Roland

Form 3: Risk Estimation, Assessment, and Reduction

MODW7008

			Risk Estimation, Risk Assessment, and Risk Reduction																											
			Initial Risk Assessment							Risk Reduction								Risk Assessment after Risk Reduction												
			S	F	A	O	RI	PLr	Notes		Protective Measures Classification			Risk Reduction Target Parameter				S	F	A	O	RI	PL	Notes						
No	Topic	Subtopic	S1 S2	F1 F2	A1 A2	O1 O2 O3				Measures	Safe Design Measure	Safety Protection	Information	S	F	A	O	S1 S2	F1 F2	A1 A2	O1 O2 O3				Is further risk reduction required?	No				
1	No.1	Trapping under the packing case (unpacking)	S2	F1	A2	O2	3			• The sales representative deploys specialized carriers to check accident scenes and prevent accidents. • Label the place to put the fork in the packing specifications.			○					S2	F1	A2	O2	3			N						
2	No.2	Collapse of the packing case (unpacking)	S2	F1	A1	O2	2			• Specify the unpacking procedure for the wooden box and the position of the setscrew in the installation procedure document			○					S2	F1	A1	O2	2			N						
3	No.3	Nails, thorns of wood (unpacking)	S1	F1	A1	O2	1			• The sales representative confirms the notes on the waste material processing at a preliminary meeting with the carrier			○					S1	F1	A1	O2	1			N						
4	No.4	Sharp edges of the body and the gantry (installation/assembly)	S1	F1	A1	O2	1			• Specify the burr treatment also in the range to be touched during transportation in the drawing		○						S1	F1	A1	O2	1			N						
5	No.5	Electric shock (installation/assembly)	S2	F1	A2	O2	3			• Replace the power cord to the connection with the IEC 60309 certified connector		○	○			○		S2	F1	A1	O2	2			N						
6	No.6	Ink problems (installation/assembly)	S2	F1	A2	O2	3			• In the safety information or decal display, specify instructions for wearing goggles and gloves when using ink. • Specify ink filling in the instruction manual			○			○		S2	F1	A1	O2	2			N						
7	No.7	Incorrect carriage drive (operational check)	S2	F1	A2	O2	3	d		• Specify the prohibited area in the safety information • Equip the device end with the emergency stop button • Equip the human body detection sensor in the vicinity of the carriage and prevent the motor of the carriage and gantry from starting when detected		○				○		S2	F1	A1	O2	2	e		N						
8	No.8	Ink problems (operational check)	S2	F1	A2	O2	3	d		• In the safety information or decal display, specify instructions for wearing goggles and gloves when using ink. • Equip the human body detection sensor in the vicinity of the carriage and prevent printing when detected		○				○		S2	F1	A1	O2	2	e		N						
9	No.9	UV radiation (operational check)	S2	F1	A2	O2	3			• In the safety information or decal display, specify instructions for wearing goggles and gloves when using ink.			○			○		S2	F1	A1	O2	2			N						
10	No.10	Ink problems (adjustment)	S2	F1	A2	O2	3			• In the safety information, decal display, specify instructions for wearing goggles and gloves when using ink • Specify how to handle gloves and protective equipment when handling ink in the instruction manual.			○			○		S2	F1	A1	O2	2			N						
11	No.11	Contact with high temperature parts (adjustment)	S1	F1	A1	O2	1			• In the safety information or decal display, specify where the high temperature section is.			○					S1	F1	A1	O2	1			N						
12	No.12	Incorrect approach to the device (normal operation/print)	S2	F1	A2	O2	3			• Specify the prohibited area in the safety information • Display the warning decal and call for attention. • Equip the device end with the emergency stop button			○					S2	F1	A2	O2	3			N						
13	No.13	Insufficient ventilation (normal operation/print)	S2	F1	A2	O2	3			• Specify how to ventilate in the safety information			○			○		S2	F1	A1	O2	2			N						
14	No.14	Media height setting problem (normal operation/print)	S2	F1	A2	O2	3			• In the safety information or decal display, specify instructions for wearing goggles and gloves when using ink. • Specify notes on the gap between the media and the carriage in the instruction manual			○			○		S2	F1	A1	O2	2			N						
15	No.15	Temperature sensor defects in the subtank (normal operation/print)	S2	F1	A1	O2	2			• In the safety information or decal display, specify where the high temperature section is.			○					S2	F1	A1	O2	2			N						
16	No.16	Ink leakage (normal operation/print)	S2	F1	A2	O2	3			• In the safety information or decal display, specify instructions for wearing goggles and gloves when using ink. • Use parts with sufficient margin for leakage from ink tubes and ink pumps. • Review the layout, make sure that there is no contact between the tubing and the high temperature part			○			○		S2	F1	A1	O2	2			N						
17	No.17	Lack of noise recognition (normal operation/print)	S2	F1	A1	O2	2			• Specify the noise information of the equipment in the safety information			○					S2	F1	A1	O2	2			N						
18	No.18	Misoperation for waste tank processing (normal operation/maintenance)	S2	F1	A2	O2	3			• In the instruction manual, specify how to operate the waste liquid tank using diagrams			○					S2	F1	A2	O2	3			N						
19	No.19	Injuries due to unexpected driving (normal operation/maintenance)	S2	F1	A2	O2	3	d		• Operate human body detection sensor of the carriage also in maintenance mode, and do not drive the carriage		○				○		S2	F1	A1	O2	2	e		N						
20	No.20	Injuries caused by inserting hands into the device (normal operation/maintenance)	S1	F1	A1	O2	1			• Design gap of the opening of the maintenance unit so that the hand do not enter the interior		○						S1	F1	A1	O2	1			N						

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21	No.21	Electrical shock when checking abnormality of the electrical equipment temperature (normal operation/repair)	S2	F1	A2	O2	3			• On doors near the AC wiring, equip the interlock switches that disconnect from the main power supply. • In the safety information, specify instructions for disconnecting the power cord when opening the door		○	○			○		S2	F1	A1	O2	2			N	
22	No.22	Injuries when checking abnormality of the equipment temperature (normal operation/repair)	S2	F1	A2	O2	3	d		• Use the emergency stop buttons when reproducing abnormalities		○	○			○		S2	F1	A1	O2	2	d		N	
23	No.23	Injuries due to work misoperation for dismantling and moving (disposing)	S2	F1	A2	O2	3			• In the safety information, specify instructions for contacting the dealer also for disposing of the machine. • Deploy a specialized carrier who knows the details of the equipment.			○			○		S2	F1	A2	O2	3			N	
24	No.24	Ink problems (disposing)	S2	F1	A2	O2	3			• In the safety information, specify instructions for contacting the dealer also for disposing of the machine. • Remove excess ink on the main body to prevent it from scattering.			○			○		S2	F1	A1	O2	2			N	

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