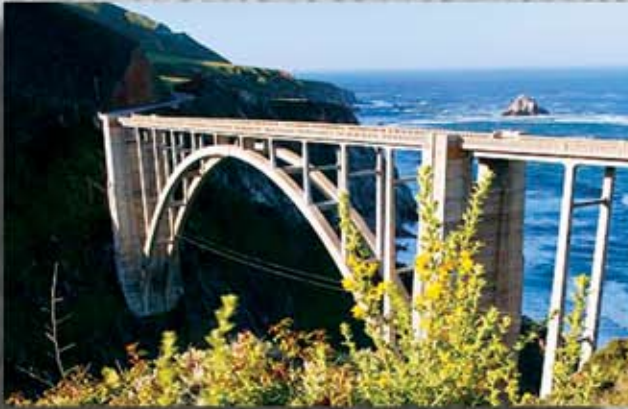


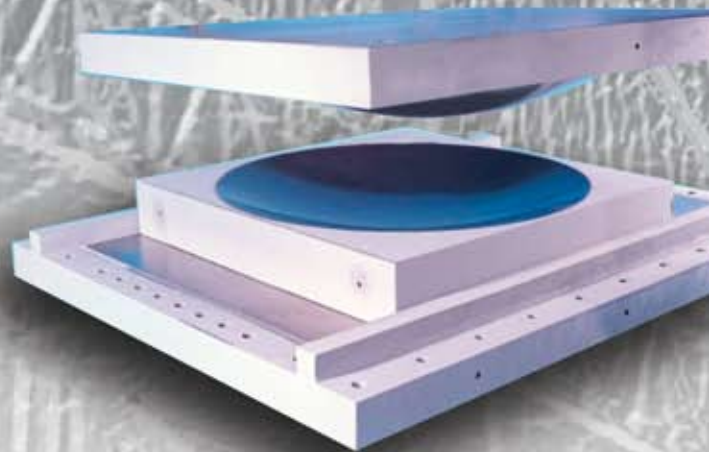
**Structural**



**Lubron®**

**TF**

**Self-Lubricating PTFE  
Spherical Bearings**



**Lubron Bearing Systems**

*Bearings to move the world.*



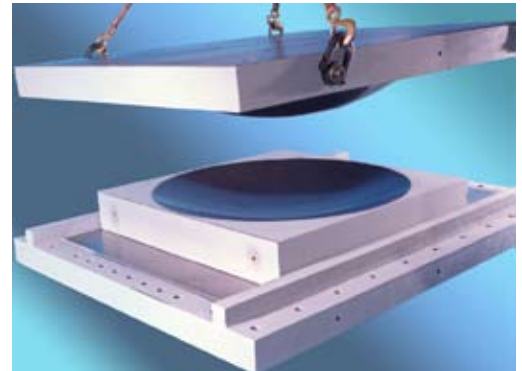
# Lubron TF Self-Lubricating PTFE Spherical Bearings



LUBRON® TF spherical bearing assemblies offer simple mechanical design, heavy load capability and high rotational capacity. Spherical bearings can accommodate large loads by virtue of its geometry. A more uniform load distribution under the spherical bearing makes it possible to reduce the overall dimensions. Spherical bearings are designed to permit horizontal movement and vertical rotation, as well as complete structural freedom of rotation about any horizontal axis. Vertical rotation can be large, limited only by the geometry of the bearing. Rotational movements of the superstructure are accommodated by the sliding of the concave and convex spherical surfaces, which allow rotation in any direction with a minimum of resistance.

## MULTI-DIRECTIONAL

LUBRON TF multi-rotational spherical bearing assemblies typically consist of an upper sole plate, concave bearing plate, convex mating plate and a lower base or masonry plate, and are available either unguided, guided or fixed. Spherical bearings offer superior reliability compared to other types of high load multi-rotational (HLMR) bearings. Spherical bearings are characterized by their insensitivity to temperature changes, no permanent restoring moment load after rotation of the superstructure, and larger admissible rotation angles.



*LUBRON TF spherical bearings are designed to accommodate sliding, rotation and severe angular misalignment. LUBRON TF spherical bearings provide exceptionally low coefficient of friction and heavy load capability, and are fabricated, tested and inspected in accordance with the latest ASTM, AASHTO and State DOT standards, plans and specifications. LUBRON TF multi-rotational spherical bearings have been performing flawlessly in a variety of rigorous structural applications for more than 20 years.*







# Lubron TF Self-Lubricating PTFE Spherical Bearings

## SUPERIOR CONSTRUCTION

LUBRON TF spherical bearings offer the most advanced design and construction available for high load and low coefficient of friction applications. Sliding surfaces are permanently bonded with a woven PTFE fabric liner. Unlike PTFE resin sheets used in other types of bearings, woven PTFE fabric liners prevent cold flow and compressive creep leading to bearing failure. LUBRON TF's proprietary construction provides full support of the individual PTFE fibers and insures a rigid bond of the fabric to the bearing substrate, two basic requirements that DuPont specifies for the successful use of Teflon® as a bearing surface. The effective entrapment of the PTFE and glass fibers with high strength bonding resins helps prevent cold flow and minimizes heat buildup. The high molecular orientation of PTFE fiber gives it approximately 25 times the tensile strength of PTFE resins, making PTFE woven fabrics particularly suitable for heavy load applications. Low shear stresses and 100% supported bearing surfaces are also two important advantages LUBRON TF bearings offer over other mechanically locked systems.

## HIGH LOAD CAPACITY

LUBRON TF spherical bearings are generally designed to accommodate bearing loads of 3.5 ksi (24 MPa) to 10 ksi (69 MPa), and can withstand loads in excess of 60 ksi (414 MPa) without cold flow.

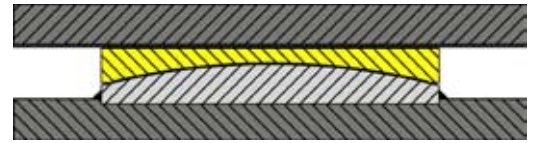
## LOW FRICTION

The coefficient of friction for PTFE fibers is the lowest of all known fibers. The static coefficient of friction is only slightly higher than the dynamic value, minimizing stick-slip. LUBRON TF spherical bearings typically exhibit a coefficient of friction of less than 0.04, depending on the bearing load, temperature, velocity, finish and hardness of the mating surface.

## HIGH SHEAR RESISTANCE

LUBRON TF woven PTFE fabric is permanently bonded to the substrate metallic surface, and will resist a minimum 25% of the allowable vertical load in horizontal shear between the adhering elements as tested in accordance with Federal Specification MMM-A-175 Method 1033.

Teflon® is a registered trademark of DuPont



**Unguided Spherical Bearings-** bearings capable of multi-directional rotation with sliding movement unrestricted in any horizontal direction.



**Guided Spherical Bearings-** bearings capable of multi-directional rotation with sliding movement restricted to one horizontal direction.



**Fixed Spherical Bearings-** bearings capable of multi-directional rotation and restrained from horizontal movement in any direction.



# Lubron TF Self-Lubricating PTFE Spherical Bearings

## THERMAL INFLUENCES

LUBRON TF bearings have excellent thermal stability and are recommended for continuous operation from -148°F (-100°C) to 500°F (260°C) and intermittent exposure up to 550°F (288°C).

## LOW WEAR RATE

LUBRON TF bearings have a very low rate of wear, which is defined in terms of volumetric loss of material over time. Volumetric wear is approximately proportional to the unit load multiplied by the distance traveled, and is generally expressed as follows:

$$W = KPVT$$

where W = wear depth, in (cm)

K = proportionality constant, in<sup>3</sup>-min/ft-lb-hr (cm<sup>3</sup>-min/m-kg-hr)

P = bearing pressure, psi (kg/cm<sup>2</sup>)

V = surface velocity, ft/min (m/min)

T = elapsed time, hr

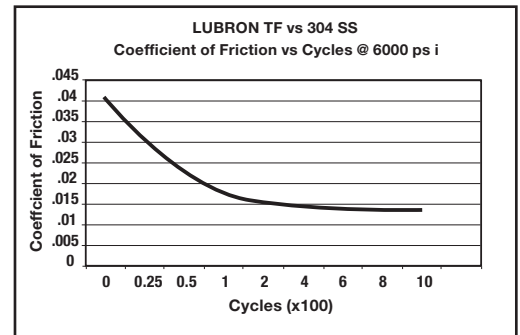
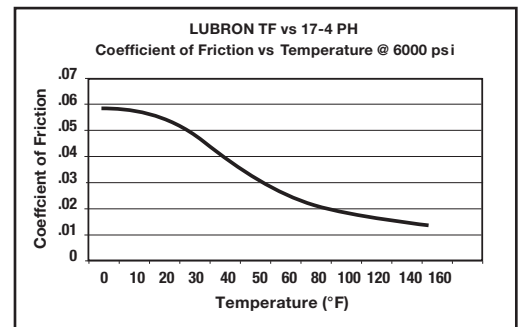
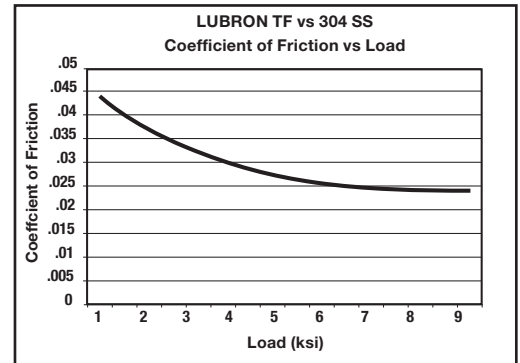
K values for LUBRON TF bearings have been derived from independent testing, and can be used to determine the amount of wear that will occur over a period of time. For most applications, a value of  $K = 9.1 \times 10^{-10}$  in<sup>3</sup>-min/ft-lb-hr is appropriate, which would be equivalent to 0.00045 inches of wear after 100,000 inches of travel at 3.5 ksi (24 MPa).

## PROVEN RELIABILITY

From the demanding performance requirements of seismic isolation to the rigorous operating conditions of offshore drilling platform bridges in the North Sea, LUBRON TF spherical bearings have satisfied the most difficult challenges in structural applications since 1978.

## APPLICATIONS

LUBRON TF spherical bearings are widely used in structural applications to accommodate thermal, seismic and mechanical expansion and rotation. Typical applications include highway bridges, railroad bridges, light rail transit, offshore oil platforms, airports, sports arenas, convention centers, air pollution control equipment, power plants and processing plants.





# Lubron TF Self-Lubricating PTFE Spherical Bearings

## DESIGN PARAMETERS

LUBRON TF spherical bearings shall be designed in accordance with the following requirements unless otherwise specified by the Project Plans, Specifications and Special Provisions:

- Spherical bearings shall accommodate the maximum total vertical load required unless otherwise specified. Maximum vertical load is assumed to be the total dead and live loads.
- Spherical bearings shall be designed to accommodate the maximum allowable concrete stress.
- Spherical bearings shall provide full multi-directional rotational capacity and accommodate an angular vertical displacement of at least  $2^\circ$  (.035 radians) unless otherwise specified.
- The projected area of the woven PTFE surface shall be designed for a maximum working stress of 3.5 ksi under full vertical load unless otherwise specified. Diameter of the concave spherical recess is generally used to determine projected surface area.
- Spherical bearings shall be designed to resist the maximum horizontal load, or at least 10% of the maximum vertical load, unless otherwise specified. Guided and fixed bearings shall be designed to insure the stability of the bearing components under maximum horizontal load and minimum vertical load conditions. Minimum vertical load is assumed to be the total dead load only.
- Spherical bearings shall be designed to accommodate the total movement as specified. Unguided and guided sole plates shall completely cover the concave bearing plate in all longitudinal and lateral operating positions with a minimum 1/2" (12.7 mm) distance from the edge of the sole plate sliding surface to the edge of the bearing plate for every direction of movement.
- All welded and bolted connections shall be designed to resist the maximum horizontal load, or at least 10% of the maximum vertical load, unless otherwise specified. Spherical bearings shall be designed to accommodate uplift when required.





# Lubron TF Self-Lubricating PTFE Spherical Bearings

## SPHERICAL BEARING COMPONENTS

**Concave Bearing Component-** square or round plate with a concave spherical recess designed to accommodate rotation and angular deflection. For unguided and guided spherical bearings, both the concave recess and the upper side of the concave bearing plate shall be permanently lubricated with a woven PTFE fabric liner. Two sides of a guided concave bearing plate shall also be permanently lubricated. Fixed spherical bearings shall be permanently lubricated on the concave surface only. The woven PTFE fabric liner shall have a thickness not less than 0.020" (0.5 mm) or greater than .125" (3.2 mm) after compression.

**Convex Mating Component-** round plate with a convex spherical surface designed to accommodate rotation and angular deflection. The convex plate shall be machined from solid stainless steel, or alternatively fabricated using carbon steel with a minimum 3/32" (2.4 mm) thick stainless steel weld overlay or hard chromium plated in accordance with Federal Specification QQ-C-320B Class 2 with a Rockwell C hardness of not less than 60. The convex surface shall be polished to a maximum 20 microinch (0.5 micrometer) finish. The convex plate shall be recessed into and/or attached to the base plate with a full fillet weld around the entire perimeter of the convex plate.

**Sole Plate-** upper plate affixed to the superstructure. Unguided and guided sole plates shall be machined from solid stainless steel, or alternatively fabricated from carbon steel with a minimum 16 gauge (1.6 mm) thick stainless steel sheet full perimeter welded to the carbon steel plate or hard chromium plated in accordance with Federal Specification QQ-C-320B Class 2 with a minimum Rockwell C60 hardness. The sliding surface shall be polished to a maximum 20 microinch (0.5 micrometer) finish. Guided sole plates shall have two guide bars connected to the lower side of the sole plate to restrict movement in one horizontal direction with corrosion resistant sliding surfaces.

**Base Plate (Masonry Plate)-** lower steel plate to be affixed to the supporting substructure.

**Anchorage-** anchor bolts and welded studs are generally furnished for affixing the bearing assembly to the superstructure and supporting substructure.







# Lubron TF Self-Lubricating PTFE Spherical Bearings



## SIZING GUIDE

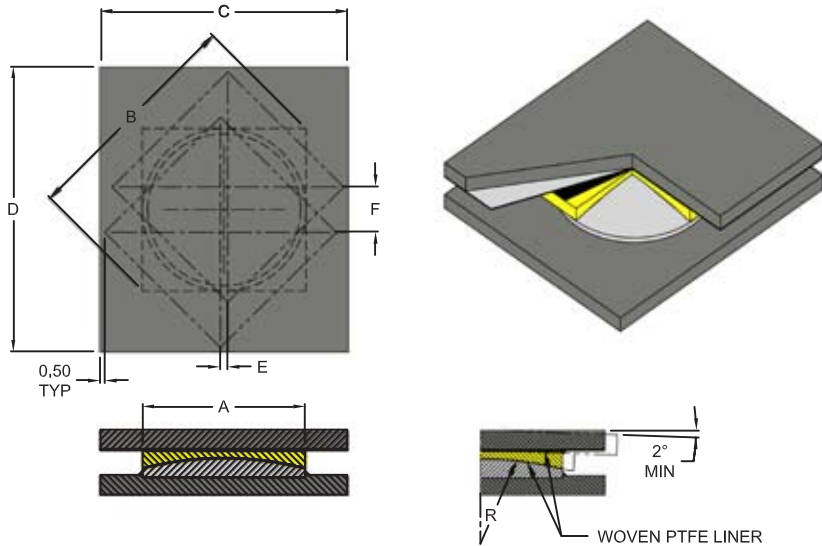
The size of the spherical bearing is determined by the allowable design load and the maximum vertical and horizontal loads which occur. Design loads should be selected to suit the appropriate state and federal design codes. Bearing sizes may also be influenced by the maximum allowable concrete stress and other factors limiting the bearing load. LUBRON TF spherical bearings are designed to resist horizontal forces acting in any direction. A maximum horizontal load equal to 40% of the minimum concurrent vertical load is recommended for most applications.

To accommodate maximum horizontal movement, the required sole plate size for standard size bearings can be determined using the following size charts. Using the appropriate bearing design load and maximum vertical load, select the proper bearing plate size "A" and corresponding sole plate size "C" and "D". The maximum bearing movement, dimensions "E" and "F", must be added to dimensions "C" and "D" respectively. Maximum movement is defined to be the total movement from the preset position. The size chart for unguided bearings allows for 45° rotation of the concave bearing component. The diagonal dimension "B" for the bearing plate is used to determine the sole plate size.



# Lubron TF Self-Lubricating PTFE Spherical Bearings

## UNGUIDED BEARING ASSEMBLIES



## SIZE CHART (INCHES)

BEARING DESIGN LOAD (ksi)				BRG PLATE	UNGUIDED SOLE PLATE	
3.5	5.0	7.0	10.0		A	C
MAXIMUM VERTICAL LOAD (kips)				(inch)	(inch)	(inch)
50	71	99	142	5	8.00+E	8.00+F
76	108	152	216	6	9.50+E	9.50+F
107	153	215	307	7	11.00+E	11.00+F
144	206	289	431	8	12.50+E	12.50+F
187	267	374	535	9	13.75+E	13.75+F
235	336	470	672	10	15.25+E	15.25+F
289	413	578	825	11	16.50+E	16.50+F
348	497	696	994	12	18.00+E	18.00+F
413	589	825	1179	13	19.25+E	19.25+F
483	689	965	1379	14	20.75+E	20.75+F
539	770	1078	1539	15	22.25+E	22.25+F
619	884	1237	1767	16	23.50+E	23.50+F
704	1005	1407	2011	17	25.00+E	25.00+F
794	1135	1589	2270	18	26.50+E	26.50+F
891	1272	1781	2545	19	27.25+E	27.75+F
992	1418	1985	2835	20	29.25+E	29.25+F
1212	1732	2425	3464	22	32.25+E	32.25+F
1454	2077	2908	4155	24	35.00+E	35.00+F
1718	2454	3436	4909	26	37.75+E	37.75+F
2004	2863	4008	5726	28	40.75+E	40.75+F
2313	3303	4624	6605	30	43.50+E	43.50+F

## SIZE CHART (MM)

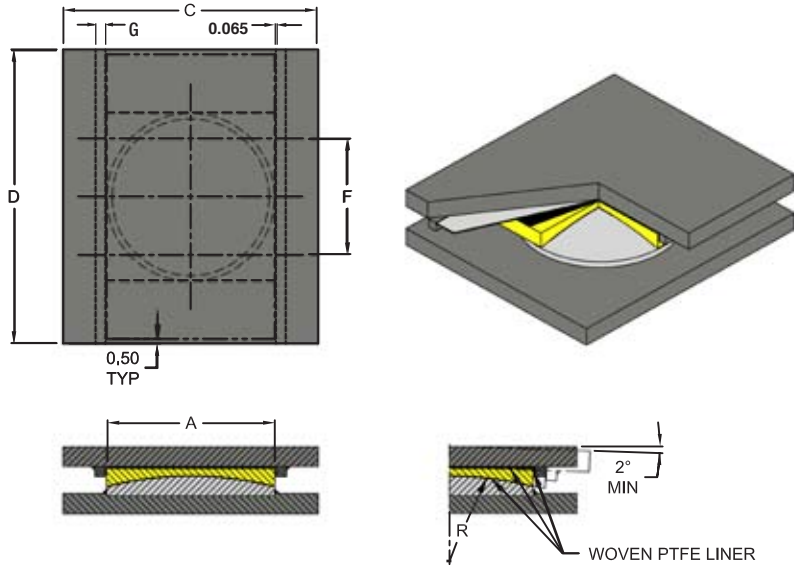
BEARING DESIGN LOAD (MPa)				BRG PLATE	UNGUIDED SOLE PLATE	
24	35	48	70		A	C
MAXIMUM VERTICAL LOAD (kN)				(mm)	(mm)	(mm)
212	309	424	618	125	202+E	202+F
323	472	647	944	150	237+E	237+F
459	669	917	1338	175	272+E	272+F
618	901	1235	1801	200	308+E	308+F
800	1167	1600	2333	225	343+E	343+F
1006	1467	2012	2934	250	379+E	379+F
1235	1802	2471	3603	275	414+E	414+F
1488	2171	2977	4341	300	449+E	449+F
1765	2574	3530	5148	325	485+E	485+F
2065	3012	4130	6024	350	520+E	520+F
2309	3368	4618	6735	375	555+E	555+F
2651	3866	5302	7732	400	591+E	591+F
3016	4398	6032	8797	425	626+E	626+F
3405	4965	6810	9930	450	661+E	661+F
3817	5567	7634	11133	475	679+E	697+F
4253	6202	8506	12405	500	732+E	732+F
5196	7577	10391	15154	550	803+E	803+F
6232	9089	12465	18178	600	874+E	874+F
7363	10378	14727	21477	650	944+E	944+F
8589	12525	17177	25050	700	1015+E	1015+F
9908	14405	19816	28899	750	1086+E	1086+F





# Lubron TF Self-Lubricating PTFE Spherical Bearings

## GUIDED SPHERICAL BEARING



## SIZE CHART (INCHES)

BEARING DESIGN LOAD (ksi)				BRG PLATE A	GUIDED SOLE PLATE	
3.5	5.0	7.0	10.0		C	D
MAXIMUM VERTICAL LOAD (kips)				(inch)	(inch)	(inch)
50	71	99	142	5	6.00+2G	6.00+F
76	108	152	216	6	7.00+2G	7.00+F
107	153	215	307	7	8.00+2G	8.00+F
144	206	289	431	8	9.00+2G	9.00+F
187	267	374	535	9	10.00+2G	10.00+F
235	336	470	672	10	11.00+2G	11.00+F
289	413	578	825	11	12.00+2G	12.00+F
348	497	696	994	12	13.00+2G	13.00+F
413	589	825	1179	13	14.00+2G	14.00+F
483	689	965	1379	14	15.00+2G	15.00+F
539	770	1078	1539	15	16.00+2G	16.00+F
619	884	1237	1767	16	17.00+2G	17.00+F
704	1005	1407	2011	17	18.00+2G	18.00+F
794	1135	1589	2270	18	19.00+2G	19.00+F
891	1272	1781	2545	19	20.00+2G	20.00+F
992	1418	1985	2835	20	21.00+2G	21.00+F
1212	1732	2425	3464	22	23.00+2G	23.00+F
1454	2077	2908	4155	24	25.00+2G	25.00+F
1718	2454	3436	4909	26	27.00+2G	27.00+F
2004	2863	4008	5726	28	29.00+2G	29.00+F
2313	3303	4624	6605	30	31.00+2G	31.00+F

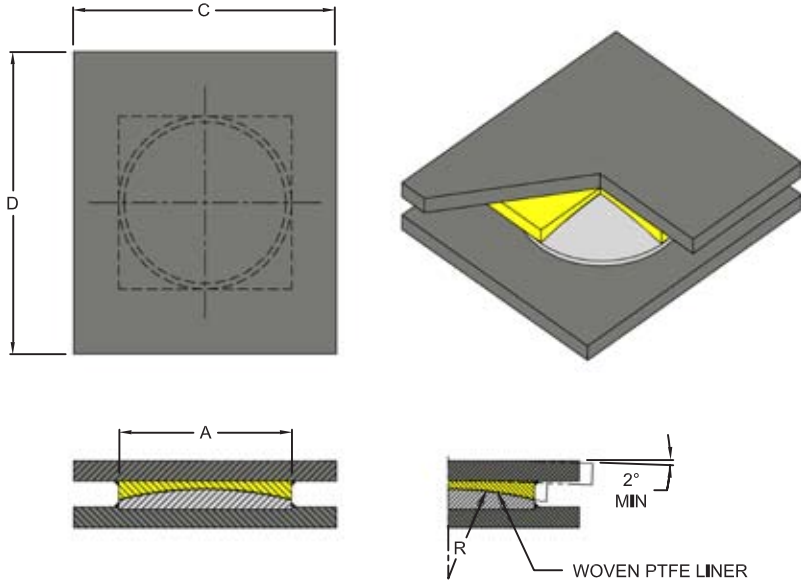
## SIZE CHART (MM)

BEARING DESIGN LOAD (MPa)				BRG PLATE A	GUIDED SOLE PLATE	
24	35	48	70		C	D
MAXIMUM VERTICAL LOAD (kN)				(mm)	(mm)	(mm)
212	309	424	618	125	150+2G	150+F
323	472	647	944	150	175+2G	175+F
459	669	917	1338	175	200+2G	200+F
618	901	1235	1801	200	225+2G	225+F
800	1167	1600	2333	225	250+2G	250+F
1006	1467	2012	2934	250	275+2G	275+F
1235	1802	2471	3603	275	300+2G	300+F
1488	2171	2977	4341	300	325+2G	325+F
1765	2574	3530	5148	325	350+2G	350+F
2065	3012	4130	6024	350	375+2G	375+F
2309	3368	4618	6735	375	400+2G	400+F
2651	3866	5302	7732	400	425+2G	425+F
3016	4398	6032	8797	425	450+2G	450+F
3405	4965	6810	9930	450	475+2G	475+F
3817	5567	7634	11133	475	500+2G	500+F
4253	6202	8506	12405	500	525+2G	525+F
5196	7577	10391	15154	550	575+2G	575+F
6232	9089	12465	18178	600	625+2G	625+F
7363	10378	14272	21477	650	675+2G	675+F
8589	12525	17177	25050	700	725+2G	725+F
9908	14405	19816	28899	750	775+2G	775+F



# Lubron TF Self-Lubricating PTFE Spherical Bearings

## FIXED BEARING ASSEMBLIES



## SIZE CHART (INCHES)

BEARING DESIGN LOAD (ksi)				BRG PLATE A	FIXED UPPER PLATE	
3.5	5.0	7.0	10.0		C	D
MAXIMUM VERTICAL LOAD (kips)				(inch)	(inch)	(inch)
50	71	99	142	5	7	7
76	108	152	216	6	8	8
107	153	215	307	7	9	9
144	206	289	431	8	10	10
187	267	374	535	9	11	11
235	336	470	672	10	12	12
289	413	578	825	11	13	13
348	497	696	994	12	14	14
413	589	825	1179	13	15	15
483	689	965	1379	14	16	16
539	770	1078	1539	15	18	18
619	884	1237	1767	16	19	19
704	1005	1407	2011	17	20	20
794	1135	1589	2270	18	21	21
891	1272	1781	2545	19	22	22
992	1418	1985	2835	20	23	23
1212	1732	2425	3464	22	25	25
1454	2077	2908	4155	24	27	27
1718	2454	3436	4909	26	29	29
2004	2863	4008	5726	28	31	31
2313	3303	4624	6605	30	33	33

## SIZE CHART (MM)

BEARING DESIGN LOAD (MPa)				BRG PLATE A	FIXED UPPER PLATE	
24	35	48	70		C	D
MAXIMUM VERTICAL LOAD (kN)				(mm)	(mm)	(mm)
212	309	424	618	125	175	175
323	472	647	944	150	200	200
459	669	917	1338	175	225	225
618	901	1235	1801	200	250	250
800	1167	1600	2333	225	275	275
1006	1467	2012	2934	250	300	300
1235	1802	2471	3603	275	325	325
1488	2171	2977	4341	300	350	350
1765	2574	3530	5148	325	375	375
2065	3012	4130	6024	350	400	400
2309	3368	4618	6735	375	450	450
2651	3866	5302	7732	400	475	475
3016	4398	6032	8797	425	500	500
3405	4965	6810	9930	450	525	525
3817	5567	7634	11133	475	550	550
4253	6202	8506	12405	500	575	575
5196	7577	10391	15154	550	625	625
6232	9089	12465	18178	600	675	675
7363	10378	14727	21477	650	725	725
8589	12525	17177	25050	700	775	775
9908	14405	19816	28899	750	825	825

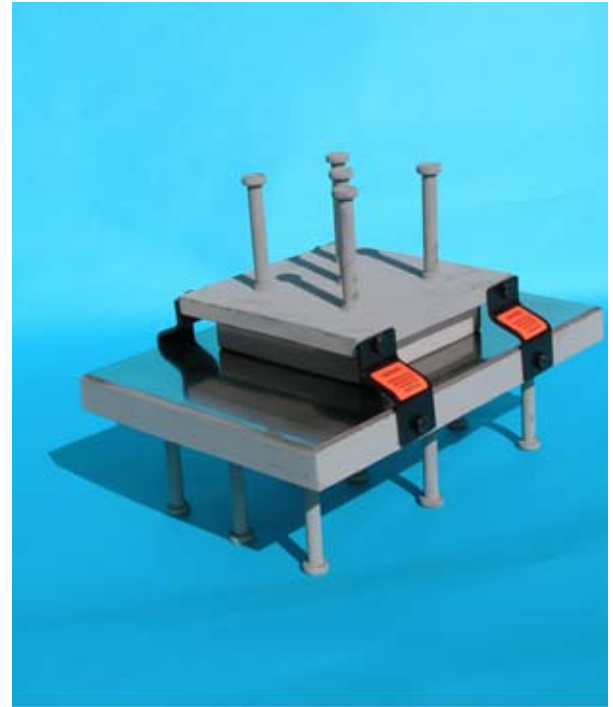


# Lubron TF Self-Lubricating PTFE Spherical Bearings

## MATERIALS

All materials used in the manufacture of LUBRON TF spherical bearings shall meet the following requirements unless otherwise specified in the Project Plans, Specifications and Special Provisions:

- Structural steel shall conform to the requirements of ASTM A36, ASTM A709 Grade 36 (250), ASTM A709 Grade 50 (345), ASTM A572 Grade 50 (345), ASTM A709 Grade 50W (345W) or ASTM A588 Grade A.
- Stainless steel shall conform to the requirements of ASTM A240 Type 304 or Type 316.
- Hard chromium plating shall conform to the requirements of Federal Specification QQ-C-320B Class 2.
- PTFE (polytetrafluoroethylene) surfaces shall consist of unfilled PTFE woven fabric made from oriented multi-filament 100% virgin PTFE fibers and other reinforcing fibers. The resin in the filaments shall be virgin PTFE material (not reprocessed) meeting the requirements of ASTM Designation D4441 Type VI (superceding ASTM Designation D1457). The PTFE fabric shall have a minimum thickness of 0.20" (0.5 mm) and a maximum thickness of 0.125" (3.2 mm) after compression.
- High strength bolts and studs shall conform to the requirements of ASTM A325 Type 1 or ASTM A449 Type 1 unless otherwise specified. Heavy hex nuts shall conform to the requirements of ASTM A194 Grade 2H or ASTM A563 unless otherwise specified, and hardened steel washers shall conform to the requirements of ASTM F436 unless otherwise specified.



## PRECISION MACHINING

Our diverse design and manufacturing skills combine to assure consistent quality and reliable performance. Our facilities are modern, flexible and capable of complex jobs with precision accuracy.

All machining shall be performed in full compliance with the Project Plans, Specifications and Special Provisions. All metal-to-metal contact surfaces shall be machined or blanchard ground. Concave and convex bearing components are typically machined from solid metal plate using CNC equipment.





# Lubron TF Self-Lubricating PTFE Spherical Bearings

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## WELDING

Welding of spherical bearing components shall be performed in accordance with the requirements of ANSI/AASHTO/AWS D1.1, AWS D1.5 or AWS D1.6 unless otherwise specified. On-site welding of the spherical bearing assembly shall be permitted, provided welding procedures are established, which restrict the maximum temperature reached by the bonded area to less than 300°F (150°C) as determined by temperature-indicating wax pencils or other suitable means.

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## CORROSION PROTECTION

Corrosion protection including painting and zinc metalizing of all exposed carbon steel plates and fasteners shall be performed in accordance with Project Plans, Specifications and Special Provisions.

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## TESTING

Spherical bearing assemblies shall be tested in full compliance with the Project Plans, Specifications and Special Provisions. Prototype and production testing shall be performed in-house or by an independent testing laboratory subject to the approval of the Project Engineer. Bearings up to 4000 kips can be tested in-house for compression proof load, rotation, wear and coefficient of friction.

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## INSTALLATION

All spherical bearing assemblies shall be installed in accordance with the Project Plans, Specifications and Special Provisions. Spherical bearing assemblies must be handled with extreme care to prevent damage to any of the bearing components. LUBRON TF spherical bearings shall be furnished with temporary steel restraining plates to permit handling and installation of the bearing as a complete assembled unit. Verification of proper alignment and removal of the temporary restraining plates is absolutely essential prior to the bearings being placed into service.

The spherical bearing assembly shall be installed with the sole plate positioned above the other components. The centerline of the concave component shall be positioned in vertical alignment with the centerline of the convex component. The concave component must also be properly positioned on the sole plate to allow for any required presetting. The restraining plates should be securely bolted to the sole and masonry plates with the concave component in the preset position.



# Lubron TF Self-Lubricating PTFE Spherical Bearings

LUBRON TF spherical bearings shall be installed level and parallel to within  $\pm 1/32$  inch per foot. For cast-in-site structures, spherical bearings are generally furnished with welded anchor studs or anchor bolts to secure the assembly in place. Formwork may be erected around the bearing and concrete poured over the bearing, providing adequate steps are taken to prevent contamination from concrete debris.

All bearing surfaces must be effectively masked and protected during welding and painting from weld splatter, abrasive blast, dust and paint. Protective covering must be removed after installation is complete, and the bearings surfaces cleaned with a dry soft cloth.



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## QUALITY ASSURANCE

LUBRON TF spherical bearings are manufactured and inspected in strict compliance with the requirements ISO 9002. From procurement and fabrication to final inspection, every phase of manufacture is monitored by Quality Control personnel to ensure that all materials and workmanship meet or exceed the requirements of the Project Plans and Special Provisions. Every step is planned, performed, checked and certified in writing. Non-destructive testing, including radiograph, magnetic particle and liquid penetrant examination, shall be performed in accordance with ASTM and ASME specifications and certified by independent testing laboratories.

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## ENGINEERING SUPPORT

We offer a variety of engineering services from the selection of bearing materials to in-house testing of bearing assemblies to simulate load, movement, velocity, temperature and other environmental conditions present during the actual operation of LUBRON TF bearings. Bearing design, AutoCAD® drawing preparation, prototype testing, consulting and on-site engineering services are available upon request.



# Lubron TF Self-Lubricating PTFE Spherical Bearings

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## GUARANTEED PERFORMANCE

Our leadership and reputation for service and product knowledge has been achieved through a strong commitment to total customer satisfaction. Every LUBRON TF bearing is guaranteed to perform reliably and trouble-free, and every effort will be made to accommodate our customer's delivery requirements in the shortest time possible.

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## ORDERING INFORMATION

Information for ordering LUBRON TF spherical bearing assemblies shall include the following:

- Type of bearing (unguided, guided or fixed)
- Maximum total vertical load (dead & live)
- Minimum vertical load (dead only)
- Maximum transverse horizontal load (occurring simultaneously with minimum vertical load)
- Maximum allowable concrete bearing load
- Maximum rotation required about vertical axis
- Maximum longitudinal and transverse movements
- Bearing offset if required
- Anchorage required
- Corrosion protection required
- Proof testing required





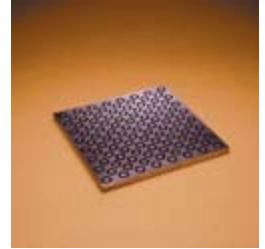
# Lubron TF Self-Lubricating PTFE Spherical Bearings

## LUBRON Self-Lubricating Bearings for Structural Applications

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### LUBRON SL

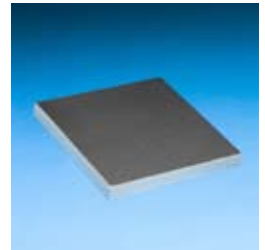
LUBRON AQ bearings are widely used in structural applications for loads up to 8000 psi. Available in a variety of high strength bronze alloys, LUBRON SL bearings are permanently embedded with solid lubricants contained in trepanned or circular recesses.



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### LUBRON TF

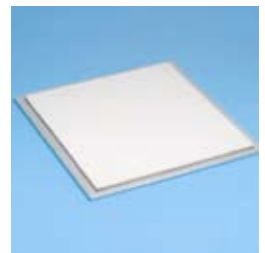
LUBRON TF woven PTFE fiber bearings are designed to provide the lowest possible coefficient of friction for high load structural applications. Interwoven with secondary glass fibers and bonded under pressure and temperature to carbon steel or stainless substrates, LUBRON TF bearings are capable of static loads up to 60,000 psi.



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### LUBRON TR

LUBRON TR PTFE resin slide bearings provide an economic alternative for low friction applications with loads up to 2,000 psi. LUBRON TR slide bearings consist of PTFE resin sheets bonded to either a combination of carbon steel, stainless steel, elastomer, or fabric pads. For higher loads, LUBRON TR bearings are also available reinforced with the addition of up to 25% glass fibers.



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