

### *We Build Confidence...* *In Large Character Ink Jet Printing*

- Precision drop placement delivers superior print quality
- Micro-valve technology enables higher resolution print of up to 40 dpi
- Superior throw distance up to 1.2 inches (30 mm) allows for reliable printing in all industrial environments
- Color touch screen ensures ease of use
- Modular system and scalable design provides maximum flexibility



**Get confident. Contact us today.**

# Versatile Large Character Printing

## The Marsh® 320Si Large Character Ink Jet Printer

**The Marsh 320Si large character printer combines increased throw distance and precision drop placement with higher speeds, to deliver reliable coding and printing solutions for a wide variety of industrial applications. The Marsh 320Si system features an advanced touch-screen graphical user interface and modular and scalable hardware/software design for maximum flexibility.**

**Simple, easy-to-use graphical user interface**



**Touch-screen controller with 7.5" or 10.4" (19 or 26.4 cm) display**

**Printer with integrated electronics and pump system**



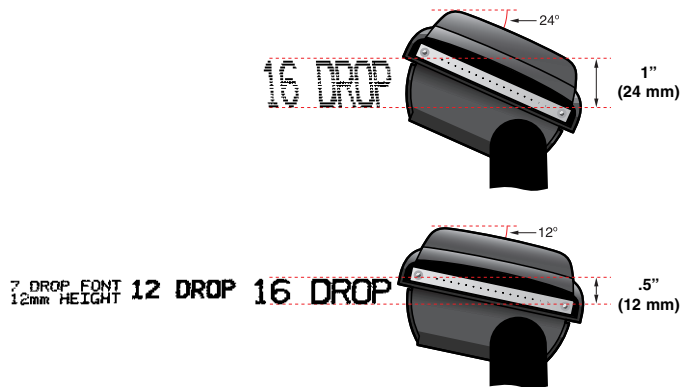
**16-dot, revolutionary micro-valve printhead with slant head technology**

## Advanced Print Head Technology

The Marsh 320Si printer's new printheads combine advanced micro-valve and slant head technologies to provide higher resolutions of up to 40 dpi, precision drop placement and superior throw distance of up to 1.2 inches (30 mm). These printheads are also rated to run at 200 feet per minute (60 m/min.) at 40 dpi resolution. The precision manufactured micro-valves are designed to run with both water-based and fast-dry solvent-based inks, providing maximum flexibility. The printheads are rated at IP65 to withstand extreme environmental conditions in a variety of customer applications. Slant technology enables one or two lines of print between 1/2 inch and 1 inch (12 and 24 mm) in height per printhead.

### Slant Technology

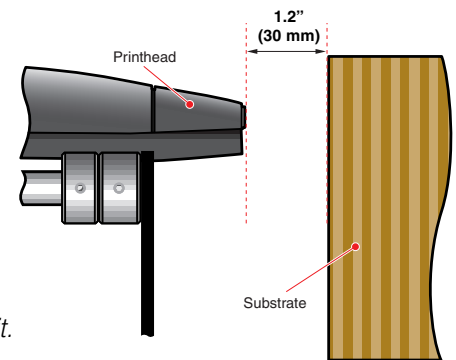
The Marsh 320Si printer can print characters using fonts which are based on 7, 12 and 16 drops. The slant technology also enables such characters to be printed in messages which are between 1/2 inch and 1 inch (12 and 24 mm) in height. The micro-valves in this printer enable two lines of 7 drop high characters to be printed where other technologies only permit one line.



### Throw Distance

The proprietary valves in the Marsh 320Si printhead operate at a higher frequency than those in printers with traditional technology, and the ink is output at a much higher speed. This makes the printer more robust in changes to throw distance, so it can print messages at throw distances of up to 1.2 inches (30 mm) or more, depending on line speed. Traditional technologies can handle throw distances of no more than 0.12 to 0.16 inches (3-4 mm) before print quality degrades.

This insensitivity to throw distance enables the Marsh 320Si printer to operate in applications where the substrate is irregular and when physical constraints limit close access to it.



### Modular, Scalable Software

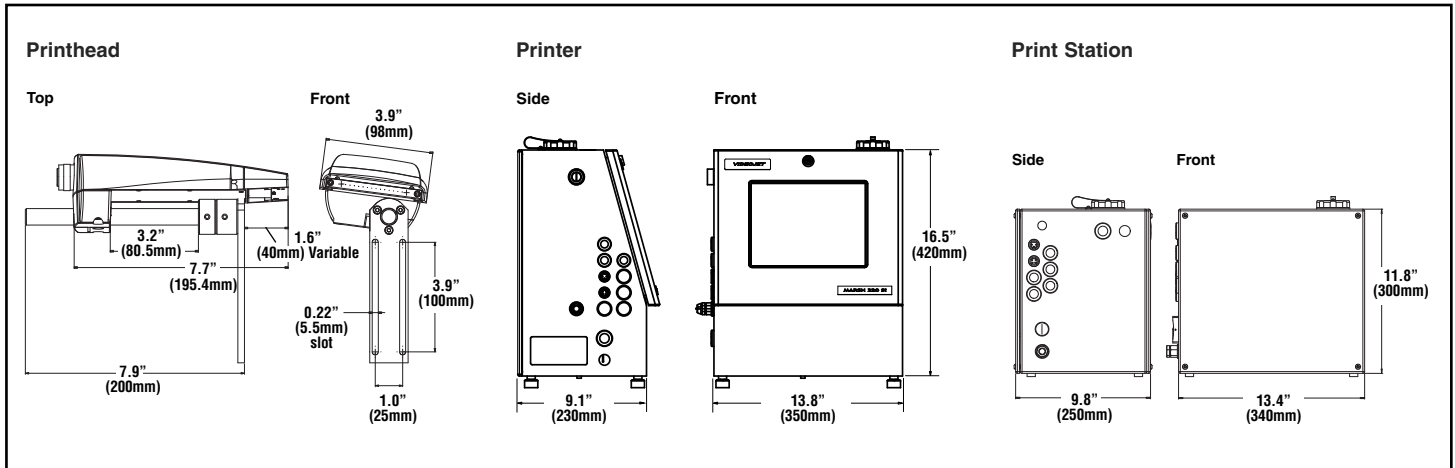
The Marsh 320Si printer is designed to give you the most flexibility to mix and match both hardware and software options. The controller is pre-programmed with multiple languages to allow individual users to pick their language. Multiple security levels can be programmed by users to have a variety of different access levels. Built-in on-line help and the graphical user interface reduces training time and maximizes uptime.

### Typical Applications

The Marsh 320Si system's higher print resolution, increased throw distance and variable print height enhance its performance significantly beyond the traditional applications of valvejet printers.

The Marsh 320Si printer can be used to print on:

- Corrugated cases and clay-coated cartons
- Plastic/paper sacks for minerals and cement packaging
- Plastic/metal drums for chemical and petroleum products
- Rice, corn, wheat, and other food grain and seed packages
- Products in piping and conduit extrusion and processing
- Flat rolled or coiled steel and metal products
- Carpets and other woven materials



### Specifications

#### System Components

##### Printer

- IP-54 stainless steel industrial enclosure
- 7.5" (19 cm) or 10.4" (26.4 cm) touch-screen interface
- 2 printheads per printer
- Ethernet networking connection

##### Print stations (optional)

- IP-54 stainless steel industrial enclosure
- Drive capability for 2 printheads
- Photocell and shaft encoder connections
- 2 litre capacity pump driven ink system

##### Printhead

- Print resolution up to 40dpi
- Maximum line speed at optimum resolution 200 feet/min. (60 m/min.)
- Throw distance up to 1.2" (30 mm)
- IP-65 16 channel printhead
- 10-foot (3 m) umbilical length

##### Standard software

- Standard large character single line text up to 0.96" (24 mm)
- Standard Font set 9, 12 and 16 dot high
- Date and Time
- Counters

##### Optional software modules

A wide range of additional text, graphics and bar code modules are available

#### Electrical requirements

- Supply voltage: 110-230 VAC +/-15%
- Frequency: 50 Hz to 60 Hz
- Controller power consumption: 60 VA
- Print station power consumption: 150VA

#### PC Software Requirements

Windows® 95, 98, NT, 2000

#### Printhead Orientation

Distance to print surface - no greater than 1.2" (30 mm)  
 Firing directions - 360°  
 Mounting - conveyor

#### Messages

##### Alphanumeric lines

Standard one line with an option for second line per printhead

##### Print Heights

0.5" to 0.94" (12.7 mm to 23.9 mm)

##### Storage

32 MB for message, font and graphics

#### Ink

##### Colors

Black, blue and red

##### Capacity

2 liter ink reservoir; 1-liter ink bottle

##### Substrates

Water-based and fast-dry solvent-based for both porous and non-porous substrates

#### Environmental Limits

##### Operating temperature

41°F to 113°F (5°C to 45°C)

##### Relative humidity

0 to 90% non-condensing

#### Ink consumption

Typical ink consumption based on font and average drop size

Character matrix	Ink Consumption characters per liter (millions)
12 x 10	6.8
16 x 11	4.6



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