Thermal Transfer Overprinting

Zodiac

ice

As a world leader in the coding industry, ICE has researched, designed, and developed a series of enhanced Thermal Transfer Overprinting products that can answer your demanding requirements.

Introducing the next generation of ICE Zodiac Thermal Transfer Overprinting products

Eagle, Falcon and Hawk are part of the ICE Zodiac range of Thermal Transfer Overprinters (TTO), which are designed to give you a more productive operation. These new ICE printers embody the latest technology to further improve uptime while reducing time spent on quality checks, waste, and rework to drive productivity, quality and efficiency.

Uptime Advantage

- Reduce costs and downtime, maximize printhead life and gain consistent print quality thanks to airless Intelligent Motion™ technology
- Up to 1,200m ribbon capacity and a variety of ribbon economy modes help maximize the time between ribbon changeovers

Code Assurance

- Intelligent iAssure™ technology*, a built-in code quality checker, helps reduce waste and rework with no additional hardware, installation or training
- CLARiTY™ software helps ensure the right code is consistently printed on the right product

Easy Usability

- Simple operator interface
- Designed to withstand tough production line environments
- Minimal wear parts are easy to change out, improving production line uptime

Built-in Productivity

- Using default settings you can maintain consistent code quality and avoid conventional air and energy settings that operators might over-adjust
- Quickly discover code legibility issues that indicate the potential need for printer maintenance
- Industry-leading simple cassette change designed for fast ribbon replacement to maximize uptime
- 25% faster throughput than previous ICE TTO models

* iAssure™ technology is not available in the Zodiac Eagle TTO

ICE Zodiac
Eagle, Hawk and Falcon

ICE Zodiac Thermal Transfer Overprinters are designed to withstand tough production line environments. With minimal wear parts, airless, all-electronic design, and quick change ribbon cassette, the enhanced Zodiac TTO line offers maximized uptime advantage and integration flexibility.

Reduce costs and downtime, maximize printhead life and gain consistent print quality thanks to airless Intelligent Motion™ technology

Zodiac Eagle
(107mm)

The Zodiac Eagle is the first airless 107mm TTO, eliminating the need for expensive compressed air, and avoiding conventional air and energy settings that operators might over-adjust.

The Zodiac Eagle is designed to be compact and modular, and fits onto almost all production lines. Up to 1,200m ribbon capacity and a variety of ribbon economy modes maximizes the time between ribbon changeovers, improving uptime.

Zodiac Hawk
(53mm)

The Zodiac Hawk features Intelligent iAssure™ technology, a built-in code quality checker that helps reduce waste and rework with no additional hardware, installation or training.

The Zodiac Hawk is a high speed TTO, and offers print speeds of up to 1000mm/s and throughputs up to 700 ppm.*

Zodiac Falcon
(32mm and 53mm)

The Zodiac Falcon is a mid-range TTO that features intelligent iAssure™ technology.

In addition, airless Intelligent Motion™ technology helps to reduce costs and downtime, maximize printhead life and gain consistent print quality.

The Falcon helps to tackle coding errors, improve Overall Equipment Effectiveness (OEE) and reduce unwanted waste or reworked product, and offers print speeds of up to 750mm/s and throughputs up to 250 ppm.*

Our products are widely used throughout the snack food, bakery and confectionery markets, and demonstrate excellent performance in the frozen and refrigerated foods, meat and poultry, cosmetics, pharmaceutical and nutraceuticals industries.
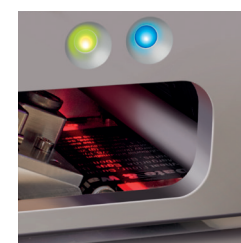
As a result of understanding your world, we have been able to design Thermal Transfer Overprinters that integrate seamlessly with your packaging machinery.

* Application and substrate dependent. iAssure™ technology is not currently supported for use with all ribbon savings modes.

The Zodiac Eagle is the first airless 107mm TTO printhead in the market

Reduce waste & rework with **iAssure™** built-in code quality checker

iAssure™ intelligent technology checks code quality and presence with no additional hardware, installation or training costs.

How iAssure™ works

iAssure™ technology continually checks for print defects by taking a picture of every single code, assessing the quality, and if chosen limits are exceeded, rejecting the code or stopping the line. iAssure™ technology is exclusively built into the Zodiac Hawk and the Zodiac Falcon.

iAssure™ imaging system
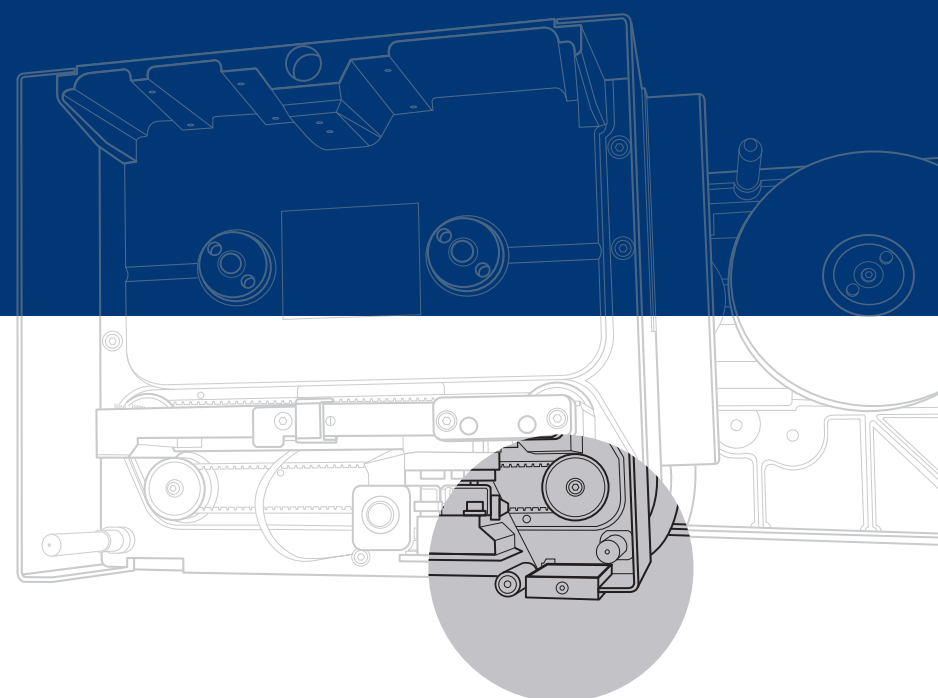
Unit cutaway for display purposes only

1 **Image capture**

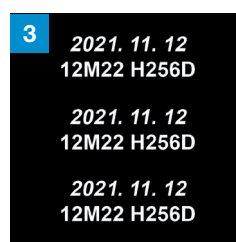Built-in sensors create a perfect image of the printed TTO ribbon as it indexes to the next print.

3 2021. 11. 12 12M22 H256D

2021. 11. 12 12M22 H256D

2021. 11. 12 12M22 H256D

Image comparison

The code quality and presence is evaluated with a pass/fail decision.

2 12M22 H256D

2021. 11. 12 12M22 H256D

2021. 11. 12 12M22 H256D

2021. 11. 12 12M22 H256D

Image analysis

Each image is processed in real-time and assessed for quality and presence.
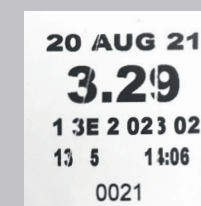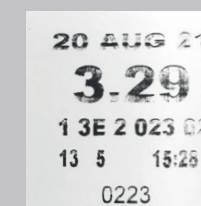
4 **Fault trigger event**

If a pre-set number of codes fail, the printer triggers a fault that stops the line or sends product into a reject or inspection area.
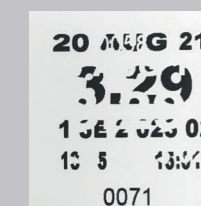
Code quality assurance

With iAssure™ technology, alphanumeric code defects like these are automatically identified when the codes are checked for legibility.

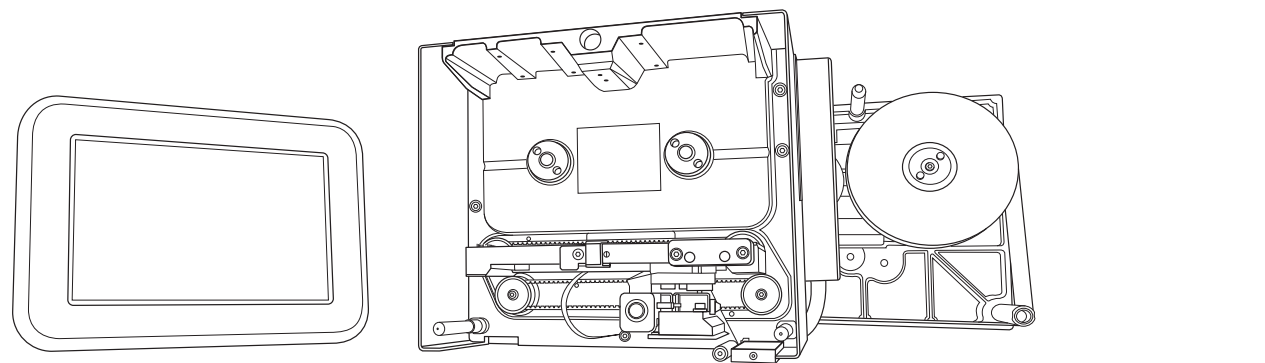| 20 AUG 21	20 AUG 21	20 AUG 21
3.29	3.29	3.29
1 3E 2 023 02	1 3E 2 023 02	1 3E 2 023 02
13 5 14:06	13 5 15:28	13 5 13:01
0021	0223	0071
Ribbon crease due to damaged cassette	Worn print surface degrades quality	Overprint from pre-run ribbon

iAssure™ technology brings confidence back to the line

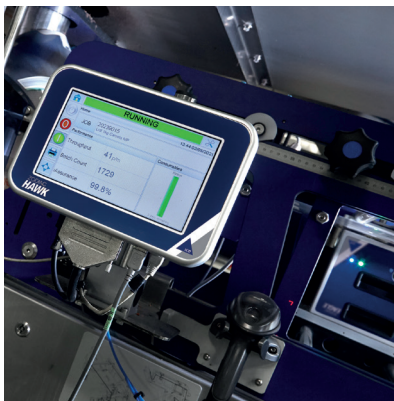Not actual codes, for illustration purpose only

Intelligent design

The modular design of the ICE Zodiac range of Thermal Transfer Overprinters helps customers in a number of ways:
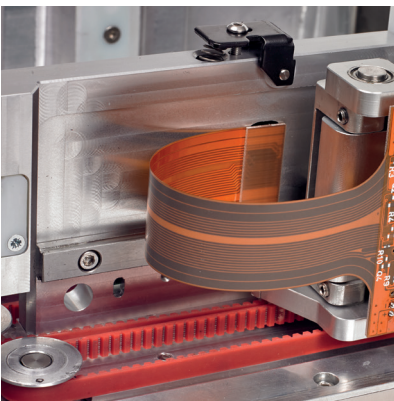

Modularity

The Zodiac range of Thermal Transfer Overprinters have been designed to be compact and modular, allowing manufacturers and OEMs the flexibility in how they choose to integrate the printer.

Intelligent Motion™

Easy integration

The Zodiac range of Thermal Transfer Overprinters are easy to integrate into most production lines, and include industry standard mounting features to help simplify installation and improve operator accessibility and interaction.

Airless

The airless, all-electronic operation eliminates expensive compressed air requirements, and helps the printer to run more efficiently.

Removing the need for air hoses and associated wear parts reduces the need for operator interaction.

Intelligent Motion™

Intelligent Motion™ technology removes the need for compressed air, as well as associated costs and downtime, maximizing printhead life and consistent print quality.

Intelligent application

The Zodiac range of Thermal Transfer Overprinters are ideal for flexible packaging applications. When coding applications require content to be printed on products to meet regulatory demands, such as ingredient lists, nutrition statements, traceability information, or use-by dates, our CLARiTY™ software helps to ensure that the right information is printed on the right package, time after time.

TTO printers have traditionally been able to print glossy labels and flexible film packages. The Zodiac range of printers now print on newer flexible film package types like resealable pouches, stick packs and sachets, offering customers more choice about how they want to package and code their products.
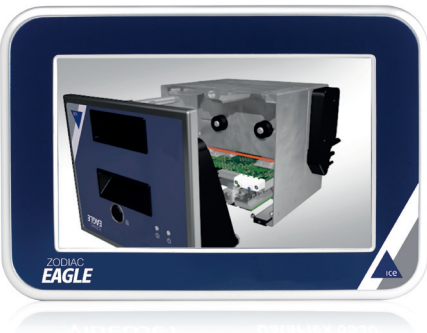

Intelligent maintenance

The Zodiac range of Thermal Transfer Overprinters feature an easy-to-use cassette design, which fits ribbon lengths of up to 1,200m. Simple ribbon path ensures fast changeovers and a more efficient operation, therefore reducing downtime.

Limited wear components are fast and easy to change to help ensure that manufacturers are up and running as quickly as possible. The new printhead design is simple to replace and requires no additional operator intervention to return to printing.

On-board videos guide operators through routine maintenance and operator tasks including printhead cleaning and replacement.

Zodiac Eagle and Hawk
Thermal Transfer Overprinting

Printhead
53mm or 107mm, 300dpi (12dot/mm)

Print area
53mm intermittent printing mode: 2.1" (53mm) wide x 3.0" (75mm) long
53mm continuous printing mode: 2.1" (53mm) wide x 11.8" (300mm) long
107mm intermittent printing mode: 4.3" (107mm) wide x 3.0" (75mm) long
107mm continuous printing mode: 4.3" (107mm) wide x 11.8" (300mm) long

Minimum print speed[1]
Intermittent mode: 0.4 in./sec (10mm/sec)
Continuous mode: 0.04 in./sec (1mm/sec)

Maximum print speed[1]
Intermittent mode: 31.5 in/sec (800mm/sec)
Continuous mode: 39.4 in./sec (1,000mm/sec)

Maximum throughput[1]
Normal print mode: Up to 500 prints per minute
High throughput mode: Up to 700 prints per minute[1]

Printing capabilities
Full downloadable font support using TrueType® fonts (including multiple languages and Unicode support); fixed, variable and merged text fields; flexible date/time formats; flexible shift code formats; auto best before date calculations and concession management; calendar rules; auto incrementing decrementing text, counters and bar codes; multiple graphic formats supported (up to maximum print area); link fields to databases; scalable text and text blocks

Bar codes
EAN 8, EAN 13, UPC-A, UPC-E, Code 39, EAN 128, Code 128, ITF, RSS (including 2D composite codes), DataMatrix, QR; others available upon request

Operator interface
TFT SVGA 800x480 full-color LCD and touch screen, WYSIWYG print preview, full on-board diagnostics, 3 levels of password protection, extensive language support

Ribbon range
Full assortment of wax/resin and resin ribbons

Maximum ribbon length
Lengths up to 1,200 meters available, dependent on ribbon composition and color

Ribbon widths
53mm: 0.8" (20mm) min, 2.2" (55mm) max
107mm: 2.2" (55mm), 4.33" (110mm) max

Nominal gap between successive prints
0.02" (0.5mm)

Ribbon saving features
Radial, interleaved, intermittent stripes

Image design software
CLARiSOFT™ or CLARiSUITE®
Design Template
Management software

Network management software
CLARiNET™

Remote coder configuration software
CLARiTY™ Configuration Manager
"Off-line" set up and parameter storage available as standard

Standard installation options master/follower configuration
Up to four Zodiac Eagle or Hawk printers controlled via a single CLARiTY™ control unit

Web browser mode
Control Zodiac Eagle or Hawk units remotely through the host packaging machine interface

External communications
RS232, dual Ethernet, USB memory stick and scanner support, Binary and ASCII comms protocols, Windows drivers ZPL and SATO emulations
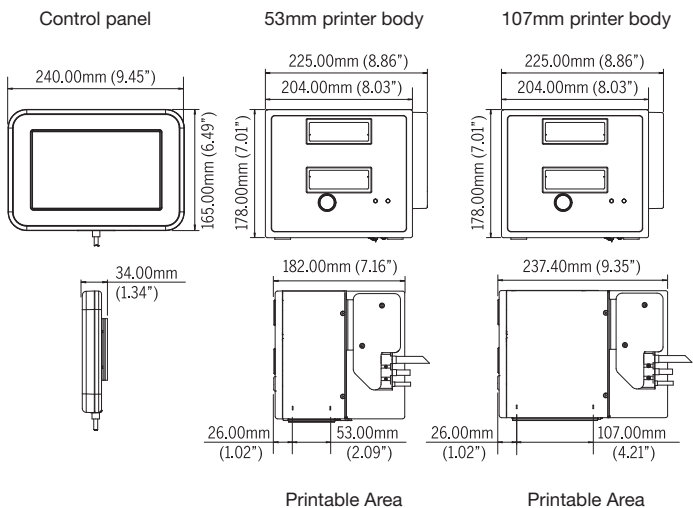
External inputs/outputs
3 PNP inputs
2 relay outputs and 2 PNP +24V outputs

Power supply
100-240VAC

Operating temperature
0-40°C (32-104°F)[2]

Control panel 53mm printer body 107mm printer body

240.00mm (9.45")
34.00mm (1.34")
225.00mm (8.86")
204.00mm (8.03")
165.00mm (6.49")
178.00mm (7.01")
182.00mm (7.16")
26.00mm (1.02")
53.00mm (2.09")
Printable Area

225.00mm (8.86")
204.00mm (8.03")
178.00mm (7.01")
237.40mm (9.35")
26.00mm (1.02")
107.00mm (4.21")
Printable Area

[1] Application dependent
[2] With selected ribbons. Actual installation may require additional hardware based on production environment

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Zodiac Falcon
Thermal Transfer Overprinting

Printhead
32 or 53mm, 300dpi (12dot/mm)

Print area
32mm intermittent printing mode: 1.3" (32mm) wide x 3.0" (75mm) long
32mm continuous printing mode: 1.3" (32mm) wide x 7.9" (200mm) long
53mm intermittent printing mode: 2.1" (53mm) wide x 3.0" (75mm) long
53mm continuous printing mode: 2.1" (53mm) wide x 7.9" (200mm) long

Minimum print speed[1]
Intermittent mode: 1.6 in./sec (40mm/sec) full print quality;
0.4 in./sec (10mm/sec) draft mode print quality
Continuous mode: 1.6 in./sec (40mm/sec) full print quality;
0.04 in./sec (1mm/sec) draft mode print quality

Maximum print speed[1]
29.5 in./sec (750mm/sec)

Maximum throughput[1]
Up to 250 prints per minute

Printing capabilities
Full downloadable font support using TrueType® fonts (including multiple languages and Unicode support); fixed, variable and merged text fields; flexible date/time formats; flexible shift code formats; auto best before date calculations and concession management; calendar rules; auto incrementing decrementing text, counters and bar codes; multiple graphic formats supported (up to maximum print area); link fields to databases; scalable text and text blocks

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32mm: 0.8" (20mm) min, 1.3" (33mm) max

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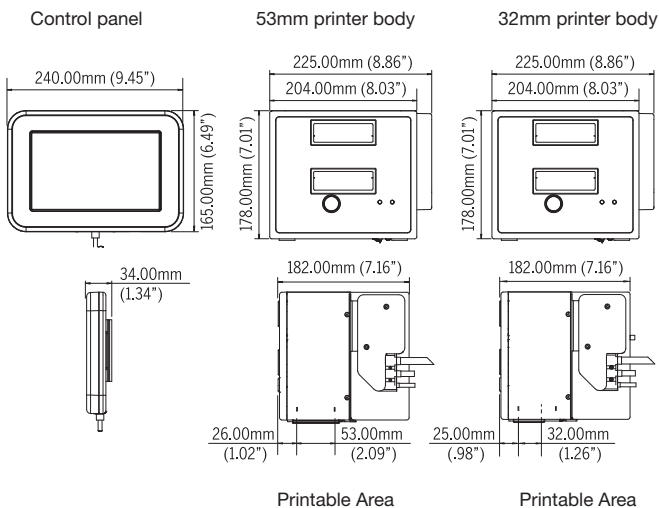
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53.00mm (2.09")
Printable Area

225.00mm (8.86")
204.00mm (8.03")
178.00mm (7.01")
182.00mm (7.16")
25.00mm (.98")
32.00mm (1.26")
Printable Area

[1] Application dependent
[2] With selected ribbons. Actual installation may require additional hardware based on production environment

AUTOMATOR
CODING — MARKING — LABELING