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Republic of Latvia

Cabinet

Regulation No 284

Adopted 13 April 2004

Labour Protection Requirements for the Protection of Employees from the Risk Caused by Vibration in the Work Environment

*Issued pursuant to
Section 25, Paragraph 18
of the Labour Protection Law*

I. General Provisions

1. These Regulations prescribe the labour protection requirements for the protection of employees from the risk caused by vibration in the work environment.
2. The following types of exposure shall be defined:
 - 2.1. hand-arm vibration – the vibration transmitted through the arms of a employee using work equipment associated with hits and rotation, which causes a risk to the safety and health of the employee, in particular trauma to the proper functioning of the vascular, bone and joint, muscular and neurological system thereof; and
 - 2.2. whole-body vibration – the vibration transmitted through a standing or seated employee's support surfaces which primarily affects the whole body, causing a risk to the safety and health of the employee, in particular injury to the lower-back and trauma to the spine.
3. These Regulations shall apply to all fields of employment in which employees are or are likely to be exposed to risks from vibration, except such whole-body vibration that is experienced on ships, of which the frequency is less than 1 Hz.
4. The employer shall be liable for compliance with these Regulations.
5. The employer, in accordance with the requirements specified in the Labour Protection Law, shall consult with employees or their trusted representatives with respect to issues associated with the risk caused by vibration in the work environment, as well as ensure participation of employees in resolving the relevant issues.
6. Compliance with these Regulations shall be controlled by the State Labour Inspection.

II. Assessment and Measurement of Risks Caused by Vibration

7. The employer shall ensure the risk assessment associated with vibration in compliance with the internal supervision of the work environment and the procedures for risk assessment in the work environment of an undertaking involving trusted representatives and employees.

8. If it is determined during the inspection of a workplace and after becoming acquainted with the technical documentation of the work equipment that vibration causes a risk or is likely to cause a risk to the safety and health of a employee, the employer shall ensure the risk assessment caused by vibration and the initial measurement of vibration levels in all workplaces where it has been determined that vibration causes or is likely to cause a risk to the safety and health of employees.

9. A risk caused by vibration shall be assessed not less than once a year, as well as if a new workplace has been created or significant changes have occurred to the work environment (for example, changes in work processes, methods, work equipment), which can increase the referred to risk.

10. The vibration level shall be measured based on the risk assessment referred to in Paragraph 9 of these Regulations and inspection of the technical documentation of equipment including documentation of technical maintenance, if there are grounds to believe that when compared to the results of the previous inspection of the work place, the vibration level has increased and causes or is likely to cause a risk to the safety and health of employees.

11. The risk caused by vibration shall additionally be assessed and the vibration level shall be measured:

11.1. after the implementation of labour protection measures in order to ascertain whether the risk caused by vibration has been eliminated or reduced to the permissible level. A vibration level shall not be measured if after repeated risk assessment it is determined that the risk to the safety and health of the employees has been eliminated or reduced to the permissible level;

11.2. if during an examination of a employee's health he or she is found to have health disorders or an accident at work has occurred in connection with the impact of vibration on the particular employee; and

11.3. upon the request of a employee or his or her trusted representative, if there are grounds to believe that the level of vibration in the work environment has increased and the safety and health of employees has been endangered. The vibration level shall not be measured, if after repeated risk assessment, it is determined that the risk to the safety and health of the employees has been eliminated or reduced to a permissible level.

12. Vibration shall be measured by the specialists certified in this field, as well as competent authorities and accredited laboratories, using measuring apparatus registered and calibrated in accordance with the procedures set out in regulatory enactments and in accordance with requirements specified by standard LVS EN ISO 5349-1: 2002 "Mechanical vibration - Measurement and evaluation of human exposure to hand-transmitted vibration - Part 1: General requirements", LVS EN ISO 5349-2: 2002 "Mechanical vibration - Measurement and evaluation of human exposure to hand transmitted vibration - Part 2: Practical guidance for measurement at the workplace", LVS ISO 2631-1: 2003 "Mechanical vibration and shock - Evaluation of human exposure to whole-body vibration - Part 1: General requirements" and

LVS ISO 2631-2: 2003 “Evaluation of human exposure to whole-body vibration – Part 2: Continuous and shock - induced vibration in buildings (1 to 80 Hz)”;

13. During measurement of hand-arm vibration the following requirements shall be observed:

13.1. the measurement methods used shall include discreet determination of measurements, which characterise the personal exposure of the employee to the relevant vibration;

13.2. the measurement methods and apparatus used shall be adapted to the particular characteristics of the vibration to be measured, to ambient factors and to the characteristics of the measuring apparatus in accordance with standard LVS EN ISO 5349-2: 2002 “Mechanical vibration – Measurement and evaluation of human exposure to hand transmitted vibration - Part 2: Practical guidance for measurement at the workplace”;

13.3. in the case of work equipment, which are required to be held with both hands, measurements shall be made on each hand. The exposure is determined by reference to the greater value of the two; but information with respect to the other hand shall be given as well;

13.4. vibration shall be measured in succession in the direction of each orthogonal axes; and

13.5. measurements of frequency spectrum and analyses shall be carried out if whilst preparing labour protection measures, an in-depth research of vibration is carried out and as a result of these measurements the personal exposure of the employee has not been calculated.

14. During measurement of whole-body vibration the following requirements shall be observed:

14.1. the measurement methods used shall include discreet determination of measurements, which characterise the personal exposure of the relevant vibration to the employee;

14.2. the measurement methods and apparatus used shall be adapted to the particular characteristics of the vibration to be measured, to ambient factors and to the characteristics of the measuring apparatus in accordance with standard LVS ISO 2631-2: 2003 “Evaluation of human exposure to whole-body vibration – Part 2: Continuous and shock - induced vibration in buildings (1 to 80 Hz)”;

14.3. overall the vibration shall be assessed by the method of averaging the quadratic value of the weighted acceleration (a basic method); and

14.4. unfixed vibration and vibration which contains non-regular individual impacts shall be assessed by the method of average quadratic (effective) value.

15. In order to assess the risk caused by vibration to employees, the following shall be determined:

15.1. hand-arm vibration exposure, which is assessed based on the frequency-weighted vibration acceleration daily exposure value $A(8)$, which is recalculated for a normalised eight-hour period and expressed as the square root of the sum of the squares of the acceleration values (the average quadratic value) (total value determined on the orthogonal axes a_{hwx} , a_{hwy} , a_{hwz} in accordance with standard LVS EN ISO 5349-1: 2002 “Mechanical vibration – The measurement and assessment of the vibration transmitted by human arms – Part 1: General Requirements”); and

15.2. whole-body vibration exposure, which is assessed based on the vibration acceleration daily exposure value $A(8)$, expressed as equivalent continuous acceleration over an eight-hour period and calculated as the highest average quadratic value or the highest vibration dose value (VDV) of the frequency-weighted accelerations, determined on three orthogonal axes ($1,4 a_{wx}$, $1,4 a_{wy}$, a_{wz} for a seated or standing employee) in accordance with

the standard LVS ISO 2631-1: 2003 “Mechanical vibration and shock – Evaluation of human exposure to whole-body vibration – Part1: General requirements”.

16. The following vibration exposure limit values and exposure action values are determined:
 - 16.1. for hand-arm vibration:
 - 16.1.1. the daily exposure limit value standardised to an eight-hour reference period shall be 5 m/s^2 ; and
 - 16.1.2. the daily exposure action value standardised to an eight-hour reference period shall be 2.5 m/s^2 ; and
 - 16.2. for whole-body vibration:
 - 16.2.1. the daily exposure limit value standardised to an eight-hour reference period shall be 1.15 m/s^2 ; and
 - 16.2.2. the daily exposure action value standardised to an eight-hour reference period shall be 0.5 m/s^2 .

17. In a case where the exposure of an employee to vibration is normally below the exposure action values specified in Paragraph 16 of these Regulations and that only from time to time the exposure limit value is exceeded, the employer is entitled to admit that it has exceeded the daily exposure limit value referred to in Clauses 16.1.1 and 16.2.1, ensuring that the average vibration exposure value within 40 hours is less than 5 m/s^2 for hand-arm vibration and less than 1.15 m/s^2 for whole-body vibration, and complies with the following requirements:

- 17.1. vibration level monitoring shall be carried out for the whole week and the average exposure value shall not exceed the exposure limit values within 40 hours;
- 17.2. the employer shall submit to the State Labour Inspection the results of the monitoring of the vibration level and the explanation of the working conditions in which the daily exposure limit value is required to be exceeded; and
- 17.3. the employer shall ensure minimum labour protection measures that reduce the risk caused by vibration and ensure the safety and health protection of the employees.

18. The State Labour Inspection, after becoming acquainted with the information referred to in Sub-paragraph 17.2 is entitled to prohibit the employer from exceeding of the daily exposure limit value if:

- 18.1. it causes a risk to the safety and health of employees;
- 18.2. any of the requirements referred to in Paragraph 17 of these Regulations has been violated;
- 18.3. there is a reason to believe that the results of the continuous monitoring of the vibration level carried out within a week is inaccurate; and
- 18.4. there are no working conditions where it is necessary to exceed the daily exposure limit value.

19. The employer shall take the following into account when ensuring the risk assessment caused by vibration:

- 19.1. the results of vibration exposure measurements, type and duration of exposure, including any exposure to intermittent vibration or repeated shocks;
- 19.2. the exposure limit value and the exposure action value;
- 19.3. the indirect effect on employee safety and health resulting from interactions between vibration and the workplace equipment or other machines;
- 19.4. information provided by the manufacturer of the work equipment regarding vibration caused by equipment;
- 19.5. the existence of replacement equipment designed to reduce the level of vibration;

19.6. the impact of the length of exposure to whole-body vibration to employees' safety and health beyond normal working hours;

19.7. specific working conditions and the impact of other specific risks to the safety and health of employees (for example, low temperatures, an increased level of noise and chemical substances, which are dangerous to a person's health);

19.8. the results of mandatory examinations of the health including information regarding the impact of vibration to the safety and health of employees based on scientific studies; and

19.9. the impact of the risk caused by vibration to the safety and health of employees who belongs to particularly sensitive risk groups (for example, adolescents, pregnant women, women during the period following childbirth and disabled persons).

20. The employer shall document and keep all the results of vibration assessments and measurements for at least 45 years, and then archive them.

21. Employees and their trusted representatives have the right to become acquainted with the results of risk assessment caused by vibration, including the results of measurements and, if necessary, to request explanations from the employer or labour protection specialist assigned by the employer in order to ensure a better understanding.

22. The employer shall ensure accessibility to assessment results of the risk caused by vibration, including measurement results, to a doctor or a medical treatment institution responsible for the health care of employees.

III. Avoiding and Reducing the Risk Caused by Vibration

23. The employer shall ensure that the risk caused by vibration is avoided or reduced to a minimum (the lowest possible practical level), especially at the source of the vibration and on the distribution pathways thereof, taking into account the technical progress and availability of measures and means for the restriction and control of vibration.

24. Once the daily exposure action value specified in Clauses 16.1.2 and 16.2.2 has been exceeded, based on the results of the risk assessment, the employer shall implement a plan of measures, in order to reduce exposure to vibration to a minimum and the risks related thereto. The plan of measures shall provide the following:

24.1. other working methods that require less exposure, if it is allowed by a technological process;

24.2. appropriate work equipment for work to be performed with appropriate ergonomic design, producing the least possible vibration;

24.3. a possibility to utilise auxiliary equipment that reduces the impact of vibration on the employee (for example, seats that effectively reduce whole-body vibration and handles which reduce the vibration transmitted to the hand and arm);

24.4. work place and work equipment layout, which reduces the impact of vibration on a employee;

24.5. appropriate maintenance of work equipment and the layout of the workplace;

24.6. instruction and training of employees, in particular with respect to the correct and safe use of work equipment, in order to reduce their exposure to vibration to a minimum;

24.7. limitation of the duration and intensity of the exposure, so that during working hours when there is an increased level of vibration affects a employee, it does not exceed the vibration exposure duration specified in the Annex to these Regulations;

24.8. appropriate work schedules with adequate rest periods; and

24.9. appropriate work clothing (for example, clothing that protects employees exposed to vibration from the cold and damp).

25. A employee shall not be exposed to vibration that exceeds the exposure limit value specified in these Regulations.

26. If, despite the implemented labour protection measures, the level of vibration at workplaces exceeds the vibration exposure limit values, the employer:

26.1. shall take immediate measures to prevent the exposure of employees to such vibration and to reduce the vibration to a level that does not exceed the vibration exposure limit values;

26.2. shall identify and analyse the reasons why the exposure limit value has been exceeded; and

26.3. shall modify the labour protection measures to prevent the exposure limit value being exceeded again.

27. In performing labour protection measures for eliminating or reducing the risk caused by vibration, the employer shall ensure that the measures shall also be suitable for the protection of those employees for whom, in accordance with regulatory enactments, special safeguards have been specified (persons under 18 years, pregnant women, women during the period following childbirth and persons with special needs).

28. The employer shall ensure that employees are provided with appropriate living and rest rooms which are heated and where the employees shall be able to rest without the risk of exposure to vibration.

29. The employer shall ensure that employees, who are exposed to risks arising from vibration at the work place, and their representatives are trained and receive information in a comprehensible manner regarding:

29.1. the risk to employee safety and health caused by vibration, including potential injuries that can be caused using work equipment;

29.2. labour protection measures, in particular those that reduce the impact of risk caused by vibration to employee safety and health;

29.3. vibration exposure limit values and exposure action values;

29.4. the results of measurements of vibration and assessments of risk;

29.5. symptoms of health disorders caused by vibration, the significance of detection of health disorders in a timely manner and action in case of health disorders;

29.6. circumstances in which employees have the right to health examinations and the significance of these examinations;

29.7. safe working methods and correct and safe utilisation of work equipment in order to avoid the risk caused by vibration; and

29.8. the procedure a employee shall adopt, if an accident has occurred at work that is associated with the impact of vibration to employee.

IV. Use of Personal Protective Equipment

30. The employer shall ensure employees, who are exposed or likely to be exposed to a risk caused by vibration at the workplace, are provided with a sufficient amount of personal protective equipment free of charge.

31. Personal protective equipment shall be chosen so that by the correct use thereof, the risk to the employee safety and health will be eliminated or reduced to a minimum.

32. Personal protective equipment shall be suitable for a particular employee and his or her working conditions in accordance with regulatory enactments regarding personal protective equipment and use thereof.

V. Examinations of the Health of Employees

33. If a employee is exposed to vibration, that exceeds the values specified in Clauses 16.1.2 and 16.2.2 of these Regulations, the employer shall ensure a mandatory health examination in accordance with the procedures set out in the regulatory enactments regarding mandatory health examinations, in order to diagnose health disorders caused by vibration as soon as possible and to ensure qualitative health protection for employees.

34. The employer shall systematically document the results of employees' health examinations. Copies of the results of the employees' health examinations shall be available, if necessary, by a competent authority and the State Labour Inspection.

35. Health care practitioners and medical treatment institutions shall provide information to employees and employers regarding the results of health examinations, necessary medical treatment and additional examinations of the state of employee health in accordance with the procedures specified in regulatory enactments

36. Where, as a result of a health examination, a employee is found to have health disorders, which are considered by an occupational health-care professional to be the result of exposure to vibration, the employee shall be informed personally by the doctor of the result which relates to him and provide information and advice regarding any health care subsequent to exposure to the vibration, as well as inform the employer regarding the results of health examination in accordance with the procedures specified in regulatory enactments regarding mandatory health examinations.

37. If the results of examination of the health of employees indicate that health disorders have been caused by the exposure to vibration, the employer shall:

37.1. review the assessment results of the risk caused by vibration;

37.2. review the measures provided to eliminate or reduce the risk caused by vibration;

37.3. take into account the recommendations of a doctor certified in occupational diseases or occupational health care or a competent authority when implementing measures for the elimination or reduction of the risk caused by vibration, and shall provide the employee with an opportunity to be assigned to alternative work where he or she is not exposed to vibration; and

37.4. ensure regular health surveillance of this employee and immediately organise a health examination of those employees who have been exposed to similar vibration.

38. The employer shall take into account the results of the health examinations when planning and determining labour protection measures for eliminating or reducing the risk caused by vibration to a permissible level.

39. Based on the results of risk assessment and the health examinations, the employer shall determine the employees who need specific labour protection measures.

40. The employer shall keep all results of the employee health examinations for at least 45 years and then store them in archives. Employees have the right to become acquainted with the results of health examinations related to them.

VI. Closing Provisions

41. These Regulations shall come into force on 1 July 2005.

42. Workplaces where, on the day of coming into effect of these Regulations work equipment has been set up and used, which, employing the current technological and labour protection measures, do not comply with the vibration exposure limit values specified in Paragraph 16 of these Regulations, shall be rearranged appropriately by 1 July 2010 in order to comply with the requirements specified in Paragraph 25 of these Regulations.

43. Agricultural and forestry work equipment, which employing the current technological and labour protection measures, does not comply with the vibration exposure limit values specified in Paragraph 16 of these Regulations, shall be rearranged appropriately by 1 July 2014 in order to comply with the requirements specified in Paragraph 25 of these Regulations.

Informative Reference to European Union Directives

These Regulations contain legal norms arising by Directive 2002/44/EC.

Prime Minister

I. Emsis

Minister for Welfare

D. Staķe

1. Permissible duration of hand-arm vibration exposure, exceeding the standard daily exposure limit value of 5 m/s² within an eight hour reference period

No.	Eight-hour reference period daily exposure value * [m/s ²]	Permissible vibration exposure duration
1.	5.0	8 h 00 min. (480 min.)
2.	6.0	5 h 33 min. (333 min.)
3.	7.0	4 h 05 min. (245 min.)
4.	8.0	3 h 07 min. (187 min.)
5.	9.0	2 h 28 min. (148 min.)
6.	10.0	2 h 00 min. (120 min.)
7.	11.0	1 h 39 min. (99 min.)
8.	12.0	1 h 23 min. (83 min.)
9.	13.0	1 h 11 min. (71 min.)
10.	14.0	1 h 01 min. (61 min.)
11.	15.0	53 min.
12.	16.0	47 min.
13.	17.0	42 min.
14.	18.0	37 min.
15.	19.0	33 min.
16.	20.0	30 min.

Note.

* If a employee utilises personal protective equipment, the attenuation of vibration ensured by personal equipment shall be taken into account.

2. Permissible whole-body vibration exposure duration, exceeding standardised exposure eight-hour reference period daily exposure limit value 1.15 m/s².

No.	Eight-hour reference period daily exposure value [m/s ²]	Permissible vibration exposure duration
1.	1.15	8 h 00 min. (480 min.)
2.	1.23	7 h 00 min. (420 min.)
3.	1.33	6 h 00 min. (360 min.)

No.	Eight-hour reference period daily exposure value [m/s ²]	Permissible vibration exposure duration
4.	1.45	5 h 00 min. (300 min.)
5.	1.63	4 h 00 min. (240 min.)
6.	1.88	3 h 00 min. (180 min.)
7.	2.30	2 h 00 min. (120 min.)
8.	3.25	1 h 00 min. (60 min.)
9.	4.60	30 min.
10.	7.97	10 min.

Note.

* If the daily exposure value is between the values specified in the table, the permissible vibration exposure duration shall be determined by the method of interpolation.

Minister for Welfare

D. Staķe