Serving macroscale ambitions in microscopic world!

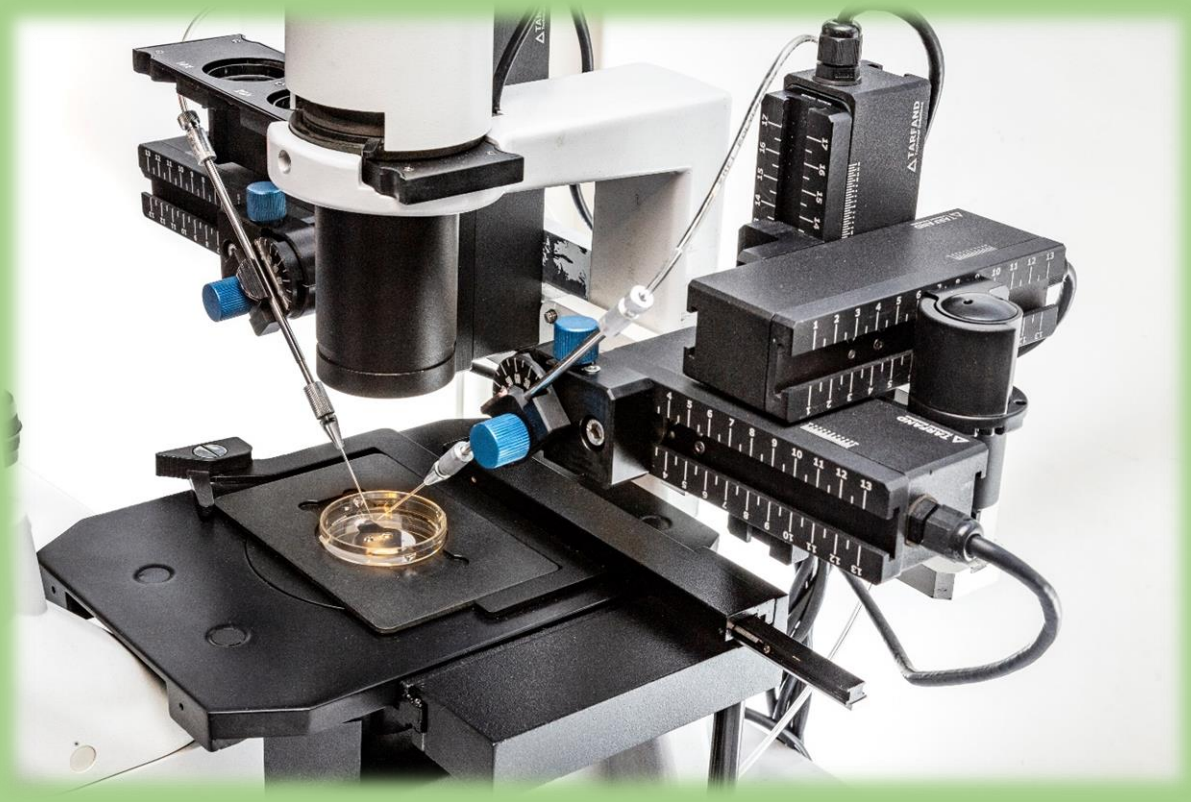
From agriculture to medicine, we can observe different branches of life science advance and attract more considerations in modern life on a daily basis. Recent progress in biotechnology demands even more sophistication for devices used by researchers and scientists engaged in this field of science.

Micromanipulators are precision devices that transform hand movements into precise, microscopic mechanical displacements. Hence, micromanipulators are essential for cell manipulation such as Intracytoplasmic sperm injection (ICSI), one of the most effective treatments used in assisted reproductive technologies (ART).

Tarfand Technical Solutions, is the most pioneered company in cell manipulation technologies in the West Asia region. With more than ten years of expertise in developing precise and ultra-precise motion control systems, our team of innovative engineers has developed a new product line best suited for every cell manipulation application.

While introducing the product range in this catalog, we reassert our commitment to make cell manipulation as easy as possible, and to supply high-performance, high-reliability instruments, and top-tier after sales service. we hope it helps to advance fundamental research in every biological and medical field.


Nikon
TARFAND
Prolific G2


TARFAND

Applications

Assisted Reproductive Technology (ART)

The most common application of this system is in ICSI and other related methods. In this technique, sperm is injected into the cytoplasm of the oocyte. sperm measuring about 3 microns are injected into an oocyte measuring about 100 microns. This method is very effective in treating cases where sperm do not have the ability to move and mate with the oocyte.

Tarfand's microinjection workstation is a medical device specifically designed and optimized for ICSI. But there are much more applications. Other applications of this product include the following:

- Selection of individual cells (e.g., biopsies, single cell picking)
- Generation of transgenic animals
- Stem cell research
- Nuclear transfer
- Positioning and selection of micro particles
- Microdissection of chromosomes, etc.

Microinjection Workstation

Devices:

- 2x *Prolific*® G2 (one for moving the holding capillary and another for collecting and transferring the spermatozoa)
- 1x *Prolifusion® Air* microinjector for holding the oocyte
- 1x *Prolifusion® Oil* microinjector for transferring the sperm
- 2x *MNH-200* capillary holder for each microinjector
- 1x *Adapter* for inverted microscope
- 1x *Inverted microscope* equipped with Modulation Contrast or Differential Interference Contrast (DIC), equipped with 10 x, 20 x and 40 x objectives
- 1x *AVT-100* Anti-vibration table

Request a demo!

The *Prolific® G2* was designed and manufactured for the purpose of intracytoplasmic sperm injection (ICSI) within the context of human reproductive medicine. Therefore the *Prolific® G2* is a medical product in and accordance with the guidelines and regulations of National Medical Device Directorate (IMED) of the Health Medical Education Ministry of IR. Iran.

Prolific® G2

We have developed our electronic micromanipulator *"Prolific® G2"* specifically for high demanding cell manipulation applications. It is designed to meet strict requirements of the in vitro fertilization (IVF) centers.

Our competent team of engineers has enjoyed the advantage of consulting with some of the most prominent embryologists and IVF experts prior and during the development phase of this product.

Prolific® G2 is designed to be fast but gentle at the same time! We understand the two main concerns of ICSI specialists. While your precious cells should not be stressed or experience any traumatic shock, there is a continuous struggle to cope with the heavy workload of your clinic. Considering this, built-in functions embedded in the control interface will help you speed up the sample handling process. Furthermore, improved joint mechanism and angle head design allow rapid capillary set-up and replacement.

Manipulator Module

With years of expertise in designing and implementing linear and rotary positioning stages, Tarfand has integrated its most reliable and precise linear actuators into a 3-axis electronic micromanipulation unit. *Prolific® G2* manipulator module is engineered exceptionally to ensure its extraordinary performance, impressive compactness and perfect accessibility.
Each manipulator module will secure the position of a glass capillary or micropipette. The unit’s ergonomic design has made it a user-friendly device and minimizes the risk of unintentional capillary breakage. Mounting new capillary or adjusting capillary angle is single-handedly done by just turning two well-positioned knobs.

Key features:

- Simple installation and maintenance
- Reliable, smooth and precise performance
- Simple capillary holder mounting
- Swivel joint allows easy capillary exchange
- Easily adjustable capillary angle (0° up to 90°)
- Adaptability with all available microscope models of major brands

Title	Unit	Descriptions
Motor Type		5-Phase Stepping
Maximum travel	mm	20
Dimensions	mm	36 × 50 × 140
(Step size (theoretical	nm	20
Max. Speed	mm/s	7
Weight	Kg	0.5

Control Module

Prolific® G2 has the privilege of utilizing a robust and well-engineered control module.
Control module is equipped with our highly durable joystick. HJS100 is a 3-axis finger joystick based on contactless Hall effect technology.
Its dual function combines the traditional proportional kinetics at central zone with spring-back dynamic kinetics at outer boundary zone. *Prolific*® G2's joystick also has a thumb button for clutching action in the proportional zone.

Title	Unit	Descriptions
Joystick type		Dual function 3-axis joystick with clutch operation
Control type		Speed control: Dynamic zone control: Proportional zone Positon
Motion mode		Coarse, Fine, X-fine
Weight	kg	2.0
Dimensions	mm	280 × 230 × 150

Key features:

- Innovative and ergonomic shape allows lengthy operations with less fatigue
- User-friendly menu
- Highly-durable dual-function joystick with clutch operation
- Avoiding unintentional capillary breakage by *Z-Lock* function

- More gentle penetration by *Y-off* function
- More automation using four independent *position memory* functions and *Home* function

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