

Name: Suhel Miah

Organization: Cardinus UK

Height: 157 cm

Date: Mar-27-2025

Video ID: Carrying Box (24868\_risk)

## ASSESSMENT OVERVIEW

## Ergonomic Risk Score

Overall

32

Moderate Risk

Upper Body

39

Lower Body

26

## Activated Analyses

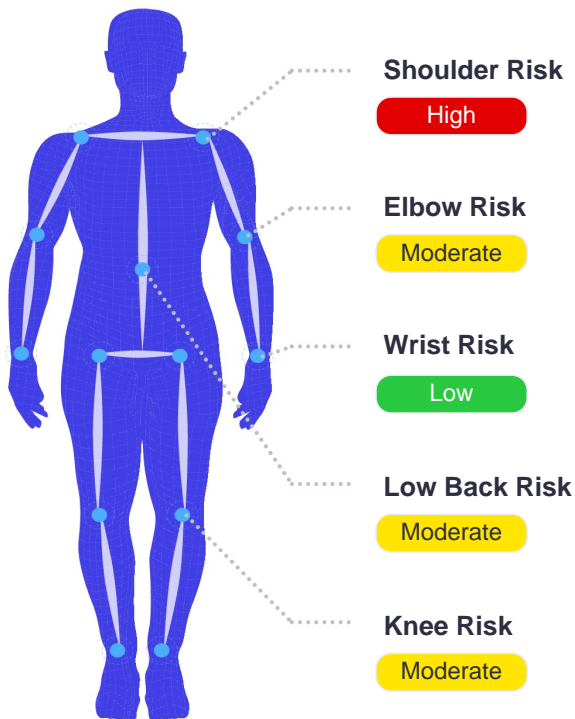
3motionAI Risk Scores

REBA Assessment

MAC Assessment

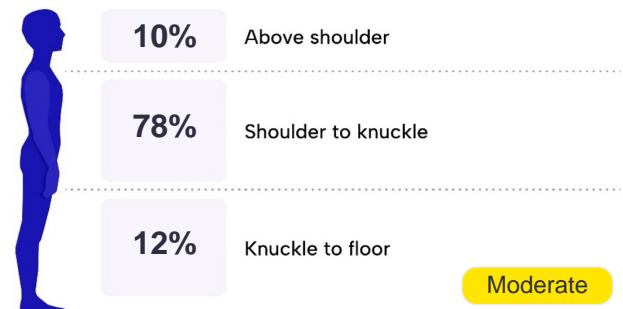
## Joint Posture Risk

Low - Moderate - High

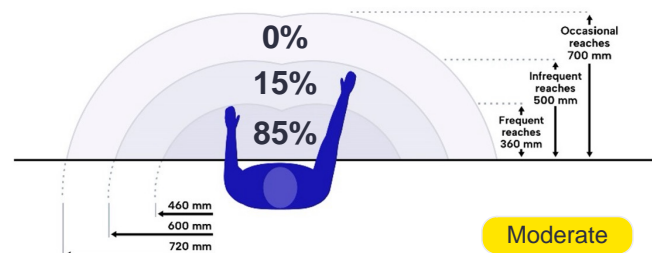


## Reach Envelope

## Hand Height Distribution



## Reach Distance Distribution

**! Recommendations to Reduce Risk**

Your analysis showed moderate overall risk (particularly for the upper body) with the shoulders as the riskiest joint. Consider lowering the work location to limit shoulder flexion and reduce the risk level.

## ERGONOMIC RISK SCORE

Overall

**32**

Medium Risk

Upper Body

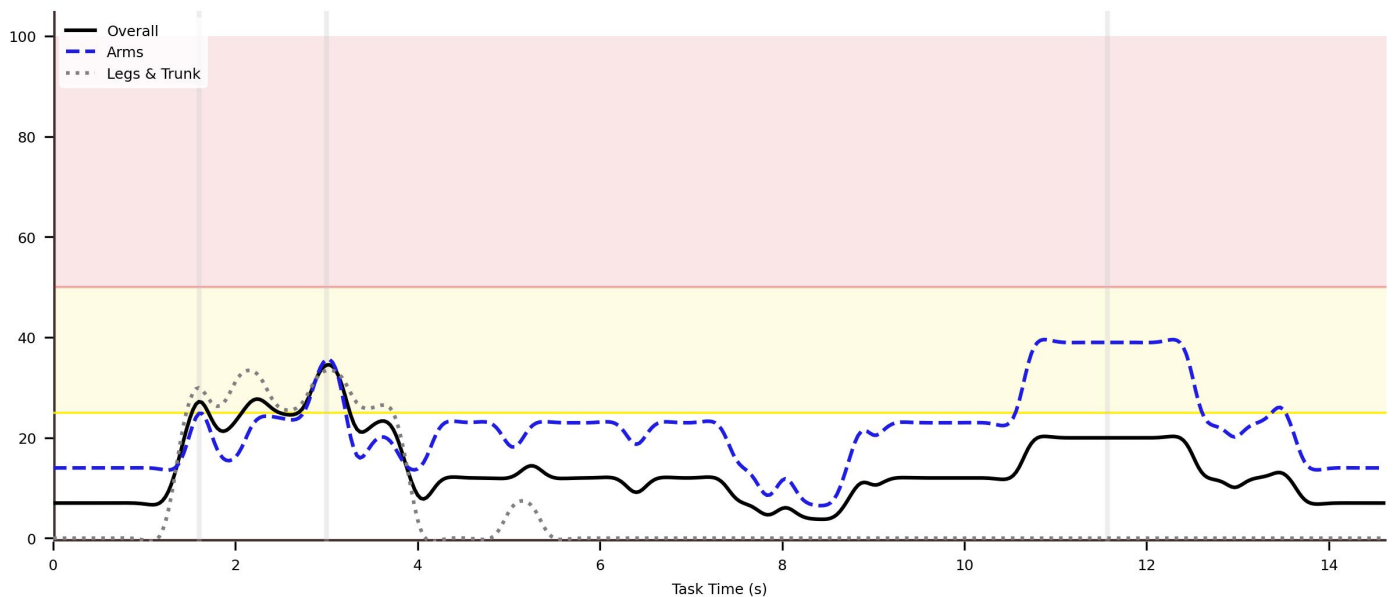
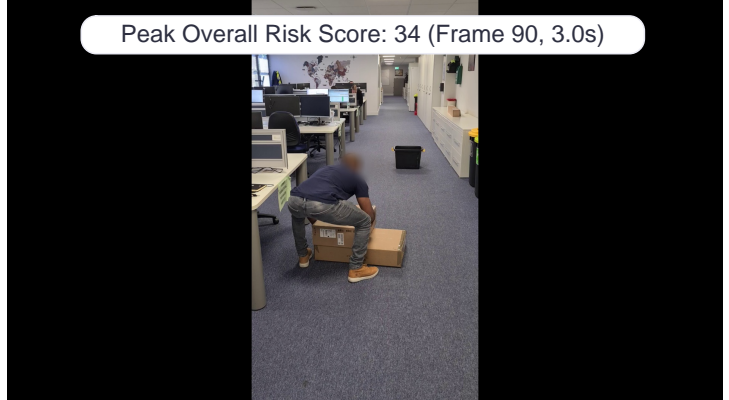
**39**

Lower Body

**26**

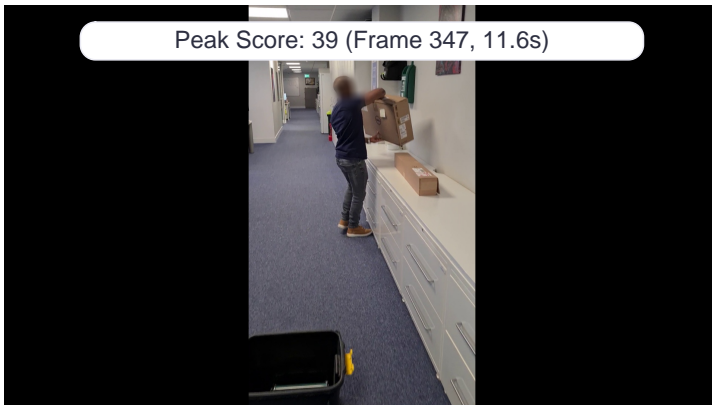
The "Risk Score" indicates muscular or soft tissue injury risk based on joint postures, reach envelope, hand load, task frequency, and joint loads.

Peak Overall Risk Score: 34 (Frame 90, 3.0s)



## Upper Body

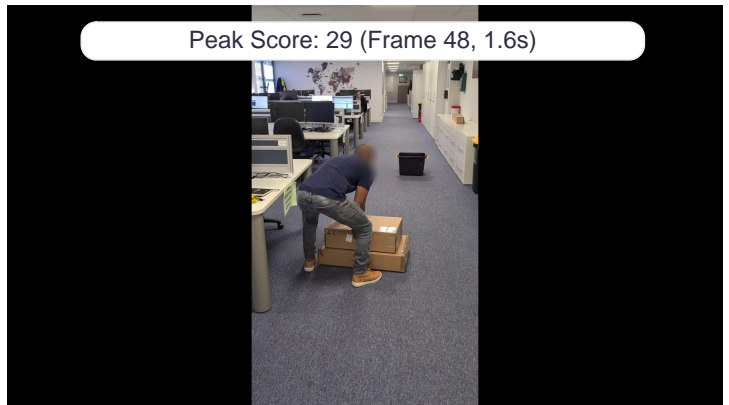
Peak Score: 39 (Frame 347, 11.6s)



The Upper Body "Risk Score" targets injury risk related to the neck, shoulders, elbows, and wrists. These joints are most affected by reaching and work above the shoulders.

## Lower Body

Peak Score: 29 (Frame 48, 1.6s)



The Lower Body "Risk Score" targets injury risk related to the low back and knees. These body regions are most affected by working close to ground level.

## JOINT KINETICS

Compression

**3785**

N

LB Moment

**205**

N.m

SH Moment

**34**

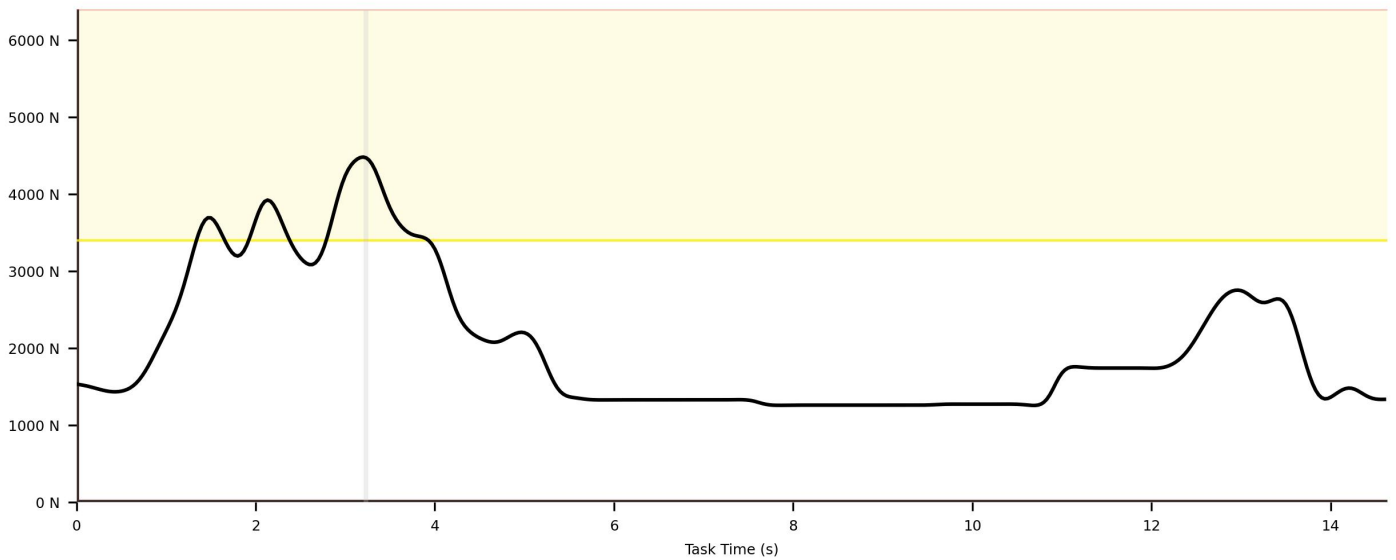
N.m

To limit low back (LB) disorders, NIOSH recommends compression below 3400 N (765 lb) for any single activity. Exceeding 6400 N (1440 lb) presents a significant hazard.

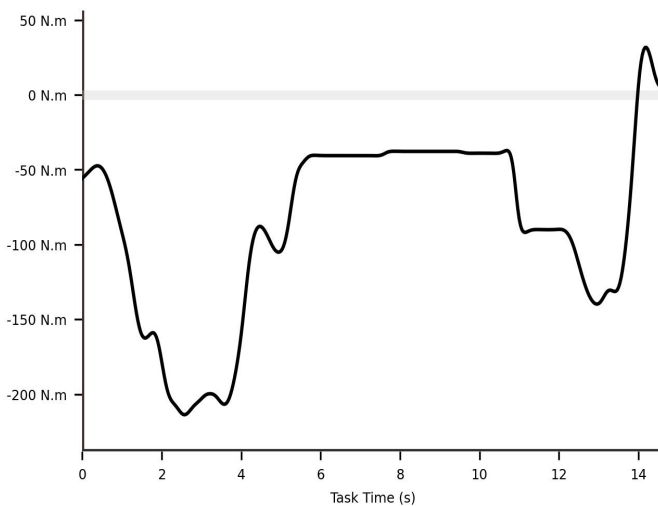
Peak LB Compression: 4470 N (Frame 97, 3.2s)



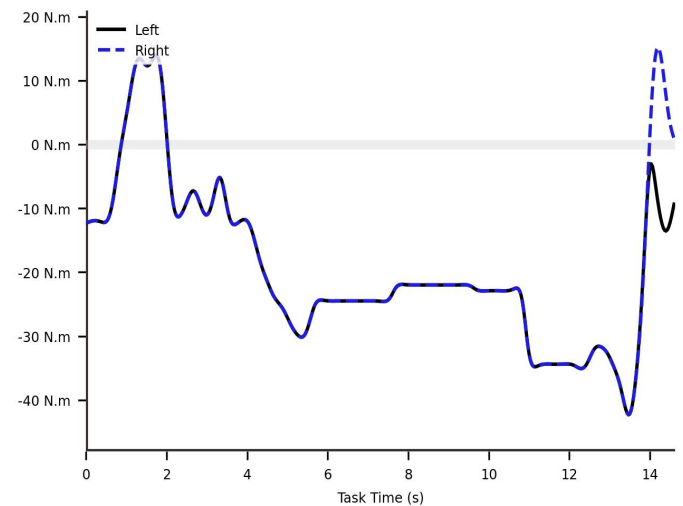
## Low Back (LB) Compression



## Low Back (LB) Moment



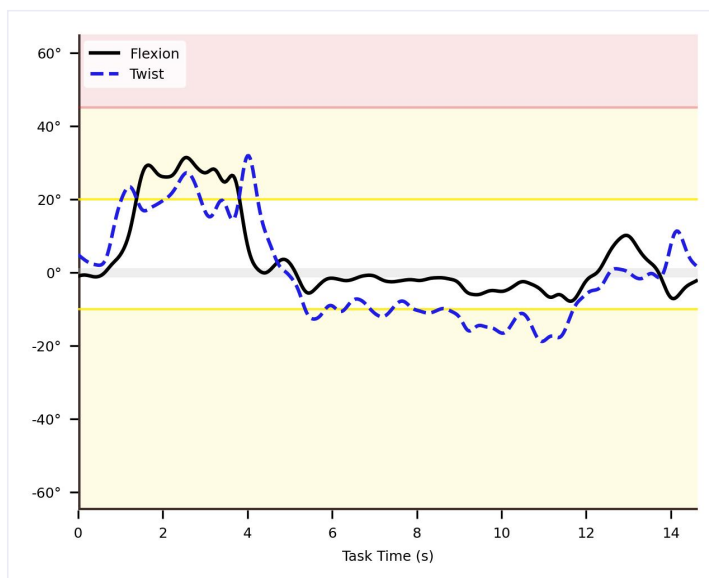
## Shoulder (SH) Moment



## JOINT KINEMATICS

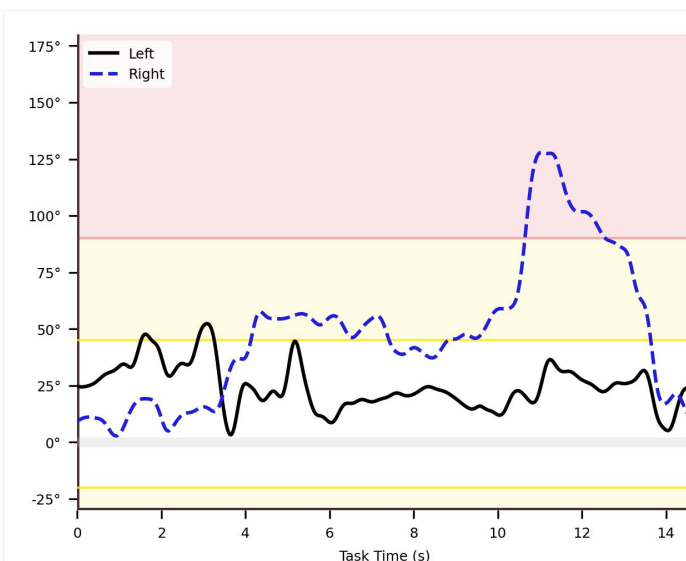
The 3motionAI system uses advanced computer vision and artificial intelligence (AI) to track human body motion. It creates a detailed, scaled 3D body model, which is used to calculate 3D joint angles. Research shows that injury risk is minimized when joints are in a neutral posture, while extreme postures can increase the likelihood of injury.

## Low Back Angles



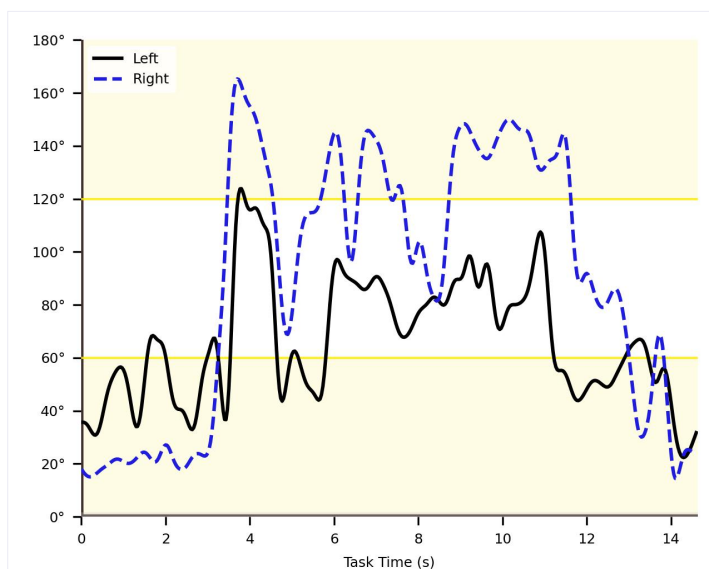
EXTENSION (<-10°)	█	0%
NEUTRAL (-10-20°)	█	83%
MODERATE FLEXION (20-45°)	█	17%
SEVERE FLEXION (>45°)	█	0%

## Shoulder Elevation Angles



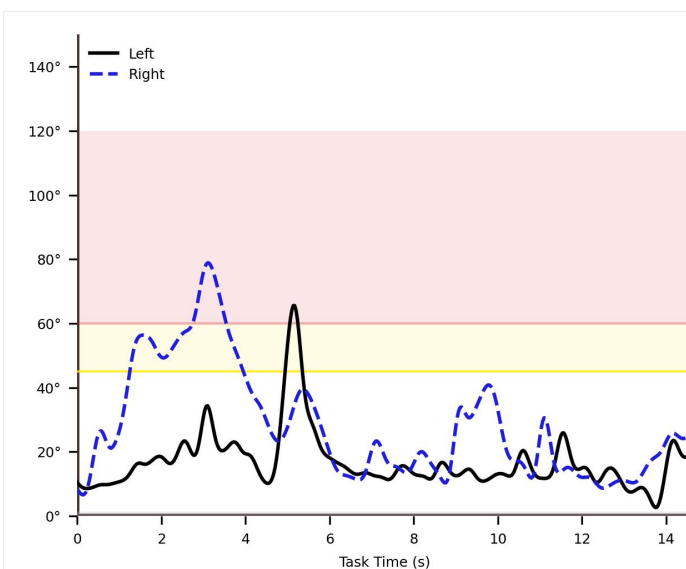
NEUTRAL (0-45°)	█	95% / 44%
MODERATE ELEVATION (45-90°)	█	5% / 43%
SEVERE ELEVATION (>90°)	█	0% / 13%

## Elbow Flexion Angles



EXTENSION (<60°)	█	46% / 32%
NEUTRAL (60-120°)	█	53% / 30%
FLEXION (>120°)	█	1% / 38%

## Knee Flexion Angles



NEUTRAL (0-45°)	█	97% / 82%
MILD FLEXION (45-60°)	█	1% / 13%
SEVERE FLEXION (60-120°)	█	1% / 5%

RAPID ENTIRE BODY ASSESSMENT (REBA)

Scoring outcomes based on Rapid Entire Body Assessment (REBA), Highnett & McAtamney, Applied Ergonomics 31 (2000), 201-205.

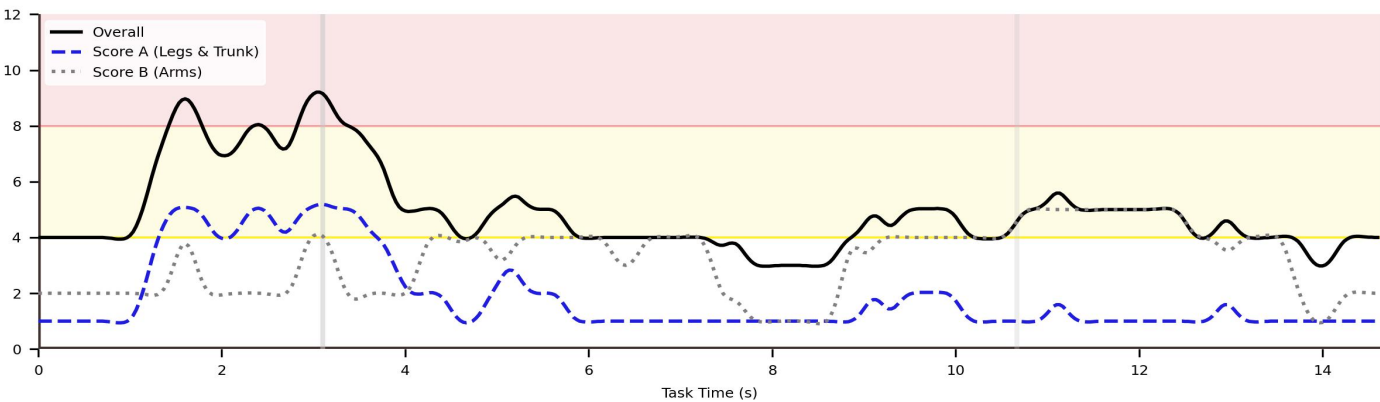
1: Negligible Risk

2-3: Low Risk. Change may be needed.

4-7: Medium Risk. Further investigate and change soon.

8-10: High Risk. Investigate and implement change.

11+: Very High Risk. Implement change.



Peak Overall REBA Score

Peak A Score (Legs & Trunk)

Peak B Score (Arms)

Frame 93 - 3.1 seconds

Frame 93 - 3.1 seconds

Frame 320 - 10.7 seconds

	Posture	Adjust	Score		Posture	Adjust	Score		Posture	Adjust	Score
NECK	2	0	2	NECK	2	0	2	NECK	1	0	1
TRUNK	3	0	3	TRUNK	3	0	3	TRUNK	1	0	1
LEGS	1	2	3	LEGS	1	2	3	LEGS	1	0	1
UPPER ARM	3	0	3	UPPER ARM	3	0	3	UPPER ARM	4	0	4
LOWER ARM	2	-	2	LOWER ARM	2	-	2	LOWER ARM	2	-	2
WRIST	1	0	1	WRIST	1	0	1	WRIST	1	0	1
LOAD	COUPLING	ACTIVITY	LOAD	COUPLING	ACTIVITY	LOAD	COUPLING	ACTIVITY			
2	0	1	2	0	1	2	0	1			
13.6 KG	Good	5.0 / MIN	13.6 KG	Good	5.0 / MIN	13.6 KG	Good	5.0 / MIN			
A SCORE	B SCORE	OVERALL	A SCORE	B SCORE	OVERALL	A SCORE	B SCORE	OVERALL			
6	4	10	6	4	10	1	5	5			

## MANUAL HANDLING ASSESSMENT CHARTS (MAC) - CARRYING ASSESSMENT

**The Manual Handling Assessment Charts (MAC)**

This tool is designed for employers, health and safety managers, safety representatives, and inspectors. It helps assess common risk factors in lifting, lowering, and carrying tasks, identifying high-risk manual handling activities. The tool provides guidance on the key factors to modify and control these risks to improve safety.

**COLOR INDEX**

Low Risk



Moderate Risk



High Risk



Unacceptable Risk

**RISK FACTOR (Carrying)****RISK LEVEL****SCORE**

Load weight / frequency

13.6 kg, 5.0 carries per min

☐☐☐☐☐☐☐☐☐☐

0

Hand distance from the lower back

Hands at moderate distance from low back

☒☒☒☐☐☐

3

Asymmetrical torso or load

Load and hands symmetrical in front of torso

☐☐

0

Postural constraints

No postural constraints

☐☐☐

0

Grip on the load

Good grip with adequate handles

☐☐

0

Floor surface

Good floor surface

☐☐☐

0

Environmental factors

No environmental factors observed

☐☐

0

Carry distance

Between 2 m and 4 m

☐☐

0

Obstacles along the way

One type of obstacle or steep slope

☒☐☐

1

**TOTAL SCORE:****4****Action Your Risk Data**

Review the color and numerical scores, focusing on amber and red risks. Modify tasks to reduce these risks and prioritize actions by addressing the task with the highest total score first.