Key Indicator Method for assessing and designing physical workloads with respect to Body Movement (KIM-BM)

Workplace/sub-activity:			
Duration of the working day:		Evaluator:	
Duration of the sub-activity:		Date:	

1st step: Determination of time rating points

Total duration of the sub-activity [up to … minutes] per working day:	up to 1	> 1 - 5	> 5 - 10	> 10 - 20	> 20 - 30	> 30 - 45	> 45 - 60	> 60 - 100	> 100 - 150	> 150 - 210	> 210 - 270	> 270 - 360	> 360 - 480
Time rating points	**1**	**1.5**	**2**	**2.5**	**3**	**3.5**	**4**	**5**	**6**	**7**	**8**	**9**	**10**

2nd step: Determination of the rating points for other indicators

A Body Movement without using equipment

Type	Description		Carried load: without / < 3 kg	3 ... 10 kg	> 10 ... 15 kg	> 15 ... 20 kg	> 20 ... 25 kg	> 25 ... 30 kg	> 30 ... 35 kg	> 35 ... 40 kg	> 40 kg
	**Walking**	Slowly	**4**	**6**	**8**	**10**	**12**	**14**	**25**	**35**	**100** [1]
		At a moderate pace (3 ... 5 km/h)	**8**	**10**	**12**	**14**	**16**	**18**	**30**	**40**	
		Quickly	**12**	**14**	**16**	**18**	**20**	**22**	**35**	**50**	
	**Climbing**	Angle of inclination < 5°	**10**	**12**	**14**	**16**	**18**	**20**	**35**	**50**	
		Angle of inclination 5 - 15°	**12**	**14**	**16**	**18**	**20**	**22**	**35**	**50**	
		Angle of inclination > 15°	**24**	**26**	**28**	**30**	**32**	**34**	**40**	**50**	
	**Climbing stairs**	Normal stairs	**18**	**20**	**22**	**24**	**26**	**50**	**100** [1]		
		Steep stairs (35 ... 50°)	**24**	**26**	**28**	**30**	**50**	**100** [1]			
		Very steep stairs (> 50°)	**30**	**32**	**34**	**50**	**100** [1]				
	**Climbing ladders** Angle of inclination 65 ... 75°		**24**	**26**	**50**	**100** [1]					
	**Climbing** Angle of inclination > 80° Vertical movement on step irons, vertical ladders, manhole ladders		**30**	**32**	**50**	**100** [1]					
	**Crawling**[2], **walking with a severe stoop** Predominantly horizontal movement in low-ceiling rooms, tunnels, maintenance platforms, channels		**24**	**26**	**50**	**100** [1]					

[1] *This combination of type of movement and transport of loads leads to an increased risk even with short exposure times.*
[2] *For this type of movement, the sub-activity must also be evaluated using the KIM-ABP Part C.*

Location of the load centre for A	Carried load: 3 up to 15 kg	> 15 ... 30 kg	> 30 kg
No load or load < 3 kg or load is close to the body in a carrying frame or backpack on the shoulders	**0**		
Load close to the body, held in the hands or carried on one shoulder	**4**	**8**	**12**
Load at a distance from the body, held in the hands [3]	**8**	**12**	**16**

Trunk posture for A		Carried load: 0 up to 15 kg	> 15 ... 30 kg	> 30 kg
Trunk clearly inclined forward and/or twisting and/or lateral inclination of the trunk identifiable	Occasionally	**2**	**4**	**6**
	Frequently to constantly [3]	**4**	**6**	**8**

[3] *Please note: If unfavourable arm or trunk postures occur frequently to constantly, the sub-activity must also be evaluated using the KIM-LHC (for load ≥ 3 kg) or the KIM-ABP (no load or load < 3 kg).*

Unfavourable working conditions for A (Specify only where applicable. Indicators not mentioned in the tables are to be taken into account accordingly. Rare deviations can be ignored.)	Rating points	
Restricted: narrow space for movement (e.g. fall protection by means of safety cage) / reduced stability due to movable or inclined standing surface / **sand / gravel path**	**3**	
Severely restricted: freedom of movement hindered / no technical climbing aids (natural conditions) / **open country**	**5**	
Critical: freedom of movement severely hindered due to confined spaces and danger points / restricted view / no resting platforms / mountaineering / respiratory protective equipment / **muddy ground**	**15**	
Climate: extreme climatic influences, such as heat, wind, snow (graded as rarely/occasionally and frequently/constantly)	**4**	**8**
Total of "Restricted", "Severely restricted" or "Critical" and "Climate" (if applicable)		

B Body Movement when driving by muscle power

Type	Description	Load weight to be moved including transport device [4]		
		up to 50 kg	> 50 ... 150 kg	> 150 kg
	Slowly < 10 km/h	**3**	**6**	**9**
	At a moderate pace 10 ... 15 km/h	**6**	**10**	**14**
	Quickly > 15 km/h	**9**	**15**	**21**

Driveway - unfavourable working conditions for B (Specify only where applicable. Indicators not mentioned in the tables are to be taken into account accordingly. Rare deviations can be ignored.)	Load weight to be moved including transport device [4]		
	up to 50 kg	> 50 ... 150 kg	> 150 kg
Driveway restricted: earth or roughly cobbled driveway, potholes, heavy soiling, temporary ascents	**8**	**12**	**16**
Climate: extreme climatic influences, such as heat, wind, snow	rarely/occasionally	frequently/constantly	
	4	**8**	
Total			

[4] *If supported by electric operation, the rating points must be divided in half.*

Work organisation / temporal distribution	Rating points
Good: frequent variation of the physical workload situation due to other activities (including other types of physical workload) / without a tight sequence of higher physical workloads within one type of physical workload during a single working day.	**0** x
Restricted: rare variation of the physical workload situation due to other activities (including other types of physical workload) / occasional tight sequence of higher physical workloads within one type of physical workload during a single working day.	**2**
Unfavourable: no/hardly any variation of the physical workload situation due to other activities (including other types of physical workload) / frequent tight sequence of higher physical workloads within a type of physical workload during a working day with concurrent high load peaks.	**4**

3rd step: Evaluation and assessment

A:
Body movement without using equipment

Location of the load centre (only for A, otherwise 0) +

Twisting and/or lateral inclination of the trunk (only for A, otherwise 0) +

Unfavourable working conditions (only for A, otherwise 0) +

B:
Body movement when driving by muscle power +

Driveway (only for B, otherwise 0) +

Work organisation / temporal distribution A and B +

Results

In case of female employees x 1.3

Time rating points	x	Total of indicator rating points:	=	M	x 1.3	W

The risk score calculated and the table below can be used as the basis for a rough evaluation:

Risk		Risk range	Intensity of load*)	a) Probability of physical overload b) Possible health consequences	Measures
	1	< 20 points	low	a) Physical overload is unlikely. b) No health risk is to be expected.	None
	2	20 - < 50 points	slightly increased	a) Physical overload is possible for less resilient persons. b) Fatigue, low-grade adaptation problems which can be compensated for during leisure time	For less resilient persons, workplace redesign and other prevention measures may be helpful.
	3	50 - < 100 points	substantially increased	a) Physical overload is also possible for normally resilient persons. b) Disorders (pain), possibly including dysfunctions, reversible in most cases, without morphological manifestation	Workplace redesign and other prevention measures should be considered.
	4	≥ 100 points	high	a) Physical overload is likely. b) More pronounced disorders and/or dysfunctions, structural damage with pathological significance	Workplace redesign measures are necessary. Other prevention measures should be considered.

*) *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. Basically, it must be assumed that the probability of physical overload will increase as the risk scores rise.*