

# Deep groove ball bearings for high temperature applications

The SKF range of deep groove ball bearings for high temperature applications provides solutions for various combinations of operating temperature and speed. All variants are lubricated for the life of the bearing, except for open VA201 bearings (that is, without integral shields) which require relubrication.

## Features and benefits of high temperature deep groove ball bearings



- 1 no need for relubrication<sup>1)</sup>**  
– the bearings are lubricated with graphite-based high temperature lubricants and are lubricated for the life of the bearing
- 2 simple replacement**  
– the boundary dimensions are the same as those of standard bearings
- 3 operating temperature up to 350 °C (660 °F)**  
– the internal radial clearance and the lubricant are optimized for operation at high temperatures
- 4 protection against contamination**  
– shields (designation suffix 2Z) protect the bearing
- 5 improved running in**  
– with some variants, the entire bearing surface is manganese phosphate coated

<sup>1)</sup> All variants, except for VA201 open bearings (that is, without integrated shields), are lubricated for the life of the bearing

### VA228 – SKF highest performance at temperatures up to 350 °C (660 °F)

VA228 is an excellent choice for machinery operating with low speeds or oscillating movements in combination with very high operating temperatures. This bearing offers outstanding performance at temperatures up to 350 °C (660 °F) through the combination of the solid graphite cage, an adjusted high temperature bearing radial internal clearance and integral shields.

### VA267 – Unique solution for higher speeds and temperatures up to 250 °C (480 °F)

VA267 is the preferred choice for deep groove ball bearings required to operate above the limiting speed for VA228 at temperatures up to 250 °C (480 °F). The VA267 bearing incorporates a patented, solid-graphite lubricant with high-speed additives, an adjusted high temperature bearing radial internal clearance and integral shields.



**VA208 – Improved performance at temperatures up to 350 °C (660 °F)**

The VA208 bearing is lubricated by a segmented graphite cage. The large amount of lubricating graphite gives a long service life at temperatures up to 350 °C (660 °F).

**VA201 – Basic performance at temperatures up to 250 °C (480 °F)**

The VA201 bearing is lubricated with a polyalkylene glycol/graphite mixture suitable for temperatures up to 250 °C (480 °F). Version VA201 is an open bearing (without shields) while the 2Z/VA201 has an integral shield on both sides. Both versions are supplied pre-filled with lubricant. VA201 can be re-lubricated whilst 2Z/VA201 is lubricated for the life of the bearing. Depending on the speed and operating temperature, a special running-in procedure might be required (→ *Lubrication and running in*, page 25).

**Table 1**

**Characteristics of high temperature variants for deep groove ball bearings**

Characteristic	Variant VA201	VA208	VA228	VA267	VA237
<b>Lubrication type</b>	Polyalkylene glycol/graphite mixture	Segmented cage made of graphite	Coronet cage made of graphite	Patented solid graphite lubricant with high-speed additives	
<b>Phosphated rings, rolling elements and cages</b>	yes	yes	yes	yes	no
<b>NSF H1 food grade</b>	no	yes	yes	no	no
<b>Shields (designation suffix 2Z)</b>	yes / no (open bearing)	yes	yes	yes	yes
<b>Relubrication free</b>	yes / no (open bearing)	yes	yes	yes	yes
<b>Maximum operating temperature</b>	250 °C (480 °F)	350 °C (660 °F)	350 °C (660 °F)	250 °C (480 °F)	150 °C (300 °F) (C4 internal radial clearance)
<b>Limiting speed [r/min]<sup>1)</sup></b>	4 500/d <sub>m</sub>	4 500/d <sub>m</sub>	9 000/d <sub>m</sub>	60 000/d <sub>m</sub>	96 000/d <sub>m</sub> (C4 internal radial clearance)

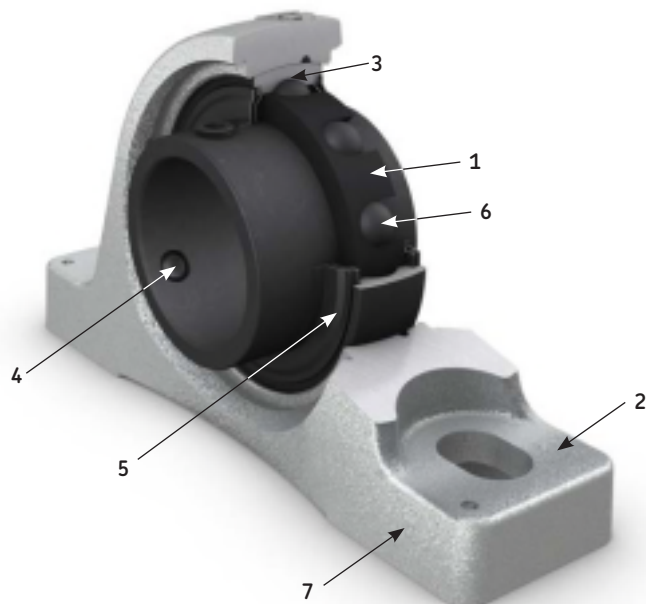
<sup>1)</sup> d<sub>m</sub> = bearing mean diameter = 0,5 (d + D). For outer ring rotation, use d<sub>m</sub> = D.

# Y-bearings and Y-bearing units for high temperature applications

The SKF assortment of Y-bearings and Y-bearing units for high temperature applications, provides solutions for various temperature and speed combinations. Y-bearing units are available in three different designs. All variants are lubricated for the life of the bearing.



## Features and benefits of high temperature Y-bearing units



- 1 no need for relubrication**  
– the bearings are lubricated with graphite-based high temperature lubricants and, as such, are lubricated for the life of the bearing
- 2 simple replacement**  
– the boundary dimensions are the same as those of standard bearings and units
- 3 operating temperature up to 350 °C (660 °F)**  
– the radial internal clearance and the lubricant are optimized for operation at high temperatures
- 4 simple mounting and dismantling**  
– the grub (set) screws in the inner ring make mounting/dismounting easy
- 5 protection against contamination**  
– shields and flingers (designation suffix 2F) protect the bearing
- 6 improved running in**  
– the entire bearing surface is manganese phosphate coated
- 7 no colour flaking**  
– the housing is coated with a high temperature resistant coating



**VA228- SKF highest performance at temperatures up to 350 °C (660 °F)**

VA228 is an excellent choice for machinery operating with low speeds or oscillating movements in combination with very high operating temperatures. This bearing offers outstanding performance at temperatures up to 350 °C (660 °F) through the combination of the solid graphite cage, an adjusted high temperature bearing radial internal clearance and integral shields and flingers.



**VA267- Unique solution for higher speeds and temperatures up to 250 °C (480 °F)**

VA267 is the preferred choice for Y-bearings and Y-bearing units required to operate above the limiting speed for VA228, at temperatures up to 250 °C (480 °F). The VA267 bearing incorporates a patented, solid-graphite lubricant with high-speed additives, an adjusted high temperature bearing radial internal clearance and integral shields and flingers.

**VA201 – Basic performance at temperatures up to 250 °C (480 °F)**

The VA201 bearing is lubricated with a polyalkylene glycol/graphite mixture suitable for temperatures up to 250 °C (480 °F). Version VA201 is an open bearing (without shields) while version -2Z/VA201 has integral shields on both sides. Both versions are supplied pre-filled with lubricant. VA201 can be relubricated while the -2Z/VA201 is lubricated for the life of the bearing. Depending on the speed and operating temperature, a special running-in procedure might be required (→ *Lubrication and running in*, page 25).

Table 2

Characteristics of high temperature variants for Y-bearing and Y-bearing units

Characteristic	Variant VA201	VA228	VA267
Lubrication type	Polyalkylene glycol/graphite mixture	Coronet cage made of graphite	Patented solid graphite lubricant with high-speed additives
Phosphated rings, rolling elements and cages	yes	yes	yes
NSF H1 food grade	no	yes	no
Shields (suffix 2FW)	yes	yes	yes
Relubrication free	yes	yes	yes
Maximum operating temperature	250 °C (480 °F)	350 °C (660 °F)	250 °C (480 °F)
Limiting speed [r/min] <sup>1)</sup>	4 500/d <sub>m</sub>	9 000/d <sub>m</sub>	60 000/d <sub>m</sub>

<sup>1)</sup> d<sub>m</sub> = bearing mean diameter = 0,5 (d + D).

# Spherical roller bearings for high temperature applications

The SKF assortment of spherical roller bearings for high temperature applications provides solutions for various operating environments and industries. All variants are lubricated for the life of the bearing.

## Features and benefits of high temperature spherical roller bearings



- 1 no need for relubrication**  
– the bearings are lubricated with graphite-based high temperature lubricants and, are lubricated for the life of the bearing
- 2 simple replacement**  
– the boundary dimensions are the same as those of standard bearings
- 3 operating temperature up to 250 °C (480 °F)**  
– C4 radial internal clearance, high dimensional stability and high temperature lubricant permits high operating temperatures



### VA237 – For optimal spherical roller bearing performance up to 250 °C (480 °F)

VA237 is the optimal choice for spherical roller bearings in high temperature applications. These bearings are filled with a patented, solid-graphite lubricant with high-speed additives. Use of a VA237 high temperature spherical roller bearing with C4 radial internal clearance enables a maximum operating temperature of 250 °C (480 °F).

Table 3

### Characteristics of high temperature variants for spherical roller bearings

Characteristic	Variant VA237	VA210
Lubrication type	Patented solid graphite lubricant with high-speed additives	Solid graphite lubricant
Phosphated rings, rolling elements and cages	no	no
NSF H1 food grade	no	yes
Shields	no	no
Relubrication free	yes	yes
Maximum operating temperature	250 °C (480 °F) for bearings with C4 radial clearance 200 °C (390 °F) for bearings with C3 radial clearance	250 °C (480 °F) for bearings with C4 radial clearance 200 °C (390 °F) for bearings with C3 radial clearance
Limiting speed [r/min] <sup>1)</sup>	48 000/d <sub>m</sub> for bearings with C4 radial clearance 60 000/d <sub>m</sub> for bearings with C3 radial clearance	6 000/d <sub>m</sub> for bearings with C4 radial clearance 7 500/d <sub>m</sub> for bearings with C3 radial clearance

<sup>1)</sup> d<sub>m</sub> = bearing mean diameter = 0,5 (d + D). For outer ring rotation, use d<sub>m</sub> = D.



# Lubrication and running in

## Relubrication

All SKF high temperature deep groove ball bearings are lubricated for the life of the bearing, except for open VA201 bearings, which require relubrication.

The general recommendation for an open VA201 bearing is to investigate the quality of the lubricating paste in the bearing every six months. If there is no longer a film of dry lubricant on the raceways, indicated by a bright metallic shiny track, remove residues of the old lubricant with a solvent and, when dried, replenish the bearing with lubricating paste.

Apply the paste in a thin layer. The paste should be evenly distributed around the entire raceways of the bearing, which can be done using a brush of medium hardness. It is important to rotate the bearing when it has been replenished with paste. Any collars of excess paste should be removed.

## Running in

Following installation or relubrication, VA201 bearings operating at bearing temperatures below 200 °C (660 °F), while running at speeds below 25% of the limiting speed require running in.

Running in requires that the bearing be run at a temperature of at least 200 °C (660 °F) for a minimum of 48 hours.

# Loads and selecting bearing size

There are two methods of determining the required bearing size:

- selecting bearing size for operating conditions
- selecting bearing size for dynamic operating conditions

For variants VA201, VA208 and VA228, use the method of selecting bearing size for static operating conditions.

For variants VA237 and VA267, the appropriate method depends on the operating conditions. If the bearing operates under any of the following:

- very low speeds ( $n < 10$  r/min)
- very slow oscillating movements
- stationary under load for long periods of time

then use the method of selecting bearing size for static operating conditions.

Otherwise, use the method of selecting bearing size for dynamic operating conditions.

## Selecting bearing size for static operating conditions

The bearing size is selected based on the basic static load rating  $C_0$ . Basic static load ratings for bearings are listed in the product tables.

For an equivalent static bearing load  $P_0$ , the selected bearing must have a  $C_0$  value  $\geq$  the value of requisite basic static load rating  $C_{0req}$  specified in **table 4**.

**NOTE:** Table 4 is valid for high temperature deep groove ball bearings and Y-bearings and Y-bearings units only when  $P_0 = F_r$ . That is, when:

$$F_a < 0,8 F_r$$

and

$$F_a < 0,15 C_0$$

where

$P_0$  = equivalent static bearing load [kN]

$F_a$  = axial load [kN]

$F_r$  = radial load [kN]

$C_0$  = basic static load rating [kN]

**Table 4** is valid for high temperature spherical roller bearings only when:

$$P_0 = F_r + Y_0 F_a$$

where

$P_0$  = equivalent static bearing load [kN]

$F_r$  = radial load [kN]

$Y_0$  = calculation factor ( $\rightarrow$  **product tables**)

$F_a$  = axial load [kN]

Table 4

Equivalent static bearing load $P_0$	Requisite basic static load rating $C_{0req}$ for operating temperatures up to	
	250 °C (480 °F)	350 °C (660 °F)
	kN	kN
2	6	9
4	11	18
6	16	27
8	22	36
10	27	45
15	40	67
20	54	90
25	67	120
30	80	140
40	110	180
50	140	230
60	160	270
70	190	320
80	220	360
90	240	400
100	270	450
125	340	560
150	400	670
200	540	890
300	800	1 400
400	1 100	1 800
500	1 400	2 300
600	1 600	–

### Selecting bearing size for dynamic operating conditions

The bearing size is selected<sup>1)</sup> based on the basic dynamic load rating C. Basic dynamic load ratings are listed in the product tables.

The type of operation must be identified as either:

- intermittent (that is, standing still or used for short periods of time)
- continuous (machinery utilized 8 hours, or more, per day)

For an equivalent dynamic bearing load P, the selected bearing must have a C value  $\geq$  the value of the requisite basic dynamic load rating  $C_{req}$  specified in **table 5** (for intermittent) or **table 6** (for continuous operation).

**NOTE:** **Table 5** and **table 6** are valid for high temperature deep groove ball bearings and Y-bearings and Y-bearing units only when  $P = F_r$ . That is:

$$F_a < 0,3 F_r$$

and

$$F_a < 0,15 C_0$$

where

- P = equivalent dynamic bearing load [kN]
- $F_r$  = radial load [kN]
- $F_a$  = axial load [kN]
- $C_0$  = basic static load rating [kN]

**Table 5** and **table 6** are valid for high temperature spherical roller bearings only when:

$$F_a/F_r \leq e \quad P = F_r + Y_1 F_a$$

where

- $F_a$  = axial load [kN]
- $F_r$  = radial load [kN]
- e = calculation factor ( $\rightarrow$  **product tables**)
- P = equivalent dynamic bearing load [kN]
- $Y_1$  = calculation factor ( $\rightarrow$  **product tables**)

<sup>1)</sup> Although the process described here for selecting bearing size for dynamic operating conditions is based on ISO 281:2007 basic dynamic load rating (C) for an equivalent-size standard bearing and calculated equivalent load (P), this selection process is not according to ISO 281 and is not a calculated rating life based on sub-surface fatigue as the failure criteria.

**Table 5**

#### Requisite dynamic load rating for applied radial loads for intermittent operation

Bearing radial load $F_r$	Requisite dynamic load rating $C_{req}$ for operating temperatures up to	
	250 °C (480 °F)	350 °C (660 °F)
kN	kN	kN
2	14	22
4	27	45
6	40	67
8	54	89
10	67	120
15	100	170
20	140	230
25	170	280
30	200	340
40	270	450
50	340	560
60	400	670
70	470	780
80	540	890
90	600	1 000
100	670	1 120
125	840	1 390
150	1 000	1 670
200	1 340	2 230
300	2 000	–
400	–	–
500	–	–
600	–	–

**Table 6**

#### Requisite dynamic load rating for applied radial loads for continuous operation

Bearing radial load $F_r$	Requisite dynamic load rating $C_{req}$ for operating temperatures up to	
	250 °C (480 °F)	350 °C (660 °F)
kN	kN	kN
2	27	45
4	53	90
6	80	140
8	110	180
10	140	230
15	200	340
20	270	450
25	340	560
30	400	670
40	540	890
50	670	1 120
60	800	1 340
70	940	1 560
80	1 070	1 780
90	1 200	2 000
100	1 340	2 230
125	1 670	–
150	2 000	–
200	–	–
300	–	–
400	–	–
500	–	–
600	–	–

# Design of bearing arrangements

## Location of bearings

The selection of shaft and housing fits for high temperature deep groove ball bearings and spherical roller bearings depends on the bearing operating condition and bearing size. An appropriate fit is needed to locate the shaft, provide satisfactory support, allow for thermal expansion and reach the stated maximum operating bearing temperature (→ table 7 and 8).

For moderate loads ( $0,035 C < P \leq 0,05 C$ ), the shaft seats for Y bearings should be machined to a h7<sup>Ⓔ</sup> tolerance. For light loads and low speeds, a h8<sup>Ⓔ</sup> shaft tolerance is sufficient.

All ISO tolerance classes are valid with the envelope requirement in accordance with ISO 14405-1:2010.

## Mounting

SKF high temperature Y-bearings and Y-bearing units have a clearance fit for the recommended shaft diameters. They can therefore be slid into position and secured with the grub (set) screws on the inner ring.

SKF high temperature bearings (except high temperature Y-bearings and Y-bearing units) should always be hot mounted to reduce the mounting force and the risk of cracking the graphite lubricant. Induction heater is the preferred choice to heat the bearing during mounting.

Submerging the SKF high temperature bearings in hot oil is not recommended since the oil remaining in the bearing might carbonize later during operation. Do not use impact mounting methods such as hammer or bearing fitters because the impacts can make the graphite lubricant crack.

The drive-up data in table 9, page 28, is applicable when mounting high temperature spherical roller bearings on a tapered shaft, an adapter sleeve or a withdrawal sleeve. The drive-up data in the table has been adjusted, compared to the standard drive-up data, to handle the high operating temperatures.

During drive up, do not use mounting oil. The oil will enter the bearing and, at higher temperatures, will carbonize and reduce bearing service life.

When dismounting the bearing, dismounting oil can be used if the bearing will not be put in operation again.

Table 7

Fits for high temperature deep groove ball bearings on solid steel shafts or in cast iron and steel housings

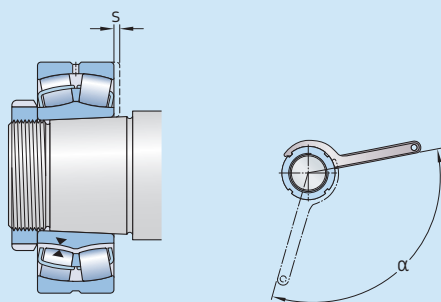
Conditions	Shaft diameter	Shaft tolerance	Housing tolerance
–	mm	–	–
Rotating inner ring load	all	k6 <sup>Ⓔ</sup>	F7 <sup>Ⓔ</sup>
Stationary inner ring load	all	g6 <sup>Ⓔ</sup>	J7 <sup>Ⓔ</sup>

Table 8

Fits for high temperature spherical roller bearings on solid steel shafts or in cast iron and steel housings

Conditions	Shaft diameter	Shaft tolerance	Housing tolerance
–	mm	–	–
Rotating inner ring load	< 25 25 to 40 >40 to 60 >60	k5 <sup>Ⓔ</sup> m5 <sup>Ⓔ</sup> n5 <sup>Ⓔ</sup> n6 <sup>Ⓔ</sup>	F7 <sup>Ⓔ</sup> F7 <sup>Ⓔ</sup> F7 <sup>Ⓔ</sup> F7 <sup>Ⓔ</sup>
Stationary inner ring load	all	g6 <sup>Ⓔ</sup>	J7 <sup>Ⓔ</sup>

## Drive-up data for high temperature spherical roller bearings with a tapered bore



Bore diameter d		Reduction of radial internal clearance		Axial drive-up <sup>1) 2)</sup> s				Lock nut tightening angle <sup>2)</sup> α
				Taper 1:12		Taper 1:30		
over	incl.	min.	max.	min.	max.	min.	max.	°
mm		mm		mm				
24	30	0,005	0,010	0,21	0,25	–	–	80
30	40	0,010	0,015	0,27	0,30	–	–	90
40	50	0,015	0,020	0,23	0,30	–	–	100
50	65	0,015	0,025	0,25	0,34	0,65	0,85	80
65	80	0,025	0,030	0,35	0,45	0,80	1,05	100
80	100	0,025	0,035	0,40	0,53	0,90	1,25	120
100	120	0,030	0,040	0,40	0,56	1,10	1,45	
120	140	0,035	0,050	0,66	0,83	1,55	2,05	
140	160	0,040	0,055	0,65	0,90	1,70	2,25	
160	180	0,045	0,060	0,73	0,98	1,80	2,40	
180	200	0,055	0,070	0,75	1,05	1,95	2,65	
200	225	0,055	0,075	0,85	1,20	2,25	3,00	
225	250	0,065	0,085	0,93	1,28	2,30	3,15	
250	280	0,060	0,090	1,08	1,43	2,65	3,55	
280	315	0,070	0,100	1,10	1,50	2,70	3,75	
315	355	0,085	0,115	1,30	1,80	3,30	4,50	
355	400	0,090	0,130	1,45	1,95	3,50	4,90	
400	450	0,110	0,150	1,73	2,33	4,30	5,80	
450	500	0,110	0,160	1,78	2,48	4,45	6,15	
500	560	0,125	0,180	2,08	2,78	5,00	6,90	

For normal to heavy loads, and higher, (i.e.  $P \leq 0,1C$ ), applying the recommended values prevents the inner ring from creeping, but does not ensure correct radial internal clearance in operation. Additional influences from the bearing housing fit and temperature differences between the inner ring and outer rings must be considered carefully when selecting the bearing radial internal clearance class. For additional information, contact the SKF application engineering service. For all other load conditions, contact the SKF application engineering service.

<sup>1)</sup> Not valid for the SKF Drive-up method

<sup>2)</sup> The listed values are to be used as guideline values only, as it is difficult to establish an exact starting position. Also, the axial drive-up  $s$  differs slightly between the different bearings series

## Operating environment

Since all high temperature bearings are supplied without preservative oils and must be used without grease or oil lubrication, the anti-corrosion property of the bearings is limited. Therefore, the bearings should be used in a dry environment or with a proper sealing arrangement to keep the bearings dry.

The most common sealing alternatives for high temperature deep groove ball bearings incorporate integral or external shields or labyrinth seals. These arrangements have a rather low complexity and none of these arrangements are capable of keeping the bearing dry in a wet environment.

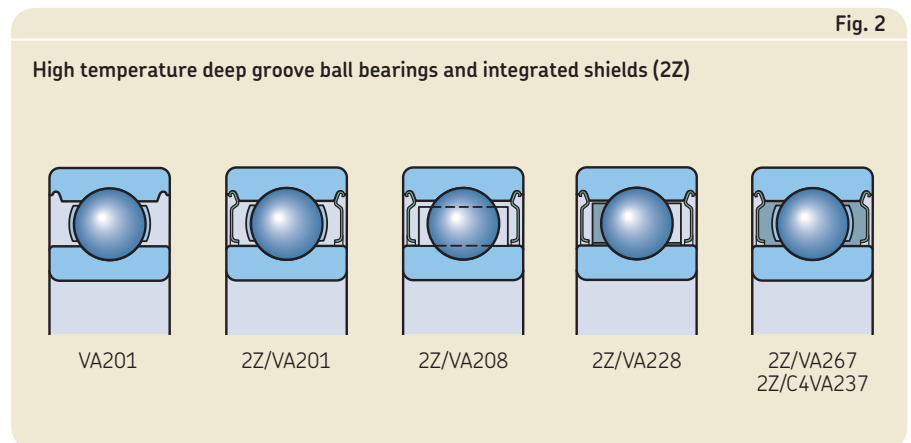
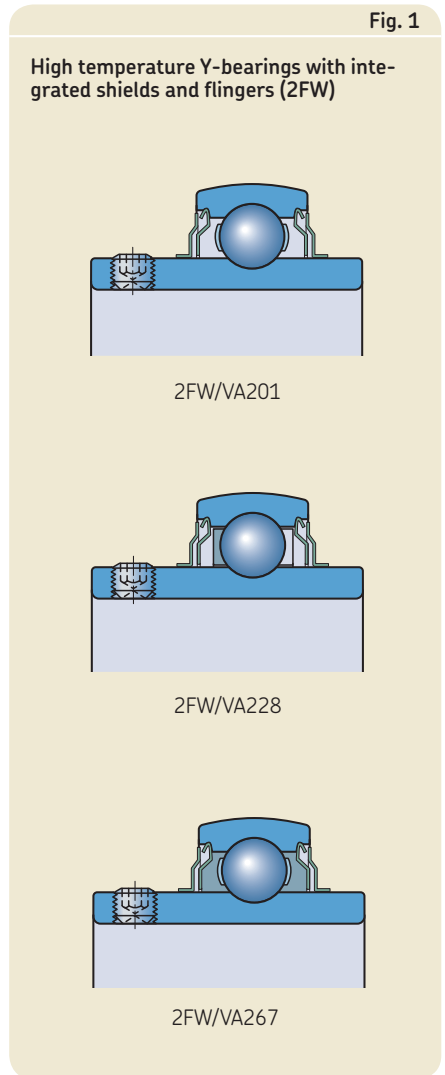
## Sealing solutions

High temperature deep groove ball bearings can be protected from contaminants by either integral shields, external shields or a combination of both.

For high temperature bearings, metallic shields are the primary recommendation when a capping device with low complexity is required. Shields prevent the ingress of solid contaminants into the bearing. They are non-contact, generate almost no friction and do not wear. Due to the material and design, they are particularly well suited for high temperatures.

High temperature deep groove ball bearings with designation suffix 2Z have integrated shields, but the VA201 variant is also available as an open bearing (→ fig. 2). The shields on a 2Z/VA201 bearing enable the bearing to be filled with twice the amount of polyalkylene glycol/graphite lubricant that is used in an open VA201 bearing.

The capping device on high temperature Y-bearings (designation suffix 2F) consists of a shield and a flinger that create a narrow gap labyrinth seal (→ fig. 1).

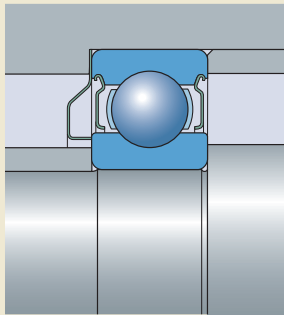


In many cases, the integral shields are sufficient to keep contaminants out of the bearing. However, in some cases, the integrated shields are insufficient, and so additional external shields should be considered – either Nilos rings (→ **fig. 3**), SKF sealing washers (→ **fig. 4**) or custom made seals.

Integral shields are not available for spherical roller bearings, so external shields should be considered – either Nilos rings (→ **fig. 5**), SKF sealing washers (→ **fig. 6**) or custom made seals. Make sure that the selected sealing solution can accommodate any misalignment that may occur in the bearing arrangement.

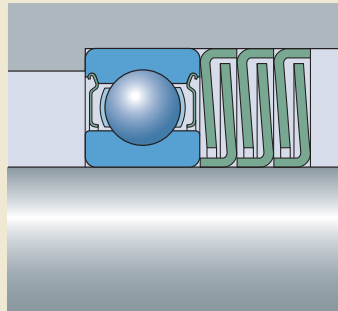
**Fig. 3**

Sealing solution using Nilos rings



**Fig. 4**

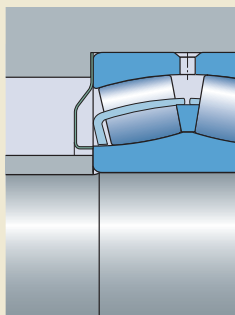
Sealing solution using SKF sealing washers



Example showing bearing 6205-2Z/VA267 and triple sealing washers Z 205

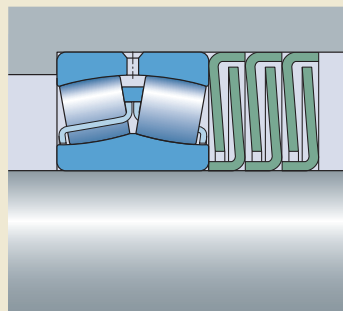
**Fig. 5**

Sealing solution using Nilos rings



**Fig. 6**

Sealing solution using SKF sealing washers



Example showing bearing 22214 E/C4VA237 and triple sealing washers Z 214

### Custom made seals

In cases where none of the sealing options above are applicable, SKF can provide custom made seals for operating temperatures up to 250 °C (480 °F). These seals are typically manufactured from PTFE (Polytetrafluoroethylene) thermoplastics.

Examples of use include:

- replacements for seals in a plummer block housing
- replacements for seals in an existing sealing arrangement

#### WARNING

PTFE seals exposed to an open flame or temperatures above 300 °C (570 °F) are a health and environmental hazard! They remain dangerous even after they have cooled.

Read and follow the safety precautions for seals in the SKF rolling bearing catalogue.

To further improve sealing systems that incorporate custom made seals, it is preferable to use a wear sleeve such as the SKF Speedi-Sleeve. This improves the seal counter surface condition without the need for re-machining. Contact SKF for more information.

### Thermal axial expansion of shaft

To accommodate thermal axial expansion of the shaft in Y-bearing unit arrangements, the shaft on the non-locating side should be provided with either one, or two grooves located 120° apart, to engage with modified grub screws:

- Hexagon socket grub (set) screws with a dog point, in accordance with ISO 4028:2003, but with a fine thread according to **table 10**. The grub screw should be secured by a nut and spring washer or star lock washer (→ **fig. 7**).
- Slotted pan head screws in accordance with ISO 1580:2011, but with fine thread according to table 2, locked with a spring or star lock washer (→ **fig. 8**).

Fig. 7

Hexagonal socket grub screw with a dog point secured by a nut and spring washer

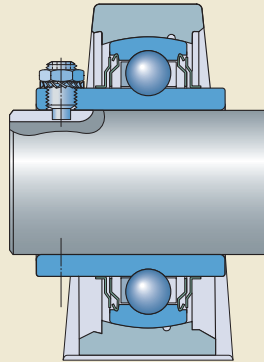


Fig. 8

Slotted pan head screw secured by a spring washer

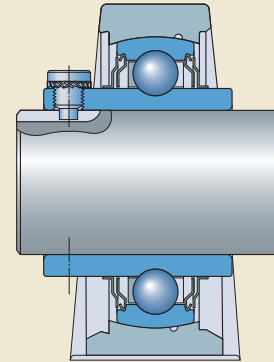


Table 10

#### Grub screw hexagonal socket dimensions and tightening torques

Bearing bore		Threaded holes	Hexagonal key size	Tightening torque
over	incl.			
mm/in.	kN	kN	mm/in.	Nm
<b>For metric shaft</b>				
<b>35</b>	<b>35</b>	M 6 x 0,75	3	4
<b>45</b>	<b>45</b>	M 8 x 1	4	6,5
<b>65</b>	<b>65</b>	M 10 x 1	5	16,5
<b>65</b>	<b>75</b>	M 10 x 1	6	28,5
<b>For inch shaft</b>				
<b>1 3/16</b>	<b>1 3/16</b>	5/6 – 24 UNF	1/8	4
<b>1 3/4</b>	<b>1 3/4</b>	5/6 – 24 UNF	5/32	6,5
<b>1 3/4</b>	<b>2 7/16</b>	3/8 – 24 UNF	3/16	16,5
<b>2 7/16</b>	<b>2 15/16</b>	7/16 – 20 UNF	7/32	28,5

The screws and groove(s) accommodate changes in shaft length and prevent the shaft from turning independently of the bearing inner ring. The ends of the grub screws should be ground and the sliding surfaces in the shaft grooves coated with a lubricant paste suitable for the operating temperature.

## Bearing data

	Deep groove ball bearings	Y-bearings	Y-bearing units	Spherical roller bearings
<b>Dimension standards</b>	Boundary dimensions: ISO 15:2011  Series 10, 02, 03	Boundary dimensions: ISO 9628:2006	Boundary dimensions: ISO 3328:1993	Boundary dimensions: ISO 15:2011
<b>Tolerances</b>	Normal Values: ISO 492:2002	Normal, except the bore and outside diameter (→ <b>table 12</b> ) Values: ISO 492:2002	Housing bore has an increased sphere diameter appropriate for high temperature applications.	Refer to bearing data for standard spherical roller bearings.
	Due to the special surface treatment of the bearings and the y-bearing housings, there may be slight deviations from the standard tolerances. These deviations do not affect mounting or bearing operation.			
<b>Radial internal clearance</b>	Multiples of C5, except for VA237 which is C4 as standard.	Multiples of C5 –		C4 as standard. Available in C3 on request.
	Values ( <b>table 11</b> ) are valid for unmounted bearings under zero measuring load.			Values are the same as for relevant standard bearing
<b>Misalignment</b>	≈ 20 to 30 minutes of arc		≈ 20 to 30 minutes of arc Initial misalignment ≤ 5°	Refer to bearing data for standard spherical roller bearings.
	The above values apply only when the bearings rotate slowly. The permissible angular misalignment between the inner and outer ring depends on the size and internal design of the bearing, radial internal clearance in operation and the forces and moments acting on the bearing. As a result, only approximate values are listed here. Any misalignment increases bearing noise and reduces bearing service life.			
<b>Stabilization</b>	120 °C (250 °F)	120 °C (250 °F)		200 °C (390 °F)
	The rings, rolling elements and cages of SKF high temperature bearings and housings of SKFY-bearing units undergo the same heat stabilization process as the relevant standard bearing. As a result, for higher operating temperatures, a certain amount of dimensional change is to be expected. For additional information, contact the SKF application engineering service.			



Table 11

## Radial internal clearance for high temperature bearings

Bore diameter d		Radial internal clearance			
		Deep groove ball bearings Multiples of C5		Y-bearings	
over	incl.	min.	max.	min.	max.
mm		µm			
	<b>10</b>	96	136	–	–
<b>10</b>	<b>18</b>	112	160	–	–
<b>18</b>	<b>24</b>	124	172	56	96
	<b>24</b>	136	192	60	106
<b>30</b>	<b>40</b>	172	236	80	128
<b>40</b>	<b>50</b>	192	272	90	146
	<b>50</b>	230	340	110	180
<b>65</b>	<b>80</b>	270	400	–	–
<b>80</b>	<b>100</b>	320	460	–	–
<b>100</b>	<b>120</b>	370	540	–	–

Table 12

## Tolerances of Y-bearings for high temperature application

Nominal diameter d, D		Bore diameter <sup>1)</sup> Deviation		Outside diameter Deviation	
over	incl.	high	low	high	low
mm		µm			
<b>18</b>	<b>30</b>	+18	0	–	–
<b>30</b>	<b>50</b>	+21	0	0	–10
<b>50</b>	<b>80</b>	+24	0	0	–10
<b>80</b>	<b>120</b>	+28	0	0	–10

<sup>1)</sup> Values in accordance with ISO 9628:2006**! WARNING**

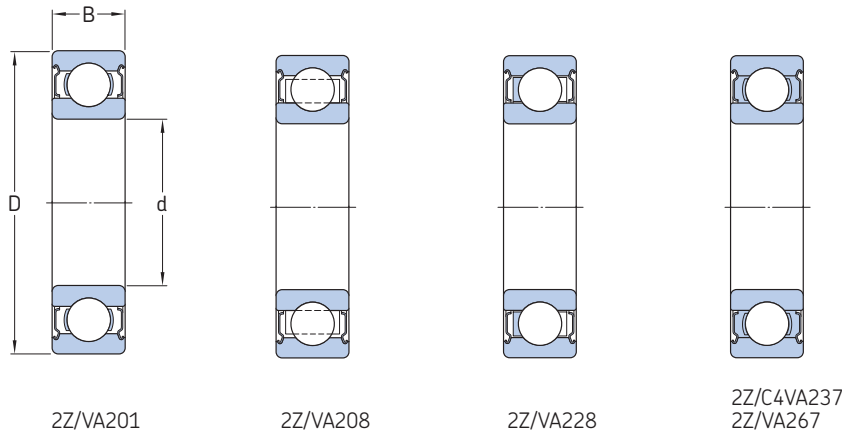
Safety precautions for bearings with PFPE based oil additives (suffixes VA237 and VA267). PFPE oil is very stable and harmless under normal operating conditions up to +250 °C (480 °F). However, if exposed to extreme temperatures such as those above 300 °C (570 °F), PFPE oils give off hazardous fumes. These fumes can be harmful to the eyes and to the lungs, if inhaled. The following safety precautions should be observed:

- Follow the safety precautions in the appropriate material safety data sheet (MSDS).
- If there is a risk of human exposure and the bearing operating temperature is above 300 °C, appropriate ventilation is required.
- If the fumes have been inhaled, consult a doctor immediately.

The user is responsible for the correct use of the product during its service life and its proper disposal. SKF takes no responsibility for the improper handling of bearings with PFPE oil additives or for any injury resulting from their use.

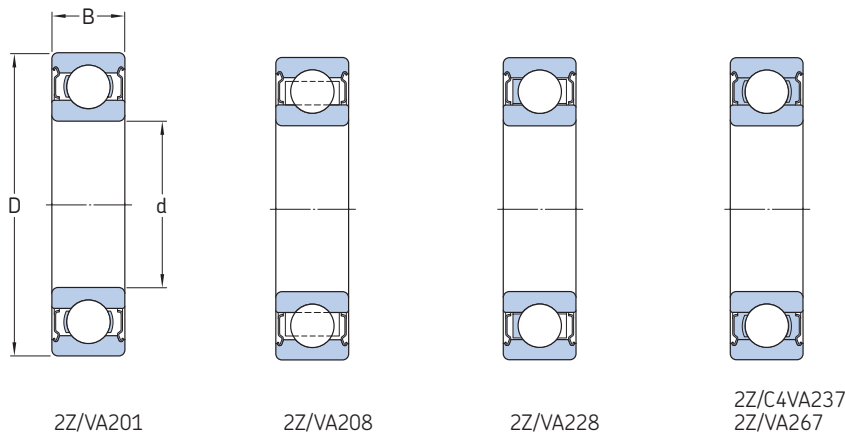
# Deep groove ball bearings for high temperature applications

d 12 – 35 mm



Principal dimensions			Basic load ratings		Limiting speed	Limiting temperature		Running in required	Mass required	Designations
d	D	B	C	C <sub>0</sub>		°C	°F			
mm			kN		r/min	°C	°F	–	kg	–
<b>12</b>	32	10	7,28	3,1	200	250	480	•	0,039	6201-2Z/VA201
	32	10	7,28	3,1	400	350	660	–	0,039	6201-2Z/VA228
	32	10	7,28	3,1	4 360	150	300	–	0,04	6201-2Z/C4VA237 <sup>1)</sup>
	32	10	7,28	3,1	2 720	250	480	–	0,04	6201-2Z/VA267
	37	12	10,1	4,15	3 910	150	300	–	0,065	6301-2Z/C4VA237 <sup>1)</sup>
<b>15</b>	35	11	8,06	3,75	180	250	480	•	0,048	6202-2Z/VA201
	35	11	8,06	3,75	360	350	660	–	0,048	6202-2Z/VA228
	35	11	8,06	3,75	3 840	150	300	–	0,049	6202-2Z/C4VA237
	35	11	8,06	3,75	2 400	250	480	–	0,049	6202-2Z/VA267
	42	13	11,9	5,4	3 360	150	300	–	0,089	6302-2Z/C4VA237
<b>17</b>	35	10	6,37	3,25	170	250	480	•	0,041	6003-2Z/VA201
	35	10	6,37	3,25	170	350	660	–	0,041	6003-2Z/VA208
	35	10	6,37	3,25	2 300	250	480	–	0,042	6003-2Z/VA267
	40	12	9,95	4,75	150	250	480	•	0,068	6203-2Z/VA201
	40	12	9,95	4,75	310	350	660	–	0,068	6203-2Z/VA228
	40	12	9,95	4,75	3 360	150	300	–	0,07	6203-2Z/C4VA237
	40	12	9,95	4,75	2 100	250	480	–	0,07	6203-2Z/VA267
	47	14	14,3	6,55	280	350	660	–	0,12	6303-2Z/VA228
	47	14	14,3	6,55	3 000	150	300	–	0,12	6303-2Z/C4VA237 <sup>1)</sup>
	47	14	14,3	6,55	1 870	250	480	–	0,12	6303-2Z/VA267
<b>20</b>	42	12	9,95	5	140	250	480	•	0,071	6004-2Z/VA201
	42	12	9,95	5	140	350	660	–	0,071	6004-2Z/VA208
	42	12	9,95	5	1 930	250	480	–	0,073	6004-2Z/VA267
	47	14	13,5	6,55	130	250	480	•	0,11	6204-2Z/VA201
	47	14	13,5	6,55	260	350	660	–	0,11	6204-2Z/VA228
	47	14	13,5	6,55	2 860	150	300	–	0,11	6204-2Z/C4VA237
	47	14	13,5	6,55	1 790	250	480	–	0,11	6204-2Z/VA267
	52	15	16,8	7,8	120	250	480	•	0,15	6304-2Z/VA201
	52	15	16,8	7,8	120	350	660	–	0,15	6304-2Z/VA208
	52	15	16,8	7,8	250	350	660	–	0,15	6304-2Z/VA228
	52	15	16,8	7,8	2 660	150	300	–	0,15	6304-2Z/C4VA237
	52	15	16,8	7,8	1 660	250	480	–	0,15	6304-2Z/VA267

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

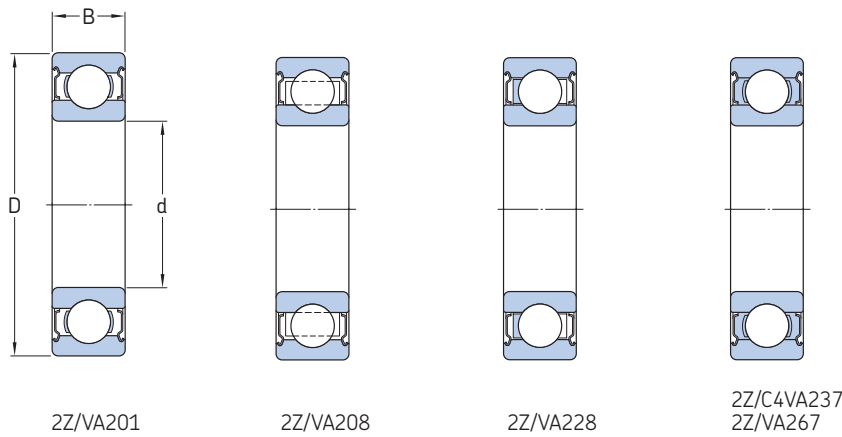


Principal dimensions			Basic load ratings		Limiting speed	Limiting temperature		Running in required	Mass	Designations	
d	D	B	dynamic	static		°C	°F				
			C	C <sub>0</sub>	r/min			–	kg	–	
mm			kN								
25	47	12	11,9	6,55	120	250	480	•	0,083	6005-2Z/VA201	
	47	12	11,9	6,55	120	350	660	–	0,083	6005-2Z/VA208	
	47	12	11,9	6,55	1 660	250	480	–	0,085	6005-2Z/VA267	
	52	15	14,8	7,8	110	250	480	•	0,13	6205-2Z/VA201	
	52	15	14,8	7,8	110	350	660	–	0,13	6205-2Z/VA208	
	52	15	14,8	7,8	230	350	660	–	0,13	6205-2Z/VA228	
	52	15	14,8	7,8	2 490	150	300	–	0,14	6205-2Z/C4VA237	
	52	15	14,8	7,8	1 550	250	480	–	0,14	6205-2Z/VA267	
	62	17	23,4	11,6	100	250	480	–	0,23	6305-2Z/VA201	
	62	17	23,4	11,6	100	350	660	–	0,23	6305-2Z/VA208	
	62	17	23,4	11,6	200	350	660	–	0,23	6305-2Z/VA228	
	62	17	23,4	11,6	2 200	150	300	–	0,24	6305-2Z/C4VA237	
	62	17	23,4	11,6	1 370	250	480	–	0,24	6305-2Z/VA267	
	30	55	13	13,8	8,3	100	350	660	–	0,12	6006-2Z/VA208
		55	13	13,8	8,3	1 410	250	480	–	0,13	6006-2Z/VA267
62		16	20,3	11,2	90	250	480	–	0,21	6206-2Z/VA201	
62		16	20,3	11,2	90	350	660	–	0,21	6206-2Z/VA208	
62		16	20,3	11,2	190	350	660	–	0,21	6206-2Z/VA228	
62		16	20,3	11,2	2 080	150	300	–	0,21	6206-2Z/C4VA237	
62		16	20,3	11,2	1 300	250	480	–	0,21	6206-2Z/VA267	
72		19	29,6	16	80	350	660	–	0,36	6306-2Z/VA208	
72		19	29,6	16	170	350	660	–	0,36	6306-2Z/VA228	
72		19	29,6	16	1 880	150	300	–	0,37	6306-2Z/C4VA237 <sup>1)</sup>	
72		19	29,6	16	1 170	250	480	–	0,37	6306-2Z/VA267	
35		72	17	27	15,3	80	250	480	–	0,3	6207-2Z/VA201
	72	17	27	15,3	80	350	660	–	0,3	6207-2Z/VA208	
	72	17	27	15,3	160	350	660	–	0,3	6207-2Z/VA228	
	72	17	27	15,3	1 790	150	300	–	0,31	6207-2Z/C4VA237 <sup>1)</sup>	
	72	17	27	15,3	1 120	250	480	–	0,31	6207-2Z/VA267	
	80	21	35,1	19	70	350	660	–	0,48	6307-2Z/VA208	
	80	21	35,1	19	1 660	150	300	–	0,49	6307-2Z/C4VA237 <sup>1)</sup>	
	80	21	35,1	19	1 040	250	480	–	0,49	6307-2Z/VA267	

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

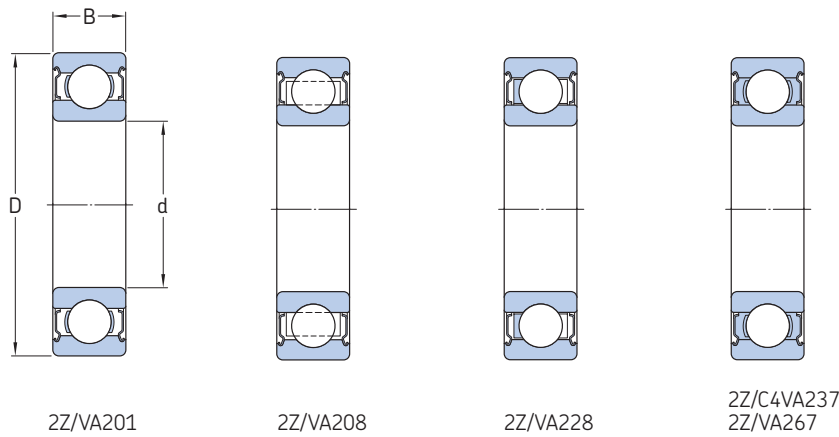
# Deep groove ball bearings for high temperature applications

d 40 – 65 mm



Principal dimensions			Basic load ratings		Limiting speed	Limiting temperature		Running in required	Mass	Designations
d	D	B	C	C <sub>0</sub>		°C	°F			
mm			kN		r/min	°C	°F	–	kg	–
40	68	15	17,8	11	80	350	660	–	0,2	6008-2Z/VA208
	68	15	17,8	11	1 110	250	480	–	0,21	6008-2Z/VA267
	80	18	32,5	19	70	250	480	–	0,38	6208-2Z/VA201
	80	18	32,5	19	70	350	660	–	0,38	6208-2Z/VA208
	80	18	32,5	19	150	350	660	–	0,38	6208-2Z/VA228
	80	18	32,5	19	1 600	150	300	–	0,39	6208-2Z/C4VA237
	80	18	32,5	19	1 000	250	480	–	0,39	6208-2Z/VA267
	90	23	42,3	24	60	250	480	•	0,65	6308-2Z/VA201
	90	23	42,3	24	60	350	660	–	0,65	6308-2Z/VA208
	90	23	42,3	24	130	350	660	–	0,65	6308-2Z/VA228
45	90	23	42,3	24	1 470	150	300	–	0,67	6308-2Z/C4VA237
	90	23	42,3	24	920	250	480	–	0,67	6308-2Z/VA267
	85	19	35,1	21,6	60	250	480	•	0,43	6209-2Z/VA201
	85	19	35,1	21,6	60	350	660	–	0,43	6209-2Z/VA208
	85	19	35,1	21,6	130	350	660	–	0,43	6209-2Z/VA228
	85	19	35,1	21,6	1 470	150	300	–	0,45	6209-2Z/C4VA237 <sup>1)</sup>
	85	19	35,1	21,6	920	250	480	–	0,45	6209-2Z/VA267
	100	25	55,3	31,5	60	350	660	–	0,87	6309-2Z/VA208
	100	25	55,3	31,5	1 320	150	300	–	0,89	6309-2Z/C4VA237 <sup>1)</sup>
	100	25	55,3	31,5	820	250	480	–	0,89	6309-2Z/VA267
50	80	16	22,9	15,6	60	350	660	–	0,27	6010-2Z/VA208
	80	16	22,9	15,6	920	250	480	–	0,28	6010-2Z/VA267
	90	20	37,1	23,2	60	250	480	•	0,47	6210-2Z/VA201
	90	20	37,1	23,2	60	350	660	–	0,47	6210-2Z/VA208
	90	20	37,1	23,2	120	350	660	–	0,47	6210-2Z/VA228
	90	20	37,1	23,2	1 370	150	300	–	0,49	6210-2Z/C4VA237 <sup>1)</sup>
	90	20	37,1	23,2	850	250	480	–	0,49	6210-2Z/VA267
	110	27	65	38	50	250	480	•	1,1	6310-2Z/VA201
	110	27	65	38	50	350	660	–	1,1	6310-2Z/VA208
	110	27	65	38	110	350	660	–	1,1	6310-2Z/VA228
110	27	65	38	1 200	150	300	–	1,15	6310-2Z/C4VA237 <sup>1)</sup>	
110	27	65	38	750	250	480	–	1,15	6310-2Z/VA267	

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

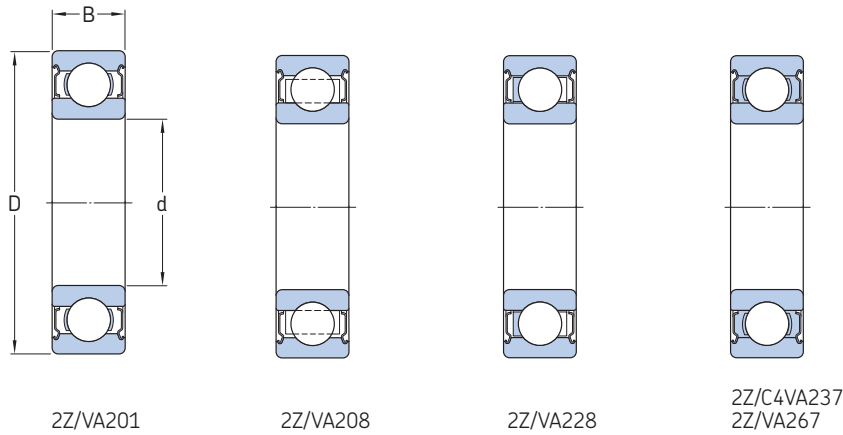


Principal dimensions			Basic load ratings		Limiting speed	Limiting temperature		Running in required	Mass	Designations
d	D	B	dynamic	static		°C	°F			
mm			kN		r/min	°C	°F	–	kg	–
55	90	18	29,6	21,2	60	350	660	–	0,4	6011-2Z/VA208
	90	18	29,6	21,2	820	250	480	–	0,41	6011-2Z/VA267
	100	21	46,2	29	50	250	480	•	0,64	6211-2Z/VA201
	100	21	46,2	29	50	350	660	–	0,64	6211-2Z/VA208
	100	21	46,2	29	110	350	660	–	0,64	6211-2Z/VA228
	100	21	46,2	29	1 230	150	300	–	0,66	6211-2Z/C4VA237 <sup>1)</sup>
	100	21	46,2	29	770	250	480	–	0,66	6211-2Z/VA267
	120	29	74,1	45	50	250	480	•	1,4	6311-2Z/VA201
	120	29	74,1	45	50	350	660	–	1,4	6311-2Z/VA208
	120	29	74,1	45	100	350	660	–	1,4	6311-2Z/VA228
120	29	74,1	45	1 090	150	300	–	1,45	6311-2Z/C4VA237 <sup>1)</sup>	
120	29	74,1	45	680	250	480	–	1,45	6311-2Z/VA267	
60	110	22	55,3	36	50	250	480	•	0,81	6212-2Z/VA201
	110	22	55,3	36	50	350	660	–	0,81	6212-2Z/VA208
	110	22	55,3	36	100	350	660	–	0,81	6212-2Z/VA228
	110	22	55,3	36	1 120	150	300	–	0,84	6212-2Z/C4VA237
	110	22	55,3	36	700	250	480	–	0,84	6212-2Z/VA267
	130	31	85,2	52	40	350	660	–	1,8	6312-2Z/VA208
	130	31	85,2	52	90	350	660	–	1,8	6312-2Z/VA228
	130	31	85,2	52	1 010	150	300	–	1,85	6312-2Z/C4VA237
	130	31	85,2	52	630	250	480	–	1,85	6312-2Z/VA267
	65	120	23	58,5	40,5	40	250	480	•	1,05
120		23	58,5	40,5	40	350	660	–	1,05	6213-2Z/VA208
120		23	58,5	40,5	90	350	660	–	1,05	6213-2Z/VA228
120		23	58,5	40,5	1 030	150	300	–	1,1	6213-2Z/C4VA237
120		23	58,5	40,5	640	250	480	–	1,1	6213-2Z/VA267
140		33	97,5	60	40	250	480	•	2,2	6313-2Z/VA201
140		33	97,5	60	40	350	660	–	2,2	6313-2Z/VA208
140		33	97,5	60	80	350	660	–	2,2	6313-2Z/VA228
140		33	97,5	60	930	150	300	–	2,25	6313-2Z/C4VA237 <sup>1)</sup>
140		33	97,5	60	580	250	480	–	2,25	6313-2Z/VA267

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

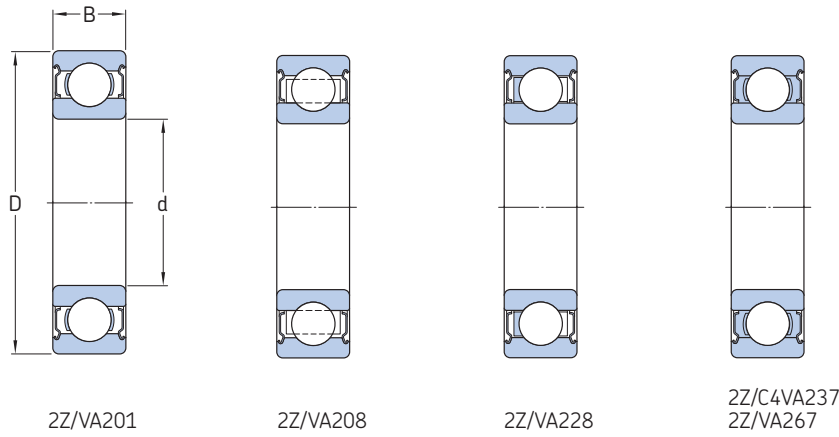
# Deep groove ball bearings for high temperature applications

d 70 – 120 mm



Principal dimensions			Basic load ratings		Limiting speed	Limiting temperature		Running in required	Mass	Designations	
d	D	B	C	C <sub>0</sub>		°C	°F				
mm			kN		r/min	°C	°F	–	kg	–	
70	125	24	63,7	45	40	250	480	•	1,15	6214-2Z/VA201	
	125	24	63,7	45	40	350	660	–	1,15	6214-2Z/VA208	
	125	24	63,7	45	90	350	660	–	1,15	6214-2Z/VA228	
	125	24	63,7	45	980	150	300	–	1,15	6214-2Z/C4VA237	
	125	24	63,7	45	610	250	480	–	1,15	6214-2Z/VA267	
	150	35	111	68	40	350	660	–	2,65	6314-2Z/VA208	
	150	35	111	68	870	150	300	–	2,7	6314-2Z/C4VA237	
	150	35	111	68	540	250	480	–	2,7	6314-2Z/VA267	
	75	130	25	68,9	49	40	250	480	•	1,25	6215-2Z/VA201
		130	25	68,9	49	40	350	660	–	1,25	6215-2Z/VA208
130		25	68,9	49	80	350	660	–	1,25	6215-2Z/VA228	
130		25	68,9	49	930	150	300	–	1,25	6215-2Z/C4VA237	
130		25	68,9	49	580	250	480	–	1,25	6215-2Z/VA267	
160		37	119	76,5	30	350	660	–	3,15	6315-2Z/VA208	
160		37	119	76,5	810	150	300	–	3,25	6315-2Z/C4VA237	
160		37	119	76,5	510	250	480	–	3,25	6315-2Z/VA267	
80		140	26	72,8	55	40	350	660	–	1,55	6216-2Z/VA208
		140	26	72,8	55	870	150	300	–	1,55	6216-2Z/C4VA237
	140	26	72,8	55	540	250	480	–	1,55	6216-2Z/VA267	
	170	39	130	86,5	30	350	660	–	3,75	6316-2Z/VA208	
	170	39	130	86,5	760	150	300	–	3,85	6316-2Z/C4VA237 <sup>1)</sup>	
	170	39	130	86,5	480	250	480	–	3,85	6316-2Z/VA267	
	85	150	28	87,1	64	30	350	660	–	1,9	6217-2Z/VA208
		150	28	87,1	64	810	150	300	–	1,95	6217-2Z/C4VA237 <sup>1)</sup>
		150	28	87,1	64	510	250	480	–	1,95	6217-2Z/VA267
		180	41	140	96,5	720	150	300	–	4,55	6317-2Z/C4VA237
90		160	30	101	73,5	70	350	660	–	2,3	6218-2Z/VA228
	160	30	101	73,5	760	150	300	–	2,35	6218-2Z/C4VA237	
	160	30	101	73,5	480	250	480	–	2,35	6218-2Z/VA267	
	190	43	151	108	680	150	300	–	5,3	6318-2Z/C4VA237 <sup>1)</sup>	
	95	170	32	114	81,5	30	250	480	•	2,7	6219-2Z/VA201
170		32	114	81,5	60	350	660	–	2,7	6219-2Z/VA228	
170		32	114	81,5	720	150	300	–	2,8	6219-2Z/C4VA237 <sup>1)</sup>	
170		32	114	81,5	450	250	480	–	2,8	6219-2Z/VA267	
200		45	159	118	650	150	300	–	6,05	6319-2Z/C4VA237	

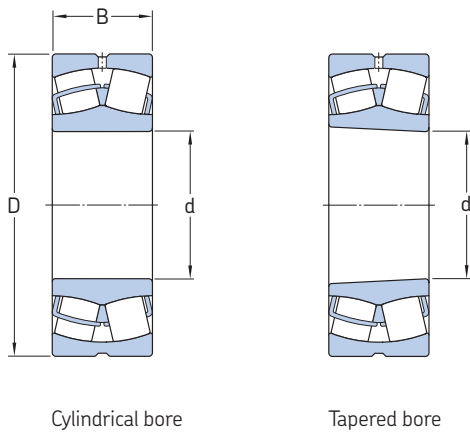
<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.



Principal dimensions			Basic load ratings		Limiting speed	Limiting temperature		Running in required	Mass	Designations	
d	D	B	dynamic	static		°C	°F				
mm			kN		r/min	°C	°F	–	kg	–	
<b>100</b>	150	24	63,7	54	30	350	660	–	1,35	6020-2Z/VA208	
	150	24	63,7	54	480	250	480	–	1,35	6020-2Z/VA267	
	180	34	127	93	30	350	660	–	3,25	6220-2Z/VA208	
	180	34	127	93	60	350	660	–	3,25	6220-2Z/VA228	
	180	34	127	93	680	150	300	–	3,35	6220-2Z/C4VA237	
	180	34	127	93	420	250	480	–	3,35	6220-2Z/VA267	
<b>120</b>	215	47	174	140	600	150	300	–	7,5	6320-2Z/C4VA237	
	<b>110</b>	170	28	85,2	73,5	30	350	660	–	2,05	6022-2Z/VA208
		170	28	85,2	73,5	420	250	480	–	2,1	6022-2Z/VA267
<b>120</b>	180	28	88,4	80	30	350	660	–	2,2	6024-2Z/VA208	
	180	28	88,4	80	400	250	480	–	2,25	6024-2Z/VA267	

# Spherical roller bearings for high temperature applications

d 25 – 140 mm



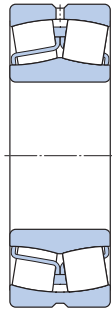
Cylindrical bore

Tapered bore

Principal dimensions			Basic load ratings		Limiting speed	Mass	Designations Bearing with cylindrical bore	tapered bore	Calculation factors		
d	D	B	C	C <sub>0</sub>					e	Y <sub>1</sub>	Y <sub>0</sub>
mm			kN		r/min	kg	–	–			
25	52	18	49	44	1 240	0,27	22205 E/C4VA237 <sup>1)</sup>	–	0,35	1,9	1,8
30	62	20	64	60	1 040	0,3	22206 E/C4VA237	–	0,31	2,2	2,2
35	72	23	86,5	85	890	0,46	22207 E/C4VA237	–	0,31	2,2	2,2
40	80	23	96,5	90	800	0,55	22208 E/C4VA237	22208 EK/C4VA237 <sup>1)</sup>	0,28	2,4	2,5
	90	33	150	140	730	1,1	22308 E/C4VA237	22308 EK/C4VA237	0,37	1,8	1,8
45	85	23	102	98	730	0,6	22209 E/C4VA237	22209 EK/C4VA237	0,26	2,6	2,5
	100	36	183	183	660	1,45	22309 E/C4VA237 <sup>1)</sup>	–	0,37	1,8	1,8
50	90	23	104	108	680	0,65	22210 E/C4VA237	22210 EK/C4VA237	0,24	2,8	2,8
	110	40	220	224	600	1,95	22310 E/C4VA237	22310 EK/C4VA237 <sup>1)</sup>	0,37	1,8	1,8
55	100	25	125	127	610	0,87	22211 E/C4VA237	22211 EK/C4VA237	0,24	2,8	2,8
	120	43	270	280	540	2,5	22311 E/C4VA237	22311 EK/C4VA237 <sup>1)</sup>	0,35	1,9	1,8
60	110	28	156	166	560	1,2	22212 E/C4VA237	–	0,24	2,8	2,8
	130	46	310	335	500	3,2	22312 E/C4VA237	22312 EK/C4VA237 <sup>1)</sup>	0,35	1,9	1,8
65	120	31	193	216	510	1,6	22213 E/C4VA237	22213 EK/C4VA237	0,24	2,8	2,8
	140	48	340	360	460	3,85	22313 E/C4VA237	22313 EK/C4VA237	0,35	1,9	1,8
70	125	31	208	228	490	1,6	22214 E/C4VA237	–	0,23	2,9	2,8
	150	51	400	430	430	4,7	22314 E/C4VA237	22314 EK/C4VA237	0,33	2	2
75	115	40	173	232	500	1,6	24015 CC/C4W33VA237	–	0,28	2,4	2,5
	130	31	212	240	460	1,75	22215 E/C4VA237	22215 EK/C4VA237	0,22	3	2,8
	160	55	440	475	400	5,7	22315 E/C4VA237	22315 EK/C4VA237 <sup>1)</sup>	0,35	1,9	1,8
80	140	33	236	270	430	2,15	22216 E/C4VA237	22216 EK/C4VA237	0,22	3	2,8
	170	58	490	540	380	6,8	22316 E/C4VA237	22316 EK/C4VA237	0,35	1,9	1,8
85	150	36	285	325	400	2,75	22217 E/C4VA237	22217 EK/C4VA237 <sup>1)</sup>	0,22	3	2,8
	180	60	550	620	360	7,9	22317 E/C4VA237	22317 EK/C4VA237	0,33	2	2
90	160	40	325	375	380	3,5	22218 E/C4VA237	22218 EK/C4VA237	0,24	2,8	2,8
	190	64	610	695	340	9,3	22318 E/C4VA237	22318 EK/C4VA237	0,33	2	2
95	200	67	670	765	320	11	22319 E/C4VA237 <sup>1)</sup>	22319 EK/C4VA237	0,33	2	2

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.





Cylindrical bore



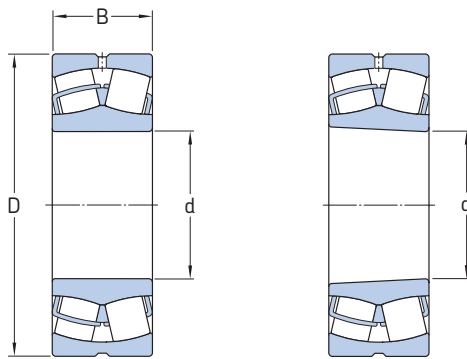
Tapered bore

Principal dimensions			Basic load ratings		Limiting speed	Mass	Designations		Calculation factors		
d	D	B	C	C <sub>0</sub>			Bearing with cylindrical bore	tapered bore	e	Y <sub>1</sub>	Y <sub>0</sub>
mm			kN		r/min	kg	–		–		
<b>100</b>	150	50	285	415	380	3,25	24020 CC/C4W33VA237	–	0,28	2,4	2,5
	165	52	365	490	360	4,7	23120 CC/C4W33VA237	23120 CCK/C4W33VA237	0,3	2,3	2,2
	165	65	455	640	360	5,8	24120 CC/C4W33VA237	–	0,37	1,8	1,8
	180	46	425	490	340	5,05	22220 E/C4VA237	22220 EK/C4VA237	0,24	2,8	2,8
	180	60,3	475	600	340	7,05	23220 CC/C4W33VA237	23220 CCK/C4W33VA237	0,33	2	2
	215	73	815	950	300	14	22320 E/C4VA237	22320 EK/C4VA237	0,33	2	2
<b>110</b>	170	45	310	440	340	3,9	23022 CC/C4W33VA237	23022 CCK/C4W33VA237	0,23	2,9	2,8
	170	60	415	620	340	5,15	24022 CC/C4W33VA237	–	0,33	2	2
	180	56	430	585	330	5,9	23122 CC/C4W33VA237	23122 CCK/C4W33VA237	0,3	2,3	2,2
	180	69	520	750	330	7,3	24122 CC/C4W33VA237	24122 CCK30/C4W33VA237 <sup>1)</sup>	0,37	1,8	1,8
	200	53	560	640	300	7,2	22222 E/C4VA237	22222 EK/C4VA237	0,25	2,7	2,5
	200	69,8	600	765	300	10	23222 CC/C4W33VA237	23222 CCK/C4W33VA237	0,33	2	2
	240	80	950	1 120	270	19	22322 E/C4VA237	22322 EK/C4VA237	0,33	2	2
	180	46	355	510	320	4,35	23024 CC/C4W33VA237	23024 CCK/C4W33VA237	0,22	3	2,8
	180	60	430	670	320	5,6	24024 CC/C4W33VA237	24024 CCK30/C4W33VA237	0,3	2,3	2,2
	200	62	510	695	300	8,25	23124 CC/C4W33VA237	23124 CCK/C4W33VA237	0,28	2,4	2,5
200	80	655	950	300	10,5	24124 CC/C4W33VA237	24124 CCK30/C4W33VA237	0,37	1,8	1,8	
<b>120</b>	215	58	630	765	280	8,95	22224 E/C4VA237	22224 EK/C4VA237	0,26	2,6	2,5
	215	76	695	930	280	12,5	23224 CC/C4W33VA237	23224 CCK/C4W33VA237	0,35	1,9	1,8
	260	86	965	1 120	250	23,5	22324 CC/C4W33VA237 <sup>1)</sup>	22324 CCK/C4W33VA237	0,35	1,9	1,8
	200	52	430	610	290	6,2	23026 CC/C4W33VA237	23026 CCK/C4W33VA237	0,23	2,9	2,8
	200	69	540	815	290	8,3	24026 CC/C4W33VA237	24026 CCK30/C4W33VA237	0,31	2,2	2,2
	210	64	560	780	280	9,05	23126 CC/C4W33VA237	23126 CCK/C4W33VA237	0,28	2,4	2,5
210	80	680	1 000	280	11,5	24126 CC/C4W33VA237	24126 CCK30/C4W33VA237	0,35	1,9	1,8	
<b>130</b>	230	64	735	930	260	11,5	22226 E/C4VA237	22226 EK/C4VA237	0,27	2,5	2,5
	230	80	780	1 060	260	15	23226 CC/C4W33VA237	23226 CCK/C4W33VA237	0,33	2	2
	280	93	1 120	1 320	230	30	22326 CC/C4W33VA237	22326 CCK/C4W33VA237	0,35	1,9	1,8
	210	53	465	680	270	6,75	23028 CC/C4W33VA237	23028 CCK/C4W33VA237	0,22	3	2,8
<b>140</b>	210	69	570	900	270	8,8	24028 CC/C4W33VA237	24028 CCK30/C4W33VA237	0,3	2,3	2,2
	225	68	630	900	260	11	23128 CC/C4W33VA237	23128 CCK/C4W33VA237	0,28	2,4	2,5
	225	85	765	1 160	260	14	24128 CC/C4W33VA237	–	0,35	1,9	1,8
	250	68	710	900	240	14,5	22228 CC/C4W33VA237 <sup>1)</sup>	22228 CCK/C4W33VA237	0,26	2,6	2,5
	250	88	915	1 250	240	19,5	23228 CC/C4W33VA237	23228 CCK/C4W33VA237	0,33	2	2
	300	102	1 290	1 560	210	37,5	22328 CC/C4W33VA237	22328 CCK/C4W33VA237	0,35	1,9	1,8

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

# Spherical roller bearings for high temperature applications

d 150 – 260 mm

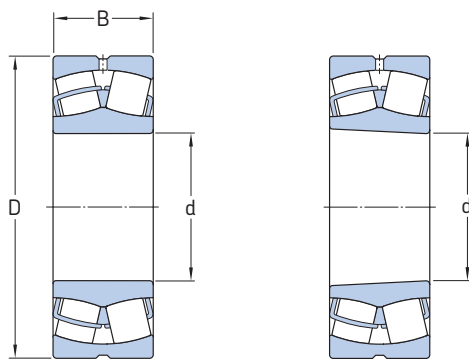


Cylindrical bore

Tapered bore

Principal dimensions			Basic load ratings		Limiting speed	Mass	Designations		Calculation factors			
d	D	B	C	C <sub>0</sub>			Bearing with cylindrical bore	tapered bore	e	Y <sub>1</sub>	Y <sub>0</sub>	
mm			kN		r/min	kg	–		–			
150	225	56	510	750	250	8,2	23030 CC/C4W33VA237	23030 CCK/C4W33VA237	0,22	3	2,8	
	225	75	655	1 040	250	11	24030 CC/C4W33VA237	24030 CCK30/C4W33VA237	0,3	2,3	2,2	
	250	80	830	1 200	240	16,5	23130 CC/C4W33VA237	23130 CCK/C4W33VA237	0,3	2,3	2,2	
	250	100	1 020	1 530	240	20,5	24130 CC/C4W33VA237	24130 CCK30/C4W33VA237	0,37	1,8	1,8	
	270	73	850	1 080	220	18,5	22230 CC/C4W33VA237	–	0,26	2,6	2,5	
	270	96	1 080	1 460	220	25	23230 CC/C4W33VA237	23230 CCK/C4W33VA237	0,35	1,9	1,8	
	320	108	1 460	1 760	200	45	22330 CC/C4W33VA237	22330 CCK/C4W33VA237	0,35	1,9	1,8	
	160	240	60	585	880	240	10	23032 CC/C4W33VA237	23032 CCK/C4W33VA237	0,22	3	2,8
		240	80	750	1 200	240	13,5	24032 CC/C4W33VA237	24032 CCK30/C4W33VA237	0,3	2,3	2,2
270		86	980	1 370	220	21	23132 CC/C4W33VA237	23132 CCK/C4W33VA237	0,3	2,3	2,2	
270		109	1 180	1 760	220	26	24132 CC/C4W33VA237	24132 CCK30/C4W33VA237	0,4	1,7	1,6	
290		80	1 000	1 290	210	23	22232 CC/C4W33VA237 <sup>1)</sup>	22232 CCK/C4W33VA237	0,26	2,6	2,5	
290		104	1 220	1 660	210	32	23232 CC/C4W33VA237	23232 CCK/C4W33VA237	0,35	1,9	1,8	
340		114	1 600	1 960	190	53,5	22332 CC/C4W33VA237	22332 CCK/C4W33VA237 <sup>1)</sup>	0,35	1,9	1,8	
170		260	67	710	1 060	220	13,5	23034 CC/C4W33VA237	23034 CCK/C4W33VA237	0,23	2,9	2,8
		260	90	930	1 460	220	18	24034 CC/C4W33VA237	24034 CCK30/C4W33VA237	0,33	2	2
	280	88	1 040	1 500	210	22,5	23134 CC/C4W33VA237	23134 CCK/C4W33VA237	0,3	2,3	2,2	
	280	109	1 220	1 860	210	28,5	24134 CC/C4W33VA237	24134 CCK30/C4W33VA237	0,37	1,8	1,8	
	310	86	1 120	1 460	200	29,5	22234 CC/C4W33VA237 <sup>1)</sup>	–	0,27	2,5	2,5	
	310	110	1 400	1 930	200	38,5	23234 CC/C4W33VA237	23234 CCK/C4W33VA237	0,35	1,9	1,8	
	360	120	1 760	2 160	180	63	22334 CC/C4W33VA237	22334 CCK/C4W33VA237	0,33	2	2	
	180	280	74	830	1 250	200	17,5	23036 CC/C4W33VA237	23036 CCK/C4W33VA237	0,24	2,8	2,8
		280	100	1 080	1 730	200	23,5	24036 CC/C4W33VA237	24036 CCK30/C4W33VA237	0,33	2	2
300		96	1 200	1 760	200	29	23136 CC/C4W33VA237	23136 CCK/C4W33VA237	0,3	2,3	2,2	
300		118	1 400	2 160	200	35,5	24136 CC/C4W33VA237	24136 CCK30/C4W33VA237 <sup>1)</sup>	0,37	1,8	1,8	
320		86	1 180	1 560	190	30,5	22236 CC/C4W33VA237 <sup>1)</sup>	–	0,26	2,6	2,5	
320		112	1 500	2 120	190	40,5	23236 CC/C4W33VA237	23236 CCK/C4W33VA237	0,35	1,9	1,8	
380		126	2 000	2 450	170	73,5	22336 CC/C4W33VA237	–	0,35	1,9	1,8	
190		290	75	865	1 340	200	18,5	23038 CC/C4W33VA237	23038 CCK/C4W33VA237	0,23	2,9	2,8
		290	100	1 120	1 800	200	25	24038 CC/C4W33VA237	24038 CCK30/C4W33VA237	0,31	2,2	2,2
	320	104	1 370	2 080	180	36	23138 CC/C4W33VA237	23138 CCK/C4W33VA237	0,31	2,2	2,2	
	320	128	1 600	2 500	180	44,5	24138 CC/C4W33VA237	24138 CCK30/C4W33VA237 <sup>1)</sup>	0,4	1,7	1,6	
	340	92	1 270	1 700	180	37,5	22238 CC/C4W33VA237	22238 CCK/C4W33VA237	0,26	2,6	2,5	
	340	120	1 660	2 400	180	49,5	23238 CC/C4W33VA237 <sup>1)</sup>	23238 CCK/C4W33VA237 <sup>1)</sup>	0,35	1,9	1,8	
	400	132	2 120	2 650	160	85	22338 CC/C4W33VA237	22338 CCK/C4W33VA237	0,35	1,9	1,8	

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.



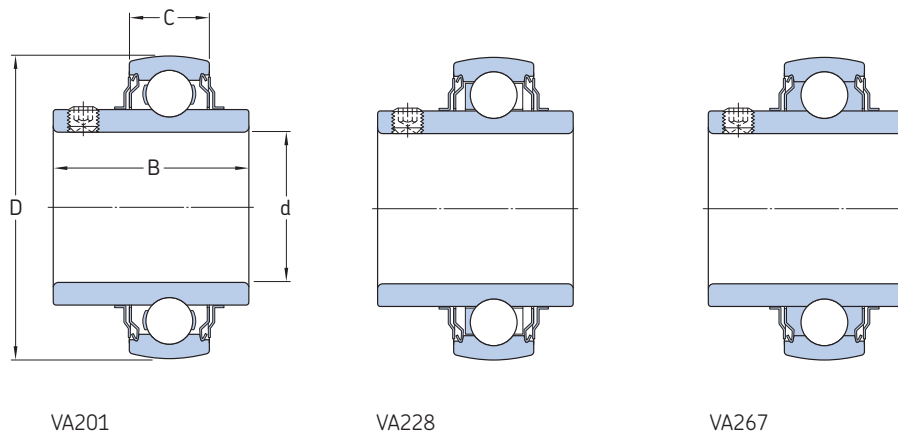
Cylindrical bore

Tapered bore

Principal dimensions			Basic load ratings		Limiting speed	Mass	Designations Bearing with cylindrical bore	tapered bore	Calculation factors		
d	D	B	C	C <sub>0</sub>					e	Y <sub>1</sub>	Y <sub>0</sub>
mm			kN		r/min	kg	-		-		
<b>200</b>	310	82	1 000	1 530	180	24	<b>23040 CC/C4W33VA237</b>	<b>23040 CCK/C4W33VA237</b>	0,24	2,8	2,8
	310	109	1 290	2 120	180	32	<b>24040 CC/C4W33VA237</b>	<b>24040 CCK30/C4W33VA237</b>	0,33	2	2
	340	112	1 600	2 360	170	44,5	<b>23140 CC/C4W33VA237</b>	<b>23140 CCK/C4W33VA237</b>	0,31	2,2	2,2
	340	140	1 800	2 800	170	55	<b>24140 CC/C4W33VA237</b>	<b>24140 CCK30/C4W33VA237</b>	0,4	1,7	1,6
	360	98	1 460	1 930	170	45	<b>22240 CC/C4W33VA237</b>	<b>22240 CCK/C4W33VA237</b>	0,26	2,6	2,5
	360	128	1 860	2 700	170	59,5	<b>23240 CC/C4W33VA237</b>	<b>23240 CCK/C4W33VA237</b>	0,35	1,9	1,8
<b>220</b>	340	90	1 220	1 860	170	31,5	<b>23044 CC/C4W33VA237</b>	<b>23044 CCK/C4W33VA237</b>	0,24	2,8	2,8
	340	118	1 560	2 600	170	41	<b>24044 CC/C4W33VA237</b>	<b>24044 CCK30/C4W33VA237</b>	0,33	2	2
	370	120	1 800	2 750	160	55	<b>23144 CC/C4W33VA237</b>	<b>23144 CCK/C4W33VA237</b>	0,3	2,3	2,2
	370	150	2 120	3 350	160	69	<b>24144 CC/C4W33VA237</b>	<b>24144 CCK30/C4W33VA237</b>	0,4	1,7	1,6
	400	108	1 760	2 360	150	62,5	<b>22244 CC/C4W33VA237</b>	<b>22244 CCK/C4W33VA237</b>	0,27	2,5	2,5
	400	144	2 360	3 450	150	84	<b>23244 CC/C4W33VA237</b>	<b>23244 CCK/C4W33VA237</b>	0,35	1,9	1,8
<b>240</b>	360	92	1 290	2 080	160	34,5	<b>23048 CC/C4W33VA237</b>	<b>23048 CCK/C4W33VA237</b>	0,23	2,9	2,8
	360	118	1 600	2 700	160	44,5	<b>24048 CC/C4W33VA237</b>	<b>24048 CCK30/C4W33VA237</b>	0,3	2,3	2,2
	400	128	2 080	3 200	150	68,5	<b>23148 CC/C4W33VA237</b>	<b>23148 CCK/C4W33VA237</b>	0,3	2,3	2,2
	400	160	2 400	3 900	150	85,5	<b>24148 CC/C4W33VA237</b>	<b>24148 CCK30/C4W33VA237</b>	0,4	1,7	1,6
<b>260</b>	400	104	1 600	2 550	140	50	<b>23052 CC/C4W33VA237</b>	<b>23052 CCK/C4W33VA237</b>	0,23	2,9	2,8
	400	140	2 040	3 450	140	67,5	<b>24052 CC/C4W33VA237</b>	<b>24052 CCK30/C4W33VA237</b>	0,33	2	2

# Y-bearings for high temperature applications, metric shafts

d 20 – 60 mm



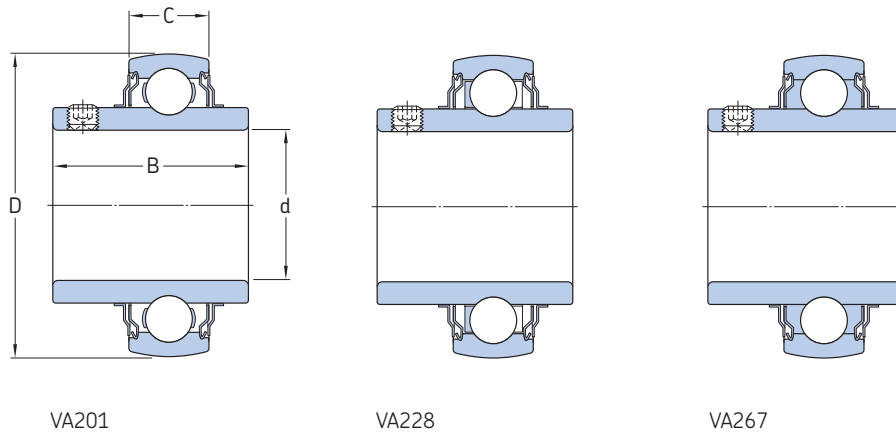
Principal dimensions				Basic load ratings		Limiting speed	Limiting temperature		Running in required	Mass	Designations
d	D	B	C	dynamic	static		°C	°F			
mm				kN		r/min	°C	°F	–	kg	–
20	47	31	14	12,7	6,55	130	250	480	•	0,14	YAR 204-2FW/VA201
	47	31	14	12,7	6,55	260	350	660	–	0,14	YAR 204-2FW/VA228
	47	31	14	12,7	6,55	1 790	250	480	–	0,14	YAR 204-2FW/VA267
25	52	34,1	15	14	7,8	110	250	480	•	0,17	YAR 205-2FW/VA201
	52	34,1	15	14	7,8	230	350	660	–	0,17	YAR 205-2FW/VA228
	52	34,1	15	14	7,8	1 550	250	480	–	0,18	YAR 205-2FW/VA267
30	62	38,1	18	19,5	11,2	90	250	480	•	0,28	YAR 206-2FW/VA201
	62	38,1	18	19,5	11,2	190	350	660	–	0,28	YAR 206-2FW/VA228
	62	38,1	18	19,5	11,2	1 300	250	480	–	0,29	YAR 206-2FW/VA267
35	72	42,9	19	25,5	15,3	80	250	480	•	0,41	YAR 207-2FW/VA201
	72	42,9	19	25,5	15,3	160	350	660	–	0,41	YAR 207-2FW/VA228 <sup>1)</sup>
	72	42,9	19	25,5	15,3	1 120	250	480	–	0,42	YAR 207-2FW/VA267
40	80	49,2	21	30,7	19	70	250	480	•	0,55	YAR 208-2FW/VA201
	80	49,2	21	30,7	19	150	350	660	–	0,55	YAR 208-2FW/VA228
	80	49,2	21	30,7	19	1 000	250	480	–	0,57	YAR 208-2FW/VA267
45	85	49,2	22	33,2	21,6	60	250	480	•	0,6	YAR 209-2FW/VA201
	85	49,2	22	33,2	21,6	130	350	660	–	0,6	YAR 209-2FW/VA228
	85	49,2	22	33,2	21,6	920	250	480	–	0,62	YAR 209-2FW/VA267
50	90	51,6	22	35,1	23,2	60	250	480	•	0,69	YAR 210-2FW/VA201
	90	51,6	22	35,1	23,2	120	350	660	–	0,69	YAR 210-2FW/VA228
	90	51,6	22	35,1	23,2	850	250	480	–	0,71	YAR 210-2FW/VA267
55	100	55,6	25	43,6	29	50	250	480	•	0,94	YAR 211-2FW/VA201
	100	55,6	25	43,6	29	110	350	660	–	0,94	YAR 211-2FW/VA228
	100	55,6	25	43,6	29	770	250	480	–	0,97	YAR 211-2FW/VA267
60	110	65,1	26	52,7	36	50	250	480	•	1,35	YAR 212-2FW/VA201
	110	65,1	26	52,7	36	100	350	660	–	1,35	YAR 212-2FW/VA228
	110	65,1	26	52,7	36	700	250	480	–	1,4	YAR 212-2FW/VA267

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

## Y-bearings for high temperature applications, inch shafts

d  $\frac{3}{4}$  – 2 in.

19,05 – 50,8 mm



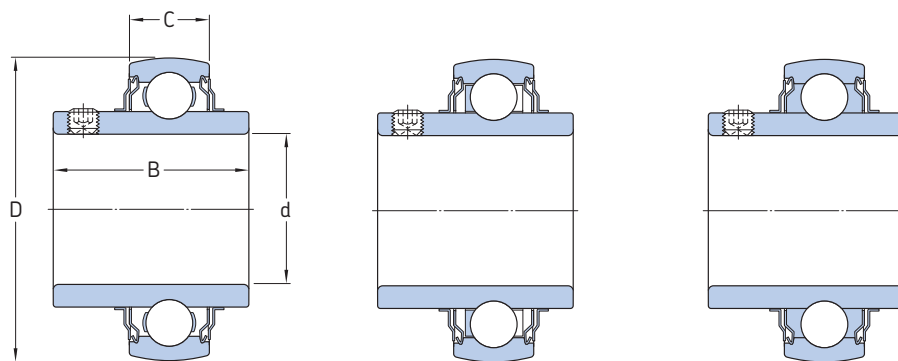
Principal dimensions				Basic load ratings		Limiting speed	Limiting temperature		Running in Mass required	Designations	
d	D	B	C	dynamic	static		°C	°F			
				C	C <sub>0</sub>						
in./mm				kN		r/min	°C	°F	–	kg	–
$\frac{3}{4}$ 19,05	47	31	14	12,7	6,55	130	250	480	•	0,17	YAR 204-012-2FW/VA201
	47	31	14	12,7	6,55	270	350	660	–	0,17	YAR 204-012-2FW/VA228
	47	31	14	12,7	6,55	1 810	250	480	–	0,18	YAR 204-012-2FW/VA267
<b>1</b> 25,4	52	34,1	15	14	7,8	110	250	480	•	0,19	YAR 205-100-2FW/VA201
	52	34,1	15	14	7,8	230	350	660	–	0,19	YAR 205-100-2FW/VA228
	52	34,1	15	14	7,8	1 550	250	480	–	0,2	YAR 205-100-2FW/VA267
$\frac{1\frac{3}{16}}$ 30,163	62	38,1	18	19,5	11,2	90	250	480	•	0,31	YAR 206-103-2FW/VA201 <sup>1)</sup>
	62	38,1	18	19,5	11,2	190	350	660	–	0,31	YAR 206-103-2FW/VA228
	62	38,1	18	19,5	11,2	1 300	250	480	–	0,32	YAR 206-103-2FW/VA267 <sup>1)</sup>
$\frac{1\frac{1}{4}}$ 31,75	72	42,9	19	25,5	15,3	80	250	480	•	0,52	YAR 207-104-2FW/VA201 <sup>1)</sup>
	72	42,9	19	25,5	15,3	170	350	660	–	0,52	YAR 207-104-2FW/VA228
	72	42,9	19	25,5	15,3	1 150	250	480	–	0,54	YAR 207-104-2FW/VA267 <sup>1)</sup>
$\frac{1\frac{3}{8}}$ 34,925	72	42,9	19	25,5	15,3	80	250	480	•	0,46	YAR 207-106-2FW/VA201
	72	42,9	19	25,5	15,3	160	350	660	–	0,46	YAR 207-106-2FW/VA228
	72	42,9	19	25,5	15,3	1 120	250	480	–	0,47	YAR 207-106-2FW/VA267
$\frac{1\frac{7}{16}}$ 36,513	72	42,9	19	25,5	15,3	80	250	480	•	0,42	YAR 207-107-2FW/VA201
	72	42,9	19	25,5	15,3	160	350	660	–	0,42	YAR 207-107-2FW/VA228
	72	42,9	19	25,5	15,3	1 100	250	480	–	0,43	YAR 207-107-2FW/VA267
$\frac{1\frac{1}{2}}$ 38,1	80	49,2	21	30,7	19	70	250	480	•	0,59	YAR 208-108-2FW/VA201
	80	49,2	21	30,7	19	150	350	660	–	0,59	YAR 208-108-2FW/VA228
	80	49,2	21	30,7	19	1 010	250	480	–	0,61	YAR 208-108-2FW/VA267
$\frac{1\frac{11}{16}}$ 42,863	85	49,2	22	33,2	21,6	70	250	480	•	0,75	YAR 209-111-2FW/VA201
	85	49,2	22	33,2	21,6	140	350	660	–	0,75	YAR 209-111-2FW/VA228
	85	49,2	22	33,2	21,6	930	250	480	–	0,77	YAR 209-111-2FW/VA267
$\frac{1\frac{3}{4}}$ 44,45	85	49,2	22	33,2	21,6	60	250	480	•	0,62	YAR 209-112-2FW/VA201 <sup>1)</sup>
	85	49,2	22	33,2	21,6	130	350	660	–	0,62	YAR 209-112-2FW/VA228
	85	49,2	22	33,2	21,6	920	250	480	–	0,64	YAR 209-112-2FW/VA267 <sup>1)</sup>
$\frac{1\frac{5}{16}}$ 49,213	90	51,6	22	35,1	23,2	60	250	480	•	0,78	YAR 210-115-2FW/VA201 <sup>1)</sup>
	90	51,6	22	35,1	23,2	120	350	660	–	0,78	YAR 210-115-2FW/VA228
	90	51,6	22	35,1	23,2	860	250	480	–	0,8	YAR 210-115-2FW/VA267 <sup>1)</sup>
<b>2</b> 50,8	100	55,6	25	43,6	29	50	250	480	•	1,1	YAR 211-200-2FW/VA201
	100	55,6	25	43,6	29	110	350	660	–	1,1	YAR 211-200-2FW/VA228
	100	55,6	25	43,6	29	790	250	480	–	1,15	YAR 211-200-2FW/VA267

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

## Y-bearings for high temperature applications, inch shafts

d  $2\frac{3}{16} - 2\frac{15}{16}$  in.

55,563 – 74,613 mm



VA201

VA228

VA267

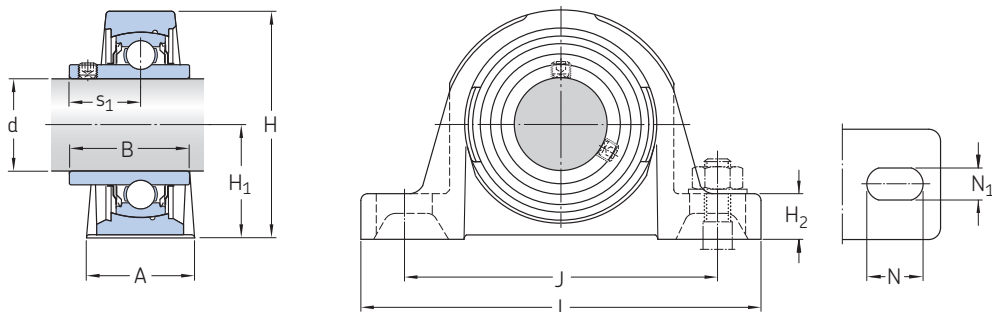
Principal dimensions				Basic load ratings		Limiting speed	Limiting temperature		Running in	Mass required	Designations
d	D	B	C	dynamic	static		°C	°F			
				C	C <sub>0</sub>						
in./mm						r/min	°C	°F	–	kg	–
$2\frac{3}{16}$ 55,563	100	55,6	25	25	29	50	250	480	•	1,05	YAR 211-203-2FW/VA201 <sup>1)</sup>
	100	55,6	25	25	29	110	350	660	–	1,05	YAR 211-203-2FW/VA228 <sup>1)</sup>
	100	55,6	25	25	29	770	250	480	–	1,1	YAR 211-203-2FW/VA267 <sup>1)</sup>
$2\frac{7}{16}$ 61,913	110	65,1	26	52,7	36	50	250	480	•	1,35	YAR 212-207-2FW/VA201
	110	65,1	26	52,7	36	100	350	660	–	1,35	YAR 212-207-2FW/VA228
	110	65,1	26	52,7	36	690	250	480	–	1,4	YAR 212-207-2FW/VA267
$2\frac{15}{16}$ 74,613	130	73,1	29	66,3	49	40	250	480	•	2,2	YAR 215-215-2FW/VA201
	130	73,1	29	66,3	49	80	350	660	–	2,2	YAR 215-215-2FW/VA228
	130	73,1	29	66,3	49	580	250	480	–	2,25	YAR 215-215-2FW/VA267

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.



# Y-bearing plummer block units for high temperature applications, metric shafts

d 20 – 60 mm



Dimensions											Mass	Designations
d	A	B	H	H <sub>1</sub>	H <sub>2</sub>	J	L	N	N <sub>1</sub>	s <sub>1</sub>		
mm											kg	–
20	32	31	64	33,3	14	97	127	20,5	11,5	18,3	0,57	SY 20 TF/VA201
	32	31	64	33,3	14	97	127	20,5	11,5	18,3	0,57	SY 20 TF/VA228
	32	31	64	33,3	14	97	127	20,5	11,5	18,3	0,57	SY 20 TF/VA267
25	36	34,1	70	36,5	16	102	130	19,5	11,5	19,8	0,73	SY 25 TF/VA201
	36	34,1	70	36,5	16	102	130	19,5	11,5	19,8	0,73	SY 25 TF/VA228
	36	34,1	70	36,5	16	102	130	19,5	11,5	19,8	0,74	SY 25 TF/VA267
30	40	38,1	82	42,9	16,5	117,5	152	23,5	14	22,2	1,1	SY 30 TF/VA201
	40	38,1	82	42,9	16,5	117,5	152	23,5	14	22,2	1,1	SY 30 TF/VA228
	40	38,1	82	42,9	16,5	117,5	152	23,5	14	22,2	1,1	SY 30 TF/VA267
35	45	42,9	93	47,6	19	126	160	21	14	25,4	1,45	SY 35 TF/VA201
	45	42,9	93	47,6	19	126	160	21	14	25,4	1,45	SY 35 TF/VA228 <sup>1)</sup>
	45	42,9	93	47,6	19	126	160	21	14	25,4	1,45	SY 35 TF/VA267
40	48	49,2	99	49,2	19	135,5	175	24,5	14	30,2	1,8	SY 40 TF/VA201
	48	49,2	99	49,2	19	135,5	175	24,5	14	30,2	1,8	SY 40 TF/VA228
	48	49,2	99	49,2	19	135,5	175	24,5	14	30,2	1,8	SY 40 TF/VA267
45	48,3	49,2	107	54	21	143,5	187	22,5	14	30,2	2,3	SY 45 TF/VA201
	48,3	49,2	107	54	21	143,5	187	22,5	14	30,2	2,3	SY 45 TF/VA228
	48,3	49,2	107	54	21	143,5	187	22,5	14	30,2	2,3	SY 45 TF/VA267
50	54	51,6	114	57,2	22	157	203	26	18	32,6	2,7	SY 50 TF/VA201
	54	51,6	114	57,2	22	157	203	26	18	32,6	2,7	SY 50 TF/VA228
	54	51,6	114	57,2	22	157	203	26	18	32,6	2,7	SY 50 TF/VA267
55	60,4	55,6	127	63,5	23,8	171,5	219,1	27,5	18	33,4	3,6	SY 55 TF/VA201
	60,4	55,6	127	63,5	23,8	171,5	219,1	27,5	18	33,4	3,6	SY 55 TF/VA228
	60,4	55,6	127	63,5	23,8	171,5	219,1	27,5	18	33,4	3,6	SY 55 TF/VA267
60	60	65,1	138	69,9	26,5	190,5	240	29,5	18	39,7	4,5	SY 60 TF/VA201
	60	65,1	138	69,9	26,5	190,5	240	29,5	18	39,7	4,5	SY 60 TF/VA228
	60	65,1	138	69,9	26,5	190,5	240	29,5	18	39,7	4,55	SY 60 TF/VA267

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

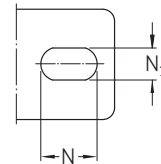
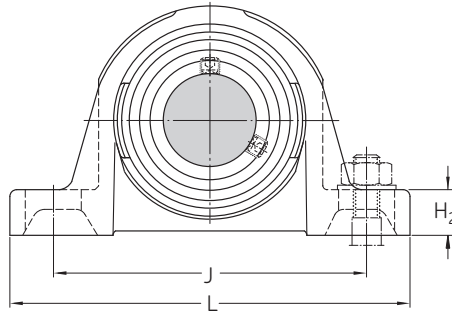
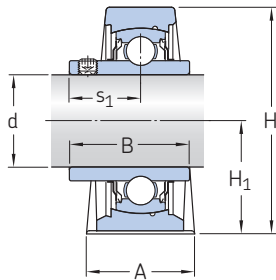


Designation Bearing unit	Bearing	Basic load ratings		Limiting speed	Limiting temperature		Running in required
		dynamic C	static C <sub>0</sub>		°C	°F	
–		kN		r/min	°C	°F	–
SY 20 TF/VA201	YAR 204-2FW/VA201	12,7	6,55	130	250	480	•
SY 20 TF/VA228	YAR 204-2FW/VA228	12,7	6,55	260	350	660	–
SY 20 TF/VA267	YAR 204-2FW/VA267	12,7	6,55	1 790	250	480	–
SY 25 TF/VA201	YAR 205-2FW/VA201	14	7,8	110	250	480	•
SY 25 TF/VA228	YAR 205-2FW/VA228	14	7,8	230	350	660	–
SY 25 TF/VA267	YAR 205-2FW/VA267	14	7,8	1 550	250	480	–
SY 30 TF/VA201	YAR 206-2FW/VA201	19,5	11,2	90	250	480	•
SY 30 TF/VA228	YAR 206-2FW/VA228	19,5	11,2	190	350	660	–
SY 30 TF/VA267	YAR 206-2FW/VA267	19,5	11,2	1 300	250	480	–
SY 35 TF/VA201	YAR 207-2FW/VA201	25,5	15,3	80	250	480	•
SY 35 TF/VA228 <sup>1)</sup>	YAR 207-2FW/VA228	25,5	15,3	160	350	660	–
SY 35 TF/VA267	YAR 207-2FW/VA267	25,5	15,3	1 120	250	480	–
SY 40 TF/VA201	YAR 208-2FW/VA201	30,7	19	70	250	480	•
SY 40 TF/VA228	YAR 208-2FW/VA228	30,7	19	150	350	660	–
SY 40 TF/VA267	YAR 208-2FW/VA267	30,7	19	1 000	250	480	–
SY 45 TF/VA201	YAR 209-2FW/VA201	33,2	21,6	60	250	480	•
SY 45 TF/VA228	YAR 209-2FW/VA228	33,2	21,6	130	350	660	–
SY 45 TF/VA267	YAR 209-2FW/VA267	33,2	21,6	920	250	480	–
SY 50 TF/VA201	YAR 210-2FW/VA201	35,1	23,2	60	250	480	•
SY 50 TF/VA228	YAR 210-2FW/VA228	35,1	23,2	120	350	660	–
SY 50 TF/VA267	YAR 210-2FW/VA267	35,1	23,2	850	250	480	–
SY 55 TF/VA201	YAR 211-2FW/VA201	43,6	29	50	250	480	•
SY 55 TF/VA228	YAR 211-2FW/VA228	43,6	29	110	350	660	–
SY 55 TF/VA267	YAR 211-2FW/VA267	43,6	29	770	250	480	–
SY 60 TF/VA201	YAR 212-2FW/VA201	52,7	36	50	250	480	•
SY 60 TF/VA228	YAR 212-2FW/VA228	52,7	36	100	350	660	–
SY 60 TF/VA267	YAR 212-2FW/VA267	52,7	36	700	250	480	–

Y-bearing plummer block units for high temperature applications, inch shafts

d 3/4 – 2 in.

19,05 – 50,8 mm



Dimensions											Mass	Designations
d	A	B	H	H <sub>1</sub>	H <sub>2</sub>	J	L	N	N <sub>1</sub>	s <sub>1</sub>		
in./mm	mm										kg	–
3/4 19,05	32	31	64	33,3	14	97	127	20,5	11,5	18,3	0,6	SY 3/4 TF/VA201
	32	31	64	33,3	14	97	127	20,5	11,5	<b>18,3</b>	<b>0,6</b>	SY 3/4 TF/VA228
	32	31	64	33,3	14	97	127	20,5	11,5	<b>18,3</b>	<b>0,61</b>	SY 3/4 TF/VA267
1 25,4	36	34,1	70	36,5	16	102	130	19,5	11,5	<b>19,8</b>	<b>0,75</b>	SY 1. TF/VA201
	36	34,1	70	36,5	16	102	130	19,5	11,5	<b>19,8</b>	<b>0,75</b>	SY 1. TF/VA228
	36	34,1	70	36,5	16	102	130	19,5	11,5	<b>19,8</b>	<b>0,76</b>	SY 1. TF/VA267
1 3/16 30,163	40	38,1	82	42,9	16,5	117,5	152	23,5	14	<b>22,2</b>	<b>1,15</b>	SY 1.3/16 TF/VA201 <sup>1)</sup>
	40	38,1	82	42,9	16,5	117,5	152	23,5	14	<b>22,2</b>	<b>1,15</b>	SY 1.3/16 TF/VA228
	40	38,1	82	42,9	16,5	117,5	152	23,5	14	<b>22,2</b>	<b>1,15</b>	SY 1.3/16 TF/VA267 <sup>1)</sup>
1 1/4 31,75	45	42,9	93	47,6	19	126	160	21	14	<b>25,4</b>	<b>1,55</b>	SY 1.1/4 TF/VA201 <sup>1)</sup>
	45	42,9	93	47,6	19	126	160	21	14	<b>25,4</b>	<b>1,55</b>	SY 1.1/4 TF/VA228
	45	42,9	93	47,6	19	126	160	21	14	<b>25,4</b>	<b>1,6</b>	SY 1.1/4 TF/VA267 <sup>1)</sup>
1 3/8 34,925	45	42,9	93	47,6	19	126	160	21	14	<b>25,4</b>	<b>1,5</b>	SY 1.3/8 TF/VA201
	45	42,9	93	47,6	19	126	160	21	14	<b>25,4</b>	<b>1,5</b>	SY 1.3/8 TF/VA228
	45	42,9	93	47,6	19	126	160	21	14	<b>25,4</b>	<b>1,5</b>	SY 1.3/8 TF/VA267
1 7/16 36,513	45	42,9	93	47,6	19	126	160	21	14	<b>25,4</b>	<b>1,45</b>	SY 1.7/16 TF/VA201
	45	42,9	93	47,6	19	126	160	21	14	<b>25,4</b>	<b>1,45</b>	SY 1.7/16 TF/VA228
	45	42,9	93	47,6	19	126	160	21	14	<b>25,4</b>	<b>1,5</b>	SY 1.7/16 TF/VA267
1 1/2 38,1	48	49,2	99	49,2	19	135,5	175	24,5	14	<b>30,2</b>	<b>1,85</b>	SY 1.1/2 TF/VA201
	48	49,2	99	49,2	19	135,5	175	24,5	14	<b>30,2</b>	<b>1,85</b>	SY 1.1/2 TF/VA228
	48	49,2	99	49,2	19	135,5	175	24,5	14	<b>30,2</b>	<b>1,85</b>	SY 1.1/2 TF/VA267
1 11/16 42,863	48,3	49,2	107	54	21	143,5	187	22,5	14	<b>30,2</b>	<b>2,45</b>	SY 1.11/16 TF/VA201
	48,3	49,2	107	54	21	143,5	187	22,5	14	<b>30,2</b>	<b>2,45</b>	SY 1.11/16 TF/VA228
	48,3	49,2	107	54	21	143,5	187	22,5	14	<b>30,2</b>	<b>2,45</b>	SY 1.11/16 TF/VA267
1 3/4 44,45	48,3	49,2	107	54	21	143,5	187	22,5	14	<b>30,2</b>	<b>2,3</b>	SY 1.3/4 TF/VA201 <sup>1)</sup>
	48,3	49,2	107	54	21	143,5	187	22,5	14	<b>30,2</b>	<b>2,3</b>	SY 1.3/4 TF/VA228
	48,3	49,2	107	54	21	143,5	187	22,5	14	<b>30,2</b>	<b>2,35</b>	SY 1.3/4 TF/VA267 <sup>1)</sup>
1 15/16 49,213	54	51,6	114	57,2	22	157	203	26	18	32,6	2,8	SY 1.15/16 TF/VA201 <sup>1)</sup>
	54	51,6	114	57,2	22	157	203	26	18	32,6	2,8	SY 1.15/16 TF/VA228
	54	51,6	114	57,2	22	157	203	26	18	32,6	2,8	SY 1.15/16 TF/VA267 <sup>1)</sup>
2 50,8	60,4	55,6	127	63,5	23,8	171,5	219,1	27,5	18	33,4	3,75	SY 2. TF/VA201
	60,4	55,6	127	63,5	23,8	171,5	219,1	27,5	18	33,4	3,75	SY 2. TF/VA228
	60,4	55,6	127	63,5	23,8	171,5	219,1	27,5	18	33,4	3,8	SY 2. TF/VA267

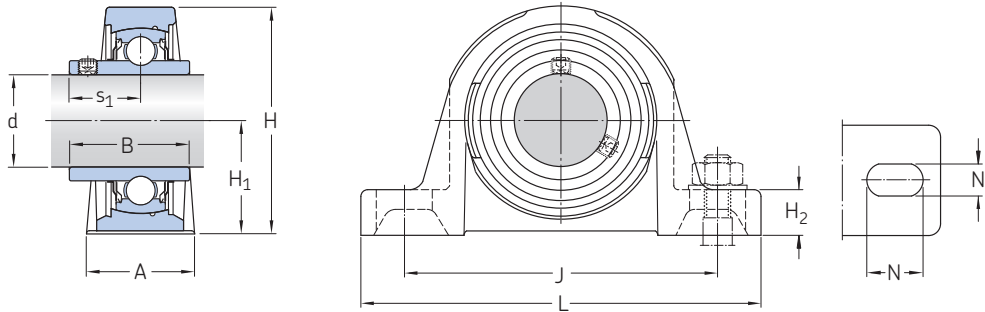
<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

Designation Bearing unit	Bearing	Basic load ratings		Limiting speed	Limiting temperature		Running in required
		dynamic C	static C <sub>0</sub>		°C	°F	
–		kN		r/min	°C	°F	–
SY 3/4 TF/VA201	YAR 204-012-2FW/VA201	12,7	6,55	130	250	480	•
SY 3/4 TF/VA228	YAR 204-012-2FW/VA228	12,7	6,55	270	350	660	–
SY 3/4 TF/VA267	YAR 204-012-2FW/VA267	12,7	6,55	1 810	250	480	–
SY 1. TF/VA201	YAR 205-100-2FW/VA201	14	7,8	110	250	480	•
SY 1. TF/VA228	YAR 205-100-2FW/VA228	14	7,8	230	350	660	–
SY 1. TF/VA267	YAR 205-100-2FW/VA267	14	7,8	1 550	250	480	–
SY 1.3/16 TF/VA201 <sup>1)</sup>	YAR 206-103-2FW/VA201	19,5	11,2	90	250	480	•
SY 1.3/16 TF/VA228	YAR 206-103-2FW/VA228	19,5	11,2	190	350	660	–
SY 1.3/16 TF/VA267 <sup>1)</sup>	YAR 206-103-2FW/VA267	19,5	11,2	1 300	250	480	–
SY 1.1/4 TF/VA201 <sup>1)</sup>	YAR 207-104-2FW/VA201	25,5	15,3	80	250	480	•
SY 1.1/4 TF/VA228	YAR 207-104-2FW/VA228	25,5	15,3	170	350	660	–
SY 1.1/4 TF/VA267 <sup>1)</sup>	YAR 207-104-2FW/VA267	25,5	15,3	1 150	250	480	–
SY 1.3/8 TF/VA201	YAR 207-106-2FW/VA201	25,5	15,3	80	250	480	•
SY 1.3/8 TF/VA228	YAR 207-106-2FW/VA228	25,5	15,3	160	350	660	–
SY 1.3/8 TF/VA267	YAR 207-106-2FW/VA267	25,5	15,3	1 120	250	480	–
SY 1.7/16 TF/VA201	YAR 207-107-2FW/VA201	25,5	15,3	80	250	480	•
SY 1.7/16 TF/VA228	YAR 207-107-2FW/VA228	25,5	15,3	160	350	660	–
SY 1.7/16 TF/VA267	YAR 207-107-2FW/VA267	25,5	15,3	1 100	250	480	–
SY 1.1/2 TF/VA201	YAR 208-108-2FW/VA201	30,7	19	70	250	480	•
SY 1.1/2 TF/VA228	YAR 208-108-2FW/VA228	30,7	19	150	350	660	–
SY 1.1/2 TF/VA267	YAR 208-108-2FW/VA267	30,7	19	1 010	250	480	–
SY 1.11/16 TF/VA201	YAR 209-111-2FW/VA201	33,2	21,6	70	250	480	•
SY 1.11/16 TF/VA228	YAR 209-111-2FW/VA228	33,2	21,6	140	350	660	–
SY 1.11/16 TF/VA267	YAR 209-111-2FW/VA267	33,2	21,6	930	250	480	–
SY 1.3/4 TF/VA201 <sup>1)</sup>	YAR 209-112-2FW/VA201	33,2	21,6	60	250	480	•
SY 1.3/4 TF/VA228	YAR 209-112-2FW/VA228	33,2	21,6	130	350	660	–
SY 1.3/4 TF/VA267 <sup>1)</sup>	YAR 209-112-2FW/VA267	33,2	21,6	920	250	480	–
SY 1.15/16 TF/VA201 <sup>1)</sup>	YAR 210-115-2FW/VA201	35,1	23,2	60	250	480	•
SY 1.15/16 TF/VA228	YAR 210-115-2FW/VA228	35,1	23,2	120	350	660	–
SY 1.15/16 TF/VA267 <sup>1)</sup>	YAR 210-115-2FW/VA267	35,1	23,2	860	250	480	–
SY 2. TF/VA201	YAR 211-200-2FW/VA201	43,6	29	50	250	480	•
SY 2. TF/VA228	YAR 211-200-2FW/VA228	43,6	29	110	350	660	–
SY 2. TF/VA267	YAR 211-200-2FW/VA267	43,6	29	790	250	480	–

**Y-bearing plummer block units for high temperature applications, inch shafts**

d  $2\frac{3}{16} - 2\frac{15}{16}$  in.

55,563 – 74,613 mm

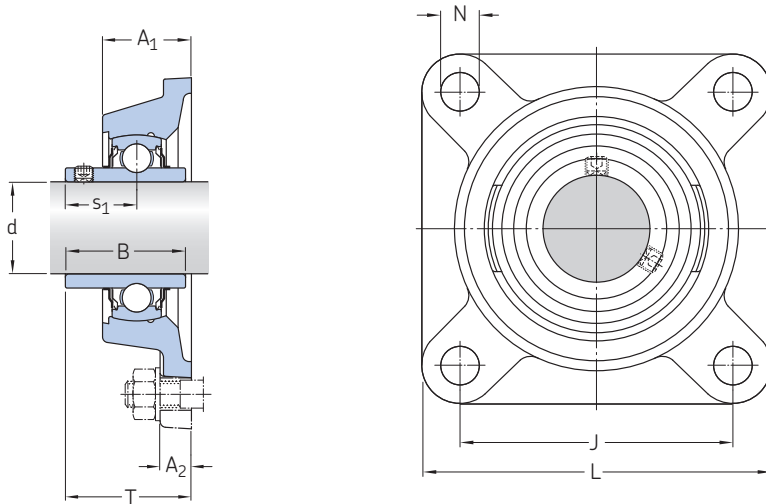


Dimensions											Mass	Designations
d	A	B	H	H <sub>1</sub>	H <sub>2</sub>	J	L	N	N <sub>1</sub>	s <sub>1</sub>		
in./mm	mm										kg	–
<b>2<sup>3</sup>/<sub>16</sub></b> 55,563	60,4	55,6	127	63,5	23,8	171,5	219,1	27,5	18	33,4	3,7	SY 2.3/16 TF/VA201 <sup>1)</sup>
	60,4	55,6	127	63,5	23,8	171,5	219,1	27,5	18	33,4	3,7	SY 2.3/16 TF/VA228 <sup>1)</sup>
	60,4	55,6	127	63,5	23,8	171,5	219,1	27,5	18	33,4	3,75	SY 2.3/16 TF/VA267 <sup>1)</sup>
<b>2<sup>7</sup>/<sub>16</sub></b> 61,913	60	65,1	138	69,9	26,5	190,5	240	29,5	18	39,7	4,5	SY 2.7/16 TF/VA201
	60	65,1	138	69,9	26,5	190,5	240	29,5	18	39,7	4,5	SY 2.7/16 TF/VA228
	60	65,1	138	69,9	26,5	190,5	240	29,5	18	39,7	4,55	SY 2.7/16 TF/VA267
<b>2<sup>15</sup>/<sub>16</sub></b> 74,613	71,6	73,1	166,1	82,55	32,8	215,9	279	35	22,23	46,11	7,5	SY 2.15/16 TF/VA201
	71,6	73,1	166,1	82,55	32,8	215,9	279	35	22,23	46,11	7,5	SY 2.15/16 TF/VA228
	71,6	73,1	166,1	82,55	32,8	215,9	279	35	22,23	46,11	7,55	SY 2.15/16 TF/VA267

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

Designation Bearing unit	Bearing	Basic load ratings		Limiting speed	Limiting temperature		Running in required
		dynamic C	static C <sub>0</sub>		°C	°F	
–		kN		r/min	°C	°F	–
<b>SY 2.3/16 TF/VA201<sup>1)</sup></b>	YAR 211-203-2FW/VA201	25	29	50	250	480	•
<b>SY 2.3/16 TF/VA228<sup>1)</sup></b>	YAR 211-203-2FW/VA228	25	29	110	350	660	–
<b>SY 2.3/16 TF/VA267<sup>1)</sup></b>	YAR 211-203-2FW/VA267	25	29	770	250	480	–
<b>SY 2.7/16 TF/VA201</b>	YAR 212-207-2FW/VA201	52,7	36	50	250	480	•
<b>SY 2.7/16 TF/VA228</b>	YAR 212-207-2FW/VA228	52,7	36	100	350	660	–
<b>SY 2.7/16 TF/VA267</b>	YAR 212-207-2FW/VA267	52,7	36	690	250	480	–
<b>SY 2.15/16 TF/VA201</b>	YAR 215-215-2FW/VA201	66,3	49	40	250	480	•
<b>SY 2.15/16 TF/VA228</b>	YAR 215-215-2FW/VA228	66,3	49	80	350	660	–
<b>SY 2.15/16 TF/VA267</b>	YAR 215-215-2FW/VA267	66,3	49	580	250	480	–

Flanged Y-bearing units with a cast housing with a square flange for high temperature applications, metric shafts  
d 20 – 60 mm



Dimensions									Mass	Designations
d	A <sub>1</sub>	A <sub>2</sub>	B	J	L	N	s <sub>1</sub>	T		
mm									kg	–
20	29,5	11	31	63,5	86	11,1	18,3	37,3	0,6	FY 20 TF/VA201
	29,5	11	31	63,5	86	11,1	18,3	37,3	0,6	FY 20 TF/VA228
	29,5	11	31	63,5	86	11,1	18,3	37,3	0,6	FY 20 TF/VA267
25	30	12	34,1	70	95	12,7	19,8	38,8	0,77	FY 25 TF/VA201
	30	12	34,1	70	95	12,7	19,8	38,8	0,77	FY 25 TF/VA228
	30	12	34,1	70	95	12,7	19,8	38,8	0,78	FY 25 TF/VA267
30	32,5	13	38,1	82,5	108	12,7	22,2	42,2	1,1	FY 30 TF/VA201
	32,5	13	38,1	82,5	108	12,7	22,2	42,2	1,1	FY 30 TF/VA228
	32,5	13	38,1	82,5	108	12,7	22,2	42,2	1,1	FY 30 TF/VA267
35	34,5	13	42,9	92	118	14,3	25,4	46,4	1,4	FY 35 TF/VA201
	34,5	13	42,9	92	118	14,3	25,4	46,4	1,4	FY 35 TF/VA228 <sup>1)</sup>
	34,5	13	42,9	92	118	14,3	25,4	46,4	1,4	FY 35 TF/VA267
40	38,5	14	49,2	101,5	130	14,3	30,2	54,2	1,9	FY 40 TF/VA201
	38,5	14	49,2	101,5	130	14,3	30,2	54,2	1,9	FY 40 TF/VA228
	38,5	14	49,2	101,5	130	14,3	30,2	54,2	1,9	FY 40 TF/VA267
45	39	14	49,2	105	137	15,9	30,2	54,2	2,1	FY 45 TF/VA201
	39	14	49,2	105	137	15,9	30,2	54,2	2,1	FY 45 TF/VA228
	39	14	49,2	105	137	15,9	30,2	54,2	2,1	FY 45 TF/VA267
50	43	15	51,6	111	143	15,9	32,6	60,6	2,5	FY 50 TF/VA201
	43	15	51,6	111	143	15,9	32,6	60,6	2,5	FY 50 TF/VA228
	43	15	51,6	111	143	15,9	32,6	60,6	2,5	FY 50 TF/VA267
55	47,5	16	55,6	130	162	19	33,4	64,4	3,6	FY 55 TF/VA201
	47,5	16	55,6	130	162	19	33,4	64,4	3,6	FY 55 TF/VA228
	47,5	16	55,6	130	162	19	33,4	64,4	3,6	FY 55 TF/VA267
60	52	17	65,1	143	175	19	39,7	73,7	4,65	FY 60 TF/VA201
	52	17	65,1	143	175	19	39,7	73,7	4,65	FY 60 TF/VA228
	52	17	65,1	143	175	19	39,7	73,7	4,7	FY 60 TF/VA267

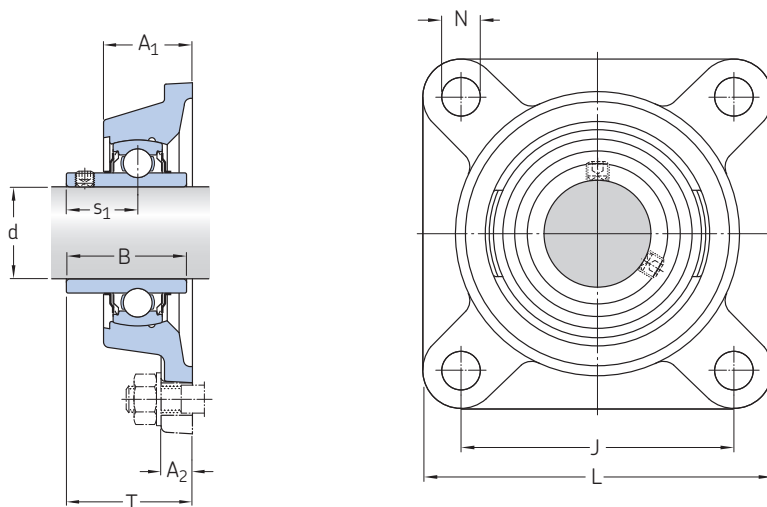
<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

Designation Bearing unit	Bearing	Basic load ratings		Limiting speed	Limiting temperature		Running in required
		dynamic C	static C <sub>0</sub>		°C	°F	
–		kN		r/min	°C	°F	–
FY 20 TF/VA201	YAR 204-2FW/VA201	12,7	6,55	130	250	480	•
FY 20 TF/VA228	YAR 204-2FW/VA228	12,7	6,55	260	350	660	–
FY 20 TF/VA267	YAR 204-2FW/VA267	12,7	6,55	1 790	250	480	–
FY 25 TF/VA201	YAR 205-2FW/VA201	14	7,8	110	250	480	•
FY 25 TF/VA228	YAR 205-2FW/VA228	14	7,8	230	350	660	–
FY 25 TF/VA267	YAR 205-2FW/VA267	14	7,8	1 550	250	480	–
FY 30 TF/VA201	YAR 206-2FW/VA201	19,5	11,2	90	250	480	•
FY 30 TF/VA228	YAR 206-2FW/VA228	19,5	11,2	190	350	660	–
FY 30 TF/VA267	YAR 206-2FW/VA267	19,5	11,2	1 300	250	480	–
FY 35 TF/VA201	YAR 207-2FW/VA201	25,5	15,3	80	250	480	•
FY 35 TF/VA228 <sup>1)</sup>	YAR 207-2FW/VA228	25,5	15,3	160	350	660	–
FY 35 TF/VA267	YAR 207-2FW/VA267	25,5	15,3	1 120	250	480	–
FY 40 TF/VA201	YAR 208-2FW/VA201	30,7	19	70	250	480	•
FY 40 TF/VA228	YAR 208-2FW/VA228	30,7	19	150	350	660	–
FY 40 TF/VA267	YAR 208-2FW/VA267	30,7	19	1 000	250	480	–
FY 45 TF/VA201	YAR 209-2FW/VA201	33,2	21,6	60	250	480	•
FY 45 TF/VA228	YAR 209-2FW/VA228	33,2	21,6	130	350	660	–
FY 45 TF/VA267	YAR 209-2FW/VA267	33,2	21,6	920	250	480	–
FY 50 TF/VA201	YAR 210-2FW/VA201	35,1	23,2	60	250	480	•
FY 50 TF/VA228	YAR 210-2FW/VA228	35,1	23,2	120	350	660	–
FY 50 TF/VA267	YAR 210-2FW/VA267	35,1	23,2	850	250	480	–
FY 55 TF/VA201	YAR 211-2FW/VA201	43,6	29	50	250	480	•
FY 55 TF/VA228	YAR 211-2FW/VA228	43,6	29	110	350	660	–
FY 55 TF/VA267	YAR 211-2FW/VA267	43,6	29	770	250	480	–
FY 60 TF/VA201	YAR 212-2FW/VA201	52,7	36	50	250	480	•
FY 60 TF/VA228	YAR 212-2FW/VA228	52,7	36	100	350	660	–
FY 60 TF/VA267	YAR 212-2FW/VA267	52,7	36	700	250	480	–

Flanged Y-bearing units with a cast housing with a square flange for high temperature applications, inch shafts

d 3/4 – 1 15/16 in.

19,05 – 49,213 mm



Dimensions									Mass	Designations
d	A <sub>1</sub>	A <sub>2</sub>	B	J	L	N	s <sub>1</sub>	T		
in./mm									kg	–
3/4 19,05	29,5	11	31	86	63,5	11,1	18,3	37,3	0,63	FY 3/4 TF/VA201
	29,5	11	31	86	63,5	11,1	18,3	37,3	0,63	FY 3/4 TF/VA228
	29,5	11	31	86	63,5	11,1	18,3	37,3	0,64	FY 3/4 TF/VA267
1 25,4	30	12	34,1	95	70	12,7	19,8	38,8	0,79	FY 1. TF/VA201
	30	12	34,1	95	70	12,7	19,8	38,8	0,79	FY 1. TF/VA228
	30	12	34,1	95	70	12,7	19,8	38,8	0,8	FY 1. TF/VA267
1 3/16 30,163	32,5	13	38,1	108	82,5	12,7	22,2	42,2	1,1	FY 1.3/16 TF/VA201 <sup>1)</sup>
	32,5	13	38,1	108	82,5	12,7	22,2	42,2	1,1	FY 1.3/16 TF/VA228
	32,5	13	38,1	108	82,5	12,7	22,2	42,2	1,1	FY 1.3/16 TF/VA267 <sup>1)</sup>
1 1/4 31,75	34,5	13	42,9	118	92	14,3	25,4	46,4	1,5	FY 1.1/4 TF/VA201 <sup>1)</sup>
	34,5	13	42,9	118	92	14,3	25,4	46,4	1,5	FY 1.1/4 TF/VA228
	34,5	13	42,9	118	92	14,3	25,4	46,4	1,55	FY 1.1/4 TF/VA267 <sup>1)</sup>
1 7/16 36,513	34,5	13	42,9	118	92	14,3	25,4	46,4	1,4	FY 1.7/16 TF/VA201
	34,5	13	42,9	118	92	14,3	25,4	46,4	1,4	FY 1.7/16 TF/VA228
	34,5	13	42,9	118	92	14,3	25,4	46,4	1,45	FY 1.7/16 TF/VA267
1 1/2 38,1	38,5	14	49,2	130	101,5	14,3	30,2	54,2	1,95	FY 1.1/2 TF/VA201
	38,5	14	49,2	130	101,5	14,3	30,2	54,2	1,95	FY 1.1/2 TF/VA228
	38,5	14	49,2	130	101,5	14,3	30,2	54,2	1,95	FY 1.1/2 TF/VA267
1 11/16 42,863	39	14	49,2	137	105	15,9	30,2	54,2	2,25	FY 1.11/16 TF/VA201
	39	14	49,2	137	105	15,9	30,2	54,2	2,25	FY 1.11/16 TF/VA228
	39	14	49,2	137	105	15,9	30,2	54,2	2,25	FY 1.11/16 TF/VA267
1 3/4 44,45	39	14	49,2	137	105	15,9	30,2	54,2	2,1	FY 1.3/4 TF/VA201 <sup>1)</sup>
	39	14	49,2	137	105	15,9	30,2	54,2	2,1	FY 1.3/4 TF/VA228
	39	14	49,2	137	105	15,9	30,2	54,2	2,15	FY 1.3/4 TF/VA267 <sup>1)</sup>
1 15/16 49,213	43	15	51,6	143	111	15,9	32,6	60,6	2,6	FY 1.15/16 TF/VA201 <sup>1)</sup>
	43	15	51,6	143	111	15,9	32,6	60,6	2,6	FY 1.15/16 TF/VA228
	43	15	51,6	143	111	15,9	32,6	60,6	2,6	FY 1.15/16 TF/VA267 <sup>1)</sup>

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

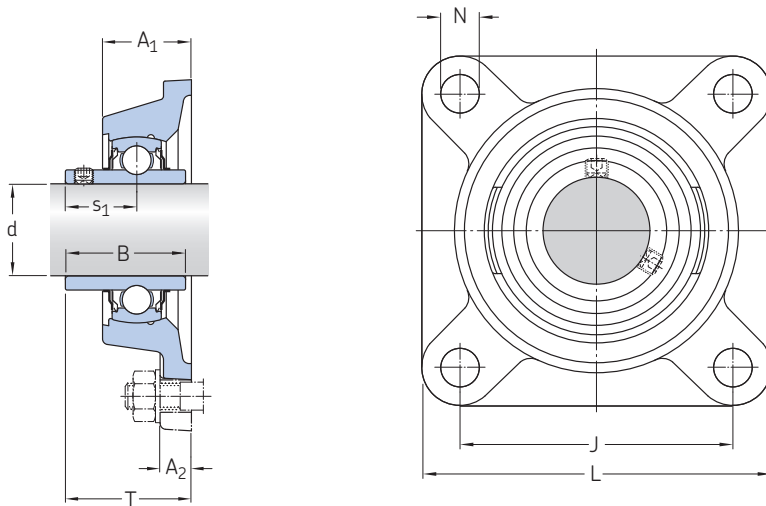


Designation Bearing unit	Bearing	Basic load ratings		Limiting speed	Limiting temperature		Running in required
		dynamic C	static C <sub>0</sub>		°C	°F	
–		kN		r/min	°C	°F	–
<b>FY 3/4 TF/VA201</b>	YAR 204-012-2FW/VA201	12,7	6,55	130	250	480	•
<b>FY 3/4 TF/VA228</b>	YAR 204-012-2FW/VA228	12,7	6,55	270	350	660	–
<b>FY 3/4 TF/VA267</b>	YAR 204-012-2FW/VA267	12,7	6,55	1 810	250	480	–
<b>FY 1. TF/VA201</b>	YAR 205-100-2FW/VA201	14	7,8	110	250	480	•
<b>FY 1. TF/VA228</b>	YAR 205-100-2FW/VA228	14	7,8	230	350	660	–
<b>FY 1. TF/VA267</b>	YAR 205-100-2FW/VA267	14	7,8	1 550	250	480	–
<b>FY 1.3/16 TF/VA201<sup>1)</sup></b>	YAR 206-103-2FW/VA201	19,5	11,2	90	250	480	•
<b>FY 1.3/16 TF/VA228</b>	YAR 206-103-2FW/VA228	19,5	11,2	190	350	660	–
<b>FY 1.3/16 TF/VA267<sup>1)</sup></b>	YAR 206-103-2FW/VA267	19,5	11,2	1 300	250	480	–
<b>FY 1.1/4 TF/VA201<sup>1)</sup></b>	YAR 207-104-2FW/VA201	25,5	15,3	80	250	480	•
<b>FY 1.1/4 TF/VA228</b>	YAR 207-104-2FW/VA228	25,5	15,3	170	350	660	–
<b>FY 1.1/4 TF/VA267<sup>1)</sup></b>	YAR 207-104-2FW/VA267	25,5	15,3	1 150	250	480	–
<b>FY 1.7/16 TF/VA201</b>	YAR 207-107-2FW/VA201	25,5	15,3	80	250	480	•
<b>FY 1.7/16 TF/VA228</b>	YAR 207-107-2FW/VA228	25,5	15,3	160	350	660	–
<b>FY 1.7/16 TF/VA267</b>	YAR 207-107-2FW/VA267	25,5	15,3	1 100	250	480	–
<b>FY 1.1/2 TF/VA201</b>	YAR 208-108-2FW/VA201	30,7	19	70	250	480	•
<b>FY 1.1/2 TF/VA228</b>	YAR 208-108-2FW/VA228	30,7	19	150	350	660	–
<b>FY 1.1/2 TF/VA267</b>	YAR 208-108-2FW/VA267	30,7	19	1 010	250	480	–
<b>FY 1.11/16 TF/VA201</b>	YAR 209-111-2FW/VA201	33,2	21,6	70	250	480	•
<b>FY 1.11/16 TF/VA228</b>	YAR 209-111-2FW/VA228	33,2	21,6	140	350	660	–
<b>FY 1.11/16 TF/VA267</b>	YAR 209-111-2FW/VA267	33,2	21,6	930	250	480	–
<b>FY 1.3/4 TF/VA201<sup>1)</sup></b>	YAR 209-112-2FW/VA201	33,2	21,6	60	250	480	•
<b>FY 1.3/4 TF/VA228</b>	YAR 209-112-2FW/VA228	33,2	21,6	130	350	660	–
<b>FY 1.3/4 TF/VA267<sup>1)</sup></b>	YAR 209-112-2FW/VA267	33,2	21,6	920	250	480	–
<b>FY 1.15/16 TF/VA201<sup>1)</sup></b>	YAR 210-115-2FW/VA201	35,1	23,2	60	250	480	•
<b>FY 1.15/16 TF/VA228</b>	YAR 210-115-2FW/VA228	35,1	23,2	120	350	660	–
<b>FY 1.15/16 TF/VA267<sup>1)</sup></b>	YAR 210-115-2FW/VA267	35,1	23,2	860	250	480	–

Flanged Y-bearing units with a cast housing with a square flange for high temperature applications, inch shafts

d 2 – 2 15/16 in.

50,8 – 74,613 mm



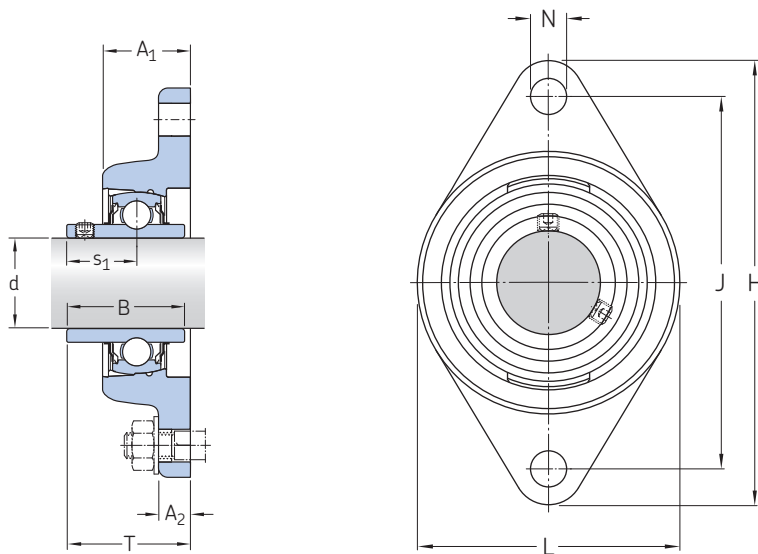
Dimensions									Mass	Designations
d	A <sub>1</sub>	A <sub>2</sub>	B	J	L	N	s <sub>1</sub>	T		
in./mm									kg	–
2 50,8	47,5	16	55,6	162	130	19	33,4	64,4	3,75	FY 2. TF/VA201
	47,5	16	55,6	162	130	19	33,4	64,4	3,75	FY 2. TF/VA228
	47,5	16	55,6	162	130	19	33,4	64,4	3,8	FY 2. TF/VA267
2 3/16 55,563	47,5	16	55,6	162	130	19	33,4	64,4	3,7	FY 2.3/16 TF/VA201 <sup>1)</sup>
	47,5	16	55,6	162	130	19	33,4	64,4	3,7	FY 2.3/16 TF/VA228 <sup>1)</sup>
	47,5	16	55,6	162	130	19	33,4	64,4	3,75	FY 2.3/16 TF/VA267 <sup>1)</sup>
2 7/16 61,913	52	17	65,1	175	143	19	39,7	73,7	4,65	FY 2.7/16 TF/VA201
	52	17	65,1	175	143	19	39,7	73,7	4,65	FY 2.7/16 TF/VA228
	52	17	65,1	175	143	19	39,7	73,7	4,7	FY 2.7/16 TF/VA267
2 15/16 74,613	65,1	19	73,1	196,9	152,4	22,2	46,11	87,4	6,3	FY 2.15/16 TF/VA201
	65,1	19	73,1	196,9	152,4	22,2	46,11	87,4	6,3	FY 2.15/16 TF/VA228
	65,1	19	73,1	196,9	152,4	22,2	46,11	87,4	6,35	FY 2.15/16 TF/VA267

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

Designation Bearing unit	Bearing	Basic load ratings		Limiting speed	Limiting temperature		Running in required
		dynamic C	static C <sub>0</sub>		°C	°F	
–		kN		r/min	°C	°F	–
<b>FY 2. TF/VA201</b>	YAR 211-200-2FW/VA201	43,6	29	50	250	480	•
<b>FY 2. TF/VA228</b>	YAR 211-200-2FW/VA228	43,6	29	110	350	660	–
<b>FY 2. TF/VA267</b>	YAR 211-200-2FW/VA267	43,6	29	790	250	480	–
<b>FY 2.3/16 TF/VA201<sup>1)</sup></b>	YAR 211-203-2FW/VA201	25	29	50	250	480	•
<b>FY 2.3/16 TF/VA228<sup>1)</sup></b>	YAR 211-203-2FW/VA228	25	29	110	350	660	–
<b>FY 2.3/16 TF/VA267<sup>1)</sup></b>	YAR 211-203-2FW/VA267	25	29	770	250	480	–
<b>FY 2.7/16 TF/VA201</b>	YAR 212-207-2FW/VA201	52,7	36	50	250	480	•
<b>FY 2.7/16 TF/VA228</b>	YAR 212-207-2FW/VA228	52,7	36	100	350	660	–
<b>FY 2.7/16 TF/VA267</b>	YAR 212-207-2FW/VA267	52,7	36	690	250	480	–
<b>FY 2.15/16 TF/VA201</b>	YAR 215-215-2FW/VA201	66,3	49	40	250	480	•
<b>FY 2.15/16 TF/VA228</b>	YAR 215-215-2FW/VA228	66,3	49	80	350	660	–
<b>FY 2.15/16 TF/VA267</b>	YAR 215-215-2FW/VA267	66,3	49	580	250	480	–

Flanged Y-bearing units with a cast housing with an oval flange for high temperature applications, metric shafts

d 20 – 55 mm



Dimensions										Mass	Designations
d	A <sub>1</sub>	A <sub>2</sub>	B	H	J	L	N	s <sub>1</sub>	T		
mm										kg	–
20	29,61	11,11	31	112	89,7	60,5	11,1	18,3	32,6	0,5	FYT 20 TF/VA201
	29,61	11,11	31	112	89,7	60,5	11,1	18,3	32,6	0,5	FYT 20 TF/VA228
	29,61	11,11	31	112	89,7	60,5	11,1	18,3	32,6	0,5	FYT 20 TF/VA267
25	30	12	34,1	124	98,8	70	12,7	19,8	38,8	0,63	FYT 25 TF/VA201
	30	12	34,1	124	98,8	70	12,7	19,8	38,8	0,63	FYT 25 TF/VA228
	30	12	34,1	124	98,8	70	12,7	19,8	38,8	0,64	FYT 25 TF/VA267
30	32,7	13	38,1	141,5	116,7	83	12,7	22,2	42,2	0,93	FYT 30 TF/VA201
	32,7	13	38,1	141,5	116,7	83	12,7	22,2	42,2	0,93	FYT 30 TF/VA228
	32,7	13	38,1	141,5	116,7	83	12,7	22,2	42,2	0,94	FYT 30 TF/VA267
35	34,9	13	42,9	156	130,2	96	14,3	25,4	46,4	1,25	FYT 35 TF/VA201
	34,9	13	42,9	156	130,2	96	14,3	25,4	46,4	1,25	FYT 35 TF/VA228 <sup>1)</sup>
	34,9	13	42,9	156	130,2	96	14,3	25,4	46,4	1,3	FYT 35 TF/VA267
40	38,5	14	49,2	171,5	143,7	102	14,3	30,2	54,2	1,65	FYT 40 TF/VA201
	38,5	14	49,2	171,5	143,7	102	14,3	30,2	54,2	1,65	FYT 40 TF/VA228
	38,5	14	49,2	171,5	143,7	102	14,3	30,2	54,2	1,65	FYT 40 TF/VA267
45	39	14	49,2	178,5	148,4	111	15,9	30,2	54,2	1,8	FYT 45 TF/VA201
	39	14	49,2	178,5	148,4	111	15,9	30,2	54,2	1,8	FYT 45 TF/VA228
	39	14	49,2	178,5	148,4	111	15,9	30,2	54,2	1,8	FYT 45 TF/VA267
50	43	15	51,6	189	157,2	116	15,9	32,6	60,6	2,25	FYT 50 TF/VA201
	43	15	51,6	189	157,2	116	15,9	32,6	60,6	2,25	FYT 50 TF/VA228
	43	15	51,6	189	157,2	116	15,9	32,6	60,6	2,25	FYT 50 TF/VA267
55	47,63	20,64	55,6	215,9	184,15	127	19	33,4	62,9	3,3	FYT 55 TF/VA201
	47,63	20,64	55,6	215,9	184,15	127	19	33,4	62,9	3,3	FYT 55 TF/VA228
	47,63	20,64	55,6	215,9	184,15	127	19	33,4	62,9	3,3	FYT 55 TF/VA267

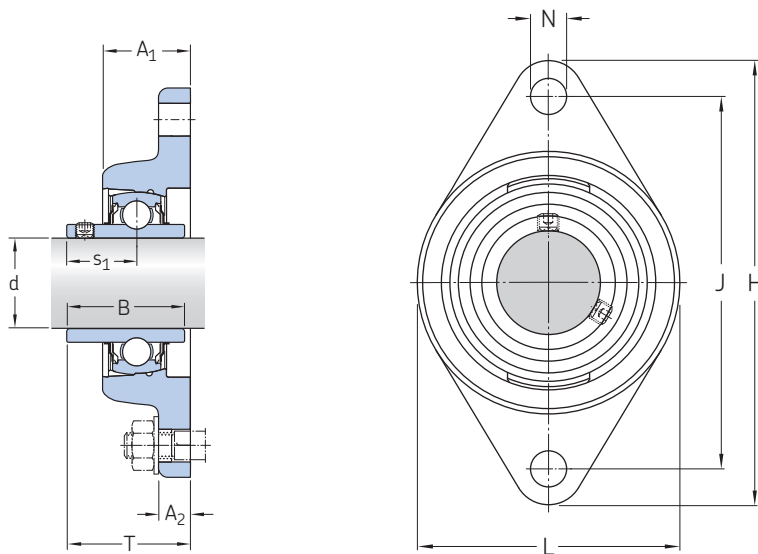
<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

Designation Bearing unit	Bearing	Basic load ratings		Limiting speed	Limiting temperature		Running in required
		dynamic C	static C <sub>0</sub>		°C	°F	
–		kN		r/min	°C	°F	–
FYT 20 TF/VA201	YAR 204-2FW/VA201	12,7	6,55	130	250	480	•
FYT 20 TF/VA228	YAR 204-2FW/VA228	12,7	6,55	260	350	660	–
FYT 20 TF/VA267	YAR 204-2FW/VA267	12,7	6,55	1 790	250	480	–
FYT 25 TF/VA201	YAR 205-2FW/VA201	14	7,8	110	250	480	•
FYT 25 TF/VA228	YAR 205-2FW/VA228	14	7,8	230	350	660	–
FYT 25 TF/VA267	YAR 205-2FW/VA267	14	7,8	1 550	250	480	–
FYT 30 TF/VA201	YAR 206-2FW/VA201	19,5	11,2	90	250	480	•
FYT 30 TF/VA228	YAR 206-2FW/VA228	19,5	11,2	190	350	660	–
FYT 30 TF/VA267	YAR 206-2FW/VA267	19,5	11,2	1 300	250	480	–
FYT 35 TF/VA201	YAR 207-2FW/VA201	25,5	15,3	80	250	480	•
FYT 35 TF/VA228 <sup>1)</sup>	YAR 207-2FW/VA228	25,5	15,3	160	350	660	–
FYT 35 TF/VA267	YAR 207-2FW/VA267	25,5	15,3	1 120	250	480	–
FYT 40 TF/VA201	YAR 208-2FW/VA201	30,7	19	70	250	480	•
FYT 40 TF/VA228	YAR 208-2FW/VA228	30,7	19	150	350	660	–
FYT 40 TF/VA267	YAR 208-2FW/VA267	30,7	19	1 000	250	480	–
FYT 45 TF/VA201	YAR 209-2FW/VA201	33,2	21,6	60	250	480	•
FYT 45 TF/VA228	YAR 209-2FW/VA228	33,2	21,6	130	350	660	–
FYT 45 TF/VA267	YAR 209-2FW/VA267	33,2	21,6	920	250	480	–
FYT 50 TF/VA201	YAR 210-2FW/VA201	35,1	23,2	60	250	480	•
FYT 50 TF/VA228	YAR 210-2FW/VA228	35,1	23,2	120	350	660	–
FYT 50 TF/VA267	YAR 210-2FW/VA267	35,1	23,2	850	250	480	–
FYT 55 TF/VA201	YAR 211-2FW/VA201	43,6	29	50	250	480	•
FYT 55 TF/VA228	YAR 211-2FW/VA228	43,6	29	110	350	660	–
FYT 55 TF/VA267	YAR 211-2FW/VA267	43,6	29	770	250	480	–

Flanged Y-bearing units with a cast housing with an oval flange flange for high temperature applications, inch shafts

d 3/4 – 2 in.

19,05 – 50,8 mm



Dimensions										Mass	Designations
d	A <sub>1</sub>	A <sub>2</sub>	B	H	J	L	N	s <sub>1</sub>	T		
in./mm										kg	–
3/4 19,05	29,61	11,11	31	112	89,7	60,5	11,1	18,3	32,6	0,53	FYT 3/4 TF/VA201
	29,61	11,11	31	112	89,7	60,5	11,1	18,3	32,6	0,53	FYT 3/4 TF/VA228
	29,61	11,11	31	112	89,7	60,5	11,1	18,3	32,6	0,5351	FYT 3/4 TF/VA267
1 25,4	30	12	34,1	124	98,8	70	12,7	19,8	38,8	0,65	FYT 1. TF/VA201
	30	12	34,1	124	98,8	70	12,7	19,8	38,8	0,65	FYT 1. TF/VA228
	30	12	34,1	124	98,8	70	12,7	19,8	39,8	0,6557	FYT 1. TF/VA267
1 1/4 31,75	34,9	13	42,9	156	130,2	96	14,3	25,4	46,4	1,38	FYT 1.1/4 TF/VA201 <sup>1)</sup>
	34,9	13	42,9	156	130,2	96	14,3	25,4	46,4	1,38	FYT 1.1/4 TF/VA228
	34,9	13	42,9	156	130,2	96	14,3	25,4	46,4	1,3956	FYT 1.1/4 TF/VA267 <sup>1)</sup>
1 7/16 36,513	34,9	13	42,9	156	130,2	96	14,3	25,4	46,4	1,32	FYT 1.3/8 TF/VA201
	34,9	13	42,9	156	130,2	96	14,3	25,4	46,4	1,32	FYT 1.3/8 TF/VA228
	34,9	13	42,9	156	130,2	96	14,3	25,4	46,4	1,3338	FYT 1.3/8 TF/VA267
1 1/2 38,1	38,5	14	49,2	171,5	143,7	102	14,3	30,2	54,2	1,69	FYT 1.1/2 TF/VA201
	38,5	14	49,2	171,5	143,7	102	14,3	30,2	54,2	1,69	FYT 1.1/2 TF/VA228
	38,5	14	49,2	171,5	143,7	102	14,3	30,2	54,2	1,7077	FYT 1.1/2 TF/VA267
1 11/16 42,863	39	14	49,2	178,5	148,4	111	15,9	30,2	54,2	1,95	FYT 1.11/16 TF/VA201
	39	14	49,2	178,5	148,4	111	15,9	30,2	54,2	1,95	FYT 1.11/16 TF/VA228
	39	14	49,2	178,5	148,4	111	15,9	30,2	54,2	1,9725	FYT 1.11/16 TF/VA267
1 3/4 44,45	39	14	49,2	178,5	148,4	111	15,9	30,2	54,2	1,82	FYT 1.3/4 TF/VA201 <sup>1)</sup>
	39	14	49,2	178,5	148,4	111	15,9	30,2	54,2	1,82	FYT 1.3/4 TF/VA228
	39	14	49,2	178,5	148,4	111	15,9	30,2	54,2	1,8386	FYT 1.3/4 TF/VA267 <sup>1)</sup>
1 15/16 49,213	43	15	51,6	189	157,2	116	15,9	32,6	60,6	2,33	FYT 1.15/16 TF/VA201 <sup>1)</sup>
	43	15	51,6	189	157,2	116	15,9	32,6	60,6	2,33	FYT 1.15/16 TF/VA228
	43	15	51,6	189	157,2	116	15,9	32,6	60,6	2,3534	FYT 1.15/16 TF/VA267 <sup>1)</sup>
2 50,8	47,63	20,64	55,6	215,9	184,15	127	19	33,4	69	3,45	FYT 2. TF/VA201
	47,63	20,64	55,6	215,9	184,15	127	19	33,4	69	3,45	FYT 2. TF/VA228
	47,63	20,64	55,6	215,9	184,15	127	19	33,4	69	3,483	FYT 2. TF/VA267

<sup>1)</sup> Check availability prior to incorporating in a bearing arrangement design.

Designation Bearing unit	Bearing	Basic load ratings		Limiting speed	Limiting temperature		Running in required
		dynamic C	static C <sub>0</sub>		°C	°F	
–		kN		r/min	°C	°F	–
FYT 3/4 TF/VA201	YAR 204-012-2FW/VA201	12,7	6,55	130	250	480	•
FYT 3/4 TF/VA228	YAR 204-012-2FW/VA228	12,7	6,55	270	350	660	–
FYT 3/4 TF/VA267	YAR 204-012-2FW/VA267	12,7	6,55	1 810	250	480	–
FYT 1. TF/VA201	YAR 205-100-2FW/VA201	14	7,8	110	250	480	•
FYT 1. TF/VA228	YAR 205-100-2FW/VA228	14	7,8	230	350	660	–
FYT 1. TF/VA267	YAR 205-100-2FW/VA267	14	7,8	1 550	250	480	–
FYT 1.1/4 TF/VA201 <sup>1)</sup>	YAR 207-104-2FW/VA201	25,5	15,3	80	250	480	•
FYT 1.1/4 TF/VA228	YAR 207-104-2FW/VA228	25,5	15,3	170	350	660	–
FYT 1.1/4 TF/VA267 <sup>1)</sup>	YAR 207-104-2FW/VA267	25,5	15,3	1 150	250	480	–
FYT 1.3/8 TF/VA201	YAR 207-106-2FW/VA201	25,5	15,3	80	250	480	•
FYT 1.3/8 TF/VA228	YAR 207-106-2FW/VA228	25,5	15,3	160	350	660	–
FYT 1.3/8 TF/VA267	YAR 207-106-2FW/VA267	25,5	15,3	1 120	250	480	–
FYT 1.1/2 TF/VA201	YAR 208-108-2FW/VA201	30,7	19	70	250	480	•
FYT 1.1/2 TF/VA228	YAR 208-108-2FW/VA228	30,7	19	150	350	660	–
FYT 1.1/2 TF/VA267	YAR 208-108-2FW/VA267	30,7	19	1 010	250	480	–
FYT 1.11/16 TF/VA201	YAR 209-111-2FW/VA201	33,2	21,6	70	250	480	•
FYT 1.11/16 TF/VA228	YAR 209-111-2FW/VA228	33,2	21,6	140	350	660	–
FYT 1.11/16 TF/VA267	YAR 209-111-2FW/VA267	33,2	21,6	930	250	480	–
FYT 1.3/4 TF/VA201 <sup>1)</sup>	YAR 209-112-2FW/VA201	33,2	21,6	60	250	480	•
FYT 1.3/4 TF/VA228	YAR 209-112-2FW/VA228	33,2	21,6	130	350	660	–
FYT 1.3/4 TF/VA267 <sup>1)</sup>	YAR 209-112-2FW/VA267	33,2	21,6	920	250	480	–
FYT 1.15/16 TF/VA201 <sup>1)</sup>	YAR 210-115-2FW/VA201	35,1	23,2	60	250	480	•
FYT 1.15/16 TF/VA228	YAR 210-115-2FW/VA228	35,1	23,2	120	350	660	–
FYT 1.15/16 TF/VA267 <sup>1)</sup>	YAR 210-115-2FW/VA267	35,1	23,2	860	250	480	–
FYT 2. TF/VA201	YAR 211-200-2FW/VA201	43,6	29	50	250	480	•
FYT 2. TF/VA228	YAR 211-200-2FW/VA228	43,6	29	110	350	660	–
FYT 2. TF/VA267	YAR 211-200-2FW/VA267	43,6	29	790	250	480	–

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