

# Introduction to the KIM Tool

<http://www.handlingloads.eu/29.htm>

**Key Indicator Method**

Risk Assessment on screening level in case  
of Manual Handling of Loads (MHL)

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# KIM Tool

- This procedure serves as an orienting assessment of working conditions for lifting and carrying loads.
- Good knowledge of the manual handling task being assessed is essential
- Rough estimates or suppositions lead to incorrect results

## Two different worksheets

- Lifting, holding and carrying
- Pushing and pulling
- Task description and assessment are separated; Task description is objective without valuation
- Risk assessment; takes biomechanical, metabolic and individual aspects into account

# Worksheet for lifting, holding, carrying

- 1st step :Determination of the Time Rating Points
- 2nd step :Determination of the Rating Points of Load, Posture and Working conditions
- 3rd step : Evaluation

## Manual handling tasks

- Related to one working day
- If there is change of load weight and/or posture in individual activity: Use average values
- Except if load is equal or above 40 kg for men or 25 kg for women
- When overall activity has number of manual handling tasks with substantially different load manipulations: Use separate estimations

## 1.step:Determination of Time rating points

### Select one table

- **Lifting:** regular repetition of short lifting, lowering or displacement operations
- **Holding:** number of holdings x duration of single holding
- **Carrying:** total distance covered with the load

## •Select one table

**1<sup>st</sup> step: Determination of time rating points** (Select only one column !)

Lifting or displacement operations (< 5 s)		Holding (> 5 s)		Carrying (> 5 m)	
<i>Number on working day</i>	<b>Time rating points</b>	<i>Total duration on working day</i>	<b>Time rating points</b>	<i>Overall length on working day</i>	<b>Time rating points</b>
< 10	1	< 5 min	1	< 300 m	1
10 to < 40	2	5 to 15 min	2	300 m to < 1km	2
40 to < 200	4	15 min to < 1 hr	4	1 km to < 4 km	4
200 to < 500	6	1 hrs to < 2 hrs	6	4 to < 8 km	6
500 to < 1000	8	2 hrs to < 4 hrs	8	8 to < 16 km	8
≥ 1000	10	≥ 4 hrs	10	≥ 16 km	10
<i>Examples:</i> • laying bricks, • placing workpieces into a machine • taking boxes out of a container and putting them onto a conveyor belt		<i>Examples:</i> • holding and guiding a cast iron slug while working on a wheel stand, • operating a hand grinding machine, • operating a weed-eater		<i>Examples:</i> • furniture removal, • delivering scaffolding parts to a building site	

## 2.step: Determination of rating of Load, Posture and Working conditions

### **Rating of Load**

- Separate tables for men and women
- Different load, average value
- Max 40 kg for men and max 25 kg for women
- Effective load: the real action force needed to move the load, not always the equal to objects weight
- When box is tilted, only 50% of load has effect on the worker





## *2<sup>nd</sup> step: Determination of rating points of load, posture and working conditions*

Effective load <sup>1)</sup> for men	Load rating point	Effective load <sup>1)</sup> for women	Load rating point
< 10 kg	1	< 5 kg	1
10 to < 20 kg	2	5 to < 10 kg	2
20 to < 30 kg	4	10 to < 15 kg	4
30 to < 40 kg	7	15 to < 25 kg	7
≥ 40 kg	25	≥ 25 kg	25

1) „Effective load“ means in this context the real action force which is necessary for moving load. This action force does not correspond to the load mass in each case. When tilting a carton, only 50 % of the load mass will have an effect on worker and when using a cart only 10 %.

## Rating of Posture

- Pictograms in table
- Different postures during activity: Average value from rating points

Typical posture, position of load <sup>2)</sup>	Posture, position of load	Posture rating point
	<ul style="list-style-type: none"> <li>• Upper body upright, not twisted</li> <li>• When lifting, holding, carrying and lowering the load is close to body</li> </ul>	1
	<ul style="list-style-type: none"> <li>• Slightly bending forward or twisting the trunk</li> <li>• When lifting, holding, carrying and lowering load is near to medium to body</li> </ul>	2
	<ul style="list-style-type: none"> <li>• Low bending or far bending forward</li> <li>• Slightly bending forward with simultaneous twisting of trunk</li> <li>• Load far from the body or above shoulder height</li> </ul>	4
	<ul style="list-style-type: none"> <li>• Bending far forward with simultaneous twisting of trunk</li> <li>• Load far from body</li> <li>• Restricted stability of posture when standing</li> <li>• Crouching or kneeling</li> </ul>	8

2) To determine the posture rating points the typical posture during manual handling must be used. For example when there are different postures with load a mean value must be used – not occasional extreme values.

## Rating of Working conditions

- Predominant most of the time

Working conditions	Working conditions rating point
Good ergonomic conditions, e.g. sufficient space, no physical obstacles within the workspace, even level and solid flooring, sufficient lighting, good gripping conditions	0
Space for movement restricted and unfavourable ergonomic conditions (e.g. 1: space for movement restricted by too low high or working area less than 1,5 m <sup>2</sup> or 2: posture stability impaired by uneven floor or soft ground)	1
Strongly restricted space of movement and/or instability of centre of gravity of load (e.g. transfer of patients)	2

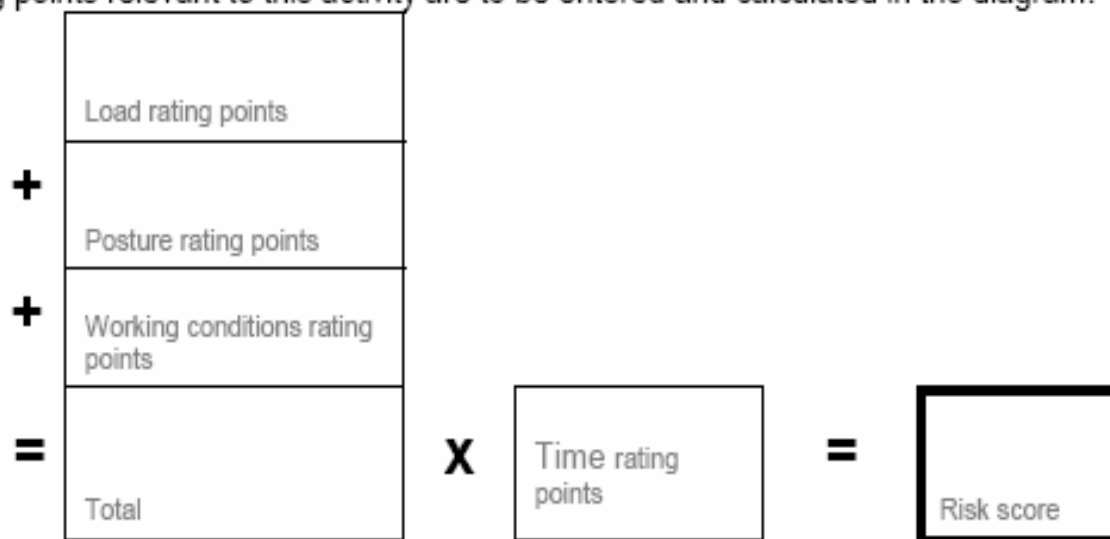
## 3.step: Evaluation

### Activity-related risk score:

- Addition of rating points of the key indicators and multiplication with the time rating points

#### 3<sup>rd</sup> step: Evaluation

The rating points relevant to this activity are to be entered and calculated in the diagram.



On the basis of the rating calculated and the table below it is possible to make a rough evaluation.<sup>3)</sup> Regardless of this provisions of the Maternity Leave Act apply.

## Conclusion:

- Evidence of design needs and approaches
- Causes of high rating points must be eliminated

On the basis of the rating calculated and the table below it is possible to make a rough evaluation. <sup>3)</sup> Regardless of this provisions of the Maternity Leave Act apply.

Risk range	Risk score	Description
1	< 10	Low load situation, physical overload unlikely to appear.
2	10 bis < 25	Increased load situation, physical overload is possible for less resilient persons <sup>4)</sup> . For that group redesign of workplace is helpful.
3	25 bis < 50	Highly increased load situation, physical overload also possible for normal persons. Redesign of the workplace is recommended.
4	≥ 50	High load situation, physical overload is likely to appear. Workplace redesign is necessary <sup>5)</sup> .

<sup>3)</sup> Basically it must be assumed that as the number of point rating rises, so the risk of overloading the muscular-skeletal system increases. The boundaries between the risk ranges are fluid because of the individual working techniques and performance conditions. The classification may therefore only be regarded as an orientation aid. More exact analyses require specialist ergonomic knowledge.

<sup>4)</sup> Less resilient persons in this context are persons older than 40 or younger than 21 years, newcomers in the job or people suffering from illness.

<sup>5)</sup> Design requirements can be determined with reference to the number of point in the table. By reducing the weight, improving the execution conditions or shortening the strain time, elevated stress can be avoided.

## ASSESSMENT OF MANUAL HANDLING TASKS BASED ON KEY INDICATORS Version 2001

Where there are a number of individual activities with considerable physical strains, they must be estimated separately.

Workplace/Activity:





### 1<sup>st</sup> step: Determination of time rating points (select only one column!)

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### 2<sup>nd</sup> step: Determination of rating points of load, posture and working conditions

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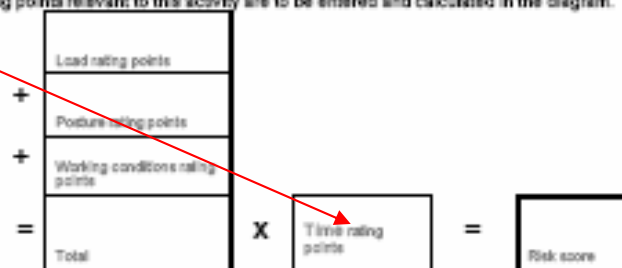
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Check of the workplace necessary for other reasons:

Reasons: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

Date of assessment: \_\_\_\_\_ Assessed by: \_\_\_\_\_

## Working situations-Information

- **1. Situation:** Unloading bags from plane  
**Load:** Average 16 kg
- **2. Situation:** Loading fish-boxes to the conveyer belt  
**Load:** Average 15 kg
- **Time rating:**  
Working shift is 12 hours  
Effective loading and unloading for about 4 hours  
of the working shift.  
Loading and unloading 2280 pieces in the 4 effective  
hours