

MODERNISATION OF A CERAMICS FACTORY TO PREVENT MANUAL LIFTING

Organisation

AB Dvarcioniu, keramika, Keramiku g. 2, LT-10233 Vilnius

Introduction

Dvarčionių keramika AB is the biggest manufacturer of ceramic tiles in the Baltic countries. The company has an old tradition, celebrating its 120 year anniversary in 2008. The work in the production lines of Dvarčionių keramika had been hard for the workers. A workplace risk assessment carried out in 1998 revealed that a sorting assembly line operator had to bend forward around 1,700 times during one shift. Also, packages of tiles had to be lifted manually, each of them weighing between 15 and 30 kg.

Workers under such conditions are heavily exposed to the risk of developing MSDs, especially chronic back pain. It could also be observed that the number of sick leave days among the sixteen workers in the sorting assembly line had increased from 67 days in 2003 to 120 in 2004 and 116 in the first eight months of 2005.

These numbers indicate that the workers are already working at their maximum strain. At the same time, the company runs the risk of decreasing productivity and losing money. The management therefore decided to modernise the sorting assembly line in a way that the repetitive bending and manual handling of loads would be reduced to a minimum.

Aims

By the modernisation of the production line, the company aimed at decreasing number of sick leave days of the workers in the sorting assembly line, at cutting costs due to sick leave and at increasing the company's productivity.

What was done, and how

As a result of the risk assessment, it was decided to modernise the unit that put tiles on pallets. Two robot manipulators were installed to replace eight of the 16 workers. Following automation, the workers were trained to manage the computer-controlled mechanism.



Figure 1 Automation of the tile-sorting line

The mechanism takes and puts the empty pallets into the relevant place automatically. It includes an automatic assembly line, control box and automatic intake mechanism, allowing the maintenance of eight pallets simultaneously. The operator of the mechanism monitors its control and, in the event of any process failure, resets the operation in automatic mode. The worker uses a fork-lift truck to take away full pallets. Photo sensors protect the area maintained by the mechanism. If anyone steps into the yellow safety zone, the mechanism is stopped automatically. Electricians or metalworkers are called to deal with more complicated breakdowns

What was achieved

Of the eight workers not now required to work in the unit, one retired and seven were offered alternative work, which they accepted.

With reference to the Ergonomic Risk Factor Assessment, carried out in May 2007, repeated involuntary bending of the waist was not determined. Thus, the chances of suffering back trauma have been reduced to the minimum. Labour productivity of the unit increased by 22%. Thus, the wages of workers employed in the modernised unit increased (21 %). The number of days off sick declined.

Further information

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Transferability

Modernisation of production lines requires capital expenditure and signifies investing in the company's future. With a reduction of sick leave and an increase in productivity at the same time the return on investment will be realised soon and employers' and workers' interests go hand in hand.