

# ISO/TS 6336-20:2017-11 (E)

## Calculation of load capacity of spur and helical gears - Part 20: Calculation of scuffing load capacity (also applicable to bevel and hypoid gears) - Flash temperature method

### Contents

	Page
Foreword .....	iv
Introduction .....	v
1 Scope .....	1
2 Normative references .....	1
3 Terms and definitions, symbols and units .....	1
3.1 Terms and definitions .....	1
3.2 Symbols and units .....	1
4 Scuffing and wear .....	5
4.1 Occurrence of scuffing and wear .....	5
4.2 Transition diagram .....	6
4.3 Friction at incipient scuffing .....	7
5 Basic formulae .....	7
5.1 Contact temperature .....	7
5.2 Flash temperature formula .....	9
5.3 Transverse unit load .....	10
5.4 Distribution of overall bulk temperatures .....	11
5.5 Rough approximation of a bulk temperature .....	12
6 Coefficient of friction .....	12
6.1 General .....	12
6.2 Mean coefficient of friction, method A .....	13
6.3 Mean coefficient of friction, method B .....	13
6.4 Mean coefficient of friction, method C .....	13
7 Parameter on the line of action .....	14
8 Approach factor .....	16
9 Load sharing factor, X .....	17
9.1 General .....	17
9.2 Spur gears with unmodified profiles .....	17
9.3 Spur gears with profile modification .....	18
9.4 Buttressing factor, X <sub>but</sub> , .....	20
9.5 Helical gears with 0,8 and unmodified profiles .....	21
9.6 Helical gears with 0,8 and profile modification .....	21
9.7 Helical gears with 1,2 and unmodified profiles .....	22
9.8 Helical gears with 1,2 and profile modification .....	22
9.9 Helical gears with 0,8 < < 1,2 .....	24
9.10 Narrow bevel gears .....	24
9.11 Wide bevel gears .....	24
10 Scuffing temperature and safety .....	26
10.1 Scuffing temperature .....	26

10.2	Structural factor .....	26
10.3	Contact exposure time .....	27
10.4	Scuffing temperature in gear tests .....	28
10.5	Safety range .....	28
Annex A (informative) Flash temperature formula presentation .....		30
Annex B (informative) Optimal profile modification .....		37
Bibliography .....		39