

# DRAFT AMENDMENT

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ISO/TC 108/SC 2

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### Mechanical vibration — Rotor balancing —

Part 11:

**Procedures and tolerances for rotors with rigid behaviour**

**AMENDMENT 1**

*Vibrations mécaniques — Équilibrage des rotors —*

*Partie 11: Modes opératoires et tolérances pour rotors à comportement rigide*

*AMENDEMENT 1*

ICS: 21.120.40

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

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This document was prepared by Technical Committee ISO/TC 108, *Mechanical vibration, shock and condition monitoring*, Subcommittee SC 2, *Measurement and evaluation of mechanical vibration and shock as applied to machines, vehicles and structures*.

A list of all parts in the ISO 21940 series can be found on the ISO website.

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# Mechanical vibration — Rotor balancing —

Part 11:

## Procedures and tolerances for rotors with rigid behaviour

### AMENDMENT 1

*After Clause 10 add the following Clause 11.*

#### **11 Notification of necessary balancing information at the design stage**

This document specifies methods and recommends unbalance tolerances for balancing of rotors with rigid behaviour. The application of these methods requires knowledge of rotor-specific parameters and the unbalance tolerance at the design stage.

If this information is not fully made available, the determination of the unbalance tolerance is not comprehensible or even incorrect. It is therefore encouraged to notify this information at the design stage in a technical drawing or an additional document. For more details, see Annex E.

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*After Annex D add the following Annex E.*

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## Annex E (informative)

### Notification of unbalance tolerances on technical drawings

#### E.1 General

Notification of all necessary balancing information at the design stage is crucial to a successful balancing process, see Clause 11. Table E.1 gives the minimum set of details for a clear determination of unbalance tolerances on the basis of this document. Table E.1 is only an advice and can be adapted as required.

**Table E.1 — Necessary details for determination of unbalance tolerance**

No.	Required information for application of ISO 21940-11
1	Balance quality grade G
2	Maximum operational speed
3	Rotor mass
4	Bearing planes
5	Correction planes
6	Tolerance planes a
7	Position of the centre of mass CM
8	Planes to which the permissible residual unbalances are related
9	Permissible residual unbalances
10	Instructions for unbalance correction
11	Remarks

a Often identical to bearing planes or correction planes

#### E.2 Example

An example of necessary details for determination of unbalance tolerance is given in Table E.2. The example shows an inboard rotor; for any other rotor type, Figure E.1 has to be adapted accordingly. All types of planes shall be dimensioned.

**Table E.2 — Example of necessary details for determination of unbalance tolerance**

No.	Required information for application of ISO 21940-11	Data
1	Balance quality grade G	G 6,3
2	Maximum operational speed	10 000 r/min
3	Rotor mass	2,5 kg
4	Bearing planes	Planes A and B (see Figure E.1)
5	Correction planes	Planes I and II (see Figure E.1)
6	Tolerance planes	Planes 1 and 2 (see Figure E.1)
7	Position of the centre of mass CM	See reference in Figure E.1
8	Planes to which the permissible residual unbalances are related	Planes A and B

Table E.2 (continued)

No.	Required information for application of ISO 21940-11	Data
9	Permissible residual unbalances	$U_{per,A} = 8,3\text{gmm}$ $U_{per,B} = 6,8\text{gmm}$
10	Instruction for unbalance correction	In correction planes I and II: radial drill holes $\varnothing 7$ mm, maximum depth 10 mm
11	Remark	The bearing planes A and B are outside the position of the operational roller bearings to prevent these bearing surfaces from wear.

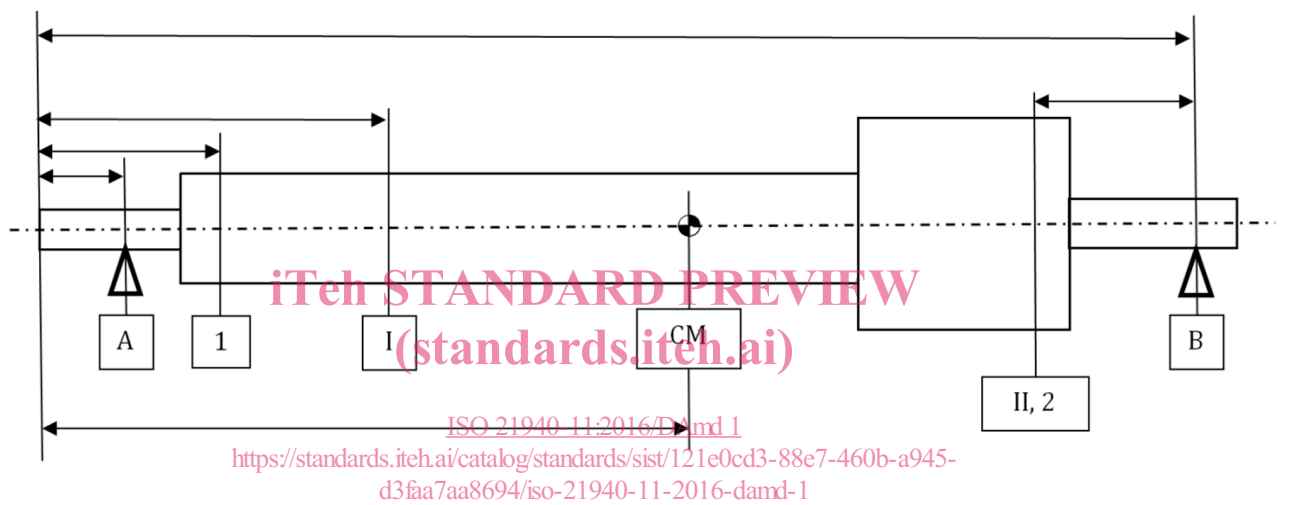


Figure E.1 — Rotor sketch