

# DIN EN 12183:2009-12 (E)

## Manual wheelchairs - Requirements and test methods

---

| <b>Contents</b>    |  | <b>Page</b> |
|--------------------|--|-------------|
| Foreword .....     |  | 4           |
| Introduction ..... |  | 5           |
| 1                  | Scope .....  | 6           |
| 2                  | Normative references .....   | 6           |
| 3                  | Terms and definitions .....  | 7           |
| 4                  | Test apparatus .....   | 7           |
| 5                  | General requirements .....   | 8           |
| 6                  | Design requirements .....  | 9           |
| 6.1                | Foot supports, lower leg supports and arm supports .....                     | 9           |
| 6.2                | Pneumatic tyres .....  | 9           |
| 6.3                | Fitting an anterior pelvic support .....                                     | 9           |
| 6.4                | Wheelchairs for use as seats in motor vehicles .....                         | 9           |
| 6.5                | Braking systems .....  | 9           |
| 6.6                | Component mass .....   | 9           |
| 6.7                | Operations intended to be carried out by the occupant and/or assistant ..... | 9           |
| 6.8                | Operator controls .....  | 10          |
| 6.9                | Push handles and handgrips .....   | 10          |
| 7                  | Performance requirements .....   | 11          |
| 7.1                | General .....  | 11          |
| 7.2                | Foot supports, lower leg support assemblies and arm supports .....           | 11          |
| 7.3                | Static, impact and fatigue strength .....                                    | 12          |
| 7.4                | Braking system .....   | 12          |
| 7.5                | Fatigue strength of manually operated parking brakes .....                   | 14          |
| 7.6                | Operating force .....  | 15          |
| 7.7                | Push handles and handgrips .....   | 15          |
| 7.8                | Static stability .....   | 16          |
| 7.9                | Surface temperature .....  | 16          |
| 7.10               | Resistance to ignition .....   | 16          |
| 7.11               | Seating adjustments for tilt and recline systems .....                       | 17          |
| 7.12               | Castor stem .....  | 17          |
| 7.13               | Electrically powered ancillary equipment .....                               | 17          |
| 7.14               | Pushing force .....  | 18          |
| 8                  | Requirements for information supplied by the manufacturer .....              | 18          |
| 8.1                | General .....  | 18          |
| 8.2                | Pre-sale information .....   | 19          |
| 8.3                | User information .....   | 19          |
| 8.4                | Service information .....  | 20          |
| 8.5                | Labelling .....  | 20          |
| 9                  | Test report .....  | 21          |
| 10                 | Tables .....   | 21          |

|   |   |    |
|---|---|----|
| 11  | Figures .....   | 22 |
| A.3   | Accelerometer mounting .....  | 26 |
| A.4   | Design aims .....   | 27 |
| Annex B (informative) Recommendations for dimensions and manoeuvring space .....  |   | 35 |
| B.1   | Specific dimensions .....   | 35 |
| B.1.1   | Dimensions when ready for use and when folded and/or dismantled .....       | 35 |
| B.1.2   | Push handle height .....  | 35 |
| B.1.3   | Ground clearance .....  | 35 |
| B.2   | Manoeuvring space .....   | 35 |
| B.2.1   | Turning diameter .....  | 35 |
| B.2.2   | Reversing width .....   | 35 |
| Annex C (informative) Recommended design features .....   |   | 37 |
| C.1   | Introduction .....  | 37 |
| C.2   | General recommendations .....   | 37 |
| C.2.1   | Fittings and tools .....  | 37 |
| C.2.2   | Tyres .....   | 37 |
| C.2.3   | Means to inflate tyres .....  | 37 |
| C.2.4   | Surface temperature .....   | 37 |
| C.2.5   | Occupant transfer into or out of the wheelchair .....                       | 37 |
| C.2.6   | Resistance to contamination from urine incontinence .....                   | 38 |
| C.2.7   | Head support .....  | 38 |
| C.2.8   | Accidental release of parking brakes .....                                  | 38 |
| C.2.9   | Tipping device .....  | 38 |
| C.2.10  | Anti-tip devices .....  | 38 |
| Annex D (informative) Recommended seating design .....  |   | 39 |
| Annex E (informative) Manoeuvring forces .....  |   | 40 |
| E.1   | Recommendations .....   | 40 |
| E.1.1   | Push handle force .....   | 40 |
| E.1.2   | Handrim force .....   | 40 |
| F.1   | Technical changes between the first (1999) and second (2006) editions ..... | 41 |
| F.2   | Technical changes from the second (2006) edition .....                      | 42 |
| Annex ZA (informative) Relationship between this European Standard and the Essential Requirements of Council Directive 93/42/EEC of 14 June 1993 concerning medical devices ..... |   | 43 |
| Bibliography .....  |   | 47 |
| Annex A (informative) Recommendations for test dummies of mass greater than 100 kg .....  |   | 26 |
| A.1   | General .....   | 26 |
| A.2   | Construction .....  | 26 |