

KIM for assessing and designing physical workloads with respect to Whole-Body Forces (KIM-BF)

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

1st step: Determination of time rating points

Total duration ¹⁾ [up to ... minutes] and/or repetitiveness ²⁾ of the sub-activity 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

¹⁾ For continuous sub-activities, ²⁾ for discontinuous sub-activities. For explanations in this respect: See guideline.

Please note: If finger-hand forces are applied predominantly, the sub-activity must also be evaluated using the KIM-MHO!

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

Force exertion within a standard minute for continuous sub-activities and/or per sub-activity for discontinuous sub-activities		Holding ³⁾ average holding time [seconds]			Moving average movement frequencies [number]			
Level	typical examples as classification aid for orientation purposes	31 - 45 ³⁾	16 - 30	≤ 15	< 5	5 - 15	16 - 30	31 - 45 ⁵⁾
	Low forces Whole-Body Forces with low forces cannot occur by definition. Where applicable, these sub-activities must be assessed using the KIM-MHO.	-	-	-	-	-	-	-
	Moderate forces (up to 30 % F_{maxM}) Work with hand-guided tools, such as angle grinders, small chainsaws, hedge trimmers or impact drills < 3 kg / moving loads on roller tracks < 20 kg	18	12	6	1.5	6	12	18
	High forces (up to 50 % F_{maxM}) Work with heavy hand-guided tools, such as angle grinders, large chainsaws, hammer drills 3-8 kg / operating high-pressure cleaners or sandblasters/shovelling loads < 4 kg / moving loads on roller tracks 20-50 kg / throwing loads < 3 kg up to max. 5 metres	25	17	8	2	8	17	25
	Very high forces (up to 80 % F_{maxM}) Work with heavy hand-guided tools, such as pneumatic hammers (≥ 8 kg) / shovelling loads 4-8 kg / moving loads on roller tracks > 50-100 kg / throwing loads < 3 kg up to max. 10 metres or 3-5 kg max. 5 metres	100	32	15	4	15	32	100
	Peak forces⁴⁾ (more than 80 % F_{maxM}) Pulsed exertion of force such as when working with crowbars, sledgehammers / tipping heavy drums (> 200 kg), transporting heavy pieces of furniture / shovelling loads > 8 kg / moving loads on roller tracks > 100 kg / throwing loads < 3 kg more than 10 metres or ≥ 3 kg more than 5 metres	100		25	6	25	50	100
The sub-activity must be observed and the rating points for the force categories marked. The sum represents the total force rating point.		Total force rating point:						
		For women x 1.5:						

³⁾ The amount of time of holding work is only considered as such in the assessment if one arm is held continuously statically for at least 4 seconds!

⁴⁾ These forces might not be exerted at all or might no longer be exerted reliably. This applies to women in particular.

⁵⁾ In case of even higher frequencies/holding times, the resulting risk score must be extrapolated linearly or the E version (KIM-BF-E) must be applied.

Symmetry of the application of force	Rating points
Force is applied with both hands and symmetrically	0 
Force is applied temporarily with one hand and/or asymmetrically: uneven force distribution between the two hands	2
Force is applied predominantly with one hand, uneven distribution or direction of forces of both hands	4

Body posture ⁶⁾	Rating points
 - Standing upright up to a position with the trunk being slightly inclined forward (< 20°) - No twisting	0 
 - Standing, trunk being more severely inclined forward (20-60°) - Occasional twisting and/or lateral inclination of the trunk identifiable - Hands occasionally above shoulder level / at a distance from the body	3
 - Standing, trunk being severely inclined forward (> 60°) or backward - Frequent twisting and/or lateral inclination of the trunk identifiable - Hands frequently above shoulder level / at a distance from the body - Work in a lying position with hands above/below the body	6
 - Combination of more severe forward or backward inclination and lateral inclination/torsion - Constant twisting and/or lateral inclination of the trunk identifiable - Work in a squatting or kneeling position - Hands constantly above shoulder level / at a distance from the body	9 ⁷⁾

⁶⁾ Typical body postures are to be taken into account. Rare deviations can be ignored.

⁷⁾ Please note: If this category was chosen, it is recommended to evaluate this sub-activity also using the KIM-ABP!

