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Technical data and methods of the machinery: Machinery 03

Name:	Machinery 03
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 | Standard

1. State of the machine | Operating condition
2. Hazardous situation
3. Hazardous event
4. Hazard zone
5. Initial risk evaluation
6. Inherently safe design measures
7. Safeguarding
8. Complementary protective measures
9. Information for use
10. Safety signs
11. Final risk evaluation
12. Residual risk
13. Technical standards applied
14. Notes
15. Related EHSR (Annex 1 Machinery Directive)

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 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);

Technical Data and Methods

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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1 - Mechanical hazards

Hazard present

1.3 - Crushing

State of the machine | Operating condition

State of the machine | Operating condition

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

Safeguardings

Complementary protective measures

Complementary protective measures

Information for use

Information for use

Safety signs

5.24

Warning; Crushing of hands

Final risk evaluation

(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

Related EHSR (Annex 1 Machinery Directive)

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

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

Comply