

ISO 15641:2001-09 (E)

Milling cutters for high speed machining_ - Safety requirements

Contents

Foreword	v
Introduction	v
1 Scope	1
2 Normative references	2
3 Terms and definitions	3
3.1 Tool classification terms	3
3.1.1 solid or one-piece cutter	3
3.1.2 composite cutter	3
3.1.3 complex cutter	3
3.2 Types of fixing	3
3.2.1 bonding.....	3
3.2.2 separable.....	3
3.2.3 friction lock	3
3.2.4 form lock.....	3
3.3 Terms for the designation of geometric parameters.....	3
3.3.1 maximum diameter of tool D	3
3.3.2 critical diameter d for bending	5
3.3.3 protruding tool length l_p	5
3.4 Terms for the designation of mechanical parameters	5
3.4.1 mass of milling cutter m_w	5
3.4.2 component masses m_t	5
3.5 Terms for the designation of load parameters.....	5
3.5.1 maximum rotational speed n_{max}	5
3.5.2 rotational speed for test.....	5
4 Hazards	5
4.1 Effects which generate hazards	5
4.1.1 Primary hazards	5
4.1.2 Handling hazards	5
4.2 Modes of cutter failure.....	6
4.2.1 Body failure	6
4.2.2 Failure of cutting element fixing	6
4.2.3 Failure of cutting element	6
5 Safety requirements and/or measures	6
5.1 Providing safety by design	6
5.2 Importance of balance.....	6
5.3 Integrity of manufacturing.....	7
5.4 Centrifugal force type testing.....	7
5.4.1 General requirements.....	7
5.4.2 Testing of solid, one-piece or composite cutters.....	7
5.4.3 Testing of complex cutters	8
5.4.4 Duration of rotational speed for test	8
6 Marking of milling cutters	8
7 Documentation and information for use	8
Annex A (informative) Indications for design relative to hazards	9
A.1 Indications for design relative to hazards.....	9
A.2 Total tool mass or tool component masses	9
A.3 Unbalance.....	9
A.4 Tool design	9
Annex B (informative) Explanatory notes to the scope	11