

INTERNATIONAL STANDARD

ISO
10792-3

First edition
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Aerospace — Airframe spherical plain bearings in corrosion-resisting steel with self-lubricating liner —

Part 3: Technical specification

*Aéronautique — Rotules en acier résistant à la corrosion, à garniture
autolubrifiante, utilisées dans la structure des aéronefs —*

Partie 3: Spécifications techniques



Reference number
ISO 10792-3:1995(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10792-3 was prepared by Technical Committee ISO/TC 20, *Aircraft and space vehicles*, Subcommittee SC 15, *Airframe bearings*.

ISO 10792 consists of the following parts, under the general title *Aerospace — Airframe spherical plain bearings in corrosion-resisting steel with self-lubrication liner*:

- Part 1: Metric series
- Part 2: Inch series
- Part 3: Technical specification

Annexes A to D form an integral part of this part of ISO 10792.

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Aerospace — Airframe spherical plain bearings in corrosion-resisting steel with self-lubricating liner —

Part 3:

Technical specification

1 Scope

This part of ISO 10792 gives a technical specification (required characteristics, the methods for checks and tests, the quality assurance, and the qualification, reception and delivery conditions) for spherical plain bearings in corrosion-resisting steel, with self-lubricating liner, designed to be subjected under load to slow rotations and low-strain oscillatory motion only.

It is applicable to spherical plain bearings consisting of two concentric rings between which is interposed a self-lubricating liner which is bonded to the spherical surface of the outer ring, when reference is made to it in the relevant product standards or in a defining document.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 10792. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 10792 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 6811:1983, *Spherical plain bearings — Vocabulary*.

ISO 9002:1994, *Quality systems — Model for quality assurance in production, installation and servicing*.

ISO 10792-1:1995, *Aerospace — Airframe spherical plain bearings in corrosion-resisting steel with self-lubricating liner — Part 1: Metric series*.

ISO 10792-2:1995, *Aerospace — Airframe spherical plain bearings in corrosion-resisting steel with self-lubricating liner — Part 2: Inch series*.

ISO 11078:1994, *Aerospace — Aircraft de-icing/anti-icing non-Newtonian fluids, ISO type II*.

3 Definitions

For the purposes of this part of ISO 10792, the definitions given in ISO 6811 and ISO 10792-1 and the following definitions apply.

3.1 crack: Break in the material which may extend in all directions and be intercrystalline or transcrystalline in character.

3.2 score, scratch: Open surface defect resulting from a tearing of the metal.

3.3 lap: Surface defect where particles of metal or sharp edges are folded over and then rolled or forged into the surface.

3.4 seam: Unwelded fold which appears as an open defect in the material.

3.5 void: Area where the adhesive bond is broken or non-existent leaving a smooth, clean space at the interface between the metallic surface and the liner material

3.6 delivery lot: Lot of spherical plain bearings packaged for delivery having the same identity block although they may originate from different production lots.

4 Required characteristics, inspection and test methods

The required characteristics and the inspection and test methods for qualification and acceptance tests shall be as defined in 4.1 to 4.18.

No.	Characteristics	Requirements	Inspection and test methods	Q ¹⁾	A ¹⁾
4.1	Materials	Materials shall conform to product standard or design documents	Chemical analysis or analysis based on the manufacturer's certificate of conformity of the semi-finished product.	X	X
4.2	Configuration	The width of the inner ring shall be greater than the width of the outer ring, so that a tilting movement is possible in addition to rotation movement. The outer ring shall have no filling (assembly) slots. The outer ring may have face grooves for mechanical swaging.		X	X
4.3	Dimensions and tolerances	Dimensions and tolerances shall conform to product standard or design documents.	Appropriate measuring tools. Measurement of bore and of outer diameter: a) Rings having a width of ≤ 10 mm: in the centre plane parallel to the outer faces. b) Rings having a width of > 10 mm: in two planes parallel to the outer faces and placed at a distance from these faces twice the maximum value of the ring chamfer. Determine the minimum and maximum diameters in each plane. Measurement of ring width: Check on the width of each ring (distance between the two faces) at a minimum of four points. Check on the symmetry of the rings: Repeat after rotation of the outer ring through 180° .	X	X
4.4	Masses	Masses shall conform to product standard or design documents	Appropriate methods.	X	
4.5	Marking	Marking shall conform to product standard or design documents. Marking shall be legible and shall not have a detrimental effect on the material nor adversely affect the working of the spherical plain bearing.	Visual inspection.	X	X

No.	Characteristics	Requirements	Inspection and test methods	Q ¹⁾	A ¹⁾
4.6	Surface appearance	The bearings shall be free of surface discontinuities (see 3.1, 3.2, 3.3 and 3.4) liable to have an adverse affect on their characteristics and endurance. The liner shall not contain contaminant products and shall not show any breaks, tears or voids. Lubrication is not permitted.		X	X
4.6.1	Assembled rings		Visual inspection using suitable methods.		
4.6.2	Unassembled rings		Magnetic-particle or dye-penetrant inspection.		
4.7	Hardness	Hardness shall conform to product standard or design documents.	Appropriate measurement procedures and instruments.	X	X
4.8	Surface roughness	Surface roughness shall conform to product standard or design documents.	Appropriate measurement instruments or visual and manual samples.	X	X
4.9	Surface treatment	Surface treatment shall conform to product standard or design documents.	Visual check. In accordance with surface treatment standard.	X	X
4.10	Behaviour during rotation and tilting movements	The spherical plain bearing shall be able to move freely within the limits fixed for angles of tilt in the product standard or design documents.	Manual check.	X	X
4.11	Starting torques with zero load				
4.11.1	At ambient temperature	Starting torques shall conform to product standard or design documents.	Appropriate measurement procedures and instruments. Precede this measurement with a few manual rotations and tilting movements. With zero load, measure the torque, gradually applied to the inner ring, in both directions, maintaining the outer ring fixed. Note the maximum value required for the inner ring to be set in motion.	X	X
4.11.2	At low temperature	Starting torques shall be equal to or less than twice those indicated in the product standard or design documents.	Expose the spherical plain bearing for 4 h to the minimum temperature $\pm 5^\circ\text{C}$. Immediately afterwards, measure the torque as indicated in 4.11.1.	X	
4.11.3	Following a cycle of extreme temperatures	Starting torques shall conform to requirements specified in the product standard or design documents.	Expose the spherical plain bearing for 1 h to the minimum temperature $\pm 2^\circ\text{C}$, followed by 1 h at the maximum temperature $\pm 2^\circ\text{C}$. Repeat this cycle 10 times in succession. Four hours after this set of cycles, measure the torque, at ambient temperature, in accordance with in 4.11.1.	X	

No.	Characteristics	Requirements	Inspection and test methods	Q ¹⁾	A ¹⁾
4.12	Compliance of spherical surfaces				
4.12.1	Fabric-type liners	No difference between measurements obtained on spherical surfaces shall exceed 0,08 mm.	Clad the bearing in plastic material identical to that used for metallurgical mounts. Section the bearing on a diameter and normal to the race side face. Grind and polish the exposed surface. Measure the thickness, t , checked at a minimum of five points uniformly spaced around the spherical diameter with the aid of, for example, an optical dial indicator.	X	
4.12.2	Moulded liners	The maximum liner thickness shall occur at the midpoint and shall comply with the requirements of table 1.	Proceed as described in 4.12.1. Measurements shall be made at the midpoint, at the points situated at $C/10$ from each edge of the outer ring and at least two other equally spaced points (see figure 1). NOTE — The dimension C is defined in ISO 10792-1 and ISO 10792-2.	X	
4.13	Permissible static loads				
4.13.1	Radial, C_s	The permissible radial static load shall conform to product standard or design documents. With this load, the inner ring shall be able to take any position within the limit of the angle of tilt indicated in the product standard or design documents, and there shall be no maximum total deformations greater than those indicated in table 2. After suppression of the load, there shall be no residual deformations greater than those indicated in table 2.	See A.1.1.	X	
4.13.2	Axial, C_a	The permissible axial static load shall conform to product standard or design documents. After suppression of the load, there shall be no residual deformations greater than those indicated in table 2.	See A.2.1.	X	
4.14	Ultimate loads	After suppression of the radial and axial loads, there shall not be no rupture, nor crack, nor expulsion of the inner ring.	See A.1.2 and A.2.2.	X	

No.	Characteristics	Requirements	Inspection and test methods	Q ¹⁾	A ¹⁾
4.15	Permissible dynamic radial loads, C_{25}	Permissible dynamic radial loads at ambient temperature, at low temperature and at high temperature shall conform to product standard or design documents. After suppression of the loads: a) there shall be no metal-to-metal contact between the inner and the outer rings; b) wear and tear of the liner shall not exceed the values indicated in table 3; c) resistance to peeling and adhesion of the liner shall meet the requirements specified in 4.17 and 4.18; d) the starting torque at zero load determined in accordance with 4.11 shall not exceed the value specified in table 4.	See annex B.	X	
4.16	Compatibility between liner and fluids	At the end of the dynamic load test, the requirements specified in 4.15 shall be satisfied.	Use one spherical plain bearing per fluid. Turn the inner ring so that it is perpendicular to the outer ring. In this position, immerse the spherical plain bearings, for 24 h, in the fluids defined in annex C which shall be brought to the following temperatures: a) $+ 70\text{ °C} \pm 3\text{ °C}$ for those defined in C.3; b) $+ 45\text{ °C} \pm 3\text{ °C}$ for those defined in C.1 and C.2; c) ambient temperature for that defined in C.4. 30 min after removing the bearings from the fluids, test in accordance with annex B, under the conditions for testing at ambient temperature following immersion.	X	
4.17	Resistance of the liner to peeling	These requirements and this test shall only be applied if there is an indication from the manufacturer that the liner is susceptible to peeling. It shall present a mean peeling resistance of greater than 0,35 N per millimetre of width of the outer ring reduced by 2 mm to eliminate the effects of edges and chamfers. 75 % of the recording curve shall lie above 0,35 N/mm.	See annex D.	X	X ²⁾

No.	Characteristics	Requirements	Inspection and test methods	Q ¹⁾	A ¹⁾
4.18	Bond integrity	The liner shall not contain any contaminating substances and shall firmly adhere to the outer ring over at least 90 % of the contact area. No voids are allowed which cannot be circumscribed within a circle of diameter equal to: a) 25 % of the outer ring width; or b) 6 mm, whichever is less.	After the test to determine resistance to peeling, evaluate the location and size of any voids. If the liner is non-peelable, divide bearings which have been subjected to radial dynamic loads into sections and determine the bond integrity by chipping, scraping, abrasion or other appropriate means.	X	X
1) Q = Qualification test A = Acceptance test. 2) For acceptance testing, the resistance to peeling shall be measured immediately after assembly and polymerization.					

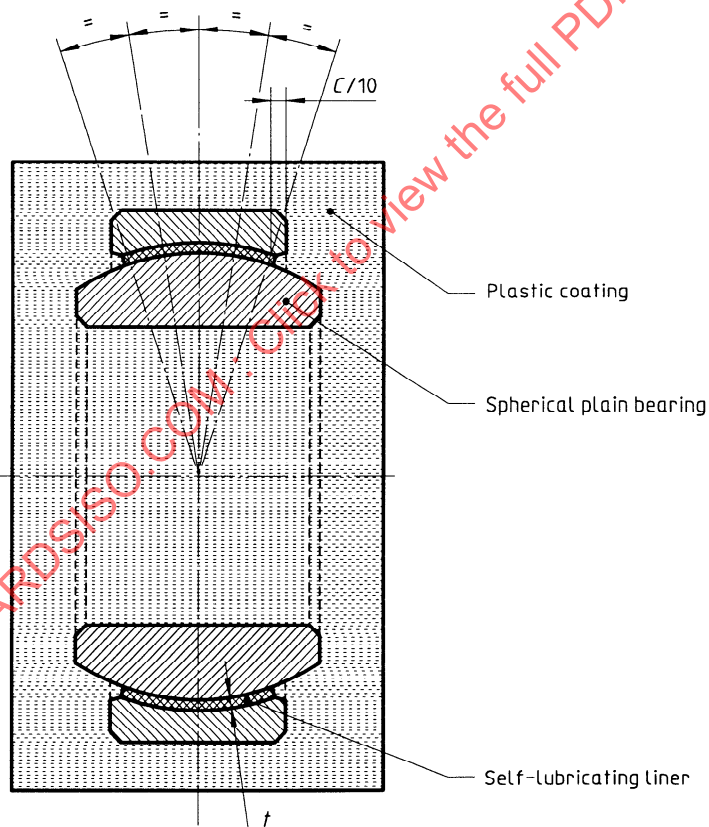


Figure 1

Table 1 — Liner thickness

Dimensions in millimetres

Diameter code		Liner thickness, <i>t</i>			
		Entire liner, except points situated at <i>C</i> /10		Points situated at <i>C</i> /10	
Metric series ¹⁾	Inch series ²⁾	min.	max.	min.	max.
05 to 25	03 to 16	0,19	0,56	0,19	0,37
30 to 50	18 to 32	0,19	0,72	0,19	0,40
> 50	> 32	By agreement		By agreement	

1) See ISO 10792-1.

2) See ISO 10792-2.

Table 2 — Deformations

Dimensions in millimetres

Diameter code		Maximum total deformations with C_s load	Maximum residual deformations	
			Load	
Metric series ²⁾	Inch series ²⁾		C_s	C_a
05 to 08	03 to 05	0,25	0,08	0,12
10 to 12	06 to 07	0,37		
15 to 17	08 to 10	0,43		
20 to 25	12 to 16	0,5		
30 to 40	20 to 24	0,75	0,1	0,14
45 to 55	28 to 32	1	0,12	0,16
1) See ISO 10792-1.				
2) See ISO 10792-2.				

Table 3 — Maximum allowable wear and tear of the liner

Dimensions in millimetres

Test with permissible dynamic radial load, C_{25}	Allowable wear and tear of the liner max.
at room temperature	0,115
at low temperature	0,2
at high temperature	0,15
at ambient temperature following immersion	0,15

Table 4 — Starting torque after permissible dynamic radial load test

Diameter code	Torque, max.	
	Wide series	Narrow series
a) Metric series		
05	9	4
06	9	6
08	11	8
10	18	12
12	36	22
15	50	43
17	60	55
20	91	—
22	—	130
25	300	158
30	595	246
35	485	355
40	565	495
45	765	670
50	970	885
55	1 335	—
b) Inch series		
03	—	—
04	8	6
05	11	10
06	17	13
07	26	17
08	37	24
09	52	34
10	62	49
12	93	86
14	130	119
16	302	198
20	393	229
24	554	460
28	756	668
32	966	1 096
1) See ISO 10792-1.		
2) See ISO 10792-2.		

5 Quality assurance

5.1 Manufacturer's approval

See ISO 9002.

5.2 Product qualification

See tables 5, 6 and 7.

Qualification of a spherical plain bearing may be considered to have been acquired if qualification has also been obtained, following inspections and tests, for the spherical plain bearings situated immediately before and immediately after the spherical plain bearing under consideration, within the range of spherical plain bearings appearing in the product standard. Qualification to either inch or metric series bearings qualifies a bearing manufacturer to both series.

6 Acceptance conditions

6.1 Manufacturer's responsibility

See ISO 9002.

6.2 Inspections and tests to be carried out by the manufacturer

Acceptance of a delivery lot shall be carried out in accordance with table 8, with the exception of the sampling plan which may be altered with the agreement of the customer or of the authority responsible for acceptance.

6.3 Customer quality control

Upon reception of a delivery lot, the customer may proceed with his own checks using either partially or totally the specifications given in table 8 to ensure that the items reach the quality level required and to determine whether the delivery lot is acceptable. This

check may be carried out on the premises of the customer or, by special agreement with the manufacturer, at the latter's factory.

7 Packing

The spherical plain bearing shall be packed, either individually, or in rolls to avoid deterioration during transportation. They shall be protected against humidity, corrosion, any form of dirt and other harmful agents.

The packing material in contact with the spherical plain bearing shall satisfy these requirements.

The following indications shall appear on each individual packing:

- name and address of manufacturer;
- quantity (for rolls);
- identity block as defined in the product standards or design documents;
- packing date.

In the case of group packing, the minimum indications shall be as follows:

- manufacturer's name and address;
- contract or order number;
- quantity (i.e. number of items);
- identity block as defined in the product standards or design documents;

8 Certificate of conformity

All spherical plain bearings supplied in accordance with ISO 10792 shall be accompanied by a certificate of conformity.

Table 5 — Non-destructive inspections to be carried out for qualification

Nature of inspections and tests ¹⁾		Serial number of samples																							
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Materials	4.1	X	X	X	X	X																			
Configuration	4.2	X	X	X	X	X																			
Dimensions and tolerances	4.3	X	X	X	X	X																			
Masses	4.4	X	X	X	X	X																			
Marking	4.5	X	X	X	X	X																			
Surface appearance	4.6	X	X	X	X	X																			
Hardness	4.7	X	X																						
Surface roughness	4.8	X	X	X	X																				
Surface treatment	4.9	X	X	X	X	X																			
Behaviour during rotation and tilting movements	4.10	X	X	X	X	X																			
Starting torques with zero load	at ambient temperature	4.11.1	X	X																					
	at low temperature ²⁾	4.11.2	X																						
	following a cycle of extreme temperatures ²⁾	4.11.3		X																					
Key — A cross (X) signifies an inspection or a test.																									
1) The order of non-destructive inspections and tests shall be left to the initiative of the qualification authority. Tests shall be valid for spherical plain bearings with or without face grooves.																									
2) For these tests, the qualification acquired for the diameter code selected from either specified series of spherical plain bearings (defined in clause 2) shall automatically be valid for all other diameter codes and series.																									

Table 6 — Destructive inspections and tests to be carried out for qualification

Nature of inspections and tests ¹⁾				Serial number of samples																								
				1 ²⁾	2 ²⁾	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Compliance of spherical surfaces			4.12																									X
Tests with static load	radial	permissible (C _s)	4.13.1			X	X																					
		ultimate	4.14			X	X																					
	axial	permissible (C _a)	4.13.2					X																				
		ultimate	4.14					X																				
Tests with permissible dynamic radial load (C ₂₅)	at ambient temperature							X																				
	at low temperature ³⁾		4.15						X	X	X																	
	at high temperature ³⁾											X	X	X														
Compatibility with fluids test	at + 70 °C ± 3 °C ³⁾																				X	X						
	at + 45 °C ± 3 °C ³⁾		4.16																				X	X				
	at ambient temperature ³⁾																									X		
Tests on the liner	peeling ³⁾		4.17												X	X	X											
	bond integrity ³⁾		4.18															X	X	X								
Key — A cross (X) signifies an inspection or a test.																												
1) The order of inspections and tests shall be left to the initiative of the qualification authority.																												
2) Serial numbers 1 and 2 are not used due to potential for damage during exposure to temperature extremes during non-destructive testing.																												
3) For these tests, the qualification acquired for the diameter code selected from either specified series of spherical plain bearings shall automatically be valid for all other diameter codes and series.																												

Table 7 — Test distribution to be carried for qualification

Nature of inspections and tests				Series																															
				narrow																wide															
				Diameter codes																Diameter codes															
				Metric series ¹⁾																Metric series ¹⁾															
				05	06	08	10	12	15	17	22	25	30	35	40	45	50	05	06	08	10	12	15	17	20	25	30	35	40	45	50	55			
				Inch series ²⁾																Inch series ²⁾															
03	04	05	06	07	08	09	10	12	14	16	20	24	28	32	03	04	05	06	07	08	09	10	12	14	16	20	24	28	32						
Materials			4.1	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
Configuration			4.2	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
Dimensions and tolerances			4.3	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
Masses			4.4	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
Marking			4.5	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
Surface appearance			4.6	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
Hardness			4.7	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
Surface roughness			4.8	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
Surface treatment			4.9	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
Behaviour during rotation and tilting movements			4.10	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
Starting torques with zero load	at ambient temperature		4.11.1	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
	at low temperature		4.11.2					X																											
	following a cycle of extreme temperatures		4.11.3					X																											
Compliance of spherical surfaces			4.12	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
Tests with static load	radial	permissible	4.13.1	X		X		X		X		X		X		X		X	X			X		X		X		X							
		ultimate	4.14	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
	axial	permissible	4.13.2	X		X		X	X		X		X		X		X		X	X			X		X		X		X						
		ultimate	4.14	X		X		X	X		X		X		X		X		X	X			X		X		X		X						

Table 7 — Test distribution to be carried out for qualification (concluded)

Nature of inspections and tests			Series																																	
			narrow																wide																	
			Diameter codes																Diameter codes																	
			Metric series ¹⁾																Metric series ¹⁾																	
			05	06	08	10	12	15	17	22	25	30	35	40	45	50	05	06	08	10	12	15	17	20	25	30	35	40	45	50	55					
Inch series ²⁾																Inch series ²⁾																				
03	04	05	06	07	08	09	10	12	14	16	20	24	28	32	03	04	05	06	07	08	09	10	12	14	16	20	24	28	32							
Tests with permissible dynamic radial load	at ambient temperature	4.15	X		X		X	X		X		X	X	X	X	X		X		X	X			X		X		X		X						
	at low temperature						X																													
	at high temperature						X																													
Compatibility with fluids tests	à + 70 °C ± 3 °C	4.16					X																													
	à + 45 °C ± 3 °C						X																													
	at ambient temperature						X																													
Tests on the liner	peeling resistance	4.17					X																													
	bond integrity	4.18					X																													
NOTE — For a total qualification of the four series spherical plain bearings, the following should be carried out: — one complete test [diameter code 15 (metric series) or diameter code 08 (inch series)] — 15 partial tests — 14 de facto qualifications in accordance with 5.2																																				
1) See ISO 10792-1. 2) See ISO 10792-2.																																				

Table 8 — Inspections and tests to be carried out for acceptance

Nature of inspections and tests ¹⁾		Sampling plan ²⁾
Materials	4.1	Manufacturer's certificate of compliance for rough products
Dimensions and tolerances	4.3	10 % ³⁾
Marking	4.5	100%
Surface appearance	4.6	Non-assembled spherical plain bearing: 100 % Assembled spherical plain bearing: 10 % ³⁾
Hardness	4.7	1 % per heat treatment lot ³⁾
Surface roughness	4.8	5 % ³⁾
Surface treatment	4.9	1 % per surface treatment ³⁾
Behaviour during rotation and tilting movements	4.10	100 %
Starting torques with zero load at ambient temperature	4.11.1	100 % ³⁾
Test to determine resistance of the liner to peeling	4.17	1 % ³⁾
Bond integrity of the liner	4.18	1 % ³⁾
1) The order in which inspections and tests are to be carried out shall be left to the initiative of the qualification authority. 2) For the manufacturer, when sampling is not 100 %, any fault noted during an inspection or test of a lot shall require sampling for that feature to be raised to 100 % for that lot. 3) A minimum of two parts.		

Annex A

(normative)

Checking of permissible and ultimate static loads

A.1 Radial static loads (C_s)

A.1.1 Permissible radial static load

Mount the spherical plain bearing on a frame as shown in figure A.1.

Apply an initial radial load equal to 5 % of C_s .

Set dial indicator to zero.

Increase the initial load gradually by 1 % per second until the value C_s is obtained, ensuring that the load remains in the midplane of the outer ring throughout the test.

Maintain load C_s for 3 min.

Note the value of total deformation indicated on dial indicator.

Bring this load gradually down again by 1 % per second until the value of the initial load is obtained.

Note the value of the permanent deformation indicated on dial indicator.

Remove the initial load.

Repeat this procedure after rotating one ring through an angle of 180° in relation to the other.

A.1.2 Ultimate radial static loads

This test follows on from the test described in A.1.1.

Apply a radial load of 1,5 C_s .

Remove load.

Check spherical plain bearing.

A.2 Axial static loads (C_a)

A.2.1 Permissible axial static load

Mount the spherical plain bearing on a support as shown in figure A.2.

Apply an initial axial load equal to 5 % of C_a .

Set dial indicator to zero.

Increase the initial load gradually by 1 % per second until the value C_a is obtained.

Maintain load C_a for 3 min.

Bring this load gradually down again by 1 % per second until the value of the initial load is obtained.

Note the value of the permanent deformation indicated on dial indicator.

Remove the initial load.

Repeat this procedure after turning the spherical plain bearing round so that it rests on its other face.

A.2.2 Ultimate axial static loads

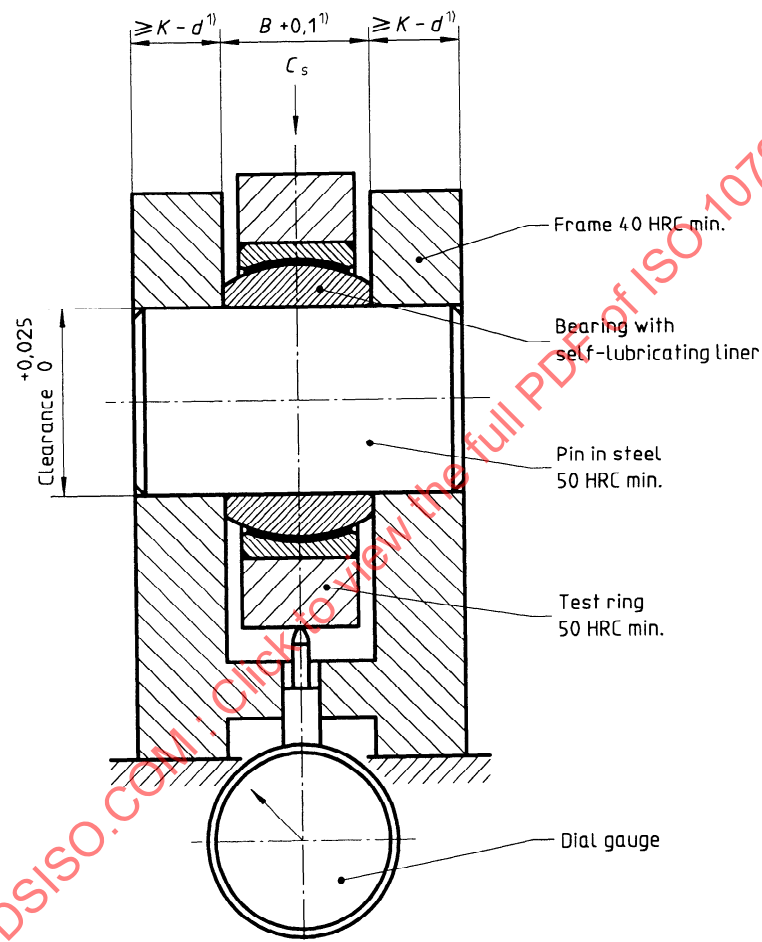
This test follows on from the test described in A.2.1.

Apply an axial load of 1,5 C_a .

Remove load.

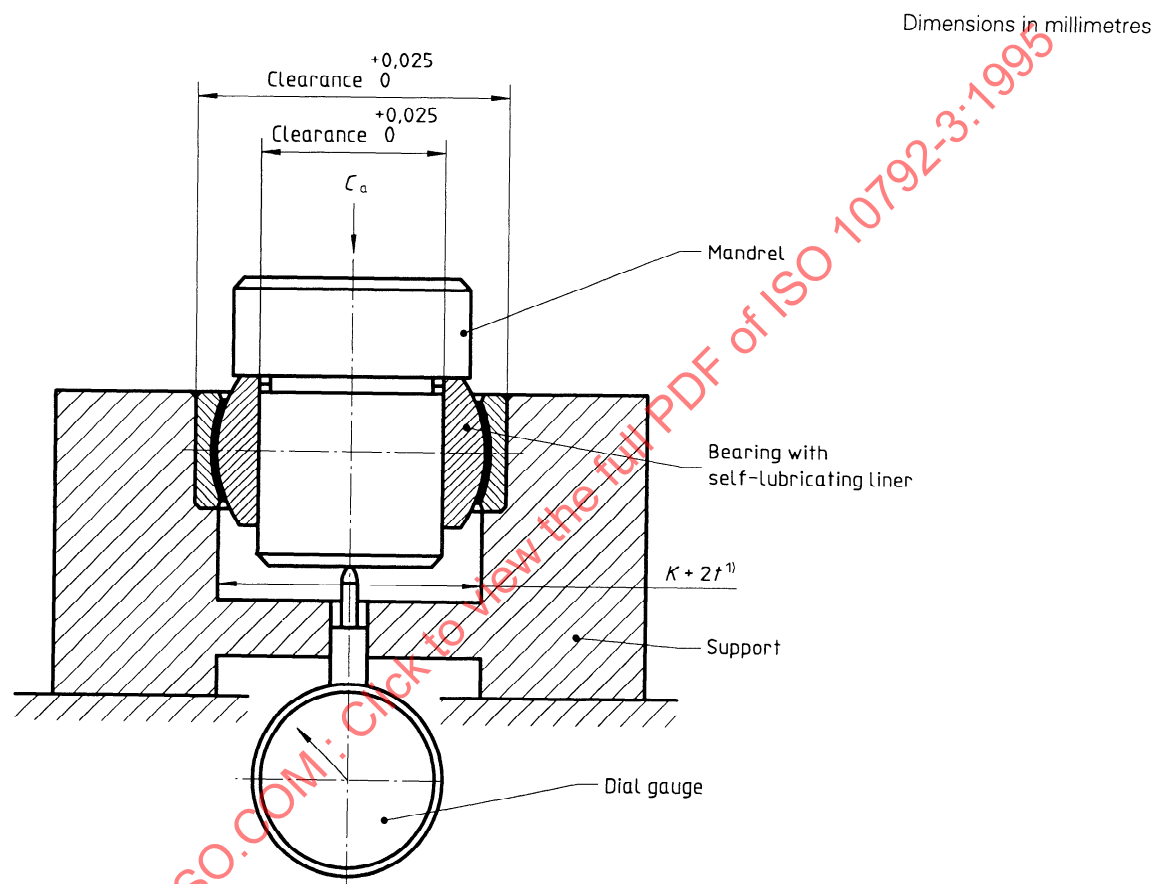
Check spherical plain bearing.

Dimensions in millimetres



1) See ISO 10792-1 and ISO 10792-2.

Figure A.1



1) See ISO 10792-1, ISO 10792-2 and 4.12.

Figure A.2

Annex B

(normative)

Checking of permissible dynamic radial loads (C_{25})

Mount the spherical plain bearing on a test bench as shown in figure B.1 designed as to allow for slight shaft bending only, the test load to be applied acting as a shear load on the shaft.

Apply the load C_{25} as dead load on the spherical plain bearing for 15 min.

Adjust the wear indicator to zero.

Subject the spherical plain bearing to angular oscillation cycles under the conditions specified in table B.1. One oscillating cycle includes an angular displacement of the inner ring in relation to the outer ring from 0° to $+25^\circ$, then from $+25^\circ$ to -25° and finally from -25° to 0° .

Check and record the wear either continuously or after 1 000, 5 000 and 25 000 cycles.

Table B.1

	Testing at ambient temperature	Testing at low temperature	Testing at high temperature	Testing at ambient temperature after immersion
Number of cycles	25 000	25 000	25 000	25 000
Oscillation rate	(12 ± 2) cycles/min	(12 ± 2) cycles/min	(12 ± 2) cycles/min	(12 ± 2) cycles/min
Test load	100 % of load C_{25}	75 % of load C_{25}	100 % of load C_{25}	75 % of load C_{25}
Temperature to be maintained throughout the test	Ambient temperature	$-55\text{ }^\circ\text{C}$ ¹⁾	$+163\text{ }^\circ\text{C} \pm 5\text{ }^\circ\text{C}$ ²⁾	Ambient temperature
1) The temperature may increase until it reaches $-35\text{ }^\circ\text{C}$. In this event, stop the test to decrease temperature to $-55\text{ }^\circ\text{C}$ and then continue the test. 2) The heat caused by friction may be compensated by adjusting the supply of heat.				