Replaces:
RN 83:1983-02-03 and RN 84:1983-02-03

Rings

Machining allowances and tolerances

Content

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Changes

2023-04-26:
The following changed in comparison to RN 83:1983-02-03 and RN 84:1983-02-03:

a) merged documents
b) updated references
c) editorially revised

1 Scope

This factory standard applies to seamless rolled steel rings in the diameter range d1 100 to 1300 mm and the height range h1 70 to 300 mm. It includes specifications for machining allowances, dimensional tolerances, delivery and transport conditions.

Information about material properties, heat treatment and documentation is included in the standards mentioned in chapter 2.

2 References

The following documents, cited in part or in whole, shall apply for the use of this standard. In the case of dated references, only the referenced edition applies; in the case of undated references, the latest edition of the referenced document (including all amendments) applies. The applicable version of the standards listed below shall apply to all contents not covered by this factory standard.

RN 810-3-1	Delivery conditions for case-hardening steel; Punched disks and rings of 18CrNiMo7-6 for rotors with peripheral speeds < 50 m/s
RN 830-3-1	Delivery conditions for nitriding steel; Punched disks and rings of 31CrMoV9 for rotors with peripheral speeds < 50 m/s
RN 850-3-1	Delivery conditions for quenched and tempered steel; Punched disks and rings of 42CrMo4 for rotors with peripheral speeds < 50 m/s

3 Terms and definitions

Following terms and definitions are mandatory for the use of this document.

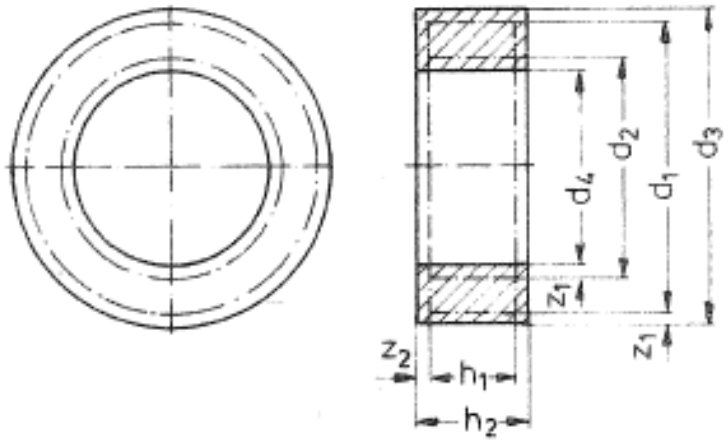

Figure 1 Dimensions and machining allowances on rings

d1, d2, h1: dimensions of finished part (envelope dimensions) without machining allowances

d3, d4, h2: dimensions of finished part with machining allowances (dimensions of raw part)

z1, z2: machining allowances related to a radius or side

All dimensions and tolerances in mm

4 Allowances and permissible deviations

4.1 Regular allowances and tolerances

Manufacturing: forging resp. rolling, no machining

Surface: raw, but free from adhering scale

ERP system: named "FM" (dimensions of finished part) and dimensions d1, d2, h1

Allowances: according to table 1
alternatively, vendor-specific lower allowances are accepted, if it is guaranteed that the required finished part can be manufactured without problems from the delivered ring. The ring is regarded as a defective part, if this is not possible.

Table 1 Regular allowances in mm

diameter d1		allowances for d1, d2 and h1		permissible deviation		
über	bis	2 × z1	2 x z2	for d3	for d4	for h2
200	300	11	8	± 5	± 5	± 3
300	400	14	10	± 6	± 6	± 4
400	500	17	12	± 7	± 7	± 5
500	600	20	14	± 8	± 8	± 6
600	800	25	18	± 10	± 10	± 8
800	1000	30	20	± 10	± 10	± 9
1000	1300	35	25	± 12	± 12	± 10

4.2 Constrained allowances and tolerances

Manufacture: forging with subsequent machining

Surface: see material specification

ERP system: named "FM" (dimensions of finished part), dimensions d1, d2, h1 plus "rough-turned"

Table 2 Constrained allowances in mm

diameter d1		allowances for d1, d2 and h1		permissible deviation		
über	bis	2 × z1	2 x z2	für d3	für d4	für h2
100	200	6		± 2		
200	300	7		± 2,5		
300	400	8		± 3		
400	500	9		± 3,5		