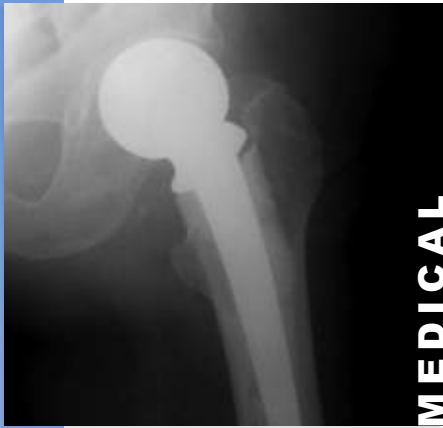


Metering & Mixing Equipment

# Index



MEDICAL



AEROSPACE



AUTOMOTIVE



ENERGY



## Page

- 1 **Getting started with Metering & Mixing Equipment**
- 2 **Applications & Process Examples**
- 3 **Twinflow™ LC50FR - Ratio 1:1 - 11:1, Low - Medium Viscosity**  
Analog & Digital models - shot 1cc - 50cc - subject to mix ratio
- 4 **Twinflow™ LC120FR - Ratio 1:1 - 18:1, Low - Medium Viscosity**  
Analog & Digital models - shot 5cc - 120cc - subject to mix ratio
- 5 **Twinflow™ FR300 & FR1200 - Fixed Ratio 1:1 - 20:1, Low - High Viscosity** - Analog & Digital models - shot sizes 20cc - 300cc and 100cc - 1200cc models - subject to mix ratio
- 6 **Twinflow™ VR300 & VR1200 - Variable-Ratio 1:1 - 50:1, Low - High Viscosity** - Analog & Digital models - shot sizes 20cc - 300cc and 100cc - 1200cc - subject to mix ratio
- 7 **Twinflow™ Mini - Variable-Ratio 1:1 - 20:1, Low - Medium Viscosity** - Pneumatic control - shot 1cc - 20cc subject to ratio
- 8 **Twinflow™ Micro - Ratio 1:1 - 32:1, Micro Dispense**  
Analog & Digital control - shot 0.04cc - 20cc - low - medium viscosity subject to mix ratio
- 9 **Twinflow™ DFR20 & DFR200 - Ratio 1:1 - 13:1, Pail and Drum Pumps - Fixed & Variable-Ratio** - Shot 15cc - 100cc for 5 gal and 15cc - 300cc for 55gal system
- 10 **Posiflow™ DXE2 - Variable-Ratio 1:1 - 50:1, Variable Flow Rate Gear Pump System** - Up to 2 liters a minute at 1:1 & 2000cps
- 11 **Posiflow™ DXE60 - Variable-Ratio 1:1 - 100:1, High Flow Rate**  
Up to 60 liters a minute at 1:1 & 2000cps
- 12 **Posiflow™ PF-MINI - Ratio 1:1 - 20:1, Digital Control**  
1cc - 30cc/second at 1:1 & 2000cps
- 13 **IJ400 Series - Valveless Progressive Cavity**  
Severe duty, abrasive & shear sensitive media
- 14 **Custom Design Capability**  
Metering & mixing systems can be designed and configured for specific applications
- 15 **Mixing Nozzle Accessories & Rotary Nozzles**  
Mixing nozzle retaining nuts, luer lock adapters & rotary nozzles
- 16 **Blue Series Static Mixing Nozzles** - Bell mouth diameter of 15.9mm
- 17 **Yellow Series Static Mixing Nozzles** - Bell mouth diameter of 16.7mm



Visit - [www.fisnar.com](http://www.fisnar.com) - for questionnaire

## Getting Started with Metering and Mixing Equipment

### First Complete the Fisnar Questionnaire:

The questionnaire provides critical information on the material and production process. It can be found on-line at [www.fisnar.com](http://www.fisnar.com). A Technical Data Sheet (TDS) should also accompany the questionnaire together with a Material Safety Data Sheet (MSDS). These may be sent via email to [info@fisnar.com](mailto:info@fisnar.com) once the questionnaire is completed. Our engineers will assess your production requirements and refer to these documents to promptly submit a proposal.

### TDS and MSDS Documents:

A myriad materials are available from a large selection of resin and adhesive suppliers.

The MSDS is not as useful for technical information as the TDS, but it does provide information regarding health and hazard warnings, together with HAZMAT shipping directions if applicable. The TDS provides technical detail and information on specific gravity, viscosity, gel time etc. The TDS in conjunction with the questionnaire will help determine the system configuration, such as the metering pumps and tanks necessary to keep pace with production cycle requirements.

Don't have a TDS? We'll help track it down.

### There is one rule in preparing a proposal for a Metering and Mixing system:

#### NO ASSUMPTIONS!

The Fisnar questionnaire has been carefully constructed over years of experience - so please take some time to visit our web site [www.fisnar.com](http://www.fisnar.com) and use the questionnaire to organize your information and ensure it is exact. If detail is missing or assumed, then it should be found and corrected or brought to the attention of the Fisnar engineer responsible for assisting in the proposal. If information is not available our engineers will help with your process and communicate with the chemical supplier directly.

Assumptions delay a proposal, waste time and will always be costly and degrade performance. Therefore if a questionnaire is completed with an assumption it could be overlooked and become an issue unless it is confirmed or corrected.

### Maintenance

It's important to appreciate that any machine will require maintenance and like a car the more you drive the more regular the maintenance. We recommend that seals are replaced on a 6 - 12 month basis and more frequently if systems are operating 24/7. With filled materials maintenance becomes more important and metering pumps may require the replacement of hardened parts from time to time.

### Team Work

Proposals are prepared by a collaboration between our valued customers and Fisnar engineers; all Metering and Mixing systems are especially constructed to a unique requirement.

Although all this sounds daunting, we are here to help every step of the way and our machines have been designed, not only to provide ease of use and long life, but also to be modular in concept and customized in an attractive easy-to-maintain finish that industry has come to expect from manufacturers providing an environmentally sound product.



# Applications & Process Examples



High Performance Material Bonding

Resin Casting & Coatings



Critical Filter Production

Wind Turbine Blades using Vacuum Techniques



Structural Insulated Glazing

Electronics, Potting & Encapsulation



Stress Tested Gaskets

Structural Assembly Bonding



# LC50FR - Ratio 1:1 - 11:1 Low - Medium Viscosity



Analog & Digital Control Models  
Shot 1cc - 50cc

Twinflow™

## Features

- Cost effective bench mounted system
- Rugged parallel drive system
- Volumetric dispensing
- Gravity feed to metering pumps
- Stainless steel tanks
- Low to medium viscosity dispensing
- Single module design
- Automation integration - digital only
- Disposable static-mixer dispensing

The LC50FR series can be configured to dispense fluids from 1cc to 50cc per cycle, dependent upon mix ratio.

Machines are generally supplied as bench modules but can also be quoted floor mounted with castors.

The materials are fed by stainless steel Teflon® lined hoses to the Twinmixer head mounted on the machine. A remote hand held Twinmixer head can be supplied as an option.

The LC50FR pneumatically powered series is available in analog or digital controlled options. Single acting reciprocating pistons are designed to volumetrically deliver discrete shots of low to medium viscosity or thixotropic two-part fluid. Examples are epoxies, silicones & RTV's, polyurethanes, potting and encapsulation compounds, adhesives, structural bonding materials and acrylics.



## Model

**LC50FR** - Digital Dispense Metering & Mixing System

**LC50PFR** - Analog Dispense Metering & Mixing System

## Specifications

Ratio range:	pre-set 1:1 to 11:1
Mechanism:	parallel drive, positive displacement
Maximum viscosity:	< 500,000 cps
Metering accuracy:	better than $\pm 1\%$
Shot range:	1cc - 50cc at 1:1
Maximum cycle rate:	20 shots per minute
Mixing:	disposable static mixers yellow - see p.17
Tank capacity:	3, 5 & 10 liter stainless steel tanks
Operating pressure:	100 psi 7 bar @ 3 cfm
Controls:	air supply filter regulator and gauge machine on/off, dispense pressure regulator and gauge, foot valve start and emergency stop, Integrated PLC (digital)
Power (Digital):	single phase 110V & 220V
Dimensions (WxDxH):	23.23" x 14.96" x 21.26" (590 x 380 x 540mm)
Weight:	88 lbs. (40 kg)

## Accessories Analog & Digital (optional)

- Stainless steel components
- Desiccant air driers
- Remote mixing by Twinmixer head
- Pneumatic agitators
- Nitrogen blanket - max. 3 psi
- Portable cart

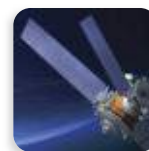
## Digital Systems Only (optional)

- Low and high level proximity sensors with alarms
- Automation interface to Fisnar robots
- Electric agitators
- Shot counter / repeater
- Thermostatically controlled heating
- Anti-gel purge timer

\*Standard configurations may be suitable for *Fast Track* delivery  
- check with local Fisnar office for confirmation

# LC120FR - Ratio 1:1 - 18:1 Low - Medium Viscosity

Analog & Digital Control Models  
Shot 5cc - 120cc



## Features

- Rugged parallel drive system
- Volumetric dispensing
- High mix ratios and differing viscosities
- Gravity feed to metering pumps
- Stainless steel tanks
- Single module design
- Automation integration - digital only
- Digital touch-screen controls
- Disposable static-mixer dispensing

The LC120FR series, available with digital or analog controls, incorporates the latest Fisnar parallel drive system providing controlled flow characteristics during dispensing.

The parallel drive also assists the accurate and consistent processing of materials with either high mix ratios and/or differing viscosities. Single acting reciprocating pistons are designed to volumetrically deliver discrete shots of low to medium viscosity or thixotropic two-part fluid.

Examples are epoxies, silicones & RTV's, polyurethanes, potting and encapsulation compounds, adhesives, structural bonding materials and acrylics.

## Accessories Analog & Digital (optional)

- Stainless steel components
- Variable ratio models
- Desiccant air driers
- Remote mixing by Twinmixer head
- Nitrogen blanket - max. 3 psi
- Portable cart

## Digital Systems Only (optional)

- Low and high level proximity sensors with alarms
- Automation interface to Fisnar robots
- Electric or pneumatic agitators
- Shot counter / repeater
- Thermostatically controlled heating
- Anti-gel purge timer

## Model

**LC120FR** - Digital Dispense Metering & Mixing System

**LC120PFR** - Analog Dispense Metering & Mixing System

## Specifications

Ratio range:	pre-set 1:1 to 18:1
Mechanism:	parallel drive positive displacement
Maximum viscosity:	<500,000 cps
Metering accuracy:	better than $\pm 1\%$
Shot range:	5cc - 120cc at 1:1
Maximum cycle rate:	20 shots per minute
Mixing:	disposable static mixers yellow - see p.17
Tank capacity:	3, 5 & 10 liter stainless steel tanks
Operating pressure:	100 psi 7 bar compressed clean air
Controls:	air supply filter regulator and gauge machine on/off, dispense pressure regulator and gauge, foot valve start and emergency stop, Integrated PLC (digital)
Power (Digital):	single phase 110V or 220V
Dimensions (WxDxH):	30.51" x 16.93" x 21.26" 775 x 430 x 540mm
Weight:	110 lbs. (50 kg)

\*Standard configurations may be suitable for *Fast Track* delivery  
- check with local Fisnar office for confirmation



# FR300 & FR1200 - Fixed Ratio 1:1 - 20:1



Fixed Analog & Digital Control Models  
Low - High Viscosity  
FR300 Shot 20cc - 300cc  
FR1200 Shot 100cc - 1200cc

## Features

- Rugged parallel drive (PLD) system
- Fixed-ratio control
- Volumetric dispensing
- High mix ratios and differing viscosities
- Low - high viscosity range
- Gravity tank feed to metering pumps
- Single module design
- Automation integration
- Digital programming
- Disposable static-mixer dispensing
- Mounted on castors

The FR300 & FR1200 are fixed-ratio systems that incorporate the latest Fisnar Parallel Drive (PLD), providing controlled flow characteristics during dispensing. Machines are available with digital or analog controls.

PLD also assists the accurate and consistent processing of materials with either high mix ratios and/or differing viscosities. Single acting reciprocating pistons are designed to volumetrically deliver discrete shots of low to high viscosity or thixotropic two-part fluid. Examples are epoxies, silicones & RTV's, polyurethanes, potting and encapsulation compounds, adhesives, structural bonding materials and acrylics.

## Model

### FR300 & FR1200

Analog Dispense Metering & Mixing System  
Digital Dispense Metering & Mixing System

## Specifications

Ratio range:	pre-set 1:1 to 20:1
Mechanism:	parallel drive positive displacement
Maximum viscosity:	<1,000,000 cps
Metering accuracy:	better than $\pm 1\%$
Shot range:	FR300: 20cc - 300cc at 1:1 FR1200: 100cc - 1200cc at 1:1
Maximum cycle rate:	15 shots per minute
Mixing:	disposable static mixers yellow - see p.17
Tank capacity:	20 & 50 liters
Operating pressure:	100 psi 7 bar compressed clean air
Controls:	air supply filter regulator and gauge machine on/off, dispense pressure regulator and gauge, foot valve start and emergency stop, Integrated PLC
Power:	single phase 110V or 220V
Dimensions (WxDxH):	dependent on machine specification
Weight:	dependent on machine specification



## Accessories Analog & Digital (optional)

- Stainless steel components
- Bulk feed arrangement, pumps & holding reservoir tanks
- Variable ratio models (see VR300 & VR1200)
- Desiccant air driers
- Remote mixing by Twinmixer head
- Accumulators for high viscosity materials
- Vacuum degassing
- Nitrogen blanket

## Digital Systems Only (optional)

- Low and high level proximity sensors with alarms
- Automation interface to Fisnar robots
- Electric or pneumatic tank agitators
- Shot counter / repeater
- Thermostatically controlled heating, tanks, pumps & hoses
- Anti-gel purge timer
- Dynamic mixing head

# VR300 & VR1200 - Variable-Ratio 1:1 - 50:1

Variable Analog & Digital Control Models

Low - High Viscosity

VR300 Shot 20cc - 300cc

VR1200 Shot 100cc - 1200cc



## Features

- Variable-ratio control
- Volumetric dispensing
- Rugged parallel drive (PLD) system
- High mix ratios and differing viscosities
- Low - high viscosity range
- Gravity tank feed to metering pumps
- Single module design
- Automation integration
- Digital programming
- Disposable static-mixer dispensing
- Mounted on castors

The VR300 & VR1200 is a variable-ratio series that incorporates the latest Fisnar Parallel Drive (PLD), providing controlled flow characteristics during dispensing. Machines are available with digital or analog controls.

PLD also assists the accurate and consistent

processing of materials with either high mix ratios and/or differing viscosities. Single acting reciprocating pistons are designed to volumetrically deliver discrete shots of low to high viscosity or thixotropic two-part fluid. Examples are epoxies, silicones & RTV's, polyurethanes, potting and encapsulation compounds, adhesives, structural bonding materials and acrylics.

## Accessories Analog & Digital (optional)

- Stainless steel components
- Bulk feed arrangement, pumps & holding reservoir tanks
- Variable ratio models (see VR300 & VR1200)
- Desiccant air driers
- Remote mixing by Twinmixer head
- Accumulators for high viscosity materials
- Vacuum degassing
- Nitrogen blanket

## Digital Systems Only (optional)

- Low and high level proximity sensors with alarms
- Automation interface to Fisnar robots
- Electric or pneumatic tank agitators
- Shot counter / repeater
- Thermostatically controlled heating, tanks, pumps & hoses
- Anti-gel purge timer
- Dynamic mixing head

## Model

### VR300 & VR1200

Analog Control High Capacity Metering & Mixing System

Digital Control High Capacity Metering & Mixing System

## Specifications

Ratio range:	Variable-ratio 1:1 to 50:1
Mechanism:	parallel drive positive displacement
Maximum viscosity:	<500,000 cps
Metering accuracy:	better than $\pm 1\%$
Shot range:	VR300: 20cc - 300cc at 1:1 VR1200: 100cc - 1200cc at 1:1
Maximum cycle rate:	15 shots per minute
Mixing:	disposable static mixers yellow - see p.17
Tank capacity:	20, 50 liters and higher + bulk feed
Operating pressure:	100 psi 7 bar compressed clean air
Controls:	air supply filter regulator and gauge machine on/off, dispense pressure regulator and gauge, foot valve start and emergency stop, Integrated PLC
Power:	single phase 110V or 220V
Dimensions (WxDxH):	dependent on machine specification
Weight:	dependent on machine specification



# MINI - Variable-Ratio 1:1 - 20:1 Low - Medium Viscosity

Pneumatic Control Shot 1cc - 20cc



## Features

- Variable-ratio control
- Volumetric dispensing
- Low to medium viscosity
- Gravity tank feed with pull-through piston
- Stainless steel tanks with moisture traps
- Stainless steel metering pumps and components
- Single module design
- Automation integration
- Low maintenance construction
- Disposable static-mixer dispensing

The Mini variable-ratio system is designed to allow easy adjustment of a mix-ratio to suit one or more applications requiring more than one material. Mechanically linked positive displacement metering pumps provide a precise dispensing ranging from 1cc to 20cc with a maximum viscosity of 100,000cps.

The Mini is a free-standing pneumatic driven bench mounted system with foot pedal actuation. Its compact size and small footprint provides for close interaction with the work, enabling a cleaner, safer working environment. Machines are available with analog controls. Electrical accessories are also available as added options (requires extra cabinet).



## Model

### MINI

Analog Variable-Ratio Dispense Metering & Mixing System

## Specifications

Ratio range:	pre-set 1:1 to 20:1
Mechanism:	single acting positive displacement
Maximum viscosity:	100,000 cps
Metering accuracy:	better than $\pm 1\%$
Shot range:	1cc - 20cc at 1:1
Maximum cycle rate:	20 shots per minute
Mixing:	disposable static mixers yellow - see p.17
Tank capacity:	3 & 5 liter stainless steel tanks
Operating pressure:	100 psi 7 bar compressed clean air
Controls:	air supply filter regulator and gauge machine on/off, dispense pressure regulator and gauge, foot valve start and emergency stop
Dimensions (WxDxH):	dependent on machine specification
Weight:	dependent on machine specification

## Accessories Analog (optional)

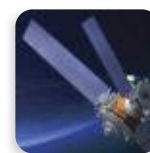
- Stainless steel components
- Desiccant air driers
- Remote mixing by Twinmixer head
- Cartridge feeds
- Nitrogen blanket - max. 3 psi

# MICRO - Variable-Ratio 1:1 - 32:1 Low - Med Viscosity

Analog Control Shot 0.04cc - 20cc



\*Unit shown with optional agitator



## Features

- Positively dispensed small beads and dots
- Variable-ratio
- Low to medium viscosity
- Gravity tank feed to metering pumps
- Single module design
- Automation integration
- Low maintenance construction
- Disposable static-mixer dispensing

The MICRO is designed to dispense continuous small beads of homogeneously mixed two-part fluids. Mechanically linked positive displacement metering pumps provide precise dispensing ranging from 0.04cc to 20cc. Machines are available with digital or analog controls.

The Micro is a free standing pneumatically driven bench top machine with foot pedal actuation. The systems variable-ratio design accommodates an extensive range of ratio requirements. Electrical accessories are also available as added options.

## Accessories Analog & Digital (optional)

- Stainless steel components
- Bulk feed arrangements
- Desiccant air driers
- Remote mixing by Twinmixer head
- Cartridge feeds
- Vacuum degassing
- Nitrogen blanket - max. 3 psi
- Rod pumps for smaller shot sizes

## Digital Systems Only (optional)

- Low and high level proximity sensors with alarms
- Automation interface to Fisnar robots
- Electric or pneumatic tank agitators
- Shot counter / repeater
- Thermostatically controlled heating
- Anti-gel purge timer

## Model

### MICRO

Analog Dispense Metering & Mixing System

Digital Dispense Metering & Mixing System

## Specifications

Ratio range:	variable 1:1 to 32:1
Mechanism:	single acting positive displacement
Maximum viscosity:	300,000 cps
Metering accuracy:	better than $\pm 1\%$
Shot range:	0.04cc - 20cc at 1:1
Maximum cycle rate:	30 shots per minute
Mixing:	disposable static mixers yellow - see p.17
Tank capacity:	3 & 5 liter stainless steel tanks
Operating pressure:	100 psi 7 bar compressed clean air
Controls:	machine on/off, emergency stop + reset programmable dispense volume and flow rate
Power - electric options:	single phase 110V or 220V
Dimensions (WxDxH):	15.75" x 15.75" x 29.53" 400 x 400 x 750mm
Weight:	110 lbs. (50 kg)

# DFR20 & DFR200 - 1:1- 13:1 Pail Pump Units



Digital or Analog - High Viscosity  
20 liter / 5 gal. - Shot 15cc - 100cc  
200 liter / 55 gal. - Shot 15cc - 300cc

## Features

- Thixotropic & high viscosity pastes & fluids
- Volumetric dispensing up to 1,000,000 cps
- High output up to 15 shots per minute
- Analog speed control
- Pneumatic system
- Compact arrangement
- Ideal for automatic assembly lines
- Disposable static-mixer dispensing
- Mounted on castors

Machines are designed for metering & mixing a high viscosity base fluid up to 1 million cps directly from either 5 gallon pail (20 liters) or 55 gallon (200 liters) drums with the activator fed from a stainless steel tank. Alternatively machines can be configured with a second 5 gallon or 55 gallon pail pump for a high viscosity activator supplied in a 5 gallon pail or 55 gallon drum.

Other options allow the series to be customized either with a fluid purge and/or a boom for ergonomic handling of the hose and dispensing Twinmixer head.



## Specifications

Ratio range:	pre-set volumetric 1:1 to 13:1
Metering pumps:	in-line single acting positive displacement
Maximum viscosity:	1,000,000 cps
Metering accuracy:	better than $\pm 1\%$
Shot range:	DFR20 system: 15cc - 100cc at ratio 10:1 DFR200 system: 15cc - 300cc at ratio 10:1
Shot output:	15 shots per minute
Mixing:	disposable static mixers yellow - see p.17
Tank system capacity:	5 gallon pump supplied with 10 liter tank 55 gallon pump supplied with 20 liter tank
Pail pumps:	DFR20 5 gallon & DFR200 55 gallon system
Controls:	air supply filter regulator and gauge machine on/off, foot valve start, dispense pressure regulator and gauge, foot valve start, emergency stop
Services:	clean, dry compressed air 80 psi (6bar) 8cfm
Dimensions (WxDxH):	DFR20 5 gallon = 23.62" x 27.56" x 62.99" 600 x 700 x 1600mm DFR200 55 gallon = 41.34" x 25.59" x 51.18" 1050 x 650 x 1300mm
Weight:	396 lbs. (180 kg) 5 gallon (20 liters) 1100 lbs. (500 kg) 55 gallon (200 liters)

## Model

### DFR20

Pail Pump 5 Gallon & 10 Liter Tank System  
Pail Pump 2 x 5 Gallon Pump System

### DFR200

Pail Pump 55 Gallon & 20 Liter Tank System  
Pail Pump 2 x 55 Gallon Pump System

## Accessories Analog & Digital (optional)

- Tank or pump bulk feed
- Variable ratio models
- Remote mixing by Twinmixer head
- Nitrogen blanket for part "B" tank system

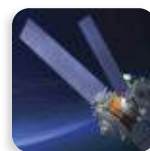
## Digital Systems Only (optional)

- Low and high level proximity sensors with alarms
- Automation interface to Fisnar robots
- Electric or pneumatic agitators
- Shot counter / repeater
- Thermostatically controlled heating
- Anti-gel purge timer
- PLC Control



# DXE2 - Ratio 1:1 - 50:1 Medium Flow Rate - Low Pressure

Up to 2 liters a minute at 1:1 & 2000 cps



## Features

- Low pressure
- Volumetric dispensing up to 20,000 cps (pressure fed)
- Output up to 2 liters a minute
- Precision long life gear pumps
- Analog speed control
- Single phase
- Compact bench mounted
- Ideal for automatic assembly lines
- Disposable static-mixer dispensing
- Variable-ratio machine enables programmable ratio

Gear pump systems are designed for lower viscosities and higher volumes. They are also suited for automatic assembly lines. The two components enter into precision gears that can accurately meter the flow and therefore the volume of the fluid. A mixing nozzle finally mixes the materials.

Suitable for casting either small intricate moldings using RIM technology or applying uninterrupted beads for structural bonding or gasket forming. The DXE2 provides a reliable solution to many dispensing requirements.

## Model

### DXE2

Low Pressure Metering & Mixing System

## Specifications

Ratio range:	volumetric 1:1 to 100:1
Metering pumps:	inverter controlled precision flow gear pumps with non return valve and overpressure switch
Maximum viscosity:	20,000 cps - requires pressure feed
Metering accuracy:	better than $\pm 1\%$
Maximum shot output:	2 liters a minute at 1:1 up to 2000 cps
Maximum cycle rate:	20 shots per minute
Mixing:	disposable static mixers yellow - see p.17
Tank capacity:	5 & 10 liter stainless steel tanks
Controls:	dispense speed control via panel mounted dial
Services:	single phase 110V or 220V compressed air
Dimensions (WxDxH):	dependent on machine specification
Weight:	dependent on machine specification

## Accessories (optional)

- Bulk feed transfer, pumps and holding tanks
- Programmable mix ratio setting
- Automation interface to Fisnar robot
- Rotary/static Twinmixer head
- 20 liter stainless steel tanks
- Nitrogen blanket
- Low & high level proximity sensors with alarms
- Electric or pneumatic tank agitators
- Vacuum degassing
- Shot counter / repeater
- Thermostatically controlled heating, tanks & hoses
- Anti-gel purge timer
- Portable cart
- Dynamic mixing head
- Closed-loop flow monitoring control

# DXE60 - Ratio 1:1 - 100:1 High Flow Rate - Low Pressure



Up to 60 liters a minute at 1:1 & 2000 cps

## As Supplied for Wind Energy Resin-Infusion

### Features

- Low pressure
- Volumetric dispensing up to 20,000 cps (pressure fed)
- HMI touch screen control
- High output up to 60 liters a minute
- Precision long life gear pumps
- Digital programmable flow rate and volume setting
- Variable-ratio machine enables programmable ratio
- Single phase operation
- Mounted on castors
- Ideal for automatic assembly lines
- Disposable static-mixer dispensing

A highly accurate, technically advanced and versatile low pressure metering & mixing system. Designed for high output with variable-ratio metering.

Machine versions offer programmable flow rate and dispense volume settings also incorporating programmable mix ratio adjustment.

The on-board HMI touch screen can also accommodate close loop monitoring.



### Model

#### DXE60

Low Pressure Metering & Mixing System

### Specifications

Ratio range:	volumetric 1:1 to 100:1
Metering Pumps:	inverter controlled precision flow gear pumps with non return valve and overpressure switch
Maximum viscosity:	20,000 cps - requires pressure feed
Metering accuracy:	better than $\pm 1\%$
Maximum output:	60 liters a minute at 1:1 mix ratio
Mixing:	disposable static mixers yellow - see p.17 - air driven rotary static mixer - dynamic mixing
Tank capacity:	25 - 300 liter tanks - bulk feed
Controls:	HMI touch screen interface with programmable flow-rate and/or dispense volume adjustment, programmable mix ratio adjustment
Services:	single phase 110V or 220V compressed air 100 psi 7 bar
Dimensions (WxDxH):	dependent on machine specification
Weight:	dependent on machine specification

### Accessories (optional)

- Bulk feed transfer, pumps and holding tanks
- Automation interface to Fisnar robots
- Rotary/static Twinmixer head
- Dynamic mixing head
- 25 - 300 liter stainless steel tanks
- Nitrogen blanket
- Low & high level proximity sensors with alarms
- Electric or pneumatic tank agitators
- Vacuum degassing
- Shot counter / repeater
- Thermostatically controlled heating, tanks & hoses
- Anti-gel purge timer
- Machine mounted mixing head with foot pedal control
- Closed-loop flow monitoring control

# PF-MINI - Ratio 1:1 - 20:1 High Shot Rate - Low Pressure

30cc per second at 1:1 & 2000 cps



## Features

- Low pressure standard adjustable ratio 1:1 - 10:1
- Volumetric low - medium viscosity dispensing
- High flow output
- Adjustable shot rate 1cc - 30cc a second
- Precision long life gear pumps
- Digital speed and timer control
- Auto-cleaning agent purge system includes 10 liter tank
- Single phase
- Compact floor mounted
- Disposable static-mixer dispensing
- Variable-ratio machine enables programmable ratio

An adjustable-ratio precision gear-pump metering & mixing system with built-in microprocessor control. The Model PF-MINI includes a control panel for easy programming of metering, mixing and dispensing functions. Warning LED's

signal when a control function is not compliant. A two stage auto-cleaning feature efficiently purges the mixer by the combined action of a cleaning agent and air pressure.

## Model

### PF-MINI

Low Pressure Metering & Mixing System

## Specifications

Ratio range:	volumetric 1:1 to 10:1 standard system
Metering pumps:	inverter controlled precision flow gear pumps with non return valve and overpressure switch
Hoses:	Stainless steel braided Teflon® lined hose to mixing head
Viscosity range:	50cps - 200,000cps* (*requires heating option)
Metering accuracy:	mix better than $\pm 1\%$ , shot 3%
Adjustable cycle rate:	1cc/sec - 30cc/sec at 1:1 and 2000 cps
Mixing:	disposable static mixers yellow - see p.17
Auto anti-gel shot timer:	digital set-up according to pot-life of resin
A/B fluid & cleaning tank capacity:	10 liter stainless steel 304 tanks sight-level tube
Controls:	digital control micro processor and timer Mitsubishi PLC logic
Services:	single phase 220V, 60Hz. Filter & regulator for compressed air 60psi > 4kgf/cm
Dimensions (WxDxH):	27.56" x 25.59" x 53.15" 700 x 650 x 1350mm
Weight:	dependent on machine specification

## Accessories (Optional)

- Bulk feed transfer, pumps and holding tanks
- Ratios greater than 10:1 up to 20:1
- Tank sizes 30 & 50 liters
- Teflon® lined hoses to Twinmixer head
- Automation interface to Fisnar robot
- Rotary/static and dynamic mixing heads
- Nitrogen blanket
- Low & high level proximity sensors with alarms
- Electric or pneumatic tank agitators
- Vacuum degassing
- Shot counter / repeater
- Thermostatically controlled heating, tanks & hoses



# IJ400 Series - Severe Duty - Valveless Progressive Cavity

Abrasive & Shear Sensitive Media



The IJ400 is a series of progressive cavity, severe-duty, valveless metering & mixing system models that provide accurate and repeatable volumetric dispensing over a wide spectrum of viscosities.

Abrasive filler materials are conveyed by a gentle endless progressive pump action that ensures long life of rotor-stator elements and reduces service down time.

**IJ400PB** - A bench mounted system that includes a mixing head with integrated dispensers and a PLC dispensing control for both resin and activator. Cartridge mountings are fitted as standard, optional bulk feeding is offered.

**IJ400PR** - A lightweight designed metering & mixing system designed to mount directly on a Fimar robot or integrated to other automated assembly systems. The components are fed from the pumps directly into the static-mixer, providing a constant on-ratio condition, exact dispensing and a fast shot or bead sequencing.

**IJ400PC** - A compact table top unit for casting low to medium viscosity media.

**IJ400PM** - A mobile system suitable for casting of low to medium viscosity media. The valve mixing head is equipped with a handle and start button to initiate the dispensing sequence.



IJ400PC



IJ400PM



IJ400PB



IJ400PR

## Model

IJ400PB	Progressive Cavity Bench System
IJ400PR	Progressive Cavity Robot System
IJ400PC	Progressive Cavity Bench Cast System
IJ400PM	Progressive Cavity Mobile Cast System

## Specifications

Ratio range:	pre-set 1:1 to 20:1
Mechanism:	progressive cavity positive displacement
Maximum viscosity:	1,000,000 cps
Metering accuracy:	better than $\pm 1\%$
Shot range:	0.04cc - continuous ratio dependent
Maximum cycle rate:	30 shots per minute
Mixing:	disposable static mixers yellow - see p.17
Tank capacity:	5, 7, 20 and 50 liters
Operating pressure:	low pressure
Controls:	electronic
Power:	single phase 110V or 220V

## Features

- Rotating positive displacement pump
- Volumetric fluid conveyance
- High viscosity abrasive adhesives and sealants
- Solid content pastes and shear sensitive media
- Snuff-back to prevent drip
- Linear pump pressure
- Repeatable accuracy better than 1% at pump outlet
- FDA compliant wetted components
- Hot & cold material dispensing
- Pulse free
- Adjustable shot output
- Valveless dispensing
- Electronic operation

## Accessories (optional)

- Bulk feed arrangement, pumps and holding tanks
- Automation interface to Fimar robot
- Remote mixing by hose-fed mixing head
- Low & high level proximity sensors with alarms
- Tank agitators
- Vacuum degassing
- Shot counter / repeater
- Thermostatically controlled heating

# Custom Design Capability



The following are a few examples of special projects. Should an application require special engineering, please contact your local Fisnar office to talk with an experienced engineer.

## Automated Robot Systems



Example: Automated robot metering & mixing systems using low pressure gear-pump or high pressure piston-pump technology.

## Filter Production



Custom automated production lines for filter bonding and assembly.

## Turbine Blade Fabrication



Automated low pressure vacuum-draw metering & mixing molding systems for wind energy industry.

## Glazing



Automated window sealing production and assembly.

## Vacuum Chamber Dispensing



## Integrated Systems



# Mixing Nozzles - Accessories & Rotary Nozzles



## Static-Mixers 0.657"(16.7mm) yellow & 0.625"(15.9mm) blue

A complete line of static-mixing nozzles for metering and mixing equipment is featured on pages 16 & 17. Static-mixing nozzles are available in two inside-diameter sizes of bell-mouth:

0.657" (16.7mm) 167 (yellow)

0.625" (15.9mm) 159 (blue)

The bell-mouth is the material entry end of the nozzle and the part that fits over the machine exit manifold. Static-mixing elements inside the body of the nozzle are manufactured from high grade polyacetal to withstand the higher pressures of metering and mixing machines; static-mixer housings are polypropylene.

Luer-lock static-mixers are also available for fine bead applications using luer-lock tips; note part numbers with an "LL" suffix.

## Nozzle Retaining Nuts

Part Number	Pk Qty.	Description
UM08-PA	10	Nut beige for I.D. 5-8mm
UM10-PA	10	Nut beige for I.D. 10mm
UM13-PA	10	Nut beige for I.D. 13mm



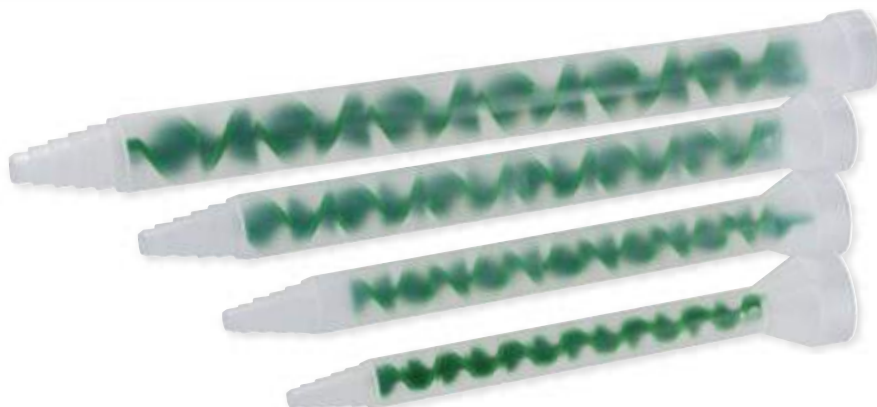
## Luer-lock Adapters

Part Number	Pk Qty.	Color	Mixer Type
LA05-00	10	White	5mm
LA06-08	10	Grey	6 & 8mm
LA10-00	10	Black	10mm



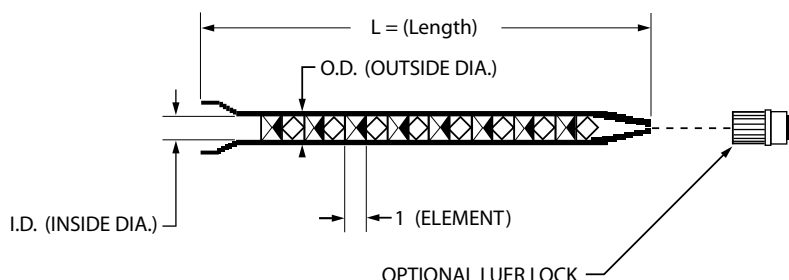
## Rotary-Static Nozzles Green

Part Number	Pk Qty.	Length (inches)	Length (mm)	Inside Diam. (inch)	Inside Diam. (mm)	Outside Diam. (inch)	Outside Diam. (mm)	Number of Elements
MR06-12	10	4.39	111.5	0.250	6.35	0.394	10.00	12
MR08-12	10	5.12	130.0	0.315	8.00	0.475	12.00	12
MR10-12	10	6.10	115.0	0.394	10.00	0.551	14.00	12
MR13-12	10	7.76	197.0	0.512	13.00	0.661	17.00	12





# Mixing Nozzles - Blue

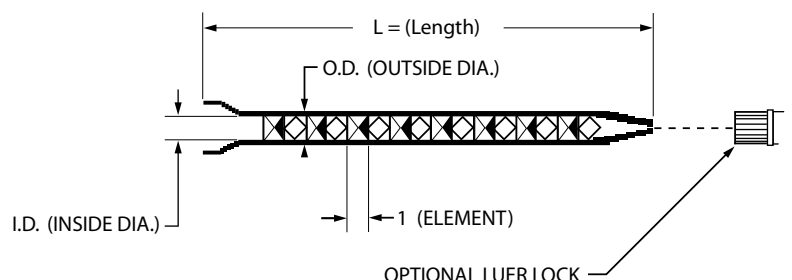


## ME Blue Series Static-Mixers 0.625" (15.9mm)

The part numbers reflect the bell-mouth, I.D. and the number of elements. Example: 1590524 = a bell-mouth of 15.9mm, an I.D. of 5mm, and 24 mixing elements. 1590524LL is the same item but fitted with a luer lock adapter. Minimum qty 10 pcs.

Part Number	Length (inches)	Length (mm)	Inside Diam. (Inch)	Inside Diam. (mm)	Outside Diam. (Inch)	Outside Diam. (mm)	Number of Elements	Content Volume (ml)
1590524	5.870	149	0.197	5.00	0.315	8.00	24	2.3
1590524LL	5.870	149	0.197	5.00	0.315	8.00	24	2.3
1590532	7.400	188	0.197	5.00	0.315	8.00	32	2.8
1590532LL	7.400	188	0.197	5.00	0.315	8.00	32	2.8
1590624	7.320	186	0.250	6.35	0.394	10.00	24	4.2
1590624LL	7.320	186	0.250	6.35	0.394	10.00	24	4.2
1590632	9.252	235	0.250	6.35	0.394	10.00	32	6.6
1590632LL	9.252	235	0.250	6.35	0.394	10.00	32	6.6
1590648	13.150	334	0.250	6.35	0.413	10.50	48	10.0
1590648LL	13.150	334	0.250	6.35	0.413	10.50	48	10.0
1590824	8.780	223	0.315	8.00	0.472	12.00	24	8.5
1590824LL	8.780	223	0.315	8.00	0.472	12.00	24	8.5
1590832	11.300	287	0.315	8.00	0.472	12.00	32	11.5
1590832LL	11.300	287	0.315	8.00	0.472	12.00	32	11.5
1591024	10.870	276	0.394	10.00	0.551	14.00	24	16.0
1591024LL	10.870	276	0.394	10.00	0.551	14.00	24	16.0
1591032	13.860	352	0.394	10.00	0.551	14.00	32	23.0
1591032LL	13.860	352	0.394	10.00	0.551	14.00	32	23.0
1591324	11.535	293	0.512	13.00	0.669	17.00	24	27.0
1591324LL	11.535	293	0.512	13.00	0.669	17.00	24	27.0
1591332	14.921	379	0.512	13.00	0.669	17.00	32	34.5
1591332LL	14.921	379	0.512	13.00	0.669	17.00	32	34.5
1591324L	13.800	350	0.512	13.00	0.669	17.00	24	27.0
1591332L	17.756	451	0.512	13.00	0.669	17.00	32	34.5
1591012-0832	16.102	409	0.394 - 0.315	10.00 - 8.00	0.551 - 0.472	14.00 - 12.00	12 + 32	19.0
1591312-1032	19.646	499	0.512 - 0.394	13.00 - 10.00	0.669 - 0.551	17.00 - 14.00	12 + 32	37.5

# Mixing Nozzles - Yellow



## MS Yellow Series Static-Mixers 0.675" (16.7mm)

The part numbers reflect the bell-mouth, I.D. and the number of elements. Example: 1670524 = a bell-mouth of 16.7mm, an I.D. of 5mm, and 24 mixing elements. 1670524LL is the same item but fitted with a luer lock adapter. Minimum qty 10 pcs.

Part Number	Length (inches)	Length (mm)	Inside Diam. (Inch)	Inside Diam. (mm)	Outside Diam. (Inch)	Outside Diam. (mm)	Number of Elements	Content Volume (ml)
1670524	5.870	149	0.197	5.00	0.315	8.00	24	2.3
1670524LL	5.870	149	0.197	5.00	0.315	8.00	24	2.3
1670532	7.400	188	0.197	5.00	0.315	8.00	32	2.8
1670532LL	7.400	188	0.197	5.00	0.315	8.00	32	2.8
1670624	7.320	186	0.250	6.35	0.394	10.00	24	4.2
1670624LL	7.320	186	0.250	6.35	0.394	10.00	24	4.2
1670632	9.252	235	0.250	6.35	0.394	10.00	32	6.6
1670632LL	9.252	235	0.250	6.35	0.394	10.00	32	6.6
1670648	13.150	334	0.250	6.35	0.413	10.50	48	10.0
1670648LL	13.150	334	0.250	6.35	0.413	10.50	48	10.0
1670656	14.882	378	0.250	6.35	0.413	10.50	56	11.0
1670656LL	14.882	378	0.250	6.35	0.413	10.50	56	11.0
1670824	8.780	223	0.315	8.00	0.472	12.00	24	8.5
1670824LL	8.780	223	0.315	8.00	0.472	12.00	24	8.5
1670832	11.300	287	0.315	8.00	0.472	12.00	32	11.5
1670832LL	11.300	287	0.315	8.00	0.472	12.00	32	11.5
1671024	10.870	276	0.394	10.00	0.551	14.00	24	16.0
1671024LL	10.870	276	0.394	10.00	0.551	14.00	24	16.0
1671032	13.860	352	0.394	10.00	0.551	14.00	32	23.0
1671032LL	13.860	352	0.394	10.00	0.551	14.00	32	23.0
1671324	11.535	293	0.512	13.00	0.669	17.00	24	27.0
1671324LL	11.535	293	0.512	13.00	0.669	17.00	24	27.0
1671332	14.921	379	0.512	13.00	0.669	17.00	32	34.5
1671332LL	14.921	379	0.512	13.00	0.669	17.00	32	34.5
1671324L	13.800	350	0.512	13.00	0.669	17.00	24	27.0
1671332L	17.756	451	0.512	13.00	0.669	17.00	32	34.5
1671012-0832	16.102	409	0.394 - 0.315	10.00 - 8.00	0.551 - 0.472	14.00 - 12.00	12 + 32	19.0
1671312-1032	19.646	499	0.512 - 0.394	13.00 - 10.00	0.669 - 0.551	17.00 - 14.00	12 + 32	37.5

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