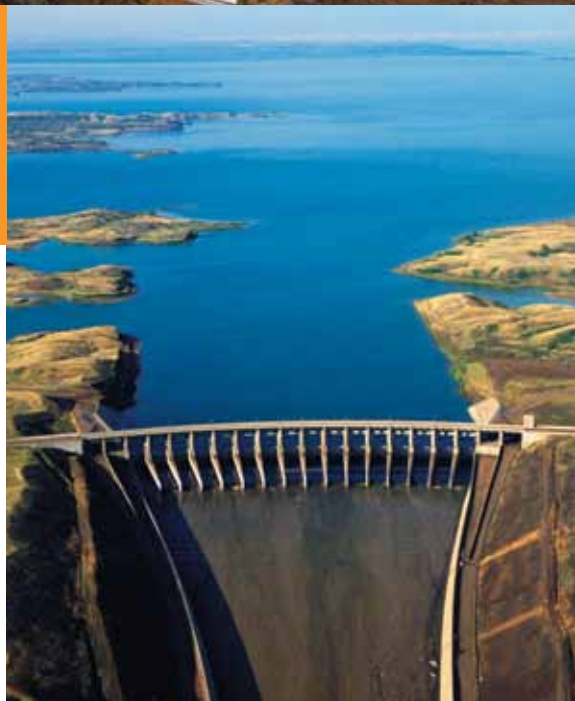


TIMKEN









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 Nomen



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



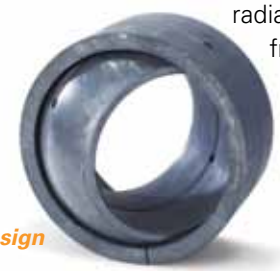






SF and FS TYPES – radial spherical plain bearings

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.

TIMKEN

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