Technical data and methods of the machinery: Machinery 01

Name:	Machinery 01
Product:	M. - Machinery
Model:	00
Serial:	00
Revision:	00 - 08/05/2021
Year of construction:	2021
Directive:	Dir. 2006/42/EC (EN)
Manufacturer:	Manufacturer
Intended use:	Intended purpose
Description:	

Certification Procedure

The machinery does not complies Annex IV
1. Internal check for machinery production as Annex VIII.

CE Marking Process

Risk assessment

EN ISO 12100

Safety of machinery - General principles for design - Risk assessment and risk reduction

Tool | EN ISO 12100

1. Human interaction during the whole life cycle of the machine
2. State of the machine | Operating condition
3. Unintended behaviour of the operator or reasonably foreseeable misuse of the machin
4. Use limits
5. Space limits
6. Time limits
7. Other limits
8. Hazardous situation
9. Hazardous event
10. Hazard zone
11. Initial risk evaluation
12. Inherently safe design measures
13. Safeguarding
14. Complementary protective measures
15. Information for use
16. Safety signs
17. Final risk evaluation
18. Residual risk
19. Technical standards applied
20. Notes
21. EHSR

ISO/TR 14121-2

Safety of machinery - Risk assessment - Part 2: Pratical guidance and examples of methods

The hybrid tool is described in section 6.5 of ISO/TR 14121-2.
The hybrid tool combines two of the methods described in the ISO/TR 14121-2. They are usually risk charts (qualitative tool) combined with matrices or scoring systems (quantitative method). The risk factors to be taken into consideration are the same as the tree method (gravity, frequency, probability, and avoidability) and each of them contains different levels to which correspond to different numerical weights. The method is

Technical Data and Methods

applied as follows:
1. to estabilish the numerical weights for the severity, the frequency, the probability and the avoidability of the damage (see below the tables with the relative numerical weights);
2. add the three frequency, probability, and avoidance weights to determine the probability class "Cl" (Class) (Cl = Fr + Pr + Av);
3. insert the Gravity and Class dimensions into a weighting matrix;
4. calculate the risk by finding the intersection point of the row (Cl) with the column (Se) of the matrix.

Consequences / Severity (Se)		**Class Cl** (Fr+Pr+Av) 4	5-7	8-10	11-13	14-15	**Frequency** (Fr)		**Probability** (Pr)		**Avoidance** (Av)	
Death, losing an eye or arm	4						<= 1h	5	Very high	5		
Permanent, losing fingers	3						> 1h to <= 24h	5	Likely	4		
Reversible, medical attention	2		?				> 24 to <= 2w	4	Possible	3	Impossible	5
Reversible, first aid	1						> 2w to <= 1y	3	Rarely	2	Possibile	3
							> 1y	2	Negligible	1	Likely	1

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Hazard present

1.3 - Crushing

Risk assessment form relating to the danger of crushing, the same danger can occur several times in areas different, multiple evaluation forms will be opened.

At the bottom of the form it will be possible to associate the RESS of Annex I of the relevant Machinery Directive the evaluation of
Risks.

Human interaction during the whole life cycle of the machine

Human interaction during the whole life cycke of the machine

State of the machine | Operating condition

State of the machine | Operating condition

Unintended behaviour of the operator or reasonably foreseeable misuse of the machine

Unintended behaviour of the operator or reasonably foreseeable misuse of the machine.

Use limits

Use limits

Space limits

Space limits

Time limits

Time limits

Other limits

Other limits

Hazardous situation

Hazardous situation

Hazardous event

Hazardous event

Hazard zone

Hazard zone

Initial risk evaluation

(Single operator) ISO/TR 14121-2:2012 p. 6.5 Hybrid Tool

Se(3) | Fr(3) + Pr(2) + Av(3) = Cl(8): Safety measures required

Consequences / Severity (Se)		**Class Cl** (Fr+Pr+Av) 4	5-7	8-10	11-13	14-15	**Frequency** (Fr)		**Probability** (Pr)		**Avoidance** (Av)	
Death, losing an eye or arm	4						<= 1h	5	Very high	5		
Permanent, losing fingers	3			8			> 1h to <= 24h	5	Likely	4		
Reversible, medical attention	2						> 24 to <= 2w	4	Possible	3	Impossible	5
Reversible, first aid	1						> 2w to <= 1y	3	Rarely	2	Possibile	3
							> 1y	2	Negligible	1	Likely	1

Inherently safe design measures

Inherently safe design measures

Safeguarding

Safeguarding

Complementary protective measures

Complementary protective measures

Information for use

Information for use

Safety signs

5.24

Warning; Crushing of hands

Final risk evaluation

Card date: 08/05/2021 - **R.A.**: HZA-001

Comply

1 - Mechanical hazards

Hazard present

1.3 - Crushing

(Single operator) ISO/TR 14121-2:2012 p. 6.5 Hybrid Tool

Se(3) | Fr(2) + Pr(1) + Av(1) = Cl(4): OK

Consequences / Severity (Se)		**Class Cl** (Fr+Pr+Av) 4	5-7	8-10	11-13	14-15	**Frequency** (Fr)		**Probability** (Pr)		**Avoidance** (Av)	
Death, losing an eye or arm	4						<= 1h	5	Very high	5		
Permanent, losing fingers	3	4					> 1h to <= 24h	5	Likely	4		
Reversible, medical attention	2						> 24 to <= 2w	4	Possible	3	Impossible	5
Reversible, first aid	1						> 2w to <= 1y	3	Rarely	2	Possibile	3
							> 1y	2	Negligible	1	Likely	1

Residual risk

Residual risk

Technical standards applied

Technical standards applied

Notes

Notes

EHSR

1.1.1 - Definitions
1.1.2 - Principles of safety integration
1.1.3 - Materials and products

1.3 - Crushing (HZA-001)

Card date: 08/05/2021 - **R.A.**: HZA-001 **Reduction:** 8/3 4/3

Comply