

# DIN ISO 4156-1:2026-01 (E)

## Straight cylindrical involute splines - Metric module, side fit - Part 1: Generalities (ISO 4156-1:2021)

---

Contents	Page
Foreword.....	iv
Introduction.....	vi
<b>1 Scope.....</b>	<b>1</b>
<b>2 Normative references.....</b>	<b>1</b>
<b>3 Terms and definitions.....</b>	<b>1</b>
<b>4 Symbols, subscripts and abbreviated terms.....</b>	<b>5</b>
4.1 General symbols.....	5
4.2 Subscripts.....	8
4.3 Formulae for dimensions and tolerances for all fit classes.....	8
<b>5 Concept of side fit splines.....</b>	<b>11</b>
<b>6 Effective fit concept.....</b>	<b>13</b>
<b>7 Basic rack profiles for spline.....</b>	<b>22</b>
<b>8 Spline fit classes.....</b>	<b>23</b>
<b>9 Space width and tooth thickness tolerances.....</b>	<b>26</b>
9.1 Total tolerance $T + \lambda$ .....	26
9.2 Deviation allowance, $\lambda$ .....	27
9.3 Total pitch deviation, $F_p$ .....	27
9.4 Total profile deviation, $F_\alpha$ .....	27
9.5 Total helix deviation, $F_\beta$ .....	28
9.6 Machining tolerance, $T$ .....	29
9.7 Effective clearance tolerance, $T_v$ .....	29
9.8 Use of effective and actual dimensions for space width and tooth thickness.....	29
9.8.1 Minimum material.....	29
9.8.2 Maximum material (minimum effective clearance).....	29
9.8.3 Maximum effective clearance.....	29
<b>10 Minor and major diameters.....</b>	<b>31</b>
10.1 Tolerances.....	31
10.2 Adjustment to minor diameters ( $D_{ie}$ ), form diameters ( $D_{Fe}$ ) and major diameters ( $D_{ee}$ ) of external splines.....	32
<b>11 Manufacturing and design considerations.....</b>	<b>32</b>
11.1 Radii.....	32
11.2 Profile shifts.....	32
11.3 Eccentricity and misalignment.....	33
11.3.1 Eccentricity.....	33
11.3.2 Misalignment.....	33
11.3.3 Major and minor diameters.....	33
<b>12 Spline data.....</b>	<b>33</b>
12.1 Basic dimensions.....	33
12.2 Combination of types.....	34
12.3 Designation.....	34
12.4 Drawing data.....	34
<b>Annex A (informative) Drawing data example calculations.....</b>	<b>36</b>
<b>Bibliography.....</b>	<b>62</b>