

DIN 7190-1:2017-02 (E)

Interference fits - Part 1: Calculation and design rules for cylindrical self-locking pressfits

Contents		Page
Foreword		3
1	Scope	4
2	Normative references	4
3	Symbols and abbreviated terms.....	5
3.1	Symbols	5
3.2	Indices.....	7
4	Calculation of interference fits	7
4.1	Basic principles.....	7
4.2	Calculation of interference fits subjected to purely elastic stresses	9
4.3	Calculation of interference fits subjected to elastic-plastic stresses.....	11
5	Coefficients of adhesion for interference fits	14
5.1	General	14
5.2	Coefficients of adhesion for force fits	15
5.3	Coefficients of adhesion for shrink fits.....	15
6	Design of interference fits	15
6.1	General	15
6.2	General design rules.....	15
6.3	Design rules for interference fits with oscillating loads.....	17
7	General information in technical documents.....	18
8	Assembly of interference fits.....	20
8.1	Assembly of force fits	20
8.2	Thermal joining of shrink fits	21
9	Instructions for making interference fits.....	22
9.1	General information.....	22
9.2	Making interference fits by pressing in	22
9.3	Making shrink fits	24
10	Special information	25
10.1	Fatigue strength analysis.....	25
10.2	Stresses due to centrifugal force	26
10.3	Inspection certificate	27
10.4	Marking	27
Annex A (informative)	Calculation examples	28
A.1	Purely elastic design of an interference fit for a given joint pressure, p.....	28
A.2	Purely elastic design of an interference fit for a given interference, U.....	28
A.3	Purely elastic design of an interference fit for a given joint pressure, p.....	29
A.4	Purely elastic design of an interference fit for a given interference, U.....	30
A.5	Elastic-plastic design of an interference fit for a given joint pressure, p.....	30
A.6	Recalculation of an elastic-plastic interference fit with a specified interference, U	32
A.7	Geometric and material data as in Example A.1.....	33
Annex B (informative)	Procedure for the iterative calculation of the non-dimensional plasticity diameter ζ.....	34
Annex C (informative)	Example of an inspection certificate	35
Annex D (informative)	Explanatory notes	37
Bibliography		45