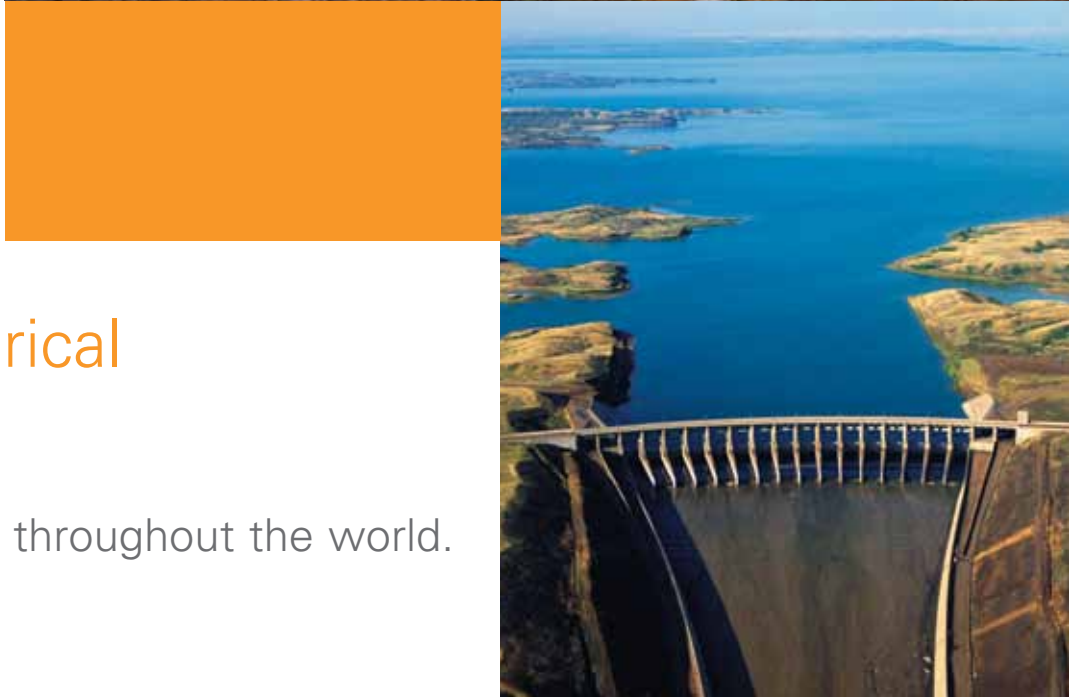


TIMKEN



Timken® Spherical Plain Bearings

An industry standard throughout the world.



From construction and mining to drawbridges, actuators and even the space shuttle crawler, Timken® spherical plain bearings have been a staple in many industrial applications for nearly 75 years. Timken offers a full spherical plain portfolio and supports it with industry-leading technical support, allowing customers to help maximize the performance of their equipment.

Spherical plain bearings are designed to carry radial and axial loads in a small envelope, and are ideal for static and oscillatory applications where moderate misalignment may exist. The bearing design consists of a spherically ground inner ring housed in a mating outer ring without any rolling elements. These bearings offer the following advantages:

- Rings manufactured from hardened steel help to deliver consistent, reliable performance.
- Phosphate-treated rings coated with molybdenum disulfide (MoS₂) minimize friction of contacting surfaces.
- Simplified housing and shaft designs reduce installation time.
- Designs that accommodate misalignment result in superior performance for low-frequency oscillating applications.



A Complete Product Offering.

Available in metric and inch sizes from 12.7 millimeter to 600 millimeter bore (.5 inch to 23.622 inches), spherical plain bearings are offered in standard, heavy-duty or sealed versions, and feature a single- or double-fractured outer race. By leveraging its knowledge of materials science and precision manufacturing, Timken also produces special designs, such as extended inner rings, lubrication holes and grooves, and special materials to reduce friction and handle shock loading. These features help to enhance the bearing's performance, especially in unique operating environments.

Timken® Spherical Plain Bearing Nomenclature



7 SF 12 - TT

One-, two- or three-digit "series" number.

For inch series, the number indicates the nominal bore size (e.g., 10 is 1.00 in.) or an approximate bore size (e.g., 17 is 1.75 in.).

For metric series, the number indicates the exact bore size (e.g., 40 is 40mm).

One-, two- or three-digit number.

For inch series, the number indicates the exact bore size in 1/16th of an inch (e.g., 12 refers to 12/16 in., which is a 3/4-in. bore).

For metric series, the number indicates the exact outside diameter size (e.g., 62 is 62mm).

SF spherical plain type (radial inch);
single-fractured outer ring

SFH spherical plain type (radial inch);
single-fractured outer ring, wide inner ring

SBB spherical plain type (radial inch);
double-fractured outer ring

SBT spherical plain angular contact type (radial inch)

FS spherical plain type (radial metric);
single-fractured outer ring

FSH spherical plain type (radial metric);
single-fractured outer ring, wide inner ring

Seal Designator:

TT reinforced rubber seals

SS synthetic resin seals

nclature and Interchange

Part Number	TIMKEN			SKF			RBC		
100FS150				GE100ES			MB100		
10SBT16				GAZ100SA			B16SA		
10SF16				GEZ100ES			B16L		
10SF16TT				GEZ100ES-2RS			B16LSS		
110FS160				GE110ES			MB110		
120FS180				GE120ES			MB120		
12FS22				GE12ES			MB12		
12SBT20				GAZ104SA			B20SA		
12SF20				GEZ104ES			B20L		
12SF20TT				GEZ104ES-2RS			B20LSS		
13SBT22				GAZ106SA			B22SA		
13SF22				GEZ106ES			B22L		
140FS210				GE140ES			MB140		
15FS26				GE15ES			MB15		
15SBT24				GAZ108SA			B24SA		
15SF24				GEZ108ES			B24L		
15SF24TT				GEZ108ES-2RS			B24LSS		
160FS230				GE160ES			MB160-9L		
17SF28				GEZ112ES			B28L		
17SF28TT				GEZ112ES-2RS			B28LSS		
180FS260				GE180ES			MB180-90		
200FS290				GE200ES			MB200-9L		
20FS35				GE20ES			MB20		
20SBT32				GAZ200SA			B32SA		
20SF32				GEZ200ES			B32L		
20SF32TT				GEZ200ES-2RS			B32LSS		
220FS320				GE220ES			MB220-9L		
22SBT36				GAZ204SA			B36SA		
22SF36				GEZ204ES			B36L		
22SF36TT				GEZ204ES-2RS			B36LSS		
240FS340				GE240ES			MB240-9L		
25SBT40				GAZ208SA			B40SA		
25SF40				GEZ208ES			B40L		
25SF40TT				GEZ208ES-2RS			B40LSS		
260FS370				GE260ES			MB260-9L		
27SBT44				GAZ212SA			B44SA		
27SF44				GEZ212ES			B44L		
280FS400				GE280ES			MB280-9L		
300FS430				GE300ES			MB300-9L		
30FS47				GE30ES			MB30		
30SF48				GEZ300ES			B48L		
30SF48TT				GEZ300ES-2RS			B48LSS		
32SBT52				GAZ304SA			B52SA		
32SF52				GEZ304ES			B52L		
35FS55				GE35ES			MB35		
35SF56				GEZ308ES			B56L		
35SF56TT				GEZ308ES-2RS			B56LSS		
37SF60				GEZ312ES			B60L		
40FS62				GE40ES			MB40		
40SBT64				GAZ400SA			B64SA		
40SF64				GEZ400ES			B64L		
40SF64TT				GEZ400ES-2RS			B64LSS		
45FS68				GE45ES			MB45		
45SBB72				GEZ408ES			B72-9L		
50FS75				GE50ES			MB50		
50SBB80				GEZ500ES			B80-9L		
50SBB80TT				GEZ500ES-2RS			B80-9LSS		
5SF8				GEZ008ES			B8L		
60FS90				GE60ES			MB60		
60SBB96				GEZ600ES			B96-9L		
60SBB96SS				GEZ600ES-2RS			B96-9LSS		
6SF10				GEZ010ES			B10L		
70FS105				GE70ES			MB70		
70FSH120				GEH70ES			MBH7080		
7SBT12				GAZ012SA			B12SA		
7SF12				GEZ012ES			B12L		
7SF12TT				GEZ012ES-2RS			B12LSS		
80FS120				GE80ES			MB80		
8SF14				GEZ014ES			B14L		
90FS130				GE90ES			MB90		





SF and FS TYPES – radial spherical plain bearings

Timken SF and FS spherical plain bearings are designed primarily to carry radial loads and handle moderate misalignment. The outer ring is usually fractured axially in one place, parallel to its axis, to permit assembly of the bearing rings. This design can also be supplied with double-fractured outer rings (designation SBB) for easier assembly in an application. The SF type is designed to inch dimensions, while the FS type is a metric-designed series. Timken also manufactures sealed versions of these bearings.

SF design



TYPES SF...TT, SF...SS, FS...TT, FS...SS

These bearings are dimensionally interchangeable and have the same general characteristics as the SF and FS series, but with the addition of lip seals. These seals are securely retained in the outer ring and withstand high grease pressures during relubrication. The use of lip seals not only assures full distribution of the lubricant to all bearing surfaces, but also protects the spherical surfaces from external contamination. SF...TT and FS...TT designs incorporate two reinforced, molded rubber seals, whereas the SF...SS and FS...SS designs are assembled with synthetic resin seals. Operating temperatures of the seals should not exceed 212 degrees Fahrenheit (100 degrees Celsius).

SF...TT design



SBT and SBDT TYPES – angular contact thrust spherical plain bearings

Timken SBT and SBDT angular contact thrust spherical plain bearings feature lubricating holes and grooves in the outer ring for easy relubrication through the housing. These designs allow for thrust loading and some misalignment.

The SBT type is designed for single-direction thrust loading while the SBDT type can accommodate thrust loading in two directions. Also, the raceways are hemispherical, and the rings are designed to provide maximum spherical raceway contact in the axial direction, which results in reliable and durable performance.

SBDT design





A Total Friction Management Approach.

As customers' needs change and motion control systems evolve, Timken is leveraging its knowledge of friction management to offer a broader array of bearings, related products and integrated services to major industry around the world.

Customers turn to Timken to evaluate entire systems, not just individual components. Timken integrates bearings, lubrication, seals, repair services, maintenance practices, gears, condition monitoring and materials science to address a wide variety of customer needs. These value-added products, services and programs help keep overall systems running more efficiently so that performance and productivity gains can be achieved.

To learn more about Timken® spherical plain bearings, contact your Timken sales engineer or visit timken.com/sphericalplain.

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