

DIN EN ISO 14457:2018-03 (E)

Dentistry - Handpieces and motors (ISO 14457:2017)

Contents		Page
European foreword		5
Foreword		6
1	Scope	7
2	Normative references	7
3	Terms and definitions	8
4	Classification of handpieces	10
5	Requirements and performance	10
5.1	General	10
5.2	Materials	10
5.3	Drop test	11
5.4	Noise level	11
5.5	Surfaces	11
5.6	Power supply	11
5.6.1	Electrical power supply	11
5.6.2	Air supply	11
5.6.3	Water supply	12
5.7	Air and water pressure	12
5.8	Temperature	12
5.8.1	General	12
5.8.2	Temperature rise of housing	13
5.8.3	Excessive temperature	13
5.9	Vibrations	14
5.10	Resistance to reprocessing	14
5.11	Leakage and/or ingress of water	14
5.12	Electromagnetic compatibility	14
5.13	Operating controls	14
5.14	Usability	14
5.15	Connection and supply	14
5.15.1	General	14
5.15.2	Connections for high-speed air turbine handpiece and air motor connectors	15
5.15.3	Connection for handpieces and motors	15
5.16	Chuck system for shanks	17
5.16.1	Metallic chuck system	17
5.16.2	Non-metallic chuck system	17
5.17	Test mandrel	17
5.18	Speed	19
5.19	Eccentricity	19
5.20	Stall torque	19
5.21	Dimensions of head and nose	19
5.22	Output power of high-speed air turbine handpiece	20
5.23	Handpieces with light	21
6	Sampling	21
7	Testing	21
7.1	General test conditions	21
7.2	Visual inspection	21
7.3	Power supply — Electrical	21

7.4	Power supply — Air.....	21
	7.4.1 Apparatus.....	21
	7.4.2 Procedure.....	21
7.5	Spray air supply.....	22
	7.5.1 Apparatus.....	22
	7.5.2 Procedure.....	22
7.6	Water supply.....	22
	7.6.1 Apparatus.....	22
	7.6.2 Procedure.....	22
7.7	Air and water pressure.....	22
	7.7.1 Apparatus.....	22
	7.7.2 Procedure.....	23
7.8	Motor cooling air.....	23
	7.8.1 Apparatus.....	23
	7.8.2 Procedure.....	23
7.9	Handpiece cooling air.....	23
	7.9.1 Apparatus.....	23
	7.9.2 Procedure.....	24
7.10	Connection for handpieces and motors.....	25
7.11	Connection and supply.....	25
	7.11.1 Apparatus.....	25
	7.11.2 Procedure.....	25
7.12	Test mandrels.....	25
7.13	Chuck for shanks.....	25
	7.13.1 Extraction test.....	25
	7.13.2 Torque test.....	25
7.14	Dimensions of head and nose.....	26
	7.14.1 Apparatus.....	26
	7.14.2 Procedure.....	26
7.15	Eccentricity.....	26
	7.15.1 Apparatus.....	26
	7.15.2 Procedure.....	26
7.16	Stall torque.....	26
	7.16.1 Apparatus.....	26
	7.16.2 Procedure.....	26
7.17	Noise level.....	27
	7.17.1 Apparatus.....	27
	7.17.2 Test conditions.....	27
	7.17.3 Procedure.....	27
7.18	Speed.....	27
	7.18.1 Apparatus.....	27
	7.18.2 Procedure.....	27
7.19	Temperature rise of housing.....	27
	7.19.1 Temperature rise of motors.....	27
	7.19.2 Temperature rise for handpieces.....	27
7.20	Excessive temperature.....	28
	7.20.1 Excessive temperature for motors.....	28
	7.20.2 Excessive temperature for handpieces.....	28
7.21	Resistance to reprocessing.....	29
7.22	Output power of high-speed air turbine handpieces.....	29
	7.22.1 Apparatus.....	29
	7.22.2 Procedure.....	29
7.23	Handpieces with light.....	30
	7.23.1 Apparatus.....	30
	7.23.2 Procedure.....	30

8	Instructions for use, maintenance and service	31
9	Technical description	32
10	Marking	32
	10.1 General.....	32
	10.2 Handpieces.....	32
	10.3 Motors.....	32
11	Labelling	32
12	Packaging	33
	Annex A (informative) Handpiece and motor category tree	34
	Annex B (informative) Test report form	36
	Bibliography	40