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### **Dimensions**

All distance dimensions in this catalog are in MM (millimeter) only. Other units are denoted in metric system.

### **Drawings and illustrations**

All drawings and illustrations cited in this catalogue are schematically for information and may differ from an actual application

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## General information about structural bearings

A **structural bearing** is a mechanical device of a construction structure, which typically connects the substructure and substructure. It is used to provide structural restraints, specifically, transferring vertical and horizontal loads from the superstructure into the foundation whilst a certain amount of design translation and rotation (twisted) between structural elements is allowed as designed.

**Bridge bearings** connect bridge piers to the bridge deck. The appropriate selection of bridge bearings has been always a significant subject in construction engineering. There are many types of bearings which have been commonly used along with research and development of the industry. Before 1960s, the most commonly used bridge bearings were made of steel elements and nowadays a variety of different types of bearings has proven their value and largely applied, among which **Elastomeric Bearing**, **Pot Bearing**, and **Spherical Bearing** are the most worldwide acknowledged and employed in design and fabrication.

### Types

Basically, all the structural bearings can be classified to three types:

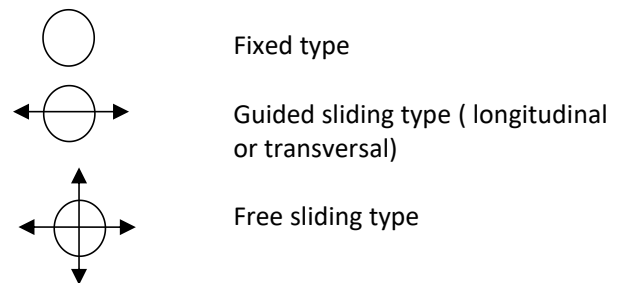
- **Fixed**  
No horizontal movement allowed while transfer the loads in all horizontal directions.
- **Guided sliding**  
Only one direction movement in horizontal axis allowed while transfer horizontal loads in the perpendicular direction
- **Free sliding**  
Horizontal movements in all directions allowed while transfer no horizontal forces

For the expansion bearings, usually the sliding friction is reduced to a minimum value by inserted sliding material (PTFE, Modified PTFE or UHMWPE) in contact with polished stainless steel plate (S304 or S316).



An illustration showing bridge bearings are in place under the bridge deck beam and above the pillars

Legends normally used in drawings:



Abbreviations used in this catalogue:

- |   |                          |
|---|--------------------------|
| F | fixed                    |
| G | guided                   |
| M | free (multi-directional) |

### Corrosion prevention

All exposed steel surfaces are corrosion protection treated as per the requirements specified in the ISO12944. Standard corrosion protection procedures are listed below:

- ✓ Shotblast to Sa 2.5
- ✓ Hot aluminum spray to min. 30µm;
- ✓ Zinc-rich epoxy as primer coating;
- ✓ Polyurethane paint of intermediate and top coating;

Galvanized treatment can also be provided upon request. Other methods are also available upon request.



hot-aluminum spray



Measurement of thickness of the dry film of paint

### Handling, Packaging and Storage

Structural bearings must be handled with care in all procedures until installation is completed.

Proper packaging such as using sturdy timber/plywood crates or pallets is necessary to protect bearings from damage during transit or storage. Any possible source to contaminate the bearings shall be avoided. Ideally bearings shall be packed according to the installation position but it is also understandable to mix the bearings when they are comparably small. In this operation, hard foam spacer is used to prevent collision.



pot bearings packed in wooden frame catered for sea-shipping

Bearing shall be always stored away from extreme humidity or possible contaminants. Elastomeric bearings shall also be kept away from escalating heat.



Assembled bearings at storage prior to shipment



Packaging at IEC workshop prior to delivery

## Pot Bearing

### History Background

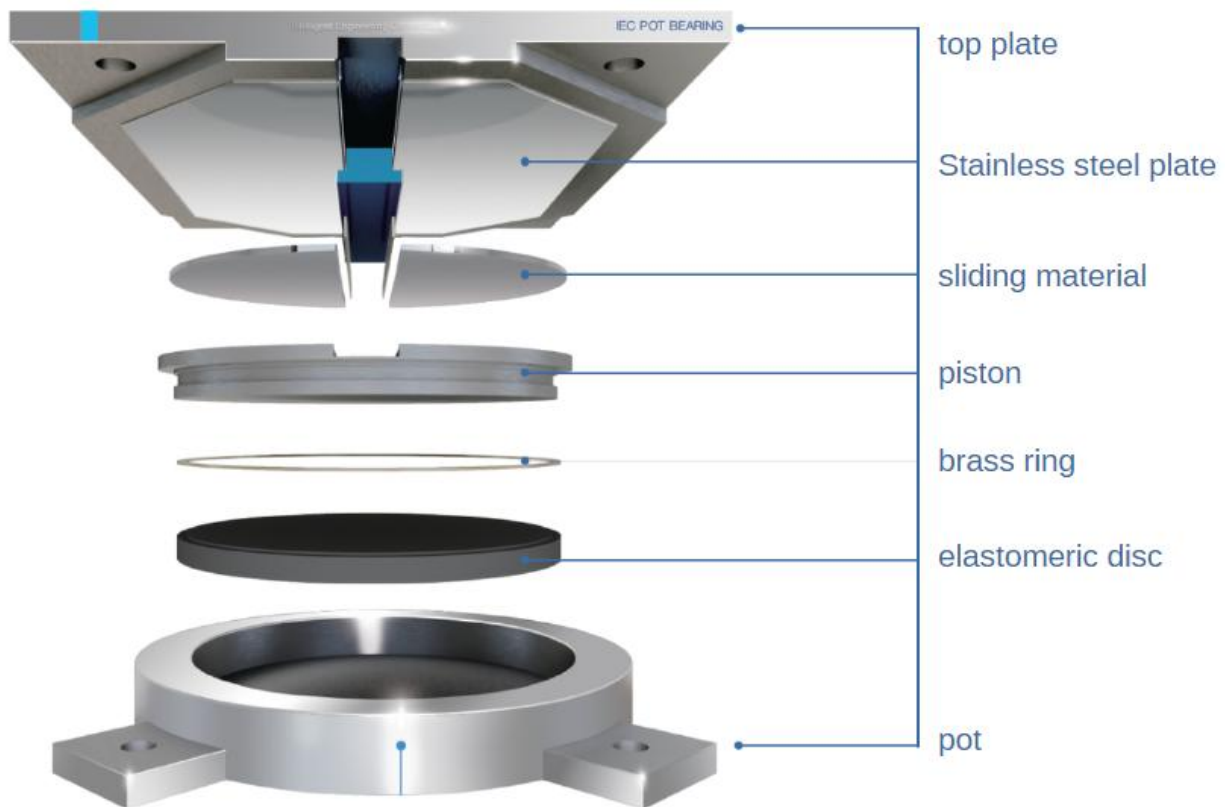
Invented in West Germany in 1959, Pot Bearings have become an integral component of numerous structures worldwide. The first Pot Bearing was installed in 1962 for the B42 Highway in Germany, where it continues to function as intended today. Decades of use have demonstrated the durability and reliability of Pot Bearings. Their load-bearing capacity has evolved from the smallest unit handling 500 kN to the largest, which supports over 100 MN, with the most substantial Pot Bearing known to withstand 106.5 MN.

Pot Bearings were introduced to China in the 1970s, with their first application in a railway cable-stayed

bridge in 1979. Since then, Pot Bearings have been widely adopted across various civil projects, proving their effectiveness in connecting superstructures to substructures.

### Design principle

A Pot Bearing consists of a steel pot, an elastomeric disc, and a piston plate (lid). The elastomeric disc, composed of rubber, behaves similarly to a liquid under compression while maintaining a constant volume, with a Poisson's ratio of 0.5. This design allows for uniform load distribution and accommodates rotational movement due to the elastomer's flexibility.



An exploded view of Pot Bearing (typical design of fixed type)

An essential component of the Pot Bearing is the brass sealing ring, which ensures that the elastomeric disc remains confined within the pot. Horizontal forces are transmitted from the piston to the pot. For guided-sliding bearings, an additional guide bar directs horizontal movement in a single axis. A sliding material, usually Polytetrafluoroethylene (PTFE) or Ultra High Molecular Weight Polyethylene (UHMWPE),

is placed on the piston plate and slides against a polished stainless steel plate attached to the top plate.

PTFE offers high mechanical and chemical resistance, excellent surface smoothness, and low friction when paired with stainless steel. Customized bearings can be designed to handle specific conditions, such as high horizontal forces or lifting loads.

Pot Bearings are designed to accommodate rotations of  $\pm 0.02$  rad, with sliding components having a coefficient of friction below 0.03.



A typical design of IEC pot bearing outlook

### Standards and Certificates

- European Standard: EN 1337-5;
- British Standard: BS 5400-9.1, BS 5400-9.2;
- American Standard: AASHTO LRFD Bridge Design Specification and Construction specification

IEC has achieved CE certification for Pot Bearings according to EN standards, awarded by APPLUS Spain. IEC also designs and fabricates Pot Bearings to meet other standards and specifications upon request.



IEC CE certificate of Pot Bearings

### Advantages of using Pot Bearings

- **Minimal vertical deflection:** Pot Bearings offer significantly less vertical deflection than elastomeric bearings while supporting much higher loads.
- **Equal load distribution:** Multiple Pot Bearings installed along piers uniformly distribute loads, as the compression in each Pot Bearing is negligible.
- **Low eccentricity:** Resistance to deformation is minimal, resulting in eccentricity that is less than 3% of the disc diameter.
- **Adaptable to varying materials:** Larger attachment plates can be added to distribute loads over low-compressive materials.
- **High horizontal load capacity:** By adjusting the size of pot components, horizontal loads can be designed to match vertical loads.
- **Ease of fabrication:** The relatively simple design facilitates efficient manufacturing processes.

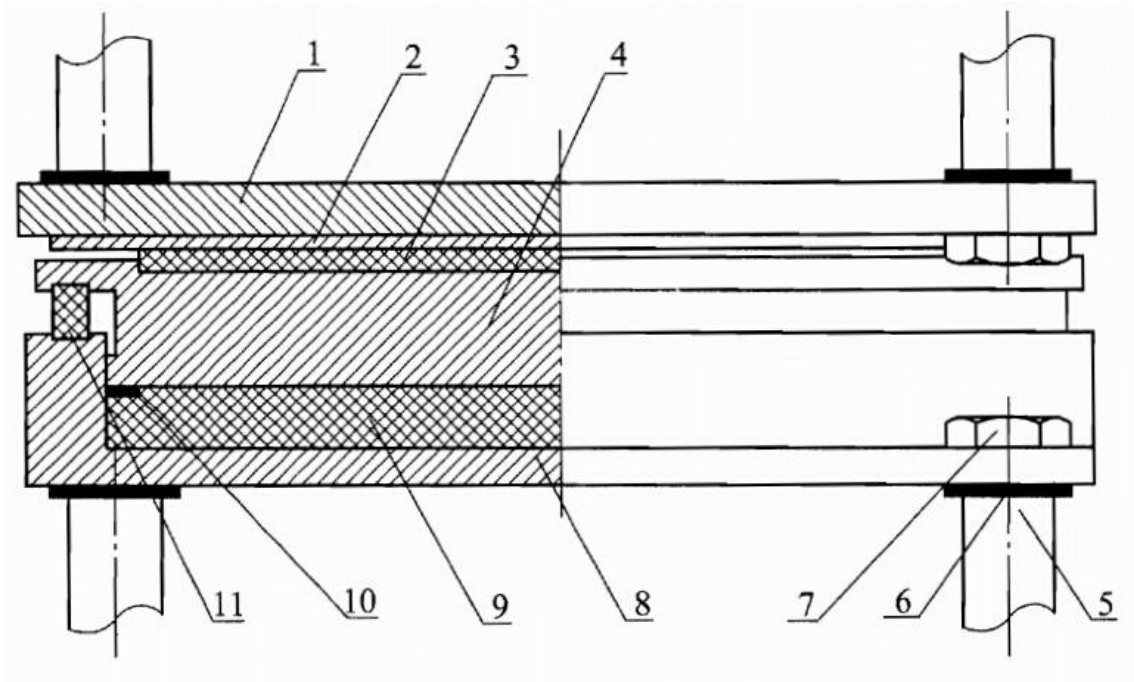
### Types of Pot Bearings

Pot Bearings are available in the following configurations:

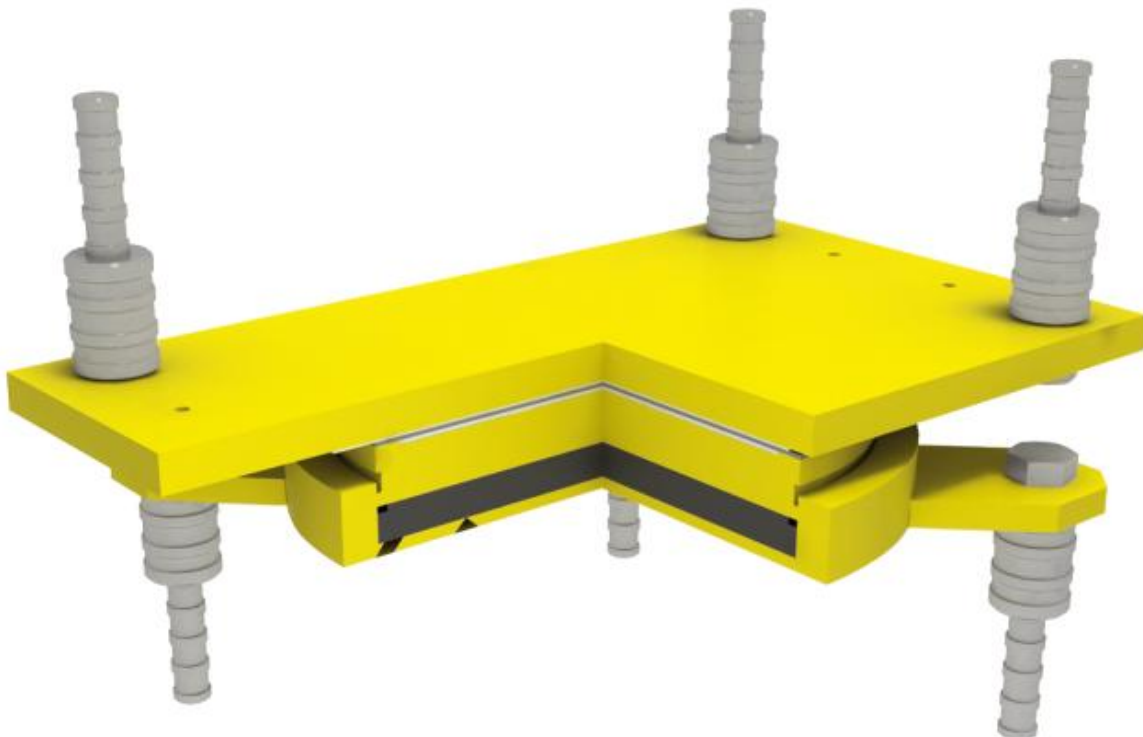
- Free-sliding
- Guided-sliding
- Fixed

Each type can be adapted with top and bottom masonry plates, and various anchoring methods, including bolt/threaded socket assemblies or shear studs. These designs simplify future bearing replacement.

**Free sliding**

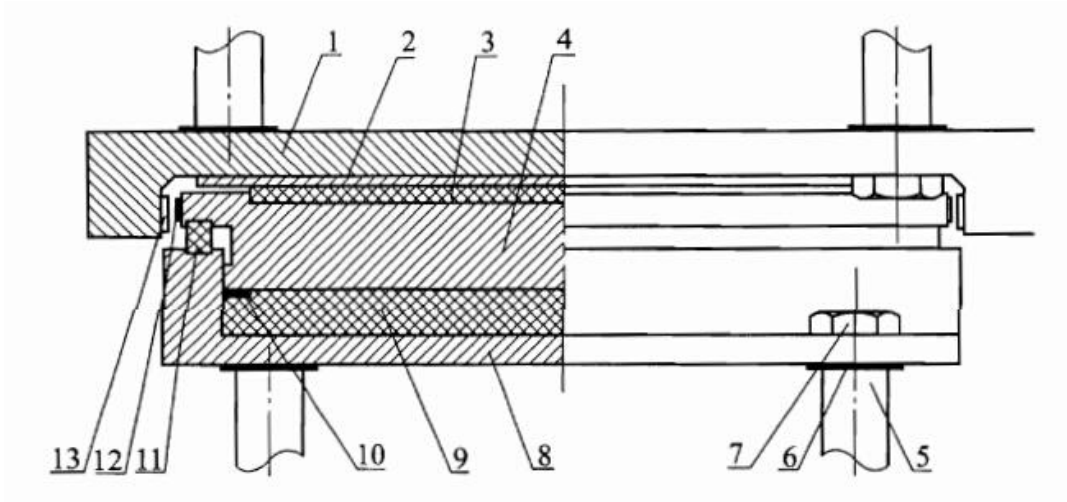


1-top plate; 2-stainless steel plate; 3-PTFE; 4-piston; 5-socket; 6-washer; 7-anchor bolt;  
8-pot; 9-elastomer disc; 10-brass seal; 11-dustproof cover

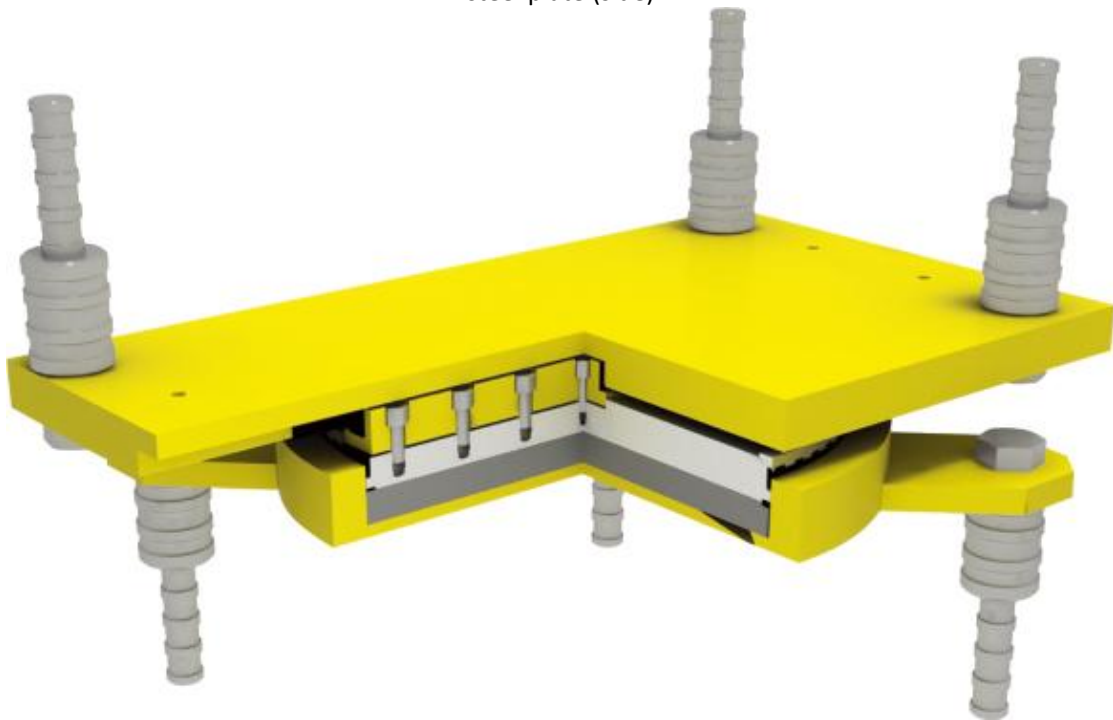


3d view of a **free sliding** pot bearing (typical design)

**Guided sliding** (lateral guided shown, center guided also available)

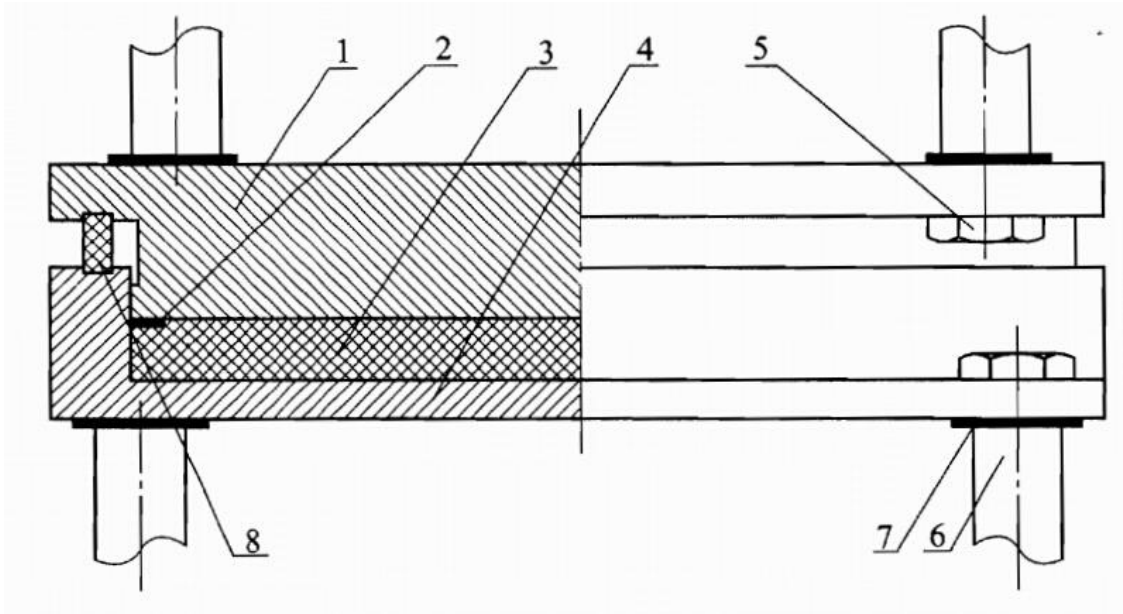


1-top plate; 2-stainless steel plate; 3-PTFE; 4-piston; 5-sleeve; 6-washer; 7-anchor bolt; 8-pot; 9-elastomer disc; 10-brass seal; 11-dustproof cover; 12-SF-1 bronze backing sliding strip; 13-stainless steel plate (side)

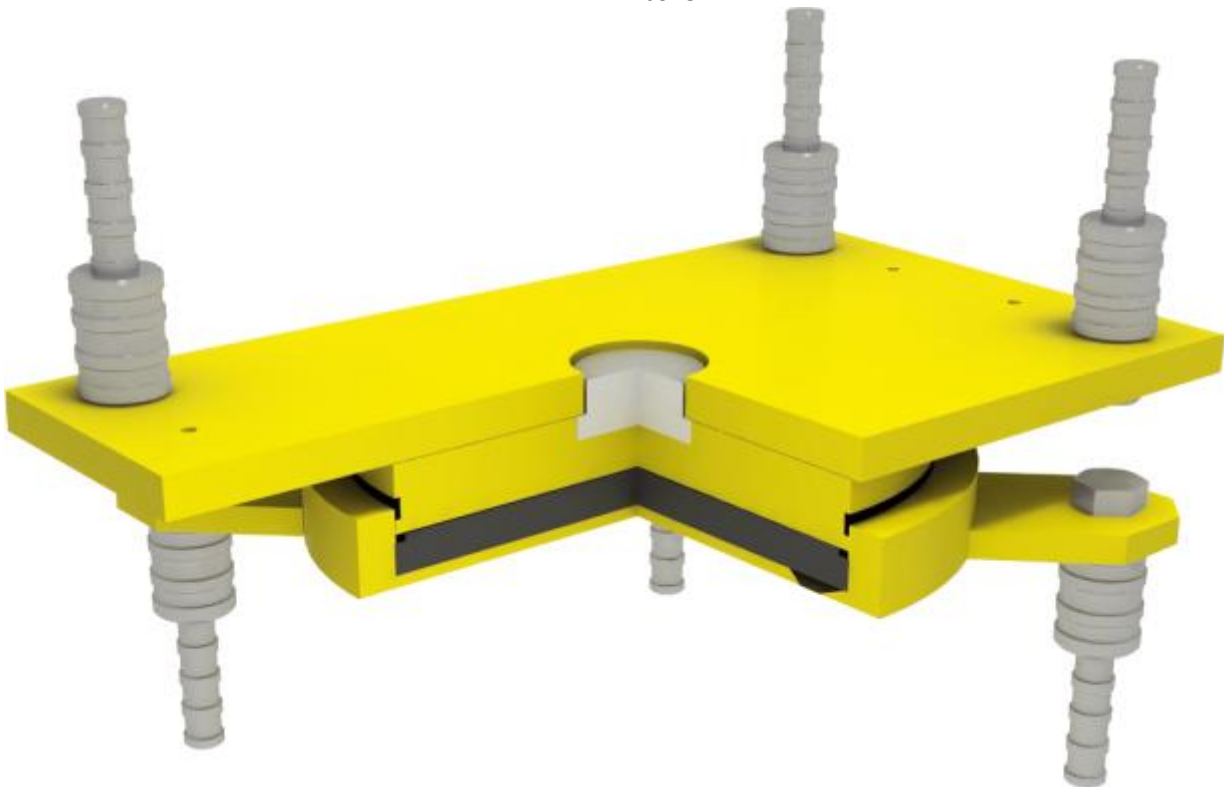


3d view of a guided sliding pot bearing (typical design, center guiding)

**Fixed**



1-top plate; 2-brass seal; 3-elastomer disc; 4-piston; 5-anchor bolt; 6-sleeve; 7-washer; 8-dustproof cover



3d view of a **fixed** pot bearing (typical design)

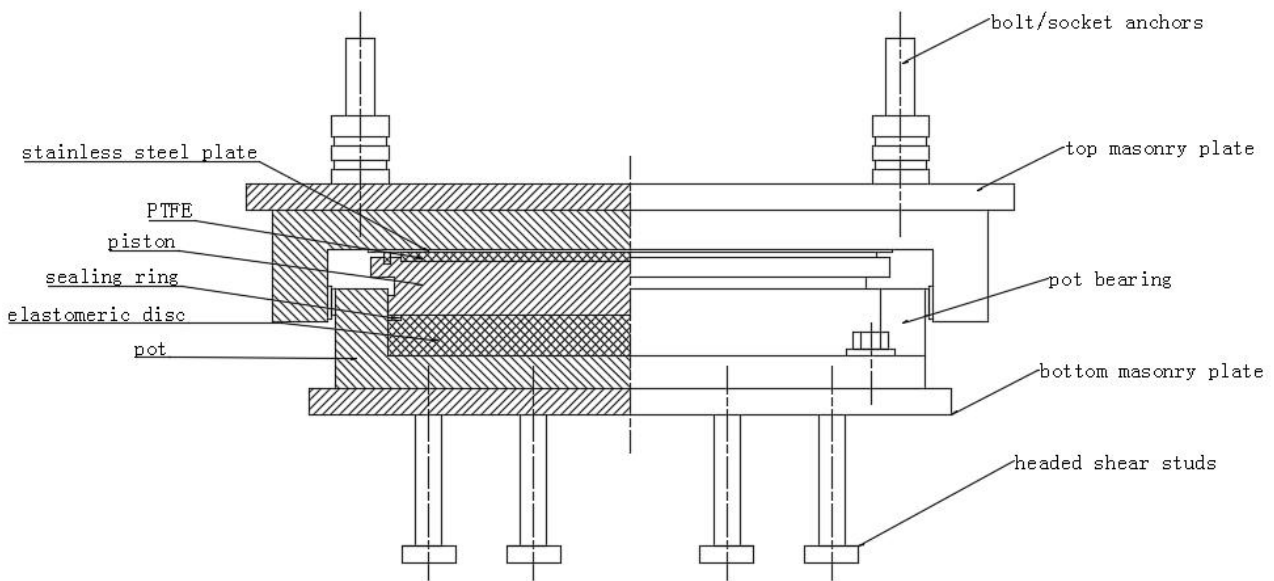


**Connection methods of Pot Bearings to superstructure/substructure**

Pot bearings can be customized with top and bottom masonry plates based on specific project requirements. The anchoring methods include bolt/threaded socket assemblies or shear studs. Incorporating masonry plates into the design simplifies future bearing replacements, ensuring a more efficient maintenance process.



Shear studs connection and bolt/socket assembly connection



Design sample showing different methods of anchoring & attachment plates

**Materials**

IEC uses high-quality approved materials for all Pot Bearing components. Details in below sections introduce the major parts IEC use in fabrication of pot bearings.

**Elastomeric disc in the pot**

- Virgin rubber, no laminated or fiber reinforced.
- size tolerance

Elastomeric Disc Diameter (mm)	Diameter tolerance (mm)	Thickness tolerance (mm)
≤500	+0.5 0	+2.0 0
>500~1000	+1.0 0	+2.5 0
>1000~1500	+1.5 0	+3.0 0

> 1500	+2.0 0	+5.0 0
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## ➤ Properties

Item		Requirements	
rubber type		NR	CR
Hardness (Shore A Durometer)	IRHD	60±5	60±5
Tensile strength (MPa)		≥17.5	≥17.5
Elongation at break (%)		≥450	≥425
Permanent deformation at constant compression (100°Cx22h) (%)		≤25	≤25
Ozone resistance (25-50pphm, 20% strain at 37.7°Cx100h)		No cracks	No cracks
Hot air aging test (100°C x70h)	Reduction of tensile strength (Mpa)	≤15	≤15
	Reduction of elongation at break (%)	≤40	≤40
	Hardness changeable range (Shore A Durometer)	≤15	≤10

**Polyfluortetraethylene (PTFE)**

## ➤ properties

Item	Requirements
Hardness (SHORE)	55~70
Tensile strength (MPa)	29~40
Elongation at break (%)	≥300
Specific weight	2.14~2.20
Melting point	327° ±100
Friction coefficient with SS plate (23°C +/-5)	<0.01
Maximum permissible pressure(MPa)	45
Thickness(mm)	7~8

## ➤ PTFE size tolerance

PTFE Diameter D (mm)	Diameter (mm)	Thickness (mm)
≤500	1.5	0.5
	0	0
> 500~1200	2	0.75
	0	0
> 1200	3	1
	0	0

Note: Min. Thickness = 7mm and Max. Thickness = 8mm  
 Min. Thickness of convex part under steel plate = 4mm  
 Min. Thickness of concave part over steel plate = 3mm.

➤ Allowable pressure due to all loads at SLS is taken as 30 MPa unless otherwise noted (such as UHMWPE). (EN1337-2 specifies 90/1.4 Mpa as the design pressure under ULS loads)

### Steel elements

- All steep parts except pot and top+bottom masonry plates are as per Q355, equal to ASTM A709 Gr.50, or S355.
- Pot is made of cast steel, or ZG270, Q355, S355 (Gr.50) steel.
- Masonry plates are as per Q235, S235 (Gr.36) unless otherwise noted.
- Bolts are as per Grade100-ASTM A709 (equals to 41Ce4-EN10083).
- Stainless steel is as per S304 unless otherwise noted. (argon arc welding in a consistent and continuous way to the back of top plate).
- Properties of cast steel (in case for pot)

Standard code	Tensile strength $\sigma_b \geq$ (MPa)	Yield strength $\sigma_s \geq$ (MPa)	Elongation $\geq$ (%)
ZG270-500- GB11352	500	270	18
Grade70-36-ASTM A27	485	250	22
270-480 -ISO 3755	480~630	270	18

### Brass sealing rings

- Shall be 2-4 layers and opening gap shall be smaller than 2mm.
- Grade as per ASTM B36, or CuZn37-EN12163.

### SF-1 sliding strip (three-layered composite material with bronze backed)

	Material	Thickness (mm)
back layer	Bronze alloy	2.15 +/- 0.15
intermediate layer	Sintered interlocking porous bronze	0.25 +/- 0.15
surface layer	80% PTFE + 20% lead (in volume %)	0.10+/- 0.02
Total thickness	Three-layered composite	2.5

### Silicon grease (type 5201-2)

S/N	Property indicator	requirements
1	Appearance	White, half transparent
2	Penetration	190-230
3	volatility 24 h x 200°C	< 2%
4	Oil separation	< 10%
5	dielectric loss constant (1 M Hz)	$3.5 \times 10^{-3}$
6	dielectric constant (1 M Hz) F/m	2.5-3.2
7	volume resistivity $\Omega \cdot \text{cm}$	$5 \times 10^{14}$
8	dielectric strength MV/m	12

**Quality control at IEC**

IEC ensures rigorous quality control for all Pot Bearings, in compliance with the EN1337-5 standard. All bearings undergo Initial Type Tests (ITT), and Factory Production Control (FPC) is regularly monitored by TZUS Czech, an independent supervisory body.

Strict adherence to the Inspection and Testing Plan (ITP) guarantees internal quality control consistency. Performance tests, including vertical load tests up to 150% of the design value and horizontal load tests, are conducted on a project-specific basis.

The 3<sup>rd</sup> party quality control is also available upon client's request (by SGS or BV local office)



Proof load test of pot bearings as routine test prior to shipment

2 units of compression-shear testing equipment is housed at IEC's own laboratory. Max. vertical press reaches 30000 kN max., where the max. shear force reaches 20% of vertical compression load.



IEC Inspectors/engineers checking and putting records on the Process Card/ITP record



IEC's shear-compression tester with 30000kN vertical load



UT NDT testing on the POT of Pot Bearing

**Production**

2 separate workshops housing a total of 120 employees for producing steel bearing (including Pot Bearing) represent the massive fabrication capabilities of IEC. Each workshop has the rolling system of painting line.



A Glance at one IEC workshop assembly line

A great number of different types of fabrication machines, at different size levels, is equipped, among which many are the CNC type.

stenciled on the bearing plate itself. The temporary fixing device is painted red and has a reminder "remove after installation"



Stenciled traceability NO. on POT



Workshop workers carefully checking the dimension of bearing parts during fabrication process



Standard looks of a finished Pot Bearing

All pots that are used in Pot Bearings are either cast steel or machined from a single piece of metal. IEC has our own casting mill which guarantees the delivery speed as well as the quality of cast parts.

Each bearing is properly handled and packaged with sufficient protective methods according to different situations such as distance, way of transport, bearing size, etc.



Assembly line of pot bearings at IEC

Each bearing is attached with its nameplate showing the bearing ID and other parameters. The movement indicator is arranged for all the expansion bearing. The indelible mark showing the traceability NO. is



Package prior to shipment for export

### **Corrosion Prevention**

- For inaccessible surfaces  
For unexposed steel surface, such as the inside face of the wall of the pot, no treatment is necessary.
- For accessible surfaces  
For exposed steel surfaces (most of the steel surfaces) of pot bearings, corrosion prevention methods must apply.

At IEC, where no specific corrosion-prevention method is requested, a hot aluminum spray followed by three coats of paint, achieving a minimum overall thickness of 240 µm (with 30 µm of hot metal spray) is applied.

Galvanized can be also offered upon request.

All the bolts used as anchors are Dacromet treated while the sockets are oxide or dacromet treated.



Dacromet treated bolts/sockets

### **Quotations**

Pot Bearings are supplied on a project-related basis only. Customer have to furnish IEC staff with the necessary design parameters and related information for costing purpose. Such information shall include but not limited to:

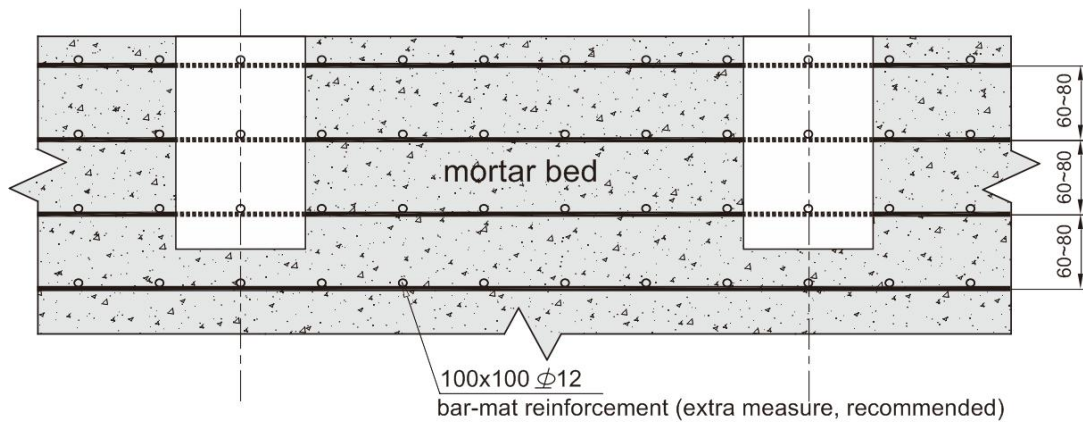
- Max., min., and permanent vertical load and horizontal loads (at ULS and SLS);
- Displacements and rotations in both directions;
- Allowable contact pressure;
- Max. available space for the bearing.

There is no standard quotation for Pot Bearings. Consult IEC experts for the cost estimate of your project.

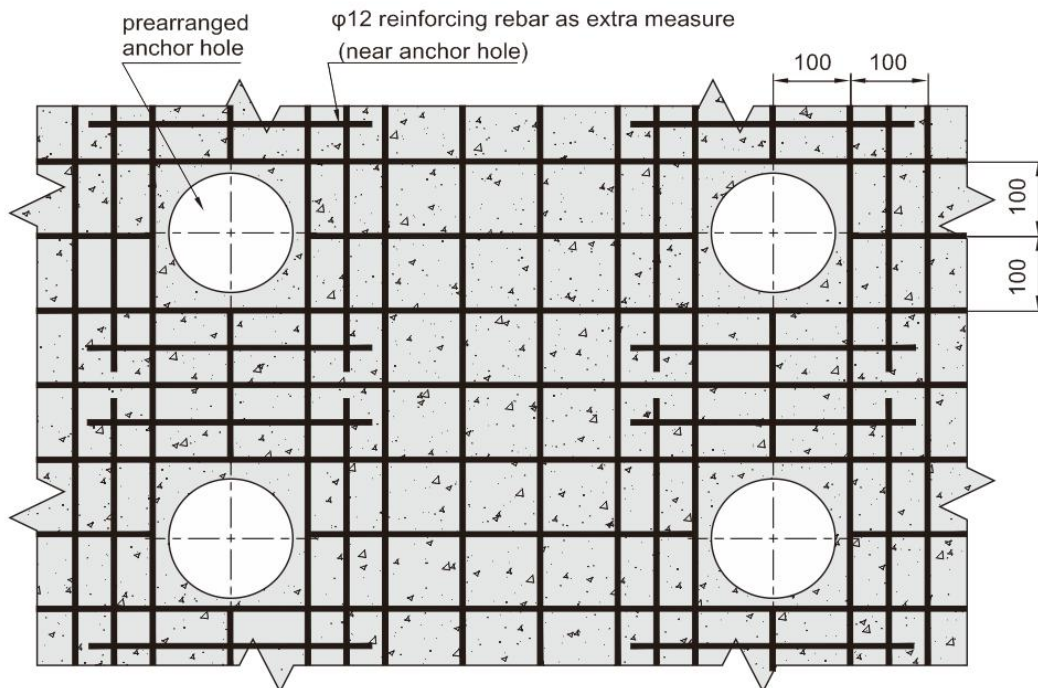
### **Installation guidelines of Pot Bearings**

#### **Basics**

- Mortar bedding must not deviate by more than 2 mm in elevation.
- A minimum mortar bed thickness of 100 mm is required to accommodate jacking tools during future replacement.
- For bolt/socket assemblies, pre-arranged anchor holes must have a diameter tolerance of no more than 10 mm compared to the design specifications.
- Bar-mat reinforcement exceeding the plan dimensions of the bearings must be used, with concrete strength of at least C45 and mortar strength of no less than C40.



Section view of placing the extra reinforcement bar-mat



Plan view of layout of extra reinforcement bar-mat

#### Pre-installation checks

- **Inspect bearings upon arrival:** Upon arrival at the site, verify the quantity, condition, and type of bearings against the stamped drawings to ensure accuracy and intactness.
- **Verify anchor methods:** Review the anchor methods as specified in the drawings and gather all necessary materials and resources, as outlined in the Installation Manual provided by IEC. Anchor bolt/socket assemblies are typically packaged separately for easier transportation, so ensure they are correctly identified and matched to their corresponding bearings.
- **Record temperature and adjust preset movement:** Measure and record the current temperature, then calculate the required preset movement for the expansion bearings. Adjust the movement by referencing the movement indicator attached to the bearing.
- **Use high-strength, non-shrink mortar:** The mortar used should be high-strength and non-shrink, with the following recommended properties:

Performance requirement of grouting materials (hi-strength, shrink-free mortar)				
Items	required values		Items	required values
Compressive strength (Mpa)	8h	≥20	Mobility	≥220mm
	12h	≥25	Temperature range	+5 ~ +35°C
	24h	≥40	Initial setting time	≥30min
	28d	≥50	Final setting time	≤3 h
	56d or 90d	Strength is not reduced	Shrinking percentage	< 2%

### Mortaring/Grouting notes

During grout placement, ensure the anchor holes are filled completely to prevent any air voids within the bond length. The grout must be progressively applied, filling the holes from bottom to top and maintaining full coverage until the grout sets. Soil anchor hole grouting should be completed within 48 hours of drilling. Grouting can be done using casing pipes, grout tubes, hollow-stem augers, or hollow drill rods.

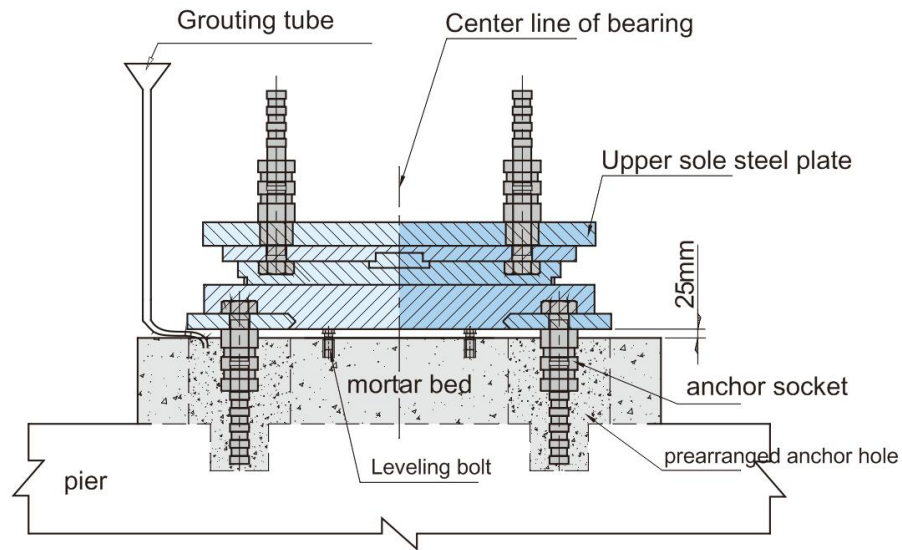
There are two primary methods for bearing installation:

1. **Gravity grouting**
2. **Pressure grouting (jet grouting)**

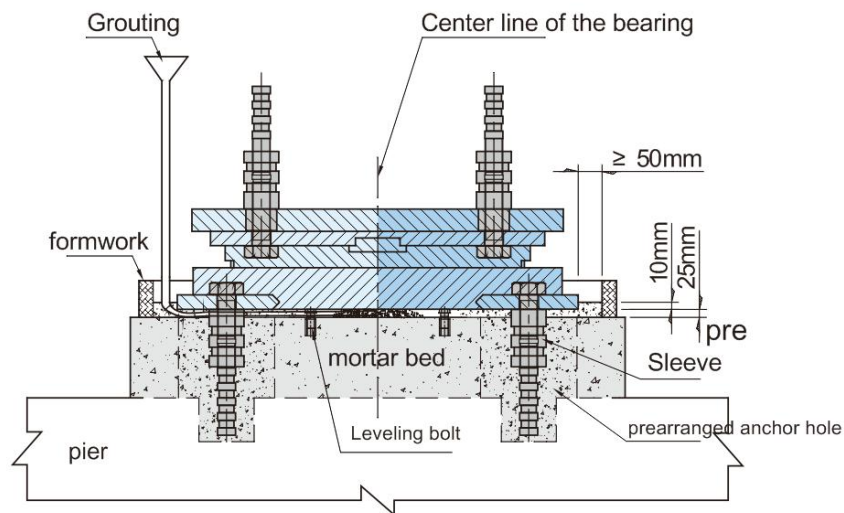
#### Gravity grouting procedures:

- 1) **Prepare the mortar bed:** Bush-hammer the top surface of the mortar bed to achieve a sufficiently rough texture. Clear any debris or foreign material from the anchor holes and soak the top surface of the mortar bed. Ensure the mortar bed thickness is 25 mm less than the final level to accommodate the levelling screed.
- 2) **Position the bearing:** Carefully place the bearing onto the mortar bed. Use leveling bolts or wedges to adjust the height and ensure the bearing is level.
- 3) **Grout the anchor holes:** Using a grout tube, fill all anchor holes with grout from the bottom to the top, ensuring that all voids within the holes are completely filled.
- 4) **Set up formwork and grout the screed:** Immediately after step 3, install the formwork around the bearing within the mortar bed boundary. Grout the levelling screed beneath the bearing base plate to a thickness of 25 mm. Additionally, fill any voids between the formwork and the sides of the bearing with an extra 10 mm of grout. Ensure the grout is sufficiently vibrated to achieve a solid and dense filling.





Sketch of gravity grouting method, before the formwork is setup

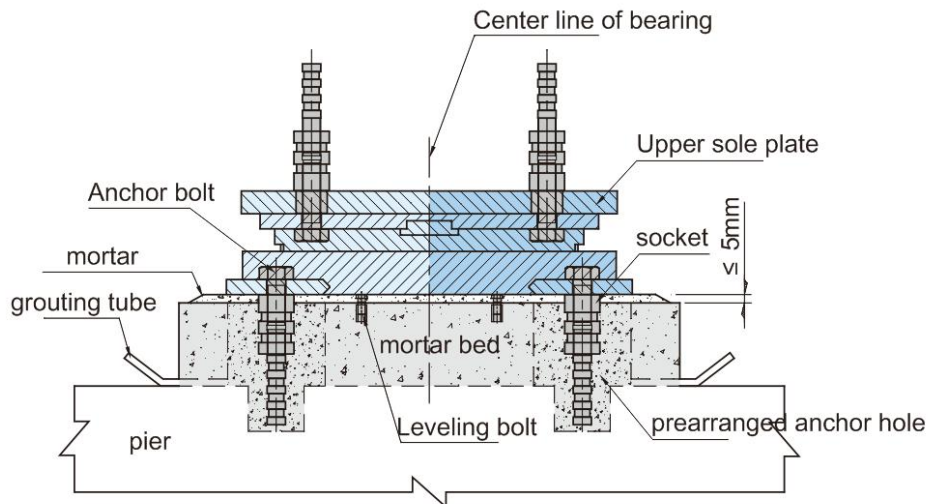


Sketch of gravity grouting method, after the formwork is setup

#### Pressure grouting procedures

- 1) **Prearrange the grout tube:** Prepare a hole along the bottom side of the mortar bed for the grout tube to be inserted.
- 2) **Verify mortar bed height:** Recheck the height of the mortar bed, ensuring the top surface is smooth and level.
- 3) **Apply a thin mortar layer:** Trowel a thin layer of mortar on the top surface of the mortar bed to ensure proper adhesion.
- 4) **Position the bearing:** Place the bearing in its pre-measured position on the mortar bed.

- 5) **Grout the anchor holes:** Using the grout tube, incrementally apply pressure to fill the anchor holes. Continue grouting until refusal is achieved, making sure to control grouting pressure and pumping rates to prevent surface heaving or fracturing.
- 6) **Tighten the anchor bolts:** Secure the anchor bolts to the sockets, ensuring that the sockets are pre-smearred with grease to facilitate proper tightening and prevent corrosion.



Sketch of pressure grouting method

**Installation procedures for cast-in-situ structures:**

- 1) **Prepare the mortar bed:** Cast the mortar bed and prearrange the anchor holes according to the design specifications.
- 2) **Position the bearing:** Place the bearing onto the mortar bed and adjust it to the required position.
- 3) **Grout the anchor holes:** Infuse grout into the anchor holes, ensuring the grout fills the voids completely.
- 4) **Secure the bearing:** Once the grout has set, recheck the elevation of the bearing and tighten the bolt connections (if applicable) to secure it in place.
- 5) **Cast the deck beam:** Arrange the superstructure formwork around the bearing's upper steel plate, sealing it with adhesive tape or foam to prevent concrete leakage during the casting process.
- 6) **Remove the formwork:** After the concrete has achieved the required strength, remove the formwork to finalize the installation.

**Installation procedures for precast structures:**

- 1) **Prepare the mortar bed:** Cast the mortar bed and prearrange the anchor holes as per design specifications.
- 2) **Attach the bearing:** Connect the bearing to the bottom face of the beam during the casting process at the supplier's factory. Ensure that the top masonry plate and the corresponding

bolt/socket assemblies are properly inserted into the voids of the prefabricated structure (beam).

- 3) **Position the bearing and beam:** Place the bearing in position as the beam is installed. The beam must be supported by temporary props during this process. Carefully align the anchor holes during the lowering of the beam.
- 4) **Grout the anchor holes:** Infuse grout into the anchor holes and any gaps between the bearing plate and the beam surface, ensuring a complete fill.
- 5) **Tighten the anchor bolts:** Once the grout has set, tighten the anchor bolts to secure the bearing in place.
- 6) **Remove the temporary props:** After the grout has fully cured, remove the temporary props to complete the installation.

#### Last steps

- 1) **Remove temporary fixing devices:** Only remove the temporary fixing devices after the bearing is fully installed and ready for operation. Seal any exposed holes left by the removal of fixing devices with self-vulcanizing silicone sealant.
- 2) **Assemble the dustproof cover:** If applicable and necessary, install the dustproof cover to protect the bearing.
- 3) **Repair damaged areas:** Inspect the bearing and surrounding components for any paint damage. Repair or touch up these areas as needed to ensure proper protection.
- 4) **Clean up the job site:** Ensure the job site is thoroughly cleaned, removing any debris or materials to leave the area in good condition.



Temporary fixing devices (painted red)



assemble the dustproof cover by screw

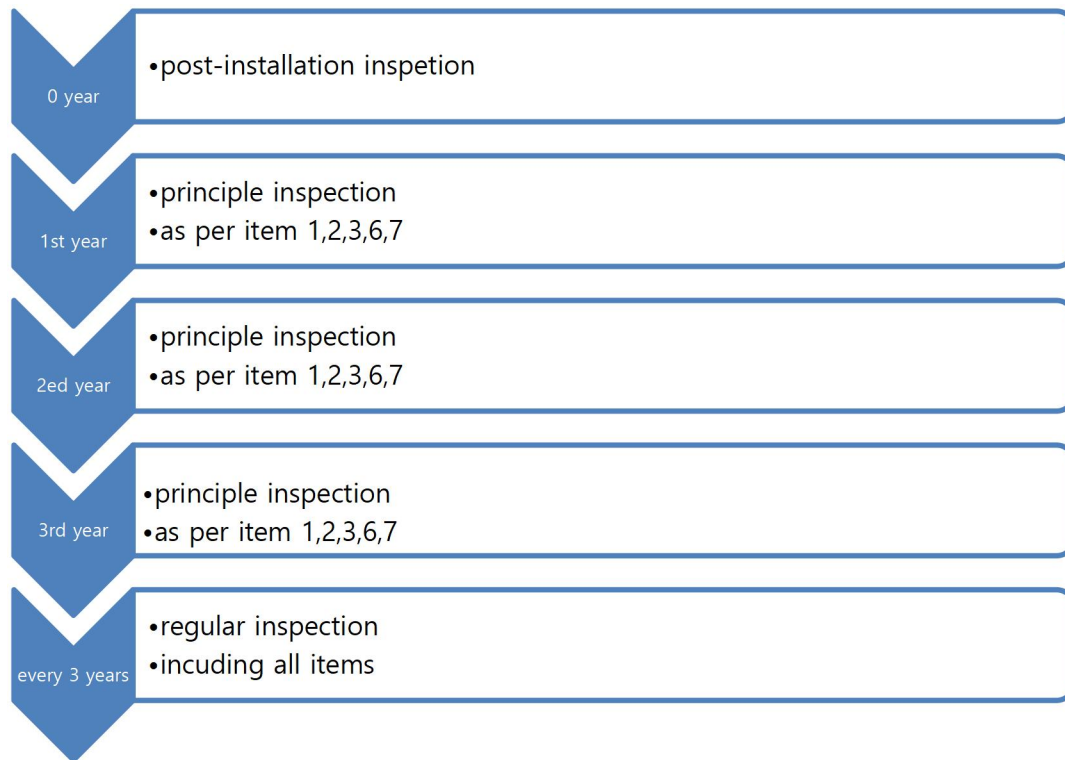
### **Maintenance**

Responsible maintenance of bridge bearings are critical to assure a long working life, especially in an adverse environment.

A typical routine check of the bridge bearing installed should include following items.

s/n	item	description	remarks
1	Corrosion prevention	Paints or galvanized treatment situation; Touch-up to repair when necessary.	Very critical to extend bearing's worklife
2	anchors	Exhaustive inspection of the bolt/socket assemblies or other anchor methods. Re-tight or replace bolts when necessary.	Very critical to keep the bearing operational
3	cracks	Just in case any cracks detected in the steel elements	
4	Sliding material	Exposed PTFE shall be maintained at least 1mm thickness visible. Otherwise bearing needs to be replaced. Also check if the sliding condition is verified or need clean-up and protection such as adding extra seal.	Or sometimes PTFE moves out of its position.
5	Mortar bed	Replace any bedding material showing signs of distress or ineffectiveness. Reasoning and investigation shall carry out.	
6	movement	Check if the actual movement falls in the design range	
7	rotation	Check if excessive rotation takes place	
8	surroundings	Clean off any adverse obstacles that may jeopardize the bearing operation.	

**Suggested maintenance frequency**



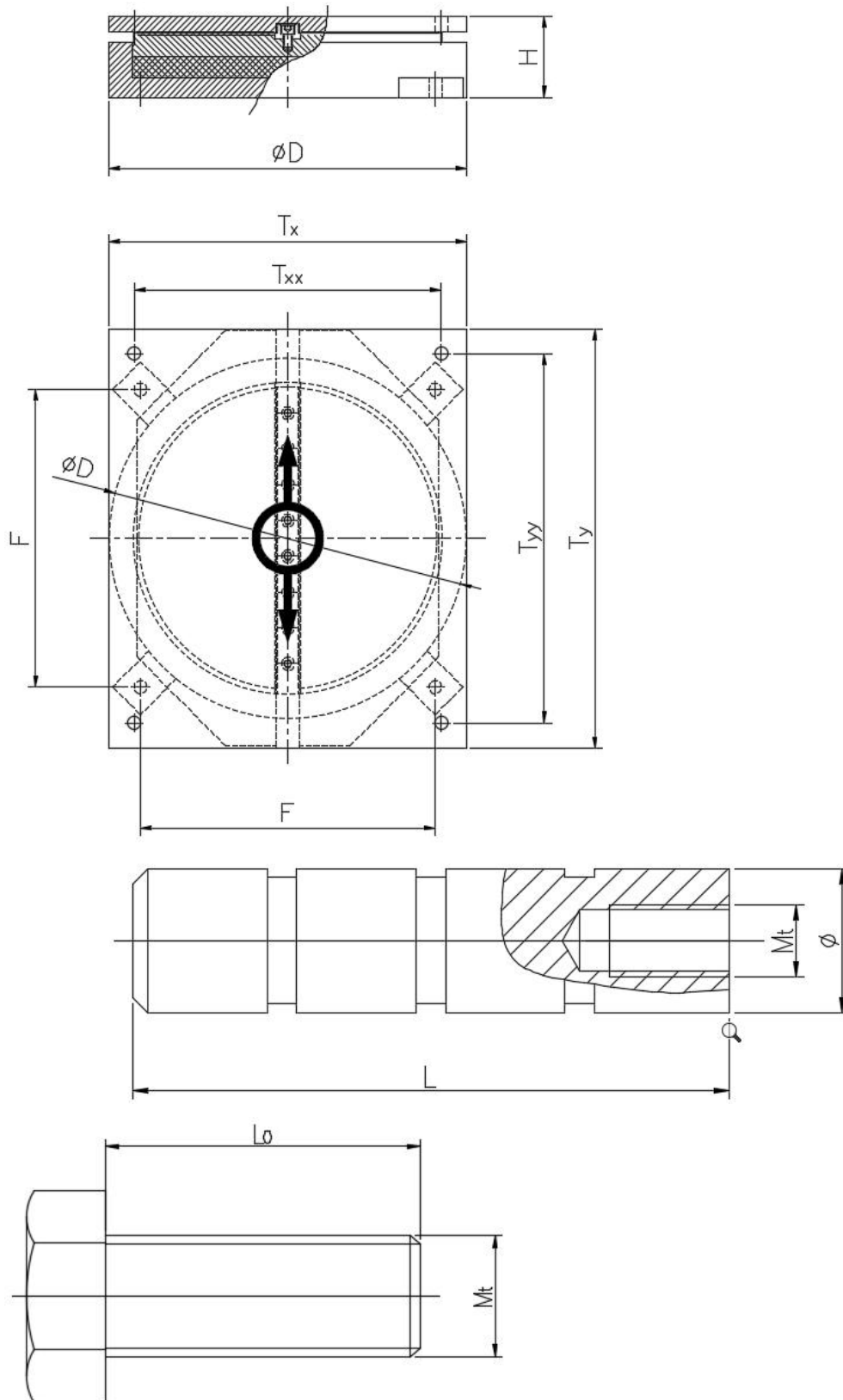
Note: bolt cleaning, greasing or tightening is suggested to be performed in every inspection.

**Replacement**

Pot bearings are designed either with top and bottom masonry plates or other methods so replacement can be realized. Contact IEC for replacement for each specific project.

**Dimensions tables**

Guided type JTPG series



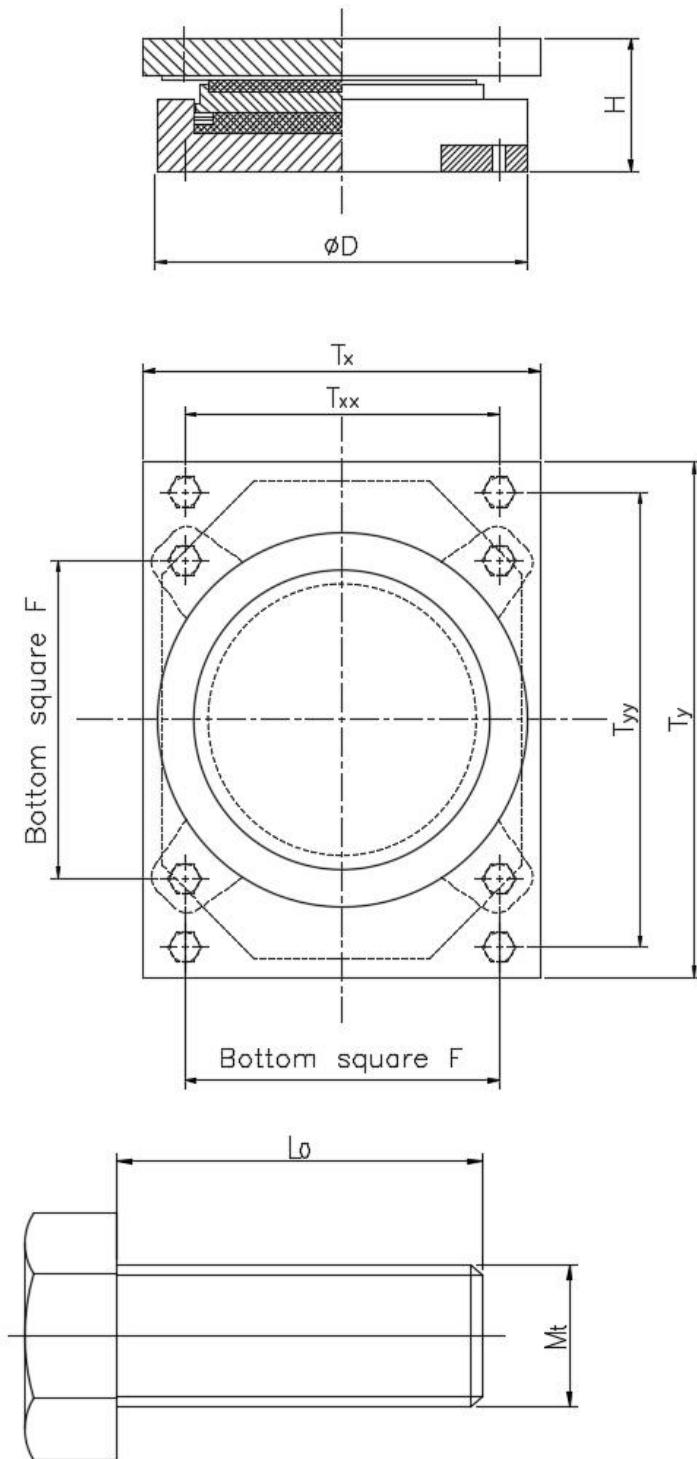
## Dimensions for Guided sliding type

Bearing Model no.	Loads (kN)		Pot		Top plate											Anchor bolt	socket	H	
	vertical	horizontal	φD(mm)	F(mm)	H. movement(mm) Ty					Tx	Ty					Txx	Mt x L0		φ x L
					±50	±100	±150	±200	±250		±50	±100	±150	±200	±250				
SLS	ULS																		
JTPG500/50-XX	500	50	200	170	310	410	510			200	270	370	470			160	M10x30	φ20x150	95
JTPG1000/100-XX	1000	100	270	230	370	470	570			270	330	430	530			230	M10x30	φ20x150	100
JTPG1500/150-XX	1500	150	325	275	415	515	615			325	365	465	565			275	M12x35	φ26x150	108
JTPG2000/200-XX	2000	200	370	310	460	560	660			370	400	500	600			310	M16x40	φ30x150	111
JTPG2500/250-XX	2500	250	420	350	495	595	695			420	435	535	635			360	M16x40	φ30x150	120
JTPG3000/300-XX	3000	300	455	375	525	625	725			455	455	555	655			385	M16x40	φ30x150	130
JTPG3500/350-XX	3500	350	490	400	545	645	745			490	465	565	665			410	M20x50	φ40x200	136
JTPG4000/400-XX	4000	400	525	425	580	680	780			525	490	590	690			435	M20x50	φ40x200	143
JTPG4500/450-XX	4500	450	555	450	600	700	800			555	510	610	710			465	M20x50	φ40x200	146
JTPG5000/500-XX	5000	500	585	480		730	830	930		585		630	730	830		485	M24x60	φ50x200	151
JTPG6000/600-XX	6000	600	640	520		765	865	965		640		665	765	865		540	M24x60	φ50x200	160
JTPG7000/700-XX	7000	700	690	560		805	905	1005		690		705	805	905		590	M24x70	φ50x200	167
JTPG8000/800-XX	8000	800	740	600		850	950	1050		740		730	830	930		620	M30x70	φ60x200	177
JTPG9000/900-XX	9000	900	780	630		885	985	1085		780		765	865	965		660	M30x80	φ60x200	191
JTPG10000/1000-XX	10000	1000	825	670		915	1015	1115		825		795	895	995		705	M30x80	φ60x200	196
JTPG11000/1100-XX	11000	1100	860	710			1045	1145	1245	860			905	1005	1105	720	M36x85	φ70x250	200

JTPG12000/1200-XX	12000	1200	905	740			1080	1180	1280	905			940	1040	1140	765	M36x85	φ70x250	205
JTPG13000/1300-XX	13000	1300	940	770			1110	1210	1310	940			970	1070	1170	800	M36x90	φ70x250	217
JTPG14000/1400-XX	14000	1400	975	800			1140	1240	1340	975			1000	1100	1200	835	M36x90	φ70x250	221
JTPG15000/1500-XX	15000	1500	1005	830			1170	1270	1370	1005			1030	1130	1230	865	M36x90	φ70x250	225
JTPG16000/1600-XX	16000	1600	1025	850			1200	1300	1400	1025			1030	1130	1230	855	M39x95	φ80x250	239
JTPG17000/1700-XX	17000	1700	1075	870			1230	1330	1430	1075			1060	1160	1260	905	M39x100	φ80x250	243
JTPG18000/1800-XX	18000	1800	1105	900			1260	1360	1460	1105			1090	1190	1290	935	M39x100	φ80x250	244
JTPG19000/1900-XX	19000	1900	1135	920			1280	1380	1480	1135			1100	1200	1300	955	M42x105	φ80x250	248
JTPG20000/2000-XX	20000	2000	1160	950			1305	1405	1505	1160			1125	1225	1325	980	M42x105	φ80x250	252
JTPG22500/2250-XX	22500	2250	1235	1000			1360	1460	1560	1235			1160	1260	1360	1035	M48x115	φ90x300	272
JTPG25000/2500-XX	25000	2500	1300	1050			1420	1520	1620	1300			1220	1320	1420	1100	M48x120	φ90x300	290
JTPG27500/2750-XX	27500	2750	1365	1100			1460	1560	1660	1365			1260	1360	1460	1165	M48x120	φ90x300	295
JTPG30000/3000-XX	30000	3000	1425	1150			1520	1620	1720	1425			1320	1420	1520	1225	M52x130	φ100x300	303



Multi-directional sliding type JTPM series

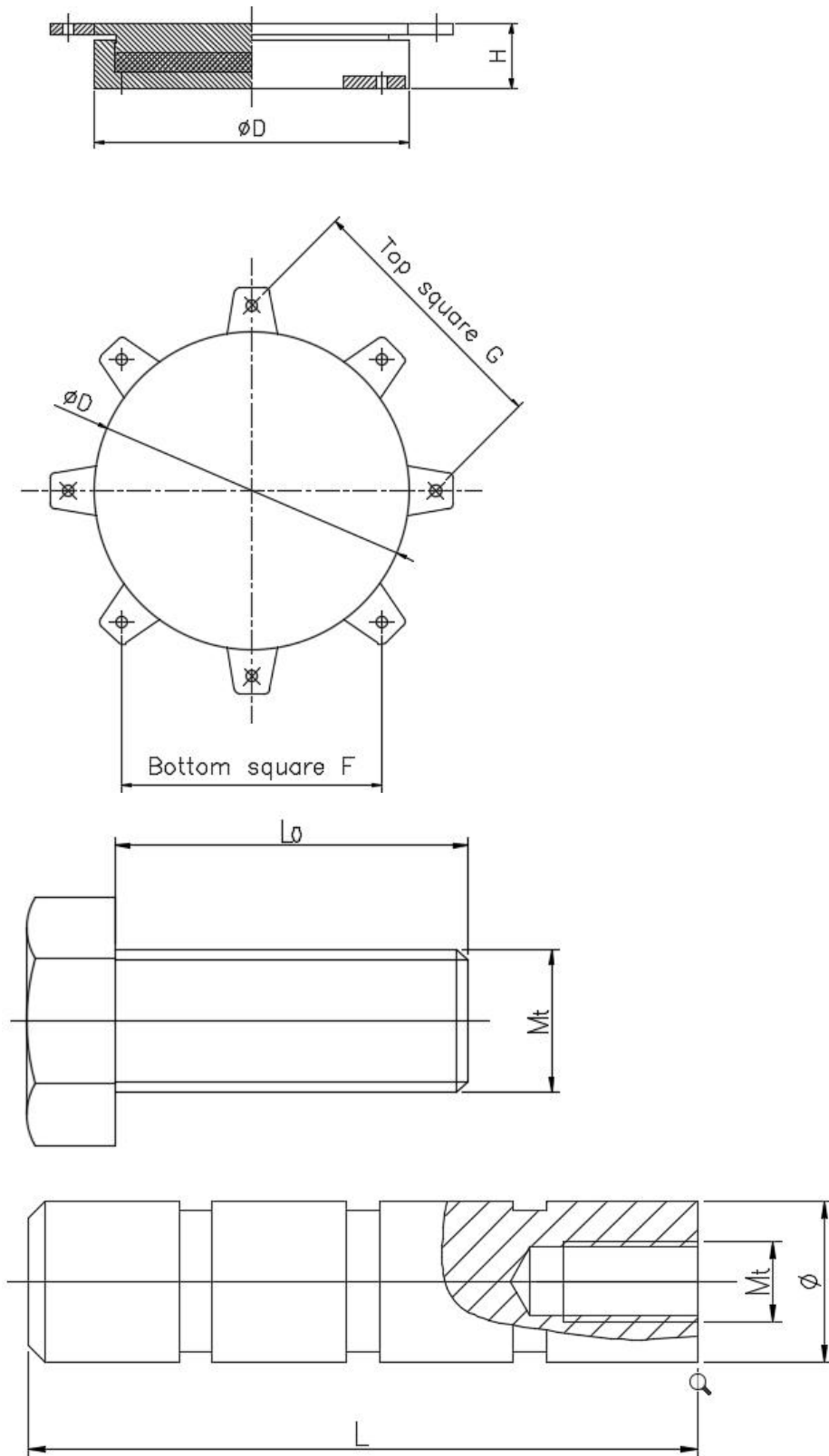


## Dimensions for Multi-directional sliding type

Bearing Model No.	Main parameters		Pot		Top plate											Anchor bolt	socket	H(mm)	
	Vertical (KN)	Secondary movement (mm) +/-	φD(mm)	F(mm)	Ty(mm)					Tx (mm)	Tyy (mm)					Txx (mm)	Mt x L0		φ x L
		SLS			ULS	±50	±100	±150	±200		±250	±50	±100	±150	±200				
JTPM500-XX/20	500	20	200	170	275	375	475	575	675	215	235	335	435	535	635	175	M8x30	φ20x100	68
JTPM1000-XX/20	1000	20	270	230	335	435	535	635	735	275	295	395	495	595	695	235	M8x30	φ20x100	78
JTPM1500-XX/20	1500	20	325	275	380	480	580	680	780	325	330	430	530	630	730	275	M8x30	φ20x100	81
JTPM2000-XX/20	2000	20	370	310	420	520	620	720	820	370	370	470	570	670	770	320	M8x30	φ20x100	86
JTPM2500-XX/20	2500	20	420	350	455	555	655	755	855	420	405	505	605	705	805	370	M10x35	φ26x100	92
JTPM3000-XX/20	3000	20	455	375	485	585	685	785	885	455	435	535	635	735	835	405	M10x35	φ26x100	104
JTPM3500-XX/20	3500	20	490	400	510	610	710	810	910	490	460	560	660	760	860	440	M10x40	φ26x150	112
JTPM4000-XX/20	4000	20	525	425	540	640	740	840	940	525	490	590	690	790	890	475	M10x40	φ26x150	121
JTPM4500-XX/20	4500	20	555	450	560	660	760	860	960	555	510	610	710	810	910	505	M10x40	φ26x150	124
JTPM5000-XX/20	5000	20	585	480		685	785	885	985	585		625	725	825	925	525	M12x45	φ26x150	132
JTPM6000-XX/20	6000	20	640	520		730	830	930	1030	640		670	770	870	970	580	M12x50	φ26x150	138
JTPM7000-XX/20	7000	20	690	560		770	870	970	1070	690		710	810	910	1010	630	M12x50	φ26x150	148
JTPM8000-XX/20	8000	20	740	600		805	905	1005	1105	740		745	845	945	1045	680	M12x60	φ26x150	155

JTPM9000-XX/20	9000	20	780	630		840	940	1040	1140	780		780	880	980	1080	720	M12x60	φ26x150	162
JTPM10000-XX/20	10000	20	825	670		875	975	1075	1175	825		815	915	1015	1115	765	M12x60	φ26x200	174
JTPM11000-XX/20	11000	20	860	710			1005	1105	1205	860			925	1025	1125	780	M16x70	φ30x200	181
JTPM12000-XX/20	12000	20	905	740			1035	1135	1235	905			955	1055	1155	825	M16x70	φ30x200	186
JTPM13000-XX/20	13000	20	940	770			1065	1165	1265	940			985	1085	1185	860	M16x70	φ30x200	197
JTPM14000-XX/20	14000	20	975	800			1090	1190	1290	975			1010	1110	1210	895	M16x70	φ30x200	203
JTPM15000-XX/20	15000	20	1005	830			1115	1215	1315	1005			1035	1135	1235	925	M16x70	φ30x200	210
JTPM16000-XX/20	16000	20	1025	850			1145	1245	1345	1045			1045	1145	1245	945	M20x80	φ40x250	219
JTPM17000-XX/20	17000	20	1075	870			1175	1275	1375	1075			1075	1175	1275	975	M20x80	φ40x250	226
JTPM18000-XX/20	18000	20	1105	900			1205	1305	1405	1105			1105	1205	1305	1005	M20x80	φ40x250	227
JTPM19000-XX/20	19000	20	1135	920			1235	1335	1435	1135			1115	1215	1315	1015	M24x90	φ50x250	233
JTPM20000-XX/20	20000	20	1160	950			1260	1360	1460	1160			1140	1240	1340	1040	M24x90	φ50x250	239
JTPM22500-XX/20	22500	20	1235	1000			1335	1435	1535	1235			1185	1285	1385	1085	M30x100	φ60x300	250
JTPM25000-XX/20	25000	20	1300	1050			1400	1500	1600	1300			1250	1350	1450	1150	M30x100	φ60x300	271
JTPM27500-XX/20	27500	20	1365	1100			1465	1565	1665	1365			1315	1415	1515	1215	M30x110	φ60x300	280
JTPM30000-XX/20	30000	20	1425	1150			1525	1625	1725	1425			1375	1475	1575	1275	M30x110	φ60x300	291

Fixed type JTPF series



## Dimensions for fixed type

Bearing Model No.	Main parameters		Pot		Top plate		Anchor bolt	socket	H (mm)
	Vert. load (KN)	Hori. load (KN)	$\phi D$ (mm)	F(mm)	$\phi d$ (mm)	G (mm)	Mt x L0	$\phi$ x L	
	SLS	ULS							
JTPF500/50	500	50	200	170	200	170	M10x30	$\phi 20 \times 150$	58
JTPF1000/100	1000	100	270	230	270	230	M10x30	$\phi 20 \times 150$	66
JTPF1500/150	1500	150	325	275	325	275	M12x35	$\phi 26 \times 150$	73
JTPF2000/200	2000	200	370	310	370	310	M16x40	$\phi 30 \times 150$	82
JTPF2500/250	2500	250	420	350	420	350	M16x40	$\phi 30 \times 150$	89
JTPF3000/300	3000	300	455	375	455	375	M16x40	$\phi 30 \times 150$	95
JTPF3500/350	3500	350	490	400	490	400	M20x50	$\phi 40 \times 200$	103
JTPF4000/400	4000	400	525	425	525	425	M20x50	$\phi 40 \times 200$	113
JTPF4500/450	4500	450	555	450	555	450	M20x50	$\phi 40 \times 200$	115
JTPF5000/500	5000	500	585	480	585	480	M24x60	$\phi 50 \times 200$	123
JTPF6000/600	6000	600	640	520	640	520	M24x60	$\phi 50 \times 200$	135
JTPF7000/700	7000	700	690	560	690	560	M24x70	$\phi 50 \times 200$	142
JTPF8000/800	8000	800	740	600	740	600	M30x70	$\phi 60 \times 200$	150
JTPF9000/900	9000	900	780	630	780	630	M30x80	$\phi 60 \times 200$	157
JTPF10000/1000	10000	1000	825	670	825	670	M30x80	$\phi 60 \times 200$	168
JTPF11000/1100	11000	1100	860	710	860	710	M36x85	$\phi 70 \times 250$	181
JTPF12000/1200	12000	1200	905	740	905	740	M36x85	$\phi 70 \times 250$	186
JTPF13000/1300	13000	1300	940	770	940	770	M36x90	$\phi 70 \times 250$	192
JTPF14000/1400	14000	1400	975	800	975	800	M36x90	$\phi 70 \times 250$	200
JTPF15000/1500	15000	1500	1005	830	1005	830	M36x90	$\phi 70 \times 250$	205
JTPF16000/1600	16000	1600	1025	850	1025	850	M39x95	$\phi 80 \times 250$	211
JTPF17000/1700	17000	1700	1075	870	1075	870	M39x100	$\phi 80 \times 250$	216
JTPF18000/1800	18000	1800	1105	900	1105	900	M39x100	$\phi 80 \times 250$	217
JTPF19000/1900	19000	1900	1135	920	1135	920	M42x105	$\phi 80 \times 250$	220
JTPF20000/2000	20000	2000	1160	950	1160	950	M42x105	$\phi 80 \times 250$	228
JTPF22500/2250	22500	2250	1235	1000	1235	1000	M48x115	$\phi 90 \times 300$	247
JTPF25000/2500	25000	2500	1300	1050	1300	1050	M48x120	$\phi 90 \times 300$	255
JTPF27500/2750	27500	2750	1365	1100	1365	1100	M48x120	$\phi 90 \times 300$	268
JTPF30000/3000	30000	3000	1425	1150	1425	1150	M52x130	$\phi 100 \times 300$	278