DIN 3970:2010-04 (E)

Master gears for checking cylindrical gears - Gear blanks and gearing

Contents

Page

1 Scope 5

2 Normative references 5

3 Master gear applications 5

4 Symbols, subscripts and units 6

5 Dimensions 7
5.1 Gear body 7
5.2 Centre hole diameter, D1 8
5.3 Axial runout of the gear face and radial runout of the clocking bend 9

6 Geometry 10
6.1 Design 10
6.2 Number of teeth, z 10
6.3 Tooth thickness, sn 11
6.4 Tooth system edge finish 11
6.5 Tip diameter, da 13
6.6 Active tip diameter, dNa 13
6.7 Root form diameter, dFf 13
6.8 Root diameter, df 13
6.9 Modifications 13

7 Tolerances 14
7.1 Tolerances of deviations 14
7.2 Special pressure angles 16

8 Material 16

9 Technical drawings of master gears 17

10 Marking and designation 17

11 Ordering information 19

12 Quality inspection 20
12.1 Test certificate 20
12.2 Measurement equipment requirements 20
12.3 Evaluation of tooth system measurements 20

13 Wear inspection and re-working 21

14 Packaging, storage and handling 21

15 Master gears not conforming to all individual specifications of this standard 21
15.1 Special designs 21
15.2 Centre hole diameter, D1 21

Annex A (informative) Some examples of standard numbers of teeth 22

Bibliography 23

Figures Figure 1 -- Master gear, sizes 1 to 5 8

Figure 2 -- Master gear, sizes 6 to 8 8

Figure 3 -- Designation of tooth edges 12

Figure 4 -- Tooth profile with a tip edge chamfer, cross-section of tooth system 12

Figure 5 -- Location of marking on master gears 17

Figure 6 -- Marking on tooth number 1 of master gears of sizes 1 to 4 17

Figure 7 -- Marking and designation of master gears 19

Tables Table 1 -- Master gear body dimensions 7

Table 2 -- Permissible dimensional deviations and form deviations for the centre hole 9

Table 3 -- Permissible relative positional deviations of master gears from the axis A of the centre hole 9

Table 4 -- Recommended tooth thickness tolerances 11

Table 5 -- Quality parameters for master gear accuracy classes A, B and C 14

Table 6 -- Tolerances of deviations F, fp, Fp, Fr for accuracy class A 15

Table 7 -- Tolerances of deviations F, fp, Fp, Fr for accuracy class B 15

Table 8 -- Tolerances of deviations F, fp, Fp, Fr for accuracy class C 15

Table 9 -- Tolerances of total helix deviation F for accuracy classes A, B and C 16

Table A.1 -- Examples of standard numbers of teeth 22