DIN 5480-16:2006-03 (E)

Involute splines based on reference diameters - Part 16: Tools

Contents

Page

Foreword 4

1 Scope 5

2 Normative references 5

3 Symbols, designations and units 6

4 Hobs for splined shafts with side-fit 8
4.1 Working range 8
4.2 Dimensions and tolerances 8
4.2.1 Basic rack profiles of tool 8
4.2.2 Overall sizes 10
4.2.3 Accuracy 10
4.3 Working dimensions 10
4.3.1 Root diameter 10
4.3.2 Tool infeed a0 10
4.3.3 Generated mean root fillet radius 11
4.4 Form circle diameter, effective diameter 11
4.5 Marking 12
4.6 Special hobs 12
4.6.1 Working range 12
4.6.2 Marking 13

5 Pinion-type cutters for side-fit splines 13
5.1 Working range 13
5.2 Dimensions and tolerances 13
5.2.1 Basic rack profiles of tool 13
5.2.2 Overall sizes 15
5.2.3 Spline accuracy 17
5.3 Working dimensions 17
5.3.1 Root diameter 17
5.3.2 Tool infeed a0 19
5.3.3 Generated root fillet radius f 21
5.4 Root form circle diameter, effective root diameter 21
5.5 Marking 22
5.6 Special pinion-type cutters 22
5.6.1 Working range 22
5.6.2 Marking 22

6 Internal broaches 22
6.1 Working range 22
6.2 Types, overall sizes 23
6.2.1 Types 23
6.2.2 Overall sizes 23
6.2.3 Spline-cutting accuracy of internal broaches 24
6.2.4 Working dimensions 24
6.3 Marking 25

7 Cold-rolling tools for side-fit splined shafts 25
7.1 Introduction 25
7.2 Working ranges 25

7.2.1 Longitudinal rolling 25
7.2.2 Transverse rolling 26
7.3 Types, overall sizes 27
7.4 Dimensions 27
7.4.1 Tooth profile 27
7.4.2 Tooth depths 27
7.4.3 Tip design 27
7.4.4 Root design 28
7.5 Marking 29

Figures Figure 1 -- Basic rack profile of hobs 9

Figure 2 -- Hob and shaft spline profile 12

Figure 3 -- Basic rack profile of pinion-type cutters 14

Figure 5 -- Pinion-type cutter and shaft spline profile 21

Figure 6 -- Grob method, as an example of cold-rolling 26

Figure 7 -- Tool run-out for the Grob method, as an example of cold-rolling 26

Figure 8 -- Ex-Cell-O method as an example of cold-rolling 27

Figure 9 -- Root fillet radius for fully-rounded tooth roots 28

Tables Table 1 -- Basic rack profiles of hobs 9

Table 2 -- Basic rack profiles of pinion-type cutters 14

Table 4 -- Spline-cutting accuracy of internal broaches 24

Table 5 -- Tool run-out for the Grob cold-rolling method 26