

## **ProKon from 2023**

### **Information about changes in the ProKon teaching materials**

In April 2023, the manual and the presentation in German/English has been changed. The following contents have been adapted:

#### **Analysis sheet**

##### **ProKon M**

- The base value has been subdivided into four levels [kg] ( $0 \leq 1$ ;  $>1 \times \leq 3$ ;  $>3 \times \leq 8$ ;  $>8$ ). The subdivision is based on the future linking of the ergonomic assessment based on the EAWS procedure.

#### **L ProKon manual**

##### **ProKon M**

- P. 44 Clip case study  
In the example, the analysis criterion without positioning aid was added to the current state and to example 1. As a result, the summary of results on page 45 has been corrected.

##### **ProKon A**

- P.68: Analysis Criteria Adjustment Rule A-AJ2 has been clarified in terms of content
- Previously: "Required inspection or measurement processes are not included in the value and must be additionally analyzed."
- New: "If, after Adjustment, further inspection or measurement procedures are necessary for design reasons, then these are additionally analyzed."
- In addition, a new note has been added to the rule.  
Note: "Tools required for inspection/measurement or adjustment operations are additionally to be considered under Number of tools used in the ProKon analysis. "

#### **Presentation**

##### **ProKon M**

- Slide 92: Frame supplemented with adjustment/checking
- Slide 101/102 Case study adjusted

##### **ProKon A**

- Slide 158: Analysis Criteria Adjustment Rule A-AJ2 clarified and supplemented by a note

## ProKon from 2022

### Information about changes in the ProKon teaching materials

In August 2022 the manual, presentation and analysis sheet of ProKon M as well as of ProKon A has been changed in German language. Throughout the documents, the logo has been changed and the formatting has been adapted to the corporate identity. In addition, the following contents have been changed:

#### Analysis sheet

##### ProKon M

- Due to the change in bulkiness in the MTM-UAS, the column Main dimension > 300 x 300 mm has been changed to the new description Two main dimensions > 300 mm.
- The column Part dimension >800 mm has been changed to the description One main dimension > 800 mm.
- The column Readjustment during position has been changed to the description Readjustment after position.
- All illustrations containing the analysis sheet have been updated.
- The column name Change in Positioning / Fastening Direction per axis (x, y, z) adapted to the manual Change in Positioning / Fastening Direction
- ProKon unit supplemented by the [PU]
- $\Sigma$  ProKon units [PU] corrected to  $\Sigma$ PU] [

##### ProKon A

- The column Change in Positioning / Fastening Direction per axis or direction has been changed to the description Change in Positioning / Fastening Direction.
- All illustrations containing the analysis sheet have been updated.
- The term "space constraints" changed to "constrained space".
- The term "snagged" changed to "Entangled component".
- The term "Fragile part" changed to "Fragile component".
- The term "No orientation characteristic" changed to "Without orientation characteristic". In the English version, the translation "No orientation characteristic" has been retained.

#### ProKon Manual

##### ProKon M

- on p.3 - 10 the illustrations adapted to the corporate identity
- Page 7 Tab. below ProKon units changed to  $\Sigma$  ProKon units [PU]
- p.9 1. par. ProKon unit supplemented by the [PU]
- P.11; P. 12; P. 22; P.28 Illustration adapted to the new analysis sheet

- P. 29 Par. 5.4.2 Main dimension > 300 x 300 mm changed to the new description Two main dimensions > 300 mm and definition adapted accordingly
- P. 29 par. 5.4.3 Part dimension >800 mm is changed to the description One main dimension > 800 mm and the definition adjusted accordingly.
- A third example of a wiring harness has been added to p. 32 (5.4.4). With the note that for plugs or clips of a wiring harness no additional basic value is assigned, but evaluated with quantity of positioning points.
- P. 36 The term Readjustment during Positioning has been changed to Readjustment after Positioning. The description has been corrected because the correction movements after the actual joining process are meant. This is to clarify the changed description.
- P. 36 The terms " to place approximately" have been added to the definition of Readjustment after Positioning.
- P.36 The example cable clamp after insertion into a hole approximately alignment corrected After the cable to be inserted was thereby deleted.
- S P. 38 par. 5.4.10 The following addition to the Change in positioning/ Fastening direction:
  - A note has been added that highlights the Change in positioning/ Fastening direction. A change in the positioning direction occurs when the coordinate axis (e.g., X à Y changes. The change of the fastening direction is a change of direction on the same coordinate axis (e.g., +Y à -Y).
  - The examples in the chapter Change in positioning/ Fastening direction have been renumbered.
  - The following rule M-R1 has been added: "If the coordinate axis is changed back to the defined main mounting direction, this is not evaluated."
- P.39 The example of Adjustment/checking highlighted
- P.42 Process assignments table: The process "Fasten screw with machine screw" with the subdivision with hand tool has been supplemented by the expression "or manually".
- P.48 Corrected spelling error of connecting piece.

**ProKon A**

- P. 60 The term snagged changed to entangled component.
- P. 67 The description "Change of joining axis or direction" has been changed to "Change of joining / fastening direction".

The explanation of the old description was the explanation of ProKon M (Change of position / fastening direction) and the content was the same. Therefore the description was taken over from Prokon M.
- The following rule A-R1 has been added: "If the coordinate axis is changed back to the defined main mounting direction, this is not evaluated".
- The examples from ProKon M have been adopted in this section.
- P.76 The analysis sheets have been adapted in the ballpoint pen example.

- P. 69 The term "space constraints" changed to "constrained space".

## **Presentation**

### **ProKon M**

- from slides 1 - 33 the illustrations adapted to the corporate identity
- Slide 32 the question on design "Can existing components take on additional functions and thus make components superfluous?" has been deleted. At this point, the participant should first get to know the analysis sheet.
- Slide 32 Analysis sheet ProKon M
- Slide 33 Analysis sheet ProKon A
- Slide 52 Example adapted to the analysis sheet
- Slide 58 Analysis Criteria (AC) Basic value
- Slide 59 AC Two main dimensions > 300 mm
- Slide 64 Example for rule F1 wiring harness
- Slide 66 AC with obstruction view/space
- Slide 68 AC Improper Fitting Possible
- Slide 70 AC Readjustment after Positioning
- Slide 72 AC Without Positioning Aids
- Slide 88 AC Change in Positioning / Fastening Direction
- Slide 89 Example of Change in Positioning / Fastening Direction
- Slide 75 Example of fastening direction
- Slide 90 Application rule M-R1
- Slides 93/94 AC Adjustment/Check the content divided into two slides
- Slide 80 AC Processes
- Slide 80 AC Classification of processes table updated
- Slide 83 AC Number of tools used
- Slide 88 Example fresh water pipe - TARGET
- Slide 104 Case study clamp current state ProKon analysis added

### **ProKon A**

- Slide 118 AC Grasping and positioning basic value
- Slide 119 AC Flexible component
- Slide 120 AC Difficult grasping
- Slide 121 AC Entangled component
- Slide 122 AC Difficult grasping Fragile component
- Slide 123 AC No orientation characteristics
- Slide 124 AC Additional grasping point
- Slide 125 - 128 AC Change in positioning/ Fastening direction
- Slide 129 AC Constrained space
- Slide 130 AC Orientation of the base or positioning component

- Slide 131 AC Measurement and/or inspection per characteristic
- Slides 132 - 133 AC Adjustment
- Slide 134 Flexible component
- Slide 135 Additional securing during positioning
- Slide 136 Without Positioning Aids
- Slide 137 Processes
- Slide 139 Number of tools used

**Card****ProKon**

- The process "Fasten screw with machine screw" with the subdivision with hand tool has been supplemented with the expression " or manually".