INTERNATIONAL STANDARD

ISO 8399-1

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Aerospace — Accessory drives and mounting flanges (Metric series) —

Part 1: Design criteria

Aéronautique et espace — Fixation et entraînement des équipements (série métrique) —

Partie 1: Critères de conception

Reference number
ISO 8399-1:1998(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 8399-1 was prepared by Technical Committee ISO/TC 20, *Aerospace*, Subcommittee SC 12, *Mechanical system parts*.

ISO 8399 consists of the following parts, under the general title *Aerospace — Accessory drives and mounting flanges (Metric series)*:

— *Part 1: Design criteria*

— *Part 2: Dimensions*

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Aerospace — Accessory drives and mounting flanges (Metric series) —

Part 1:
Design criteria

1 Scope

This part of ISO 8399 establishes the design criteria for accessory drives and mounting flanges with quick attach/detach provisions primarily intended for use in aircraft gearboxes or engine accessories.

NOTE — Some design criteria are subject to agreement between the engine/gearbox manufacturer and the accessory manufacturer (see clause 10).

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 8399. 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 8399 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 3601-1:1988, *Fluid systems — Sealing devices — O-rings — Part 1: Inside diameters, cross-sections, tolerances and size identification code*.

ISO 4156:1981, *Straight cylindrical involute splines — Metric module, side fit — Generalities, dimensions and inspection*.

ISO 8399-2:1998, *Aerospace — Accessory drives and mounting flanges (Metric series) — Part 2: Dimensions*.

ISO 9214:—[1)], *Aerospace — V-retainer clamps for accessory drives and mounting flanges — Geometrical configuration and dimensions.*

ISO 13715:1994, *Technical drawings — Corners — Vocabulary and indication on drawings*.

3 Installation and removal

3.1 In order to facilitate installation, the protrusion length of the splined drive shall be such that the splines are engaged by at least 5 mm before the transfer tube or locating pin becomes engaged in their respective housings.

3.2 It shall be possible to remove the accessories while the engine or gearbox remains installed.

[1)] To be published.

4 Transfer tubes and locating and/or torque-reaction pins

4.1 All transfer tubes and locating pins shall be retained in the accessory flange.

The accessory flange manufacturer is responsible for the method of retention and supply of transfer tubes or locating pins.

4.2 Transfer tubes or locating pins shall accept torque reaction. If other devices are necessary, they shall be defined by agreement between the engine/gearbox manufacturer and the accessory manufacturer. The use of transfer tubes for torque reaction shall be limited to those applications where fluid flows, fluid pressure and reaction torque requirement are minor.

5 Coupling clamps

Specifications relating to coupling clamps are dealt with in ISO 9214.

The space envelope of coupling clamps and the corresponding accessibility required for their installation shall be taken into account.

6 Spline drives

6.1 The accessory shall be driven by an involute drive spline.

The dimensions of the shaft and splines shall be as specified in ISO 4156 and ISO 8399-2. The spline length shall be as specified in ISO 8399-2.

Corners are indicated in figure 1 in accordance with ISO 13715.

6.2 The accessory is provided with a drive shaft with radial clearance.

6.3 The accessory shall be capable of being operated satisfactorily with the pitch diameter of the spline on its input shaft displaced by a maximum of 0,15 mm from the spigot diameter.

Deviation from squareness caused by a maximum displacement of 0,15 mm, in any direction, of the drive shaft axis with respect to the axis defined by the bearing face and the spigot diameter shall not exceed 3l/100 (in accordance with figure 1).

7 Sealing

7.1 Sealing rings with dimensions as specified in ISO 3601-1 shall be used for the sealing of transfer tubes and spigots.

The sealing ring size and material shall be selected by the engine/gearbox manufacturer.

7.2 If it is likely that oil leakage from the accessory onto the interface cavity may occur, the leakage shall not exceed a rate of 2 ml/h and if necessary the accessory shall be provided with the means for draining the engine or gearbox cavity.

7.3 Leakage from the drive shaft seal into the interface cavity shall not exceed 2 ml/h.

7.4 No provision for oil recovery or recirculation in the event of excessive leakage is specified for accessories in accordance with ISO 8399. However, should a draining device prove to be necessary, it shall be subject to agreement between the engine/gearbox manufacturer and the accessory manufacturer.

7.5 Seals shall be compatible with all fluid types present in the engine or gearbox cavity.

8 Spline lubrication

Arrangements concerning the lubrication of splines shall be subject to agreement between the engine/gearbox manufacturer and the accessory manufacturer.

9 Rotation of the shaft

The rotation of the shaft shall be defined as viewed looking at the bearing face (in accordance with figure 1) and shall be indicated by one of the following markings:

— clockwise: CW

— counter-clockwise: CCW

10 Agreements between manufacturers

The following design criteria shall be subject to agreement between the engine/gearbox manufacturer and the accessory manufacturer:

a) angular spacing of oil transfer tubes or locating pins;

b) requirements relating to torque reaction by other devices, if necessary (in accordance with 4.2);

c) arrangements for lubricating the spline drive (in accordance with clause 8);

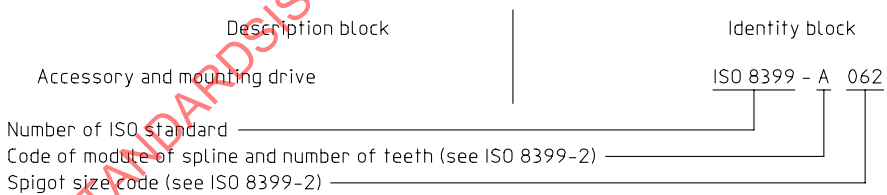
d) the method for preventing drive overload;

e) the location, in either the accessory or the drive, of the accessory/drive interface cavity (in accordance with 7.4).

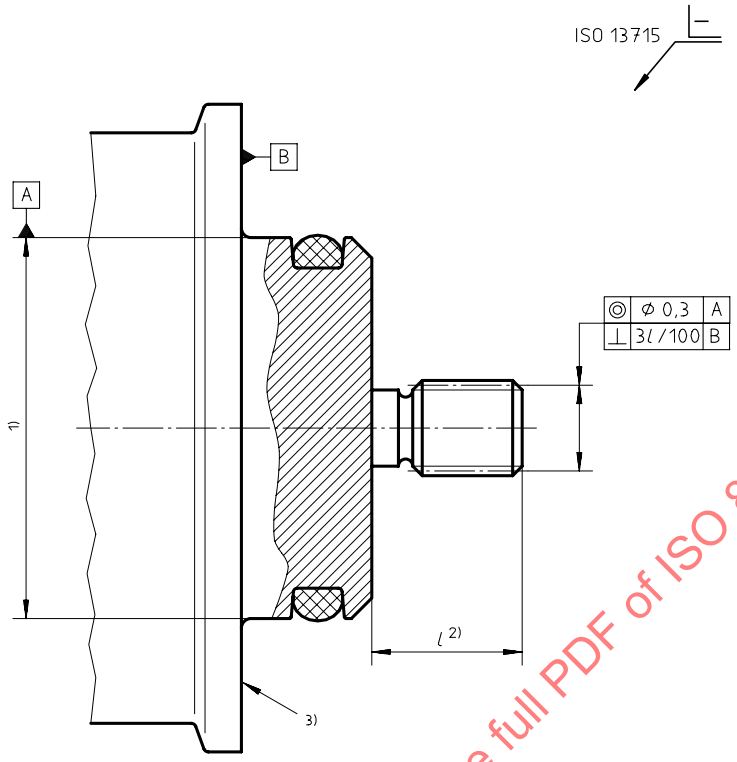
11 Designation

Accessory drive and mounting flanges shall be designated by the identity block as shown in the following example

EXAMPLE



Dimensions in millimetres



1) Spigot diameter.
2) Length protruding beyond the spline.
3) Bearing face.

Figure 1