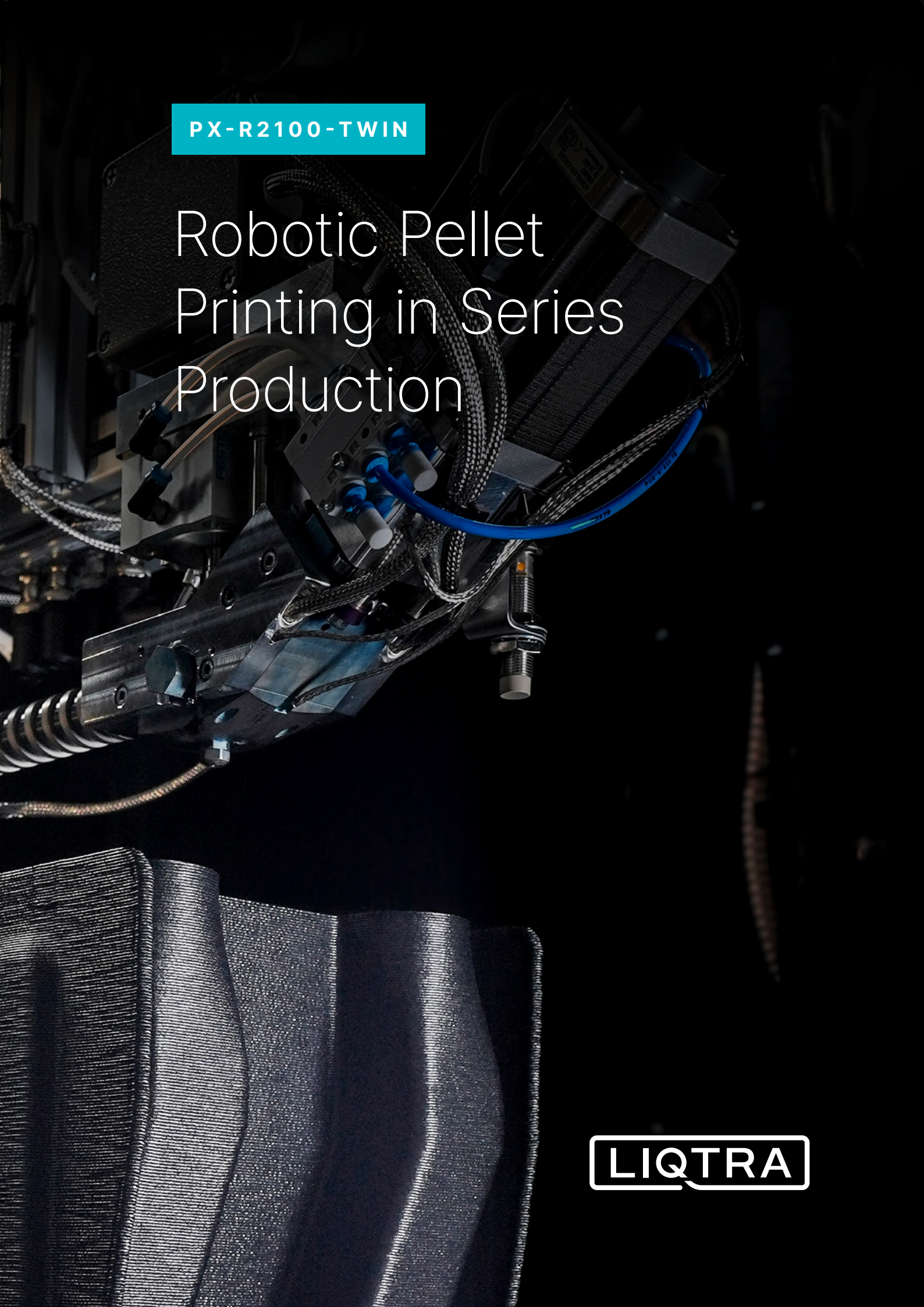
PX-R2100-TWIN

Robotic Pellet Printing in Series Production



LIQTRA

PX-Series:
Redefining 3D Printing Performance

Valve nozzle technology enables precise and dynamic material discharge, allowing new applications to be implemented for Fused Granulate Fabrication.

The PX-Series extends LIQTRA's capabilities in application-oriented and customized FGF. The patented valve nozzle technology integrated into these 3D printing systems enables new degrees of freedom in part design and aims to bring FGF closer to the flexibility of Fused Filament Fabrication (FFF). The LIQTRA print head VPX-1 is designed for high throughputs of fiber-reinforced pellets and the requirements of customer applications. The print head can easily be adapted to other boundary conditions with respect to nozzle diameter and material discharge.

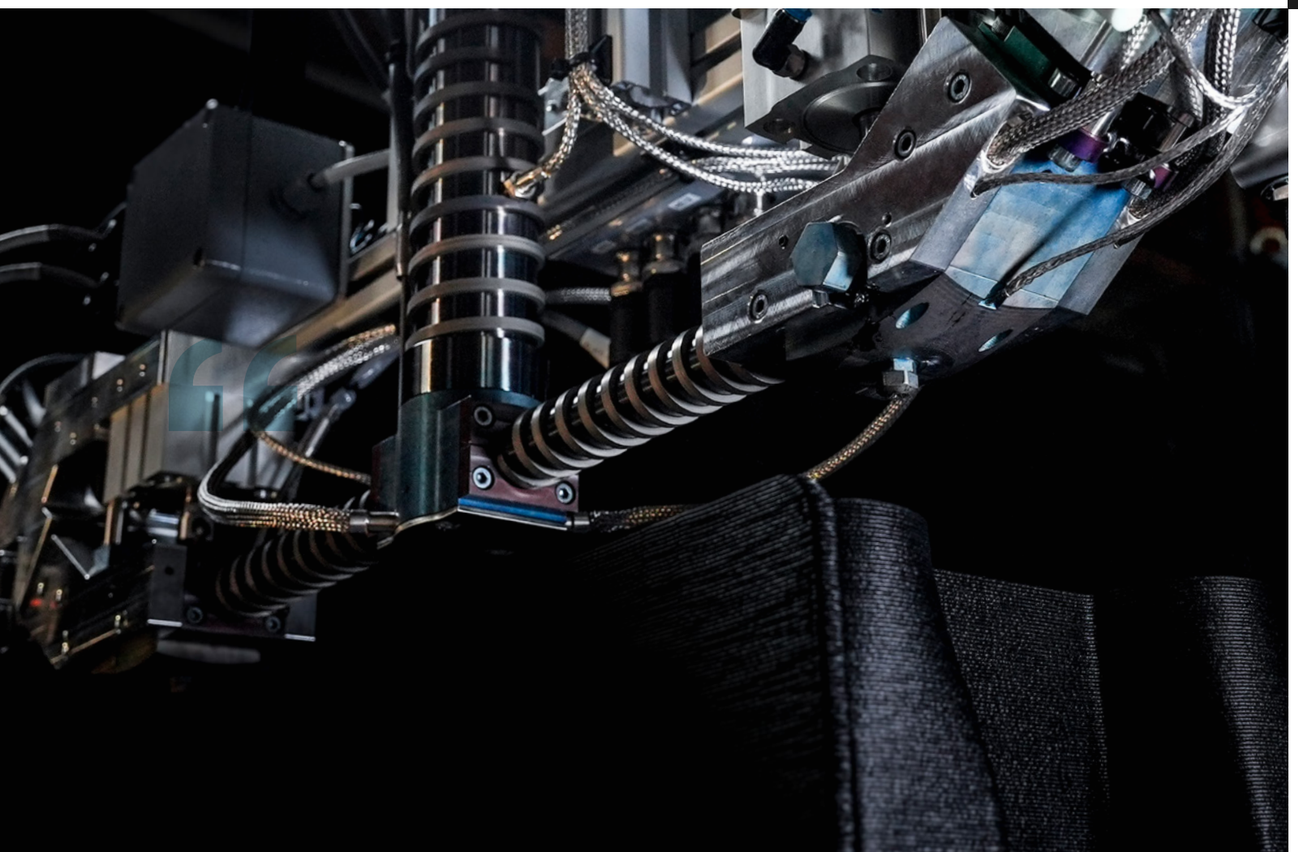
Advantages:

- **Precise material extrusion due to valve nozzle technology**
- **Dynamic material discharge using a metering pump**
- **Modular design of the 3D printing system facilitates customization**
- **Customizable 3D printing systems for a wide range of applications**

PX-R2100-Twin:
Robotic Pellet Printing

Custom additive solution using two VPX-1 print heads for high productivity in series production.

In response to a specific customer request, LIQTRA built the PX-R2100-Twin, a robot-based FGF printer designed with two VPX-1 print heads specifically for the series production of a certain application. For this purpose, the process planning has been expanded for 6-axis kinematics, which can also be used as a basis for non-planar 3D printing. During development, the focus was on ensuring that the interfaces between the LIQTRA SPS and the robot control system are as universal as possible so that we will not be dependent on individual robot manufacturers. The modular design of the end effector allows for quick changes, for example to a single-nozzle end effector. As a result, the 3D printing system can be used flexibly for other applications. The current use of two print heads doubles productivity and implements our approach of high productivity without compromising quality.



1

Twin head VPX-1
The end effector combines a plasticizing unit with two VPX-1 print heads to double productivity in series production. This setup also allows the processing of polymers with higher processing temperatures.

2

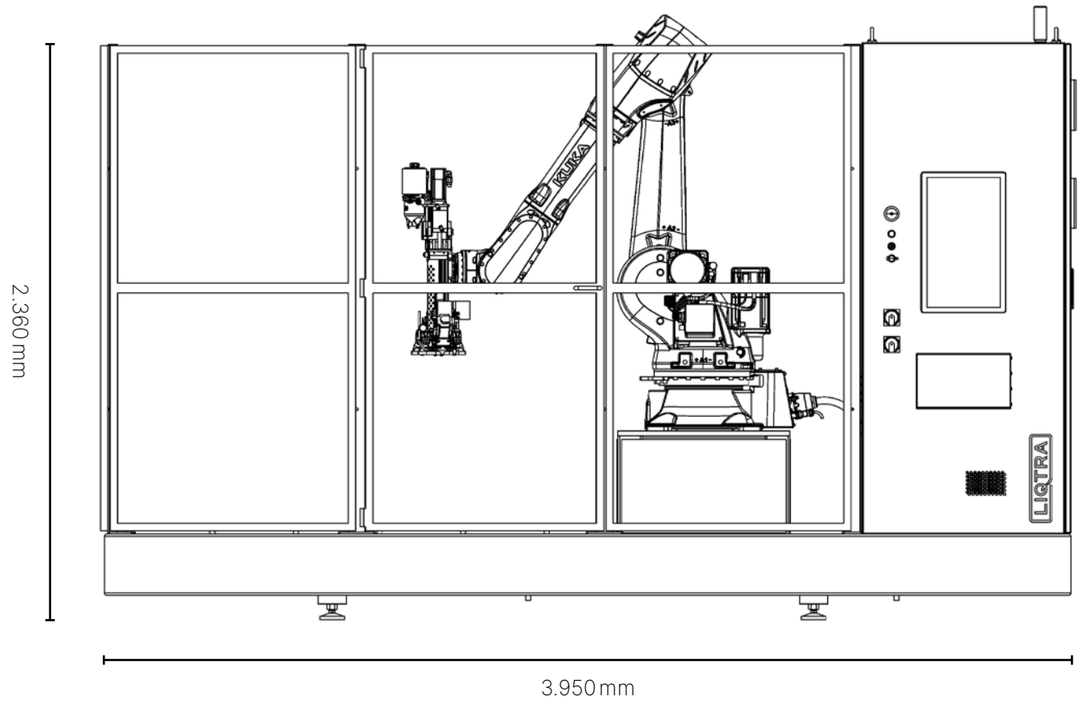
Multi-part print bed
The multi-part print bed can be controlled individually for each print head. The attachment points in the machine frame allow additional structures to be implemented with minimal effort.

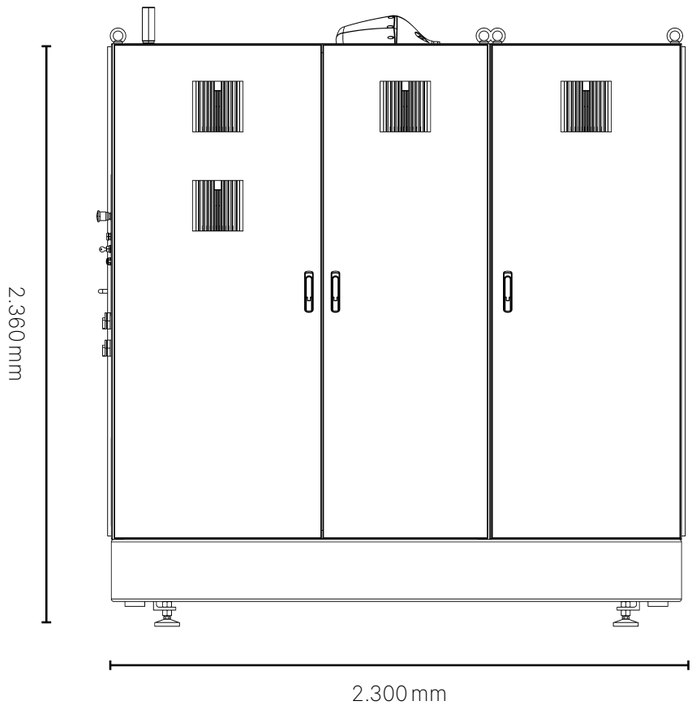
3

KR 30 R2100
The 3D printing system is operated by a Kuka industrial robot with a payload of 30 kg and a reach of 2,1 m. The robot control system is linked to our SPS to transfer process data during the print job.

4

Machine frame
The welded frame with the safety fence allows an access from three sides. The design enables quick transport and commissioning of the machine at the customer's site in a very short time.





Technical Facts

Printer	
Printing volume	> 1.000 × 1.000 × 1.000 mm
Print bed temperature	max. 120 °C
Drive	Kuka KR30 2100
Printer size	3.950 × 2.300 × 2.360 mm
Weight	2.300 kg
HMI	24“ Touchscreen, Physical keypad, Kuka SmartPad

Printing system	
Print head	2x VPX-1
Nozzle size	> 1,5 mm
Nozzle temperature	max. 300 °C
Cooling unit	Water-based

Materials	
Pellets	PA11 CF20, PA11 CF40, PP CF20, PP CF25, PA12

Further Information	
Power supply	400 V, 32 A + 400 V, 16 A
Interfaces	Ethernet
Certification	CE

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