Replaces:
RN 1096:1986-1212

Gearbox housings

Machining allowances and tolerances

Content

Page

Changes

2023-05-10:
The following changed in comparison to RN 1096:1986-1212:

a) updated references
b) editorially completely revised

1 Scope

This Factory Standard applies to gearbox housings in welded constructions. It contains specifications for machining allowances, dimensional tolerances and delivery condition.

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.

EN ISO 13920	Welding - General tolerances for welded constructions - Dimensions for lengths and angles; shape and position
EN ISO 21920-1	Geometrical product specifications (GPS) - Surface texture: Profile - Part 1: Indication of surface texture
RN 65	Shape and position tolerances
RN 68-1	Welded constructions; Steel housings

3 General

Machining allowances are only to be added for surfaces that are intended for machining as a whole. Information in the drawing therefore has priority. The surfaces to be machined are marked as follows according to EN ISO 21920-1; the former marking according to ISO 1302 does not have to be changed on drawings.

Figure 1 Processing mark acc. to EN ISO 21920-1

Figure 2 Former processing mark acc. to ISO 1302

As a rule, machining allowances are to be provided for the following areas:

- hub bores for bearings and bearing housings
- hub faces for bearing housings and locking plates
- separating surfaces of the housing parts
- footing surfaces on the support side to the ship’s foundation
- sealing surfaces for round or rectangular lids
- control valve cams

- positioning cams
- all areas with corresponding marking

4 Permissible deviations

The permissible deviations for dimensions without tolerance specification for welded constructions are based on EN ISO 13920 accuracy grade B.

Table 1 permissible deviations for length dimensions in mm

nominal size range		permissible deviation
over	up to	
30	120	± 2
120	315	± 2
315	1000	± 3
1000	2000	± 4
2000	4000	± 6
4000	8000	± 8

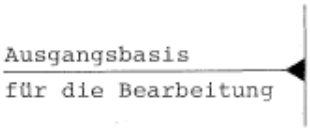
Table 2 permissible deviations for angular dimensions in mm

nominal size range			
over	up to		
	315	± 45‘	± 13 mm/1000 mm ± 4 mm/315 mm
315	1000	± 30‘	± 9 mm/1000 mm
1000		± 20‘	± 6 mm/1000 mm

The permissible deviations also apply to unregistered angles of 90° and 180°.

5 Starting point for assembly

- The starting point for assembling the enclosure parts in the axial direction (longitudinal direction) is one of the inner surfaces, which remains unmachined and is marked by:



- For assembly in the transverse direction, alignment is carried out according to the outer contour and the holes.
- Before machining, the offset must be checked. This must show that there is sufficient machining allowance, if necessary it must be readjusted.

6 Machining allowances and tolerances

Hub outside diameters (D) are tolerance in the drawing with $^{0}_{+5}$ mm referred to the diameter.

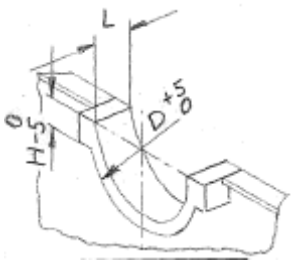


Figure 3 Tolerance for hub outside diameters

Machining allowances for hub bores are referred to the diameter.

Table 3 Machining allowances for hub bores in mm

inner hub diameter		nominal size range		
		hub length L		
over	up to	30 - 120	> 120 - 315	> 315
	30	10	-	-
30	120	15	20	25
120	315	20	25	30
315	1000	25	30	40

Table 4 Machining allowances for flat surfaces in mm

allowance for	largest diameter, largest length					
	≤ 30	> 30 ≤ 120	> 120 ≤ 315	> 315 ≤ 1000	> 1000 ≤ 2000	> 2000 ≤ 4000
hub face	5	10	15	20	20	-
separating surfaces housing parts	-	10	10	15	25	25
footings to the foundation	-	10	10	15	20	25
sealing surfaces for lids	-	5	5	10	-	-
control valve cams	-	5	5	10	-	-
cams for hydraulics	5	5	10	-	-	-
positioning cams, other cams	5	5	5	-	-	-

-> Allowances are related to the areas to be treated.

-> Values apply when machining is carried out over the entire area.