

# ISO 24553:2023-02 (E)

## Ergonomics - Accessible design - Ease of operation

---

| <b>Contents</b>              |  | <b>Page</b> |
|------------------------------|--|-------------|
| Foreword.....                |  | iv          |
| Introduction.....            |  | v           |
| <b>1</b>                     | <b>Scope.....</b>  | <b>1</b>    |
| <b>2</b>                     | <b>Normative references.....</b>   | <b>1</b>    |
| <b>3</b>                     | <b>Terms and definitions.....</b>  | <b>1</b>    |
| <b>4</b>                     | <b>General requirements.....</b>   | <b>2</b>    |
| 4.1                          | General.....   | 2           |
| 4.2                          | Layout of controls and control panels.....   | 2           |
| 4.3                          | Strength required for operation.....   | 3           |
| 4.4                          | Dexterity.....   | 3           |
| 4.5                          | Avoidance of simultaneous multiple operations.....   | 4           |
| 4.6                          | Provision of multiple means of operation.....  | 4           |
| 4.7                          | Provision of feedback.....   | 4           |
| 4.8                          | Logical process.....   | 5           |
| 4.9                          | Safety and a fail-safe mechanism.....  | 5           |
| 4.10                         | Other (assembling, installation, storage and maintenance).....   | 6           |
| <b>5</b>                     | <b>Ergonomic requirements and recommendations for ease of operation.....</b>                                   | <b>6</b>    |
| 5.1                          | General.....   | 6           |
| 5.2                          | Holding, lifting, carrying, pushing or pulling with hands or feet.....   | 7           |
| 5.2.1                        | Shape and size of products.....  | 7           |
| 5.2.2                        | Mass to hold, to lift and to carry with hands.....   | 7           |
| 5.2.3                        | Strength (pushing or pulling with hands or feet).....  | 7           |
| 5.3                          | Gripping, grasping, rotating, twisting, pushing or pulling (with fingers), pinching, sliding and touching..... | 8           |
| 5.3.1                        | Shape and size of products, controls and control panels.....   | 8           |
| 5.3.2                        | Strength (hands and fingers).....  | 9           |
| 5.4                          | Reach range.....   | 10          |
| 5.4.1                        | Height of operation plane of products, controls and control panels.....  | 10          |
| 5.4.2                        | Reach range of the upper limbs.....  | 10          |
| 5.4.3                        | Useful field of view for finding products, controls and control panels.....                                    | 10          |
| <b>Annex A</b> (informative) | <b>Design items to consider accessibility of products related to ease of operation.....</b>                    | <b>11</b>   |
| <b>Annex B</b> (informative) | <b>Reference data for human physical characteristics and strength.....</b>                                     | <b>12</b>   |
| <b>Annex C</b> (informative) | <b>Textual descriptions of figures in Annex <a href="#">B.3</a>.....</b>                                       | <b>37</b>   |
| <b>Bibliography</b> .....    |  | <b>60</b>   |