

Fachgebiet *Resilient Cyber-Physical Systems* - Risk Assessment

Activity being assessed

Use of Voltera NOVA printer

Location

RP B013

Reference

200001

Assessment date

14. Jan 25

Review date

Description of activity

Operation of Voltera NOVA printer located in RP B013 (S2|02 B013)

Hazards	What harm might occur, and to whom?	Existing control measures	Risk rating			Additional control measures	Residual risk		
			L	S	RR		L	S	RR
Contact with moving parts	Personal injury to user:- trapping and crushing	Keep hands outside of the printer enclosure whilst it is in operation.	1	2	2		1	2	2
Contact with smart dispenser and precision nozzle	Personal injury to user:- cuts and burns	Be careful when handling precision nozzles and the complete smart dispenser. Make sure hands are clear when the smart dispenser is in use and the system is moving.	1	2	2		1	2	2
Contact with electrical pins of the Module Hub	Personal injury to user:- electrical shocks	Never touch the electrical pins on the module hub when the locking lever is engaged.	1	2	2		1	2	2
Danger of shrapnel on breaking of Smart Probe	Personal injury to user and others in area whilst printer is operating:- Damage to eyes up to vision loss	Wear eye protection, especially when using custom fixturing, printing 3D structures, or when mounting accessories.	2	3	6		2	3	6
Exposure to chemicals and nano particles during ink handling	Personal injury to user and others in area whilst printer is operating:- respiratory damage and chemical hazards.	Only use approved, commercially available materials. Read the safety datasheet (SDS) of every ink prior to operation. Perform appropriate measures to mitigate risks stated in the SDS. Wear protective gloves when needed	1	3	3		1	3	3
Long exposure to loud noise	Personal injury to user and others in area whilst printer is operating:- Damage to ears or hearing ability	When NOVA pumps run above 30% duty cycle for extended periods of time, wear hearing protection	3	1	3		3	1	3

Lifting of heavy equipment	Personal injury to user carrying the device:- Muscle strain or back injury	NOVA weighs 35 kg (77 lbs) and should always be lifted by two people to avoid injury. Use proper lifting technique when relocating. Place NOVA carefully, as dropping the equipment can cause serious harm. When moving NOVA, each person should lift by the base with two hands.	2	1	2	2	1	2
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All users of the machine must read the manual carefully before using NOVA.

<https://docs.voltera.io/nova/downloads/nova-user-manual>

Operating NOVA requires knowledge of the safety datasheet contents of every ink used in the process.

Safety datasheets for inks supplied by Voltera can be found at:

<https://docs.voltera.io/nova/downloads/safety-data-sheets>

Assessment created by
Persons consulted

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Key to risk ratings

Likelihood (L)	Guide Description
5	Very likely/imminent - certain to happen
4	Probable - a strong possibility of it happening
3	Possible - it may have happened before
2	Unlikely - could happen but unusual
1	Rare - highly unlikely to occur

Severity (S)	Guide Description
5	Catastrophic - fatality, catastrophic damage
4	Major - significant injury or property damage, hospitalisation
3	Moderate - injury requiring further treatment, lost time
2	Minor - first aid injury, no lost time
1	Very minor - insignificant injury

Severity (S)

Likelihood (L)

	1	2	3	4	5
5	5	10	15	20	25
4	4	8	12	16	20
3	3	6	9	12	15
2	2	4	6	8	10
1	1	2	3	4	5

Risk Rating (RR)	Action
High Risk	Stop the task/activity until controls can be put into place to reduce the risk to an acceptable level.
Medium Risk	Determine if further safety precautions are required to reduce risk to as low as is reasonable practicable.
Low Risk	No further action, keep under review.



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Fachgebiet Resilient Cyber-Physical Systems - Risk Assessment

I have read and understand the hazards involved with the risk assessment 'Use of Voltera NOVA printer', and agree to work in accordance with the working practices defined in that assessment:

Signature	NAME in block capitals	Date

Keep this list of signatories secure. A printed copy of the Assessment must be readily available to the signatories, so they can check expected work practices.