

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 |