INSTRUCTION MANUAL

NanoFil™

Gas-Tight Microliter Syringe

www.wpiinc.com
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CONTENTS

ABOUT THIS MANUAL

The following symbols are used in this guide:

This symbol indicates a CAUTION. Cautions warn against actions that can cause damage to equipment. Please read these carefully.

This symbol indicates a WARNING. Warnings alert you to actions that can cause personal injury or pose a physical threat. Please read these carefully.

NOTES and TIPS contain helpful information.

Fig. 1—The NanoFil™ syringe is available in two sizes, 10 µL and 100 µL.

INTRODUCTION

NanoFil™ is a unique gas-tight microliter-scale syringe for ultimate low-volume fluid delivery, particularly for intracranial infusions and applications requiring upmost precision. WPI's NanoFil™ syringes are currently offered in both 10 and 100µL volumes.

Paired with WPI's UMP3 (Ultra Micro Pump) injector, the overall system boasts excellent control over sample delivery. NanoFil™ is designed especially for quality injections, with virtually zero dead volume – whereNanoFil™ needles insert directly into the syringe barrel at the 0µL mark, coming in direct contact with the plunger for a 1:1 connection. Syringe priming is made simpler than ever, where the gasket holding the needle is sealed tightly; not only ensuring the system is gas-tight during setup, but throughout the entirety of its use.

All NanoFil™ needles are made to be universal for NanoFil™ syringes, regardless of volume. NanoFil™ needles are made with a 26G stainless steel tubing fixed to either a 33, 34, 35, or 36G beveled or blunt needle. This design offers increased rigidity and control during insertion and removal from tissue, interchangeably, and overall longevity.

*Currently, WPI is the only vendor offering a 36G needle size, the smallest needle commercially available.

Our beveled needles are especially unique in that they are made with a 25° tri-beveled tip, a much sharper design that allows for smoother insertion into tissue without the risk of mechanical damage to your target. Competitors offer a 10°, single-surface beveled cut, which is much more damaging, as it essentially "rips" into tissue. Having an ultra-sharp needle is critical, especially for applications involving sensitive tissues such as in ophthalmic studies.

See the Retinal Pigment Epithelial (RPE) and Intra Ocular (IO) injection kits listed on page 8.

Based on application requirements, NanoFil™ can be used in several different configurations:

- **Installed on WPI's UMP3 UltraMicroPump:** This combination allows nanoliter -scale delivery and offers greater reproducibility. For stereotaxic applications, mount the UMP3 on a stereotaxic frame, or on a micromanipulator.
- **Silflex Tubing and Holder**: The needle is mounted on a small plastic holder that is connected to the NanoFil™ by a 35 cm flexible tubing. NanoFil™ is mounted onto the UMP3. This configuration allows you to hold the animal in one hand and insert the needle with the other. When the needle reaches the desired target, activate the pump with your pre-programmed injection volume.
- **MicroFIl Coupled Back-Filling**: WPI's 34G MicroFil quartz tubing can be inserted directly into the NanoFil™ syringe barrel for ultra-precise backfilling, which is particularly useful when loading long-taper glass capillary needles.

Parts List

After unpacking, verify that there is no visible damage to the sensor. Verify that all items are included:

(1) NanoFil™ syringe

(1) Standard 28G beveled needle

(1) Instruction Manual is available online at www.wpiinc.com/manuals.

NOTE: The 10µL NanoFil™ syringe also includes (1) 10 mL syringe and (2) 28G MicroFil

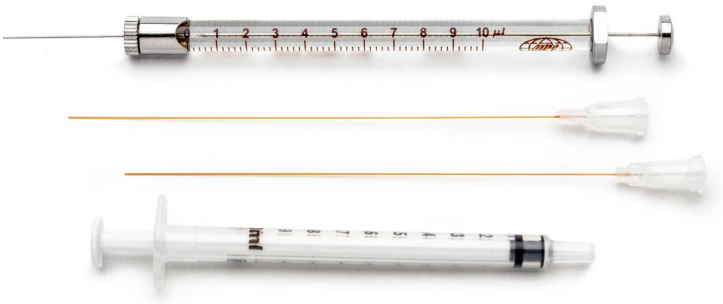

Fig. 2—Each NanoFil™ syringe comes packaged with a standard 28G beveled needle, and 33-36G blunt or beveled NanoFil™ needles are sold separately.

Unpacking

Upon receipt of this instrument, make a thorough inspection of the contents and check for possible damage. Missing cartons or obvious damage to cartons should be noted on the delivery receipt before signing. Concealed damage should be reported at once to the carrier and an inspection requested. Please read the section entitled "Claims and Returns" on page 15 of this manual. Please contact WPI Customer Service if any parts are missing at 941.371.1003 or customerservice@wpiinc.com.

Returns: Do not return any goods to WPI without obtaining prior approval (RMA # required) and instructions from WPI's Returns Department. Goods returned (unauthorized) by collect freight may be refused. If a return shipment is necessary, use the original container, if possible. If the original container is not available, use a suitable substitute that is rigid and of adequate size. Wrap the instrument in paper or plastic surrounded with at least 100 mm (4") of shock absorbing material. For further details, please read the section entitled "Claims and Returns" on page 15 of this manual.

INSTRUMENT DESCRIPTION

Choosing the Right Needle–Beveled or Blunt?

The interchangeable, replaceable NanoFil™ needles are available in either blunt or beveled styles. The blunt needle is recommended for injection into soft tissue, when a uniform solution distribution is needed. Further, the blunt needle is a great choice for front-filling the NanoFil™ using your UMP3 for ultimate accuracy, reducing the risk of introducing air pockets into your system. The beveled style is recommended for applications involving the penetration of tough tissue, or extremely sensitive tissue requiring seamless insertion with minimal mechanical damage introduced.

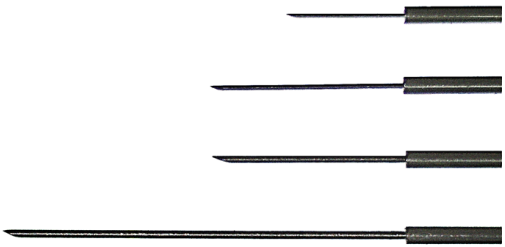

Fig. 3—NanoFil™ needles are available in four sizes (33, 34, 35, and 36G).

Flexible Quartz Tubing: The flexible quartz tubing tip is made of 160 µm OD polyimide coated quartz tubing with a special adapter sleeve mounted at the end. It is designed for filling glass capillary electrodes or pipettes, just like WPI's traditional MF34G MicroFil. However, unlike the traditional MicroFil which has about 50 µL of dead volume in its luer hub, the dead volume of this needle is less than 0.4 µL. It is useful for loading electrodes with solutions that have a limited volume. The detailed dimension of each needle can be seen in Fig. 5.

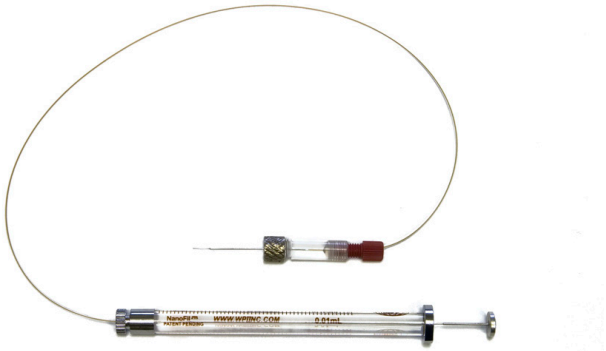

Fig. 4—Here SilFex tubing is used to connect the NanoFil™ syringe and the RPE-KIT.

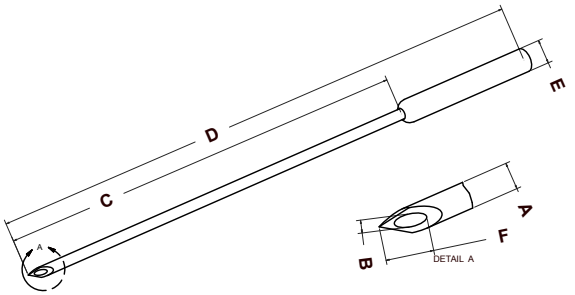

Fig. 5—Needle dimensions.

Needle Order Number	Gauge	Needle O.D. A (µm)	Avg. Needle I.D. B (µm)	Range of ID for B (µm)*	Range of OD for B (µm)*	Needle Length C (mm)	Total Length D (mm)	Shank O.D. E (µm)	Bevel Length F (µm)	Total Dead Volume (µL)	Dead Volume Range (µL)	Needle Material
NF33BV-2	33	210	115	89-125	200-216	10	40	460	≈348	0.416	0.2488–0.4909	Stainless Steel
NF34BV-2	34	185	85	64-100	178-190	5	35	460	≈290	0.199	0.1126–0.2749	Stainless Steel
NF35BV-2	35	135	55	38-76	127-139	5	35	460	≈204	0.435	0.3676–0.4608	Stainless Steel
NF36BV-2	36	110	35	25-75	102-132	3	33	460	≈156	0.340	0.2635–0.3671	Stainless Steel
NFQ34-5	34	160	100			55	75	460	n/a	0.589		Quartz
NF33BL-2	33	210	115	89-125	200-216	10	40	460	≈0	0.416	0.2488–0.4909	Stainless Steel
NF34BL-2	34	185	85	64-100	178-190	5	35	460	≈0	0.199	0.1126–0.2759	Stainless Steel
NF35BL-2	35	135	55	38-76	127-139	5	35	460	≈0	0.435	0.3676–0.4608	Stainless Steel
NF36BL-2	36	110	35	25-75	102-132	3	33	460	≈0	0.340	0.2635–0.3671	Stainless Steel
Silflex Tubing			100				35 cm			2.749		
NF26BV-2	26	460	140				40	460		0.380		

OPERATING INSTRUCTIONS

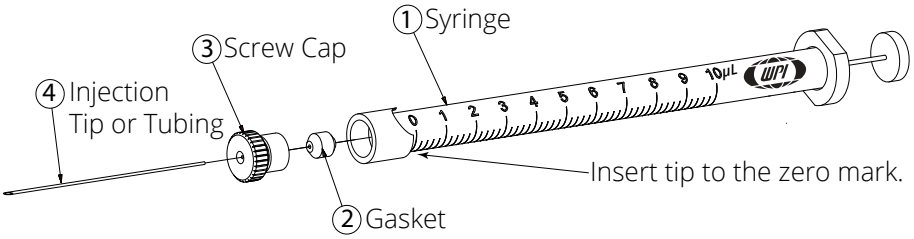

Fig. 6—NanoFil™ syringe.

CAUTION: Please note that the syringe should only be operated when the barrel is wet. Otherwise, friction can damage the Teflon® needle of the plunger. Do not pull the plunger repeatedly when the barrel is dry.

WARNING: WHEN THE NEEDLE IS CLOGGED, THE PLUNGER CAN GENERATE A VERY HIGH PRESSURE DUE TO THE SMALL CROSS SECTIONAL AREA OF THE PISTON. THE GASKET IN THE SYRINGE WILL NOT BE ABLE TO HOLD THE NEEDLE IN POSITION UNDER SUCH A HIGH PRESSURE, SO IT MAY MOVE OR SHOOT OUT LIKE A BULLET. THEREFORE, *NEVER POINT THE SYRINGE NEEDLE AT A PERSON, AND ALWAYS USE PROTECTIVE GLASSES WHEN USING THE VERY SMALL NEEDLE.*

Installing or Changing the Needle

The **NanoFil**™ syringe system utilizes a seal system that is based on a 0.46 mm shank diameter. Any needle or tubing with an outside diameter of 0. 46 mm should fit the **NanoFil**'s seal system.

To prevent damage to the gasket and to have the straightest needles, use this method to assemble your needle and syringe.

1. To change or install a needle, loosen the screw cap by turning it counterclockwise to release the compression of the seal. If there is a needle in place it should be easy to pull it out.
2. Remove the screw cap and the gasket from the syringe.
3. Install the replacement needle by pushing the shank of the needle (4) into the open hole in the screw cap (3).

   TIP: The thick part of the needle shank that goes into the gasket should be cleaned with alcohol to remove any oils left behind by handling and prevent the needle from slipping or moving, residual lubricants left behind can allow the needle to slip or move from the zero set position. The use of surgical gloves is recommended.

4. Place the gasket (2) on the needle.
5. Push the gasket up into the screw cap.
6. Place the needle into the syringe body and align it to the zero mark.

   TIP: Push the needle in far enough to observe the shank through the glass syringe body. In general, the needle should be pushed in until the end of the shank is positioned at the zero mark on the scale. Going beyond this position will not damage the syringe or the needle, but it will prevent the plunger from being able to travel down to the zero mark.
7. Once the shank is in the desired position, tighten the screw cap by hand finger tight. Then test the security of the seal by pulling on the needle. It should not come out easily.

Filling the NanoFil™ Syringe

There are two different methods for filling the **NanoFil**™ syringe with fluid.

The front-fill method is the standard method used. It involves front filling the syringe via the needle tip using vacuum created by withdrawing the plunger. It is critical to prime your syringe carefully with DI water to establish the *gas-tight* environment. Gently submerge the needle tip in the DI water and lightly plunge until no bubbles are visible within the barrel.

TIP: Lightly tap the side of the needle to 'knock-off' any microbubbles that may be seated at the tip between bubble evacuation.

Once you have confirmed there are no air bubbles present, dispense the remaining DI water, remove the needle from submersion, and draw up a small bit of air. While this seems strange, now that you have created a gas-tight seal, this air pocket enforces the movement of your sample in a controlled manner. You may proceed without this step, but it is recommended. With this method, the tip of the needle is submerged into a reservoir of fluid while the plunger is withdrawn. This method is not ideal for the 36-gauge needle, as the disparity between the ID of the needle compared with that of the syringe barrel is great enough to resist fluid uptake.

The coupling method is a useful loading approach when working with higher viscosity fluids or a small ID needle. A second syringe equipped with WPI's MicroFil tubing is used to fill the smaller lumen of the NanoFil. The NanoFil™ is loaded from the front with the screw cap, gasket and needle removed. Withdraw the NanoFil™ plunger to the desired volume. Insert the MicroFil tubing into the lumen of the NanoFil™ syringe until it is in contact with the plunger. Inject fluid slowly from the loading syringe into the NanoFil™ lumen, and gradually withdraw it as filling occurs. This filling method does not leave an air gap at the NanoFil™ plunger.

Fig. 7—Pre-load method of syringe filling.

TIP: A video demonstration of filling the NanoFil™ can be found on WPI's website: http://www.wpiinc.com/blog/2013/05/22/videos/front-filling-nanofil-syringe/

Using the Syringe With RPE and IO Injection Kit

These kits are specially designed for hands-free injection. Originally developed for retinal pigment epithelium (RPE) and intraocular (IO) injection, they can also be used for other applications. Sample delivery is controlled by UMP3 controller. The animal can be held in place, and the needle positioned and advanced into the injection site. These kits need to be used with a NanoFil™ syringe and UMP3 to achieve accurate, repetitive results. Each kit includes (2) pieces of SilFlex tubing, a (1) needle holder, spare gaskets, and an assortment of (4) needles — blunt for the RPE kit and tri-beveled needles for the IO Kit. Each kit comes with one each of 33, 34, 35, and 36 gauge needles so that first time users can find the best size for their application.

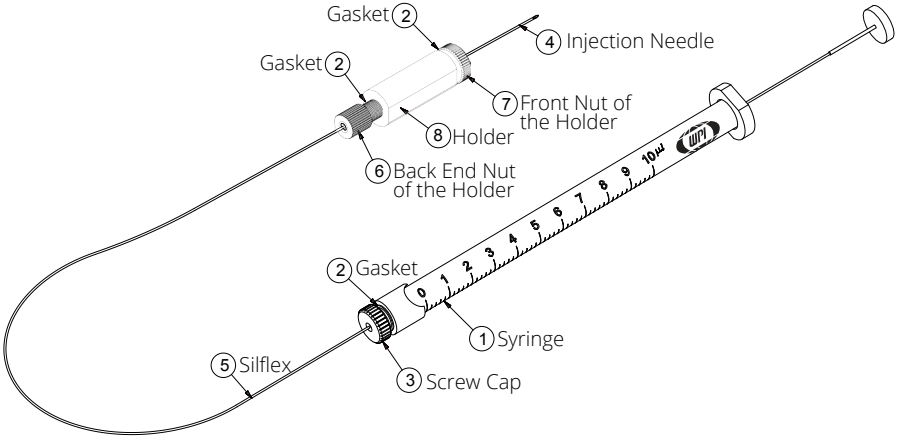

Fig. 8—NanoFil™ syringe with the RPE Injection Kit.

- **SilFlex** (flexible and low dead volume tubing). This tubing is made of 100 µm ID quartz tubing with a Teflon jacket making it a total 460 µm OD. It is 350 mm long and the dead volume of the tubing section is about 3 µL. The low dead volume, consistent inside diameter and flexibility are essential for the system. Special attention is needed when handling this tubing.

CAUTION: Sharp bending can crack and damage the tubing permanently. Do not bend it.

The tubing needs to be flushed with distilled water after use. Due to its small inside diameter, the tubing can become clogged with particles or proteins in solution. If clogged, flushing it from the opposite end of the tubing with a syringe promotes dislodging of material. Load cleaning solution into the NanoFil™ syringe with the 26 gauge needle provided. Remove the 26 gauge needle and insert the SilFlex tubing with the opposite end coupled to the chosen needle. Force the cleaning solution out. An ultrasonic bath might also help to loosen particles in the tubing.

- **Needle holder nuts** ⑥⑦. The holder connects the SilFlex tubing with the injection needle. It has the same coupling mechanism used on the NanoFil™ syringe. The inside diameter of the barrel and gaskets are identical to the one on the syringe. Both needle and tubing should be installed by loosening the screw, inserting the tubing and tightening the nut finger-tight. The SilFlex is inserted through the red nut ⑥ on the back of the holder. Insert your needle of choice through the front cap ⑦. The length of the needle can be adjusted by sliding the needle up into the holder. *The needle and* SilFlex *should be very close to each other inside the holder barrel, but not touching. Because the tubing will move forward as the screw is tightened, a gap between the needle and the tubing is essential to avoid crushing the tubing. The gap can be as large as 1 mm while only increasing dead volume by 0.17µL.* Because the SilFlex tubing is very soft, it might be difficult to "fish" it through the gasket during the installation. To solve this problem, unscrew the red nut and use forceps to take out the silicone gasket. Thread the nut and the gasket onto the SilFlex tubing. Then, with the red nut and gasket on, fit the SilFlex into the back hole of the holder ⑧. Using one hand to hold the SilFlex in the holder, slide the gasket and red nut into the holder and tighten it.
- **Gasket**. The gasket has both a narrow and a wide opening to make the needle insertion easier.

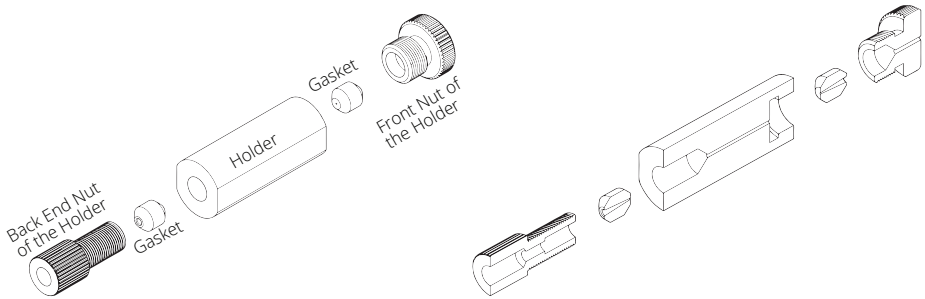

Fig. 9—The NFINHLD holder has a gasket at each end with a narrow opening. As shown in the cutaway view, the wide opening of the gasket faces the end nuts, and the narrow opening of the gasket points toward the holder.

- **Injection needle**. Any needle that can be used directly on the NanoFil™ syringe can also be used with the pipette holder and is installed in exactly the same way.

Application

Assemble the SilFlex, tubing, needle holder and needle first without mounting the SilFlex into the NanoFil™ syringe. When the SilFlex is dry, the air trapped in the tubing will prevent it from being filled like a regular needle. The dead volume of the SilFlex is about 2.7 µL. Therefore, the syringe needs to be pre-filed with a regular needle with more than 3 µL of fluid before installing the SilFlex on to the NanoFil. (After the first injection is finished, the syringe can be filled directly from its needle, because the tubing will be filled with solution at that time.)

After filling the system, install the SilFlex and needle holder assembly and mount it on the UMP3 UltraMicroPump. Advance the plunger until a small amount of liquid comes out of the needle. The system is now ready for injection. Program UMP3's controller for the volume to be injected. Use one hand to hold the animal and the other hand to place the needle into the injection site. Then use the foot switch to activate the pump for injecting a controlled amount of solution.

The NanoFil™ syringe is 60 mm x 10 µL (or 100 µL) and has an inside diameter of 0.46 mm (or 1.46 mm). When using a MICRO2T SMARTouch™ controller:

- For NANOFIL, select the Type 5 syringe type.
- For NANOFIL-100, select the Type 8 syringe type.

If you are using a Micro4 controller with your pump, the syringe type you choose will depent on the firmware version of your Micro4 controller.

Micro4 Revision	60 mm x 10 µL Syringe Type	60 mm x 100 µL Syringe Type
H	M	G
J	L	G
K.3	L	G

Cleaning the System

When dried, protein or other high molecular weight reagents inside the syringe can clog the system. Saline solutions in the stainless needle can cause corrosion of the needle if not rinsed out, so it is important to rinse and dry the syringe and needle after each use. (A drying cabinet is recommended.) The entire system is made of materials that are resistant to most organic solutions. It can be cleaned using any organic solvent or chemical sterilization.

CAUTION: Autoclaving the **NanoFil**™ syringe is not recommended, since the adhesives and the Teflon seal will eventually breakdown or swell from the heat and pressures involved.

CAUTION: Chemicals that should be avoided include:
- Hydrofluoric acid (HF) damages the glass and quartz.
- Strong acid damages the stainless needle and plunger.

TIP: If you are using multiple syringes, take care to avoid mixing plungers and bodies when disassembling for cleaning. *Plungers and syringe bodies are not interchangeable.* Each plunger has been individually selected to fit the tight tolerances of each syringe body. Because of this, replacement plungers are not available; if a plunger tip breaks, the entire syringe must be replaced.

1. Remove the plunger, the front gasket nut, and the gasket. Soak the gasket and gasket nut separately; gently spray your plunger with 70-90% EtOH and let air dry; DO NOT WIPE DOWN as this risks damaging your PTFE plunger tip. .
2. WPI recommends using bleach as a cleaning solution throughout the syringe body, and repeating with DI water to ensure proper flushing of the cleaning agent. Contact your institution's regulatory office to ensure proper cleaning agents are used per your institutions approved protocol.

Cleaning NanoFil™ Needles

Enzymatic Cleaners–Immediately after using the NanoFil™ needles, flush them out with soap or enzymatic cleaner (like Enzol or Tergazyme), or bleach, and rinse with distilled water. Follow this with 95% alcohol, and then allow to air dry. Store in original packaging to ensure the lifespan of your needles.

Ultrasonic Cleaners–If desired, you may use an ultrasonic cleaner with hot detergents. Avoid using strong acids, chlorinated compounds or strong corrosives that are detrimental to stainless steel 304. However, this method is not ideal as the needle ID/OD is very small and may be sensitive to excess heat. Further, this method may affect the sharpness of your beveled tips over time.

Autoclave–NanoFil™ needles may be autoclaved (wet, 121°C) a number of times. Be sure to dry them inside and out after sterilization. However, this method is not recommended as the needles are small and subject to degradation from excess heat exposure.

Store NanoFil™ needles dry. The best storage is in a desiccant cabinet with a drying agent like calcium chloride. Do not store these needles in water or leave them soaking in an aqueous solution.

TROUBLESHOOTING

Issue	Possible Cause	Solution
After the syringe has been stored for a period of time, the syringe will not pick up the solution even with the 26 gauge needle.	This is most likely due to leakage in the gasket. After a long period of storage, the gasket could become compressed and lose its sealing ability.	Tighten the nut to compress the gasket.
When using the RPE or IO kit, the solution keeps flowing out of the needle tip after UMP3 pump has stopped pumping.	The most likely cause is a trapped air bubble in the syringe. Because the RPE and IO kits require a high pressure to inject, an air bubble trapped in the system will be compressed during injection. It will expand back to original size after the injection is finished, causing the solution to ooze out of the needle slowly.	Air bubbles MUST be removed before injection. It is especially important for the NANOFIL-100.
The needle is blocked.	Particles getting trapped in the needle. Concentrated salt solutions such as those used in microinjection of this type can form crystals inside the needle or the syringe. This can corrode the needle.	Because of the small inner diameter, most blocked needles are very difficult to recover. However, here are some methods to unblock the needle that might work. Try using an Ultrasonic cleaner to clean the needle for 5 to 10 minutes. This might shake the particles inside the needle loose.
Syringe leaks at the Teflon tip.	The Teflon coating on the plunger tip has shrunk.	Replace the syringe.
The needle slips out of the zero position in the syringe or the **NFINHLD** needle holder.	The gasket is damaged or the needle shank has been contaminated with oils.	Wash the exterior of the needle and gasket interior with alcohol or replace the gasket (**NFGSK-5**).

NOTE: If you have a problem/issue with that falls outside the definitions of this troubleshooting section, contact the WPI Technical Support team at 941-371-1003 or technicalsupport@wpiinc.com.

ACCESSORIES

Each NanoFil™ syringe comes packaged with a standard 28G beveled needle. 33-36G blunt or beveled NanoFil™ needles are sold separately.

NANOFIL	NanoFil™ Syringe, 10 microliter, (1) mL Syringe, (2) 28G MicroFIl
NANOFIL-100	NanoFil™ Syringe, 100 microliter

Recommended Accessories

RPE-KIT	Retinal Pigment Epithelium (RPE) Injection Kit: SilFlex tubing, gasket (2), holder, and blunt tipmix (33, 34, 35 and 36 gauge)
IO-KIT	Intraocular (IO) Injection Kit: SilFlex tubing, holder, gasket, and beveled tipmix (33, 34, 35 and 36 gauge)
NF33BL-2	33 gauge blunt NanoFil™ needle (pkg of 2)
NF34BL-2	34 gauge blunt NanoFil™ needle (pkg of 2)
NF35BL-2	35 gauge blunt NanoFil™ needle (pkg of 2)
NF36BL2	36 gauge blunt NanoFil™ needle (pkg of 2)
NF33BV-2	33 gauge beveled NanoFil™ needle (pkg of 2)
NF34BV-2	34 gauge beveled NanoFil™ needle (pkg of 2)
NF35BV-2	35 gauge beveled NanoFil™ needle (pkg of 2)
NF36BV-2	36 gauge beveled NanoFil™ needle (pkg of 2)
NF33-36BL	Assortment of 4 blunt NanoFil™ needles
NF33-36BV	Assortment of 4 beveled NanoFil™ needles
NFQ34-5	34 gauge Flexible Quartz Tubing for filling (pkg 5)

Replacement Parts

NFINHLD	NanoFil™ Injection Holder
SILFLEX-2	SilFlex tubing (pkg of 2)
NFGSK-5	Spare Gasket for NanoFil™ and Holder (pkg of 5)

WARRANTY

WPI (World Precision Instruments) warrants to the original purchaser that this equipment, including its components and parts, shall be free from defects in material and workmanship for a period of 90 days* from the date of receipt. WPI's obligation under this warranty shall be limited to repair or replacement, at WPI's option, of the equipment or defective components or parts upon receipt thereof f.o.b. WPI, Sarasota, Florida U.S.A. Return of a repaired instrument shall be f.o.b. Sarasota.

The above warranty is contingent upon normal usage and does not cover products which have been modified without WPI's approval or which have been subjected to unusual physical or electrical stress or on which the original identification marks have been removed or altered. The above warranty will not apply if adjustment, repair or parts replacement is required because of accident, neglect, misuse, failure of electric power, air conditioning, humidity control, or causes other than normal and ordinary usage.

To the extent that any of its equipment is furnished by a manufacturer other than WPI, the foregoing warranty shall be applicable only to the extent of the warranty furnished by such other manufacturer. This warranty will not apply to appearance terms, such as knobs, handles, dials or the like.

WPI makes no warranty of any kind, express or implied or statutory, including without limitation any warranties of merchantability and/or fitness for a particular purpose. WPI shall not be liable for any damages, whether direct, indirect, special or consequential arising from a failure of this product to operate in the manner desired by the user. WPI shall not be liable for any damage to data or property that may be caused directly or indirectly by use of this product.

Claims and Returns

Inspect all shipments upon receipt. Missing cartons or obvious damage to cartons should be noted on the delivery receipt before signing. Concealed loss or damage should be reported at once to the carrier and an inspection requested. All claims for shortage or damage must be made within ten (10) days after receipt of shipment. Claims for lost shipments must be made within thirty (30) days of receipt of invoice or other notification of shipment. Please save damaged or pilfered cartons until claim is settled. In some instances, photographic documentation may be required. Some items are time-sensitive; WPI assumes no extended warranty or any liability for use beyond the date specified on the container

Do not return any goods to us without obtaining prior approval and instructions from our Returns Department. Goods returned (unauthorized) by collect freight may be refused. Goods accepted for restocking will be exchanged or credited to your WPI account. Goods returned which were ordered by customers in error are subject to a 25% restocking charge. Equipment which was built as a special order cannot be returned.

Repairs

Contact our Customer Service Department for assistance in the repair of apparatus. Do not return goods until instructions have been received. Returned items must be securely packed to prevent further damage in transit. The Customer is responsible for paying shipping expenses, including adequate insurance on all items returned for repairs. Identification of the item(s) by model number, name, as well as complete description of the difficulties experienced should be written on the repair purchase order and on a tag attached to the item.

** Electrodes, batteries and other consumable parts are warranted for 30 days only from the date on which the customer receives these items.*

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