

ISO 1940-1:2003-08 (E)

Mechanical vibration - Balance quality requirements for rotors in a constant (rigid) state - Part 1: Specific ation and verification of balance tolerances

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	2
4	Pertinent aspects of balancing	4
4.1	General	4
4.2	Representation of the unbalance	4
4.3	Unbalance effects	6
4.4	Reference planes for balance tolerances	6
4.5	Correction planes	6
4.6	Permissible residual unbalance	7
5	Similarity considerations	8
5.1	General	8
5.2	Permissible residual unbalance and rotor mass	8
5.3	Permissible residual specific unbalance and service speed	8
6	Specification of balance tolerances	9
6.1	General	9
6.2	Balance quality grades G	9
6.3	Experimental evaluation	10
6.4	Methods based on special aims	13
6.5	Methods based on established experience	13
7	Allocation of permissible residual unbalance to tolerance planes	13
7.1	Single plane	13
7.2	Two planes	13
8	Allocation of balance tolerances to correction planes	15
8.1	General	15
8.2	Single plane	15
8.3	Two planes	16
9	Assembled rotors	16
9.1	General	16
9.2	Balanced as a unit	16
9.3	Balanced on component level	16
10	Verification of residual unbalance	16
10.1	General	16
10.2	Acceptance criteria	17
10.3	Verification on a balancing machine	17
10.4	Verification outside a balancing machine	17

Annex A (informative) Example of the specification of permissible residual unbalance based on balance quality grade G and allocation to the tolerance planes	19
Annex B (informative) Specification of balance tolerances based on bearing force limits	22
Annex C (informative) Specification of balance tolerances based on vibration limits	23
Annex D (informative) Specification of balance tolerances based on established experience	24
Annex E (informative) Rules for allocating balance tolerances from tolerance planes to correction planes	26
Bibliography	28