# HSAJET®
# Product Overview
XAAR
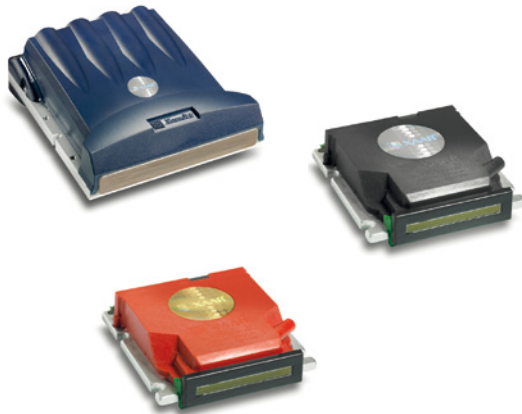
## HSAJET® XAAR Piezo Inkjet

XAAR Piezo Inkjet is the HSA range of industrial piezo print heads for outer case and product coding.

Available in a wide range of print heights and configurations, HSA Systems provides one of the most flexible product coding solutions for this technology, able to meet the requirements in a wide range of industries.

Piezo inkjet printers are used in numerous industrial applications. They eliminate the need for costly additional labelling, pre-printed stock and can replace old, single-message roller coders.

Due to the modular construction, HSA Systems can provide Piezo inkjet printing from 17.5 mm print height to more than 1000 mm print height from the same controller.

With a wide range of controllers to choose from, HSA Systems can provide a solution tailored to your production environment, from a simple terminal to fully database driven automation across the factory.

All printers can be installed either in-line or off-line and offer great flexibility due to individual controlling of each head.

## HSAJET® XAAR key-features:

- Low cost per print.

- High uptime - ink change while printing.

- Robust and reliable printers, almost no maintenance.

- Very simple setup and alignment, up to 1000 mm print height.

- Up to 70 mm print height without any printhead alignment.

- A wide range of inks available, from oil based in different colours to UV solvent based for difficult substrates.

- All HSAJET® XAAR-based printers can be connected to any HSAJET XAAR Electron, XJ128 or XJ500 controller.

- Non-contact coding. Ideal for rough surfaces like Tyvek, wood, pallets and cardboard.

- Throw distance approximately 5 mm dependent on ink and line speed.

- Large ink supply. 0.5 or 1.0 litre ink bottles.

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# Controllers
## HSAJET® XAAR PRINTERS

### CU2

**CU2 XAAR Electron / XJ128 / XJ500 Controller Unit**

The HSAJET CU2 for HSAJET XAAR printers is a powerful stand-alone controller with keyboard and LCD display. It can control up to 140 mm print height in any head configurtion.

You can print counters, date/time, text, graphics, variable barcodes.

Content can be edited directly form the controller or using the built in Ethernet/Serial interface for remote communication.

### FLEXIBLE

**TIPC15 XAAR Electron / XJ128 / XJ500 Touch Controller**

The TIPC15 has a 15" touch interface and handles any kind of print job, including print from database as well as remote communication via Ethernet and Serial connection. The jobs are made directly on the unit and controls any combination of print heads up to 280 mm / 11" print height.

Prints variable text, counters, date/time, shift codes, graphics, all barcodes.

**CB2 / OPC / RPC for XAAR Electron / XJ128 / XJ500**

Our flexible solutions are based on our CB2-XJ controller board, delivered ready to use either as the TIPC15 with one controller board, or installed in the OPC/RPC cabinet or delivered as an integration kit, which enables customer adapted solutions with multiple cards for additional print height (up to 4 CB2).

**Software**

All CB2-based controllers are provided with OBJ InkDraw or Mail InkDraw, which give you full database connectivity and one of the most versatile software packages for inkjet printing available in the market.

Print from a wide range of databases, such as SQL, Access, XLS and CSV.

### SPECS

| Short-Ref | Controller Type | XAAR 128 | XAAR 500 | Database | Dim L x W x H (mm) |
|-----------|-----------------|----------|----------|----------|---------------------|
| CU2 | CONTROLLER UNIT | • | • | no | 210 x 155 x 90 |
| TIPC15 | TOUCH INDUSTRIAL PRINTER CONTROLLER | • | • | yes | 372 x 303 x 110 |
| OPC | OFFICE STYLE PRINTER CONTROLLER | • | • | yes | 420 x 200 x 420 |
| RPC | RACK STYLE PRINTER CONTROLLER | • | • | yes | 450 x 439 x 177 |

See detailed product flyers for more information.
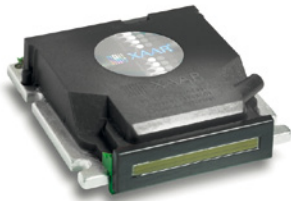
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# Technical Details
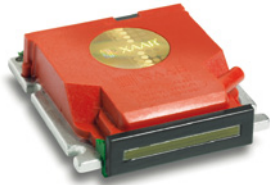
## XAAR ELECTRON

### XAAR Electron printers

- High speed 7 kHz operation
- 185 dpi up to 114 m/min with high speed head
- 27% faster than regular XJ128-80-W
- 70 pL drop size available
- Light-weight and compact, 17.5 mm swathe
- On-board electronics including temperature compensation
- Low replacement cost.

## XAAR 128

### XAAR 128 printers

- Prints in any direction
- Ideal for 'sell by' and 'batch-numbering' applications, form print and small barcode printing
- Flexible and modular construction, connect 16 single 17.5 mm printers or combine printers in modules of up to 4 (70 mm print height).
- Maximum print height per controller or controller board is 280 mm
- 185 dpi up to 90 m/min with high speed head (wetting)
- 40 or 80 pL drop size available

## XAAR 500
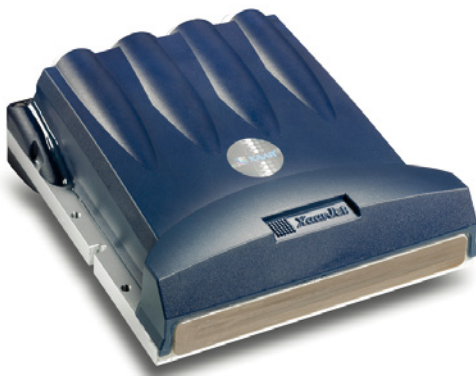
### XAAR 500 printers

- Ideal for form print, addressing and large contrast-rich barcode & logo printing
- Flexible and modular construction, connect up to 4 x 70 mm printers for a maximum print height of 280 mm
- 180 dpi up to 34 m/min
- 40 pL drop size available

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# Technical Details

## HSAJET® XAAR PRINTERS & CONTROLLERS

| PRINTER | PRINT-HEAD | CU2 | | TIPC15/OPC (1xCB) | | OPC (2xCB) | | RPC w(3xCB) | | RPC (4xCB) | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Max no of printers | Max printheight | Max no of printers | Max printheight | Max no of printers | Max printheight | Max no of printers | Max printheight | Max no of printers | Max printheight |
| XJ128 | 17.5 mm | 8 | 140 mm | 16 | 280 mm | 32 | 560 mm | 48 | 840 mm | 64 | 1120 mm |
| XJ128 | 35 mm | 4 | 140 mm | 8 | 280 mm | 16 | 560 mm | 24 | 840 mm | 32 | 1120 mm |
| XJ128 | 52.5 mm | 2 | 105 mm | 4 | 210 mm | 8 | 420 mm | 12 | 630 mm | 16 | 840 mm |
| XJ128 | 70 mm | 2 | 140 mm | 4 | 280 mm | 8 | 560 mm | 12 | 840 mm | 16 | 1120 mm |
| XJ500 | 70 mm | 2 | 140 mm | 4 | 280 mm | 8 | 560 mm | 12 | 840 mm | 16 | 1120 mm |

**Technology**
XAAR Piezo drop-on-demand

**Print distance**
0.5-2.0 mm
  (nozzle to print surface)

**Control panel**
Keypad / LED-signal
Purge button
Reset button

**Interface**
Controller connection (SUB D25)
Daisy chain to next printer (SUB D25)

**Signals**
Low ink signal

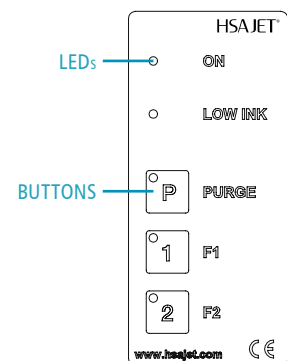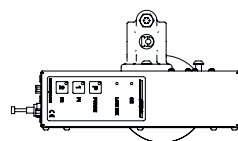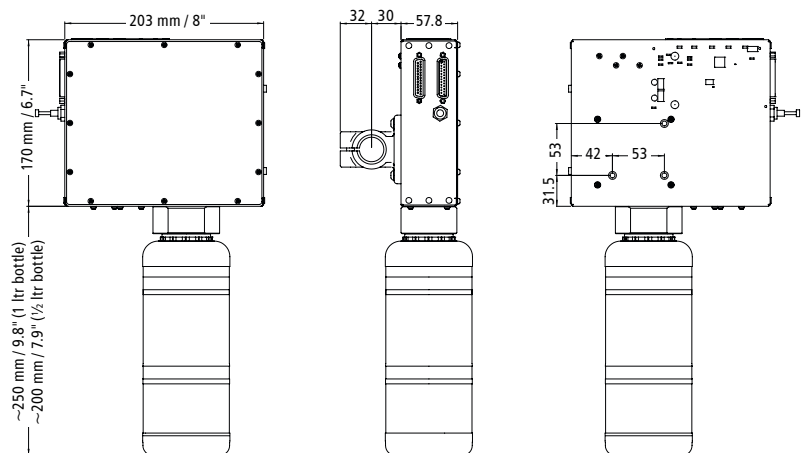**Complies to**
CE directives

**Housing**
Stainless steel

**Weight**
1.8 kg / 4 lbs (without printhead)

**Accessories**
• Sensor and encoder
• Bridges & Brackets
• Mountings (Inocon 53 mm)
• Controllers (see page overleaf and
  separate flyer)

# Key features

XAAR PRINT ENGINES

| | ENGINES | XAAR 128 80-4.25 | XAAR 128 40-8.3 | XAAR 128 80-5.5 | XAAR Electron 70-7.0 | XAAR 500 80-4.0 |
|---|---|---|---|---|---|---|
| **PRINT HEIGHTS** | 17.5 mm | • | • | • | • | |
| | 17.5 mm High Speed | • | | • | • | |
| | 35.0 mm | • | • | • | • | |
| | 35.0 mm High Speed | • | | • | • | |
| | 52.5 mm | • | • | • | • | |
| | 70.0 mm | • | • | • | • | • |
| **Max speed @ dpi** | Standard version | 35 m/min @ 185 x 185 dpi | 35 m/min @ 185 x 360 dpi | 35 m/min @ 185 x 185 dpi | 57 m/min @ 185 x 185 dpi | 34 m/min @ 180 x 180 dpi |
| | High speed version | 70 m/min @ 185 x 185 dpi | 70 m/min @ 185 x 360 dpi | 90 m/min @ 185 x 185 dpi | 114 m/min @ 185 x 185 dpi | N/A |
| **SPECIFICATIONS** | Nozzle plate | non-wetting | non-wetting | wetting | wetting | - |
| | Active nozzles | 128 | 128 | 128 | 128 | 500 |
| | Drop volume* (pL) | 80 | 40 | 80 | 70 | 80 |
| | Drop velocity (m/s) | 5.0 | 6.0 | 5.0 | 5.0 | 6.0 |
| | Max. frequency (kHz) | 4.25 | 8.3 | 5.5 | 7.0 | 4.0 |
| | Colour of insulator | Blue | Dark Grey | Purple | Dark Blue | |

## GLOSSARY

**Active nozzles**
Number of nozzles that fire a drop. The XJ128 has 128 active nozzles, the XJ500 has 500 active nozzles.

**Drop velocity (m/s)**
The linear speed of ink droplet as it leaves the printhead.

**Drop volume (pL)**
Size of each ink droplet. Measured in picoLitre (pL).

**Engine**
The module (head) that outputs the ink. Available in different models.

**Max. frequency (kHz)**
How many drops per second a print engine can produce.
Measured in 1000 /second (kHz).

**Max. speed @ dpi**
The maximum possible linear speed at a specific resolution.

**Nozzle plate**
The area of the printhead that forms the ink drop through movement.

**Wetting**
A print engine with a coating that allows the ink to remain on the nozzle plate, minimizing interference with the drop formation. Effectively, a higher speed is thereby possible.

**Non-wetting**
Coating that is designed to allow ink to bead away from nozzle plate. This type generally requires less maintenance.

## UMBILICAL

Compact. No umbilical

Straight. Umbilical in optional length

Elbow. Umbilical in optional length

An umbilical provides extra flexibility when installing the printer and it is essential for all applications for top/down printing.

The connection between the umbilical and the printhead is available with a straight connection or with an elbow connection.
If no umbilical is required, the printers are available as compact models.

**XJ128 & Electron**
The umbilical is available in standard lengths of 10-100 cm.

**XJ500**
The umbilical is available in lengths of 10-50 cm.

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# Glossary

### Inkjet
Xaar uses drop-on-demand inkjet technology (see DOD inkjet technology).

### DOD Inkjet
Drop-on-Demand. The printheads can be precisely controlled to produce ink drops when required to produce high quality, repeatable images.

### Piezo Electric
Mechanical distortion of the material results in the formation of a charge across the material, or vice versa. The most common material in general use is PZT, Lead Zirconium Titanate.

### Purging
The process of forcing ink out of the nozzles, either by vacuum or pressure.

### (Drop) Redundancy
This is where a particular area (pixel) can be printed by more than one nozzle. So if a nozzle is blocked the pixel can be printed by the other nozzle. This may take place on a different pass.

### Resolution
The amount of detail that can be resolved out of an image, ie. The number of discrete drops of ink that are fired onto a controlled size of media (dots per inch (dpi)).

### Stitching
This is the strategy for the managing of edge effects between print swathes. It is often called "Soft-stitching" though this term actually describes a sub-sets of the various strategies.

### Substrate Media
The surface to be printed upon for example paper, textile and plastic.

### Swathe
The band of print produced by one pass of a printhead

### TC
Temperature Compensation – the way in which the printhead compensates for changes in the viscosity of ink due to temperature.

### UV Curable Inks
After printing the ink is cured by exposure to strong UV-light. The advantage of UV-curable inks is that they "dry" as soon as they are cured they can be applied to a wide-range of uncoated substrates.

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