DEUTSCHE NORM May 2006

DIN 5480-2

ICS 21.120.10

Supersedes: see below

Involute splines based on reference diameters – Part 2: Nominal and inspection dimensions

Passverzahnungen mit Evolventenflanken und Bezugsdurchmesser – Teil 2: Nennmaße und Prüfmaße

Supersedes DIN 5480-2:1991-10, DIN 5480-3:1991-10, DIN 5480-4:1991-10, DIN 5480-5:1991-10, DIN 5480-6:1991-10, DIN 5480-7:1991-10, DIN 5480-8:1991-10, DIN 5480-9:1991-10, DIN 5480-10:1991-10, DIN 5480-11:1991-10, DIN 5480-12:1991-10, DIN 5480-13:1991-10 and DIN 5480 Corrigendum 1:1995-11.

Document comprises 40 pages

Translation by DIN-Sprachendienst.

In case of doubt, the German-language original should be consulted as the authoritative text.

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See foreword for relationship to the ISO 4156 series of standards, including ISO 4156 AMD 1:1992, published by the International Organization for Standardization (ISO).

Validity

This standard is valid from 2006-05-01.

Foreword

This series of standards deals with involute splines and spline joints within a module range of 0,5 to 10, having a number of teeth ranging from 6 to 82 and with a pressure angle of 30°. The DIN 5480 series of standards is limited to splines with a pressure angle of 30°, since pressure angles of 37,5° and 45° are covered by ISO 4156.

Involute splines in accordance with ISO 4156 are based on module series. These are not interchangeable with involute splines conforming to the DIN 5480 series of standards.

The DIN 5480 series of standards is based on reference diameters that are independent of the module, allowing an optimal fit to standard ball and roller bearing diameters and reducing the number of different tools required for manufacturing. This series of standards has been revised by Technical Committee 2.1 *Passverzahnungen* ("Involute splines") of the *Normenausschuss Maschinenbau* (Mechanical Engineering Standards Committee). The revision was considered necessary since a review of the DIN 5480 series of standards in accordance with DIN 820-4 had shown that the series had structural and editorial weaknesses. The object of the revision was to combine the individual parts of this standard in a practical, sensible manner.

The entire series of standards now consists of only four parts instead of the previous sixteen.

DIN 5480 *Involute splines based on reference diameters* now comprises:

— *Part 1: General*

— *Part 2: Nominal and inspection dimensions*

— *Part 15: Inspection*

— *Part 16: Tools*

The new edition of DIN 5480-1 deals with fundamental principles, the same as its predecessor, but now also includes fit dimensions and tolerances, these being formerly contained in DIN 5480-14:1986-03. The calculation formulae, tolerances and deviations contained in Part 1 also apply to the other parts of this series of standards. DIN 5480-2 now contains the nominal dimensions and inspection dimensions for the range of items stated above, and incorporates the contents of the former editions of DIN 5480-2 to DIN 5480-13.

DIN 5480-15 covers quality inspections of spline joints.

DIN 5480-16 defines the design features of tools for manufacturing involute splines.

Amendments

This standard differs from DIN 5480-2:1991-10, DIN 5480-3:1991-10, DIN 5480-4:1991-10, DIN 5480-5:1991-10, DIN 5480-6:1991-10, DIN 5480-7:1991-10, DIN 5480-8:1991-10, DIN 5480-9:1991-10, DIN 5480-10:1991-10, DIN 5480-11:1991-10, DIN 5480-12:1991-10, DIN 5480-13:1991-10 and DIN 5480 Corrigendum 1:1995-11 as follows:

a) The title has been changed to “Involute splines based on reference diameters”.

b) The full root radius has been included for shafts.

c) Cold-rolling has been included as a manufacturing process for shafts.

d) The measuring circle (ball or pin) diameters have been taken from DIN 3977, with one exception.

e) The standard has been editorially revised.

Previous editions

DIN 5480-2: 1966-12; 1974-09; 1986-03; 1991-10
DIN 5480-3: 1966-12; 1974-09; 1986-03; 1991-10
DIN 5480-4: 1966-12; 1974-09; 1986-03; 1991-10
DIN 5480-5: 1966-12; 1974-09; 1986-03; 1991-10
DIN 5480-6: 1966-12; 1974-09; 1986-03; 1991-10
DIN 5480-7: 1966-12; 1974-09; 1986-03; 1991-10
DIN 5480-8: 1966-12; 1974-09; 1986-03; 1991-10
DIN 5480-9: 1966-12; 1974-09; 1986-03; 1991-10
DIN 5480-10: 1966-12; 1974-09; 1986-03; 1991-10
DIN 5480-11: 1966-12; 1975-12; 1986-03; 1991-10
DIN 5480-12: 1966-12; 1974-09; 1986-03; 1991-10
DIN 5480-13: 1966-12; 1974-09; 1986-03; 1991-10
DIN 5480 Corrigendum 1: 1995-11

1 Scope

This standard applies to involute splines and spline joints based on reference diameters for connecting hubs and shafts either with a removable connection, a sliding fit or a permanent fit. It lays down the following general characteristics for splines as in this standard:

a) They have a standard pressure angle of 30°.

b) The basic rack profile is the same for all pitches, therefore applying a uniform design rule to all profiles.

c) They have a side fit profile (a diameter fit is permitted in some cases).

d) Addendum modification is used in order to achieve specific reference diameters.

e) The fit system includes tolerances for effective form deviations so that the effect of such deviations on backlash is taken into account. The specified range of fundamental deviations and tolerance classes takes due consideration of all requirements.

Involute spine joints as in this standard are used for connecting hubs and shafts either with a removable connection, a sliding fit or a permanent fit. They have all the characteristics required for centring the parts and transmitting torques, as well as meeting all the requirements for economical manufacturing.

The theoretical root diameters for hubs and shafts where the dedendum of the basic rack profile, h_{fP}, is $0{,}55 \cdot m$. The dedendum depends on the manufacturing method used, and can therefore have various values (see DIN 5480-1, Table 3). The root diameters depend on the dedendum.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

DIN 5480-1, *Involute splines based on reference diameters – Part 1: General*

DIN 5480-15, *Involute splines based on reference diameters – Part 15: Inspection*

DIN 5480-16, *Involute splines based on reference diameters – Part 16: Tools*