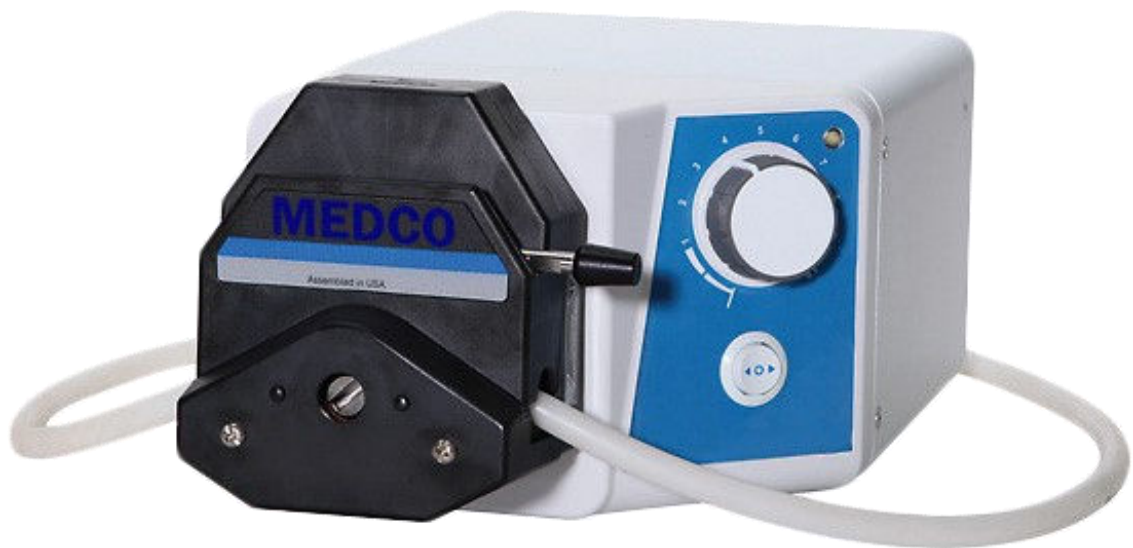


MEDCO

MANUFACTURING

AUTOFUSE-FR

SUPER-FLOW FORWARD & REVERSE FLOW



HIGHEST FLOW RATE IN THE INDUSTRY!

**SUPER-FLOW GENERAL FLUID TRANSFER INFUSION PUMP
WITH PNEUMATIC FOOT PEDAL,
VARIABLE SPEED, CONTINUOUS or ON/OFF FLOW,
FORWARD & REVERSE FLOW,
110 VAC / 115VAC / 220 VAC / 230 VAC**

OPERATION MANUAL & PRIMARY MEDICAL DEVICE LABEL

*Family Owned and Operated
Since 1979*

MEDCO

AUTOFUSE-FR

ITEM CODE #: AUTOFUSE-FR-110V

ITEM CODE #: AUTOFUSE-FR-220V

- SUPER-FLOW GENERAL FLUID TRANSFER INFUSION PUMP WITH PNEUMATIC FOOT PEDAL
- HIGHEST FLOW RATE IN THE INDUSTRY!
- 3X FASTER FLOW RATE THAN ANY OTHER PUMP ON THE MARKET!
- FORWARD & REVERSE FLOW MOTOR ALLOWS TO EASILY PRIME/PURGE TUBING & PUMP IN EITHER DIRECTION
- VARIABLE SPEED
- SIMPLE OPERATION WITH SINGLE-TURN VARIABLE SPEED CONTROL
- SEPARATE POWER SWITCH ENABLES YOU TO MAINTAIN SPEED SETTING WHEN TURNING DRIVE ON/OFF
- OPTIONAL REMOTE CONTROL TO START/STOP
- PNEUMATIC FOOT PEDAL WITH ON/OFF FLOW SWITCH (CONTINUOUS FLOW SWITCH ALSO AVAILABLE)
- DUAL FOOT PEDAL CAPABILITY
- POWER CORD
- ONSITE ENGINEERS & FULL SERVICE DEPARTMENT



MEDCO MANUFACTURING AUTOFUSE-FR

Comes with a limited 5 year warranty on all parts and labor

Specifications

Voltage	110V/115V or 220V/230V
Weight	16 pounds
Dimensions	9.1"x 7.2"x 5.3"
Min RPM (rpm)	20
Max RPM (rpm)	600
Motor (watts)	37
Power (amps)	0.8
Power (Hz)	50/60
Motor hp	1/20
Control Type	Analog Variable Speed
Reversible Motor	Yes
Speed Control	±5%
Min Flow Rate	1.2mL/min
Max Flow Rate	2900 mL/min
Flow Range	0.42mL/min to 2900mL/min
Housing Material	Painted Steel & ABS Plastic

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Version 0.3

SAFETY PRECAUTIONS



WARNINGS: Remove power from the pump before attempting any maintenance.

Remove power from the pump before any cleaning operation is started.

Repeatedly applying AC line power to the drive as a means of starting the pump can cause drive hardware damage and will void the warranty. Use the control inputs located on the 9 pin connector to start and stop the pump; this will dramatically reduce the current surge associated with starting the pump. Replace the power cord only with one of the same type and rating. The minimum power ratings are stated on the rear panel.



WARNINGS: Tubing breakage may result in fluid being sprayed from pump. Use appropriate measures to protect operator and equipment.

Turn Pump System off before removing or installing tubing. Fingers or loose clothing could get caught in drive mechanism.



CAUTIONS: When changing flow direction, allow the pump to come to a complete stop before starting again. Failure to do so could cause permanent damage to the motor.

Replace the fuse only with one of the same type and rating. The fuse rating and type are stated on the rear panel.



CAUTIONS: To avoid electrical shock, the power cord protective grounding conductor must be connected to ground. Not for operation in wet locations as defined by EN61010-1.

If the product is not used in a manner specified in the instructions, the protection provided by the equipment may be impaired.

Explanation of Symbols



CAUTION: Risk of Danger. Consult Operator's manual for nature of hazard and corrective actions.



CAUTION: Risk of crushing. Keep fingers away from rotor while pump is in operation. Stop pump before loading or unloading tubing.



CAUTION: Hot Surface. Do not touch.



CAUTION: Risk of electric shock. Consult Operator's manual for nature of hazard and corrective actions.

WARNING: Product Use Limitation



This product is not designed for, nor intended for use in hazardous duty areas as defined by ATEX or the NEC (National Electrical Code); including, but not limited to use with flammable liquids. Consult the factory for products suitable for these types of applications.

Safety

1. Read instructions before operating the unit.
2. Observe safety precautions at all times, especially when pumping dangerous liquids.
3. If the pump runs unusually noisy or if bunching of the tubing in the pump can be observed, make sure the tubing is clamped down tightly and/or replace it with a new piece of tubing.
4. The Pump Drives must be well-grounded at all times.
5. The Pump Drives are equipped with a current-limiting circuit that will slow the motor down if any of the following conditions exist:
 - a. Tubing that is too hard is loaded in the pump.
 - b. Incorrect tubing size or wall thickness is loaded in the pump.
 - c. Tubing is improperly loaded into the Pump Head.
6. The unit is fused and grounded to protect the operator in the event of short circuits that could be caused by liquid entering the case.



CAUTION: Replace the fuse only with one of the same type and rating. The fuse rating and type are stated on the rear panel.

7. The Pump Drives should not be used in outdoor or hazardous locations.

Table of Contents

	Page
Section 1 INTRODUCTION	1-1
Variety of Pump Heads Accepted	1-1
Section 2 INSTALLATION AND SETUP	2-1
Setup and Drive Operation	2-1
External Start/Stop Control	2-3
Section 3 MAINTENANCE	3-1
Motor Brush Check/Replacement	3-1
Motor Gear and Brush Replacement	3-2
Fuse Replacement	3-3
Replacement Parts	3-4
Cleaning	3-4
Section 4 ACCESSORIES	4-1
Section 5 SPECIFICATIONS	5-1
Section 6 WARRANTY, PRODUCT RETURN, and TECHNICAL ASSISTANCE ...	6-1
Warranty	6-1
Product Return	6-2
Technical Assistance	6-2

Figures

	Page
View of Rear Drive	2-2
View of Drive Front Controls	2-2
DB-9 Pin Connector Configuration with Wiring Scheme	2-3
DB-9 Pin Connector Jumper Installation	2-3
Motor Brush and Gear Check/Replacement	3-2
Fuse Replacement	3-3

Section 1 Introduction

Variety of Pump Heads Accepted

Mount up to 1 (600 rpm) or 2 (200 rpm)

Section 2 Installation and Setup

Setup and Drive Operation



WARNINGS: *Tubing breakage may result in fluid being sprayed from pump. Use appropriate measures to protect operator and equipment.*

Turn Pump System off before removing or installing tubing. Fingers or loose clothing could get caught in drive mechanism.

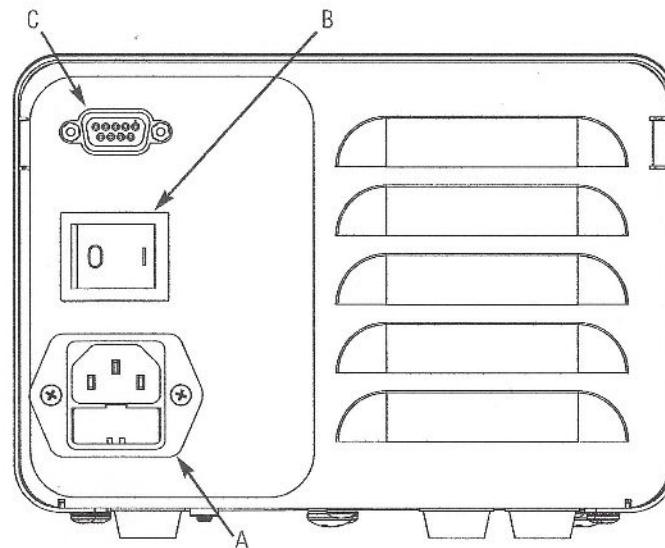


CAUTION: *To avoid electrical shock, the power cord protective grounding conductor must be connected to ground. Not for operation in wet locations as defined by EN61010-1.*

1. Check that the jumper is installed in the external start/stop connector. The drive will not run unless this is installed See figure 2-3.
2. Adjust flow rate with the 1-turn potentiometer speed control.

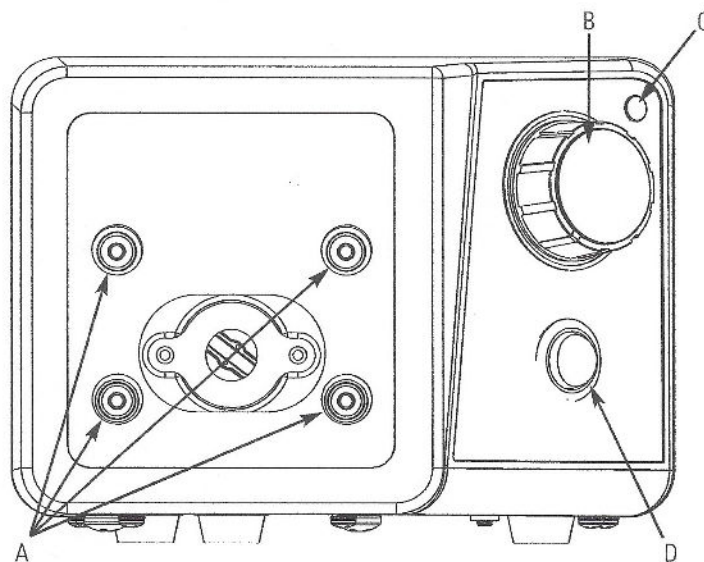


CAUTION: *When changing flow direction, allow the pump to come to a complete stop before starting again. Failure to do so could cause permanent damage to the motor.*



- A. IEC Power Entry module
- B. Power Switch
- C. External Start/Stop Connector

Figure 2-1. View of Rear Drive



- A. Pump Head Mounting Holes
- B. 1-Turn Speed Control
- C. Power Indicator
- D. Direction Switch

Figure 2-2. View of Drive Front Controls

External Start/Stop Control



WARNING: Repeatedly applying AC line power to the drive as a means of starting the pump can cause drive hardware damage and will void the warranty. Use the control inputs located on the 9 pin connector to start and stop the pump; this will dramatically reduce the current surge associated with starting the pump. Replace the power cord only with one of the same type and rating. The minimum power ratings are stated on the rear panel.

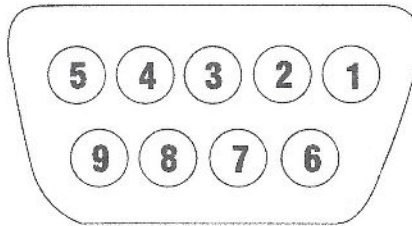


Figure 2-3. DB-9 Pin Connector Configuration with Wiring Scheme

Pin No. DB-9	Description
1	
2	
3	
4	
5	
6	Start/Stop
7	Start/Stop
8	
9	

NOTE: Jumper must be installed for pump to run.

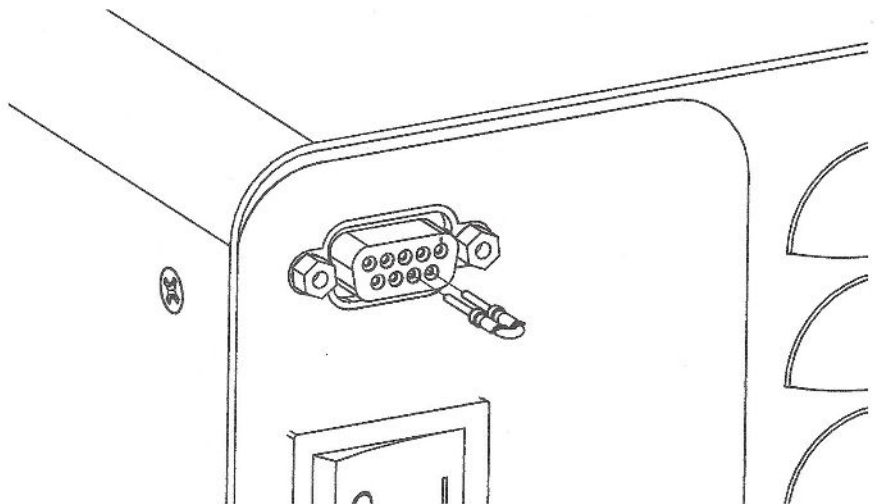


Figure 2-4. DB-9 Pin Connector Jumper Installation.

Motor Brush Check/Replacement

Section 3 Maintenance



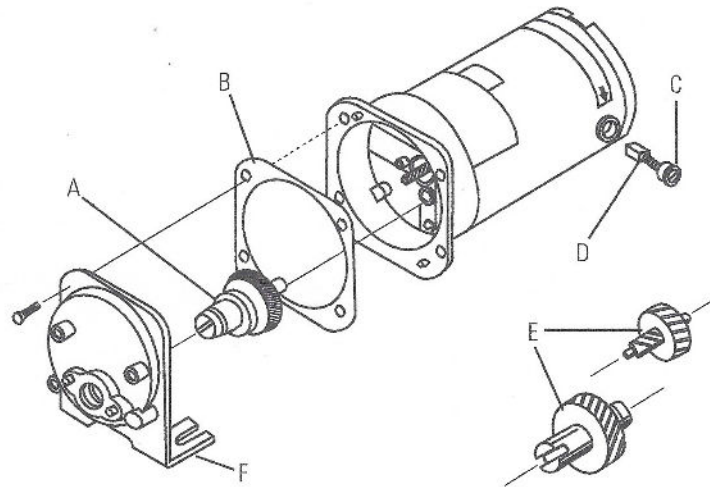
WARNING: Remove power from the pump before attempting any maintenance.

1. Place the ON/OFF SWITCH in the off position.
2. Disconnect the AC power input line cord from the AC receptacle.
3. Remove the screws from each side of the housing and lift off the housing.
4. Carefully unscrew each brush cap. Withdraw the brush, and examine it for wear.

NOTE: Replace both brushes, if either brush is less than 7.6 mm (0.300 in) long from base to point.

5. Insert brushes and install brush cap.
6. Install housing and secure with the screws on each side.
7. Connect the AC power input line cord to the AC receptacle.

Motor Gear and Brush Replacement



- A.** 20-600 rpm gear assembly (included in service kit 07553-06)
- B.** Gasket
- C.** Cap
- D.** Motor Brush
- E.** 7-200 rpm gear set (included in service kit 07553-11)
- F.** Gear case cover assembly

Figure 3-1. Motor Brush and Gear Check/Replacement.

Fuse Replacement



CAUTION: Replace the fuse only with one of the same type and rating. The fuse rating and type are stated on the rear panel.

1. Place the power switch in the off position.
2. Disconnect the AC power input line cord from the receptacle.
3. Remove and check the fuse and replace if defective..

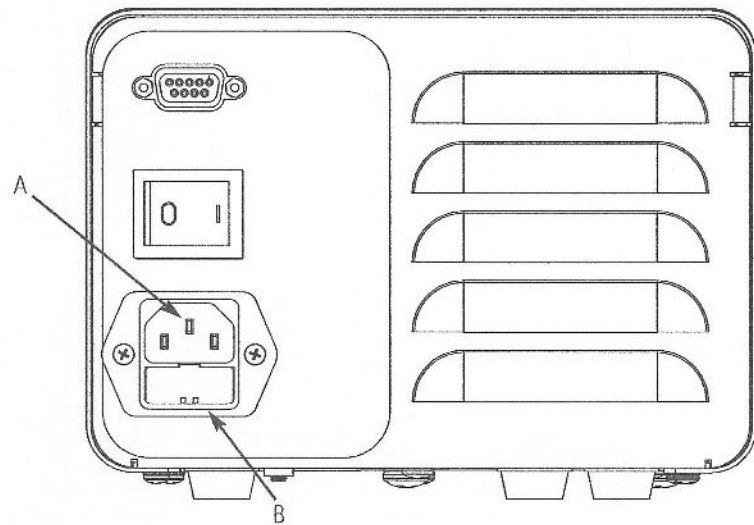


Figure 3-2. Fuse Replacement

Item	Description
A	IEC Power Entry Module / Line Cord
B	(5 x 20 mm) Fuse – Do Not Substitute

Replacement Parts

Description	Part Number
Gear Service Kit (600 rpm)	
Gear Only (600 rpm)	
Gear Service Kit (200 rpm)	
Brushes (set of 2)	
Jumper Kit (set of 2)	
Fuse (07555-05, 15) T1.0A 250V; 4 × 20 mm	
Fuse (07555-00, -10) T2.0A 250V; 5 × 20 mm	

Cleaning



WARNING: Remove power from the pump before any cleaning operation is started.

Keep the drive enclosure clean with mild detergents. Do not immerse or use excessive fluid when cleaning.

Section 4 Accessories

Description	Part Number
Footswitch with 6 ft. DB-9 male connector	
Handheld Remote Controller	
DB-9 External Control Connector	
DB-9 Remote Control Cable, 25 ft.	

Section 5 Specifications

Output:

Speed:

600 rpm models	20 to 600 rpm
200 rpm models	7 to 200 rpm

Torque output, Maximum:

600 rpm models	90 oz-in (13 kg•cm), 270 oz-in Starting
200 rpm models	180 oz-in (26 kg•cm), 540 oz-in Starting

Speed regulation:

All models	Line $\pm 2\%$ F.S. Load $\pm 3\%$ F.S. Drift $\pm 10\%$ F.S.
------------	---

Input:

Operating Voltage/Frequency:	1.4A @ 115 Vrms 50/60 Hz, 0.7A @ 230 Vrms 50/60 Hz
------------------------------	---

External Inputs:

START/STOP	Dry Contact closure
------------	---------------------

Construction:

Dimensions (L x W x H):	9.09 in x 7.23 in x 5.29 in (231 x 184 x 134.5 mm)
Weight:	9.46 lbs. (4.26 kg)
Enclosure Rating:	IP 22 per IEC 60529

Environment:

Temperature, Operating:

All models

0° to 40°C (32° to 104°F)

Temperature, Storage:

All models

-25° to 65°C (-13° to 149°F)

Humidity (non-condensing):

All models

10% to 90%

Altitude:

All models

Less than 2000 m

Pollution Degree:

All models

Pollution Degree 3
(Indoor use -- Sheltered locations)

Chemical Resistance:

Powder coated steel enclosure and
cover, ABS plastic and vinyl

Section 6 Warranty, Product Return and Technical Assistance

Warranty

This product is warranted against defects in material or workmanship, and at the option of the manufacturer or distributor, any defective product will be repaired or replaced at no charge, or the purchase price will be refunded to the purchaser, provided that: (a) the warranty claim is made in writing within the period of time specified on the warranty card, (b) proof of purchase by bill of sale or receipted invoice is submitted concurrently with the claim and shows that the product is within the applicable warranty period, and (c) the purchaser complies with procedures for returns set forth in the general terms and conditions contained in the manufacturer's or distributor's most recent catalog.

This warranty shall not apply to: (a) defects or damage resulting from: (i) misuse of the product, (ii) use of the product in other than its normal and customary manner, (iii) accident or neglect, (iv) improper testing, operation, maintenance, service, repair, installation, or storage, (v) unauthorized alteration or modification, or (b) post-expiration dated materials.

THIS WARRANTY IS THE EXCLUSIVE REMEDY OF THE PURCHASER, AND THE MANUFACTURER AND DISTRIBUTOR DISCLAIM ALL OTHER WARRANTIES, WHETHER EXPRESS, IMPLIED, OR STATUTORY, INCLUDING WITHOUT LIMITATION, WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. NO EMPLOYEE, AGENT, OR REPRESENTATIVE OF THE MANUFACTURER OR DISTRIBUTOR IS AUTHORIZED TO BIND THE MANUFACTURER OR DISTRIBUTOR TO ANY OTHER WARRANTY. IN NO EVENT SHALL THE MANUFACTURER OR DISTRIBUTOR BE LIABLE FOR INCIDENTAL, INDIRECT, SPECIAL OR CONSEQUENTIAL DAMAGES.

Product Return

To limit charges and delays, contact MEDCO MANUFACTURING or authorized seller for Return Merchandise Authorization Number and shipping instructions before returning the product, either within or outside of the warranty period. Merchandise that does not have a Return Merchandise Authorization Number will not be accepted. When returning the product, please state the reason for the return. For your protection, pack the product carefully and insure it against possible damage or loss. Any damages resulting from improper packaging are your responsibility. See SECTION 6-3 and SECTION 6-4 for complete product warranty and product return information.

Technical Assistance

If you have any questions about the use of this product, contact MEDCO MANUFACTURING or authorized seller. See SECTION 6-3 for complete Technical Assistance information.

WARRANTY

MEDCO MANUFACTURING will void Warranty on any Products indicating negligence, or noncompliance With Operation Maintenance Instructions.

Products are warranted against defect in Material and Workmanship for a period of five (5) years from date of purchase. If repair or adjustment is necessary, and are not the result of abuse or misuse, please return, freight prepaid and correction will be performed without charge.

- *Five (5) Year on parts and labor from the date of shipment.**
- *Unauthorized handling of the AUTOFUSE-FR will void warranty of the unit.**
- *Retain the custom-made packing box with foam for returns.**
- *For questions regarding the warranty, call the Quality Assurance Department: 800.953.2555**

**All returns require prior Authorization from
MEDCO MANUFACTURING
Quality Assurance Department.**

**For Technical Assistance call MEDCO MANUFACTURING
Customer Service or Technical Support:
(800)953-2555 • (281)379-3100
Or email: Service@MedcoManufacturing.com**

MEDCO POLICY ON RETURNED GOODS

1. No returns or exchanges will be accepted unless you have received a return of goods authorization number from Medco. This number must be in the return box and all written communication.
2. Return numbers will expire if items are not returned within **30 days**.
3. All Cannulas and related instruments being returned for repair must include a written signed statement that the item is being returned in a sterile condition. Products not meeting this requirement will be returned to the customer at the customer's expense. Please include the Return Authorization Number in and on your package.
4. Full credit will be issued for any item returned in **15 days** that is undamaged and salable condition.
5. All returns are subject to a restocking fee:
 - 20% for items returned within 30 days
 - 30% for items returned within 60 days
 - **NO CREDIT AFTER 60 DAYS**
 - Custom Items / Cannulas / Garments are non-returnable
6. **OPENED PACKAGES OR BOXES** containing disposable are not returnable for credit or exchange. Each package or sales unit specifically states "Not Returnable if Package Seal is Broken".
7. **Custom products are NOT RETURNABLE.** Since special tooling and time are dedicated to these products which are manufactured to the precise specifications of the surgeon, they cannot be sold to another customer.
8. **NO CREDIT WILL BE ISSUED ON ANY ITEM RETURNED AFTER 60 DAYS.**
9. **COMPLIANCE WITH FDA REGULATIONS ON STERILE AND IMPLANTABLE PRODUCTS ACCEPTED FOR RETURN REQUIRE MORE EXTENSIVE CONTROLS AND ARE SUBJECT TO REFUSAL AND HIGHER HANDLING CHARGES.**
10. **ALL DISCREPANCIES BETWEEN THE PRODUCTS RECEIVED MUST BE REPORTED WITHIN 5 DAYS OF RECEIPT OF THE PACKAGE TO QUALIFY FOR A CREDIT.**

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(800)953-2555 • (281)379-3100 • (281)251-7608 FAX**