SVENSK STANDARD
SS-ISO 12240-4:2017

Fastställd/Approved: 2017-12-08
Publicerad/Published: 2017-12-08
Utgåva/Edition: 1
Språk/Language: engelska/English
ICS: 21.100.20

Sfäriska glidlager –
Del 4: Ledlager (ISO 12240-4:1998, IDT)

Spherical plain bearings –
Part 4: Spherical plain bearing rod ends (ISO 12240-4:1998, IDT)

Standarder får världen att fungera

SIS (Swedish Standards Institute) är en fristående ideell förening med medlemmar från både privat och offentlig sektor. Vi är en del av det europeiska och globala nätverk som utarbetar internationella standarder. Standarder är dokumenterad kunskap utvecklad av framstående aktörer inom industri, näringsliv och samhälle och befrämjar handel över gränser, bidrar till att processer och produkter blir säkrare samt effektiviserar din verksamhet.

Delta och påverka
Som medlem i SIS har du möjlighet att påverka framtida standarder inom ditt område på nationell, europeisk och global nivå. Du får samtidigt tillgång till tidig information om utvecklingen inom din bransch.

Ta del av det färdiga arbetet
Vi erbjuder våra kunder allt som rör standarder och deras tillämpning. Hos oss kan du köpa alla publikationer du behöver – allt från enskilda standarder, tekniska rapporter och standard-paket till handböcker och onlinetjänster. Genom vår webbtjänst e-nav får du tillgång till ett lättnavigerat bibliotek där alla standarder som är aktuella för ditt företag finns tillgängliga. Standarder och handböcker är källor till kunskap. Vi säljer dem.

Utveckla din kompetens och lyckas bättre i ditt arbete
Hos SIS kan du gå öppna eller företagsinterna utbildningar kring innehåll och tillämpning av standarder. Genom vår närhet till den internationella utvecklingen och ISO får du rätt kunskap i rätt tid, direkt från källan. Med vår kunskap om standarders möjligheter hjälper vi våra kunder att skapa verklig nytta och lönsamhet i sina verksamheter.

Vill du veta mer om SIS eller hur standarder kan effektivisera din verksamhet är du välkommen in på www.sis.se eller ta kontakt med oss på tel 08-555 523 00.

Standards make the world go round

SIS (Swedish Standards Institute) is an independent non-profit organisation with members from both the private and public sectors. We are part of the European and global network that draws up international standards. Standards consist of documented knowledge developed by prominent actors within the industry, business world and society. They promote cross-border trade, they help to make processes and products safer and they streamline your organisation.

Take part and have influence
As a member of SIS you will have the possibility to participate in standardization activities on national, European and global level. The membership in SIS will give you the opportunity to influence future standards and gain access to early stage information about developments within your field.

Get to know the finished work
We offer our customers everything in connection with standards and their application. You can purchase all the publications you need from us - everything from individual standards, technical reports and standard packages through to manuals and online services. Our web service e-nav gives you access to an easy-to-navigate library where all standards that are relevant to your company are available. Standards and manuals are sources of knowledge. We sell them.

Increase understanding and improve perception
With SIS you can undergo either shared or in-house training in the content and application of standards. Thanks to our proximity to international development and ISO you receive the right knowledge at the right time, direct from the source. With our knowledge about the potential of standards, we assist our customers in creating tangible benefit and profitability in their organisations.

If you want to know more about SIS, or how standards can streamline your organisation, please visit www.sis.se or contact us on phone +46 (0)8-555 523 00

Den internationella standarden ISO 12240-4:1998 gäller som svensk standard. Detta dokument innehåller den officiella engelska versionen av ISO 12240-4:1998.

The International Standard ISO 12240-4:1998 has the status of a Swedish Standard. This document contains the official version of ISO 12240-4:1998.

Upplysningar om sakinnehållet i standarden lämnas av SIS, Swedish Standards Institute, telefon 08-555 520 00. Standarder kan beställas hos SIS Förlag AB som även lämnar allmänna upplysningar om svensk och utländsk standard.

Information about the content of the standard is available from the Swedish Standards Institute (SIS), telephone +46 8 555 520 00. Standards may be ordered from SIS Förlag AB, who can also provide general information about Swedish and foreign standards.

Denna standard är framtagen av kommittén för Rullningslager, SIS/TK 105.

Har du synpunkter på innehållet i den här standarden, vill du delta i ett kommande revideringsarbete eller vara med och ta fram andra standarder inom området? Gå in på www.sis.se - där hittar du mer information.

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standard 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 12240-4 was prepared by Technical Committee ISO/TC 4, *Rolling bearings*, Subcommittee SC 7, *Spherical plain bearings*.

This first edition cancels and replaces ISO 6126:1987 of which it constitutes a technical revision.

ISO 12240 consists of the following parts, under the general title *Spherical plain bearings*:

— *Part 1: Radial spherical plain bearings*

— *Part 2: Angular contact radial spherical plain bearings*

— *Part 3: Thrust spherical plain bearings*

— *Part 4: Spherical plain bearing rod ends*

International Organization for Standardization
Case postale 56 • CH-1211 Genève 20 • Switzerland
Internet iso@iso.ch

Printed in Switzerland

Spherical plain bearings —

Part 4:
Spherical plain bearing rod ends

1 Scope

This part of ISO 12240 specifies dimensions, tolerances and radial internal clearances for various dimension series of spherical plain bearing rod ends.

The dimensions and tolerances specified in this part of ISO 12240 have been selected to permit the design and use of spherical plain bearing rod ends which incorporate radial spherical plain bearings having various sliding material combinations.

The specified tolerance values apply for finished spherical plain bearing rod ends before any coating, plating, ring splitting or fracturing.

Spherical plain bearing rod ends need not conform to the designs illustrated but compliance is required as regards dimensions, tolerances and radial internal clearances specified.

NOTE — Spherical plain bearing rod ends for airframe applications and specific spherical plain baring rod ends for direct connection to hydraulic cylinders are not covered by this part of ISO 12240.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 12240. 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 12240 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 582:1995, *Rolling bearings – Chamfer dimensions – Maximum values*.

ISO 965-1:1992, *ISO general purpose metric screw threads – Tolerances – Part 1: Principles and basic data*.

ISO 1132-1: —[1)], *Rolling bearings – Tolerances – Part 1: Terms and definitions*.

ISO 6811:1998, *Spherical plain bearings – Vocabulary*.

ISO 12240-1:1998, *Spherical plain bearings – Part 1: Radial spherical plain bearings*.

1) To be published. (Revision of ISO 1132:1980)

3 Definitions and symbols

For the purposes of this part of ISO 12240, the definitions given in ISO 1132-1 and ISO 6811 apply. The symbols (except those for tolerances) shown in the figures and the values given in the tables denote nominal dimensions unless specified otherwise.

B	Inner ring width
C	Outer ring width
C_1	Width of rod end eye
D	Outside diameter of bearing outer ring
d	Bore diameter of inner ring
d_1	Outside diameter of inner ring face
d_2	Outside diameter of rod end eye
d_3	Rod end shank diameter
d_4	Rod end shank shoulder diameter
d_5	Rod end shank diameter with welding end
d_6	Centre pin diameter
d_k	Sphere diameter
G	Diameter of thread
h, h_1, h_2	Centre height of rod end
l_1, l_3	Thread length
l_2, l_4, l_6	Overall length of rod end
l_5	Length of shoulder on rod end shank
l_7	Length of the flat surface from the bearing bore centre to the shank
l_8	Length of the locating pin
$r_{s\ min}$[2)]	Smallest single chamfer dimension, inner ring
$r_{1s\ min}$[2)]	Smallest single chamfer dimension, outer ring
V_{dmp}	Variation of mean bore diameter
V_{dp}	Variation of bore diameter in a single radial plane
W	Width across flats
α	Angle of tilt
Δ_{Bs}	Deviation of a single inner ring width
Δ_{dmp}	Deviation of mean bore diameter in a single plane

2) The corresponding maximum chamfer dimensions are given in table 1 of ISO 582:1995.

4 Dimension series for spherical plain bearing rod ends

A distinction is made between two basic dimension series in the case of spherical plain bearing rod ends.

Dimension series E and G have been designed so as to permit the insertion of dimension series E or G radial spherical plain bearings into the cylindrical bore of a rod end eye.

In dimension series E and G a distinction is also made between different spherical plain bearing rod end types according to the shank design, i.e. external or internal thread, normal or strengthened form, or welding end type.

Dimension series K has been designed so as to permit the insertion of dimension series K radial spherical plain bearings into the cylindrical or sphered bore of a rod end eye.

In dimension series K a distinction is made between different spherical plain bearing rod end types according to the shank design, i.e. external or internal thread. A choice of sliding material combination is provided for a two piece (integral design, see figure 5) spherical plain bearing rod end.

5 Angles of tilt α

The specified angles of tilt (approximate values) represent the angles by which the axes of the inner ring and of the outer ring may be inclined in relation to each other without reducing the projected theoretical contact area of the two bearing rings when the two ring axes are parallel to each other.

NOTE — Attention is drawn to the fact that after mounting a spherical plain bearing rod end on a shaft, the angle through which the rod end can tilt may be restricted by the design of the adjacent components.

6 Dimensions, tolerances and radial internal clearances

6.1 Dimensions

See figures 1 to 6 and tables 1 to 5.

The position of the lubricating nipple may vary according to the size of the spherical plain bearing rod end.

In case of type B, the lubricating nipple may be positioned at the shank.

The position and size of the lubricating nipple shall be the subject of agreement.

Type and design of lubricating nipple at manufacturer's discretion.

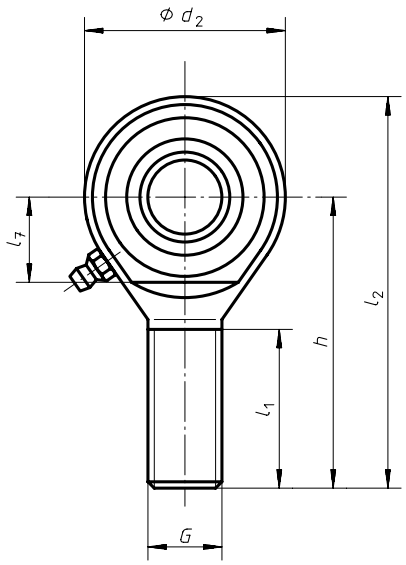
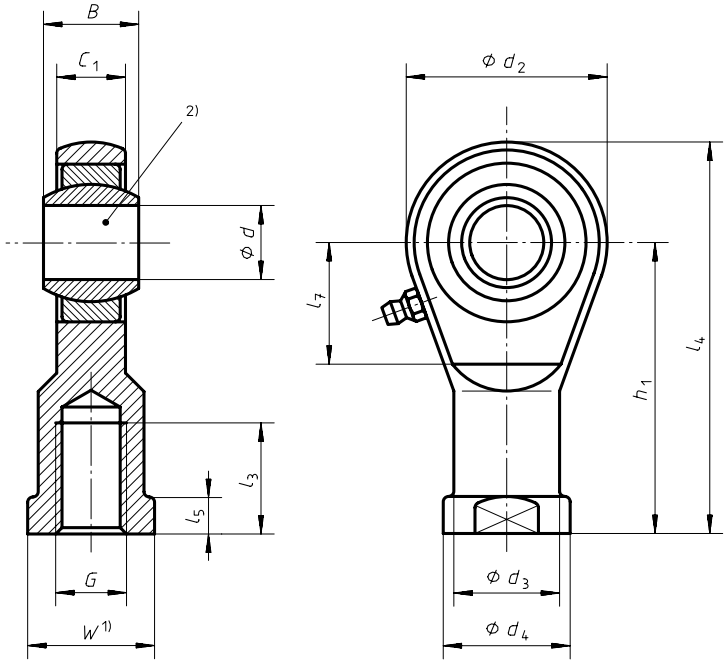
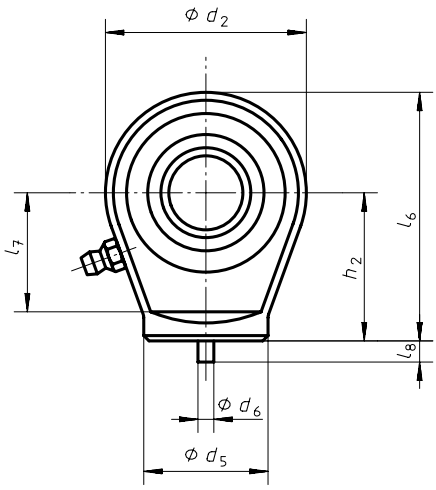


Figure 1 — Spherical plain bearing rod end with external thread type M



1) Values for widths across flats are not specified in this part of ISO 12240.
2) See figure 6.

Figure 2 — Spherical plain bearing rod end with internal thread type F



l_8 = 6 mm

Figure 3 — Spherical plain bearing rod end with welding shank type S

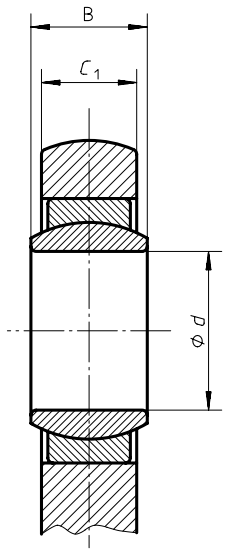


Figure 4 — Spherical plain bearing rod end with mounted spherical plain radial bearing (cartridge design)

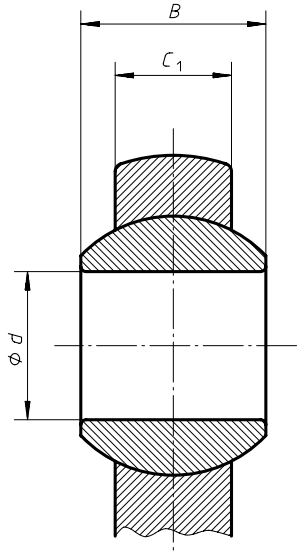


Figure 5 — Spherical plain bearing rod end with inner ring only (integral design) 3)

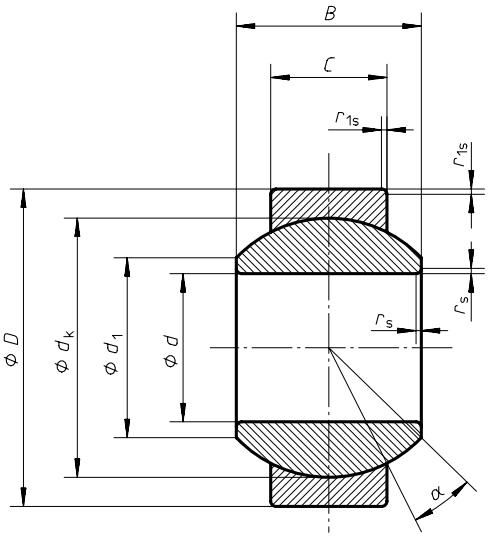


Figure 6 — Spherical plain radial bearing in accordance with ISO 12240-1

3) This design can apply for types M and F of the K-series.